CRMC File No. 2021-07-005
Revolution Wind, LLC
CRMC Staff Report
10/18/2022

Introduction:

Revolution Wind, LLC (Revolution Wind) has applied to the Rhode Island Coastal Resources Management Council (CRMC) for the proposed construction and operation of two export cables and an Onshore Substation associated with their offshore renewable wind energy project in federal waters. The proposed onshore substation would be located within the Quonset Point Business Park in North Kingstown. The proposed buried power transmission cables will be routed from the substation and enter Narragansett Bay to the South of Quonset Point. Within the submerged lands of Rhode Island state waters, they will follow the West Passage and continue into federal waters.

For the purposes of this staff report, the location and burial of the two export cables, the cable landing at the Quonset Point Business Park, the construction of the Onshore Substation (OnSS), and the underground transmission lines to the OnSS will be referred to collectively as "The Project" except where the components are identified for individual discussion and evaluation purposes. The applicant is referred to as "Revolution Wind." See https://www.boem.gov/Revolution-Wind.

Additionally, but not reviewed here, is an application submitted by Revolution Wind and The Narragansett Electric Company for a new interconnection facility (ICF) that will ultimately accept the power transmitted by the export cables that are under review herein. The ICF activity is being reviewed separately in CRMC File # 2021-07-010, under the Freshwater Wetlands in the Vicinity of the Coast regulations.

CRMC staff and the Revolution Wind Project Team have met extensively over the past year to discuss the issues associated with the potential impacts to the state's coastal resources from these proposed activities. The following staff review and analysis details the issues, the discussions, and any resolution or outstanding matters associated with these proposed activities.

A. Project Description:

Cable Route

Two submarine export transmission cables (275 kilovolt high voltage alternating current (AC)) have been proposed for the project. Each cable measures approximately 23 miles in length and has been proposed to be installed in CRMC Type 4 and Type 6 Waters in Rhode Island Sound and the West Passage of Narragansett Bay, making landfall at the Quonset Business Park, North Kingstown (Figure 1). The route of Revolution Wind's export cables aligns with the designated cable corridor of CRMC's Advanced Notice of Proposed Rulemaking amendments to the Red Book § 650-RICR-20-00-1 (http://www.crmc.ri.gov/regulations_proposed/2021_0315_NoticeProposed_650-RICR-20-00-1.pdf).

Revolution Wind proposes installing the cables at a target burial depth of 4-6 feet below the seabed using a combination of jet-plowing and mechanical plowing, which will create a total estimated

disturbance of approximately 730 acres within state waters. Secondary cable protection in the form of rock bags, concrete mattresses, and/or rock berms may be used where the target burial depth cannot be achieved.

Secondary cable protection will be necessary for any crossing of existing cables or pipelines. Revolution Wind estimates 10 percent of the cable route may require some form of secondary protection. Any proposed cable protection necessary to protect segments of the export cable or existing utilities is considered placement of fill in state waters.

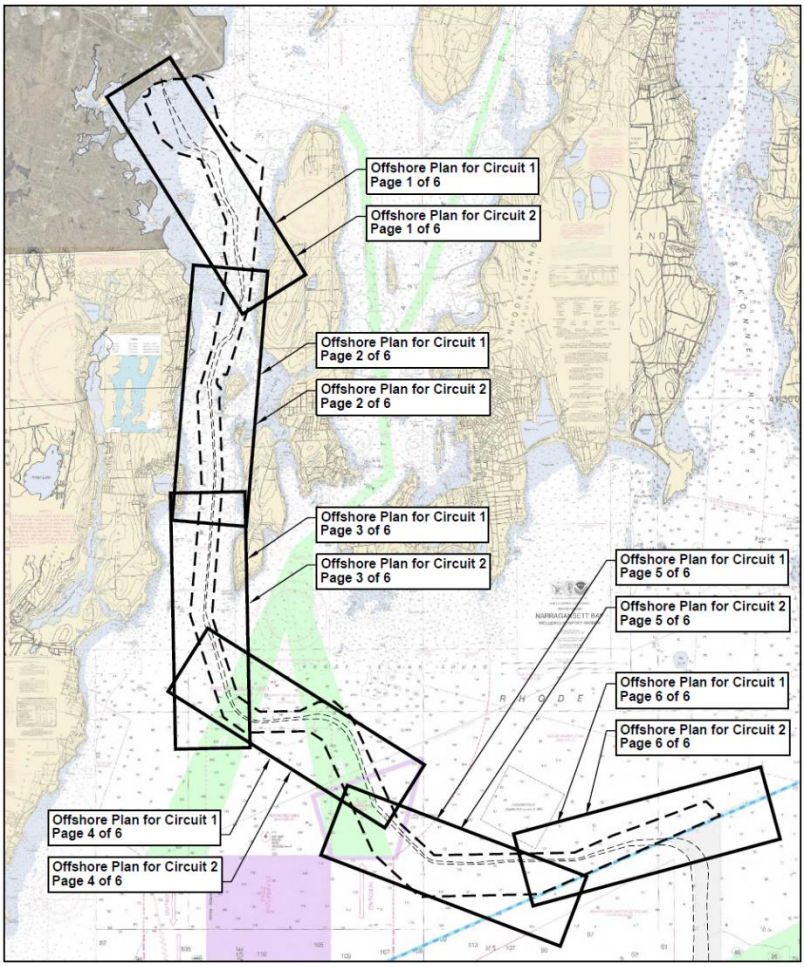

Figure 1: Revolution Wind Proposed Onshore/Offshore Cable Transmission Route and Onshore Substation

In addition to a CRMC Assent, the activities associated with the installation of the export cables within state waters also require a State of Rhode Island Dredge Permit in accordance with the Marine Infrastructure Maintenance Act of 1996 and the Marine Waterways and Boating Facilities Act of 2001, (RIGL Chapter 46-6.1) and a State of Rhode Island Water Quality Certification (in accordance with RIGL Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1) The Rhode Island Department of Environmental Management (RIDEM) will be responsible for issuing the Water Quality Certification and Dredge Permit. The Water Quality Certification file is WQC 21-135 and the Dredge Permit file is DP 21-187.

Onshore Landing and Transmission Cable

The export cables will make landfall at the Quonset Business Park (Assessor's Plat 185, Lots 001, 004 and 008) the heavily Industrial waterfront via horizontal directional drilling (HDD) between two temporary exit pits approximately 800 feet offshore and the Transition Joint Bays onshore. The two temporary HDD offshore exit pits are estimated to be 110 feet in length and 30 feet in width. The estimated soil volume to be excavated for the proposed offshore exit pits is approximately 4,352 cubic yards, and all excavated material will be loaded onto a support barge for reuse in filling the exit pits and no side casting of excavated material will occur. The dredged exit pit would have sloped sides to maintain side walls and exit pit opening. Rock bags may be installed in the exit pit to support the excavation temporarily during drilling activities and cable installation.

After jointing with the export cables within the landfall work area, the Onshore Transmission Cable will follow Circuit Drive northwest to 135 Circuit Drive, where it will cross this property north of the existing driveway and crosses the property in a north-northwest direction until reaching the property boundary of AP 179 Lot 32 owned by Quonset Development Corporation (QDC), Lot 32 (Figure 2). Here the cable will continue north until reaching 101 Circuit Drive. The cable will then continue north across 101 Circuit Drive and 75 Circuit Drive within the existing paved access road to the existing Davisville Substation, before turning west onto 646 Camp Avenue (AP 179 Lot 003). At 646 Camp Avenue, the Onshore Transmission Cable continues west, parallel to the northern property boundary before reaching The Narragansett Electric Company (TNEC) parcel (AP 179 Lot 005). The cable then crosses the TNEC's parcel and enters the OnSS parcel (AP 179 Lots 001 and 030), tying in with a previously proposed access road associated with the OnSS to merge with the originally proposed route south of the OnSS within the OnSS parcels. The length of the Onshore Transmission Cable is approximately one mile.

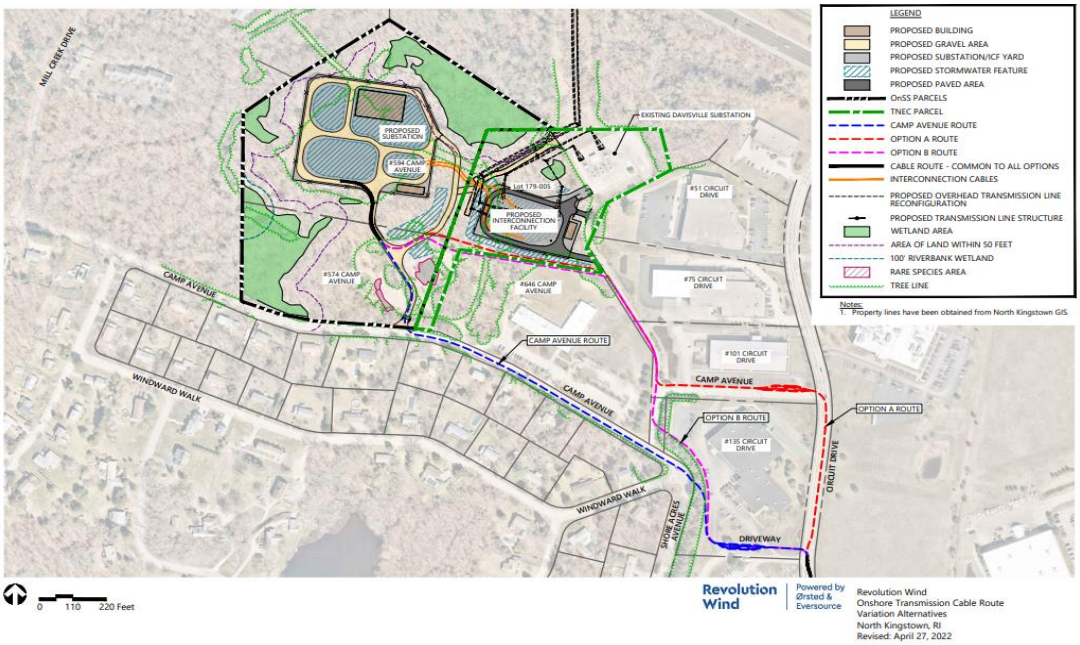

Figure 2: Supplement to Coastal Resources Management Council Category B Assent Application CRMC File No. 2021-07-005 Attachment A – Onshore Transmission Cable Route Variation (Option B in light purple was selected)

Onshore Substation

The transmission cable will connect to the Onshore Substation (OnSS), which has an operational footprint of approximately four (4) acres. Its proposed construction is considered a regulated activity pursuant to Rule § 2.5 under the CRMC Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast § 650-RICR-20-00-2. The proposed activity will permanently alter approximately 0.11 acres of perimeter wetland (area of land within 50 feet) and approximately 0.35 acres of perimeter wetland will be cleared of trees to create a safe zone around the OnSS security fence and will be replanted in native warm season grasses, wildflowers, and shrubs with mature heights under 15 feet.

Meetings With Revolution Wind

Staff have had weekly meetings with the Revolution Wind's team since the submission of the application in early June 2021. These meetings would cover questions that arose during the week along with updated information and plans for future meetings on specific topics. Revolution Wind's team would bring on their experts and specialists to directly answer questions.

During review staff have requested and have been provided supplemental information to address a variety of topics. These included Unexploded Ordnance (UXO) received on April 15, 2022, evaluating the underwater acoustic impacts of potential detonations and the Onshore Transmission Cable routing supplement received on April 19, 2022, which provided two alternative route variations to the portion of the Onshore Transmission Cable route between Circuit Drive and the Onshore Substation (OnSS) which avoids Camp Avenue. These alternatives were requested by the Rhode Island Energy Facility Siting Board (EFSB) and one was approved during their permitting process. Supplement for the State's Water Quality Certification (WQC) and dredging activities received March 23, 2022, supporting the application by addressing the updated plan for mitigation of potential UXOs. Supplement for the Fisheries and Benthic Monitoring Plan received August 24, 2022, which updates the current status of fisheries and benthic monitoring efforts, and efforts to obtain scientific research permits to execute these monitoring activities. A technical memorandum received July 22, 2022, covering the effects of sediment disturbance from the cable route and the findings of scientific studies related to the impacts of sediments on oysters used in Aquaculture.

Revolution Wind in partnership with Woods Hole Oceanographic Institution submitted a draft baseline value of commercial fisheries landing report for the lease area within federal waters and the cable corridor in state waters received March 23, 2022. After a meeting with CRMC and RIDEM staff, an updated reports were submitted June 17, 2022 and August 4, 2022.

Staff also requested numerous meetings on the major concerns achieving cable burial and impacts from Electromagnetic Fields (EMFs) generated from the AC cables. Several of these meetings were held with RIDEM and Revolution Wind's subject matter experts. At CRMC's request, two meetings were held with the Revolution Wind team on March 1, 2022 and March 21, 2022 to specifically discuss the issue of achieving the cable burial design depth of 4-6 ft. Meetings were held with CRMC's Subject Matter Experts (SME)s John King and Bryan Oakley on February 3, March 9, and May 17, 2022. Following those, Revolution Wind submitted to CRMC a report titled "Revolution Wind, Rhode Island State Waters Burial Feasibility" on April 29, 2022 (supplemental report). Meetings were also held on November 22, 2021 and April 6, 2022 to specifically discuss the potential impacts of electric and magnetic fields (EMF)

generated by the RWEC-RI. These meetings were held to address concerns about EMF impacts on marine species such as, but not limited to, crab and lobster, impacts from secondary cable protection on waterway uses such as, but not limited to, commercial and recreational fishing, and public safety. In response to CRMC's EMF concerns, Revolution Wind submitted several documents and supplemental responses including March 4, 2022: Memorandum: "CRMC request for comments on crab and lobster studies and reviews", March 15, 2022 memorandum: "Comments on EMF Background Information Submitted by Dr. John King to CRMC (dated February 28, 2022)", April 6, 2022 presentation: "Revolution Wind EMF Review", and April 22, 2022: Memorandum: "Review of studies of AC magnetic fields on crabs and lobsters". These concerns have also been brought to CRMC's attention by several stakeholder groups and the public. After these meetings CRMC sent a memorandum on May 5, 2022 detailing the concerns staff still held including information regarding the use of Capjet, mechanical cutters and more information about the subsurface boulders among other concerns. A follow up meeting was held jointly with RIDEM on June 21, 2022 to discuss the topic within the CRMC's May 5 memorandum. Revolution Wind submitted a report "Revolution Wind Response to Information Requests on Rhode Island State Waters Burial Feasibility" on July 14, 2022. Revolution Wind also submitted follow-up information about the contract language regarding the obligations and cable installation process.

B. Staff Analysis

Offshore Cable Route

The cables will be installed primarily using three methods: from the seaward limit of state jurisdiction (i.e.: at the three (3) nautical mile limit) a jet assisted mechanical plow will be employed which is best suited for the wide range of ground conditions found along the west bay passage; at the Jamestown Bridge the cable installation will switch to a jet plow - which is better-suited for the sediment type north of the bridge – and to accommodate the shallower water depth; and then installation at the Quonset Business Park will be completed with Horizontal Directional Drilling (HDD).

Each of these methods have benthic impacts; however, their deployment has been proposed to maximize the possibility of reaching target cable burial depth with the overall goal of minimizing the need for secondary cable protection. In so doing Revolution Wind acknowledges that there are areas where reaching target burial depth will not be possible and at which secondary cable protection will need to be employed. These areas include natural geologic features as well as known crossings of other infrastructure such as water lines. For these instances, Revolution Wind has proposed using articulated concrete mattresses, rock bags and/or rock berms.

However, there are several issues associated with not achieving target cable burial depth and/or the use of secondary cable protection. These include Electromagnetic Fields (EMFs) generation, loss of benthic habitat, and impacts to current uses.

Electromagnetic Fields (EMFs) generated from the current in the AC export cables may have impacts on marine wildlife especially crab and lobsters that live on the bottom. Revolution Wind estimates EMF measured from sections of the cable requiring secondary cable protection will generate 1025 mG at peak loading just above the surface of the secondary cable protection (modeled to be one foot thick cable protection). EMF levels around this range have been seen to cause impact in several studies. In contrast a cable that has achieved cable burial depth of at least 3 feet is expected to generate only 82 mG during the same peak loading at the seabed. This is a significant reduction for all potential and

theoretical impacts. However, several scientific studies[1] indicate important impacts to bottom dwelling species from an 82 mG MF. This points to the need to achieve target cable burial design depth along the entire cable route. Staff, in consultation with University of Rhode Island scientists determined EMF can be mitigated by the developer achieving CRMC recommended cable burial depth (see BOEM Draft Fisheries Mitigation Guidance and references).

