

Fire Island Inlet to Montauk Point, NY Final General Reevaluation Report



APPENDIX K OMRR&R REQUIREMENTS

**U.S. Army Corps of Engineers
New York District**



February 2020

FIRE ISLAND TO MONTAUK POINT REFORMULATION STUDY – FINAL GRR

Appendix K

OMRR&R Requirements

TABLE OF CONTENTS

1.	INTRODUCTION	3
1.1.	Document Overview.....	3
1.2.	Project Location	3
1.3.	Purpose.....	3
2.	PROJECT DESCRIPTION	3
2.1.	Inlet Sand Bypassing	3
2.2.	Mainland Nonstructural	3
2.3.	Breach Response on Barrier Islands – Provides for the following types of Breach Response.....	4
2.4.	Beach and Dune Fill on Shorefront.....	4
2.5.	Groin Modifications	4
2.6.	Coastal Process Features (CPFs)	4
2.7.	Adaptive Management	5
2.8.	Integration of Local Land Use Regulations and Management	5
3.	PURPOSE AND SCOPE OF THE OMRR&R MANUAL.....	6
3.1.	Purpose.....	6
3.2.	Superintendent.....	6
4.	Definitions.....	6
5.	ELEMENTS OF THE PLAN AND THEIR FUNCTION.....	7
6.	MAINTENANCE AND OPERATION OF THE PROJECT.....	7
6.1.	Administrative Responsibilities	7
6.2.	Maintenance Responsibilities.	8
6.3.	Operational Responsibilities	10
7.	Federal Monitoring.....	11
7.1.	Coastal Monitoring	11
7.2.	Environmental Monitoring	11
7.3.	Initiation of Renourishment	11
7.4.	Post-Storm Fill Placement	11
7.5.	OMRR&R During Renourishment Operations	11

1. INTRODUCTION

1.1. Document Overview.

This appendix provides a general overview of the Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R) requirements for the Fire Island to Montauk Point project (FIMP). This is not a full OMRR&R manual. The complete OMRR&R manual will be developed in consultation with the project sponsor during the PED phase. The OMRR&R Manual will be formally adopted upon completion of initial construction. Given that the FIMP project consists of multiple project features that will be implemented over time, it is likely that there will be multiple OMRR&R manuals for each feature.

1.2. Project Location

The Federally authorized project area extends east from Fire Island Inlet to Montauk Point along the Atlantic Coast of Suffolk County, Long Island, New York as shown in Figure 1. The study area includes the barrier island chain from Fire Island Inlet to Southampton, the Atlantic Ocean shorelines from Southampton to Montauk Point, and the adjacent back-bay areas along Great South, Shinnecock and Moriches Bays. Total study length encompasses approximately 83 miles along the Atlantic Ocean and comprises approximately 70 percent of the total ocean frontage of Long Island, as well as hundreds of miles of bay shoreline.

1.3. Purpose.

The Fire Island Inlet to Montauk Point, New York Storm Damage Reduction Project (FIMP) is a federally authorized project intended to provide beach erosion control and hurricane protection for approximately 83 miles of the Atlantic Coast of Long Island, from Fire Island Inlet to Montauk Point.

2. PROJECT DESCRIPTION

The FIMP Tentatively Selected Plan (TSP) involves a multi-pronged approach to erosion and hurricane protection involving inlet modifications, mainland and nonstructural measures, breach response, beach and dune fill, sediment management, groin modifications, coastal process features, adaptive management, and integration of local and land use regulations. Additional information on the features of the project may be found in Section 6 of the FIMP General Reevaluation Report (GRR), and in Section 9 of Appendix A to the FIMP GRR. The below excerpts describe the TSP elements.

2.1. Inlet Sand Bypassing

- Provides for sufficient sand bypassing across Fire Island, Moriches, and Shinnecock Inlets to restore the long-term natural longshore transport of sand along the barrier island. Scheduled O&M dredging of the authorized navigation channel and deposition basin with sand placement on the barrier island will be supplemented, as needed, by dredging from the adjacent ebb shoals of each inlet to obtain the required volume of sand needed for bypassing.
- The bypassed sand will be placed in a berm template at elevation +9.5 ft NGVD in identified placement areas.
- Monitoring is included to facilitate adaptive management changes.

2.2. Mainland Nonstructural

- Addresses approximately 4,432 structures within the 10 year floodplain using nonstructural measures, primarily, structural elevations and building retrofits, based upon structure type and condition.
- Includes localized acquisition in areas subject to high frequency flooding, and reestablishment of natural floodplain function.

2.3. Breach Response on Barrier Islands – Provides for the following types of Breach Response

- Proactive Breach Response – is a response plan which is triggered when the beach and dune are lowered below a 4% level of performance and provides for restoration of a dune at +13 ft. NGVD and a 90 ft. berm.
- Reactive Breach Response – is a response plan which is triggered when a breach has physically occurred, e.g. the condition where there is an exchange of ocean and bay water during normal tidal conditions. It is utilized, as needed, in locations that receive beach and dune placement, and also in locations where there is agreement that a breach should be closed quickly, such as Robert Moses State Park and the Talisman Federal tract.
- Conditional Breach Response – is a response plan that applies to the large, Federally-owned tracts within Fire Island National Seashore where the Breach Closure Team determines whether the breach is closing naturally, and if found not to be closed at Day 60, that closure would begin on Day 60. Conditional Breach closure provides for a 90 ft. wide berm at elevation +9.5 ft. and no dune.
- Wilderness Conditional Breach Response – is a response plan that applies to the Wilderness Federally-owned tracts within Fire Island National Seashore, where the Breach Closure Team determines whether a breach should be closed, based upon whether the breach is closing naturally and whether the breach is likely to cause significant damage.

