DRAFT
ENVIRONMENTAL ASSESSMENT

DELAWARE AVENUE, CITY OF CAPE MAY CONTINUING AUTHORITIES PROGRAM SECTION 14 EMERGENCY SHORELINE EROSION PROTECTION OF PUBLIC WORKS CAPE MAY, NEW JERSEY

PREPARED BY:
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U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA, PENNSYLVANIA 19107

November 2016

FINDING OF NO SIGNIFICANT IMPACT
DELAWARE AVENUE, CITY OF CAPE MAY
CONTINUING AUTHORITIES PROGRAM SECTION 14 - EMERGENCY SHORELINE EROSION PROTECTION OF PUBLIC WORKS
CAPE MAY, NEW JERSEY

The United States Army Corps of Engineers (Corps), Philadelphia District has investigated various options for reducing the risk of shoreline erosion of a section of Delaware Avenue in Cape May, New Jersey.

Cape May County submitted a letter to the Philadelphia District requesting that a study be conducted to determine potential solutions to reduce risk of shoreline erosion for Delaware Avenue following the erosion which occurred in 2012 as a result of Hurricane Sandy. The purpose of the project is to reduce risk to Delaware Avenue, a Cape May County road which serves at the main route for the delivery of supplies to the U.S. Coast Guard (USCG) Training Center. The ongoing erosion is undermining the road and threatens an underground sewer utility line that runs along the road.

The preferred alternative for this project is the construction of an approximately 2,200 linear foot rip-rap embankment along the Cape May Harbor side of Delaware Avenue. This alternative consists of the removal of the existing concrete rubble and the placement of approximately 3,000 cubic yards (CY) of rip-rap with a minimum thickness of 24 inches with a 1.5H:1V slope. Once the rip-rap is placed, the water ward side of the structure will be backfilled with approximately 5,050 CY of beach quality sand from an elevation of +1.6 feet North American Vertical Datum of 1988 (NAVD88) to depth of closure at a slope ranging from 11H:1V to 8H:1V to reduce the risk of erosion to the structure and to promote the re-establishment of intertidal wetlands. This alternative also includes the planting of approximately 2.0 acres of *Spartina alterniflora*.

In compliance with the National Environmental Policy Act of 1969, as amended, and CEQ regulations, the Philadelphia District prepared an Environmental Assessment (EA) to document the potential environmental impacts associated with the proposed plan. The EA for the project is being forwarded to the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the New Jersey State Historic Preservation Office (SHPO), NJDEP, and all other known interested parties for comment.

The EA has determined that the use of rip-rap and sand fill to address the shoreline erosion at Delaware Avenue would not jeopardize the continued existence of any species or the critical habitat of any fish, wildlife, or plant, which is designated as endangered or threatened pursuant to the Endangered Species Act of 1973, as amended by P.L. 96-159.

The EA has concluded that the project can be conducted in a manner which should not violate New Jersey's Water Quality Standards. Pursuant to Section 401 of the Clean Water Act, a 401 Water Quality Certificate is being requested from the NJDEP during the review of

the draft EA. Based on the information developed during preparation of the EA, it was determined in accordance with Section 307 (C) of the Coastal Zone Management Act of 1972 that the plan complies with and can be conducted in a manner that is consistent with the approved Coastal Zone Management Program of New Jersey.

There are no known properties listed on, or eligible for listing on, the National Register of Historic Places that would be affected by the proposed activity. The plan has been designed to avoid archaeologically sensitive areas, and is therefore not expected to impact any cultural resources.

Because the Environmental Assessment concludes that the work described is not a major Federal action significantly affecting the human environment, I have determined that an Environmental Impact Statement is not required.

_____ _____

Michael A. Bliss, P.E. Date
Lieutenant Colonel, Corps of Engineers
District Commander

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1.0 Project Location

The study area is located on the north side of Cape May City along the southern shoreline of Cape May Harbor (Figures 1, 2, and 3). The harbor is approximately 2.0 miles long in the east-west direction, and about 0.5 miles wide in the north-south direction. The harbor was created circa 1905-1910 by dredging the shallow, marshy area known at the time as Cape Island Sound. The sediment removed to create the harbor was placed along the ocean shoreline in the area presently occupied by the US Coast Guard training base and the eastern end of Cape May City. In 1911, the United States Army Corps of Engineers (USACE) constructed parallel stone jetties and dredged a navigation channel at Cape May (Cold Spring) Inlet in order to provide a stabilized navigation connection between the harbor and the ocean. At that time the only tidal influence in Cape May Harbor was via Cape May Inlet. There was essentially no other tidal connection between the Atlantic Ocean and the harbor. In 1942, the USACE constructed the Cape May Canal, extending approximately three miles from the west end of Cape May Harbor to its jettied western terminus on Delaware Bay in Lower Township. The construction of the canal established a new tidal regime for Cape May Harbor, as tidal exchange could occur between Delaware Bay and the Atlantic Ocean via the Canal, Cape May Harbor, and Cape May Inlet.

Figure 1: Study Location, Cape May City, New Jersey

The project area is an approximate 2,200 foot length of Delaware Avenue that continually experiences severe shoreline erosion due to tidal surge and wave action during hurricanes and major nor'easters. The area of concern stretches from half way between Baltimore Street and Brooklyn Avenue to half way between Commanders Way and Buffalo Avenue.

Figure 2: Geographic Features in the Vicinity of the Study Area

Figure 3: Delaware Avenue, Cape May City, NJ

2.0 Study Authority

This investigation is conducted under the authority of the Continuing Authorities Program, Section 14 of the 1946 Flood Control Act (33 U.S.C. 701r), as amended. Section 14 relates to Streambank and Shoreline Erosion Protection of Public Works and Non-Profit Public Services, which authorizes the US Army Corps of Engineers (USACE) to study, design and construct projects to protect facilities that are used to provide public services and are open to all on equal terms. These facilities must be in imminent threat of damage or failure by natural erosion processes on stream banks and shorelines, and are essential and important enough to merit Federal participation in their protection.

3.0 Purpose and Need for Action

The purpose of the project is to address on-going shoreline erosion along Delaware Avenue in the City of Cape May, New Jersey. The erosion threatens the integrity of Delaware Avenue, a county owned road, which provides access to numerous residential buildings and is the main route for the delivery of supplies to the U.S. Coast Guard (USCG) Training Center. The erosion also

threatens an underground sewer utility line (8-inch force main) that runs along the northern right-of-way of the road, approximately 4 feet under the surface. It was exposed by erosive forces during Sandy as well as during other historic storms. Approximately 75 buildings along Delaware Ave (primarily multi-family, residential) and approximately 50 buildings on the USCG Training Center are serviced by the sewer line. The sewer line is public infrastructure that is owned and operated by the City of Cape May. The USCG is a customer of the Cape May Sewer Utility.

Cape May County submitted a letter to the Philadelphia District requesting that a study be conducted to determine potential solutions to reduce risk of shoreline erosion to Delaware Avenue following the erosion which occurred in 2012 as a result of Hurricane Sandy (Figures 3 and 4). Hurricane Sandy made landfall just north of Atlantic City on October 29, 2012 as a "post-tropical cyclone". The Cape May Canal tide gage recorded Sandy water level maximums as the highest on record. The storm surge plus simultaneous spring astronomical tides and wave action resulted in severe shoreline erosion on the harbor-side of the city. The Delaware Avenue project area was also impacted by the nor'easter which occurred from January 22 through January 24, 2016. This storm resulted in the highest tide level ever recorded in Cape May Harbor. The USGS tide gage in Cape May Harbor reached +6.6 feet North American Vertical Datum of 1988 (NAVD88) on January 23, 2016, which was higher than the maximum height recorded during Hurricane Sandy (+5.9 feet NAVD88). Longtime local officials that were present during the nor'easter indicated that the waves on the harbor were the highest they had ever witnessed. The elevated tide levels and wave action during the nor'easter resulted in additional erosion along Delaware Avenue which continues to threaten the integrity of the sanitary sewer line and the public road.

Figure 4: Asphalt patch and emergency rip-rap placement area following Hurricane Sandy.

Historically, the erosion that is impacting the shoreline adjacent to Delaware Avenue, has been ongoing for the past several decades, leaving behind only small, discontinuous sandy pockets of beach. This shoreline erosion has occurred as a result of the integrated effects of wind waves, vessel wakes, and storm surge/flooding. All of these mechanisms have the ability to erode sand from the shoreline and transport it to deeper water. However, within Cape May Harbor there is no natural mechanism or sediment source capable of "rebuilding" the beach, as is common on sandy ocean shorelines. Hence the erosion problem along Delaware Avenue, unless some remediation is implemented, will likely continue to undermine the road and threaten the underground sewer utility line that runs along the road.

Figure 5: Emergency rip-rap placement area following Hurricane Sandy.

4.0 Alternatives

4.1 No Action

The "no action" alternative would not provide any reduction of erosion risk to the existing shoreline and thus, Delaware Avenue. Continued bank erosion is expected to continue to present a significant risk of erosion and undermining damage to Delaware Avenue and the associated sewer utility line from tidal and wave action in the Cape May Harbor during major storm events. If erosion of the shoreline directly adjacent to Delaware Avenue is allowed to continue, it has the potential to completely undermine the road and render it unusable for local traffic and the delivery

of supplies to the USCG Training Station. If the erosion undercuts the foundation of the sewer utility line, it will create the potential for a release of raw sewage into Cape May Harbor and the loss of sewer utilities for Delaware Avenue and the entire USCG Training Station.

The likelihood of future storms with intensities similar to Sandy and the 2016 nor'easter, along with sea level rise, places this section of the City of Cape May at increasing risk for more frequent and severe erosion. It is likely that if nothing is done at this project location, the road embankment will continue to erode and the stability of the road will be threatened in the future. A summary of the alternative analysis for this project can be found in Table 1.

4.2 Rip-rap

This alternative involves the placement of rip-rap along the shoreline of the Harbor to reduce the risk of further erosion along Delaware Avenue and the sewer line. This risk reduction measure would consist of the removal of approximately 8,400 cubic yards (CY) of existing rubble (sand, rock, concrete and paving debris) along the shoreline and the placement of 3,000 CY of R5 rip-rap at a minimum thickness of 24 inches. The rip-rap would be placed at a slope of 1.5H:1V and would tie into the waterside edge of the existing road shoulder. Geotextile would be placed on the slope prior to rip-rap placement and would be keyed into the road shoulder. The total footprint for the rip-rap alternative is 5,300 square yards (SY). Once the rip-rap is placed, the water ward side of the structure will be backfilled with approximately 5,050 CY of beach quality sand. The sand will be placed from the intersection of the rip-rap and the Mean High Water elevation of +1.6 feet NAVD at a slope ranging from 11H:1V to 8H:1V to reduce risk to the structure and to promote the growth of emergent wetland vegetation (Figure 5). The area would then be planted with approximately 2.0 acres of *Spartina alterniflora*. The rip-rap placement would extend for 2,200 linear feet from half way between Baltimore Street and Brooklyn Avenue to half way between Commanders Way and Buffalo Avenue. The rip-rap will be a contiguous line except for a 200 foot gap around an existing high spit along one section of the shoreline. This spit has not suffered the same historic erosion rates as the rest of Delaware Avenue, most likely due to the large trees that are present. Preservation of these trees was also considered as an environmental benefit when determining the design of the rip-rap.

Rip-rap will be obtained from a local quarry. Sand for backfill will be obtained and trucked from one of two existing USACE upland disposal areas that are located along the Cape May Canal (Figure 6). These disposal areas are used for the placement of dredged material that has been removed from the Cape May Canal near the Cape May Ferry Terminal or the Cape May Harbor. Recent sampling (May 2016) of the existing material in the Cape May Ferry disposal area has confirmed that sufficient quantities of sandy material are present for project construction. This is the preferred alternative for the project area.

4.3 Gabion Baskets

This alternative plan consists of the placement of gabion baskets along the shoreline of the Harbor to reduce risk of further erosion along Delaware Avenue and the sewer line. This risk reduction measure would consist of the removal of existing rubble along the shoreline and the placement of double twisted PVC coated wire mesh gabions (3feetW x 3feetH x 9feetL). The

gabions would be constructed in three levels, stepped back 1 foot per level. Geotextile would be placed on the slope prior to gabion placement and would be keyed into the road shoulder. A 1 foot thick layer of #57 stone would also be placed beneath the gabion wall to provide an adequate supporting base. The lowest level gabion baskets would be covered with existing beach sand upon completion of the entire wall. The gabion baskets would extend 2,200 linear feet from half way between Baltimore Street and Brooklyn Avenue to half way between Commanders Way and Buffalo Avenue. The total footprint for the gabion basket alternative is 5,700 SY.