Secondary cable protection measures impact navigation and recreational or commercial fisheries by limiting the areas where anchoring or fishing activities can occur. Additional impacts can be seen by on the concrete mattresses for the Block Island Wind Farm transmission cables, and other observations received from the public showing that concrete may proposed a problem for recolonization. More information from the Gulf States Marine Fisheries Commission's "Guidelines for Marine Artificial Reef Materials", and in scientific literature[2] has reached similar conclusions. There are also numerous concrete and artificial reef manufactures advertising possible improvements for recolonization. From these it is staff's opinion that concrete in and of itself does not provide an adequate surface for benthic colonization and successional development of beneficial fish habitat. To address this, staff and the Revolution Team have discussed the deployment of natural rock or rock bags or different mixtures of concrete for protection when target burial depth is not met. The use of these better alteratives in place of the currently used concrete mattresses may serve as mitigation for loss of habitat and may promote an increase in fish abundance through additional fish habitat colonized by native benthic species.

Further, because a post-cable burial survey will be performed by Revolution Wind that will positively identify the areas where target cable burial was not met, staff is recommending with the support of the Revolution Wind Team to have (1) real-time conferencing on best achieving secondary cable protection, and (2) joint post-survey assessments on the best deployment of secondary cable protection.

Onshore Landing and Transmission Cable

Revolution Wind's use of Horizontal Directional Drilling (HDD) is proposed to ensure optimal cable burial at the landing location, and to minimize the risk of the cable becoming uncovered. As discussed previously, the two temporary HDD offshore exit pits are estimated to be 110 feet in length and 30 feet in width. The estimated soil volume to be excavated for the proposed offshore exit pits is approximately 4,352 cubic yards, and all excavated material will be loaded onto a support barge for reuse in filling the exit pits and no side casting of excavated material will occur. After the cable is successfully installed the area will return to full use.

---

[1] Hutchison, Z.L., D.H. Secor, and A.B. Gill. 2020. The interaction between resource species and electromagnetic fields associated with electricity production by offshore wind farms. Oceanography 33(4):96–107, https://doi.org/10.5670/oceanog.2020.409.

Hutchison, Z.L., Gill, A.B., Sigray, P. et al. Anthropogenic electromagnetic fields (EMF) influence the behaviour of bottom-dwelling marine species. Sci Rep 10, 4219 (2020). https://doi.org/10.1038/s41598-020-60793-x

D.A. Ernst, K.J. Lohmann; J. Exp. Biol., 221 (2018), 10.1242/jeb.172205

[2] Nichola C Lacey, Peter Hayes, Epifauna associated with subsea pipelines in the North Sea, *ICES Journal of Marine Science*, Volume 77, Issue 3, May-June 2020, Pages 1137–1147, https://doi.org/10.1093/icesjms/fsy196

A lease agreement from the Quonset Development Corporation (QDC) is required for the onshore cable landing location and Horizontal Directional Drilling (HDD) activities including a construction work area along with a land lease for the duration of the project. This lease has been signed and a confidential copy was submitted for the application.

It is the opinion of staff that this proposed HDD methods detailed in the Revolution Wind application materials meet the program requirements of the RICRMP and OSAMP.

The installation of the cable within the Quonset Business Park will mostly follow existing paved roads and therefore avoid and/or minimize environmental impacts along its route to the OnSS. As described previously the Onshore Transmission Cable will follow along the roads of north-northwest from the landing along Circuit Drive until entering private properties including the TNEC Parcel through to the OnSS parcel (Figure 2). The planned construction schedule is proposed to allow Revolution Wind to begin as early as July 1, 2023, with construction of the Onshore Facilities. This is under the assumption that all state and federal permits are acquired by then. All permits for the project are expected by October 2023. Construction on the cable within state waters and HDD will not begin until after August 31, 2023 and will be completed sometime before January 31, 2024. This will reduce the impact on public usage of state waters, winter flounder, and shellfish. These time-of-year (TOY) restrictions have been coordinated with both RIDEM and National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS).

Revolution Wind applied to Rhode Island's Energy Facility Siting Board (EFSB) for approval for the onshore substation, transmission facility and cable route. The EFSB requested that an alternative Onshore Transmission Cable route that would move construction activities away from the residential houses along Camp Avenue be evaluated. The alternative route that avoids Camp Ave by turning northwest from Circuit Drive onto private properties including The Narragansett Electric Company (TNEC) parcel was accepted by the EFSB, and a draft supplement was submitted to CRMC on April 18, 2022.

It is the opinion of staff that the proposed cable route and installation methods meet the program requirements of RICRMP and OSAMP.

Onshore Substation

The OnSS is being sited in an area that falls under the jurisdiction of the CRMC's Freshwater Wetlands Regulations in the Vicinity of the Coast regulations. Forested wetlands, swamps, and marshes will be avoided by the proposed activities. Construction of the OnSS will require clearing, grading and limited construction in Area of Land within 50-feet of the referenced wetland resources.

The OnSS and cable route have met the requirements for the Freshwater Wetlands Regulations. The facility will not have any permanent impact on the surrounding marshes and vernal pool. To the greatest extent possible impact has been limited by the compact design of the OnSS and the location on top of a capped landfill. Stormwater management will have the needed infiltration to prevent impacts to the wetlands and comply with the state's stormwater management regulations.

The OnSS and cable route have met the requirements for the Freshwater Wetlands Regulations. The facility will not have any permit impact on the surrounding mashes and vernal pool. To the greatest

extent possible impact has been limited by the compact design of the OnSS and the location on top of a capped landfill. Stormwater management will have the needed infiltration to prevent impacts to the wetlands and comply with the state's stormwater management regulations.

The OnSS facility will maintain compacted gravel driveways and include a large infiltration basin, including the maintenance of 7.1 acres of landscaped or managed vegetated areas around the facility beyond the 4 acres of the operational footprint. The developer has provided site plans for soil erosion and sediment control that comply with best management practices (BMPs) for construction of the OnSS, Onshore Transmission Cable and HDD entry pits and include erosion controls such as swales and sediment traps in compliance with the state's soil erosion and sediment control regulations.

Operation and maintenance of the OnSS will require various types of oil, lubricants, and fuels. Storage of these will be mounted on concrete foundations with concrete secondary containment for insulating fluid designed for 110 percent containment in accordance with EPA, industry and local utility standards. The Onshore Transmission Cable will need to intersect an existing infiltration basin along Circuit Drive in North Kingstown. In this area the Onshore Transmission Cable trench will be backfilled with a bank run gravel or sand in order to maintain the infiltration basin function. It is the opinion of staff that the proposed stormwater management plan meets the program requirements of the RICRMP and OSAMP.

5. Final Plan Set:

The final plan set is a combination of the following plans provided during the review process:

- The sets titled "Revolution Wind Proposed Onshore/Offshore Cable Transmission Route and Onshore Substation" submitted by Revolution Wind and VHB on June 30, 2021, revised October 7, 2022;
- The set titled "Revolution Wind Proposed Onshore Substation" submitted by Revolution Wind and VHB on June 30, 2021, revised October 7, 2022;
- The set titled "275-KV and 115-KV Transmission Line Onshore Cable Route, Underground Transmission Line Construction Contract Drawings" submitted by Revolution Wind and Burns McDonnell on June 21, 2021, revised October 7, 2022; and
- The set titled "Revolution Wind Proposed Onshore Cable Transmission Route" submitted by Revolution Wind and VHB on June 30, 2021,revised October 7, 2022.

If the Council should ratify the project, these plans would be considered the "Ratified Project Plans" for any further references.

Public Comments:

This project public notice was first issued on October 15, 2021 for a 60-day comment period ending December 14, 2021. CRMC issued a public notice extension for an additional 60 days from the end of the first comment period to February 15, 2022 in responds to requests for additional review time by members of the public. The notice received three written comments, and multiple form comments submitted by the same individuals or organizations were counted as a single comment. Comments had reoccurring themes of environmental impacts, the permitting process, impacts on navigation, fisheries impacts and potential decommissioning plans.

CRMC received a letter from the North Kingstown Town Council notifying the Council that it voted that there are no substantive objections to the project from the town council. The letter included concerns from the North Kingstown Conservation Commission, for CRMC staff to carefully review the location of the proposed substation in order to protect the wetlands, rare species wetlands and vernal pool areas, and to consider relocating the substation to ensure that protection. Staff looked at these impacted areas with the possibility of moving the sites and concluded that this site location was the least impactful and with proper layout and stormwater design impacts to the wetlands are minimized to the greatest extent possible. Second, the letter raised concerns over the quality of life for residents regarding light pollution and large-scale loss of trees and vegetation. The proposed site provides a buffer of trees from the residential area that after construction will minimize light pollution. The loss of trees and vegetation will be minimized by the facilities being proposed on top of a capped landfill.

The Rhode Island Saltwater Anglers Association (RISAA) submitted a letter to CRMC detailing concerns regarding impacts to coastal resources, including the fish species their members avidly fish. RISAA is concerned that the timetable for this project is moving forward without proper consideration of ecological and fisheries impacts and requested that the data collected include recreational fishing. In response, Revolution Wind added recreational fishing to its Fisheries and Benthic Monitoring Plan, which was submitted for CRMC staff review on August 24, 2022. RISAA requested and CRMC granted (for an additional 60 days) additional time for RISAA to review and submit additional comments due to the extensive application materials. No additional comments were received from RISAA during this time.

Gary Dorfman, a private RI resident submitted and then met with CRMC to review two sets of comments, which covered a broad range of topics including the location of the cable route, quality of life and impacts from the cable construction, and maintenance and repair of the cable.

Staff took these comments under advisement when reviewing the application to ensure that Revolution Wind provided sufficient evidence and reasoning for its decisions, along with commitments to limit impacts on quality of life during and after construction.

CRMC staff conclusion and recommendations:

The applicant has endeavored to minimize the impacts of the project through construction methods, design, and location of the activities. The applicant has worked with both federal and state regulatory authorities, including but not limited to Bureau of Ocean Energy Management (BOEM), CRMC and RIDEM, as well as other interested parties. Despite the effort to minimize impacts, in some cases impacts are unavoidable. These include permanent alteration to the benthic habitat from a soft bottom to hard bottom from secondary cable protection, along with impacts to fishing communities addressed in the Mitigation Section.

In this application, Revolution Wind has outlined a set of performance standards and process steps that address the regulatory review by CRMC staff. Staff defer to the Council for consideration of the staff report and the substantive testimony expected during the public hearing process. It is also in the opinion of staff that the material submitted for this application is sufficient to move into final design.

C. Project Need:

The Revolution Wind project has been awarded five separate Power Purchase Agreements (PPAs) from both Rhode Island and Connecticut. These PPAs total approximately 704 MW with approximately 400 MW of energy generation for Rhode Island and the remaining approximately 304 MW for Connecticut. Rhode Island and Connecticut share an overlapping power grid, allowing this project to meet the PPAs for both.

Rhode Island and Connecticut aim to increase the amount of renewable energy in their grids and have offered these PPAs to accomplish that goal. Specifically, Rhode Island's State Energy Plan (Energy 2035) has set forth the goal of reducing greenhouse gas emissions by 45 percent by the year 2035. Offshore wind power is considered the most significant renewable energy resource and the best method for Rhode Island to accomplish this goal. Former Governor Gina Raimondo issued an executive order to increase the production of renewable energy for the state to 1,000 MW by 2020 and then for complete renewable energy use by 2030. The Revolution Wind project is a major part of achieving these ambitions.

D. Potential Environmental Impacts:

The following is a staff evaluation and analysis of potential environmental impacts associated with the Revolution Wind project and associated facility. The evaluation includes potential impacts during construction and operation. Of particular interest are impacts to certain species of marine fish, marine mammals, marine reptiles, amphibians, bats, and marine and terrestrial birds.

1. Submerged aquatic vegetation (SAV):

CRMC has particular interest in the protection of eelgrass (*Zostera marina*) and widgeon grass (*Ruppia maritima*) as both have high habitat value. These species are found closest to the shore in shallow water.

The Revolution Wind project does not pose a threat to SAV. The export cable and its associated area of disturbance in the designated cable corridor will not be close enough to shore to affect SAV. The RWEC landfall location is the closet part of the project to the shore and there is no SAV located within the expected impact area and in the impact area, the two closest points of SAV is approximately 845 feet to the west side of Compass Rose Beach and 1,100 feet on the east side of Dutch Island. Revolution Wind's construction schedule avoids peak SAV growing season from July to September.

2. Benthic Species:

This includes species including but not limited to blue mussels, sessile gastropods, mollusks, conch, and worms. These species live in or on the ocean bottom sediment.

The Revolution Wind project will impact these species during the construction phase via construction vessels anchoring and submarine cable installation. These disturbances will be along the cable corridor with a 1,312- foot disturbance zone. This disturbance will be due to sediment suspension and deposition. Along the cable route for activities not including the final landfall trenching, sediment deposition is predicted to exceed 3.1 inches local to the cable's centerline.

The total deposition greater than 3.1 inches is present along nearly the entire route and is typically contained to a width of 131 feet and 66 feet from the cable's centerline, though deposition may span up to 328 feet in width and 165 feet from the cable's centerline. The maximum width occurs only local to the section where there might be a change of installation equipment near the Jamestown Bridge. This is due to the wider trench and relatively greater sediment resuspension along this segment.

Sediment predicted above-background concentrations (above 0 mg/L) is estimated to not persist in any given location (grid cell) for greater than 32.6 hours, and in most locations (> 75 % of the affected area) concentrations return to ambient within 4 hours. Concentrations greater than 100 mg/L are not predicted to persist in any given location (grid cell) for greater than 19.4 hours. Almost all locations in state waters south of the entrance to Narraganset Bay however would experience concentrations of 100 mg/L for less than 6 hours for installation of both cables. Inside Narraganset Bay, the model showed concentrations of 100 mg/L typically persist for less than 10 hours, with the exception of a few patches that experience longer durations.

The export cables will make landfall at the Quonset Business Park in North Kingstown on Assessor's Plat 185, Lots 001, 004 and 008 via horizontal directional drilling (HDD) from two temporary exit pits approximately 800 feet offshore (Figure 2). The two temporary HDD offshore exit pits are estimated to be 110 feet in length and 30 feet in width. The estimated soil volume to be excavated for the proposed offshore exit pits is approximately 4,352 cubic yards, and all excavated material will be loaded onto a support barge for reuse in filling the exit pits and no side casting of excavated material will occur. It is expected that the construction will last about 6 days.

It is expected that based upon several studies and similar projects that areas of sediment disturbance within 131 ft (40m) of the centerline may take up to 1 to 3 years to recover to pre-impact levels.[3] Benthic species outside that area is expected to experience impacts similar to those of storm events, which these species are believed to have a high tolerance towards[4].

---

[3] AKRF, Inc., AECOM, and A. Popper. 2012. Essential Fish Habitat Assessment for the Tappan Zee Hudson River Crossing Project.

Germano, J., J. Parker, and J. Charles. 1994. Monitoring cruise at the Massachusetts Bay Disposal Site, August 1990. DAMOS Contribution No. 92. U.S. Army Corps of Engineers, New England Division. Waltham, Massachusetts.

Hirsch, N.D., L.H. DiSalvo, and R. Peddicord. 1978. Effects of dredging and disposal on aquatic organisms. Technical Report DS-78-5. U.S. Army Engineer Waterways Experiment Station. Vicksburg, MS. NTIS No. AD A058 989.

Kenny, A.J. and H.L. Rees. 1994. The effects of marine gravel extraction on the macrobenthos: Early postdredging recolonization. Marine Pollution Bulletin 28: 442–447.

[4] Minerals Management Service (MMS). 2007. Programmatic environmental impact statement for alternative energy development and production and alternate use of facilities on the Outer Continental Shelf – final environmental impact statement. U.S. Dept. of the Interior, Minerals Management Service, Herndon, VA. OCS EIS/EA MMS 2007-046.

