

Appendix II-P2

Phase IA Terrestrial Archaeology Survey – O&M Facility

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May 2024

Phase IA Terrestrial Archaeological Resources Assessment

Atlantic Shores South Offshore Wind Project – Operations and Maintenance Facility

Atlantic City, Atlantic County, New Jersey

Redacted Version – Confidential and/or Privileged Information Removed

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MANAGEMENT SUMMARY

Involved State/Federal Agencies: Bureau of Ocean Energy Management
New Jersey State Historic Preservation Office
New Jersey Department of Environmental Protection

Phase of Survey: Phase IA Archaeological Survey

Location Information: Atlantic City, Atlantic County, New Jersey

Survey Area:

Facility Description: A proposed Operations and Maintenance (O&M) Facility consisting of office space, warehouse space, harbor area, and a potential adjacent parking area which will serve as the primary location for O&M operations.

Facility Site: The site consists of an approximately 1.22-acre (0.49-ha) shoreside private parcel to be purchased by Atlantic Shores and contain all components of the proposed Facility, and a potential adjacent parking structure on an approximately 2.0-acre (0.81-ha) portion of the existing state marina parking lot, totaling approximately 3.22 acres (1.30 ha).

Preliminary Area of Potential Effects: The Facility site; approximately 3.22 acres (1.30 ha).

USGS 7.5-Minute Quadrangles: *Oceanville, NJ and Atlantic City, NJ*

Archaeological Resources Overview: There are no archaeological sites recorded within the Facility Site; one archaeological site is mapped within a one-mile buffer.

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1.0 INTRODUCTION

1.1 Purpose of the Investigation

On behalf of Atlantic Shores Offshore Wind, LLC (Atlantic Shores), a 50/50 joint venture between EDF-RE Offshore Development, LLC, a wholly owned subsidiary of EDF Renewables, Inc. (EDF Renewables) and Shell New Energies US LLC (Shell), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) prepared this Phase IA Terrestrial Archaeological Resources Assessment (TARA) for the proposed Operations and Maintenance (O&M) Facility, located in Atlantic City, Atlantic County, New Jersey (see Figure 1)¹. The information and recommendations included in this TARA are intended to assist the New Jersey Department of Environmental Protection (NJDEP), New Jersey State Historic Preservation Office (NJHPO), the Bureau of Ocean and Energy Management (BOEM), and other relevant New Jersey State and/or Federal agencies and consulting partners in their review of the O&M Facility under Section 7:4 of the New Jersey Administrative Code (NJAC), the State of New Jersey Executive Order #215, and/or Section 106 of the National Historic Preservation Act (NHPA), as applicable. This TARA was completed in support of the Atlantic Shores Construction and Operations Plan (COP; EDR, 2021a) for Atlantic Shores' proposal to develop two offshore wind energy generation projects (the Projects) within BOEM Lease Area OCS-A 0499 (the Lease Area).

The purpose of the TARA is to inventory and characterize previously identified archaeological resources within the O&M Facility's Preliminary Area of Potential Effect for physical effects (PAPE; as described in Section 1.2) and evaluate the potential for unidentified terrestrial archaeological resources to be present within the PAPE. As summarized in Section 3.0, no archaeological monitoring of future geotechnical investigation is recommended.

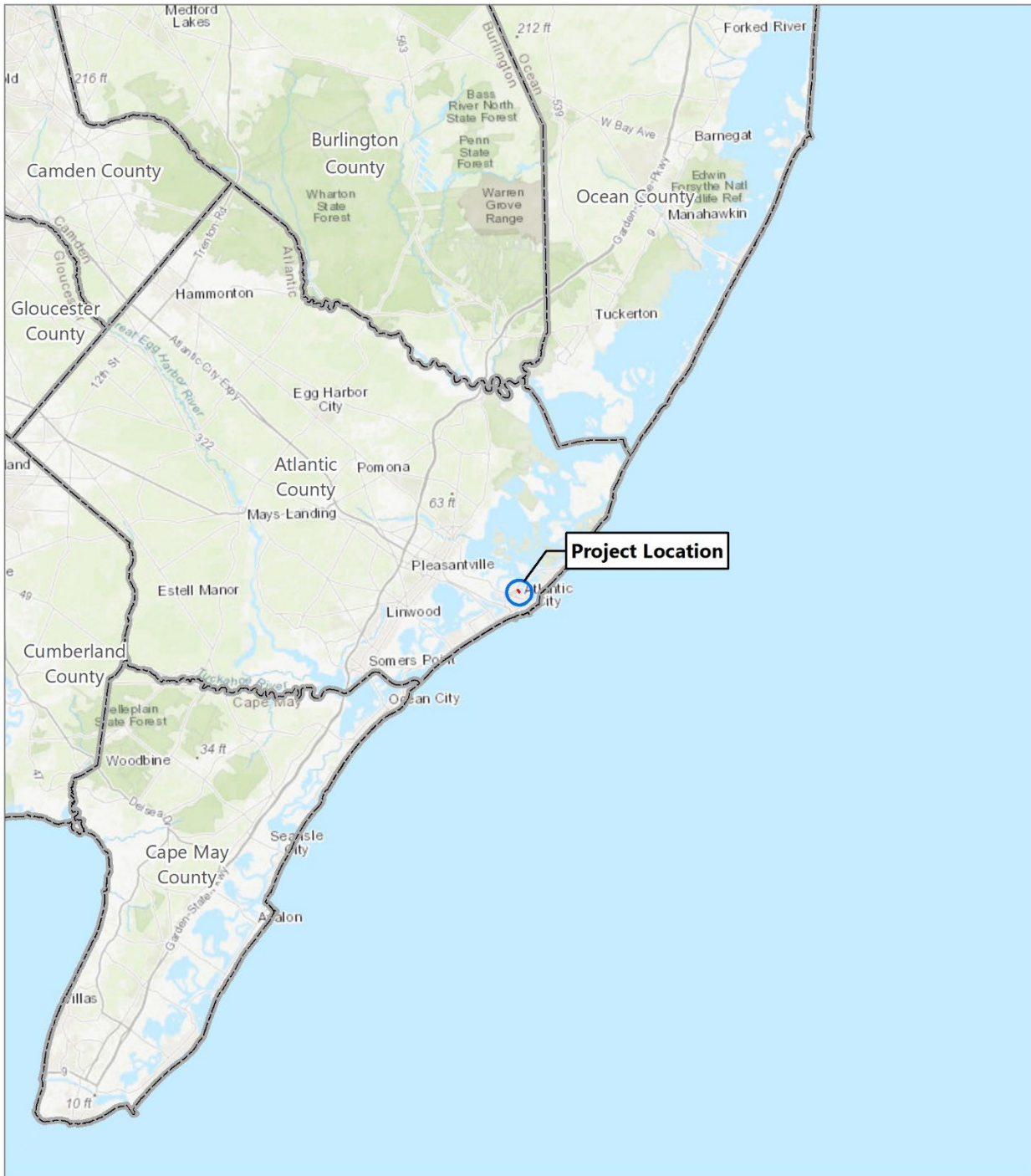
The TARA was prepared under the supervision of professional archaeologists who satisfy the qualifications criteria provided in the Secretary of the Interior's Standards for archaeology and historic preservation (Title 36 Code of Federal Regulations Part 61, Appendix A), as appropriate. The TARA was prepared in accordance with applicable requirements and guidance provided in NJAC 7:4-8.4 and 7:4-8.5, Requirements for Phase I Archaeological Survey and Requirements for

¹ Atlantic Shores intends to design, permit, and commence with required maintenance activities (maintenance dredging and bulkhead repair) independent and separate from the design, permitting, and planning of the O&M Facility that is currently being reviewed as part of BOEM's NEPA analysis for OCS Lease Area-A 0499. A replacement bulkhead is currently being designed and applicable USACE and NJDEP permit applications will be submitted to the applicable agencies for activity authorization. Any additional dredging needed for the subject property will be conducted under this existing permit the City of Atlantic City has obtained from the United States Army Corps of Engineers (USACE) approval (CENAP-OPR-2021-0573-95) and New Jersey Department of Environmental Protection (NJDEP) Dredge Permit No. 0102-20-0001.1 LUP 210001.

Archaeological Survey Reports (NJAC, 2015), further expanded and clarified by the New Jersey Historic Preservation Office (NJHPO 2000; 2008).

This TARA for the O&M Facility is included as Appendix II-P2 of the Projects' COP. A TARA for the Onshore Facilities is being prepared under separate cover as Appendix II-P1 of the Projects' COP (EDR, 2022). A Historic Resources Affects Assessment (HREA) to identify and document aboveground historic properties with potential visibility of the O&M Facility has been prepared and is provided under separate cover and included as Appendix II-N2 of the Projects' COP.

Figure 1. Regional Facility Location



 O&M Facility PAPE



Basemap: Esri ArcGIS Online "World Topographic Map" map service.

1.2 Description of Preliminary Area of Potential Effects

To facilitate BOEM's Section 106 review, Atlantic Shores prepared the *Preliminary Area of Potential Effects (PAPE) Memorandum* to describe and illustrate the Preliminary Area of Potential Effects (or PAPE) for the Projects (EDR, 2021b). As defined in that *Memorandum*, the PAPE included all locations under consideration where construction or operation of the proposed Projects has the potential to affect historic properties. The information used to define the PAPE therein was summarized from and references the Project Design Envelope (PDE) described in Volume I of the COP (EDR, 2021a). According to BOEM, "A PDE approach is a permitting approach that allows a project proponent the option to submit a reasonable range of design parameters within its permit application, allows a permitting agency to then analyze the maximum impacts that could occur from the range of design parameters, and may result in the approval of a project that is constructed within that range" (BOEM, 2020). The PDE approach allows Atlantic Shores design flexibility and an ability to respond to advancements in industry technologies and techniques.

