



Appendix II-E2

Habitat Suitability Assessment Report - Larrabee

Note:

On March 26, 2021, Atlantic Shores Offshore Wind, LLC (Atlantic Shores) submitted a Construction and Operations Plan (COP) to BOEM for the southern portion of Lease OCS-A 0499. On June 30, 2021, the New Jersey Board of Public Utilities (NJ BPU) awarded Atlantic Shores an Offshore Renewable Energy Credit (OREC) allowance to deliver 1,509.6 megawatts (MW) of offshore renewable wind energy into the State of New Jersey. In response to this award, Atlantic Shores updated Volume 1 of the COP to divide the southern portion of Lease OCS-A 0499 into two separate and electrically distinct Projects. Project 1 will deliver renewable energy under this OREC allowance and Project 2 will be developed to support future New Jersey solicitations and power purchase agreements.

As a result of the June 30, 2021 NJ BPU OREC award, Atlantic Shores updated Volume I (Project Information) of the COP in August 2021 to reflect the two Projects. COP Volume II (Affected Environment) and applicable Appendices do not currently include this update and will be updated to reflect Projects 1 and 2 as part Atlantic Shores' December 2021 COP revision.

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind – Larrabee Onshore Study Area

Borough of Sea Girt, Township of Wall, and Township of Howell

Monmouth County, New Jersey

Prepared for:



Atlantic Shores Offshore Wind, LLC
Dock 72
Brooklyn, NY 11205

Prepared by:



**Environmental Design & Research,
Landscape Architecture, Engineering, & Environmental Services, D.P.C.**
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
www.edrdpc.com

January 2021

TABLE OF CONTENTS

| | | |
|-----|------------------------------------------------------------------------------------------------------|----|
| 1.0 | Introduction..... | 1 |
| 1.1 | Regulatory Framework | 2 |
| 1.2 | Purpose..... | 3 |
| 2.0 | Agency Consultation and Public Records Review | 4 |
| 2.1 | USFWS Information for Planning and Consultation | 4 |
| 2.2 | NJDEP Landscape Project and NJDEP Natural Heritage Program | 8 |
| 2.3 | State Parks and Natural Areas..... | 12 |
| 2.4 | Habitat Types Occurring within the Larrabee Study Area..... | 13 |
| 3.0 | Field Investigations..... | 15 |
| 3.1 | Vernal Pool Methodology | 15 |
| 3.2 | Habitat Suitability Assessment Methodology..... | 15 |
| 4.0 | Results..... | 16 |
| 4.1 | Habitat Types within Study Area | 16 |
| 4.2 | Vernal Pool Survey Results..... | 18 |
| 4.3 | Suitability of Observed Habitat for Federal and State-Listed Threatened and Endangered Species | 18 |
| 4.4 | Habitat Suitability for Migratory and Resident Wildlife Species | 22 |
| 5.0 | Conclusions | 23 |
| 6.0 | References | 24 |

LIST OF EXHIBITS

| | |
|-----------------------------------------------------------------------|---|
| Exhibit 1: Larrabee Study Area Location Map (not drawn to scale)..... | 1 |
|-----------------------------------------------------------------------|---|

LIST OF TABLES

| | |
|-------------------------------------------------------------------------------------------------------------|----|
| Table 1. Results of IPaC Review – Endangered Species Act Species | 4 |
| Table 2. Results of IPaC Review – Migratory Bird Species | 6 |
| Table 3. Results of NJDEP Landscape Project (Atlantic Coastal, Piedmont Plains and Pinelands) and NHP | 8 |
| Table 4. Federal and State Listed Species – Critical Habitat Assessment Summary | 18 |

LIST OF APPENDICES

| | |
|-------------|---------------------------------------------------------------------------|
| Appendix A. | Figures |
| Figure 1. | Project Location Map |
| Figure 2. | Landscape Project Mapping |
| Figure 3. | Land Use/Land Cover |
| Appendix B. | USFWS IPaC, NHP Consultation Results, and NJDEP Landscape Project Records |
| Appendix C. | Photo Documentation |
| Appendix D. | Habitat Assessment Mapping |

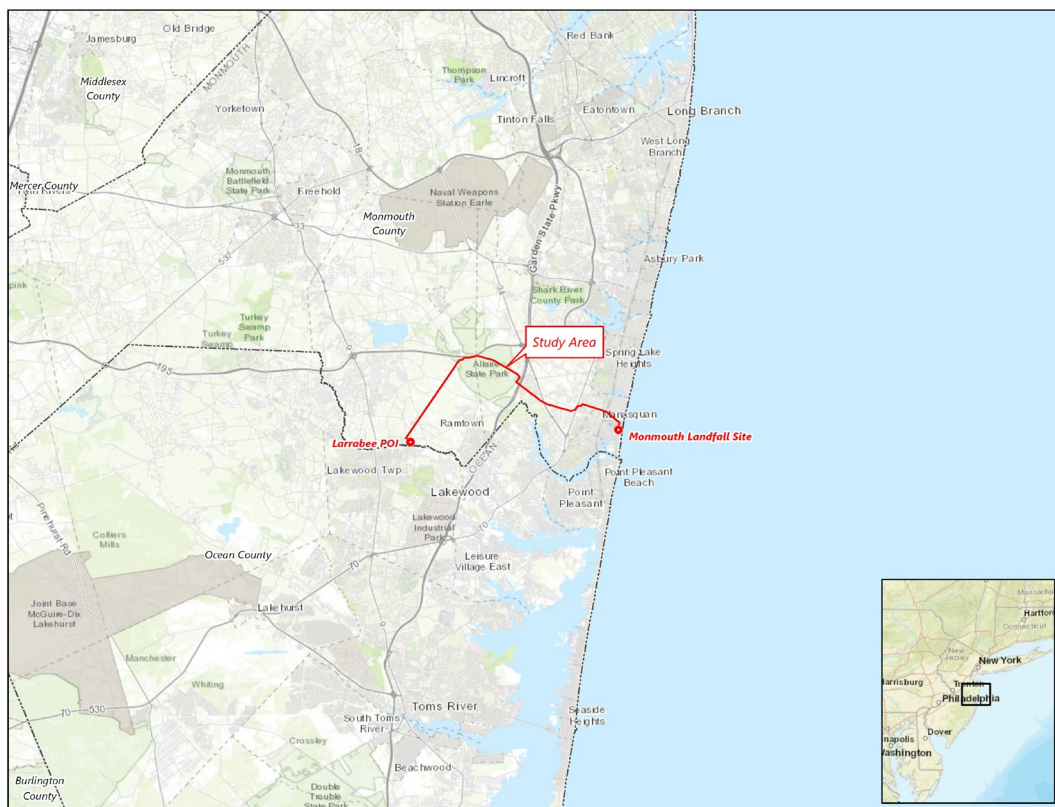
ACRONYM LIST

| | |
|-------------------------------------------------------------------------------------------------------|------------------------|
| Atlantic Shores Offshore Wind, LLC | Atlantic Shores |
| Division of Fish & Wildlife | DFW |
| Endangered Species Act | ESA |
| Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. | EDR |
| Information for Planning and Consultation | IPaC |
| Jersey Central Power & Light | JCP&L |
| National Oceanic & Atmospheric Administration | NOAA |
| New Jersey Endangered and Nongame Species Conservation Act of 1973 | N.J.S.A. 23:2A et seq. |
| New Jersey Department of Environmental Protection | NJDEP |
| New Jersey Department of Transportation | NJDOT |
| Point of Interconnection | POI |
| Right-of-Way | ROW |
| U.S. Fish and Wildlife Service | USFWS |

1.0 INTRODUCTION

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR), was contracted by Atlantic Shores Offshore Wind, LLC (Atlantic Shores) to conduct a wildlife habitat suitability assessment (including habitat for federal and state threatened and endangered species) for the approximately 13-mile long and assumed 150-foot wide proposed Larrabee onshore interconnection cable route from the Monmouth Landfall of the submarine electric export cable at the Army National Guard training facility in the Borough of Sea Girt to the Point of Interconnection (POI) at the Larrabee Substation located in Howell Township and the preferred and alternative location of the onshore substations, herein referred to as the Larrabee Study Area (Exhibit 1 and Figure 1). The POI parcel is largely developed containing cleared/developed land, paved and graveled parking lots, substation equipment, access roads, laydown areas, and transmission/distribution lines. General land use within the Larrabee Study Area consists of transportation (New Jersey Department of Transportation [NJDOT] and Monmouth County roadways), public utilities such as Jersey Central Power & Light Company (JCP&L) power line rights-of-way (ROWs), a pedestrian bike path, and commercial/industrial/residential development.

Exhibit 1: Larrabee Study Area Location Map (not drawn to scale)



1.1 Regulatory Framework

The Endangered Species Act (ESA) was passed in 1973, with the purpose of protecting and recovering imperiled species and the ecosystems upon which they depend. The U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) administer the ESA. The USFWS has primary responsibility over terrestrial and freshwater organisms, and the NMFS oversees marine wildlife such as whales and anadromous fishes. The ESA allows a species to be listed as endangered or threatened and includes subspecies, varieties, and/or distinct population segments. An “endangered” species is in danger of extinction throughout a significant portion or all of its range. A “threatened” species is marked as likely to become endangered in the foreseeable future (USFWS 2020).

The Migratory Bird Treaty Act was passed in 1918 and prohibits the take, including killing, capturing, selling, trading, and transporting of protected migratory bird species without prior authorization by the USFWS. A migratory bird species is included on the list if it meets one or more of the following criteria (USFWS c 2020):

1. It occurs in the United States or U.S. territories as the result of natural biological or ecological processes and is currently, or was previously listed as, a species or part of a family, protected by one of the four international treaties or their amendments.
2. Revised taxonomy results in it being newly split from a species that was previously on the list, and the new species occurs in the United States or U.S. territories as the result of natural biological or ecological processes.
3. New evidence exists for its natural occurrence in the United States or U.S. territories resulting from natural distributional changes and the species occurs in a protected family.

New Jersey’s assumption of the Clean Water Act’s regulatory authority allows the USFWS to play a more formal role in the review of permit applications requested under the New Jersey Wetlands Protection Act (NJ 2019). The USFWS is authorized through the federal Endangered Species Act of 1973 to regulate activities that may result in the “take” of federal listed threatened or endangered species. Together, the New Jersey Department of Environmental Protection (NJDEP) Division of Fish and Wildlife (DFW) and USFWS develop guidance on how to minimize or mitigate impacts when a project is regulated under the Waterfront Development Act, the Coastal Area Facility Review Act, or the flood Hazard Protection Act and have the potential to adversely affect any federally listed species (NJ 2019). In addition, the New Jersey Endangered and Nongame Species Conservation Act of 1973 (N.J.S.A. 23:2A et. seq.) details a list of wildlife species determined by the State as threatened and endangered protecting designated species from impacts such as harassing, hunting, capturing, killing, or attempting to kill.

1.2 Purpose

The purpose of this report is to provide a summary of the type of habitat observed within the Larrabee Study Area including potential vernal pool habitat and provide an assessment of the suitability of the habitat to support wildlife species, particularly threatened and endangered species.

2.0 AGENCY CONSULTATION AND PUBLIC RECORDS REVIEW

EDR consulted the USFWS Information for Planning and Consultation (IPaC) online system to determine the documented presence of threatened and endangered species protected by Section 7 of the ESA under their jurisdiction. EDR also used NJDEP's Pinelands, Piedmont Plains and Atlantic Coastal Landscape Project to determine the documented occurrence of state (and federal) listed species and their approximate locations. In addition, EDR requested information regarding state threatened and endangered species and habitats through the NJDEP Natural Heritage Program (NHP) to confirm the results of the Landscape Project review. The results of the IPaC, NJDEP Landscape Project review, and NHP database searches are provided in Appendix B and are summarized in Subsections 2.1, and 2.2 respectively. Typical habitat descriptions mapped within the Larrabee Study Area are provided in Subsection 2.3.

2.1 USFWS Information for Planning and Consultation

USFWS IPaC identified six species within the Larrabee Study Area that are classified as Threatened. The species identified were: one mammal: the northern-long eared bat (*Myotis septentrionalis*); one bird: the Piping Plover (*Charadrius melodus*); one reptile: the bog turtle (*Clemmys muhlenbergii*); and three plants: Knieskern's Beaked-rush (*Rhynchospora knieskernii*), Seabeach Amaranth (*Amaranthus pumilus*), and Swamp Pink (*Helonias bullata*). No critical habitat for the above species was designated within the Larrabee Study Area. Typical habitat for each species is summarized in Table 1.

Table 1. Results of IPaC Review – Endangered Species Act Species

| Species | Common Name | Status ¹ | Typical Habitat | Critical Habitat in Larrabee Study Area |
|-------------------------------|-------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <i>Myotis septentrionalis</i> | Northern Long-eared Bat | T | Summer Habitat: roost underneath bark, in cavities or in crevices of both live and dead trees. May also roost in caves and mines Winter: hibernate in caves and mines with large passages, large entrances, constant temperature and high humidity Feeding: understory of forested hillsides and ridges (USFWS a 2020) | No |
| <i>Charadrius melodus</i> | Piping Plover | T | Breeding and Nesting Habitat: beaches, nest sites are simple depressions or scrapes in the sand about 6 to 8 cm in diameter. Arrive from March-May and migrate as late as mid-August to southern wintering habitat. (NatureServe b 2020) | No |

| Species | Common Name | Status ¹ | Typical Habitat | Critical Habitat in Larrabee Study Area |
|---------------------------------|-------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| <i>Clemmys muhlenbergii</i> | Bog Turtle | T | Habitat: wet grassy areas, mossy bogs, and herbaceous meadows that have unpolluted, clear spring-fed streams that flow throughout the year. Open areas are required for basking and nesting (CWF c 2020) | No |
| <i>Rhynchospora knieskernii</i> | Knieskern's Beaked-rush | T | Habitat: endemic to 5 counties in the NJ Pine Barrens. Restricted to early successional habitats in pitch pine lowland forests within pine barrens. Prefers a substrate that is nutrient poor, highly acidic, fine grained mineral soils and can frequently be found over clay deposits and sometimes found on bog iron deposits. Prefers areas with a fluctuating water level, bare or sparsely vegetated areas that remain open due to disturbances either natural or human-caused (NatureServe h 2020). | No |
| <i>Amaranthus pumilus</i> | Seabeach Amaranth | T | Habitat: occurs on barrier islands, usually on coastal overwash flats at the accreting ends of the islands and lower foredunes and on ocean beaches above mean high tide. Prefers areas that are not well vegetated (NatureServe 2020) | No |
| <i>Helonias bullata</i> | Swamp Pink | T | Habitat: swampy forested wetlands bordering meandering streams; headwater wetlands; sphagnous hummocky, dense, Atlantic white cedar swamps; blue ridge swamps; meadows; bogs and spring seepage areas. In conjunction with these areas the species also requires a permanently saturated, but not inundated, by floodwaters. There must be a water table near the surface that fluctuates slightly during spring and summer months. Prefers areas with 20-100% canopy cover (USFWS b 2020). | No |

¹: Federal Conservation Status: T = Threatened

The IPaC review also provides a list of Migratory bird species that are protected under one or more of the following:

1. The Migratory Bird Treaty Act of 1918
2. The Bald and Golden Eagle Protection Act of 1940
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C Sec 668(a)

Activities that will impact migratory birds, eagles, or their critical habitats should follow the applicable regulations and consider applying conservation measures according to the USFWS guidance. Table 2 summarizes migratory bird and eagle species that have mapped habitat within the Larrabee Study Area.

Table 2. Results of IPaC Review – Migratory Bird Species

| Species | Common Name | Status | Breeding Season |
|-------------------------------------|--------------------------|------------------------------------|------------------|
| <i>Haematopus palliatus</i> | American Oystercatcher | Bird of Conservation Concern (BCC) | Apr 15 to Aug 31 |
| <i>Haliaeetus leucocephalus</i> | Bald Eagle | Not a BCC | Oct 15 to Aug 31 |
| <i>Melanitta nigra</i> | Black Scoter | Not a BCC | Breeds elsewhere |
| <i>Rynchops niger</i> | Black Skimmer | BCC | May 20 to Sep 15 |
| <i>Coccyzus erythrophthalmus</i> | Black-billed Cuckoo | BCC | May 15 to Oct 10 |
| <i>Rissa tridactyla</i> | Black-legged Kittiwake | Not a BCC | Breeds elsewhere |
| <i>Dolichonyx oryzivorus</i> | Bobolink | BCC | May 20 to Jul 31 |
| <i>Chroicocephalus philadelphia</i> | Bonaparte's Gull | Not a BCC | Breeds elsewhere |
| <i>Pelecanus occidentalis</i> | Brown Pelican | Not a BCC | Jan 15 to Sep 30 |
| <i>Cardellina canadensis</i> | Canada Warbler | BCC | May 20 to Aug 10 |
| <i>Rallus crepitans</i> | Clapper Rail | BCC | Apr 10 to Oct 31 |
| <i>Somateria mollissima</i> | Common Eider | Not a BCC | Jun 1 to Sep 30 |
| <i>Gavia immer</i> | Common Loon | Not a BCC | Apr 15 to Oct 31 |
| <i>Uria aalge</i> | Common Murre | Not a BCC | Apr 15 to Aug 15 |
| <i>Sterna hirundo</i> | Common Tern | Not a BCC | May 10 to Sep 10 |
| <i>Calonectris diomedea</i> | Cory's Shearwater | Not a BCC | Breeds elsewhere |
| <i>Phalacrocorax auritus</i> | Double-crested Cormorant | Not a BCC | Apr 20 to Aug 31 |
| <i>Alle alle</i> | Dovekie | Not a BCC | Breeds elsewhere |
| <i>Calidris alpina arctica</i> | Dunlin | BCC | Breeds elsewhere |
| <i>Larus marinus</i> | Great Black-backed Gull | Not a BCC | Apr 15 to Aug 20 |
| <i>Puffinus gravis</i> | Great Shearwater | Not a BCC | Breeds Elsewhere |
| <i>Larus argentatus</i> | Herring Gull | Not a BCC | Apr 20 to Aug 31 |
| <i>Limosa haemastica</i> | Hudsonian Godwit | BCC | Breeds elsewhere |
| <i>Sterna antillarum</i> | Least Tern | BCC | Apr 20 to Sep 10 |

| Species | Common Name | Status | Breeding Season |
|-------------------------------------|------------------------|-----------|------------------|
| <i>Tringa flavipes</i> | Lesser Yellowlegs | BCC | Breeds elsewhere |
| <i>Asio otus</i> | Long-eared Owl | BCC | Breeds elsewhere |
| <i>Clangula hyemalis</i> | Long-tailed Duck | Not a BCC | Breeds elsewhere |
| <i>Ammodramus nelsoni</i> | Nelson's Sparrow | BCC | May 15 to Sep 5 |
| <i>Morus bassanus</i> | Northern Gannet | Not a BCC | Breeds elsewhere |
| <i>Stercorarius parasiticus</i> | Parasitic Jaeger | Not a BCC | Breeds elsewhere |
| <i>Dendroica discolor</i> | Prairie Warbler | BCC | May 1 to Jul 31 |
| <i>Protonotaria citrea</i> | Prothonotary Warbler | BCC | Apr 1 to Jul 31 |
| <i>Calidris maritima</i> | Purple Sandpiper | BCC | Breeds elsewhere |
| <i>Alca torda</i> | Razorbill | Not a BCC | Jun 15 to Sep 10 |
| <i>Mergus serrator</i> | Red-breasted Merganser | Not a BCC | Breeds elsewhere |
| <i>Phalaropus lobatus</i> | Red-necked Phalarope | Not a BCC | Breeds elsewhere |
| <i>Gavia stellata</i> | Red-throated Loon | BCC | Breeds elsewhere |
| <i>Larus delawarensis</i> | Ring-billed Gull | Not a BCC | Breeds elsewhere |
| <i>Sterna dougallii</i> | Roseate Tern | Not a BCC | May 10 to Aug 31 |
| <i>Thalasseus maximus</i> | Royal Tern | Not a BCC | Apr 15 to Aug 31 |
| <i>Arenaria interpres morinella</i> | Ruddy Turnstone | BCC | Breeds elsewhere |
| <i>Euphagus carolinus</i> | Rusty Blackbird | BCC | Breeds elsewhere |
| <i>Ammodramus maritimus</i> | Seaside Sparrow | BCC | May 10 to Aug 20 |
| <i>Calidris pusilla</i> | Semipalmated Sandpiper | BCC | Breeds elsewhere |
| <i>Limnodromus griseus</i> | Short-billed Dowitcher | BCC | Breeds elsewhere |
| <i>Bubo scandiacus</i> | Snowy Owl | BCC | Breeds elsewhere |
| <i>Melanitta perspicillata</i> | Surf Scoter | Not a BCC | Breeds elsewhere |
| <i>Numenius phaeopus</i> | Whimbrel | BCC | Breeds elsewhere |
| <i>Melanitta fusca</i> | White-winged Scoter | Not a BCC | Breeds elsewhere |
| <i>Tringa semipalmata</i> | Willet | BCC | Apr 20 to Aug 5 |
| <i>Oceanites oceanicus</i> | Wilson's Storm-petrel | Not a BCC | Breeds elsewhere |
| <i>Hylocichla mustelina</i> | Wood Thrush | BCC | May 10 to Aug 31 |

2.2 NJDEP Landscape Project and NJDEP Natural Heritage Program

The New Jersey Landscape Project was developed to guide strategic wildlife habitat conservation. It is an ecosystem-level approach with the goal of long-term protection for imperiled species and their important habitats within New Jersey (NJDFW 2018). Habitat is ranked 1 through 5 based on the Landscape Project criteria:

- Rank 1 – Habitat specific requirements
- Rank 2 – Special Concern
- Rank 3 – State Threatened
- Rank 4 – State Endangered
- Rank 5 – Federal Listed

Records of federally listed species occur within some Rank 4 and Rank 5 sections. For specific ESA species documented within the Larrabee Study Area, a request for information from USFWS would initially be required through the IPaC online tool (Section 2.1); however, many federal listed species are also state listed species. The review of the NJ Landscape Project is a publicly available database that provides specific species of NJ Conservation focus that have been documented within specific, mapped habitats. The Natural Heritage Database is a continuously updated inventory of rare plants and animal species and representative ecological communities in New Jersey. It is the state's most comprehensive, centralized source of information on rare plants, animals, and natural communities. (NJDEP 2020). A consultation request was submitted to NJDEP NHP to provide information on the presence of threatened and endangered species within the Larrabee Study Area.

The review of the NJ Landscape Project and the NHP response provided a species list of NJ Conservation focus that have been documented within mapped habitats. Species that are documented within the Larrabee Study Area are listed in Table 3 and the NHP response is presented in Appendix B.