There will be localized permanent impacts (habitat alteration – from soft-bottom to hard-bottom habitat) due to the installation of secondary cable protection. As the cables shallow and cross existing buried assets, the cable will be a permanent alteration to hard habitat at depths shallower than the target burial depth as required to achieve these crossings. These crossing lengths and shallowing of the cable are determined in the design phase. Impacts on diet and habitat preferences should be minimal and temporary due to the availability of similar habitat nearby.

3. Winter Flounder:
Winter Flounder (*Pseudopleuronectes americanus*) lay their eggs over sandy bottoms and algal mats in shallow nearshore habitats during the winter and spring. The eggs are vulnerable to burial from displaced sediments during cable construction. The CRMC does not anticipate impacts to the winter flounder population from the project based on the anticipated construction schedule.

4. Crabs:
Effects from EMF on crab species are detailed in Staff Analysis Cable Route.

5. Lobsters:
Effects from EMF on lobster species are detailed in Staff Analysis Cable Route.

6. Winter Skate:
Winter Skate (*Leucoraja ocellata*) lay their eggs year-round. Skate feed on a wide range of organisms such as crustaceans, mollusks, worms, squids, and fish. Sediment disturbances created by the Revolution Wind project could impact the skates' ability to hunt. Effects of EMF are detailed in the Staff Analysis Cable Route. Given the entirety of winter skate habitat, however, the CRMC does not anticipate impact on the population.

7. Fish and Fisheries:
The Revolution Wind project survey work has identified 32 species of fish and invertebrates located within 0.5 miles of the centerline of the export cable corridor. This survey includes but is not limited to the demersal species Black Sea Bass (*Centropristis striata*), Scup (*Stenotomus chrysops*), Whiting (*Merlangius merlangus*), Summer Flounder (*Paralichthys dentatus*), and Yellowtail Flounder (Pleuronectes ferruginea). These species are present in RI state waters year-round. Coastal pelagic species such as Anchovy (*Anchoa mitchilli*), American Shad (*Alosa sapidissima*), Bluefish (Pomatomus saltatrix), and Atlantic Menhaden (Brevoortia tyrannus) are highly migratory species. Rhode Island waters are also host to anadromous species such as Striped Bass (*Morone saxatilis*), Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*), alewife (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and Atlantic Sea Herring (*Clupea harengus*).

These species are exposed to impact to behavior and their food supply, from the noise generated and habitat disruption during construction and decommissioning. Impacts during the operation will occur from cable repairs and additional secondary cable protection. These are expected to be rare events and are not considered part of routine maintenance. If these events occur the impact will be comparable to construction and localized to the work area.

The impacts to fish stocks are expected to be temporary and localized to the area surrounding the cable corridor. The CRMC expects fish avoidance during construction, but that this is also temporary in nature. Impacts on diet and habitat preferences should be minimal and temporary, due to the availability of similar habitat nearby. Effort to harvest these stocks will be curtailed as the installation progresses past a given location and as sediments settle and the stocks return as the disturbance moved away.

Similar projects estimate full benthic habit restoration in one to three years. None of these populations should experience a drop in numbers due to the temporary and limited scope of the cable corridor compared to the total habitat in state waters.

8. Marine mammals (Whales, porpoises, seals, and sea turtles):
Marine mammal groups commonly found in the project area are porpoises, seals, whales, and sea turtles.

These species could be impacted during both construction and decommission. Impacts during operation will be limited to activities related to cable repair and additional secondary cable protection. These are expected to be rare events and are not considered part of routine maintenance. If these events occur, the impacts will be comparable to construction and localized to the work area.

Potential impacts include seafloor disturbances because of cable installation, which could affect the benthic habit and reduce prey species for marine mammals.

The impacts are expected to be temporary and localized to the area around the cable corridor. These species along with their prey will try to avoid the area during construction but will return once construction has finished. Effects on diet and habitat preferences will be mitigated during construction by the relatively small percentage of habitat affected and the availability of similar habitat in the surrounding area.

Underwater noise generated by construction activities has the potential to affect the behavior of these species. In order to reduce the potential noise impacts any pile driving shall implement a “soft-start” or “ramp-up” which will allow time for these species to move away.

There will be a temporary increase in vessel traffic during construction. In order to reduce this unavoidable impact all vessels will follow NOAA and BOEM guidelines for marine mammal and turtle strike avoidance measures, including vessel speed restrictions. All personnel working aboard these vessels will receive training on marine mammal awareness and marine debris awareness. All regulatory requirements related to the prevention and control of spills and discharges are required to be followed by all construction vessels. Revolution Wind has submitted an Oil Spill Prevention and Response Plan that in the event of an accidental spill or release of oils or other hazardous materials offshore will minimize containment exposed and environmental impacts. Revolution Wind construction vessels will keep the required lighting to a minimum in compliance with safety and other applicable requirements.

9. Birds (coastal, migratory, and marine bird species):

Sediment disturbances from construction and decommissioning have the potential to impact benthic and shellfish species, which are food sources for bird species. Impacts on diet and habitat preferences should be minimal and temporary, due to the availability of similar habitat nearby.

To help assess the impacts from the project, Revolution Wind will develop and implement an Avian Post-Construction Monitoring Plan as part of the BOEM approval process. This plan will be developed in cooperation with federal and state agencies, as well as environmental/non-governmental organizations.

10. Squid (Longfin Inshore Squid, Northern Shortfin Squid):
The Northern Shortfin Squid is a highly migratory species that during late autumn/early winter migrates offshore towards a winter spawning site in deeper water. This species prefers ocean habit and is not expected to be found within along the RWEC-RI disturbance corridor.

The Longfin Inshore Squid eggs, juveniles and adults are expected within RWEC-RI corridor. Eggs are found in both inshore and offshore habitats from Georges Bank southward towards Cape Hatteras and most commonly in depth of less than 164 feet. They are year-round spawners with increase rates within winter and summer. There is a wide variety of habits that Longfin Inshore Squid eggs use to anchor such as hard bottoms, submerged aquatic vegetation, sand and mud. Both juveniles and adults tend to migrate offshore to the edge of the continental shelf. The area of impact is comparatively small compared to the amount of available habit and the species shouldn't experience significant impacts.

E. Mitigation

Currently under discission and being developed with Revolution Wind and the Fisheries Advisory Board. A process being overseen by CRMC

F. Staff Recommended Stipulations:

Cable Burial Work Plan: The applicant shall submit a Cable Burial Work Plan for review and approval by the CRMC Council at least 90 days prior to the start of construction. The Work Plan shall include all elements of the trenching and dredging work in areas within CRMC's regulatory authority. The work plan shall include, at a minimum, a detailed schedule, weather and equipment contingency plans, a detailed list of all equipment and vessels to be utilized, and a detailed anchoring and spud plan.

Construction Schedule and Time of Year Restrictions: At the request of the RIDEM, the Cable Burial Work Plan shall require a more detailed construction schedule via-a-vis fishery time of year restrictions. In the event that the project construction schedule changes, the applicant will be required to provide both CRMC and RIDEM with an updated such schedule, for approval, prior to any changes being made.

Dredge window: The proposed dredging activities described in the permit application, which includes cable installation using either jet plowing or mechanical plowing approaches, must adhere to the following time of year restrictions and conditions. All in-water construction activities north of the ColRegs Demarcation Line shall occur between August 31 and January 31. No further modifications to this extended dredge window shall be granted.

Dredge Vessels: All vessels that contain dredged material working in state waters are required to always have a Dredging Quality Management Program (DQM) on board and be operational.

Dredge Pits for Horizontal Directional Drill (HDD): All material used during construction must be removed when completed. This includes but is not limited to rock bags or steel casing pipe. This excludes materials that are integral to the cable design, including the HDPE conduit that allows for cable pulling through the HDD and future cable maintenance or replacement. The applicant will be required to monitor and report to CRMC during construction the process of collecting drilling fluids. This process shall be approved by the Certified Verification Agent and included in the final CVA report

Cable Burial Plan: Prior to the submittal of the Cable Burial Work Plan, the cable installation contractor shall complete and provide to the CRMC and RIDEM the "Cable Burial Plan." This study shall include a detailed assessment of the anticipated sediment conditions, unforeseen conditions, and the proposed cable installation method. This study shall be included and incorporated into the work plan.

Construction Vessel Monitoring: The applicant shall provide twice weekly construction schedule and work plan updates via Orsted's Mariners Briefings. Mariners Briefings will be sent twice weekly via email notification to subscribers of an established email notification list and will be posted simultaneously on Orsted's Marine Affairs website. Mariners Briefings will include anticipated locations of construction vessels, work areas, and the equipment they will be operating in Rhode Island State waters. The Mariners Briefings advise mariners of work in a detailed 3-day, and a projected 7-day outlook, and are updated and resent out twice a week. This frequency will capture deviations that may occur in the work plan. This will allow harvesters to remove any fishing gear that may be in the work area.

The applicant will also notify the USCG of cable-laying activity for publication in its weekly First District Local Notice to Mariners. All construction vessels shall have an Automatic Information System operational during all construction activities in state waters. Revolution Wind shall advise mariners of cable laying operations through twice-daily SECURITE VHF radio notifications, and will also provide mariners on the water with construction vessel location and work plan deviations in real time and maintain a listening watch on VHF 16/13. If there is a deviation from the posted Mariners Briefing that will materially affect marine users, Revolution Wind will post a special Mariners Briefing and add an additional radio broadcast over VHF.

Cable Burial Depth: The project shall be required to reach a minimum cable burial depth of four (4) feet and a maximum of six (6) feet along the entire length of the export cable in state waters. Burial depth shall be determined from the top of the cable below existing seabed. In cases where the minimum burial depth cannot be achieved due to cable and pipeline crossings, machine failures, or unforeseen adverse bottom conditions, Revolution Wind will be required to attain minimum burial depth where Revolution Wind confirms depth can be achieved through reburial using the Capjet plow or similar method. Where Revolution Wind confirms reburial using the Capjet plow or similar method will not achieve minimum burial depth, Revolution Wind will confirm the acceptable burial depth from the cable burial risk assessment approach (which assesses seabed conditions, seabed mobility, and the risk of interaction with external hazards such as commercial fishing gear and vessel anchors engineered zonally along the route). In cases where this Capjet plow or similar method is unsuccessful in achieving burial depth or in the cases of cable or pipeline crossing, secondary cable protection shall be used to minimize risk to the cables and risk to other water users, including hazards such as commercial fishing gear and vessel anchors.

Secondary Cable Protection: Revolution Wind shall limit secondary cable protection to the extent shown in their ratified plans, such as to areas where the cable presents a risk to marine users and/or the cable, at crossings with other submerged cables or utilities, or other areas in which cable burial is not possible (e.g., cable joints). Where possible any necessary secondary cable protection shall be constructed of biologically-friendly materials (i.e. that allow epifaunal colonization) that mimic as closely as possible the existing surrounding habitat and be trawlable.

Cable Burial Tools: The applicant is required to use the best tool from their list of available tools (as described in the application and supplemental information provided) to achieve a proper cable burial depth of 4-6 feet, in accordance with their cable burial work plan. Revolution Wind expects to use jet assisted mechanical plow as the principle proposed method of burial on all segments of the RWEC-RI route except for at and north of the Jamestown Bridge where lower water depths and bridge height restrictions will require burial by jetting or other appropriate and feasible methods. Revolution Wind shall simultaneously lay and bury cables in state waters unless ground conditions are inappropriate or technically unfeasible.

Cable Burial during Construction: Revolution Wind shall mitigate against the risk of not achieving target burial depth by using one or more of the following options, depending on tool choice:

a. using the geometry of the plow relative to the seabed and where necessary adjusting the tool settings;

b. tuning the plow jetting system to the soil types encountered along the route as necessary;

c. remotely adjusting the depth of burial on the plow during operations as necessary;

d. monitoring and managing tow forces, share depth and plow speeds in the event hard clays are encountered;

e. performing continuous, real time trenching performance validation to ensure the tool is operating as per the contractor specification, ensuring the tooling performs optimally for the given burial requirements and the as-encountered ground conditions; and

f. performing continuous, real time burial performance validation, understanding cable burial versus the given burial requirements and the as-encountered ground conditions.

Boulder Relocation: As a condition of this permit, the applicant shall supply a boulder relocation plan that ensures sensitive benthic habitats are preserved to the extent possible and that when moved, boulders do not negatively impact essential fish habitat (EFH), where technically feasible. Boulders shall be relocated to areas with similar bottom types within the 50m surveyed corridor, where technically practicable and shall not be placed in areas with SAV, on mussel beds, or on complex hard bottom habitats. The boulder relocation plan must be approved by RIDEM prior to implementation.

Monitoring via video or still image is required (e.g., drop camera) of selected areas (i.e., sampling stations) along the export cable corridor where boulder movement is conducted. Boulder relocation and seabed disturbance monitoring will align with methodology described in the Revolution Wind Fisheries and Benthic Monitoring Plan and will occur shortly after installation of the cable, and sampling will be repeated annually for 5 years post construction. Monitoring reports will be submitted annually, with a summary report assessing the status of habitat recovery following the initial 5-year monitoring period.

Based on findings and results from the monitoring surveys through year 5, CRMC, RIDEM, and Revolution Wind will jointly determine if further surveys are required during the lifecycle of the project.

Sampling stations in Rhode Island State waters will be determined post construction and will be distributed across areas where boulder relocation activities occurred, including four sections of particular concern along the export cable route: (1) southwest of Dutch Island, which is a known area of commercially important blue-mussel beds, (2) the western shore of Conanicut Island, (3) northeast of Pt Judith and South of Beavertail, and (4) approaching the state-waters demarcation line. Targeted areas and sampling locations within these areas of interest will be identified in the boulder relocation plan and approved by RIDEM prior to implementation.

Within thirty (30) days of completion of boulder relocation, the Applicant shall notify NOAA's Office of Coast Survey and the CRMC and RIDEM of all locations of relocated boulders.

Environmental Compliance Monitor: The applicant shall employ an Environmental Compliance Monitor (ECM) to monitor environmental compliance during all construction activities associated with the Revolution Wind Export Cable, the Onshore Transmission Cable, and the onshore substation. The ECM shall be a third- party entity hired by Revolution Wind who is ratified by the Council and reports directly to CRMC. Prior to the initiation of any work on the project the person/firm chosen to be the ECM needs to be ratified by CRMC.

Cable Route Surveys: Within ninety (90) days of completing the installation of the Revolution Wind Export Cable in state waters, the developer shall submit a post-construction survey of the actual cable location and the proposed cable easement with State Plane Coordinate System and Lat/Long coordinates for the cable angle points, easement corners/angle points of all secondary cable protection (concrete mattress, rock berm, rock bags, and fronded mattresses), and an ArcGIS shapefile of the installed cables to the CRMC and RIDEM. The lists of coordinates and the shapefile overlaid on a NOAA nautical chart shall also be made available to the CRMC and RIDEM, as well as the fishing industry no later than thirty (30) days of installation. All information shall be provided promptly to NOAA's Office of Coast Survey.

The entire cable route within state waters shall be surveyed using multi-beam bathymetry coincident with the submerged cable installation and the placement of any secondary cable protection (if necessary). The entire cable route within state waters will again be surveyed following the first and second years of operation. The results of the as-built, Year 1 and Year 2 multi-beam cable surveys shall be provided to the CRMC review within ninety (90) days of survey completion and include any remedial actions taken or scheduled to occur.

The need for further surveys in the lifecycle of the project will be determined jointly by CRMC and Revolution Wind and planned based on the findings in the three initial surveys listed above.

A survey will be required after a major storm event (10-year event). This survey shall be provided to the CRMC within ninety (90) days of survey completion and include any remedial actions taken or scheduled to occur.

If the three consecutive post-construction surveys show that the cable does not pose a hazard to public safety, navigation, or marine resources, additional monitoring survey frequency may be decreased by CRMC discretion to every 5 years thereafter for the operational life of the project. If any survey shows

that the cable does pose a hazard to public safety, navigation, or marine resources from a cable exposure, annual surveys will be performed after corrective action, if required, is completed and until three consecutive surveys show there is no such risk, after which surveys will return to a 5-year cycle.

