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March 6, 2023
VIA ELECTRONIC MAIL

Ms. Erin Wilson
Environmental Scientist
Department of Natural Resources and Environmental Control
Delaware Coastal Programs
100 West Water Street
Dover, DE 19904

RE: Federal Consistency Determination Request
New Jersey Wind Port Project – Phase 2 Development
Lower Alloways Creek Township, Salem County New Jersey
New Jersey Economic Development Authority

Dear Ms. Wilson:

On behalf of the New Jersey Economic Development Authority (NJEDA), AKRF is pleased to submit this application for a Federal Consistency Determination from the Delaware Department of Natural Resources and Environmental Control (DNREC) for the proposed Phase 2 development of the New Jersey Wind Port located on Artificial Island in Lower Alloways Creek Township, Salem County New Jersey. The proposed additional port development is a key component of the growing offshore wind development initiative undertaken by New Jersey and other eastern States.

This permit application is being submitted to the DNREC in accordance with the Coastal Zone Management Act of 1972 and the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018. This project was presented to the DNREC during the Pre-Application conference call held on November 4, 2022 and USACE JPP Meeting held on December 12, 2022.

To support your review of the project, please find the following documents for your review:

- **Attachment A:** Application Form;
- **Attachment B:** Federal Consistency Determination – Compliance Documentation;

For ease of transmittal, we have uploaded the full document to a secure Webfolder site. A separate email has been sent directly to you with the logon information including secure password. Should you have difficulty accessing the Webfolder site, issues downloading the file, or if you have any

questions/need additional information, please contact me at 856.905.1546, or via email at rrech@akrf.com. Thank you for your consideration of this exciting project. We look forward to engaging with you and your staff through the technical review of this project.

Sincerely,
AKRF, Inc.

Robert Rech
Vice President

Enclosure

cc: Bill Dixon – NJEDA
John Benigno - NJEDA

Attachment A

Application Form

Delaware Department of Natural Resources and Environmental Control
Delaware Coastal Management Program

Initial Review: _____
Updated On: _____
Complete: _____
Official Use Only

Coastal Zone Management Act Federal Consistency Form

This document provides the Delaware Coastal Management Program (DCMP) with a Federal Consistency Determination or Certification for activities regulated under the Coastal Zone Management Act of 1972, as amended, and NOAA's Federal Consistency Regulations, 15 C.F.R. Part 930. Federal agencies and other applicants for federal consistency are not required to use this form; it is provided to applicants to facilitate the submission of a Consistency Determination or Consistency Certification. In addition, federal agencies and applicants are only required to provide the information required by NOAA's Federal Consistency Regulations.

Project/Activity Name:	New Jersey Wind Port - Phase 2 Development

I. Federal Agency or Non-Federal Applicant Contact Information:

Contact Name/Title: Bill Dixon - Director Preconstruction (NJ Economic Development Authority)

Federal Agency Contractor Name (if applicable): _____

Federal Agency: _____
(either the federal agency proposing an action or the federal agency issuing a federal license/permit or financial assistance to a non-federal applicant)

Mailing Address: 36 West State Street, P.O. Box 990

City: Trenton State: NJ Zip Code: 08625

E-mail: WDixon@njeda.com Telephone #: 609-940-9288

II. Federal Consistency Category:

- ○ Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)
- ○ Outer Continental Shelf Activity (15 C.F.R. Part 930, Subpart E)
- ○ Federal Financial Assistance (15 C.F.R. Part 930, Subpart F)
- ○ Federal License or Permit Activity (15 C.F.R. Part 930, Subpart D)
- ◉ Federal License or Permit Activity which occurs wholly in another state (interstate consistency activities identified in DCMP's Policy document)

III. Detailed Project Description (attach additional sheets if necessary):

The NJEDA is proposing the construction of a second marshalling port and associated manufacturing infrastructure located on Artificial Island and at the Salem and Hope Creek Generating Station in Lower in Salem County, New Jersey. The project is being constructed to support offshore wind development in New Jersey and throughout the eastern United States. The total area of disturbance for the project includes approximately 180 acres (80 of which was previously dredged as part of Phase 1 activities) of in-water and approximately 155 acres of land areas spread across six (6) distinct sites located on Artificial Island. The Port will recieve compoents of offshore wind turbines that will be assembled at the Port and then delivered to offshore wind construction area.

IV. General Analysis of Coastal Effects (attach additional sheets if necessary):

See the attached Coastal Consistency Application compliance statement.

V. Detailed Analysis of Consistency with DCMP Enforceable Policies (attach additional sheets if necessary):

Policy 5.1: Wetlands Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.2: Beach Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.3: Coastal Waters Management (includes wells, water supply, and stormwater management. Attach additional sheets if necessary)

See the attached Coastal Consistency Application compliance statement.

Policy 5.4: Subaqueous Land and Coastal Strip Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.5: Public Lands Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.6: Natural Lands Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.7: Flood Hazard Areas Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.8: Port of Wilmington

See the attached Coastal Consistency Application compliance statement.

Policy 5.9: Woodlands and Agricultural Lands Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.10: Historic and Cultural Areas Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.11: Living Resources

See the attached Coastal Consistency Application compliance statement.

Policy 5.12 Mineral Resources Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.13: State Owned Coastal Recreation and Conservation

See the attached Coastal Consistency Application compliance statement.

Policy 5.14: Public Trust Doctrine

See the attached Coastal Consistency Application compliance statement.

Policy 5.15: Energy Facilities

See the attached Coastal Consistency Application compliance statement.

Policy 5.16: Public Investment

See the attached Coastal Consistency Application compliance statement.

Policy 5.17: Recreation and Tourism

See the attached Coastal Consistency Application compliance statement.

Policy 5.18: National Defense and Aerospace Facilities

See the attached Coastal Consistency Application compliance statement.

Policy 5.19: Transportation Facilities

See the attached Coastal Consistency Application compliance statement.

Policy 5.20: Air Quality Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.21: Water Supply Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.22: Waste Disposal Management

See the attached Coastal Consistency Application compliance statement.

Policy 5.23: Development

See the attached Coastal Consistency Application compliance statement.

Policy 5.24: Pollution Prevention

See the attached Coastal Consistency Application compliance statement.

Policy 5.25: Coastal Management Coordination

See the attached Coastal Consistency Application compliance statement.

VI. JPP and RAS Review (Check all that apply):

Has the project been reviewed in a monthly Joint Permit Processing and/or Regulatory Advisory Service meeting?

☒ JPP ☐ RAS ☐ None

*If yes, provide the date of the meeting(s): 12/12/2022

VII. Statement of Certification/Determination and Signature (Check one and sign below):

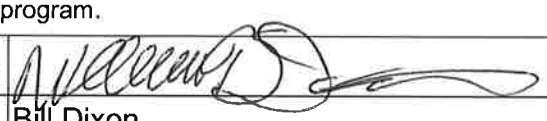
☐ **FEDERAL AGENCY CONSISTENCY DETERMINATION.** Based upon the information, data, and analysis included herein, the federal agency, or its contracted agent, listed in (I) above, finds that this proposed activity is consistent to the maximum extent practicable with the enforceable policies of the Delaware Coastal Management Program.

OR

☐ **FEDERAL AGENCY NEGATIVE DETERMINATION.** Based upon the information, data, and analysis included herein, the federal agency, or its contracted agent, listed in (I) above, finds that this proposed activity will not have any reasonably foreseeable effects on Delaware's coastal uses or resources (Negative Determination) and is therefore consistent with the enforceable policies of the Delaware Coastal Management Program.

OR

■ **NON-FEDERAL APPLICANT'S CONSISTENCY CERTIFICATION.** Based upon the information, data, and analysis included herein, the non-federal applicant for a federal license or permit, or state or local government agency applying for federal funding, listed in (I) above, finds that this proposed activity complies with the enforceable policies of the Delaware Coastal Management Program and will be conducted in a manner consistent with such program.

Signature:			
Printed Name:	Bill Dixon	Date:	3/3/2023

Pursuant to 15 C.F.R. Part 930, the Delaware Coastal Management Program must provide its concurrence with or objection to this consistency determination or consistency certification in accordance with the deadlines listed below. Concurrence will be presumed if the state's response is not received within the allowable timeframe.

Federal Consistency Review Deadlines:

Federal Activity or Development Project (15 C.F.R. Part 930, Subpart C)	60 days with option to extend an additional 15 days or stay review (15 C.F.R. § 930.41)
Federal License or Permit (15 C.F.R. Part 930, Subpart D)	Six months, with a status letter at three months. The six month review period can be stayed by mutual agreement. (15 C.F.R. § 930.63)
Outer Continental Shelf Activity (15 C.F.R. Part 930, Subpart E)	Six months, with a status letter at three months. If three month status letter not issued, then concurrence presumed. The six month review period can be stayed by mutual agreement. (15 C.F.R. § 930.78)
Federal Financial Assistance to State or Local Governments (15 C.F.R. Part 930, Subpart F)	State Clearinghouse schedule

OFFICIAL USE ONLY:

Reviewed By:	Fed Con ID:	Date Received:
Public notice dates: to	Comments Received: ☐ NO ☐ YES *[attach comments]*	
Decision type: *(objections or conditions attach details)*	Decision Date:	

Attachment B

Federal Consistency Determination – Compliance Document

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DELAWARE COASTAL MANAGEMENT PROGRAM

Application for:
FEDERAL CONSISTENCY DETERMINATION

NEW JERSEY WIND PORT PHASE 2 DEVELOPMENT

Lower Alloways Creek Township, NJ

March 2023

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ATTACHMENTS

Chapter 1: Introduction

New Jersey Economic Development Authority (NJEDA) is submitting this application for a Federal Consistency Determination from the Delaware Department of Natural Resources and Environmental Control (DNREC) for the second phase of development of the New Jersey Wind Port (NJWP) located on Artificial Island, Lower Alloways Creek Township (LACT), Salem County, New Jersey (NJ) (herein referred to as "Project"). This application is being submitted in accordance with the Coastal Zone Management Act of 1972 and the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018. This project was presented to the DNREC during the project introduction meeting held on November 4, 2022 and at the United States Army Corp of Engineers (USACE) Joint Planning Process (JPP) Pre-Application conference call held on December 12, 2022.

The NJWP is part of a larger sustainable energy initiative put forth by the State of New Jersey and is designed to support offshore wind energy development in New Jersey and along the entire eastern United States. The Phase 1 development at the NJWP, which is not included as part of this application, consists of the development of Parcel A for a marine port facility and marshalling area and is currently under construction. The Phase 1B development, which is also not included as part of this application, consists of three main components: 1) the development of Parcel C1 to expand the laydown and storage area at the existing NJWP; 2) the construction of a new electrical substation and light manufacturing facility within Parcel G for the assembly, testing, and storage of nacelles for offshore wind turbines; and 3) the construction of a heavy haul road (herein referred to as HH Road) to provide access for the transport of materials and connect Parcel G to the port facility at Parcel A.

The proposed Phase 2 development of the NJWP, the subject of this permit application, includes the development of a second marshalling facility, manufacturing support facilities and relocation of existing facilities at the Salem and Hope Creek Generating Station. The proposed expanded development of the NJWP will include the redevelopment of existing portions of the Salem and Hope Creek Generating Station ("Facility", "Station"), former United States Army Corp of Engineers (USACE) Artificial Island Confined Disposal Facility (CDF) Cell No.3, installation of new wharf structures, dredging of new berthing pockets, and dredging of a new turning basin within the Delaware River. The new port wharf facilities will utilize the approach channel constructed as part of Phase 1 NJWP development in order to minimize the overall dredging footprint. Phase 2 of the NJWP is intended to support simultaneous marshalling of two (2) offshore wind development projects as well as supply chain support through manufacturing.

The project is located wholly within the State of New Jersey. However, because it is located along the interstate waters of the Delaware River and requires federal authorization by the U.S. Army Corps of Engineers (USACE) for impacts within navigable waters, PSEG is seeking a Federal Consistency Determination from DNREC.

Site Location

Artificial Island is located in Lower Alloways Creek Township (LACT), Salem County, NJ, at River Mile (RM) 52 on the Delaware River, 15 miles south of the Delaware Memorial Bridge, 18 miles south of Wilmington, Delaware, 30 miles southwest of Philadelphia, Pennsylvania (PA), and 7-1/2 miles southwest of Salem, NJ (Figure 1). The entire property is within the Delaware River's Estuary Transition zone (as defined by the U.S. Environmental Protection Agency (USEPA's) Delaware Estuary Program Scientific and Technical Advisory Committee), and Delaware River Basin Commission (DRBC) Zone 5 (PSEG 2006). Artificial Island on the eastern shore of the River (Figure 2) and contains the PSEG Nuclear Salem and Hope Creek Generating Station, NJWP marshalling port (Phase 1), USACE Artificial Island CDF (Cell Nos.1 and 2) and State owned lands (Figure 3). It is bordered by the Delaware River to the west and south, by extensive marshes and uplands to the east and northeast, and to the north by lands used by the USACE as CDFs for the disposal of dredge material.

Existing nuclear facilities licensed by the NRC are located at this property. The existing facilities are Salem Generating Stations (SGS) Units 1 and 2 and Hope Creek Generating Stations (HCGS) Unit 1. Surrounding the Salem and Hope Creek units are numerous support facilities, including circulating and service water intake structures, switchyards, administration buildings, and an independent spent fuel storage installation (ISFSI).

The nearest residences to the property are located 2.8 miles west in DE, and 3.4 miles east-northeast of the property near Hancocks Bridge, NJ. The nearest population center distance (defined in 10 CFR 100, *Reactor Site Criteria*, as the distance from the reactor to the nearest boundary of a densely populated center with 25,000 residents or more) is Wilmington, DE, which is located 18 miles to the north of the property. The area within 15 miles of the property primarily consists of open water, coastal and freshwater wetland systems, or is used for agriculture. The nearest heavy industries are an oil refinery 8.9 miles to the northwest, and three manufacturing facilities between 7.6 miles and 8.7 miles to the northeast.

There are no major highways or railroads within 7.5 miles of the Artificial Island. The only land access is a road that PSEG Nuclear previously constructed to connect Artificial Island with an existing secondary road 3.6 miles to the east. Barge traffic has access to the site by way of the maintained channel in the Delaware River (AEC 1973).

The River in the area of Artificial Island is approximately 2.5 miles wide. The maximum tidal flow of the Delaware River past the property is approximately 800,000 cfs with average flows of 400,000 to 472,000 cfs. The salinity of the River varies with both the tides and season from almost freshwater to mostly saltwater. The River in the vicinity of the property has high turbidity and swift current velocities. Prominent

features in the area (and their approximate distances) are the Chesapeake and Delaware Canal (3 miles to the northwest), Hope Creek Jetty (1.5 miles to the southeast), and Augustine Beach, Delaware (approximately 3 miles due west).

Artificial Island, which includes lands owned by PSEG, the State of NJ and the federal government, was created, beginning early in the twentieth century, by disposing of hydraulic dredge spoils within a progressively enlarged diked area established around a natural sandbar that projected into the Delaware River. The present elevation of Artificial Island generally ranges from 5 to 15 feet (feet) North American Vertical Datum 1988 (NAVD 88). Developed areas of the PSEG Nuclear property are nominally 10 to 12 feet NAVD 88. Habitats in undeveloped areas can best be characterized as tidal marsh and grassland (AEC 1973, PSEG 2006).

Major land uses within the property boundary include industrial, herbaceous and wetlands, old field, urban or built-up, and undeveloped rights-of-way. As shown on Figure 2, dominant land uses on Artificial Island are disturbed lands that were either previously used to support the construction of SGS and HCGS, dredge material management or wetlands that are dominated by monotypic populations of common reed (*Phragmites australis*). These dominant land uses include industrial (29 percent), *Phragmites*-dominated wetlands (19 percent), and *Phragmites*-dominated interior wetlands (15 percent). Old field and urban or built-up land account for 9 and 7 percent of the site, respectively. The remaining area of the property includes altered lands, artificial ponds, deciduous brush/shrubland, deciduous scrub/shrub and herbaceous wetlands, disturbed wetlands, recreation land, tidal-related lands, transportation/communication/utilities and upland rights-of-way (ROWs).

No railroads, roads, or transmission corridors (other than those that serve SGS and HCGS) traverse or are located near Artificial Island. Additionally, no prime farmland soils occur within the site (Rukenstein 2001). As noted above, nearly all portions of the property were disturbed previously for construction of SGS and HCGS or were used for dredge material disposal by the USACE or PSEG.

The Stoney Point beneficial use project will consist of newly created tidal marsh and will be located on the southern end of Artificial Island within the Mad Horse Creek Wildlife Management Area (WMA).

Existing Site Description

The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3). As such, the area consists primarily of historic and current dredge spoil materials, internal access drives (asphalt paved and gravel), containment berms, and compacted gravel laydown areas. Vegetation onsite is generally dominated by herbaceous and scrub/shrub species, with dense areas of the invasive Common reed (*Phragmites australis*). The shoreline is generally comprised of shrub vegetation similarly dominated by dense stands of invasive Common reed. The shoreline along the Delaware River consists of a remnant (from original construction of the facility by the

USACE) timber bulkhead and rip rap shoreline protection. Access to Phase 2 development areas of the NJWP will be via the existing PSEG Nuclear access road, internal paved roadways and a dirt access road along the shoreline and various internal access gravel drives.

Wetlands

The Artificial Island contains both freshwater wetlands and tidal wetlands (Figure 4). The development site is located partially within PSEG Nuclear property and an upland dredge material CDF formerly owned by the USACE and currently owned and operated by the NJEDA. Wetlands located within the site are limited to tidal wetlands along the Delaware River shoreline (Figure 5). Freshwater wetlands associated with the Salem and Hope Creek stormwater management infrastructure are located within the vicinity of the development areas, predominately located along topographic depressions adjacent to roadways. A delineation of the jurisdiction boundary of wetlands and waters was conducted for the entire Salem and Hope Creek Generating Station property in April 2020.

Tidal wetlands associated with the tidal Delaware River are limited to the shoreline along the western boundary of the site, as well as tributaries to the Delaware River along the northern and eastern site boundary. The shoreline along the property is generally vegetated to the west of the perimeter access road that borders the existing CDF. Wetland vegetation in the vicinity of the site is dominated by dense stands of invasive Common Reed (*Phragmites australis*).

The creation of what is today known as Artificial Island, a man-made island in the tidal Delaware River that includes lands owned by PSEG, the State of New Jersey, and the federal government, originally began around 1900 with the USACE's disposal of dredge spoil materials within an artificially diked area that was established around a naturally occurring sandbar in the Delaware River. In the intervening years, the diked area has been progressively enlarged to accommodate additional spoils materials produced as a result of maintenance dredging of the Delaware River navigation channel and other nearby navigable water bodies. Developed areas of the site are nominally 10 to 12 feet NAVD 88, which primarily comprises the PSEG-owned electric generation facilities on the southern end of the island. These parcels were part of the USACE's original dredge material disposal area on Artificial Island, but were transferred from the USACE on January 19, 1968, for the purposes of filling and the subsequent siting PSEG's electric generation facilities.

Former USACE CDF Cell No.3 has been utilized for placement of dredge material from the initial phase of the Phase 1 NJWP marshalling port project. USACE CDF Cell No.3 was transferred from the USACE to PSEG April 26, 2022. Because the upland CDF have been historically diked as part of CDF operations, these areas are no longer tidally influenced or directly connected to tidal waters, except by manmade water control outlet boxes and associated culverts. As a result of the construction of the USACE containment berms and the history of dredge disposal activities in the CDF, artificially ponded areas have been created within the CDF. The ponded water present in this area is due to recent/historic activities and water level management resulting from the

placement of stop logs within the outlet water control structure(s). The ponded areas are hydrologically, if artificially, perched systems (PSEG 2010) that are hydrologically isolated from the adjacent Delaware River and associated wetlands, and that have a hydroperiod that is primarily controlled by precipitation events.

The water depth within CDF Cell No.3 is very shallow, currently ranging less than 2 feet, but can vary depending upon the frequency and location of dredge material placement. The habitat associated with the CDF is of poor quality due to their shallow depth, varying dredge material silt / sand substrates, and lack of surface connectivity to surrounding tidal waters. Similarly, the vegetative community associated with the CDF is periodically disturbed as a result of dredge material placement. The plant community in these areas is of low habitat quality and is characterized by a monoculture of the common reed, *Phragmites australis.* Due to recent licensed activities in the CDF, vegetated areas are limited to patches along the perimeters and on containment berms. Because they are part of licensed upland disposal facilities, the present configuration of the ponds and associated vegetative communities are highly transitory and/or ephemeral and are subject to ongoing changes resulting from the timing and placement of dredged material.

Surface Water and Floodplain

The site is bordered to the west by a tidal stretch of the Delaware River, in the region known as the Lower Delaware. The site is located within Watershed Management Area No. 5, Maurice, Salem, and Cohansey. The site is located in the Alloway Creek / Hope Creek Watershed (HUC11) and the Hope Creek / Artificial Island Sub-Watershed (HUC14). Regionally, tributaries to the Delaware River (including the Salem River and Hope Creek) and various smaller tidal tributaries intertwined within adjacent tidal marshes are also noted.

Artificial Island is located along the shoreline of the tidal Delaware River. Significant areas of tidal marsh lands adjacent to the site are located within the mapped 100-year floodplain. Historic development of the PSEG Nuclear property has resulted in large areas of Artificial Island being located at an elevation at or above the floodplain elevation.

Importantly for the potential in-water impacts discussed in this compliance statement, the Delaware River near Artificial Island has been identified as a tidal null point of the Delaware Estuary (the point where ebb and flood tidal phase bottom currents are balanced). As a consequence, this portion of the Estuary is the longitudinal turbidity maximum of the system. The null point is also a location where fine sediments are likely to accumulate. Cook (2004) notes that USACE dredging in recent years (averaging 1 to 2 million metric tons per year) has been limited to the upper Delaware Estuary in the reach from RM 59 to RM 81 – this portion of the Estuary is a natural sediment sink in the absence of maintenance dredging.

Soils

Surface soils on Artificial Island are predominantly hydraulic fill (composed of clay, silt, sand and gravel with some organic material) deposited by the USACE during the first

half of the 20th century (Figure 6). This dredged material, which is 25 to 30 feet thick, covers a 5 to 10 foot base of coarse sand and gravel (historic river bottom). Soils along the perimeter of Artificial Island are a mixture of hydraulic fill and tidal marsh soils. During early construction of the generating stations, dredged material would routinely be excavated as necessary and replaced with clean fill in order to facilitate construction activities. Consequently, the soil profile of Artificial Island varies depending on these past construction activities. According to the Salem County Soil Survey, soils on Artificial Island are classified as "Made Land, dredged river materials" (MF). Soils of this type are too variable to be rated or given a generalized engineering classification. This dredged fill material generally has a low permeability, which can lead to ponding of water and/or ephemeral surface saturated conditions.

Chapter 2: Purpose and Need

For New Jersey and other states along the United States East Coast, offshore wind development has rapidly gained popularity as a way to increase renewable energy production and reduce the reliance on fossil fuels.

For example, in 2018, New Jersey's Governor Phil Murphy signed Executive Order 8, which directed state agencies to take "all necessary action" to enable the State to secure 3,500 MW of offshore wind energy projects by 2020. Later in 2018, he signed the 2018 Clean Energy Act which established a mandate of generating 50% of New Jersey's electricity from renewable sources by 2030. In 2019, Governor Murphy signed Executive Order 28, which set goals for the State of New Jersey to achieve 100% clean energy by 2050. Governor Murphy then expanded the State's commitment to offshore wind by signing Executive Order 92, setting New Jersey's offshore wind generation target at 7,500 MW by 2035. Most recently Governor Murphy has increased the State's commitment to offshore wind to 11,000 MW by 2040. As of June 2021, the NJ Board of Public Utilities has awarded a total of 3,700 MW of offshore wind development projects through two (2) solicitations and three (3) projects.

While there is tremendous excitement for offshore wind energy development on the East Coast, the industry is still in its infancy in the region and will require the development of supporting infrastructure, such as this proposed marine terminal.

Specifically, one of the major challenges to U.S. offshore wind development is the lack of port infrastructure that meets the requirements to enable these large-scale offshore developments. Due to the industry's preferred installation method, which uses jack-up vessels, an efficient offshore wind marshalling port must be outside of all vertical height restrictions, such as bridges and power lines, and must be able to accommodate loads of up to 5,000 pounds per square foot at the quayside.

Several detailed assessments of New Jersey's and East Coast region's existing port infrastructure have highlighted the need for new, fit-for-purpose port/manufacturing facilities to meet the offshore wind industry's needs. Currently, the only port under construction on the US East Coast that fully meet these requirements is the first phase of the NJWP slated to complete construction in the second quarter of 2024. Several port retrofit projects are now being considered in states such as Connecticut and Virginia, however, the capacity these projects will bring on is expected to be insufficient to meet the overall stated project demand from US East Coast states. The evidence base for this assessment includes studies by the New Jersey Board of Public Utilities (NJBPU) and the New Jersey Economic Development Authority (NJEDA), the US Department of Energy (DOE) and the New York State Energy Research and Development Authority

(NYSERDA), among others. Additionally, similar challenges and limitations exist related to manufacturing and other supply chain infrastructure.

This large port and manufacturing infrastructure is needed across a project's entire life cycle, from manufacturing and construction, through operations, to decommissioning and deconstruction (this decommissioning typically occurs at least 25 years after installation).

Further, given the size and weight of components used to build offshore wind project, the bulk of manufacturing and final assembly typically takes place at or close to the port. Large and heavy components such as offshore wind nacelles (the unit on top of the turbine tower that turns the energy from the rotating blades into electricity), blades, and foundations are too large to travel over conventional roads and can generally only be transported by water. For example, the turbines that were selected for New Jersey's first offshore wind project, GE's Haliade-X 12 MW machine, are 853 feet tall and weigh 825 tons. The need for purpose-built port and manufacturing capacity will increase over time as the offshore wind industry continues to move towards even larger turbine models (for example, Siemens Gamesa Renewable Energy recently announced it is now offering a 14 MW turbine).

NJWP - Phase 1 (Previously Authorized and Currently Under Construction)

Phase 1 development of the New Jersey Wind Port (NJWP) includes an approximately 30-acre marshalling facility with concrete wharf structure, berthing pocket, turning basin and approach channel (connection to existing Delaware River main navigation channel. The Phase 1 marshalling facility is designed with a flexible layout that will support the marshalling of offshore wind development projects in New Jersey as well as other projects along the Eastern United States. The Phase 1 marshalling facility is located within the previously disturbed footprint of the PSEG Nuclear dredge material management facility at the Salem and Hope Creek Nuclear Generating Station in Lower Alloways Creek Township, Salem County.

Marshalling is the final step leading up to construction of every offshore wind development project. Final components are marshalled in preparation for transport and installation. Efficiencies in final marshalling allow for safe and efficient project completion. Phase 1 of the NJWP is the first purpose-built port facility built in the eastern United States design specifically to support offshore wind project. It was designed and is being constructed to support the growing offshore wind industry.

The New Jersey Board of Public Utilities awarded the first solicitation for offshore wind development for New Jersey in June of 2019. The NJWP marshalling facility was expected to support the Ocean Wind 1 project. Additionally, the NJWP was designed to be a flexible facility that could support future solicitations (expected to be 1 new solicitation every other year until the States renewable energy goals are met) throughout the region.

NJWP – Phase 2

Phase 2 of the NJWP includes the development of a second marshalling facility, manufacturing support facilities and relocation of existing facilities at the Salem and

Hope Creek Generating Station. The proposed expanded development of the NJWP will include the redevelopment of existing portions of the Salem and Hope Creek Generating Station, former USACE Artificial Island CDF Cell No.3, installation of new wharf structures, dredging of new berthing pockets, and dredging of a new turning basin. The new port wharf facilities will utilize the approach channel constructed as part of Phase 1 NJWP development in order to minimize the overall dredging footprint. Phase 2 of the NJWP is intended to support simultaneous marshalling of two (2) offshore wind development projects as well as supply chain support through manufacturing.

NJWP Phase 1 Development Timeline

Phase 1 of the NJWP was conceived and designed in response to the initial offshore wind solicitation awarded by the NJBPU in June 2019. This first solicitation by the NJBPU identified the Ørsted Ocean Wind project as the first offshore wind development in New Jersey. This project would require a marshalling port as the final step in a supply chain that would supply nacelles, towers and blades from European manufacturing facilities. The NJWP would provide the vital final step in the construction of the Ocean Wind project and be suited to serve future New Jersey offshore wind projects or other regional projects in other states.

The location of the NJWP at Artificial Island in Lower Alloways Creek Township, Salem County, NJ provided an ideal site that would allow for marshalling support for these projects. Artificial Island is already a partially developed industrial property, protected from severe coastal storms, proximate to multiple offshore wind lease areas and downstream of any air draft restrictions. The State of New Jersey seized the opportunity to develop the NJWP to allow for the continued growth of offshore wind and facilitate the move to clean renewable energy. The expectation was that at a minimum future solicitations from the NJBPU (anticipated to be one every 3 years) would results in projects benefiting from marshalling from the NJWP.

While future development opportunities were identified at Artificial Island that could support potential manufacturing operations, no commitments from manufacturers or developers were in progress. Additionally, development of these other portions of Artificial Island were not necessary to support the Ørsted Ocean Wind project or other anticipated projects that would marshal from NJWP.

NJWP Phase 2 Development Timeline

In June 2021, the NJBPU awarded the second solicitation for offshore wind development in New Jersey. It was expected that a second project similar in scale to the Ørsted Ocean Wind project would be awarded and could marshal from NJWP following the successful completion of Ocean Wind. However, the second NJBPU award included two (2) additional projects. It included the Ørsted Ocean Wind 2 and Atlantic Shores Offshore Wind projects. Additionally, each award included commitments from the developers to bring manufacturing support to New Jersey to help facility growth in supply chain.

With the award of two (2) offshore wind projects which would be developed simultaneously, it became evident that the NJWP would need to expand to support these

projects. NJWP Phase 1 would have been suitable to marshal the Ørsted Ocean Wind 1 project and either the Ørsted Ocean Wind 2 or Atlantic Shores Offshore Wind projects. The need the need to marshal two (2) projects simultaneously required the expansion of NJWP to include a second marshalling port. Additionally, Ørsted and Atlantic Shores were committed to adding manufacturing in order to allow for growth of the US based supply chain and reduce the dependence on European based manufacturing to support US offshore wind development.

Full Development

At full development, the NJWP wind port will be able to support marshalling of two (2) independent projects simultaneously. By 2024, NJWP Phase 1 will be complete and ready to marshal the Ørsted Ocean Wind 1 project. It is anticipated that by 2026, the Phase 2 marshalling port would be completed and would allow for marshalling of the Ørsted Ocean Wind 2 and Atlantic Shores Offshore Wind projects. Beyond 2026, both the Phase 1 and Phase 2 marshalling ports will be capable of supporting the expected third solicitation from the NJBPU (anticipated to occur in 2024) and/or projects planned for New York, Maryland or beyond.