4.4 Sheet Pile Bulkhead

This alternative consists of the construction of a bulkhead along the shoreline of the Harbor to reduce risk of further erosion along Delaware Avenue and the sewer line. This risk reduction measure would consist of the removal of existing rubble along the shoreline and the installation of a vinyl sheet pile bulkhead. The sheet pile would be 20 feet long, with a 15 foot minimum embedment depth. It would be constructed 4 feet from the edge of the paved road and backfill would be placed between the road and the bulkhead. The bulkhead would extend 2,200 linear feet from half way between Baltimore Street and Brooklyn Avenue to half way between Commanders Way and Buffalo Avenue. The beach would be regraded to a slope of 20H:1V. The construction of a vertical bulkhead with no rip-rap present to dampen wave effects would be expected to intensify the erosive forces which are currently acting upon the shoreline. The existing sandy intertidal habitat and wetlands, or any habitat enhanced through sand backfilling, would be likely to erode much more significantly under the bulkhead option than the rip-rap option.

4.5 Relocate Sewer Utility Line and Road

This alternative consists of the relocation of the road and sewer utility line away from the shoreline of Cape May Harbor in order to reduce the risk of further erosion and undermining. This alternative consists of removing the existing sewer line and rerouting the new line away to an adjoining road further from the erosion area. This alternative also includes the relocation of the road, which would require a real estate acquisition of approximately 12 acres, demolition of the existing structures, and construction of the new road. Due to the densely populated nature of the project area, relocation of the road and sewer line would be difficult to achieve.

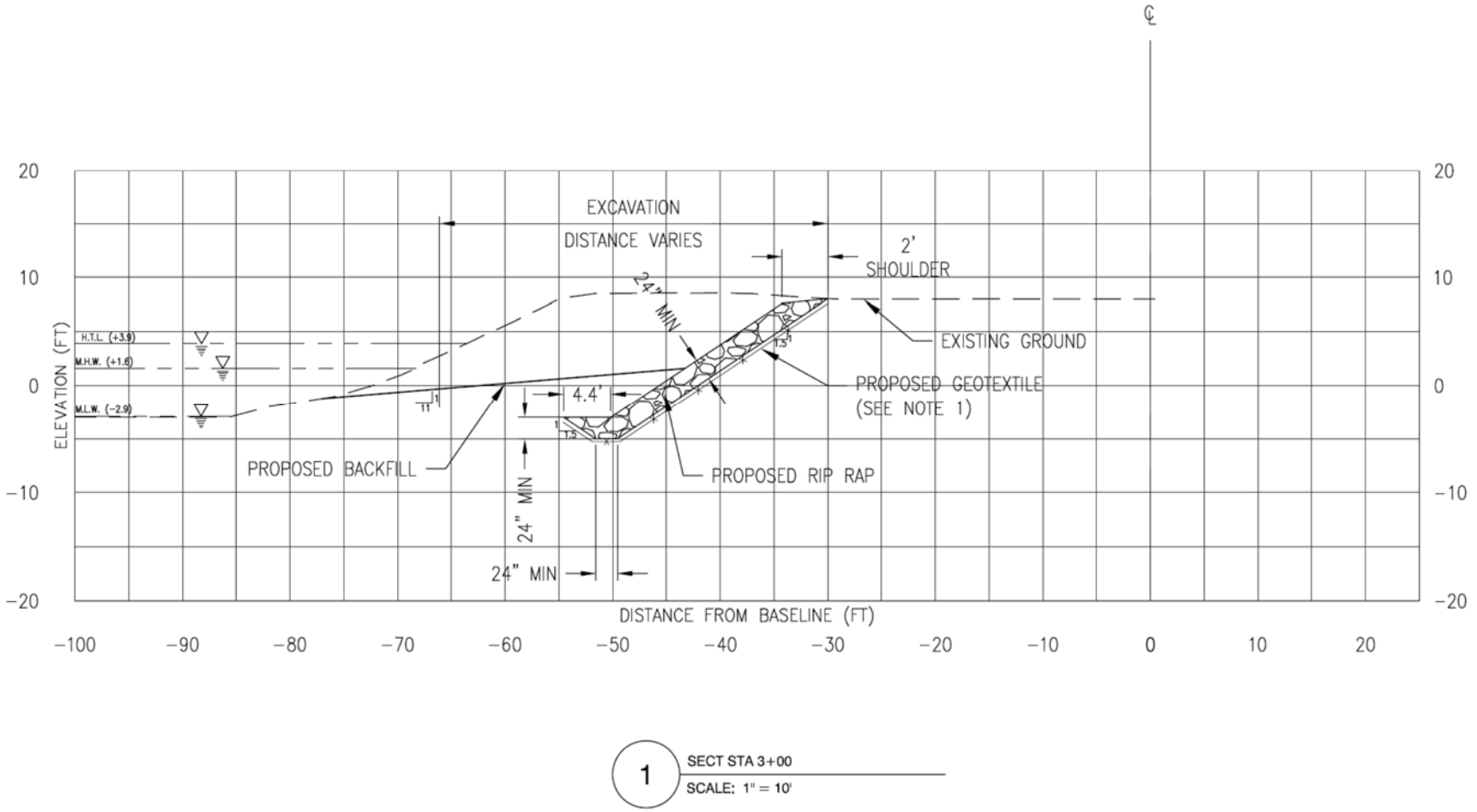

Figure 6: Cross Section of Selected Plan

Figure 7: Proposed Borrow Locations

Table 1: Alternatives Analysis

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
	No Action	**Rip-rap**	**Gabion Baskets**	**Sheet Pile Bulkhead**	**Relocate Sewer Utility Line and Road**
Benefits	● No disturbance to existing wetlands or other vegetation	● Similar footprint to existing rubble structure ● Potential to increase wetland acreage ● Will reduce risk to road and sewer line from further erosion ● Low cost	● Potential to increase wetland acreage ● Will reduce risk to road and sewer line from further erosion	● Will reduce risk to the road and sewer line from further erosion	● Reduce risk of additional damage to the road and existing sewer line
Potential issues	● Shoreline continues to erode and undermine the road and sewer line. ● Eventual road failure, sewer line failure, and release of raw sewage into Cape May Harbor ● Public safety issue ● Loss of access to USCG and surrounding homes	● Real estate easements needed from local landowners	● Real estate easements needed from local landowners. ● Larger footprint than rip rap alternative ● High cost	● Real estate easements needed from local landowners ● Potential to increase erosion at base of structure ● May have significant impact on existing wetlands over time ● High cost	● Real estate purchase and easements needed from local landowners ● Finding new location for road and sewer line in densely populated area
Wetland impacts	0	Temporary impact of approximately 0.1 acres of intertidal wetlands	Temporary impact of approximately 0.1 acres of intertidal wetlands	Potential loss of approximately 0.4 acres of wetlands due to erosion at base of bulkhead	0
Construction Cost	No cost	Low	Medium	Medium	High (Road relocation included as worst case scenario)

5.0 Existing Environment

5.1 Air Quality

The Environmental Protection Agency (EPA) adopts National Ambient Air Quality Standards (NAAQS) for the common air pollutants, and the states have the primary responsibility to attain and maintain those standards. Through the State Implementation Plan (SIP), the New Jersey Department of Environmental Protection (NJDEP) manages and monitors air quality in the state.

The Clean Air Act requires that all areas of the country be evaluated and then classified as attainment or non-attainment areas for each of the National Ambient Air Quality Standards. Cape May County, New Jersey is within the Philadelphia-Wilmington-Atlantic City Non-attainment Area. As such, emissions from the Delaware Avenue Shoreline Erosion project must be below 100 tons of NOx and 50 tons of VOC per year. An Air Quality Conformity Determination was completed and can be found in Appendix B.

EPA is also active in addressing emissions related to greenhouse gases and their effect on the environment and climate change. Greenhouse gases include carbon dioxide, methane, nitrous oxide and fluorinated gases. In 2013, carbon dioxide accounted for 82% of the US greenhouse gas emissions. Carbon dioxide enters the atmosphere through burning fossil fuels (coal, natural gas and oil), solid waste, trees and wood products, and also as a result of certain chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere when it is absorbed by plants as part of the biological carbon cycle.

5.2 Terrestrial

While native vegetation is practically non-existent in most of Cape May due to extensive development in the area, the Cape May Peninsula is a geographic merging point for many northern and southern plant species. An example of this is that both the northern bayberry and southern wax myrtle can be found growing within parts of Cape May and the surrounding area.

Vegetation that is present in and around the project area includes understory species and species associated with scrub shrub habitats along the edge of the project area include sumac (*Rhus sp*.), poison ivy (*Rhus radicans*), briers (*Smilax sp*.), rose (*Rosa sp.*), marsh elder (*Iva frutescens*), bayberry (*Myrica pensylvanica*), wax-myrtle (*Myrica cerifera*), seaside goldenrod (*Solidago sempervirens*), sheep sorrel (*Rumex acetosella*), sweet everlasting (*Gnaphalium obtusifolium*), purple vetch (*Vicia americana*), Japanese honeysuckle (*Lonicera japonica*), tearthumb (*Polygonum arifolium*), Queen Anne's lace (*Daucus carota*) and common reed (*Phragmites australis*).

5.3 Wetlands

Wetlands play a vital role in the overall well-being of coastal ecosystems. Many threatened and endangered species rely on wetlands, and nearly half use wetlands at some point in their lives. Many other plants and animals depend on wetlands for survival. Wetlands provide

a nursery habitat for many commercially and recreationally important fish species that are harvested outside the wetland. Wetlands also play an important role in flood protection. The roots of wetland plants help bind the shoreline together, resisting erosion by wind and waves and providing a physical barrier that slows down storm surges and tidal waves, thereby reducing their height and destructive power.

Within the immediate project area, there are approximately 0.4 acres of vegetated intertidal emergent wetlands. The wetlands are patchy in distribution and composed primarily of *Spartina alternaflora* with fringes of *Phragmities australis*. The wetlands within the project area are generally located between an elevation of -3.0 and +3.0 feet NAVD88.

5.4 Intertidal Zone

The intertidal zone consists of shifting sand and pounding surf, creating a habitat which is inhabited by a specialized fauna. The beach fauna forms an extensive food-filtering system which removes detritus, dissolved materials, plankton, and larger organisms from in-rushing water. The organisms inhabiting the beach intertidal zone have evolved special locomotory, respiratory, and morphological adaptations which enable them to survive in this extreme habitat. Organisms of this zone are agile, mobile, and capable of resisting long periods of environmental stress. Most are excellent and rapid burrowers. This zone contains a mixture of herbivores, primary carnivores, and some high order carnivores such as the mole crab (*Emerita* sp.).

5.5 Fisheries

Species known to utilize estuaries along the Atlantic Coast of New Jersey include summer flounder (*Paralichtys dentatus*), sea bass (*Centropristis striata*), striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), winter flounder (*Pseudopleuronectes americanus*), tautog (*Tautoga onitiss*), weakfish (*Cynoscion regalis*), scup (*Stenotomus chrysops*), white perch (*Morone americana*), and Atlantic menhaden (*Brevoortia tyrannus*). In a study conducted at nearby Peck Beach (30 miles to the northeast), 178 species of saltwater fishes were recorded. Of these, 156 were from the nearshore waters. Of the 124 species recorded in nearby Great Egg Harbor Inlet, 28 are found in large number in offshore waters. North of the study area, 87 species were found in the near shore ocean, bay and inlets adjacent to Peck Beach. Of these, 46 were located in the near shore waters. Sixty-two species were identified in Great Egg Harbor Inlet.

For 2012, it was estimated that the total economic impact of recreational fishing in New Jersey totaled over $1.1 billion (NMFS 2014). Fourteen recreational species of interest were identified by the New Jersey Department of Environmental Protection (NJDEP), including; scup, black sea bass, summer flounder (*Paralichtys dentatus*), weakfish (*Cynoscion regalis*), bluefish, striped bass, red hake (*Urophycis chuss*), silver hake (*Merluccius bilinearis*), Atlantic mackerel (*Scomber scombrus*), Atlantic croaker (*Micropogonias undulatus*), winter flounder, cunner (*Tautogolabrus adspersus*), Atlantic cod (*Gadus morhua*), and tautog.