2.4. Beach and Dune Fill on Shorefront

- Provides for a 90 ft. wide berm and +15 ft. dune along the developed shorefront areas on Fire Island and Westhampton barrier islands.
- All dunes will be planted with dune grass except where noted in **Error! Reference source not found.**
- On Fire Island the post-Sandy optimized alignment is followed and includes overfill in the developed locations to minimize tapers into Federal tracts.
- Renourishment takes place approximately every 4 years for up to 30 years after project completion; while proactive breach response takes place from years 31 to 50.
- Provides for adaptive management to ensure the volume and placement configuration accomplishes the design objectives of offsetting long-term erosion.
- Provides for construction of a feeder beach every 4 years for up to 30 years at Montauk Beach.

2.5. Groin Modifications

- Provides for removal of the existing Ocean Beach groins.

2.6. Coastal Process Features (CPFs)

- Provides for 12 barrier island locations and two mainland locations (**Error! Reference source not found.**) as coastal process features
- Includes placement of approximately 4.2 M CY of sediment in accordance with the Policy Waiver for a Mutually Acceptable Plan between the Department of the Army and the Department of the Interior. Sediment will be placed along the barrier island bayside shoreline over the period of analysis that reestablishes the coastal processes consistent with the reformulation objective of no net loss of habitat or sediment. The placement of sediment along the bay shoreline will be conducted in conjunction with other nearby beach fill operations undertaken on the barrier island shorefront.
- The CPFs will compensate for reductions in cross-island transport and sediment input to the Bay, offset Endangered Species Act impacts from the placement of sediment along the barrier island shorefront, augment the resiliency and enhance the overall barrier island and natural system coastal processes.

2.7. Adaptive Management

- Provides for monitoring and the ability to adjust specific project features to improve effectiveness and achieve project objectives.
- Climate change will be accounted for with the monitoring of climate change parameters, identification of the effect of climate change on the project design and identification of adaptation measures that are necessary to accommodate climate changes as it relates to all the project elements.

2.8. Integration of Local Land Use Regulations and Management

- Upon project completion, the U.S. Army Corps of Engineer's Project's Annual Inspection of Completed Works (ICW) program provides for monitoring and reporting of any new development within the project area to the appropriate federal, state, and local entities responsible for enforcing applicable land use regulations.

3. PURPOSE AND SCOPE OF THE OMRR&R MANUAL

3.1. Purpose

The Project Partnership Agreement (PPA) to be executed between the US Government and New York State Department of Environmental Conservation (NYSDEC), requires an Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRR&R) Manual be provided to assist the non-Federal sponsor (State) in carrying out its obligations under the terms of the PPA. That manual will describe operations, maintenance, inspection and record keeping procedures required to maintain the intended purpose of the project necessary to ensure desired project performance. Those requirements generally stipulate the following:

3.2. Superintendent

The State shall appoint a superintendent who shall be directly in charge of an organization responsible for the efficient operation of all of the structures and facilities, for inspection and maintenance of the project works, and for administration, all without cost to the United States. The Superintendent will assure the State's compliance with its obligations for OMRR&R under the terms of the PPA for this project. The Superintendent shall have the administrative, maintenance and operational responsibilities which are outlined in the OMRR&R manual.

4. DEFINITIONS

For the purposes of this OMRR&R overview, some important terms are defined below:

- a. Maintenance, Repair, Replacement and Rehabilitation: For the purpose of this beachfill project, the terms maintenance, repair, replacement and rehabilitation are used interchangeably. These are defined collectively as (a) grading and reshaping the beach using sand beyond the project design section, this requires bringing sand from within the project area. If sufficient accreted material beyond the design section is not available within the project limits, beach nourishment should be initiated, which is cost-shared between the partners. (b) maintenance of any planted vegetation, sand fencing, and dune cross-overs, and (c) maintenance of groins and beach areas cited in Reference 1, Attachment E.
- b. Periodic nourishment is defined as: (i) Placement of additional sand fill to restore an advanced nourishment berm at scheduled intervals, or (ii) Placement of additional sand fill for the project, when required, to restore the design section. Periodic nourishment is considered continuing project construction and shall be cost-shared in accordance with the terms of the PCA and PCA Amendment.
- c. Advanced nourishment is defined as: periodic nourishment material placed at the time of initial construction.
- d. Renourishment is defined as periodic nourishment placed after initial construction has been completed.

- e. Project Life : The Design life for the Fire Island to Montauk Point Reformulation Study project is 50 years. Periodic renourishment would take place about every 4 years for a 30 year period after initial construction. For years 31 through 50, there would be proactive breach response in those reaches, which continues to provide some storm risk management, albeit less than what was provided by the periodic renourishment.
- f. Table of Tidal Datums: Tidal datums for the project area are listed below.

