

Atlantic Coast of Long Island, Jones Inlet to East Rockaway Inlet, Long Beach Island, NY Construction Update

June 2016



®



Department of
Environmental
Conservation

US Army Corps of Engineers
BUILDING STRONG®



Project Purpose

Three specific damage mechanisms of coastal storms were considered

Inundation



Erosion



Waves



The recommended project will manage risk against inundation, erosion and waves, reducing the potential for storm induced damages along the Atlantic Ocean coastline.

- Federal coastal storm risk management projects are typically formulated and designed to maximize net benefits, optimizing at more frequent events, i.e. 50-100 yr storms.
- The level of coastal storm risk management provided by the recommended project is equivalent to a 100-yr storm, or a storm that has a 1% chance of occurring in any given year.
- Hurricane Sandy was approximately a 180-yr storm. The recommended project would have been overtopped, but would have reduced the damages experienced.
- The project will not address coastal storm risks from the bayside of the Island.
- The project would work as part of a larger coastal storm risk management system if risk management measures are implemented along the bayside in the future.



Plan Components

Length of Beachfill

35,000 linear feet (LF), extends from east end of Point Lookout to west boundary of the City of Long Beach at Nevada Avenue, with an incidental taper into East Atlantic Beach

Point Lookout & Lido Beach (east of Nickerson)

- 110 ft berm from seaward toe of dune; elevation +9 ft NAVD88
- 1V:20H slope to existing bathymetry
- Dune with crest width of 25 ft; top elevation +14 ft NAVD88 with 1V:5H landward and seaward slopes

City of Long Beach & Lido Beach (west of Nickerson)

- 190 ft stepped berm from seaward toe of dune
 - 40 ft flat berm; elevation +9 ft NAVD88
 - 20 ft berm at 1V:10H slope to +7 ft NAVD88
 - 130 ft flat berm; elevation +7 ft NAVD88
 - 1V:30H slope to existing bathymetry
- Dune with crest width of 25 ft; top elevation +14 ft NAVD88 with 1V:5H landward and seaward slopes (1V:3H landward slope fronting the boardwalk in Long Beach)
- 10 foot buffer in front of boardwalk before dune slope

Nassau County (Nickerson Beach)

- ~5,000 LF, existing berm provides equivalent coastal storm risk management
- Berm area undisturbed to allow for bird nesting and foraging
- Dune with crest width of 25 ft; top elevation +14 ft NAVD88 with 1V:5H landward and seaward slopes
- Incorporates existing dunes into construction of HSLRR Plan

Beachfill, Dune Grass, and Sand Fence Quantities

- initial fill placement: 4,720,000 cy
- renourishment:
 - 1,770,000 cy fill
 - 5-yr intervals for 50-yr period of analysis
- planting dune grass: 34 acres
- sand fence: 75,000 LF

Offshore borrow area

- Contains ~36 million cy of beachfill
- located ~one mile offshore of the barrier island of Long Beach

Groins

- Existing groins
 - 17 total rehabilitation
 - rehabilitation/100 ft extension of Point Lookout terminal groin
- Newly constructed groins
 - 4 total at eastern end of island
 - 250,000 tons of stone

Access for Pedestrians and Vehicles (Dune Crossovers)

- City of Long Beach: 31 total
- Town of Hempstead: 20 total
- Nassau County: 6 total



Project Layout



US Army Corps
of Engineers
New York District



Department of
Environmental
Conservation



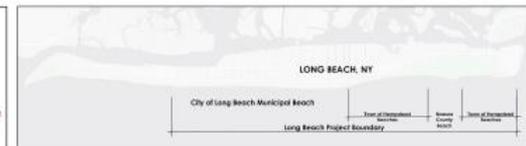
Atlantic Coast of Long Island, Jones Inlet to East Rocaway Inlet,
Long Beach Island, New York Coastal Storm Risk Management Project

Scale: NTS



Legend

	Crossovers		Historical Shorebird Nesting Area		Slope 1V:30H
	Groins-New		Dune		Slope 1V:20H
	Groins-Existing-Rehab		Ephemeral Ponds		Beach Berm with Step
	Groins-Existing-NoRehab		Beach Berm Without Step		Sand placed below elevation 0 NAVD will be submerged



