3

Affected Environment, Potential Impacts, and Proposed Avoidance, Minimization, and Mitigation

This section describes the onshore and offshore affected environment within CRMC jurisdiction; potential impacts associated construction, operations and maintenance, and decommissioning of Project components applicable to this Category B assent application (i.e., the RWEC-RI, Landfall Work Area, Onshore Transmission Cable, and OnSS/Interconnection ROW); and proposed avoidance, minimization, and mitigation measures to address these potential impacts. Generally, decommissioning impacts are commensurate with construction phase impacts and are therefore discussed together.

The Project was sited, planned, and designed to avoid and minimize impacts. To the extent there are potential adverse impacts that cannot be avoided, these will be mitigated. All proposed avoidance, minimization, and mitigation measures proposed for the Project are in Tables 2.2-8 and 2.2-9 in Section 2.2.4.2. Potential impacts to resources from the RWEC-RI and onshore Project components are expected to be limited temporally and/or spatially. Post-construction environmental monitoring of various resources will take place and will include, at a minimum, coordination and data sharing with regional monitoring efforts. Monitoring plans will also be developed in coordination with the relevant agencies prior to construction.

3.1 Onshore Environmental Setting, Project Impacts, and Proposed Avoidance, Minimization, and Mitigation Measures

This section provides an overview of the onshore environmental setting (i.e., affected environment) (see Site Photos in Appendix H) within the Onshore Project Area, potential Project impacts, and proposed avoidance, minimization, and mitigation measures. For the purposes of this discussion, the Onshore Project Area was defined as a 500-foot (152-m) radius from the Landfall Work Area, Onshore Transmission Cable, and OnSS parcel (see Figure 3.1-1). Summaries from the following technical studies and reports that have been prepared for the Project are included in the following applicable subsections:

- Visual Resources Assessment Revolution Wind Onshore Facilities (EDR, 2020) (Appendix I)
- Vernal Pool Survey Memorandum for Revolution Wind Onshore Facilities (VHB, 2020) (Appendix J)
- Terrestrial Archaeological Resources Assessment (PAL, 2020) (Appendix K)

3.1.1 Surficial Geology and Soils

3.1.1.1 Surficial Geology Affected Environment

Overall, the Onshore Project Area is generally characterized by high levels of historic human disturbance. Historically, the area was part of the Quonset Point Naval Air Station and the Davisville Naval Base, which was built between 1940 and 1942. Currently, onshore Project components are located within the Quonset Business Park, which is managed by the QDC. Quonset Point is part of the large Pleistocene outwash plain. Holocene deposits also present in this area include:

- **Coastal Beach:** Areas of unconsolidated, accreted, usually unvegetated sediments commonly subject to wave action, extending from mean low water landward to an upland rise or backed by a dune or marsh. The beaches within the Onshore Project Area range from sandy to cobbly or stony.
- **Salt Marsh:** Deposits of partially decomposed Holocene-age plant matter in areas typically inundated twice per day during each tidal cycle.
- **Freshwater Wetland:** Areas outside of the limits of tidal influence which support hydrophytic vegetation and where organic materials accumulated under the influence of prolonged periods of inundation or saturated soil conditions.
- **Human Transported Materials (HTM):** Areas where the natural soil or surficial geological deposits have been altered, typically by grading, filling, or excavation. These actions obscure the structure of the original surficial deposits and soil forming processes. This unit includes areas where dredge spoils were disposed of on land.

3.1.1.2 Soils Affected Environment

A total of 11 named soil series and 13 soil map units (lower taxonomic units than series) have been mapped within the Onshore Project Area. Descriptions of soil types were obtained from the Natural Resources Conservation Service (“NRCS”) Web Soil Survey (NRCS, 2019), the Soil Survey of Rhode Island (Rector, 1981), and from on-site investigations conducted by VHB. The Soil Survey delineates map units that may consist of one or more soil series and/or miscellaneous non-soil areas that are closely and continuously associated on the landscape. In addition to the named series, map units include specific phase information that describes the texture and stoniness of the soil surface and the slope class.

Table 3.1-1 lists the characteristics of the 13 soil map units found within the Onshore Project Area. Brief descriptions of each soil map unit are below the table. See also Figure 3.1-1.

Table 3.1-1 Summary of Soil Map Units within the Onshore Project Area

Soil Map Unit Symbol	Soil Phase	Amount in Project Area (Acres)	Drainage Class	Percent Slope
Bax	Beaches, boulders	0.5	N/A	0 to 8
FtA	Fortress sand	5.5	mwd	0 to 3
MU	Merrimac-Urban land complex	53.2	swed	0 to 8
NP	Newport urban land complex	12.9	wd	1 to 15
QoA	Quonset gravelly sandy loam	2.4	ed	0 to 3
QoC	Quonset gravelly sandy loam, rolling	12.9	ed	3 to 15
Rc	Raypol silt loam	0.9	pd	N/A
SwA	Swansea muck	7.9	vpd	0 to 1
UD	Udorthents-Urban land complex	7.9	N/A	0 to 15
Ur	Urban land	36.2	N/A	N/A
UrS	Urban land, sandy substratum	15.6	N/A	0 to 5
Wa	Walpole sandy loam	14.5	pd	0 to 3
WgB	Windsor loam sand	5.6	ed	3 to 8

Source: USDA NRCS Web Soil Survey

Notes: ed – excessively drained; mwd: moderately well drained; pd – poorly drained (often hydric); wd – well drained; vpd – very poorly drained (hydric); swed – somewhat excessively drained; N/A – not available

- **Beaches and boulders complex (Bax)** is a non-soil miscellaneous unit which describes the highly dynamic coastline characterized by accreted sands. Boulders can represent lag deposits, but in the case of the Landfall Transition Area rocks were dumped to dissipate coastal scouring forces.
- **Fortress sand complex (FtA)** is used to describe sandy dredge spoils that have been graded near level. This soil is classified as HTM.
- **Merrimac-Urban land complex (MU)** consists of two parts: a deep, somewhat excessively drained soil formed in outwash with a windblown mantle of sandy loam and a non-soil miscellaneous unit, Urban land, which typically consists of rooftops, roads, and paved parking lots.
- **Newport-Urban land complex (NP)** is similar to the unit described above; however, the natural soil component is a deep, well-drained soil formed in glacial till parent material. Newport soils typically have a dense till or "hardpan" within two or three feet of the soil surface.
- **Quonset gravelly sandy loam complexes (QoA and QoC)** are two mapping units containing deep, excessively drained soils formed in gravelly outwash. The C slope unit describes rolling terrain whereas the A slope is near level.
- **Raypol silt loam complex (Rc)** is a deep, near level, poorly drained soil formed in outwash overlain by a windblown silt loam mantle. Raypol soils are hydric and found in wetlands.
- **Swansea muck complex (SwA)** is a deep, near level, very poorly drained soil with a surface tier of muck. These soils are hydric and are found in wetlands.

- **Udorthents-Urban land complex (UD**) is a complex of regraded, cut or filled soils and a non-soil urban land component.
- **Urban land complex (Ur)** is similar to the other Urban land complex descriptions above.
- **Urban land complex (UrS)** this map unit is similar to Urban land complexes described above but is underlain by sandy deposits.
- **Walpole sandy loam complex (Wa)** is a deep, near level, poorly drained soil similar to the Raypol series but with a sandy loam or loamy sand surface texture. This hydric soil is associated with wetlands.
- **Windsor loamy sand complex (WgB)** is a deep, excessively drained (droughty soil) made up almost exclusively of sand without gravels. Often thought to develop on dunes formed in the paraglacial climate that persisted after deglaciation.

In addition, the rolling map unit for Quonset soils (QoC) may have slopes up to 15 percent and is classified as potentially highly erodible land (PHEL) with an erodibility factor (K) of 0.10.[8] The erodibility of a soil is dependent upon the slope of the land occupied by the soil and the texture of the soil. NRCS has characterized soil map units as "highly erodible", "potentially highly erodible", or "not highly erodible" due to sheet and rill erosion (USDA, 1993). Soils are given an erodibility factor (K), which is a measure of the susceptibility of the soil to erosion by water.

8 Soils having the highest K values are the most erodible. K values in Rhode Island range from 0.10 to 0.64, with the erodibility factor increasing as the K value increases.

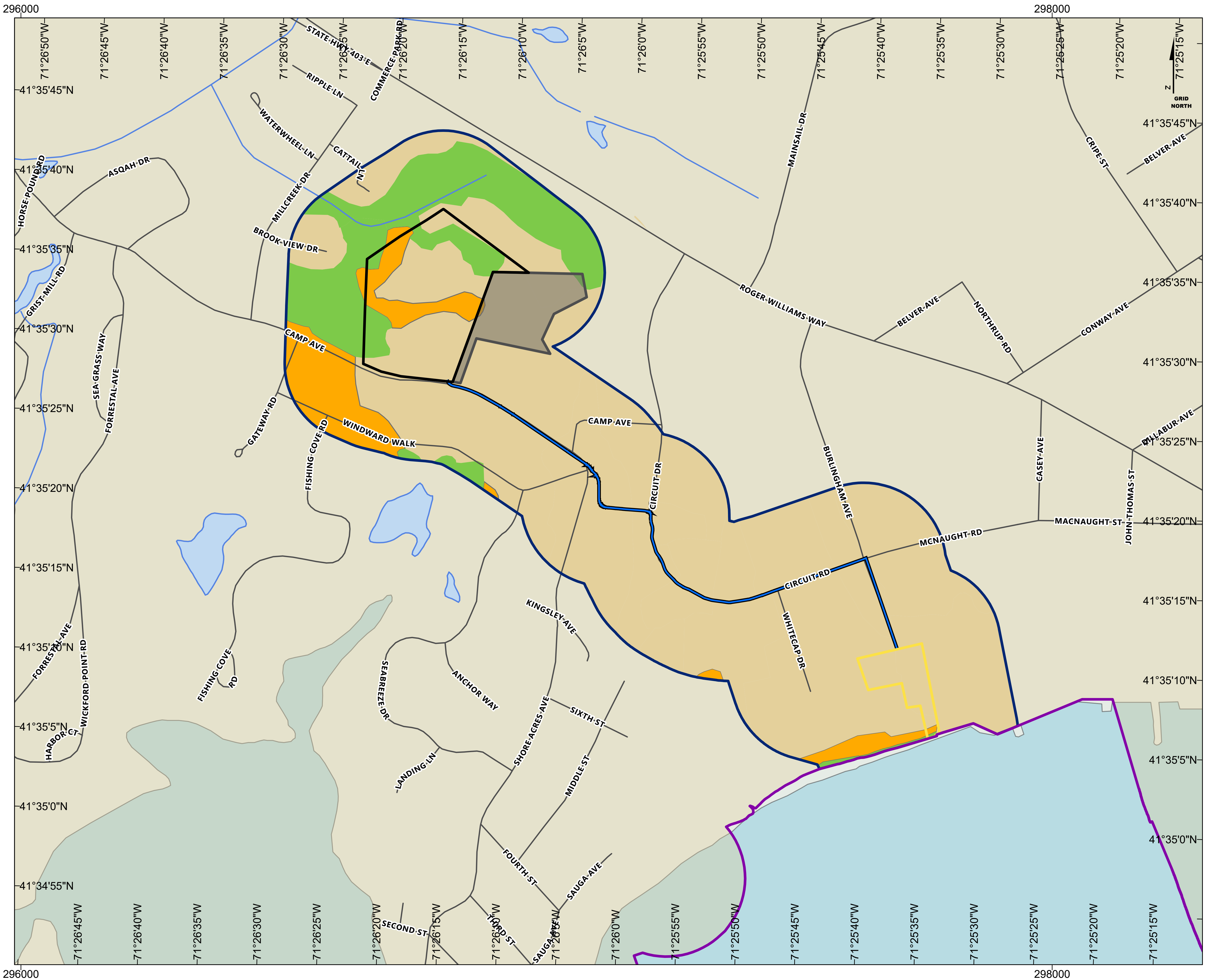

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Figure 3.1-1
Soil Map Onshore
NORTH KINGSTOWN, RI

Legend

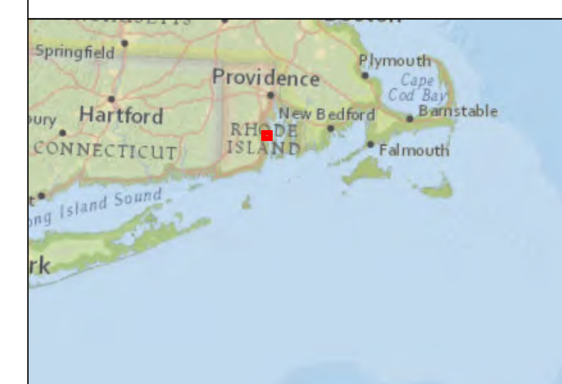
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- Onshore Transmission Cable
- Landfall Work Area
- Onshore Project Area
- RWEC-RI Project Area

Hydric Soils and Steep Sloped Soils

- Hydric Soil
- Potentially Highly Erodable
- Other Lands

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

Service Layer Credits: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 80 160 240 Meters

0 240 480 720 Feet

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Document no:

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Checked by: S. MOBERG
Approved by: STEPW

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3.1.1.3 Potential Project Impacts

Construction and Decommissioning

Construction and decommissioning activities for the Landfall Work Area, Onshore Transmission Cable, and OnSS/Interconnection ROW will generally occur in developed areas where geology and soils are already disturbed (e.g., roadways, parking lot, landfill, etc.).

The Landfall Work Area will temporarily disturb up to 3.1 acres (1.2 ha) and was sited in a currently developed area to avoid and minimize impacts. The HDD operation at the Landfall Work Area will involve excavating two HDD entry pits, and a temporary sheet pile anchor wall to stabilize the HDD drill rig may be required within the Landfall Work Area. If required, this sheet pile anchor wall will be approximately 30 feet (9 m) long and will be driven to a depth of approximately 20 feet (6 m). Other excavation support may also be required around the work area to stabilize the soil in the excavated area and/or anchor the rig. This work will occur in a developed site where the natural soils and surficial geology have been largely altered. As shown on sheet SESC-13 of the Proposed Onshore Transmission Facilities SESC Plan (see Appendix A), the coastal features and Narragansett Bay will be protected from erosion and sedimentation from erosion controls and will be stabilized with crushed stone or asphalt after work is complete.

The Onshore Transmission Cable will require a 25-foot-wide (7.6 m) disturbance area for the approximate one-mile (1.6 km) length of the cable for a disturbance corridor of approximately 3.1 acres (1.3 ha) (refer to Onshore Transmission Cable plans in Appendix A). An approximate eight-foot-wide trench will be excavated within existing paved roads to a depth of approximately 3 to 6 feet (0.9 to 1.8 m) with a maximum disturbance depth of 13 feet (4 m) to install the Onshore Transmission Cable beneath existing roads. This excavation will result in the mixing of soil materials during backfill. The Onshore Transmission Cable will also require two sets of two splice vaults (four total) along its route to the OnSS. The splice vaults will require a larger area of disturbance, with each requiring a 30- by 75-foot (9 by 22.9 m) area and will require excavation down to approximately 15 feet (4.6 m). See splice vault details on sheets PG-20 and PG-21 in the Onshore Transmission Cable plans in Appendix A. Like the Landfall Work Area, erosion and sedimentation controls will be implemented along the Onshore Transmission Cable as necessary, including compost filter socks and catch basin protection (see Onshore Transmission Facilities SESC Plan in Appendix A).

The OnSS and Interconnection ROW will be constructed over a closed landfill and other areas of buried demolition along with some areas of native soils. The OnSS and Interconnection ROW will require temporary disturbance of up to 7.1 ac (2.9 ha) to facilitate construction, which consists of an operational footprint of approximately 4 ac (1.6 ha). Construction includes limited grading activities, principally associated with the construction of the new OnSS. Minor grading will be necessary to construct new access roads, stormwater management features, and prepare the Project footprint for construction. Soil erosion controls will be implemented along the limit of work to prevent erosion and sedimentation (see OnSS plans in Appendix A, which are provided under confidential cover to this Category B Assent application because it contains confidential commercial information not subject to disclosure under Access to Public Records Act ("APRA"; RIGL § 38-2-1) or Freedom of Information Act ("FOIA"; 5 U.S.C. § 552)).

Operations and Maintenance

Operation and maintenance of the TJBs, Onshore Transmission Cable, and OnSS is not expected to result in ground disturbance unless a repair is required. Therefore, geology and soils are not expected to be impacted during O&M unless repairs are needed. Such repairs are considered non-routine maintenance.

3.1.1.4 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to onshore surficial geology and soils:

- Onshore Project components were sited within previously disturbed and developed areas to the extent practicable.
- Compliance with the RIPDES General Permit for Stormwater Discharges associated with Construction Activities which requires the implementation of an SESC Plan and spill prevention and control measures.
- An SESC Plan, including erosion and sedimentation control measures, will be implemented to minimize potential water quality impacts during construction and operation of the onshore Project components.
- The operator must implement the site-specific SESC Plan and maintain it during the entire construction process until the entire worksite is permanently stabilized by vegetation or other means. The measures employed in the SESC Plan use BMPs to minimize the opportunity for turbid discharges leaving a construction work area.
- Accidental spill or release of oils or other hazardous materials will be managed through the Oil Spill Response Plan.
- The spill prevention and control measures mandate that the operator identify all areas where spills can occur and their accompanying drainage points. The operator must also establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. Spill prevention and control training will be provided for relevant personnel.

3.1.2 Coastal Features and Wetlands

3.1.2.1 Coastal Features and Wetlands Affected Environment

CRMC has jurisdiction over all shoreline features and all lands within 200 feet of these features. There are four types of Coastal Features within the Project Area (Figure 3.1-2):

Coastal Beach

The first coastal feature encountered as the RWEC-RI transitions to the Landfall Work Area is Coastal Beach. The CRMP defines Coastal Beach as expanses of unconsolidated, usually unvegetated sediment commonly subject to wave action, but may also include a vegetative beach berm. Beaches extend from mean low water landward to an upland rise, usually the base of a dune, headland bluff, or coastal protection structure, pilings, or foundation.

Manmade Shoreline

The Coastal Beach present at the Landfall Work Area is backed by Manmade Shoreline. The CRMP defines Manmade Shoreline as those shorelines that are characterized by concentrations of shoreline protection structures and other alterations, to the extent that natural shoreline features are no longer dominant. They most commonly abut Type 3, 5, and 6 waters. In this case the Manmade Shoreline consists of a cast in place concrete seawall fronted by riprap. The seawall, or revetment, functions to protect and retain fill used to construct the developments in the Quonset Industrial Park from erosive coastal forces. At the Landfall Work Area at Burlingham Avenue the limit of the CRMC 200-foot Contiguous Area is measured from the top of this revetment.

Coastal Wetland

Coastal wetlands are present south of the Onshore Transmission Cables. Coastal wetlands are defined in the CRMP "*as salt marshes and freshwater or brackish wetlands contiguous to salt marshes or physiographical features. Areas of open water within coastal wetlands are considered a part of the wetland. In addition, coastal wetlands also include freshwater and/or brackish wetlands that are directly associated with non-tidal coastal ponds and freshwater or brackish wetlands that occur on a barrier beach or are separated from tidal waters by a barrier beach*" (RI CRMC, 2020).

The central area of the marsh bordering Blue Beach is dominated by salt meadow cordgrass *(Spartina patens)* and the perimeter is mostly composed of common reed *(Phragmites australis)*, maritime marsh-elder *(Iva frutescens)* and groundsel tree *(Baccharis halimifolia)*. The common reed established along the perimeter of the tidal salt marsh is considered invasive.

Inland, the coastal wetland transitions to brackish and freshwater conditions proximate to Circuit Drive where a storm drainage system contributes flows to the wetland. Area of Land within 50 feet of this wetland extends into Circuit Drive where the Onshore Transmission Cable is proposed.

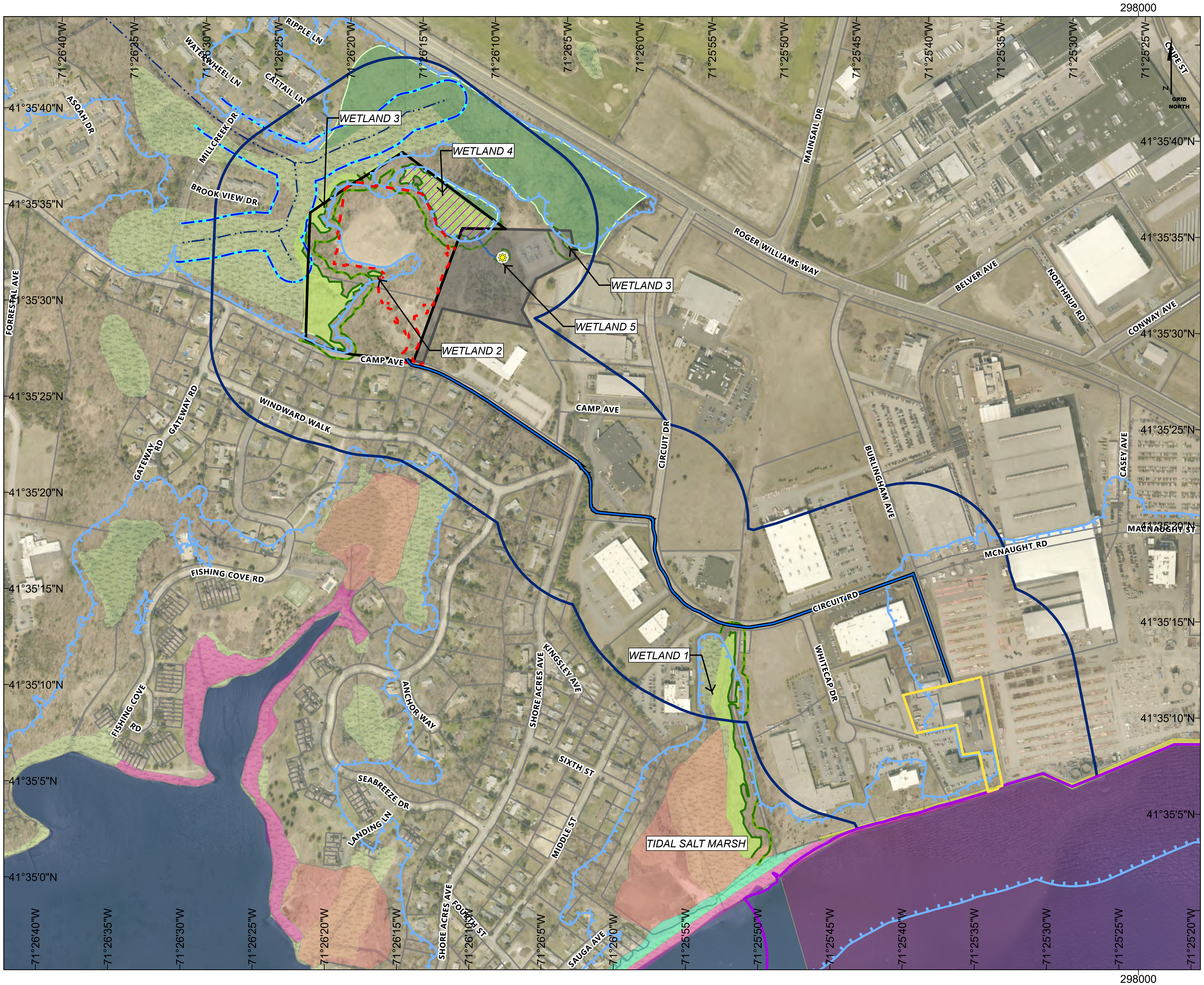

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Figure 3.1-2

Coastal Features and Wetlands

NORTH KINGSTOWN, RI

Legend

- Onshore Transmission Cable
- Onshore Project Area
- OnSS Limit of Work
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- Landfall Work Area
- RWEC-RI Project Area
- Parcel Boundary
- One-Percent Annual Chance Flood Hazard Area
- Potential Vernal Pool
- Area of Land within 50' of Wetland
- 100' Riverbank Wetland
- LEC Delineated ASSF
- Approximate Stream
- VHB Delineated Wetland Edge
- LEC Delineated Wetland Edge
- Approximate Wetland Edge
- Delineated Wetland Resources
- Interpolated Wetland
- Coastal Beach
- Coastal Dune
- Manmade Shoreline
- Tidal Salt Marsh
- Coastal Bank
- Wetland (NWI)
- Vernal Pool Area

CRMC Water Use Types

- Type 2: Low Intensity Use
- Type 6: Industrial Waterfronts and Commercial Navigation Channels

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

Service Layer Credits: RIDEM/Tax_Parcels: RI State, 37 Towns
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Rhode Island Aerial Photographs (Spring 2018; State Plane):

Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 60 120 180 Meters

0 200 400 600 Feet

Date: 05/19/2020
Document no:

Created by: S. PELLETIER
Checked by: S. MOBERG
Approved by: STEPW

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The salt marsh inland from the Blue Beach transitions to a contiguous Coastal Wetland that is non-tidal fresh and identified as Coastal Wetland 1. During wetter times of the year this wetland discharges freshwater into the northeastern part of the salt marsh. Forested parts of this wetland are dominated by red maple *(Acer rubrum)* with an understory of highbush blueberry (*Vaccinium corymbosum*), arrowwood *(Viburnum dentatum),* with skunk cabbage *(Symplocarpus foetidus),* cinnamon fern *(Osmundastrum cinnamomeum)* and jewelweed *(Impatiens capensis)* common in the herbaceous stratum. Cutover areas near Circuit Drive are dominated by shrubs including alder *(Alnus incana)* and willow *(Salix sp.)*. The closed drainage in Circuit Drive discharges into this wetland forming an Area Subject to Storm Flowage ("ASS”") interior to the wetland. Examples of wildlife eastern gray squirrels (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*) and red-shouldered hawk (*Buteo lineatus*).