Fifteen commercial species of fish generated over $1 million of revenue each in 2014 (NOAA 2015). In total, commercial landings in New Jersey were valued at $151,930,102 in

2014. Some of the highest grossing species include sea scallop (*Placopecten magellanicus*), Atlantic surf clam (*Spisula solidissima*), blue crab (*Callinectes sapidus*), longfin squid (*Doryteuthis pealeii*), skates, menhaden (*Brevoortia tyrannus*), summer flounder, scup, and black sea bass.

5.5.1 Essential Fish Habitat (EFH)

Under provisions of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act of 1996, portions of the project area were designated as Essential Fish Habitat (EFH) for species with Fishery Management Plans (FMPs), and their important prey species. The National Marine Fisheries Service has identified EFH within 10 minute X 10 minute squares and for New Jersey Inland Bays. The study areas contain EFH for various life stages for 24 species of managed fish and shellfish. Table 2 presents the managed species and their life stage that EFH is identified for within the corresponding 10 X 10 minute square and the corresponding inland bay that cover the study area.

Table 2: Summary of Species with EFH Designation in the Project Area

SUMMARY OF SPECIES WITH EFH DESIGNATION IN THE PROJECT AREA				
MANAGED SPECIES	**EGGS**	**LARVAE**	**JUVENILES**	**ADULTS**
Atlantic cod *(Gadus morhua)*				X
Red hake *(Urophycis chuss)*	X	X	X	
Winter flounder (*Pleuronectes americanus*)	X	X	X	X
Windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*			X	X
Monkfish *(Lophius americanus)*	X	X		
Bluefish *(Pomatomus saltatrix)*			X	X
Atlantic butterfish *(Peprilus tricanthus)*		X	X	X
Summer flounder *(Paralicthys dentatus)*		X	X	X
Scup *(Stenotomus chrysops)*	n/a	n/a	X	X
Black sea bass *(Centropristus striata)*	n/a		X	X
King mackerel *(Scomberomorus cavalla)*	X	X	X	X
Spanish mackerel *(Scomberomorus maculatus)*	X	X	X	X
Cobia *(Rachycentron canadum)*	X	X	X	X
Sand tiger shark (*Odontaspis taurus*)*		X		X
Atlantic angel shark (*Squatina dumerili*)		X	X	X
Atl. sharpnose shark (*Rhizopriondon terraenovae*)				X
Dusky shark *(Charcharinus obscurus)*		X		
Sandbar shark *(Charcharinus plumbeus)*		X	X	X
Sandbar shark *(Charcharinus plumbeus)*		HAPC	HAPC	HAPC
Tiger shark *(Galeocerdo cuvieri)*		X		
Scalloped hammerhead shark (*Sphyrna lewini*)			X	
Clearnose skate (*Raja eglanteria*)			X	X
Little skate (*Leucoraja erinacea*)			X	
Winter skate (*Leucoraja ocellata*)			X	

*Candidate species for listing under the endangered Species Act

Square Description: This square is bounded on the north and east at 39° 00.0' N, 74° 50.0' W and south and West at 38° 50.0' N, 75° 00.0' W. Waters within the Atlantic Ocean surrounding Cape May, NJ, from east of Wildwood Crest, NJ, south around the tip past Cape May Inlet, Sewell Pt., Cape May, NJ, Cape May Pt., Cape May Canal, up to just north of North Cape May, NJ. The waters within this square affect the New Jersey Inland Bay estuary and the following as well: Overfalls Shoal, Eph Shoal, McCrie Shoal, Prissy Wicks Shoal, Middle Shoal, North Shoal, Cape May Channel, Bay Shore Channel, Cape May Harbor, Skunk Sound, Cape Island Creek, Middle Thorofare, Jarvis Sound, Jones Creek, Swain Channel, Taylor Sound, Sunset Lake, and Richardson Channel. The waters on the northwest corner of the square, just south and just west of the tip of the cape, are found within the salt water salinity zone of the Delaware Bay Estuary.

5.6 Threatened and Endangered Species

The federally-listed (threatened) and state-listed (endangered) piping plover (*Charadrius melodus*) can be found nesting along coastal beaches near the study area. Birds have been nesting on a fairly regular basis in Cape May City since 1997 and along the Coast Guard beaches since at least 1988. The project area itself does not support suitable piping plover nesting habitat. Piping plovers nest above the high tide line on mainland coastal beaches, sand flats, and barrier island coastal beaches. Nesting sites are typically located on gently sloping foredunes, blowout areas behind primary dunes, washover areas cut into or between dunes, ends of sand spits, and on sites with deposits of suitable dredged or pumped sand. The nesting season usually begins in March when the birds arrive and can extend as late as the end of August. Shortly after hatching, the young leave the nest and begin foraging within the intertidal zone.

Food for adult plover and chicks consists of invertebrates such as marine worms, fly larvae, beetles, crustaceans, or mollusks. Feeding areas include intertidal portions of ocean beaches, ocean washover areas, mudflats, sandflats, wrack lines (organic material left behind by high tide), shorelines of coastal ponds, lagoons, and salt marshes.

The seabeach amaranth (*Amaranthus pumilus*) is a Federally-listed threatened plant. The seabeach amaranth is an annual plant, endemic to Atlantic coastal plain beaches, and primarily occurs on overwash flats at the accreting ends of barrier beach islands and lower foredunes of non-eroding beaches. The species occasionally establishes small temporary populations in other areas, including bayside beaches, blowouts in foredunes, and sand and shell material placed as beachfill. Although the project area does not support seabeach amaranth habitat, the species has recently naturally recolonized coastal sites within Northern New Jersey, New York and Maryland.

The red knot (*Calidris canutus rufa*) is a Federally-listed threatened species. Red knots may be present in and around the Cape May area during spring and fall migration. Some birds may also be found lingering in the area through the early winter. The red knot's spring migration to this area is timed with the release of horseshoe crab eggs. This generally abundant food supply helps the red knot to increase its body weight enough to be able to continue its migration to the red knot's arctic breeding grounds.

On January 13, 2016, the U.S. Fish and Wildlife Service listed the northern long-eared bat (*Myotis septentrionalis*) as threatened under the Endangered Species Act (ESA). In an effort to conserve the northern long-eared bat, the U.S. Fish and Wildlife Service is using flexibilities under section 4(d) of the ESA to tailor protections to areas affected by white-nose syndrome during the bat's most sensitive life stages. The rule is designed to protect the bat while minimizing regulatory requirements for landowners, land managers, government agencies and others within the species' range. In areas of the country impacted by white-nose syndrome, incidental take is prohibited if it occurs within a hibernation site for the northern long-eared bat. It is also prohibited if it results from tree removal activities within a quarter-mile of a hibernaculum or from activities that cut down or destroy known occupied maternity roost trees, or any other trees within 150 feet of that maternity roost tree, during the pup-rearing season (June 1 through July 31). Occupied roost trees may be removed when necessary to address a direct threat to human life and property. In other cases, a permit for incidental take may be

needed. Intentionally harming, harassing or killing the northern long-eared bat is prohibited throughout the species' range, except for removal of northern long-eared bats from human structures, and when necessary to protect human health and safety.

The National Marine Fisheries Service (NMFS) has jurisdiction over four (4) Federally-designated sea turtles: the endangered leatherback (*Dermochelys coriacea*), Kemp's Ridley (*Lepidochelys kempii*), and green (*Chelonia mydas*) sea turtles, and the threatened loggerhead (*Caretta caretta*) sea turtle. These sea turtles may be found in New Jersey's continental shelf waters, inshore bays and estuaries from late spring to mid-fall. Sea turtles feed primarily on mollusks, crustaceans, sponges and a variety of marine grasses and seaweeds. The endangered leatherback sea turtle may forage on jellyfish, as well. The northern diamondback terrapin (*Malaclemys terrapin terrapin*) is a Federal Category 2 candidate species that occupies shallow bay waters, and nests on the sandy portions of bay islands as well as the barrier islands themselves. The diamondback terrapin is considered a candidate species, as its nesting habitat is dwindling.

Federally endangered finback whales (*Balaenoptera physalus*) are the most common whales to occur in New Jersey coastal waters. Finback whales increase in relative abundance in late winter and spring, east of the Delaware peninsula, but may be found in New Jersey coastal waters in all seasons. The endangered humpback (*Megaptera novaeangliae*) and right whales (*Eubalaena spp.*) are known to occur in the nearshore waters of the mid-Atlantic on a seasonal basis, and may be found in the open ocean offshore of Cape May from late winter through early spring.

The adult and subadult life stages of the federally-listed endangered Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) are known to travel within the marine environment, typically in waters less than 50 meters in depth, including coastal bays, sounds and ocean waters (NMFS 2014). Atlantic sturgeon prey on a variety of benthic invertebrates found in the marine environment.

5.7 Cultural Resources

The Area of Potential Effect (APE) includes entire construction limits-of-disturbance, as well as the selected sand source and debris disposal areas. All of these areas are within the Cape May Historic District, which is a National Historic Landmark (NHL) and also listed on the National Register of Historic Places (NRHP).

Historic maps show that the existing landform to have been reclaimed coastal wetlands built off of the Poverty Beach and Sewell Point barrier spit. The widening of Poverty Beach involved the filling of Cape Island Sound and the creation of Cape May Harbor from the salt marsh in the early 20th century (Figure 7). Due to this being a filled land, there is a low probability for impacting intact archaeological deposits potentially eligible for listing in the NRHP.

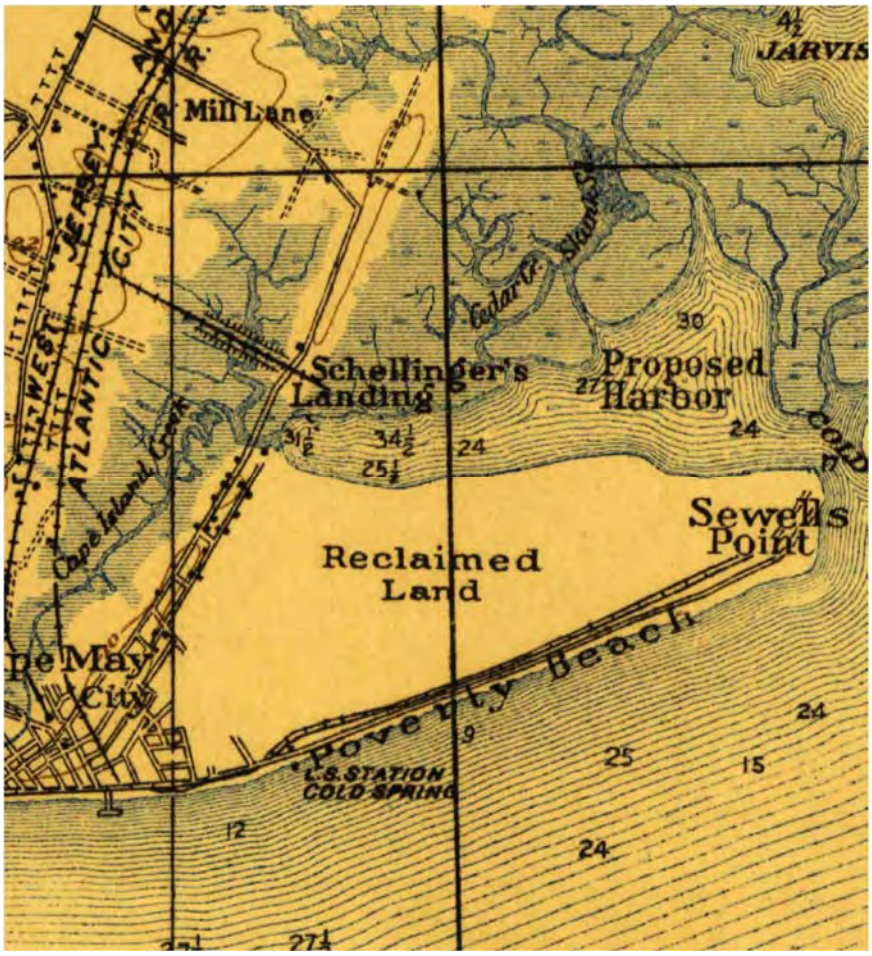

Figure 8 – 1925 Topographic Map of Cape May at Poverty Beach

Riprap will be obtained from an existing local quarry facility. Sand for backfill will be obtained and trucked from one of two existing USACE upland disposal facilities located along the Cape May Canal.