To support the assessment of potential physical effects to historic properties and terrestrial archaeological resources within the PDE, Atlantic Shores established a PAPE for physical effects to historic properties and terrestrial archaeological resources which incorporates all areas of onshore ground disturbing project activities, or other construction activities that could result in demolition or alteration of existing buildings or other built features.

The Projects overall PAPE for physical effects consists of three distinct PAPEs; two separate PAPEs for the Project's two proposed Onshore Interconnection Cable Routes and associated Onshore Facilities, and one PAPE for the O&M Facility². This TARA addresses the O&M Facility Physical Effects PAPE, the breadth and depth of which is tabulated in Table 1.

Table 1. Summary of O&M Facility Physical Effects PAPE

Project Component	Maximum Horizontal Effect ³	Maximum Vertical Effect
O&M Facility	3.22 acres (1.30 ha)	Up to 60 ft. (18.3 m) of vertical disturbance if pilings or similar construction methods are required.

² A TARA for the Onshore Facilities is being prepared under separate cover as Appendix II-P1 of the Projects COP.

³ The *Preliminary Area of Potential Effects (PAPE) Memorandum*, which was submitted to BOEM as Appendix I-A of the COP, defined a Preliminary Area of Potential Effects for Physical Effects to above ground historic properties and terrestrial archaeological resources which was broken up into three distinct PAPEs associated with the Projects' two proposed Onshore Interconnection Cable Routes and the O&M Facility (EDR, 2021b). The PAPE referenced in this assessment is a refined version of the O&M Facility PAPE as defined in the *Preliminary Area of Potential Effects (PAPE) Memorandum*.

The final Area of Potential Effects (APE) will be formally determined by BOEM in consultation with NJHPO as part of the Section 106 consultation process. The process for identifying and evaluating effects on historic properties resulting from the construction and operation of the Project will involve consultation with BOEM and the NJHPO, Native American Tribes/Nations, and other consulting parties with a demonstrated interest in the historic properties (e.g., historic preservation organizations).

1.3 O&M Facility Location and Description

Once operational, the Projects will be supported by a new O&M Facility that Atlantic Shores is proposing to establish in Atlantic City, New Jersey. The O&M Facility will be used by Atlantic Shores as the primary location for O&M operations including material storage, day-to-day management of inspection and maintenance activities, vehicle parking, marine coordination, vessel docking, and dispatching of technicians. The O&M Facility will be designed to provide a safe and efficient operational flow of activities and equipment, and will consist of the following:

- office space, including a server/IT room to house the Project's IT infrastructure, and a control room for surveillance and coordination of offshore activities and Project operations;
- warehouse space, including full-height access for deliveries and equipment storage, a temperature and humidity-controlled electrical storage room, and a lifting facility;
- harbor area and quayside, including but not limited to vessel mooring, unloading capabilities, a crane, berthing area, and emergency spill response equipment; and
- outdoor area and parking structure, including storage space for spare parts and materials.

To establish the O&M Facility, Atlantic Shores intends to purchase and develop the 1.22-acre (0.49 hectare [ha]) shoreside parcel at 801 North Maryland Avenue in Atlantic City, New Jersey (see Figure 2). The current owner of the site is listed as Amoco Oil Company in New Jersey Department of Environmental Protection (NJDEP) documents; it is presumed that the parcel was formerly used for oil storage, vessel docking, or other port activities. Construction of the O&M Facility is expected to involve the construction of a new building and a potential adjacent parking lot structure, repairs to any existing bulkheads/docks, installation of new dock facilities, and limited marine dredging. The potential adjacent parking structure may occupy an approximately 2.0-acre (0.81-ha) portion of the existing state marina parking lot parcel northwest of the 801 North Maryland Avenue parcel (see Figure 2).

A field visit to the Facility Site by Joseph Kwiatek on September 14, 2021, documented the 801 North Maryland Avenue parcel and observed a vacant lot in a state of disrepair. Sections of

cracked concrete paving cover most of the ground surface, with grass and weeds growing out of the gaps (Photograph 1). A chain link fence encloses the site on its three land facing sides, the fourth side is open to the water/marina. The southern third of the parcel has grass ground cover enclosed within a an approximately 5-foot (ft.)-tall concrete wall (Photograph 2). Within the concrete wall three large concrete, sand, and gravel foundation pads of roughly octagonal shape are visible on the ground surface. Partially collapsed wood and concrete bulkheading faces the marina (Photograph 3). Closer inspection of the bulkhead revealed an approximately 1.5-2.0-ft.-thick concrete pad capping the northern portion of the site, and a short, four-course-high brick wall remnant extending above ground the surface grade (Photograph 4). During the September 2021 visit Kwiatek also traversed and observed the paved state marina parking lot, though photographs were not taken at that time. A follow up visit to the Facility Site by Atlantic Shores personnel included photographic documentation of the state marina parking lot parcel, including a moderately-well maintained paved parking lot that is still currently in use (Photograph 5 and Photograph 6). A chain link fence with wooden posts and perimeter landscaping borders the parcel on the side adjacent to North Maryland Ave, while the remaining sides are left open to the remainder of the parking lot and the water/marina. The Southern portions of parcel face dense vegetation that was observed in the 801 North Maryland parcel and contains a large ornamental landscaping area containing pine trees (Photograph 7).

For the purposes of evaluating the potential effect of the proposed O&M Facility on archaeological sites, the following terms are used throughout this document to describe the proposed action:

- **The Projects:** Atlantic Shores' proposal to develop two offshore wind energy generation projects within the southern portion of the BOEM Lease Area OCS-A 0499.
- **The O&M Facility:** Collectively refers to all components of the proposed O&M Facility, which is planned to include office space, including a server/IT room to house the Project's IT infrastructure, and a control room for surveillance and coordination of offshore activities and Project operations, warehouse space, harbor area and quayside, and outdoor area and parking structure.
- **The Facility Site:** The combination of the 1.22-acre (0.49-ha) shoreside parcel planned for purchase by Atlantic Shores which will contain all planned construction and upgrades associated with the O&M Facility and a 2.00-acre (0.81-ha) portion of the State Marina parking lot parcel to the northwest which may contain a potential adjacent parking structure, totaling approximately 3.22 acres (1.30 ha).
- **The O&M Facility Preliminary Area of Potential Effects (PAPE):** Includes all areas where planned ground disturbance has the potential to impact archaeological resources.

Horizontally this includes the entire 3.22-acre (1.30-ha) Facility Site and vertically this may extend up to 60 feet (ft.) (18.3 meters [m]) in depth if pilings or comparable features are required to construct the O&M Facility (Table 1).



Photograph 1. Overview of the shoreside parcel at 801 North Maryland Avenue with cracked concrete paving and chain link fence. View to the southeast.

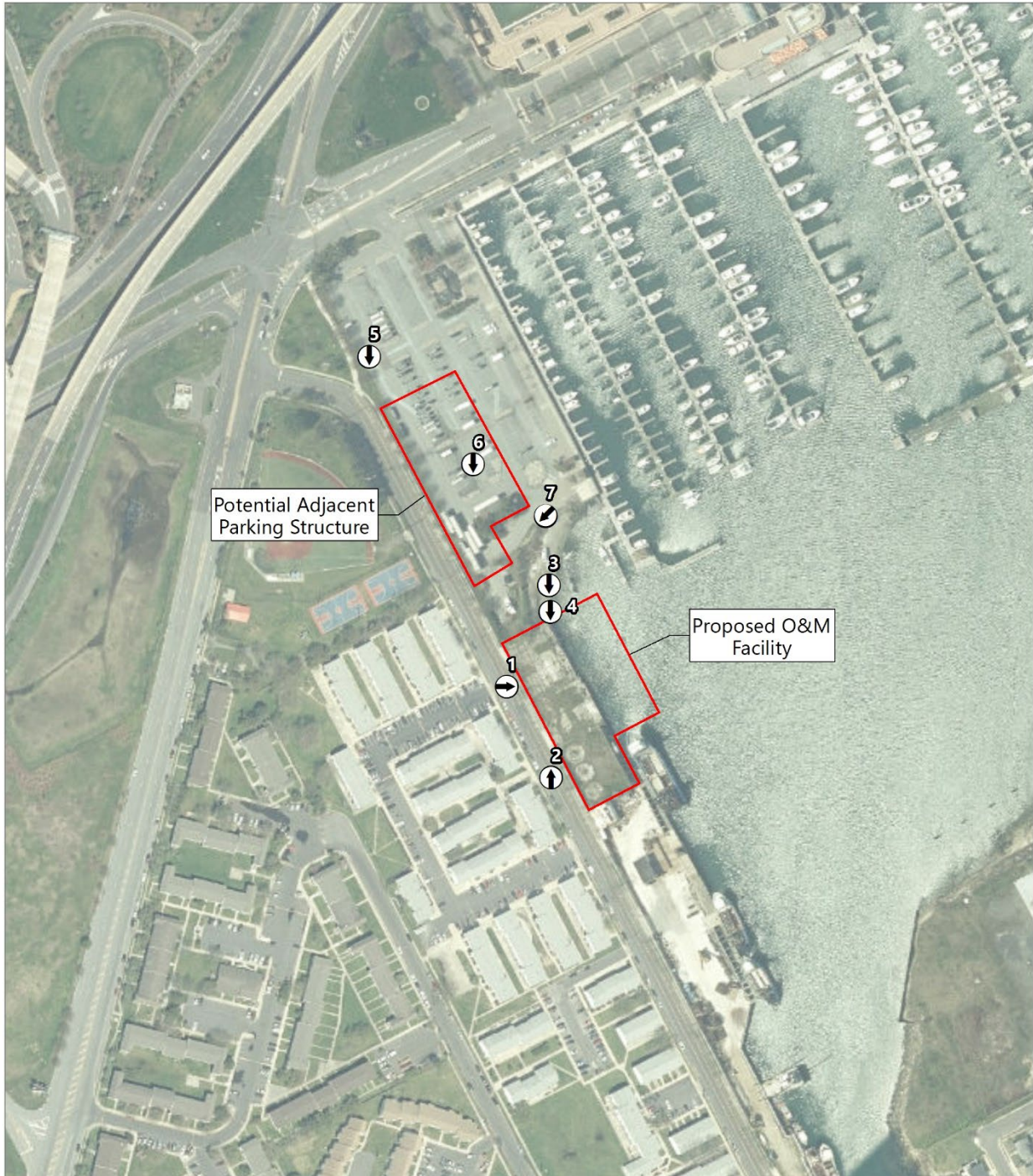


Photograph 2. Overview of the southern portion of the proposed Facility Site, enclosed in a concrete wall with roughly octagonal concrete foundation pads. View to the north.