Coastal Wetland Functions and Values

Table 3.1-2 below provides the functions and values of the salt marsh and the contiguous freshwater wetland north of the saltmarsh that extends to Circuit Drive west of the Blue Beach parking lot. This evaluation follows the USACE descriptive approach (USACE, 1999).

Table 3.1-2 Functions and Values of Tidal Salt Marsh and Coastal Wetland 1

	Biological		Hydrologic		Water Quality			Societal Values		
Wetland Type	Fish/Shellfish Habitat	Wildlife Habitat	Production Export	Groundwater Discharge/ Recharge	Flood Alteration	Sediment Toxicant Removal	Nutrient Removal/ Transformation	Sediment Stabilization	Recreation & Aesthetics	RTE Species Habitat
Tidal Salt Marsh	P	P	P	-	X	X	X	P	X	-
Coastal Wetland 1	-	X	X	P	-	X	X	X	X	-

3.1.2.2 Freshwater Wetlands Affected Environment

Non-tidal Freshwater Wetlands in the Vicinity of the Coast are present within the OnSS Project Area. These wetlands are subject to the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-2) (Freshwater Wetland Rules). These Freshwater Wetland Rules are incorporated into the CRMP by reference, however, the criteria for describing and evaluating wetlands, documenting avoidance, minimization, and mitigation and responding to specific review criteria differ from the CRMP. Brief descriptions of the resources are presented here. Further details are presented in Appendix B.

Wetland 2 is a small Forested Wetland that is isolated from Wetland 3 by the closed Camp Avenue landfill. It likely represents a remnant of Wetland 3 that was isolated by filling prior to wetland the promulgation of protection laws. The small feature only supports saturated soil at the beginning of the growing season to meet the criteria for wetland regulation.

Wetland 3 is a Swamp which is mostly west and north of the OnSS Project Area. This wetland provides wildlife habitat, hydrologic and water quality functions at a significant level as seen in Table 3.1-3.

Wetland 4 is a Marsh that has been encroached into with fill. The most notable function of this wetland is the provision of vernal pool habitat utilized by pool breeding amphibians and fairy shrimp (*Eubranchipus* sp.).

Wetlands 3 and 4 are assigned as an Area of Land within 50 feet of Wetlands under the Freshwater Wetlands Rules. These dimensional setbacks from the palustrine wetland resource are treated as freshwater wetlands under the Freshwater Wetland Rules.

Table 3.1-3 Functions & Values of Freshwater Wetlands in the OnSS Project Area

Wetland No.	Wetland Area (ac)[1]	Biological			Hydrologic		Water Quality			Societal Values	
		Fish/Shellfish Habitat	Wildlife Habitat	Production Export	Groundwater Discharge/ Recharge	Flood Alteration	Sediment Toxicant Removal	Nutrient Removal/ Transformation	Sediment Stabilization	Recreation & Aesthetics	RTE Species Habitat
Wetland 2	0.03	-	-	-	X	-	P	-	-	-	-
Wetland 3	26.7	X[2]	P	X	P	P	P	X	X	-	-
Wetland 4	2.1	-	P	X	X	X	X	X	X	-	-

Notes: P=Primary or Principal Function; X = Secondary Function possible provided at a significant level; - = Unlikely to be provided. 1: Area of contiguous wetland east of Mill Creek Drive. 2: This function only provided offsite in tributaries to Mill Creek.

3.1.2.3 Potential Project Impacts

Coastal Features and Wetlands

There will be no impacts to coastal features or Coastal Wetlands during construction, operations and maintenance, or decommissioning of the onshore Project components.

Freshwater Wetlands

Construction and Decommissioning

In accordance with Section 2.9(B)(1)(d) of the Freshwater Wetland Rules, the onshore Project components were designed to avoid and minimize impacts to freshwater wetlands to the maximum extent practicable. The only terrestrial resource area that could not be completely avoided are Areas of Land within 50 feet of Wetlands associated with Freshwater Wetlands 3 and 4 within the OnSS limit of work (Figure 3.1-3). However, the impacts are not significant, with construction resulting in 0.11 acres (0.04 ha) of permanent fill, 0.35 ac (0.14 ha) of temporary disturbance, which includes tree removal. The tree removal will be restored with native vegetation and will result in a conversion of forested habitat to maintained herbaceous/shrub cover. A complete functions and values analysis, response to Sections 2.10.B.4 addressing the Avoidance, Minimization, and Mitigation criteria and Section 2.10.E addressing the Review Criteria for Applications to Alter Freshwater Wetlands per the Freshwater Wetlands Regulations (650-RICR-20-00-02), are provided in Appendix B.

Operations and Maintenance

During O&M, the 0.35 acres of conversion will be part of routine vegetative management on the OnSS parcel, which will not result in a significant impact. Per Eversource's Specifications for Rights-of-Way Vegetation Management, vegetation the OnSS will be managed to promote a low-growing plant community dominated by low shrubs, forbs and grasses. All woody vegetation including trees and shrubs that can grow above 15 feet (4.6 m) in height will be removed and discouraged from becoming established by on-going IVM maintenance, including manual cutting, mowing and the prescriptive use of herbicides plus the use of environmental controls. The method of control is determined following inspections of the site scheduled for maintenance. The current maintenance cycle for vegetation control utilizing IVM practices is three or four years depending on the vegetation composition, facilities, and site conditions. See Section 2.1.3 for additional information on vegetation management.

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Figure 3.1-3
Freshwater Wetlands at OnSS Parcels
NORTH KINGSTOWN, RI

Legend
- Onshore Transmission Cable
- OnSS Limit of Work
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- Parcel Boundary
- One-Percent Annual Chance Flood Hazard Area
- Area of Land within 50' of Wetland
- 100' Riverbank Wetland
- Delineated Wetland Edge
- Approximate Wetland Edge
- LEC Delineated ASSF
- Approximate Stream
- Delineated Wetland Resources
- Interpolated Wetland
- Vernal Pool Area
- Wetland (NWI)

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

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National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
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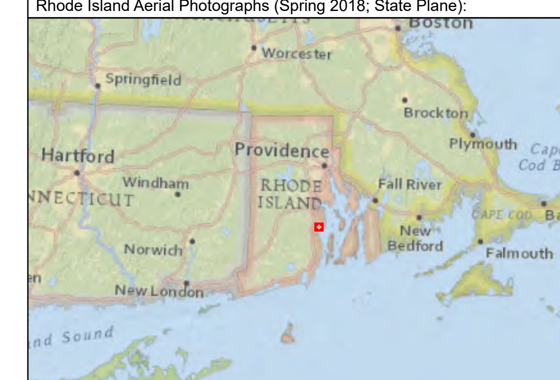

Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 20 40 60 Meters

0 60 120 180 Feet

Date: 05/19/2020
Document no:

Created by: S. PELLETIER
Checked by: S. MOBERG
Approved by: STEPW

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3.1.2.4 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to coastal features and wetlands:

- In accordance with Section 2.9(B)(1)(d) of the Freshwater Wetland Rules, the Onshore Project components were designed to avoid and minimize impacts to freshwater wetlands to the maximum extent practicable. Any wetlands that will be impacted as a result of the Project will be mitigated via the federal and state permitting process in accordance with Section 404 of the CWA and the Freshwater Wetland Rules.
- Onshore Project components were sited within previously disturbed and developed areas to the extent practicable.
- HDD drilling fluids will be managed within a contained system following punch out of the pilot drilling to be collected for reuse as necessary. An HDD Contingency Plan will be prepared and implemented to minimize the potential risks associated with release of drilling fluids.
- Compliance with the RIPDES General Permit for Stormwater Discharges associated with Construction Activities which requires the implementation of an SESC Plan and spill prevention and control measures.
- An SESC Plan, including erosion and sedimentation control measures, will be implemented to minimize potential water quality impacts during construction and operation of the onshore Project components.
- The operator must implement the site-specific SESC Plan and maintain it during the entire construction process until the entire worksite is permanently stabilized by vegetation or other means. The measures employed in the SESC Plan use BMPs to minimize the opportunity for turbid discharges leaving a construction work area.
- Accidental spill or release of oils or other hazardous materials will be managed through the Oil Spill Response Plan.
- The spill prevention and control measures mandate that the operator identify all areas where spills can occur and their accompanying drainage points. The operator must also establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. Spill prevention and control training will be provided for relevant personnel.

3.1.3 Surface Waters

3.1.3.1 Affected Environment

One stream, an unnamed tributary to Mill Creek, is within the Onshore Project Area and is approximately 190 feet (58 m) west of the OnSS limit of work (refer to OnSS Site Plans in Appendix A and Figure 3.1-4). These plans are provided under confidential cover to this Category B Assent application because it contains confidential commercial information not subject to disclosure under Access to Public Records Act ("APRA"; RIGL § 38-2-1) or Freedom of Information Act ("FOIA"; 5 U.S.C. § 552).There are no surface waters within the onshore

Project components footprint. The RIDEM Water Quality Regulations (250-RICR-150-05-1) assigns a Use Classification, which is defined by the most sensitive uses it is intended to protect. Waters are classified according to specific physical, chemical, and biological criteria which establish parameters of minimum water quality necessary to support the water Use Classification. The unnamed tributary to Mill Creek (Waterbody ID RI0007027R-06) is classified as Class B, which are waters designated for fish and wildlife habitat and primary and secondary recreational activities (RIDEM, 2021a). See Figure 3.1-4.

Coastal Wetland 1 can be seen in the Underground Transmission Line Construction Drawings Sheet PG-11. This wetland is not depicted in the RIDEM Environmental Resource Map ("ERM") and therefore has not been assigned a Water Use Classification.

3.1.3.2 Potential Project Impacts

There are no anticipated impacts associated with onshore surface waters during construction, operations and maintenance, or decommissioning as there are no waterbodies within the footprints of onshore Project components and the measures stated in 3.1.3.3 below will be implemented.

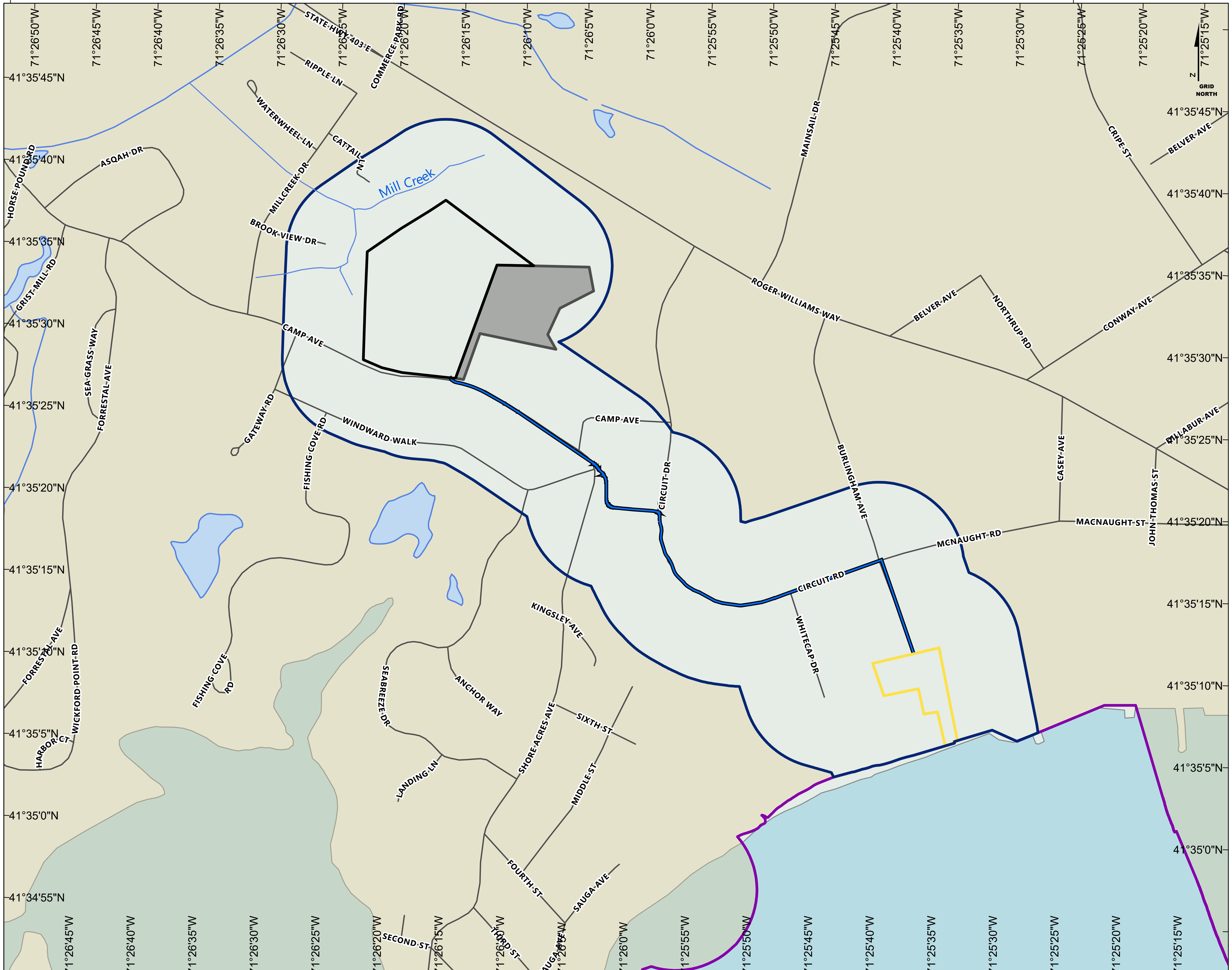
3.1.3.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to surface waters:

- Onshore Project components were sited within previously disturbed and developed areas to the extent practicable.
- HDD drilling fluids will be managed within a contained system following punch out of the pilot drilling to be collected for reuse as necessary. An HDD Contingency Plan will be prepared and implemented to minimize the potential risks associated with release of drilling fluids.
- Compliance with the RIPDES General Permit for Stormwater Discharges associated with Construction Activities which requires the implementation of an SESC Plan and spill prevention and control measures.
- An SESC Plan, including erosion and sedimentation control measures, will be implemented to minimize potential water quality impacts during construction and operation of the onshore Project components.
- The operator must implement the site-specific SESC Plan and maintain it during the entire construction process until the entire worksite is permanently stabilized by vegetation or other means. The measures employed in the SESC Plan use BMPs to minimize the opportunity for turbid discharges leaving a construction work area.
- Accidental spill or release of oils or other hazardous materials will be managed through the Oil Spill Response Plan.

- The spill prevention and control measures mandate that the operator identify all areas where spills can occur and their accompanying drainage points. The operator must also establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. Spill prevention and control training will be provided for relevant personnel.

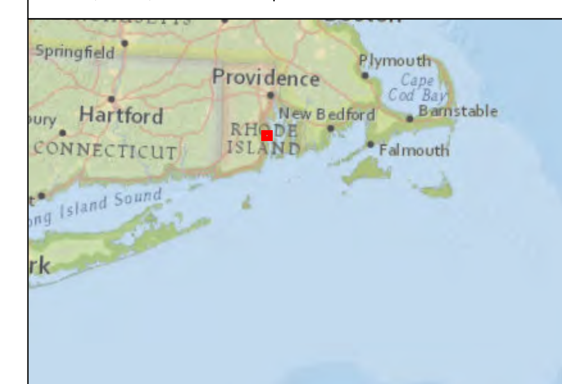
Revolution Wind
Figure 3.1-4
Surface Water Onshore
NORTH KINGSTOWN, RI



Legend
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- Onshore Transmission Cable
- Landfall Work Area
- Onshore Project Area
- RWEC-RI Project Area
- Class B Waterbody

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

Service Layer Credits: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 80 160 240 Meters

0 240 480 720 Feet

Date: 6/29/2021
Document no:

Created by: S. PELLETIER
Checked by: S. MOBERG
Approved by: STEPW

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3.1.4 Groundwater

3.1.4.1 Affected Environment

The Onshore Project Area is not within a community wellhead protection area, groundwater recharge area, or sole source aquifer (RIDEM ERM, accessed 10/8/2020).

RIDEM established groundwater quality standards and preventative action limits by classes to protect public health. The Onshore Project Area is mapped as both Class GA and Class GB for groundwater classification. Class GA waters are presumed to be suitable for drinking without treatment and Class GB may not be suitable for drinking without treatment and are serviced by public water systems. See Figure 3.1-5.

3.1.4.2 Potential Project Impacts

There are no anticipated impacts to groundwater during construction, operations and maintenance, or decommissioning of the onshore Project components. There are no wellhead protection areas, groundwater recharge areas, or sole source aquifers within the onshore Project footprint and therefore there are no anticipated impacts to these resources. In addition, the protective measures discussed in Section 3.1.4.3 below will be implemented to protect groundwater.

3.1.4.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to groundwater:

› HDD drilling fluids will be managed within a contained system following punch out of the pilot drilling to be collected for reuse as necessary. An HDD Contingency Plan will be prepared and implemented to minimize the potential risks associated with release of drilling fluids.

› Compliance with the RIPDES General Permit for Stormwater Discharges associated with Construction Activities which requires the implementation of an SESC Plan and spill prevention and control measures.

› An SESC Plan, including erosion and sedimentation control measures, will be implemented to minimize potential water quality impacts during construction and operation of the onshore Project components.

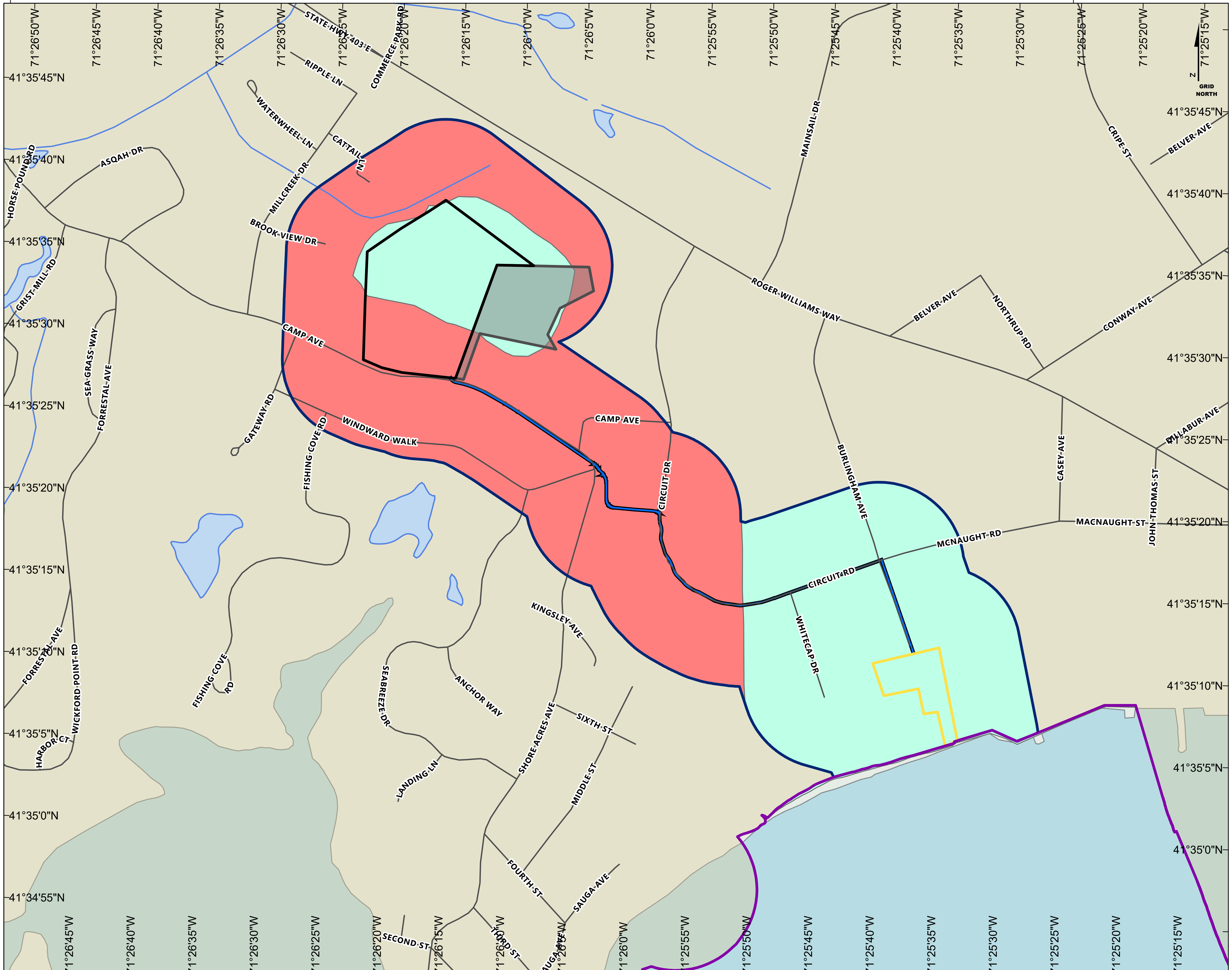
› The operator must implement the site-specific SESC Plan and maintain it during the entire construction process until the entire worksite is permanently stabilized by vegetation or other means. The measures employed in the SESC Plan use BMPs to minimize the opportunity for turbid discharges leaving a construction work area.

› Accidental spill or release of oils or other hazardous materials will be managed through the Oil Spill Response Plan.

- The spill prevention and control measures mandate that the operator identify all areas where spills can occur and their accompanying drainage points. The operator must also establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. Spill prevention and control training will be provided for relevant personnel.

Revolution Wind

Figure 3.1-5
Groundwater Resources Map
Onshore
NORTH KINGSTOWN, RI

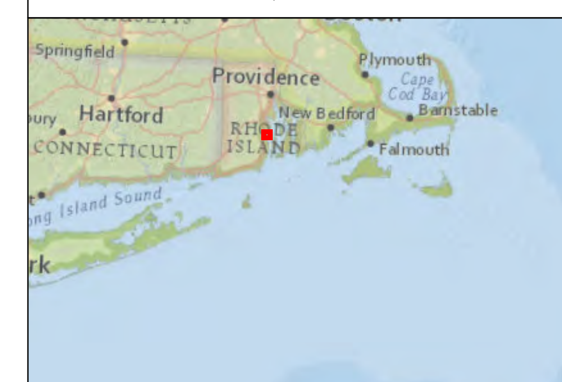


Legend
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- Onshore Transmission Cable
- Landfall Work Area
- Onshore Project Area
- RWEC-RI Project Area

Groundwater Types
- GA
- GB

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

Service Layer Credits: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 80 160 240 Meters
0 240 480 720 Feet

Date: 6/29/2021
Document no:

Created by: S. PELLETIER
Checked by: S. MOBERG
Approved by: STEPW

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3.1.5 Wildlife

3.1.5.1 Affected Environment

The wildlife species present within the Onshore Project Area vary according to the habitat resources present. The Rhode Island Wildlife Action Plan ("RI WAP") (RIDEM et al. 2015) defines habitat as a place where an animal normally lives, often characterized by a dominant plant form or physical characteristic (e.g., a stream or a deciduous forest). In addition to the type of vegetative cover, habitat also includes the resources, such as food and water, and conditions present in an area that produces occupancy—including survival and reproduction—by a given organism (Hall et al., 1997). A species may utilize one or several resource areas or vegetation cover types for its habitat. Rhode Island's varied bedrock and surficial geology, soils, topography, and hydrology support a range of plant communities that supports a complex ecological framework for Rhode Island's fish and wildlife diversity (RIDEM et al., 2015).

Wildlife surveys were conducted at the OnSS Project Area on May 6, and May 20, 2021 with a focus on mammals, herptiles, and breeding songbirds. Vernal pool surveys were conducted in spring 2020 and the memo documenting these findings is included in Appendix J. Wildlife observations were also recorded in the summer of 2019 and winter of 2020-2021 during other site investigations.

VHB recorded several wildlife observations within the OnSS Project Area for species that are not specifically wetland dependent but may use wetlands as part of their habitat mosaic. Throughout the OnSS Project Area, including Area of Land within 50 feet of Wetlands 3 and 4, evidence of eastern white-tailed deer *(Odocoileus virginianus)*, eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), southern redback vole (*Myodes gapperi*), and eastern coyote (*Canis latrans x Canis lycaon*) was observed. It is likely that striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*) also visit the site including wetlands but no direct evidence was observed.

Several resident and migratory passerines suited to woodland habitat were observed including black-capped chickadee (*Poecile atricapillus*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), downy woodpecker (*Dryobates pubescens*), red bellied woodpecker (*Melanerpes carolinus*) and woodland edges such as Carolina wren (*Thryothorus ludovicianus*), mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), eastern towhee (*Pipilo erythrophthalmus*) and warbling vireo (*Vireo gilvus*) were observed.