Manufacturing at NJWP is expected to include nacelle and blade facilities which will initially support Ørsted Ocean Wind 2 and Atlantic Shores Offshore Wind but will eventually support both future NJPBU awards and other regional projects.

The NJWP will ultimately be an offshore wind supply chain hub with marshalling and supply chain capabilities. The facility will be owned and managed by the State of New Jersey and will support a variety of currently and future planned projects. The development and design of NJWP mirrors the growth in the industry with the initial development of the Phase 1 marshalling port facilitating the initial development and Phase 2 allowing for continued growth. The Ørsted Ocean Wind 1 project could not be successful without Phase 1 development. The Ørsted Ocean Wind 2 and Atlantic Shores Offshore Wind developments could not be successful without the expansion into Phase 2.

New Jersey and the New Jersey Wind Port are well-positioned to service the wave of committed offshore wind projects over the next several decades and beyond. This is due to three key factors: central location, commitment to procurement of offshore wind energy, and early mover advantage.

New Jersey is centrally-located adjacent to the East Coast's (existing and proposed) offshore wind lease areas, with the ability to service offshore projects from New York to Virginia (an 18+ GW pipeline). Short steaming distances to these areas will make the New Jersey Wind Port a preferred location for marshalling and manufacturing projects. This means the Port will be competitive in securing offshore wind projects and do not anticipate any major gaps in usage.

New Jersey's clear and defined policy commitment to renewables and the second largest committed offshore pipeline of any U.S. state further assure the long-term usage of the port. New Jersey has an ambitious OSW pipeline of 11 GW over six solicitations through 2040, comprising 30 percent of offshore wind power on the East Coast. In

addition, New Jersey's Board of Public Utilities has publicly noted that it will be selecting projects not only on the basis of cost to ratepayers, but also taking into account local economic development benefits such as marshalling projects within the State.

Based on recent energy plan modeling as part of the State's Energy Master Plan, the State's commitment to offshore wind could conceivably continue to increase (15 GW+) over the next two decades to support the State's ambitions to reach 100 percent carbon-neutral electricity generation by 2050.

In summary this large state-level commitment means that while the proposed marshalling terminal and manufacturing facilities can support other State's projects, it will not be highly dependent on other states' projects.

Finally, New Jersey has a distinct "early mover" advantage by having already awarded three of the country's largest offshore wind solicitations (3.7 GW), committing to create a purpose-built wind port, and now committing to expanding marshalling/adding manufacturing earlier than most other states.

The New Jersey Board of Public Utilities (NJBPU) has awarded 3.7 GW of offshore wind development as of this filing (Ørsted Ocean Wind 01/02 and Atlantic Shores Offshore Wind Projects in June 2019 and 2023. The proposed marshalling port will be online in time to support the Ocean Wind O1 project in 2024. The goal is to have Phase 2 of the NJWP substantially complete by the summer of 2026 to support Ocean Wind 02 and Atlantic Shores Offshore Wind. New Jersey's analysis has determined that the port's delivery by 2023 will provide a distinct early mover advantage as the State looks to secure additional commitments for co-located component manufacturing.

In summary, if New Jersey is to meet its intended goals of combatting climate change through the encouragement of sustainable energy sources, development of enabling infrastructure and supply chain resources dedicated to offshore wind development is a critical first step. Phase 1 and Phase 2 of the New Jersey Wind Port provides New Jersey with critical infrastructure to achieve the climate chain goals and to make New Jersey a leader in the offshore wind supply chain market.

Chapter 3: Project Description

The NJEDA is proposing the construction of a second marshalling port and associated manufacturing infrastructure in support of offshore wind development in New Jersey and throughout the eastern United States. The project involves both in-water and upland activities to prepare the site for use in construction, staging, vessel loading, shipping of materials to offshore wind installation areas, and manufacturing (see Attachment A). The total area of disturbance for the project includes approximately 180 acres (80 of which was previously dredged as part of Phase 1 activities) of in-water and approximately 179 (155) acres of land areas spread across six (6) distinct sites located on Artificial Island. Each proposed project site or parcel is intended to support a unique activity vital to the continued growth of offshore wind in the United States.

Shoreline Activities

Approximately 3,400 linear feet of shoreline will be developed as an open wharf structure required for berthing of delivery and installation vessels for unloading and loading operations. The proposed wharf will be an extension of the wharf structure and berthing areas authorized as part of Phase 1 development of the NJWP. The open wharf structure will consist of a concrete deck supported by steel sheeting (parallel to the shoreline and at the landward extent of the wharf structure allowing for the open wharf design) and 30-inch concrete square piles. The fender line for the wharf will generally align with the existing timber bulkhead (installed as part of the original construction of Artificial Island by the USACE at the turn of the 20th Century) line and the mean high water (MHW) elevation contour.

To provide structural support to the upland areas of surcharged fill (see description below) the project includes the installation of a new steel sheet pile bulkhead wall (approximately parallel to the existing shoreline), which is located approximately along the MHW line (extended north from the Phase 1 development). The extended bulkhead wall will extend along approximately 3,400 linear feet of shoreline and will be driven to a depth of approximately -43.0 feet NAVD 88. The sheet pile wall will be comprised of hot rolled interlocking sheet piles (AZ 14-770). A 3-foot sheet pile wall cap will be installed at the top of the bulkhead wall.

Once completed the NJWP wharf will consist of six (6) berthing areas extending across three (3) separate and distinct working areas. Phase 1 of the NJWP (previously authorized) included a marshalling port which include two (2) berthing areas and a total wharf length of approximately 1,080 linear feet. Also included were a breasting dolphin and two (2) mooring dolphins. The Phase 1 wharf supported one berth for delivery vessels and one berth for installation vessels supporting marshalling of a single offshore wind development project. Phase 2 of the NJWP will include four (4) additional

berthing areas a wharf length of approximately 3,400 linear feet. The extended wharf area will also replace the previously installed breasting and mooring dolphins in favor of the single continuous wharf structure. Phase 2 development will include a second marshalling port as well as offshore wind component manufacturing. As a result, the extended wharf will include an additional berthing location for a second installation vessel (allowing for simultaneous marshalling of two projects, a second delivery vessel berth supporting marshalling operations and a two additional delivery berths supporting manufacturing operations. The top elevation of these platforms will be 12.5 feet NAVD 88.

The installation berth is the larger of the areas, which involve mooring of larger installation vessels sufficient in size to haul large components of wind turbines to be delivered to the offshore construction areas. As the industry matures, ever larger and more specialized installation vessels will be constructed allowing for more efficient operations including multiple complete offshore wind turbine assemblies. The wind turbines components are typically staged on the barges in an upright fashion for ease of handling in the offshore work areas. Typically, these towers extend approximately 300 to 500 feet in height. As such, the jack-up installation vessels are expected to have 300-foot spuds. A 1,080-foot by 250-foot crushed gravel mat is also proposed waterward of the installation berth to provide support along the river bottom to these large vessels. This mat will be utilized as a stable area to support installation vessels mooring at the Port. The area will be over dredged (to a depth of -47.5' NAVD 88), and the gravel will be placed so that the top of gravel matches the grade of the dredged river bottom at the approach area (elevation -39.5 feet NAVD88).

A second delivery berthing area (supporting marshalling) will be smaller in size to accommodate the delivery of wind turbine components which will be assembled/manufactured at the Port prior to delivery out to the offshore construction areas. These vessels will be standard ocean vessels, requiring less space for mooring and off-loading. The berthing areas will be supported by 765 30-inch square concrete pre-cast piles. 422 of these piles are located below the MHW line, resulting in 2,640 square feet (SF) of permanent in-water impacts.

Two additional berthing areas are proposed north of the Phase 2 marshalling port which will support offshore wind component manufacturing facilities. These berths will be 1,680 linear feet and will be constructed similarly to the delivery berths at the Phase 1 and Phase 2 marshalling ports. The two additional berthing areas will be supported by 1,837 30-inch square concrete pre-cast piles. 1,008 of these piles are located below the MHW line, resulting in 6,300 square feet of permanent in-water impacts.

The berthing areas extend 57 feet waterward of the bulkhead line, overhanging the Delaware River and supported by concrete piles, reducing the amount of in-water filling required to support the proposed platforms. The approximately 3.99-acres of wetland and intertidal mudflat that is currently east of the existing timber bulkhead will be excavated to create open water area beneath the overhanging wharf. This will allow for the installation of the rip rap revetment waterward of the sheet pile wall. This activity will result in approximately 3.99-acres of new water area. Beneath the overhang of the

wharf, the slope will be protected by 4 feet of rip rap revetment along a 3:1 slope extending waterward just past the fender to an elevation of -39.5 feet NAVD 88.

The platforms will be constructed of a 2-foot cast-in-place (CIP) bentonite cap, covered with a one-foot-thick CIP concrete topping, and granular fill ballast to an elevation of 12.5 feet NAVD 88. The platforms of the berthing areas will include a fascia beam at the face of the concrete, affixed with a fender installed with a counterfort. The delivery platform will also include a 6-foot battered pile cap approximately 36 feet landward of the sheet pile wall cap.

Two (2) mooring dolphins and one (1) breasting dolphin were installed as part of the previously authorized Phase 1 marshalling port development. These dolphins were included as part of the design to accommodate limitations in property ownership and NJDEP land use requirements. With these issues resolved, the proposed Phase 2 development will remove these previously installed dolphins in favor of extending the concrete wharf as noted above. As a result, a continuous concrete wharf structure will be installed as part of the final project development (Phase 1 and Phase 2 combined).

To support the development of the shoreline, approximately 3.99 acres of wetland and mudflat area along the shoreline will be dredged and create approximately 3.99-acres of open water. However, 13,660 SF of that open water will be filled from the installation of concrete pile supports. Additionally, an approximately 1.94-acres of intertidal shallows will be impacting from shading from the overhanging berthing platforms, 1.94-acres of which are unvegetated mudflats. An approximately 270,000 SF area of the river bottom will also be covered in gravel for the proposed gravel mat. This area will be over dredged and then filled with the crushed gravel, so it will be level with the remaining dredged river bottom. In addition, shading impacts in the intertidal area from the platforms extending over the open water, which extends approximately 57 feet waterward of the bulkhead line, which comprises approximately 1.94-acres of overhanging platform area below the mean higher high water (MHHW) line.

Proposed Dredging Activity

The proposed dredging footprint is included as Drawing D-101, Plan – Dredging, prepared by Moffatt and Nichol (Attachment A). The total estimated dredged material quantity is approximately 4,000,000 cubic yards (cy), based upon current hydrographic data obtained in October 2022 by S. T. Hudson Engineers, Inc. (see Attachment B). The dredge footprint for the Phase 2 development will include extension of the existing berth pocket north to allow for access to the new wharf areas, installation of a second turning basin on the northern portion of the berthing area, and minor modifications to the existing access channel connection to the Delaware River Navigation channel. A second access channel is not included as part of this development. The existing one-way access channel will be utilized by all vessels entering and exiting the NJWP.

To facilitate the operation of the delivery and installation vessels at the proposed expanded NJWP, new berthing areas are required along the Delaware River shoreline of Artificial Island. Phase 1 of the NJWP development included the development of a marshalling port which required the dredging of an access channel connection to the

Delaware River main navigation channel, a turning basin and berthing pockets for an installation and delivery vessel. The proposed expansion includes a second marshalling port and manufacturing facilities which will require a second turning basin (proposed to avoid a second access channel) and berthing pockets for 3 additional wharf positions. The proposed expanded development will require increasing the depth of the previously authorized access channel from -35.5 ft. North American Vertical Datum 1988 (NAVD 88) to -39.5 ft. North American Vertical Datum 1988 (NAVD 88) with an over-dredge estimate of -1.5 ft. for a total potential dredge depth of -41 ft. NAVD 88. This increased channel depth will allow for accommodation of larger vessels with deeper drafts. The shipping channel design depth is -45 ft. Mean Low Low Water (MLLW). The approach channel dredging footprint (elevation -35.5 ft. NAVD88) ends approximately 300 feet landward from the toe of the Delaware River navigation channel, as depicted on the Moffatt and Nichol Drawing D-101. In addition, cross sections that depict the vertical extent of dredging are provided on Moffatt and Nichol Drawings 301 and 302. The second turning basin will be similarly dredged to -39.5 ft. North American Vertical Datum 1988 (NAVD 88) with an over-dredge estimate of -1.5 ft. for a total potential dredge depth of -41 ft. NAVD 88. Berthing pockets for the installation vessels will be dredged to -47.5 ft. North American Vertical Datum 1988 (NAVD 88) with an over-dredge estimate of -1.5 ft. for a total potential dredge depth of -49 ft. NAVD 88. The increased depth at the berthing pockets for the installation vessels is intended to support placement of a stone base (to be installed by potential operators of the port) for use with jack up installation vessels.

The USACE provided correspondence on April 8, 2020, confirming that the proposed dredging activity for Phase 1 development did not require a Section 408 approval, indicating that the project will not adversely impact on-going Federal operations for maintaining the Federal navigation channel of the Delaware River. This correspondence is provided as Attachment C of this application. It is expected that the activities proposed as part of this application will fall under the same determination since the majority of proposed dredging is outside the maintained Federal navigation channel with minor modifications to the existing channel that will similarly not impact the existing channel or operations.

The total in-water disturbance required to complete the proposed dredging is approximately 180 acres (80 of which was previously dredged as part of Phase 1 development). Hydraulic dredging methods will be used for the largest extent of proposed dredging. Various options for removal of material were evaluated prior to the selection of hydraulic dredge. First, the proximity to various dredge material management areas including the proposed Stoney Point Beneficial Use wetland creation site (included as part of this application) lends itself to utilization of hydraulic dredging and reducing both cost and potential impact. Clamshell dredge operation would have resulted in significantly increased costs, mobilization of larger amounts of suspended sediment into the water column and had an increased risk of a larger discharge resulting from operation of dredge scows with transport to another disposal facility. Second, the USACE has a long history of successful hydraulic dredging operations in this stretch of the Delaware River. Recent channel deepening operations relied on hydraulic dredging

and disposal in the USACE Artificial Island CDF facilities. Finally, hydraulic dredging completed as part of Phase 1 dredging was completed efficiently, quickly and with little to no impact on surrounding facilities (PSEG Nuclear intake structures) or natural resources.

In order to match the new fender line to the existing timber bulkhead line, portions of the shoreline will need to be dredged to facilitate construction of the wharf structure and the eastern portions of the berthing pockets. These sections along the shoreline will utilize a dragline or some other form of bucket excavation from upland staging areas or barge mounted equipment. These shore-based or water-based operations will incorporate turbidity curtains or other appropriate BMPs to limit disturbance to adjacent open water areas to the fullest extent practical. This limited mechanical dredging (estimated at approximately 555,000 cy) will be required at the berth slope. The material excavated is placed in scows or hopper barges that are towed to the disposal area, where it will be unloaded using hydraulic equipment.

Approximately 4,000,000 cy of dredged material will be excavated to accommodate the minor modifications to the existing approach channel (deepening), new turning basin and expanded berthing pockets. The project will use hydraulic dredging methods, and which will be beneficially used to create the Stoney Point wetland restoration site.

It should be noted that the proposed development includes lands previously transferred from the USACE and utilization of material originating from former USACE CDF Cell No.3. However, the proposed project is separate and distinct from the proposed land exchange between PSEG and the USACE, which included the construction of a Confined Disposal Facility (CDF) in Oldmans Township, Salem County and Logan Township, Gloucester County in New Jersey. The proposed land exchange and development of a new CDF has independent utility under the National Environmental Policy Act of 1969 (NEPA) and were pursued by the USACE via a separate NEPA process from the potential new plant at the PSEG Site. A Final Environmental Assessment and Find of No Significant Impact (FONSI) was issued by the USACE for the new CDF.

Land Development Activities

The New Jersey Wind Port is being developed as an offshore wind hub supporting offshore wind supply chain needs in New Jersey and along the eastern United States. As more and more states identify offshore wind as a key component of sustainable energy goals, growth and development of marshalling and manufacturing is critical to reduce dependence on foreign suppliers of components. Initial development of the NJWP included an approximately 30 acre marshalling port located on the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey. Artificial Island was identified as a particularly suitable location due to its proximity to multiple offshore wind lease areas along the eastern United States coastline, protection from strong coastal storms and lack of air draft restrictions. The Phase 1 marshalling port was intended to support the Ocean Wind 01 project in New Jersey and potentially other projects in New York, Maryland, and New England. Continued growth and recent awards of additional projects in New Jersey and New York identified a need to expand marshalling capacity

in order to handle multiple projects simultaneously as well as manufacturing of components including nacelles, towers and blades. The NJWP is divided into individual parcels supporting various activities.

Parcel A (Phase 1 Development) – Previously Authorized

Parcel A, is an approximately 30 acre marshalling port previously authorized via various local, regional, State and Federal permits. The Phase 1 marshalling port is a large open laydown area designed to accommodate the delivery, accumulation, final preparation and installation of offshore wind components. The Phase 1 marshalling Port is designed to be flexible to suit the specific needs of various offshore wind developers. As a result, the layout of the Port is purposely sparse. In essence the Port is a flat gravel covered open space. This allows for customization based on user preference or unique aspects/size of a particular project. The flexibility also provides a means to extend the useful life of the Port by allowing for modifications without major reconstruction.

Typical duration of an offshore wind development ranges from 6 to 12 months. As a result, it is anticipated that temporary facilities will be utilized by most developers. Trailers, fabric structures or other low cost short duration structures will be utilized at the Port. Electrical connections will be provided for the future temporary installation. Potable water and sanitary sewerage will not be provided. These additional utilities will be temporary in nature and will include storage/holding tanks as appropriate. Light towers will be located throughout the Port to provide illumination for 24-hour operations.

Access to the Port will be through the main access security gate of the Salem and Hope Creek Generating Station (Figure 2). It is anticipated that minor improvements to the existing facility access road will be required but will be limited to paving or new signage. No expansion and development of new access roads are anticipated due to the anticipated sporadic usage of the Port and the relatively small number of operational personnel (as compared to the significant increase in onsite personnel which can be seen during a typical refueling period at the power plant). Two small, paved access drives will be utilized to access the Port from existing paved Station access roads.

To obtain the required stabilization and bearing capacity of the subsurface soils, the project involves surcharging the site in two (2) areas, Area L1 in the southern section of the site, and area L2 in the northern section. Area L1 consists of a 15.63-acre area, which will be surcharged to an elevation of 36 feet. Area L2 consists of an 11.38-acre area, which will be surcharged to an elevation of 36 feet. Perched water contained in void spaces within the soils will be removed using a series of wick drains spaced at 5 feet on center and a total of 27 well points. Once the wick drains have been installed and the surcharge material brought to design height, the area will be monitored to evaluate when the desired subsurface soil characteristics are achieved. Once the engineers are satisfied with the results of the surcharge, excess material will be removed and utilized and repurposed as needed. Ultimately, the site will be raised to an elevation of 10 feet NAVD 88, which is one (1) foot above the 100-year flood elevation.

Stormwater management compliance will be achieved utilizing a subsurface collection and treatment system (Attachment A, Drawing G-101, General Arrangement). The proposed stormwater conveyance system consists of a series of five (5) 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to the north and south via subsurface piping to underground collection vaults. Stormwater treatment is achieved using two (2) manufactured treatment devices (MTDs), which are comprised of a series of one (1) Peak Diversion Stormfilter and two (2) 8-foot by 24-foot Stormfilter units manufactured by Contech. Treated stormwater effluent will ultimately be discharged to the Delaware River via two (2) new 60-inch stormwater outfalls located along the sheet pile bulkhead wall. The outfall pipes will include tide flaps to prevent backflow of tidal water during high tide events and will utilize the rip rap armoring along the sloped surface beneath the open deck wharf structure for energy dissipation to prevent downstream erosion.

Parcel C1 (Phase 1B Development) – Not included as part of this application

Parcel C1 is an approximately 10-acre area located immediately adjacent to the east of Parcel A. Overall, Parcel C is the remaining portions of the PSEG Nuclear Upland CDF that was left over following the redevelopment of the western half for the Parcel A marshalling facility. Parcel C1 is proposed to be developed initially as an extension of the Parcel A marshalling port. The scheduled first tenant of Parcel A, Ørsted, has requested additional area to support marshalling activities for the proposed Ocean Wind 01 project. In order to facilitate this request and meet the schedule for offshore development, a temporary expansion into Parcel C was determined to be most feasible.

Parcel C1 development and construction will be nearly identical to Parcel A (and ultimately Parcel B1 as well). The 10-acre parcel will be surcharged using material originally used to surcharge Parcel A with the result being a seamless expansion of Parcel A with identical layout, bearing capacity and intended use. Following the completion of the Ocean Wind 01 project, Parcel C1 will be further developed in conjunction with the remainder of Parcel C as noted below.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel G (Phase 1B Development) – Not included as part of this application

Parcel G is an approximately 30.5-acre area that is located in the northeast corner of the PSEG Nuclear property on Artificial Island. Parcel G is bounded by the PSEG Nuclear Material Center Road to the north and a large expanse of tidal wetland (outside of the

proposed development footprint), Hope Creek cooling tower to the west, PSEG Nuclear Learning and Development Center (LDC) to the south and undeveloped areas to the east and a large tract of freshwater wetland (outside of the proposed development footprint) to the east. The western third (referred to as Parcel G3) of Parcel G contains the PSEG Nuclear Site Services building which is scheduled to be relocated. The central portion of Parcel G (referred to as Parcel G1) is a compacted gravel former laydown area utilized for PSEG Nuclear operations.

Parcel G is to be developed to include an approximately 19-acre equipment/material laydown area and an approximately 500,000 sf building supporting manufacturing for wind turbine nacelles. Nacelles manufactured at the proposed facility in Parcel G will support offshore wind development projects in NJ waters marshalling from the NJWP as well as other projects along the eastern United States that may or may not marshal from NJWP. Supply chain and manufacturing are a major growth area in the offshore wind industry. The majority (if not all) offshore turbine components to be utilized as part of the first wave of projects in the United States will come from Europe and China. Development of domestic manufacturing and supply chain infrastructure is key to not only controlling project costs, but also reducing overall impacts associated with long distance supply chains crossing oceans.

Proposed manufacturing at Parcel G would include the receipt of large components from ocean going vessels as well as standard over the road tractor trailers. These materials and components would be transported to NJWP for final manufacturing/assembly and either transported to one of the NJWP marshalling facilities or loaded onto a vessel for transport to another marshalling or installation location. Unlike the marshalling ports (Parcel A and B1) which will fluctuate with active offshore projects, it is anticipated that the Parcel G manufacturing facility would operate full time supplying multiple offshore wind development projects.

The layout of the facility will include a large manufacturing space specially designed to manage and manipulate large offshore wind components. Laydown for partially and fully completed nacelles will be included around the perimeter of the manufacturing building. A heavy haul roadway will be constructed to support self-propelled modular transports (SPMT) moving components and completed nacelle from Parcel G to the wharf area. Similar to other parcels throughout NJWP, Parcel G will be required to have a suitable bearing capacity to handle transport and staging of heavy components. Parcel G subsurface soils will require surcharging to achieve the required design bearing capacities. Surcharge material originating from the former USACE Artificial Island Upland CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA) that was used to surcharge Parcel A, then Parcel C1, will also be used to surcharge Parcel G. Additionally, sand dredged as part of the Parcel A development dredging will also be utilized to supplement surcharge activities. Following surcharge activities, the material will be removed leaving a final grade elevation of 12.5’ NAVD 88.

The Parcel G development will include a new substation located south of the PSEG Nuclear chilled water building. The proposed substation will receive power from a 69 kV Atlantic City Electric transmission line and provide power to all parcels associated

with NJWP. Duct banks will be constructed originating at the substation and power each parcel individually.

The proposed manufacturing facility will be operated continuously by a dedicated workforce include administrative staff, technicians, and specialists. As a result, the facility will require potable water and sanitary sewerage utility connections. A new potable water well will be installed providing potable water. NJEDA will coordinate with PSEG Nuclear to utilize a portion of the existing NJDEP water allocation as applicable. Similarly, sanitary wastewater will be managed via utilization of existing capacity in the PSEG Nuclear sewage treatment plant. Minor upgrades to existing components may be required to increase efficient operation of the Sewage Treatment Plant (STP), but sufficient capacity exists for the anticipated workforce. No discharge of industrial wastewater is anticipated as part of the proposed development.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel B1 (Phase 2 Development) – Included as part of this application

Parcel B1, is an approximately 66.5 acre marshalling port designed nearly identically to the Parcel A marshalling port. Parcel B1 is located immediately adjacent and to the north of Parcel A. Construction and operation of the second marshalling port will occur separately from operation of the Parcel A marshalling port. Phase 2 will allow for simultaneous marshalling of independent offshore wind development projects. The Phase 2 marshalling port is similarly a large open laydown area designed to accommodate the delivery, accumulation, final preparation, and installation of offshore wind components. The Phase 2 marshalling Port is similarly designed to be flexible to suit the specific needs of various offshore wind developers. As a result, the layout of the Port is purposely sparse. In essence the Port is a flat gravel covered open space. This allows for customization based on user preference or unique aspects/size of a particular project. The flexibility also provides a means to extend the useful life of the Port by allowing for modifications without major reconstruction.

Typical duration of an offshore wind development ranges from 6 to 12 months. As a result, it is anticipated that temporary facilities will be utilized by most developers. Trailers, fabric structures or other low-cost short duration structures will be utilized at the Port. Electrical connections will be provided for the future temporary installation. Potable water and sanitary sewerage will not be provided. These additional utilities will be temporary in nature and will include storage/holding tanks as appropriate. Light

towers will be located throughout the Port to provide illumination for 24-hour operations.

Access to the Port will be through the main access security gate of the Salem and Hope Creek Generating Station (Figure 2). It is anticipated that minor improvements to the existing facility access road will be required but will be limited to paving or new signage. No expansion and development of new access roads are anticipated due to the anticipated sporadic usage of the Port and the relatively small number of operational personnel (as compared to the significant increase in onsite personnel which can be seen during a typical refueling period at the power plant). Two small, paved access drives will be utilized to access the Port from existing paved Station access roads.

To obtain the required stabilization and bearing capacity of the subsurface soils, the project involves surcharging the site in two (2) areas, Area 1 in the western section of the site, and area 2 in the eastern section. Perched water contained in void spaces within the soils will be removed using a series of wick drains spaced at 5 feet on center and well points. Once the wick drains have been installed and the surcharge material brought to design height, the area will be monitored to evaluate when the desired subsurface soil characteristics are achieved. Once the engineers are satisfied with the results of the surcharge, excess material will be removed and utilized and repurposed as needed. Ultimately, the site will be raised to an elevation of 12 feet NAVD 88, which is one (1) foot above the 100-year flood elevation.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment, and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel B2 (Phase 2 Development) – Included as part of this application

Parcel B2 is an approximately 43-acre area that is located in the northeast corner of the PSEG Nuclear property on Artificial Island. Parcel B2 includes the northern end of the former USACE Artificial Island upland CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA). The parcel is bounded by the Delaware River to the west, Parcel B1 to the south, large tracts of tidal wetland to the east (beyond the proposed limit of development) and operating USACE Artificial Island upland CDF Cell No.2 to the north. Parcel B2 currently consists of earthen containment berms and the discharge weir box for former Cell No.3. The upland CDF was used for placement of hydraulically dredged material from Phase 1 of the NJWP development project. The CDF contains large quantities of sand and shallow areas of water as it slows decants through the discharge structure. Vegetation within Parcel B2 is limited to areas of monotypic Common reed along the containment berms and along the perimeter. A dirt road

providing access to USACE Artificial Island CDF Cell Nos. 1 and 2 is located on the western shoreline area.

Parcel B2 is to be developed to include an approximately 32.5-acre equipment/material laydown area and an approximately 450,000 sf building supporting manufacturing for wind turbine blades. Blades manufactured at the proposed facility in Parcel B2 will support offshore wind development projects in NJ waters marshalling from the NJWP as well as other projects along the eastern United States that may or may not marshal from NJWP. Supply chain and manufacturing are a major growth area in the offshore wind industry. The majority (if not all) offshore turbine components to be utilized as part of the first wave of projects in the United States will come from Europe and China. Development of domestic manufacturing and supply chain infrastructure is key to not only controlling project costs, but also reducing overall impacts associated with long distance supply chains crossing oceans.

Proposed manufacturing at Parcel B2 would include the receipt of large components from ocean going vessels as well as standard over the road tractor trailers. These materials and components would be transported to NJWP for final manufacturing/assembly and either transported to one of the NJWP marshalling facilities or loaded onto a vessel for transport to another marshalling or installation location. Unlike the marshalling ports (Parcel A and B1) which will fluctuate with active offshore projects, it is anticipated that the Parcel B2 manufacturing facility would operate full time supplying multiple offshore wind development projects.

The layout of the facility will include a large manufacturing space specially designed to manage and manipulate large offshore wind components. Laydown for partially and fully completed blades will be included around the perimeter of the manufacturing building. A heavy haul roadway will be constructed to support self-propelled modular transports (SPMT) moving components and completed nacelle from Parcel B2 to the wharf area. Similar to other parcels throughout NJWP, Parcel B2 will be required to have a suitable bearing capacity to handle transport and staging of heavy components. Parcel B2 subsurface soils will require surcharging to achieve the required design bearing capacities. Surcharge material originating from the former USACE Artificial Island Upland CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA) that was used to surcharge other parcels at NJWP. Additionally, sand dredged as part of the Parcel A development dredging will also be utilized to supplement surcharge activities. Following surcharge activities, the material will be removed leaving a final grade elevation of approximately 12’ NAVD 88.

The proposed manufacturing facility will be operated continuously by a dedicated workforce include administrative staff, technicians, and specialists. As a result, the facility will require potable water and sanitary sewerage utility connections. A new potable water well will be installed providing potable water. NJEDA will coordinate with PSEG Nuclear to utilize a portion of the existing NJDEP water allocation as applicable. Similarly, sanitary wastewater will be managed via utilization of existing capacity in the PSEG Nuclear sewage treatment plant. Expansion of the existing STP capacity will be required to support this stage of development. It is anticipated that the

STP would be expanded to include another treatment train but would keep the existing permitted discharge location and therefore not require a new discharge point. No discharge of industrial wastewater is anticipated as part of the proposed development.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment, and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel C2 (Phase 2 Development) – Included as part of this application

Parcel C2 is an approximately 14.4-acre area that is located in the eastern end of the PSEG Nuclear upland CDF. It currently consists of the operating dredge management facility supporting PSEG Nuclear operations and the PSEG Nuclear Security target range and training facility (both scheduled to be relocated). Parcel C2 predominately includes open disturbed soil with small areas of ponding (following rain events and desilt operations). Containment berms and discharge weir box for the PSEG Nuclear upland CDF remain in Parcel C2 as the CDF still supports PSEG Nuclear maintenance dredge and desilt needs. Vegetation almost exclusively consists of monotypic stands of Common reed located on the containment berms and adjacent areas.