Table 1: Tidal Datum Relationships

Datum*	NAVD (ft)	NGVD (ft)	MLLW (ft)
Mean Higher High Water (MHHW)	1.3004	2.2454	3.0975
Mean High Water (MHW)	1.0482	1.9932	2.8452
North American Vertical Datum NAVD88	0.0000	0.945	1.7970
Mean Tide Level (MTL)	-0.3162	0.6288	1.4809
National Geodetic Vertical Datum NGVD29	-0.945	0.0000	0.8520
Mean Low Water (MLW)	-1.6806	-0.7356	0.1165
Mean Lower Low Water (MLLW)	-1.7970	-0.8520	0.0000

* computed using NOAA VDATUM ver. 3.2, at 1,552,000E, 322,000N (lat. 41.0324508N, long. 71.9419844W, eastern end of project site)

5. ELEMENTS OF THE PLAN AND THEIR FUNCTION

5.1. The specific elements of the plan will be further defined in the OMRR&R Manual, based upon the more detailed design in the PED phase.

6. MAINTENANCE AND OPERATION OF THE PROJECT

This section identifies the typical requirements for OMRR&R of the Project, which will be refined and finalized in the OMRR&R Manual.

6.1. Administrative Responsibilities

- a. In accordance with the terms of the PPA for this project, the State shall be responsible for maintaining public ownership of the publicly-owned shore and public use of the privately-owned shore which are the basis of the Federal participation in the project. This includes, but is not limited to, preventing trespass or encroachment by private interests by the placement onto these shores or seaward of the established baseline of any temporary or permanent structures,

except as specifically permitted by the District Engineer, U.S. Army Engineer District, New York (hereinafter referred to as the District Engineer) or authorized representative.

- b. Prohibiting any excavation of or construction on, over, under, or through the dunes (including the 25-ft buffer zone landward of the dune), berms or groins (Ref 1) without prior written approval of the District Engineer or his authorized representative.
- c. Prohibiting alterations in any feature of the project that may affect its functional performance unless prior written approval has been obtained from the District Engineer. If approved, the alterations shall be constructed in accordance with standard engineering practice. Advice regarding the effect of any proposed alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice may be obtained from the District Engineer or, if otherwise obtained, shall be submitted for approval. Drawings or prints showing such alterations as finally constructed shall be furnished to the District Engineer after completion of the work.
- d. Permitting the District Engineer, or authorized representative, to have access to the project at all times.
- e. The Superintendent shall assure that maintenance measures or repairs which the District Engineer deems necessary are promptly taken or made.
 - a. Any major repair, replacement, or rehabilitation design shall be approved by the District Engineer prior to execution, and inspected afterward for satisfactory accomplishment of the design.
 - b. The Superintendent shall maintain organized records of activities and costs covering maintenance, operation, inspection, repair and replacement of protective works. These records shall be available for inspection by the District Engineer or authorized representative. Copies shall be provided to the District Engineer or authorized representative upon written request.

6.2. Maintenance Responsibilities.

The Superintendent shall provide such maintenance as may be required to ensure serviceability of the dune, berm, and groins (Ref 1) in time of hurricane or other severe storms or events in which above normal tides may be generated. Maintenance and repair will be performed for the life of the Interim Project, beginning at project turnover under the terms of the PCA. Prompt action shall be taken to correct localized, excessive loss of dune or berm cross section, and dislocation of groin stone (Ref 1). However, it is acknowledged by all parties that the ultimate storm damage reduction capabilities of the

project depends upon periodic renourishment of the dune and berm to replace losses due to erosion. If, for any reason the renourishment is delayed, the Superintendent will be responsible only for maintaining the dune and berm cross-section in the most effective condition, but will not be responsible for replacing lost material from offsite sources. The Superintendent shall ensure that:

- a. The dune and berm shall be graded and reshaped to original cross section elevations to repair erosion caused by wind or wave action, or loss of elevation caused by human activities. This may include moving sand from areas of excessive accumulation to areas of depletion within practical limits of grading equipment. Maintenance activity shall commence when the berm elevation drops below +8.5 ft. NGVD for approximately 25% of the design berm width, for a continuous alongshore distance of 50 ft. Areas of the berm which accumulate material above approximately +10.5 ft. NGVD elevation, or which exceed the berm widths shown in Figures 4 to 6 and Reference 1, Attachment E by more than 15 ft. within the groin field and 15 ft. west of the groin field may be used as a sand source for eroded portions of the beach or dune. For the constructed dunes, maintenance activity shall commence when the dune top elevation drops below approximately +14.0 ft. NGVD for the +15.0 ft dune or +12.0 ft. NGVD for the +13.0 ft dune or when more than 5 ft. of the dune width is lost.
- b. In the event of scarping, the scarp shall be flattened at controlled vehicle access points to allow safe passage to the beach.
- c. Measures shall be taken to prevent sand from blowing off the dune or berm onto nearby streets and into adjacent properties. Sand fences shall be kept in an upright position and in serviceable condition. Sand fence and/or vegetation used to catch blowing sand shall be preserved and replaced where needed.
- d. To prevent trespassing or encroachment of the dunes, signs indicating to keep off the dunes should be placed at intervals along the dune bases. Fencing should be used where necessary.
- e. Hazardous conditions or debris shall be eliminated where possible. Abrupt variations in berm grade shall be smoothed out and the beach berm and foreshore shall be kept free of trash and hazardous debris during periods of recreational use. Hazardous conditions which cannot be eliminated shall be clearly marked and isolated from public access to the extent practicable.
- f. Walkways over the dune shall be maintained and kept in a good state of repair.
- g. Vehicle access shall be restricted to authorized accessways. The authorized vehicular access ramps shall be maintained in operable condition.