Several bird species were also observed flying over the OnSS Project Area but there was no indication that they utilize terrestrial habitats within this area. These include chimney swift (*Chaetura pelagica*), herring gull (*Larus argentatus*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), and turkey vulture (*Cathartes aura*).

No wading birds or waterfowl were observed within these wetlands and suitable habitats for these wildlife guilds are not thought to be present. The evaluation unit for Wetland 3 extends north and west of the OnSS Project Area to Mill Creek Drive and Roger Williams Way.

Tables in Appendix L provide a list of birds, reptiles and amphibians, and mammals that were observed during field investigations or that have the potential to occur based on habitat preferences. Note that these species tables are not exhaustive. Species that are listed under the 2015 RI WAP as species of greatest conservation need ("SGCN") have been indicated in the tables in bold.

3.1.5.2 Potential Project Impacts

Construction and Decommissioning

Although construction and decommissioning impacts are discussed together for potential wildlife impacts, decommissioning activities will result in fewer impact because the habitat conversion and loss will occur during the construction phase. See Appendix B for additional discussion regarding wildlife habitat and functions and values within wetlands.

There will be no significant impacts on wildlife and plant species diversity associated with the construction of the Landfall Work Area and along the Onshore Transmission Cable because the construction activities will take place in a developed corridor in Quonset Business Park and along public roads, which do not provide any significant habitat.

The OnSS and Interconnection ROW will require disturbing approximately 7.1 acres for construction, including the clearing of approximately 3.3 ac (1.3 ha) of forest. Forest clearing was minimized by siting the OnSS over a closed landfill and through the use of retaining walls to shorten slope lengths. In addition to the OnSS facility will have a compacted gravel driveway and stormwater management features, including a large infiltration basin. Land disturbance as it relates to vegetation clearing may result in the injury or mortality of wildlife. However, impacts on mortality and injury from the construction operations will be minimized by avoiding vegetation removal during the breeding season of bats and avian species to the extent feasible and, if not feasible, coordinating with appropriate agencies to determine appropriate course of action.

The construction of the OnSS and Interconnection ROW will result in 0.35 acres (0.14 ha) of habitat conversion (i.e., converting forest to a maintained herbaceous/shrub plant community). In addition, the operational footprint of the OnSS (less the 0.35 acres [0.14 ha] of conversion which will support shrubland habitat) will create approximately 1.7 ac (0.7 ha) habitat loss when forested upland and some portions of Area of Land within 50 feet of Wetlands are cleared and replaced with hard structures with crushed gravel yards that are not capable of supporting plants or wildlife. The Interconnection ROW will be constructed underground and will therefore not result in habitat loss.

Impacts to wildlife during decommissioning will be lesser than during construction because new vegetation clearing, and grading will not be required.

Operations and Maintenance

Wildlife impacts from vegetation management during O&M may include a reduction in habitat quality via the spread of invasive species. However, the spread of invasive species will be controlled with periodic vegetation management and invasive species management will be implemented as required in permits from applicable agencies.

3.1.5.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to wildlife:

- Onshore Project components were sited within previously disturbed and developed areas to the extent practicable.
- The Onshore Transmission Cables will be buried; therefore, avoiding the risk to avian and bat species associated with overhead lines.
- To the extent feasible, tree and shrub removal for onshore Project components will occur outside the avian nesting and bat roosting period; May 1 through August 15. If tree and shrub removal cannot avoid this season, Revolution Wind will coordinate with appropriate agencies to determine appropriate course of action.
- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- The perimeter surrounding onshore Project components will be managed to encourage the growth of native grasses, ferns, and low growing shrubs. The management strategy will include the removal of invasive plants in compliance with state and federal regulations (e.g. herbicide use will not be permitted within regulated wetlands.

3.1.6 Rare, Threatened, and Endangered Species

3.1.6.1 Affected Environment

To assess whether any federal or state listed rare, threatened, and endangered ("RTE") species or SGCN were present within the Onshore Project Area, VHB evaluated information from the USFWS Information Planning and Conservation ("IPaC") tool and the RIDEM ERM (See Appendix M USFWS Official Species List). Additionally, special attention was made during the biological reconnaissance and wetland delineation field visits to identify occurrences of rare plants. General wildlife records are based on observations made during site investigations in July, August, and September 2019; winter observations were made during February of 2021; and breeding bird surveys in May of 2021. The RI WAP for species tied to specific Key Habitats within the Onshore Project Area, and other pertinent literature, including New England Wildlife (DeGraaf and Yamasaki 2001) were also reviewed.

VHB reviewed online data hosted by the RIDEM ERM (accessed on December 28, 2020). There are no Natural Heritage Database records of state-listed species within the Onshore Project Area; however, VHB biologists identified occurrences of sickle-leaved golden aster (*Pityopsis falcata*), a plant species of state concern within Rhode Island within an apparent former gravel excavation pit on the OnSS and Interconnection ROW parcels that sits at a lower elevation than the surrounding grade and has transitioned to a sand barren over time in the southeast corner of Plat 179 Lot 001 (Figure 3.1-6). Sickle-leaved golden aster is a highly restricted endemic plant that is found only on sandy glacial deposits (Native Plant Trust, 2021). This plant is identifiable by its yellow tubular disk flowers in the center and yellow ray flowers around the center. The RINHP has records of this species occurring within a mapped natural heritage polygon approximately 400 ft (120 m) west of the OnSS parcel boundary.

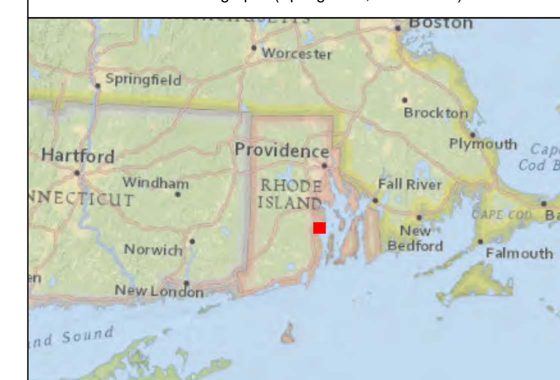
In addition to review of state-managed databases, VHB generated an Official Species List (“List”) from the USFWS using the IPaC tool on September 28, 2019 and December 28, 2020 for onshore portions of the Project and the List indicated that the federally threatened northern long-eared bat (*Myotis septentrionalis*; “NLEB”) has the potential to occur within the Project Area. The List indicated that there are no Critical Habitats associated with the NLEB within the Project Area. The List did not identify any other federally protected species or critical habitats within the onshore portions of the Project.

Revolution Wind
Figure 3.1-6
State-Listed Species
NORTH KINGSTOWN, RI

Legend
- Onshore Transmission Cable
- Landfall Work Area
- OnSS Limit of Work
- Parcel ID 179-030 & 179-001
- Parcel ID 179-005*
- RWEC-RI Project Area
- State Species of Concern: Sickle-leaved golden aster
- Potential Habitat for Sickle-leaved golden aster
- Natural Heritage Areas
- Parcel Boundary

*Not part of this Category B Assent application; refer to separate Application to Alter Freshwater Wetlands filed on June 30, 2021.

Service Layer Credits: RIDEM/Tax_Parcels: RI State, 37 Towns
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Rhode Island Aerial Photographs (Spring 2018; State Plane):



Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 60 120 180 Meters

0 200 400 600 Feet

Date: 05/19/2020
Document no:

Created by: S. PELLETIER
Checked by: S. MOBERG
Approved by: STEPW

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VHB biologists conducted a presence/potential absence acoustic survey targeting NLEB during July 2020 in accordance with survey guidelines developed by USFWS. Five full-spectrum detectors were deployed within suitable summer habitat along the Onshore Transmission Cable route and within the OnSS and Interconnection ROW parcels. The survey spanned two consecutive calendar nights from July 29-31, 2020 for a total of 10 detector nights. A detector-night spans the evening and early morning hours of two calendar dates. Call analysis determined that there was no indication of NLEB occurring within the survey area and a determination of potential absence was made and submitted to USFWS. For information regarding threatened and endangered avian species, refer to Section 3.2.6.

Section 7 consultation under the ESA is on-going as part of the NEPA process lead by BOEM. Appendix L includes a list of all the species observed within the Onshore Project Area.

3.1.6.2 Potential Project Impacts

There are no anticipated impacts to State or federally listed species during construction, operations and maintenance, and decommissioning of the onshore Project components. The acoustic surveys targeting the NLEB resulted in a determination of probable absence of this species and the Onshore Project Area does not include habitat that is suitable for the piping plover (refer to Section 3.2.6 for more information on piping plover). In addition, sickle-leaved golden aster is the only state-listed species identified within the Onshore Project Area and will be avoided. The Project seeks to avoid impacts to RTE species through the implementation of avoidance, minimization and mitigations measures detailed below.

3.1.6.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to rare, threatened, and endangered species:

- Onshore Project components were sited within previously disturbed and developed areas to the extent practicable.
- The Onshore Transmission Cables will be buried; therefore, avoiding the risk to avian and bat species associated with overhead lines.
- To the extent feasible, tree and shrub removal for onshore Project components will occur outside the avian nesting and bat roosting period; May 1 through August 15. If tree and shrub removal cannot avoid this season, Revolution Wind will coordinate with appropriate agencies to determine appropriate course of action.
- The documented sickle-leaved golden aster population on the OnSS parcel will be protected during construction.
- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- Revolution Wind will document any dead (or injured) birds/bats found incidentally on vessels during construction and post-construction and provide an annual report to BOEM and USFWS.
- Revolution Wind is developing an Avian Post-Construction Monitoring Plan for the Project that will summarize the approach to monitoring; describe overarching

monitoring goals and objectives; identify the key avian species, priority questions, and data gaps unique to the region and Project Area that will be addressed through monitoring; and describe methods and time frames for data collection, analysis, and reporting. Post-construction monitoring will assess impacts of the Project with the purpose of filling select information gaps and supporting validation of the Project's Avian Risk Assessment. Focus may be placed on improving knowledge of ESA-listed species occurrence and movements offshore, avian collision risk, species/species-group displacement, or similar topics. Where possible, monitoring conducted by Revolution Wind will build on and align with post-construction monitoring conducted by the other Orsted/Eversource offshore wind projects in the Northeast region. Revolution Wind will engage with federal and state agencies and environmental groups ("eNGOs") to identify appropriate monitoring options and technologies, and to facilitate acceptance of the final plan.

3.1.7 Terrestrial Archaeological Resources

Revolution Wind has performed surveys to identify buried archaeological sites in areas of potential ground disturbance focusing on the Onshore Project Area. Revolution Wind is continuing to investigate the potential for impacts to terrestrial archaeological resources in consultation with the Rhode Island Historic Preservation and Heritage Commission ("RIHPHC") and Native American Tribes. A copy of the Project's current Terrestrial Archaeological Resources Assessment is provided under confidential cover to this Category B Assent application because it contains confidential commercial information not subject to disclosure under Access to Public Records Act ("APRA"; RIGL § 38-2-1) or Freedom of Information Act ("FOIA"; 5 U.S.C. § 552) (Appendix K).

In accordance with BOEM's Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585, avoidance and mitigation actions for cultural resources will be developed through Section 106 consultation with BOEM as the lead federal agency, the RIHPHC and Native American Tribes. The Project will avoid adverse impacts to historic and archaeological resources to the extent practicable

3.1.8 Visual Resources

3.1.8.1 Affected Environment

A Visual Resources Assessment ("VRA") was completed for all above-ground onshore components of the Project, including the OnSS (see Appendix I). This section discusses existing visual resources within the Visual Study Area ("VSA"). In order to define the maximum area of potential visual effect associated with the Project, the VSA was defined as all areas within 3 miles of the Project's limit of onshore disturbance. The VSA includes approximately 30.5 square miles within the Town of North Kingstown and small portions of Warwick and East Greenwich, Rhode Island. In addition, the VSA includes a portion of Narragansett Bay. The VSA was used to characterize the landscape, assess potential Project visibility, and identify visually sensitive resources of national, regional, and statewide significance.

Existing Landscape Types

Specific landscape types ("LT") within a viewshed area can be used as a framework for the potential visibility of a facility. Seven LTs were identified within the VSA and are discussed below.

Developed Land comprises the second largest proportion of the VSA, making up approximately 30 percent of the total area. This LT is primarily comprised of industrial land associated with the Quonset Business Park, Quonset Point Naval Air Station, the Quonset Davisville Business Park, and other commercial and industrial areas within the Town of North Kingstown. Developed areas also include dense suburban residential developments located north and west of the business parks along the State Route 403, US Route 1, and Davisville Road corridors within the VSA. Open views within this LT are generally limited by the presence of foreground buildings and vegetation.

The Forest LT occurs in small pockets around and including the OnSS Project Area, but collectively makes up almost 26 percent of the VSA. Larger contiguous areas of forest land occur in the southern and western portions of the VSA and are associated with Cocumcussoc State Park, Black Swamp, and Calf Pasture Beach. Forest land also occurs between suburban residential developments in the northern portion of the VSA and include several wetlands unsuitable for residential development. Views within the Forest LT are generally restricted by the dense forest canopy and understory vegetation.

Open Space occurs throughout approximately 8 percent of the VSA and includes areas that are developed for the purpose of recreation, stormwater management, or managed vacant land. The largest representative example in this VSA is the North Kingstown Golf Course, located adjacent to and north of the Project site. Open space areas have a greater potential for outward, long-distance views than other terrestrial LTs within the VSA.

The remaining LTs, wetlands, beach, and agricultural land, collectively make up approximately 1.6 percent of the entire VSA and are scattered throughout in non-contiguous areas, thus making them a minor and inconsequential constituent of the VSA.

Existing Visually Sensitive Resources

The VSA included researching and identifying VSR that have been identified by national, state, or local governments, organizations, and/or Native American Tribes. These important sites are given some level of protection or recognition and avoiding or minimizing impacts to these sites is an important consideration during project planning and design. Table 3.1-4 below identifies the visually sensitive resources identified. In addition to the Visually Sensitive Resources ("VSRs") identified below, approximately 10 residences are within 150 feet from the OnSS properties and were therefore informally considered.

Table 3.1-4 Visually Sensitive Resources Identified within the VSA

Type of Resource	Number of Resources within the VSA
Historic Resources (State or National Register of Historic Places)	17
Rhode Island Historical Cemeteries	63
State Parks	1
Rhode Island State Scenic Areas	4
State Nature Preserve	1
Public Boat Launch and Fishing Access	5
State Lands	2
Ferry Ports	1
Major Waterbodies	1
Total	**95**

Source: Visual Resource Assessment Revolution Wind Onshore Facilities (EDR, 2020)

3.1.8.2 Potential Project Impacts

Construction and Decommissioning

Construction of the OnSS and Interconnection ROW will occur adjacent to the existing TNEC Davisville substation in lots surrounded by mature trees. Construction activities are expected to take approximately 18 months and includes clearing and grading, excavation, and the installation of foundations, and construction of the facility. None of the identified VSRs within the 3-mi VSA will experience adverse visual impacts. However, the construction will likely be visible to residential neighborhoods immediately adjacent to the OnSS and Interconnection ROW parcels.

Construction and decommissioning of the onshore Project components will typically involve work during daylight hours and the installation of temporary security and safety lighting at night. Also, construction and decommissioning of the OnSS will result in temporary increased vehicular traffic patterns.

Operations and Maintenance

The OnSS is the only above-ground Project component subject to this Category B Assent application; all other Project components will be installed underground. The VRA illustrates that being within the viewshed of the OnSS does not necessarily indicate that the OnSS will result in visual impacts to the VSRs present within the VSA. In fact, based on the VRA, visibility will only include the upper portions of a few proposed transmission structures. As the line of sight cross sections indicate from Wickford Historic District and Wickford Harbor/Wickford Village State Scenic Area, Narragansett Bay and the Quonset Point Naval Air Station, the onshore Project components will be barely perceptible amongst the buildings and vegetation present in the Quonset Business Park. This is particularly the case for viewpoints and viewers located greater than 1 mile from the onshore Project components.

The onshore Project components may be potentially visible from approximately 15% of the entire VSA and five of the 95 (5%) identified VSRs within the VSA. However, field review suggested that visibility of onshore Project components would likely be significantly less than suggested by the viewshed analysis due to the presence of landscape vegetation present along roadways, which was not considered in the viewshed analysis.

The OnSS, where visible at near foreground distances, will introduce new industrial/utility structures into the landscape. At a maximum height of 60 feet and set back over 400 feet from Camp Avenue, the proposed OnSS will not be out of scale or character with the existing types of development currently present in the vicinity, such as the existing Davisville Substation, or the structures at nearby Quonset Business Park. As such, it is anticipated that the Project will not result in significant visual impacts to the public resources present in the VSA. Some Camp Avenue residences are likely to experience limited visual impacts as a result of the vegetative clearing associated with the OnSS and the associated access driveway. While these impacts are expected to alter the existing views experienced by the residents directly adjacent to the OnSS, they are generally localized and will be minimized through the use of mitigation, such as visual screening. See plan sheets W1.01 and W2.01 in the OnSS plans in Appendix A for planting details. Note, the OnSS plans are provided under confidential cover to this Category B Assent application because they contain confidential commercial information not subject to disclosure under Access to Public Records Act ("APRA"; RIGL § 38-2-1) or Freedom of Information Act ("FOIA"; 5 U.S.C. § 552).

3.1.8.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to visual resources:

- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- The Onshore Transmission Cables will be buried; therefore, minimizing potential impacts to adjacent properties.
- Screening will be implemented at the OnSS to the extent feasible, to reduce potential visibility and noise.

3.2 Revolution Wind Export Cable – Rhode Island Environmental Setting, Potential Impacts, and Proposed Avoidance, Minimization, and Mitigation Measures

This section provides an overview of the offshore environmental setting (i.e., affected environment), potential Project impacts, and proposed avoidance, minimization, and mitigation measures for the RWEC-RI Project Area. The RWEC-RI Project Area is variable, with it being approximately 10,500-ft (3,200-m) at its widest point and approximately 1,300-ft (396 m) at its narrowest. See Figure 1.1-2 in Section 1.2. Summaries from the following technical studies and reports that have been prepared for the Project are included in the following applicable subsections:

- Marine Archaeological Resources Assessment (SEARCH, 2021) (Appendix N)
- Integrated Geotechnical and Geophysical Report ("G&G Report") prepared for the Project (Fugro 2020)
- Technical Report Hydrodynamic and Sediment Transport Modeling Report – Rhode Island State Waters (RPS, 2021) (Appendix O)
- RWEC-RI Benthic Habitat Maps and Report (Appendix P)
- Essential Fish Habitat Assessment Revolution Wind Offshore Wind Farm (INSPIRE, 2020) (Appendix Q)
- Assessment of Impacts to Marine Mammals, Sea Turtles, and ESA-Listed Fish Species Revolution Wind Farm (CSA, 2021) (Appendix R)
- Commercial and Recreational Fisheries Technical Report Revolution Wind Offshore Wind Farm (INSPIRE, 2021) (Appendix S)
- Navigation Safety Risk Assessment (DNV-GL, 2020) (Appendix T)

3.2.1 Surficial Geology

3.2.1.1 Affected Environment

The surficial geology within portions of the Narragansett Bay and RWEC-RI Project Area has been previously described by J. King Consulting, LLC (J. King, LLC, undated), prepared by analyzing published work by Needell et al. (1983), McMaster (1984), Oakley (2012), and by re-analyzing open file data from these surveys (McMullen et al. 2009). More recent data are also available from a multiyear seismic reflection survey conducted by the University of Rhode Island between 2004 and 2008. Finally, the entire RWEC-RI Project Area was evaluated by Fugro in their G&G Report (Fugro, 2020). The site-specific data collected by Fugro during 2019/2020 surveys are being used to identify potential geologic and anthropogenic hazards that could affect the design, installation, and operation of the RWEC- RI, as well as other offshore components of the Project.

General Characterization of Surficial Geology in Narragansett Bay

King (Undated) defined an obstruction as outcropping or shallow bedrock (less than 16 ft (5 m) below the seafloor) or sediment containing boulders. The West Passage of Narragansett Bay includes several islands that are bedrock cored along with bouldery glacial till and moraine deposits. McMaster (1984) documented the presence of gas bearing silt-clay estuarine deposits in the Narragansett Bay that should be avoided. Entrapped gas is detected in seismic reflectivity surveys by abruptly extinguished return signals. J. King, LLC (undated) identified three sub-areas that are located along the RWEC–RI:

- Rhode Island Sound and Lower West Passage sub-area
- Middle West Passage sub-area
- Upper West Passage sub-area

These areas, as described by J. King, LLC (undated), are characterized further in the following subsections. Figure 3.2-2 below shows the three sub-areas identified by King.

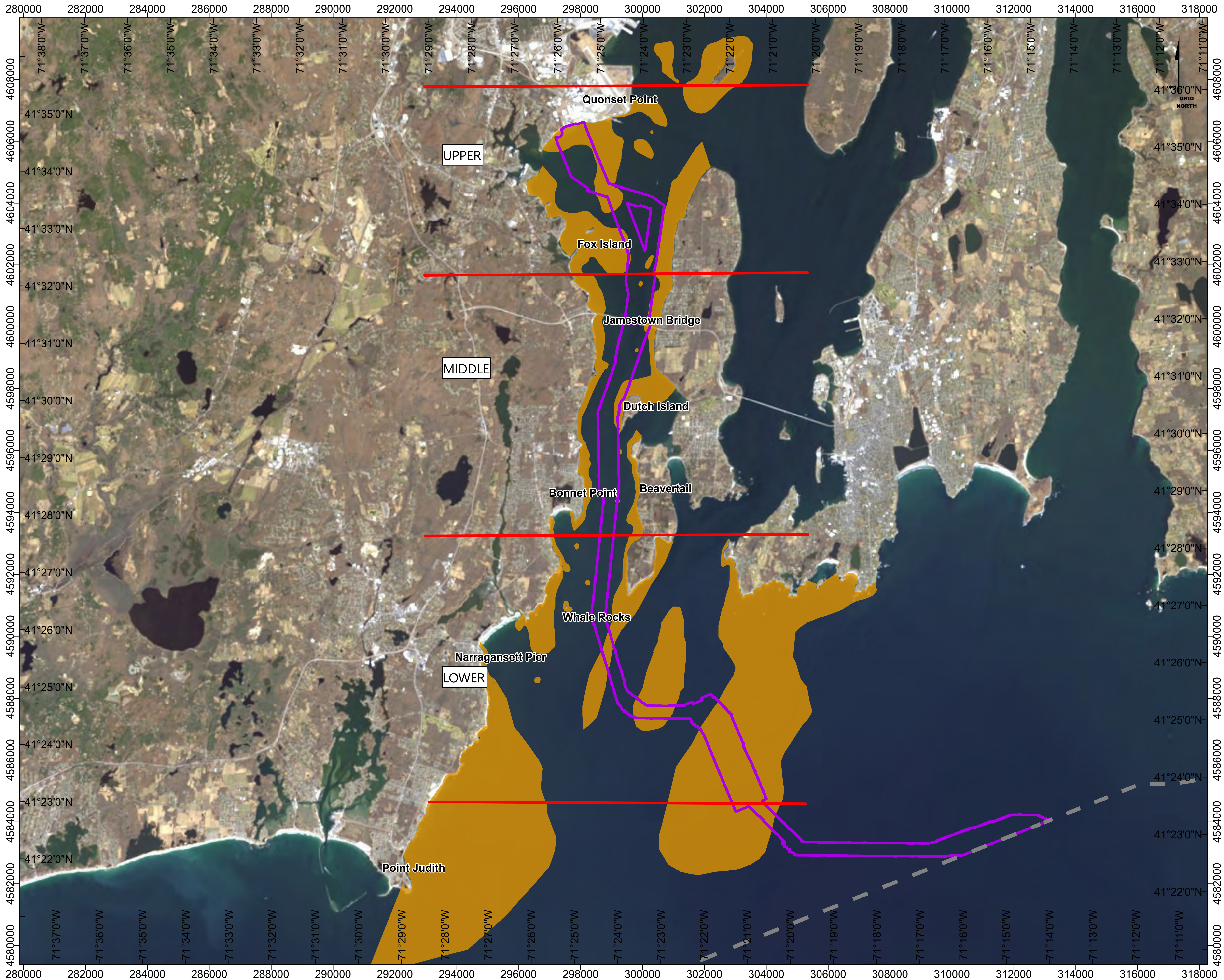

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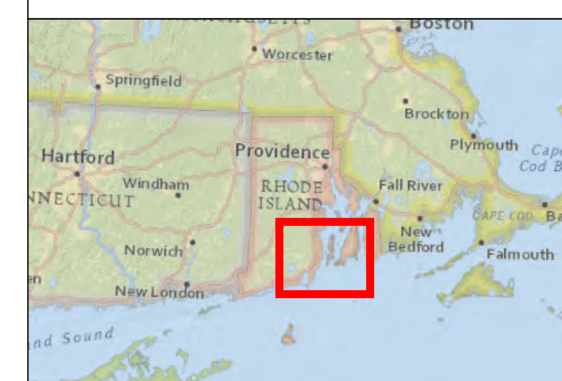
Figure 3.2-1
RWEC-RI Geologic Hazards

Legend
- RWEC-RI Project Area
- Geological Obstructions (King)
- 3-Nautical Mile State Water Boundary

Service Layer Credits: Landsat 8 Imagery: Bathymetric with DRA: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
World_Ocean_Base: Esri, DeLorme, NaturalVue



Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 1000 2000 3000 Meters

0 3,000 6,000 9,000 Feet

Date: 05/19/2020
Document no:

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Checked by: S. MOBERG
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Rhode Island Sound and Lower West Passage Sub-Area

This sub-area begins in Rhode Island Sound and continues north to Beavertail on Conanicut Island (Jamestown). Shallow bedrock was encountered in several areas in this sub-area including submerged continuations of Aquidneck and Conanicut Islands that extend several miles (km) south from their coastlines. This includes outcrops of bedrock near Brenton Reef.