In the event that cable monitoring shows an installed cable has been exposed or the cable presents a risk to other marine users, or is at risk of being damaged, the applicant shall immediately submit a corrective action plan to CRMC. Approval by CRMC shall be required before implementing any corrective action.

Cable Inspection Program: Bureau of Ocean Energy Management (BOEM) requires that a Certified Verification Agent (CVA) be present at all stages of project development and construction. CRMC shall require that a CVA be present during construction for cable burial, secondary cable protection and EMF monitoring. The CVA shall provide regular monthly reports to CRMC during all phases of construction.

Following the completion of the burial of the submerged export cable, including the landfall, the applicant shall develop a cable inspection program and submit it to the CRMC and the CVA. The cable inspection program shall confirm the cable burial depth along the route and identify the need for any further remedial burial activities and/or secondary cable protection. The CVA shall provide the review report to the CRMC within ninety (90) days of completion.

Cable Inspection Long-term Monitoring Plan: Within six months of project completion, the applicant shall submit a long-term monitoring and operations and maintenance plan for the transmission cables for CRMC review and approval. This plan shall include a post-construction inspection using a multibeam survey and shallow sub-bottom profiler (chirp) to ensure cable burial depth was achieved and to verify reconstitution of the trench. The cable burial depth along the full length of the cable route in state water will be inspected using a sub-bottom profiler at least once every five years. Ideally, the entire cable length should be inspected including into federal waters.

Exposed Cable: In the event that cable inspection and/or monitoring shows an installed cable has become exposed, the cable presents a risk to other marine users, or is at risk of being damaged, the applicant or successive permit holder shall promptly submit a corrective action report and receive approval from the CRMC before implementing corrective measures in compliance with the CRMC permit and any order of the Council.

Submerged Cable Fisheries Monitoring Plan: The application for the submerged cable shall include a fisheries monitoring plan for state waters. Revolution Wind shall consult with the RIDEM Division of Marine Fisheries for the appropriate inclusion of species, gear methods and sampling protocols, and shall obtain CRMC approval for the fisheries monitoring plan.

Revolution Wind shall implement the fisheries monitoring plan to obtain the specified fisheries monitoring data for a minimum of one full year prior to cable installation, through the entirety of the construction period, and for two (2) years following commencement of cable activation and operation. The applicant's fisheries monitoring plan may include data the state has obtained as part of ongoing state monitoring activities as a supplement to the applicant's required monitoring data.

This plan shall be submitted at least six (6) months prior to cable installation, the applicant shall provide to RIDEM for review and approval a monitoring plan to assess cable mattress habitat following installation. This plan shall include visual monitoring (video or photography) and a means of recording

observations of any coverage of invasive species. The schedule of monitoring habitats along the cable route please shall conform to the timeline for monitoring boulder movement operations. The monitoring plan and subsequent reports shall be provided to RIDEM and to other resource agencies for review and comment.

Fisheries Representative: A third party fisheries representative shall be funded by the assent holder and reviewed and ratified by the Council before beginning construction.

Certified Verification Agent Installation Report: A Certified Verification Agent (CVA) shall be present during EMF monitoring, background measurements, and annual monitoring. The CVA shall provide regular monthly reports to CRMC during construction.

The CVA shall provide a post-installation report following project completion verifying that the submerged cable and landfall installations were completed in accordance with the CRMC ratified plans and specifications and any remedial actions pursuant to the CVA cable inspection program as may be required.

Electromagnetic Fields Study Plan: Within six months of project completion, the applicant shall submit a study plan to RIDEM for review and approval to assess electromagnetic field levels (EMF) and burial depth along the entirety of the cable routes to address the potential effects of EMF on the composition, life cycle functions, uses, process and activities of fish and wildlife. The EMF assessment shall be conducted during the first year of cable operations and will include measurements of AC and DC magnetic fields. Within ninety (90) days of the assessment (even if required by another agency), the results will be provided to the RIDEM. The Department will confer with a team of EMF experts that may include staff from CRMC and NOAA Fisheries. If it is determined that, pursuant to Rule 8D of the State Water Quality Regulations, July 2006, amended December 2010, there is an adverse impact from EMF to the composition, life cycle functions, uses, process and activities of fish and wildlife, the applicant's EMF expert shall submit a recommendation to address such impact to RIDEM for review, comment, and approval based on the best available science. All ratified recommendations shall be implemented within a reasonable time period.

Given that the ambient background alternating current (AC) electromagnetic fields at power frequencies along the proposed route of the RWEC cables are vanishingly small[5] and the ambient geomagnetic direct current (DC) electromagnetic field is relatively stable over time and uniform in the project area[6], measurements of AC and DC magnetic fields at a site sufficiently far from the cables or any existing electrical infrastructure will be representative of background electromagnetic field levels. Therefore, it is Revolution Wind's position that pre-construction magnetic-field measurements are not needed to assess the effect of the AC current flow on RWEC cables on post-construction field levels.

[5] Olsen NRB, Lühr H, Sabaka TJ, Mandea M, Rother MKA, Tøffner-Clausen L, Choi S. CHAOS—a model of the Earth's magnetic field derived from CHAMP, Ørsted, and SAC- C magnetic satellite data. Geophysical Journal International 166, 67–75, 2006.

[6] "[a]t 50 Hz or 60 Hz the natural magnetic field is typically of the order of 10^{-6} [microtesla] µT (Polk, 1974) [~0.00001 milligauss, mG]" (World Health Organization. Extremely Low Frequency Fields, Environmental Health Criteria 238, 2007, p. 30).

EMF Monitoring: At the completion of installation and activation of any submerged renewable energy cable within state waters, the successive permit holder shall monitor EMF levels along the cable during the stipulated cable surveys as defined in the ratified Electromagnetic Fields Study Plan.

Historic and Archaeological Preservation Memorandum: Prior to assent issuance, final Memorandums of Agreement (MOA) shall be finalized between Revolution Wind and the RI Historical Preservation and Heritage Commission as needed to address/mitigate impacts on Historic properties and Archaeological Resources.

Preserved Paleolandscapes: In the event that alternative cable routing is not possible, and disturbance will occur within preserved paleolandscapes that are likely to contain cultural and historical resources, the applicant will propose cable installation techniques that will minimize disturbance and impact on the paleolandscapes after seeking input and advice from the State Historic Preservation Office (SHPO) and the local Tribal Historic Preservation Office (THPO). The CRMC may stipulate specific conditions as recommended by the SHPO or THPO as part of the CRMC assent.

Landfall Cable Burial Depth: Horizontal Directional Drilling from offshore is required to ensure a minimal burial depth as described in the plans titled "HDD Overall Site Plan North Kingstown, Rhode Island" submitted with the application is achieved. The project shall be required to reach a minimum cable burial depth of 9 feet between mean high water and mean low water. A post-installation elevation survey shall be submitted to the CRMC to confirm this requirement has been followed. This survey shall be submitted within ninety (90) days of the completed installation at the landfall location.

Cable Installation in the vicinity of Freshwater Wetlands: Onshore cable installation in the vicinity of freshwater Wetlands is hereby allowed within the route defined in the application, provided the following conditions are met:

a. Existing culverts and the flow of water under bridges in roads or highways are not blocked or disrupted by going under or attaching to such structure;

b. The project does not cause any diversion of ground or surface water to or from any wetlands;

c. The preconstruction contours are restored immediately upon installation;

d. All disturbed areas are revegetated after restoring contours;

e. The project design incorporates best management practices for dewatering from excavated areas; and

f. All stormwater basins disturbed along the route will be restored to full function;

Furthermore, as a condition of this permit there shall be no direct discharges of dewatering fluids to wetlands, catch basins, or stormwater conveyance systems that discharge to wetlands without proper treatment that effectively removes sediments and other visible contaminants.

Prerequisite State and Federal Agency Approval Requirements: Upon the Bureau of Ocean Energy Management's (BOEM) issuance of the Record of Decision for the Project, Revolution Wind may engage in construction of any of the following on the condition that the Project has all other applicable permits, approvals and consultations for such work: the onshore transmission cable; interconnection facility; interconnection cables; overhead transmission line reconstruction; onshore substation; and the onshore

and offshore horizontal directional drilling at and by the landfall at North Kingstown, Rhode Island. In the event that the Project does not receive BOEM approval of the Construction and Operations Plan and the Final Design Report and Fabrication and Installation Report no objection from BOEM, the Project shall remove all facilities constructed and restore the area to reasonably the same condition as it was prior to construction at the Projects' sole expense.

After Revolution Wind has obtain all other applicable permits for the project. Copies of these approvals shall be submitted to CRMC for File # 2021-07-005.

Research: Following notice, the project's supporting structures including export cables shall be available for research projects ratified by the Executive Director that do not affect operation, maintenance, emergency access or warranties. Such availability shall be subject to participants agreeing to execute a release waiving all liability associated with such access and to any requirements of OSHA, ISPS, or other governmental agencies with jurisdiction and the project owner's site, insurance and HSE procedures and requirements and restrictions in place to protect persons and property.

Submerged Lands Lease: The Council shall require Revolution Wind, in accordance with Rhode Island General Law § 46-23-1(f)(2), to obtain an annual submerged lands lease authorization and requisite annual submerged lands lease fee by the direct enactment of the RI General Assembly prior to the start of any construction within state waters.

Permit Expiration: This permit shall expire thirty (30) years from the date of issuance. Any extension of this permit will require approval by CRMC.

Decommissioning: The applicant shall submit a decommissioning plan to CRMC at least two (2) years prior to decommissioning for review and approval.

G. Submerged Lands Lease Recommendations

The Revolution Wind project will also require a submerged lands lease. The requested lease area is a continuous corridor from where the Revolution Wind Export Cables enter Rhode Island state waters, through the Narragansett Bay West Passage, to the landfall location at Quonset in North Kingstown. The total length of this corridor will be 23 miles (37 km), within this corridor each cable will run in parallel with a targeted spacing of 656 feet (200 m) between the two cables. This corridor will be, in total, 1,312 feet (400 m) wide, centered on each offshore wind cable. This will result in a total lease area of 3,658 acres (1,480 hectares) in Rhode Island state waters.

Revolution Wind has requested the entire corridor area as a requirement to support necessary Operational & Maintenance activities, in particular in the event that the cable requires repair. For example, in cases where the repair will require the cable to be lifted out of the water and onto a ship's deck for work, such as in cases of when a splice is used to add or replace a cable. After the repair cable is lowered back to the seafloor the cable will be lengthened and create what is referred to as an "Omega"

loop.[7] Such a requirement is needed for the possible Operational & Maintenance activities. There is also an increased risk of cables being damaged or rendered inoperable due to impacts from cable laying equipment. The corridor will also act as a buffer preventing potential damage.

The location and scope of the requested lease area is within the proposed designated cable corridor described in CRMC Advance Notice of Proposed Rulemaking (ANPR) on February 15, 2021. The ANPR identifies and designates a renewable energy cable corridor created with the purpose of minimizing potential adverse impacts to Rhode Island coastal resources and uses. In the creation of the ANPR, CRMC formed a Cable Working Group as part of the Narragansett Bay SAMP which includes members of the CRMC Fishermen's Advisory Board (FAB), representation of the Rhode Island Shellfisherman's Association, RI Department of Environmental Management Division of Marine Fisheries (RIDEM DMF), industry representatives including Revolution Wind, and other interested stakeholders. This process aims to identify areas of active fish, crustacean, shellfish harvesting, paleolandscapes, Areas of Particular Concern (APCs) within state waters and to advise and make recommendations to the CRMC for the purpose of minimizing, and when feasible eliminating, potential adverse impact by location of the cable corridor.

The submerged lands lease requested would entail Revolution Wind for the rights to the installation, construction, reconstruction, repair, replacement, maintenance, operation, uses, inspection, patrol, decommissioning and removal of the export cable, in accordance with the relevant CRMC regulations. They will be limited only to those activities related to the export cable and may only conduct those activities in accordance with the assent, subject to stipulations and the relevant CRMC regulations. The lease will prevent additional submerged cable or burials of similar nature from being within the lease zone.

Under Rhode Island General Law § 46-23-1(f)(2) "The legislature hereby declares that, in light of the unique size, scope, and overall potential impact upon the environment of large-scale filling projects involving twenty-five (25) acres or more, any lease of tidal lands, or any license to use those lands, is subject to approval, disapproval, or conditional approval by the direct enactment of the general assembly by legislative action."

The staff considers the Revolution Wind project to meet these criteria and therefore it is outside the council authority to issue a submerged lands lease for the Revolution Wind project. Staff will work as advisors for the state legislature for the required legislative approval. The required submerged lands lease will not prohibit the council from issuing a decision. A stipulation for requiring a Submerged Lands Lease has been added to the report to address this issue.

H. Applicability of CRMC Regulations:

1. Coastal Resources Management Program, Red Book § 650-RICR-20-00-01:

a. General Applicability: In the case of this project, the RI Coastal Resources Management Program (RICRMP) applies to all project activities located beyond the jurisdictional boundaries of the Ocean

[7] This is what occurred when the cable that became unburied off the beach at Block Island. The remedy to that situation was to attach a new cable starting offshore and connect it through Horizontal Directional Drilling the new connect from an exposed cable requiring secondary cable protection.

Special Area Management Plan (OSAMP). This includes activities located on land, on coastal features and in tidal waters out to the three-nautical mile state boundary. These include but are not limited to the Onshore Substation (OnSS), the Onshore Transmission Cable route, the landfall work area, and the two submarine export cables (RWEC-RI).

Pursuant to RICRMP Section 1.1.4 Alterations and Activities That Require and Assent from the Coastal Resources Management Program, all portions of the project, including activities inland of the nominal 200 feet jurisdictional area, are subject to be included in jurisdiction when "…any alteration or activity, any portion of which extends onto the most inland shoreline feature or its two hundred (200) foot contiguous area…" Furthermore, the OSAMP requires that, "All construction activates shall comply with the policies and standards outlined in the Rhode Island Coastal Resources Management Program (aka, the "Red Book") as well as the regulations of other relevant state and federal agencies."

b. Requested Variances: Pursuant to RICRMP Section 1.1.7, a variance is required for any activity which does not meet the standards contained in the RICRMP. The Revolution Wind project seeks a variance to OSAMP section § 11.9.9. See attached request "File No. 2021-07-005, Revolution Wind Request for Variance" submitted. The staff defers to the council on this matter.

c. Special Exceptions: Pursuant to RICRMP Section § 1.1.8, a Special Exception to the CRMC's Ocean SAMP § 11.10.2. Areas of Particular Concern (APC) which presumptively exclude from APCs all large-scale, small-scale, or other offshore development, or any portion of a proposed project. This exclusion is rebuttable if the applicant can demonstrate by clear and convincing evidence that there are no practicable alternatives that are less damaging in areas outside of the APC, or that the proposed project will not result in a significant alteration to the values and resources of the APC. See the attached request submitted by the applicants. The staff defers to the council on this matter.

d. Project Overview: Cable installation will have unavoidable impacts on fish habitat. Where avoidance is not possible impacts are to be minimized to the greatest extent possible. Revolution Wind will adhere to TOY (time-of-year) restrictions to help protect sensitive species during critical times in their life cycle.

In the Ocean SAMP document, the CRMC recognizes the rich and significant history of human activity in Rhode Island State waters. Revolution Wind has identified one shipwreck and two geomorphic features of archaeological interest within the project area. Neither of these should be disturbed by the cable installation as they are far removed from the cable corridor. The shipwreck will be avoided at a distance of 164 feet from the outer extent of its magnetic border and as the lead federal agency, Bureau of Ocean Energy Management (BOEM) will address any mitigation from unavoidable adverse impacts through its Section 106 process.

The Revolution Wind Export Cable will be completely covered for the entire duration of project operations. During this phase, no effects on the Rhode Island commercial and recreational fisheries are anticipated. However, cable burial not achieving target burial depth may require cable protection, which may have impacts on the commercial and recreational fisheries. Revolution Wind currently estimates that up to 10 percent of the cable will require secondary protection due to failure to achieve the target burial depth, and when crossing the identified submarine assets (seven to date). With Revolution Wind's estimate there will be 2.3 miles of protection for each of the two export cables, for a total of 4.6 miles.