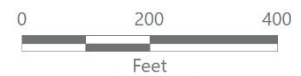
Photograph 3. Overview of partially collapsed wood and concrete bulkhead facing the marina. View to the south.

Figure 2. Facility Site / Preliminary Area of Potential Effect

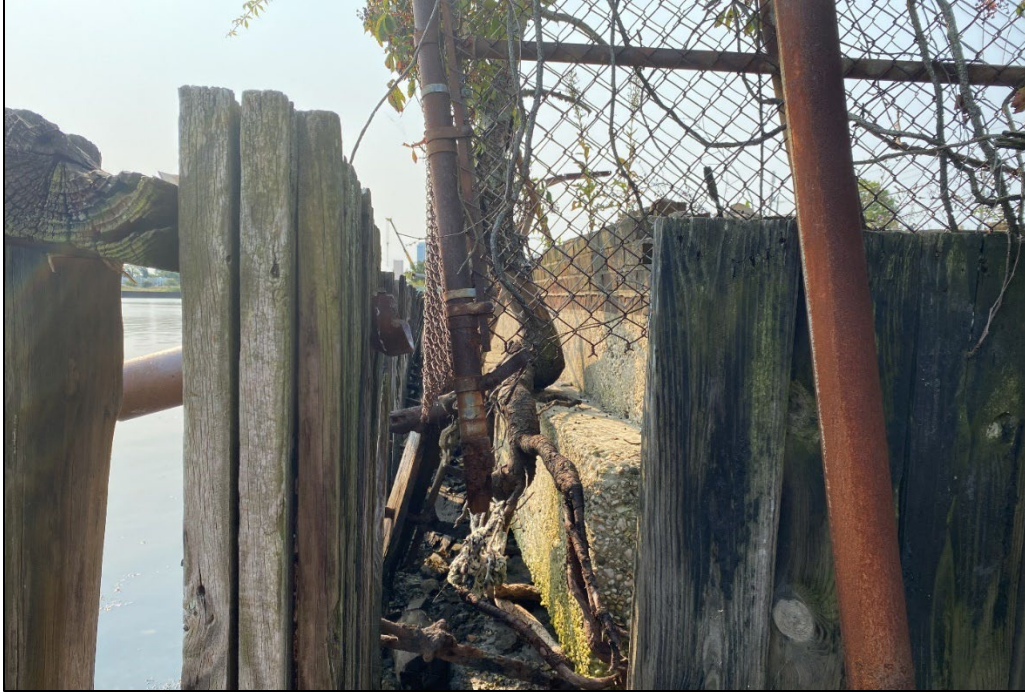


↑ Photograph Locations

▭ O&M Facility PAPE



Basemap: NJ Office of Information Technology and Office of GIS' NJ 2020 Natural Color Imagery™ map service.



Photograph 4. Close up of bulkhead in disrepair, showing thick concrete foundation pad and remains of a brick wall.



Photograph 5. Overview of the state marina parking lot parcel, showing the fencing and perimeter landscaping bordering North Maryland Avenue, view to the south.



Photograph 6. Overview of the state marina parking lot parcel, showing a close-up view of vegetation in the southern portion of the parcel, view to the south.



Photograph 7. Overview of the southern portion of the state marina parking lot parcel, showing a close-up view of the landscape ornamentation area located in the PAPE, view to the southwest.

2.0 BACKGROUND RESEARCH AND SITE HISTORY

A general cultural context of the PAPE can be found in Section 3.1 of EDR's *Terrestrial Archaeological Resources Assessment Atlantic Shores South Offshore Wind Project – Onshore Interconnection Facilities, Monmouth and Atlantic County, New Jersey* (EDR, 2022; Appendix II- P1: Section 3.1).

EDR reviewed the Look Up Cultural Resources Yourself (LUCY) website maintained by NJHPO to determine whether previously identified cultural resources were located within or adjacent to the PAPE for the O&M Facility (NJHPO, 2021a). EDR conducted archaeological site file research through correspondence with the New Jersey State Museum (NJSM) in Trenton, New Jersey and the Pinelands Commission in New Lisbon, New Jersey. EDR also reviewed historic maps and aerial photographs to ascertain past land uses and determine whether any map-documented structures (MDS) were depicted within or adjacent (i.e., within 200 ft.) to the Facility Site in order to assess the potential historic-period archaeological sensitivity of the PAPE.

Historic aerial imagery dating from 1995 to 2020, available through Google Earth (Google, 2021), was utilized to assess the recent conditions and land uses within the Facility Site. Additional historic aerial imagery from LUCY and other online sources was also inspected (NJDEP, 2021; Historic Aerials, 2021) to determine prior land use. Natural Resources Conservation Service (NRCS) soil data was also assessed to provide supplementary insight into the Facility sites' geomorphic setting and any potential anthropogenic disturbance (NRCS, 2021).

Background research revealed the following about the proposed O&M Facility:

- The locations of all previously identified archaeological sites adjacent to the proposed O&M Facility are depicted on Figure 3 (note: archaeological site locations depicted on these figures are considered confidential/sensitive information and should not be shared publicly). No previously identified archaeological resources are located within the PAPE.
- One Native American archaeological site and zero historic-period archaeological sites [REDACTED] This site is summarized below, and its location is shown in Figure 3.
 - Site 28-At-105, [REDACTED] is recorded as single-component Native American site of 113 lithic artifacts attributed to the Paleoindian period (Stanzeski, 1998 and 2005). The artifacts were recovered in the 1960s and 1970s by a local avocational archaeologist. The site was identified within a secondary deposit of fill or dredge spoil. The recording archaeologist noted very deep fill deposits [REDACTED], and that the soils

on site were likely trucked in from mainland gravel pits (Stanzeski, 2005). [REDACTED]

[REDACTED]. At the time of recording the site had been developed and destroyed by the previous construction of [REDACTED].

- Historical maps reviewed included 1828 Gordon *A Map of the State of New Jersey*, 1872 Beers *Topographical Map of Atlantic County, NJ*, 1877 Howell *The State of New Jersey*, and 1888 Cook, Smock, and Vermeule *Topographical Map of Egg Harbor and Vicinity*. Additionally, multiple USGS quadrangles were reviewed including the 1894 and 1940 USGS *Atlantic City, NJ* 1:62,500 Topographic Quadrangles, and the 1952 and 1989 USGS *Atlantic City, NJ and Oceanville, NJ* 1:24,000 Topographic Quadrangles.
 - Historical maps and USGS quadrangles indicate that during the late 1800's the Facility Site was comprised of undeveloped tidal marshland north of Atlantic City and west of the Absecon Inlet (Figure 4). By 1940, USGS quadrangles show the expanded footprint of development to the north of Atlantic City with landforms similar to the present-day arrangement (Figure 5). The 1940 USGS *Atlantic City, NJ* 1:62,500 Topographic Quadrangle shows a dockside structure in the vicinity of the Facility Site on the west side of the basin/harbor named Clam Creek. The 1940 Quadrangle also depicts a C. G. (Coast Guard) Base to the northeast of the Facility Site across Clam Creek, and additional structures and residential blocks to the southeast. The 1952 USGS *Oceanville, NJ* 1:24,000 Quadrangle depicts a dock structure extending into the water from the Facility Site, and additional marina piers/docks north of the Facility Site (the present-day State Marina).