Bird Nesting and Foraging Area Incorporated into Project Design



Legend

	Crossovers		Post-Hurricane Sandy Ephemeral Ponds		Slope 1V:30H
	Groins-New		Ephemeral Ponding Area		Slope 1V:20H
	Groins-Existing-Rehab		Historical Shorebird Nesting Area		
	Groins-Existing-NoRehab		Beach Berm with Step		
	Dune		Beach Berm Without Step		

Note: Bird nesting area location is approximate and will continue to be coordinated with resource agencies. HSLRR incorporates the existing dune into the construction of project dune. The area shown in blue is the location where the existing berm height and width are sufficient and no beachfill is needed.

Sand placed below elevation 0 NAVD will be submerged



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Construction Implementation

**Significant 100% Federal Investment in your Community:
Estimated total of \$230M**

Contract #1: Awarded Mar 2016 to H&L Construction (\$38M)

- For all groin construction
- Two year duration
- Reach 1: Point Lookout to Lido Beach
- Reach 2: Long Beach
- 250,000 tons of stone from NJ

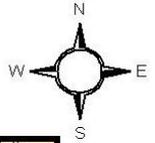
Contract #2: To be awarded by November 2017

- All beach fill work-4.7M cubic yards
- dune crossings
- planted vegetation
- Estimated two year duration

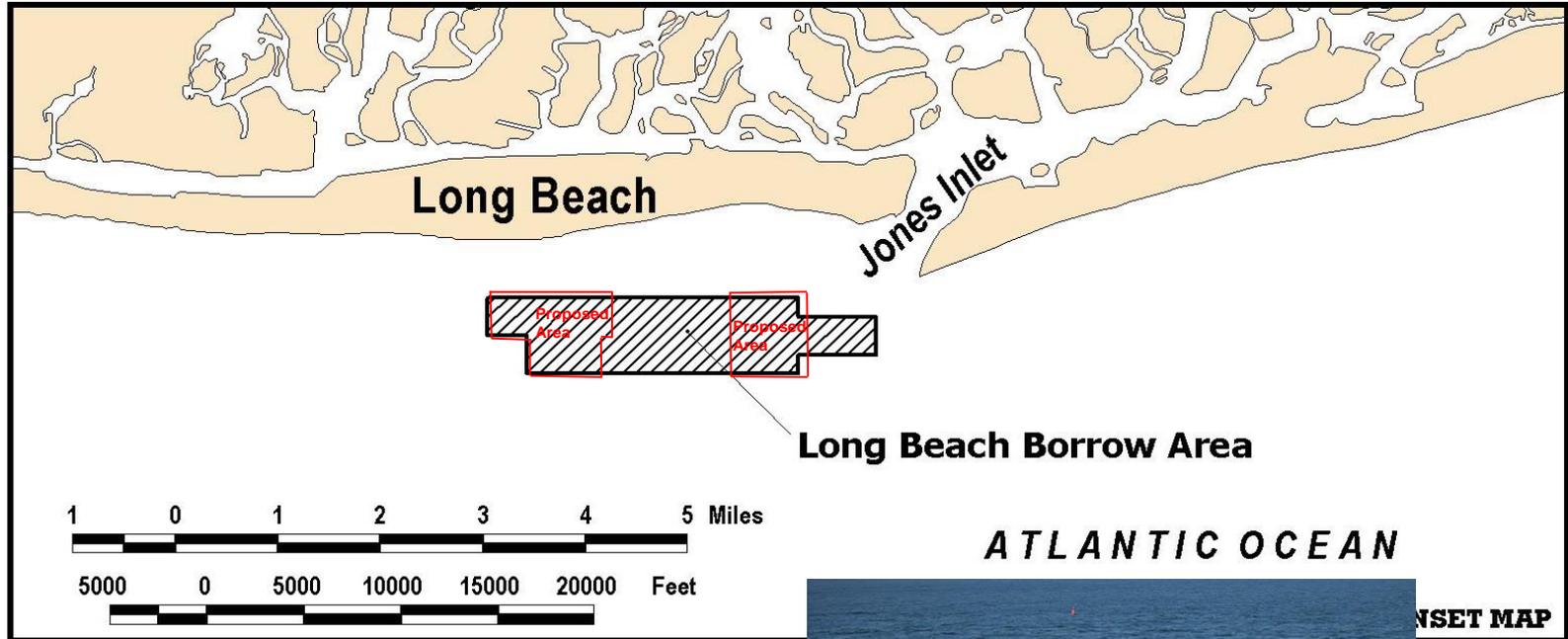




Where Will the Sand Come From?