King reports that this bedrock is the same suite associated with the islands, a late Paleozoic meta-sedimentary rock rich in carbon. Boulder fields and bedrock outcrops extend offshore from Point Judith to Narragansett Pier. Part of this boulder field is associated with the Point Judith and Buzzards Bay recessional moraines. J. King, LLC (undated) notes that seismic reflections from this boulder field end about 0.9 miles (1.5 km) from the shoreline, but NOAA charts indicate that this obstruction is continuous to the shore.

Other obstructions in this sub-area include named features such as Whale Rock, Jones Ledge and River Ledge. These all represent outcropping bedrock or rocky seafloor conditions.

Middle West Passage Sub-Area

This sub-area begins at Bonnet Point at the south and continues north to the Jamestown Verrazano Bridge (Jamestown Bridge). J. King, LLC (undated) used Compressed High Impact Radar Pulse ("CHIRP") seismic reflection data collected by the University of Rhode Island to evaluate obstructions. J. King, LLC describes this reach of the West Passage as mostly unobstructed. Shallow depths to bedrock are reported along the western coastline of Conanicut Island and the rocky shorelines of Narragansett, Saunderstown and North Kingstown. Borings completed in 1979 for the Jamestown Bridge indicated 16 ft (5 m) and 33 ft (10 m) of sediment over bedrock along the eastern third of the bridge approaching Jamestown. The area around Dutch Island, including Dutch Harbor contains bouldery till or shallow bedrock.

Oakley (2012) studied the stratigraphy of Glacial Lake Narragansett and identified two glacial deltaic deposits fed by subglacial flows emerging at the ice front in this area: The Dutch Island Delta west of Dutch Island and the Annaquatucket Delta near the Jamestown Bridge. J. King, LLC (undated) noted that these thick sand and gravel deposits are unlikely to contain obstructions but cautioned that the seismic reflection data collected was not sufficient to confirm the absence of obstructions.

Upper West Passage Sub-Area

This sub-area begins north of the Jamestown Bridge and continues north to the landfall location at Quonset Business Park in North Kingstown. The surveys in the sub-area revealed several potential obstructions including shallow bedrock and bouldery till. Seismic data in the vicinity of Fox Island showed the area to be very rocky and that these obstructions were continuous as it approached the mid-point of the West Passage with only a narrow unobstructed corridor remaining. Prominent obstructions are also present on the seafloor south of Quonset Point. Approaching the landfall location, Fugro (2019) identified a line of boulder piles with an 820 ft (250 m) gap where the RWEC–RI will need to be routed.

Summary of Site-Specific Survey Date

Data collected by Fugro (2020) within the RWEC-RI Project Area is more detailed but generally does not conflict with King's general characterization of surficial geology in the bay and is discussed below. This site-specific G&G Report is being used in siting the RWEC-RI and identifying potential geological constraints.

Beginning near the shore, the surficial geology of the seafloor is predominantly comprised of fine-grained sediment in the upper 10 ft (3 m), with potential bedrock and/or glacial till exposed in localized areas. Bedrock/glacial till is exposed in the eastern portion of the Project Area and is interpreted to only be 33 ft (10 m) deep in the western portion.

West Passage of Narragansett Bay

Beginning at the landfall location, the RWEC-RI Project Area crosses an area of limited sediment thickness as it proceeds south. A north-south trending feature described on nautical charts as "ledge" may represent shallow glacial till or rock. Before reaching the Jamestown-Verrazzano Bridge, a prominent flood shoal or bar feature comprised of 10 ft (3 m) of coarse-grained deposits is passed. This bar feature may shift during tidal currents or varying flow conditions in the river system. As the Jamestown-Verrazzano Bridge is approached, bouldery glacial till deposits are exposed in the eastern portion of the RWEC-RI Project Area and large amounts of debris from the demolition of the former Jamestown-Verrazzano Bridge were observed. The main part of the channel appears to be naturally deep in this area, which is indicative of strong tidal currents.

South of the bridge, the upper 10 ft (3 m) is comprised of very soft to firm fine-grained deposits. The main part of the channel is naturally deep and, based on hydrodynamic studies, is prone to strong ebb and flood tidal currents. Continuing south toward Dutch Island, the naturally deepened channel achieves depths of 33 ft (10 m) to 66 ft (20 m). A prominent bar deposit crosses the channel at a northwest-southeast orientation. This feature may be the result of high ebb and flood tidal currents and is an area with high potential seabed mobility conditions. Glacial till outcrops are present in localized areas along the eastern perimeter of the survey corridor. South of Dutch Island headed to the mouth of the West Passage glacial till deposits were interpreted to be present within 1 to 3 ft (0.3 to1 m) of the seafloor surface. Bedrock may also be present beneath the till surface.

Rhode Island Sound

Within the Rhode Island Sound, the typical stratigraphy consists of approximately 0.5 m thick layer of sand overlying soft to firm clay to Brenton Reef. At Brenton Reef, shallow bedrock is exposed or covered by sediment mantles of ranging from sand to clay texture. Crystalline bedrock outcrops are present that typically extend approximately 3.3 feet (1 m) to 6.5 feet (2 m), but a suitable cable route is available through the reef.

3.2.1.2 Potential Project Impacts

Construction and Decommissioning

The RWEC-RI installation will require a temporary disturbance corridor of approximately 131 feet (40 m) for 23 miles (37 km) for each cable, which is a total disturbance corridor of approximately 730 acres (295 ha) (see Table 2.2-7). Impacts to geological resources will be limited to the area of the seafloor disturbed during preparation for and installation of the two export cables, which includes boulder clearance, sandwave leveling, cable installation, and installation of secondary cable protection. It is estimated that approximately 22 acres (8.9 ha) of secondary cable protection will be required (approximately 10% for each cable route in state waters).

The RWEC-RI will be installed to a target burial depth of approximately 4 to 6 feet (1.2 to 1.8 m) below the seabed. Installation of the RWEC-RI will mostly affect surficial geology, but not to such an extent that there would be a perceptible change in overall regional geological resources. The RWEC-RI will be installed to avoid shallow hazards using equipment such as a mechanical cutter, mechanical plow, or jet plow to the extent practicable. These installation techniques are not expected to result in any permanent seabed impacts because the trench naturally backfills with the temporarily suspended sediment. The use of a TSHD and/or CFE may be required in certain locations. In addition, DP vessels will be used to the extent possible during installation of the RWEC-RI. DP vessels do not require anchors to maintain their position and therefore avoid additional geological impacts. If DP vessels cannot be used in certain locations, vessels that require anchoring will be used, which will result in temporary seafloor disturbance in isolated locations. "No anchorage areas" will be identified prior to construction to avoid any documented sensitive resources.

In addition, DP vessels will be used to the extent possible during installation of the RWEC-RI. DP vessels do not require anchors to maintain their position and therefore avoid additional geological impacts. If DP vessels cannot be used in certain locations, vessels that require anchoring will be used, which will result in short-term seafloor disturbance. These impacts cannot be quantified at this time, but anchoring will be limited to within the RWEC-RI's 1,312-ft (400-m) ROW. "No anchorage areas" will also be identified prior to construction to avoid any documented sensitive resources.

Sediment suspension and deposition for seabed preparation activities, installation of the offshore RWEC-RI, and installation of the RWEC-RI at the landfall location have been modeled (see Appendix O). For surficial geology, sediment deposition was evaluated for potential impacts. For the offshore RWEC-RI, deposition was modeled using CFE, TSHD split bottom, TSHD continuous overflow, and jet plow. For the RWEC-RI at the landfall location, it was modeled using HDD. The area where deposition is 10 mm or greater in thickness was predicted to be 453.4 ac (183.5 ha), 481.9 ac (195.0), 48.0 ac (194.3), and 7.4 ac (3.0) for CFE, TSHD split bottom, TSHD continuous flow, and HDD, respectively. The jet plow did not have any predicted depths of 10 mm or greater. The spatial extent of deposition of 10 mm or greater was 688.8 ft (210 m), 1,033.2 ft (315 m), 85.28 ft (260 m) and 738 ft (225 m) for CFE, TSHD split bottom, TSHD continuous flow, and HDD, respectively.

Once the RWEC–RI is installed, the disturbance corridor will recover as part of processes associated with dynamic marine sediments. The RWEC-RI has no maintenance requirements unless a cable repair is required. Repair or replacement of cables or cable protection are considered non-routine maintenance activities and will potentially result in the same or lesser impacts as construction.

3.2.1.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to surficial geology:

› RWEC-RI will be sited to avoid identified shallow hazards to the extent practicable.

› To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.

› DP vessels will be used for installation of the RWEC to the extent practicable to avoid the need for anchoring.

› A plan for vessels will be developed prior to construction to identify no-anchorage areas to avoid documented sensitive resources.

3.2.2 Water Quality

3.2.2.1 Affected Environment

This section includes surface water quality for the RWEC-RI. Several parameters were evaluated, including dissolved oxygen ("DO"), chlorophyll *a*, nutrient content, turbidity, and anthropogenic activities that have in the past or currently impact water quality. The description of the affected environment and assessment of potential impacts for water quality were determined by reviewing public data sources and conducting project-specific studies including the following: Rhode Island Ocean SAMP; Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Continental Shelf Offshore Rhode Island and Massachusetts, Revised Environmental Assessment (RI-MA WEA) (BOEM, 2013); National Coastal Condition Report IV ("NCCR") (US EPA, 2012); Narragansett Bay Commission ("NBC") Snapshot of Upper Narragansett Bay data; State of Narragansett Bay and Its Watershed Technical Report ("NBWTR") (Narragansett Bay Estuary Program ["NBEP"], 2017) and Revolution Wind Integrated Geotechnical and Geophysical Site Characterization Study (Fugro, 2020). Available surface and quality data were also reviewed with available RIGIS data and the RIDEM Water Quality Regulations (RIDEM, 2018a). Most of the RWEC-RI is mapped as SA, which are waters designated for shellfish harvesting for direct human consumption, primary and secondary contact recreational activities, and fish and wildlife habitat. The landfall location is mapped as SB, which are waters designated for primary and secondary contact recreational activities, shellfish harvesting for controlled relay and depuration, and fish and wildlife habitat. Both SA and SB waters have good aesthetic value. See Figure 3.2-2.

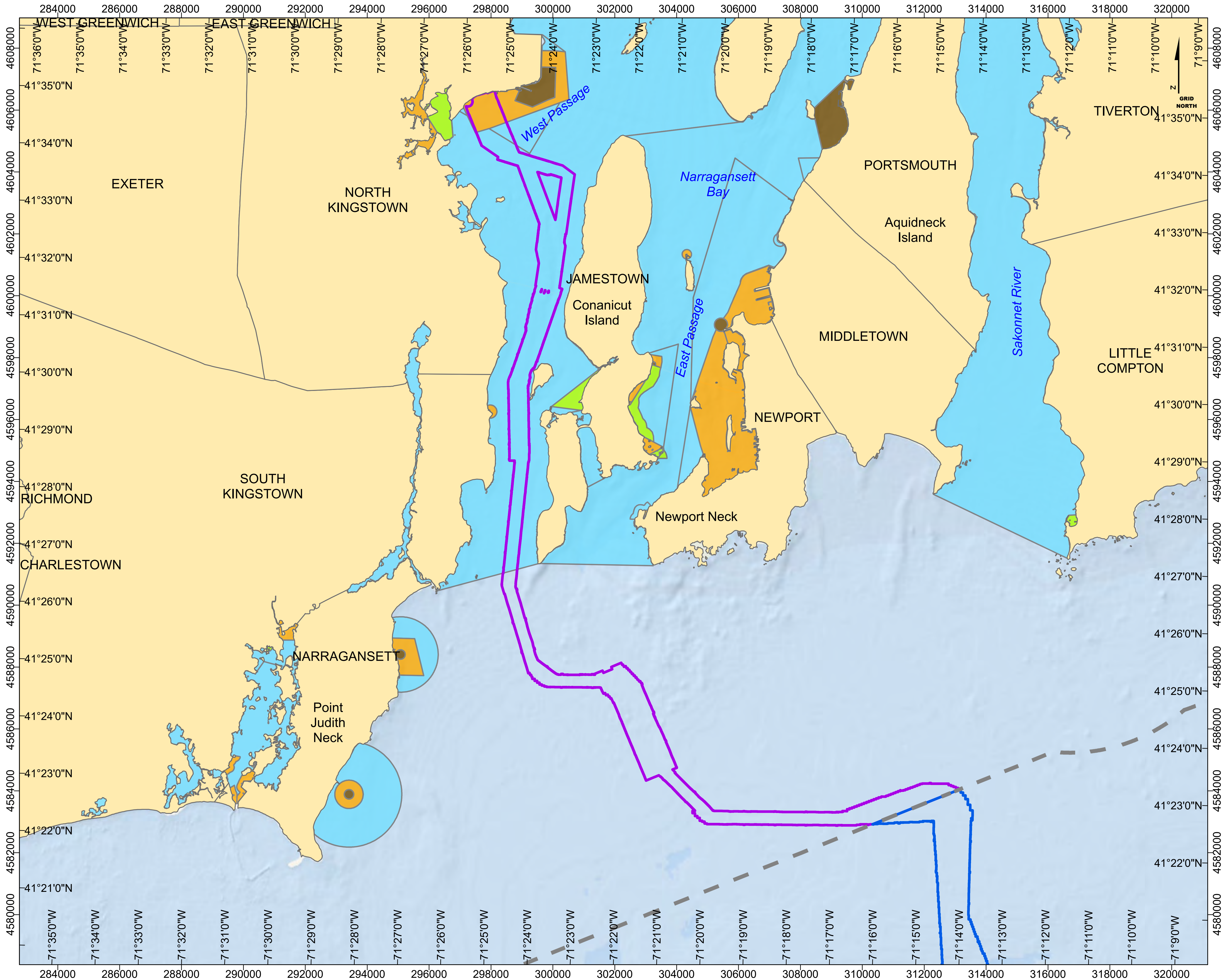

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Figure 3.2-2
Offshore Water Quality Standards

Legend

- RWEC-OCS Project Area
- RWEC-RI Project Area
- 3-Nautical Mile State Water Boundary

Estuarine Water Quality Standard

- SA
- SA{b}
- SB
- SB1

Service Layer Credits: National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
World Ocean Base: Esri, DeLorme, NaturalVue

Reference system: NAD83 (2011)
Projection: UTM Zone 19N

0 1000 2000 3000 Meters

0 4,000 8,000 12,000 Feet

Date: 05/19/2020
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Checked by: S. MOBERG
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3.2.2.1 RWEC Rhode Island Sound

Dissolved Oxygen

DO refers to the concentration of oxygen present in water. The source of the DO may be the atmosphere and from photosynthesis from aquatic plants including phytoplankton. Low levels of oxygen (hypoxia) or no oxygen levels (anoxia) can occur when excess organic material, such as produced during large algal blooms are decomposed by microorganisms (LICAP, 2016). Water sampling conducted at four stations in Rhode Island Sound in 2002 by the USACE found that DO concentrations both at the surface and in bottom waters remained above established levels for the "highest quality marine waters" and suggests that hypoxic and anoxic conditions do not typically occur in those areas (RI CRMC, 2010).

Chlorophyll a

Chlorophyll a is measured as a surrogated to determine concentrations of phytoplankton, which can indicate overproduction of algae and degraded water quality (NCCR, US EPA 2012). For this reason, chlorophyll a is used as a metric of plant production, called "primary production" because of the ability of plants to capture energy from sunlight and is measured in units of grams of carbon per meter squared per day (g C m-2 day-1).

The RI CRMC Ocean SAMP adapted a table (Table 3.2-1) from Hyde (2009) to compare the range of primary production throughout the year for Ocean SAMP waters and nearby ecosystems. Primary production in the Ocean SAMP area is comparable to other coastal systems and is just slightly lower than the value ranges presented for Narragansett Bay and New York Bight. Chlorophyll a sampling at four locations in Rhode Island Sound found concentrations ranging from six to nine µg 1-1 (USACE 2002), which is "consistent with oceanic systems and slightly lower than an average estimate of phytoplankton production on continental shelves (Mann 2000)," (RI CRMC 2010).

Table 3.2-1 Comparison of the Range of Primary Production (g C m-2day-1)

Ecosystem	Production ($g\ C\ m^{-2}\ d^{-1}$)	Reference
Ocean SAMP	143-204	Hyde, 2009
Narragansett Bay	160-619	Oviatt et al., 2002
Massachusetts Bay	160-570	Keller et al., 2001; Oviatt et al., 2007; Hyde et al., 2008
New York Bight	370-480	Malone and Chervin, 1979

Nutrients

Nutrients are chemical elements that all living organisms need to sustain life and for growth. Problems may arise when too much of a particular nutrient is introduced into the environment through human activities (i.e., eutrophication). In surface waters, excess nutrients fuel algal blooms which can lead to water quality degradation. Severe or harmful algal blooms can result in the depletion of oxygen in the water column and benthos that aquatic life needs for survival. Algal blooms also reduce water clarity, which reduces desirable plant growth, such as seagrasses, reduces the ability of aquatic life to find food, and clog fish gills. Freshwaters are more sensitive to excess phosphorus, while in coastal waters, nitrogen is the nutrient of highest concern. In some cases, both nutrients may interact and contribute to a water pollution problem (RIDEM, 2010).

Dissolved nutrients reach the RWEC from Narragansett Bay, Long Island Sound, and Buzzards Bay. Table 3.2-2 below was taken from the RI CRMC Ocean SAMP (2010), which published the Oviatt and Pastore 1980 nutrient sample results for the Rhode Island Sound. Research on Block Island Sound water quality suggests that nutrient concentrations (measured in micromoles, μM) have seasonal variation, with peaks in the autumn, and nearly undetectable levels in the late spring and early summer months (Staker and Bruno, 1977). Although additional sampling is required, the data suggest that nutrient availability may be a limiting factor, resulting in lower primary production.

Table 3.2-2 Nutrient Concentrations Measured in the Rhode Island Sound (Oviatt and Pastore, 1980)

	Concentration (μM)		
Nutrient	**Station 16 (mouth of Narragansett Bay)**	**Station 17 (just outside mouth of Narragansett Bay)**	**Time**
Ammonia (NH_3)	-	0	Jan-May
	1	1.5-2	Jun-Aug
	3-4	2-2.5	Nov-Dec
Nitrite + Nitrate (NO_2 + NO_3)	6	6	Jan
	1-2	5	Feb
	0.5	0.5	Mar
	5	4	Apr
	0	1-2	May-Aug
	6	6	Nov
	12	10	Dec
Orthophosphate (PO_4)	1-2	1-1.5	Jan-Aug
	1.5	1.5-2	Nov-Dec

Pathogens

There is little information on the algal and bacteria dynamics in Rhode Island Sound. According to RI CRMC (2010), there were no documented reports of harmful algal blooms or waterborne pathogen outbreaks Rhode Island Sound as of 2010.

Contamination

Data on water-column contaminant levels in Rhode Island Sound are limited. Organic contaminants (polychlorinated biphenyls ["PCBs"] and pesticides) measured in 2001 and 2002 were generally below method detection limits for these analytes (USACE, 2004). For example, total PCB concentrations were less than 46 nanograms per liter (ng/L), and total dichlorodiphenyltrichloroethanes were less than 4 ng/L. Water-column dissolved metals concentrations in Rhode Island Sound were also low, with concentrations generally less than 1 microgram per liter (µg/L). Dissolved metal concentrations appeared similar throughout the year and throughout Rhode Island Sound. Metals, PCBs, and organic and inorganic pollutant concentrations measured in the water column within the Ocean SAMP area in 2002 were well below ambient RIDEM water quality criteria (RI CRMC, 2010).

Turbidity

Turbidity is the measure of cloudiness or haziness (opacity) of water caused by suspended solids (e.g., sediments or algae). Ocean waters beyond 3 mi (4.8 km) offshore typically have very low concentrations of suspended particles and low turbidity. Turbidity in Rhode Island Sound from five studies cited by the USACE (2004) ranged from 0.1 to 7.4 milligrams per liter (mg/L) of total suspended solids. Bottom currents may re-suspend silt and fine-grained sands, causing higher suspended particle levels in benthic waters. Storm events, particularly frequent intense wintertime storms, may also cause a short-term increase in suspended sediment levels. (BOEM, 2013)

Anthropogenic Activities

Current anthropogenic activities that are sources of water quality degradation include point source pollution and nonpoint source pollution. Point source pollutants, which enter waterways at well-defined locations, such as pipe or sewer outflows, are common sources of water pollution. There are no direct municipal wastewater or industrial point sources of pollution into or within the Project Area. Vessels may release discharges that have the potential to impact water quality.

3.2.2.2 RWEC Narragansett Bay

Dissolved Oxygen

The Narragansett Bay Fixed Site Monitoring Network ("NBFSMN") is a multi-agency collaborative that continuously collects data, including DO, at 13 fixed stations throughout the Narragansett Bay. The data collected at the fixed stations shows that the majority of the stations experience or are vulnerable to periodic episodes of hypoxia and occasional anoxia (RIDEM, [ND]). In addition, although the NCCR (EPA, 2012) states that the overall condition of DO in the Northeast Coast region is fair, more extensive data collection, such as that by NBFSMN and Brown University, have shown that the Narragansett Bay has a higher incidence of hypoxia.

DO within the Bay was also evaluated by the NBEP, which used a Hypoxia Index. The Hypoxia Index evaluated data from the NBFSMN to identify sample areas that experience hypoxia and combined the duration that this condition persisted. The Hypoxia Index "measures of the amount or magnitude that bottom water DO concentrations fell below a fixed threshold, and how long they stayed below the threshold" (NBEP, 2017). NBEP used a threshold of 2.9 mg/L and the Hypoxia Index to identify acute hypoxia, which evaluated each individual site/year as the sum of all deficit-durations from mid-May through mid-October (NBEP, 2017). The occurrences of hypoxia at given sites varied from year to year, with precipitation playing a factor. Wetter years experienced greater incidents of hypoxia. NBEP also found that periods of hypoxia have a higher chance of occurrence during the summer months, when the warm waters support high productivity and respiration rates and the Bay is thermally stratified with poor exchange between strata (NBEP, 2017). The proposed RWEC-RI will make landfall at Quonset Business Park within North Kingstown and pass within a portion of the Upper West Passage that is prone to sporadic hypoxic events (NBEP, 2017).

Chlorophyll a

A Chlorophyll Bloom Index ("CBI") was developed to quantify phytoplankton blooms based on a time series of chlorophyll measurements and data from ten NBSFMN sites that were analyzed (NBEP, 2017). The CBI measured the surplus-duration of an event, which is both the intensity and time period of the event. Since the State of Rhode Island has not established water quality criteria for chlorophyll a concentrations, the federal threshold of 20 µg/L was used. Although long-term trends could not be readily identified, the CBI indicated that spikes in chlorophyll a levels in Narragansett Bay are most frequent in the summer and show a spatial gradient decrease when moving north to south throughout the Bay with the Upper West Passage having values ranging from five to nine µg/L (NBEP, 2017). This is likely the result of nutrient inputs from rivers and wastewater treatment facilities ("WWTF") (i.e., riverine loading) (NBEP 2017).

The NBC also monitored chlorophyll a in the Providence and Seekonk River estuaries within the upper Narragansett Bay. Table 3.2-8 below was adapted from available 2019 NBC data from the two buoys (Bullock Reach Buoy and Conimicut Point Buoy) maintained proximate to the southern terminus of the Providence River at Upper Narragansett Bay. Samples were taken 1.6 to 3.3 ft (0.5-1 m) below the surface. As shown in Table 3.2-3, the chlorophyll a levels exceeded the federal threshold (20 µg/L) on June 19, 2019 at the Bullock Reach Buoy and on August 15, 2019 at both the Bullock Reach Buoy and the Conimicut Point Buoy.