Parcel C2 will be combined with Parcel C1 (referred to as Parcel C) and will be developed to include an approximately 22.5-acre equipment/material laydown area and an approximately 60,000 sf building supporting manufacturing for wind turbine nacelles. Nacelles manufactured at the proposed facility in the combined Parcel C will support offshore wind development projects in NJ waters marshalling from the NJWP as well as other projects along the eastern United States that may or may not marshal from NJWP. Supply chain and manufacturing are a major growth area in the offshore wind industry. The majority (if not all) offshore turbine components to be utilized as part of the first wave of projects in the United States will come from Europe and China. Development of domestic manufacturing and supply chain infrastructure is key to not only controlling project costs, but also reducing overall impacts associated with long distance supply chains crossing oceans.

Proposed manufacturing at Parcel C would include the receipt of large components from ocean going vessels as well as standard over the road tractor trailers. These materials and components would be transported to NJWP for final manufacturing/assembly and either transported to one of the NJWP marshalling facilities or loaded onto a vessel for transport to another marshalling or installation location. Unlike the marshalling ports (Parcel A and B1) which will fluctuate with active offshore projects, it is anticipated that the Parcel G manufacturing facility would operate full time supplying multiple offshore wind development projects.

The layout of the facility will include a large manufacturing space specially designed to manage and manipulate large offshore wind components. Laydown for partially and fully completed nacelles will be included around the perimeter of the manufacturing building. A heavy haul roadway will be constructed to support self-propelled modular transports (SPMT) moving components and completed nacelle from Parcel C to the wharf area. Similar to other parcels throughout NJWP, Parcel C will be required to have a suitable bearing capacity to handle transport and staging of heavy components. Parcel G subsurface soils will require surcharging to achieve the required design bearing capacities. Surcharge material originating from the former USACE Artificial Island Upland CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA) that was used to surcharge Parcel A, then Parcel C1, then Parcel G, will also be used to surcharge Parcel C2. Additionally, sand dredged as part of the Parcel A development dredging will also be utilized to supplement surcharge activities. Following surcharge activities, the material will be removed leaving a final grade elevation of 12' NAVD 88.

The proposed manufacturing facility will be operated continuously by a dedicated workforce include administrative staff, technicians, and specialists. As a result, the facility will require potable water and sanitary sewerage utility connections. A new potable water well will be installed providing potable water. NJEDA will coordinate with PSEG Nuclear to utilize a portion of the existing NJDEP water allocation as applicable. Similarly, sanitary wastewater will be managed via utilization of existing capacity in the PSEG Nuclear sewage treatment plant. Minor upgrades to existing components may be required to increase efficient operation of the STP, but sufficient capacity exists for the anticipated workforce. No discharge of industrial wastewater is anticipated as part of the proposed development.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment, and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel D (Phase 2 Development) – Included as part of this application

Parcel D is a small area of approximately 4-acres located on the eastern boundary of the PSEG Nuclear property. Parcel D is bordered by the main access road to the PSEG property to the south, 500 kV transmission line ROW to the north and west, and undeveloped area/large freshwater wetland complex (outside the proposed limit of disturbance) to the east. Parcel D is predominately undeveloped but maintained by the electric utility due to the proximity to adjacent high voltage power lines. As a result, the project area is predominately maintained native grasses with no woody vegetation or shrubs.

Parcel D development will include an approximately 43,500 SF building, asphalt parking area accommodating approximately 100 personnel vehicles and compacted stone laydown area for maintenance equipment/materials required for port operation (i.e., general equipment like snow removal or lawn mowing equipment). The building will be used for NJWP administrative and security personnel. Parking will be for workers in this building and port personnel that would shuttle to the various port parcels. Parcel D will not be used for any specific offshore wind component manufacturing or storage.

The proposed manufacturing facility will be operated continuously by a dedicated workforce include administrative staff, technicians, and specialists. As a result, the facility will require potable water and sanitary sewerage utility connections. A new potable water well will be installed providing potable water. NJEDA will coordinate with PSEG Nuclear to utilize a portion of the existing NJDEP water allocation as applicable. Similarly, sanitary wastewater will be managed via utilization of existing capacity in the PSEG Nuclear sewage treatment plant. Minor upgrades to existing components may be required to increase efficient operation of the STP, but sufficient capacity exists for the anticipated workforce. No discharge of industrial wastewater is anticipated as part of the proposed development.

Stormwater compliance will be achieved utilizing a subsurface collection, treatment, and infiltration system. The system will be designed to meet NJDEP requirements for both water quality treatment and implementation of green infrastructure principles. The proposed stormwater conveyance system consists of a series of 2-foot-wide trenches that collect stormwater throughout the site and gravity drain the effluent to Filterra biofiltration units. Following treatment, water will be conveyed to underground concrete vaults constructed on stone beds allowing for infiltration back to groundwater. To comply with the technical requirements for green infrastructure implementation, the parcel is divided into 2.5-acre drainage areas with underground water quality treatment and infiltration infrastructure dedicated for each.

Parcel E (Phase 2 Development) – Included as part of this application

Parcel E is an approximately 51.2-acre area that is proposed for development of an upland confined disposal facility to manage maintenance dredging and desilting needs for both the NJWP and the PSEG Nuclear Salem and Hope Creek Generating Stations. The proposed CDF will be located within an undeveloped portion of the PSEG Nuclear property currently utilized for laydown/storage of construction materials related to the NJWP construction. Previously the area was used for laydown/storage of construction materials for various construction/development projects undertaken by PSEG Nuclear. Prior to that, the area was utilized for staging of construction/office trailers during the construction of the Salem and Hope Creek Generating Stations. Parcel E is bounded by 500 kV transmission lines to the north, west and south. The main property access roadway bounds the parcel to the east. As noted, the parcel is currently undeveloped and includes disturbed areas being used for construction support and vegetated areas that are maintained by the electric utility and PSEG Nuclear Security. Patches of invasive

Common reed are found throughout the area as well as sporadic clusters of small woody vegetation.

The proposed CDF will support both the NJWP and PSEG Nuclear. For the NJWP, the CDF will provide temporary management of maintenance dredging material which is estimated to be as much as 200,000 cy of material annual once full development is completed. The material would be temporarily managed in the CDF and allowed to decant and discharge water back to the Delaware River. Periodically the material will be mined from the CDF and utilized to continue support and adaptive management of beneficial use wetland creation and beach fill efforts proposed south of Artificial Island and within the Mad Horse Creek WMA. PSEG Nuclear will utilize the CDF to support infrequent maintenance dredging needs which are estimated to be as much as 24,000 cy annually. More frequent desilt operations related to operation of the Delaware River Intake structures for both the Salem and Hope Creek Generating Stations as well as periodic desilting of the Hope Creek Cooling Tower Basin will also be accommodated in the proposed CDF.

The CDF will be constructed by excavating existing material to lower the base elevation of the facility. This will serve to allow for increased capacity and facility drainage/management of accumulated water. Perimeter containment berms will be constructed using material excavated from the base of the CDF. The berms will be designed to contain material managed within the CDF and provide suitable capacity. A discharge structure/weir box will be constructed in the southern end of the CDF allowing for management of contained water (to reduce suspended sediment and control of flow. Water will be discharged into the proposed beneficial use wetland creation site south of Artificial Island. This will have the benefit of supplying additional water to the wetland area and provide additional opportunities to continue to filter out suspended sediment prior to reach the Delaware River. The discharge path will include both piped sections (under roadways) and open vegetated swales encouraging infiltration. Evaporation and vegetative uptake.

The Parcel E CDF will be managed by the NJEDA to ensure continued efficient operation. This will include mowing of containment berms and the CDF base as needed to prevent growth of large tracts of invasive Common reed. Additionally woody vegetation will be managed on the berms to prevent degradation of the structural integrity. As noted, periodic mining of the CDF will occur to allow for beneficial use of the material and to maintain capacity. Periodic grading on the CDF will likely also be required to maintain positive drainage and prevent ponding.

Chapter 4: Delaware Coastal Management Program Compliance Statement

This Chapter provides the project's consistency with the rules under the Delaware Coastal Management Program, Federal Consistency Policy and Procedure, dated November 2018. In many cases, rules established as part of the program are not directly applicable to the proposed Port. The following table provides a listing of the applicable policies, and the compliance statement for all of the policies are provided below.

DELAWARE COASTAL MANAGEMENT PROGRAM POLICIES Date last amended: November 2018	**Project Applicability**
Wetlands Management	**See Compliance**
Beach Management	**See Compliance**
Coastal Waters Management	**See Compliance**
Marinas	**See Compliance**
Subaqueous Lands and Coastal Strip Management	**See Compliance**
Public Lands Management	**See Compliance**
Natural Areas Management	**See Compliance**
Flood Hazard Areas Management	**See Compliance**
Port of Wilmington	Not Applicable
Woodlands and Agricultural Lands Management	Not Applicable
Historic and Cultural Lands Management	**See Compliance**
Living Resources	**See Compliance**
Fish and Wildlife	**See Compliance**
Nongame and Endangered Species	**See Compliance**
Mineral Resource Management	Not Applicable
State Owned Coastal Recreation and Conservation	Not Applicable
Public Trust Doctrine	**See Compliance**
Energy Facilities	**See Compliance**
Public Investment	Not Applicable
Recreation and Tourism	Not Applicable

DELAWARE COASTAL MANAGEMENT PROGRAM POLICIES Date last amended: November 2018	Project Applicability
National Defense and Aerospace Facilities	Not Applicable
Transportation Facilities	**See Compliance**
Air Quality Management	**See Compliance**
Water Supply Management	**See Compliance**
Construction of Wells	Not Applicable
Underground Injection Control	Not Applicable
Waste Disposal Management	**See Compliance**
Onsite Wastewater Treatment and Disposal System Management	Not Applicable
Land Treatment of Wastes	Not Applicable
Disposal of Solid Wastes	**See Compliance**
Hazardous Waste Management	Not Applicable
Cleanup of Hazardous Substances	Not Applicable
Underground Storage Tanks	Not Applicable
Development	**See Compliance**
Pollution Prevention	**See Compliance**
Coastal Management Coordination	**See Compliance**

A. Wetlands Management

On-Site Impacts

Artificial Island contains both freshwater and tidal wetlands. A delineation of the jurisdiction boundary of wetlands and waters was conducted for the entire project area was conducted in April 2020 (Figures 4 and 5). Based on the mapping provided in the Wetland Delineation Report, the project will involve minor temporary and permanent impacts to freshwater wetlands. Freshwater wetlands on Artificial Island are generally located in one of three categories. Small, isolated wetlands, stormwater related wetlands, and large freshwater fringes to even larger tidal wetlands.

Small topographic low spots located in predominately undeveloped or areas that are not routinely maintained allow for ponding of water from precipitation and have supported the growth of hydrophytic vegetation (mostly invasive Common reed). These small areas are scattered throughout Artificial Island, but predominately on PSEG Nuclear property. These areas are generally isolated and not connected to other larger wetland or water features.

Swales and ditches are commonly found along one or both sides of paved and dirt access roads on the PSEG Nuclear property. These ditches are used to manage stormwater runoff from the roadways and convey them to discharges or more formally maintained stormwater infrastructure (pipes, ponds, discharges, etc.). Some of the ditches are maintained, but even with routine maintenance still contain large monotypic stands of invasive Common reed. These swales and ditches are typically no more than 12" to 18" in depth and sometimes are almost indistinguishable from the surrounding areas. The PSEG Nuclear property also contains stormwater ponds and freshwater wetland features that were constructed to manage stormwater runoff. These features are much larger, maintained and were permitted prior to construction. None of these larger features will be impacted as part of this project and are therefore not referenced further in this document.

The final type of freshwater wetland feature on Artificial Island is by far the largest and most common. Large areas of freshwater wetland fringe are located on the boundaries of developed/partially developed portions of Artificial Island and large contiguous tracts of tidal wetlands throughout the region. These large freshwater wetlands are sufficiently separated from tidal waters and therefore have little saltwater or tidal influence. These freshwater wetlands are predominately fed by groundwater and precipitation (due to low infiltration rates because of the nature of the construction of Artificial Island). These areas are dominated by monotypic stands of invasive Common reed with few sporadic individual shrubs or other woody vegetation. Habitat quality is generally low due to the nature and density of vegetation. These fringe freshwater wetlands are located primarily on the eastern edge of the PSEG Nuclear property as well as on and immediately adjacent to containment berms in the former USACE Artificial Island upland CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA).

Along the Delaware River, northeast of the PSEG Nuclear property and east of the former USACE Artificial Island upland CDF Cell No.3, there are tidal wetlands under USACE jurisdiction. These tidal wetlands are located along the shoreline and within large tracts of tidally influenced wetland with elevations below mean high water (MHW). Tidal wetlands along the Delaware River shoreline and within the vicinity of the developed portion of Artificial Island are generally disturbed or of low quality. These areas are dominated by monotypic stands of invasive Common reed. Continued sediment deposition and Common reed rhizome growth have resulted in ground elevations that are above the direct influence of tidal waters and a low enough salt content for the Common reed to thrive. Tidal wetlands further north and east on Artificial Island contain predominately native marsh grasses and serve as extremely high value habitat for native birds and mammals. None of these higher value native tidal wetlands will be impacted by the proposed development outlined in this application. The locations of the proposed activities were specifically identified to avoid these sensitive areas.

The proposed expanded development of the NJWP will include minor temporary and permanent impacts to freshwater and tidal wetlands. A detailed description of each proposed development is included above. The following descriptions are intended to focus on the specific wetland impacts for each development parcel and the necessity of

the impact to the successful development and operation of the NJWP parcels. Following the description of the impacts will be a brief discussion related to proposed mitigation for the unavoidable permanent impacts.

Parcel C1 (Phase 1B Development) – Not included as part of this application

Parcel C1 is a 10-acre portion of the existing PSEG Nuclear upland CDF. It is located east of the previously authorized Parcel A development. Parcel C1 will be initially utilized as additional marshalling area for Parcel A and eventually converted to laydown area associated with the proposed Parcel C2 development which will result in the combined Parcel C nacelle manufacturing facility development. Parcel C1 is bordered by Parcel A to the west, Parcel C2 to the east, existing PSEG Nuclear stormwater management ponds to the south (beyond the southern limit of disturbance) and a freshwater/tidal wetland fringe area to the north. This freshwater/tidal wetland fringe resulted from a topographic low spot between the containment berms for the PSEG Nuclear upland CDF and former USACE Artificial Island upland CDF Cell No.3. This topographic feature trapped precipitation and runoff between the two containment berm structures which resulted in dense stands of monotypic invasive Common reed.

Parcel C1 will require placement of surcharge soil to accommodate the large bearing capacity needed to support the heavy loads of offshore wind components. Initially for marshalling as part of operation of the Parcel marshalling port and eventually for laydown/storage for the nacelle manufacturing/assembly facility proposed for the overall Parcel C development. The proposed surcharge soil pile will be approximately 30-feet tall to achieve the required soil bearing capacity. In order to achieve the required bearing capacity for the entire 10-acre parcel, the full height surcharge pile must extend to the development footprint perimeter and the resulting slope embankment for the pile will extend into the adjacent freshwater/tidal wetland fringe. This will result in unavoidable temporary impacts of 0.48-acres and permanent impacts of 1.10-acres. Various alternatives have been explored to try and reduce or eliminate these impacts. Most involve reducing the size of the surcharge pile to limit the extend of the sloped embankment to the development footprint. Alternatives included having a limited bearing capacity on the perimeters or utilizing other ground improvement methods such as rigid inclusions or piles. While each of these methods could reduce the overall wetland impact, they would result in portions of the development area unusable (a difficult challenge due to the size of these components and the equipment used to move them) or a potential safety hazard (due to increased risk of differential settlement which could result in unstable load conditions). A review of suitable replacement locations was also evaluated that could have the potential to limit or reduce impacts. Parcel A is bounded by the Silver Run 230 kV overhead transmission line to the south and proposed Parcel B development to the north. Neither of these locations would allow for expansion to support the needed area for marshalling. Additionally, proximity to the future Parcel C2 development is critical to location of Parcel C1 development to allow for sufficient area to accommodate future manufacturing/assembly acreage requirements.

To reduce permanent impacts to wetlands, areas for temporary impacts have been identified. As noted, the freshwater/tidal wetland fringe is a topographic low area which contains dense stands of invasive Common reed. Restoration to pre-construction conditions should be readily achievable providing topography and hydrology can be restored. Restoration of temporarily impacted areas will be as follows:

- Spot topographic survey data will be collected within the wetland area;
- Wetland topsoils will be excavated and stockpiled for future reuse;
- Following construction completion, surcharge soils will be removed to preconstruction elevations;
- Site soils will scarified to loosen compacted soils;
- Stockpiled wetland soils will be returned to the area and grading to preconstruction elevations will be completed.

Wetland vegetation is expected to populate the area quickly and be restored to preconstruction conditions. As a result, these temporarily impacted areas should be returned to similar conditions. It is expected that these areas would be impacted for approximately 6 months. Restoration will occur immediately upon completion with no consideration placed on timing (i.e., will not wait until the growing season to restore.

Parcel G (Phase 1B Development) – Not included as part of this application

Parcel G is a 30.5-acre area that is being developed to support nacelle manufacturing/assembly operations intended to support offshore wind development projects. Parcel G development also include a heavy haul road connection to the Parcel A marshalling port and wharf area to allow for import/export of large offshore wind components. Parcel G is an existing developed/partially developed area that was used for laydown/storage by PSEG Nuclear.

Parcel G is bordered by the Hope Creek cooling tower to the west, PSEG Nuclear Learning and Development Center to the south, undeveloped areas including freshwater/tidal wetland fringe to the north and east. Undeveloped areas to the east include stormwater swale/ditch wetlands associated with existing roadways and larger tracts of freshwater/tidal wetland fringe areas on the eastern edge of the development area. The proposed development will include temporary impacts of 0.20-acres and permanent impacts of 1.56-acres. Temporary impacts will include areas of surcharge soil embankment and installation of utilities under small stormwater swale/ditch wetlands.

To reduce permanent impacts to wetlands, areas for temporary impacts have been identified. As noted, the freshwater/tidal wetland fringe is a topographic low area which contains dense stands of invasive Common reed. Restoration to pre-construction conditions should be readily achievable providing topography and hydrology can be restored. Restoration of temporarily impacted areas will be as follows:

- Spot topographic survey data will be collected within the wetland area;
- Wetland topsoils will be excavated and stockpiled for future reuse;
- Following construction completion, surcharge soils will be removed to preconstruction elevations;

- Site soils will scarified to loosen compacted soils;
- Stockpiled wetland soils will be returned to the area and grading to preconstruction elevations will be completed.

Wetland vegetation is expected to populate the area quickly and be restored to preconstruction conditions. As a result, these temporarily impacted areas should be returned to similar conditions. It is expected that these areas would be impacted for approximately 6 months. Restoration will occur immediately upon completion with no consideration placed on timing (i.e., will not wait until the growing season to restore).

Parcel B1 (Phase 2 Development) – Included as part of this application

Parcel B1 is a 66.5-acre portion of the former USACE Artificial Island upland CDF Cell No.3. It is located north of the previously authorized Parcel A development. Parcel B1 will include the construction of a second marshalling port expected to provide capacity to marshal simultaneous offshore wind development projects. Parcel B1 is bordered by the Delaware River to the west, a freshwater/tidal wetland fringe area to the east, Parcel A to the south and existing USACE Artificial Island upland CDF Cell No2 to the north. Parcel B1 has wetland areas located on the western and eastern boundaries of the development area. Each of these areas consists of dense stands of monotypic invasive Common reed.

Wetland impacts associated with Parcel B1 development will include shoreline impacts associated with wharf construction and freshwater/tidal fringe areas to the east. Parcel B1 will require placement of surcharge soil to accommodate the large bearing capacity needed to support the heavy loads of offshore wind components. The proposed surcharge soil pile will be approximately 30-feet tall to achieve the required soil bearing capacity. In order to achieve the required bearing capacity for the entire parcel, the full height surcharge pile must extend to the development footprint perimeter and the resulting slope embankment for the pile will extend into the adjacent freshwater/tidal wetland fringe.

This will result in unavoidable temporary impacts of 3.36-acres and permanent impacts of 1.38-acres. Various alternatives have been explored to try and reduce or eliminate these impacts. Most involve reducing the size of the surcharge pile to limit the extend of the sloped embankment to the development footprint. Alternatives included having a limited bearing capacity on the perimeters or utilizing other ground improvement methods such as rigid inclusions or piles. While each of these methods could reduce the overall wetland impact, they would result in portions of the development area unusable (a difficult challenge due to the size of these components and the equipment used to move them) or a potential safety hazard (due to increased risk of differential settlement which could result in unstable load conditions). Impacts associated with the wharf construction are directly tied to the length of the wharf needed to accommodate vessels utilizing the port. Various lengths of wharf structures were evaluated with the shortest length suitable for current and planned future use provided. Additionally, both closed and open wharf designs were evaluated. The open wharf option was selected to reduce overall impacts and provide access to fish and other marine animals in the river.

To reduce permanent impacts to wetlands, areas for temporary impacts have been identified. As noted, the freshwater/tidal wetland fringe is a topographic low area which contains dense stands of invasive Common reed. Restoration to pre-construction conditions should be readily achievable providing topography and hydrology can be restored. Restoration of temporarily impacted areas will be as follows:

- Spot topographic survey data will be collected within the wetland area;
- Wetland topsoils will be excavated and stockpiled for future reuse;
- Following construction completion, surcharge soils will be removed to preconstruction elevations;
- Site soils will scarified to loosen compacted soils;
- Stockpiled wetland soils will be returned to the area and grading to preconstruction elevations will be completed.

Wetland vegetation is expected to populate the area quickly and be restored to preconstruction conditions. As a result, these temporarily impacted areas should be returned to similar conditions. It is expected that these areas would be impacted for approximately 6 months. Restoration will occur immediately upon completion with no consideration placed on timing (i.e. will not wait until the growing season to restore.

Parcel B2 (Phase 2 Development) – Included as part of this application

Parcel B2 is a 66.5-acre portion of the former USACE Artificial Island upland CDF Cell No.3. It is located north of the previously authorized Parcel A development. Parcel B2 will include the construction of a blade manufacturing/assembly facility intended to support offshore wind development projects. Parcel B2 is bordered by the Delaware River to the west, a freshwater/tidal wetland fringe area to the east, Parcel B1 to the south and existing USACE Artificial Island upland CDF Cell No2 to the north. Parcel B2 has wetland areas located on the western and eastern boundaries of the development area. Each of these areas consists of dense stands of monotypic invasive Common reed.

Wetland impacts associated with Parcel B2 development will include shoreline impacts associated with wharf construction and freshwater/tidal fringe areas to the east. Parcel B2 will require placement of surcharge soil to accommodate the large bearing capacity needed to support the heavy loads of offshore wind components. The proposed surcharge soil pile will be approximately 30-feet tall to achieve the required soil bearing capacity. In order to achieve the required bearing capacity for the entire parcel, the full height surcharge pile must extend to the development footprint perimeter and the resulting slope embankment for the pile will extend into the adjacent freshwater/tidal wetland fringe.

This will result in unavoidable temporary impacts of .074-acres and permanent impacts of 2.50- acres. Various alternatives have been explored to try and reduce or eliminate these impacts. Most involve reducing the size of the surcharge pile to limit the extend of the sloped embankment to the development footprint. Alternatives included having a limited bearing capacity on the perimeters or utilizing other ground improvement

methods such as rigid inclusions or piles. While each of these methods could reduce the overall wetland impact, they would result in portions of the development area unusable (a difficult challenge due to the size of these components and the equipment used to move them) or a potential safety hazard (due to increased risk of differential settlement which could result in unstable load conditions). Impacts associated with the wharf construction are directly tied to the length of the wharf needed to accommodate vessels utilizing the port. Various lengths of wharf structures were evaluated with the shortest length suitable for current and planned future use provided. Additionally, both closed and open wharf designs were evaluated. The open wharf option was selected to reduce overall impacts and provide access to fish and other marine animals in the river.

To reduce permanent impacts to wetlands, areas for temporary impacts have been identified. As noted, the freshwater/tidal wetland fringe is a topographic low area which contains dense stands of invasive Common reed. Restoration to pre-construction conditions should be readily achievable providing topography and hydrology can be restored. Restoration of temporarily impacted areas will be as follows:

- Spot topographic survey data will be collected within the wetland area;
- Wetland topsoils will be excavated and stockpiled for future reuse;
- Following construction completion, surcharge soils will be removed to preconstruction elevations;
- Site soils will scarified to loosen compacted soils;
- Stockpiled wetland soils will be returned to the area and grading to preconstruction elevations will be completed.

Wetland vegetation is expected to populate the area quickly and be restored to preconstruction conditions. As a result, these temporarily impacted areas should be returned to similar conditions. It is expected that these areas would be impacted for approximately 6 months. Restoration will occur immediately upon completion with no consideration placed on timing (i.e., will not wait until the growing season to restore.

Parcel C2 (Phase 2 Development) – Included as part of this application

Parcel C2 is a 14.4-acre portion of the existing PSEG Nuclear upland CDF. It is located east of the previously authorized Parcel A development. Parcel C2 will be combined with the previously developed Parcel C1 (authorized under separate authorization) to allow for the construction of a nacelle manufacturing/assembly facility intended to support offshore wind development projects. Parcel C2 is bordered by Parcel C1 to the west, large tracts of freshwater/tidal fringe wetlands to the east, existing PSEG Nuclear stormwater management ponds to the south (beyond the southern limit of disturbance) and a freshwater/tidal wetland fringe area to the north. This freshwater/tidal wetland fringe resulted from a topographic low spot between the containment berms for the PSEG Nuclear upland CDF and former USACE Artificial Island upland CDF Cell No.3. This topographic feature trapped precipitation and runoff between the two containment berm structures which resulted in dense stands of monotypic invasive Common reed.

Parcel C2 will require placement of surcharge soil to accommodate the large bearing capacity needed to support the heavy loads of offshore wind components. Initially for

marshalling as part of operation of the Parcel marshalling port and eventually for laydown/storage for the nacelle manufacturing/assembly facility proposed for the overall Parcel C development. The proposed surcharge soil pile will be approximately 30-feet tall to achieve the required soil bearing capacity. In order to achieve the required bearing capacity for the entire parcel, the full height surcharge pile must extend to the development footprint perimeter and the resulting slope embankment for the pile will extend into the adjacent freshwater/tidal wetland fringe. This will result in unavoidable temporary impacts of 3.28-acres and permanent impacts of 0.90-acres. Various alternatives have been explored to try and reduce or eliminate these impacts. Most involve reducing the size of the surcharge pile to limit the extend of the sloped embankment to the development footprint. Alternatives included having a limited bearing capacity on the perimeters or utilizing other ground improvement methods such as rigid inclusions or piles. While each of these methods could reduce the overall wetland impact, they would result in portions of the development area unusable (a difficult challenge due to the size of these components and the equipment used to move them) or a potential safety hazard (due to increased risk of differential settlement which could result in unstable load conditions). A review of suitable replacement locations was also evaluated that could have the potential to limit or reduce impacts. While similar sized parcels could be located, proximity to existing and proposed wharf facilities is required since large components would be required to be imported and exported from this facility. Greater distance from the wharf areas would have required additional improvements supporting longer heavy haul pathways that would likely have resulted in larger wetland impacts.

To reduce permanent impacts to wetlands, areas for temporary impacts have been identified. As noted, the freshwater/tidal wetland fringe is a topographic low area which contains dense stands of invasive Common reed. Restoration to pre-construction conditions should be readily achievable providing topography and hydrology can be restored. Restoration of temporarily impacted areas will be as follows:

- Spot topographic survey data will be collected within the wetland area
- Wetland topsoil will be excavated and stockpiled for future reuse
- Following construction completion, surcharge soils will be removed to preconstruction elevations
- Site soils will be scarified to loosen compacted soils
- Stockpiled wetland soils will be returned to the area and grading to preconstruction elevations will be completed.

Wetland vegetation is expected to populate the area quickly and be restored to preconstruction conditions. As a result, these temporarily impacted areas should be returned to similar conditions. It is expected that these areas would be impacted for approximately 6 months. Restoration will occur immediately upon completion with no consideration placed on timing (i.e., will not wait until the growing season to restore.

Parcel D (Phase 2 Development) – Included as part of this application

Parcel D includes the construction of an administration/security building, parking and laydown yard. There will be no staging, storing or management of offshore wind components at Parcel D. Parcel D is located in the eastern portion of the PSEG Nuclear property adjacent to the main Station access road. There will be no freshwater or tidal wetland impacts associated with development in this parcel.

Parcel E (Phase 2 Development) – Included as part of this application

Parcel E is the location of the proposed upland CDF supporting NJWP and PSEG Nuclear maintenance dredge and desilting needs. The proposed 51-acre development is in an area of the PSEG Nuclear property currently used for stockpiling of construction related materials for the NJWP. Prior to the most recent activities, the area was used for material stockpiling for past construction projects by PSEG Nuclear. Wetland impacts will be limited to 0.73-acres of permanent freshwater wetlands. Freshwater wetlands impacts as part of the development are small, isolated wetlands located along roadways cut through the area. These freshwater wetlands are topographic low spots the contain ponded water and non-native invasive Common reed. Several of these areas are located within the development footprint. Minor tidal wetland impacts will be required along the Delaware River shoreline that will be used for the discharge location for the proposed upland CDF.

These unavoidable wetland impacts are located within the footprint of the proposed development. A review of different configurations to try and limit or eliminate impacts was conducted, but due to the need to accommodate large reoccurring quantities of maintenance dredge material, these reduced footprint configurations would result in insufficient capacity for dredge material placement. However, it should be noted that the limited habitat value for freshwater wetlands lost as part of the proposed development are likely to be compensated for by ponding and vegetation growth in and around the proposed CDF. While not regulated as wetlands, upland CDFs often take on similar characteristics and can provide some value as habitat. Tidal wetland impacts are necessary to accommodate the discharge back to the Delaware River. By the very nature of how a CDF operates, a connection to the water or a wetland area would be required. The location selected for the proposed discharge is in an area of Artificial Island that is already disturbed due to the presence of the PSEG Nuclear Salem and Hope Creek Generating Station.

Additionally, due to years of erosion, the tidal wetland area is limited to areas of exposed sand and stands of invasive Common reed. It should be noted that the original proposal for development included two (2) upland CDFs. One would support PSEG Nuclear, and he second would support the NJWP. Two CDFs would have required two discharge points and double the tidal wetland impacts. The design proposed as part of this application includes a single CDF with internal separation dikes intended to support both the NJWP and PSEG Nuclear. The single CDF design approach has half the tidal wetland impacts since only a single discharge point is proposed.

Total impacts associated with the full Phase 2 development will include 9.17-acres of temporary wetland impacts and 3.31-acres of permanent wetland impacts. These areas have been minimized as much as possible to support the proposed development. The

location on Artificial Island was specifically selected due to the presence of areas suitable for development with limited areas of wetland or other sensitive areas. Wetlands that are present are generally of lower quality and consist primarily of dense areas of invasive Common reed. Where possible, temporary disturbances and proposed restoration are incorporated, thereby reducing total overall impacts

In-Water Impacts (Dredging and Filling)

The berthing areas will be supported by 4,978 30-inch square concrete pre-cast piles. 2,186 of these piles are located below the MHW line, resulting in 13,660 square feet (SF) of permanent in-water impacts.