5.8 Recreation

Recreation services provided by coastal communities are a major draw of tourism along the New Jersey Coast, which is a vital part of the State's economy. The city of Cape May and the surrounding area offers numerous recreational opportunities. The ocean side offers residents and visitors boating and beach activities such as swimming, surfing, surf fishing, sunbathing, and many other beach activities. The nearshore and offshore area offers activities such as fishing, boating, wave runners, kayaking, parasailing, and paddle boarding.

Cape May is also a well-known stopover for migrating birds and it plays a critical role within the Atlantic Flyway. The area provides crucial seasonal, migratory, overwintering, and year-round habitat for a variety of waterfowl, shorebirds, songbirds and raptors, making birding an important year-round recreational activity.

5.9 Noise

Sensitivity to ambient noise levels differs among land use types. For example, residential areas, libraries, schools, and churches are generally more sensitive to noise than commercial and industrial land uses. The majority of land use around Cape May Harbor in the vicinity of the project is residential and light commercial, which generally have a higher sensitivity to ambient noise levels.

In addition to normal vehicular traffic on Delaware Avenue and the surrounding roads, the area is also subject to the noise from larger delivery vehicles accessing the Coast Guard property. Additional noise from the harbor area would include that from various sized boats and personal watercraft such as wave runners. Hence, the existing noise level from traffic and other noise in the project area is moderate to low.

5.10 Hazardous, Toxic and Radioactive Waste (HTRW)

A review of the SHWS list (known contaminated sites in New Jersey) was provided by Environmental Data Resources, Inc. (EDR). This review, dated 11/24/2015, has revealed that there are 14 SHWS sites, excluding the target property (project area), within approximately 1 mile of the target property (Table 3).

Table 3: SHWS contaminated sites within 1 mile of project area

Site	Address	Status	Incident Type	Distance
1636 Delaware Avenue, Cape May	1636 Delaware Ave	Intermittent-Incident Reported 11/01/2012	Spill (Incident Source: City of Cape May Water & Sewer)*	Target Property
Yacht Harbor Marine LLC	1505 Yacht Ave	Closed	Wetlands/Stream Encroach	0.562 mi.
Island Creek Towers Condominium Assoc.	1488 Washington Street	Closed	NA	0.602 mi.
Cape May Riggins	1381 Washington Street	Closed	NA	0.603 mi.
1257 Cape May Avenue	1257 Cape May Ave	Closed	Under Ground Storage Tank (Resident)	0.625 mi.
USCG Training Center, Cape May	1 Munro Ave	Closed	Spill	0.628 mi.
1238 Wilson Drive	1238 Wilson Dr	Closed	Under Ground Storage Tank	0.705 mi.
Rosemans Boatyard	5 Rosemans Street	Closed	NA	0.727 mi.
Cape May Marine	12 Falcon Ridge	Closed	NA	0.734 mi.

Canyon Club Resort Marina	900 Ocean Dr	Closed	10 Tanks, varying contents	0.775 mi.
956 Ocean Drive	956 Ocean Dr	Closed	NA	0.843 mi.
1134 Lafayette Street	1134 Lafayette Street	Closed	NA	0.867 mi.
1101 Washington Street	1101 Washington Street	Closed	NA	0.905 mi.
Shinnecock 2	906 Schellengers Lane	Pending	Fish and Wildlife	0.586 mi.
Cape May Exxon	1149 RT 109	Open	4 Tanks (unleaded gasoline)	0.627 mi.

*This incident is listed under the target property; however, it lists the incident location as 643 Washington St, Cape May, NJ 08204.

5.11 Socio-economics

The study area is located in the resort community of Cape May City in Cape May County, New Jersey. The proposed plan of improving the rip-rap wall will help to reduce risk to an existing road and sewer line from further erosion located near the U.S. Coast Guard Training Center facility. Currently over 350 military and civilian personnel and their dependents are attached to the Training Center in Cape May City.

Within the USACE – Philadelphia District boundaries, Cape May County is one of the four counties including Atlantic, Ocean, and Monmouth counties located along the New Jersey coast. Cape May County is surrounded by the Atlantic Ocean on the east and south, borders the Delaware Bay on the west, and Atlantic County on the north. The county covers 454 square miles, with almost 60% consisting of usable land area and the remainder being marshes and flood plains. Two main transportation arteries in the county are the Garden State Parkway and US Route 9. Other major nearby roads which allow residents and visitors to access the area include State Routes 47 and 50, the Black and White Horse Pikes, and the Atlantic City Expressway.

As of the 2010 Census, there were 4,034 people in the permanent year-round population in Cape May City. Summer population increases substantially with the influx of visitors and second home usage in the town. The median income to a household in Cape May City was $33,452 in the 2010 Census, and the median income for a family was $46,250.

The tourism industry is one of the most important industries in Cape May City. Tourism generates approximately one out of every three jobs. The economy of Cape May City and adjacent coastal communities relies to some extent on a transient workforce to supply tourism industry employees, especially in the summer. Each summer tourists flock to Cape May City's beach, promenade, and restaurants for day trips and extended vacations. Cape May City and Cape May Point State Park (just south of the town) serve as a popular birding destination for tourists seeking to catch a glimpse of the migratory birds that stop along the shoreline. Birding as a tourism experience is year-round.

6.0 Environmental Impacts

As discussed previously, the preferred alternative for this project consists of the placement of rip-rap along the shoreline of the Harbor to reduce the risk of further erosion along Delaware Avenue and the sewer line. This risk reduction measure would consist of the removal of approximately 8,400 CY of existing rubble (sand, rock, concrete and paving debris) along the shoreline and the placement of R5 rip-rap at a minimum thickness of 24 inches. The rip-rap would be placed at a slope of 1.5H:1V and would tie into the waterside edge of the existing road shoulder. Geotextile would be placed on the slope prior to rip-rap placement and would be keyed into the road shoulder. The total footprint for the rip-rap alternative is 5,300 SY. Once the rip-rap is placed, the water ward side of the structure will be backfilled with approximately 5,050 CY of beach quality sand. The sand will be placed from the intersection of the rip-rap and the Mean High Water elevation of +1.6 feet NAVD88 at a slope ranging from 11H:1V to 8H:1V to reduce risk to the structure and to promote the growth of emergent wetland vegetation (See Figure 5). The area would then be planted with approximately 2.0 acres of *Spartina alterniflora*. The rip-rap placement would extend for 2,000 linear feet from half way between Baltimore Street and Brooklyn Avenue to half way between Commanders Way and Buffalo Avenue. The rip-rap will be a contiguous line except for a 200 foot gap around an existing high spit along one section of the shoreline. The expected environmental impacts associated with this alternative are presented below.

6.1 Air Quality

Construction of the shoreline stabilization project would cause temporary reduction of local ambient air quality due to fugitive dust and emissions generated by construction equipment. These temporary reductions in air quality would not have a significant impact on the long term air quality of the surrounding area.

The 1990 Clean Air Act Amendments include the provision of Federal Conformity, which is a regulation that ensures that Federal Actions conform to a nonattainment area's State Implementation Plan (SIP) thus not adversely impacting the area's progress toward attaining the National Ambient Air Quality Standards (NAAQS). In the case of the Delaware Avenue project, the Federal Action is to reduce risk to an eroding shoreline. The U.S. Army Corps of Engineers, Philadelphia District would be responsible for construction. Cape May, New Jersey within which the Federal Action will take place is classified as nonattainment for ozone (oxides of nitrogen [NOx] and volatile organic compounds [VOCs]). The Delaware Avenue project site is within the Philadelphia-Wilmington-Atlantic City Nonattainment Area (PA-NJ-DE-MD).

There are two types of Federal Conformity: Transportation Conformity and General Conformity (GC). Transportation Conformity does not apply to this project because the project is not funded by the Federal Highway Administration and it does not impact the on-road transportation system. However, GC is applicable to this project. Therefore, the total direct and indirect emissions associated with the Delaware Avenue project construction must be compared to the GC trigger levels presented below.

Pollutant	General Conformity Trigger Levels (tons per year)
NOx	100
VOCs	50

To conduct a general conformity review and emission inventory for the Delaware Avenue project, a list of equipment necessary for construction was identified. Table 1 (Appendix B) lists these pieces of equipment along with the number of engines, engine size (hp), and duration of operation. Once the hp-hrs are generated, load factor (LF) is assigned to the equipment, which provides an average of the degree of how hard the equipment is operating (e.g. full power or half power). Once the hp-hrs are adjusted based on load factor, they are multiplied by the emissions factor, which is an estimate of the amount of emissions produced per hp-hr (an example would be grams of NOx per hp-hr). The value is then converted into tons of the constituent emitted. Indirect emissions for this project are typically computed by estimating the work crew travel trips to the work site and back during the construction period with an estimate of the emissions produced by this activity.

The total estimated emissions that would result from construction of the shoreline stabilization project is 8.65 tons of NOx, 1.35 tons of VOCs. Construction of the project will be completed in approximately 6 months. These emissions are below the *de minimis* thresholds of 100 tons of NOx and 50 tons of VOCs per year. General Conformity under the Clean Air Act, Section 176 has been evaluated for the project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from the project are below the conformity threshold values established at 40 CFR 93.153 (b) for ozone (NOx) and VOCs in a Nonattainment Area (100 tons and 50 tons of each pollutant per year). The project is not considered regionally significant under 40 CFR 93.153 (i). A statement of conformity is provided in Section 10 of this EA.

The project would also cause short-term temporary increase in greenhouse gas emissions during construction activities. These emissions would most likely be in the form of carbon dioxide due to the burning of fossil fuels in construction equipment. Due to the small size of the project and short duration of construction activities, greenhouse gas emissions related to this project are expected to be minimal and have no significant effect on climate change. The project is designed to help the shoreline better withstand climate changes and sea level rise through the stabilization of the shoreline and the creation of additional wetlands. The planting of an additional 1.7 acres of emergent wetlands within the project area will help combat greenhouse gas emissions through the absorption of carbon dioxide.

6.2 Water Quality

Implementation of this project would result in minor short-term adverse impacts to water quality in the immediate vicinity of the work. All necessary best management practices will be used during construction. A majority of the construction activities will take place above the MLW line. Turbidity associated with excavation within the intertidal zone will be minimal and

localized due to the sandy nature of the material to be excavated. The proposed project will not have any long-term adverse impacts on the water quality of Cape May Harbor. By stabilizing the bank and reducing the risk of further erosion along this section of shoreline, the long-term impacts will be minimal and possibly even positive in nature. A sediment and erosion control plan will be obtained by the contractor and followed during construction of this project to minimize impacts to the surrounding bodies of water.

6.3 Wetlands

Construction of this project will result in a temporary impact to approximately 0.1 acres of intertidal emergent wetlands. These wetlands will be impacted through the excavation required to place the geotextile fabric and toe of the rip-rap. Following the excavation, the area will be backfilled with sand between an elevation of -3.0 to +1.6' NAVD88 and on a slope ranging from 11:1 to 8:1. The newly placed sand will then be planted with approximately 2.0 acres of *Spartina alterniflora*. This elevation falls within the current growing range of the existing wetland vegetation so it is anticipated that the vegetation will establish quickly. In addition, since backfill will also be placed in areas where there is currently no wetland vegetation, this project will result in an increase of approximately 2.0 acres of emergent wetlands. The additional sand and wetland vegetation in front of the rip-rap will provide additional erosion risk reduction to the shoreline by helping to reduce the wave action reaching the rip-rap.

6.4 Fisheries

Most of the finfish found within the project area are highly mobile, and are capable of avoiding the area of construction. Little impact to fish eggs and larvae are expected because these life stages are widespread throughout the Middle Atlantic Bight, and not particularly concentrated in the intertidal zone of the project area.

The primary impact to fisheries will be felt from the disturbance of benthic and epibenthic communities. The loss of benthos and epibenthos from the excavation or burial during construction may temporarily disrupt the food chain in the impact area. This effect is expected to be temporary due to the small size of the impact area and the fact that the area will rapidly be recolonized by pioneering benthic and epibenthic species.

6.4.1 Essential Fish Habitat

As discussed previously, there are a number of Federally managed fish species where essential fish habitat (EFH) was identified for one or more life stages within the project area. Fish occupation of waters within the project area is highly variable spatially and temporally. Some of the species are strictly offshore, while others may occupy both nearshore and offshore waters. In addition, some species may be suited for the open-ocean or pelagic waters, while others may be more oriented to bottom or demersal waters. This can also vary between life stages of Federally managed species. Also, seasonal abundances are highly variable, as many species are highly migratory.