Figure 3. Previously Recorded Archaeological Sites [REDACTED] of the Facility Site
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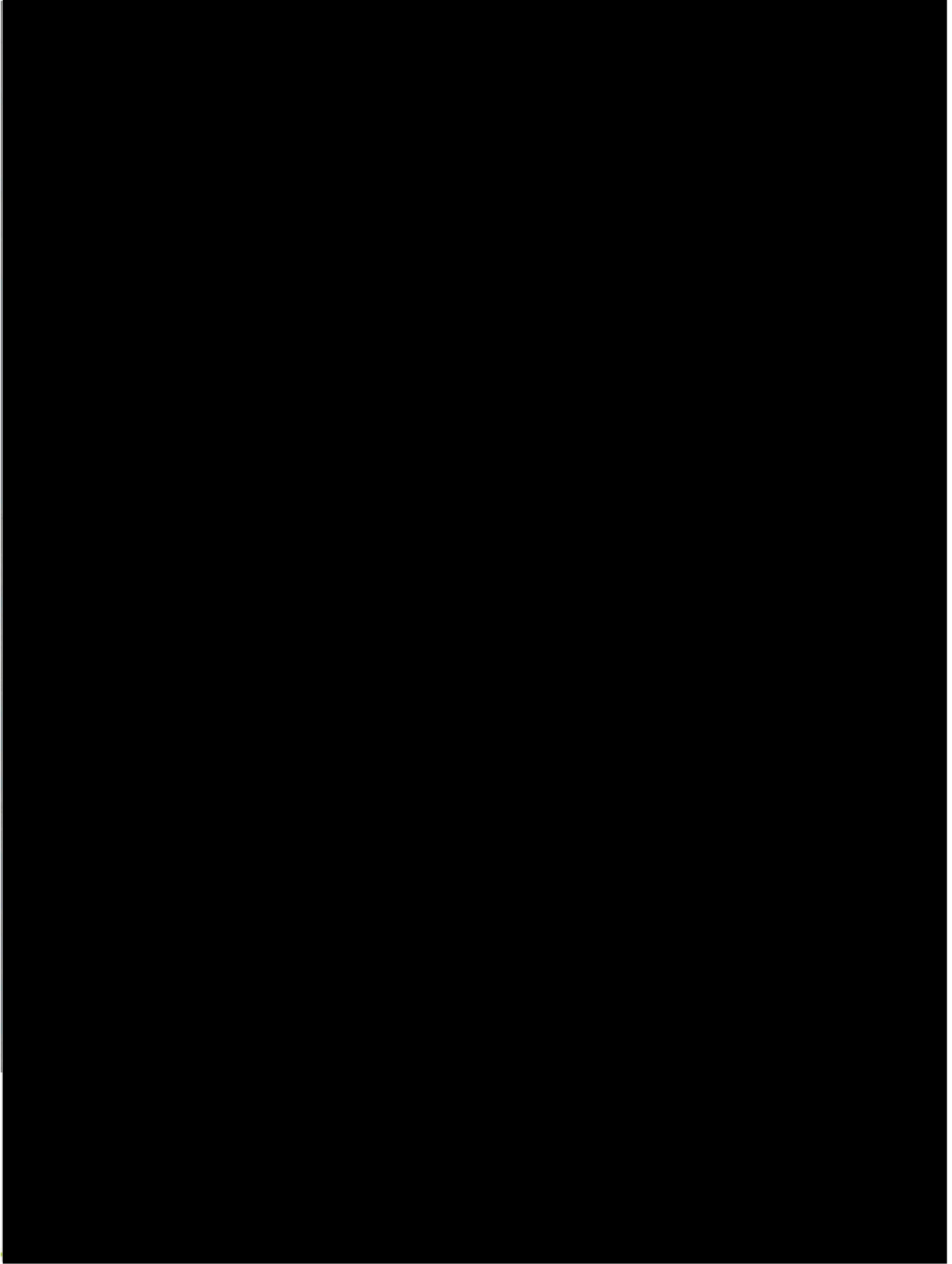
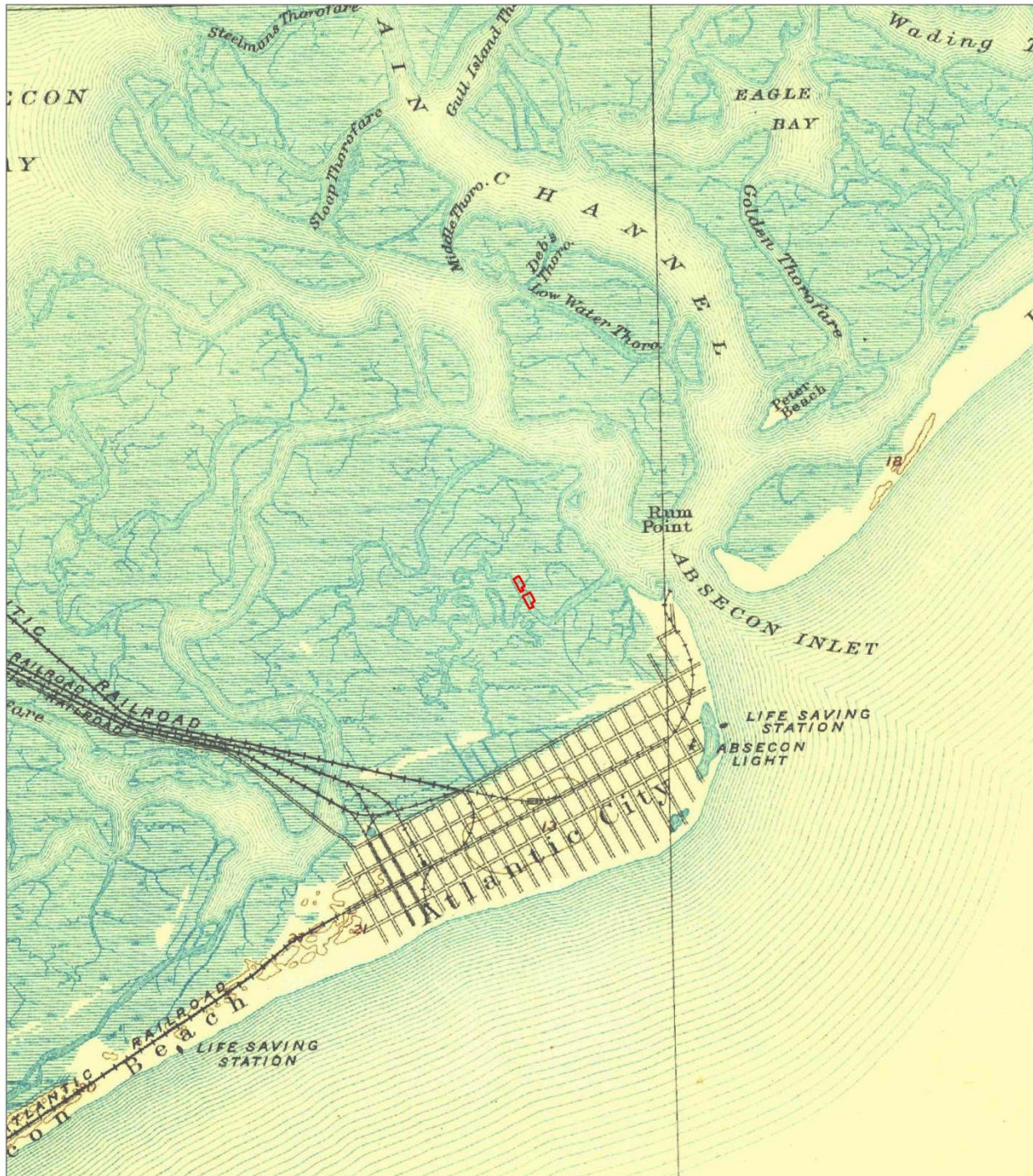
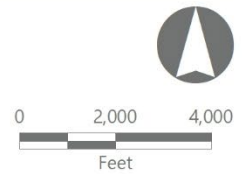


Figure 4. 1894 Atlantic City, NJ USGS 1:62,500 Quadrangle



 O&M PAPE

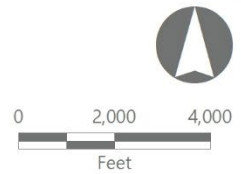


Basemap: 1894 Atlantic City, NJ USGS 1:62500 Topographic Quadrangle

Figure 5. 1940 Atlantic City, NJ USGS 1:62,500 Quadrangle



 O&M Facility PAPE



Basemap: 1940 Atlantic City, NJ USGS 1:62500 Topographic Quadrangle

- Historical aerial photography reviewed included images from LUCY's 1930's Aerial Photography of New Jersey (NJDEP, 2021a), Historic Aerials website photographs from 1920 through 2017 (Historic Aerials, 2021), and Google Earth's 1995 to 2020 imagery (Google, 2021).
 - Aerial photography from 1920 shows the Facility Site as undeveloped tidal marshland and braided waterways. LUCY's 1930 images show a developed lot and dock structure on the Facility Site on what appears to be infilled/reclaimed land. Circular tanks/containers are also visible, in an arrangement matching the roughly octagonal foundation areas seen during EDR's field visit (Photograph 3).
 - Imagery from 1957 clearly shows a large standing structure in the north/northeast corner of the shoreside parcel, a dock extending into the marina from roughly the center of the parcel, and six large circular tanks (presumably oil tanks) surrounded by a wall in the southern portion of the parcel (matching the walled southern portion of the lot and octagonal foundation areas observed during the field visit). A few smaller structures and vehicles are visible between the larger structure and the tank area. Sandy shore and a grass covered lot are visible in the area of the proposed parking structure. Imagery from 1963 through 1984 shows the structures within the shoreside parcel in the same configuration as the 1957 imagery. The location of the potential adjacent parking structure remains a grass covered lot until 1995, when imagery depicts a paved lot similar to the present-day condition of the parcel. A residential apartment complex appears to the west/southwest of the Facility Site on the west side of Maryland Avenue in 1970's imagery.
 - Between 1984 and 1995 the six large tanks are removed from the southern portion of the shoreside parcel and a new dock extending from the parcel to the south/southeast intrudes into the water off the southeast corner of the Facility Site. By 2002 the large structure in the north/northeast corner of the shoreside parcel has been demolished, and the concrete paving covering the site is cracked and in disrepair. Beginning in 2011, imagery shows the continual degradation of the dock structure extending from the center of the shoreside parcel and its presumed collapse into the marina, until it is no longer visible in 2017 imagery.
- Per NRCS (NRCS, 2021) soil data, the PAPE is comprised of frequently flooded Psammaquents (PstAt), sulfidic substratum, 0-2% slopes (Figure 6). This soil type is a sandy wet soil formed in tidal mudflats, typically with approximately 36 inches (in.) of coarse to gravelly sand overlying approximately 44 in. of mucky peat. This soil unit is naturally subjected to tidal flooding and erosion, though aerial imagery shows the on-land portion

