APPENDIX F

SECTION 404(b)(1) GUIDELINES EVALUATION

U.S. Army Corps of Engineers
New York District

ATLANTIC COAST OF NEW JERSEY, SANDY HOOK TO BARNEGAT INLET BEACH EROSION CONTROL PROJECT SECTION I – SEA BRIGHT TO OCEAN TOWNSHIP, NEW JERSEY: ELBERON TO LOCH ARBOUR REACH

CLEAN WATER ACT
SECTION 404(b)(1) GUIDELINES EVALUATION
Prepared December 2013

INTRODUCTION

This document presents a Section 404(b)(1) guidelines evaluation for the coastal storm protection project from Lake Takanassee (Elberon, City of Long Branch) to Deal Lake at the border of Loch Arbour, City of Asbury Park, Monmouth County, New Jersey. The recommended plan includes beach fill along 17,000' of shoreline, using suitably sized sand, the notching of six of the existing stone groins to allow for longshore transport of sand, and the extension of 10 outfall pipes that require the placement of pilings and cribbing. The discharge to waters of the U.S. that may occur related to the project would be the placement of fill material into shallow near shore waters along this reach of shoreline. Best management practices will be fully utilized to ensure that turbidity and sedimentation are limited to the area immediately adjacent to the project sit and minimized to the greatest extent possible. This evaluation is based on the regulations presented in 40 CFR 230, Section 404(b)(1): Guidelines for Specification of Disposal Sites for Dredged or Fill Material. The regulations implement Sections 404(b) and 401(1) of the Clean Water Act, which govern disposal of dredged and fill material inside the territorial seas baseline [§230.2(b)].

As stated in Section 230.10(a)(4): For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines. The Environmental Assessment (EA), to which this evaluation is an appendix, provides the documentation necessary to attest that the project is fully in compliance with the Section 404(b)(1) guidelines. The EA provides a full project description and location, description of existing conditions, full alternatives analysis, and description of potential impacts as a result of the project and the project's construction. The analysis provided within the EA along with the review undertaken during the application process for the NYDEC State Water Quality Certificate under Section 401(1) (issued 8/19/11), documents that the implementation of this erosion/shore protection plan will not cause or

contribute to significant degradation of the waters of the United States, as is demonstrated in the following sections and tables.

1.0 PROJECT DESCRIPTION

The Elberon to Loch Arbour project area extends approximately 3.5 miles, beginning at Lake Takanesee in the City of Long Branch neighborhood of Elberon and ending near Deal Lake, in the Village of Loch Arbour. Construction is currently scheduled to begin in October 2014 and be completed in 2015. The features of the project include the following:

- Placement of 4,450,000 CY of sand to construct a 100 foot wide berm at an elevation of +9.3 NAVD 83 with an onshore slope of 1V:10H to Mean Low Water (MLW) and an offshore slope of with a 2 foot high storm berm cap and a 1 ft construction tolerance. Length of the project fill template is approximately 3.5 miles.
- Notching six existing stone groins to allow for sediment transport and prevent sediment impoundment;
- Extending 10 existing stormwater outfalls that will be supported by timber crib structures or a similar type structure fabricated from composite materials. The cribbing and outfall extensions would be constructed after the fill is placed under the pipe alignment to allow for completion of pipe extension before placement of final grades of the pipe.
- A beach renourishment cycle of every 6 years for 50 years at an expected volume of 1,298,000 CY of sand per cycle (GDM).

The 4.5 million cy of material to create the berm and cap would come from the Sea Bright Borrow Area (SBBA) (Figure 2). The SBBA is a 3-square mile area located 1-3 miles offshore of the southern end of Sandy Hook, NJ (USACE-WES 1996) and has been used for previous beach nourishment actions. The mean water depth of the borrow area is 50 feet (USACE-NYD 2006).

General Description of Selected Plan: The project is intended to re-establish the buffer (beach) that protects property and infrastructure as well as the maintain the recreational and aesthetic values of the shoreline. The six groins to be notched will aid in reducing future erosion via re-establishing longshore transport of sand to facilitate maintenance of the beach and berm. Because of the increased width of berm beach and sub-tidal portions of the fill, 10 existing storm water outfall pipe lines will be extended to the toe of the fill to prevent potential infilling with sand.