- h. Causes of seepage, saturated areas, piping, or scour which endanger the stability or functioning of project elements are to be remedied.
- i. The maintenance of all groins shall meet requirements shown in Reference 1, Attachment E, Sec 16i.

6.3. Operational Responsibilities

- a. Inspections. Conduct periodic inspections of the project to ensure that:
 - Regular profile data is obtained.
 - No drains discharge onto the beach.
 - The beach is being kept free of trash and hazardous debris.
 - The dune vegetation is not being damaged by such actions or events as burning, mowing, disease, drought, etc.
 - There is no unauthorized vehicular traffic on the dunes or the beach, and no unauthorized pedestrian traffic on the dunes.
 - There is no excavation or construction on, over, under, or through the beach, dunes, (incl. 25' landward right-of-way) or the groins except as specifically permitted by the District Engineer or his authorized representative.
 - Any unusual conditions of the dune or beach fill such as scarping, steep slopes, excessive erosion, etc. are identified.
 - Walkways over the dunes are exclusively for pedestrian use.
 - The 25 foot right of way landward of the constructed dune cross-section is maintained clear of obstructions.
 - Any change in the condition of the groins is identified, noting any settlement, rock displacement, basis for subsequent repair.
 - Maintenance recommendations to remedy any problems are to be made and used as a basis for implementation.
 - All access ways to the beach are to be maintained in proper operational condition.
 - Access to structures on the beach whether temporary or permanent shall be maintained in a safe condition. Maintenance of access shall not compromise the design section.

7. FEDERAL MONITORING.

7.1. Coastal Monitoring

The Corps of Engineers will monitor the project area for the duration of the project life. Coastal processes monitoring will be performed in order to measure erosion, accretion, and movement of the placed beachfill. The performance of the groins will also be observed.

7.2. Environmental Monitoring

The Corps of Engineers will periodically survey the project area to determine the impacts, if any, to shorebirds, vegetation or sea life (specifically the piping plover and seabeach amaranth). A description of the environmental monitoring program is provided in Appendix B.

7.3. Initiation of Renourishment

The determination of when the project should be renourished shall be made by the District Engineer in conjunction with New York State Department of Environmental Conservation (NYSDEC).

7.4. Post-Storm Fill Placement

In the event of significant storm erosion losses, if the beach fails to naturally build back to the design cross section within 14 days after the passage of a storm, and sufficient accreted material beyond the design section (figures 4 to 6) is not available within the project limits, beach renourishment action should be initiated. The Superintendent shall contact the District in order to inform the District Engineer that storm damage is beyond the scope of OMRR&R, and to request initiation of the renourishment process. The Superintendent shall indicate areas where significant erosion has taken place.

7.5. OMRR&R During Renourishment Operations

OMRR&R requirements continue during renourishment operations, with the addition of activities needed for safe operation of recreational activities during construction. Additionally, close communication between the contractor, non-Federal sponsor, local personnel and the District office is required.