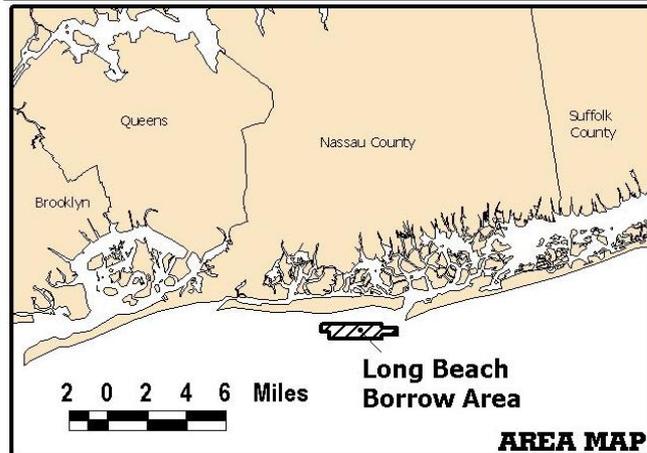
Long Beach Borrow Area



Long Beach Borrow Area

ATLANTIC OCEAN

INSET MAP



AREA MAP



Consideration of Environmental Impacts

Impacts Considered: Benthic Communities, Fisheries, Shorebirds, Water Quality, Air Quality and Noise, Cultural Resources, Aesthetics, Surfing, Fishing, Beach Usage, Boardwalk Usage

Impacts Avoided or Minimized

Benthic:
Short term, recovery expected within 2-6.5 months nearshore and 1.5 to 2.5 years offshore following construction

Fisheries:
No long-term impacts expected, will generally avoid construction area

Shorebirds/Endangered Species:
No construction during breeding season
Avoidance and enhancement of existing foraging/nesting habitats

Water Quality:
Short term turbidity (including impacts to dissolved oxygen), ends as soon as each element is constructed

Air Quality and Noise:
Temporary impacts, during 24-7 construction only

Cultural Resources:
Coordinated with New York State Historic Preservation Office
– No Significant Impact

Aesthetics:
New sand similar to the existing beach and rehabilitated groins

Unavoidable, Minimal & Temporary Recreational Impacts

Beach Access:
Access no longer available from under boardwalk. Access will occur off boardwalk via walkovers over the dune

Aesthetics:
Potential impacts to view of beach from boardwalk

Surfing and Fishing:
Will be temporary and will dissipate as the beach returns to equilibrium