In general, adverse impacts to Federally managed fish species may stem from alterations of the bottom habitat, due to the placement of rip-rap and sand in the intertidal zone. EFH can be

adversely impacted temporarily through water quality impacts such as increased turbidity in the immediate vicinity of the construction. These impacts would subside upon cessation of construction activities. More long-term impacts to EFH involve physical changes to the bottom habitat, as there will be a slight reduction in rocky intertidal habitat that will be replaced by sandy intertidal emergent wetlands. The wetland plants in the intertidal zone, however, will provide important cover for larval and juvenile life stages of various fish in the area.

Of the 24 species identified with Fishery Management Plans, the proposed project may have temporary impacts on habitat for the juvenile and adult stages of some flounder species and possibly juvenile skate species. This is attributable to the benthic or demersal nature of these species and their affected life stages. However, the effect on benthic food-prey organisms present in the impact area is considered to be temporary as benthic studies have demonstrated recolonization following intertidal disturbance within a few months. Bottom habitat at the toe of the rip-rap will be temporarily impacted as the shoreline is displaced into the harbor by the sand placement. The small size of the project and its location within the intertidal zone indicates that any impacts to EFH species would be extremely minor and temporary.

The National Marine Fisheries Service (NMFS) notified the U.S. Army Corps of Engineers, via letter dated October 27, 2015, that areas south of latitude 39° 22’ N no longer support populations of Winter Flounder (*Pseudopleuronectes americanus*). This determination, supported by several years of trawling data, is part of New England Fishery Management Councils Ominbus Habitat Amendment 2. The amendment to the fisheries management plan is being evaluated by NMFS through NEPA and is anticipated to be completed in the spring of 2016. In the interim, NMFS has advised this office that areas south of latitude 39° 22’ N (Absecon Inlet), while still considered capable of supporting Winter Flounder, do not require conservation measures due to the absence of the species.

6.5 Wildlife Resources

No long-term impacts to the wildlife resources in the project area are anticipated as a result of this project. Concurrence on this determination was received from the USFWS in a letter dated May 6, 2016 which has been appended with this document. There will be some noise and general disturbances along the shoreline as a result of construction activities, but these will be minor and temporary in nature and it is anticipated that wildlife species in the area will move away from the active construction zone.

6.6 Threatened and Endangered Species

This project is expected to have no effect on any threatened or endangered species. Piping plovers and seabeach amaranth habitat is generally confined to coastal beaches and sandy spits subject to coastal wave action and would not be found within the project area. Although the project area is within the geographic range of the red knot, the red knot is primarily found on coastal beaches during their fall migration and bay beaches subject to horseshoe crab spawning in the spring and are not expected to be found in the project area. Since all water-based work will occur in the shallow intertidal zone, effects to the marine environment are limited to minor and localized increases in suspended sediments during construction due to substrate disturbance.

Due to the location of this work in an area where sea turtles, whales and Atlantic sturgeon are not likely to occur, no effects to these species, or their prey, is anticipated. Since no trees will be removed during construction activities, there will be no impacts to the northern long-eared bat.

6.7 Cultural Resources

The Federal undertaking is within the boundaries of the Cape May Historic District, a NRHP listed property and a National Historic Landmark; however, the proposed project is of such limited nature and scope it will not adversely affect any element, structural or visual, that contributes to the Cape May Historic District's integrity and significance.

The excavation of sediments in preparation of the installation of riprap will be conducted on reclaimed land. Little likelihood exists for the proposed project to impact archaeological resources potentially eligible for the NRHP. No further cultural resources investigations are recommended. The NJ SPHO agreed with this determination in a letter dated July 27, 2016 which has been appended with this document.

6.8 Recreation

As previously discussed, the coastal communities of New Jersey provide a wide variety of recreational activities that play a vital role in the State's economy. The NJ Audubon Society's Nature Center of Cape May is located immediately adjacent to the project area along Delaware Avenue. The Nature Center utilizes the sandy beach areas along Delaware Avenue and Cape May Harbor for many of their educational programs. Access to these areas from Delaware Avenue will be temporarily unavailable during the actual construction activities but all existing access points will be available for public use following construction. No other recreational opportunities will be significantly impacted by the proposed project.

6.9 Noise

Temporary impacts due to increased construction noise may be experienced by nearby homeowners during the project construction. Construction activities will require the use of heavy construction equipment including but not limited to excavators, loaders, and dump trucks. An increase in road traffic and possibly traffic interruption can also be anticipated. Construction activities are temporary in nature and would last for approximately 6 months. Under normal circumstances, noise will only be generated Monday through Friday during normal working hours. There will be no long-term adverse noise impacts associated with the proposed completed project.

6.10 Cumulative

We do not anticipate that reducing the risk of erosion for approximately 2200 feet of shoreline within Cape May Harbor will have any long-term negative cumulative effects on the harbor or the surrounding area. The addition of approximately 2.0 acres of intertidal wetlands is expected to provide a positive benefit to the local ecosystem.

6.11 Socio-economics

The erosion risk reduction measures for the road and sewer line will have a positive socio-economic impact by allowing the road to remain in use and maintaining the sewer line in its current location.

7.0 Environmental Justice

In accordance with Executive Order (Environmental Justice in Minority Populations) 12989 dated February 11, 1994, a review was conducted of the populations within the affected area. The U.S. Environmental Protection Agency definition for Environmental Justice is: "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." Based on a review of recent census data of the affected area, the affected area is not composed disproportionately of minority or low income populations and no impacts are expected to occur to any minority of low-income communities in the area (Cape May County New Jersey QuickFacts from the US Census Bureau).

8.0 Relationship of Selected Plan to Environmental Requirements, Protection Statutes, and Other Requirements

Compliance with environmental quality protection statutes and other environmental review requirements is ongoing with the circulation of this Environmental Assessment. Table 4 provides a listing of compliance with environmental statutes. A Section 404(b)(1) analysis of the Clean Water Act, as amended (Public Law 92-500), was completed for this project based and included in this document.

Table 4: Compliance with Appropriate Environmental Quality Protection Statutes and other Environmental Review Requirements.

STATUTE	COMPLIANCE STATUS
Clean Water Act	Partial
Coastal Zone Management Act	Partial
Endangered Species Act	Full
Fish and Wildlife Coordination Act	Full
National Historic Preservation Act	Full
National Environmental Policy Act	Partial
Clean Air Act	Partial
Magnuson-Stevens Fishery Conservation and Management Act	Partial
EO 13112 Invasive Species	Full
EO 11990 Protection of Wetlands	Full

NOTE:
Full Compliance: Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning.
Partial Compliance: Some requirements of the statute, E.O., or other policy and related regulations remain to be met.
*All applicable laws and regulations will be fully complied with upon completion of the environmental review, obtaining state water quality certification, coastal zone consistency determination, and concurrence with our determination on cultural resources.
Noncompliance: None of the requirements of the statute, E.O., or other policy and related regulations remain to be met.

9.0 References

National Marine Fisheries Service. 2014. Final Biological Opinion on the Effects of Philadelphia District's Beach Nourishment Program in the States of New Jersey and Delaware.

NOAA. 2015a. Commercial Fisheries Statistics. Retrieved from https://www.st.nmfs.noaa.gov/pls/webpls/mf_lndngs_grp.data_in

NOAA.2015b. Marine Recreational Information Program. Retrieved from http://www.st.nmfs.noaa.gov/recreational-fisheries/data-and-ocumentation/queries/index.

NJDEP. 2015. Ocean Trawling Survey. NJDEP Division of Fish and Wildlife, Marine Fisheries Administration, Bureau of Marine Fisheries. June 1, 2014 to April 30, 2015.

10.0 Clean Air Act Statement of Conformity

CLEAN AIR ACT STATEMENT OF CONFORMITY
DELAWARE AVENUE SHORELINE EROSION PROTECTION OF PUBLIC WORKS
CAPE MAY, NEW JERSEY

Based on the conformity analysis in the EA and Appendix A, I have determined that the proposed action conforms to the applicable State Implementation Plan (SIP). General Conformity under the Clean Air Act, Section 176 has been evaluated for the project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because the total emissions from the project are below the conformity threshold values established at 40 CFR 93.153(b) for ozone (NOx and VOCs) in a marginal nonattainment area (100 tons of NOx and 50 tons of VOCs per year).

_____ _____

Michael A. Bliss, P.E. Date
Lieutenant Colonel, Corps of Engineers
District Commander

11.0 CLEAN WATER ACT SECTION 404 (b)(1) EVALUATION U.S. ARMY CORPS OF ENGINEERS

PROJECT: DELAWARE AVENUE, CITY OF CAPE MAY CONTINUING AUTHORITIES PROGRAM SECTION 14 - EMERGENCY SHORELINE EROSION PROTECTION OF PUBLIC WORKS CAPE MAY, NEW JERSEY

PROJECT DESCRIPTION: The preferred alternative for this project is the construction of an approximately 2,000 linear foot rip-rap embankment along the Cape May Harbor side of Delaware Avenue. This alternative consists of the removal of the existing concrete rubble and the placement of approximately 3,000 cubic yards (CY) of rip-rap with a minimum thickness of 24 inches with a 1.5:1 slope. Once the rip-rap is placed, the water ward side of the structure will be backfilled with approximately 5,050 CY of beach quality sand from an elevation of +1.6 feet NAVD88 to depth of closure at a slope ranging from 11:1 to 8:1 to ensure protection of the structure and to promote the re-establishment of intertidal wetlands. This alternative also includes the planting of approximately 2.0 acres of *Spartina alterniflora*.

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1. Review of Compliance (Section 230.10(a)-(d)).

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose.	| X | YES	| _ | NO
b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary	| X | YES	| _ | NO
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values	| X | YES	| _ | NO
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem	| X | YES	| _ | NO

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Signif-icant	Signif-icant*

a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C) (Sec. 230.20-230.25).

1)	Substrate.			X		
2)	Suspended particulates/turbidity.			X		
3)	Water.			X		
4)	Current patterns and water circulation.			X		
5)	Normal water fluctuations.			X		
6)	Salinity gradients.	X				

b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D)(Sec. 230.30-230.32).

1)	Threatened and endangered species.	X				
2)	Fish, crustaceans, mollusks and other aquatic organisms in the food web.			X		
3)	Other wildlife.			X		

c. Potential Impacts on Special Aquatic Sites (Subpart E)(Sec. 230.40-230.45).

1)	Sanctuaries and refuges.	X				
2)	Wetlands.			X		
3)	Mud flats.			X		
4)	Vegetated shallows.			X		
5)	Coral reefs.	X				
6)	Riffle and pool complexes.	X				

d. Potential Effects on Human Use Characteristics (Subpart F)(Sec 230.50-230.45)

1)	Municipal and private water supplies.		X			
2)	Recreational and commercial fisheries.			X		
3)	Water-related recreation.			X		
4)	Aesthetics.			X		
5)	Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.			X		

3. Evaluation and Testing (Subpart G) (Sec. 230.60-230.61)

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

1)	Physical characteristics.....	X	
2)	Hydro-geography in relation to known or anticipated sources of contaminants.....		
3)	Results from previous testing of the material or similar material in the vicinity of the project ..		
4)	Known, significant sources of persistent pesticides from land runoff or percolation		
5)	Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)		
6)	Public records of significant introduction of contaminants from industries, municipalities, or other sources	X	

7)	Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	| |
8)	Other sources (specify)	| |

List appropriate references.

Draft Environmental Assessment for Delaware Avenue Shoreline Erosion Project

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

|X|	| |
YES	NO

4. Disposal Site Delineation (Section 230.11(f)).

c. The following factors, as appropriate, have been considered in evaluating the disposal site.

1)	Depth of water at disposal site	| |
2)	Current velocity, direction, and variability at the disposal site	| |
3)	Degree of turbulence	| |
4)	Water column stratification	| |
5)	Discharge vessel speed and direction	| |
6)	Rate of discharge	| |
7)	Dredged material characteristics (constituents, amount, and type of material, settling velocities)	|X |
8)	Number of discharges per unit of time	| |
9)	Other factors affecting rates and patterns of mixing (specify)	| |

List appropriate references:

Draft Environmental Assessment for Delaware Avenue Shoreline Erosion Project

d. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable

| X |	| |
YES	NO

5. Actions To Minimize Adverse Effects (Subpart H)(Sec. 230.70-230.77).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

| X |	|
| YES	NO

List actions taken:

a. Sand material used for backfilling will be a minimum

of 90% sand and of similar grain size to the existing material.