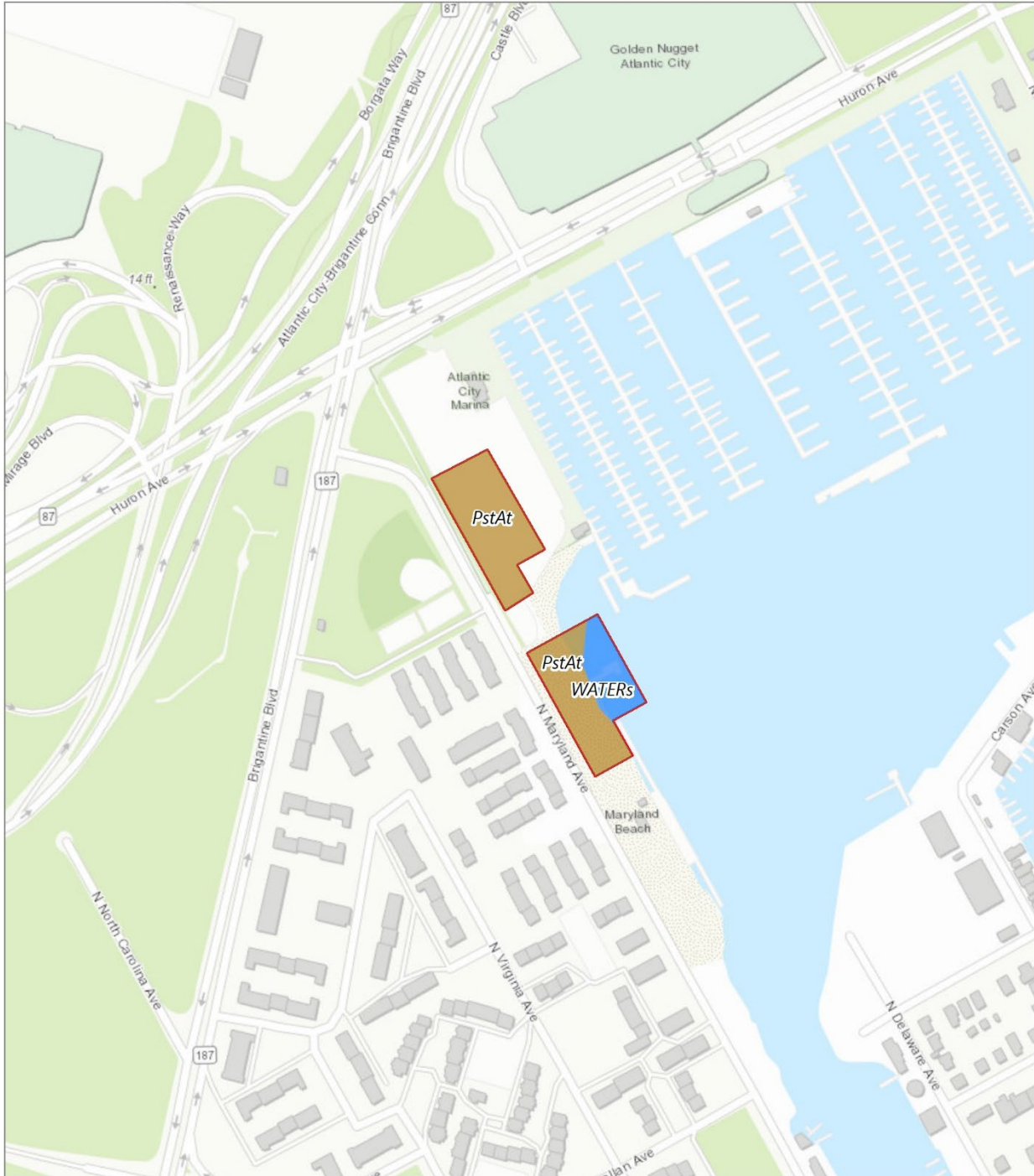
of the PAPE capped by concrete paving and protected by bulkheading since 1930 as discussed above. Although NRCS soil mapping indicates natural mudflat deposits may occur in the PAPE, geotechnical soil borings done for the New Jersey Department of Transportation (NJDOT) just northwest of the PAPE at the intersection of Huron Avenue, Maryland Avenue, and Brigantine Boulevard encountered “manmade fill materials” that ranged from 6.0 to 18 ft. deep (Davinoff, 1985). It is therefore highly likely that these deep “man-made” fill deposits also exist within the PAPE. Additionally, a memorandum to BOEM dated July 25, 2022 (Atlantic Shores, 2022) noted that the soil within the PAPE is contaminated with petroleum compounds related to the location’s previous use as a bulk petroleum storage and distribution facility. As a result, excavation of any shovel test pits (STPs) within the PAPE would likely carry significant environmental and/or health and safety concerns regarding said soil contamination. Atlantic Shores anticipates conducting geotechnical investigations within the PAPE prior to construction. EDR recommends archaeological monitoring of those borings to determine the presence or absence of potentially intact soil deposits below the fill material.

- A review of the NJHPO website and LUCY, as well as email correspondence with NJHPO showed that numerous architectural and archaeological surveys have been conducted within Atlantic City, though only one was identified to overlap with the PAPE (NJHPO, 2021b). The 2021 *Orsted Operations & Maintenance Facility Project* (AKRF, 2021) report was an above-ground architectural resources survey conducted for another proposed offshore wind O&M facility site located immediately southeast of the proposed Atlantic Shores O&M Facility Site on the east side of the Delta Basin. This report included an evaluation and survey of a PAPE which included the entire Atlantic Shores O&M Facility PAPE, as well as the marina and the portions of N Maryland Ave adjacent to the PAPE. This survey did not identify any above-ground architectural resources with State and/or National Register of Historic Places (S/NRHP) eligibility within the O&M Facility PAPE. Additionally, the AKRF report concluded that the undertaking in that report (the construction of a waterfront O&M facility) would have no direct effects on historic properties. This included the proposed replacement of an existing bulkhead on the east side of the Delta Basin similar in construction and materials as the bulkhead observed at the Facility Site (see Photograph 3 and Photograph 4).
- The United States Army Corps of Engineers (USACE) manages a navigational channel through the Absecon Inlet which extends into Clam Creek, immediately east of the PAPE and south of the State Marina (USACE, 2012). Within Clam Creek this navigational channel includes a dredged entrance channel 15 ft. deep and 200 ft. wide, and a turning basin 15 ft. deep. The most recent dredging activity occurred in 2021. National Oceanic and

Atmospheric Administration (NOAA) charts depict a 15-16 ft. deep area immediately east of the PAPE which is likely the turnaround basin (NOAA, 2021).

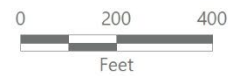
- The 1996 *Phase I and II Submerged and Shoreline Cultural Resources Investigations, Brigantine Inlet to Hereford Inlet, Atlantic and Cape May Counties, New Jersey* included background research on a “borrow area” on the northeast side of the USACE navigational channel through the Absecon Inlet east of the PAPE (Dolan and Hunter, 1996). Though the survey identified and investigated numerous potential underwater resources, none were noted within Clam Creek adjacent to the proposed O&M Facility Site.

Figure 6. Soil Units within the O&M Facility PAPE (NRCS, 2021)



PAPE Soil Unit

- PstAt - Psammaquents, sulfidic substratum, 0-2% Slope
- WATERS - Water, saline
- O&M Facility PAPE



Basemap:Esri ArcGIS Online "World Topographic Map" map service.

Though no previous archaeological sites are mapped within the PAPE, [REDACTED], the Facility Site is considered to have a Medium to Medium-High sensitivity for the presence of Native American archaeological resources. However, due to the extent of prior ground disturbance indicated by the reviewed soil mapping and geotechnical data, as well as observed in historical mapping and aerial photography, there is a very low likelihood for intact Native American archaeological resources to be located within the Facility Site. Similarly, there is a very low likelihood for any potential intact historic-period archaeological resources that predate the land reclamation and industrial construction on the lot observed in 1930's aerial photography.

Historical aerial photography depicts the Facility Site as undeveloped tidal marshland until 1930, at which time the land is reclaimed, and the site is developed into an industrial parcel with multiple buildings and circular tanks (presumably used for oil storage) that remain in a relatively fixed layout until approximately 1984. In imagery from 1984 through 2002, the storage tanks and buildings are demolished and/or removed. The only extant structures are the concrete pad and walls on site and the wooden/concrete bulkhead, though all are in a state of disrepair which have compromised their integrity (see Photograph 1-Photograph 4). In addition, all of the extant structures are quite typical examples of industrial and/or waterfront construction which lack any association with historically significant people, events, or methods of construction. Further study of these structures is unlikely to yield important or additional historical information.

Consistent with the findings in a similar assessment (in close geographical proximity on the east site of Delta Basin) about the construction of a proposed O&M facility (AKRF, 2021), this assessment proposes that the existing walls and foundation pad, and the partially collapsed wood and concrete bulkhead at the O&M Facility Site are structures that are not S/NRHP eligible. EDR recommends a finding of no historic properties affected for any alteration and/or replacement of the existing bulkhead.

In addition, NJHPO's *Guidelines for Phase I Archaeological Investigations: Identification of Archaeological Resources* (hereafter, NJHPO's *Guidelines*; NJHPO, 2019) that it may be possible to eliminate part or all of the APE from further investigation if it can be demonstrated that recent disturbance has rendered it unlikely that any potentially significant archaeological sites have survived. As such, no further archaeological investigation is recommended since the O&M Facility Site has been significantly disturbed by well documented anthropogenic activities since the early-twentieth century.

3.0 SUMMARY AND CONCLUSIONS

3.1 O&M Facility Site Summary

Based on the results of the background research, the PAPE possesses a low likelihood for the presence of intact Native American and historic-period archaeological resources. This determination is largely dependent on the lack of stable soil units, extent of made land, and well documented history of disturbance.

The O&M Facility Site has been significantly disturbed by anthropogenic activities since the early-twentieth century. The entire Facility Site is located on made-made reclaimed land that was formerly undeveloped tidal marshland. The O&M Facility Site is mapped within unstable tidal mudflat (PstAt) soil, while geotechnical evidence near the PAPE indicates man-made fill and/or dredged material between 6.0 and 18 ft. deep. Atlantic Shores anticipates conducting geotechnical investigations within the PAPE prior to construction. EDR recommends archaeological monitoring of those borings to determine the presence or absence of potentially intact soil deposits below the fill material.

Historic maps and aerial photography document the history of the Facility Site from the late nineteenth century to present day. Former structures (removed/demolished between 1984 and 2002) within the O&M Facility Site date to the mid-twentieth century; it is unlikely that potentially significant archaeological resources are associated with these former structures. Previous surveys conducted for submerged cultural resources in the vicinity of the PAPE did not note any resources within Clam Creek. Dredging of a navigational channel and turn around basin has likely disturbed the underwater sediments within the PAPE.