Authority and Purpose: The Elberon to Loch Arbour Beach Erosion Control Project is a component of the Sandy Hook to Barnegat Inlet Beach Erosion Control Project. The original Sandy Hook to Barnegat Inlet Beach Erosion Control Project report recommending Federal action was submitted it to Congress in 1956 and authorized by the River and Harbor Act of July 3, 1958, in accordance with House Document No. 332, 85th Congress, second session. Further modifications associated with the non-Federal sponsor cost share and public access requirements were made by Section 854 of the Water Resources Development Act (WRDA) of 1986, (PL99-662), Section 4 of the 1988 WRDA (PL100-676) and Section 102(r) of the WRDA of 1992 (PL102-580).

Construction of Sandy Hook to Barnegat Inlet, Section I Contracts 1A and 1B in November 1995 and December 1996 respectively. Section I, Contract 2, was completed in September 1999. However, the Elberon to Loch Arbour Beach Erosion Control Project component was not constructed due to real estate acquisition issues.

As a result of Hurricane Sandy the Elberon to Loch Arbour Project was subsequently identified in the Second Interim report to Congress prepared under the Disaster Relief Appropriations Act of 2013 through Public Law 113-2 (Act) as an authorized but unconstructed project. Construction of the Elberon to Loch Arbour project will be funded under the Act.

In general, erosion has significantly reduced the width of the naturally occurring beach within the project area thus increasing the susceptibility of existing development and infrastructure to storm damage. Hurricane Irene, and to a greater extent, Hurricane Sandy, have further exacerbated the conditions and have increased community vulnerability to future storm events. Although attempts to prevent erosion utilizing variations of rip-rap and bulkheads to protect the bluffs and adjacent structures and infrastructure in several locations within the project area, the proposed project will provide a comprehensive and long term reduction in erosion in order to lower the risk of future coastal storm damage.

GENERAL CONSTRUCTION AND MATERIAL DESCRIPTIONS: Beach Fill: Dimensions and volumes proposed are; Length approximately 17,000', fill Volume is approximately 4,500,000 cy.

Time and Duration of Disposal: Project construction is expected to begin in October of 2014 and be completed with 12 to 16 months.

Groin Modification: Most of the groins with the project reach are to be covered by the fill design. Six however extend more than 150' seaward of MLW and these will be notched. Stone will be removed from the groin to the appropriate depth. The notch will extend 100 feet seaward of MLW. The lowered section of the groin will be lined with 2' of bedding stone and topped with (reused) armor stone. The slope of the notch will be 1/35. Notching the groins will require the following types of equipment: excavator. Bulldozer, Dump Truck, lights and generator and pumps for dewatering excavated holes.

Time and Duration of groin modification: Groin modification is expected to begin in November of 2014 and be completed with 8 months.

Outfall Extension: Ten stormwater outfalls will require extension to prevent inland flooding from impoundment of fill sand. Pipe of 30" diameter or less will utilize timber cribbing and wooden piles. Pipes with a diameter greater than 30" will use composite cribbing (concrete) with wooden piles. Outfall pipe materials vary along the project's length and include steel, concrete and ductile iron.

Time and Duration of outfall extension: Project construction is expected to begin in October of 2014 and be completed with in 12 to16 months.

General Characteristics of Fill Material: The material dredged from the SBBA is greater than 90.0% sand, which eliminates concerns regarding the use of fine grain material from external sources, which would have to be tested for contaminants to ensure its acceptability. This material is grain size compatible with the past and present beach sand. SBBA fill material has a median grain size of 0.17 mm and ranges up to course gravel (32 mm). Gravel content is not expected to be 25% .

Quantity of Material: The estimate of the volume of material being dredged from Rockaway Inlet and beneficially used at Plumb Beach is @ 4,500,000 c.y

Source of Material: The material is being dredged from the Sea Bright Borrow area.

Description of Proposed Discharge Site:

All dredged material will be placed on the project site in pre-designated locations according to the project design.

The project site is @ 17,000 feet of Atlantic ocean shoreline extending from Elberon to Loch Arbour New Jersey in Monmouth County New Jersey.

The project site (placement area) is characterized by eroded beach with an embankment that has been armored or bulkheaded in various locations. Located along the project area shoreline are drainage outfalls that channel surface runoff to the ocean and numerous stone groins. The majority of land use landward of the project area is residential development with the majority of commercial development concentrated along Ocean Avenue which generally lies west of the residential neighborhoods. Several private and municipal beach clubs border the project site to the west. Lake Takanassee to the north and Deal Lake to the south each function as impoundments for separate localized drainage systems. Both lakes have outlet structures that cross through the project site and allow for tidal exchange within each lake. A third freshwater system, Poplar Brook, does not have an outfall structure but drains directly onto the project site beach.