The berthing areas extend 57 feet waterward of the bulkhead line, overhanging the Delaware River and supported by concrete piles, reducing the amount of in-water filling required to support the proposed platforms. The approximately 3.99-acres of wetland and intertidal mudflat that is currently east of the existing timber bulkhead will be excavated to create open water area beneath the overhanging berthing platforms. This will allow for the installation of the rip rap revetment waterward of the sheet pile wall. This activity will result in approximately 4.72-acres of new water area. Beneath the overhang of the berthing platforms, the slope will be protected by 4 feet of rip rap revetment along a 3:1 slope extending waterward just past the fender to an elevation of -39.5 feet NAVD 88.

The proposed project involves the construction of a second marshalling port as well as manufacturing/assembly facilities to support offshore wind construction projects. Operation of the expanded NJWP requires additional dredging of the existing access channel (increased depth, not area) an expanded berthing pocket and a new turning basin that will allow passage of vessels to and from the Port to both deliver materials to the port and then out to the offshore wind construction areas.

The adjacent water areas of the Delaware River are currently used for recreational boating, commercial fishing, and marine commerce in compliance with this policy. This portion of the Delaware River is generally industrial in nature and does not sustain large shellfish populations or submerged aquatic vegetation that would be impacted by the project. Although the project will result in impacts to wetlands and riparian vegetation, NJEDA proposes to mitigate for these impacts through the purchase of mitigation bank credits, as described in detail in Section VI of this application. As demonstrated in the alternatives analysis in Section III of this application, the dredging has been minimized to the greatest extent practicable. Optimization design considerations include utilization of the existing access channel for all vessel traffic instead of construction of a second channel, minimization of the width of the berthing area, and incorporation of a tugboat shelf (depth reduction). It is estimated that optimization efforts have reduced the total area of dredging by at least 60-acres and over 1,000,000 cy (Figure 7).

The maximum depth of the newly dredged area will be approximately -39.5 feet NAVD 88 to allow for the passage of the delivery and installation barges to support offshore wind construction. In accordance with NOAA Navigation Chart No 12311, the maintained depth of the Baker Range Channel, is 40 feet below mean low low water

(MLLW), or approximately -48 to -50 feet NAVD 88 in accordance with project survey data (Figure 8).

Hydraulic dredging methods will be utilized for the largest extent of proposed dredging, which results in lower sedimentation impacts than mechanical means. Various options for removal of material were evaluated prior to the selection of hydraulic dredge. The nature of hydraulic dredging allows for a reduced project duration, reduced sedimentation, and the ability to transport directly to the proposed reuse location. Mechanical dredging would have taken longer which increases the risk of impact, would require double handling of the material (also increasing the risk of impact), limited the ability to beneficially reuse the material and resulted in increased sedimentation in the work area.

The project proposes the use of a cutter suction dredge (CSD) which sucks dredged material through the intake pipe at one end and then pushes it out the discharge pipeline directly into the placement site. Since a CSD pumps directly to the placement site, it operates continuously and can be very cost-efficient. Most CSDs have a cutterhead on the suction end. A cutterhead is a mechanical device that has rotating blades or teeth to break up or loosen the bottom material so that it can be sucked through the dredge. Some cutterheads are rugged enough to break up rock for removal. A CSD may be mounted (fastened) to a barge, not self-powered, towed to the dredging site, and then secured in place by special anchor piling, called spuds.

A CSD is able to work in a range of water depths and has the ability to dig its own flotation if the existing ground is very shallow or above water. It is very efficient in areas with thick shoals, where the cutterhead is buried in the bottom. Water pumped with the dredged material is contained in the placement site until the solids settle out. Once sufficient settlement of suspended solids is complete, the water is returned to the waterway.

A CSD comprises the cutterhead, the spuds, the pipeline and the pontoons to float the pipeline. The connection of the spuds and cutterhead to the waterway floor, along with the floating pipeline, may sometimes limit a CSD's ability to maneuver during inclement weather conditions.

CSD operators can adjust their approach to projects depending on the season by using anchors to help "walk" the vessel forward and efficiently utilize the floating pipeline.

Generally, the cutterhead will not be removed during the project. The pipeline is always completely flushed out prior to disconnecting. The depth of cut is approximately the diameter of the cutterhead.

Limited mechanical dredging (estimated at approximately 500,000 cy) will be required at the berth slope. For this, a clamshell dredge, or similar, will be used. The material excavated is placed in scows or hopper barges that are towed to the disposal area, where it will be unloaded using hydraulic equipment.

The proposed dredging is not anticipated to result in adverse impacts on groundwater resources. Based on the sample analysis conducted for the Delaware River sediment December 2022 through January 2023, the sediment does not contain contaminants at

levels that exceed the NJDEP Residential or Non-Residential Soil Cleanup Criteria. A summary of the analytical results is provided. Full copies of the analytical laboratory reports are provided as Attachment D.

Dredging will occur within wetlands to establish the rip rap armored shoreline beneath the berthing platforms. The proposed slope from this 10-foot buffer to the nearest edge of the dredged area shall not exceed three vertical to one horizontal, in compliance with this policy.

The dredged material will be beneficially used at the Stoney Point wetland creation site located along the southern shoreline of Artificial Island. The wetland creation site will allow for the use of dredge material to create additional high and low-marsh habitat in areas that have seen drastic reductions in habitat due to erosion and sea level rise. Additional, shoreline areas within the Mad Horse Creek Wildlife Management area will be supplemented with material to restore historic marsh edge coastal wetlands mapped by the 1977 NJDEP tidelands mapping.

The project area is a known spawning, wintering or nursery area of Shortnose sturgeon, winter flounder, Atlantic sturgeon, alewife, blueback herring, striped bass and blue crab. A list of species occurring in the project area is provided in Table 1. Attachment E discusses these species in the context of NMFS Essential Fish Habitat and Biological Evaluation. Project impacts to sturgeon include dredging, increased vessel traffic, and pile driving, and are summarized above under and are detailed in Attachment E (Essential Fish Habitat and Biological Evaluation). The "plume" associated with the dredging activity will be small and localized compared to the 2.6-mile width of the Delaware River at the project location and is not expected to result in any blockage or deterrent to upstream or downstream migration. In addition, because the projected is located at the turbidity maximum of the estuary, the localized and temporary increases in suspended sediment are not expected to affect the larvae and juveniles of these species because they are adapted to the high levels of background suspended sediments in the river. Finally, NJEDA will work with NJDEP to adhere to any appropriate seasonal timing restrictions to protect these species.

Impacts Summary and Mitigation

The total area of disturbance for the Project include approximately 180 acres (80 of which was previously dredged as part of Phase 1 activities) of in-water and approximately 155 acres of land areas spread across six (6) distinct sites located on Artificial Island. Development of the project will result in both temporary and permanent impacts to coastal wetlands and freshwater wetlands for which a Coastal Wetland Individual Permit and Freshwater Wetland Individual Permit are being requested from NJDEP. Additionally, construction activities associated with the project will result in impacts to intertidal and subtidal shallows, riparian zone vegetation, and the creation of open water. A summary of proposed impacts resulting from the development of the Project is listed in the Table A below. Plans showing all proposed impacts prepared by Moffatt & Nichol are included in Attachment F.

Table A: Proposed Impacts From NJWP – Phase 2 Development

	Intertidal & Subtidal Shallows	Riparian Zone Vegetation	Open Water Creation	FWW Impacts		FWW TA Impacts		CW Impacts (Landside)		CW Impacts (Waterside)	
				Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp
Parcel B1	1.88	--	3.02	--	--	--	--	1.33	4.25	1.45	--
Parcel B2	0.06	0.02	1.70	--	--	--	--	0.08	2.50	0.60	--
Parcel C2	--	--	--	--	--	--	--	0.90	3.28	--	--
Parcel D	--	--	--	0.23	0.03	0.52	0.09	--	--	--	--
Parcel E	--	--	--	0.73	--	1.68	--	--	--	--	--
SPBUA	20.15	--	--	--	--	--	--	--	--	.02	--
Total	**22.09**	**0.02**	**4.72**	**0.96**	**0.03**	**2.19**	**0.09**	**2.31**	**10.02**	**2.28**	**0.00**

Notes:
1) FWW = Freshwater Wetland; TA = Transition Area; CW=Coastal Wetland; Perm = Permanent; Temp = Temporary; SPBUA = Stoney Point Beneficial Use Area
2) All values presented as acreage

The proposed development is consistent with the policies listed in Section 5.1 - Wetlands Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

B. Beach Management

The proposed project does not involve any work within public or private beaches of Delaware. It should be noted that areas along the southern shorelines of Artificial Island in New Jersey meet the definition of a Beach. These areas are located on undeveloped sections of the shoreline where no erosion protection structures are located. The areas are influenced by the tidal Delaware River and covered in sand and native vegetation. The majority of the proposed development activities associated with the Port are located in the northern part of the Station and will not impact these beach areas. Additionally, operation of the Port will not result in adverse impacts to these beach areas as the approach channel is located to the north of areas identified as a beach. The beaches located along the southern shoreline of Artificial Island are present within the proposed Stoney Point Beneficial Use wetland creation site. Dredge material from the development of the project will be beneficially used at the Stoney Point wetland creation to restore tidal wetlands. While impacts to beaches will be temporary, the wetland creation site will allow for the use of dredge material to create additional high and low-marsh habitat in areas that have seen drastic reductions in habitat due to erosion and sea level rise and restore historic marsh edge coastal wetlands mapped by the 1977 NJDEP tidelands mapping. This newly created marsh would provide habitat for various native species including threatened and endangered species like the Salt marsh sparrow and Northern harrier. As an added benefit, the proposed wetland creation and shoreline restoration will provide a buffer against continued erosion and impacts of sea level rise on the single access road serving the PSEG Nuclear Salem and Hope Creek Generating Station and NJWP.

The proposed development is consistent with the policies listed in Section 5.2 Beach Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

C. Coastal Waters Management

The Port development is being proposed to support economic development, which is beneficial to the State of New Jersey. In addition, the use of the Port will support the construction of clean energy within the northeast and mid-Atlantic, which ultimately benefits the entire region. The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3) and therefore will not alter the use of any public recreational facilities associated with the Delaware River.

The proposed project will be located on developed portions of Artificial Island and within the site boundary of the Salem and Hope Creek Generating Station. The proposed Port will only discharge treated stormwater into the Delaware River and will not require intake of water from the river. The NJWP development includes a new stormwater collection, conveyance and treatment system to address stormwater from the 155-acre development. The proposed stormwater management system has been designed to adequately collect, treat locally, and convey channelized runoff from the development site to satisfy all applicable NJDEP stormwater management requirements for major development using both structural and non-structural best management practices (BMPs). Proposed features include: cover stabilization practices, a stormwater collection and conveyance system, green infrastructure and manufactured treatment devices, and discharge control practices. Treated stormwater effluent will ultimately be discharged into the Delaware River via outfalls. Stormwater outfalls were sized and located to facilitate the green infrastructure requirement and drainage area restriction so as to create efficiently sized conveyance networks throughout each site. Each outfall will consist of a discharge pipe, a backflow preventer, and a riprap apron (for energy dissipation and scour protection). Five outfalls within sites B1 and B2 will discharge directly to the Delaware River through the wharf. Five eastern outfalls within sites B1 and B2 will discharge directly to the adjacent tidal wetlands. Five outfalls from Parcel C2 will discharge to the north and east of the site just past the tidal wetland boundary to ensure the hydraulic connection to the tidal system. Finally, the stormwater network within Site D will combine internally, cross the Atlantic City Electric (ACE) easement to the north, and tie in directly to the conveyance network in Parcel G that discharges to the tidal wetland to the north of that parcel. Details of the stormwater management system is provided in greater detail in Attachment F, Stormwater Management Report, prepared by Moffatt and Nichol, dated January 31, 2023.

Operations at the facility will be limited to unloading of wind turbine components from ocean going delivery vessels, final preparation of components, and loading of components onto installation vessels for offshore installation. Final stage manufacturing is also expected to occur at proposed facilities of the expanded port but will be limited to

final assembly of components. As a result, use of hazardous materials, generation of hazardous wastes or hazardous operations are not expected at the facility. Small quantities of diesel fuel or common industrial materials will be stored and utilized periodically at the Port or associated manufacturing facilities. There will be no storage of fuel on site intended to resupply delivery or installation vessels. The resulting minimal storage of petroleum and potentially hazardous materials/wastes will limit the potential risk for discharge to the ground or open waters via the stormwater collection and conveyance system.

The proposed dredging is not anticipated to result in adverse impacts on surface water resources. Based on the sample analysis conducted for the Delaware River sediment December 2022 through January 2023, the sediment does not contain contaminants at levels that exceed the NJDEP Residential or Non-Residential Soil Cleanup Criteria. In addition, the dredging activity will minimize impacts from sedimentation and exposure to contaminated materials through the use of hydraulic dredging techniques. Hydraulic dredging methods will be utilized for the largest extent of proposed dredging, which results in lower sedimentation impacts than mechanical means. Various options for removal of material were evaluated prior to the selection of hydraulic dredge. The biggest factor in this evaluation was disposal options. Phase 1 port development dredging utilized former USACE Artificial Island CDF Cell No.3 (transferred to PSEG Nuclear and sold to NJEDA) for management of the majority of spoils from hydraulic dredging. Proximity to the management facility was a significant economic factor with the project. Portions of the material are also being utilized for beneficial use within the Abbots Meadow WMA (authorized under separate action) as well. Dredge material management for Phase 2 NJWP development will utilize a proposed beneficial use project located south of Artificial Island which allow for the creation of new tidal wetland habitat and restoration of historic shoreline habitat lost due to erosion. Proximity to these areas lends itself to direct placement via hydraulic dredge methodology. Limited mechanical dredging (estimated at approximately 550,000 cy) will be required at the berth slope. For this, a clamshell dredge, or similar, will be used. The material excavated is placed in scows or hopper barges that are towed to the disposal area, where it will be unloaded using hydraulic equipment.

The Proposed Port will be located on Artificial Island and within the interior portions of the Salem and Hope Creek Generating Station. Due to the sensitive nature of the Nuclear power generating facility and the inherent security and safety considerations, public access has previously and will continue to be restricted to authorized personnel only. Public access to the facility and associated lands is not possible and could result in significant public security and safety issues. PSEG Nuclear has previously developed and currently manages a series of public access facilities associated with the Estuary Enhancement Project which included restoration of large areas of coastal wetland communities and management of public access fishing piers, interpretive boardwalks and boat ramps. These public access facilities are located in the immediate vicinity of the Salem and Hope Creek Station as well as regional within the Delaware Estuary. The proposed development will not resulted in impacts to the existing security and safety

considerations which prevent public access to the facility or limitations on pre-existing public access facilities managed by PSEG Nuclear.

Although the project involves aquatic impacts within the Delaware River, the majority of the impacts will be temporary in nature, allowing the river to return to its pre-existing habitat. Section K below provides a summary of the project's impact to fish and wildlife habitat.

1. Marinas

The Port will be utilized for the receipt, assembly, and eventual delivery of offshore wind turbine components. Vessels will only moor at the Port for the transfer of this equipment. The Port will not include facilities for vessels maintenance, such as sanitary pump-out facilities, dump stations, or fueling stations.

Operations at the facility will be limited to unloading of wind turbine components from ocean going delivery vessels, final assembly and preparation of components, and loading of components onto installation vessels for offshore installation. Overwater fueling will not occur with vessels moored at the facility. Additionally, no large scale painting, coating or fabrication of materials, components, or equipment will be conducted at the facility. As a result, large quantity storage of hazardous or potentially hazardous materials or wastes will be required at the facilities. Small quantities of diesel fuel will be stored at the facility and used for fueling of onsite equipment and vehicles. There will be no storage of fuel on site intended to resupply delivery or installation vessels. The resulting minimal storage of petroleum and potentially hazardous materials/wastes will limit the potential risk for discharge to the ground or open waters via the stormwater collection and conveyance system.

Vessels docking at the proposed Port may use dynamic positioning thrusters to maneuver, which could disturb benthic habitat by disturbing or displacing areas of the river bed and the benthic invertebrate community in the turning basin and berthing areas. However, the affected area would be small relative to the available benthic foraging habitat in the Estuary, and the benthic community would be expected to recolonize the disturbed area. Therefore, benthic disturbance associated with increased vessel traffic are not expected to significantly alter prey availability for sea turtles or sturgeons. The habitats within the project area that will be affected by construction activities in the Delaware River include muddy bottom habitat, pelagic waters, estuarine bottom habitat, and bottom waters. Direct impacts may occur from loss of habitat, exposure to fine sediments, or scour from propellers. Most of the impacts would be to immobile benthic organisms; however, once these areas have been dredged, some of the benthic organisms will recolonize the dredged area. Fish and other mobile organism will likely avoid these areas during construction activities and impacts are mostly limited to temporary displacement. However, compared with the availability of comparable habitats in the Delaware Bay, the impacts to aquatic habitats and species in this area are expected to be minor. Dredging activities within the approach channel, turning basin and berthing pockets will encompass an area of 180-acres (80-acres approved as part of Phase 1 development) and result in the permanent loss of approximately 100 acres of aquatic habitat and temporary alteration of additional habitat; however no aquatic habitats in the

Delaware River adjacent to the PSEG Nuclear property are known to be rare, unique, or essential. Mobile organisms like fish are temporarily displaced by the habitat changes, while individuals of non-mobile species like benthic invertebrates are lost. These species will likely compensate for these losses by returning to the areas after disturbances have ceased, and any impacts associated with this loss or alteration of aquatic habitat are also expected to be minor. In addition, for USACE-and NJDEP-regulated habitats (e.g., jurisdictional wetlands, intertidal, subtidal shallows, etc.), NJEDA will comply with all conditions of applicable environmental permits designed to minimize impacts associated with fills and dredging, and will mitigate for the loss of regulated resources at required ratios.

The proposed development is consistent with the policies listed in Section 5.3 Coastal Waters Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

D. Subaqueous Lands and Coastal Strip Management

In accordance with the Federal Consistency Policy and Procedures, *the "coastal zone", referred to in these policies as the "coastal strip", is defined as all that area of the State, whether land, water or subaqueous land between the territorial limits of Delaware in the Delaware River, Delaware Bay and Atlantic Ocean, and a line formed by certain Delaware highways and roads*. Because the project is located within the regulatory limits of the State of New Jersey, the project does not meet the definition of the coastal strip. However, it should be noted that in accordance with this policy, the project does not propose new manufacturing or heavy industrial uses or mineral exploration along the Delaware River. Operations at the facility will be limited to unloading of wind turbine components from ocean going delivery vessels, final preparation and assembly of components, and loading of components onto installation vessels for offshore installation. No large scale painting, coating or fabrication of materials, components, or equipment will be conducted at the facility.

In addition, the proposed dredging to support the project will meet the conditions of the policy and will be directly transferred to an approved disposal area. Dredge material management for Phase 2 NJWP development will utilize a proposed beneficial use project located south of Artificial Island which allow for the creation of new tidal wetland habitat and restoration of historic shoreline habitat lost due to erosion. All appropriate permits and authorizations will be obtained prior to the disposal of dredge material and commencement of restoration activities.

The project does not involve dredging of biologically productive areas, such as nursery areas, shellfish beds, and submerged aquatic vegetation. As such, the dredging activities will not have a significant or lasting impact on the biological productivity of the area. In addition, the proposed dredging depth is approximately -39.5 ft. MLLW, which the project depth of the Federal Channel in the Delaware River is -45 ft. MLLW.

The proposed development is consistent with the policies listed in Section 5.4 Subaqueous Lands and Coastal Strip Management of the Delaware Coastal Management

Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

E. Public Lands Management

The project does not propose development on public lands. The proposed activities are completely located within property owned or leased by the NJEDA and PSEG and will not be located on lands that are used for or dedicated to conservation of natural resources, public recreation, visual or physical public access, wildlife protection or management. Restoration activities are proposed at the Stoney Point Beneficial Use wetland creation site, and all appropriate permits and authorizations will be obtained prior to the disposal of dredge material and commencement of restoration activities.

The proposed development is consistent with the policies listed in Section 5.5 Public Lands Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

F. Natural Areas Management

NJEDA is proposing to beneficially use dredge material from the proposed Phase 2 development of NJWP. It is estimated that 4,000,000 cubic yards of material will be dredged over the course of two stages of hydraulic dredging for the expanded NJWP development. A beneficial use site has been identified along the southern shoreline of Artificial Island and along the eroded shoreline of the Mad Horse Creek WMA. The Stoney Point beneficial use project would be a two phased project that would result in nearly 180-acres of newly created tidal marsh habitat along the southern end of Artificial Island. This newly created marsh would provide habitat for various native species including threatened and endangered species like the Salt marsh sparrow and Northern harrier. The project would also restore thousands of linear feet of eroded tidal marsh shoreline to pre-1977 mapped limits. As an added benefit, the proposed wetland creation and shoreline restoration will provide a buffer against continued erosion and impacts of sea level rise on the single access road serving the PSEG Nuclear Salem and Hope Creek Generating Station and NJWP. Additional details regarding the proposed beneficial use project are included in Attachment H.

The proposed development is consistent with the policies listed in Section 5.6 Natural Areas Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

G. Flood Hazard Areas Management

As demonstrated in the application submitted to the NJDEP DLUR for a Coastal Area Facilities Review Act (CAFRA), Coastal Wetlands, Freshwater Wetlands, and In-Water Waterfront Development Individual Permit, the project will comply with the requirements set forth in the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13.

The following sections demonstrate the project's compliance with the NJDEP Food Hazard Area Control Act Rules.

The flood hazard area design flood elevation is equal to the FEMA 100-year flood elevation at the project site location (Zone AE). Method 2 (FEMA tidal method) for delineating the flood hazard area is applicable due to the fact that the project area is located within the tidal zone of the Delaware River for which flood elevations have been established by FEMA. In accordance with N.J.A.C. 7:13-3.4(d), the flood hazard area design flood elevation is equal to the FEMA 100-year flood elevation of 9.0 feet NAVD88 (as shown on Figure 9) and the floodway limit is the top of the Delaware River bank at the site.

Figure 9 shows the location of the FEMA delineated 100-year (AE, 1% annual chance of occurrence) floodplain and the 500-year (X, 0.2% annual chance of occurrence) floodplain at the site. However, as illustrated in Figure 9, much of the proposed development area is located within the 100-year and 500-year floodplain. According to the Flood Insurance Rate Map (FEMA FIRM Panel No. 34033CO256C, dated 6/16/2016), the 100-year flood elevation is 9.0 feet NAVD88 at the site. As noted, all elevations in this report reference the National Geodetic Vertical Datum of 1988. The lower elevations are stillwater elevations and the higher elevations (13 feet NAVD88) are due to wave runup in areas mapped as the "VE" Zone along the Delaware River shoreline. Figure 9 also shows the FEMA-delineated limit of moderate wave action ("VE" Zone) which is associated with conditions that presently exist on the site. Transect 3 on page 25 of the Flood Insurance Study gives the 500-year flood stillwater elevation (highest value in range) as 10.8 feet.

Areas of the proposed wharf located along the Delaware River within Parcels B1 and B2 Port will be protected from high velocity waters by the proposed steel sheet pile wall. A 3-foot sheet pile wall cap is proposed at the top of the steel sheet pile wall extending to an elevation of approximately 12.5 feet NAVD 88. Accordingly, the proposed sheet pile bulkhead wall and cap have been designed to resist the impact of storm surge. In addition, the concrete pile-supported berthing platforms have been designed to withstand the forces of high velocity waters.

The preposed development within Areas B1, B2, and C2 are located within flood flood hazard areas (elevation 9 feet NAVD 88) regulated under the Flood Hazard Area Control Act Rules at N.J.A.C. 7:13. The proposed improvements do not require significant excavations or require the construction of a basement or other subsurface structures that would be located below the 100 year flood elevation. Following surcharge activities, the elevations within the proposed development areas will be raised above the flood hazard elevations as shown on the attached Engineering Design Drawings prepared by Moffatt & Nichol, dated November 4, 2022 (Attachment A).

7:13-11.1 Requirements for a regulated activity in a channel

The proposed project involves the construction of a second marshalling port as well as manufacturing/assembly facilities to support offshore wind construction projects. Operation of the expanded NJWP requires additional dredging of the existing access

channel (increased depth, not area) an expanded berthing pocket and a new turning basin that will allow passage of vessels to and from the Port to both deliver materials to the port and then out to the offshore wind construction areas (Figure 10).

The adjacent water areas of the Delaware River are currently used for recreational boating, commercial fishing, and marine commerce in compliance with this policy. This portion of the Delaware River is generally industrial in nature, and does not sustain large shellfish populations or submerged aquatic vegetation that would be impacted by the project. Although the project will result in impacts to coastal wetlands and riparian vegetation, NJEDA proposes to mitigate for these impacts through the purchase of mitigation bank credits. As demonstrated in this application, the dredging has been minimized to the greatest extent practicable. Optimization design considerations include utilization of the existing access channel for all vessel traffic instead of construction of a second channel, minimization of the width of the berthing area, and incorporation of a tugboat shelf (depth reduction). It is estimated that optimization efforts have reduced the total area of dredging by at least 60-acres and over 1,000,000 cy (Figure 7).

The maximum depth of the newly dredged area will be approximately -39.5 feet NAVD 88 to allow for the passage of the delivery and installation barges to support offshore wind construction. In accordance with NOAA Navigation Chart No 12311, the maintained depth of the Baker Range Channel, is 40 feet below mean low low water (MLLW), or approximately -48 to -50 feet NAVD 88 in accordance with project survey data (Figure 8).

Hydraulic dredging methods will be utilized for the largest extent of proposed dredging, which results in lower sedimentation impacts than mechanical means. Various options for removal of material were evaluated prior to the selection of hydraulic dredge. The nature of hydraulic dredging allows for a reduced project duration, reduced sedimentation, and the ability to transport directly to the proposed reuse location. Mechanical dredging would have taken longer which increases the risk of impact, would require double handling of the material (also increasing the risk of impact), limited the ability to beneficially reuse the material and resulted in increased sedimentation in the work area.

The project proposes the use of a cutter suction dredge (CSD) which sucks dredged material through the intake pipe at one end and then pushes it out the discharge pipeline directly into the placement site. Since a CSD pumps directly to the placement site, it operates continuously and can be very cost-efficient. Most CSDs have a cutterhead on the suction end. A cutterhead is a mechanical device that has rotating blades or teeth to break up or loosen the bottom material so that it can be sucked through the dredge. Some cutterheads are rugged enough to break up rock for removal. A CSD may be mounted (fastened) to a barge, not self-powered, towed to the dredging site, and then secured in place by special anchor piling, called spuds.

A CSD is able to work in a range of water depths and has the ability to dig its own flotation if the existing ground is very shallow or above water. It is very efficient in areas with thick shoals, where the cutterhead is buried in the bottom. Water pumped with the dredged material is contained in the placement site until the solids settle out.

Once sufficient settlement of suspended solids is complete, the water is returned to the waterway.

A CSD comprises the cutterhead, the spuds, the pipeline and the pontoons to float the pipeline. The connection of the spuds and cutterhead to the waterway floor, along with the floating pipeline, may sometimes limit a CSD's ability to maneuver during inclement weather conditions.

CSD operators can adjust their approach to projects depending on the season by using anchors to help "walk" the vessel forward and efficiently utilize the floating pipeline.

Generally, the cutterhead will not be removed during the project. The pipeline is always completely flushed out prior to disconnecting. The depth of cut is approximately the diameter of the cutterhead.

Limited mechanical dredging (estimated at approximately 500,000 cy) will be required at the berth slope. For this, a clamshell dredge, or similar, will be used. The material excavated is placed in scows or hopper barges that are towed to the disposal area, where it will be unloaded using hydraulic equipment.

The proposed dredging is not anticipated to result in adverse impacts on groundwater resources. Based on the sample analysis conducted for the Delaware River sediment December 2022 through January 2023, the sediment does not contain contaminants at levels that exceed the NJDEP Residential or Non-Residential Soil Cleanup Criteria. A summary of the analytical results is provided. Full copies of the analytical laboratory reports are provided as Attachment D.

Dredging will occur within wetlands to establish the rip rap armored shoreline beneath the berthing platforms. The proposed slope from this 10-foot buffer to the nearest edge of the dredged area shall not exceed three vertical to one horizontal, in compliance with this policy.

The dredged material will be beneficially used at the Stoney Point wetland creation site located along the southern shoreline of Artificial Island. The wetland creation site will allow for the use of dredge material to create additional high and low-marsh habitat in areas that have seen drastic reductions in habitat due to erosion and sea level rise. Additional, shoreline areas within the Mad Horse Creek Wildlife Management area will be supplemented with material to restore historic marsh edge coastal wetlands mapped by the 1977 NJDEP tidelands mapping.

The project area is a known spawning, wintering or nursery area of Shortnose sturgeon, winter flounder, Atlantic sturgeon, alewife, blueback herring, striped bass and blue crab. A list of species occurring in the project area is provided in Table 1. Attachment E discusses these species in the context of NMFS Essential Fish Habitat and Biological Evaluation. Project impacts to sturgeon include dredging, increased vessel traffic, and pile driving, and are summarized above under and are detailed in Attachment E (Essential Fish Habitat and Biological Evaluation). The "plume" associated with the dredging activity will be small and localized compared to the 2.6-mile width of the Delaware River at the project location and is not expected to result in any blockage or deterrent to upstream or downstream migration. In addition, because the projected is

located at the turbidity maximum of the estuary, the localized and temporary increases in suspended sediment are not expected to affect the larvae and juveniles of these species because they are adapted to the high levels of background suspended sediments in the river. Finally, NJEDA will work with NJDEP to adhere to any appropriate seasonal timing restrictions to protect these species.

Accordingly, compliance with **N.J.A.C 7:13-11.1** is met, and PSEG requests conditional approval of the proposed dredging activity.

7:13-11.3 Requirements for a regulated activity in a floodway

In accordance with N.J.A.C. 7:13-3.4(d), the floodway limit is the top of the Delaware River bank at the site.

The berthing platforms that extend waterward of the bulkhead line along the wharf development in Parcels B1 and B2 will be pile-supported and will overhang the open water of the Delaware River floodway. The project does not involve filling of the floodway to create new land area. Alternatively, the project proposes to create new open water areas up to the bulkhead line. The project proposes to deepen the ground elevation within the floodway to allow for the passage of delivery and installation vessels to support offshore wind construction projects. In addition, the project will not obstruct the passage of floodwaters in the floodway, and the Delaware River within the project area is tidal, and the project will actually result in a 4.72-acre increase in open water area. Therefore, the project is in compliance with requirements set forth in **N.J.A.C. 7:13-11.3**.