Table 3.2-3 2019 Chlorophyll a Levels from NBC Data Collected at Bullock Reach Buoy and Conimicut Point Buoy

Collection Date	Station	Chl a (µg/L)	Station	Chl a (µg/L)
1/3/2019	Bullock Reach Buoy Surface	2.2302	Conimicut Point Surface	0.36123
3/13/2019	Bullock Reach Buoy Surface	0.8307	Conimicut Point Surface	7.13
3/27/2019	Bullock Reach Buoy Surface	3.5457	Conimicut Point Surface	2.7547

Collection Date	Station	Chl a (µg/L)	Station	Chl a (µg/L)
4/10/2019	Bullock Reach Buoy Surface	7.0368	Conimicut Point Surface	7.7439
4/24/2019	Bullock Reach Buoy Surface	7.9713	Conimicut Point Surface	19.647
5/8/2019	Bullock Reach Buoy Surface	1.7406	Conimicut Point Surface	1.7828
5/21/2019	Bullock Reach Buoy Surface	3.3849	Conimicut Point Surface	4.1268
6/5/2019	Bullock Reach Buoy Surface	3.1776	Conimicut Point Surface	2.709
6/19/2019	Bullock Reach Buoy Surface	30.393	Conimicut Point Surface	14.577
7/3/2019	Bullock Reach Buoy Surface	9.3984	Conimicut Point Surface	5.1741
7/17/2019	Bullock Reach Buoy Surface	10.909	Conimicut Point Surface	9.3837
7/31/2019	Bullock Reach Buoy Surface	1.8061	Conimicut Point Surface	2.1052
8/15/2019	Bullock Reach Buoy Surface	33.026	Conimicut Point Surface	48.981

Nutrients

There is limited data available for nutrient levels within Narragansett Bay. However, NBEP monitors nitrogen and phosphorus levels with a focus on WWTFs and riverine discharges. Data suggests that nutrient levels have dropped within a 15-year period since Rhode Island enacted a statute to reduce summer nutrient loading into the Bay from WWTFs (NBEP, 2017). Table 3.2-4 was adapted from the NBWTR (NBEP, 2017) and summarizes a comparison of WWTF nitrogen loading levels from 2000-2004, 2007-2010, and 2013-2015. The data indicates a decrease in total nitrogen discharging from WWTFs in the Coastal Narragansett Bay Basin.

Table 3.2-4 NBEP Data for Nitrogen Loading Levels from Wastewater Treatment Facilities

	WWTF Total Nitrogen Loading (x10^3 lbs/year)		
	Nixon et al (2008)	Krumholz (2012)	NBEP Study
Coastal Narragansett Bay Basin	2000-2004	2007-2010	2013-2015
Narragansett Bay	5,253	4,420	2,777
Ten Mile River	379	328	170
Woonasquatucket River	134	45	52

Total phosphorus was similarly analyzed for discharges from WWTFs and it was found that WWTFs that directly discharge to "Narragansett Bay account for 74 percent of total phosphorus loading" (NBEP, 2017). Table 3.2-5 was adapted from the NBWTR (NBEP, 2017) and summarizes a comparison of phosphorus loading levels from 2000-2004, 2007-2010, and 2013-2015.

Table 3.2-5 NBEP Data for Phosphorus Loading from Wastewater Treatment Facilities

	WWTF Total Nitrogen Loading (x10^3 lbs/year)		
	Nixon et al (2008)	Krumholz (2012)	NBEP Study
Coastal Narragansett Bay Basin	2000-2004	2007-2010	2013-2015
Narragansett Bay	551	618	526
Ten Mile River	26	3	3
Woonasquatucket River	21	1	1

Pathogens

The NBEP monitors Narragansett Bay for pathogens to monitor potential health concerns regarding recreation (e.g., swimming and boating) and shellfishing by testing for Escherichia coli, general fecal coliform, and Enterococci bacteria (NBEP, 2017). Sources of these pathogens include WWTFs, stormwater runoff, septic systems, and wildlife. It was found that 20 percent of streams and rivers and 97 percent of lakes and ponds in the Coastal Narragansett Bay area were acceptable for recreational use (NBEP, 2017). For shellfishing, 63 percent of Narragansett Bay was classified as approved, 13 percent was classified as conditionally approved, and 24 percent was classified as prohibited in 2015. However, the sampling locations at the Mouth of the Bay and the West Passage, where the Project will occur, each have 90 percent classified as approved for shellfishing, indicating good water quality regarding pathogens.

Contamination

NBEP monitors both of what it considers legacy and emerging contaminants in Narragansett Bay. Legacy contaminants are those such as heavy metals that have been present and regulated for many years and may persist in the environment (NBEP, 2017). Research conducted during the 1980s and 1990s on legacy contaminants found that there was a north-south gradient in the Bay, with the northern reaches having the highest concentrations of legacy contaminants. NBEP also evaluated legacy contaminants by analyzing dated sediment cores and blue mussel (*Mytilus edulis*) tissue (NBEP, 2017). The sediment cores were evaluated for levels of copper, lead, cadmium and chromium and the effects range median (ERM – threshold where detected levels of a contaminant above the ERM likely or always result in observed effects) were compared to levels of the contaminants in the 1770s. The analysis showed that the levels for all contaminants spiked during the Industrial Revolution and then dramatically reduced with the introduction of environmental regulations (i.e., Clean Water Act and Clean Air Act). Additional analysis showed that all analyzed contaminants within the sediment cores dropped below the ERM after 1990. Similarly, data on metals and PCBs from tissue from blue mussels showed a trend in declining levels of contaminants from 1976 to 2012 (NBEP, 2017).

Emerging contaminants, or "chemical contaminants of emerging concern ("CECs") refers to chemicals with unknown ecological effects and no associated regulatory standards" (NBEP, 2017). Sources of CECs include pharmaceuticals, personal care products, and industrial chemicals, and information on them within the Bay is limited (NBEP, 2017). Due to the lack of sufficient data, the extent and magnitude of CECs within the Bay are not available.

Turbidity

There are limited data available on turbidity within Narragansett Bay. The NBC measures turbidity using a Secchi disk. A Secchi disk measures water clarity by lowering a black and white disk into the water column until it is no longer visible; the depth at which the disk is last visible is then recorded. Table 3.2-6 was adapted from available data from NBC for Bullock Reach and Conimicut Point, which are the two monitoring locations that are closest to the mouth of Narragansett Bay. Several readings were taken every month and the data below represents the annual average for depth visibility. All depths are in meters (NBC, 2019).

Table 3.2-6 2017-2019 Water Clarity Depths Measured by NBC at Bullock Reach and Conimicut Point Monitoring Stations using a Secchi Disk

Sample Location and Year	Greatest Depth (m) (Date)	Shallowest Depth (m) (Date)	Annual Average Depth of Visibility (m)
Bullock's Reach – 2017	3.9 (11/29/2017)	0.8 (8/23/2017)	1.7
Bullock's Reach – 2018	3.9 (10/17/2018)	1.3 (5/24/2018, 7/25/2018, 8/1/2018, 8/8/2018)	2.1
Bullock's Reach – 2019	3.9 (3/13/2019)	0.9 (5/30/2019	1.7

Sample Location and Year	Greatest Depth (m) (Date)	Shallowest Depth (m) (Date)	Annual Average Depth of Visibility (m)
Conimicut Point – 2017	4.2 (10/18/2017)	1.1 (7/6/2017)	1.8
Conimicut Point – 2018	5.4 (3/28/2018)	1.3 (8/8/2018)	1.7
Conimicut Point – 2019	3.6 (1/3/2019)	0.9 (5/30/2019)	2.3

Anthropogenic Activities

The watersheds of Narragansett Bay have experienced development and population growth since the 1700s and continued residential, commercial, and industrial development. These factors have shaped the area and introduced nutrients, pathogens and pollutants into streams, rivers and the Bay. Both point and non-point sources of pollution are present, and the effects of those sources as well as others are discussed above.

3.2.2.3 Potential Project Impacts

Construction and Decommissioning

The primary concern to surface water quality is sediment suspension and deposition during installation of the RWEC-RI. To assess these impacts, Revolution Wind prepared a sediment transport modeling analysis to support this Category B Assent application, as well as permitting with RIDEM for the WQC pursuant to the Water Quality Regulations (250- RICR-150-05-1.1 et seq.) and RIDEM and RI CRMC for a dredge permit pursuant to the Rules and Regulations for Dredging and the Management of Dredged Materials (250-RICR-150-05-2.1 et seq.).

RPS's Hydrodynamic and Sediment Transport Modeling Report – Rhode Island State Waters (Appendix O) assessed and characterized the modeled sediment suspension and deposition associated with seabed preparation activities and installation of the RWEC-RI. For deposition impacts, refer to the discussion in Section 3.2.1.2 above.

The volume of resuspended sediment (i.e., total suspended solid [TSS]) into the water column was predicted to be 103,875.3 cy (79,418.4 m^3), 103,163.2 cy (78,873.9 m^3), 103,875.3 cy (79,418.4 m^3), 46,287.1 cy (35,388.9 m^3), and 3,097.8 cy (2,368.4 m^3) for CFE, TSHD split bottom, TSDH continuous overflow, jet plow, and HDD, respectively. The modeling also showed that TSS plumes are limited to the bottom of the water column for seabed preparation and cable installation using CFE and were more widely distributed throughout the entire water column for TSHD.

The maximum amount of time a plume of greater than 100 mg/L is predicted to remain suspended for the various activities and installation methods was:

- For seabed preparation, no greater than 2.3 hours, 13.5 hours, and 13.8 hours for CFE, TSHD split bottom, and TSDH continuous overflow;
- For jet plow installation, no greater than 4.5 hours; and
- For HDD at the landfall location, no greater than 70.2 hours.

The Rhode Island Water Use Classification for the HDD work area (Waterbody ID RI0007027E-03D) is SB.[9] Two temporary exit pits will be excavated offshore and a casing pipe will be installed to receive the boring head and collect boring fluids. The sediments excavated from the exit pits will be stored on a barge and will ultimately be used to backfill the exit pits (see Section 2.2.3.2 under Landfall Construction for detailed description of HDD process). To minimize the potential risks for an inadvertent drilling fluid release, an HDD Contingency Plan will be developed and BMPs will be implemented during construction.

A pre-application meeting was held with the CRMC and RIDEM on June 18, 2020 to discuss environmental sampling in accordance with the Rules and Regulations for Dredging and the Management of Dredged Materials (250-RICR-150-05-2). Revolution Wind conducted sediment sampling at the exit pit locations in accordance with consultation with the two agencies.[10] Laboratory analytical results were returned from ESS Laboratories on January 4, 2021. Key findings include the following:

› Total petroleum hydrocarbons, Semi-Volatile Organic Compounds and PCBs were not detected in any of the sediment samples
› Metals were not detected in concentrations exceeding the RIDEM Residential or Industrial/Commercial Direct Exposure Criteria or the CAD Cap Criteria
› Percent fines (silt/clay) exceeding 10% was detected in all samples

Based on these results, the dredge/excavations for the HDD pits will be suitable for disposal in any of the potential disposal locations except beach disposal (nourishment). That said, the Project does not propose disposal of dredged material. Dredge material at the HDD exit pits will be re-used for backfill. Sediments disturbed during cable installation will naturally backfill or fallback into the cable trench.

Vessels will be used during construction and decommissioning of the RWEC-RI and will comply with regulatory requirements for management of onboard fluids and fuels, including prevention and control of discharges and accidental spills. Revolution Wind will meet applicable regulations and standards, as set by the IMO MARPOL, the USCG, and the State of Rhode Island, for treatment and disposal of solid and liquid wastes generated during all phases of the Project. Revolution Wind will also implement an ERP/OSRP (see Appendix G). Overall, installation of the RWEC-RI will not result in significant impacts to water quality from sediment suspension and deposition and is not expected to impact DO, chlorophyll a, or nutrient balance in the region. Due to proper handling and disposal of solid and liquid waste generated by the vessels, no impacts to surface water quality are expected from vessels.

Based on RPS's simulation and the implementation of the avoidance, minimization and mitigation measures discussed in 3.2.2.4 below, impacts to water quality from seabed disturbance would be temporary and would not impact DO, chlorophyll a, or nutrient balance in the region.

9 These waters are designated for primary and secondary contact recreational activities; shellfish harvesting for controlled relay and depuration; and fish and wildlife habitat. They shall be suitable for aquacultural uses (other than shellfish for direct human consumption), navigation, and industrial cooling. These waters shall have good aesthetic value.

10 Reference sediment sampling Plan approval dated July 3, 2020.

Operations and Maintenance

There are no anticipated impacts to water quality during O&M of the RWEC-RI unless a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

3.2.2.4 Proposed Avoidance, Minimization, and Mitigation

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to water quality:

- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- Revolution Wind will require all construction and operations vessels to comply with regulatory requirements related to the prevention and control of spills and discharges.
- Accidental spill or release of oils or other hazardous materials offshore will be managed through the OSRP (see Appendix G).
- All vessels will comply with USCG and EPA regulations that require operators to develop waste management plans, post informational placards, manifest trash sent to shore, and use special precautions such as covering outside trash bins to prevent accidental loss of solid materials. Vessels will also comply with BOEM lease stipulations that require adherence to NTL 2015-G03, which instructs operators to exercise caution in the handling and disposal of small items and packaging materials, requires the posting of placards at prominent locations on offshore vessels and structures, and mandates a yearly marine trash and debris awareness training and certification process.
- HDD drilling fluids will be managed within a contained system following punch out of the pilot drilling to be collected for reuse as necessary. An HDD Contingency Plan will be prepared and implemented to minimize the potential risks associated with release of drilling fluids.
- A SESC Plan, including erosion and sedimentation control measures, will be implemented to minimize potential water quality impacts during construction and operation of the onshore Project components.

3.2.3 Benthic and Shellfish Resources

3.2.3.1 Affected Environment

Benthic and shellfish resources in the RWEC-RI Project Area were evaluated by reviewing public data sources and conducting Project-specific studies. Sources reviewed included state and federal agency-published papers and databases (McMullen et al., 2009; RI CRMC, 2010; LaFrance et al., 2010; Poppe et al., 2014a; Collie and King, 2016; Siemann and Smolowitz, 2017 ; Shumchenia and King 2019; LaFrance et al. 2019), published journal articles (McMaster, 1960), online data portals and mapping databases (Northeast Ocean Data, 2019; USGS, 2017), an academic thesis (Malek, 2015), studies conducted for the planned South

Fork Wind Farm ("SFWF") (Deepwater Wind South Fork, 2019), and correspondence and consultation with federal and state agencies.

Benthic and shellfish resources are described in the following subsections in terms of benthic habitat types and commonly associated taxa, including SAV, macroalgal assemblages, and micro- and macrobenthic communities.

Broadly, the habitats within the RWEC-RI Project Area are low in environmental complexity, consisting mainly of sand and mud habitats (Appendix P). The exceptions are habitats located in the central portions of the West Passage and at the entrance to Narragansett Bay. Six primary benthic habitat types were mapped within the RWEC-RI: Glacial Moraine B, Glacial Moraine A, Coarse Sediment, Sand and Muddy Sand, Mud and Sandy Mud, and Bedrock. The majority of the RWEC-RI in Rhode Island Sound was mapped as Sand and Muddy Sand – Mobile, whereas Mud and Sandy Mud comprised the majority of primary habitat types mapped within Narragansett Bay. While six primary benthic habitat types were mapped, when modifiers are added 17 distinct habitats are present. Not all types are present in each portion of the RWEC-RI corridor. In addition, a few anthropogenic features (dredged material, demolition debris, revetment walls) were also mapped within Narragansett Bay. Habitats with modifiers (e.g., Mobile, Shell Substrate, Low Density Boulder Field, SAV), provide a greater level of detail in describing these benthic environments and highlight the spatial variation in diversity found on the seafloor within the RWEC-RI Project Area.

The habitats mapped in Rhode Island Sound are primarily dynamic sands and muds typical of offshore environments in Southern New England. These habitats provide a mix of mobile sands and depositional muddy environments that support a combination of small and large tube-building and burrowing infauna, as well as mobile epifauna (mollusks and crustaceans) (Appendix P).

The benthic habitats mapped within Narragansett Bay, from the West Passage to Quonset Point, were primarily depositional muds and sandy mud. These habitats support a combination of small and large tube-building and burrowing infauna, as well as mobile epifauna (mollusks and crustaceans). Where these habitats are modified by shell substrate, additional taxa are supported, such as blue mussels and sessile gastropods (i.e., Crepidula), that provide important filtration ecosystem services. In shallow nearshore water, mud and sandy mud habitats may support SAV beds. These habitats also provide important ecosystem services related to water clarity and nutrient cycling, and provide critical habitat for invertebrates and demersal fish, particular juveniles. Outcroppings of Bedrock, Glacial Moraine B, and Glacial Moraine A habitats were mapped within the RWEC-RI Project Area near Conanicut and Dutch Islands within the West Passage of Narragansett Bay. These habitats, as well as nearby Low or Medium Density Boulder Fields coincident with sand and mud habitats, provide structure that supports attached fauna such as sponges and, in shallower photic waters, flora such as benthic macroalgae, as well as demersal fish, such as black sea bass and tautog, that utilize hard bottom substrates and structure.

These findings are consistent with recent surveys in the area (Shumchenia and King, 2019) and expected fauna based on historical studies (Hale et al. 2018).

No sensitive taxa or species of concern were observed within the RWEC-RI Project Area. However, SAV beds consisting primarily of eelgrass (*Zostera marina*), with additional presence of widgeon grass (*Ruppia maritima*), occur in Narragansett Bay. SAV beds are found in shallow coastal areas, including along the western shores of Conanicut and Dutch Islands, at the mouth of Wickford Harbor adjacent to Cornelius Island, and on the west side of Compass Rose Beach (Appendix P). During Revolution Wind's SAV video survey in September 2020, a total of 52 transect lines of a variety of distances and orientations were mapped in nearshore regions of the RWEC-RI Project Area, around the landfall location where SAV was expected at a higher probability. SAV, specifically eelgrass (*Zostera marina*), was observed along the shoreline at the west side of Compass Rose Beach, approximately 845 feet (257 m) east of the proposed HDD exit pits.

3.2.3.2 Potential Project Impacts

Construction and Decommissioning

During construction and decommissioning of the RWEC-RI, benthic resources and shellfish are expected to experience impacts from sediment suspension and deposition and habitat alteration from vessel anchoring and cable installation. Most marine species have some degree of tolerance to higher concentrations of suspended sediment because storms, currents, and other natural processes regularly result in increases in turbidity (MMS 2009). However, eggs and larval organisms are especially susceptible to smothering through sedimentation; for example, winter flounder generally spawn in shallow coastal waters between late November and early December and their eggs are known to be susceptible to adverse effects related to sediment deposition. In areas of sediment disturbance, benthic habitat recovery and benthic infaunal and epifaunal species abundances may take up to 1 to 3 years to recover to pre-impact levels, based on the results of a number of studies on benthic recovery (e.g., AKRF, Inc. et al. 2012; Germano et al. 1994; Hirsch et al. 1978; Kenny and Rees 1994).

Benthic species may also experience localized, long-term impacts caused by the conversion of soft-bottom habitat to hard-bottom habitat associated with cable protection along portions of the RWEC-RI route. None of the impacts are expected to result in population-level effects on benthic species, due to the limited scale and intensity of the RWEC-RI activities, and the availability of similar habitat in the surrounding area.

The benthic habitats mapped within the RWEC-RI corridor that are currently subject to CRMC regulations include Glacial Moraine B, Glacial Moraine A, and Mud and Sandy Mud with SAV. All three of these habitats were limited in their distribution within the mapped RWEC-RI corridor and were mostly located on the periphery of the corridor. Collectively, Glacial Moraine A and B habitats comprised 0.3% (5 acres) of the habitats mapped within the portion of the RWEC-RI Project Area in Rhode Island Sound and 3% (132 acres) of the habitats mapped within the RWEC-RI Project Area in Narragansett Bay. Mud and Sandy Mud with SAV habitats totaled 0.004% (0.2 acres) of the habitats mapped within the RWEC-RI corridor in Narragansett Bay.

As described further in Section 5.2.2 of this Category B Assent application, Revolution Wind anticipates avoidance of Glacial Moraine A and B with siting of the RWEC-RI. Glacial Moraine is defined by CRMC as an Area of Particular Concern (per Section 11.10.2 of the Ocean SAMP) given its importance to fish and other marine plants and animals. Should complete avoidance of Glacial Moraine A and B habitats not be possible due to other, currently unknown, constraints (e.g., unexploded ordnance), Revolution Wind will take all feasible efforts to avoid any damage to the glacial moraine benthic habitats.

The nearest SAV bed to the indicative RWEC-RI route within the West Passage is approximately 1,150 ft (350 m) from the route, on the western side of Dutch Island. At this distance, SAV habitat near the cable corridor is 35 m beyond the projected impact distance for deposition and is within the projected impact distance for elevated turbidity (RPS 2021). The SAV bed mapped at the landfall location during the 2020 video survey is 32 m beyond the projected impact distance for deposition and is within the projected impact distance for elevated turbidity (RPS 2021). Revolution Wind will utilize HDD to avoid documented SAV near the Project's landfall location. In addition, Revolution Wind will avoid construction during the peak SAV growing season (i.e., July to September), which will minimize potential effects due to increased turbidity and sediment deposition associated with cable installation and excavation of the HDD exit pits.

Operations and Maintenance

There are no anticipated impacts during O&M of the RWEC-RI unless a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

Revolution Wind evaluated EMF associated with operation of the RWEC-RI and the calculated magnetic-field and induced electric-field levels for the Project cables are not expected to affect populations of marine organisms in the area (Exponent, 2020). This conclusion is based on comparisons of the reported EMF sensitivity of select, local marine species to the levels of EMF produced by the submarine cables. As part of the evaluation process, Exponent calculated the magnetic-field levels and induced electric-field levels associated with the Project cables. These calculations show that for the offshore segment of the RWEC and the RWEC Landfall Cables the highest magnetic field at 3.3 feet (1 m) above the seabed will be 6.3 milligauss ("mG") or less at average loading and less than 8.4 mG at peak loading. These maximum calculated field levels were then compared to magnetic-field levels reported in the scientific literature as causing behavioral responses in species groups expected to inhabit the Project Area, including marine invertebrates, fish, and elasmobranchs. This conservative evaluation resulted in the following conclusions (Exponent, 2020b), which are consistent with those of a 2019 BOEM report (Snyder et al., 2019):

- Data from field surveys conducted at 60-hertz ("Hz") alternating current ("AC") submarine cable sites demonstrate that behavior and distribution of large crustaceans are unaffected by these magnetic fields.
- Observations of cephalopod distributions at the same 60-Hz AC cable sites also indicated that these species are not affected by the presence of AC EMF.

- Magnetic-field levels calculated for cables are below thresholds at which laboratory and field studies reported behavioral changes in magnetosensitive fish species.
- Elasmobranchs (sharks, rays and skates) are not expected to detect the magnetic fields generated by the 60-Hz AC submarine cables.
- Calculated electric fields associated with Project cables are below the published detection thresholds of electrosensitive fish and elasmobranchs.

In conclusion, the 60-Hz magnetic- and induced electric-field levels calculated from conservative models of the Project's cables during operation will be below the detection thresholds of magnetosensitive and electrosensitive marine organisms in the Project Area.

3.2.3.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to benthic and shellfish resources:

- The RWEC will be sited to avoid and minimize impacts to sensitive habitats (e.g., hard bottom habitats) to the extent practicable.
- A preconstruction SAV survey will be completed to identify any new or expanded SAV beds. The Project design will be refined to avoid impacts to SAV to the extent practicable.
- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- DP vessels will be used for installation of the RWEC-RI to the extent possible.
- A plan for vessels will be developed prior to construction to identify no-anchorage areas to avoid documented sensitive resources.
- Revolution Wind will require all construction and operations vessels to comply with regulatory requirements related to the prevention and control of spills and discharges.
- Accidental spill or release of oils or other hazardous materials offshore will be managed through the Oil Spill Response Plan.

Finally, as described in Section 2.2.5.1, in general, offshore site preparation and installation north of the COLREGS line of demarcation will occur between the day after Labor Day and February 1 to avoid and minimize impacts to winter flounder (*Pseudopleuronectes americanus*) and shellfish.

3.2.4 Finfish and Essential Fish Habitat

3.2.4.1 Affected Environment

This section describes finfish and Essential Fish Habitat ("EFH") within the RWEC-RI Project Area. Finfish evaluated include pelagic, demersal, and anadromous species that inhabit the region. EFH, as regulated by NMFS, is defined in the Magnuson-Stevens Fishery Conservation and Management Act ("MSFCMA") as those waters (e.g., aquatic areas and their associated physical, chemical, and biological properties used by fish) and substrate (e.g., sediment, hard bottom, underlying structures, and associated biological communities) necessary for the spawning, feeding, or growth to maturity of managed fish species. A 0.5 mi (800 m) wide corridor around the RWEC-RI Project Area was used for identifying species with EFH within the vicinity of the proposed cable corridor.

The regional waters off the coast of Rhode Island and Massachusetts are transitional waters that separate Narragansett Bay and Long Island Sound from the OCS (BOEM, 2013). These waters straddle the Mid-Atlantic and New England biogeographic regions and serve as the northern boundary for some Mid-Atlantic species and the southern boundary for some New England species. The species that may be found in the RWEC-RI reflect the transitional nature of this regional area.

Some demersal species are present year-round in the RWEC-RI Project Area; however, there are distinct seasonal variations in local populations because of seasonal migrations and inter-annual population dynamics (declines and increases) (Malek, 2015). Demersal species such as black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), whiting (*Merlangius merlangus*), summer flounder (*Paralichthys dentatus*), winter flounder (*Pseudopleuronectes americanus*), yellowtail flounder (*Pleuronectes ferruginea*), and winter skate (*Leucoraja ocellata*) are important to both the stability and resiliency of the local marine community and have a large impact on commercial fisheries (RI CRMC, 2010).