General construction durations for each phase of the project consist of:

Placement Method: Excavated material will be moved via hopper dredge and pumped onsite to be re-distributed and regraded to conform to the design template via the use of land based equipment.

2.0 FACTUAL DETERMINATIONS

Review of Compliance – Section 230.10(a)-(d)

	YES	NO
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	
b. The activity does not appear to: 1) violate applicable state water quality standards or	X	

effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their habitat; and 3) violate requirements of any Federally designated marine sanctuary.		
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	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.	X	

Technical Evaluation Factors (Subparts C-F)

		N/A	NOT SIGNIFICANT	SIGNIFICANT
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)				
	1) Substrate		X	
	2) Suspended particulates/turbidity		X	
	3) Water column impacts		X	
	4) Current patterns and water circulation		X	
	5) Normal water circulation		X	
	6) Salinity gradients		X	
b. Potential Impacts on Biological Characteristics on the Aquatic Ecosystem (Subpart D)				
	1) Threatened and endangered species		X	
	2) Fish, crustaceans, mollusks, and other organisms in the aquatic food web		X	
	3) Other wildlife (mammals, birds, reptiles and amphibians)		X	
c. Potential Impacts on Special Aquatic Sites (Subpart E)				
	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)				
	1) Municipal and private water supplies	X		
	2) Recreational and commercial fisheries		X	
	3) Water-related recreation			X
	4) Aesthetic impacts		X	
	5) Parks, national and historic monuments, national seashores, wilderness areas, research sites and similar preserves		X	

Evaluation and Testing – Subpart G

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) Hydrography in relation to known or anticipated sources of contaminants	X
	3) Results from previous testing of the material or similar material in the vicinity of the project	X
	4) Known, significant sources of persistent pesticides from land runoff or percolation	N/A
	5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	N/A
	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	N/A
	8) Other sources (specify)	N/A
List appropriate references – See Environmental Assessment		
	YES	**NO**
b. An evaluation of the appropriate information factors in 3a above indicates that there is reason to believe the proposed dredged 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.	**X**	

4. Disposal Site Delineation - Section 230.11(f)

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) Depth of water at disposal site	Yes
	2) Current velocity, direction, variability at disposal site	Yes
	3) Degree of turbulence	Yes
	4) Water column stratification	Yes
	5) Discharge of vessel speed and direction	Yes
	6) Rate of discharge	Yes
	7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)	Yes
	8) Number of discharges per unit of time	Yes
	9) Other factors affecting rates and patterns of mixing (specify)	Yes
List appropriate references – See Environmental Assessment		
	YES	**NO**
b. An evaluation of the appropriate information factors in 4a above indicated that the disposal sites and/or size of mixing zone are acceptable.	X	

Actions to Minimize Adverse Effects (Subpart H)

	YES	**NO**
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	

Factual Determination – Section 230.11

A REVIEW OF APPROPRIATE INFORMATION, AS IDENTIFIED IN ITEMS 2-5 ABOVE, INDICATES THERE IS MINIMAL POTENTIAL FOR SHORT OR LONG-TERM ENVIRONMENTAL EFFECTS OF THE PROPOSED DISCHARGE AS RELATED TO:		
	YES	**NO**
a. Physical substrate at the disposal site (review Sections 2a, 3, 4 and 5 above)	X	
b. Water circulation, fluctuation and salinity (review Sections 2a, 3, 4 and 5)	X	
c. Suspended particulates/turbidity (review Sections 2a, 3, 4 and 5)	X	

d. Contaminant availability (review Sections 2a, 3 and 4)	X	
e. Aquatic ecosystem structure, function and organisms (review Sections 2b, 2c, 3 and 5)	X	
f. Proposed disposal site (review Sections 2, 4 and 5)	X	
g. Cumulative effects on the aquatic ecosystem	X	
h. Secondary effects on the aquatic ecosystem	X	

Findings of Compliance or Non-Compliance

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

In summary, the implementation of the recommended Elberon to Loch Arbour Beach Erosion Control Plan:

Will have no adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites.

Will have no significant adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes;

Will have no significant adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability.

Will have no significant adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.