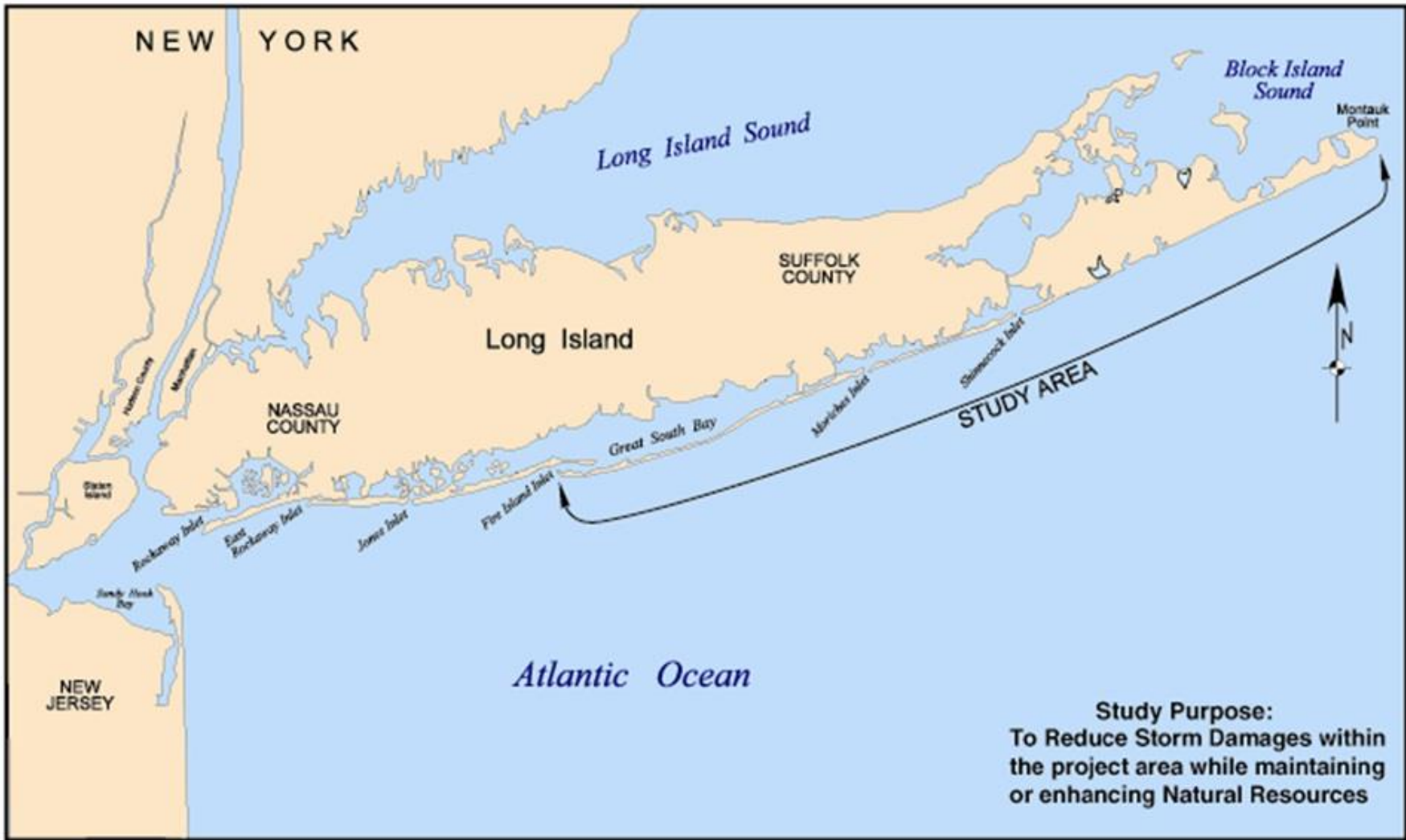


Figure 1: Overall Project Area

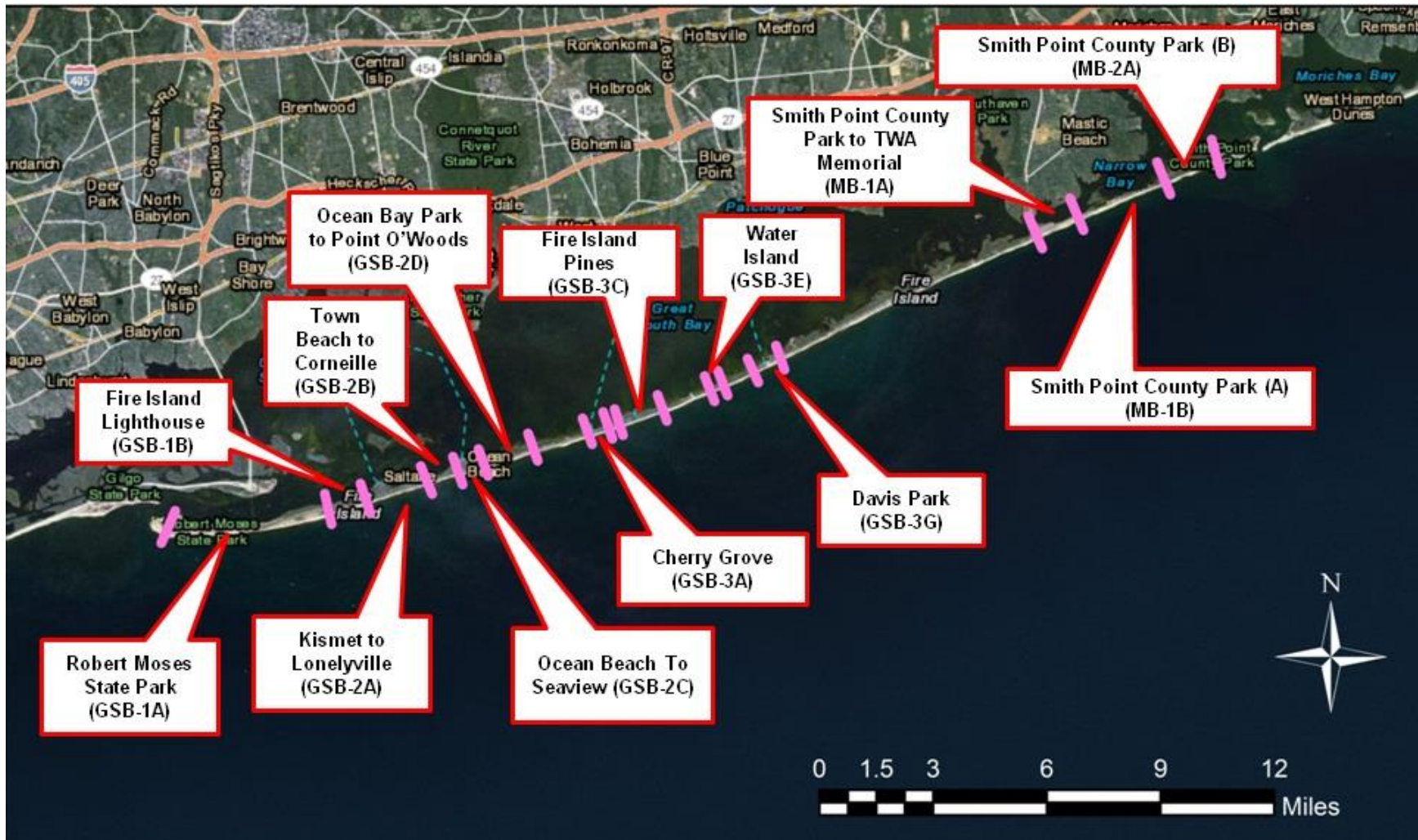