Revolution Wind in table 2.2-7 of the application, estimates that the cable protection will create 22 square acres of permanently altered area.

Revolution Wind has described four methods of secondary cable protection, concrete mattresses, fronded mattresses, rock berm, and rock bags. Concrete mattresses are composed of cast concrete blocks interlinked to form a flexible, articulated mat, which can be placed on the seabed over a cable. Fronded mattresses are concrete mattresses with "fronds" that are designed to slow down current and naturally allow sediment to deposit and form a bank over the mattress. Rock berm involves dumping or placing rock on top of a cable. Rock bags are rock-filled mesh bags placed over the cable. With the need for secondary cable protection being unavoidable, CRMC strongly recommends using options that mimic the original benthic habitat as close as possible. This could mean the use of the natural rock options over use of concrete mattress when achievable. The inspections of the concrete mattresses from the Block Island Wind Farm have shown a concerning lack of biofouling when compared to natural rocks and boulders. Rock bags and berm methods have the potential to create a natural marine habitat.

All cable protection methods may present problems for the commercial and recreational fishing industries. These new outcroppings may cause fishing gear to get caught and become irretrievable. To minimize the impacts, Revolution Wind must detail locations of the cable protection for the fishing community.

Revolution Wind has a target cable burial depth goal of 4 – 6 feet for the entire cable route. CRMC guidance is the same as this target burial depth. To achieve this burial depth Revolution Wind is planning to use a mixture of jet plowing, mechanical plowing, and mechanical cutting. Plowing involves the use of water jets to fluidize the soil, temporarily opening a channel to enable the cable to be lowered under its own weight or be pushed to the bottom of the trench via a cable depressor. This technique is known to be problematic for reaching target burial depth when site conditions include rocky bottoms and areas with strong currents.[8]

Mechanical plowing involves pulling a plow along the cable route while simultaneously laying and burying the cable. The plow's share cuts into the soil, opening a temporary trench which is held open by the side walls of the share, while the cable is lowered to the base of the trench via a depressor. This technique is far more suited for Rhode Island state waters and should help to ensure the target burial depth is reached.

As noted in Revolution Wind Appendix D Preliminary Cable Burial Feasibility Assessment there are several areas of seafloor where jet plowing will be of limited use. Given these conditions, CRMC staff recommends Revolution Wind use a combination of mechanical plowing and jet plowing for the entire in-state cable route. These techniques will limit the amount of secondary cable protection and ensure achieving target cable burial to the greatest extent possible.

[8] This technique was used in the Block Island Wind Farm, where it was considered by CRMC staff to be a failure: the cables' landfall location at Fred Benson Town Beach became exposed within months of installation. The solution was to perform Horizontal Directional Drilling (HDD) and create a new connection offshore. This was a major additional cost to the developer and required several years of construction.

As required by CRMP Section 1.3.1(H)(2)(3) Revolution Wind must provide a CVA for the project. BOEM also requires a CVA. Within the Construction and Operations Plan (COP) submission to BOEM, Revolution Wind has included DNV Renewables Certification as their CVA nomination to both federal and state agencies (the CVA nomination was accepted on June 10, 2021). CRMC staff has reviewed the qualifications of DNV Renewables Certification and agrees that they are sufficient for approval by the CRMC Council. CRMC has received written comments from the FAB reaffirming the importance of having a CVA, specifically needed during the ratified Electromagnetic Fields Study Plan.

2. Rules and Regulations Governing the Protection and Management of Freshwater Wetlands in the Vicinity of the Coast § 650-RICR-20-00-2:

a. Water Quality Regulatory Standards

The OnSS facility will maintain compacted gravel driveways and include a large infiltration basin. Including maintenance of 7.1 acres of landscaped or managed vegetated areas around the facility inclusive of the 4 acres of the operational footprint. During construction of the OnSS, Onshore Transmission Cable and HDD Entry Pits site have provided plans for soil erosion and sediment control that comply with regulatory best managements practices. These plans include controls such as compost filter sock, swales and sediment traps.

Operation and maintenance of the OnSS will require various kinds of oil, lubricants, and fuels. All storage of these will be mounted on concrete foundations with concrete secondary containment for insulating fluid designed for 110 percent containment which is in accordance with EPA, industry and local utility standards. The Onshore Transmission Cable will need to intersect an infiltration basin along Circuit Drive. In this area the Onshore Transmission Cable trench will be backfilled with a bank run gravel or sand in order to maintain the infiltration basin function.

It is the opinion of staff that the proposed stormwater management plan meets the program requirements of the RICRMP and OSAMP.

The table below covers a collection of CRMC regulations that have been applied to the project. The table is sorted left to right by the regulation citation, an excerpt of the regulation text, and the staff response to the regulation.

Freshwater Wetlands Regulation Citation	Regulation Standard	CRMC Response
2.10(B)(4)(a)	*Avoidance: All persons must satisfactorily demonstrate to the CRMC in the form of a written narrative that all probable impacts to freshwater wetlands functions and values have been avoided to the maximum extent possible. The written narrative must describe what steps were taken to avoid impacts to freshwater wetlands. At a minimum, applicants must consider and address the following issues:*	

	(1) Whether the primary proposed activity is water- dependent, or whether it requires access to freshwater wetlands as a central element of its primary purpose (e.g., a pier);	The Revolution Wind project ties into a larger effort that is water dependent.
	(2) Whether any areas within the same property or other properties owned or controlled by the applicant could be used to achieve the project purpose without altering the natural character of any freshwater wetlands;	The applicant requires property that can be used as a point of interconnection (POI), several locations were looked at, but none were found to be an acceptable alternative.
	(3) Whether any other properties reasonably available to, but not currently owned or controlled by, the applicant could be used to achieve the project purpose while avoiding wetland alterations. A property is reasonably available if, in whole or in part, it can be acquired without excessive cost, taking individual circumstances into account, or, in the case of property owned or controlled by the same family, entity, group of affiliated entities, or local, state, or federal government, may be obtained without excessive hardship;	Revolution Wind evaluated and eliminated seven other locations for the OnSS near the Davisville Substation that met their required criteria: • Proximity within one mile of the Davisville Substation; • Minimum 7-acre [2.8 ha] parcel size with minimum 250-feet (76.2 m) parcel width; • Suitable topography (e.g., gently slopes, above height of coastal flood hazard); • Not zoned residential; • Absence of Sensitive Receptors (e.g., schools, day care centers, open-space, or recreational areas); and • Availability - property is either on the market or the owner is willing to sell Staff views these as reasonable criteria for similar alternative locations. Of the seven locations that meet the required criteria, four were unavailable for purchase or long-term lease. The following three locations were considered:

		Fujifilm Property: The QDC recommended not using this location. Other uses of this area – ideal for supporting future industrial or business growth – are planned for this area. There is also a 24-inch stormwater culvert running through the property that would need relocation. QDC Mainsail Drive Property: This site will require 0.7 miles of underground cable that would need to cross a railroad and several underground utilities to reach the Davisville Substation. QDC Property abutting the Davisville Substation: This is the location favored by Revolution Wind for this project. This location offers a visual buffer to abutters, and the best proximity to the TNEC interconnect facility, making it the shortest Onshore Transmission Cable route. The current location is a capped landfill from the former Naval Air Station at Quonset Point, and this project represents a productive reuse of this brownfield site. This location also received strong recommendation from QDC. Staff agrees that the selected location for the OnSS represents the preferred location.
	(4) Whether alternative designs, layouts or technologies could be used to avoid freshwater wetlands or impacts on functions and values on the subject property or whether the project purpose could be achieved on other property that is reasonably available and would avoid wetlands;	Substations are required to follow Rhode Island State Building Code/2015 International Building Code, American Society of Civil Engineers (ASCE) Standard 7-10, ASCE 113, ASCE 24-14, all applicable Institute of Electrical and Electronics Engineers (IEEE) standards, for local climate and geotechnical conditions. These requirements present standards for design of the fence, the measured separation between the fence and energized equipment, safe clearance distances, and so on. While following this design criteria there will be encroachment into portions of the 50-foot wetland buffer, but no direct impacts to the wetlands. The substation footprint can be minimized using substation equipment insulated with SF6 Gas rather than air insulation. This can save several feet and is commonly used. Revolution Wind plans to use this technology.

	(5) Whether the applicant has made any attempts (and if so what they were) to avoid alterations to freshwater wetlands by overcoming or removing constraints imposed by zoning, infrastructure, parcel size or the like; and (6) Whether feasible alternatives that would not alter the natural character of any freshwater wetlands on the subject property or on property that is reasonably available, if incorporated into the proposed project, would adversely affect public health, safety, or the environment.	See above
2.10(B)(4)(b)	Minimization: For any impact to freshwater wetlands that cannot be avoided, the applicant must satisfactorily demonstrate to the CRMC in the written narrative that the impact to wetland functions and values have been reduced to the maximum extent possible. At a minimum, applicants must consider and address the following issues:	
	(1) Whether the proposed project is necessary at the proposed scale or whether the scale of the wetland alteration could be reduced and still achieve the project purpose;	The project is necessary at the proposed scale because every piece of required equipment is necessary for the task. The overall footprint is necessary in order to keep with related spacing requirements to safety standards. These cannot be altered without compromising the health and safety of workers and the general public.
	(2) Whether the proposed project is necessary at the proposed location or whether another location within the site could achieve the project purpose while resulting in less impact to the wetland;	As described by staff response in section 2.10(B)(4)(a)(3)

	(3) Whether there are feasible alternative designs, layouts, densities, or technologies, that would result in less impact to the wetland while still achieving the project purpose; and	As described by staff response in section 2.10(B)(4)(a)(4)
	(4) Whether reduction in the scale or relocation of the proposed project to minimize impact to the wetland would result in adverse consequences to public health, safety, or the environment.	All equipment is required to meet the purpose of the substation. Alteration to the overall footprint is limited by industry and National design standards, and health and safety standards
2.10(B)(4)(c)	Mitigation measures: Measures, methods, or best management practices to avoid alterations of and minimize impacts to wetlands are described in §2.9(B)(1)(d)(3) of the Freshwater Wetland Rules.	
	Preserving natural areas in and around wetlands;	The OnSS is located on a capped landfill and reduces grading limits through the use of structural retaining wall. Between the restrictions on the OnSS and methods for reduction, the project preserves the natural areas around the wetlands to the maximum extent practicable.
	Minimizing the extent of disturbed areas and encouraging the preservation of land in its natural state;	The OnSS is located on a capped landfill and other areas disturbed by the former Naval Air Station at Quonset Point. Most of the proposed development will occur on previously heavily disturbed land.
	Designing dense plantings of shrubs and trees between the developed areas and the remaining natural areas: (i) to "buffer" impacts from loss of wildlife	Due to regulations on electrical substations trees cannot be planted within 30 feet of the perimeter fence. Instead, a perimeter of plantings consisting of native warm season grasses, wildflowers, and native shrubs are proposed as a buffer. This buffer will reduce the impacts on the surrounding wetlands.

	habitat and loss of natural areas and (ii) to reduce the impacts of noise, lighting and other disturbances upon wildlife and the remaining natural areas;	
	Maintaining unrestricted fish and wildlife passage;	OnSS will not restrict fish and wildlife access to the surrounding area.
	Designing structures and alterations so that they are located outside of floodplains, floodways, areas subject to flooding, flowing bodies of water, or other freshwater wetlands;	The OnSS avoids all of these. A portion of the OnSS is in FEMA Flood Zone AE with a base flood elevation of 13 feet. However, the majority of the area is in FEMA Flood Zone X for a 0.2 percent annual probability of flooding.
	Using best management practices for the stabilization of disturbed areas and the selection, use, and maintenance of temporary or permanent soil erosion and sediment controls in accordance with the latest version of the RI Soil Erosion and Sediment Control Handbook and the RI DEM "Stormwater Management, Design and Installation Rules," 250-RICR-150-10-8;	The project will follow these best management practices.
	Using best management practice selection and design criteria in accordance with the latest version of the RI DEM "Stormwater Management, Design and Installation Rules," 250-RICR-150-10-8, to reduce post-development	The project will follow the best management practices of the RIDEM "Stormwater Management, Design and Installation Rules," § 250-RICR-150-10-8.

	stormwater flows and maximize the control, treatment and maintenance of systems that reduce stormwater impacts to acceptable levels;	
	Minimizing impervious surface areas such as roads, parking, paving or other surfaces;	The plan calls for a 50-foot impervious paved apron at the site entrance and around the base of the equipment. The rest of the internal roadways will be constructed of crushed stone, leading to infiltrating layers of gravel and sand. The facility does not expect enough vehicle traffic to damage the crushed stone's ability to infiltrate.
	Incorporating compensatory flood storage area(s) where necessary and in compliance with these Rules;	N/A
	Encouraging infiltration of non-contaminated run-off into uncontaminated soils;	The OnSS is located above a capped landfill. The RIDEM Office of Land Revitalization and Sustainable Materials Management has approved only the infiltration of precipitation in this area. The OnSS will employ a sub-drain system that will intercept infiltrated precipitation and discharge it to an on-site infiltration basin outside the footprint of the capped landfill. Infiltration of non-contaminated runoff will only occur in areas not above the capped landfill.

	Preventing channelization or piping of run-off and encouraging sheet flow;	The crushed stone areas within the OnSS will immediately infiltrate and filter rainfall through a gravel and sand layer. Underdrains will direct overflow to an infiltration basin capable of handling the volume from a 100-year storm event. Stormwater is designed to flow overland across the gravel access drives and through gravel shoulders. This will help prevent channelization.
	Landscaping with gradual slopes to maximize sheet flow and infiltration while minimizing channelization;	The OnSS has been designed to require the use of steep slopes in order to limit the footprint and increase flood elevation. This is the correct design decision as it limits impacts to the surrounding wetlands. Most infiltration is handled immediately within the OnSS, and the use of structural retaining walls will minimize channelized runoff.
	Minimizing or eliminating the use or increase of any pollutants, fertilizers, pesticides, herbicides, or any other chemical or organic application which increase pollutant and nutrient loadings;	Herbicides are proposed to only be used during maintenance of the facility to help manage nuisance vegetation.
	Maximizing setbacks of septic systems and other land disturbances from wetlands; and	N/A
	Minimizing the withdrawal of surface water or groundwater from wetlands or uplands adjacent to wetlands, especially during dry periods, and minimizing any reduction in river or stream flow.	N/A

2.10(C)(1) - 2.10(E)(2)	The CRMC will evaluate all projects to determine the extent to which the proposed project will have an impact, either individually or cumulatively, upon wetland functions or values as described in this Rule. All such projects shall:	
	a. Be subject to all of the review criteria contained herein and must incorporate those best management practices, best available technologies, and any maintenance or inspection schedules necessary to comply with the applicable criteria;	Revolution Wind has adequately addressed each of the criteria in their application.
	b. Not adversely affect any wetland so as to cause any of the impacts identified in § 2.10(E)(3) of this Part below; and	Revolution Wind has adequately addressed the adverse impacts in their application.
	c. Shall not result in any random, unnecessary, or undesirable alteration of freshwater wetland.	The OnSS and Onshore Transmission Cable are not random or unnecessary as they are required to support the transmission of energy into the existing Davisville Substation from the accompanying offshore wind farm. This will fulfill the contractual obligation to the State of Rhode Island and the State of Connecticut and their Power Purchase Agreements (PPAs) totaling approximately 704 MW.
2.10(E)(3)	Before issuing a permit, the CRMC must be satisfied that a proposed project or alteration will not result in:	
	a. Significant reduction in the overall wildlife production or diversity of a wetland;	There will be 0.11 acres within 50 feet of the wetland that will be impacted directly. Construction could affect the area's wildlife. These direct impacts will not cause significant reduction in the overall wildlife production or diversity of a wetland.
	b. Significant reduction in the ability of a wetland to satisfy the needs of a particular wildlife species;	The OnSS will not significantly reduce the ability of a wetland to satisfy the needs of any wildlife species. The OnSS is a facility that will not be continually staffed and will only be occupied by maintenance staff several times a week. This limits human disturbance in the area.