7:13-11.4 Requirements for a regulated activity in a flood fringe

In accordance with 7:13-11.4(d), project within a tidal flood fringe are not subject to the flood storage volume displacement limits of this section.

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.4**.

7:13-11.5 Requirements for a regulated activity in or along a water with fishery resources

As discussed above under 7:7-9.4 Prime Fishing Areas, 7:7-9.5 Finfish Migratory Pathways, and 7:7-9.36 Endangered or Threatened Wildlife or Plant Species Habitats, the project area contains fishery resources. Impacts to these resources are summarized under the applicable policies, and are detailed in Attachment E (Biological Asessment of Potential Impacts to Sturgeon, Sea Turtles, and Marine Mammals; and Essential Fish Habitat Assessment).

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.4.**

7:13-11.6 Requirements for a regulated activity in a documented habitat for threatened or endangered species

As discussed in the compliance statement for N.J.A.C. 7:7-9.36, Endangered or Threatened Wildlife or Plant Species Habitats, the proposed Phase 2 development area contains areas mapped as potential habitat for threatened and/or endangered species by NJDEP Landscape Project. However, because the areas of proposed disturbance are

limited to previously disturbed areas comprised of open land or vegetated areas consisting of dense stands of the invasive Common Reed (*Phragmites australis*), it is not anticipated that these area provides suitable foraging or nesting habitat for the Bald Eagle or foraging habitat for the Great Blue Heron, as mapped by Landscape Project. As such, adverse impacts to threatened and/or endangered species or associated habitat is not anticipated as a result of the proposed project.

Therefore, the project is in compliance with **N.J.A.C. 7:13-11.6**.

7:13-12.2 Requirements for stormwater management

This project is located on an existing industrial site immediately adjacent to the tidal waters of the Delaware River. Accordingly, no groundwater recharge is proposed in accordance with N.J.A.C. 7:8-5.4(a)2.iii. The project is exempt from the runoff quantity standards in accordance with N.J.A.C. 7:8-5.4(a)3.iv. The project meets the water quality standards using a manufactured treatment device approved by the State of New Jersey and which has been designed in accordance with the requirements of N.J.A.C. 7:8-5.5. Stormwater quality calculations are provided as required in Attachment G.

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.2**.

7:13-12.3 Requirements for excavation, fill and grading activities

The project involves filling to support the construction of laydown areas, an access road, and a light manufacturing facility for the NJWP above the flood hazard elevation. The project involves ground improvement such as gravel cover and asphalt to provide temporary construction support for offshore wind projects. Although the project area will be raised to maintain the site above the 100-year flood hazard elevation for storm hardening, the proposed development includes a stormwater management system that will collect, convey, and treat stormwater on the entire impervious area. The stormwater system will ensure water quality requirements are met for the ultimate discharge into the Delaware River and prevent overland flooding from stormwater.

The project does not involve slopes of greater than 50 percent. In addition, there are no existing structures within the project area that would be adversely affected by the proposed filling. In addition, the proposed project will not impact existing structures of the Salem and Hope Creek Generating Station including the stormwater facilities.

The project development requires minimal excavation for the installation of the stormwater system. The soils from these excavations will be utilized as fill onsite to raise the site elevation, in addition to the surcharged material, as such, they will not require disposal. The approximately 4,000,000 cy of dredged spoils resulting from the proposed dredging activities are planned to be used at the Stoney Point beneficial use area for the creation of 180-acres of newly created tidal marsh habitat along the southern end of Artificial Island.

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.3**.

7:13-12.4 Requirements for a structure

The project involves the construction structures including the steel sheet pile bulkhead and the berthing platforms. These structures have been designed to withstand the pressures from floodwaters, including uplift, flotation, collapse and displacement due to hydrostatic and hydrodynamic forces resulting from the flood hazard area design flood. The berthing platform structures are pile-supported and will resist the structures are supported and will resist overturning and sliding pressure, as well as pressure from the freeze/thaw cycle of the soil. The steel sheet pile bulkhead wall has been designed to provide structural stability to the site and the proposed fill.

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.4**.

7:13-12.5 Requirements for a building

A 450,000 sf building to support the manufacturing for wind turbine blades is proposed within Parcel B2, which includes areas located within the flood hazard area. Prior to development of Parcel B2, the area will be surcharged to achieve the required design bearing capacities for the site. Following surcharge activities, the material will be removed leaving a final grade elevation of approximately 12' NAVD 88 which will raise the elevation of the site above the flood hazard area.

A 43,500 SF building to be used for NJWP administrative and security personnel is proposed within Parcel D. All areas of Parcel D are located outside of the regulated flood hazard area.

Therefore, no buildings are proposed within the flood hazard area and the project is in compliance with **N.J.A.C. 7:13-12.5**.

7:13-12.9 Requirements for a stormwater outfall structure

Stormwater outfalls were sized and located to facilitate the green infrastructure requirement and drainage area restriction so as to create efficiently sized conveyance networks throughout each site. Each outfall will consist of a discharge pipe, a backflow preventer, and a riprap apron (for energy dissipation and scour protection). Five outfalls within sites B1 and B2 will discharge directly to the Delaware River through the wharf. Five eastern outfalls within sites B1 and B2 will discharge directly to the adjacent tidal wetlands. Five outfalls from Parcel C2 will discharge to the north and east of the site just past the tidal wetland boundary to ensure the hydraulic connection to the tidal system. Finally, the stormwater network within Site D will combine internally, cross the ACE easement to the north, and tie in directly to the conveyance network in Parcel G that discharges to the tidal wetland to the north of that parcel. Details regarding the proposed stormwater management facilities and outfalls are described in greater detail in Appendix B

The proposed outfalls will be constructed with tide flaps to prevent backflow of tidal water during high tide events and will utilize the rip rap armoring along the sloped surface beneath the open deck wharf structure for energy dissipation to prevent downstream erosion. The slope at the base of the sheetpile bulkhead will be armored with a 3:1 slope of rip rap installed 4 feet thick and extends 57 feet waterward of the proposed bulkhead.

Because the Delaware River is tidal in this region, the quantity of stormwater will not affect the normal tidal flows of the river. In addition, the water quality will meet the requirements of the Stormwater Management Rules at N.J.A.C. 7:8 through treatment with the proposed MTDs. The stormwater calculations demonstration compliance with the water quality requirements are include as Attachment G.

Therefore, the project is in compliance with **N.J.A.C. 7:13-12.9**.

7:13-12.13 Requirements for a retaining wall or bulkhead

The steel sheet pile wall bulkhead will be advanced to a depth of -108 NAVD 88 to achieve stability. The bulkhead is designed to withstand displacement, overturning, and failure due to undermining and/or pressure from soil, water, and frost. The proposed bulkhead will be constructed of steel to be resistant to erosion as well as the possibility of a shifting bed and/or bank over time.

Based on the structural integrity of the proposed shoreline structures and associated armoring, the design of the new dredging channel, and the proposed stormwater conveyance system, compliance with **N.J.A.C. 7:7-9.25** is met.

The proposed development is consistent with the policies listed in Section 5.7 Flood Hazard Areas Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

H. Port of Wilmington

The proposed project will not affect the economic viability of the Port of Wilmington. The construction and operation of the NJWP will not adversely impact on-going operations of existing ports within the area. The proposed Port will be designed, constructed and operated to be utilized specifically to support offshore wind development projects. Typical duration of an offshore wind development ranges from 6 to 12 months. As a result, temporary increase in vessel traffic in the Delaware River will occur but is expected to be minimal as compared to the current volume of vessel traffic (less than 1% of current vessel traffic volume). Additionally, increases in vessel traffic will be periodic and dependent on active offshore wind development projects and manufacturing demand. In addition, no existing Port facilities are located adjacent to the proposed development and regional Port facilities will not be adversely impacted.

I. Woodlands and Agricultural Lands Management

1. Woodlands

The project does not involve impacts to woodlands. The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3). As such, the area consists primarily of historic and current dredge spoil materials, internal access drives (asphalt paved and gravel), containment berms, and compacted gravel laydown areas. Vegetation onsite is generally dominated by herbaceous and scrub/shrub species, with dense areas of the invasive Common reed (*Phragmites australis*). The shoreline is

generally comprised of shrub vegetation similarly dominated by dense stands of invasive Common reed. The impacts to existing vegetation are limited to herbaceous vegetation and shrubs and smaller trees along the existing developed shoreline. Therefore, this policy is not applicable to the project.

2. Silviculture

The project does not involve silviculture or associated timber production. Therefore, this policy is not applicable to the project.

3. Agricultural Lands

The project does not involve agricultural activities or impacts to agricultural lands. Therefore, this policy is not applicable to the project.

4. Tax Ditches

The project does not involve the tax ditches and will not impact tributaries to the Delaware River or alter the hydrology of the watershed. Therefore, this policy is not applicable to the project.

J. Historic and Cultural Areas Management

This section summarizes the status of the proposed project in compliance with Section 106 of the National Historic Preservation Act (NHPA) and other applicable legislation. Phase I and II archaeological studies and submerged cultural resources studies and a visual impact assessment have been completed and submitted to the New Jersey Historic Preservation Office (NJHPO) and Delaware State Historic Preservation Office (DESHPO) as appropriate. Additional information and further assessments were also developed and submitted as requested by NJHPO and DESHPO. NJHPO concluded in a memo to the NRC dated December 6, 2013 that no historic properties were affected by the project as described in the ESP application (which includes the location of the proposed Port development in its entirety) and subsequent cultural and historic submittals. Similarly, the DESHPO provided NRC a Finding of No Adverse Effects letter on September 25, 2013.

Figure 11 and 12 depicts NJHPO mapped resources within the vicinity of the Project. As shown, there are no mapped resources within three (3) miles of the proposed Port.

a. New Jersey Historic Preservation Office Review

i. Submerged Cultural Resources

In a letter to PSEG dated January 29, 2010, NJHPO concurred with the assessment of potential submerged cultural resources in the study area provided in *Submerged Cultural Resources Survey of a Proposed Barge Facility and Water Intake, PSEG Early Site Permit Environmental Review, Delaware River, Salem, NJ* (James et al. 2009). This study identifies four clusters of magnetic and/or sidescan targets (Clusters 1, 2, 3, and 4) suggestive of potential shipwreck remains on the floor of the Delaware River. The report recommends that if impacts to the potential shipwreck sites cannot be avoided, PSEG would need to conduct a Phase II underwater survey to evaluate the National Register of Historic Places (NRHP) eligibility of the sites and assess project impacts.

A Phase II Submerged Cultural Resources Study was completed and submitted to the NJHPO in February 2013. This study concluded that no significant submerged cultural resources were present in the study area. On October 28, 2013, the NJHPO concurred with the findings of the Phase II report.

ii. Archaeological Resources

In their March 11, 2010, NJHPO accepted the *Report of Phase I Archaeological Survey for Selected Portions of Two Proposed Access Roads, PSEG Early Site Permit Applications, Salem, NJ* (Brown et al. 2009) with the following requests:

- As the project moves forward, the "Large Field" area south of Field A, which contains a cluster of historic period and precontact period artifacts, should be considered a continuation of archaeological Site 28-SA-183. This site, as well as the other four archaeological sites identified in the Phase I study (28-SA-179, 28-SA-180, 28-SA-182, and 28-SA-186) should be considered NJ State and National Register eligible.
- A concentration of historic-period artifacts were identified just west of the archaeological APE in the vicinity of a structure on the 1842 coastal map. PSEG is required to submit a New Jersey State Museum (NJSM) Archaeological Site Form documenting the location of this site to the NJSM. This site should be identified in future project documents so that the resource can be avoided by any unforeseen, future project impacts. The requested Site File Form was subsequently submitted to and accepted by NJHPO.

The Phase I Study concluded that no archaeological sites were identified within the Alloway Creek Neck Road access Alternative APE, and NJHPO has concurred that no further archaeological study for this alternative is required. In order to assess the potential for the Money Island Road access alternative alignment to affect archaeological resources, the report concluded that it would be necessary to conduct a Phase II archaeological survey to determine if significant archaeological resources are present within the APE.

A Phase Phase IB/II archaeological study was subsequently prepared and submitted to NJHPO. NJDEP comments were documented in the October 28, 2013 letter to NRC, but after further discussions with PSEG regarding the ESP process and the timing and scope of future development, NJHPO concurred that there were no historic properties affected within the project's area of potential effect for the Early Site Permit application. It is suggested that due to the overlapping location and significantly smaller development footprint and scale, that similar interpretation with regards to the Port Development is appropriate.

iii. Architectural Resources

In a March 11, 2010 letter to PSEG, NJHPO requested that in order to continue consultation under Section 106 of the National Historic Preservation Act, it would be necessary to supplement the assessment provided in the *Draft Historic Properties Visual*

Impact Assessment PSEG Early Site Permit Application, Salem, NJ (Brown 2009) with the following materials:

- Intensive-Level Architectural Resources Survey [forms] to document three potential architectural resources in the architectural resources APE that could be visually impacted by the proposed project. These resources were previously identified as potentially S/NR-eligible but were never formally evaluated by NJHPO:
    - Abbott House (120 Abbott Farm Road)
    - John Mason House (63 Money Island Road)
    - Nathaniel Chambless House (277 Alloway Creek Neck Road)

Intensive-Level survey forms were subsequently prepared and submitted to NJHPO that documented these three properties and recommended them eligible for the New Jersey and National Registers. NJHPO accepted this submittal and concurred with its conclusions.

- The *Draft Historic Properties Visual Impact Assessment* identified four designated architectural resources from which the proposed cooling towers would likely be visible. In order to continue consultation under Section 106, NJHPO requested a formal assessment of effects on these architectural resources. If adverse visual effects are anticipated, NJHPO requests that PSEG continue to coordinate with their office to develop appropriate minimization and/or mitigation measures.

In a separate letter dated December 17, 2010, NJHPO provided comments to NRC on the *Draft Supplemental Environmental Impact Statement (DEIS) for the Salem and Hope Creek Nuclear Generating Stations License Renewal*. These comments included a request for additional architectural resources survey to identify historic resources that had not been previously reviewed by NJHPO but which meet the New Jersey and National Register (S/NR) criteria.

On March 16, 2011, a meeting was held with the NJHPO staff reviewers for this project at their offices in Trenton, NJ. At this meeting, NJHPO staff members recommended that in order to complete the Section 106 process, all architectural resources that could be affected by the proposed project, including previously unidentified resources that meet the S/NR eligibility, should be identified in a reconnaissance-level field survey and the potential for the proposed project to impact any such additional resources should evaluated in a revised *Historic Properties Visual Impact Assessment*. NJHPO suggested that in order to make this task more manageable, a smaller primary study area could be delineated that includes only locations likely to experience a substantial visual impact. A reconnaissance-level architectural resources survey could be limited to this smaller study area to determine the potential effects of the proposed project on potentially S/NR-eligible architectural resources. Based on NJHPO's informal internal guidelines for delineating APEs for cell tower projects, NJHPO suggested using a formula of 0.00833 times the height of a proposed feature to determine the radius (in miles) of the study area for the reconnaissance level survey. The application of this formula to the proposed

cooling tower's maximum height of 590 feet resulted in a study area delineation for the reconnaissance-level survey of 4.9 miles.

AKRF architectural historians conducted a reconnaissance-level architectural resources field survey of the 4.9-mile study area as part of an Addendum to the *Historic Properties Visual Impact Assessment.* This Addendum also addressed NJHPO's March 11, 2010 request for a formal assessment of the potential for adverse effects on historic resources. Two potential architectural resources that were not previously evaluated by NJHPO were identified in, or immediately adjacent to, this 4.9-mile study area as part of the reconnaissance-level survey. One, the Denn House, located at 112 Poplar Street in Lower Alloways Creek Township, is an early 18th century patterned brick house. This property is located approximately 4 miles northeast of the proposed cooling tower location. The property was included in the 2009 *Draft Historic Properties Visual Impact Assessment*. This report noted that the proposed cooling tower location was not visible from the property.

A second potentially S/NR-eligible architectural resource was identified at 349 Fort Elfsborg Road in Salem County. This residence exhibits elements of the Greek Revival and Italianate styles and appears to date to the mid-19th century. This structure is located immediately north of the 4.9-mile study area, however a portion of the parcel on which the structure stands appears to be located within the 4.9-mile study area. The structure was not identified in the 2009 *Draft Historic Properties Visual Impact Assessment*. Based on the field survey conducted by AKRF, the proposed cooling tower location would be visible from the potential architectural resource.

Based on project plans, the Addendum concluded that the proposed project construction is far enough removed from the architectural resources in the project APE that no potential for physical destruction or damage (including inadvertent damage resulting from adjacent construction) of architectural resources has been identified.

In terms of the potential for indirect effects, field surveys performed by MACTEC and AKRF concluded that 16 of the 22 architectural resources in the New Jersey portion of the APE did not appear to possess views to the proposed project location. These 16 resources would not experience indirect effects as a result of the proposed project.

Six of the 22 architectural resources in the New Jersey portion of the APE were observed to possess views towards the proposed project location. These six resources are:

- The Samueal Urion / Yerkes Farmstead
- The Benjamin Holmes House
- The Abel and Mary Nicholson House
- The Ware Shourds House
- The Nathaniel Chambless House
- The John Mason House

The proposed Port which includes cranes and staged wind turbine components would be relatively distant from the above resources. The existing Hope Creek cooling tower is currently visible or partially visible from the resources. The addition of structures within the Port adjacent to the existing cooling tower would not represent a substantial deviation from the existing views from the resources. Although the addition of structures within the Port would be noticeable, it would not change the overall character of the resources' context nor would it affect the aspects of the properties' setting that qualify it for the New Jersey and National Registers. It should also be noted that there will be no permanent structures located at the Port which would be visible full time from an appreciable distance from the Port. Large cranes and staged wind turbine components will be located at the Port and visible from distance only during periods of active offshore wind development. These components and large pieces of equipment will not be located at the Port during down periods. Therefore, no adverse effects to the resources would result from the proposed project.

Two potential architectural resources are located within or adjacent to the 4.9-mile-radius study area in New Jersey: the John Maddox Denn House at 112 Poplar Street and the residence at 349 Fort Elfsborg Road. The Denn House is located approximately four miles east of the project site; MACTEC's field survey determined that the Denn House did not have views to the proposed cooling tower sites. The residence at 349 Fort Elfsborg Road is located approximately 5 miles north of the project site; the property on which the residence stands is within or immediately adjacent to the 4.9-mile-radius study area. Although the existing cooling tower is distantly visible from the resource and the proposed cranes and staged wind turbine components are predicted to be distantly visible, this change would not alter the character-defining features of the resource nor substantially alter aspects of the resource's existing context in such a way that would affect its eligibility for the New Jersey/National Register. Therefore, no adverse effects to the John Mason House or the John Maddox Denn House are expected to result from the proposed project.

b. Delaware State Historic Preservation Office Review

i. Archaeological Resources and Submerged Cultural Resources

No ground disturbance or underwater work is proposed in DE; therefore, the proposed project would have no potential to impact archaeological or submerged cultural resources in DE. Concurrence with DESHPO on the previous findings was recently submitted with a response issued in a letter dated July 29, 2020. The previous findings as noted below determined that no impacts with a larger previous development in the same location would have no impacts on DE Archaeological or cultural resources.

ii. Architectural Resources

The DESHPO commented on the *Draft Historic Properties Visual Impact Assessment PSEG Early Site Permit Application, Salem, NJ* (Brown 2009) in a letter dated April 15, 2010. In a phone call with Joan Larrivee, the DESHPO staff reviewer for this project, on March 17, 2011, PSEG discussed these comments in order to clarify DESHPO's

requirements for completion of the Architectural Resources visual effects assessment. The two comments that required action are summarized below:

- In their April 15, 2010 letter, DESHPO stated, "The NRC may need to expand its base of information in order to appropriately assess the visual effect of this project on all properties listed or eligible for listing on the NRHP's." In the March 17, 2011 telephone conversation, Ms. Larrivee clarified that she would like resources previously determined eligible for the NR by DESHPO to be included in the architectural resources analysis for the proposed project. However, she does not consider it necessary to identify or analyze other potential historic properties that may meet the NR criteria but have not been previously evaluated.
- The *Draft Historic Properties Visual Impact Assessment PSEG Early Site Permit Application* identified 80 architectural resources in the APE in DE. However, field visits to assess the visibility of the proposed project were initially performed for only 37 of these 80 properties. In their dated April 15, 2010 letter, DESHPO requested "a field check of all properties in Delaware… so that we would truly know which of the 80 Delaware properties listed on the NRHP's will be visually impacted by the project." In the March 17, 2011 telephone conversation, Ms. Larrivee confirmed DESHPO's request that the remaining 43 NR-listed architectural resources should be field checked to assess the potential for visual impacts. Furthermore, if any properties previously determined NR-eligible are identified in the Delaware APE (see previous bullet), she requested that these also be field-checked. She requested that the results of this additional visibility assessment should be included in a revised *Historic Properties Visual Impact Assessment* that clearly identifies the location of all field-checked architectural resources and assesses visibility of the proposed project from these resources.

In order to obtain information on resources determined eligible for the NR in the Delaware study area, an architectural historian conducted site file research at the DESHPO offices. A large number of previously surveyed architectural properties were identified in the 4.9-mile study area in Delaware. Of these resources, only five were previously determined NR-eligible. These consisted of 8 Liberty Street, 9 West Market Street, 7 West Market Street, 5 West Market Street, and 2 West Market Street, which were considered NR-eligible as part of the Port Penn Historic District. A field visit indicated that the building at 8 Liberty Street has since been demolished. The remaining four NR-eligible resources were added to project maps and cultural resources tables and were field-checked to determine the visibility of proposed project elements from the resources.

The Addendum to the Visual Impact Assessment concluded that proposed project construction, all located in New Jersey, would be far enough removed from the architectural resources in the Delaware portion of the APE that no potential for physical destruction or damage (including inadvertent damage resulting from adjacent construction) of architectural resources in Delaware has been identified.

In terms of the potential for indirect effects, field surveys performed by MACTEC and AKRF concluded that 32 of the 79 architectural resources in the Delaware portion of the

APE did not appear to possess views to the proposed project location. These 32 resources would not experience indirect effects as a result of the proposed project.

Forty-seven of the 79 architectural resources in the Delaware portion of the APE were observed to possess views towards the proposed project location. These resources are analyzed in greater detail below in order to evaluate the potential for adverse indirect effects on these resources in accordance with Section 106. In general, architectural resources in Delaware with views of the project site are located more than two miles west of the project site and are separated from the project site by the Delaware River. Due to the flat topography and open terrain that characterizes the area, the existing cooling tower can be seen from distances of at least ten miles from the project site where obstructions do not intervene. Similarly, the proposed cooling towers would also likely be visible from many relatively distant vantage points.

Forty-three of the 47 architectural resources in the Delaware portion of the APE with views of the project site are listed on the National Register. One of these resources, the Corbit-Sharp House, located approximately 6 miles west of the project site, is also a National Historic Landmark (NHL). Four of the 47 architectural resources in the Delaware portion of the APE with views of the project site were determined eligible for the National Register as a proposed expansion of the NR-listed Port Penn Historic District. One potentially NR-eligible resource was identified in Delaware.

All of the resources located within the 10-mile APE but beyond the 4.9-mile study area (including the NHL Corbit-Sharp House) experience only distant views of the cooling tower locations. This distant view is often partially blocked by topography or vegetation; for example, Okolona, from which the existing cooling tower can be only distantly perceived and the Arnold S. Naudain House, from which only the water vapor issuing from the existing cooling tower can be seen above the tree line. The proposed addition of cranes and staged wind turbine components in close proximity to the existing cooling tower is not expected to result in a substantial aesthetic change in the context of the resources in the APE that are located more than 4.9 miles from the project site. Further, the proposed structures would not obstruct views of any architectural resources in this area nor would it change or obstruct any existing scenic views in a manner that would affect the National Register eligibility of the resources. No adverse effects on these resources would result from the proposed project.

Eighteen of the architectural resources identified in Delaware are located within 4.9 miles of the project site, including two historic districts: the NR-listed Port Penn Historic District and the NR-listed Ashton Historic District. The Port Penn Historic District, located approximately 3.5 miles northwest of the project site, and the adjacent four NR-eligible architectural resources that comprise a possible expansion of that Historic District have only marginal views towards the cooling tower in the winter months; in the summer the existing cooling tower and proposed cooling tower locations are largely obscured by vegetation. The Ashton Historic District is located approximately 4 miles northwest of the project site. Distant views of the existing cooling tower and the locations of the proposed structures were observed in a field visit. The change that would result in the context of this resource and the other resources located within 4.9

miles of the project site would not constitute an aesthetic effect on these resources. The context of the resources already contains a cooling tower; the periodic addition of the new structures would not substantially alter the overall aesthetic character of the resources or their setting. Further, the proposed structures would not block views of historic resources or obstruct existing scenic views enjoyed from the architectural resources.

One potential architectural resource was identified by AKRF, within or adjacent to, the 4.9-mile-radius study area in Delaware: a wood-frame vernacular house at 50 Cedar Swamp Road located approximately 4 miles southwest of the project site. Although the existing cooling tower is distantly visible from the resource and the proposed structures are also predicted to be distantly visible, this change would not alter aspects of the resource's existing context in such a way that would affect its eligibility for the New Jersey/National Register. Therefore, no adverse effects to the potential architectural resource at 50 Cedar Swamp Road would result from the proposed project.

In summary, no adverse effects would occur on architectural resources in the Delaware portion of the APE as a result of the proposed project. Although the resources that currently have views of the existing cooling tower would likely have periodic views of the proposed cranes and staged wind turbine components, the change in the context of these resources that would result from the proposed project would not substantially alter the aesthetic or scenic qualities of their existing setting, obstruct important views, or alter the aspects of the resources that qualify them for National Register listing.

c. Summary

No further actions are required by either the NJHPO or DESHPO. Both agencies have concurred that the project does not adversely affect historic resources as noted above, in accordance with Section 106 of NHPA. See Attachments I and J for the correspondence from NJHPO and DESHPO respectively.

The proposed development is consistent with the policies listed in Section 5.10 Historic and Cultural Areas Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

K. Living Resources

1. Fish and Wildlife

a. Mammals

In 2009-2010, qualitative surveys were conducted to identify mammal species found in the various habitats at the PSEG Nuclear property. All surveys were conducted in 2009 except for the winter sampling for the locations at the USACE CDF, which was conducted in January 2010. Prior to initiating field surveys, a records review was conducted to identify mammals that may occur in the region (refreshed in 2020). This included information from New Jersey and Delaware wildlife management agencies regarding game species that are legally hunted and trapped in the vicinity, and agency consultation regarding listed mammal species that may occur in the area. Methods used

in the mammal survey included general site reconnaissance and observation, road kills, and incidental observations along study transects. Additionally, areas adjacent to the existing access road were surveyed qualitatively. The transects were surveyed on foot on two separate days during each season (winter, spring, summer, fall) wherein two observers together inventoried all mammals seen or heard within approximately 65 feet of the transect centerline.

Supplemental field studies within the PSEG Nuclear property and vicinity are used in part to characterize the assemblage of mammal species and to aid in the identification of important species within the property which could be impacted by the proposed Port development. A prior comprehensive study by PSEG was used to characterize small mammal communities of the marsh habitat. Over 4000 trap-nights of effort were conducted in various marsh sites to identify small mammals.

The most common mammal species observed during the 2009-2010 field surveys included white-tailed deer, raccoon, eastern cottontail, opossum, and eastern gray squirrel. Mammal species not observed in 2009-2010 but previously collected include the short-tailed shrew, meadow vole, house mouse, marsh rice rat, white-footed mouse, Norway rat, masked shrew, and meadow jumping mouse. In the winter 2009, a black bear (incidental) was supposedly observed by PSEG plant security. The list of mammals observed or expected to occur on-site and within the site vicinity is recorded in Table 2. Follow up field verification surveys conducted in 2020 also observed the presence of eastern coyote. Many species of bats and other mammals expected to occur near the site are active mainly at night and were not readily observed during the field studies.

Construction impacts to mammals at the Port site will include disturbances and the direct loss of habitat. Disturbances in the form of noise are discussed below under noise impacts. The loss of mammal habitat resulting from construction is not expected to be significant because the habitat quality at the PSEG Nuclear property is generally low (generally comprising scrub shrub, open waters, and *Phragmites*-dominated areas on areas of historic fill or within active confined disposal facilities) and habitat of higher quality is abundant in adjacent marshes, wetlands, fields, and wooded areas. For USACE-and NJDEP-regulated habitats (e.g., jurisdictional wetlands, riparian zones, etc.), NJEDA will comply with all conditions of applicable environmental permits designed to minimize impacts, and will mitigate for the loss of these resources at required ratios.

Operational impacts to mammals could result from the proposed Port noise and the presence of artificial lighting. These potential impacts are discussed separately below.

b. Birds

The Delaware Estuary and the surrounding habitats are important areas in terms of migratory and non-migratory bird species. The Estuary is located along the Mid-Atlantic flyway, and serves as an important foraging location for migrating waterfowl (e.g., ducks and geese) and shorebirds (e.g., ruddy turnstones, red knots, etc.). In addition, the region hosts a number of important rookeries for wading birds such as egrets and herons. Pea Patch Island, DE, located a 9 miles north of the PSEG Nuclear

property, is one of the largest of such rookeries on the East Coast (USFWS 2007). In addition, raptors (e.g., eagles, hawks, ospreys) are seasonally common throughout the Estuary, where they breed and hunt. Upland game birds (e.g., wild turkey, ring necked pheasants) are also common in the region, especially in areas dominated by agricultural uses, and songbirds (passerines) are seasonally abundant in various habitats.

A records review to identify bird species reported to occur at or near the PSEG Nuclear property was conducted in 2010 and 2020. Additional supporting field studies completed in 2009 – 2010 and 2020 include general site reconnaissance and observation, waterfowl spot counts, roadside bird surveys (similar to those conducted by the USGS), and transect surveys. Additionally, representative areas adjacent to the existing access road were surveyed qualitatively.

A walking survey was performed along each of eight on-site transects to provide current information regarding bird use of the PSEG Nuclear property. One transect in the southeast portion of the site (TS-06) was only surveyed in the winter and spring of 2009. This transect was limited to two seasons as TS-06 was replaced by one of the transects at the USACE CDF and TS-07 and TS-08 are in the same habitat type (old field). All surveys were conducted in 2009 except for the winter sampling for the locations at the USACE CDF, which was conducted in January 2010. Surveys were conducted on two separate days during each season (winter, spring, summer, fall) and entailed the identification and inventory of all birds seen or heard within approximately 65 feet of the transect centerline. Two roadside survey routes were also established in the vicinity of the site and were surveyed seasonally (winter, spring, summer, and fall). Two observers stopped at 0.5-mile intervals to record all birds seen or heard during a three-minute sampling period on one datasheet for each survey route. Each route was driven on two separate dates during each season. Seven on-site waterfowl spot count locations and one location within the site vicinity were also established and surveyed seasonally. Two observers recorded all water birds (waterfowl, wading birds) seen or heard at each location. A follow up survey completed in the spring 2020 was carried out to confirm previous observational results and verify habitat continuity since completion of the earlier surveys. These field studies, on-site and within the vicinity of the site, are used in part to characterize the current assemblage of bird species and to aid in the identification of important species within the vicinity of the PSEG Nuclear property.