Table 3. Results of NJDEP Landscape Project (Atlantic Coastal, Piedmont Plains and Pinelands) and NHP

| Species | Common Name | NJ State Conservation Status ¹ | Typical Habitat | Habitat Type Mapped in Larrabee Study Area ² |
|-----------------------------|------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <i>Falco sparverius</i> | American Kestrel | T | General: open, grassy habitats. Preferably areas that also offer cavities for nesting and perches for hunting (CWF 2011). | BS, NBS |
| <i>Haematopus palliatus</i> | American Oystercatcher | SC | Nesting: mainly back-bay areas, especially near inlets; with smaller populations nesting on barrier beach strands (CWF 2021) | N |

| Species | Common Name | NJ State Conservation Status ¹ | Typical Habitat | Habitat Type Mapped in Larrabee Study Area ² |
|---------------------------------|---------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <i>Haliaeetus leucocephalus</i> | Bald Eagle | E | General: usually found in areas close to open water. Nesting: area that is safe from human disturbance, usually in a tree (CFW 2020) | F |
| <i>Strix varia</i> | Barred Owl | T | General: dense woodland and forests, swamps, wooded river valleys, frequently in areas bordering streams, marshes and meadows. Also commonly found in upland areas. Preference is given to areas large mature forests with trees that provide suitable nesting cavities and that contain an open understory (NatureServe j 2020). | BS |
| <i>Nycticorax nycticorax</i> | Black-Crowned Night-Heron | T | Feeding: along the edges of ponds or creeks and in marshes. Nesting and Roosting: forests, scrub/shrub, marshes and ponds that provide cover. Open areas are avoided. Tend to nest in similar areas along with other species in areas with low vegetation (CWF b 2020) | F |
| <i>Glyptemys muhlenbergii</i> | Bog Turtle | E | General: wet grassy areas, mossy bogs, and herbaceous meadows that have unpolluted, clear spring-fed streams that flow throughout the year. Open areas are required for basking and nesting (CWF c 2020) | OH |
| <i>Toxostoma rufum</i> | Brown Thrasher | SC | General: dense thickets and shrub areas in deciduous forest clearings as well as along forest edges and thorn-scrub habitat (CWF a 2011) | BS |
| <i>Metarranthis pilosaria</i> | Coastal Bog Metarranthis | SC | General: conifer swamps, dwarf shrublands, and wet grasslands dominated by pitch pine (TNC 2021) | N/A |
| <i>Accipiter cooperii</i> | Coopers Hawk | SC | Nesting: nest in coniferous, deciduous, mixed riparian, and wetland forests. Nests are usually within a forest that provides a closed canopy and a moderate to thick shrub understory. Preference is given to areas adjacent to habitat with some open space (roadways or rivers) for hunting opportunities. | BS, N |

| Species | Common Name | NJ State Conservation Status ¹ | Typical Habitat | Habitat Type Mapped in Larrabee Study Area ² |
|------------------------------------|--------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| | | | Winter: winter habitat is similar to nesting but can also include residential areas where songbirds and other prey are readily available (CWF 2012). | |
| <i>Terrapene carolina carolina</i> | Eastern Box Turtle | SC | General: open woodlands and meadows, residential backyards in suburban or rural areas. Generally located within close proximity to freshwater (CWF d 2020) | OH |
| <i>Anaxyrus fowleri</i> | Fowler's Toad | SC | General: open woodlands, sandy prairies, meadows, and beaches. During the cold months or extreme hot and dry periods they burrow underground (CWFa 2021). | OH |
| <i>Plegadis falcinellus</i> | Glossy Ibis | SC | General: marsh, swamps, edges of ponds or lakes, estuaries, bays, and forest bordering water bodies. Foraging: in and alongside water bodies (CWFb 2021) | F |
| <i>Ardea herodias</i> | Great Blue Heron | SC | General: freshwater and brackish marshes, lake edges, rivers, bays, lagoons, ocean beaches, fields and meadows. Nesting: high in trees in swamps and forested areas. Occasionally on bushes or the ground. Generally located close to foraging habitats (NatureServe a 2020). | F |
| <i>Wilsonia citrina</i> | Hooded Warbler | SC | Breeding: deciduous woodland understory, preferably near streams. Prefers large tracts of uninterrupted forest with a thick understory and a sparse herbaceous layer. Winter: males prefer mature forests and females prefer scrub and secondary forests (CWF b 2011). | BS |
| <i>Eremophila alpestris</i> | Horned Lark | T | General: prefers open spaces, with bare ground, occasional shrubs and short, sparse grasses and flowers (CWF a 2012). | NBS |
| <i>Sternula antillarum</i> | Least Tern | E | Breeding: seacoasts, beaches, bays, estuaries, lakes and rivers. Nests in shallow depression on level ground in sparsely vegetated areas on sandy/gravelly beaches and banks of | F, NC |

| Species | Common Name | NJ State Conservation Status ¹ | Typical Habitat | Habitat Type Mapped in Larrabee Study Area ² |
|---------------------------------------------|-----------------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| | | | rivers or lakes. Will inhabit artificial areas similar to the natural ones like dredge spoil areas and flat rooftops covered with gravel. Nests are generally found in areas above the high tide mark on beaches (NatureServe i 2020) | |
| <i>Circus cyaneus</i> | Northern Harrier | E | General: open areas such as tidal marshes, emergent wetlands, fallow fields, grasslands, meadows, airports, and agricultural areas. Breeding/Nesting: high marsh areas that are usually drier than low marsh areas. These areas are generally dominated by salt hay, marsh elder, or reed grass. They may also nest in freshwater tidal marshes, managed fallow or low intensity agricultural fields that contain tall herbaceous vegetation. | BS |
| <i>Uvularia puberula</i> var. <i>nitida</i> | Pine Barren Bellwort | E | General: edges of the swamps in the pine barrens (POSNJ 2021) | S |
| <i>Hyla andersonii</i> | Pine Barrens Treefrog | T | General: requires specialized acidic habitats such as Atlantic white cedar swamps and pitch pine lowlands that are carpeted with dense sphagnum moss. Breeding: acidic, temporary ponds no greater than 2 feet deep. In white cedar bogs, seepage areas along tributaries to major watercourses, and temporary woodland ponds serve as breeding ponds (CWF e 2020) | VPB, OH |
| <i>Gramma placentia</i> | Placentia Tiger Moth | E | General: coastal plain and sandy hills; may also occupy inland areas (NatureServe 2021) | N/A |
| <i>Egretta thula</i> | Snowy Egret | SC | General: marshes, lakes, ponds, and shallow coastal habitats. Nesting: trees or shrubs over water or ground. Will occasionally nest on the ground or in marsh vegetation (NatureServe c 2020). | F |

| Species | Common Name | NJ State Conservation Status ¹ | Typical Habitat | Habitat Type Mapped in Larrabee Study Area ² |
|-----------------------------|----------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| <i>Egretta tricolor</i> | Tricolored Heron | SC | General: wetland and forest bordering saltwater bodies, foraging alongside waterbodies (CWFc 2021) | F |
| <i>Catharus fuscescens</i> | Veery | SC | Breeding: wetland forests with shrubby understory areas. Preference is given to large wooded areas. Winter: woodlands, lowland forests, and scrub (CWF c 2011). | BS |
| <i>Glyptemys insculpta</i> | Wood Turtle | T | General: aquatic and terrestrial, the species prefers freshwater streams, creeks, brooks and rivers that are relatively remote. The watercourses are usually clean, free of litter or other pollutants, and occur within undisturbed wet fields, meadows and forests. Terrestrial habitat tends to consist of open fields of thickets suitable for basking. Habitats are generally over half a mile from developed or populated areas and contain few roads (CWF 2010). | OH |
| <i>Hylocichla mustelina</i> | Wood Thrush | SC | Breeding: deciduous or mixed forests with a dense canopy and well-developed understory. Preference is given to areas near or within wetlands. Winter: various types of woodlands (CWF d 2011). | BS |
| <i>Nyctanassa violacea</i> | Yellow-Crowned Night-Heron | T | General: marshes, swamps, lakes, mainly coastal habitats. Nesting: trees in wooded areas near water, occasionally in shrubs or on the ground (NatureServe f 2020). | F |

1: NJ State Conservation Status: SP = Special Concern, T = Threatened, E = Endangered

2: Habitat Type Mapped in Larrabee Study Area: BS = Breeding Sighting, F = Foraging, N = Nest, NBS = Non-Breeding Sighting, OH = Occupied Habitat, NC = Nesting Colony, VPB = Vernal Pool Breeding

2.3 State Parks and Natural Areas

There are two open space areas adjacent to the Larrabee Study Area that provides significant habitat for wildlife species: Allaire State Park and Bear Swamp Natural Area.

Allaire State Park is located in Farmingdale, Monmouth County, New Jersey and is home to over 200 species of wild flowers, trees, shrubs, and other plants. It is located along the Atlantic flyway, and with large tracts of the park remaining in their natural state the park provides an ideal feeding and resting place for migratory birds. The Manasquan River

bisects the park, creating habitat for plant species that are not typically found in the Jersey Shore region (State of New Jersey 2020).

Bear Swamp Natural Area stretches from the Manasquan Reservoir to Allaire State Park and supports a range of wildlife and plant species diversity and includes habitat for threatened and endangered species (Howell Township 2012). It is also an important water discharge/recharge area. Bear Swamp Natural area supports six tributaries to the Manasquan River and is generally mixed upland forests and forested wetlands.

2.4 Habitat Types Occurring within the Larrabee Study Area

The Larrabee Study Area ranges from shallow, flat shorelines to dunes to the east, to deciduous and mixed forests along the onshore interconnection cable corridors and substations. This section describes the common characteristics of coastal terrestrial habitats that occur within, and adjacent to, the Larrabee Study Area.

- *Deciduous and Mixed Forest/Scrub Shrub/Herbaceous Field*: Deciduous and mixed forests are the dominant habitat type in this region of New Jersey. Forested land is relatively young (two-thirds is less than 60 years old) and encompasses approximately 45% of the State of New Jersey (2.1 million acres); however, these areas are not distributed evenly across all counties. The average forest patch size in Monmouth County is about 30 acres (USDA 2004). The most common cover type of forest in the state is an Oak/Hickory forest which consists of common species such as White Oak (*Quercus alba*), northern red oak (*Quercus rubra*), hickory (*Carya* sp.), white ash (*Fraxinus americana*), yellow poplar (*Liriodendron tulipifera*), and red maple (*Acer rubrum*). The shrub understory is also characteristic for the region and includes species such as: huckleberry (*Gaylussacia* sp.), blueberry (*Vaccinium* sp.), sweet pepperbush (*Clethra alnifolia*), and sheep laurel (*Kalmia angustifolia*). Some wildlife species that prefer younger deciduous forests include: American goldfinch (*Carduelis tristis*), cedar waxwing (*Bombycilla cedrorum*), and eastern cottontail (USDA 2004). More mature forests are more likely to house black bears (*Ursus americanus*), porcupines (*Erethizon dorsatum*), and pileated woodpeckers (*Dryocopus pileatus*).
 - Freshwater rivers and other waterbodies are also part of the deciduous forest patches that provide habitat for fish and freshwater wetlands. Some common species of fish that are found throughout freshwater, perennial streams include: Large/smallmouth bass (*Micropterus salmoides*/*Micropterus dolomieu*), northern pike (*Esox lucius*), yellow perch (*Perca flavescens*), and carp (*Cyprinus carpio*) among many others.
 - Typical scrub-shrub/herbaceous fields in New Jersey occur along and are generally associated with active, fallow or abandoned agricultural practices. This habitat provides suitable habitat to grassland bird species and a diversity of herbaceous and woody shrub vegetation; however, these habitats are

not suitable for many wildlife species along the edges, particularly where active human influence is persistent such as highways, railroads and other forms of residential, commercial, and industrial development.

Although not within the Larrabee Study Area, dune and beach habitat occur immediately east of the eastern extent of the Larrabee Study Area in Sea Girt Borough, New Jersey.

- **Shoreline:** The sandy, coastal shoreline consists of dunes made up of the foredune and secondary dunes leading seaward to the beach berm or backshore (the flat, dry section of the beach normally used for recreation above the high tide line), to the foreshore (area that is exposed to constant wave action, intertidal areas between mean low water to the high tide zone) continuing under water to the nearshore area, submerged area below mean water to 29.5 feet (Wootton, L, Miller J, Miller C, Peek M, Williams A, Rowe P. 2016). These coastal, terrestrial habitats are subject to constant change due to wave and wind action, currents, and storm activities. The constant change, open environment, lack of freshwater, and sparse vegetation makes this habitat inhospitable to most species except those specifically adapted to these conditions or for species who utilize the area as transients for foraging purposes such as gulls (*Larus* spp), sand crabs (*Emerita* spp.) and plovers/lapwings (*Charadrius* spp.).
- **Dune:** Westward of the shoreline is the dune habitat. Dunes, much like a typical beach profile, are also constantly changing in response to short- and long-term processes associated with wind and wave action, storms, and seasonal variations. Throughout New Jersey, dune heights reach eight to 15 feet high and lie above the backshore of the beach (Wootton, L, Miller J, Miller C, Peek M, Williams A, Rowe P. 2016).
 - Common wildlife species that inhabit dunes are whitetail deer (*Odocoileus virginianus*), rabbits (*Sylvilagus floridanus*), common terns (*Sterna* spp.), and other ground-nesting shorebirds among many others. These species typically graze, nest or rest amongst the American beachgrass (*Ammophila breviligulata*), seaside goldenrod (*Solidago sempervirens*), and Asiatic sand sedge (*Carex kobomugi*). Although dunes along the coast make up a very narrow stretch of land in NJ, a small number of highly specialized species with adaptations to thrive in such harsh conditions inhabit these areas. Due to their specialized adaptations and the limited available habitat, many are either state or federally listed threatened or endangered species.

3.0 Field Investigations

Field investigations of vernal pools were conducted within the Study Area by EDR April 2, 2020 and habitat assessment studies were conducted between June 24 and June 26, 2020 and December 7, 8, and 10, 2020. The vernal pool surveyed in April of 2020 involved the JCP&L transmission line ROW. Although a vernal pool survey was conducted during the December 2020 field study for the new County Route 547 portion of the Larrabee Study Area a vernal pool survey should be conducted during the spring months. During field studies wildlife species observed, including threatened and endangered species, within the Larrabee Study Area were noted.

3.1 Vernal Pool Methodology

Vernal pool surveys consisted of systematically investigating the entire Study Area. For each potential vernal pool area, data was collected that included photographs, existing conditions within and adjacent to potential vernal pool areas, and collecting geographic location data for vernal pool features (as applicable) using a Global Positioning System [GPS] with reported sub-meter accuracy. Vernal pools were identified based on a variety of biological, hydrological, and physical characteristics including:

1. Evidence suggesting inundation for at least two consecutive months between March and September
2. Hydrological isolation (no permanent inlets or outlets of flowing surface water)
3. Observed absence of fish species within the pool
4. Presence of standing water
5. Sparse or no vegetation growing within pool
6. Water-stained leaves within/adjacent to the pool
7. Evidence of moss trim lines/buttressing/watermarks on nearby trees
8. Connectivity to adjacent upland forest habitat
9. The presence of obligate and/or facultative indicator species within and/or near the pools

3.2 Habitat Suitability Assessment Methodology

Habitat surveys took place within the Larrabee Study Area and immediately adjacent areas. Visual assessments were conducted to determine the type of habitats observed based on vegetation community types, as well as immediately adjacent areas wherever possible. Wildlife species observed during field investigations, including threatened and endangered species, were GPS located and habitat usage noted.

4.0 RESULTS

This section presents the habitats observed within the Larrabee Study Area and summarizes the results of the vernal pool survey and an assessment of the observed habitats to support regulated wildlife species.

4.1 Habitat Types within Study Area

The overall Study Area occurs within established linear development ROW's such as roadways, and recreational trails. As a result, many of the habitats observed have experienced some level of past and ongoing disturbance, particularly established populations of non-native invasive species. The following habitat types were observed within the Study Area:

- **Developed/Disturbed Areas:** This type of habitat included areas such as roads, sidewalks, recreational trails, buildings (residential, commercial, and industrial), maintained landscapes and other areas associated with the built environment.
- **Forest – Wetlands:** this habitat type generally occurred farther inland within the Allaire State Park and Bear Swamp Natural Area boundaries and along the County Road 524 and 547 corridors, and was dominated by sweet gum (*Liquidambar styraciflua*) and red maple (*Acer rubrum*), in the canopy. The shrub layer was dominated by pepperbush (*Clethra alnifolia*), arrowwood viburnum (*Viburnum dentatum*). In the herbaceous layer Japanese stilt grass (*Microstegium vimineum*) was the dominant species.
- **Forest – Mixed:** this habitat type generally occurred further inland along the county road ROW and within Allaire State Park and Bear Swamp Natural Area boundaries. The canopy was dominated by pitch pine (*Pinus rigida*), black gum (*Nyssa sylvatica*), red oak (*Quercus rubra*), white oak (*Quercus alba*), and red maple (*Acer rubrum*) and the understory was dominated by roundleaf greenbrier (*Smilax rotundifolia*) and lowbush blueberry (*Vaccinium angustifolium*). The herbaceous layer was sparsely vegetated.
- **Forest Deciduous:** this habitat type generally occurred further inland along county road ROW, within the Allaire State Park and Bear Swamp Natural Area boundaries, and at the edges of transmission line ROWs. The canopy was dominated by black gum, sweet gum (*Liquidambar styraciflua*), red oak, white oak, black locust (*Robinia pseudoacacia*), Norway maple (*Acer platanoides*), wild cherry (*Prunus avium*), and sassafras (*Sassafras albidum*). The understory was dominated by roundleaf greenbrier, multiflora rose (*Rosa multiflora*), pitch pine, and black raspberry (*Rubus occidentalis*). The herbaceous layer was dominated by garlic mustard (*Alliaria petiolate*), goldenrod (*Solidago canadensis*), poison ivy (*Toxicodendron radicans*) and numerous grass species.
- **Shrub – Deciduous:** this habitat type generally occurred along areas adjacent to the county road ROW. The shrub layer was dominated by a sparse canopy of black, white, and red oak saplings, black gum, as well as shining sumac (*Rhus copallinum*), sassafras saplings, and Norway maple saplings. The shrub layer was dominated by elderberry (*Sambucus* sp.), highbush blueberry, Japanese barberry (*Berberis thunbergii*),

shining sumac and multiflora rose. The understory was dominated by pokeweed (*Phytolacca decandra*), ribwort plantain (*Plantago lanceolata*), and wild lettuce (*Lactuca virosa*).

- Herbaceous Field: this habitat type was mainly located in heavily disturbed areas such as residential neighborhoods, commercial properties, along county road ROW, areas adjacent to the pedestrian bike path and agricultural areas. Dominant herbaceous species included grasses, white clover (*Trifolium repens*), buttercup (*Ranunculus* sp.), Canada goldenrod, deer tongue (*Dichanthelium clandestinum*), milkweed (*Asclepias syriaca*), round leaf boneset (*Eupatorium rotundifolium*), creeping rubus (*Rubus hayata-koidzumii*), wrinkle leaf goldenrod (*Solidago rugosa*), yarrow (*Achillea millefolium*), mugwort (*Artemisia vulgaris*) and wild carrot (*Daucus carota*). Shrubs were sparse and included pitch pine, low-bush blueberry, and saplings of red, white or black oak, black gum and sassafras.
- Shrub-Scrub Wetlands: occurred along the county road ROW and in disturbed areas. The shrub layer was dominated by sugar maple (*Acer saccharum*), black willow (*Salix nigra*), black birch (*Betula nigra*) and winterberry holly (*Ilex verticillate*). Dominant vegetation in the herbaceous stratum included skunk cabbage, common reed, and Japanese stiltgrass.
- Herbaceous Wetlands: occurred throughout the study area and were dominated by Pennsylvania smartweed (*Polygonum pensylvanicum*), soft rush (*Juncus effusus*), spikerush (*Eleocharis palustris*), Japanese stiltgrass (*Microstegium vimineum*), common reed (*Phragmites australis*), woolgrass (*Scirpus cyperinus*), fringed sedge (*Carex crinite*), reed canary grass (*Phalaris arundinacea*), lurid sedge (*Carex lurida*), and narrowleaf cattail (*Typha angustifolia*). Shrub species were sparse and included sweet pepperbush (*Clethra alnifolia*), red maple saplings, and arrowwood viburnum.
- Watercourses: 20 streams were identified throughout the Study Area including streams, rivers and other surface drainage features. These features included intermittent, upper perennial, lower perennial, and ephemeral watercourses that were largely surface water fed features.
- Ponded Areas: open water areas influenced by spring seeps, streams and man-made barriers.

Developed/Disturbed areas were the most abundant within the Larrabee Study Area (59.2%). The remainder of habitat types occurred along roadways and pedestrian/bike lanes and therefore few species were observed. Wildlife species that were observed include transient individuals flying overhead and included species such as: herring gull (*Larus argentatus*), laughing gull (*Leucophaeus atricilla*), house sparrow (*Passer domesticus*), mourning dove (*Zenaidura macroura*), northern cardinal (*Cardinalis cardinalis*), eastern blue bird (*Sialia sialis*) and other common avian species adapted to developed/disturbed habitat types. No reptile, amphibian or mammal species were observed. No federal or state listed threatened and endangered species were observed within the Larrabee Study Area during field studies. Each of these habitats' location and extent within the Larrabee Study Area is shown on the mapping presented in Appendix D.

4.2 Vernal Pool Survey Results

An evaluation based on the methodology presented in Section 3.1 was conducted during an on-site survey by EDR on December 7, 8, and 10, 2020. Two areas were identified within the Study Area that exhibited characteristics of vernal pools along the onshore interconnection route. Both areas displayed characteristics of vernal pools (i.e. standing water with no in/outlets and potential habitat). However, these surveys were conducted in December, outside of the growing season, and should be re-evaluated to determine status during the early spring months.

4.3 Suitability of Observed Habitat for Federal and State-Listed Threatened and Endangered Species

As described in Section 4.1, the majority of the habitat observed within the Study Area is disturbed and influenced by human activity and/or degraded due to non-native invasive species and does not provide critical habitat for any of the federal or state listed threatened and endangered species documented to occur in this area. However, areas adjacent to the Study Area associated with large, forested wetlands, Allaire State Park and Bear Swamp Natural Area possess suitable habitat for a number of these species. USFWS defines critical habitat as areas that are essential to the conservation of an endangered or threatened species and that may require special management and protection. NJDEP defines critical habitat Table 4 summarizes the federal and state listed threatened and endangered species and provides an assessment if any critical habitat was observed within the Larrabee Study Area based on the requirements presented in Tables 1 and 3.

Table 4. Federal and State Listed Species – Critical Habitat Assessment Summary

| Species | Common Name | Federal/State Status | Critical Habitat in Larrabee Study Area | Comments |
|---------------------------------|-------------------------|--------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Myotis septentrionalis</i> | Northern Long-eared Bat | Federal - Threatened | No | Individuals could utilize the Study Area for foraging opportunities. |
| <i>Charadrius melodus</i> | Piping Plover | Federal - Threatened | No | Habitat does not occur within to the Study Area. Potential habitat could occur near the Monmouth Landfall site in the dune areas. |
| <i>Clemmys muhlenbergii</i> | Bog Turtle | Federal – Threatened State – Endangered | No | Mapped Habitat occurs adjacent to the Study Area; however, the wetland areas associated with Allaire State Park are dense forested wetlands that are fed by the numerous creeks (not groundwater). Substrate is mineral soil and lack hummocks or significant herbaceous vegetation. |
| <i>Rhynchospora knieskernii</i> | Knieskern's Beaked-rush | Federal - Threatened | No | Habitat does not occur within or adjacent to the Study Area. |

| Species | Common Name | Federal/State Status | Critical Habitat in Larrabee Study Area | Comments |
|---------------------------------|---------------------------|-------------------------|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Amaranthus pumilus</i> | Seabeach Amaranth | Federal - Threatened | No | Habitat does not occur within the Study Area; however the dune habitat adjacent to the Monmouth Landfall site could be suitable habitat. |
| <i>Helonias bullata</i> | Swamp Pink | Federal - Threatened | No | Habitat does not occur within or adjacent to the Study Area. |
| <i>Falco sparverius</i> | American Kestrel | State - Threatened | Potentially | Open meadows with a tree line associated with the JCP&L transmission line ROW and open field associated with agriculture along County Route 524/547 may provide opportunity for nesting (outside of the Study Area) and foraging. No nesting pairs were observed within or adjacent to the Study Area at the time of field investigations. |
| <i>Haematopus palliatus</i> | American Oystercatcher | State – Special Concern | No | Nesting habitat does not occur within the Study Area since the route does not occur near back-bay areas or on barrier beach strands. |
| <i>Haliaeetus leucocephalus</i> | Bald Eagle | State - Endangered | No | Foraging habitat occurs within proximity to the Study Area; however, there are no large open water areas within the Study Area. Additionally, large perch trees are near large open water areas are not located within the Study Area. |
| <i>Strix varia</i> | Barred Owl | State - Threatened | Potentially | Large tracts of woods within park boundaries directly adjacent to the Study Area have open understories that may provide opportunity for nesting and foraging. No nesting pairs were observed within the Study Area at the time of field investigations. |
| <i>Nycticorax nycticorax</i> | Black-Crowned Night-Heron | State - Threatened | No | Foraging habitat occurs within and adjacent to Study Area |
| <i>Toxostoma rufum</i> | Brown Thrasher | State - Special Concern | No | Foraging habitat occurs within and adjacent to Study Area |
| <i>Metarranthis pilosaria</i> | Coastal Bog Metarranthis | Federal - Vulnerable | No | Habitat does not occur within or adjacent to the Study Area. |
| <i>Accipiter cooperii</i> | Coopers Hawk | State - Special Concern | Potentially | Limited habitat potential within the study area because a closed canopy and thick shrub understory does not occur. Foraging habitat occurs throughout the Study Area; however, no |

| Species | Common Name | Federal/State Status | Critical Habitat in Larrabee Study Area | Comments |
|------------------------------------|-----------------------|-------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | individuals or breeding pairs were observed during field investigations. |
| <i>Terrapene carolina carolina</i> | Eastern Box Turtle | State - Special Concern | Potentially | Open woodlands and meadows, as well as residential backyards in suburban areas are present within and directly adjacent to the Study Area. No individuals or breeding pairs were observed during investigations. |
| <i>Anaxyrus fowleri</i> | Fowler's Toad | State – Special Concern | Potentially | Open woodlands and meadows are present directly adjacent to the Study Area. No individuals were observed during investigations. |
| <i>Plegadis falcinellus</i> | Glossy ibis | State – Special Concern | Potentially | Edges of ponds and forest bordering water bodies are directly adjacent to the Study Area. No individuals were observed during investigations. |
| <i>Ardea herodias</i> | Great Blue Heron | State - Special Concern | No | Foraging habitat occurs within and adjacent to the Study Area |
| <i>Wilsonia citrina</i> | Hooded Warbler | State - Special Concern | Potentially | Some areas directly adjacent to the Study Area within park boundaries, provide large tracts of wooded forests with sparse understory occur. Breeding habitat is unlikely within the Study Area due to the proximity to highways and other human disturbance; however, there is foraging habitat. No individuals or breeding pairs were observed during investigations. |
| <i>Eremophila alpestris</i> | Horned Lark | State - Threatened | Potentially | Within open fields on the eastern side of Allaire State Park along County Route 547 provides open spaces, with bare ground, and occasional shrubs with short, sparse grasses and flowers; however, this habitat is outside of the Study Area. No individuals or breeding pairs were observed during investigations. |
| <i>Sternula antillarum</i> | Least Tern | State - Endangered | No | Foraging habitat occurs within and adjacent to Study Area |
| <i>Circus cyaneus</i> | Northern Harrier | State - Endangered | No | Breeding/Nesting habitat does not occur within or adjacent to the Study Area. |
| <i>Hyla andersonii</i> | Pine Barrens Treefrog | State - Threatened | Potentially | Ponds and open water wetlands exist within or adjacent to the Study Area, including two potential vernal pools; |

| Species | Common Name | Federal/State Status | Critical Habitat in Larrabee Study Area | Comments |
|-----------------------------|----------------------|-------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | | however, the water pH was not measured, and therefore it is undetermined if these waters would be suitable. In areas with shallow open water, pitch pine was not the dominant tree. Given the extensive documented occurrence of this species in the deciduous forested areas adjacent to the Study Area, suitable habitat could occur within or directly adjacent to the Study Area. No individuals were observed during investigations. |
| <i>Grammia placentia</i> | Placentia Tiger Moth | Federal - Vulnerable | No | Habitat does not occur within or adjacent to the Study Area. |
| <i>Egretta thula</i> | Snowy Egret | State - Special Concern | No | Foraging habitat occurs within and adjacent to Study Area |
| <i>Egretta tricolor</i> | Tricolored Heron | State – Special Concern | No | Habitat does not occur within or adjacent to the Study Area. |
| <i>Catharus fuscescens</i> | Veery | State - Special Concern | No | Allaire State Park and Bear Swamp Natural Areas provide large tracts of wooded forests with shrubby understory; however, the Study Area occurs at the fringe of these habitats. As a result, breeding habitat is not suitable within the Study Area. Foraging habitat is available. No individuals or breeding pairs were observed during investigations. |
| <i>Glyptemys insculpta</i> | Wood Turtle | State - Threatened | No | Mapped habitat occurs within and adjacent to the Study Area. Habitat was observed in areas adjacent to the Study Area, particularly associated with Allaire State Park and individuals would be expected within the Study Area for foraging opportunities or movement between forested habitat areas. No individuals were observed in the Study Area during investigations. |
| <i>Hylocichla mustelina</i> | Wood Thrush | State - Special Concern | Potentially | Allaire State Park and Bear Swamp Natural Area provides large tracts of wooded forests with thick understory outside of the Study Area. Breeding habitat is unlikely within the Study Area, but foraging habitat is available. No individuals or breeding pairs were observed during field investigations. |

| Species | Common Name | Federal/State Status | Critical Habitat in Larrabee Study Area | Comments |
|----------------------------|----------------------------|----------------------|-----------------------------------------|---------------------------------------------------------------|
| <i>Nyctanassa violacea</i> | Yellow-Crowned Night-Heron | State - Threatened | No | Foraging habitat occurs within and adjacent to the Study Area |

Although critical habitat was not identified directly within the Larrabee Study Area, critical habitat for many of these species (particularly avian and amphibian species) could occur directly adjacent to or within proximity to the Study Area. Additionally, these State-listed threatened and endangered species could utilize areas of the Larrabee Study Area for foraging or transit between critical habitat in the area and include:

- American kestrel
- Barred owl
- Horned lark
- Pine Barrens treefrog
- Yellow-crowned night heron

There were no federal-listed threatened and endangered species that would utilize the Larrabee Study Area for foraging or transit.