Figure 2: Fire Island Initial Placement Locations

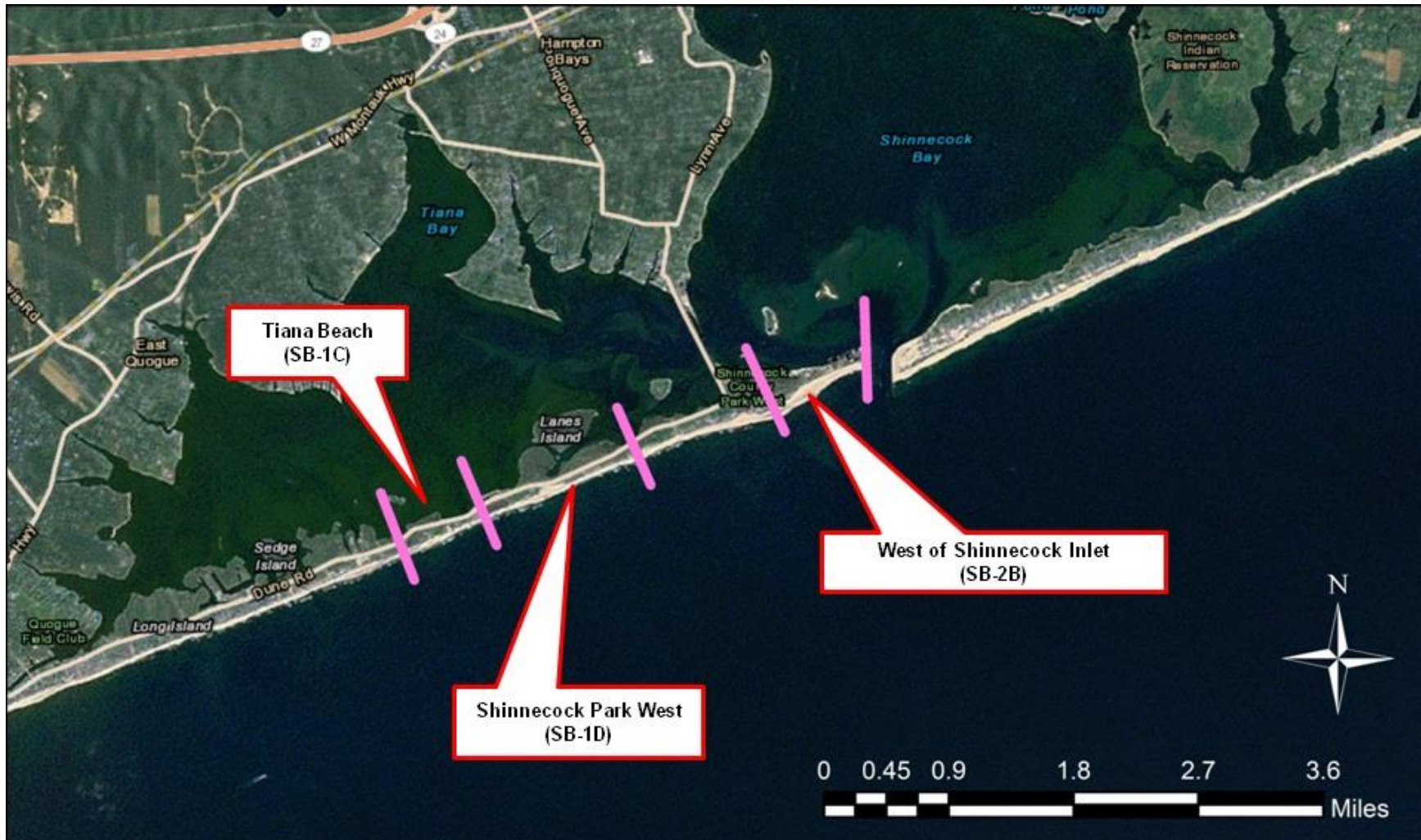


Figure 3: Shinnecock Initial Placement Locations