During the course of the 2009-2010 field surveys, 15,112 birds were observed, representing 125 species (Table 3). Typical bird species observed during field surveys included a mix of songbirds and waterfowl such as northern cardinal, song sparrow, killdeer, red-winged blackbird, American crow, Canada goose, mallard, and American black duck. Table 3 also provides a summary of birds previously reported by the United States Geological Survey (USGS), U.S. Fish & Wildlife Service (USFWS), and Audubon Society (USGS 2006, USFWS 2009a, and Audubon Society 2009, respectively).

The majority of the natural habitats on Artificial Island, inclusive of the development sites, are dominated by common reed. This monoculture of *Phragmites* does not provide optimum breeding/nesting habitat for many birds, therefore most of the birds

observed on the site are likely using it for migratory and foraging purposes. Marsh wrens and red-winged black birds are two observed species that could use the fringe of the common reed habitat for breeding/nesting. Most of the raptor species observed on-site (northern harriers, bald eagles, and ospreys) forage near water. The Delaware River borders Artificial Island and development sites to the west and south, and therefore it provides moderate to good foraging for these species. Ospreys have been observed nesting in transmission towers within the site vicinity and along the existing access road.

Many species of wading birds observed within the site and vicinity likely use the area for foraging. Observed species include great blue heron, green heron, little blue heron, great egret, snowy egret, cattle egret, glossy ibis, black-crowned night heron, black-necked stilt, greater yellowlegs, and lesser yellowlegs (Table 3). Although there are no known rookeries (colonial nesting grounds) within the PSEG Nuclear property or the 6-mile vicinity, there is a large rookery approximately 9 miles north of the site on the Delaware River at Pea Patch Island. Pea Patch Island is part of Fort Delaware State Park. The rookery is located on the northern, undeveloped end of the island and is the largest heron and egret rookery on the east coast of the United States. Pea Patch Island provides breeding habitat for 5000 to 12,000 breeding pairs of wading birds (Parsons 1995). The nine species of birds that breed at this rookery are the great blue heron, great egret, little blue heron, snowy egret, cattle egret, yellow-crowned night heron, black-crowned night heron, glossy ibis, and tricolored heron (Audubon Society, 2009).

Construction impacts to birds at the development site will include disturbances and the direct loss of habitat. Disturbances in the form of construction noise are discussed below under noise impacts. The loss of bird habitat resulting from construction is not expected to be significant because the habitat quality at Artificial Island is generally low (generally comprising scrub shrub, open waters, and *Phragmites*-dominated areas on areas of historic fill or within active confined disposal facilities) and habitat of higher quality is abundant in adjacent marshes, wetlands, fields, and wooded areas. For USACE-and NJDEP-regulated habitats (e.g., jurisdictional wetlands, riparian zones, etc.), NJEDA will comply with all conditions of applicable environmental permits designed to minimize impacts and will mitigate for the loss of these resources at required ratios.

Operational impacts to mammals could result from the proposed Port noise and the presence of artificial lighting. These potential impacts are discussed separately below.

c. Reptiles and Amphibians

Qualitative surveys were conducted in the spring, summer and fall of 2009 to identify herpetofauna species found in the various habitats at Artificial Island. Prior to initiating field surveys, a records review was conducted to identify herpetofauna expected to occur in the region. This review included information from New Jersey and Delaware wildlife management agencies regarding records and established ranges of representative species and agency consultation regarding listed herpetofauna which may occur in the area. These records searches were supplemented with additional field studies conducted in 2009.

Methods used in the reptile and amphibian survey included general site reconnaissance and observation, spring night-time audio surveys (breeding chorus) for calling frogs and toads and transect surveys along the same eight study transects as used for birds and mammals. Additionally, representative portions of the proposed causeway and areas adjacent to the existing access road were qualitatively surveyed. Supplemental field studies within Artificial Island and vicinity are used in part to characterize the assemblage of amphibian and reptile species, and to aid in the identification of important species within the property.

The most common herpetofauna species observed or heard during field surveys included the eastern painted turtle, northern spring peeper, and southern leopard frog. In July 2009, green tree frogs (Hyla cinerea) were observed at the PSEG Nuclear property in ponds within PSEG's licensed confined disposal facility in the northwestern portion of the property. It is a resident species of Delaware and at that time had not been publicly reported in New Jersey. Subsequent discussions with NJDEP Fish and Wildlife Regional Land Management personnel indicated that green tree frogs were a known and relatively common observation. It is not clear whether the presence of this species on a man-made island that is surrounded by brackish water and marshes was the result of a natural (e.g., animal-mediated) or human introduction. This species is not listed as State or federally threatened or endangered, and therefore, does not require special protection as such.

The list of herpetofauna observed on-site and within the vicinity of Artificial Island is recorded in Table 4, including those recorded during an intensive historical study on Artificial Island (IA, 1980). Federal and/or NJ listed turtles that could occur in the vicinity of the PSEG Nuclear property include the loggerhead, Atlantic green, leatherback, Hawksbill, and Kemp's Ridley. None of these species were observed at the property in the 2009 studies; however, marine turtles have historically been observed at the property, as discussed below under Rare and Endangered Species.

Construction impacts to herpetofauna at the development site will include the direct loss of habitat. The loss of herpetofauna habitat resulting from construction is not expected to be significant because the habitat quality at Artificial Island is generally low (generally comprising scrub shrub, open waters, and Phragmites-dominated areas on areas of historic fill or within active confined disposal facilities) and habitat of higher quality is abundant in adjacent marshes, wetlands, fields, and wooded areas. For USACE-and NJDEP-regulated habitats (e.g., jurisdictional wetlands, riparian zones, etc.), NJEDA will comply with all conditions of applicable environmental permits designed to minimize impacts and will mitigate for the loss of these resources at required ratios.

d. Fish

PSEG has maintained an extensive baywide finfish biological monitoring program as a condition of the NJPDES Permit for the SGS for over 30 years. This biological dataset includes data collected by trawl, plankton net, and seine throughout the estuary, and has been collected as part of a comprehensive plan to assess the distribution and abundance of important fish species and the potential effect of the SGS's once-through cooling

water system on their populations (see, for example, PSEG 2009). Expanded reports summarizing the results of these monitoring activities have been submitted to the NJDEP annually since 1995 in accordance with the SGS's NJPDES Permit No. NJ005622.

In general, approximately 200 finfish species occur within the Estuary, mostly on a seasonal basis. Fish species can be divided into two distinct groups: resident fish and migratory fish. Residents can be classified further by salinity preference as either tidal-freshwater, brackish water estuarine, or nearshore coastal marine residents. Migratory fish can further be divided into three groups: diadromous species, predominantly estuarine types, and predominantly marine types. The predominantly estuarine types include hogchoker, white perch, bay anchovy, Atlantic and tidewater silversides, naked goby, and mummichog. Predominantly marine species that use the Estuary include weakfish, spot, Atlantic croaker, bluefish, summer flounder, and Atlantic menhaden. The notable diadromous migratory species are American eel, blueback herring, American shad, striped bass, and alewife. One Delaware Estuary diadromous species, the shortnose sturgeon, is listed as endangered.

Fish larvae and early juveniles in the Estuary are predominantly primary and secondary level consumers, while larger individuals of the predatory species are predominantly third level consumers (PSE&G 1999). Because they occupy the highest position in the aquatic food web along with sharks, wading and diving birds, humans, and other predators, fish are highly dependent on successful energy transfer from the lower trophic levels. The abundance of the fish populations therefore should be a sensitive indicator of potential disruptions in the trophic structure of the Estuary community. Generation times generally range from one year to five or six years.

Although estuaries are productive ecosystems, transition zones between the strictly freshwater and higher salinity areas are stressful environments for fish and other organisms (Sutton et al. 1996), due primarily to osmoregulatory stress from tidally induced changes in salinity, as well as to the high concentrations of suspended solids and low primary productivity in this transition area. In the Delaware Estuary, fish species that normally inhabit only the fresh to brackish tidal river zone or saline Delaware Bay region generally cannot tolerate the full range of the saline/freshwater extremes, and are therefore restricted in their longitudinal distribution in the Estuary (Sutton et al. 1996). Relatively few species of fish can tolerate, during part or all of their life cycles, the pelagic, brackish-water Transition Zone near the PSEG Site. The species that can include some whose population resides in the Estuary for most or all of their life cycle (e.g., white perch); some that migrate seasonally between the ocean and the freshwater tidal river reaches (e.g., blueback herring, alewife, striped bass, and American shad); and marine species with distribution ranges that extend into the Transition Zone (e.g., weakfish, bay anchovy, spot, and Atlantic croaker).

Results of PSEG's bottom trawling surveys performed in the Delaware River in the vicinity of PSEG Site from 2003 through 2007 generally reflect the community composition typical of the area. PSEG continues to perform surveys under the NJPDES Permit for SGS and annual biological monitoring reports are prepared and submitted to

the applicable agencies, including the USACE. Numerically dominant species include bay anchovy, weakfish, Atlantic croaker, white perch, hogchoker, and spotted hake (Table 1). Other consistently common species are American eel, striped cusk-eel, and oyster toadfish. In PSEG's pelagic trawl samples conducted in 2003 and 2004, bay anchovy, weakfish, and Atlantic croaker were also abundant, while other species common in bottom trawl collections were not, owing to differential distribution of species between the benthic setting and the water column. In near-shore areas sampled by the seine survey, many of the same species were encountered as in the trawl surveys. Exceptions were primarily small cyprinodontid species (e.g., mummichog, striped killifish) or juvenile centrarchids, but also included an Atlantic sturgeon in 2003. Total abundance in bottom trawl surveys ranged from 6110 to 12,492 fish between 2003 and 2007 (Table 1). Greater abundance (18,087 to 19,166 individuals) was obtained in the pelagic trawl samples of 2003 and 2004. Total species richness is comparable among surveys of the three methods, ranging from 21 to 34 species over the 5-year period considered.

In addition to PSEG's historic data series on finfish distribution and abundance, site specific surveys of the fish inhabiting the CDF ponds and the smaller marsh creeks on or near Artificial Island were performed from winter 2009 through winter 2010. Fish were collected using seines and weirs set at high tide and retrieved at low tide.

Important species in small marsh creeks and ponds on-site are limited to American eel, Atlantic menhaden, striped bass and white perch. American eel and white perch were collected from both creeks and ponds, whereas Atlantic menhaden and striped bass were collected only from creeks. No threatened or endangered aquatic turtles or commercially important invertebrates were encountered in surveys of these habitats near Artificial Island. A single American eel was found in pond habitat (AS-09) in July and marsh creek habitat (AS-05) in winter. White perch and striped bass were not common in creek or pond surveys, and the individuals collected were juvenile specimens. Atlantic menhaden, an important forage species, was common in marsh creek samples in both May and July (Table 5). All of these species are common in the Delaware River, and individuals found in ponds or marsh creeks are likely strays from the riverine habitat.

Construction impacts to fish at the development site will include the direct loss of habitat, the potential for localized sediment resuspension associated with in-water construction activities, and underwater noise. The loss of fish habitat resulting from construction is not expected to be significant because the habitat quality at Artificial Island is generally low (generally open waters and *Phragmites*-dominated areas on areas of historic fill or within active confined disposal facilities) and habitat of higher quality is abundant in adjacent marshes and the Delaware River.

The habitats within the project area that will be affected by construction activities in the Delaware River include muddy bottom habitat, pelagic waters, estuarine bottom habitat, and bottom waters. Direct impacts may occur from loss of habitat, exposure to fine sediments, or scour from propellers. Most of the impacts would be to immobile benthic organisms; however, once these areas have been dredged, some of the benthic organisms will recolonize the dredged area. Fish and other mobile organism will likely avoid these

areas during construction activities and impacts are mostly limited to temporary displacement. However, compared with the availability of comparable habitats in the Delaware Bay, the impacts to aquatic habitats and species in this area are expected to be minor. The construction of the approach channel (deepening), second turning basin and additional berthing pockets will result in the permanent loss of approximately 180-acres (80-acres approved as part of Phase 1 development) of aquatic habitat and temporary alteration of additional habitat; however no aquatic habitats in the Delaware River adjacent to Artificial Island are known to be rare, unique, or essential. Mobile organisms like fish are temporarily displaced by the habitat changes, while individuals of non-mobile species like benthic invertebrates are lost. These species will likely compensate for these losses by returning to the areas after disturbances have ceased, and any impacts associated with this loss or alteration of aquatic habitat are also expected to be minor. In addition, for USACE-and NJDEP-regulated habitats (e.g., jurisdictional wetlands, intertidal, subtidal shallows, etc.), NJEDA will comply with all conditions of applicable environmental permits designed to minimize impacts associated with fills and dredging and will mitigate for the loss of regulated resources at required ratios. Impacts to fish associated with construction noise are discussed below under Noise.

Dredging activities may result in a localized temporary increase in suspended sediment in the immediate vicinity of the dredge operation. Drift of suspended material may occur beyond the immediate dredge site based on sediment composition; however, results of surficial sediment grain size analyses in these areas suggests that most of the sediments present comprise of coarser sandy material which is less likely to be re-suspended by tidal currents (Cook et al. 2006). Furthermore, Artificial Island is at or near the natural turbidity maximum of the Delaware Estuary (PSE&G 1999, Cook et al. 2006). The amount of suspended sediment in the area can vary widely by season and tide stage but is nevertheless higher on average than at any other location in the Estuary. Any organisms inhabiting this zone of the Estuary are necessarily adapted to live in areas of high and variable turbidity.

Operational impacts to fish will be limited to affects directly related to increase in vessel traffic in the Delaware River navigation channel and new vessel traffic within the new approach channel, turning basins and berthing pockets. This increase in vessel traffic is expected to be minimal as compared to the current volume of vessel traffic in the Delaware River (less than 1% of current vessel traffic volume). Additionally, increases in vessel traffic will be periodic and dependent on active offshore wind development projects and manufacturing demand.

e. Shellfish

Artificial Island and therefore the development site is located in the oligohaline portion of the Estuary (i.e., mean salinities ranging from 0.5 to 5.0 ppt). For this reason, most listed shellfish species do not occur near Artificial Island because they are intolerant of the low salinity; however, eastern oysters are known to better tolerate low salinities, and they do occasionally settle on hard substrates provided by in-water structures at both SGS and HCGS, especially in warm, dry years. Even so, the typical salinities in this

region of the Estuary are too low to support the permanent settlement and growth of these species (Wilson et al. 2006).

In the Delaware Bay, oysters are found from the mouth to areas just south of Artificial Island on the NJ shore. Populations, as inferred from commercial harvests, decreased from the early 1900s through the rest of the 20th century, in large part due to protozoan parasites and disease. Since 2001, oyster abundance has continued to decline despite careful management and harvest restrictions; but stock assessments released in 2007 indicated at least modest improvement. Oysters attach to many hard substrates, but generally colonize by attaching to other oysters and dead shells. Large aggregations are referred to as oyster "reefs". They can tolerate a wide range of temperatures and prefer waters of relatively high salinity. Although adults can tolerate 5–32 ppt salinity, embryo development and growth are optimal within a narrower (approximately 15–23 ppt) range. They were occasionally found near Artificial Island in benthic surveys from the Delaware River in the 1970s. Artificial Island is at the extreme upriver end of the zone of the Estuary in which oyster survival is possible, and it is unlikely that oysters will be present without the hard substrate provided by the facilities at the PSEG Nuclear property and riprap surrounding Artificial Island (Wilson et al. 2006).

With respect to the potential effects of in-water construction activity on shellfish in nearby waters, the ecological effects associated with suspended sediments depends on a variety of factors, including the type of dredge used, the timing and duration of the dredging, the particle size of the suspended sediment, the presence of biotoxins in the sediments, the success of the control measures to contain the suspended sediments, and the life stage of the species that may be present. Dredging for the approach channel, turning basin and berthing pockets may result in a localized temporary increase in suspended sediment in the immediate vicinity of the dredge operation. Drift of suspended material may occur beyond the immediate dredge site based on sediment composition; however, results of surficial sediment grain size analyses in these areas suggests that a high percentage of the sediments present comprise of coarser sandy material which is less likely to be re-suspended by tidal currents (Cook et al. 2006). Furthermore, the PSEG Nuclear property is at or near the natural turbidity maximum of the Delaware Estuary (PSE&G 1999, Cook et al. 2006). The amount of suspended sediment in the area can vary widely by season and tide stage, but is nevertheless higher on average than at any other location in the Estuary. Any organisms inhabiting this zone of the Estuary are necessarily adapted to live in areas of high and variable turbidity.

f. Invertebrates

The benthic organisms present within the accumulated sediments of the Delaware Estuary near Artificial Island represent colonial, ephemeral, or ubiquitous invertebrate taxa that are highly tolerant to extremes of estuarine water quality parameters such as salinity and turbidity. These taxa include infaunal polychaetes, nematodes, oligochaetes, and epifaunal crustaceans (e.g., amphipods, mud crabs, and blue crabs).

In 1997, the USEPA sampled the benthic invertebrate communities in the Delaware Estuary as part of its Environmental Monitoring and Assessment Program (EMAP), which is a research program designed to develop the tools necessary to monitor and

assess the status and trends of national ecological resources. The benthic invertebrate assemblage from EMAP Station MA97-0454 (closest to Artificial Island) indicated that the predominant taxon was *Heteromastus filiformis* (an annelid polychaete) at a density of 33 individuals per grab, *Cyathura polita* (an isopod crustacean) at 9 individuals per grab, *Streblospio benedicti* (a polychaete worm) and *Macoma balthica* (a bivalve mollusk) at a density of 1 individual per grab. Other taxa present at densities of 1–3 individuals per grab included representatives of the phylum Rhynchocoela (a group of worm-like animals) and the families Bodotriidae (cumacean crustaceans) and Capitellidae (another crustacean taxon) (USEPA 2008). Overall, the density of infaunal species was 50 individuals per grab sample.

The benthic species assemblage observed in the EMAP sampling is typical of the invertebrate assemblages within the project area. The location along the long axis of the Estuary is a stronger determinant of invertebrate species assemblage than is cross-river location due to gradients in salinity, temperature, and sediment load (Llansó et al. 2002). The species in the EMAP data were neither unique, nor found in particularly high densities (other Stations in the Delaware Estuary produced grabs with more than 1,800 individuals per sample). The tidal waters near Artificial Island are particularly stressful to organisms due to variable salinity, high sediment load, and energetic tidal currents; only a few species have evolved the capability to extract a full-time living in this dynamic environment (Martino and Able 2003).

Benthic organisms associated with the tidal marshes surrounding Artificial Island include those organisms that comprise the faunal community of estuarine salt marshes. These species include ribbed mussels (*Geukensia demissa*), blue crabs, fiddler crabs (*Uca* spp.), and mud crabs (e.g., *Sesarma* spp.) in addition to the host of invertebrates found in the aquatic habitat of the mainstem Delaware Estuary. Surveys of the benthic macroinvertebrates inhabiting the smaller marsh creeks were performed from winter 2009 through winter 2010. A ponar grab sampler was used to collect macroinvertebrates. Macroinvertebrate communities in small marsh creeks were largely comprised of oligochaetes (*Limnodrilus* and other tubificids) and amphipods (primarily *Gammarus daiberi* and *Leptocheirus plumulosus*). Total richness ranged from four to seven taxa in these samples. In 2009, samples of macroinvertebrate communities from large marsh creek segments, amphipods are numerically dominant; primarily represented by *Corophium* sp. and *Gammarus daiberi*. The amphipod, *Leptocheirus plumulosus*, the isopod *Cyathura polita*, and the polychaete worm *Nereis succinea* are occasionally common. Richness was low in these samples, varying from three to seven taxa. Macroinvertebrate abundance and taxonomic richness values were much lower in the fall than in the spring.

As with shellfish, the potential effects of in-water construction activity on invertebrates in nearby waters, the ecological effects associated with suspended sediments depends on a variety of factors, including the type of dredge used, the timing and duration of the dredging, the particle size of the suspended sediment, the presence of biotoxins in the sediments, the success of the control measures to contain the suspended sediments, and the life stage of the species that may be present. Dredging for the approach channel, turning basin and berthing pockets may result in a localized temporary increase in

suspended sediment in the immediate vicinity of the dredge operation. Drift of suspended material may occur beyond the immediate dredge site based on sediment composition; however, results of surficial sediment grain size analyses in these areas suggests that most of the sediments present comprise of coarser sandy material which is less likely to be re-suspended by tidal currents (Cook et al. 2006). Furthermore, Artificial Island is at or near the natural turbidity maximum of the Delaware Estuary (PSE&G 1999, Cook et al. 2006). The amount of suspended sediment in the area can vary widely by season and tide stage, but is nevertheless higher on average than at any other location in the Estuary. Any organisms inhabiting this zone of the Estuary are necessarily adapted to live in areas of high and variable turbidity, and would be tolerant of increases in suspended sediment.

2. Nongame and Endangered Species

The NJDEP, DNREC, and USFWS were consulted for information regarding sensitive species and habitats in the vicinity of Artificial Island (DNREC 2009, NJDEP 2009, NJDEP 2010a, NJDEP 2010b, USFWS 2009b, USFWS 2009c, and USFWS 2010). Letters of correspondence, phone conversations, and meetings were held with NJDEP and DNREC to obtain agency input regarding threatened and endangered species, sensitive habitats, commercial and recreational species, and other characteristics for Artificial Island, development site and vicinity. The USFWS has responded to a request for information on the presence of threatened and endangered species within the project area of the HCGS and SGS in regard to PSEG's operating license renewal (USFWS 2009b and USFWS 2009c). Information from these consultations was used as the basis for identifying important species and habitats. The 2009 – 2010 and 2020 field surveys for fish, mammals, birds, and other species identified above also included the recording of any listed species identified in these consultations. In addition, consultation letters specific to the proposed development were submitted to NJDEP Natural Heritage Program in October 2022, and a USFWS Information, Planning, and Consultation (IPaC) System review was conducted, all of which are provided in Attachment K.

Table 6 and Table 7 list protected animal and plant species recorded in the coastal environments immediately surrounding Artificial Island or having the potential to occur in the development area. The species listed on Table 6 are those that are state or federally listed as endangered or threatened, and those that are candidates or proposed for federal listing. Except Shortnose sturgeon, Atlantic sturgeon, and five species of sea turtles, all of which are not included on county lists but are listed by the USFWS in 50 CFR 17.11, are known to occur in the Delaware River. In addition, PSEG has conducted site-specific surveys for listed species in 2009. As the following paragraphs explain, most of the species have not been observed on the Artificial Island. None of the state-listed plant species included in Table 7 has been observed on the development property or in the adjacent coastal wetlands. This assessment only includes portions of the proposed project that occur in New Jersey; potential impacts associated with the possible macro-transmission corridors in Delaware, Maryland or Pennsylvania are not included here.

Bald eagles (*Haliaeetus leucocephalus*) and peregrine falcons (*Falco peregrinus*) are occasionally seen in the vicinity of Artificial Island but are not known to nest on the HCGS or SGS structures (NJDEP 2008); however, elevated structures and open fields near the Port development site could support nesting. Due to its successful recovery, the bald eagle has been de-listed and is no longer a federally listed species by the USFWS. Peregrine falcons were also removed from the federal list of endangered and threatened wildlife in 1999 (USFWS 1999), but the species remains on the NJ list of endangered species (Table 7). The bald eagle was identified as important because of its status as a federally protected species (Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act) and state listed threatened species. Although bald eagles were occasionally observed during the 2009 and 2020 field surveys onsite, there are no known bald eagle nests or suitable roosting habitat at the proposed development site, primarily due to the absence of large trees or suitable structures that support nesting activities. Therefore, the proposed construction footprint of the Port is not anticipated to impact bald eagle or peregrine falcon nesting or roosting habitat. However, it should be noted that transmission towers associated with the PSEG Nuclear Generating Station have been known to support bald eagle nests periodically.

The northern harrier, a state-listed endangered species in NJ and DE, is commonly observed foraging in the coastal wetlands onsite and near the site. Nests were not observed onsite during the 2009 or 2020 field surveys but nesting habitat in the coastal marsh is present onsite and in the vicinity. Construction-related impacts to onsite habitat potentially utilized by the northern harrier includes 4.97 acres of *Phragmites*-dominated coastal wetlands. The vast majority of these construction-related impacts are incurred in areas consisting of near monocultures of the invasive reed, *Phragmites australis*, which offers poor-quality northern harrier habitat because it forms dense, impenetrable stands. Abundant foraging and nesting habitat will remain in the vicinity of the existing plant site after project completion.

The red shouldered hawk, a NJ listed endangered species, has been identified in recent years in Salem County during the Audubon Christmas Bird Count (Audubon 2009). No red shouldered hawks were observed onsite during the 2009 or 2020 field surveys. Preferred habitat (deciduous and mixed forest communities adjacent to water) is absent onsite but present in the vicinity. As such, no construction-related impacts to red shouldered hawks as a result of the new Port are expected.

Osprey, a threatened species in NJ, was occasionally observed both onsite and in the vicinity of the PSEG Nuclear property during the 2009 and 2020 surveys. Active osprey nests were observed on transmission towers along the current access road, on the transmission towers that run from the plant north towards Money Island Road, and on man-made nesting platforms constructed by PSEG along Alloway Creek. Natural osprey nesting sites such as large trees are not present onsite. Impacts to osprey, if any, are small because existing nesting platforms are not expected to be impacted by construction. Furthermore, food and foraging habitat (fish in the Delaware Estuary and tributary systems) will remain abundant during and after construction.

The Cooper's hawk (*Accipiter cooperii*), bobolink (*Dolichonyx oryzivorus*), and grasshopper sparrow (*Ammodramus savannarum*) have been observed within 6 miles of Artificial Island (AEC 1973). None of these birds is federally listed. The Cooper's hawk and bobolink are state listed as threatened. However, in accordance with the January 18, 2011, NJ Register, Cooper's hawk (breeding) is proposed to be upgraded from threatened to special concern due to improvements in their population and distribution in the State for the specified (seasonal) populations. Cooper's hawks prefer large tracts of forested land where they nest in large mature trees. A Cooper's hawk was observed in a small tree onsite in the Fall of 2009. The preferred habitat of large trees is not present onsite; therefore Cooper's hawks are more likely residents of forested habitat in the vicinity of Artificial Island not within the proposed development area. NJDEP classifies the breeding population of grasshopper sparrows as threatened, and the migratory or winter population of grasshopper sparrows as stable in number (NJDEP 2010a). None of the remaining state-listed avian species included in Table 7 has been observed on Artificial Island.

The red-headed woodpecker is not a federally listed species, but its breeding and non-breeding populations are listed by NJ as threatened. No red-headed woodpeckers were observed during the 2009 field surveys nor have they been reported in the USGS Breeding Bird Survey or the Audubon Society's Christmas Bird count. Due to the lack of appropriate habitat (i.e., open woods, deciduous forests, forest edges, river bottoms, orchards, grasslands with scattered trees and clearings, dead or dying trees) within Artificial Island and specifically the Port development site, construction-related impacts, if any, are small.

Five federally listed species of sea turtle may occur in Delaware Bay: the threatened loggerhead sea turtle (*Caretta caretta*), threatened Atlantic green turtle (*Chelonia mydas*), endangered Kemp's ridley sea turtle (*Lepidochelys kempi*), endangered hawksbill turtle (*Eretmochelys imbricata*), and endangered leatherback turtle (*Dermochelys coriacea*). The NJDEP classifies these turtle species as endangered, except the Atlantic green turtle, which is state listed as threatened. Young sea turtles move from the open waters of the Atlantic Ocean into near-shore coastal areas where they forage and mature into adults. The young turtles make occasional forays into the shallow waters of mid-Atlantic estuaries in late summer to feed and rest. While no nesting occurs along Delaware Bay beaches, all five sea turtle species can move into the Bay and may travel up the Estuary as far as Artificial Island (Delaware Estuary Program 1996). Most of the sea turtles found in Delaware Bay are sub-adults that were hatched on beaches in the Caribbean, Florida, and the Carolinas and have migrated north to nursery grounds in the mid-Atlantic region. The vast majority of the sea turtles observed in Delaware Bay are loggerheads, with smaller numbers of Kemp's ridley and Atlantic green turtles occasionally observed.

Of the five threatened or endangered turtle species, only the loggerhead and Kemp's ridley sea turtles have been encountered at the cooling water intake of SGS. Mitigation measures to reduce the incidental capture of sea turtles at SGS were implemented in 1992 and 1993. Since then, only six loggerhead sea turtles and no Kemp's Ridley sea

turtles have been encountered. Moreover, collection of sea turtles has not occurred at the HCGS closed-cycle cooling water intake due to its low approach velocity and general configuration. Operational activities at the Port are not expected to pose any threat to any of the species of sea turtle potentially encountered.

Two federally listed fish, the shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), occur in Delaware Bay.

In the Delaware River system, adult shortnose sturgeons spend most of their lives in the upper tidal freshwater portion of the river (the most heavily used portion of the river is that between RM 118 and RM 137). However, shortnose sturgeon often move further upstream to spawn (O'Herron et al. 1993). After spawning, some adults move downstream into low salinity reaches of the river (including Delaware Bay), primarily in spring and summer (O'Herron et al. 1993). This is in sharp contrast to sturgeon in southeastern rivers, which spend most of the year in the lower Estuary and move upstream in spring into the middle and upper reaches of natal rivers to spawn. Based on surveys conducted in the 1980s, the Delaware River shortnose sturgeon population is one of the largest along the eastern seaboard, with population estimates ranging from 6,408 to 14,080 individuals (NMFS 1998).

Atlantic sturgeon occurs in the Delaware River. In 2006, the NMFS initiated a status review for Atlantic sturgeon to determine if listing as threatened or endangered under the Endangered Species Act (ESA) is warranted. The Status Review Report was published on February 23, 2007 (NMFS 2007) and in April 2012, the species was listed. The Atlantic sturgeon is also a state endangered species in NJ. NMFS issued an updated Incidental Take Statement / Biological Opinion on July 17, 2014 (NMFS 2014) for the SGS and HCGS related to Atlantic sturgeon and other species with Terms and Conditions as well as Reasonable and Prudent Measures associated with the existing plant operations. As a result of a recent spike in incidental takes at the Salem and Hope Creek Generating Station intakes, PSEG has initiated formal consultation with NMFS to develop a revised Incidental Take Statement/Biological Opinion. While the power plant and proposed New Jersey Wind Port are separate and have little to no direct impact on respective operations, the proximity of the two facilities warrants reference to this current consultation related to species in the Delaware River.

The Atlantic Sturgeon is a member of the Acipenseridae family as is the short-nosed sturgeon and sturgeon are among one of the oldest fish species in the world. Its range extends from New Brunswick, Canada to the eastern coast of Florida. Atlantic sturgeon have not been recorded in the 2002 through 2004 PSEG biological monitoring program in the bottom trawl, pelagic trawl, ichthyoplankton and macrozooplankton sampling, impingement sampling, nor as eggs, larvae, juveniles or adults in entrainment sampling. A single Atlantic sturgeon was reported in PSEG's 2003 beach seine sampling.