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

a.	Physical substrate (review sections 2a, 3, 4, and 5 above).	YES |X | NO |
b.	Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5).	YES |X | NO |
c.	Suspended particulates/turbidity (review sections 2a, 3, 4, and 5).	YES | | NO |X
d.	Contaminant availability (review sections 2a, 3, and 4).	YES |X | NO |
e.	Aquatic ecosystem structure, function and organisms(review sections 2b and c, 3, and 5)	YES | | NO |X
f.	Proposed disposal site (review sections 2, 4, and 5).	YES | | NO |X
g.	Cumulative effects on the aquatic ecosystem.	YES |X | NO |
h.	Secondary effects on the aquatic ecosystem.	YES |X | NO |

7. Findings of Compliance or non-compliance. (Sec. 230.12)

The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines ... YES \|X \| NO \| \|

APPENDIX B - AIR QUALITY CONFORMITY DETERMINATION

DELAWARE AVENUE, CAPE MAY SECTION 14 EMERGENCY STREAMBANK PROTECTION AIR QUALITY EMISSIONS ESTIMATES

TABLE 1 - PROJECT EMISSION SOURCES AND ESTIMATED POWER																
											NOX	NOX	VOC	VOC	
					# of		load		days of		EF	Emissions	EF	Emissions	
Equipment/Engine Category				**task**	**engines**	**hp**	**factor (LF)**	**hrs/day**	**operation***	**hp-hr**	**(g/hp-hr)**	**(Tons)**	**(g/hp-hr)**	**(Tons)**	
Mobilization & Demobilization															
Hydraulic excavator, wheel 1.4 CY				Clearing/grubbing	1	163	0.53	8	8	5,183	9.2	0.05	1.3	0.01	
Dump Truck, HWY, 10-13 CY				Excavation	1	400	0.80	8	153	391,680	9.2	3.97	1.3	0.56	
Hydraulic excavator, wheel 1.4 CY				Excavation	1	163	0.53	8	139	96,066	9.2	0.97	1.3	0.14	
Dump Truck, HWY, 16-20 CY				Fill	1	400	0.80	8	42	107,520	9.2	1.09	1.3	0.15	
Hydraulic excavator, wheel 1.4 CY				Fill	1	163	0.53	8	57	39,394	9.2	0.40	1.3	0.06	
loader, front end, skid steered				Fill	1	81	0.71	8	42	19,323	9.2	0.20	1.3	0.03	
Dump Truck, HWY, 16-20 CY				Rip Rap Slope Treatment	1	400	0.80	8	56	143,360	9.2	1.45	1.3	0.21	
Hydraulic excavator, wheel 1.4 CY				Rip Rap Slope Treatment	1	163	0.53	8	50	34,556	9.2	0.35	1.3	0.05	
											TOTAL	**8.48**	**Tons NOX**	**1.20**	**Tons VOC**

TABLE 2. POLLUTANT EMISSIONS FROM EMPLOYEE VEHICLES							
# workers	**# Trips/day**	**# days**	**miles/tri**	**grams NOX/mile**	**grams VOC/mile**	**Tons NOX**	**Tons VOCs**
15	2	180	30	0.96	0.84	**0.17**	**0.15**
The employee vehicle estimate includes mobilization/demobilization and construction.							

TABLE 3. TOTAL NOX and VOCs (Tons)			
NOX=	**8.65**	**tons**	
VOCs=	**1.35**	**tons**	

Draft Section 2(b) Letter (Fish and Wildlife Coordination Act) from the U.S. Fish and Wildlife Service

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 East Jimmie Leeds Road, Unit 4
Galloway, New Jersey 08205
Tel: 609/646 9310
http://www.fws.gov/northeast/njfieldoffice

In Reply Refer To:
16-CPA-0139

Peter Blum, Chief
Planning Division
Philadelphia District
U.S. Army Corps of Engineers
100 Penn Square East
Philadelphia, Pennsylvania 19107-3390
ATTN: Beth Brandreth

MAY 0 6 2016

Dear Mr. Blum:

The U.S. Fish and Wildlife Service (Service) New Jersey Field Office reviewed the *Draft Environmental Assessment for the Delaware Avenue, City of Cape May, Continuing Authorities, Program Section 14, Emergency Shoreline Erosion Protection of Public Works* (DEA) and provides this draft letter pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*) (FWCA). The investigation is conducted under the authority of the Continuing Authorities Program, Section 14 of the 1946 Flood Control Act (33 U.S.C. 701r, as amended), which relates to the Streambank and Shoreline Erosion Protection of Public Works and Non-Profit Public Services.

PROJECT DESCRIPTION

The U.S. Army Corps of Engineers, Philadelphia District (Corps), is evaluating protective measures for shoreline erosion along Delaware Avenue, City of Cape May, Cape May County, New Jersey, that was caused by Hurricane Sandy and subsequent nor'easters since 2012. Delaware Avenue is the main route to the U.S. Coast Guard Training Center (USCG-TRACEN). The Corps proposes to remove the existing concrete rubble and place approximately 3,000 cubic yards (2,000 linear feet) of rip-rap with a minimum thickness of 24 inches with a 1.5:1 slope. The water-ward side of the rip-rap will be backfilled with approximately 5,050 cubic yards of sand and planted with approximately 2.0 acres of smooth cordgrass (*Spartina alterniflora*) to promote establishment of intertidal wetlands at the site. Potential sources of sand are the Cape May Harbor and the Cape May Ferry Upland Disposal Facilities, which are both owned by the Corps (Preferred Alternative). The other alternatives under consideration are gabion baskets, which would significantly increase the footprint of the project; sheet pile bulkhead, which would prevent establishing intertidal wetlands; relocation of sewer utility line and road, which would require

acquisition and demolition of residential dwellings and construction of a new road; and No Action. The Service supports implementing the Corps' Preferred Alternative.

In this draft FWCA Section 2(b) Letter, the Service provides updated information regarding fish and wildlife resources, including federally listed and State-listed threatened and endangered species; identifies New Jersey Natural Heritage Priority (NHP) Sites and other ecologically sensitive sites in the study areas; identifies fish and wildlife species within or in the vicinity of the study area and discusses potential impacts on these species that may result from project implementation; identifies opportunities for fish and wildlife habitat improvements; and updates the current state of knowledge concerning the proposed activities and their potential adverse impacts on fish and wildlife resources.

STUDY AREA

According to the Corps, the study area is located on the north side of the City of Cape May along the southern shoreline of Cape May Harbor (Figure 1). The harbor was created between 1905 and 1910 by dredging a shallow marsh known as Cape Island Sound. The sediment was removed and used to fill the area currently occupied by the USCG-TRACEN, as well as the eastern portion of the City of Cape May. In 1911, the Corps constructed the Cape May Inlet with parallel stone jetties to connect the harbor with the Atlantic Ocean. In 1942, the Corps built the Cape May Canal, connecting the harbor with Delaware Bay and converting the cape into an island, to provide a protected route to avoid German U-boats operating off Cape May Point and to become part of the Intracoastal Waterway.

Because of constant wave action, the study area is a linear shoreline of eroded beach and patchy intertidal emergent wetlands. The NJDEP's Green Acres owns a portion of the study area and placed a few picnic tables that are also in danger of falling into Cape May Harbor. Concrete slabs, asphalt, bricks, and stone have been dumped haphazardly along the escarpment between the harbor and Delaware Avenue, posing a potential hazard to visitors, local residents, and their children.

METHODS AND PROCEDURES

This FWCA Section 2(b) Letter incorporates information compiled from searches of the Service's New Jersey Field Office library and office files, the New Jersey Landscape Project (New Jersey Division of Fish and Wildlife 2012), and the New Jersey Natural Heritage Program (NJNHP) database (New Jersey Department of Environmental Protection 2007). The NJNHP database was reviewed for information regarding federally listed species, State-listed species and other fish and wildlife that may occur throughout the study area. Other information was acquired through personal communications or on the Internet.

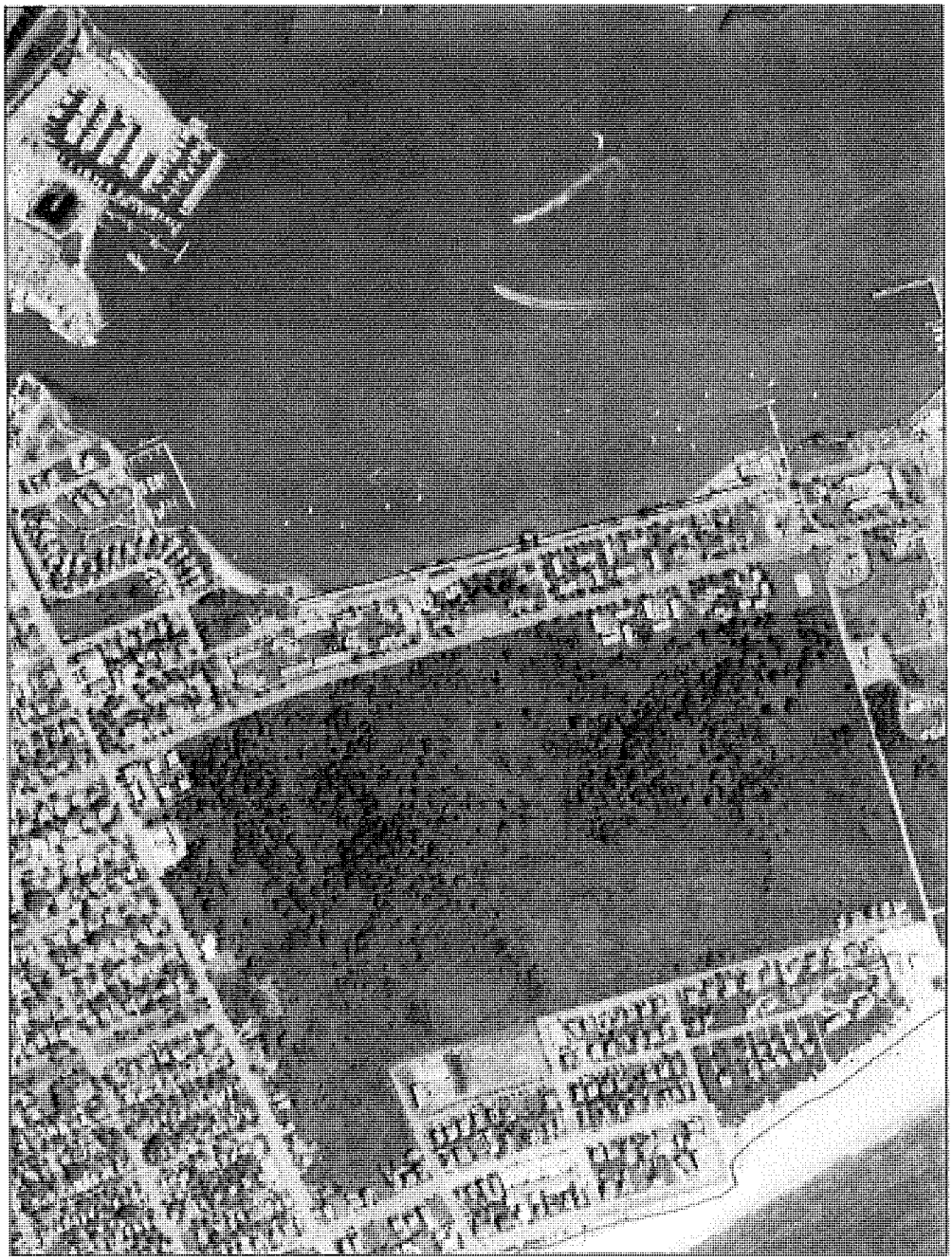

Figure 1. Delaware Avenue Study Area.

EXISTING CONDITIONS

Wetlands

The Cape May Harbor is listed by the Service's National Wetland Inventory as E1UBL (estuarine, subtidal, unconsolidated bottom) (U.S. Fish and Wildlife Service 2016). The Estuarine System describes deepwater tidal habitats and adjacent tidal wetlands that are influenced by water runoff from and often semi-enclosed by land. These tidal wetlands are located along low-energy coastlines and they have variable salinity. The Subsystem Subtidal describes habitats that have continuously submerged substrate. The Unconsolidated Bottom Class includes all wetlands and deepwater habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%. The Water Regime (L) refers to a substrate that is permanently flooded with tidal water. Eroded patches of an emergent wetland composed of smooth cordgrass are also visible along Delaware Avenue.

Project construction will result in the temporary impact to approximately 0.07 acre of emergent wetland (U.S. Army Corps of Engineers 2016). Following construction, the Corps proposes to plant the newly placed sand water-ward of the erosion control structures with 2.0 acres of smooth cordgrass.