Coastal pelagic species typically inhabit the photic zone over the continental shelf, in waters up to about 655 ft (200 m) deep (NOAA Fisheries, 2018). Example coastal pelagic species that may be found in the RWEC-RI Project Area include forage fish such as anchovy (*Anchoa mitchilli*), American shad (*Alosa sapidissima*), and Atlantic menhaden (*Brevoortia tyrannus*), as well as their predators. Certain pelagic species are considered highly migratory species; they travel long distances and often cross domestic and international boundaries. These include oceanic pelagic species such as many sharks. Many species of finfish that have pelagic life stages within the region are considered commercially or recreationally important. Some of these species (e.g., bluefish [*Pomatomus saltatrix*]) migrate seasonally to the RWEC-RI Project Area.

Anadromous species are those which migrate between the ocean and lower-salinity riverine environments for spawning. Demersal species of anadromous fish potentially present within the RWEC-RI Project Area include striped bass (*Morone saxatilis*) and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), and potentially present pelagic species of anadromous fish include American shad, alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), Atlantic menhaden, and Atlantic sea herring (*Clupea harengus*) (BOEM, 2013; Scotti et al., 2010). The most common finfish prey species within the RWEC-RI Project Area include alewife, Atlantic menhaden, northern sand lance (*Ammodytes dubius*), and whiting.

The federally listed Atlantic sturgeon could occasionally occur within the RWEC-RI Project Area. The Atlantic sturgeon is an anadromous, subtropical species that can be found along the Atlantic coast from Labrador, Canada to Florida (Murdy et al., 1997; Atlantic States Marine Fisheries Commission ["ASMFC"], 2019b). There are five distinct population segments ("DPS") (i.e., the New York Bight, Gulf of Maine, Chesapeake Bay, Carolina, and South Atlantic DPS), which are grouped by ranges according to designations published by NOAA Fisheries (77 Federal Register 5880; 77 Federal Register 5914). The DPS most likely to be found in the vicinity of the Project Area is the New York Bight DPS. There are no known spawning locations or Critical Habitats in Rhode Island. Historically, Atlantic sturgeon spawned in the Taunton River in Massachusetts, however, their current status in this river is unknown (ASMFC, 2019b). Juvenile and adult Atlantic sturgeon have been captured in otter trawls and sink gill nets in the region and commercial bycatch data indicates the greatest occurrence of offshore Atlantic sturgeon in Massachusetts and Rhode Island waters to occur from November through May (Stein et al., 2004).

Within Narragansett Bay, the demersal fish community structure has been changing over the past six decades with some demersal species declining (e.g., winter flounder, whiting, and red hake (*Urophycis chuss*)), while others have increased (e.g., Atlantic butterfish (*Peprilus triacanthus*), scup, and squid) (Collie et al., 2008). These population changes are thought to be related to overfishing, fishery closures, changes in food sources, and changes in habitat (ASMFC, 2019a). The abundance of coastal anadromous finfish, such as striped bass, American shad, and river herring (alewife and blueback herring, collectively), has declined substantially in Narragansett Bay due to habitat loss and exploitation (NBEP, 2017). These species migrate between the ocean and lower-salinity riverine environments, typically undergoing their upstream spawning migration in the spring.

Within the 0.5 mi (800 m) corridor around the RWEC-RI centerline, 32 species of fish and invertebrates have designated EFH for various life stages. These species and their EFH are described in detail in Appendix Q.

3.2.4.2 Potential Project Impacts

Construction and Decommissioning

RWEC-RI construction and decommissioning impacts on EFH will vary for different species based on several factors including behavior and distribution in the water column diet, habitat preferences, the amount of suitable habitat present in the area, and life stage. Most of the potential impacts on EFH will be temporary and reversible as natural processes are expected to return the disturbed areas to pre-construction conditions apart from secondary cable protection. In addition, the spatial extent of anticipated habitat that is anticipated to be impacted is small relative to the amount of similar habitat in the region.

Species with a completely pelagic lifestyle are generally expected to be less negatively affected than demersal or benthic species from construction related impacts. Based on the results of a number of studies on benthic recovery (e.g., AKRF, Inc. et al., 2012; Germano et al., 1994; Hirsch et al., 1978; Kenny and Rees, 1994), the affected benthic communities in the disturbed area are expected to re-establish within 1 to 3 years as native assemblages recolonize the affected area or a new community develops as a result of immigration of organisms from nearby areas or from larval settlement. However, there are no expected population-level effects on EFH species due to the limited scale and intensity of the Project activities and the availability of similar habitat in the surrounding area. The species and associated life stages most likely to experience some level of negative impact are listed in Table 3.2-7 below.

Operations and Maintenance

There are no anticipated impacts during O&M of the RWEC-RI unless a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

Once the RWEC-RI becomes energized, the cables will produce a magnetic field, both perpendicularly and in a lateral direction around the cables. The cable will be shielded and, where feasible, buried beneath the seafloor and will otherwise be protected. Shielded electrical transmission cables do not directly emit electrical fields into surrounding areas but are surrounded by magnetic fields that can cause induced electrical fields in moving water (Gill et al., 2012). Based on EMF modeling performed for the Project (Exponent, 2020), behavioral effects and/or changes in finfish and EFH species abundance and distributions due to EMF are not expected. These conclusions are consistent with the findings of a previous comprehensive review of the ecological impacts of marine renewable energy projects, where it was determined that there has been no evidence demonstrating that EMF at the levels expected from marine renewable energy projects will cause an effect (negative or positive) on any species (Copping et al., 2016). Moreover, a 2019 BOEM report that assessed the potential for AC EMF from offshore wind facilities to affect marine populations concluded that, for the southern New England area, no negative effects are expected for populations of key commercial and recreational fish species (Snyder et al., 2019). Based on this information, it is not expected that finfish and EFH will be measurably affected by EMF from the cables.

Cable protection associated with the RWEC-RI also has the potential to have beneficial effects on species with life stages with a preference for hard-bottom habitats (e.g., gravel, rock, boulders, artificial reefs), depending on the quality of the newly-created hard-bottom habitat, and the composition of the colonizing benthic community. The species and life stages that may experience beneficial effect are listed in Table 3.2-8.

Note that some species could experience both negative and beneficial impacts at different phases of the Project. Thus, the same species and life stages may appear in both Table 3.2-7 and Table 3.2-8.

Table 3.2-7 EFH Species Most Likely to Experience Negative Impacts

Species	Egg	Larvae	Neonate	Juvenile	Adult
New England Finfish					
Atlantic cod (*Gadus morhua*)				●	●
Haddock (*Melanogrammus aeglefinus*)				●	
Monkfish (*Lophius americanus*)				●	●
Ocean pout (*Zoarces americanus*)	●			●	●
Red hake (*Urophycis chuss*)				●	●
Silver hake (*Merluccius bilinearis*)				●	●
White hake (*Urophycis tenuis*)				●	

Species	Egg	Larvae	Neonate	Juvenile	Adult
Windowpane flounder (*Scophthalmus aquosus*)				●	●
Winter flounder (*Pseudopleuronectes americanus*)	●	●			●
Yellowtail flounder (*Limanda ferruginea*)				●	●
Mid-Atlantic Finfish					
Black sea bass (*Centropristis striata*)				●	●
Scup (*Stenotomus chrysops*)				●	●
Summer flounder (*Paralichthys dentatus*)				●	●
Invertebrates					
Atlantic sea scallop (*Placopecten magellanicus*)	●	●		●	●
Atlantic surfclam (*Spisula solidissima*)				●	●
Longfin inshore squid (*Doryteuthis pealeii*)	●				
Ocean quahog (*Arctica islandica*)				●	●
Skates					
Little skate (*Leucoraja erinacea*)				●	●
Winter skate (*Leucoraja ocellata*)				●	●
Sharks					
Spiny dogfish (*Squalus acanthias*)				●[1]	●

1 Includes sub-adult males and sub-adult females

Table 3.2-8 EFH Species That May Experience Beneficial Effects

Species	Egg	Larvae	Neonate	Juvenile	Adult
New England Finfish					
Atlantic cod (*Gadus morhua*)				●	●
Haddock (*Melanogrammus aeglefinus*)				●	
Monkfish (*Lophius americanus*)				●	●
Ocean pout (*Zoarces americanus*)	●			●	●
Pollock (*Pollachius virens*)				●	
Red hake (*Urophycis chuss*)				●	●
Silver hake (*Merluccius bilinearis*)					●
Winter flounder (*Pseudopleuronectes americanus*)				●	●

Species	Egg	Larvae	Neonate	Juvenile	Adult
Yellowtail flounder (*Limanda ferruginea*)					•
Mid-Atlantic Finfish					
Black sea bass (*Centropristis striata*)				•	•
Scup (*Stenotomus chrysops*)					•
Invertebrates					
Atlantic sea scallop (*Placopecten magellanicus*)	•	•		•	•
Longfin inshore squid (*Doryteuthis pealeii*)	•				
Skates					
Little skate (*Leucoraja erinacea*)				•	•
Winter skate (*Leucoraja ocellata*)				•	•

3.2.4.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to finfish and EFH:

- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- To the extent feasible, the RWEC-RI will typically target a burial depth of 4 to 6 ft (1.2 to 1.8 m) below seabed. The target burial depth will be determined based on an assessment of seabed conditions, seabed mobility, the risk of interaction with external hazards such as fishing gear and vessel anchors, and a site-specific Cable Burial Risk Assessment.
- DP vessels will be used for installation of the RWEC-RI to the extent practicable.
- A plan for vessels will be developed prior to construction to identify no-anchorage areas to avoid documented sensitive resources.
- Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction. Fisheries monitoring studies are being planned to assess the impacts associated with the Project on economically and ecologically important fisheries resources. These studies will be conducted in collaboration with the local fishing industry and will build upon monitoring efforts being conducted by affiliates of Revolution Wind at other wind farms in the region.
- Revolution Wind will require all construction and operations vessels to comply with regulatory requirements related to the prevention and control of spills and discharges.
- Accidental spill or release of oils or other hazardous materials offshore will be managed through the OSRP.

- A ramp-up or soft-start will be used at the beginning of each pile segment during impact pile driving and/or vibratory pile driving to provide additional protection to mobile species in the vicinity by allowing them to vacate the area prior to the commencement of pile driving activities.
- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- All vessels will comply with USCG and EPA regulations that require operators to develop waste management plans, post informational placards, manifest trash sent to shore, and use special precautions such as covering outside trash bins to prevent accidental loss of solid materials. Vessels will also comply with BOEM lease stipulations that require adherence to NTL 2015-G03, which instructs operators to exercise caution in the handling and disposal of small items and packaging materials, requires the posting of placards at prominent locations on offshore vessels and structures, and mandates a yearly marine trash and debris awareness training and certification process.

Finally, as described in Section 2.2.5.1, in general, offshore site preparation and installation north of the COLREGS line of demarcation will occur between the day after Labor Day and February 1 to avoid and minimize impacts to winter flounder (*Pseudopleuronectes americanus*) and shellfish.

3.2.5 Marine Mammals and Sea Turtles

3.2.5.1 Affected Environment

The description of the affected environment for marine mammals was developed by reviewing current public data sources related to marine mammals including: the NOAA Northeast Fisheries Science Center's ("NEFSC's") Atlantic Marine Assessment Program for Protected Species ("AMAPPS") (Palka et al., 2017), the Northeast Large Pelagic Survey Collaborative Aerial and Acoustic Surveys for Large Whales and Sea Turtles (Kraus et al., 2016), Remote Marine and Onshore Technology surveys for New York State Energy Research and Development Authority ("NYSERDA") (Normandeau Associates Inc. [Normandeau] and APEM, 2019); a technical report for the Ocean SAMP (Kenney and Vigness-Raposa, 2010); available marine mammal habitat density data available on the Northeast Ocean Data Portal (Curtice et al., 2019; Roberts et al., 2016, 2017, 2018; Roberts, 2018, 2020); NOAA stock assessment reports (Hayes et al., 2017, 2018, 2019, 2020); and relevant journal publications.

As summarized in Table 3.2-9 below, 36 species of marine mammals inhabit the regional waters of the western North Atlantic OCS. Of these, 5 species are not expected to occur within the RWEC-RI Project Area and 21 species are considered rare or uncommon in the RWEC-RI Project Area. See Appendix R for additional detail regarding marine mammals and sea turtles.

Information regarding distances from shore for marine mammal migratory routes are not available for all species. Surveys suggest that some cetacean species, notably the North Atlantic Right Whale (NARW) and humpback whale, can be found between 50 and 2,000 m from shore while migrating (Best et al., 1998; Hayes et al., 2020). Fin whales, humpback whales, NARWs, and minke whales have all been observed in the RWEC-RI Project Area and will be most abundant in the winter and spring (Kenney and Vigness-Raposa, 2010; Kraus et al., 2016). Sei whales and blue whales are not expected to occur within the RWEC-RI Project Area. Sperm whales in this area have been observed in Rhode Island state waters near Block Island following prey species and may therefore be encountered in the RWEC-RI Project Area during summer and fall (Cetacean and Turtle Assessment Program ["CETAP"], 1982; Kenney and Vigness-Raposa, 2010). Common bottlenose dolphin, common dolphins, and Atlantic white-sided dolphins are the only dolphin species expected to occur with regularity in the RWEC–RI Project Area (Kenney and Vigness-Raposa, 2010; Hayes et al., 2020). Harbor porpoises are known to prefer shallower waters closer to shore and are likely to occur in Rhode Island state waters as they travel between their winter habitat in the Mid-Atlantic to their summer habitat in the Gulf of Maine (Kenney and Vigness-Raposa, 2010). They are predominantly expected in the winter and spring. Historically, seals were rare in Rhode Island state waters, but since the passing of the MMPA in 1972 observations of harbor and gray seals have increased and they are most abundant in these waters from late fall until late spring (McLeish, 2016). Arctic species such as harp, hooded, and ringed seals have also been reported in Narragansett Bay, although sightings of these species are rare (Kenney and Vigness-Raposa, 2010). Harbor seals are the most frequently observed seal species throughout the coastal waters of Rhode Island and adjacent state waters (Kenney and Vigness-Raposa, 2010). Gray seals are less common in Rhode Island, but recovery of the Massachusetts and Canadian breeding populations has led to a recent increase in gray seal observations in New England waters (Kenney and Vigness-Raposa, 2010; Hayes et al., 2020). Both species are expected to occur in the RWEC–RI; harbor seals may be present year-round in lower densities, but peak presence of both species is likely to occur in late spring through early summer (Kenney and Vigness-Raposa, 2010).

The only species of marine mammal that can regularly be found onshore are seals. There have been six identified haul-out sites in Narragansett Bay, with the most observations at the Dumplings off Conanicut Island and Rome Point in North Kingstown (Kenney and Vigness-Raposa, 2010). The nearest haul-out site to the proposed landfall location at Quonset Point in North Kingstown, Rhode Island, is approximately 1.86 mi (3 km) away.

Table 3.2-9 Marine Mammals Potentially Occurring Within the Regional Western North Atlantic OCS Waters and the RWEC-RI Project Area

Common Name	Scientific Name	Stock	Current Population Status	Occurrence in the RWEC-RI Project Area	Best Abundance Estimate[1]
Fin whale	*Balaenoptera physalus*	Western North Atlantic	ESA Endangered MMPA Depleted and Strategic RI State Endangered	Common	7,418
Sei whale	*Balaenoptera borealis*	Nova Scotia	ESA Endangered MMPA Depleted and Strategic	Uncommon	6,292
Blue whale	*Balaenoptera musculus*	Western North Atlantic	ESA Endangered	Not Expected	402

Common Name	Scientific Name	Stock	Current Population Status	Occurrence in the RWEC-RI Project Area	Best Abundance Estimate[1]
			MMPA Depleted and Strategic		
North Atlantic right whale	*Eubalaena glacialis*	Western North Atlantic	ESA Endangered MMPA Depleted and Strategic RI State Endangered	Common	428
Minke whale	*Balaenoptera acutorostrata*	Canadian East Coast	MMPA Non-strategic	Common	24,202
Humpback whale	*Megaptera novaeangliae*	Gulf of Maine	MMPA Non-strategic RI State Endangered	Common	1,396
Sperm whale	*Physeter macrocephalus*	North Atlantic	ESA Endangered MMPA Depleted and Strategic	Regular	4,349
Pygmy sperm whale	*Kogia breviceps*	Western North Atlantic	MMPA Non-strategic	Rare	7,750
Dwarf sperm whale	*Kogia sima*	Western North Atlantic	MMPA Non-strategic	Rare	7,750
Northern bottlenose whale	*Hyperoodon ampullatus*	Western North Atlantic	MMPA Non-strategic	Not Expected	Unknown
Cuvier's beaked whale	*Ziphius cavirostris*	Western North Atlantic	MMPA Non-strategic	Rare	21,818
Mesoplodont beaked whales	*Mesoplodon* spp.	Western North Atlantic	MMPA Depleted	Rare	21,818
Killer whale	*Orcinus orca*	Western North Atlantic	MMPA Non-strategic	Rare	Unknown
False killer whale	*Pseudorca crassidens*	Western North Atlantic	MMPA Strategic	Rare	1,791
Pygmy killer whale	*Feresa attenuata*	Western North Atlantic	MMPA Non-strategic	Not Expected	Unknown
Short-finned pilot whale	*Globicephala macrorhynchus*	Western North Atlantic	MMPA Strategic	Rare	28,924
Long-finned pilot whale	*Globicephala melas*	Western North Atlantic	MMPA Strategic	Uncommon	39,215
Melon-headed whale	*Peponocephala electra*	Western North Atlantic	MMPA Non-strategic	Not Expected	Unknown
Risso's dolphin	*Grampus griseus*	Western North Atlantic	MMPA Non-strategic	Uncommon	35,493

Common Name	Scientific Name	Stock	Current Population Status	Occurrence in the RWEC-RI Project Area	Best Abundance Estimate[1]
Common dolphin	*Delphinus delphis*	Western North Atlantic	MMPA Non-strategic	Common	172,825
Fraser's dolphin	*Lagenodelphis hosei*	Western North Atlantic	MMPA Non-strategic	Rare	Unknown
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Western North Atlantic	MMPA Non-strategic	Common	93,233
White-beaked dolphin	*Lagenorhynchus albirostris*	Western North Atlantic	MMPA Non-strategic	Rare	536,016
Pantropical spotted dolphin	*Stenella attenuata*	Western North Atlantic	MMPA Non-strategic	Rare	6,593
Clymene dolphin	*Stenella clymene*	Western North Atlantic	MMPA Non-strategic	Not Expected	Unknown
Striped dolphin	*Stenella coeruleoalba*	Western North Atlantic	MMPA Non-strategic	Rare	67,036
Atlantic spotted dolphin	*Stenella frontalis*	Western North Atlantic	MMPA Non-strategic	Uncommon	39,921
Spinner dolphin	*Stenella longirostris*	Western North Atlantic	MMPA Non-strategic	Rare	4,102
Rough toothed dolphin	*Steno bredanensis*	Western North Atlantic	MMPA Non-strategic	Rare	136
Common bottlenose dolphin	*Tursiops truncatus*	Western North Atlantic, offshore	MMPA Non-strategic	Common	62,851
		Western North Atlantic, Northern migratory coastal	MMPA Depleted and Strategic	Rare	6,639
Harbor porpoise	*Phocoena phocoena*	Gulf of Maine/Bay of Fundy	MMPA Non-strategic RI State SGCN	Common	95,543
Harbor seal	*Phoca vitulina*	Western North Atlantic	MMPA Non-strategic RI State SGCN	Regular	75,834
Gray seal	*Halichoerus grypus*	Western North Atlantic	MMPA Non-strategic	Regular	27,131
Harp seal	*Pagophilus groenlandica*	Western North Atlantic	MMPA Non-strategic	Rare	Unknown
Hooded seal	*Cystophora cristata*	Western North Atlantic	MMPA Non-strategic	Rare	Unknown

Common Name	Scientific Name	Stock	Current Population Status	Occurrence in the RWEC-RI Project Area	Best Abundance Estimate[1]
Florida manatee[2]	*Trichechus manatus latirostris*	-	ESA Threatened MMPA Depleted and Strategic	Rare	Unknown

1 Best abundance estimate from the Draft 2019 Marine Mammal Stock Assessment Report, published by NMFS on the Federal Register on 27 November 2019 (84 FR 65353).

2 Under management jurisdiction of United States Fish and Wildlife Service rather than National Marine Fisheries Service (USFWS, 2019).

Definitions: Common – Occurring consistently in moderate to large numbers; Regular – Occurring in low to moderate numbers on a regular basis or seasonally; Uncommon – Occurring in low numbers or on an irregular basis; Rare – Records for some years but limited; and Not expected – Range includes the Project Area but due to habitat preferences and distribution information species are not expected to occur in the Project Area although records may exist for adjacent waters.

Species densities will likely be lower in state waters for some groups relative to OCS waters, and a few of the more offshore species whose densities are already low, are unlikely to occur in state waters. Information regarding distances from shore for marine mammal migratory routes are not available for all species. Surveys suggest that some cetacean species, notably the NARW and humpback whale, can be found between 50 and 2,000 m from shore while migrating (Best et al., 1998; Hayes et al., 2020). Fin whales, humpback whales, NARWs, and minke whales have all been observed in the Rhode Island state waters associated with the RWEC and will be most abundant in the winter and spring (Kenney and Vigness-Raposa, 2010; Kraus et al., 2016). Sei whales and blue whales are not anticipated in state waters. Sperm whales have been observed in Rhode Island state waters near Block Island following prey species and may be encountered in the RWEC–RI area during summer and fall (CETAP, 1982; Kenney and Vigness-Raposa, 2010).

Common bottlenose dolphin, common dolphins, and Atlantic white-sided dolphins are the only dolphin species expected to occur with regularity in the RWEC–RI (Kenney and Vigness-Raposa, 2010; Hayes et al., 2020). Harbor porpoises are known to prefer shallower waters closer to shore and are likely to occur in Rhode Island state waters as they travel between their winter habitat in the Mid-Atlantic to their summer habitat in the Gulf of Maine (Kenney and Vigness-Raposa, 2010). They are predominantly expected in the winter and spring.

Historically, seals were rare in Rhode Island state waters, but since the passing of the MMPA in 1972 observations of harbor and gray seals have increased and they are most abundant in these waters from late fall until late spring (McLeish, 2016). Arctic species such as harp, hooded, and ringed seals have also been reported in Narragansett Bay, although sightings of these species are rare (Kenney and Vigness-Raposa, 2010). Harbor seals are the most frequently observed seal species throughout the coastal waters of Rhode Island and adjacent state waters (Kenney and Vigness-Raposa, 2010). Gray seals are less common in Rhode Island, but recovery of the Massachusetts and Canadian breeding populations has led to a recent increase in gray seal observations in New England waters (Kenney and Vigness-Raposa, 2010; Hayes et al., 2020). Both species are expected to occur in the RWEC–RI; harbor seals may be present year-round in lower densities, but peak presence of both species is likely to occur in late spring through early summer (Kenney and Vigness-Raposa, 2010).

The Northeastern United States coast, including waters off Rhode Island, contains a variety of marine habitats that are suitable for these sea turtles, such as the shallow enclosed waters of the Peconic Bay and other bays in Long Island, the deeper waters of Long Island Sound and the Atlantic Ocean (Burke et al., 1993). With Rhode Island state waters being located within three miles of shore, more suitable habitat for adult sea turtles would be available compared to areas farther offshore.

There are four sea turtle species commonly found throughout the western North Atlantic which may occur within the Study Area. Consequently, these four species are considered potentially affected species. These species include the green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), and loggerhead sea turtle (*Caretta caretta*). A fifth species, hawksbill sea turtle (*Eretmochelys imbricata*), may potentially occur within the region, but was not considered further in the impact assessment due to its use of tropical waters and coral reef habitats. Since this habitat is not present within the North Atlantic region, the presence of the hawksbill sea turtle would be extremely rare (NOAA Greater Atlantic Region Fisheries Office ["GARFO"], 2017). The four turtle species discussed in this section are listed as Endangered or Threatened under the ESA and are also listed as Endangered by the state of Rhode Island (RIDEM, 2020). USFWS and NMFS share the responsibility for sea turtle recovery under the authority of the ESA.

3.2.5.2 Potential Project Impacts

Construction and Decommissioning

Seafloor disturbances associated with installation and removal of the RWEC-RI may impact marine mammals and sea turtles by disrupting and temporarily displacing potential benthic prey species in the immediate area around the cable route. Marine mammals and sea turtles occurring in the area would likely be transiting in search of prey species, which may occasionally be benthic species. As discussed within Section 3.2.3, benthic species are expected to recover within 1 to 3 years.

Underwater noise generated by construction activities (including use of a pneumatic hammer and/or vibratory hammer at the landfall location for installation of the casing pipe and "goal posts") could result in potential physiological and behavioral impacts on marine mammals and sea turtles. However, some marine mammal species show a preference for deeper waters and are less likely to occur in shallower Rhode Island state waters of the RWEC–RI, which may reduce the risk for potential impacts from nearshore construction.

Seasonal increases in marine mammal presence within offshore areas may increase the risk of exposure to above-threshold noise. For those very few individuals that may perceive the non-impulsive noise from DP vessels, impacts may be considered consequential if behavioral disruptions, short-term disruptions in communication, or temporary displacement from the ensonified area were to occur as this could result in the interruption of biologically significant behaviors.