4.4 Habitat Suitability for Migratory and Resident Wildlife Species

As previously described, the Larrabee Study Area is characterized by significant development and disturbed vegetation habitats. While these habitats do not provide critical habitat for any federal or state listed threatened and endangered species, these habitats provide nesting, cover, foraging and other life cycle stages for species adapted to human development and disturbance.

Migratory bird species identified in Section 2.1 could occur within the Larrabee Study Area during their spring and autumn migration and use the forested and emergent wetland areas within the Study Area. Migratory bird species using habitats within the Larrabee Study Area would be temporary and for short durations.

Resident wildlife species occur through the Larrabee Study Area in developed and natural areas. These species are well adapted to use of disturbed and natural habitats and transition between these areas as needed.

5.0 CONCLUSIONS

EDR conducted vernal pool surveys in April 2020 and December 2020 and a habitat suitability assessment in June 2020 and December 2020. Based on the vernal pool survey, two areas potentially satisfied the criteria of being a vernal pool habitat, however these areas were identified in December and it is recommended that they be revisited during the Spring because determination of a vernal pool is based in part on the type of amphibian species observed using the habitat. The habitat suitability assessment identified 10 habitat types within the Larrabee Study Area. The most abundant habitat type was developed/disturbed (59.2%) due to the location of the Larrabee Study Area within highway and other ROWs and within the suburban landscape of the Borough of Sea Girt, the Township of Wall, and the Township of Howell. The remaining habitat within the Larrabee Study Area consists of edges of mixed forest, scrub-shrub old fields, herbaceous fields (agricultural pastures), forested, scrub-shrub, and herbaceous non-tidal wetlands. With the exception of wetlands and stream crossings, all of these habitat types occur along the edge of the already developed Study Area and were determined to be marginal, edge habitat. These habitats are considered marginal because of the edge effect being within or adjacent to existing linear development (e.g., highways, roadways, and pedestrian/bike lanes) and other commercial, residential, and industrial development. These habitats have largely been disturbed from previous development and are subject to ongoing disturbance from high-traffic use highways/roads and pedestrian/bike lanes.

The habitats observed were not determined to be critical habitat for any of the federal or state listed threatened and endangered species. Wildlife species that were observed include transient individuals flying overhead and included species such as: herring gull (*Larus argentatus*), laughing gull (*Leucophaeus atricilla*), house sparrow (*Passer domesticus*), mourning dove (*Zenaida macroura*), northern cardinal (*Cardinalis cardinalis*), eastern blue bird (*Sialia sialis*) and other common avian species adapted to developed/disturbed habitat types. No reptile, amphibian or mammal species were observed. No federal or state listed threatened and endangered species were observed within the Larrabee Study Area during field studies. However, potential habitat for multiple state listed species is present directly adjacent to the Larrabee Study Area. Discussion with the USFWS and NJDEP DFW should occur through the permitting process and construction to determine the need for any appropriate avoidance/mitigation measures.

6.0 REFERENCES

Conserve Wildlife Foundation of New Jersey (CWF), 2010. New Jersey Endangered and Threatened Species Field Guide – Wood Turtle. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Glyptemys%20insculpta/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF), 2011. New Jersey Endangered and Threatened Species Field Guide – American Kestrel. Available at

<http://www.conservewildlifenj.org/species/fieldguide/view/Falco%20sparverius/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF a), 2011. New Jersey Endangered and Threatened Species Field Guide – Brown Thrasher. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Toxostoma%20rufum/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF b), 2011. New Jersey Endangered and Threatened Species Field Guide – Hooded Warbler. Available at: <http://www.conservewildlifenj.org/species/fieldguide/view/Wilsonia%20citrina/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF c), 2011. New Jersey Endangered and Threatened Species Field Guide – Veery. Available at: <http://www.conservewildlifenj.org/species/fieldguide/view/Catharus%20fuscescens/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF d), 2011. New Jersey Endangered and Threatened Species Field Guide – Wood Thrush. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Hylocichla%20mustelina/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF), 2012. New Jersey Endangered and Threatened Species Field Guide – Cooper's Hawk. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Accipiter%20cooperii/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF a), 2012. New Jersey Endangered and Threatened Species Field Guide – Horned Lark. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Eremophila%20alpestris/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF), 2020. New Jersey Endangered and Threatened Species Field Guide – Bald Eagle. Available at

<http://www.conservewildlifenj.org/species/fieldguide/view/Haliaeetus%20leucocephalus/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF b), 2020. New Jersey Endangered and Threatened Species Field Guide – Black-Crowned Night Heron. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Nycticorax%20nycticorax/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF c), 2020. New Jersey Endangered and Threatened species Field Guide – Bog Turtle. Available at:

<http://www.conservewildlifenj.org/species/fieldguide/view/Glyptemys%20muhlenbergii/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF d), 2020. New Jersey Endangered and Threatened Species Field Guide – Box Turtle. Available at

<http://www.conservewildlifenj.org/species/fieldguide/view/Terrapene%20carolina%20carolina/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF e), 2020. New Jersey Endangered and Threatened Species Field Guide – Pine Barrens Treefrog. Available at

<http://www.conservewildlifenj.org/species/fieldguide/view/Hyla%20andersonii/>. (Accessed September 2020).

Conserve Wildlife Foundation of New Jersey (CWF), 2021. Species Spotlight – American Oystercatcher. Available at: <http://www.conservewildlifenj.org/species/spotlight/oystercatcher/> (Accessed January 2021).

Conserve Wildlife Foundation of New Jersey (CWFa), 2021. New Jersey Endangered and Threatened Species Field Guide –Fowler’s Toad. Available at: <http://www.conservewildlifenj.org/species/fieldguide/view/Anaxyrus%20fowleri/> (Accessed January 2021).

Conserve Wildlife Foundation of New Jersey (CWFb), 2021. New Jersey Endangered and Threatened Species Field Guide –Glossy Ibis. Available at <http://www.conservewildlifenj.org/species/fieldguide/view/Plegadis%20falcinellus/> (Accessed January 2021).

Conserve Wildlife Foundation of New Jersey (CWFc), 2021. New Jersey Endangered and Threatened Species Field Guide –Tricolored Heron. Available at <http://www.conservewildlifenj.org/species/fieldguide/view/Egretta%20tricolor/> (Accessed January 2021).

Howell Township. 2012. Master Plan for the Bear Swamp Natural Area Howell Township, New Jersey. Available at: <https://www.twp.howell.nj.us/ArchiveCenter/ViewFile/Item/392>. (Accessed February 2020).

Middletown Township Environmental Commission (MTEC). 1995. Coastal Habitats of the Middletown Bayshore: A Natural Resource Inventory of the Bayshore Region: Middletown, Monmouth County, New Jersey. Middletown (NJ): Middletown Township Environmental Commission. Available at: <https://rucore.libraries.rutgers.edu/rutgers-lib/29668/PDF/1/play/>. (Accessed January 2020).

NatureServe Explorer (NatureServe), 2020. *Amaranthus pumilus*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.141860/Amaranthus_pumilus. (Accessed September 2020).

NatureServe Explorer (NatureServe a) 2020. *Ardea herodias*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.100203/Ardea_herodias. (Accessed September 2020).

NatureServe Explorer (NatureServe b), 2020. *Charadrius melodus* Piping Plover. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106046/Charadrius_melodus. (Accessed September 2020).

NatureServe Explorer (NatureServe c) 2020. *Egretta thula*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.100485/Egretta_thula. (Accessed September 2020).

NatureServe Explorer (NatureServe f) 2020. *Nyctanassa violacea*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.106355/Nyctanassa_violacea. (Accessed September 2020).

NatureServe Explorer (NatureServe g) 2020. *Pandion haliaetus*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105808/Pandion_haliaetus. (Accessed September 2020)

NatureServe Explorer (NatureServe h), 2020. *Rhynchospira knieskernii*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.134727/Rhynchospira_knieskernii. (Accessed September 2020).

NatureServe Explorer (NatureServe i) 2020. *Sternula antillarum*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.101508/Sternula_antillarum. (Accessed September 2020).

NatureServe Explorer (NatureServe j), 2020. *Strix varia*. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.103621/Strix_varia. (Accessed September 2020).

NatureServe Explorer (NatureServe), 2021. *Placentia* Tiger Moth. Available at:
https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.107153/Apantesis_placentia (Accessed September 2021). New Jersey Department of Environmental Protection (NJDEP), 3 Apr. 2020. The New Jersey Natural Heritage Program. Available at: www.nj.gov/dep/parksandforests/natural/heritage/. (Accessed January 2021)

New Jersey Division of Fish & Wildlife (NJDFW), 2018. New Jersey's Landscape Project. Available at:
<https://www.state.nj.us/dep/fgw/ensp/landscape/>. (Accessed September 2020).

Plants of Southern New Jersey (POSNJ) 2021. Plant Profile: Pine Barrens Bellwort. Available at:

<https://www.cumauriceriver.org/botany/uvpu.html>. (Accessed January 2021).

State of New Jersey (NJ). 2019. The Division of Land Use Regulation & US Fish and Wildlife Service. Available at:

https://www.nj.gov/dep/landuse/lu_fgw.html. (Accessed September 2020)

State of New Jersey. 2020. Allaire. Available at: <https://www.state.nj.us/dep/parksandforests/parks/allaire.html>.

(Accessed February 2020).

The Nature Conservancy (TNC) 2021. North Atlantic Coastal Plain Pitch Pine Lowland; Macrogroup: Coastal Plain Swamp. Available:

<https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/edc/Documents/HabitatGuides/55.pdf>. (Accessed January 2021).

U.S. Fish and Wildlife Service (USFWS), 2020. Endangered Species Act Overview. Available at: <https://www.fws.gov/endangered/laws-policies/>. (Accessed September 2020).

U.S. Fish and Wildlife Service (USFWS a), 2020. ECOS Environmental Conservation Online System: Northern Long-Eared Bat (*Myotis septentrionalis*). Available at: <https://ecos.fws.gov/ecp/species/9045>. (Accessed September 2020)

U.S. Fish and Wildlife Service (USFWS b), 2020. ECOS Environmental Conservation Online System Swamp pink (*Helonias bullata*). Available at: <https://ecos.fws.gov/ecp/species/4333>. (Accessed September 2020).

U.S. Fish and Wildlife Service (USFWS c), 2020. Migratory Bird Treaty Act. Available at:

[https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php#:~:text=The%20Migratory%20Bird%20Treaty%20Act%20prohibits%20the%20take%20\(including%20killing,U.S.%20Fish%20and%20Wildlife%20Service..](https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php#:~:text=The%20Migratory%20Bird%20Treaty%20Act%20prohibits%20the%20take%20(including%20killing,U.S.%20Fish%20and%20Wildlife%20Service..) (Accessed September 2020).

USDA Forest Service. 2004. Forests of the Garden State. Newtown Square (PA): USDA Forest Service. Available at:

https://www.fs.fed.us/ne/newtown_square/publications/resource_bulletins/pdfs/2005/ne_rb163.pdf. (Accessed January 2021).

Wootton L, Miller J, Miller C, Peek M, Williams A, Rowe P. 2016. Sea Grant Consortium Dune Manual. New Jersey (US): New Jersey Sea Grant Consortium. Available at: <http://njseagrant.org/wp-content/uploads/2016/07/Dune-Manual-Pgs-compressed.pdf>. (Accessed January 2020).

APPENDIX A

Figures

Figure 1: Project Location Map

Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt,
Township of Wall, and
Township of Howell
Monmouth County, New
Jersey

Figure 1
Project Location Map

- Larrabee Interconnection Route
- Study Area



Notes: 1. Basemap: ESRI ArcGIS Online "USA Topo Maps" map service. 2. This map was generated in ArcMap on March 8, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

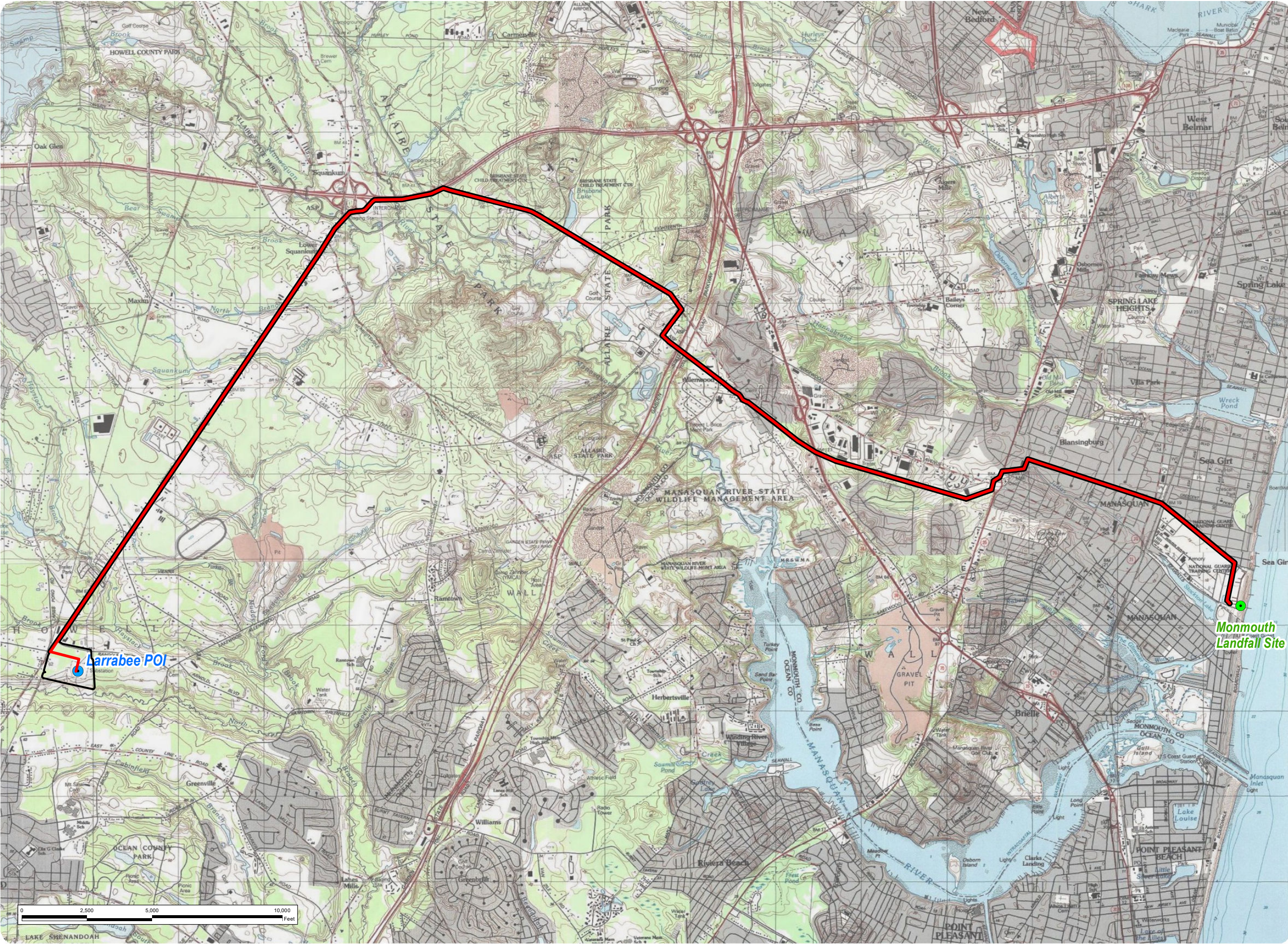


Figure 2: Landscape Project Mapping

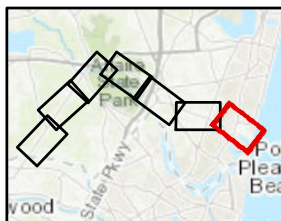


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

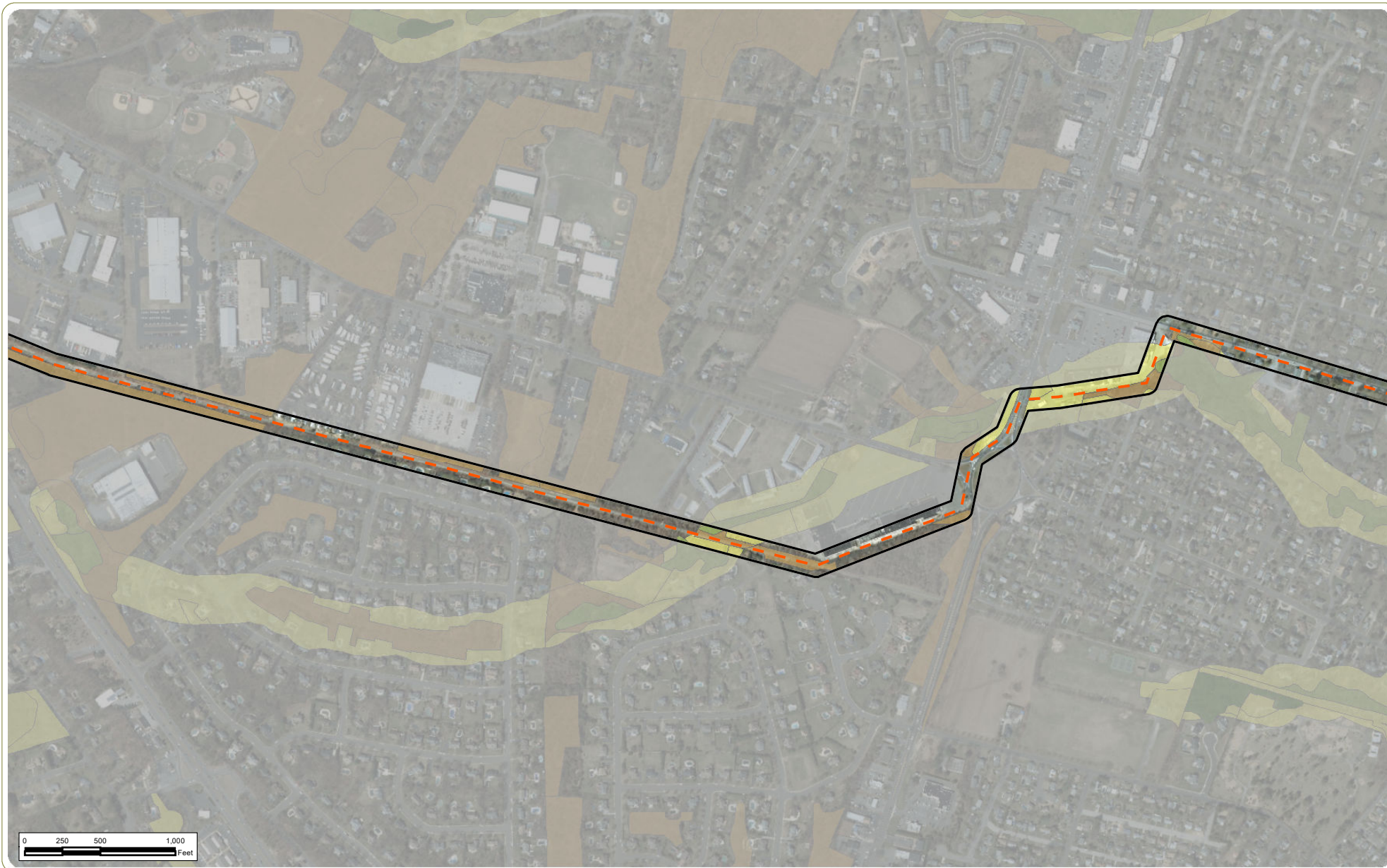
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 1 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on March 8, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

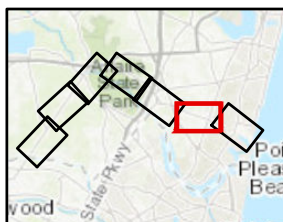


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

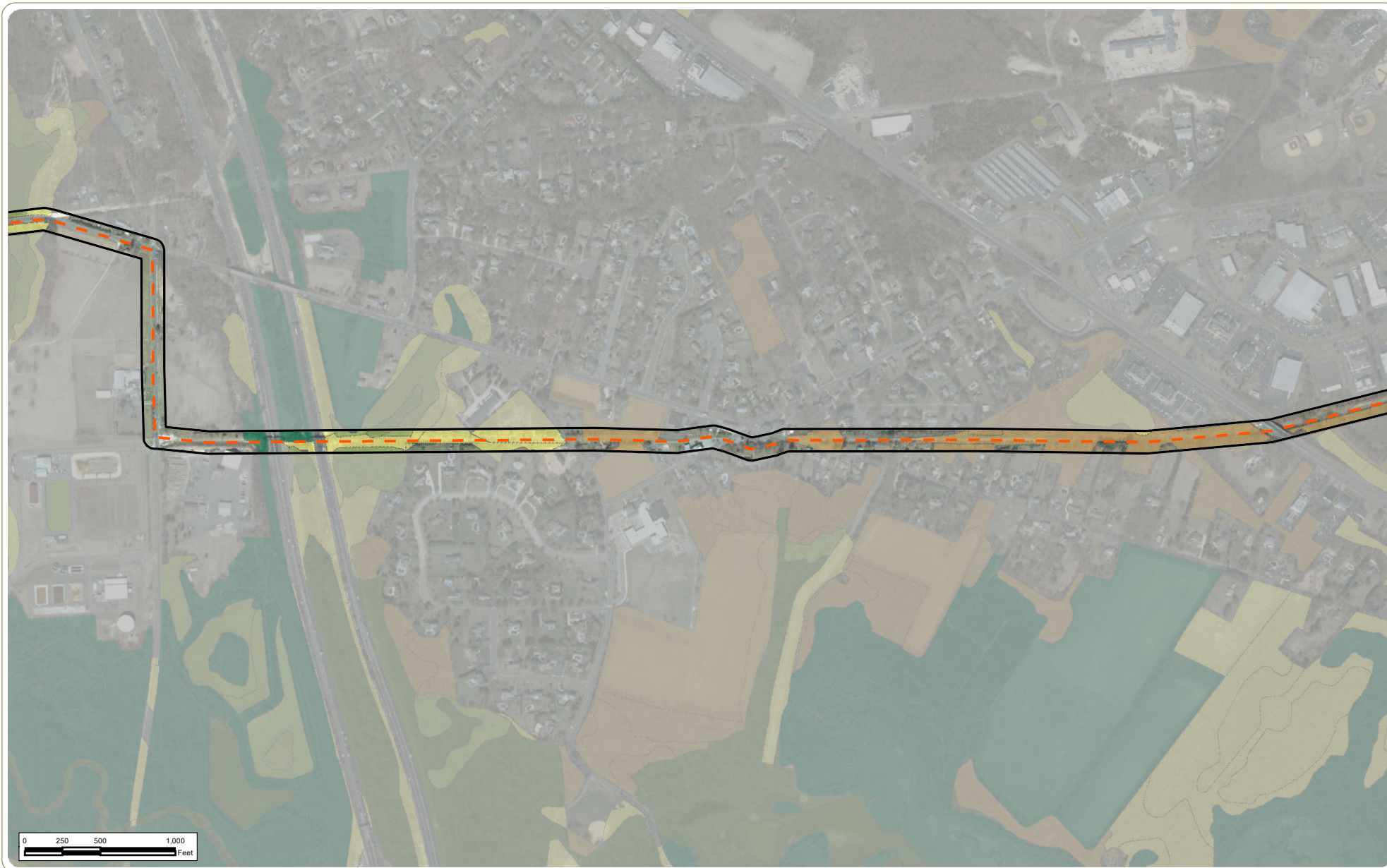
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 2 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- ▭ Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