		Most of the OnSS will be constructed over a capped landfill, which currently only provides limited habit around the wetlands. The most sensitive and significant area is the vernal pool. The use of stormwater infiltration will allow for the vernal pool groundwater to recharge. The OnSS itself does not directly impact the vernal pool.
	c. Significant displacement or extirpation of any wildlife species from a wetland or surrounding areas due to the alteration of the wetland;	The project's OnSS will cause alteration of 0.11 acres within 50 feet of the wetland; However, this will not cause significant displacement or extirpation of any wildlife species from a wetland.
	d. Any reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species;	No rare animal species were found at the site. A rare plant was identified in uplands on the OnSS properties. Design of the OnSS and associated improvements avoids this area of rare plants. The wetlands will not be directly impacted. There will be alteration of 0.11 acres within 50 feet of the wetland, but this will not reduce the ability of the wetland to ensure long-term viability.
	e. Any degradation in the natural characteristic(s) of any rare wetland type;	None of the wetland areas near the project are considered rare.
	f. Significant reduction in the suitability of any wetland for use by any resident, migratory, seasonal, transient, facultative, or obligate wildlife species, in either the short- or long-term as a travel corridor; feeding site; resting site; nesting site; escape cover; seasonal breeding or spawning area;	The OnSS will not significantly reduce the suitability of any wetland for any use by any resident wildlife species. The existing travel corridors between the wetlands will not be obstructed by the OnSS. The OnSS infiltration system for stormwater treatment will preserve the existing hydrologic balance of the wetland systems.
	g. Any more than a minimal intrusion of, or increase in, less valuable,	Revolution Wind has identified a large number of invasive plant species in the area: primarily multiflora rose, Morrow's honeysuckle, and Asiatic bittersweet.

	invasive, or exotic plant or animal species in a wetland;	The OnSS will require the uses of crushed stone surface which will not support the invasive plant species in the area. It is the opinion of staff that the project will not have any more than a minimal intrusion of invasive or exotic plant or animal species in a wetland.
	h. Significant reduction in the wildlife habitat functions and values of any wetland which could disrupt the management program for any game or non-game wildlife species carried out by state or federal fish, game, or wildlife agencies;	The OnSS avoids direct impact to the on-site wetlands. The wetlands exist in an area with human habitation, and as such any wildlife present is already adapted to human influences. There are no management programs for any game or non-game species in the impacted areas. The OnSS will not result in a significant reduction of the wildlife habitat functions and values of any wetland.
	i. Significant reduction in overall current or potential ability of a wetland to provide active or passive recreational activities to the public;	Currently the land is owned by the QDC and is closed off to the public as a capped landfill. The existing public viewpoints along the road will remain unaffected.
	j. Significant disruption of any on-going scientific studies or observations;	There are no known ongoing scientific studies or observations within the project work area.
	k. Elimination of, or severe limitation to traditional human access to, along the bank of, up or down, or through any rivers, streams, ponds, or other freshwater wetlands;	The OnSS location is currently closed off to public access by the QDC because it is a former landfill.
	l. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water	The project OnSS does not require the removal of trees or vegetation in the surrounding wetlands. Outside the wetlands there will be vegetation and tree removal within 50 feet minimally impacting the buffer zone. Revolution Wind plans to minimize to the extent practicable the creation of new impervious surfaces, and includes a stormwater plan that relies on infiltration as

	elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values;	treatment. The applicant has submitted site- specific Soil Erosion and Sediment Control (SESC) Plan that follows regulatory guidance of the Rhode Island Soil Erosion and Sediment Control Handbook and the Rhode Island Stormwater Management, Design, and Installation Rules. Staff recommends these measures as they will mitigate any impacts on water quality and peak discharge rates.
	m. Any placement of any matter or material beneath surface water elevations or erection of any barriers within any ponds or flowing bodies of water which could cause any hazards to safety;	N/A
	n. Significant loss of important open space or significant modification of any uncommon geologic features or archaeological sites that are listed on the National Register of Historic Places or eligible for listing;	Revolution Wind has performed surveys to identify any buried archaeological sites in the proposed construction areas. Revolution Wind will continue to investigate in consultation with RIHPHC and Native American Tribes. CRMC will defer to RIHPHC and Native American Tribes in their capacities as consulting parties in the federal Section 106 process.
	o. Significant modification to the natural characteristics of any wetland area of unusually high visual quality;	A buffer of trees will remain so that the 50-foot area of wetland buffer disturbance is not visible beyond the property.
	p. Any decrease in the flood storage capacity of any freshwater wetland which could impair the wetland's ability to protect life or property from flooding or flood flows;	The project OnSS does not decrease the flood carrying capacity of any freshwater wetlands. There are no alterations proposed to the wetlands.

	q. Significant reduction of the rate at which flood water is stored by any freshwater wetland during any flood event;	The project OnSS does not cause significant reduction of the rate at which flood water is stored by any freshwater wetland.
	r. Restriction or significant modification of the path or velocities of flood flows for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;	The project OnSS does not restrict or significantly modify the path or velocities of flood flows from for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events.
	s. Placement of any structure or obstruction within a floodway so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;	The project OnSS location does not have floodways present.
	t. Any increase in run-off rates over pre-project levels or any increase in receiving water/wetlands peak flood elevations for the 1-year, 10-year, or 100-year frequency, 24-hour, Type III storm events which could impair the wetland's ability to protect life or property from flooding or flood flows;	The project's OnSS will not increase run-off rates over pre-project levels.
	u. Any increase in run-off volumes and discharge rates which could, in any way, exacerbate flooding conditions in flood-prone areas;	The project's OnSS will not exacerbate the flooding conditions.

	v. Significant changes in the quantities and flow rates of surface or groundwater to or from isolated wetlands (e.g., those wetlands without inflow or outflow channels);	The OnSS design includes measures to infiltrate runoff and mitigate increases in peak discharge rates. The OnSS will not cause changes in quantities and flow rates of surface or groundwater to the surrounding wetlands.
	w. Placement of any structural best management practices within wetlands, or proposal to utilize wetlands as a detention or retention facility;	The project's OnSS does not use any structural best management practices in wetlands or propose to utilize wetlands as detention or retention facilities.
	x. Any more than a short-term decrease in surface water or groundwater elevations within any wetland;	The project will not cause more than a short-term decrease in surface water or groundwater elevations within any wetland. The OnSS has been designed to maintain the existing hydrology within the watershed.
	y. Non-compliance with the Rhode Island Department of Environmental Management "Water Quality Regulations," 250-RICR-150-05-1; or	The project as proposed will be in compliance with RIDEM "Water Quality Regulations," § 250-RICR-150-05-1.
	z. Any detrimental modification of the wetland's ability to retain or remove nutrients or act as natural pollution filter.	The project will not result in any detrimental modification of the wetland's ability to retain or remove nutrients or act as natural pollution filter.

3. Coastal Resources Management Program, Red Book: § 650-RICR-20-00-01:

The table below covers a collection of CRMC regulatory standards that have been applied to the project. The table is sorted left to right by the regulation citation, an excerpt of the regulation text, and followed by the staff response to the regulation.

Regulation Number	Regulation Text	CRMC Responses
1.1.5	Review Categories and Prohibited Activities in Tidal Waters and on Adjacent Shoreline Features	This application covers the appropriate 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.
1.1.6	Applications for Category A and Category B Council Assents	The project will follow the goals, policies, prerequisites, informational requirements, and standards of the CRMP. A 60-day public notice was issued by CRMC on October 15, 2021 and extended another 60 days on December 17, 2021. Revolution Wind has completed an acceptable Coastal Hazard Analysis for its OnSS.
	1.1.6 (F) Category B applications 1. Applicants for activities and alterations listed as "B" in Tables 1, 2, or 3 in § 1.1.5 of this Part, in addition to adhering to the applicable policies, prerequisites, and standards, are required to address all Category B requirements as listed in applicable sections of the program and, where appropriate, other issues identified by the Council. 2. Formal notice will be provided to all interested parties once completed forms for a Category B application have been filed with the Council. The notice shall set forth the nature of the application, any variances requested and the applicable sections of the CRMP from which a variance is requested. A public hearing will be scheduled if there are one or more substantive objections to the project, or at the consensus of four (4) or more members of the Council. 3. A Category B Assent shall be issued if the Council finds that the proposed alteration conforms to the goals, policies, prerequisites, informational requirements, and standards of this Program.	
	1.1.6 (I) Coastal hazard analysis application requirement	
1.1.7	A. Applicants requiring a variance from a standard shall make such request in writing and address the six (6) criteria listed below in writing. The application shall only be granted a variance if the	There are no variances requested for this project.

	Council finds that the following six (6) criteria are met.	
1.1.8	Special exceptions may be granted to prohibited activities to permit alterations and activities that do not conform to a Council goal for the areas affected or which would otherwise be prohibited by the requirements of this document only if and when the applicant has demonstrated that:	The project is not proposing prohibited activities requiring a Special Exception by the CRMC Council under section 1.1.8.
1.1.9	Setbacks A. A setback is the minimum distance from the inland boundary of a coastal feature at which an approved activity or alteration may take place. B. Setbacks shall be maintained in areas contiguous to coastal beaches, coastal wetlands, coastal cliffs and banks, rocky shores, and existing manmade shorelines, and apply to the following categories of activities and alterations: 1. Filling, removal, or grading, except when part of an approved alteration involving a water dependent use or activity or structure (see § 1.3.1(B) of this Part); 2. Residential buildings and garages excluding associated structures (see § 1.1.6(H) of this Part); 3. New individual sewage disposal systems, sewage treatment plants, and associated sewer facilities excluding outfalls (See § 1.3.1(F) of this Part). Repairs and replacements of existing (permitted) individual sewage disposal systems shall be exempt from the Council's setback requirements; 4. Industrial structures, commercial structures, and public recreation structures that are not water dependent (See § 1.3.1(C) of this Part); and	The use of Horizontal Directional Drilling (HDD) for the installation of the RWEC-RI will ensure that there is no impact on the Coastal Buffer. The HDD entry pits will be constructed approximately 200 feet inland and there will be no impact on the existing coastal buffer, which is approximately 50 feet wide, or Setback. The HDD exit pits are located offshore in tidal waters.

	5. Transportation facilities that are not water dependent (see § 1.3.1(M) of this Part). 6. Any structure as specified in § 1.3.1(G)(1)(e) of this Part.	
1.1.10	Climate Change and Sea Level Rise A. Policies 1. The Council will review its policies, plans and regulations to proactively plan for and adapt to climate change and sea level rise. The Council will integrate climate change and sea level rise scenarios into its programs to prepare Rhode Island for these new, evolving conditions and make our coastal areas more resilient. 2. The Council's sea level rise policies are based upon the CRMC's legislative mandate to preserve, protect, and where possible, restore the coastal resources of the state through comprehensive and coordinated long-range planning. 3. The Council recognizes that sea level rise is ongoing and its foremost concern is the accelerated rate of rise and the associated risks to Rhode Island coastal areas today and in the future. The Council recognizes that the lower the sea level rise estimate used, the greater the risk that policies and efforts to adapt sea level rise and climate change will prove to be inadequate. Therefore, the policies of the Council may take into account different risk tolerances for differing types of public and private coastal activities. In addition, the Council will regularly review new scientific evidence regarding sea level change. 4. The Council relies upon the most recent NOAA sea level rise data to address both short and long term planning horizons and the design life	At its proposed landfall, the RWEC-RI will be installed by HDD. With this method the export cables will be buried up to 65 feet Underground, only surfacing at the designated HDD entry and exit pit locations. The entire RWEC-RI including the landfall location is designed to be submerged fully. The Onshore Transmission Cable will be buried along the route to the OnSS. All buried transmission lines encounter groundwater inundation and are built to be resilient to full submersion. Revolution Wind has designed their OnSS to withstand a 100-year storm event with 5 feet of sea level rise as per CRMC staff recommendation. The OnSS site has an elevation of at least 18 above NAVD88.

	considerations for public and private infrastructure. The Council's policy is to adopt and use the most recent sea level change scenarios published by NOAA (currently Technical Report NOS CO-OPS 083 (2017)), and the	
1.1.11	Coastal Buffer Zones	Revolution Wind has fulfilled this requirement.
1.2.1	Tidal and Coastal Pond Waters	The submerged cable is considered by CRMC to be a water dependent activity. Approximately 22.5 miles of the RWEC-RI is in Type 4 waters with only the nearshore 0.5 miles located within Type 6 waters. The RWEC is not proposed in a coastal pond.
	1.2.1(E) Type 4 Multipurpose Waters a. The Council's goal is to maintain a balance among the diverse activities that must coexist in Type 4 waters. The changing characteristics of traditional activities and the development of new water dependent uses shall, where possible, be accommodated in keeping with the principle that the Council shall work to preserve and restore ecological systems. d. The Council shall work to promote the maintenance of good water quality within the Bay. While recognizing that stresses on water quality will always be present in urban areas such as the Providence River, the Council shall work to promote a diversification of activities within the upper Bay region through the water quality improvement process.	
	1.2.1(G) The Council's goals for Type 6 waters and adjacent lands under Council jurisdiction are to encourage and support modernization and increased commercial activity related to shipping and commercial fisheries.	
1.2.2	Shoreline Features	The landfall location at Quonset is not a coastal beach and will face minimum disturbance. The nearest coastal beaches are Blue Beach located approximately 1,000 feet to the southwest, and Compass Rose Beach, approximately 2,500 feet to the northeast of the landfall location. Neither beach will be disrupted by the construction. The impact will be limited to local traffic.
	1.2.2 (A) Coastal Beaches 1. Policies a. The Council's goals are: (1) To preserve the qualities of, and public access to those beaches which are an important recreational resource (adjacent to Type 1 and 2 waters); (2) To prevent activities that will significantly disrupt longshore and/or onshore offshore beach processes,	

	thereby creating an erosion or flooding hazard; and, (3) To prevent construction in high hazard areas; and (4) To protect the scenic and ecological value of beaches.	There are no coastal wetlands at the landfall location. The HDD installation method is sufficient to prevent disruption in the longshore and/or onshore-offshore beach processes. It will also avoid alteration of the existing manmade shoreline.
	1.2.2 (C) Coastal Wetlands a. The Council's goal is to preserve and, where possible, restore all coastal wetlands. All contiguous freshwater wetlands are protected under this Program, regardless of their size.	
	1.2.2 (F) Manmade Shorelines b. The Council's goals are: (1) To encourage the maintenance of structures that effectively mitigate erosion and/or sustain landforms adjacent to the water; and (2) Prevent the accumulation of debris along the shore where such structures are ineffective or no longer in active use.	
1.2.3	Areas of Historic and Archaeological Significance A. Policies 1. The Council's goal is to, where possible, preserve and protect significant historic and archaeological properties in the coastal zone. 2. Preservation of significant historic and archaeological properties is a high priority use of the coastal region. Activities which damage or destroy important properties shall be considered a low priority. 3. The Council shall require modification of or shall prohibit proposed actions subject to its jurisdiction where it finds a reasonable probability of adverse impacts on properties listed in the National Register of Historic Places. Adverse impacts are those which can reasonably be expected to diminish or destroy those qualities of the property which make it eligible for the National Register of Historic Places. The Council shall solicit the recommendations of the RI Historical Preservation and Heritage Commission regarding impacts on such properties.	BOEM has initiated its Section 106 process under the National Historic Preservation Act, and it is understood that RI SHPO and the Narragansett Tribal Historic Preservation Office have been invited to participate as consulting parties. The RWEC-RI will be buried and will only have visual impact during construction. See Cable Section for more details.