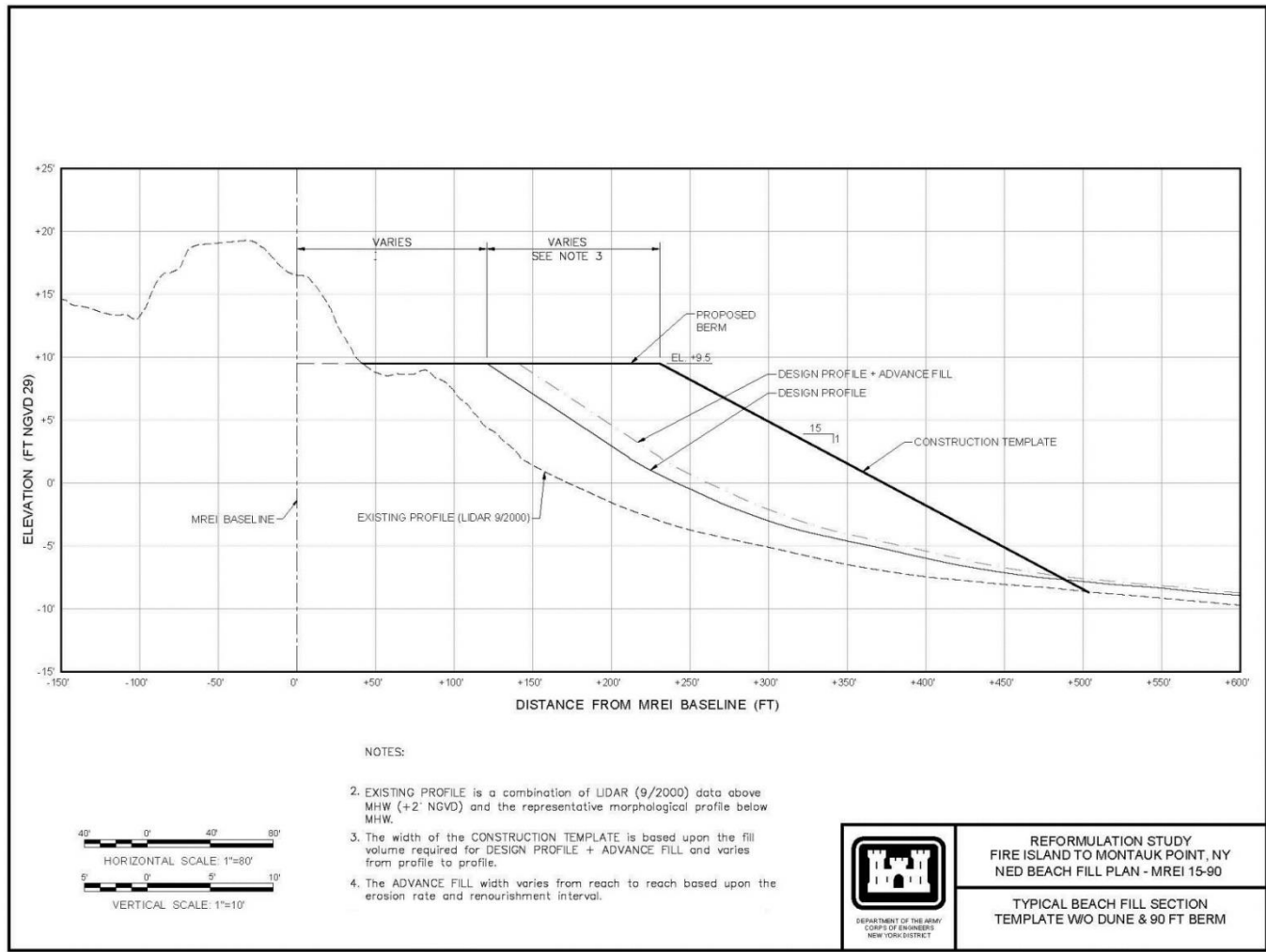


Figure 4: No dune design

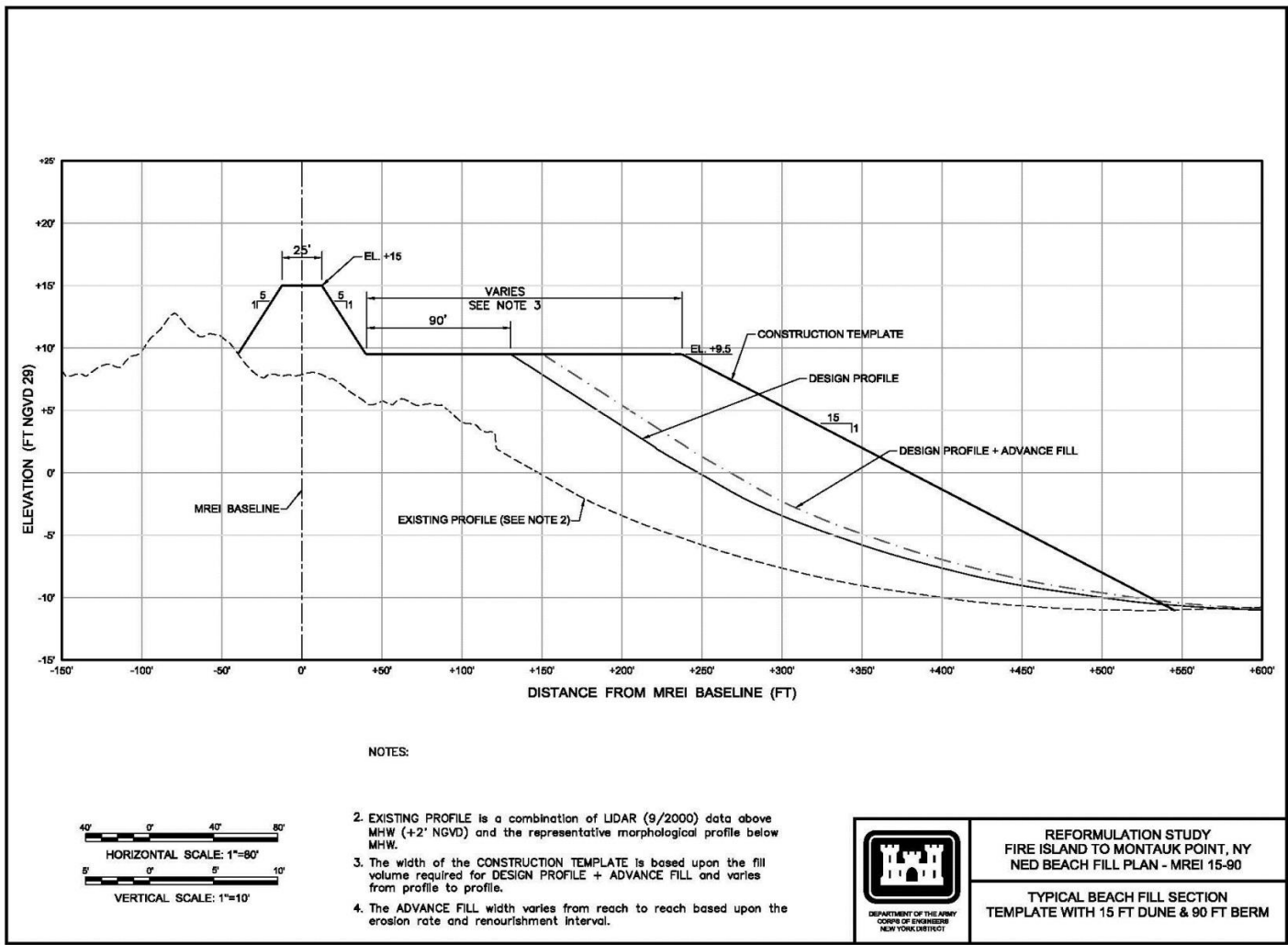