One previously recorded Native American archaeological site (28-At-105) is [REDACTED]. However, this site was located within secondary deposits [REDACTED]. Any Native American material uncovered in non-local, secondary fill deposits are not considered intact enough to possess the integrity needed to be eligible for the S/NRHP (see detailed description of eligibility qualifications below). Therefore, the presence of 28-At-105 is not necessarily indicative of increased Native American archaeological sensitivity in the area. No previously recorded historic-period archaeological sites were located within one mile of the PAPE.

In accordance with federal regulations (36 CFR § 60.4) and guidelines outlined by the National Parks Service (NPS, 1997), a property is eligible for the National Register of Historic Places if it meets one or more of the following criteria:

- A. Association with events that have made a significant contribution to the broad patterns of our history.
- B. Association with persons significant in our past.
- C. Embody the distinctive characteristics of a type, period, or method of construction, or that embody the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction.
- D. Have yielded or may be likely to yield information important in prehistory or history.

The proposed O&M Facility location was used in the mid-twentieth century as an industrial parcel that was presumably used for oil storage. No significant structures are currently present at the Facility Site, and the historic map and aerial photography review did not depict any structure that was atypical from any extant midcentury structures located within industrial parcels in Atlantic City or the greater region. Furthermore, background research did not uncover any indication that the parcel was associated with any local or regional historic event or individual, nor does it provide any new information on midcentury industrial practices in the area. The Facility Site therefore does not meet any of the four criteria for National Register eligibility.

In addition to the four criteria, a property needs to possess integrity of location, design, setting, workmanship, feeling, association, or in the case of archaeological sites – possess intact cultural deposits. The demolition of major industrial structures within the Facility Site in the late twentieth century has eliminated all possible integrity regarding industrial function and architectural features. Site history review has determined that the area in and around the O&M Facility was subjected to extensive ground disturbance via dredging and fill activity. It is therefore highly unlikely that any archaeological material uncovered in the Facility Site would possess sufficient integrity to meet National Register eligibility criteria. Due to the extent of previous disturbance and land reclamation within the area being considered for the O&M Facility, proposed ground disturbance (i.e., construction of office and warehouse space, parking structure and outdoor space, modifications/upgrades to the harbor area and quayside, and limited dredging) will likely be limited to areas that have been previously disturbed from the early-twentieth century onwards.

EDR recommends archaeological monitoring of future geotechnical borings onsite. If geotechnical borings uncover the presence of potentially intact soil deposits below the fill material (and within the 60 ft. (18.3 m) vertical PAPE of potential pilings or other construction methods), then out of an abundance of caution EDR would recommend archaeological monitoring of the construction and installation of those pilings. It is anticipated that the exact locations and scope of this monitoring will be determined in consultation with BOEM, NJHPO, and consulting Native American Tribes during Section 106 consultation regarding the Projects.

For all construction activities confined to a depth that does not exceed that of the disturbed fill, EDR recommends no further archaeological investigation.

3.2 Conclusions

Atlantic Shores has proposed that the O&M Facility be located within a vacant industrial parcel and existing parking lot to avoid or minimize the risk of potentially encountering undisturbed archaeological deposits. The results of background research and the archaeological reconnaissance described herein indicate that the onshore portions of the PAPE have likely been significantly disturbed by land reclamation and construction throughout the twentieth century. The submerged portions of the PAPE are unlikely to contain significant cultural resources based on prior assessments and dredging disturbances in the immediate vicinity. Therefore, in the opinion of EDR, there is low likelihood for intact or potentially significant archaeological resources to be located within the PAPE. However, out of an abundance of caution, EDR recommends archaeological monitoring of future geotechnical investigations within the PAPE. If geotechnical borings uncover the presence of potentially intact soil deposits below the well documented fill material, EDR would recommend archaeological monitoring of construction and installation that exceeded the fill depth (such as potential pilings or other construction methods). No further archaeological investigation is recommended for any construction that does not exceed the depth of fill within the PAPE.

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**Attachment A.
Resumes of Key Personnel**



Joseph is an Archaeology Project manager with over 10 years of experience in Cultural Resource Management. He has successfully directed Phase I through Phase III archaeological investigations in rural upland settings, within agricultural floodplain deposits, and inner-city urban environments. Joseph has extensive experience in field survey, site excavation, and managing client/contractor relationships. His technical skills include use of GIS/ArcMap software, Trimble and Arrow GPS devices, Total Station/Transits with data collectors, and metal detectors. He has worked across the Mid-Atlantic region, as well as in the high Sierras of California and the desert of northern Kenya and has authored or co-authored numerous technical reports for projects in New Jersey, Pennsylvania, Delaware, New York, Connecticut, and Rhode Island.

As an Archaeology Project Manager with EDR, Joseph is responsible for directing archaeological studies and investigations. This includes directing junior staff and/or personally conducting literature review/research in support of cultural resources and environmental analyses; compiling and analyzing data from cultural resources and/or archaeological surveys; evaluating archaeological site significance; GIS based archaeological sensitivity analysis; artifact processing, analysis, and curation; and preparing archaeological survey reports. Documents prepared pertain to Phase IA/IB cultural resources surveys, Phase II site investigations, Phase III data recoveries, and similar types of studies including the following: Section 94-c exhibits, Renewable Energy Construction and Operations Plan (COP) exhibits, New York State Article VII application exhibits, Unanticipated Discoveries Protocols, Monitoring and Post Review Discoveries Plans, Phased Identification Plans, Site Avoidance and Protection Plans, Native American Tribal Communications Plans, and Historic Property Treatment Plans. Kwiatek also supports clients/developers in consultation meetings with state and/or federal agencies and other consulting parties, prepares project proposals and manages budgets, and contributes to Critical Issues Analyses.

Education

- Bachelor of Science, Evolutionary Anthropology and Archaeology, Minor in Geology, Rutgers University, New Brunswick, NJ, 2010
- Koobi Fora Field School, Koobi Fora, Kenya, 2008

Registration / Certifications

- OSHA 40-hr HAZWOPER, Safety Unlimited
- OSHA 30-hr Construction Outreach
- Competent Person Excavation Safety
- Long Island Railroad (LIRR) Roadway Worker Protection Training
- Adult First Aid/CPR/AED, American Red Cross

Professional Affiliations

- Archaeological Society of New Jersey

Employment History

- Project Archaeologist, Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C., 2021-present
- Archaeological Supervisor, AECOM, Burlington, NJ, 2016-2021

Project Experience

Terrestrial Archaeological Resources Assessments for the Atlantic Shores North Offshore Wind Project, Monmouth and Atlantic Counties, NJ, and Kings and Richmond County, NY – Archaeology Project Manager. Conducted Phase IA assessment and background research, including GIS based sensitivity analysis of potential landfall sites, onshore cable routes, and substation locations. Co-authored State Historic Preservation Office (SHPO) reports and supplemental exhibits for the project's COP submittal to the Bureau of Ocean Energy Management (BOEM).

Terrestrial Archaeological Resources Assessments for the Atlantic Shores South Offshore Wind Project, Monmouth and Atlantic Counties, NJ – Archaeology Project Manager. Conducted Phase IA assessment and background research, including GIS based sensitivity analysis of potential landfall sites, onshore cable routes, and substation locations. Produced Phased Identification and Monitoring and Post Review Discoveries Plans. Co-authored SHPO reports and supplemental exhibits for the project's COP submittal BOEM. Provides ongoing support such as managing ongoing Phase IB survey effort and responding to agency RFIs.

Phase IA/IB Archaeological Survey for the Sunrise Wind Farm Project, Suffolk County, NY – Archaeology Project Manager. Conducted Phase IA assessment and background research. Directed Phase IB field activities, including supervising multiple work crews during STP excavation in residential neighborhoods, DOT ROW, and utility corridors. Scheduled mark outs and coordinated with utility locators. Prepared state/county/town highway work permit applications. Co-authored SHPO reports for the

project's COP submittal BOEM. Provides ongoing support for Section 106 consultation meetings between the developer, federal agencies, and consulting parties.

Cultural Resources Support for the Queensboro Renewable Express, Kings, Queens, and New York Counties, NY – Archaeology Project Manager. Provided technical expertise through review of subconsultant technical reports and review/edits to NYS Article VII application exhibits. Served as primary SHPO contact.

Historic Property Treatment Plans (HPTPs) for the Revolution Wind Farm Project – Project Archaeologist. Conducted research on how maritime views contributed to the setting and feeling of historic properties within a theoretical viewshed of the project. Co-authored HPTPs including proposed mitigation measures for historic properties identified as potentially adversely effected.

NYS Article VII Application for Beacon Wind 1, Astoria, Queens County, NY – Project Archaeologist. Reviewed subconsultant technical reports for sufficiency. Authored NYS Article VII application exhibits on terrestrial and marine archaeological resources.

Phase IA Archaeological Survey for the Little Falls Connector Project, Herkimer County, NY – Project Archaeologist. Conducted Phase IA archaeological assessment and background research for proposed construction activities within and adjacent to the New York State Barge Canal. Prepared technical report subject to review by the New York Power Authority, the U.S. Army Corps of Engineers, and other agencies.

Supplemental Archaeological Assessment and Phase IB Archaeological Survey for the South Fork Export Cable, Suffolk County, NY – Project Archaeologist. Conducted archaeological assessment and background research for proposed construction easements adjacent to the LIRR railroad. Directed Phase IB fieldwork. Co-authored SHPO report.

Phase I Archaeological Survey for the Elm Line Battery Storage Project, Tioga County, NY – Project Archaeologist. Conducted Phase IA assessment and background research. Managed Phase IB field work. Co-authored SHPO report.

Phase IA Archaeological Survey for the Moraine Solar Energy Center, Allegany County, NY – Project Archaeologist. Conducted Phase IA assessment and background research. Co-authored SHPO report and supplemental exhibits for the project's 94-c application. Drafted outreach letters to Native American Nations.