1.3.1	In Tidal and Coastal Pond Waters, On Shoreline Features and Their Contiguous Areas	
	1.3.1(B) Filling, removing, or grading of shoreline features	With the propsed HDD installation there will be no filling, removing, and grading occurring on the shoreline feature.
	1.3.1(C) Residential, commercial, industrial, and recreational structures 1.3.1(C)(1)(A) It shall be the policy of the Council to undertake all appropriate actions to prevent, minimize or mitigate the risks of storm damage to property and coastal resources, endangerment of lives and the public burden of post storm disaster assistance consistent with policies of the State of Rhode Island as contained in the Hazard Mitigation Plan element of the State Guide Plan when considering applications for the construction of residential, commercial, industrial and recreational structures, including utilities such as gas, water and sewer lines, in high hazard areas.	The applicant has acknowledged the policies and has completed the prerequisites. All described prohibited activities are either addressed below or do not apply to the project. Revolution Wind will limit impacts to navigation and other uses by constructing the RWEC-RI under the sea floor or secondary cable protection. The OnSS site has a base flood elevation of 13 feet NAVD88. The OnSS will be constructed with the substation yard elevations between 18 feet – 20 feet above NAVD88. Revolution Wind demonstrated compliance with Rhode Island State Building Code by obtaining a signed Building Official Form.
	1.3.1(F) Treatment of sewage and stormwater d. It is the Council's policy to require the proper management and treatment of stormwater through the preparation and implementation of a stormwater management plan in accordance with the most recent version of RIDEM Rhode Island Stormwater Design and Installation Standards Manual, and which satisfies the requirements of the RICRMP and any applicable Special Area Management Plan. f. It is the Council's policy that all stormwater management plans shall take into consideration all potential impacts associated with the discharge of stormwater runoff into the coastal	The Revolution Wind project is in compliance with 1.3.1(F). The OnSS stormwater management design uses qualifying pervious areas (QPA) along with subdrains beneath the gravel surface. These will collect the stormwater for pretreatment before discharge into an infiltration basin. The proposed OnSS infiltration basin system can handle a 100-year storm event, along with appropriately designed stormwater drainage and conveyance systems to handle anticipated ten (10) year, twenty-four (24) hour Type III storm events. The Onshore Transmission Cable is exempt from the requirements of the Stormwater

	environment. Potential impacts include, but are not limited to, the following:	Management, Design and Installation Rules under Minimum Standard 6 A.4.
	1.3.1(G) Shoreline protection	N/A
	1.3.1(H) Energy-related activities and structures 1.3.1(H)(3) Certified verification agent (CVA) requirement for energy-related activities defined in § 1.1.2 of this Part for which the CRMC has jurisdiction or requires a permit in accordance with §§ 1.1.4 and 1.3.3 of this Part, and as required by the CRMC executive director to review projects that are outside the scope of CRMC staff expertise. 6. Additional Category B requirements a. Unless preempted under the regulations of the Federal Energy Regulatory Commission the following summary defines the scope of the topics that shall be addressed by applicants for power generating and petroleum processing and storage as they apply to construction, operation, decommissioning, and waste disposal: (*List omitted for compression*)	The Revolution Wind application has demonstrated compliance with regulation 1.3.1(H) Energy-Related Activities and Structures. CVA was submitted by Revolution Wind and covers these requirements.
	1.3.1(I) Dredging and dredged material disposal For disposal of dredged material resulting from maintenance dredging operations, a Category A Review may be permitted provided the Executive Director determines that the disposal is conducted consistent with the RIDEM's dredging regulations and that the disposal is at an approved disposal facility, or at an approved federal disposal facility. Category A reviews may also be permitted when: (*List omitted for compression*)	The Revolution Wind project is in compliance with 1.3.1(I) Dredging and Dredged Material Disposal. For more details see section 4. Dredging and the Management of Dredged Materials Regulatory Standards § 250-RICR-150-05-2.
	1.3.1(J) Filling in tidal waters 1. Policies a. It is the Council's policy to discourage and minimize the filling of coastal waters. c. In considering the merits of any given proposal to fill tidal waters, the Council	The Revolution Wind project is in compliance with 1.3.1(J) Filling in Tidal Waters. While technically not a traditional filling of tidal waters project, there are some aspects

	shall weigh the public benefit to be served by the proposal against the loss or degradation of the affected public resource(s). 3. Prohibitions c. Filling in Type 3, 4, 5, and 6 waters is prohibited unless: (1) The filling is made to accommodate a designated priority use for that water area; (2) The applicant has examined all reasonable alternatives and the Council has determined that the selected alternative is the most reasonable; and (3) The filling is the minimum necessary to support the priority use.	of the cable burial that merit review against these regulations. Given that, staff agree that the use of HDD and jet plow, mechanical plow, and remedial use of a Capjet or similar burial tool each represent the best method of cable burial vis-à-vis these regulations.
	1.3.1(R) Submerged aquatic vegetation and aquatic habitats of particular concern 1. Policies a. The Council's goal is to preserve, protect and where possible, restore SAV habitat. In cases where the Council determines that SAV may be altered or grants a special exception to a prohibition listed in § 1.3.1(R)(2) of this Part, the Council shall require the mitigation of all impacts to SAV.	The Revolution Wind project is in compliance with 1.3.1(R) Submerged Aquatic Vegetation and Aquatic Habitats of Particular Concern. Impact to the SAV is minimized to the greatest extent possible. The landfall's nearest SAV is to the west of Compass Rose Beach, approximately 845 feet from the project landfall. Revolution Wind's construction schedule avoids peak SAV growing season from July to September. Sediment displacement from cable burial will have the most accumulation immediately at the burial site. With SAV being located near shore the sediment will have settled or disbursed before reaching shore.
1.3.3	A. Policies 5. Applicants proposing any of these activities shall satisfy all requirements specified in the RICRMP and any applicable special area management plan. Applicants shall also submit the following with their applications: a. A stormwater management plan as required in § 1.3.1(F) of this Part and as described in the most recent version of	The Revolution Wind project is in compliance with 1.3.3 Inland Activities and Alterations that are subject to Council Permitting. The applicant's stormwater management plan was reviewed and found consistent with CRMC's polices. For further details see the storm water section

	the DEM Stormwater Management, Design, and Installation Rules (250-RICR-150-10-8). f. Prior to permitting, an archeological survey when recommended by the state Historical Preservation & Heritage Commission. 6. Applicants shall submit this information to the Council for review at the earliest stages of planning such projects and are required to utilize the Council's Preliminary Determination process...	The applicant has worked with RIHPHC and Native American Tribes to investigate the potential archaeological sites. Surveys have been conducted on areas of planned ground disturbances. The applicant has submitted an archeological survey to CRMC's HPAC. HPAC has issued a "no effect decision.
1.3.5	A. Policies 1. The primary goal of all Council efforts to preserve, protect, and, where possible, restore the scenic value of the coastal region is to retain the visual diversity and often unique visual character of the Rhode Island coast as it is seen by hundreds of thousands of residents and tourists each year from boats, bridges, and such public vantage points as roadways, public parks, and public beaches.	The Revolution Wind project is in compliance with 1.3.5 Policies for the Protection and Enhancement of The Scenic Value of the Coastal Region. The export cable and Onshore Transmission Cable will be installed under the seabed and underground respectively. The OnSS will be located inland, set back over 400 feet from Camp Ave. There will be a buffer of vegetation and trees in between the road and OnSS.
1.3.6	Protection and Enhancement of Public Access to the Shore A. Policies 2. It is the Council's policy to protect, maintain and, where possible, enhance public access to and along the shore for the benefit of all Rhode Islanders. B. General Policies 2. Any public access created to compensate for proposed project impacts should be of a type and level similar to that which will be impacted. 3. In cases where access cannot practically be provided onsite, due to	Revolution Wind construction of the RWEC-RI will not prevent public access to the shore. The closest public beach is located 0.2 miles away from the landfall location and construction laydown. There is potential for temporary impacts to access to the Blue Beach parking lot and trail from construction activity associated with the Onshore Transmission Cable. According to the schedule, construction will aim to be completed in the off season when the parking lot is typically closed off by QDC. Any impact to vehicular access to the Blue Beach parking lot from construction activities is considered temporary. At no point should the public lose access to Blue Beach.

	safety, security, environmental or other considerations, the Council may permit access be provided offsite.	

4. Rhode Island Ocean Special Area Management Plan, Ocean SAMP § 650-RICR-20-05-11:

The table below covers a collection of CRMC regulatory standards that have been applied to the project. The table is sorted left to right by the regulation citation, an excerpt of the regulation text, and followed by the staff response to the regulation.

Regulation Number	Regulation Text	CRMC Responses
11.9	(C) Any assent holder of a CRMC-approved offshore development, as defined in § 11.10.1(A) of this Part, shall: (*List omitted for compression*) (D) Administrative processing fee: For large-scale offshore developments, underwater cables, and other projects as determined by the Council, the CRMC may assess the applicant with an administrative processing fee to help defray costs to conduct the CZMA federal consistency review, including the mitigation negotiations. This fee shall be $20,000. The Council cannot issue a conditional concurrence or an objection for failure to pay the fee.	The Revolution Wind application complies with the requirements of said section. Revolution Wind has provided a description of measures that will be implemented to avoid undue harm or damage to natural resources. The Revolution Wind project is not subject to the administrative processing fee for large-scale offshore developments. This application is considered Category B and has been charged the required fees.
11.9.1	(A) The Council recognizes that the preservation and restoration of ecological systems shall be the primary guiding principle upon which environmental alteration of coastal resources will be measured. Proposed activities shall be designed to avoid impacts and, where unavoidable impacts may occur those impacts shall be minimized and mitigated. (B) As the Ocean SAMP is an extension and refinement of CRMC's policies for Type 4 multipurpose waters as described in § 00-1.2.1(E) of this Chapter, CRMC will encourage a balance among the diverse activities, both traditional and future water	Revolution Wind has completed all requirements in Section 11.9.1. The developer has avoided and, where unavoidable, has minimized and mitigated impacts to the ecology. This was done in part by limiting the project to Type 4 and 6 waters, the cable being proposed in the corridor as described in the Advance Notice of Proposed Rulemaking and minimizing the impacts to freshwater wetlands through compact design of the OnSS.

	dependent uses, while preserving and restoring the ecological systems. (C) The Council recognizes that while all fish habitat is important, spawning and nursery areas are especially critical in providing shelter for these species during the most vulnerable stages of their life cycles. The Council will ensure that proposed activities shall be designed to avoid impacts to these sensitive habitats, and, where unavoidable impacts may occur, those impacts shall be minimized and mitigated. In addition, the Council will give special consideration to habitat used by species of concern as defined by the NMFS Office of Protected Resources.	
11.9.2	(B) The Council shall incorporate climate change planning and adaptation into policy and standards in all areas of its jurisdiction of the Ocean SAMP and its associated land-based infrastructure to proactively plan for and adapt to climate change impacts such as increased storm intensity and temperature change, in addition to accelerated sea level rise. For example, when evaluating Ocean SAMP area projects and uses, the Council will carefully consider how climate change could affect their future feasibility, safety and effectiveness. When evaluating new or intensified existing uses within the Ocean SAMP area, the Council will consider predicted impacts of climate change especially upon sensitive habitats, most notably spawning and nursery grounds, of particular importance to targeted species of finfish, shellfish and crustaceans. (D) The Council will prohibit those land-based and offshore development projects which, based on a sea level rise scenario analysis, will threaten public safety or not perform as designed resulting in significant environmental impacts. The U.S. Army Corps of Engineers has developed and is implementing design and construction standards that consider impacts from sea	Revolution Wind will provide renewable energy which aligns with the CRMC's policies for adaptive approaches to management. Sea level rise is not expected to affect the submerged cable or landfall location. The onshore substation and transmission facility is not expected to be impacted by the estimated 5-foot sea level rise.

	level rise. These standards and other scenario analyses should be applied to determine sea level rise impacts.	
11.9.3	(A) The Council recognizes the rich and historically significant history of human activity within and adjacent to the Ocean SAMP area. These numerous sites and properties, that are located both underwater and onshore, should be considered when evaluating future projects. (B) The Council has a federal obligation as part of its responsibilities under the federal Coastal Zone Management Act to recognize the importance of cultural, historic, and tribal resources within the state's coastal zone, including Rhode Island state waters. It has a similar responsibility under the Rhode Island Historic Preservation Act. The Council will not permit activities that will significantly impact the state's cultural, historic and tribal resources. (C) The Council will engage federal and state agencies, and the Narragansett Indian Tribe's Tribal Historic Preservation Office (THPO), when evaluating the impacts of proposed development on cultural and historic resources. The Rhode Island Historic Preservation and Heritage Commission (RIHPHC) is the State Historic Preservation Office (SHPO) for the State of Rhode Island and is charged with developing historical property surveys for Rhode Island municipalities, reviewing projects that may impact cultural and historic resources, and regulating archaeological assessments on land and in state waters. For other tribes outside of Rhode Island that might be affected by a federal action it is the responsibility of the applicable federal agency to consult with affected tribes.	Revolution Wind, as part of their COP submission to Bureau of Ocean Energy Management (BOEM), must follow Section 106 of the NHPA (National Historic Preservation Act), which requires consultation with SHPOs (State Historic Preservation Office), THPOs (Tribal Historic Preservation Office), and other interested parties, as well as assessment and mitigation of any adverse effects to historic properties. Revolution Wind has identified three potential points of interest along the export cable route through state waters: one shipwreck and two geomorphic features of archaeological interest. A copy of Revolution Wind's Marine Archaeological Resources Assessments was submitted to BOEM as part of the application. Revolution Wind has also conducted onshore surveys for assessing impacts to terrestrial archaeological resources. A copy of Revolution Wind's Terrestrial Archaeological Resources Assessment as submitted to BOEM was included as part of the application. Revolution Wind is consulting with HPHC and the Narragansett THPO as part of BOEM's Section 106 Consultation process.
11.9.4	(A) The commercial and recreational fishing industries, and the habitats and biological resources of the ecosystem they are based on, are of vital economic, social, and cultural importance to Rhode Island's fishing ports and communities. Commercial and	For Mitigation of unavoidable impacts to the Fisheries see Section Mitigation. Revolution Wind has formally requested the US Coast Guard institute Limited Access Areas or Safety Zones during discreet phases

	recreational fisheries are also of great importance to Rhode Island's economy and to the quality of life experienced by both residents and visitors. The Council finds that other uses of the Ocean SAMP area could potentially displace commercial or recreational fishing activities or have other adverse impacts on commercial and recreational fisheries. (B) The Council recognizes that finfish, shellfish, and crustacean resources and related fishing activities are managed by a host of different agencies and regulatory bodies which have jurisdiction over different species and/or different parts of the SAMP area. Entities involved in managing fish and fisheries within the SAMP area include, but are not limited to, the Atlantic States Marine Fisheries Commission, the RIDEM, the R.I. Marine Fisheries Council, the NOAA NMFS, the New England Fishery Management Council, and the Mid-Atlantic Fishery Management Council. The CRMC Council recognizes the jurisdiction of these organizations in fishery management and will work with these entities to protect fisheries resources. The Council will also work in coordination with these entities to protect priority habitat areas. (C) The Council's policy is to protect commercial and recreational fisheries within the Ocean SAMP area, and the 2011 and 2018 GLDs, from the adverse impacts of other uses, while supporting actions to make ongoing fishing practices more sustainable. The Council anticipates that over time there will be improved scientific knowledge of the impacts of fishing on habitats and fish populations. Improvements in more sustainable gear technology, fishing practices, and management tools may improve the state of fisheries resources. A general goal of the Council is to improve the health of the Ocean SAMP area ecosystem and the populations of fish and shellfish it provides.	of construction, such as cable lay.

	Cooperative research, using the unique skills and expertise of the fishing community, will be a cornerstone to this goal. (D) Commercial and recreational fisheries activities are dynamic, taking place at different places at different times of the year due to seasonal species migrations and other factors. The Council recognizes that fisheries are dynamic, shaped by these seasonal migrations as well as other factors including shifts in the regulatory environment, market demand, and global climate change. The Council further recognizes that the entire Ocean SAMP area is used by commercial and recreational fishermen employing different fishing methods and gear types. Changes in existing uses, intensification of uses, and new uses within the area could cause adverse impacts to these fisheries. Accordingly, the Council shall: 1. In consultation with the Fishermen's Advisory Board, as defined in § 11.3(E) of this Part, identify and evaluate prime fishing areas on an ongoing basis through an adaptive framework. 2. Review any uses or activities that could disrupt commercial or recreational fisheries activities. (E) The Council shall work together with the U.S. Coast Guard, the U.S. Navy, the U.S. Army Corps of Engineers, NOAA, fishermen's organizations, marine pilots, recreational boating organizations, and other marine safety organizations to promote safe navigation, fishing, and recreational boating activity around and through offshore structures and developments, and along cable routes, during the construction, operation, and decommissioning phases of such projects. The Council will promote and support the education of all mariners regarding safe navigation around offshore structures and developments and along cable routes.	