Figure 5: +15-foot dune design profile

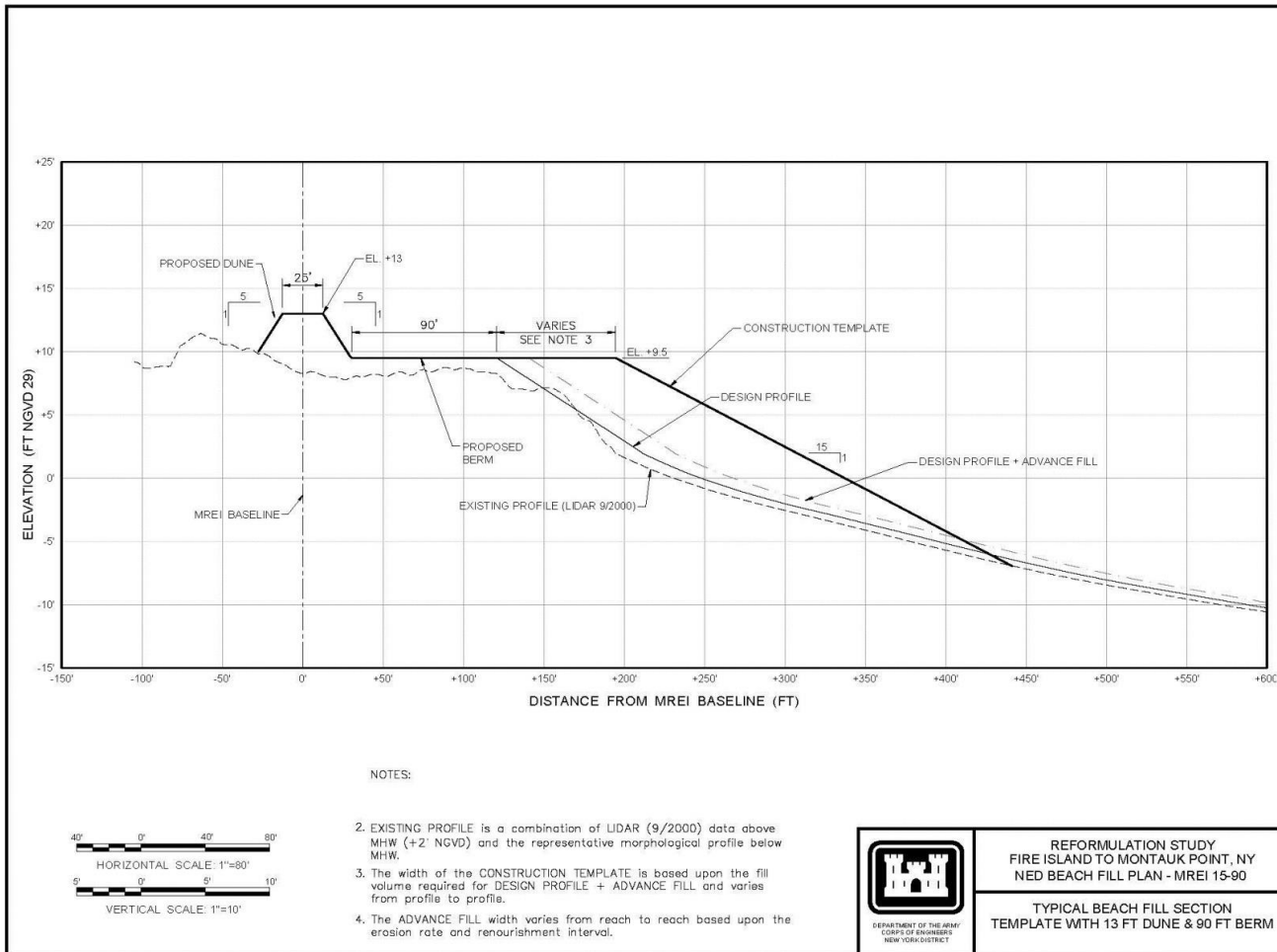


Figure 6: +13-foot dune design profile