Beach Usage:
Impacts end as construction moves along beach

Boardwalk Usage:
Impacts end as construction moves along boardwalk

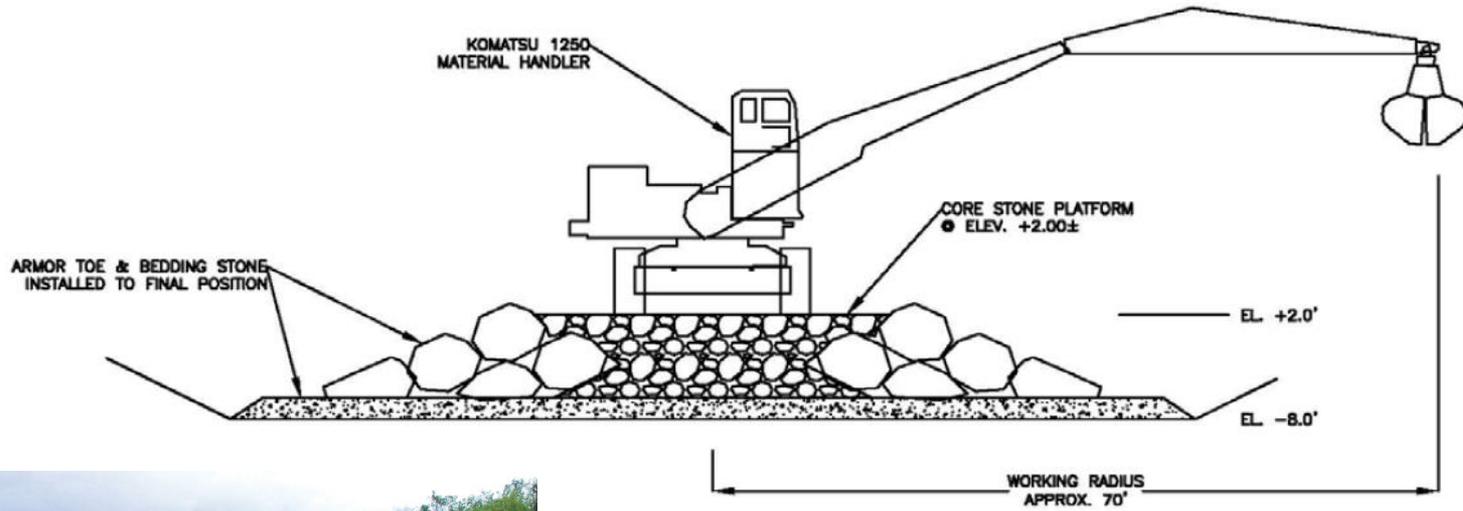


Contract 1 Construction Methods

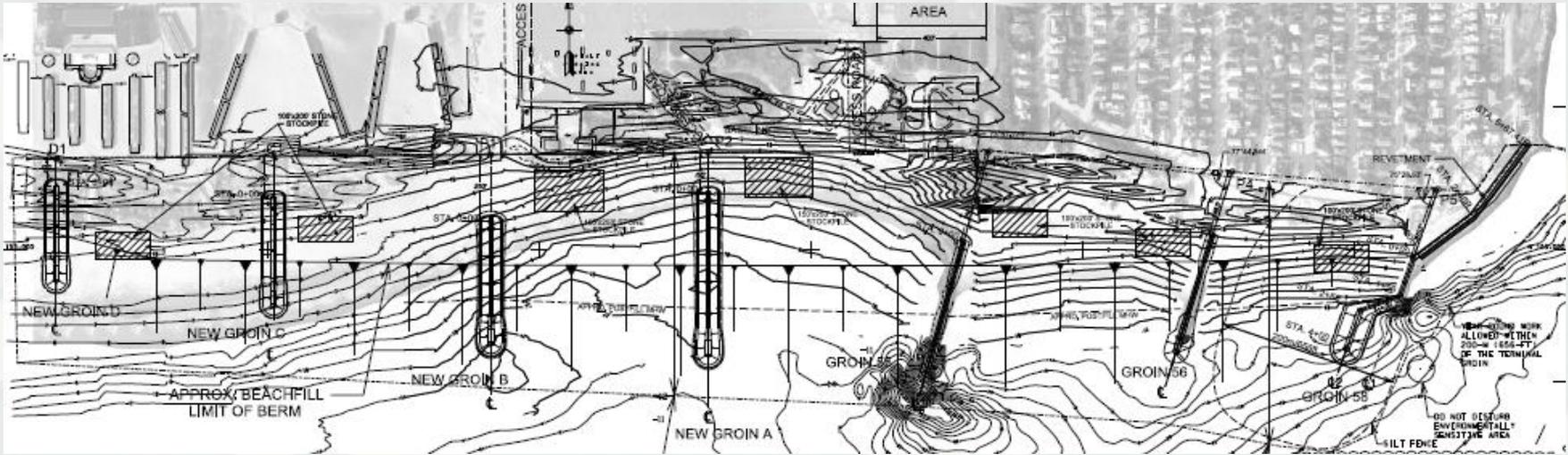
- **Work hours: Monday through Friday 7:00AM-3:30PM**
- **Major aspect will be stone delivery by truck**
 - **Two trips by 20 trucks per day from quarry in NJ**
 - **One morning delivery, one afternoon**
 - **All trucks will use Atlantic Beach Bridge**
 - **Deliveries start in July for Reach 1**
 - **Reach 2 stone work will start after August 2017**
- **This summer, only one crew, but by September two crews**
 - **1 Komatsu 1250 Material Handler**
 - **2 Komatsu HM400 Off-road Haulers**
 - **1 Komatsu Payloader**