11.9.5	A. The Council recognizes the economic, historic, and cultural value of marine recreation and tourism activities in the Ocean SAMP area to the state of Rhode Island. The Council's goal is to promote uses of the Ocean SAMP area that do not significantly interfere with marine recreation and tourism activities or values. D. The Council recognizes that the waters south of Brenton Point and within the 3-nautical mile boundary surrounding Block Island are heavily-used recreational areas and are commonly used for organized sailboat races and other marine events. The Council encourages and supports the ongoing coordination of race and marine event organizers with the U.S. Coast Guard, the U.S. Navy, and the commercial shipping community to facilitate safe recreational boating in and adjacent to these areas, which include charted shipping lanes and Navy restricted areas (see Ocean SAMP Chapter 7, Marine Transportation, Navigation, and Infrastructure). The Council shall consider these heavily used recreational areas when evaluating offshore developments in this area. Where it is determined that there is a significant impact, the Council may suitably modify or deny activities that significantly detract from these uses. The Council also recognizes that much of this organized recreational activity is concentrated within the circular sailboat racing areas as depicted in Figure 6 in § 11.10.2(I) of this Part, and accordingly has designated these areas as Areas of Particular Concern. See § 11.10.2 of this Part for requirements associated with Areas of Particular Concern	Revolution Wind provides regular, twice weekly Mariners Briefings by email and posts them on their website. The briefings have been improved in response to user feedback from the community and significant input from CRMC staff. The Orsted Marine Affairs team is responsible for overseeing and carrying out the Fisheries Communications and Outreach Plan in various capacities. For this task they have three Fisheries Liaisons for the northeast, and their job is to attend local and regional fishing industry meetings along with maintaining port hours at fishing docks to receive feedback. Working with the USCG and other organizations that host major marine events, Revolution Wind will continue attempting to avoid any waterway conflicts from construction activities in state waters. Impacts to marine recreation and tourism activities during construction will be limited to increased vessel traffic, which will have minor and temporary impacts. Revolution Wind and RI DEM collaborated on a plan to avoid fisheries monitoring stations along the cable route. Impacts to benthic habitat and the availability of food are addressed in Section E. Potential Environmental Impacts.

11.9.6	(A) The Council recognizes the importance of designated navigation areas, which include shipping lanes, precautionary areas, recommended vessel routes, pilot boarding areas, anchorages, military testing areas, and submarine transit lanes to marine transportation and navigation activities in the Ocean SAMP area. The Council also recognizes that these and other waters within the Ocean SAMP area are heavily used by numerous existing users who have adapted to each other with regard to their uses of ocean space. Any changes in the spatial use patterns of any one of these users will result in potential impacts to the other users. The Council will carefully consider the potential impacts of such changes on the marine transportation network. Changes to existing designated navigational areas proposed by the U.S. Coast Guard, NOAA, the R.I. Port Safety and Security Forums, or other entities could similarly impact existing uses. The Council requests that they be notified by any of these parties if any such changes are to be made to the transportation network so that they may work with those entities to achieve a proper balance among existing uses.	Revolution Wind will continue to work with the USCG to maintain safe vessel routes during construction. At the time of receiving the Revolution Wind application there was no request for USGC to modify the work area.
11.9.7	A. The Council supports offshore development in the Ocean SAMP area that is consistent with the Ocean SAMP goals, which are to: 1. Foster a properly functioning ecosystem that can be both ecologically effective and economically beneficial; 2. Promote and enhance existing uses; and 3. Encourage marine-based economic development that considers the aspirations of local communities and is consistent and complementary to the state's overall economic development needs and goals. E. To the greatest extent possible, offshore development structures and projects shall be made available to researchers for the investigation into the effects of large-scale	The Revolution Wind project is a marine-based economic development that will help fulfill Rhode Island's renewable energy goal of 100 percent by 2030, via the power purchase agreement to provide approximately 400 MW. Revolution Wind has provided regular twice-weekly Mariners Briefings by email and posts them on their website. The Mariners Notices have been improved in response to user feedback from the community significant input from and CRMC staff. The Marine Affairs team has three Fisheries Liaisons for the northeast, and their job is to attend local and regional fishing industry meetings along with maintaining port hours at fishing dock to receive feedback.

	installations on the marine environment, and to the extent practicable, educators for the purposes of educating the Public. G. The Council shall work together with the USCG, the U.S. Navy, the USACE, NOAA, fishermen's organizations, marine pilots, recreational boating organizations, and other marine safety organizations to promote safe navigation, fishing, and recreational boating activity around and through offshore structures and developments, and along cable routes, during the construction, operation, and decommissioning phases of such projects. The Council will promote and support the education of all mariners regarding safe navigation around offshore structures and developments and along cable routes.	Working with the USCG, Revolution Wind will continue to attempt to avoid conflicts that arise.
11.9.8	A. Applicants shall meet the site assessment plan (SAP) requirements in § 11.10.5 of this Part and the following: (*List omitted for compression*) B. Applicants shall meet the construction and operation plan (COP) requirements in § 11.10.5 of this Part and the following: (*List omitted for compression*) 8. If the application and COP is approved, prior to construction the applicant shall submit to the Council for approval the documents listed below in §§ 11.9.8(B)(8)(a), (b), (c), (d) and (e) of this Part: 4. The Council shall consult with the U.S. Coast Guard, the U.S. Navy, marine pilots, the Fishermen's Advisory Board as defined in § 11.3(E) of this Part, fishermen's organizations, and recreational boating organizations when scheduling offshore marine construction or dredging activities. Where it is determined that there is a significant conflict with season-limited commercial or recreational fishing activities, recreational boating activities or scheduled events, or other navigation uses, the Council	The Revolution Wind project will be located in Lease Area OCS-A 0486, is in compliance with SAP requirements, and with Bureau of Ocean Energy Management (BOEM) approval. The Revolution Wind COP has been submitted to BOEM and BOEM determined the COP sufficient to initiate their review under NEPA. Revolution Wind must provide a CVA for the project. The applicant has chosen to present DNV Renewables Certification as their preferred CVA. In addition, BOEM also requires a CVA for the project. With the COP submission to BOEM, Revolution Wind has included DNV Renewables Certification as their CVA nomination to BOEM as well, which was accepted on June 10, 2021. More information on BOEM CVA requirement can be found in COP Section 7, Certified Verification Agent Nominations and Appendix C, Certified Verification Agent. Staff has reviewed the qualifications of DNV Renewables Certification and agree that they are sufficient for approval by the council.

	shall modify or deny activities to minimize conflict with these uses. 6. For all large-scale offshore developments, underwater cables, and other development projects as determined by the Council, the assent holder shall designate and fund a third-party fisheries liaison. The fisheries liaison must be knowledgeable about fisheries and shall facilitate direct communication between commercial and recreational fishermen and the project developer. Commercial and recreational fishermen shall have regular contact with and direct access to the fisheries liaison throughout all stages of an offshore development (preconstruction; construction; operation; and decommissioning). E. Standards for construction activities (*List omitted for compression*)	Revolution Wind will also submit a facility design report and fabrication and installation report to CRMC. Along with a project modification and repair report to ensure all repairs meet the required standards, as-built multi-beam survey along the entire cable route is required. A report on all areas where proper cable burial depth of 4-6 feet was not achieved. The report will include areas where any secondary cable protection will be required. Revolution Wind has provided regular Mariners Briefings twice a week by email and on their website. The Mariners Notices have been improved in response to user feedback from the community and CRMC staff. The Marine Affairs team has three Fisheries Liaisons for the northeast; their job is to attend local and regional fishing industry meetings along with maintaining port hours at fishing docks to receive feedback. Revolution Wind will continue to work with USCG, the U.S. Navy, marine pilots, and the Fishermen's Advisory Board (FAB) to attempt to minimize conflict with water users. The Unanticipated Discoveries Plan was included in the application as part of the project's Marine Archaeological Resources Assessment, which is provided under confidentiality, and it covers all requirements of 11.9.8(E)(7). Revolution Wind, wherever possible, has minimized potential impacts, including a target cable burial depth of 4-6 feet. Revolution Wind has proposed Acoustic Doppler Current Profiler (ADCP), a device that measures how fast water is moving across an entire water column by sending pulses through the water column at varying frequencies. It will allow for safe

		public use of the areas surrounding the installed turbines or other structures. Revolution Wind has submitted an acceptable navigation risk assessment in Appendix T, Navigation Safety Risk Assessment. When proper burial depth is achieved, the export cable will not interfere with navigation. Possible interference after construction will only occur during post-construction survey work and maintenance. Impact from the work vessels will be minimum and temporary.
	(D)(9) The facility shall be designed in a manner that minimizes adverse impacts to navigation. As part of its application package, the project applicant shall submit a navigation risk assessment under the U.S. Coast Guard's Navigation and Vessel Inspection Circular 02-07, "Guidance on the Coast Guard's Roles and Responsibilities for Offshore Renewable Energy Installations." (D)(10) Applications for projects proposed to be sited in state waters pursuant to the Ocean SAMP shall not have a significant impact on marine transportation, navigation, and existing infrastructure. Where the Council, in consultation with the U.S. Coast Guard, the U.S. Navy, NOAA, the U.S. Bureau of Ocean Energy Management, Regulation and Enforcement, the U.S. Army Corps of Engineers, marine pilots, the R.I. Port Safety and Security Forums, or other entities, as applicable, determines that such an impact on marine transportation, navigation, and existing infrastructure is unacceptable, the Council shall require that the applicant modify the proposal or the Council shall deny the proposal. For the purposes of marine transportation policies and standards as summarized in Ocean SAMP Chapter 7, impacts will be evaluated according to the same criteria used by the U.S. Coast Guard, as follows; these criteria shall not WHAT?	Revolution Wind is required to comply with all USCG permitting requirements and will provide the permits as obtained. There are regular ongoing meetings with USCG Sector Southeastern New England to ensure acceptance of the project plans.

	(E)(1) The assent holder shall use the best available technology and techniques to minimize impacts to the natural resources and existing human uses in the project area.	See 1. B. Staff Analysis about the technology and techniques submitted to CRMC for minimization impacts to the natural resources and existing human uses in the project area.
	(E)(2) The Council shall require the use of an environmental inspector to monitor construction activities. The environmental inspector shall be a private, third-party entity that is hired by the assent holder, but is approved and reports to the Council. The environmental inspector shall possess all appropriate qualifications as determined by the Council. This inspector service may be part of the CVA requirements.	Revolution Wind has committed to an acceptable compliance monitoring plan during construction.
	(E)(3) Installation techniques for all construction activities should be chosen to minimize sediment disturbance. Jet plowing and horizontal directional drilling in near-shore areas shall be required in the installation of underwater transmission cables. Other technologies may be used provided the applicant can demonstrate they are as effective, or more effective, than these techniques in minimizing sediment disturbance.	See 1. B. Staff Analysis for more detail about the export cable insulation techniques.
	(E)(4) All construction activities shall comply with the policies and standards outlined in the RICRMP, as well as the regulations of other relevant state and federal agencies.	Revolution Wind has committed to obtaining permits from all relevant state and federal agencies.
	(E)(5) The applicant shall conduct all activities on the applicant's permit under this part in a manner that conforms with the	Revolution Wind has submitted measures to minimize impacts on natural resources and will use trained personnel.

	applicant's responsibilities in § 11.10.1(E) of this Part, and using: a. Trained personnel; and b. Technologies, precautions, and techniques that shall not cause undue harm or damage to natural resources, including their physical, atmospheric, chemical and biological components. (E)(6) The assent holder shall be required to use the best available technology and techniques to mitigate any associated adverse impacts of offshore renewable energy development. (*List omitted for compression)*	
	(E)(7) If the assent holder, the assent holder's subcontractors, or any agent acting on the assent holder's behalf discovers a potential archaeological resource while conducting construction activities or any other activity related to the Assent Holder's project, the applicant shall: (*List omitted for compression)*	Revolution Wind has included an acceptable plan for encountering unexpected archaeological discoveries and for complying with this standard.
	(E)(8) Post construction, the assent holder shall provide a side scan sonar survey of the entire construction site to verify that there is no post construction debris left at the project site. These side-scan sonar survey results shall be filed with the Council within ninety (90) days of the end of the construction period. The results of this side-scan survey shall be verified by a third-party reviewer, who shall be hired by the assent holder but who is pre-approved by and reports to the Council.	Revolution Wind has committed to conducting an as-built multi-beam survey along the entirety of the cable routes within state waters following installation and the placement of any secondary cable protection. This will be incompliance with 11.9.8(E)(8) and will be submitted to CRMC as required.
	(E)(9) All pile-driving or drilling activities shall comply with any mandatory best management practices established by the Council in coordination with the Joint Agency Working Group and which are incorporated into the RICRMP.	N/A, This report covers portions of the project within state waters, where no pile-driving is planned.
	(E)(10) The Council may require the assent holder to hire a CVA to perform periodic inspections of the structure(s) during the life of those structure(s). The CVA shall work for and be responsible to the council.	Revolution Wind has submitted a CVA nomination for Council consideration.

	(F)When mitigation is required by the Council, the reasonable costs associated with mitigation negotiations, which may include data collection and analysis, technical and financial analysis, and legal costs, shall be borne by the applicant. The applicant shall establish and maintain either an escrow account to cover said costs of the negotiations or such other mechanism as set forth in the permit or approval condition pertaining to mitigation.	Revolution Wind has complied with this standard.
11.9.9	A. The Council in coordination with the Joint Agency Working Group, as described in § 11.9.7(I) of this Part, shall determine requirements for the development of baseline assessments prior to, during, and post construction for all offshore projects. Monitoring of offshore projects is essential to determine whether construction and operation activities may have an adverse impact on the physical and biological components of offshore waters. In particular, establishment of pre-construction baseline assessments of commercial and recreational fishery resource conditions (i.e., community structure, biodiversity, and species biomass, abundance, size distribution) is necessary for evaluation of any potential coastal effects. Assessments and monitoring are essential to determine whether there are any potential coastal effects and potential cumulative impacts resulting from the construction and operation of multiple wind energy projects. Specific assessment and monitoring requirements shall be determined on a project-by-project basis and may include but are not limited to the assessment and monitoring of: (*List omitted for compression*)	Revolution Wind is currently working with the FAB, a process which is being over seen by CRMC staff, to create an acceptable analysis for review of any potential coastal effects and potential cumulative impacts resulting from the construction and operation of the project.
	E. Assessment standards—applicants shall provide the following biological assessments necessary to establish the baseline conditions of the fishery resource conditions during the project phases detailed below so that an analysis of comparison between project phases can be completed to assess	Revolution Wind will be unable to reach the requirement for two years pre-construction. This is due to NOAA Fisheries (NMFS) not issuing Incidental Take Permit under the Endangered Species Act. The permit is required to be obtained be obtained for any "take" of an endangered or threatened

	whether project construction, installation and operation has resulted in significant adverse impacts to the commercial and recreational fishery resources. (*List omitted for compression*)	species incidental to an otherwise lawful activity, in this case surveying. This delay on issuing been applied university toward all developers and scientists. NMFS has determined that Pre-construction surveys such as the baseline studies are not considered to be vailed for permitting. Currently BOEM and NMFS are working on a programmatic consultation that should address pre-construction surveys, but that will not be completed until summer 2023. There is no replacement that staff can see that will be able to solve this issue in a timely enough manner. Revolution Wind submitted an economic assessment of fisheries values report in partnership with Woods Hole Oceanographic Institution, as well as a fisheries and benthic monitoring plan on June 7, 2021 and a supplement on August 24, 2022.

9: Staff Signatures:

The following staff members contributed to this report

- Justin Wolf Skenyon, Principal Writer, Principal Ocean Engineer
- Jeffrey Willis, Executive Director
- Laura Miguel, Acting Deputy Director/Enforcement Supervisor
- David Ciochetto, Principal Ocean Engineer
- Kevin Sloan, Coastal Policy
- Laura Dwyer, Public Educator and Information Coordinator
- Ben Goetsch, Aquaculture Coordinator
- Sean Feeley, Environmental Scientist
- Rich Lucia, Supervising Civil Engineer
- Danni Goulet, Marine Infrastructure
- Emily Skeehan, Former Coastal Policy
- James Boyd, Former Deputy Director
- David Reis, Former Supervising Biologist
- David Beutel, Former Aquaculture Coordinator