Vernal Pools

According to the NJDEP (2012), there are no vernal pools within or in the vicinity of the study area.

Vegetation

The Native Plant Society of New Jersey (2013) lists 1,095 species of plants as occurring in the County of Cape May. Natural plant communities within the study area have been highly modified first by the creation of the Cape May Harbor and more recently by residential development and associated lawns, roads, and the dumping of rubble for erosion control purposes. Aside from portions of mowed lawn between Delaware Avenue and the escarpment, the local vegetation is in part composed of beach plum (*Prunus maritima*), red cedar (*Juniperus virginiana*), European privet (*Ligustrum vulgare*), sand blackberry (*Rubus cuneifolius*), multiflora rose (*Rosa multiflora*), rugose rose (*Rosa rugosa*), autumn olive (*Eleaegnus umbellata*), poison ivy (*Toxicodendron radicans*), wild grape (*Vitis* sp.), Adam's needle (*Yucca filamentosa*), common reed (*Phragmites australis*), mugwort (*Artemisia vulgaris*), Japanese honeysuckle (*Lonicera japonica*), curly dock (*Rumex crispus*), and sheep sorrel (*Rumex acetosella*).

The New Jersey Department of Environmental Protection (NJDEP) – Natural Heritage Grid Map (2009) identifies the following State-endangered plants as occurring in the general area surrounding the study area:

- Short-fruit rush (*Juncus brachycarpus*). According to the Flora of North America (2016), this taxon may occur in damp clayey, peaty, or sandy soils; swamps; ditches; ponds; wet woods; wet prairies; as well as brackish areas. During the Service's site visit on April 28, 2016, this species was not noted but, lacking fruiting bodies, its absence could not be verified.

- Minute duckweed (*Lemna perpusilla*). There is no suitable habitat for this taxon at or in the vicinity of the study area, as it is found in slow-moving, nutrient-rich freshwater streams or ponds.

- Carolina petunia (*Ruella carolinensis*). This taxon was known to occur in New Jersey from incomplete historical records. Attempts to locate this taxon in more recent years have been unsuccessful.

The NJDEP – Natural Heritage Grid Map (2009) further identifies two rare plants imperiled in New Jersey because of rarity (6 to 20 occurrences left primarily because of habitat destruction) that may occur in the general vicinity of the study area:

- Smooth orange milkweed (*Asclepias lanceolata*). According to Gleason and Cronquist (1991), this taxon is found in swamps, bogs, and brackish marshes of the New Jersey Coastal Plain. Although it is highly unlikely that smooth orange milkweed occurs within the study area, it is easily identifiable by its bright orange flowers. Milkweed species were not observed during the April 28 site visit.

- Hairy primrose-willow (*Ludwigia hirtella*). According to Gleason and Cronquist (1991), this taxon is found in swamps of the New Jersey Coastal Plain. It is highly unlikely that hairy primrose-willow occurs within the study area.

In a June 20, 2014 memorandum, President Obama called on Federal agencies, including the Service, the Corps, and the U.S. Department of Agriculture (USDA) to "develop... plans to enhance pollinator habitat, and subsequently implement, as appropriate, such plans on their managed lands and facilities, consistent with their missions and public safety," and for the Corps to "incorporate conservation practices for pollinator habitat improvement on ... development projects across the country" (Obama 2014). The "vegetation free" zones landward of flood control structures provide excellent opportunities to plant herbaceous vegetation that support pollinator species. The Service believes Corp's flood control projects offer potential to make significant contributions to these directives. While regional (*e.g.*, Mid-Atlantic) pollinator seed mixes are commercially available and contain several native herbaceous species, the Service recommends initiating coordination among the Corps, the Service, and the USDA Natural Resources Conservation Service's Cape May Plant Material Center to obtain pollinator plant seeds most genetically suitable for coastal New Jersey.

Finally, on December 29, 2014, the Service announced it will be conducting a status review of the monarch butterfly (*Danaus plexippus*) under the ESA. Monarchs cannot survive without

milkweed plants (*Asclepias* spp.); their caterpillars only eat milkweeds, and monarch butterflies need milkweeds to lay their eggs. The Service encourages the Corps to include milkweed and other suitable native plant species in any proposed vegetation planting [see Wild Ones (2015) for a comprehensive plant list]. The Service recommends establishing "no mow" sections within the road right-of-way.

Shellfisheries

The waters of the Cape May Harbor waters are mapped by the Service (1963) as habitat for "Hard Clams (*Mercenaria mercenaria*) – High Commercial Value." The NJDEP (2015) classifies Cape May Harbor as "Shellfish Growing Waters – Seasonally Restricted for Harvest." The Service recommends that the Corps contact the New Jersey Bureau of Shellfisheries (NJBOS) and incorporate all comments and recommendations of the NJBOS into project planning:

New Jersey Division of Fish and Wildlife
Nacote Creek Research Station
P.O. Box 418
Port Republic, New Jersey 08241

It is a major responsibility of the NJBOS to review coastal development projects and assess potential impacts on shellfisheries habitat and resources.

Fish

The summary of species with Essential Fish Habitat designation is already presented in Table 2 of subsection 5.5.1 of the Corps' DEA.

Reptiles and Amphibians

The study area is unsuitable for reptiles and amphibians, with the possible exception of the northern diamondback terrapin (*Malaclemys terrapin terrapin*). However, habitat for terrapins within the study area is limited.

Migratory Birds

Migratory birds are a Federal trust resource responsibility of the Service. Migratory birds are protected pursuant to the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703-712). The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Neither the MBTA nor its implementing regulations at 50 CFR Part 21 provide for permitting of "incidental take" of migratory birds. Please refer to the U.S. Fish and Wildlife Service (2013) for a complete list of migratory birds in the United States.

According to Walsh *et al.* (1999), Niles *et al.* (2001), and Kerlinger and Guarnaccia (2009) there are 157 species of migratory bird species in the vicinity of the Delaware Avenue study area (Appendix III).

According to the New Jersey Division of Fish and Wildlife's Guidance Manual for the Protection of Fish and Wildlife Resources dated July 2008, the general timing restriction to protect nesting migratory birds from tree or shrub/scrub removal is March 15 to July 31. Failure to do so may result in the illegal destruction of nests with eggs or unfledged chicks.

Mammals

Mammals that are known to inhabit the general vicinity of the study area are listed in Appendix II (Crewe 2016). These species are commonly found in residential areas of southern New Jersey.

The Service recommends that the Corps contact the National Marine Fisheries Service (NMFS) for the potential presence of the bottlenose dolphin (*Tursiops truncatus*) and harbor porpoise (*Phocoena phocoena*) within the Cape May Harbor. Both species may occur in bays, estuaries, and harbors. The bottlenose dolphin and harbor porpoise are protected under the Marine Mammal Protection Act of 1972 as amended (16 U.S.C. Chapter 31).

Heritage Biodiversity Priority Sites

To conserve New Jersey's biological diversity, the New Jersey Department of Environmental Protection (2007) Office of Natural Lands Management (ONLM) identifies 343 Heritage Biodiversity Priority Sites (Heritage Sites) statewide. According to NJDEP (2007), the Heritage Sites have been designated as critically important areas and represent some of the best remaining habitat for rare species, including State-listed threatened and endangered species, and exemplary natural communities in New Jersey. The study area is within the Two-Mile Beach Macrosite. According to the NJDEP (2012), communities within this Heritage Site include marine intertidal sand beach, coastal dune grass, coastal dune shrubland, coastal dune forest, and salt marsh. The aforementioned communities within the study area are currently reduced to highly disturbed remnants. However, the Service recommends that the Corps coordinate proposed project activities with the ONLM for current site-specific information over the life of the project. The Service further recommends that the Corps develop appropriate measures (*i.e.*, surveys and establishment of buffer areas within the study area), based upon any site-specific information provided by ONLM.

FEDERALLY LISTED SPECIES

Piping Plover

There is known nesting habitat for the federally listed (threatened) piping plover *(Charadrius melodus)* at the USCG-TRACEN beach approximately 1.0 mile from the study area. According to Pover (pers. comm. 2015) piping plovers last nested at USCG-TRACEN in 2013. Although

data for 2016 are not available yet, the Service concurs with the Corps' determination that the project as proposed is not likely to adversely affect the piping plover.

Red Knot

The federally listed (threatened) red knot (*Calidris canutus rufa*) may occur in New Jersey year-round, while large numbers of birds rely on Delaware Bay and Atlantic Coast stopover habitats during the spring (mid-May through early June) and fall (late-July through October) migration periods, respectively. The closest habitat of the red knot to the study area is the Cape May National Wildlife Refuge Two-Mile Beach located approximately 1.5 miles from the study area. The Service concurs with the Corps' determination that the project as proposed is not likely to adversely affect the red knot.

Northern Long-Eared Bat

On April 2, 2015, the Service announced it is protecting the northern long-eared bat (*Myotis septentrionalis*) as a threatened species under the 4(d) Rule of the ESA, primarily due to the threat posed by white-nose syndrome, a fungal disease that has devastated many bat populations. The listing became effective on May 4, 2015, after publication of the final listing determination in the Federal Register. No maternity colonies are known to occur in the vicinity of the study area. Therefore, the Service concurs that the project as proposed is not likely to adversely affect the northern long-eared bat.

Other Federally Listed Species

No other federally listed or proposed threatened or endangered flora or fauna under Service jurisdiction are known to occur within the vicinity of the study area. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered.

Marine federally listed threatened or endangered species under the jurisdiction of the NMFS (sea turtles) may occur in the vicinity of the study area. Pursuant to the ESA, the Corps is required to consult with the NMFS on potential adverse effects to sea turtles that may result from implementing project activities.

CONCLUSIONS AND SUMMARY OF RECOMMENDATIONS

In order to optimize benefits for and minimize potential adverse impacts on existing fish and wildlife resources within the study areas, the Corps should incorporate the following Service recommendations into the selected plan:

- The Service supports implementing the Corps' Preferred Alternative.

- Abide by President Obama's memorandum by planting vegetation suitable to native pollinators landward of the proposed erosion control structures.

- Coordinate with the Service and the Cape May Plant Material Center in the development of a native seed mix suitable to pollinators in coastal New Jersey.

- Include milkweed and other native plant species suitable to monarch butterflies in any proposed vegetation planting landward of the proposed erosion control structures.

- Contact the NMFS for the potential presence of the bottlenose dolphin and harbor porpoise within the Cape May Harbor.

- Contact the NJBOS and incorporate all comments and recommendations of the NJBOS into project planning.

- Coordinate proposed project activities with the ONLM for current site-specific information; develop appropriate measures based upon any site-specific information provided by ONLM.

- Consult with the NMFS on potential adverse effects to sea turtles that may result from implementing project activities.

Please review the information submitted in this draft letter and provide comments within 30 days. If there are any questions, please contact Carlo Popolizio at (609) 382-5271. Thank you for the opportunity to review the DEA.

Sincerely,

Eric Schrading
Field Supervisor

REFERENCES

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U.S. Fish and Wildlife Service. 1963. Distribution of shellfish resources in relation to the New Jersey intracoastal Waterway. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Boston, Massachusetts. Map.

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Personal Communication

Pover, T. 2015. Beach Nesting Bird Project Manager. Conserve Wildlife Foundation of New Jersey, Trenton, New Jersey.

APPENDIX I

Coordination with the New Jersey Division of Fish and Wildlife

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 East Jimmie Leeds Road, Unit 4
Galloway, New Jersey 08205
Tel: 609/646 9310
http://www.fws.gov/northeast/njfieldoffice

In Reply Refer To:
16-CPA-0139

David Chanda, Director
New Jersey Division of Fish and Wildlife
Mail Code 501-03
P.O. Box 420
Trenton, NJ 08625-0420

Dear Mr. Chanda:

Enclosed is the U.S. Fish and Wildlife Service's (Service) draft Fish and Wildlife Coordination Act letter for the U.S. Army Corps of Engineers' *Delaware Avenue, City of Cape May, Continuing Authorities Program Section 14 Emergency Shoreline Erosion Protection fo Public Works, Cape May, New Jersey - Draft Environmental Assessment.* This constitutes the Service's draft letter on fish and wildlife impacts that can be expected to result from the proposed erosion control measures in the City of Cape May, Cape May County, New Jersey. This letter has been prepared pursuant to Section 2(b) of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) and is for inclusion in the Corps final Environmental Assessment.