One Crew



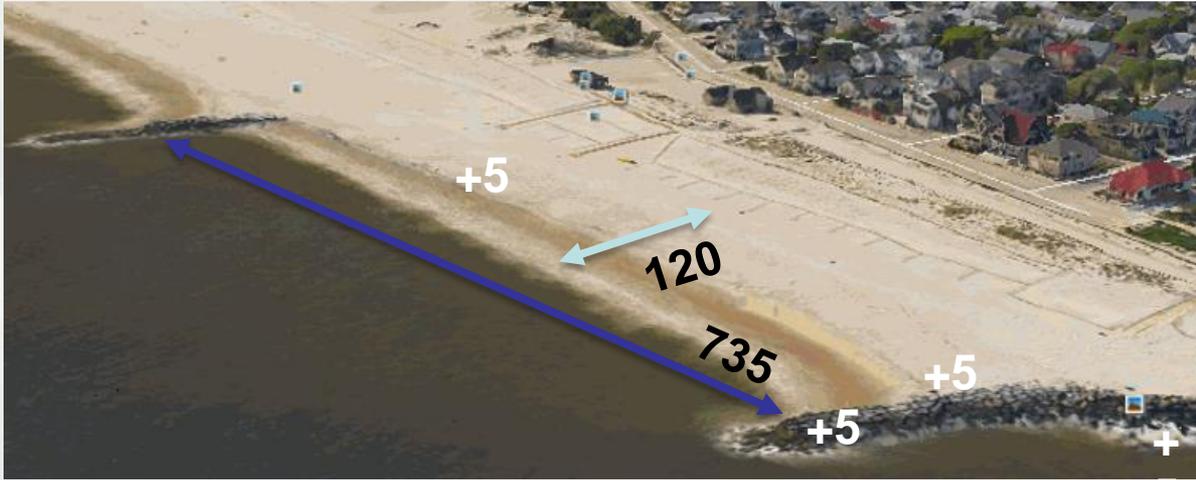
Point Lookout Reach 1: Construction Schedule-Stone Contract



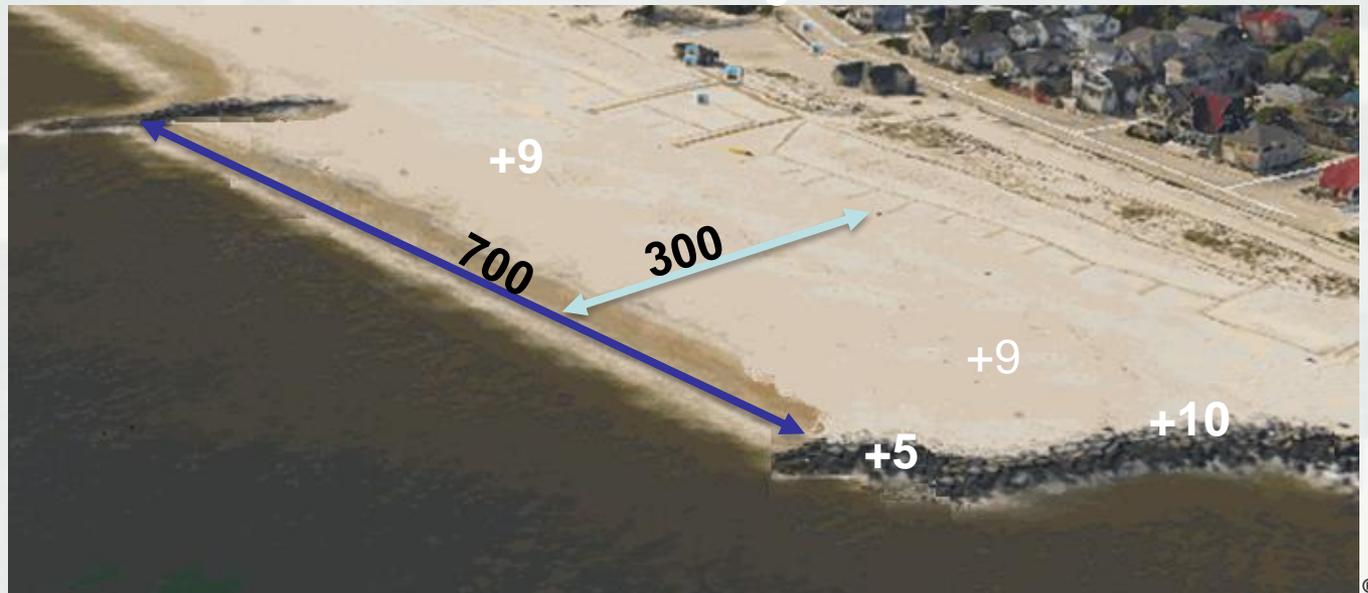
New Groin D	New Groin C	New Groin B	New Groin A	Groin 55	Groin 56	Groin 58 & Concrete Retvment
Nov 16-Dec 17*	Sep 16-Dec 17*	Nov 16-Dec 17*	Sep 16-Dec 17*	Dec 17-Mar 18	Dec 17-Mar 18	Jul 16-Nov 16