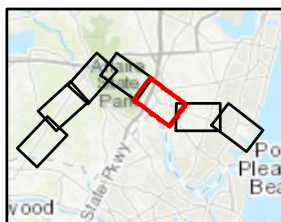


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

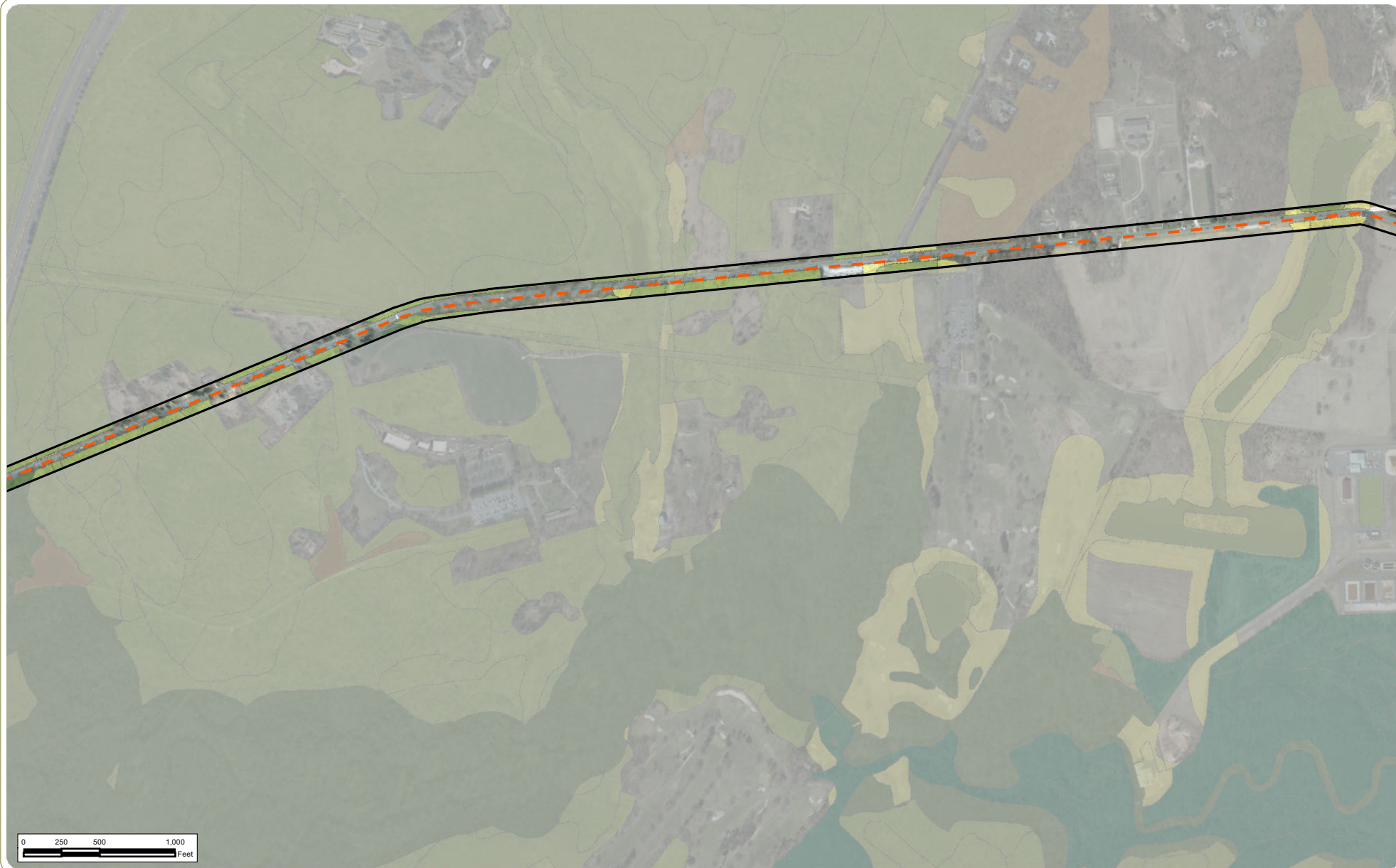
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 3 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- ▭ Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

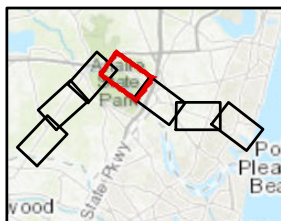


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

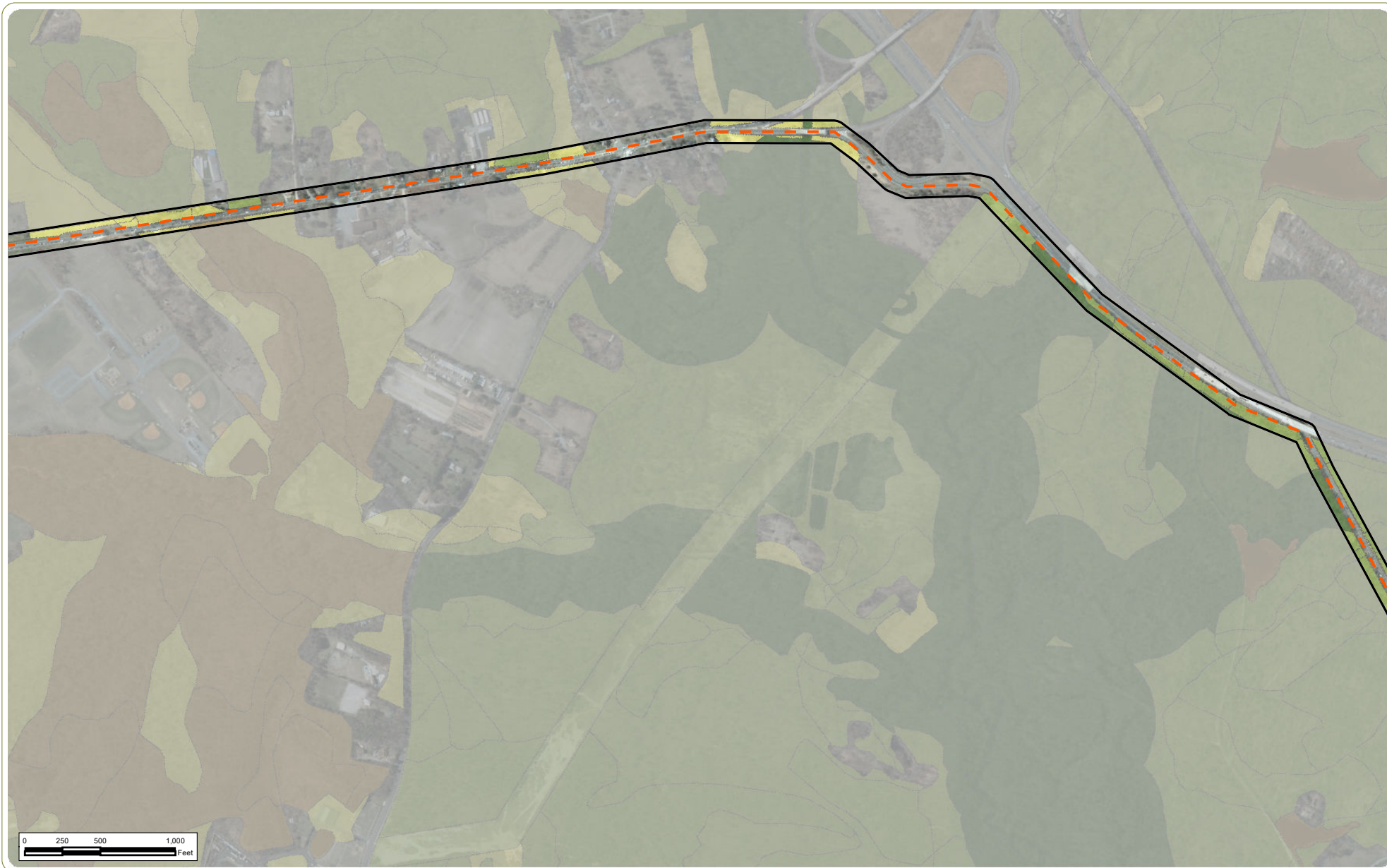
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 4 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- ▭ Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

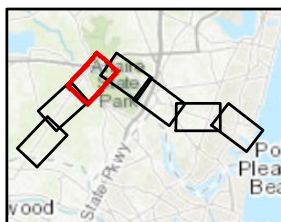


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

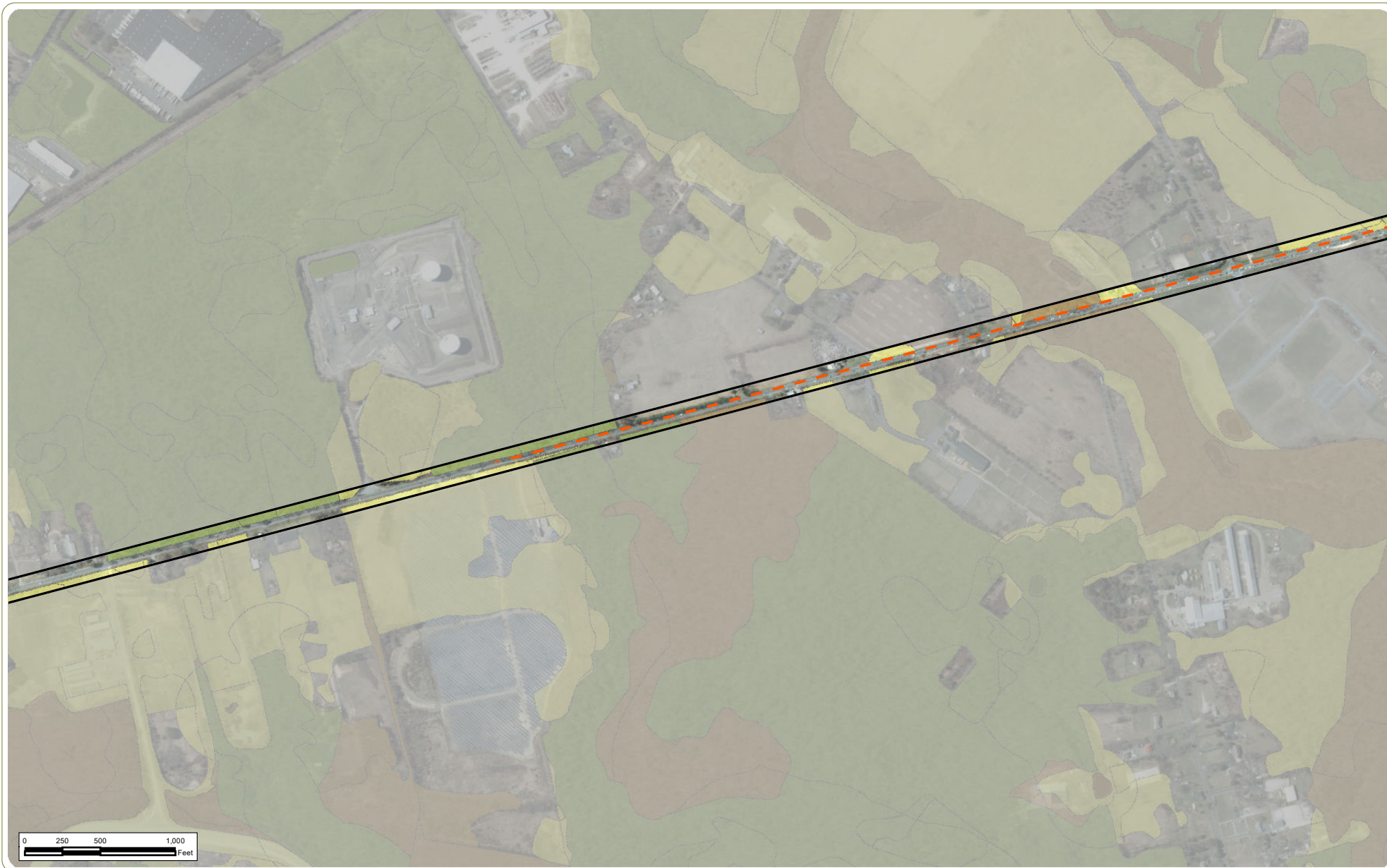
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 5 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

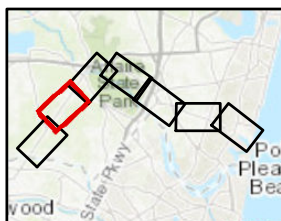


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 2 - Landscape Project Mapping Sheet 6 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- ▬ Study Area
- ▬ Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed



ATLANTIC SHORES
offshore wind



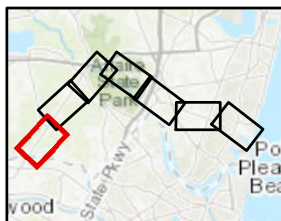


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

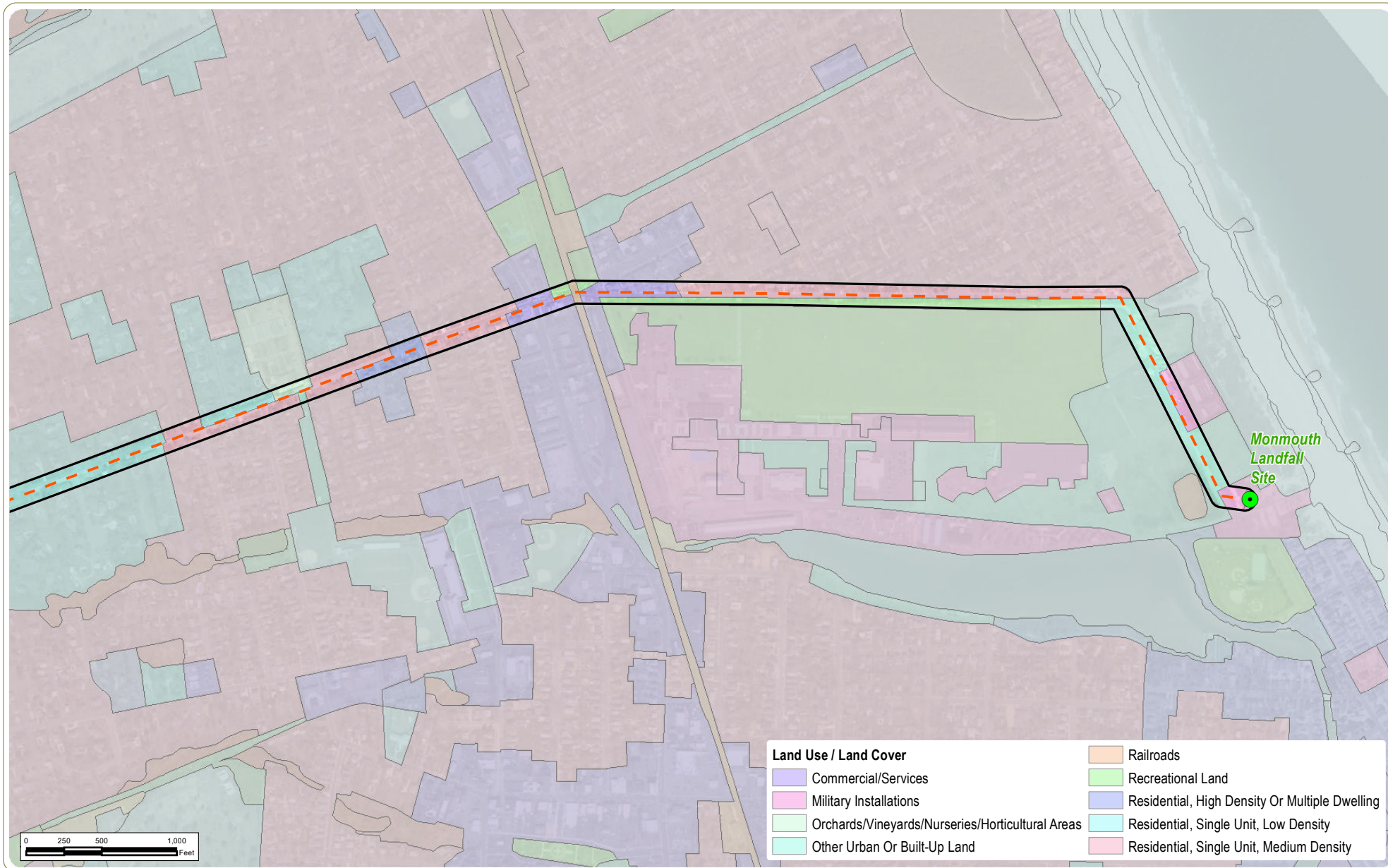
Figure 2 - Landscape Project Mapping Sheet 7 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- Study Area
- Landscape Project - Species Based Habitat
- Rank1 - Habitat Specific Requirements
- Rank 2 - Special Concern
- Rank 3 - State Threatened
- Rank 4 - State Endangered
- Rank 5 - Federally Listed

Figure 3: Land Use/Land Cover

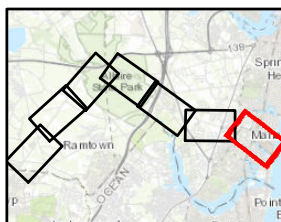


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

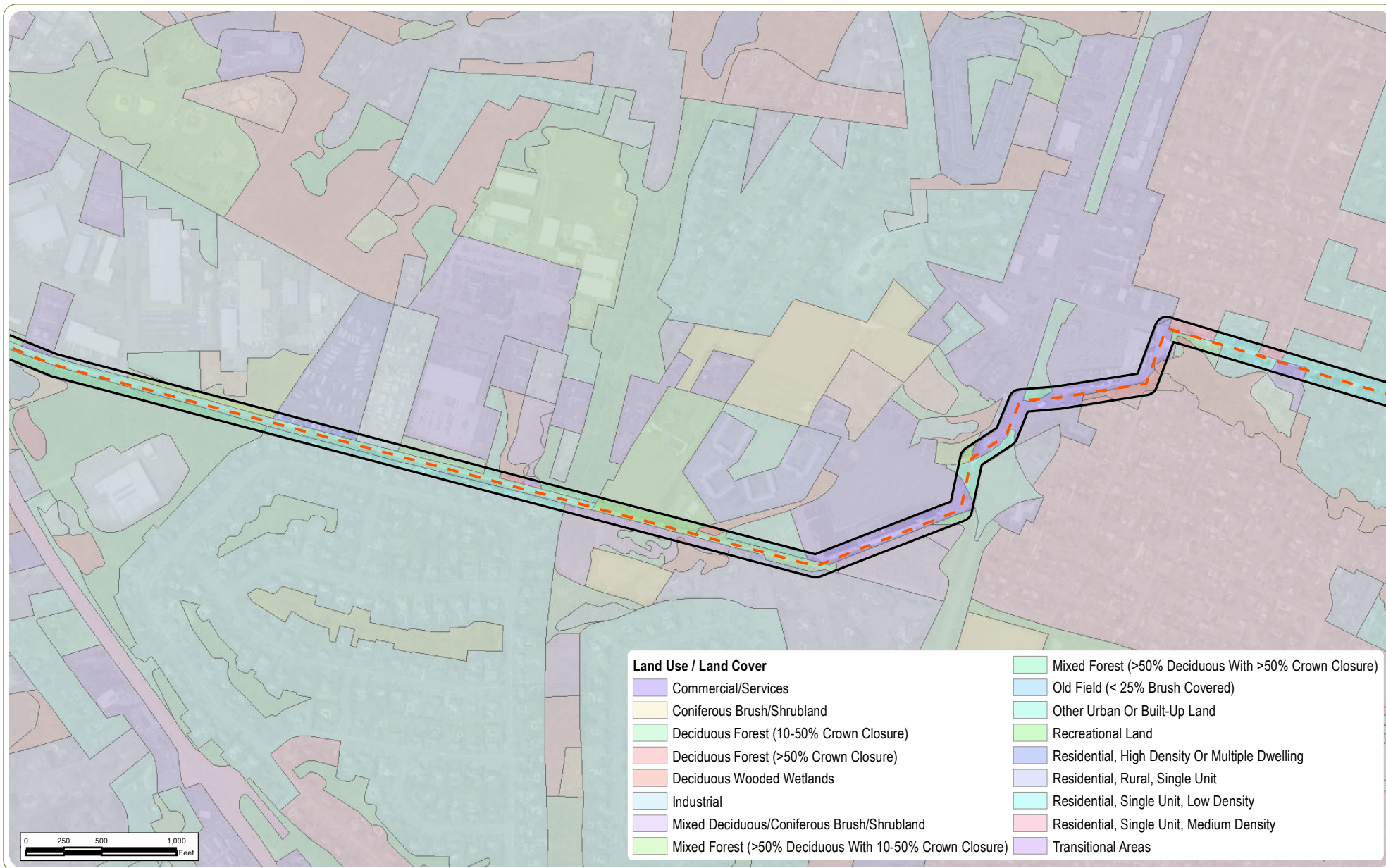
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 1 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on March 8, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
— Study Area

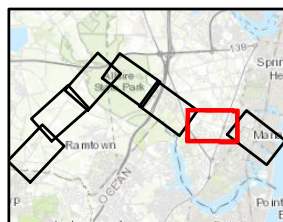


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

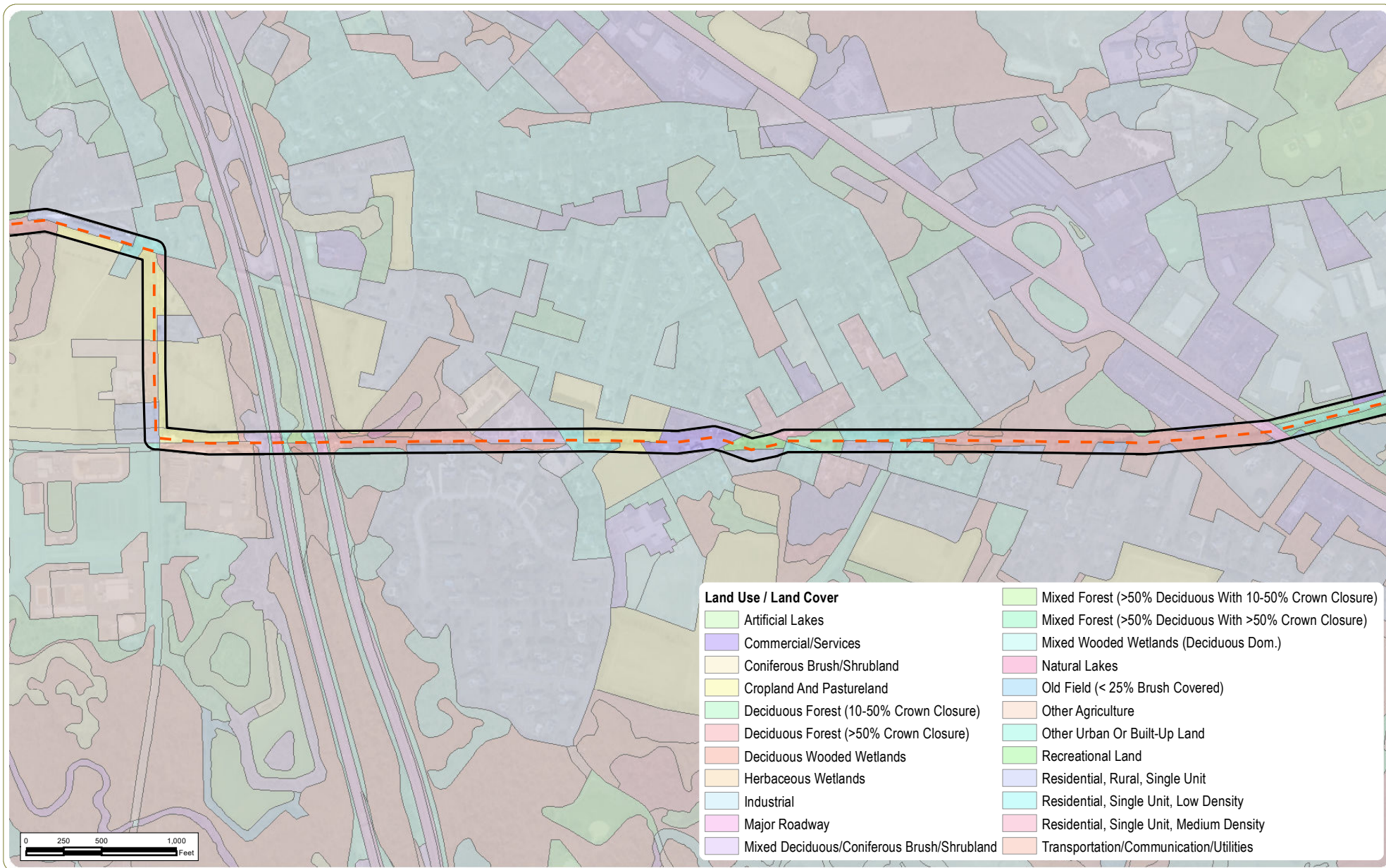
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover
Sheet 2 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area