The Service's draft letter contains an assessment of the proposed erosion control plan and recommendations for protection of fish and wildlife resources. Please review the enclosed draft letter and provide a letter of comment including indication of concurrence, or lack thereof, within 30 days from the date of this letter. If there are any questions concerning this report, please have your staff contact Carlo Popolizio at (609) 382-5271. Thank you for your assistance in this matter.

Sincerely,

Eric Schrading
Field Supervisor

Enclosure

APPENDIX II

Mammals Known or Likely to Occur within the Study Area

Blarina brevicauda	Short-tailed shrew	Woodlands
Didelphis virginiana	Opossum	All habitats
Felis catus	Domestic cat	Feral
Marmota monax	Woodchuck	Woodlands and fields
Mephitis mephitis	Striped skunk	Uplands
Mus musculus	House mouse	Dwellings
Myotis lucifugus	Little Brown bat	Uplands
Odocoileus virginianus	White-tailed deer	All habitats
Peromyscus leucopus	White-footed mouse	Woodlands
Procyon lotor	Raccoon	All habitats
Rattus norvegicus	Brown rat	Wetlands, farms
Scalopus aquaticus	Eastern mole	Uplands
Sciurus carolinensis	Gray squirrel	Woodlands
Sylvilagus floridanus	Eastern cottontail	All habitats
Tamias striatus	Eastern chipmunk	Woodlands
Vulpes vulpes	Red fox	All habitats

APPENDIX III

Migratory Birds Known to Occur within or in the Vicinity of the Study Area

Accipiter cooperii	Cooper's hawk
Accipiter gentilis	Northern goshawk
Accipiter striatus	Sharp-shinned hawk
Actitis macularius	Spotted sandpiper
Aegolius acadicus	Saw-whet owl
Agelaius phoeniceus	Red-winged blackbird
Ammodramus caudacutus	Saltmarsh sharp-tailed sparrow
Ammodramus henslowii	Henslow's sparrow
Ammodramus maritimus	Seaside sparrow
Anas acuta	Northern pintail
Anas crecca	Green-winged teal
Anas discors	Blue-winged teal
Anas platytrhyncos	Mallard
Anas rubripes	American black duck
Anas strepera	Gadwall
Anthus rubescens	American pipit
Archilochus colubris	Ruby-throated hummingbird
Ardea alba	Great egret
Ardea herodias	Great blue heron
Arenaria interpres	Ruddy turnstone
Asio flammeus	Short-eared owl
Asio otus	Long-eared owl
Baelophus bicolor	Tufted titmouse
Bartramia longicauda	Upland sandpiper
Bombycilla cedrorum	Cedar waxwing
Botaurus lentiginosus	American bittern
Branta bernicla	Brant
Branta canadensis	Canada goose
Bubulcus ibis	Cattle egret
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Buteo platypterus	Broad-winged hawk
Butorides virescens	Green heron
Calidris alpina	Dunlin
Calidris canutus rufa	Red knot
Cardinalis cardinalis	Northern cardinal
Cathartes aura	Turkey vulture
Certhia americana	Brown creeper
Chaetura pelagica	Chimney swift
Calidris alba	Sanderling
Calidris mauri	Western sandpiper

Calidris pusilla	Semipalmated sandpiper
Catharus bicknelli	Bicknell's thrush
Catharus guttatus	Harmit thrush
Charadrius melodus	Piping plover
Charadrius vociferous	Killdeer
Chlidonias niger	Black tern
Circus cyaneus	Northern harrier
Cistothorus palustris	Marsh wren
Colaptes auratus	Northern flicker
Colinus virginianus	Northern bobwhite
Coragyps atratus	Black vulture
Corvus brachyrhynchos	American crow
Corvus ossifragus	Fish crow
Cyanocitta cristata	Blue jay
Dendroica discolor	Prairie warbler
Dendroica palmarum	Palm warbler
Dendroica petechia	Yellow warbler
Dendroica pinus	Pine warbler
Dimetella carolinensis	Gray catbird
Dolichonyx oryzivorus	Bobolink
Egretta caerulea	Little blue heron
Egretta thula	Snowy egret
Egretta tricolor	Tricolored heron
Empidonax trallii	Willow flycatcher
Eremophila alpestris	Horned lark
Falco columbarius	Merlin
Falco peregrinus	Peregrine falcon
Falco sparverius	American kestrel
Gavia stellata	Red-throated loon
Gelochelidon nilotica	Gull-billed tern
Geothypis trichas	Common yellowthroat
Haematopus palliatus	American oystercatcher
Haemorhous purpureus	Purple finch
Halieaeetus leucocephalus	Bald eagle
Hirundo rustica	Barn swallow
Icteria virens	Yellow-breasted chat
Icterus spurius	Orchard oriole
Ixobrychus exilis	Least bittern
Junco hyemalis	Dark-eyed junco
Lanius ludovicianus	Loggerhead shrike
Larus argentatus	Herring gull
Larus delawarensis	Ring-billed gull

Larus marinus	Great black-backed gull
Leiothlypis ruficapilla	Nashville warbler
Leucophaeus atricilla	Laughing gull
Megaceryle alcyon	Belted kingfisher
Melanerpes carolinus	Red-bellied woodpecker
Melanerpes erythrocephalus	Red-headed woodpecker
Melanitta americana	Black scoter
Melanitta perspicillata	Surf scoter
Melospiza georgiana	Swamp sparrow
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	Song sparrow
Mimus polyglottos	Northern mockingbird
Molothrus ater	Brown-headed cowbird
Numenius phaeopus	Whimbrel
Nyctanassa violacea	Yellow-crowned night-heron
Nycticorax nycticorax	Black-crowned night-heron
Pandion haliaetus	Osprey
Passerculus sandwichensis	Savannah sparrow
Passerina caerulea	Blue grosbeak
Passerina cyanea	Indigo bunting
Pelecanus occidentalis	Brown pelican
Petrochelidon pyrrhonota	Cliff swallow
Phalacrocorax auritus	Double-crested cormorant
Picoides pubescens	Downy woodpecker
Pipilo erythrophthalmus	Eastern towhee
Plegadis falcinellus	Glossy ibis
Pluvialis squatarola	Black-bellied plover
Podilymbus podiceps	Pied-billed grebe
Poercile carolinensis	Carolina chickadee
Pooecetes gramineus	Vesper sparrow
Porphyrula martinica	Purple gallinule
Progne subis	Purple martin
Protonotaria citrea	Prothonotary warbler
Quiscalus major	Boat-tailed grackle
Quiscalus quiscula	Common grackle
Rallus crepitans	Clapper rail
Rallus limicola	Virginia rail
Regulus calendula	Ruby-crowned kinglet
Regulus satrapa	Golden-crowned kinglet
Rhyncops niger	Black skimmer
Sayornis phoebe	Eastern phoebe
Seiurus aurocapillus	Ovenbird

Setophaga americana	Northern parula
Setophaga coronata	Yellow-rumped warbler
Setophaga striata	Blackpoll Warbler
Sialia sialis	Eastern bluebird
Sitta canadensis	Red-breasted nuthatch
Spinus tristis	American goldfinch
Spizella passerina	Chipping sparrow
Spizella pusilla	Field sparrow
Stelgidopteryx serripennis	Northern rough-winged swallow
Stercorarius parasiticus	Parasitic jaeger
Sterna dougallii	Roseate tern
Sterna forsteri	Forster's tern
Sterna hirundo	Common tern
Sternula antillarum	Least tern
Sturnella magna	Eastern meadowlark
Tachycineta bicolor	Tree swallow
Thalasseus maximus	Royal tern
Thryothorus virginianus	Carolina wren
Toxostoma rufum	Brown thrasher
Tringa flavipes	Lesser yellowlegs
Tringa melanoleuca	Greater yellowlegs
Tringa semipalmata	Willet
Troglodydes aedon	House wren
Troglodytes hiemalis	Winter wren
Turdus migratorius	American robin
Tyto alba	Barn owl
Tyrannus tyrannus	Eastern kingbird
Vireo griseus	White-eyed vireo
Vireo olivaceus	Red-eyed vireo
Vireo philadelphicus	Philadelphia vireo
Zenaida macroura	Mourning dove
Zonotrichia albicollis	White-throated sparrow

Cc: Karen.Greene@noaa.gov
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State Historic Preservation Office Correspondence
Determination of No Adverse Affect

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT CORPS OF ENGINEERS
WANAMAKER BUILDING, 100 PENN SQUARE EAST
PHILADELPHIA, PENNSYLVANIA 19107-3390

Environmental Branch

JUN 2 4 2016

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Kate Marcopul, Deputy State Historic Preservation Officer
Mail Code 501-04B
State of New Jersey
Department of Environmental Protection
Historic Preservation Office
PO Box 420
Trenton, NJ 08625-0420

Dear Ms. Marcopul:

The U.S. Army Corps of Engineers, Philadelphia District (USACE) are proposing to construct an approximately 2,200 linear foot embankment protection project along the Cape May Harbor side of Delaware Avenue in Cape May, New Jersey. This location is experiencing severe erosion and there is crucial infrastructure (public utilities) that run beneath Delaware Avenue that cannot afford to be damaged by the ongoing erosion (Enclosure 1).

The proposed project shall be constructed using a combination of riprap along the embankment and sand backfill on the water ward side of the embankment. The project contains approximately 0.4 acres of wetlands within the project limits, in which less than 0.1 acres will be temporarily affected by the construction.

In order to place the riprap, the existing area will require the excavation and removal of approximately 8,400 cubic yards of various material types (sand, rock, concrete, and pavement debris). The riprap layer will be a minimum of 24" thick and have a 1.5H:1V slope proceeding up the embankment. Once the riprap is placed, the water ward side of the structure will be backfilled with sand of matching characteristics that are in place now.

The sand will be placed from the intersection of the riprap and the Mean High Water elevation of +1.6' at an 11:1 to 8:1 slope to ensure protection of the structure as well as help promote wetland growth in the area of construction for the future. The amount of sand to be filled is approximately 5,000 cubic yards, and the total footprint for the rip-rap is 5,300 SY. During construction equipment will operate from the land and no construction impacts are expected within the water, other than the placement of riprap and sand backfill.

Riprap will be obtained from a local quarry. Sand for backfill will be obtained and trucked from one of two existing USACE upland disposal facilities that are located along the Cape May Canal as shown below. The facilities are used for the placement of

dredged material that has been removed from the channel of the Cape May canal or Cape May Harbor. Any sand obtained from the facilities will be analyzed to confirm physical and chemical parameters prior to use as backfill.

The Area of Potential Effect (APE) includes entire construction limits-of-disturbance, as well as the selected sand source and debris disposal areas. All of these areas are within the Cape May Historic District, which is a National Historic Landmark (NHL) and also listed on the National Register of Historic Places (NRHP) (Enclosure 2).

Historic maps show that the existing landform to have been reclaimed coastal wetlands built off of the Poverty Beach and Sewell Point barrier spit. The widening of poverty beach involved the filling of Cape Island Sound and the creation of Cape May Harbor from the salt marsh in the early 20th century. Due to this being a filled land, there is a low probability for impacting intact archaeological deposits potentially eligible for listing in the NRHP (Enclosure 3).

The Federal undertaking is within the boundaries of the Cape May Historic District, a NRHP listed property and a National Historic Landmark; however, the proposed project is of such limited nature and scope it will not adversely affect any element, structural or visual, that contributes to the Cape May Historic District's integrity and significance.

The excavation of sediments in preparation of the installation of riprap will be conducted on reclaimed land. Little likelihood exists for the proposed project to impact archaeological resources potentially eligible for the NRHP. No further cultural resources investigations are recommended.

We request your review of the enclosed information and your concurrence in our conclusion that no historic properties will be adversely affected by the proposed permit action in compliance with 36CFR800.5.a.3.b.

Thank you for your cooperation in this review process. Should you have any questions please contact me via email at nicole.c.minnichbach@usace.army.mil or by calling 215-656-6556.

Sincerely,

for C. MacIntosh
PETER R. BLUM, P.E.
Chief, Planning Division

3 Encls
1. Project Plans
2. Cape May NRHP Form
3. Historic Map Report

As proposed, the project will not adversely affect historic properties. Pursuant to 800.5(c), if no consulting parties object to this finding within the 30 day review period, the project may proceed, as proposed, unless resources are discovered during project implementation, pursuant to 800.13.

Katherine J. Marcopul — 7/27/2016
Katherine J. Marcopul — Date
Deputy State Historic Preservation Officer
NAE