Pinnipeds that may be present along the RWEC–RI could also be susceptible to in-air noise disturbance at haul out sites or pupping grounds, and in-air thresholds have been established by NMFS. However, above water noise impacts to pinnipeds are not expected to occur because the nearest known haul site for seals is approximately 3 km (1.86 mi) from the proposed location of the onshore Project components, and activities at this location are anticipated to produce relatively low levels of in-air noise.

Vessel strikes are another potential impact to marine mammals and sea turtles. Vessel strikes happen when either the animal or the vessel fails to detect one another in time to avoid the collision. Variables that contribute to the likelihood of a collision include vessel speed, vessel size and type and barriers to vessel detection by an animal (e.g. acoustic masking, heavy traffic, biologically focused activity). Most reports of collisions involve large whales, but collisions with smaller species have been reported (Evans et al., 2011; Van Waerebeek et al., 2007). Construction vessel traffic will result in a relatively localized impact that will occur sporadically throughout the approximate 8-month construction period, temporarily increasing the volume and movement of vessels. In the unlikely event that a strike resulting in injury or mortality were to occur, impacts could result in removal of those individuals from the population. The impacts resulting from the removal of an individual from a population that is listed as Endangered is countered by their overall resilience to population-level impacts. Due to comparatively low species densities, and the implementation of the avoidance measures discussed in 3.2.5.3 below, there is a low risk of impacts to occur. However, increased vessel traffic poses a strike risk for marine mammals during RWEC-RI construction.

Artificial lighting during installation and removal of the RWEC-RI will be associated with navigational and deck lighting on vessels from dusk to dawn. Only a limited area would be associated with the artificial lighting used on vessels relative to the surrounding unlit areas and the linear installation of the RWEC-RI will cause the lit area to constantly move along the cable route. Because of the relatively short duration of installation activities, lighting impacts for marine mammals will not be significant.

Operations and Maintenance

There are no anticipated impacts during O&M of the RWEC-RI unless a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

3.2.5.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to marine mammals and sea turtles:

- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- To the extent feasible, the RWEC-RI will typically target a burial depth of 4 to 6 ft (1.2 to 1.8 m) below seabed. The target burial depth will be determined based on an assessment of seabed conditions, seabed mobility, the risk of interaction with external hazards such as fishing gear and vessel anchors, and a site-specific Cable Burial Risk Assessment.
- DP vessels will be used for installation of the RWEC-RI to the extent practicable.

- A plan for vessels will be developed prior to construction to identify no-anchorage areas to avoid documented sensitive resources.
- Vessels will follow NOAA and BOEM guidelines for marine mammal and sea turtle strike avoidance measures, including vessel speed restrictions.
- All personnel working offshore will receive training on marine mammal and sea turtle awareness and marine debris awareness.
- Revolution Wind will require all construction and operations vessels to comply with regulatory requirements related to the prevention and control of spills and discharges.
- Accidental spill or release of oils or other hazardous materials offshore will be managed through the OSRP.
- A ramp-up or soft-start will be used at the beginning of each pile segment during impact pile driving and/or vibratory pile driving to provide additional protection to mobile species in the vicinity by allowing them to vacate the area prior to the commencement of pile driving activities.
- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- All vessels will comply with USCG and EPA regulations that require operators to develop waste management plans, post informational placards, manifest trash sent to shore, and use special precautions such as covering outside trash bins to prevent accidental loss of solid materials. Vessels will also comply with BOEM lease stipulations that require adherence to NTL 2015-G03, which instructs operators to exercise caution in the handling and disposal of small items and packaging materials, requires the posting of placards at prominent locations on offshore vessels and structures, and mandates a yearly marine trash and debris awareness training and certification process.

3.2.6 Coastal and Marine Birds

3.2.6.1 Affected Environment

Information summarized in this section was compiled by reviewing publications and public data sources. The primary sources used include, but are not limited to, the following: RIDEM RI WAP (RIDEM et al. 2015), The Natural Heritage Area data layer hosted on the RIDEM ERM (RIDEM 2021b), USFWS IPaC database (USFWS, 2019 and 2020), Ocean SAMP surveys (RI CRMC 2010/2013), Northwest Atlantic Seabird Catalog (managed by NOAA), and individual species tracking studies (diving birds [Spiegel et al. 2017]; sea ducks [multiple researchers]; falcons [DeSorbo et al. 2018b]; Red Knot [Loring et al. 2018]; Piping Plover [Loring et al. 2019]; Roseate Tern [Loring et al. 2019].

A broad group of avian species passes over the Rhode Island state waters and the offshore region in general, including migrants (such as raptors and songbirds), coastal birds (such as shorebirds, waterfowl, and waders), and marine birds (such as seabirds and sea ducks). Many marine birds make annual migrations up and down the eastern seaboard (e.g., gannets, loons, and sea ducks), taking them directly through state waters in spring and fall. This results in a complex ecosystem where the community composition shifts regularly, and temporal and geographic patterns are highly variable. The region supports large populations of birds in summer, some of which breed in the area, such as coastal gulls and terns. Other summer residents, such as shearwaters and storm-petrels, visit from the Southern Hemisphere (where they breed during the austral summer) occasionally entering state waters. In the fall, many of the summer residents leave the area and migrate south to warmer regions and are replaced by species that breed further north and winter in the region such as common eider (*Somateria mollissima*) and harlequin duck (*Histrionicus histrionicus*) which are known to winter in the West Passage.

As the RWEC–RI approaches the landfall at Quonset Point in North Kingstown, coastal marine birds will come to dominate the species assemblages. Coastal birds typically forage within sight of land, while offshore species feed out of sight of land. Truly pelagic species forage at the frontal zone along or beyond the continental shelf break (Furness and Monaghan 1987, Schrieber and Burger 2001, Gaston 2004), and thus will generally not use coastal waters and are unlikely to occur in the RWEC–RI Project Area. Shallower waters within the RWEC–RI Project Area will provide foraging opportunities for terns, particularly the Roseate Tern (which feeds on sand lance), as well as sea duck, loons, gulls, and cormorants. Terns, including Roseate Terns, and related species will forage over shallow waters and sand spits near shore in pursuit of small prey fish (Nisbet et al. 2017).

Three species listed under the federal ESA occur in the region: piping plover (*Charadrius melodus*), red knot (*Calidris canutus rufa*), and roseate tern (*Sterna dougallii*). The Atlantic population of piping plovers nests on beaches in the region and will also migrate (spring and fall) through the area to and from breeding sites. There is no suitable piping plover nesting habitat within the Landfall Work Area because it is a developed property and the shoreline consists of a revetment. In addition, based on communication with the USFWS, the closest known nesting location for piping plover is approximately 1.5 miles to the northeast of the Onshore Project Area. Red knots winter in southern states or in Central or South America and pass through the region during migration in transit to and from Arctic breeding sites. Roseate terns also fly through the area on their way to breeding sites in New England states and Atlantic Canada. One species proposed for listing under the ESA, the black-capped petrel, could potentially occur in the state waters, although they are generally associated with deeper waters and are usually observed beyond the shelf break.

3.2.6.2 Potential Project Impacts

Construction and Decommissioning

Construction and decommissioning activities for the RWEC-RI will result in short-term, localized increases in turbidity close to the seafloor and in the water column (see Section 3.2.2). For birds that forage over open water, this could reduce visibility and inhibit prey detection in the immediate vicinity of construction activities. In addition, as discussed in Section 3.2.3.2, the sediment suspension and deposition from construction activities could impact benthic and shellfish, which are food sources for certain species. Any changes to prey base composition for marine birds during construction may result in the temporary loss of foraging opportunities. However, the small footprint of disturbance relative to the large expanse of similar habitat available within and adjacent to the RWEC-RI corridor and in the broader region will allow birds to access comparable prey species outside the disturbance area. Although a small strip of mudflat immediately in front of the Landfall Work Area will be exposed at low tides, there are no anticipated impacts to species that forage within intertidal zones, such as piping plover and red knot, due to the highly developed and disturbed nature of the Landfall Work Area and installing the nearshore portion of the RWEC-RI via HDD will avoid these habitats.

Birds might also temporarily avoid the RWEC-RI corridor due to above and below water noise generated by cable installation; however, no permanent habitat loss or displacement is anticipated. Vessel traffic could also both attract some bird species and cause others to avoid the area; similar to noise, no permanent habitat loss or displacement is anticipated.

Operations and Maintenance

The potential temporary impacts described above are considered unlikely during routine O&M of the RWEC-RI, but maybe occur if a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

3.2.6.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to coastal and marine birds:

- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- Revolution Wind is developing an Avian Post-Construction Monitoring Plan for the Project that will summarize the approach to monitoring; describe overarching monitoring goals and objectives; identify the key avian species, priority questions, and data gaps unique to the region and Project Area that will be addressed through monitoring; and describe methods and time frames for data collection, analysis, and reporting. Post-construction monitoring will assess impacts of the Project with the purpose of filling select information gaps and supporting validation of the Project's Avian Risk Assessment. Focus may be placed on improving knowledge of ESA-listed species occurrence and movements offshore, avian collision risk, species/species-group displacement, or similar topics. Where possible, monitoring conducted by Revolution Wind will build on and align with post-construction monitoring conducted by the other Orsted/Eversource offshore wind projects in the Northeast region. Revolution Wind will engage with federal and state agencies and environmental groups (eNGOs) to identify appropriate monitoring options and technologies, and to facilitate acceptance of the final plan.
- Revolution Wind will document any dead (or injured) birds/bats found incidentally on vessels and structures during construction and post-construction and provide an annual report to BOEM and USFWS.
- Revolution Wind will require all construction and operations vessels to comply with regulatory requirements related to the prevention and control of spills and discharges.

- Accidental spill or release of oils or other hazardous materials offshore will be managed through the OSRP.
- Construction and operational lighting will be limited to the minimum necessary to ensure safety and to comply with applicable regulations.
- All vessels will comply with USCG and EPA regulations that require operators to develop waste management plans, post informational placards, manifest trash sent to shore, and use special precautions such as covering outside trash bins to prevent accidental loss of solid materials. Vessels will also comply with BOEM lease stipulations that require adherence to NTL 2015-G03, which instructs operators to exercise caution in the handling and disposal of small items and packaging materials, requires the posting of placards at prominent locations on offshore vessels and structures, and mandates a yearly marine trash and debris awareness training and certification process.
- Using HDD to install the nearshore portion of the RWEC-RI, which will avoid impacts to the intertidal zone.

3.2.7 Marine Archeological Resources

Consistent with BOEM's Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585 (BOEM, 2017), a Marine Archaeological Resources Assessment ("MARA") was completed for the Project by SEARCH, Inc. (SEARCH), who is serving as the Qualified Marine Archaeologists for Revolution Wind. The current version of the MARA is provided under confidential cover to this Category B Assent application because it contains confidential commercial information not subject to disclosure under APRA (RIGL § 38-2-1) or FOIA (5 U.S.C. § 552) (Appendix N).

Archaeologists reviewed extant public and proprietary databases containing information on shipwrecks, downed aircraft, or other potentially significant marine archaeological resources within the Project and surrounding areas. Ecological, geological, and cultural contexts were also developed to assist in the identification of potential submerged pre-contact Native American cultural resources. Finally, SEARCH reviewed gradiometer, side-scan sonar, sub-bottom profiler, and multibeam echosounder datasets collected during the 2019/2020 survey campaign to assess the presence or absence of potential submerged cultural resources within the Area of Potential Effects ("APE") offshore. SEARCH developed a paleolandscape reconstruction, based upon background research, regional geology, and the results of the high-resolution geophysical survey and geotechnical campaigns, which includes analysis of vibracores targeting potential submerged landforms.

In accordance with BOEM's Guidelines for Providing Archaeological and Historic Property Information Pursuant to 30 CFR Part 585, avoidance and mitigation actions for cultural resources will be developed through Section 106 consultation with BOEM as the lead federal agency, the RIHPHC and Native American Tribes.

3.2.8 Commercial and Recreational Fishing

3.2.8.1 Affected Environment

The regional waters off the coast of Rhode Island and Massachusetts are transitional waters that separate Narragansett Bay and Long Island Sound from the OCS (BOEM, 2013). These waters straddle the Mid-Atlantic and New England regions and serve as the northern boundary for some Mid-Atlantic species and the southern boundary for some New England species. The species that may be found in the RWEC-RI reflect the transitional nature of this regional area.

Several factors directly affect spatial and temporal patterns of fish species, including habitat. The coastal waters of New England have diverse habitats that are defined by their temperature, salinity, pH, nutrient concentrations, physical structure, biotic structure, depth, and currents. The unique combination of habitat characteristics shapes the community of fish and invertebrate species that inhabit the area. Habitat characteristics influence species composition, distribution, and predator/prey dynamics. Benthic communities have experienced increased water temperatures in the region in the past several decades, and average pH is expected to continue to decline as seawater becomes more saturated with carbon dioxide (Saba et al., 2016). Acidification of seawater poses a threat to the health and survival of organisms with calcareous shells (such as the Atlantic scallop, blue clam, and hard clam), but less is known about direct effects of acidification on cartilaginous and bony fishes.

The distributional ranges of several groundfish species in New England waters have shifted northward and into deeper waters in response to increasing water temperatures (Pinsky et al., 2013; Nye et al., 2009) and more species are predicted to follow (Selden et al., 2018; Kleisner et al., 2017). The black sea bass, identified as particularly sensitive to habitat alteration (Guida et al., 2017), has been increasing in abundance over the past several years, and is expected to continue its expansion in southern New England as water temperatures increase (Kuffner, 2018; McBride et al., 2018). Several pelagic forage species have been increasing in the region, including butterfish, scup, squid (Collie et al., 2008) and Atlantic mackerel (McManus et al., 2018). Distributions of other species are reported to be shifting southward, including spiny dogfish, little skate, and silver hake (Walsh et al., 2015). It has been suggested that the spiny dogfish may replace the Atlantic cod as a major predator in southern New England as the cod is driven north by warm waters that the spiny dogfish tolerates well (Selden et al., 2018). Detailed information on commercial and recreational fishing can be found in Appendix S.

Further temperature increases in southern New England are expected to exceed the global ocean average by at least a factor of two, and ocean circulation patterns are projected to change (Saba et al., 2016). Distributional shifts are occurring in both demersal and pelagic species, perhaps mediated by changes in spawning locations and dates (Walsh et al., 2015). Southern species, including some highly migratory species such as mahi mahi that prefer warmer waters, are expected to follow the warming trend and become more abundant in the area (Walsh et al., 2015; South Atlantic Fishery Management Council, 2003). Climate change may also influence the migration behavior of anadromous fish in the region. The herrings, shad, and sturgeon were identified as having high biological sensitivity to adverse effects of climate change (Hare et al., 2016). In addition to physiological effects of temperature and pH, anadromous fishes face a physical risk caused by flooding in their spawning rivers.

As summarized in BOEM's Revised Environmental Assessment (BOEM, 2013), finfish assemblages off the coast of Rhode Island include demersal, pelagic, and shark species. In addition, there are important shellfish and migratory pelagic finfish throughout the region. Demersal species including groundfish such as cod and haddock, as well as other commercially important species such as monkfish, black sea bass, and winter skate. Many of these demersal fish species are considered to be high-value and are sought by both commercial and recreational anglers. Pelagic fishes are generally schooling and occupy the mid- to upper water column as juveniles and adults and are distributed from the nearshore to the continental slope and beyond. Some species are highly migratory and are reported to be present in the near-coastal and shelf surface waters of Southern New England waters in the summer, taking advantage of the abundant prey in the warm surface waters. Coastal migratory pelagics include fast-swimming schooling fishes that range from shore to the continental shelf edge and are sought by both recreational and commercial anglers. These fish use the highly productive coastal waters of the more expansive Mid-Atlantic Bight during the summer months and migrate to deeper and/or distant waters during the remainder of the year (BOEM, 2013). Several shark species also occupy this region.

3.2.8.2 Potential Project Impacts

Construction and Decommissioning

Construction and decommissioning activities associated with the RWEC-RI are generally expected to have short-term, localized impacts on access to fishing grounds due to safety measures on entering the area. In Rhode Island state waters fishing activity primarily uses pots and traps, followed by fixed nets, and the top species landed are scup, channeled whelk and summer flounder (Atlantic Coastal Cooperative Statistics Program, 2019). According to available VMS data (Northeast Regional Ocean Council, 2020), vessel intensity for the Atlantic herring, pelagic species (herring, mackerel, squid), monkfish, and squid fisheries are medium-high to very high along portions of the RWEC-RI route; therefore these fisheries are most likely to be affected during installation of the RWEC-RI.

Operations and Maintenance

During O&M of the RWEC-RI, commercial and recreational fisheries are expected to experience no effect or limited effects because the cables will be buried beneath the seabed. The USCG's stated policy is that "in the United States vessels will have the freedom to navigate through [wind farms], including export cable routes." (See USCG Navigation and Vessel Inspection Circular 01-19 dated 1 August 2019.) Therefore, commercial fishermen will have the ability to continue to fish along the RWEC-RI corridor.

As discussed in Sections 3.2.3.2 and 3.2.4.2, based on EMF modeling performed for the Project (Exponent, 2020), behavioral effects and/or changes in abundance and distributions of marine organisms due to EMF are not expected.

3.2.8.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to commercial and recreational fishing:

- To the extent feasible, installation of the RWEC-RI will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- Revolution Wind is committed to collaborative science with the commercial and recreational fishing industries pre-, during, and post-construction. Fisheries monitoring studies are being planned to assess the impacts associated with the Project on economically and ecologically important fisheries resources. These studies will be conducted in collaboration with the local fishing industry and will build upon monitoring efforts being conducted by affiliates of Revolution Wind at other wind farms in the region.
- Communications and outreach with the commercial and recreational fishing industries will be guided by the Project-specific Fisheries Communication and Outreach Plan (see Appendix DD of the Project's COP).
- RWEC was sited to avoid conflicts with DoD use areas and navigational areas identified by the USCG, as applicable.
- Revolution Wind will consult with USCG, NUWC-Newport RI, the Northeast Marine Pilots Association and regional ferry service operators to avoid or reduce use conflicts.
- Project construction and O&M activities will be coordinated with appropriate contacts at USCG, NUWC-Newport, RI, and the Northeast Marine Pilots.
- A comprehensive communication plan will be implemented during offshore construction to inform all mariners, including commercial and recreational fishermen, and recreational boaters of construction activities and vessel movements. Communication will be facilitated through a Fisheries Liaison, Project website, and public notices to mariners (in coordination with USCG).

3.2.9 Recreational Boating and Tourism

3.2.9.1 Affected Environment

The Ocean SAMP provides offshore recreational maps of the Rhode Island Sound based on stakeholder feedback, USCG event permits, and racing event instructions (RI CRMC, 2010). Specifically, these waters are used for a variety of boat-based activities such as recreational boating, offshore sailboat racing, offshore diving, and offshore wildlife viewing. Offshore wildlife viewing near the region includes whale watching (peak season in June and August) and bird watching (year-round but particularly after storm events). The Ocean SAMP also identified several offshore recreational dive sites within the SAMP study area.

Table 3.2-10 provides a characterization of the sailboat, distance, and buoy races that generally occur in the vicinity of the RWEC-RI. Most of the races occur from May to September and have under 100 participants. The largest event is the Newport to Bermuda Yacht Race, which occurs in June and can have over 250 participants. The Off Soundings Club Spring Race Series often hosts up to 150 participants at its event in June off Block Island (ICF, 2012). The New York Yacht Club hosts multiple large race events each year, including its Annual Regatta, Race Week, and an Annual Cruise.

Figure 3.2-4 depicts recreational boating routes, distance sailing races, and recreational SCUBA diving areas in the vicinity of the RWEC-RI.

Table 3.2-10 Sailboat, Distance, and Buoy Races in or Near RWEC-RI

Event	Organizer	Month	Frequency	Course Description	Avg. No. of Vessels	Avg. Vessel Length (feet/meters)
Block Island Race Week	Storm Trysail Club (odd years); Ted Zuse (even years)	June	Annual	Week of buoy races west of Block Island	100+	30-90 / 9-27
New York Yacht Club Annual Regatta	New York Yacht Club	June	Annual	Buoy races south of Brenton Point	110	30-90 / 9-27
New York Yacht Club Invitational Cup	New York Yacht Club	Sept.	Biennial	Buoy races south of Brenton Point	20	42 / 12.8
New York Yacht Club Race Week	New York Yacht Club	Sept.	Biennial	Buoy races south of Brenton Point	150	30-90 / 9-27
Swan 42 National Championship	New York Yacht Club	July	Annual	Buoy races south of Brenton Point	20	42 / 12.8
Sail Newport Coastal Living Newport Regatta	Sail Newport	July	Annual	Buoy races south of Brenton Point	Varies	Varies
World championship regattas (vary) [b]	Various	Sept.	Annual	Buoy races south of Brenton Point	Varies	Varies
Annapolis to Newport Race	Annapolis Yacht Club	June	Biennial	Annapolis, MD, to Newport	61	34+ / 10.3+
Bermuda One-Two	Goat Island Yacht Club and Newport Yacht Club	June	Biennial	Singlehanded (one crew member): Newport to Bermuda; Doublehanded (two crew members): Bermuda to Newport	38	28-60 / 8.5-18.2
Block Island Race	Storm Trysail Club	May	Annual	Stamford, CT, around Block Island and back to Stamford	60	30-75 / 9.1-22.8

Event	Organizer	Month	Frequency	Course Description	Avg. No. of Vessels	Avg. Vessel Length (feet/meters)
Corinthians Stonington to Boothbay Harbor Race	Corinthians Association, Stonington Harbor Yacht Club, and Boothbay Harbor Yacht Club	July	Biennial	Stonington, CT, to Boothbay, ME	14	N/A
Earl Mitchell Regatta	Newport Yacht Club	Oct.	Annual	Newport to Block Island	15	30-50 / 9.1-15.2
Ida Lewis Yacht Club Distance Race	Ida Lewis Yacht Club	August	Annual	Multi-legged course through Rhode Island Sound and adjacent offshore waters	40	30-90 / 9.1-27.4
Marion to Bermuda Cruising Yacht Race	Marion-Bermuda Cruising Yacht Race Association	June	Biennial	Marion, MA, to Bermuda	48	32-80 / 9.7-24.3
New England Solo-Twin Championships	Newport Yacht Club and Goat Island Yacht Club[b]	July	Annual	Multi-legged course through Rhode Island Sound and adjacent offshore waters; starts and ends in Newport	35	24-60 / 7.3-18.2
Newport Bucket Regatta	Bucket Regattas/ Newport Shipyard	July	Annual	Three multi-legged courses off Brenton Point	19	68-147 / 20.7-44.8
Newport to Bermuda Race	Cruising Club of America	June	Biennial	Newport to Bermuda	265	30-90 / 9.1-27.4
New York Yacht Club Annual Cruise	New York Yacht Club	August	Annual	Varies	100	30-90 / 9.1-27.4
Offshore 160 Single-Handed Challenge	Newport Yacht Club and Goat Island Yacht Club	July	Biennial	Multi-legged course through Rhode Island Sound and adjacent offshore waters; starts and ends in Newport	15	28-60 / 8.5-18.2
Off Soundings Club Spring Race Series	Off Soundings Club	June	Annual	Day 1: Watch Hill to Block Island Day 2: Around Block Island	120-150	23-62 / 7-18.8

Event	Organizer	Month	Frequency	Course Description	Avg. No. of Vessels	Avg. Vessel Length (feet/meters)
Owen Mitchell Regatta	Newport Yacht Club	May	Annual	Newport to Block Island	31	24-44 / 7.3-13
Stamford Vineyard Race	Stamford Yacht Club	Aug./Sept.	Annual	Stamford, CT, to entrance of Vineyard Sound and back to Stamford	77	30-90/ 9.1-27.4
Volvo Ocean Race	N/A	Oct. - June	Triennial	Alicante, Spain to Gothenburg, Sweden with a stopover in Newport	N/A	N/A
Whaler's Race	New Bedford Yacht Club	Sept.	Annual	City of New Bedford, around Block Island, to Noman's Island, and back to New Bedford	22	25+ / 7.6+

Recreational boating in the West Passage of Narragansett Bay from Quonset to Narragansett is prevalent but not as dense as the East Passage. Unlike the East Passage which is home to Newport Harbor (multiple marinas, mooring fields, and clubs), Naval Station Newport (with its own marina, mooring field, and club), Jamestown's main harbor (multiple marinas, mooring fields, and clubs), and federal anchorages, the West Passage has relatively few marinas, mooring fields, and clubs from Narragansett to North Kingstown/Quonset.

The main mooring/dockage areas in the West Passage (from Quonset to Narragansett) are:

- Allen's Harbor: home to Mill Creek Marina, Quonset Davisville Navy Yacht Club, Allen Harbor Marina (North Kingstown owned)/moorings/public boat launch, The Marina at RI Mooring Services
- Wickford Harbor: home to North Kingstown's main mooring field, Wickford Shipyard, Safe Harbor Wickford Cove, Wickford Marina, Wickford Yacht Club, Pleasant St. Wharf, and a public boat launch.
- Dutch Island Harbor: home to Dutch Harbor Boat Yard and mooring field

There are a few smaller mooring areas off North Kingstown/Saunderstown (Bissel Cove, Plum Point, Plum Beach), off of the Saunderstown Yacht Club and off of Bonnet Shores. On the Jamestown side, there are private moorings extending the length of the island. Many of these clubs host sailboat racing event in the West Passage throughout the sailing season. Data regarding specific racing events and vessel numbers/lengths varies and not well documented.