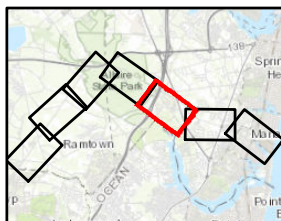


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

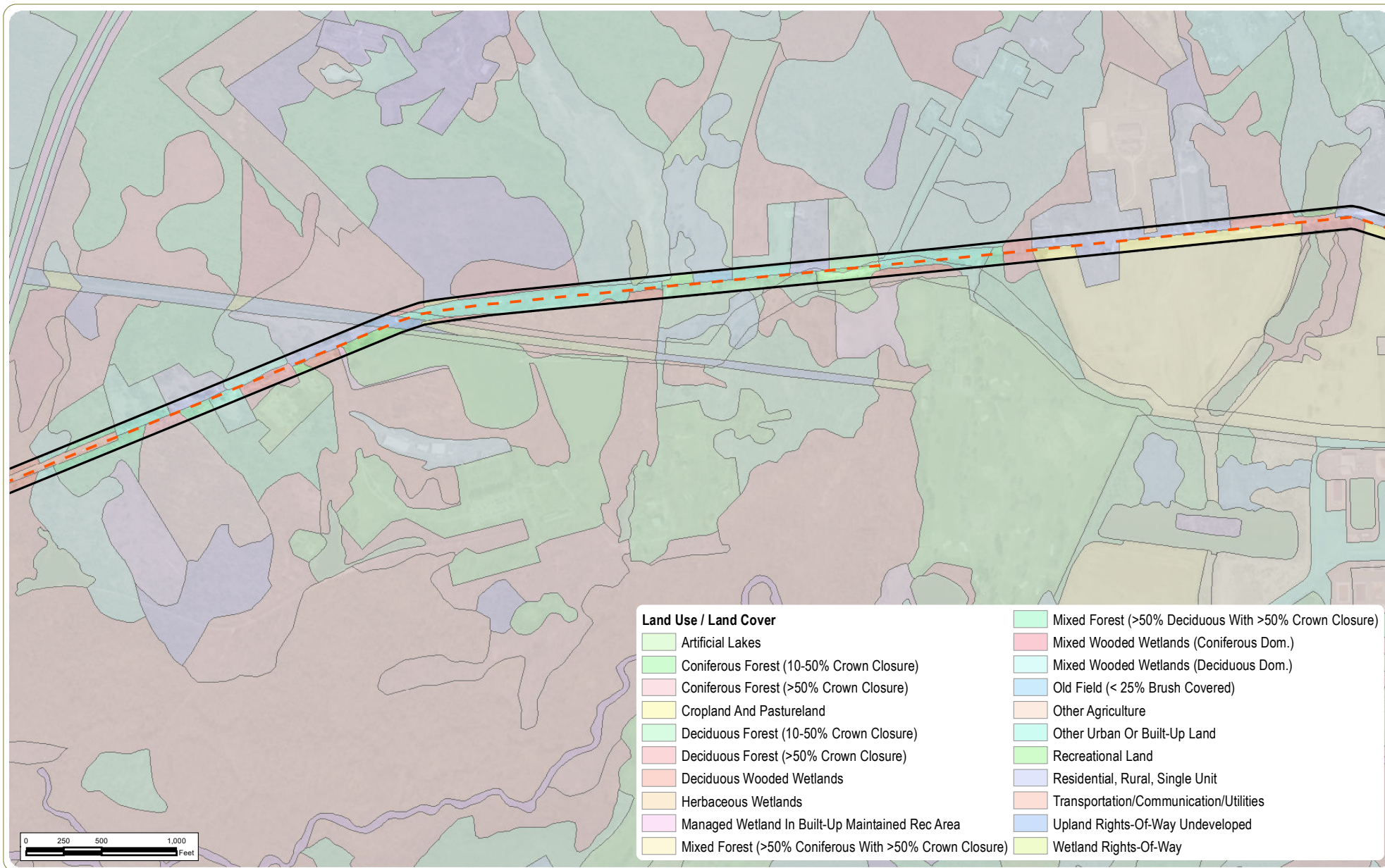
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 3 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area

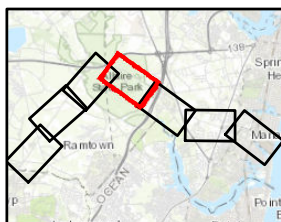


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

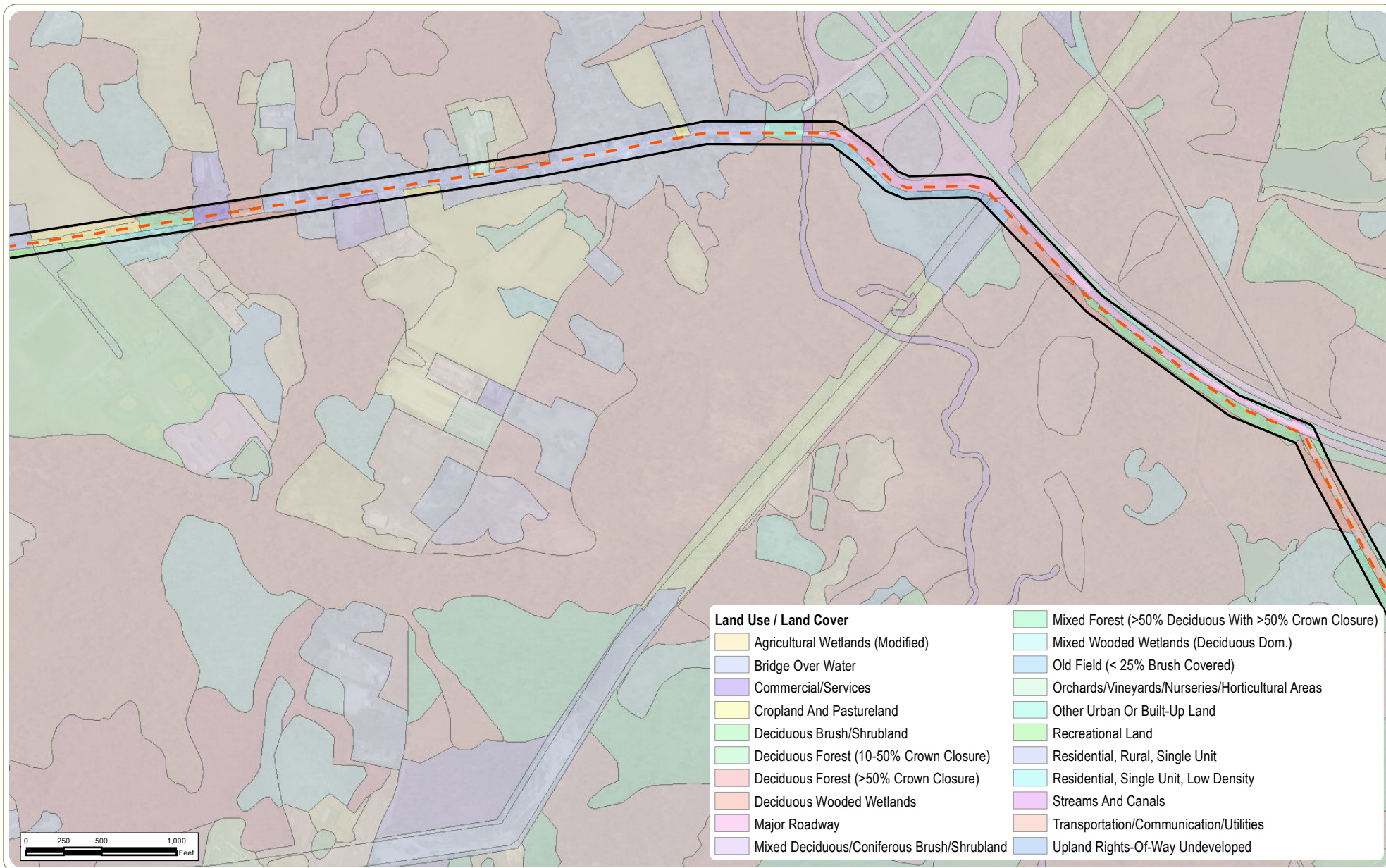
Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 4 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area

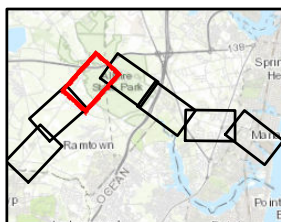


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 5 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area

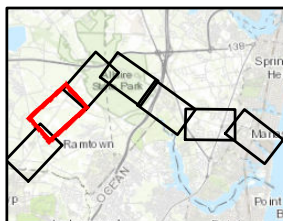


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 6 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area

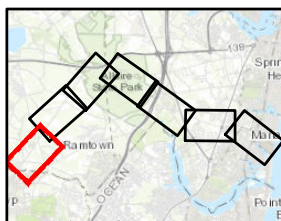


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Figure 3 - Land Use/Land Cover Sheet 7 of 7

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 20, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

APPENDIX B

USFWS IPaC, NHP Consultation Results, and NJDEP Landscape Project Records



United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Ecological Services Field Office
4 E. Jimmie Leeds Road, Suite 4

Galloway, NJ 08205

Phone: (609) 646-9310 Fax: (609) 646-0352

<http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html>



In Reply Refer To:

October 28, 2020

Consultation Code: 05E2NJ00-2021-SLI-0173

Event Code: 05E2NJ00-2021-E-00374

Project Name: Larrabee Onshore Cable Route and Substations

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species that may occur in your proposed action area and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*)

If the enclosed list indicates that any listed species may be present in your action area, please visit the New Jersey Field Office consultation web page as the next step in evaluating potential project impacts: <http://www.fws.gov/northeast/njfieldoffice/Endangered/consultation.html>

On the New Jersey Field Office consultation web page you will find:

- habitat descriptions, survey protocols, and recommended best management practices for listed species;
- recommended procedures for submitting information to this office; and
- links to other Federal and State agencies, the Section 7 Consultation Handbook, the Service's wind energy guidelines, communication tower recommendations, the National Bald Eagle Management Guidelines, and other resources and recommendations for protecting wildlife resources.

The enclosed list may change as new information about listed species becomes available. As per Federal regulations at 50 CFR 402.12(e), the enclosed list is only valid for 90 days. Please return to the ECOS-IPaC website at regular intervals during project planning and implementation to obtain an updated species list. When using ECOS-IPaC, be careful about drawing the boundary of your Project Location. Remember that your action area under the ESA is not limited to just the footprint of the project. The action area also includes all areas that may be indirectly affected

through impacts such as noise, visual disturbance, erosion, sedimentation, hydrologic change, chemical exposure, reduced availability or access to food resources, barriers to movement, increased human intrusions or access, and all areas affected by reasonably foreseeable future that would not occur without ("but for") the project that is currently being proposed.

We appreciate your concern for threatened and endangered species. The Service encourages Federal and non-Federal project proponents to consider listed, proposed, and candidate species early in the planning process. Feel free to contact this office if you would like more information or assistance evaluating potential project impacts to federally listed species or other wildlife resources. Please include the Consultation Tracking Number in the header of this letter with any correspondence about your project.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New Jersey Ecological Services Field Office

4 E. Jimmie Leeds Road, Suite 4

Galloway, NJ 08205

(609) 646-9310

Project Summary

Consultation Code: 05E2NJ00-2021-SLI-0173

Event Code: 05E2NJ00-2021-E-00374

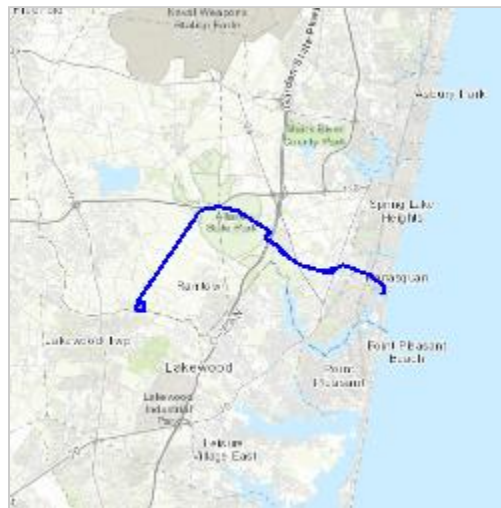
Project Name: Larrabee Onshore Cable Route and Substations

Project Type: TRANSMISSION LINE

Project Description: Onshore electric feeder cable installation and new substation construction. Right-of-Way width is approximately 75 feet wide. Wetlands and surface waters will be avoided for installation of the cable.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/40.13807301987423N74.09408364749628W>



Counties: Monmouth, NJ

Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

| NAME | STATUS |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045 | Threatened |

Birds

| NAME | STATUS |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039 | Threatened |

Reptiles

| NAME | STATUS |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Bog Turtle <i>Clemmys muhlenbergii</i> Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962 | Threatened |

Flowering Plants

| NAME | STATUS |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| Knieskern's Beaked-rush <i>Rhynchospora knieskernii</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3280 | Threatened |
| Seabeach Amaranth <i>Amaranthus pumilus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8549 | Threatened |
| Swamp Pink <i>Helonias bullata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4333 | Threatened |

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| American Oystercatcher <i>Haematopus palliatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8935 | Breeds Apr 15 to Aug 31 |
| Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626 | Breeds Oct 15 to Aug 31 |

| NAME | BREEDING SEASON |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Black Scoter <i>Melanitta nigra</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Black Skimmer <i>Rynchops niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5234 | Breeds May 20 to Sep 15 |
| Black-billed Cuckoo <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399 | Breeds May 15 to Oct 10 |
| Black-legged Kittiwake <i>Rissa tridactyla</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 20 to Jul 31 |
| Bonaparte's Gull <i>Chroicocephalus philadelphia</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Brown Pelican <i>Pelecanus occidentalis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034 | Breeds Jan 15 to Sep 30 |
| Canada Warbler <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 20 to Aug 10 |
| Clapper Rail <i>Rallus crepitans</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA | Breeds Apr 10 to Oct 31 |
| Common Eider <i>Somateria mollissima</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Jun 1 to Sep 30 |

| NAME | BREEDING SEASON |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| <p>Common Loon <i>gavia immer</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/4464</p> | Breeds Apr 15 to Oct 31 |
| <p>Common Murre <i>Uria aalge</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> | Breeds Apr 15 to Aug 15 |
| <p>Common Tern <i>Sterna hirundo</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/4963</p> | Breeds May 10 to Sep 10 |
| <p>Cory's Shearwater <i>Calonectris diomedea</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> | Breeds elsewhere |
| <p>Double-crested Cormorant <i>phalacrocorax auritus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/3478</p> | Breeds Apr 20 to Aug 31 |
| <p>Dovekie <i>Alle alle</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/6041</p> | Breeds elsewhere |
| <p>Dunlin <i>Calidris alpina arcticola</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> | Breeds elsewhere |
| <p>Great Black-backed Gull <i>Larus marinus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> | Breeds Apr 15 to Aug 20 |
| <p>Great Shearwater <i>Puffinus gravis</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> | Breeds elsewhere |

| NAME | BREEDING SEASON |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Herring Gull <i>Larus argentatus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Apr 20 to Aug 31 |
| Hudsonian Godwit <i>Limosa haemastica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Least Tern <i>Sterna antillarum</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA | Breeds Apr 20 to Sep 10 |
| Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679 | Breeds elsewhere |
| Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631 | Breeds elsewhere |
| Long-tailed Duck <i>Clangula hyemalis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/7238 | Breeds elsewhere |
| Nelson's Sparrow <i>Ammodramus nelsoni</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 15 to Sep 5 |
| Northern Gannet <i>Morus bassanus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Parasitic Jaeger <i>Stercorarius parasiticus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 1 to Jul 31 |

| NAME | BREEDING SEASON |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Apr 1 to Jul 31 |
| Purple Sandpiper <i>Calidris maritima</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Razorbill <i>Alca torda</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Jun 15 to Sep 10 |
| Red-breasted Merganser <i>Mergus serrator</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Red-necked Phalarope <i>Phalaropus lobatus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Red-throated Loon <i>Gavia stellata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Ring-billed Gull <i>Larus delawarensis</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Roseate Tern <i>Sterna dougallii</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds May 10 to Aug 31 |
| Royal Tern <i>Thalasseus maximus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds Apr 15 to Aug 31 |
| Ruddy Turnstone <i>Arenaria interpres morinella</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA | Breeds elsewhere |

| NAME | BREEDING SEASON |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Seaside Sparrow <i>Ammodramus maritimus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds May 10 to Aug 20 |
| Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480 | Breeds elsewhere |
| Snowy Owl <i>Bubo scandiacus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds elsewhere |
| Surf Scoter <i>Melanitta perspicillata</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Whimbrel <i>Numenius phaeopus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483 | Breeds elsewhere |
| White-winged Scoter <i>Melanitta fusca</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |
| Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. | Breeds Apr 20 to Aug 5 |
| Wilson's Storm-petrel <i>Oceanites oceanicus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. | Breeds elsewhere |

NAME

BREEDING
SEASON

Wood Thrush *Hylocichla mustelina*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds May 10
to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

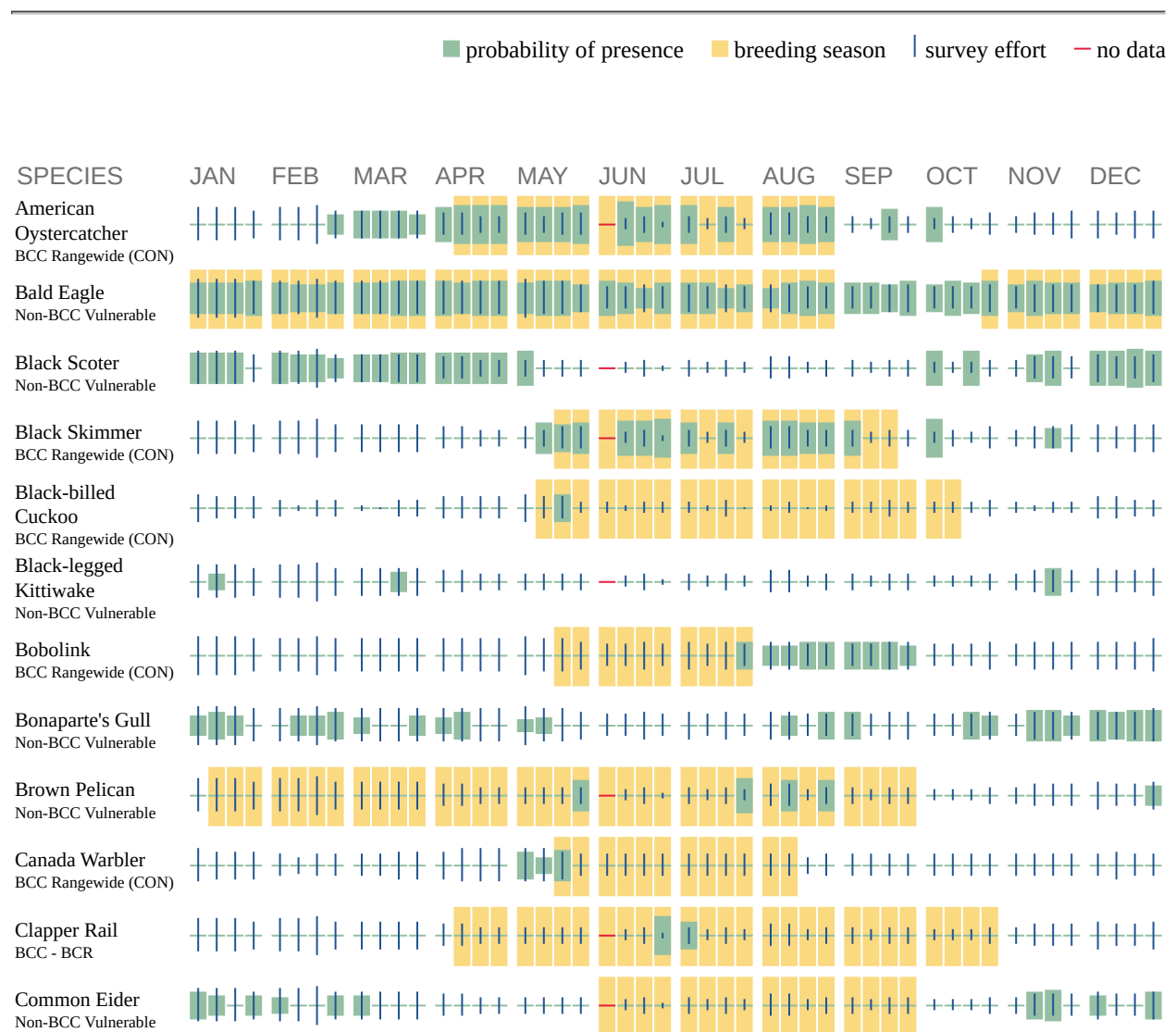
How is the probability of presence score calculated? The calculation is done in three steps:

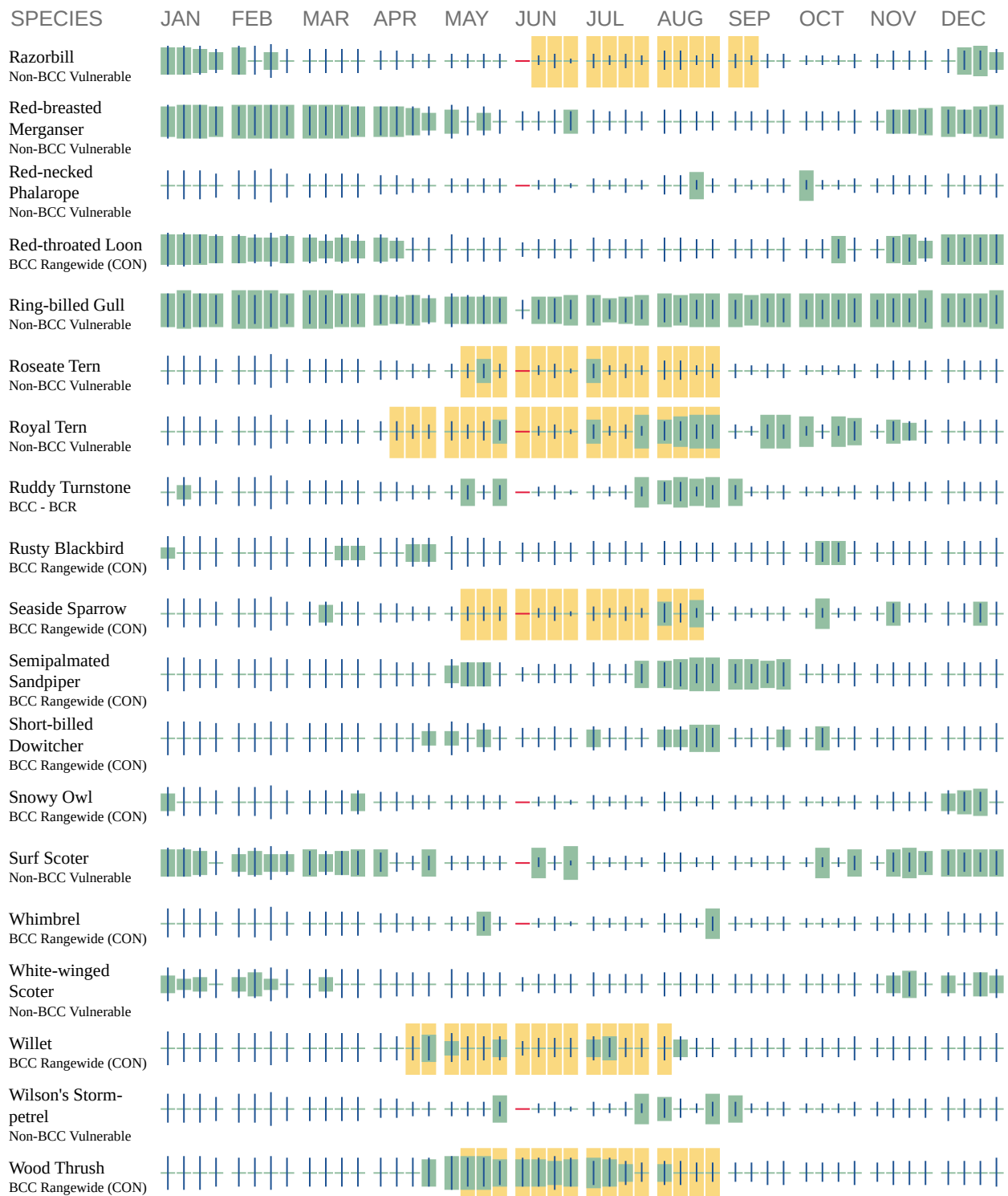
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)





Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>

- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and

how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- [PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1C](#)
- [PFO1/4A](#)
- [PFO1/4D](#)
- [PFO1A](#)
- [PFO1D](#)
- [PFO1E](#)
- [PSS1A](#)

RIVERINE

- [R5UBH](#)
- [R4SBC](#)
- [R2UBH](#)

Mail Code 501-04
Department of Environmental Protection
New Jersey Forest Service
Office of Natural Lands Management
P.O. Box 420 Trenton, New Jersey 08625-0420
Tel. (609) 984-1339 Fax. (609) 984-1427

Invoice

Date

12/7/2020

Invoice #

20595

Bill to:
EDR
121 Midland Road
Wrightstown, PA 18940

Make check payable to:

DEP - Office of Natural Lands Management

Forward with a copy of this statement to:

Mail Code 501-04

Office of Natural Lands Management

P.O. Box 420 Trenton, New Jersey 08625-0420

| Quantity (hrs.) | Description | Rate (per hr.) | Amount |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|
| 1 | Natural Heritage Database search for locational information of rare species and ecological communities. Project: 20-4007422-20595 | \$ 70.00 | \$ 70.00 |
| Scott McBurney Project Name: Larrabee Onshore Cable Route and Substations | | Total | \$ 70.00 |



State of New Jersey

MAIL CODE 501-04

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF PARKS & FORESTRY

NEW JERSEY FOREST SERVICE

OFFICE OF NATURAL LANDS MANAGEMENT

P.O. BOX 420

TRENTON, NJ 08625-0420

Tel. (609) 984-1339 Fax (609) 984-0427

PHILIP D. MURPHY

Governor

SHEILA Y. OLIVER

Lt. Governor

CATHERINE R. McCABE

Commissioner

December 7, 2020

Scott McBurney
EDR
121 Midland Road
Wrightstown, PA 18940

Re: Larrabee Onshore Cable Route and Substations
Sea Girt Borough, Wall and Howell Townships, Monmouth County

Dear Mr. McBurney:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.3) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Natural Heritage Data Request Form into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Landscape Project habitat mapping and the Biotics Database for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping and Biotics Database for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping and Biotics Database for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species are also covered by the FHACA rules when the records are located within one mile of the project site. One mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are

provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2010.pdf.