In 1980, 1991, 1993, and 1999, the NMFS issued biological opinions and incidental take statements, each determining that the continued operation of the existing facilities at the PSEG Site will affect but not jeopardize the continued existence of threatened or endangered species, including sea turtles and listed sturgeon (NMFS 1999). The July 2014 Incidental Take Statement and Biological Opinion does not change this conclusion.

The 1999 revision of the NMFS biological opinion and incidental take statement for SGS CWIS explicitly acknowledged prior studies conducted (e.g., radio turtle tracking studies) and praised proactive measures taken by PSEG to reduce sea turtle take at the SGS CWIS. These measures included the proceduralized removal of ice barriers at the CWIS in summer months (when turtles may be present). This measure greatly reduced turtle encounters at the intake structure (from around 25 incidents in 1991 to only 4 incidents of live takes from 1993 through 2007). The NMFS included in the 1999 revised incidental take statement a reduction in allowable take at the CWIS, citing the marked improvement due to the implementation of proceduralized removal of ice barriers, and changed the NMFS requirement for meetings from "annual" to "as-needed." The incidental take statement advanced the NMFS determination that the level of anticipated take is not likely to result in jeopardy for the regulated species at the SGS, and specifically acknowledged PSEG for furthering the state of knowledge of sea turtle and sturgeon biology in the Estuary and furthering the intent of the ESA. The causes of recent mortalities (e.g., ship propeller strikes) were predominately non-SGS related. The historic determination that the once-through cooling water system at the SGS does not adversely affect listed aquatic species suggests that the lower capacity intake system for the new plant will also not adversely affect these species.

The threatened and endangered aquatic species known to occur in the project area are two species of sturgeon and five species of sea turtles. The sea turtles in the Delaware Bay system are summer foraging populations and do not nest in the area. Spawning habitat for the Shortnose and Atlantic sturgeon in the Delaware River system is located substantially upstream of the Artificial Island site. Consequently, the benthic eggs and larvae are unlikely to be affected by project dredging operations distant from the spawning area. Larger individuals are known to occur in this reach of the river but are likely to be capable of swimming away from any suspended sediments or from dredging equipment. While it is not likely that Atlantic sturgeon spawn in the project vicinity in the Delaware River; appropriate habitat for juveniles does exist in the project area. Direct impacts to Atlantic sturgeon are limited to exposure to fine sediments, or collisions with propellers or water borne equipment that may occur. However, such impacts are unlikely as the impacted areas are small compared with the expanse of similar suitable habitat in the Delaware River in the vicinity and region. Additionally, dredging activities will likely displace this and other fish from the immediate dredge zone, thereby minimizing impact potential.

The proposed development is consistent with the policies listed in Section 5.11 Living Resources of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

L. Mineral Resources Management

The proposed project does not involve a leases for the extraction and production of minerals. Therefore, this policy is not applicable to the project.

M. State Owned Coastal Recreation and Conservation

The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3). It is not proposed within State owned lands whose natural condition or present state of use would maintain important recreational areas and wildlife habitat, or would maintain or enhance the conservation of natural, cultural or historic resources shall be managed, preserved, and protected, for conservation and recreational use. Therefore, this policy is not applicable to the project.

N. Public Trust Doctrine

Security and public safety requirements preclude PSEG from providing public access to the Delaware River at the existing Salem and Hope Creek Generating Station. However, the project will not impede on existing public navigation or fishing opportunities within the Delaware River.

PSEG has provided public access throughout the Delaware Estuary as part of its Estuary Enhancement Program (EEP). The primary feature of the EEP is a large scale wetlands restoration program. PSEG has restored, enhanced or preserved more than 20,000 acres of degraded salt marsh and adjacent uplands along the Delaware Estuary in NJ and DE. More than 11,000 of the enhanced or preserved acres are located in NJ where Deed of Conservation Restrictions have been filed for the properties and permanent public access is provided. PSEG has enhanced the restoration sites through construction of more than $1 million of new public use facilities, and funding many environmental education and research opportunities including:

- Wildlife observation areas with observation platforms, towers, boardwalks, floating platforms, viewing blinds, parking areas and boat launches;
- Several miles of nature trails;
- Osprey nesting platforms;
- Education signs, literature and hands-on classroom wetland discovery kits and activities for use by educators in NJ;
- Access to thousands of deed protected acres of vast, natural areas for a broad range of diverse public uses such as environmental education, nature study, hunting, fishing, trapping and other recreational opportunities.
- PSEG Energy and Environmental Resource Center

Table 8 lists EEP sites in New Jersey that provide public access to the tidal waters of the State of New Jersey.

There are a number of private and public recreational facilities located within a 50-mile radius of the Artificial Island. Modest increased usage of these recreational facilities is likely as a result of population increases due to the construction workforce. Transient population data for recreation facilities within 10 miles of Artificial Island suggest that usage of these facilities is low (3,100 visitors per day). The estimated increase in the population of the region, due to construction workers, is 1,712. Given the low usage and

small population increase, sufficient recreational facilities are available to accommodate any increase in visitors. Therefore, impacts to recreational facilities are minimal.

The proposed development is consistent with the policies listed in Section 5.14 Public Trust Doctrine of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

O. Energy Facilities

The proposed development is designed as a support facility for offshore energy construction. The project will result in minimal impacts to intertidal shallows, which will be mitigated through the purchase of mitigation bank credits, as described in Chapter 6 of this application.

The proposed Port is intended as a support facility for offshore wind development in New Jersey and along the eastern United States. The facility will not provide support for offshore oil and gas exploration or serve as a loading/unloading or operations/maintenance facility for any other activity. The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3).

Operations at the facility will be limited to unloading of wind turbine components from ocean going delivery vessels, final assembly and preparation of components, and loading of components onto installation vessels for offshore installation. Overwater fueling will not occur with vessels moored at the facility. Additionally, no large scale painting, coating or fabrication of materials, components, or equipment will be conducted at the facility. As a result, large quantity storage of hazardous or potentially hazardous materials or wastes will be required at the facilities. Small quantities of diesel fuel will be stored at the facility and used for fueling of onsite equipment and vehicles. There will be no storage of fuel on site intended to resupply delivery or installation vessels.

Additionally, per the intent of this policy in supporting development of alternate energy facilities due to the compelling national interest provided such activities do not result in the degradation of Delaware's natural resources, the project involves the construction of a Port to support offshore wind construction which will result in minimal impacts to coastal resources.

The proposed development is consistent with the policies listed in Section 5.15 Energy Faciltities of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

P. Public Investment

The project is not seeking funds from the State or the Delaware Water Pollution Control Revolving Fund (SRF). In addition, the project does not involve the construction of public highways or roadway facilities, public housing, or large scale resource recovery

projects, public education or facilities to promote statewide recycling and waste reduction. Therefore, this policy is not applicable to this project. However, the project does support economic development within the State of New Jersey and is being proposed along with the NJEDA to support the State's efforts in achieving 100% renewable energy.

Q. Recreation and Tourism

The project does not involve the construction of recreational or tourism facilities. Therefore this policy is not applicable to the Project. However, it should be noted that because the proposed Port is located on Artificial Island and the existing Salem and Hope Creek Generating Station property, the proposed project will not adversely impact the development potential for recreational or tourism facilities within the region.

R. National Defense and Aerospace Facilities

The project does not involve national defense or aerospace facilities. Therefore, this policy is not applicable to the project.

S. Transportation Facilities

The project does not involve the expansion and development of the Port of Wilmington. Transportation. In addition, the project does not involve the transfer of oil, petroleum products and their by-products between vessels and vessels and onshore facilities and vessels. Therefore this policy is not applicable to the project.

The Port will be developed at Artificial Island immediately adjacent to the existing Salem and Hope Creek Generating Station. The new development will be located on portions of Artificial Island which are currently utilized for the placement of dredge spoils from maintenance dredging and previously developed portions of the industrial power plant facility. Operation of the proposed development will include receiving delivery of large components of offshore wind turbines via ocean going vessel, final preparation of the components, loading onto specialized installation vessels receiving delivery of offshore wind components (for final manufacturing) and loading of completed offshore wind components. It is anticipated that most deliveries to the NJWP will be delivered via ocean going vessel with few deliveries by over the road transportation. It is also anticipated that access to the NJWP for the relatively small work force will be via the existing access road and security check point. No improvements beyond repaving or updates to signage are anticipated to the existing access roadway. Nominal secondary impacts will occur as a result of the proposed project. The proposed project will have no impacts to public infrastructure or recreational demand. There will be a temporary increase in traffic and noise during construction due to the anticipated construction work force and delivery and installation of project materials and components. It is not anticipated that these increases in traffic during construction will result in the need to require improvements to local roads. Increases in traffic during operation of the NJWP from workforce personnel will increase but will fluctuate generally based on current marshalling activities and demand for offshore wind components. This increase in workforce personnel traffic is expected to be comparable to existing traffic increases during maintenance activities at the Salem

and Hope Creek Generating Station. While these increases in workforce personnel traffic are not expected to impact local transportation infrastructure, the NJEDA is committed to working with both the State and County DOTs to ensure any needed improvements or maintenance upgrades are provided.

The proposed development is consistent with the policies listed in Section 5.19 Transportation Facilities of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

T. Air Quality Management

As summarized below the estimated emissions from this project are not expected to exceed the *de minimis* threshold for VOCs, but will exceed the *de minimis* threshold for NOx for each of the two years of this analysis. The maximum predicted emissions for NOx for year 1 of the analysis is 106.8 tons, year 2 106.7 tons and year 3 0.2 tons. The maximum emissions for VOCs for year 1 of the analysis are predicted to be 10.9 tons, year 2 11.2 tons and year 3 1.4 tons. These emissions are primarily driven by dredging-related activities, which are based on conservative assumptions (Table 9). The results overstate the likely emissions but are included in the analysis to provide a level of assurance that conformity thresholds are conservatively evaluated.

The analysis used reasonable estimates, especially in the case of dredging-related contributions, to predict emissions of NOx and VOCs from the construction activities subject to USACE regulatory review for conformity determination. The basic estimates are consistent with the level of detail available at this stage of the project. This analysis combines robust estimates of expected equipment needs with estimates of hours of operation for each piece of equipment to provide significant conservatism to this conformity analysis. Despite using this conservative bounding approach, the predicted emissions from construction are below the *de minimis* levels for conformity for VOCs with a minor exceedance of *de minimis* levels of NOx. By definition in 40 CFR Part 93 - Subpart B, a prediction of *de minimis* impacts for a conformity analysis precludes the need for a conformity determination analysis to determine emission offsets. Further, a *de minimis* level of emissions is designed to indicate that this project will not adversely interfere with any State Implementation Plan (SIP) in place for the specific nonattainment area. As such only a conformity determination related to the exceedance of NO_x would be required.

The principal air emission sources associated with Port operation are utilization of heavy lift cranes and mobile equipment such as self-propelled modular transporters (SPMTs). The cranes and SPMTs will be the common pieces of equipment required to transport the wind turbine components from the delivery vessels, throughout the site and onto installation vessels. Diesel generators would also likely be used throughout the site as power sources for site activities. Estimates of the anticipated annual equipment and diesel generator air emissions, which include nitrogen oxides (NO_x), sulfur oxides (SO_X), carbon monoxide (CO), hydrocarbons in the form of volatile organic compounds (VOC) are provided on Table 9.

The additional operations-related traffic also results in vehicular air emissions. NO_2 is of particular concern as it contributes to ozone formation and Salem County is an 8-hour ozone non-attainment area. Some localized nominal increases in emissions can be expected due to the increased numbers of cars, trucks, and delivery vehicles that will travel to and from the Port. Most of the increased traffic is associated with employees driving to and from work. Once the workers are at the site, the volume of traffic and its associated emissions is expected to decrease. It is likely that most of the workforce spends less than two hours of driving time during the workday. The workforce may also be staggered in shifts, which further reduces the amount of traffic during peak traffic times. Therefore, impacts to local and regional air quality from operations-related traffic impacts are small.

Air emissions sources are also controlled to comply with Occupational Safety and Health Administration (OSHA) standards. 29 CFR 1910.1000 places limits on certain vapors, dusts, and other air contaminants. Dust suppression methods such as watering exposed areas minimize dust emissions. Reseeding or otherwise stabilizing disturbed areas after construction promotes the development of ground cover that further minimizes fugitive dust emissions in the operational phase. Thus, the impact from air emissions from operation of the expanded Port to nearby residences and recreational areas is small.

The proposed development is consistent with the policies listed in Section 5.20 Air Quality Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

U. Water Supply Management

PSEG Nuclear maintains a large water allocation through the NJDEP for operation of the Nuclear power plant. It is anticipated that the existing Water Allocation permit will be modified to include the additional wells to supply potable water to supply the structures proposed within Area B2 and Area D. It should be noted that all potable water needs for the proposed development would be for personnel and fire protection needs. There are no anticipated industrial supply requirements. As a result, minimal impact to groundwater recharge as well as impacts to existing ground or surface water supplies are expected.

1. Construction of Wells

Installation of any new potable water wells will include coordination with the NJDEP and DRBC to comply with limitations with existing water allocations and receive all appropriate authorizations prior to construction.

2. Underground Injection Control

The proposed Port does not require the installation or removal of any injection systems. Therefore, this policy is not applicable to the project.

The proposed development is consistent with the policies listed in Section 5.21 Water Supply Management of the Delaware Coastal Management Program Federal

Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

V. Waste Disposal Management

1. Onsite Wastewater Treatment and Disposal System Management

The proposed improvements will not include the construction of sanitary septic systems or subsurface sewage disposal systems. The proposed facilities will be connected to existing water and sewer utilities currently operating at the existing Salem and Hope Creek Station. New wells will be drilled to provide water to the facilities and will utilize PSEG existing water allocation. Similarly, sanitary wastewater will be managed via utilization of existing capacity in the PSEG Nuclear sewage treatment plant. Minor upgrades to existing components may be required to increase efficient operation of the Sewage Treatment Plant (STP), but sufficient capacity exists for the anticipated workforce. No discharge of industrial wastewater is anticipated as part of the proposed development.

2. Land Treatment of Wastes

The proposed project does not include construction and operation of waste collection, treatment, and disposal systems and facilities used for the purposes of land treatment of wastes. Therefore this policy is not applicable to the project.

3. Disposal of Solid Wastes

Construction and operating activities at the Port will produce solid wastes. The primary types of solid wastes generated include:

- normal refuse;
- recyclable materials;
- universal wastes;

Normal refuse consists primarily of trash, but does not include non-refuse solid waste materials identified above. The Port tenant will collect normal refuse at the site in large containers and it will be transported offsite for disposal. This is in accordance with the New Jersey Solid Waste Management Act and implementing regulations at N.J.A.C. 7:26.

Recyclable materials include such materials as:

- metals;
- glass;
- paper;
- plastics;
- cardboard;
- construction and demolition debris;

- vegetative wastes; and,
- used oils.

Recyclable materials will be managed in accordance with the New Jersey Solid Waste Management Act, its implementing regulations at N.J.A.C. 7:26A, and the State Wide Solid Waste Management Plan. The State Wide Solid Waste Management Plan sets a recycling goal for solid waste of greater than 50 percent. NJEDA will work with the municipality, Lower Alloways Creek Township, to support that goal.

4. Hazardous Waste Management

The proposed facility will not include storage of hazardous materials or utilize process/fabrication methods which have the potential to generate waste streams which would need to be discharge or have a risk of accidental discharge to the Delaware River or surrounding tidal marshes.

The Salem and Hope Creek Generating Station is an operating Nuclear Generating Station which includes various potential hazards common to large industrial/power generation facilities. Safeguards are in place from a safety as well as security stand point to minimize these potential hazards. These safeguards are regulated and routinely reviewed through compliance programs of the NJDEP, USEPA and USNRC.

Transformers typically contain varying quantities (depending on size) of mineral oil used for cooling. Circuit breakers and other smaller pieces of equipment commonly found within switchyards no longer contain liquid coolants and are referred to as “dry”. In all cases use of PCBs, which were previously utilized in these types of equipment, have been eliminated. All pieces of equipment that contain liquid materials, will include appropriate secondary containment and leak detection components as required and regulated through the USEPA SPCC program and NJDEP DPCC/DCR program. The proposed development is not located within areas of the facility that operate for electric generation.

Public health and safety will be protected because PSEG management is deeply committed to properly managing all of its facilities in accordance with applicable regulatory requirements, and in a manner that protects the public health, maximizes worker safety, and protects the environment.

5. Cleanup of Hazardous Substances

Because the development areas are located in portions of Artificial Island previously used a CDF and undeveloped portions of the PSEG Facility, industrial processes have not occurred in these areas, limiting contamination in subsurface materials. As such, site remediation is not required prior to the project development.

During construction, gasoline, diesel fuel, hydraulic lubricants, and other similar products are used for construction equipment. NJEDA will develop a detailed Spill Prevention Control and Countermeasures plan for the construction site for NJDEP review and approval, and will implement BMPs (e.g., secondary containment, spill

response kits, etc.) during construction to minimize potential discharges to the environment. NJDEP also requires that chemical discharges to the soils and groundwater be reported and subsequently remediated to prevent impacts to groundwater quality. NJEDA will develop and implement a SPCC during operation of the facilities to minimize potential impacts to the environment.

6. Underground Storage Tanks

The project does not involve the installation, operation, retrofitting or abandonment of any underground storage tanks. Therefore, this policy is not applicable to the project.

The proposed development is consistent with the policies listed in Section 5.22 Waste Disposal Management of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

W. Development

The proposed development meets the intent of this policy in that the project is proposed within previously disturbed areas on Artificial Island and at an existing nuclear generating station. The project will not result in additional development for infrastructure and will be limited to minor improvements within the existing generating station facilities, such as minor internal access road improvements, as required. The proposed NJWP will only be utilized during periods of active offshore wind projects, so it will not be staffed by full-time employees that would increase traffic or development within the area. Staff and occupation of the site will be limited to the duration of active offshore wind construction projects. Additionally, this proposed development will help states within the region, including New Jersey, Delaware, and others in the northeast and mid-Atlantic regions to achieve their renewable energy goals and support offshore wind development projects.

The proposed development is consistent with the policies listed in Section 5.23 Development of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

X. Pollution Prevention

The project development area is located within partially developed portions of the PSEG Nuclear property (leased to the NJEDA) and the existing upland CDF previously operated and maintained by the USACE (formerly USACE Artificial Island CDF Cell No.3). The NJWP development includes a new stormwater collection, conveyance and treatment system to address stormwater from the 155-acre development. The proposed stormwater management system has been designed to adequately collect, treat locally, and convey channelized runoff from the development site to satisfy all applicable NJDEP stormwater management requirements for major development using both structural and non-structural best management practices (BMPs). Proposed features include: cover stabilization practices, a stormwater collection and conveyance system, green infrastructure and manufactured treatment devices, and discharge control practices. Treated stormwater effluent will ultimately be discharged into the Delaware

River via outfalls. Stormwater outfalls were sized and located to facilitate the green infrastructure requirement and drainage area restriction so as to create efficiently sized conveyance networks throughout each site. Each outfall will consist of a discharge pipe, a backflow preventer, and a riprap apron (for energy dissipation and scour protection). Five outfalls within sites B1 and B2 will discharge directly to the Delaware River through the wharf. Five eastern outfalls within sites B1 and B2 will discharge directly to the adjacent tidal wetlands. Five outfalls from Parcel C2 will discharge to the north and east of the site just past the tidal wetland boundary to ensure the hydraulic connection to the tidal system. Finally, the stormwater network within Site D will combine internally, cross the Atlantic City Electric (ACE) easement to the north, and tie in directly to the conveyance network in Parcel G that discharges to the tidal wetland to the north of that parcel. Details of the stormwater management system is provided in greater detail in Attachment G, Stormwater Management Report, prepared by Moffatt and Nichol, dated January 31, 2023.

Operations at the facility will be limited to unloading of wind turbine components from ocean going delivery vessels, final assembly and preparation of components, and loading of components onto installation vessels for offshore installation. Overwater fueling will not occur with vessels moored at the facility. Additionally, no large scale painting, coating or fabrication of materials, components, or equipment will be conducted at the facility. As a result, large quantity storage of hazardous or potentially hazardous materials or wastes will be required at the facilities. Small quantities of diesel fuel will be stored at the facility and used for fueling of onsite equipment and vehicles. There will be no storage of fuel on site intended to resupply delivery or installation vessels.

As the proposed NJWP includes temporary storage of materials and parts, offloading and loading of equipment to vessels, assembly of components, limited maintenance activities, and limited office and warehouse facilities, impacts to air quality are anticipated to be minimal. The emissions resulting from vessels to support the offshore wind construction projects are anticipated to be permitted through the individual construction projects utilizing the Port.

Based on the proposed design, the Port will be governed only by the state air regulations and that any equipment-related air permits would be issued by NJDEP under NJDEP rules. There are detailed regulations in the N.J.A.C. on the types of equipment and processes that require permits. Based upon the proposed design, which includes limited combustion equipment, it is not anticipated that any NJDEP air permits will be required for the facility beyond General Permits (GPs). The facility will not support any processes or process equipment that would result in gross impacts to air quality and temporary impacts due to construction equipment will not be significant.

In addition, the PSEG Nuclear site currently operates per a Title V air operating permit issued by NJDEP. The conceptual engineering for the proposed project does not include anything that supports the current PSEG Nuclear operations. However, utilities from PSEG support the Port, so modifications to existing Title V may be required to include the new Port.

Construction and operating activities at the Port will produce solid wastes. The primary types of solid wastes generated include:

- normal refuse;
- recyclable materials;
- universal wastes;

Normal refuse consists primarily of trash, but does not include non-refuse solid waste materials identified above. The Port tenant will collect normal refuse at the site in large containers and it will be transported offsite for disposal. This is in accordance with the New Jersey Solid Waste Management Act and implementing regulations at N.J.A.C. 7:26.

Recyclable materials include such materials as:

- metals;
- glass;
- paper;
- plastics;
- cardboard;
- construction and demolition debris;
- vegetative wastes; and,
- used oils.

Recyclable materials will be managed in accordance with the New Jersey Solid Waste Management Act, its implementing regulations at N.J.A.C. 7:26A, and the State Wide Solid Waste Management Plan. The State Wide Solid Waste Management Plan sets a recycling goal for solid waste of greater than 50 percent. NJEDA will work with the municipality, Lower Alloways Creek Township, to support that goal.

As described within this section, the project is in compliance with this policy as it will minimize and avoid impacts to water, air, or land to the greatest extent practicable.

The proposed development is consistent with the policies listed in Section 5.24 Pollution Prevention of the Delaware Coastal Management Program Federal Consistency Policy and Procedures, Comprehensive Update and Routine Program Implementation of November 2018.

Y. Coastal Management Coordination

NJEDA, in coordination with the NJEDA, have held pre-application meetings with the USACE, NOAA, NJDEP, and DNREC to ensure that stakeholder agencies have a full understanding of the proposed project and have the opportunity to comment on the proposed development plans. In addition, these agencies will be reviewing land use applications to ensure coastal consistency with each agency's coastal and land use regulations and policies. Lower Alloways Creek Township will also be involved with

and will review the proposed development plans through the site plan and zoning review/approval processes, as well as the construction permitting review processes. As such, the project is in compliance with this policy.

Chapter 5: Alternatives Analysis

A. Site Selection Alternatives Analysis

The current operation to support utilities, the location, existing conditions, location of suitable infrastructure, etc. leads to preferred use of the Artificial Island site. The site's location on Delaware River is strategically located to support multiple offshore wind development projects in New Jersey and beyond. The structures to be handled at this type of marshalling port/manufacturing facility are very large, and the vessels required to transport them are therefore also very large. As such, the limitations such as bridges and transmission lines prevent the use of other locations. The proposed site is located along the southern extent of the Delaware River, where there are no existing obstruction for large vessels. In addition, other existing port facilities contain existing development and contamination issues. The NJWP has a unique opportunity to meet the needs of the offshore wind past industry with limited requirements for remediation.

In March 2019, Ramboll US Corporation conducted an evaluation of New Jersey ports and harbors to identify sites that could support offshore wind supply chain needs to assist the New Jersey Economic Development Agency (EDA) to identify potential properties suitable for marshalling, manufacturing, and operations & maintenance (O&M) facilities to support the offshore wind (OSW) energy industry in the State of New Jersey, particularly with respect to the NJ BPU's initial 1,100 megawatt (MW) solicitation (Attachment L). The factors that originally identified Artificial Island as a preferred location hold for the larger development as well. Location and ability to tailor the site to meet the unique needs of the industry are paramount in the site selection. Additionally, ability to manage or limit environmental and community impacts drove the decision process from existing facilities (ports and terminals) to a new site like Artificial Island. This preliminary analysis considered a total of 38 properties, which were assessed for potential future port and harbors development based on:

- Access to waterfront;
- Size of property;
- Depth of existing berth;
- Depth of nearby navigation channel;
- Air draft (i.e., bridges causing vertical limitations); and,
- Availability for future development as an OSW Port.

The preliminary analysis narrowed the site selection down to twenty (20), of which, twelve (12) sites were selected for deeper evaluation based on their potential for use in

marshalling, manufacturing, and O&M. The majority of sites evaluated included existing ports, marine terminal or industrial facilities with docks or wharves. The principal advantages of focusing on existing terminals are: 1) these properties already have terminal operators who understand the business of port operations and are in a better position to expand the operations to include OSW; and 2) Port operators already have existing relationship with the regulatory agencies that issue the permits, licenses, and other approvals necessary to allow for future expansion.

The sections below summarize the site selection criteria evaluated for each of the twelve (12) sites. Additional detailed estimates of required dredging footprints based on a review of the data provided in the NOAA Navigation Charts for each site is noted.

Werner Generating Station

This site is a 94-acre site located in South Amboy, New Jersey, along the Raritan River near its confluence with the Raritan Bay. In accordance with NOAA Navigation Chart No. 12332, Raritan River, Raritan Bay to New Brunswick, water approaches to the site are via the South Amboy Reach and Great Beds Reach. The South Amboy Reach and Great Beds Reach are 25 feet deep at MLLW and 300 feet wide. The channel widens and deepens at the Ward Point Secondary Channel, which is 30 feet deep MLLW and 400 feet wide. The channel widens and deepens again at Ward Point East, which is 35 feet deep MLLW and 600 to 800 feet wide. As such, use of this site for the Port would require approximately 10,230 linear feet of dredging to achieve adequate depth. This entire length would also require channel widening to create a channel of at least 550 feet wide to allow for passage of large installation vessels.

The site requires remediation for gasoline, sodium hydroxide, lube oil, transmission fluid, #2 fuel oil, and sodium hypochlorite. The site is also listed on environmental databases for numerous spills and releases on the property.

Approximately 0.8 acres of wetlands are located in the southeastern portion of the site. Additionally, wetlands are located along the waterfront.

Construction of the proposed Port will require the following improvements at this site:

- Demolition of existing structures;
- Improvement of upland soil bearing capacities;
- Complete redevelopment of quayside;
- Dredging of berth and channel;
- Addition of production buildings (for manufacturing/fabrication scenarios); and
- Installation of crane pads or relieving platform where extreme heavy-lift operations might occur.

Chemours Chamber Works

The approximately 1,545-acre Chemours Chamber Works Complex is located at 67 Canal Road, Pennsville Township, New Jersey and 600 Shell Road, Carney's Point, New Jersey, along the Delaware River. According to NOAA Navigation Chart No.

12311, Delaware River Smyrna River to Wilmington, dated 2/1/2019 and Chart No. 12312, Delaware River Wilmington to Philadelphia, dated 11/1/2018, the site would require approximately 6,600 linear feet of dredging to connect to the navigation channel of the Delaware River. Use of this site would also require passage beneath of the Delaware Memorial Bridge, which has vertical clearances of 188 feet (middle 800 feet), 175 feet (middle 1,500 feet), and 166 feet (Main Towers) and a horizontal clearance (beam) of 2,000 feet. There are also overhead cables which have a vertical clearance of 223 feet. This site does not provide a clear route with overhead clearance tall enough to allow for passage of installation vessels loaded with turbine components.

Historical chemical manufacturing and waste management at the site have resulted in impacts to the site subsurface. Contaminants of concern include aniline, benzene, chlorobenzene, trichloroethene, tetrachloroethene, lead, and other organic and inorganic chemical constituents such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), perfluorooctanoic acid (PFOA), and radiological materials. Chemours is required to conduct site-wide groundwater monitoring and remediation. In addition, the USACE is evaluating the areas utilized for the radiological material research and development.

Paulsboro Marine Terminal

The Paulsboro Marine Terminal totals approximately 200 acres and is located at 303 Mantua Avenue, Paulsboro, New Jersey, along the Delaware River. According to the NOAA Navigation Chart No. 12312, Delaware River Wilmington to Philadelphia, dated 11/1/2018, minimal dredging if any would be required to support a marshalling port at this site. The site is located across the Delaware River from Philadelphia International Airport, which requires height restrictions to avoid hazards to air navigation. This site is upstream of the Commodore Barry Bridge has vertical clearances of 190 feet (middle 822 feet) and 181 feet (remainder) and a horizontal clearance of 1,600 feet. In addition, this site is upstream of the Delaware Memorial Bridge, which as described above, does not provide adequate vertical clearance to transport turbine components out to offshore work areas.

Wetlands are present in the northeast corner of the property. Smaller areas of wetlands are located in the southern portion of the property. The southeast portion of the property has areas with habitat-specific requirements. The majority of the site contains threatened habitats.

Military Ocean Terminal at Bayonne

The Military Ocean Terminal at Bayonne (MOTBY) totals approximately 427 acres is located at 630 Avenue C, Bayonne, New Jersey, adjacent to Upper Bay. According to the NOAA Navigation Chart No. 12334, New York Harbor Upper Bay and Narrows-Anchorage Chart, dated 1/1/2020, the shipping channel adjacent, Ambrose Channel Reach D, is 53 feet deep by 2,000 feet wide. As such, dredging will not be required to utilize this property for the marshalling port.

Vertical clearance between the site and open water is restricted by the Verrazano-Narrows Bridge. The Verrazano-Narrows Bridge has vertical clearances of 198 feet

(middle 2,000 feet), 183 feet (piers), and 215 feet (center), which is not sufficient to allow for passage by installation vessels transporting turbine components to the offshore work areas.

Subsurface impacts were caused by releases from underground storage tanks (USTs), possible releases from a sanitary sewer, spills from former transformers (PCBs), contaminated ill used to construct the Military Ocean Terminal Bayonne peninsula, and the possible migration of petroleum contamination on-site from off-site sources. The releases resulted in impacts to site soil (metals, organics, pesticides and PCBs), and site groundwater (arsenic, mercury, volatile organic compounds and pesticides).

A small area of wetlands is present in the southwest corner of the property, along the water, which is mapped as potential habitat for threatened and endangered species.