Phase IB Archaeological Survey for the Bear Ridge Solar Project, Niagara County, NY – Project Archaeologist. Analyzed and researched artifact collection. Co-authored SHPO report and supplemental exhibits for the project's 94-c application. Drafted outreach letters to Native American Nations.

Phase IB Archaeological Survey for the Hemlock Ridge Solar Project, Orleans County, NY – Project Archaeologist. Directed Phase IB field activities for renewable energy client, including STPs and Pedestrian Survey. Processed and analyzed artifact collection. Co-authored SHPO report, supplemental exhibits for the project's 94-c application, and a Site Avoidance and Protection Plan. Drafted outreach letters to Native American Nations.

Phase I Archaeological Investigation for the West Camden Bypass Project, Kent County, DE - Archaeological Supervisor. Directed Phase I field activities on behalf of Delaware Department of Transportation (DelDOT), including STPs, Test Units, Controlled Surface Collection, and Metal Detecting. Co-authored SHPO report.

Phase IB Archaeological Survey for the Shaft 17B Site, Sunnyside, Queens, NYC, NY - Archaeological Monitor. Monitored ground disturbing activities during the site preparation phase of the Shaft 17B construction. Observed and documented underlying soil conditions during installation of two construction entrances. Primary author of SHPO report.

Phase I and II Archaeological Survey of the PennEast Natural Gas Pipeline Project, PA and NJ - Archaeological Supervisor. Directed field crews for Phase I survey and multiple Phase II investigations along 113-mile-long proposed natural gas pipeline corridor. Coordinated and completed imminent domain surveys. Point of contact between public and client. Supervised deep testing of Susquehanna River floodplain while excavating pre-contact native village site. Co-authored SHPO reports and authored New Jersey State Museum Archaeological Site Registration Forms.

Phase III Excavations at Split Site East (36BU0449) and Unami Creek Open Site (36BU0445), PA - Archaeological Supervisor. Directed field crews for Phase III archaeological data-recovery including block excavations and machine assisted trenching. Co-authored SHPO report sections on pre-contact feature descriptions and projectile point analysis. Produced artifact table graphics via Access and Excel.

Trenton Water Power Channel and Delaware and Raritan Canal Historic District, I-95/Scudder Falls Bridge Replacement, NJ - Archaeological Monitor. Monitored ground disturbing activities related to new pier construction for highway lanes and

canal side pedestrian/bicycle path. Documented conditions and prepared periodic progress reports. Coordinated with contractors and client.

New Haven Downtown Crossing CATEX Phase II, CT - Archaeological Monitor. Monitored ground disturbing activities in a dense urban environment related to old utility removal and new storm drain installation. Documented conditions. Coordinated with contractors.

River House at Odette's Hotel Development Along the Delaware River, New Hope, PA - Archaeological Monitor. Monitored ground disturbing activities related to all construction within the Delaware Canal National Historic District. Documented conditions and prepared periodic progress reports. Identified and protected unanticipated historic resources within the canal prism. Coordinated with DCNR, contractors, and client.

Phase IB Archaeological Survey and Phase II Investigation, Site 7S-F-152, Park Avenue Realignment Project, Sussex County, DE - Archaeological Supervisor. Directed Phase I and Phase II excavations, including short interval STPs, Test Units, and Strip Trenches. Mapped site with Total Station and GPS. Consulted with DelDOT archaeologists on testing strategies. Co-authored SHPO report.

Phase IB Survey of Area H-2 and Phase II Evaluation of Area H-5, Naval Station Newport, Newport County, RI - Field Director. Directed field crew for Phase I and Phase II excavations of historic buildings on Navy property. Mapped site with Total Station and GPS. Co-authored SHPO reports.

Phase I Archaeological Investigation, Putnam Ash Residue Landfill, Phases 7 through 11, Putnam, CT - Field Director. Directed field crew for Phase I survey of a planned 150-acre expansion to the existing landfill on a terrace adjacent to the Quinebaug River. Co-authored SHPO report.

Phase IB Archaeological Survey for the Dredging of the Delaware and Raritan Canal, NJ - Archaeological Supervisor and Monitor. Directed Phase I survey for planned access areas along the historic Delaware and Raritan canal. Monitored contractors performing dredging activities. Co-authored SHPO report.

Phase IB Archaeological Survey for the James River Sustainable Water Initiative for Tomorrow Project, Newport News, VA - Archaeological Supervisor. Directed field crew for Phase IB of existing wastewater facility and surrounding properties. Investigated previously registered historic and prehistoric artifact scatters near the James River.

Phase I Archaeological Investigation for the Kenton Road, SR8 to Chestnut Grove Road Project, Kent County, DE - Archaeological Supervisor. Directed field crew for Phase I survey of roadside shoulders and work areas for infrastructure expansion. Discovered and documented a domestic site attributed to C.I. Dupont. Primary author of SHPO report.

Phase I Archaeological Survey of 102 Acres on Lippincott Hill, Naval Weapons Station Earle, Colts Neck, Monmouth County, NJ - Field Director. Directed field crew for Phase I survey of hilltop Coastal Plain setting on Navy property. Expanded and refined the boundaries of the Lippincott Hill prehistoric site. Primary liaison with Navy personnel.

Phase I/II Archaeological Investigations, Deepwater/Churchtown Re terminations Project, Atlantic City Electric, Salem County, NJ - Field Director. Supervised the excavation of STPs and Test Units during Phase II evaluation of historic and prehistoric resources in 16-acre project area near the Delaware Bay.

Phase I/II Archaeological Investigations for the Proposed Petrochemicals Complex, Potter and Center Townships, Beaver County, PA - Archaeological Crew Chief. Directed Phase II investigations on the bank of the Ohio River within the floodplain contexts of site 36BV0051. Supervised the excavation of multiple deep testing units containing prehistoric artifacts and features. Responsible for safety measures such as hydraulic shoring and rescue harnesses while working at depths of greater than two meters below ground surface.

Whiskey Ridge Ecological Restoration Project, Sierra National Forest, CA - Archaeological Technician. Conducted systematic Phase I pedestrian survey in the Sierra Nevada mountains. Authored and edited Department of Parks and Recreation (DPR) site records according to established standards for historic period railroad grades, work camps and prehistoric food processing sites. Produced site maps and updated the forest-wide GIS database in ESRI ArcGIS.

Phase I Archaeological Investigation, Northeast Pocono Reliability Project, PPL Electric Utilities, Northeastern PA - Field Technician. Surveyed a 64-mile electric transmission line right of way and two 100+ acre substations. Identified nine historic Euro-American sites and one Native American archaeological site.

Phase I and II Archaeological Survey of the Constitution Natural Gas Pipeline Project, PA and NY - GIS/Field Technician. Participated in Phase I and II survey along 600-foot wide and 126-mile long proposed natural gas pipeline corridor. Utilized a handled Trimble GPS unit to locate predetermined GPS shovel test locations based on a predictive modeling grid and to record site boundaries, historic foundation walls and judgmental shovel tests.

Williams Leidy Southeast Natural Gas Pipeline Project, NJ - Field Technician. Excavated shovel test transects during Phase I survey across multiple agricultural fields, residential yards, and numerous drainages. Testing was conducted based on specialized prehistoric and historic probability models.

Archaeological Investigations of the I-95/Girard Avenue Improvement Project, Philadelphia, PA - Field Technician. Conducted Phase III data recovery in the urban contexts of downtown Philadelphia. Excavated historic-era privies and recovered numerous household artifacts dating from the earliest settlement of the city to the early 20th century.

Phase I and II Archaeological Survey of Mashipacong Island, Northeast Upgrade of the Tennessee Gas 300 Line, Montague, NJ - Field Technician. Shovel tested floodplain soils down to a depth of 2.5 meters below ground surface on an island in the Delaware River. Multiple areas of the island contained moderate concentrations of prehistoric artifacts and one excavation unit uncovered a cache of over 200 net sinkers.

Phase II Archaeological Excavations at the Vanderbilt Mansion National Historic Site, Hyde Park, NY - Field Technician. Conducted Phase II shovel testing and unit excavation on the grounds of the Vanderbilt Mansion. Investigations uncovered high concentrations of architectural and household artifacts while attempting to pinpoint the location of a lost toll house.

Additional Employment History

- Archaeological Crew Chief, AECOM, Burlington, NJ, 2015-2016
 - Archaeological Technician, United States Forest Service, North Fork, CA, 2014
 - Archaeological Technician, ACHEO-TEC, Palo Alto, CA, 2014
 - Field Archaeologist, AECOM, Burlington, NJ, 2012-2013
 - Field Technician, Richard Grubb & Associates, Cranbury, NJ, 2013
 - Field Technician, Horizon Research Consultants, Philippi, WV, 2012
 - Field Technician, AK Environmental, Binghamton, NY, 2012
 - Field Technician, Gray & Pape Inc., Providence, RI, 2011-2012
 - Field Technician, ASC Group Inc., Various Locations, PA, 2011
 - Field Technician, Maser Consulting, Various Locations, NJ, 2011
 - Field Technician, The RBA Group Inc., Atlantic County, NY, 2011
 - Field Technician, Paciulli, Simmons & Associates Ltd., Hyde Park, NY & Manassas, VA, 2011
 - Laboratory Intern, American Museum of Natural History, New York, NY, 2009
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Amanda is an Archaeologist and holds a Master of Applied Archaeology with concentrations in Prehistoric (Precontact) Archaeology and Geoarchaeology. She has worked in Cultural Resource Management since 2014 and has archaeological field and laboratory experience in all phases of survey. She has four years of experience supervising crews in the capacity of crew chief. This experience includes supervising archaeological field survey and excavation (Phase I, II, and III), precontact and historical artifact analysis and curation, data management, cultural resource platform finalization with SHPO, and contributing sections for technical reports. Her technical skills include use of GIS/ArcMap software, Trimble GPS devices, Arrow GPS devices, and Total Station/Transits with data collectors. Additionally, she is adept in specialized field survey techniques such as archaeological geophysics, geochemical analysis (portable X-Ray Fluorescence Spectroscopy), and cemetery recovery. Amanda has excavated and documented archaeological sites in rural upland settings, agricultural floodplain deposits, and urban environments and has worked across the Midwest, Mid-Atlantic, and Southeastern United States, as well as the Cilician Plains of Turkey.