Beginning May 9, 2017, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.3. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, <https://njdep.maps.arcgis.com/apps/webappviewer/index.html?id=0e6a44098c524ed99bf739953cb4d4c7>, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at <http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html>.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,



Robert J. Cartica
Administrator

c: NHP File No. 20-4007422-20595

Table 1: On Site Data Request Search Results (6 Possible Reports)

| <u>Report Name</u> | <u>Included</u> | <u>Number of Pages</u> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database | No | 0 pages included |
| 2. Natural Heritage Priority Sites On Site | No | 0 pages included |
| 3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches | Yes | 3 page(s) included |
| 4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.3 | Yes | 1 page(s) included |
| 5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File | No | 0 pages included |
| 6. Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program | Yes | 1 page(s) included |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------|---------------------------|--------------------------|-----------------------|------|---------------------------|-------------------------|-------|---------|
| <i>Amphibia</i> | | | | | | | | |
| | Fowler's Toad | Anaxyrus fowleri | Occupied Habitat | 2 | NA | Special Concern | G5 | S3 |
| | Pine Barrens Treefrog | Hyla andersonii | Occupied Habitat | 3 | NA | State Threatened | G4 | S2 |
| | Pine Barrens Treefrog | Hyla andersonii | Vernal Pool Breeding | 3 | NA | State Threatened | G4 | S2 |
| <i>Aves</i> | | | | | | | | |
| | American Kestrel | Falco sparverius | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Kestrel | Falco sparverius | Non-breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Oystercatcher | Haematopus palliatus | Nesting Area | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Bald Eagle | Haliaeetus leucocephalus | Foraging | 4 | NA | State Endangered | G5 | S1B,S2N |
| | Barred Owl | Strix varia | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | Black-crowned Night-heron | Nycticorax nycticorax | Foraging | 3 | NA | State Threatened | G5 | S2B,S3N |
| | Brown Thrasher | Toxostoma rufum | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Nest | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Glossy Ibis | Plegadis falcinellus | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-------|----------------------------|------------------------|-----------------------|------|-----------------------------|-------------------------|-------|---------|
| | Great Blue Heron | Ardea herodias | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Hooded Warbler | Wilsonia citrina | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Horned Lark | Eremophila alpestris | Non-breeding Sighting | 2 | NA | Special Concern | G5 | S2B,S3N |
| | Least Tern | Sternula antillarum | Foraging | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Least Tern | Sternula antillarum | Nesting Colony | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Northern Harrier | Circus cyaneus | Breeding Sighting | 4 | NA | State Endangered | G5 | S1B,S3N |
| | Piping Plover | Charadrius melodus | Nesting Area | 5 | Federally Listed Threatened | State Endangered | G3 | S1B,S1N |
| | Snowy Egret | Egretta thula | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Tricolored Heron | Egretta tricolor | Foraging | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Veery | Catharus fuscescens | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Wood Thrush | Hylocichla mustelina | Breeding Sighting | 2 | NA | Special Concern | G4 | S3B,S4N |
| | Yellow-crowned Night-heron | Nyctanassa violacea | Foraging | 3 | NA | State Threatened | G5 | S2B,S2N |
| | Reptilia | | | | | | | |
| | Bog Turtle | Glyptemys muhlenbergii | Occupied Habitat | 5 | Federally Listed Threatened | State Endangered | G3 | S1 |

| |
|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-------|--------------------|-----------------------------|------------------|------|---------------------------|-------------------------|-------|-------|
| | Eastern Box Turtle | Terrapene carolina carolina | Occupied Habitat | 2 | NA | Special Concern | G5T5 | S3 |
| | Wood Turtle | Glyptemys insculpta | Occupied Habitat | 3 | NA | State Threatened | G3 | S2 |

**Vernal Pool Habitat on the
Project Site Based on Search of
Landscape Project 3.3**

| Vernal Pool Habitat Type | Vernal Pool Habitat ID |
|---------------------------------|-------------------------------|
| Potential vernal habitat area | 1419 |
| Potential vernal habitat area | 1471 |
| Total number of records: | 2 |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;">Other Animal Species On the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------------------|--------------------------|---------------------------|-------------------------|-------|-------|
| <i>Invertebrate Animals</i> | | | | | |
| Grammia placentia | Placentia Tiger Moth | | | G3G4 | S1S3 |
| Metarranthis pilosaria | Coastal Bog Metarranthis | | | G3G4 | S3S4 |
| Total number of records: | 2 | | | | |

Table 2: Vicinity Data Request Search Results (6 possible reports)

| <u>Report Name</u> | <u>Included</u> | <u>Number of Pages</u> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database | Yes | 1 page(s) included |
| 2. Natural Heritage Priority Sites within the Immediate Vicinity | No | 0 pages included |
| 3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches | Yes | 3 page(s) included |
| 4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.3 | Yes | 1 page(s) included |
| 5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File | No | 0 pages included |
| 6. Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program | Yes | 1 page(s) included |

**Immediate Vicinity of the Project Site
Based on Search of Natural Heritage Database
Rare Plant Species and Ecological Communities Currently Recorded in
the New Jersey Natural Heritage Database**

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Regional Status | Grank | Srank | Identified | Last Observed | Location |
|-------------------------------|----------------------|---------------------------|-------------------------|-----------------|-------|-------|------------|---------------|-------------------------------------------------------------------------------------------------------------------------|
| <i>Vascular Plants</i> | | | | | | | | | |
| Amaranthus pumilus | Seabeach Amaranth | LT | E | LP, HL | G2 | S1 | Y | 2014-09-12 | Wreck Pond on both sides of Spring Lake/Sea Girt border, and south 2.8 km to Main St. in Manasquan, in Monmouth County. |
| Polygonum glaucum | Sea-beach Knotweed | | E | LP, HL | G3 | S1 | Y | 2011-08-25 | Sea Girt, from northern border by Wreck Pond south to National Guard Training Center. |
| Uvularia puberula var. nitida | Pine Barren Bellwort | | E | LP, HL | G5T3 | S2 | Y | 1952-05-15 | 1 mile west of Allaire. |
| Total number of records: | | 3 | | | | | | | |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Strank |
|------------------------|---------------------------|-----------------------------|--------------------------|------|------------------------------|----------------------------|-------|---------|
| <i>Amphibia</i> | | | | | | | | |
| | Fowler's Toad | Anaxyrus fowleri | Occupied Habitat | 2 | NA | Special Concern | G5 | S3 |
| | Pine Barrens Treefrog | Hyla andersonii | Occupied Habitat | 3 | NA | State Threatened | G4 | S2 |
| | Pine Barrens Treefrog | Hyla andersonii | Vernal Pool Breeding | 3 | NA | State Threatened | G4 | S2 |
| <i>Aves</i> | | | | | | | | |
| | American Kestrel | Falco sparverius | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Kestrel | Falco sparverius | Non-breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Oystercatcher | Haematopus palliatu | Nesting Area | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Bald Eagle | Haliaeetus leucocephalus | Foraging | 4 | NA | State Endangered | G5 | S1B,S2N |
| | Barred Owl | Strix varia | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | Black-crowned Night-heron | Nycticorax nycticorax | Foraging | 3 | NA | State Threatened | G5 | S2B,S3N |
| | Brown Thrasher | Toxostoma rufum | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Common Tern | Sterna hirundo | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Nest | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Glossy Ibis | Plegadis falcinellus | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Great Blue Heron | Ardea herodias | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-------|-------------------------------|----------------------|--------------------------|------|--------------------------------|----------------------------|-------|---------|
| | Hooded Warbler | Wilsonia citrina | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Horned Lark | Eremophila alpestris | Non-breeding Sighting | 2 | NA | Special Concern | G5 | S2B,S3N |
| | Least Tern | Sternula antillarum | Foraging | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Least Tern | Sternula antillarum | Nesting Colony | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Northern Harrier | Circus cyaneus | Breeding Sighting | 4 | NA | State Endangered | G5 | S1B,S3N |
| | Osprey | Pandion haliaetus | Foraging | 3 | NA | State Threatened | G5 | S2B,S4N |
| | Osprey | Pandion haliaetus | Nest | 3 | NA | State Threatened | G5 | S2B,S4N |
| | Piping Plover | Charadrius melodus | Nesting Area | 5 | Federally Listed Threatened | State Endangered | G3 | S1B,S1N |
| | Snowy Egret | Egretta thula | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Tricolored Heron | Egretta tricolor | Foraging | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Veery | Catharus fuscescens | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Wood Thrush | Hylocichla mustelina | Breeding Sighting | 2 | NA | Special Concern | G4 | S3B,S4N |
| | Yellow-crowned Night-heron | Nyctanassa violacea | Foraging | 3 | NA | State Threatened | G5 | S2B,S2N |
| | Yellow-crowned Night-heron | Nyctanassa violacea | Nesting Colony | 3 | NA | State Threatened | G5 | S2B,S2N |

Mammalia

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------|----------------------------|-----------------------------|--------------------------|------|-----------------------------|-------------------------|-------|-------|
| <i>Reptilia</i> | Fin Whale | Balaenoptera physalus | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G3G4 | S1 |
| | Humpback Whale | Megaptera novaeangliae | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G4 | S1 |
| | North Atlantic Right Whale | Eubalaena glacialis | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G1 | S1 |
| | Atlantic Leatherback | Dermochelys coriacea | Occupied Habitat | 5 | Federally Listed Endangered | State Endangered | G2 | S1 |
| | Bog Turtle | Glyptemys muhlenbergii | Occupied Habitat | 5 | Federally Listed Threatened | State Endangered | G3 | S1 |
| | Eastern Box Turtle | Terrapene carolina carolina | Occupied Habitat | 2 | NA | Special Concern | G5T5 | S3 |
| | Wood Turtle | Glyptemys insculpta | Occupied Habitat | 3 | NA | State Threatened | G3 | S2 |

**Vernal Pool Habitat
In the Immediate Vicinity of
Project Site Based on Search of
Landscape Project 3.3**

| Vernal Pool Habitat Type | Vernal Pool Habitat ID |
|---------------------------------|-------------------------------|
| Vernal habitat area | 2821 |
| Potential vernal habitat area | 1415 |
| Potential vernal habitat area | 1418 |
| Potential vernal habitat area | 1419 |
| Potential vernal habitat area | 1421 |
| Potential vernal habitat area | 1427 |
| Potential vernal habitat area | 1430 |
| Potential vernal habitat area | 1471 |
| Total number of records: | 8 |

| |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;">Other Animal Species In the Immediate Vicinity of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------------------|--------------------------|---------------------------|-------------------------|-------|-------|
| <i>Invertebrate Animals</i> | | | | | |
| Grammia placentia | Placentia Tiger Moth | | | G3G4 | S1S3 |
| Metarranthis pilosaria | Coastal Bog Metarranthis | | | G3G4 | S3S4 |
| Total number of records: | 2 | | | | |

***Table 3: Within 1 Mile for Riparian Zone Width Determination
(6 possible reports)***

| <u>Report Name</u> | <u>Included</u> | <u>Number of Pages</u> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------|
| 1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Application) - Within One Mile of the Project Site Based on Search of Natural Heritage Database | Yes | 1 page(s) included |
| 2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site | Yes | See emailed attachments |
| 3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches | Yes | 4 page(s) included |
| 4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 | Yes | 2 page(s) included |
| 5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Stream Habitat File | No | 0 pages included |
| 6. Other Animal Species for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program | Yes | 1 page(s) included |

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Application) Within One Mile of the Project Site Based on Search of Natural Heritage Database</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Regional Status | Grank | Srank | Identified | Last Observed |
|-----------------|-------------|---------------------------|-------------------------|-----------------|-------|-------|------------|---------------|
|-----------------|-------------|---------------------------|-------------------------|-----------------|-------|-------|------------|---------------|

Vascular Plants

| | | | | | | | | |
|-----------------------------------|-------------------|----|---|--------|------|----|---|------------|
| Diodia virginiana var. virginiana | Larger Buttonweed | | E | LP, HL | G5T5 | S3 | Y | 2013-08-20 |
| Helonias bullata | Swamp-pink | LT | E | LP, HL | G3 | S3 | Y | 2013-07-08 |
| Limosella australis | Awl-leaf Mudwort | | E | LP, HL | G4G5 | S1 | Y | 2005-08-30 |

Total number of records: 3

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination</p> <p>Within One Mile of the Project Site</p> <p>Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------|------------------------|--------------------------|-----------------------|------|---------------------------|-------------------------|-------|---------|
| <i>Amphibia</i> | | | | | | | | |
| | Fowler's Toad | Anaxyrus fowleri | Occupied Habitat | 2 | NA | Special Concern | G5 | S3 |
| | Pine Barrens Treefrog | Hyla andersonii | Occupied Habitat | 3 | NA | State Threatened | G4 | S2 |
| | Pine Barrens Treefrog | Hyla andersonii | Vernal Pool Breeding | 3 | NA | State Threatened | G4 | S2 |
| <i>Aves</i> | | | | | | | | |
| | American Kestrel | Falco sparverius | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Kestrel | Falco sparverius | Non-breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |
| | American Oystercatcher | Haematopus palliatus | Nesting Area | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Bald Eagle | Haliaeetus leucocephalus | Foraging | 4 | NA | State Endangered | G5 | S1B,S2N |
| | Bald Eagle | Haliaeetus leucocephalus | Nest | 4 | NA | State Endangered | G5 | S1B,S2N |
| | Bald Eagle | Haliaeetus leucocephalus | Wintering | 3 | NA | State Threatened | G5 | S1B,S2N |
| | Barred Owl | Strix varia | Breeding Sighting | 3 | NA | State Threatened | G5 | S2B,S2N |

| |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center">Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination Within One Mile of the Project Site Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-------|---------------------------|-----------------------|-----------------------|------|---------------------------|-------------------------|-------|---------|
| | Black-crowned Night-heron | Nycticorax nycticorax | Foraging | 3 | NA | State Threatened | G5 | S2B,S3N |
| | Brown Thrasher | Toxostoma rufum | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Common Tern | Sterna hirundo | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Cooper's Hawk | Accipiter cooperii | Nest | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Glossy Ibis | Plegadis falcinellus | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Great Blue Heron | Ardea herodias | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Great Blue Heron | Ardea herodias | Nesting Colony | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Hooded Warbler | Wilsonia citrina | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Horned Lark | Eremophila alpestris | Non-breeding Sighting | 2 | NA | Special Concern | G5 | S2B,S3N |
| | Least Tern | Sternula antillarum | Foraging | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Least Tern | Sternula antillarum | Nesting Colony | 4 | NA | State Endangered | G4 | S1B,S1N |
| | Little Blue Heron | Egretta caerulea | Foraging | 2 | NA | Special Concern | G5 | S3B,S3N |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination</p> <p>Within One Mile of the Project Site</p> <p>Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Strank |
|-----------------|----------------------------|-----------------------|--------------------------|------|-----------------------------|-------------------------|-------|---------|
| | Northern Harrier | Circus cyaneus | Breeding Sighting | 4 | NA | State Endangered | G5 | S1B,S3N |
| | Osprey | Pandion haliaetus | Foraging | 3 | NA | State Threatened | G5 | S2B,S4N |
| | Osprey | Pandion haliaetus | Nest | 3 | NA | State Threatened | G5 | S2B,S4N |
| | Piping Plover | Charadrius melodus | Nesting Area | 5 | Federally Listed Threatened | State Endangered | G3 | S1B,S1N |
| | Snowy Egret | Egretta thula | Foraging | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Tricolored Heron | Egretta tricolor | Foraging | 2 | NA | Special Concern | G5 | S3B,S3N |
| | Veery | Catharus fuscescens | Breeding Sighting | 2 | NA | Special Concern | G5 | S3B,S4N |
| | Wood Thrush | Hylocichla mustelina | Breeding Sighting | 2 | NA | Special Concern | G4 | S3B,S4N |
| | Yellow-crowned Night-heron | Nyctanassa violacea | Foraging | 3 | NA | State Threatened | G5 | S2B,S2N |
| | Yellow-crowned Night-heron | Nyctanassa violacea | Nesting Colony | 3 | NA | State Threatened | G5 | S2B,S2N |
| <i>Mammalia</i> | Fin Whale | Balaenoptera physalus | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G3G4 | S1 |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination</p> <p>Within One Mile of the Project Site</p> <p>Based on Search of Landscape Project 3.3 Species Based Patches</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Class | Common Name | Scientific Name | Feature Type | Rank | Federal Protection Status | State Protection Status | Grank | Srank |
|-----------------|----------------------------|-----------------------------|--------------------------|------|-----------------------------|-------------------------|-------|-------|
| <i>Reptilia</i> | Humpback Whale | Megaptera novaeangliae | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G4 | S1 |
| | North Atlantic Right Whale | Eubalaena glacialis | Live Individual Sighting | 5 | Federally Listed Endangered | State Endangered | G1 | S1 |
| | Atlantic Leatherback | Dermochelys coriacea | Occupied Habitat | 5 | Federally Listed Endangered | State Endangered | G2 | S1 |
| | Bog Turtle | Glyptemys muhlenbergii | Occupied Habitat | 5 | Federally Listed Threatened | State Endangered | G3 | S1 |
| | Eastern Box Turtle | Terrapene carolina carolina | Occupied Habitat | 2 | NA | Special Concern | G5T5 | S3 |
| | Wood Turtle | Glyptemys insculpta | Occupied Habitat | 3 | NA | State Threatened | G3 | S2 |

| |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Vernal Pool Habitat for Riparian Zone Width Determination Within One Mile of the Project Site Based on Search of Landscape Project 3.3</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Vernal Pool Habitat Type | Vernal Pool Habitat ID |
|---------------------------------|-------------------------------|
| Vernal habitat area | 2817 |
| Vernal habitat area | 2821 |
| Vernal habitat area | 2824 |
| Potential vernal habitat area | 1402 |
| Potential vernal habitat area | 1408 |
| Potential vernal habitat area | 1415 |
| Potential vernal habitat area | 1418 |
| Potential vernal habitat area | 1419 |
| Potential vernal habitat area | 1420 |
| Potential vernal habitat area | 1421 |
| Potential vernal habitat area | 1423 |
| Potential vernal habitat area | 1427 |
| Potential vernal habitat area | 1430 |
| Potential vernal habitat area | 1433 |
| Potential vernal habitat area | 1449 |
| Potential vernal habitat area | 1450 |
| Potential vernal habitat area | 1471 |

**Vernal Pool Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.3**

Vernal Pool Habitat Type

Vernal Pool Habitat ID

Total number of records: 17

| |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p align="center"> Other Animal Species for Riparian Zone Width Determination Within One Mile of the Project Site Based on Additional Species Tracked by Endangered and Nongame Species Program </p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | Grank | Srank |
|------------------------------------|--------------------------------------|---------------------------|-------------------------|--------|-------|
| <i>Invertebrate Animals</i> | | | | | |
| Cicindela patruela consentanea | New Jersey Pine Barrens Tiger Beetle | | | G3T1T3 | S2S3 |
| Grammia placentia | Placentia Tiger Moth | | | G3G4 | S1S3 |
| Metarranthis pilosaria | Coastal Bog Metarranthis | | | G3G4 | S3S4 |
| Total number of records: | 3 | | | | |

New Jersey Landscape Regions Results

(Atlantic Coastal, Piedmont Plains and Pinelands)

| Rank | Cover Type | Land Use | Region | Federally Listed Species Present |
|------|-------------|------------------------------------------------|------------------|----------------------------------|
| 1 | Agriculture | Cropland and Pastureland | Pinelands | No |
| 1 | Agriculture | Other Agriculture | Pinelands | No |
| 1 | Forest | Coniferous Forest (10-50% Crown Closure) | Pinelands | No |
| 1 | Forest | Deciduous Forest (>50% Crown Closure) | Atlantic Coastal | No |
| 1 | Forest | Deciduous Forest (>50% Crown Closure) | Pinelands | No |
| 1 | Forest | Deciduous Forest (10-50% Crown Closure) | Atlantic Coastal | No |
| 1 | Forest | Deciduous Forest (10-50% Crown Closure) | Pinelands | No |
| 1 | Forest | Mixed Deciduous/Coniferous Brush/Shrubland | Atlantic Coastal | No |
| 1 | Forest | Mixed Deciduous/Coniferous Brush/Shrubland | Piedmont Plains | No |
| 1 | Forest | Mixed Deciduous/Coniferous Brush/Shrubland | Pinelands | No |
| 1 | Forest | Old Field (< 25% Brush Covered) | Pinelands | No |
| 1 | Urban | Commercial/Services | Piedmont Plains | No |
| 1 | Urban | Commercial/Services | Pinelands | No |
| 1 | Urban | Other Urban or Built-Up Land | Piedmont Plains | No |
| 1 | Urban | Other Urban or Built-Up Land | Pinelands | No |
| 1 | Urban | Recreational Land | Piedmont Plains | No |
| 1 | Urban | Recreational Land | Pinelands | No |
| 1 | Urban | Residential, High Density Or Multiple Dwelling | Pinelands | No |
| 1 | Urban | Residential, Rural, Single Unit | Atlantic Coastal | No |
| 1 | Urban | Residential, Rural, Single Unit | Piedmont Plains | No |
| 1 | Urban | Residential, Rural, Single Unit | Pinelands | No |
| 1 | Urban | Residential, Single Unit, Medium Density | Piedmont Plains | No |
| 1 | Urban | Transportation/Communication/Utilities | Pinelands | No |
| 1 | Wetlands | Agricultural Wetlands (Modified) | Pinelands | No |

| Rank | Cover Type | Land Use | Region | Federally Listed Species Present |
|------|-------------|---------------------------------------------------------|------------------|----------------------------------|
| 1 | Wetlands | Deciduous Wooded Wetlands | Pinelands | No |
| 2 | Agriculture | Cropland And Pastureland | Atlantic Coastal | No |
| 2 | Forest | Coniferous Forest (>50% Crown Closure) | Pinelands | No |
| 2 | Forest | Deciduous Forest (>50% Crown Closure) | Atlantic Coastal | No |
| 2 | Forest | Deciduous Forest (>50% Crown Closure) | Piedmont Plains | No |
| 2 | Forest | Deciduous Forest (>50% Crown Closure) | Pinelands | No |
| 2 | Forest | Deciduous Forest (10-50% Crown Closure) | Atlantic Coastal | No |
| 2 | Forest | Deciduous Forest (10-50% Crown Closure) | Piedmont Plains | No |
| 2 | Forest | Mixed Forest (>50% Deciduous With >50% Crown Closure) | Piedmont Plains | No |
| 2 | Forest | Mixed Forest (>50% Deciduous With >50% Crown Closure) | Pinelands | No |
| 2 | Forest | Mixed Forest (>50% Deciduous With 10-50% Crown Closure) | Piedmont Plains | No |
| 2 | Forest | Mixed Forest (>50% Deciduous With 10-50% Crown Closure) | Pinelands | No |
| 2 | Urban | Other Urban Or Built-Up Land | Atlantic Coastal | No |
| 2 | Urban | Upland Rights-Of-Way Undeveloped | Pinelands | No |
| 2 | Water | Artificial Lakes | Pinelands | No |
| 2 | Wetlands | Deciduous Wooded Wetlands | Atlantic Coastal | No |
| 2 | Wetlands | Deciduous Wooded Wetlands | Pinelands | No |
| 2 | Wetlands | Mixed Wooded Wetlands (Deciduous Dom.) | Pinelands | No |
| 2 | Wetlands | Mixed Wooded Wetlands (Coniferous Dom.) | Pinelands | No |
| 3 | Forest | Coniferous Forest (>50% Crown Closure) | Pinelands | No |
| 3 | Forest | Coniferous Forest (10-50% Crown Closure) | Pinelands | No |
| 3 | Forest | Deciduous Brush/Shrubland | Pinelands | No |
| 3 | Forest | Deciduous Forest (>50% Crown Closure) | Pinelands | No |
| 3 | Forest | Deciduous Forest (10-50% Crown Closure) | Pinelands | No |

| Rank | Cover Type | Land Use | Region | Federally Listed Species Present |
|------|-------------|---------------------------------------------------------|------------------|----------------------------------|
| 3 | Forest | Mixed Forest (>50% Coniferous With >50% Crown Closure) | Pinelands | No |
| 3 | Forest | Mixed Forest (>50% Deciduous With >50% Crown Closure) | Pinelands | No |
| 3 | Urban | Recreational Land | Atlantic Coastal | No |
| 3 | Urban | Upland Rights-Of-Way Undeveloped | Pinelands | No |
| 3 | Water | Artificial Lakes | Pinelands | No |
| 3 | Wetlands | Coniferous Wooded Wetlands | Pinelands | No |
| 3 | Wetlands | Deciduous Wooded Wetlands | Atlantic Coastal | No |
| 3 | Wetlands | Deciduous Wooded Wetlands | Piedmont Plains | No |
| 3 | Wetlands | Deciduous Wooded Wetlands | Pinelands | No |
| 3 | Wetlands | Herbaceous Wetlands | Pinelands | No |
| 3 | Wetlands | Mixed Wooded Wetlands (Coniferous Dom.) | Pinelands | No |
| 3 | Wetlands | Mixed Wooded Wetlands (Deciduous Dom.) | Atlantic Coastal | No |
| 3 | Wetlands | Mixed Wooded Wetlands (Deciduous Dom.) | Pinelands | No |
| 4 | Forest | Deciduous Forest (>50% Crown Closure) | Pinelands | No |
| 4 | Urban | Military Installations | Atlantic Coastal | No |
| 4 | Water | Streams and Canals | Pinelands | No |
| 4 | Wetlands | Deciduous Wooded Wetlands | Pinelands | No |
| 5 | Agriculture | Cropland and Pastureland | Atlantic Coastal | Yes |
| 5 | Forest | Mixed Deciduous/Coniferous Brush/Shrubland | Pinelands | Yes |
| 5 | Forest | Mixed Forest (>50% Deciduous With 10-50% Crown Closure) | Pinelands | Yes |