Chemours Site

The former Chemours (also formerly known as DuPont Grasselli) chemical manufacturing facility totals approximately 98 acres, located along the Arthur Kill. According to the NOAA Navigation Chart No. 12333, Kill Van Kull and Northern Part of Arthur Kill, dated 1/1/2020, this site requires minimal dredging (approximately 150 feet) to reach the Pralls Island Reach, which is 35 feet deep and 500 feet wide.

Vertical restrictions between the site and open water include overhead power cables, the Goethals Bridge, Arthur Kill Railroad Bridge, Bayonne Fixed Bridge, and the Verrazano-Narrows Bridge to the north. The vertical clearance along the northern route is restricted by the Arthur Kill Railroad Bridge at 135 feet (up), and 31 feet (down), which is not sufficient for passage of the installation barges transporting turbine components. The Arthur Kill Railroad Bridge has a horizontal (beam) clearance of 500 feet. To the south, the Outerbridge Crossing restricts the vertical clearance at 143 feet. The Outerbridge Crossing has a horizontal clearance of 675 feet.

Site soil and groundwater were impacted with solvents and pesticides from the long industrial history. Site environmental remediation is reportedly complete.

Former DuPont Site (Repauno)

The former Chemours (DuPont) facility totals approximately 1,300 acres and is located at 200 North Repauno Avenue in Greenwich Township, New Jersey, adjacent to the Delaware River. According to the NOAA Navigation Chart No. 12312, Delaware River Wilmington to Philadelphia, dated 11/1/2018, use of this site would require approximately 1,800 linear feet dredging to meet the Tinicum Range navigation channel, which is 40 feet deep and 800 feet wide.

This site has overhead obstructions along the route to the offshore work areas. Vertical restrictions between the site and open water include the Commodore Barry Bridge, Delaware Memorial Bridge and overhead cables. The Commodore Barry Bridge has vertical clearances of 190 feet (middle 822 feet) and 181 feet (remainder) and a horizontal clearance of 1,600 feet. The Delaware Memorial Bridge has vertical clearances of 188 feet (middle 800 feet), 175 feet (middle 1,500 feet), and 166 feet (Main Towers) and a horizontal clearance (beam) of 2,000 feet. There are overhead cables which have a vertical clearance of 223 feet. The closest airport is the Philadelphia International Airport located directly across the Delaware River, which may impose restrictions to avoid hazards to air navigation.

The majority of the site is classified as wetlands.

Gardner's Basin

The approximately 10-acre site is currently vacant and located at Carson Avenue in Atlantic City, New Jersey, adjacent to the Abescon Inlet. According to the NOAA Navigation Chart No. 12318, Little Egg Inlet to Hereford Inlet; Absecon Inlet, dated 4/1/2010, approximately 27,600 linear feet of dredging would be required from the Abescon Inlet out into the Atlantic Ocean. The channel is 29 feet to 46 feet deep and

400 feet wide. Depth along the property is approximately 15 feet deep. The Absecon Inlet leads to the Atlantic Ocean.

The site is void of wetlands and is not registered as a remediation site or having any environmental concerns. There are no overhead obstructions limiting passage from the site out to the Atlantic Ocean.

Cape May-Lewes Ferry

The approximately 250-acre site is owned by the Delaware River and Bay Authority and located in Cape May, New Jersey, adjacent to the Delaware Bay. According to the NOAA Navigation Chart No. 12304, Delaware Bay, dated 12/1/2018, the canal adjacent to the site would need to be dredged, as well as a significant route out to the navigation channel (approximately 30,000 linear feet) within the Delaware Bay and Atlantic Ocean, as the depth of the bay is generally 19 to 33 feet below MLLW.

The undeveloped portions of the site are generally comprised of wetland areas, which would require a large extent of permanent wetland impacts. There are no records of environmental remediation activities onsite.

North New Jersey Avenue

The approximately 3.2-acre site is owned by OCD, Inc and located at 614 North New Jersey Avenue in Atlantic City, adjacent to Delta Basin, an inlet near the Abescon Inlet. According to the NOAA Navigation Chart No. 12318, Little Egg Inlet to Hereford Inlet; Absecon Inlet, dated 4/1/2010, approximately 3,000 linear feet of dredging would be required to reach the deeper portions of the Abescon Inlet area. The Delta Basin inlet approaching the site is approximately 7 to 14 feet deep and 350 feet wide. Then an additional approximately 27,600 linear feet of dredging would be required from the Abescon Inlet out into the Atlantic Ocean. The channel is 29 feet to 46 feet deep and 400 feet wide. Depth along the property is approximately 15 feet deep. The Absecon Inlet leads to the Atlantic Ocean.

There is a small wetland area along the western property boundary. There are no overhead obstructions restricting vessel transport. The site is listed as a Known Contaminated site by the NJDEP.

North & McLester

The approximately 78-acre site is owned by Port Authority of NY & NJ and located at 801 McLester Street in Elizabeth, New Jersey, adjacent to the South Reach of Newark Bay. According to No. 12333, Kill Van Kull and Northern Part of Arthur Kill, dated 1/1/2020, this site would only require minimal dredging along the waterfront of the site to connect to the Port Elizabeth South Reach East.

Vertical clearance is restricted by the Bayonne Fixed Bridge at 215 feet and the Verrazano-Narrows Bridge at 198 feet (middle 2,000 feet) or 183 feet (piers). In addition, approximately 70% of the site is encumbered by wetlands, wetland buffers, and flood zone designations. The site is also mapped as potential habitat for State-threatened species.

Construction and Marine Equipment Company (CME)

The approximately 13-acre active marine terminal is owned by Construction & Marine Equipment (CME) and is located at 330 South Front Street in Elizabeth, New Jersey, adjacent to the Elizabethport Reach of the Arthur Kill. According to No. 12333, Kill Van Kull and Northern Part of Arthur Kill, dated 1/1/2020, this site would only require minimal dredging along the waterfront of the site to connect to the Elizabethport Reach, which is maintained at 50 feet below MLLW and is approximately 500 feet wide.

Vertical clearance is restricted by the Bayonne Fixed Bridge at 215 feet and the Verrazano-Narrows Bridge at 198 feet (middle 2,000 feet) or 183 feet (piers), which restricts the passage of installation vessels transporting turbine components to offshore work areas. The site has on-going remediation activities. The site does not contain any mapped wetland areas.

Hope Creek Site (Selected Site)

The benefits of the Hope Creek Port identified in the report include the following:

- There are no vertical restrictions between the site and open ocean. The closest airport is the New Castle Airport located approximately 12.5 miles northwest of the site;
- The site is not listed on NJDEP's database of sites with known contamination.
- The site's large acreage, lack of vertical restrictions, and potential for sole use make it adaptable for manufacturing of OSW components and marshalling;
- The site's large acreage and generous water frontage make it potentially suitable for multiple OSW uses. For example, marshalling could be conducted on the southern portion of the property, and the northern portion of the property could be developed for manufacturing of various components;
- There are no overhead restrictions between the site and the open ocean, making the site in an ideal location for marshalling; and,
- Improvements would generally be limited to dredging and increasing the load bearing capacity of the subsurface soils to support the large equipment and materials to support offshore wind construction projects.

The complete alternatives analysis prepared for NJEDA evaluation with detailed analysis of each potential port facility is provided as Attachment L of this application.

B. Dredge Footprint Reduction Alternatives Analysis

The proposed expanded Port development will require a deeper approach channel, second turning basin and additional berthing pockets be dredged to accommodate operation of offshore wind developers. The proposed expanded dredge footprint will be approximately 180 acres (80-acres approved as part of Phase 1 development) and include 4,000,000 cy of material for disposal. The NJEDA conducted a detailed alternatives analysis/site selection focused on suitability of existing ports, marine terminals and industrial facilities based on a list of constructability and operational

criteria outlined in Attachment L. Due to the large proposed dredging footprint, NJEDA conducted a supplemental alternative site selection exercise to determine if other unevaluated properties could potentially be explored which would require smaller dredging footprints to accomplish similar operational goals as the selected alternative at Artificial Island.

As part of this supplemental analysis, evaluation criteria were limited to the following general criteria:

- Dredging footprint – Access to the New Jersey Wind Port proposed at Artificial Island will require new dredging for a deeper approach channel, second turning basin and additional berthing pockets. This new dredge footprint will be approximately 180-acres (80-acres approved as part of Phase 1 development) and include 4,000,000 cy of material for disposal. Total distance from the proposed Port to the main Delaware River navigation channel is just under 5,000 linear feet. The supplemental evaluation considered potential development locations which would conceptually require access to the Delaware River navigation channel with distances less than 5,000 linear feet which would result in an assumed reduced dredge footprint.
- Air draft – A key factor in the suitability of the New Jersey Wind Port located at Artificial Island is the lack of air draft restrictions between the Port and open ocean locations for offshore wind lease areas. Air draft considerations have a significant impact on installation efficiency, project duration and costs. This criterion was a major factor in the larger site selection process conducted by the NJEDA. As a result, comparable air draft suitability was included as part of this supplemental analysis. The study area was bounded by the mouth of the Delaware Bay to the South and the overhead PSE&G 500 kV transmission line crossing of the Delaware River located in Pennsville, New Jersey to the north. This overhead crossing is located approximately 11 miles north of Artificial Island.
- Development Potential – It was assumed that little information would be available for properties that met the first two criteria identified above. Properties that were identified would be evaluated for general development potential including presence of existing development, regulated resources or general location. Artificial Island, as noted in this document, includes multiple beneficial characteristics including close proximity to beneficial use sites, access to a large development site with few sensitive natural resources, and access to industrial infrastructure (transportation, utilities, work force, etc.). A desktop evaluation of similar characteristics was included as part of the supplemental evaluation. Availability of the properties was not a consideration of this evaluation. For this high-level evaluation, it was assumed that property access/rights could be secured.

The desktop analysis for this supplemental evaluation was conducted using various GIS databases available through the NJDEP and New Jersey Geographic Information Network (NJGIN). A total of three (3) locations were identified which met the first two criteria identified above. These three (3) locations are all north of the Artificial Island

property (Figure 13). All areas located south of Artificial Island are located a significant longer distance than 5,000 linear feet from the Delaware River navigation channel and would therefore require a large dredge footprint. Each of the three (3) potential alternative locations is detailed below.

Evaluation Site No. 1

Evaluation Site No. 1 consists of additional areas located on Artificial Island (Figure 14). These additional areas consist of USACE Artificial Island CDF Cell Nos. 1 and 2. These additional CDF cells are located immediately adjacent to and north of Cell No.3 (proposed for disposal of dredge material for the project) and the selected Port site. These additional areas would require similar dredge footprints and share the same air draft benefits as the selected site. These areas are currently undeveloped and would appear to provide similar opportunities as the selected site.

However, the USACE Artificial Island dredge disposal facility remains an active dredge material disposal location maintained and operated by the USACE for disposal of channel maintenance spoils from the Delaware River navigation channel. The Artificial Island dredge disposal facility consists of three (3) active cells. CDF Cell No.3 is subject to a land transfer agreement between PSEG and the USACE which was completed in 2022. Following completion of the land transfer, Cell Nos, 1 and 2 are the only remaining active dredge disposal cells available to the USACE in the lower stretch of the Delaware River. It is anticipated that maintenance of this capacity will be of great importance to the USACE and access to these areas should not be assumed. In the event that a land transfer agreement would be possible (similar to CDF Cell No.3), the duration and complexity of such an agreement along with regulatory challenges including but not limited to permitting additional dredge disposal capacity make development of this location not feasible to support the growing offshore wind development industry in New Jersey.

Evaluation Site No .2

Evaluation Site No. 2 is located north of Artificial Island along the Delaware River shoreline in the Township of Elsinboro. A large parcel of undeveloped land was identified adjacent to Oakwood Beach and associated residential properties. Access to the Delaware River navigation channel would require dredging of an approach channel of approximately 2,700 linear feet. This distance is nearly half of the required approach channel length for Artificial Island and would be expected to have a significant reduction in total dredge footprint. Evaluation Site No.2 is also located south of the PSE&G overhead 500 kV transmission line crossing and shares similar air draft benefits as the selected site.

However, as noted in Figure 15, there are multiple development challenges associated with this location. Proximity to Oakwood Beach recreational and residential areas would likely be prohibitive for construction and operation of a large scale industrial/commercial facility which would require operation of large oceangoing vessels. The Township of Elsinboro is a predominately rural residential community with no large industrial/commercial uses. As a result, transportation infrastructure could

be taxed due to increases in traffic supporting operation of the Port. Finally, a review of available wetland mapping from the NJDEP and USFWS NWI indicate that the majority of the potentially developable area consists of tidal marsh wetland communities. Development of a marshalling port facility would therefore require significant permanent impacts to high value tidal wetlands. These potential wetland impacts would far outweigh the relatively minor impacts to low value disturbed wetlands associated with the selected site.

Evaluation Site No. 3

Evaluation Site No. 3 was the third and final site identified for evaluation. The site evaluated is north of the Artificial Island site with the PSE&G Overhead 500 kV transmission line crossing immediately adjacent to the north (Figure 16). It is anticipated that a port development at this site would have similar air draft benefits as the Artificial Island site. The proximity to the overhead transmission corridor would need to be evaluated from a safety and operations standpoint, but it is assumed that a design/operations solution could be developed to allow for operations at this location. Access to the Delaware River navigation channel would require dredging of an approach channel of approximately 2,500 linear feet. This distance is nearly half of the required approach channel length for Artificial Island and would be expected to have significant reduction in total dredge footprint.

Development activities at this location face significant challenges. Similar to Evaluation Site No. 2, a review of available NJDEP and USFWS NWI GIS mapped wetlands indicate that the majority of the potentially developable area consists of large tracts of wetlands. These large wetland complexes are contained within the Delaware River Nature Reserve and immediately adjacent to the Killcohook National Wildlife Refuge suggesting that these are high value wetlands. Development of a marshalling port facility would therefore require significant permanent impacts to high value tidal wetlands. These potential wetland impacts would far outweigh the relatively minor impacts to low value disturbed wetlands associated with the selected site. Evaluation Site No.3 is also in close proximity to several significant cultural resources including Finns Point National Cemetery, Fort Mott State Park and Fort Delaware State Park. Close consultation with both New Jersey and Delaware historic preservation offices will be required. The periodic and temporary nature of the port operations suggest that development may be allowable, but the proximity to these cultural resources prevent any type of screening. Operation of the ferry linking Fort Mott and Fort Delaware would also likely be impacted during operation of the port for safety consideration as large vessels traversed the area. Finally, Evaluation Site No. 3 consists primarily of lands that are technically located within the jurisdictional boundary of the State of Delaware. As a result, approval of the development would require compliance with Delaware Coastal Zone Act Program Rules. Compliance with the Coastal Zone Act Program Rules are unlikely for a new development with a large dredge footprint.

Summary

Based on the evaluation of the comprehensive site selection alternatives analysis (Attachment L) and supplemental analysis included above, it is clear that the selection of

the proposed Artificial Island site most successfully meets the specific needs and criteria to support offshore wind development while also limiting the potential impacts to regulated resources to the largest extent practicable. Three (3) potentially developable locations were identified as part of the supplemental analysis which could result in a reduced dredging footprint as compared to the selected site on Artificial Island (Figure 13). Potential development sites which met the general criteria outlined above are difficult to locate and even more of a challenge to develop due to existing land uses, ownership issues and the presence of significant natural/cultural resources.

C. Development Area Selection Alternatives Analysis

NJEDA considered alternatives for the specific location of the proposed second marshalling port and manufacturing/assembly facilities on Artificial Island. Several relatively large undeveloped or underdeveloped portions of Artificial Island and specifically the PSEG Nuclear property are large enough to accommodate a development of the size and layout of the proposed facilities (Figure 2). However, access to the shoreline to accommodate berthing of delivery and installation vessels eliminate potential development locations along the eastern and northeastern portions of the site for marshalling. The majority of the western shoreline south of the existing PSEG Nuclear CDF is highly developed with surface water intake/discharge facilities. The options for development were fairly limited due to the extent of existing development for the generating station and the extent of freshwater and tidal wetland systems on the property.

The only remaining area available for development is located on the southern shoreline of the Station. This portion of the Station is primarily undeveloped with open access to the shoreline. Both key aspects to potential Port development. However, further analysis reveals several aspects which eliminate suitability for development. First, the southern part of the property includes two (2) overhead 500 kV transmission ROWs. The overhead transmission ROWs require strict compliance with clearance adjacent to and below the conductors. This would prevent staging of wind turbine components upright as is the preferred method. Second, development of an approach channel for access to the Delaware River navigation channel would be significantly longer and require a larger amount of dredging due to the further distance from the navigation channel and shallower near shore water. Finally, the southern shoreline and near shore area present significantly more natural and cultural resource restrictions that would result in more impacts that were deemed unacceptable. The shoreline includes NJDEP designated beaches which would be removed as well as regulated tidal wetlands and riparian zone vegetation consisting of fewer invasive and more native species. Less of a restriction, but still a consideration is the project development site's location adjacent to the existing USACE CDF Cell No. 3 is also critical to support project construction. The CDF allows for material to be utilized for the surcharge to increase soil bearing capacity at the site and achieve the desired elevation above the 100-year flood hazard area.

Other less developed portions of Artificial Island were also reviewed for potential development. These areas included undeveloped portions of the PSEG Nuclear

property, remaining portions of the USACE Artificial Island upland CDF (Cell Nos. 1 and 2) or other lands located on Artificial Island. With the exception of the USACE Artificial Island upland CDF Cell Nos. 1 and 2 (which are no available to the project), other portions of Artificial Island would have resulted in significantly larger impacts to wetlands or other sensitive natural resources. In some cases, high value habitat for threatened or endangered species would have been impacted.

Based on this analysis the most cost effective and least environmentally impactful location of the proposed Port expansion is the PSEG Nuclear property and USACE Artificial Island CDF Cell No.3. Reconfiguration of these areas will have little to no impact on existing future operations by PSEG Nuclear and the USACE. The parcels are also highly disturbed and active locations on Artificial Island which limits the impacts to natural resources. Access to the adjacent USACE CDF Cell No.3 provides benefits to cost as well as minimization of risks for additional impact due to proximity for access to material.

D. Dredging Area Alternatives Analysis

The proposed expanded NJWP will include the development of a second marshalling port and multiple offshore wind component manufacturing/assembly facilities. This expanded development will require the construction of an additional installation vessel berth and three (3) additional delivery vessel berths. Additional dredging is required to access and accommodate the additional vessel activity.

Design optimization in conjunction with impact minimization has been a key component of the development of the proposed expanded NJWP approach. The overall project team has gone to great lengths to ensure the proposed design met the well-defined project implementation and operational goals while minimizing impacts to the environment and existing Salem and Hope Creek Generating Station as well as the local and regional communities.

The NJWP is designed to be the final stop for major components and now manufacturing/assembly for offshore wind development projects along the Atlantic coast of New Jersey and throughout the eastern United States. The location at Artificial Island serves a key role allowing for a Port with no air draft restrictions, protection from potentially strong coastal storms and access to a deep-water navigation channel. These characteristics not only allow for development of the Port but allow for development of marshalling and manufacturing/assembly capabilities that can be utilized by European offshore wind developers that have long track records of successful project development using techniques and procedures which have undergone years of fine tuning and efficiency improvements.

Of the three major site characteristics that highlight the benefit of the Artificial Island site, access a deep-water navigation channel requires the most development activity. While the Salem and Hope Creek Generating Station is located on the Delaware River and maintains an active barge slip, the facility does not require routine deliveries of equipment or materials via waterborne vessel for normal operation. As a result, a direct

connection to the main Delaware River navigation channel was required to be constructed as part of Phase 1 development. The approach channel was designed to accommodate delivery vessels bringing offshore wind turbine components from European manufactures and an installation vessel for final transport and offshore construction. These large vessels would be transporting and manipulating oversized components and therefore require deep water accommodations. The expanded NJWP would handle additional vessel traffic including marshalling of simultaneous offshore wind projects at two (2) marshalling Ports

The original Phase 1 conceptual design development included an approach channel that was approximately 710 feet wide to accommodate two-way traffic to and from the Port. The approach channel would be approximately 6,500 feet long and include a 1,180-foot diameter turning basin and 50-foot-wide berthing pockets. Based on operational design dredge depths the resulting dredge quantity was approximately 3,000,000 cy to be disposed of within USACE CDF Cell No.3.

As the more detailed design progressed, evaluation of typical operational requirements were completed in conjunction with a review of bathymetric and multi-beam survey results. Utilizing these more refined design inputs a series of optimized approach channel alignments were evaluated. Considerations identified as part of this analysis included the analysis of the need to maintain two-way vessel traffic, avoidance of known underwater obstructions (debris and/or geologic formations) and minimization of dredge volumes. The optimized approach channel alignment included an approach channel width that was reduced from 710 feet to 550 feet, a turning basin that was reduced from 1,180 feet in diameter to 1,050 feet in diameter and an approach channel length reduced from 6,500 feet to 5,000 feet. Overall, the reduction in dredge volume was reduced from 3,000,000 cy to 1,960,000 cy. A reduction in volume of over 33%. The total area of the dredging footprint was also reduced from approximately 97 acres to 86 acres. This total areal extent reduction has more of a positive impact to potential natural resources than volumetric reductions.

A similar process was undertaken for the expanded development. Expansion of the existing two wharfs with an additional installation berth and three (3) additional delivery berths results in additional vessel traffic. Original concept evaluation included the construction of a second access channel that would better facilitate safe entrance and exit of vessels utilizing the NJWP. With an eye toward reducing impacts the engineering team worked through a detailed dynamic modelling approach (included as Attachment M) and solicited input from Delaware River pilots to evaluate the possibility of maintaining the single access channel. These efforts resulted in the current design which includes the single access channel, additional berthing areas and a second turning basin. As it turns out, the addition of the second turning basin was the key that allowed for the single channel approach. This exercise resulted in a reduction in potential dredge footprint by at least 50 acres and nearly 1,000,000 cy of material to be dredged.

A second key decision point for optimization of the dredge footprint was the width (from shore) of the proposed additional berthing areas. The need to accommodate 2-way vessel traffic in the berthing pocket is the driving factor in required width. Once

again, the dynamic modelling approach was utilized to limit the width of the berthing area as much as practical. Original concepts included an area of more than 110-acres for the additional berthing areas and second turning basin. Based on the optimized approach, this area has been reduced to 99-acres with a reduction in dredge material volume of 1,000,000 cy. Another feature that was added to reduce the overall volume is the incorporation of a tugboat shelf on the western edge of the dredge footprint. Based on the modelling it was identified that the western edge of the berthing area was predominantly used by tugboats as they maneuvered vessels in and out of the wharf areas. Since the tugboats have a significantly smaller draft then the larger vessels, the dredge depth in this tugboat shelf was reduced from -39.5' NAVD 88 to -23.5' NAVD 88. While this feature does not reduce the overall dredge footprint, it does result in a reduction in dredge volume by nearly 200,000 cy.

This reduction in dredge volume has significant impacts on project costs, by reducing the amount of material managed as part of the dredging effort. It has a significant impact on schedule, by reducing the amount of time required for dredge completion as well as increased ability for compliance with anticipated natural resource timing restrictions. Most importantly the reduction has a significant positive impact on potential natural resource impacts by reducing the total area of dredging and time of in-water activities.

Chapter 6: Mitigation Plan

The proposed Phase 2 development proposes both permanent and temporary impacts to freshwater wetlands, freshwater wetland transition areas, riparian areas, and coastal wetlands. A table summarizing the anticipated impacts to regulated features is provided below.

Proposed Impacts From NJWP – Phase 2 Development

	Intertidal & Subtidal Shallows	Riparian Zone Vegetation	Open Water Creation	FWW Impacts		FWW TA Impacts		CW Impacts (Landside)		CW Impacts (Waterside)	
				Perm	Temp	Perm	Temp	Perm	Temp	Perm	Temp
Parcel B1	1.88	--	3.02	--	--	--	--	1.33	4.25	1.45	--
Parcel B2	0.06	0.02	1.70	--	--	--	--	0.08	2.50	0.60	--
Parcel C2	--	--	--	--	--	--	--	0.90	3.28	--	--
Parcel D	--	--	--	0.23	0.03	0.52	0.09	--	--	--	--
Parcel E	--	--	--	0.73	--	1.68	--	--	--	--	--
SPBUA	20.15	--	--	--	--	--	--	--	--	.02	--
Total	**22.09**	**0.02**	**4.72**	**0.96**	**0.03**	**2.19**	**0.09**	**2.31**	**10.02**	**2.28**	**0.00**

Notes:
1) FWW = Freshwater Wetland; TA = Transition Area; CW=Coastal Wetland; Perm = Permanent; Temp = Temporary; SPBUA = Stoney Point Beneficial Use Area
2) All values presented as acreage

Both freshwater and coastal wetlands that will be impacted by the development of the project are predominantly comprised of the invasive and hyper-dominant common reed (*Phragmites australis*). As such, the wetland services and functions of the impacted wetlands are low compared to the nearby tidal marsh areas vegetated with native marsh plants such as smooth cordgrass (*Spartina alterniflora*), salt hay (*S. patens*), and salt grass (*Distichlis spicata*).

NJEDA proposes to mitigate for these impacts through the purchase of credits from an available wetland mitigation bank such as the Evergreen Environmental, LLC Abbot Creek Mitigation Bank in Fairfield, New Jersey. This bank was originally constructed in 2016 in anticipation for PSEG's need for credits associated with a now abandoned project on Artificial Island, and currently has sufficient credits in its ledger to mitigate for the proposed port's impacts to regulated resources. As of May 2020, the USACE's Regulatory In lieu fee and Bank Information Tracking System (RiBITS) indicated that the Abbot Creek Bank has sufficient credits available for sale from the Bank. NJEDA has consulted with Evergreen Environmental and purchased credits to satisfy mitigation obligations for Phase 1 of the NJWP development and entered into an agreement to

temporarily place a hold on additional credits anticipated for Phase 2 development needs. This agreement would be activated following issuance of regulatory authorizations requiring mitigation.

The Abbot Creek Mitigation Bank was designed as a coastal wetland mitigation bank, with saleable credits being a blend from a variety of habitats within the restoration area. These areas include intertidal mudflats (intertidal and subtidal shallows), emergent marsh, upland buffer areas, and an NJDEP-requested upland grassland area for quail and other upland bird species. The available mitigation credits from the site are derived from a blending of habitat uplift in these various habitat categories as agreed upon in consultation with the USACE and NJDEP, as well as members of the bank's Interagency Review Team (including NMFS, USEPA, and USFWS). The approved Mitigation Banking Instrument (MBI) for the Bank authorizes these 76 credits to be released in successive increments as annual monitoring targets are met, and approximately 50% of the Bank's mitigation credits derive from restored mudflats.

In 2018, NJDEP also approved the release of regulated riparian zone mitigation credits from the Abbot Creek Mitigation Bank. The Bank includes 46.8 acres of riparian zone enhancement and 3.5 acres of riparian zone preservation. These credits may be sold to satisfy NJDEP's riparian zone mitigation requirements for projects within the Bank's service area. When sold, these credits are to be subtracted from available NJDEP wetland mitigation credits from the Bank to prevent "double dipping". Because the USACE does not regulate riparian zones separately from wetlands/waters of the United States, this arrangement only affects the NJDEP's credit ledger for the Bank, and not the federal credit ledger.

Although not expressly designed to provide intertidal and subtidal shallows mitigation credits, a substantial portion of the restored Bank site purposefully includes intertidal mudflat because this habitat is recognized as an important component of coastal marsh ecology. These mudflats satisfy two of three wetland diagnostic criteria (i.e., they have wetland soils and wetland hydrology), and only lack wetland vegetation.

In light of this blurring of regulatory lines between two overlapping and interconnected resource policies that are applicable to tidal wetlands, and although the regulatory construct for satisfying intertidal and subtidal shallows mitigation requirements through credit purchase is missing, there is every reason to regulate (and mitigate) the impacted intertidal and subtidal shallows at the proposed Port as functional wetlands. Indeed, the Abbot Creek Bank's IRT has already recognized the wetland functions and services of the Bank's mudflats by the assigned (approximate) 2:1 credit ratio for the mudflat (intertidal shallows) mitigation category. Therefore, NJEDA proposes to mitigate for impacts to intertidal and subtidal shallows by the proposed port project through the purchase of credits from the Abbot Creek Mitigation Bank.

Finally, NJEDA proposes to provide mitigation at a ratio of one (1) acre of impact to regulated resources to one (1) Bank credit with no higher mitigation ratios or apportionments applied. The rationale for this proposal is that the blended credits available from the Abbot Creek Bank have already considered the relative contribution to ecological services and functions by the various restoration categories within the

Bank (e.g., emergent wetland versus mudflat), and the blended credit total (76 credits) is significantly less that the overall restored and/or preserved acreage of the Bank (142 acres). The application of a mitigation ratio that is higher than 1:1 would therefore ignore the credit allocation of the Abbot Creek Bank and would constitute "double counting" of impact area/mitigation credits.

FIGURES

TABLES

ATTACHMENT A

ENGINEERING DESIGN DRAWINGS, PREPARED BY MOFFATT AND NICHOL

ATTACHMENT B

HYDROGRAPHIC SURVEY, PREPARED BY S. T. HUDSON ENGINEERS, INC., DATED JANUARY 2020

ATTACHMENT C

USACE SECTION 408 CORRESPONDENCE, DATED APRIL 8, 2020

ATTACHMENT D

SEDIMENT SAMPLING ANALYTICAL RESULTS

ATTACHMENT E

ESSENTIAL FISH HABITAT ASSESSMENT AND BIOLOGICAL ASSESSMENT, PREPARED BY AKRF, INC., DATED FEBRUARY 2023

ATTACHMENT F

ENVIRONMENTAL IMPACTS DRAWINGS, PREPARED BY MOFFATT & NICHOL, DATED JANUARY 31, 2023

ATTACHMENT G

STORMWATER MANAGEMENT REPORT, PREPARED BY MOFFATT AND NICHOL, DATED JANUARY 31, 2023

ATTACHMENT H

BENEFICIAL USE SUPPORTING DOCUMENTS

ATTACHMENT I

DECEMBER 9, 2013 LETTER FROM NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION, HISTORIC PRESERVATION OFFICE, HPO PROJECT NUMBER 09-0740-18, HPO-L2013-130

ATTACHMENT J

SEPTEMBER 25, 2013 LETTER FROM THE STATE OF DELAWARE, HISTORICAL AND CULTURAL AFFAIRS, FINDING OF NO ADVERSE IMPACT, 2010.01.19.02

ATTACHMENT K

2022 THREATENED & ENDANGERED SPECIES CORRESPONDENCE AND IPAC RESULTS

ATTACHMENT L

NEW JERSEY PORTS AND HARBORS EVALUATION, OFFSHORE WIND SUPPLY CHAIN, PREPARED BY RAMBOLL US CORPORATION, DATED MARCH 2019

ATTACHMENT M

DYNAMIC MODELING REPORT, PREPARED BY MOFFATT & NICHOL, DATED FEBRUARY 2023