Education

- Master of Arts, Applied Archaeology, Indiana University of Pennsylvania, Indiana, PA, 2022
- Bachelor of Arts, Classical and Near Eastern Archaeology, Bryn Mawr College, Bryn Mawr, PA, 2014

Registration / Certifications

- Registered Professional Archaeologist (RPA), 2023
- OSHA 10-hr Construction Outreach

Professional Affiliations

- Society of Pennsylvania Archaeology (SPA)

Employment History

- Archaeologist, Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C., 2022-present
- PA-SHARE Contractor, Pennsylvania State Historic Preservation Office, Harrisburg, PA, 2021
- Archaeological Crew Chief, AECOM, Burlington, NJ, 2018-2022

As an Archaeologist with EDR Amanda is responsible for directing archaeological studies and investigations, compiling and organizing data from cultural resource investigations, conducting literature reviews, evaluating archaeological site significance, digital mapping, global positioning system (GPS) data entry, and preparing cultural resources analyses and permitting documents including archeological reports and historic resources surveys. Documents prepared pertain to Phase IA/IB cultural resources surveys, Phase II site investigations, Phase III data recoveries, historic resources surveys, and National Register of Historic Places (NRHP) nominations.

Project Experience

Terrestrial Archaeological Resources Assessments for the Atlantic Shores North Offshore Wind Project, Monmouth and Atlantic Counties, NJ, and Kings and Richmond County, NY – Archaeologist, serving as deputy archaeology project manager. Assisted in conducting Phase IA assessment and background research, including GIS based site digitization and sensitivity analysis of potential landfall sites, onshore cable routes, and substation locations. Co-Produced Phased Identification Plans. Co-authored State Historic Preservation Office (SHPO) reports and supplemental exhibits for the project's COP submittal to the Bureau of Ocean Energy Management (BOEM)

Terrestrial Archaeological Resources Assessments for the Atlantic Shores South Offshore Wind Project, Monmouth and Atlantic Counties, NJ – Archaeologist, serving as deputy archaeology project manager. Assisted in conducting Phase IA assessment and background research, including GIS based site digitization and sensitivity analysis of potential landfall sites, onshore cable routes, and substation locations. Co-Produced Phased Identification Plans. Co-authored SHPO reports and supplemental exhibits for the project's COP submittal to the Bureau of Ocean Energy Management (BOEM)

Phase IA/IB for the Atlantic Shores South Offshore Wind Project, Monmouth and Atlantic Counties, NJ – Archaeological Field Lead. Directed Phase I field activities on behalf of Atlantic Shores, LLC, including STPs and Field Reconnaissance. Produced and managed Permits and survey authorization of Phase IB areas. Coordinated with various municipal, county and state agencies for survey authorization.

Phase IB Archaeology Survey for the Oxbow Solar Project, Fenner, Madison County, NY – Archaeological Field Lead. Directed Phase I field activities on behalf Cypress Creek Renewable, LLC, including STPs and Controlled Surface Collection.

Archaeological Monitoring ArtPark, Lewiston, Niagara County, NY – Archaeologist. Monitored ground disturbing activities during the site preparation phase of the red brick roadway construction adjacent to 4th Street. Observed and documented underlying soil conditions during installation of drainage pipe, swale, and road expansion. Prepared periodic progress reports.

Phase IB Archaeological Survey for the Mink Solar Project, Defiance & Paulding Counties, OH – Archaeological Field Lead. Directed Phase I field activities on behalf of Mink Solar, LLC, including Controlled Surface Collection.

Phase IB Archaeological Survey for the Crossroads Solar Project, Morrow County, OH – Archaeological Field Lead. Directed Phase I field activities on behalf of Crossroads Solar I, LLC, including Controlled Surface Collection.

Phase IB Archaeological Survey for the Richwood Solar Project, Union County, OH – Archaeologist. Supervised Phase I field activities on behalf of Samsung C&T Renewables, LLC, including STPs and Controlled Surface Collection.

Phase IB Archaeological Survey for the Frasier Solar Project, Knox County, OH - Archaeologist. Supervised Phase I field activities on behalf of Open Road Renewables, including STPs and Controlled Surface Collection.

Phase IB Report Writing for Miller's Fork Solar Project, Preble County, OH–Archaeologist. Served as contributing author to the Phase IB archaeology report.

Phase IB Archaeological Geophysical Survey of Braddock's Road, State Route 119, Scottdale, PA - Archaeological Supervisor. Directed Ground Penetrating Radar (GPR) survey of a 0.69-acre parcel believed to contain a portion of the historic Braddock's Road, as part of a Phase IB survey for the expansion of SR 119. One of the primary liaisons with client.

Cemetery Recovery of African Friends to Harmony Burial Ground, Philadelphia, PA. – Archaeological Crew Chief. Supervised the recovery of human remains from historic African American burial ground. Involved in outreach interaction with representatives from descendant church congregations.

Phase IB Archaeological Survey of the NextEra Torrecillas Wind Energy Center, Webb and Duval Counties, TX – Archaeological Crew Chief/Field Technician. Directed field crews for Phase I survey of connector routes, turbine locations, and service roads for a proposed 300 MW wind farm in the South Texas Plains. Documented conditions and prepared periodic progress reports.

Phase IB Archaeological Survey of Elwyn to Wawa Service Restoration Project APE Extension, Chester Heights, PA – Archaeological Crew Chief. Directed field crew for Phase I Survey of a 0.99-acre APE extension. Uncredited contributing author of SHPO report.

Phase IB and II Archaeological Survey of the PennEast Natural Gas Pipeline Project, PA and NJ - Archaeological Crew Chief. Supervised field crews for Phase I survey and multiple Phase II investigations along 113-mile-long proposed natural gas pipeline corridor. Coordinated and imminent domain surveys. Conducted data management for the project and prepared daily progress reports.

Phase III Excavations at Split Site East (36BU0449) and Unami Creek Open Site (36BU0445), PA - Archaeological Crew Chief. Supervised the excavation of Test Units and block excavations during Phase III archaeological data recovery. Conducted site set up and data management for the project.

Archaeological Monitoring for the Dredging of the Delaware and Raritan Canal, NJ - Archaeological Monitor. Monitored ground disturbing activities related to all dredging within the Delaware Canal National Historic District. Documented conditions and prepared periodic progress reports. Identified and protected unanticipated historic resources within the canal prism. Coordinated with contractors, and client.

Cemetery Recovery of First Baptist Church Cemetery of Philadelphia on Arch Street, Philadelphia, PA – Field Technician. Recovered 18th century human remains from an active construction site in Historic Old City, Philadelphia.

Phase I Archaeological Survey of 102 Acres on Lippincott Hill, Naval Weapons Station Earle, Colts Neck, Monmouth County, NJ - Field Technician. Participated in Phase I survey of hilltop Coastal Plain setting on Navy property. Expanded and refined the boundaries of the Lippincott Hill prehistoric site.

Phase I/II Archaeological Investigations, Deepwater/Churchtown Re terminations Project, Atlantic City Electric, Salem County, NJ - Field Technician. Participated in the excavation of STPs and Test Units during Phase II evaluation of historic and prehistoric resources in 16-acre project area near the Delaware Bay.

Phase IB Archaeological Survey of the Dominion Moore to Chappells Natural Gas Pipeline, Spartanburg, Laurens, and Greenwood Counties, SC – Field Technician. Participated in Phase I survey of a 55-miles long natural gas pipeline corridor. Coordinated and imminent domain surveys. Utilized a handled Trimble GPS unit to locate predetermined GPS shovel test locations based on a predictive modeling grid and to record sites boundaries and judgmental shovel tests.

Phase II Archaeological Investigations for the Proposed Petrochemicals Complex, Potter and Center Townships, Beaver County, PA – Field Technician. Participated in Phase II investigations on the bank of the Ohio River within the floodplain contexts of site 36BV0051. Participated in excavation of multiple deep testing units containing prehistoric artifacts and features at depths of greater than two meters below ground surface.

Phase II Archaeological Investigations of the Constitution Natural Gas Pipeline Project, PA, and NY - Field Technician. Participated in Phase II investigations along 600-foot wide and 126-mile-long proposed natural gas pipeline corridor. Utilized a handled Trimble GPS unit to locate predetermined GPS shovel test locations based on a predictive modeling grid and to record site boundaries, historic foundation walls and judgmental shovel tests.

Archaeological Investigations of the I-95/Girard Avenue Improvement Project, Philadelphia, PA - Field/Lab Technician. Conducted Phase III data recovery and cemetery recovery in the urban contexts of downtown Philadelphia. Excavated historic-era privies and fills, Precontact settlements, and mid-19th century human remains in the former burial ground of First Presbyterian Church in Kensington. Lab analysis and curation for thousands of historical domestic and industrial artifacts dating from the earliest settlement of the city to the early 20th century. Participated in public outreach events for the local community.

Additional Employment History

- Archaeological Field Technician, AECOM, Burlington, NJ, 2014-2018
 - Field Supervisor, Boğaziçi University Tarsus-Gözlükule Excavations, Tarsus, Mersin Province, Turkey, 2016-2017
 - Assistant Supervisor, Boğaziçi University Tarsus-Gözlükule Excavations, Tarsus, Mersin Province, Turkey, 2014
 - Special Collections Assistant, Bryn Mawr College Special Collections Department, Bryn Mawr, PA, 2011-2014
 - Near Eastern Collections Intern, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, PA, 2012
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