APPENDIX C

Photo Documentation



Photo 1

Location:

40.13341389, -74.05508333

Habitat Type:

Developed

Description:

Residential Area Bordering
Roadway



Photo 2

Location:

40.13111111, -74.04612778

Habitat Type:

Developed

Description:

Residential Area Bordering
Roadway

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 1 of 16

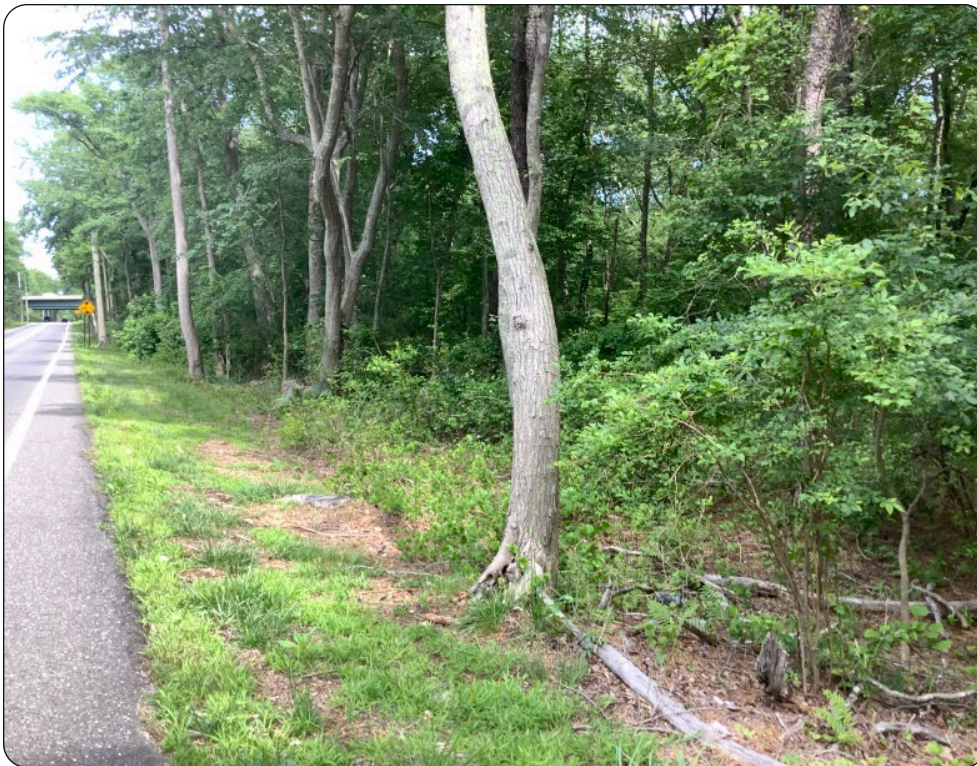


Photo 3

Location:
40.16358611, -74.1379

Habitat Type:
Forest

Description:
Forested Habitat along
Roadway with Thick
Understory



Photo 4

Location:
40.16401389, -74.14023611

Habitat Type:
Forest

Description:
Young Growth Forest Stand

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route
Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 2 of 16



Photo 5

Location:

40.14036944, -74.09779444

Habitat Type:

Forest

Description:

Forested Habitat along
Pedestrian Bike Path



Photo 6

Location:

40.13224167, -74.07548611

Habitat Type:

Forest

Description:

Herbaceous and Forested
Habitat along Pedestrian
Bike Path

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 3 of 16



Photo 7

Location:
40.119019, -74.032508

Habitat Type:
Dune

Description:
Dune habitat near Monmouth
Landfall (landward side of
dunes)



Photo 8

Location:
40.119042, -74.032136

Habitat Type:
Dune

Description:
Dune habitat near Monmouth
Landfall (beachward side of
dunes)

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route
Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 4 of 16



Photo 9

Location:
40.118656, -74.0318

Habitat Type:
Beach/Dune

Description:
Beach and dune habitat near Monmouth Landfall facing west.



Photo 10

Location:
40.16298333, -74.14859722

Habitat Type:
Forest Wetland

Description:
Wetland in Forested Habitat

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route
Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 5 of 16



Photo 11

Location:
40.1568, -74.11875278

Habitat Type:
Forest Wetland

Description:
Forested Wetland Habitat



Photo 12

Location:
40.155067, -74.114861

Habitat Type:
Herbaceous Upland

Description:
Rural residential, agriculture
and herbaceous field
habitat

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 6 of 16



Photo 13

Location:
40.11455833, -74.1902

Habitat Type:
Herbaceous Upland

Description:
Meadow Habitat and Sand
Roadway around Larrabee
Substation



Photo 14

Location:
40.158597, -74.121994

Habitat Type:
Upland Mixed Herbaceous,
Shrub and Forested

Description:
Upland roadside edge
habitat along County Route
524

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 7 of 16



Photo 15

Location:
40.159981, -74.124519

Habitat Type:
Open water and mixed
upland forest

Description:
Open water pond and
adjacent upland mixed forest



Photo 16

Location:
40.160611, -74.126336

Habitat Type:
Forest

Description:
Upland mixed forest along
County Route 524

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 8 of 16



Photo 17

Location:
40.162533, -74.150986

Habitat Type:
Scrub-shrub

Description:
Upland scrub-shrub highway edge (I-195)



Photo 18

Location:
40.160825, -74.154808

Habitat Type:
Forest Wetland

Description:
Forested Wetland Habitat
(potential vernal pool)

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 9 of 16



Photo 19

Location:
40.12426389, -74.187225

Habitat Type:
Herbaceous Wetland

Description:
Herbaceous Wetland Habitat



Photo 20

Location:
40.152672, -74.162353

Habitat Type:
Forest

Description:
Forested upland Habitat with
thick shrub understory

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route
Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 10 of 16



Photo 21

Location:
40.152161, -74.163131

Habitat Type:
Forest Wetland

Description:
Forested wetland habitat with thick shrub understory



Photo 22

Location:
40.141006, -74.172858

Habitat Type:
Forest

Description:
Forested upland habitat (mixed forest)

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 11 of 16



Photo 23

Location:

40.16297222, -74.14775833

Habitat Type:

Herbaceous Wetland

Description:

Herbaceous Wetland in
Forested Area



Photo 24

Location:

40.128742, -74.1839

Habitat Type:

Scrub-shrub Wetland/Upland

Description:

Upland scrub-shrub and
scrub-shrub wetland

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 12 of 16



Photo 25

Location:
40.124206, -74.187897

Habitat Type:
Herbaceous/Scrub-shrub
Upland

Description:
Roadside maintained lawn
and scrub-shrub



Photo 26

Location:
40.115558, -74.1949

Habitat Type:
Herbaceous Upland

Description:
Herbaceous oldfield

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route
Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 13 of 16



Photo 27

Location:
40.115156, -74.193419

Habitat Type:
Mixed forest upland

Description:
Mixed forest upland
at alternative onshore
substation location



Photo 28

Location:
40.14602222, -74.10704167

Habitat Type:
Waterbody

Description:
Open Water Pond

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 14 of 16



Photo 29

Location:
40.114675, -74.19085

Habitat Type:
Developed

Description:
Industrial mulching operation
at preferred onshore
substation location



Photo 30

Location:
40.16366667, -74.14368333

Habitat Type:
Watercourse

Description:
Channelized Stream with
Little To No Obvious Flow
Under Bridge

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 15 of 16



Photo 31

Location:

40.16344167, -74.14351667

Habitat Type:

Watercourse

Description:

Channelized Stream With
Soft Steep Banks Lined With
Saplings



Photo 32

Location:

40.16287222, -74.14772778

Habitat Type:

Watercourse

Description:

Stream with Steep Banks
and Woody Debris in
Forested Habitat

Habitat Suitability Assessment Report

Atlantic Shores Offshore Wind Project - Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell, Monmouth County, New Jersey

Appendix C: Photo Documentation

Sheet 16 of 16

APPENDIX D

Habitat Assessment Mapping

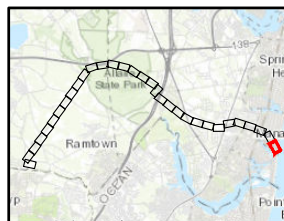


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 1 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on March 8, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



Onshore Route
Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

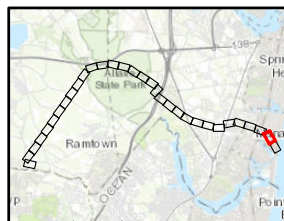


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 2 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

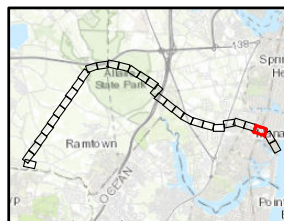


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 3 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

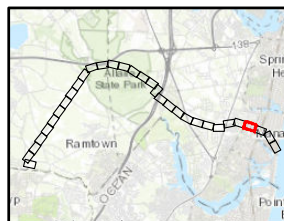


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 4 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

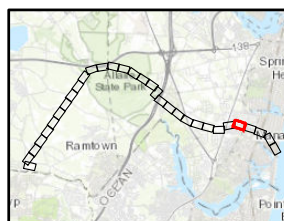


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 5 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

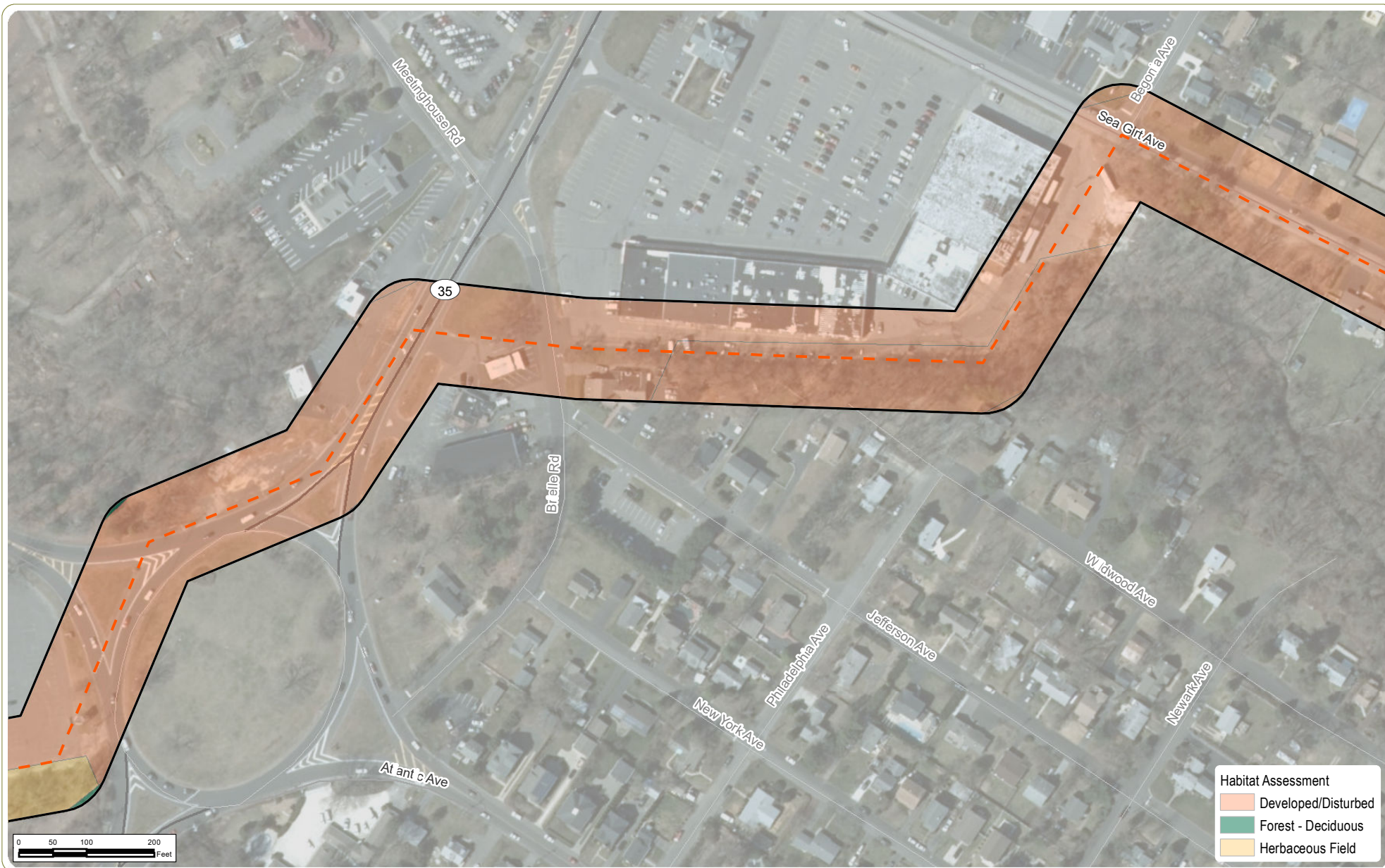


— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

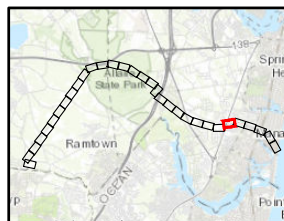


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 6 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

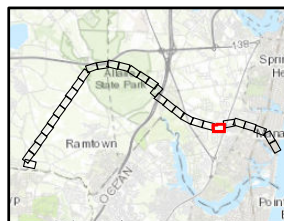


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 7 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
▭ Study Area

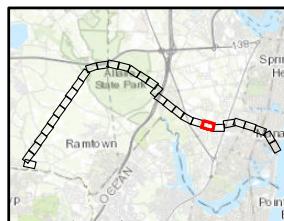


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 8 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

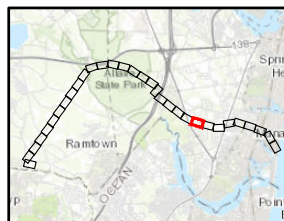


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 9 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



Onshore Route
Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com



Habitat Suitability Assessment Report

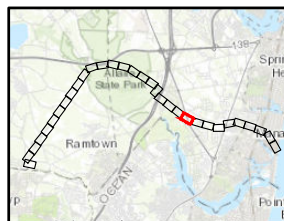
Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping

Sheet 10 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route

□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

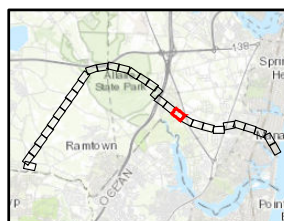


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 11 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



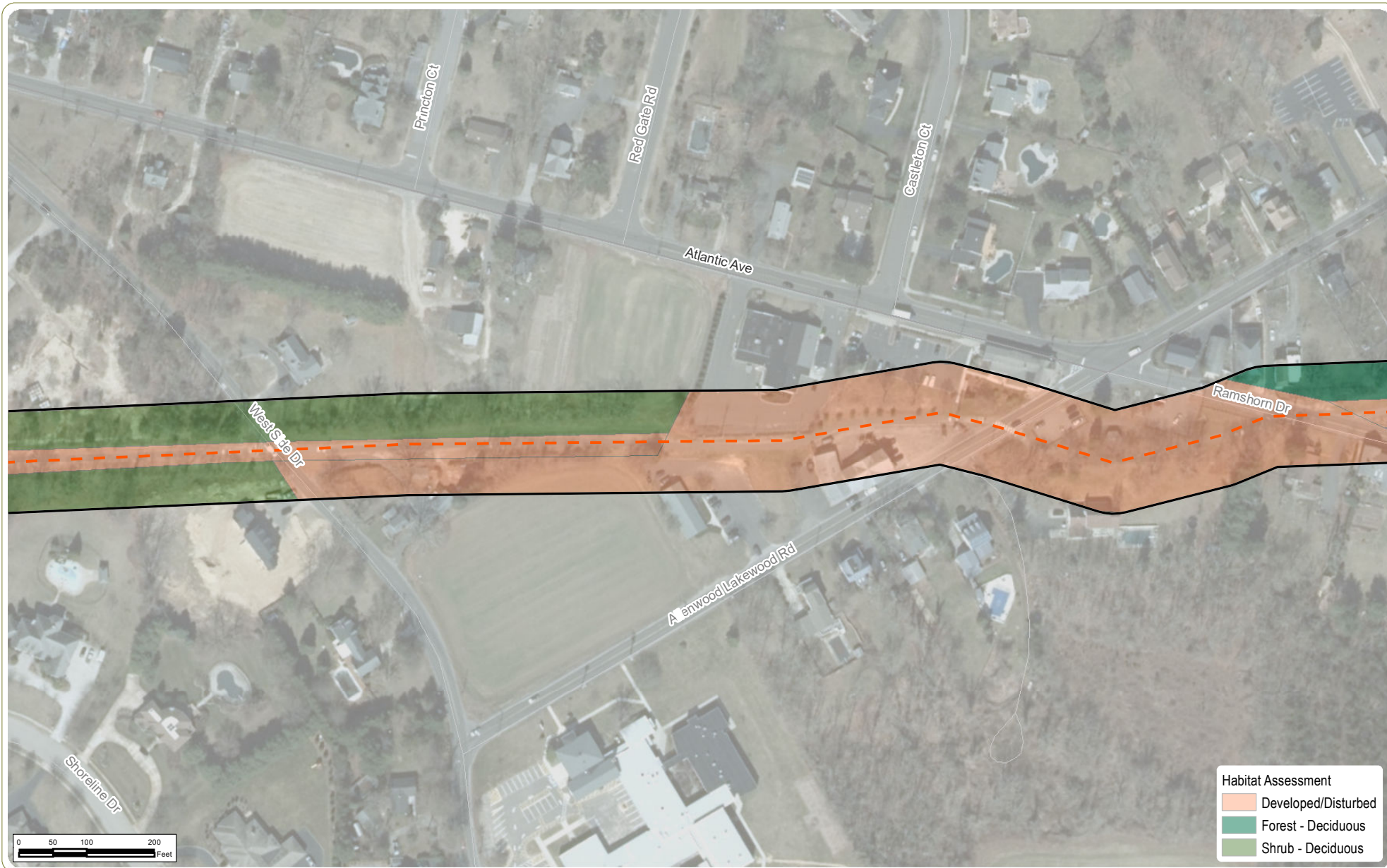
— Onshore Route
Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

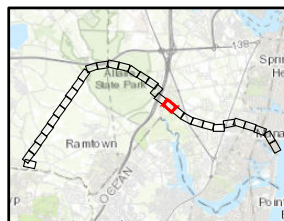


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 12 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



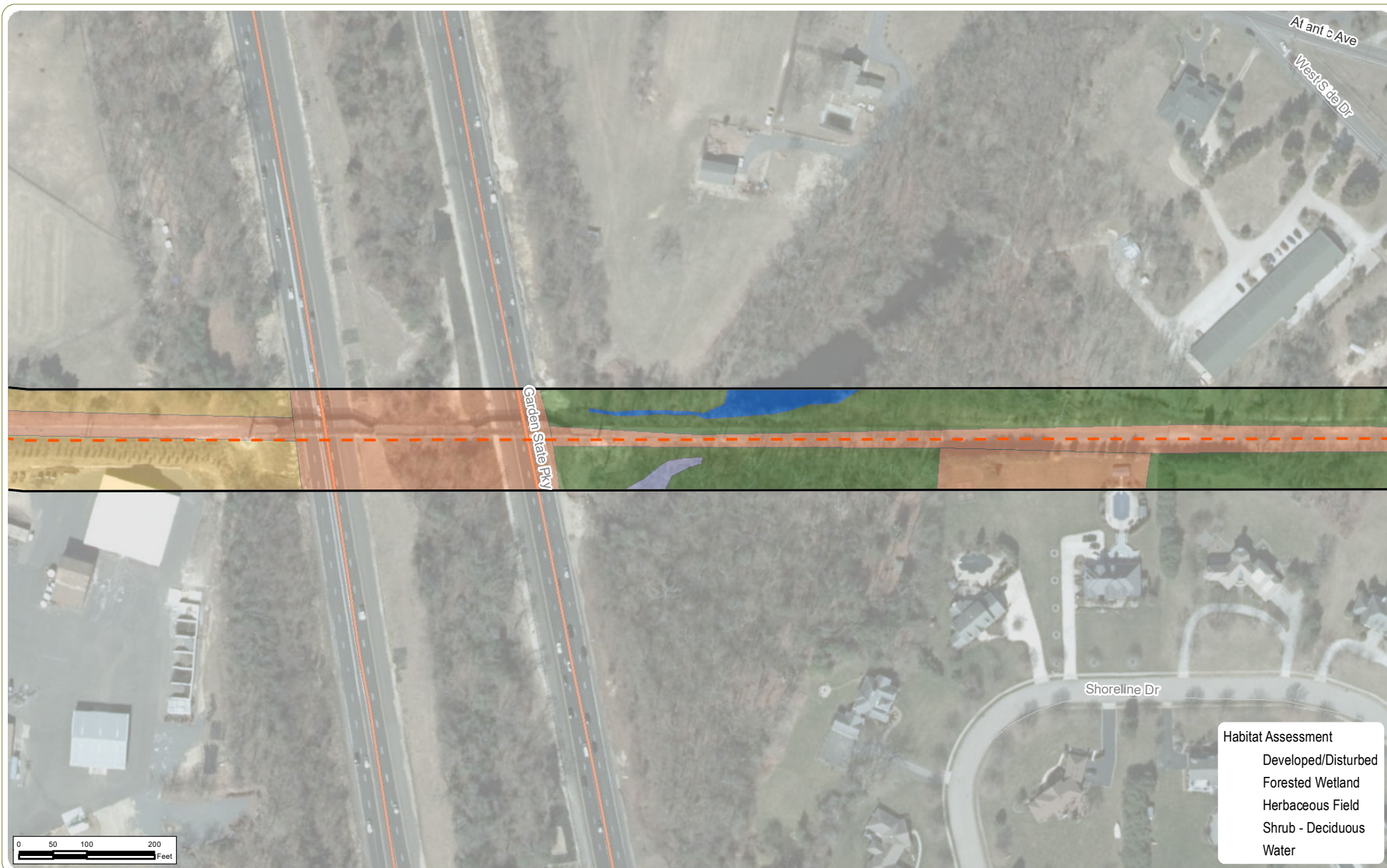
— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

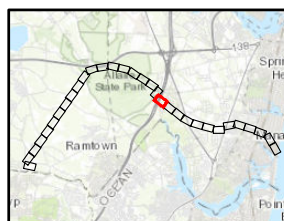


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 13 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
 Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

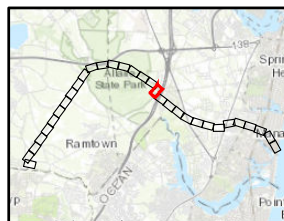


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 14 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
Study Area

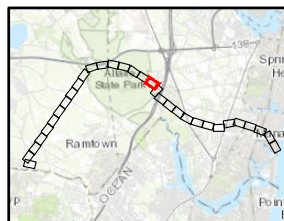


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 15 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
Study Area



ATLANTIC SHORES
offshore wind

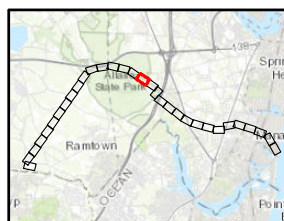


www.edrdpc.com



Habitat Suitability Assessment Report
Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route
 Borough of Sea Girt, Township of Wall, and Township of Howell
 Monmouth County, New Jersey
Habitat Assessment Mapping
Sheet 16 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
 Study Area

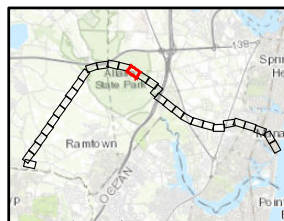


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 17 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
 Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

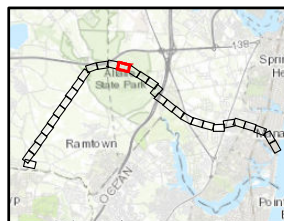


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 18 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