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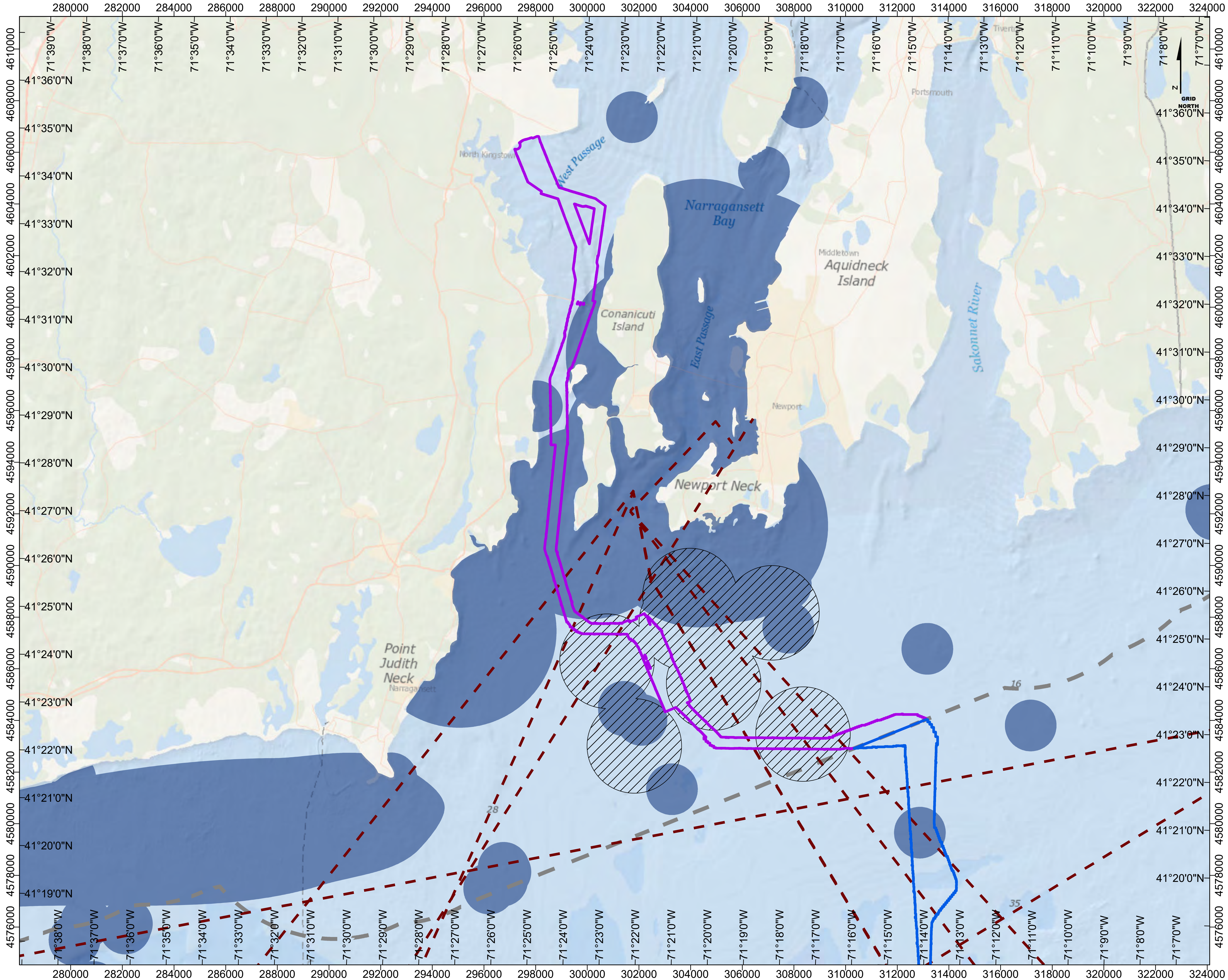
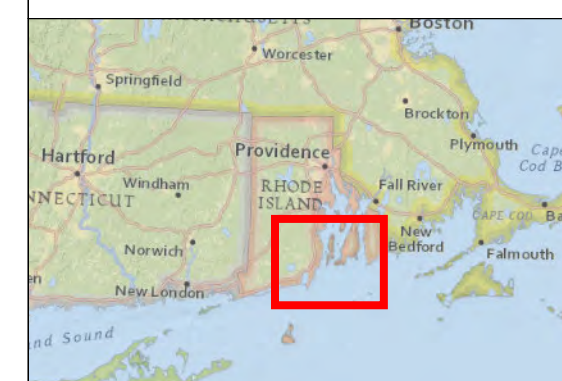
Figure 3.2-3
Offshore Recreation Features



Legend
- RWEC-OCS Project Area
- RWEC-RI Project Area
- 3-Nautical Mile State Water Boundary
- Distance Sailing Races
- Recreational Boating Areas of Particular Concern
- Recreational SCUBA Diving Areas

Service Layer Credits: World Ocean Reference: NOAA OCS, Esri, DeLorme
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
World_Ocean_Base: Esri, DeLorme, NaturalVue, OSAMP Figure 6



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Projection: UTM Zone 19N

0 1000 2000 3000 Meters

0 4,000 8,000 12,000 Feet

Date: 05/19/2020
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Checked by: S. MOBERG
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3.2.9.2 Potential Project Impacts

Construction and Decommissioning

Impacts to recreational boating and tourism during construction and decommissioning of the RWEC-RI can occur from increased vessel traffic to construction locations. In addition, lighting of vessels during construction could also impact offshore recreational boating and tourism resources (e.g., altered fishing, scuba diving or sight-seeing conditions). Potential impacts to recreational boating from the RWEC-RI will generally be limited to construction and decommissioning and would be minimized by scheduling of most of the activity to avoid the peak tourist season.

Operations and Maintenance

During O&M of the RWEC-RI, recreational boating and tourism are expected to experience no effect or limited effects because the cables will be buried beneath the seabed. The RWEC-RI is not expected to have maintenance needs unless a cable repair is necessary. Therefore, impacts associated with increased vessel traffic and lighting within the RWEC-RI corridor are not expected during O&M unless repairs are needed. Such repairs are considered non-routine maintenance.

3.2.9.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to recreational boating and tourism:

› The onshore Project components construction schedule will be designed to minimize impacts to the local community during the summer tourist season, generally between Memorial Day and Labor Day.

› Communications and outreach with the commercial and recreational fishing industries will be guided by the Project-specific Fisheries Communication and Outreach Plan (see Appendix DD of the Project's COP).

› RWEC was sited to avoid conflicts with DoD use areas and navigational areas identified by the USCG, as applicable.

› Revolution Wind will consult with USCG, NUWC-Newport RI, the Northeast Marine Pilots Association and regional ferry service operators to avoid or reduce use conflicts.

› Project construction and O&M activities will be coordinated with appropriate contacts at USCG, NUWC-Newport, RI, and the Northeast Marine Pilots.

› A comprehensive communication plan will be implemented during offshore construction to inform all mariners, including commercial and recreational fishermen, and recreational boaters of construction activities and vessel movements. Communication will be facilitated through a Fisheries Liaison, Project website, and public notices to mariners (in coordination with USCG).

Finally, as described in Section 2.2.5.1, in general, offshore site preparation and installation north of the COLREGS line of demarcation will occur between the day after Labor Day and February 1 to avoid and minimize impacts to winter flounder (*Pseudopleuronectes* *americanus*) and shellfish. This schedule within state waters aligns with avoidance of the summer tourist season.

3.2.10 Commercial Shipping

3.2.10.1 Affected Environment

Commercial shipping within the region includes cargo vessels transiting to or from ports in the Narragansett Bay, Buzzards Bay, and Long Island Sound area. It also includes vessels transiting between a variety of other ports including the Port of New York and New Jersey, the Port of Boston, and other ports located on the east coast or abroad (RI CRMC, 2010).

A range of vessel types and activities characterize marine transportation in the Block Island and Rhode Island Sounds region. Commercial shipping involves the transport of goods (e.g., petroleum products, coal, and cars) through this area, while passenger ferries and cruise ships transport passengers between proximate coastal communities. Critical support to commercial vessel operations are provided by pilot boats, government enforcement vessels, and search and rescue vessels; they also facilitate safe navigation (RI CRMC, 2010).

There are two main traffic separation schemes located within the vicinity of the RWEC-RI corridor. These include the Narragansett Bay Traffic Separation Scheme (commercial traffic transiting north-south) and the Buzzards Bay Traffic Separation Scheme (commercial traffic transiting southwest-northeast). Traffic separation schemes are routing measures aimed at the separation of opposing streams of traffic by the establishment of shipping lanes, shipping zones, recommended routes, and precautionary areas (United States Department of Homeland Security, 2010).

Vessel traffic and navigation in the area may at times be impacted by restrictions. The RWEC-RI is primarily within the Narragansett Bay Special Operating Area ("OPAREA") Complex boundary, within which national defense training exercises are routinely conducted (NOAA, 2018); the OPAREA includes Block Island Sound and Rhode Island Sound, and extends seaward to the south.

Before it enters the Narragansett Bay along the West Passage, the RWEC-RI bisects the middle of the Buzzards Bay traffic separation zone and its associated inbound and outbound lanes. It then crosses the precautionary area at the northern end of the Narragansett Traffic Separation Scheme at the entrance of Narragansett Bay.

3.2.10.2 Potential Project Impacts

Construction and Decommissioning

Potential Project impacts of vessel traffic on marine navigation were evaluated in a detailed Navigation Safety Risk Assessment ("NSRA") prepared for the Project (Appendix T). Primary conclusions of the NSRA included that vessel traffic near the RWEC-RI is light and recreational/pleasure vessels represent the greatest proportion of vessel tracks in the study area. Project-related vessels will be navigated by trained, licensed vessel operators who will adhere to navigational rules and regulations. USCG-approved navigation lighting is required for all vessels during construction and O&M of the RWEC. All vessels operating between dusk and dawn are required to turn on navigation lights. Project construction activities will be carried out in close coordination with the Coast Guard.

Given the Project location relative to major commercial shipping lanes (not including commercial fishing), no significant disruption of the normal traffic patterns during the construction of the RWEC-RI is expected. The number of vessels that will operate during the construction phase is not expected to adversely impact normal traffic patterns. In addition, based on informal consultation with the Northeast Marine Pilots Association, no impacts or issues on navigation are anticipated as a result of the RWEC-RI.

Operations and Maintenance

During O&M of the RWEC-RI, commercial shipping is expected to experience no effect because the cables will be buried beneath the seabed. The RWEC-RI is not expected to have maintenance needs unless a cable repair is necessary. Therefore, impacts associated with increased vessel traffic within the RWEC-RI corridor are not expected during O&M unless repairs are needed. Such repairs are considered non-routine maintenance.

3.2.10.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to commercial shipping:

- RWEC was sited to avoid conflicts with DoD use areas and navigational areas identified by the USCG, as applicable.
- Revolution Wind will consult with USCG, the NUWC Newport RI, the Northeast Marine Pilots Association and regional ferry service operators to avoid or reduce use conflicts.
- Project construction and O&M activities will be coordinated with appropriate contacts at USCG, NUWC-Newport, RI, and the Northeast Marine Pilots.
- A comprehensive communication plan will be implemented during offshore construction to inform all mariners, including commercial and recreational fishermen, and recreational boaters of construction activities and vessel movements. Communication will be facilitated through a Fisheries Liaison, Project website, and public notices to mariners (in coordination with USCG).

3.2.11 Other Marine Uses

3.2.11.1 Affected Environment

This section describes the other marine uses, including military (United States Navy), in the general vicinity of the RWEC-RI. Military uses (United States Navy and other services, including Homeland Security [USCG]) occur within Rhode Island state waters and in proximity to the RWEC-RI. Such uses exist largely because of the proximity to Naval Station Newport, Newport Naval Undersea Warfare Center (Rhode Island), Naval Submarine Base New London, and USCG Academy (City of New London) (BOEM, 2013; RI CRMC, 2010). The United States Atlantic Fleet conducts training and testing exercises in the Narraganset Bay

OPAREA, as the Newport Naval Undersea Warfare Center routinely performs testing in the area (BOEM, 2013).

Other marine uses as presented in this section are defined below. Where present, these uses are shown on Figure 3.2.4.

Aids to Navigation

Aids to navigation ("ATON") are located in the vicinity of the RWEC-RI. ATONs are structures intended to assist a navigator in determining position or safe course, or to warn of dangers or obstructions to navigation. This data set includes lights, signals, buoys, day beacons, and other ATONs.

Anchorage Areas

Anchorage areas are located in the vicinity of the RWEC-RI, particularly within Narragansett Bay, including the West Passage. An anchorage area is a location at sea where vessels can lower their anchors and moor the vessel. The locations usually have conditions for safe anchorage, providing protection from poor weather conditions and other hazards. They can also be used as a mooring area for vessels waiting to enter a port or for the short-term staging area for barges containing construction materials.

Artificial Reefs

The artificial reefs within the region are generally created from obsolete materials, such as small steel boats and other marine vessels, surplus armored vehicles, tires, and concrete pipes, and are used to provide critical habitat for numerous species of fish in areas devoid of hard-bottom (BOEM, 2013).

Passenger Ferry Routes

Passenger ferries are commercial vessels used to carry passengers and their property from one shoreline to another. Such services in the region connect a variety of mainland (e.g., Newport, Point Judith) and island destinations (e.g., Block Island and Martha's Vineyard). The RWEC-RI crosses portions of the seasonal Newport-Block Island ferry and Quonset-Martha's Vineyard ferry routes.

Ocean Disposal Sites

As shown in Figure 4.6.8-1, there is one ocean disposal site in the vicinity of the RWEC-RI, which the EPA designates and manages under the Marine Protection, Research and Sanctuaries Act (MPRSA). Most of these designated sites are for the disposal of dredged materials.

Pilot Boarding Areas

Pilot boarding areas are locations at sea where pilots who are familiar with local waters board incoming vessels to navigate their passage to a destination port. Pilotage is required by law for foreign vessels and United States vessels under register in foreign trade with specific draft characteristics. Pilot boarding areas are represented by a 0.5-nautical-mi (0.9-

km) radius around a coordinate point unless the coast pilot specifically designates a different radius or boarding area boundary. The RWEC-RI intersects one identified pilot boarding area – i.e., the Brenton Reef Pilot Station. Within the past two decades there are no documented cases of any vessel anchoring in the pilot boarding area, nor is there a recollection among the USCG or the Northeast Marine Pilots of any vessels anchoring there[11].

Submarine Cables and Cable Areas

There are existing submarine cables (i.e., electrical cables – communications or power - laid on the seafloor) that run through the RWEC-RI corridor. In addition, there are NOAA nautical chart cable and pipeline areas that denote where such infrastructure may be located. The existence of these areas does not necessarily mean that actual cables or pipeline are present (BOEM, 2013). As noted in Section 2.2.3.7, Revolution Wind has identified seven potential existing assets to-date along the RWEC-RI, some of which are in close proximity to each other (see Revolution Wind RWEC Design in Appendix A).

[11] Personal communication with Capt. P. Costabile, April 2020

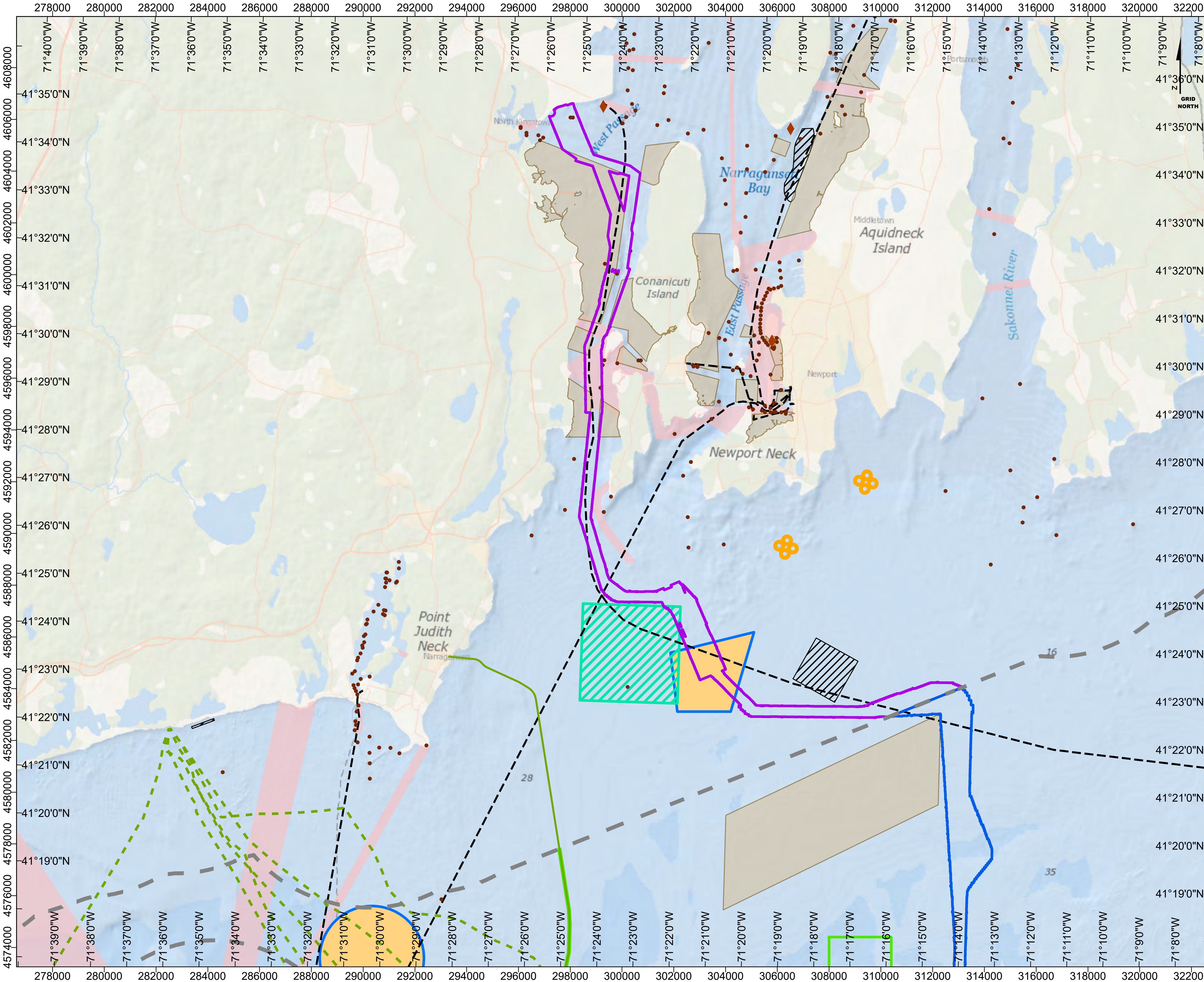

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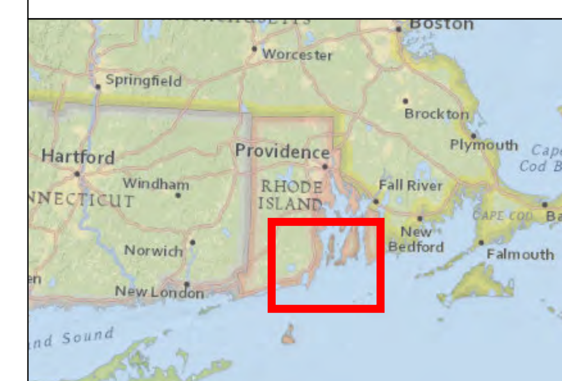
Figure 3.2-4
Other Marine Uses

Legend
- RWEC-OCS Project Area
- RWEC-RI Project Area
- Other Lease Areas
- 3-Nautical Mile State Water Boundary
- Submarine Cable
- Block Island Transmission Cables
- RI Ferry Route
- Bouy Location
- Aid To Navigation
- Artifical Reef
- Anchorage Areas
- Ocean Disposal Sites
- Restricted Area (Navy Operations)
- Pilot Boarding Areas
- Cable Area

Service Layer Credits: World Ocean Reference: NOAA OCS, Esri, DeLorme
National Geographic World Map: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
World_Ocean_Base: Esri, DeLorme, NaturalVue



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3.2.11.2 Potential Project Impacts

Construction and Decommissioning

Project-related vessel traffic impacts on commercial shipping were discussed in Section 3.2.10. Anticipated impacts to other marine uses, such as passenger ferry service or military operations, from RWEC-RI construction vessel traffic will not be significant. For instance, depending on the ports of origin (see Table 4.6-1) and destination, time of year, and time of day, vessel traffic may cross and/or impact passenger ferry service routes such as the Point Judith - Block Island Ferry. Although marine vessels and passenger ferry routes may overlap during construction and decommissioning, potential impacts to passenger ferries are anticipated to be the highest during the construction phase because Project-related vessel traffic will be the greatest during this period. Timely communication and notices will be issued to mariners informing them of construction activities and areas designated as off-limits.

Revolution Wind anticipates crossing seven existing submarine cable areas with installation of the RWEC-RI. Crossing of existing and operational cables poses the risk of damage to these existing facilities during RWEC-RI installation. However, Revolution Wind will coordinate with cable owners to identify methods to cross cables in agreement with the cable owners that will mitigate risk of damage.

Operations and Maintenance

There are no anticipated impacts during O&M of the RWEC-RI unless a cable repair is required. Repair or replacement of cables or cable protection associated with the RWEC-RI during operations are considered non-routine maintenance activities potentially resulting in the same or lesser impacts as construction.

3.2.11.3 Proposed Avoidance, Minimization, and Mitigation Measures

Environmental protective measures proposed by Revolution Wind are summarized in Section 2.2.5. Below is a list of measures applicable to other marine uses:

- To the extent feasible, the RWEC will typically target a burial depth of 4 to 6 ft (1.2 to 1.8 m) below seabed. The target burial depth will be determined based on an assessment of seabed conditions, seabed mobility, the risk of interaction with external hazards such as fishing gear and vessel anchors, and a site-specific Cable Burial Risk Assessment.
- To the extent feasible, installation of the RWEC will occur using equipment such as mechanical cutter, mechanical plow, or jet plow.
- RWEC was sited to avoid conflicts with DoD use areas and navigational areas identified by the USCG, as applicable.
- Revolution Wind will consult with USCG, the NUWC Newport RI, Northeast Marine Pilots Association and regional ferry service operators to avoid or reduce use conflicts.
- Project construction and O&M activities will be coordinated with appropriate contacts at USCG, the NUWC Newport, and the Northeast Marine Pilots.

- A comprehensive communication plan will be implemented during offshore construction to inform all mariners, including commercial and recreational fishermen, and recreational boaters of construction activities and vessel movements. Communication will be facilitated through a Fisheries Liaison, Project website, and public notices to mariners and vessel float plans (in coordination with USCG).

4

CRMP Regulatory Standards

The CRMP requires that the applicant provide sufficient information on the Project for CRMC to render a decision. Portions of the Project are subject to CRMC jurisdiction and the requirements of the CRMP (See Figure 1.1-1). In addition, the Landfall Work Area, Onshore Transmission Cables and OnSS are subject to the Shoreline Change (Beach) Special Area Management Plan (SAMP) which is incorporated into Part 1.1.6(I) of the CRMP. The Onshore Transmission Cables and OnSS are also subject to the Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast (650-RICR-20-00-2). Furthermore, the RWEC-RI from the mouth of Narragansett Bay to the three-nautical mile limit of state waters is subject to the policies and regulations of the Ocean SAMP, 650-RICR-20-05-11.

The following sections of the CRMP are addressed in this Chapter 4: Sections 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, 1.2.1(E), 1.2.1(G), 1.2.2(A), 1.2.2(C), 1.2.2(F), 1.2.3, 1.3.1(B), 1.3.1(C), 1.3.1(F), 1.3.1(G), 1.3.1(H), 1.3.1(I), 1.3.1(J), 1.3.1(R), 1.3.3, 1.3.5, and 1.3.6.

Note, Section 1.3.1(A) of the CRMP (Category B Requirements) is addressed in Section 1.3.2 of this Category B Assent application; whereas Section 1.1.4(D) of the CRMP (Freshwater wetlands in the vicinity of the coast) is addressed in Appendix B of this application. For ease of review, Revolution Wind sets forth the applicable CRMP section and then provides its response. As demonstrated below, Revolution Wind meets all of the applicable standards.

4.1 CRMP Section 1.1.5 – Review Categories and Water Types

The RWEC-RI will pass through waters designated as Type 4 Multi-Purpose Waters within Narragansett Bay and Type 6 Industrial Waterfront and Commercial Navigation Channels in the nearshore area (See Figure 3.2-1). According to Table 1 in Section 1.1.5(A) of the CRMP, activities classified as “Energy-related Activities/Structures”, “Dredging-Improvement”, and “Filling in Tidal Waters” in Tidal Waters designated as Types 4 and 6 require a Category B Assent Application. Thus, Revolution Wind has submitted this application for Category B Assent. Similarly, activities listed in Table 2 in Section 1.1.5(B) of the CRMP specifically Energy related structures require a Category B Assent Application.