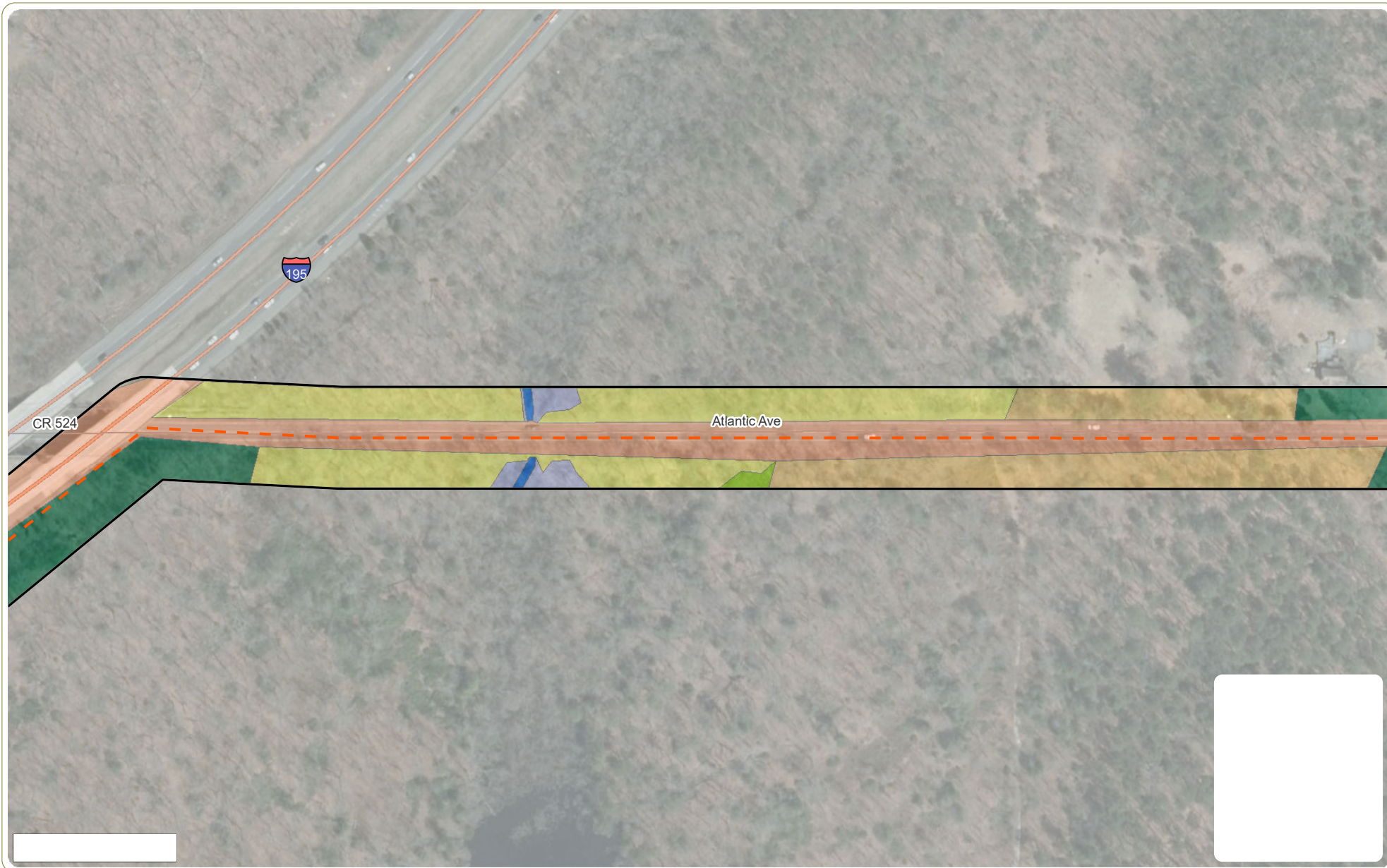


— Onshore Route
□ Study Area



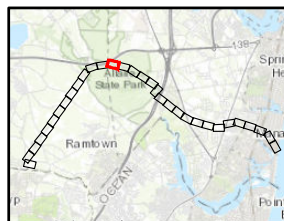
ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com



Habitat Suitability Assessment Report
Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route
 Borough of Sea Girt, Township of Wall, and Township of Howell
 Monmouth County, New Jersey
Habitat Assessment Mapping
Sheet 19 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



- Onshore Route
- Study Area

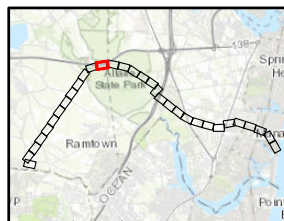


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 20 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

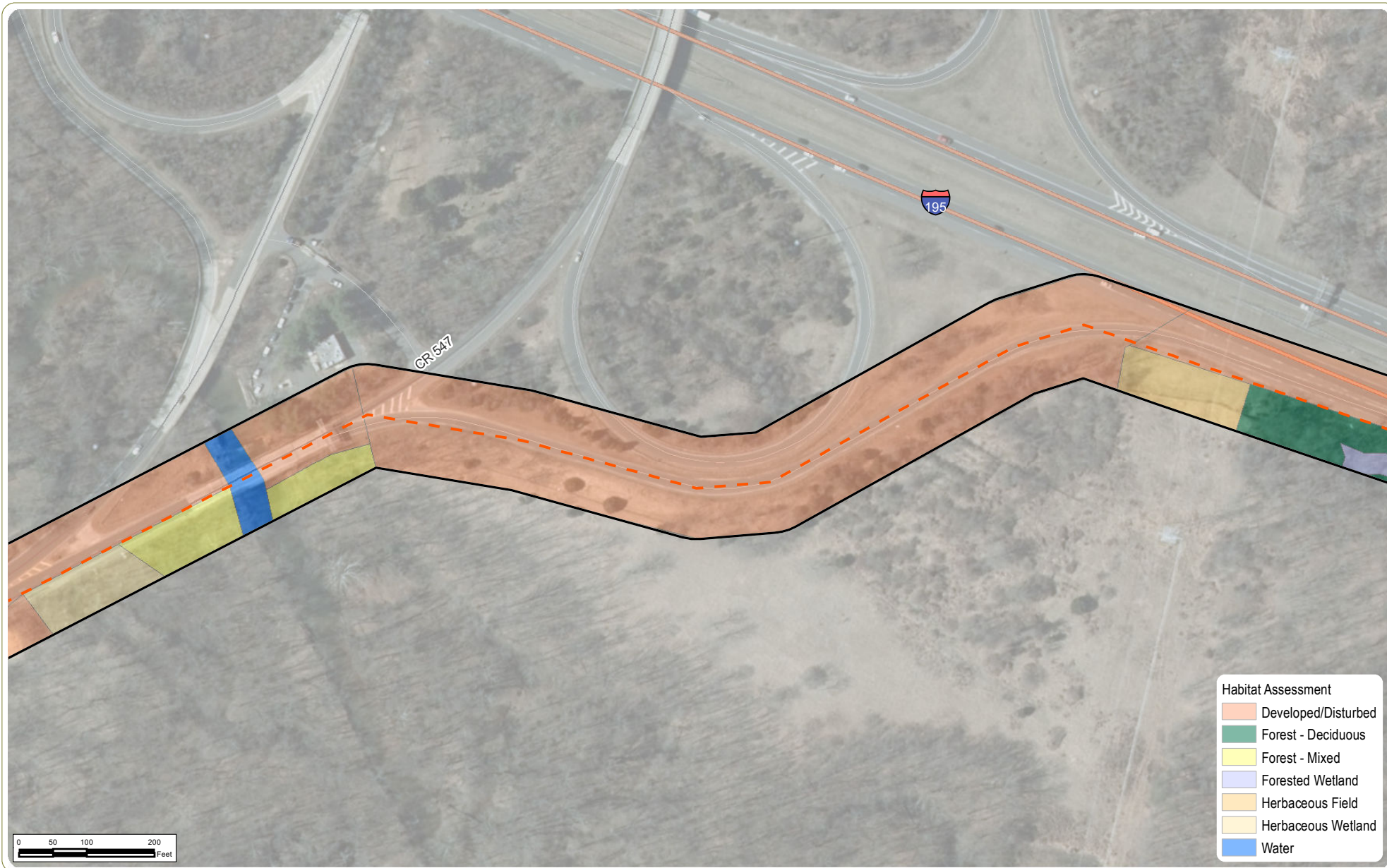


— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

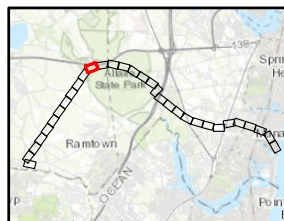


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 21 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

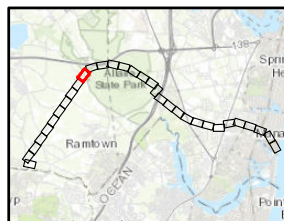


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 22 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



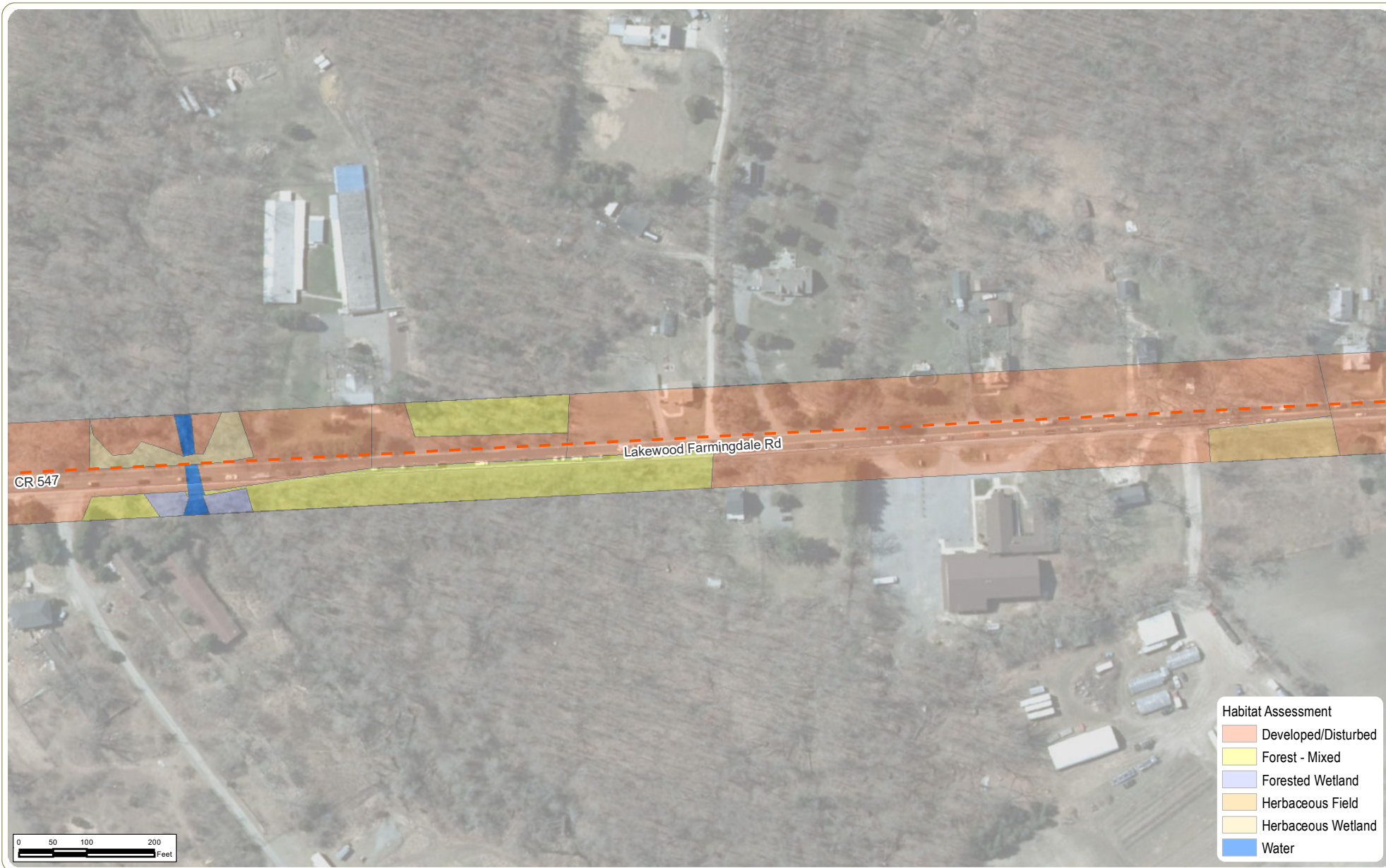
— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

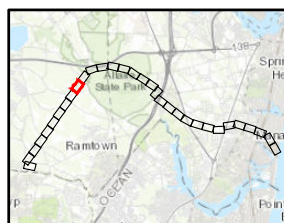


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 23 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

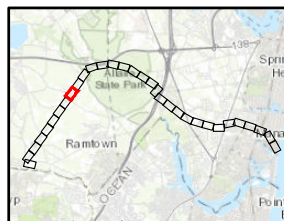


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 24 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



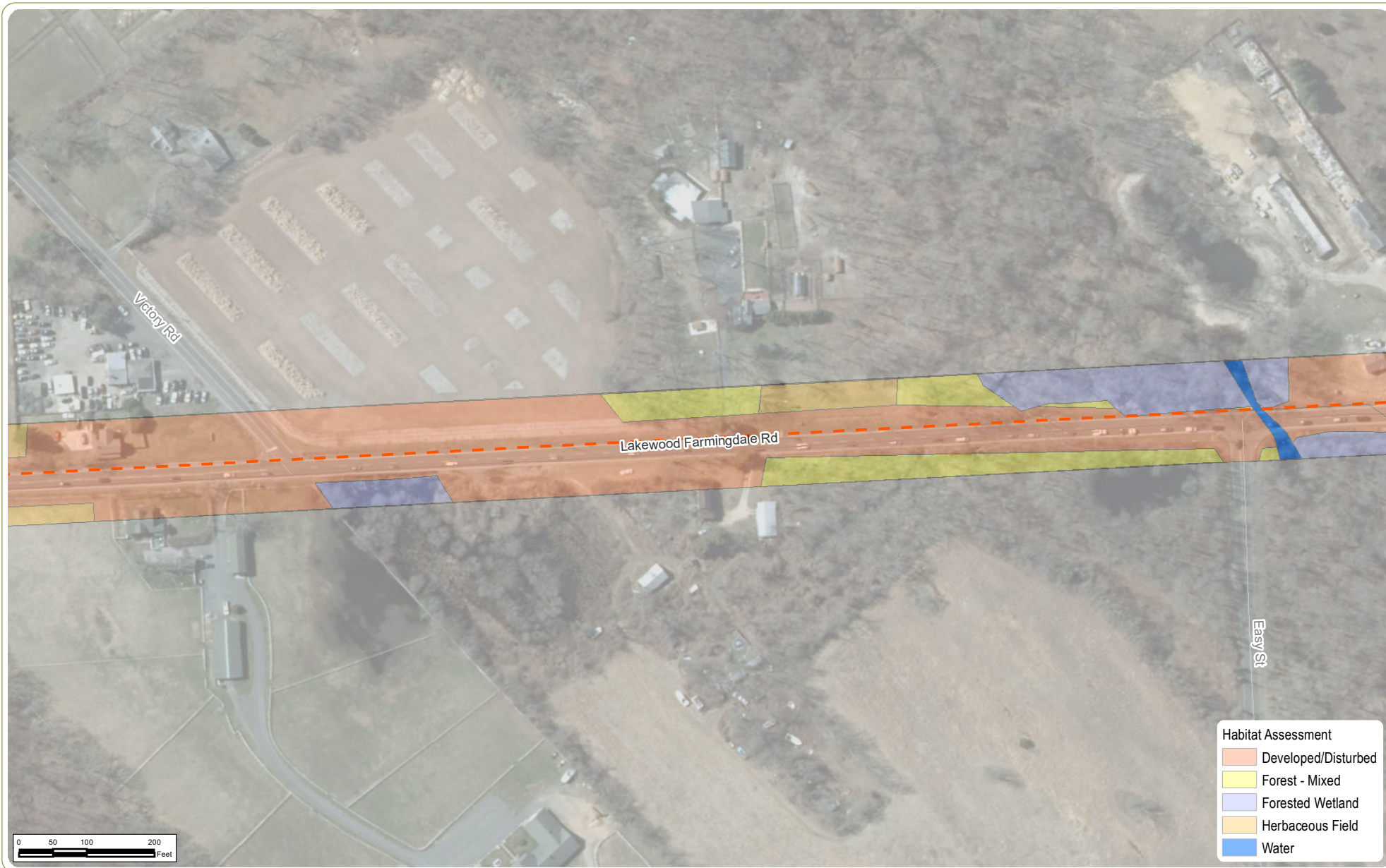
— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

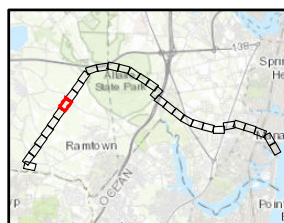


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 25 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
▭ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

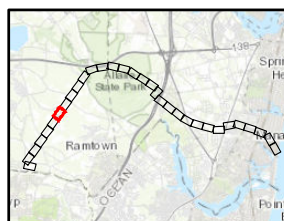


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 26 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

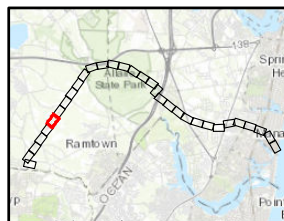


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 27 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



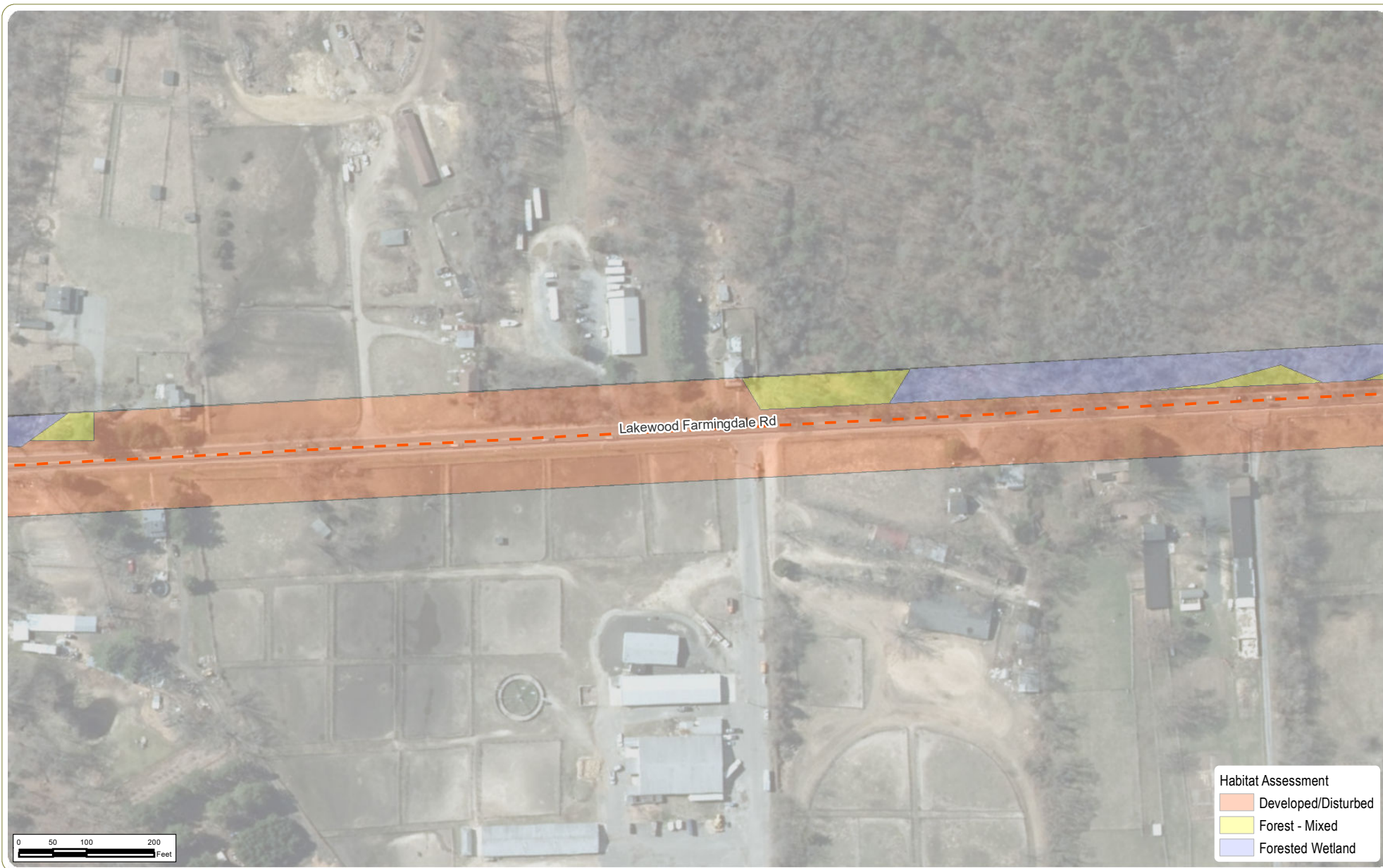
— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

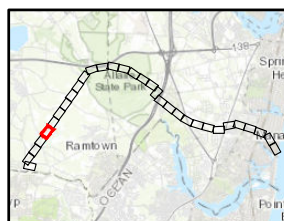


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 28 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

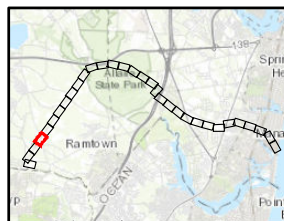


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 29 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
▭ Study Area



ATLANTIC SHORES
offshore wind



www.edrdpc.com

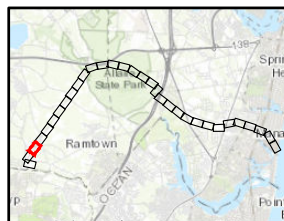


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 30 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
□ Study Area



ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com

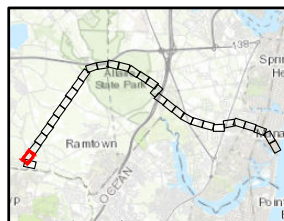


Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route

Borough of Sea Girt, Township of Wall, and Township of Howell
Monmouth County, New Jersey

Habitat Assessment Mapping Sheet 31 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.

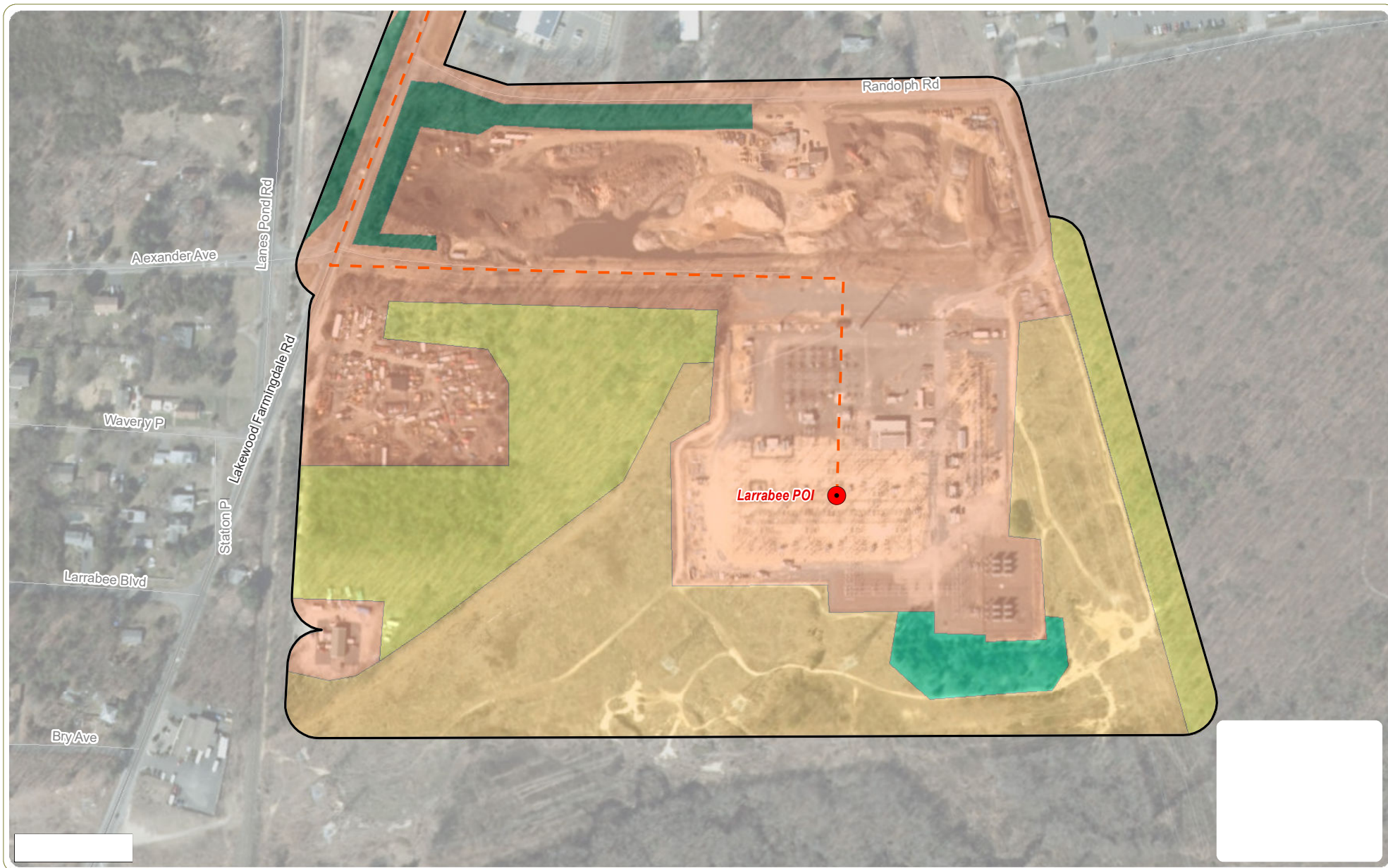


— Onshore Route
□ Study Area



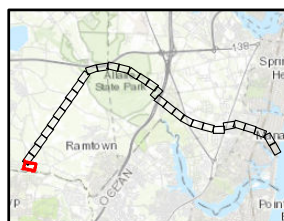
ATLANTIC SHORES
offshore wind

edr
www.edrdpc.com



Habitat Suitability Assessment Report Atlantic Shores Offshore Wind – Larrabee Onshore Cable Route Borough of Sea Girt, Township of Wall, and Township of Howell Monmouth County, New Jersey Habitat Assessment Mapping Sheet 32 of 32

Notes: 1. Basemap: NJ Office of GIS 2015 Natural Color Imagery 2. This map was generated in ArcMap on January 21, 2021. 3. This is a color graphic. Reproduction in grayscale may misrepresent the data.



— Onshore Route
Study Area