* No work in Reach 1 between April 2017 and Sept 2017





GROIN 58 PRE
AND POST
CONSTRUCTION
RENDERING



CONTRACT OCEAN VIEW AT MEAN HIGH WATER



Possible Access Routes



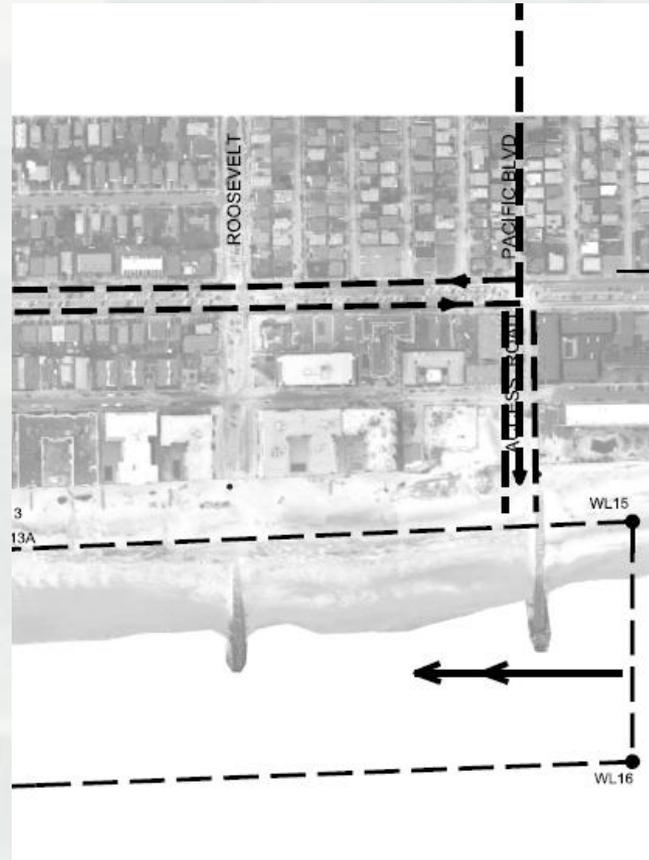
Long Beach Reach 2: Construction Schedule-Stone Contract

Groin #	Street Name	Start	Finish	Crew	Notes
25	Georgia Ave	Apr 17		A	<i>only two groins under construction at one time</i>
27	Tennessee Ave			B	
29	Arizona Ave			A	
30	New York Ave			B	
32	Grand Blvd			A	
34	Washington Blvd			B	
35	Lafayette Blvd			A	
36	Laurelton Blvd		Sep 17	B	
38	National Blvd	Jan 18		A	
39	Edwards Blvd			B	
40	Riverside Blvd		May 18	A	
42	Monroe Blvd	Apr 18		B	
43	Lincoln Blvd			A	
44	Franklin Blvd			B	
47	Roosevelt Blvd		July 18	A	

This work will be year round, two different groin areas will be closed for access at all times



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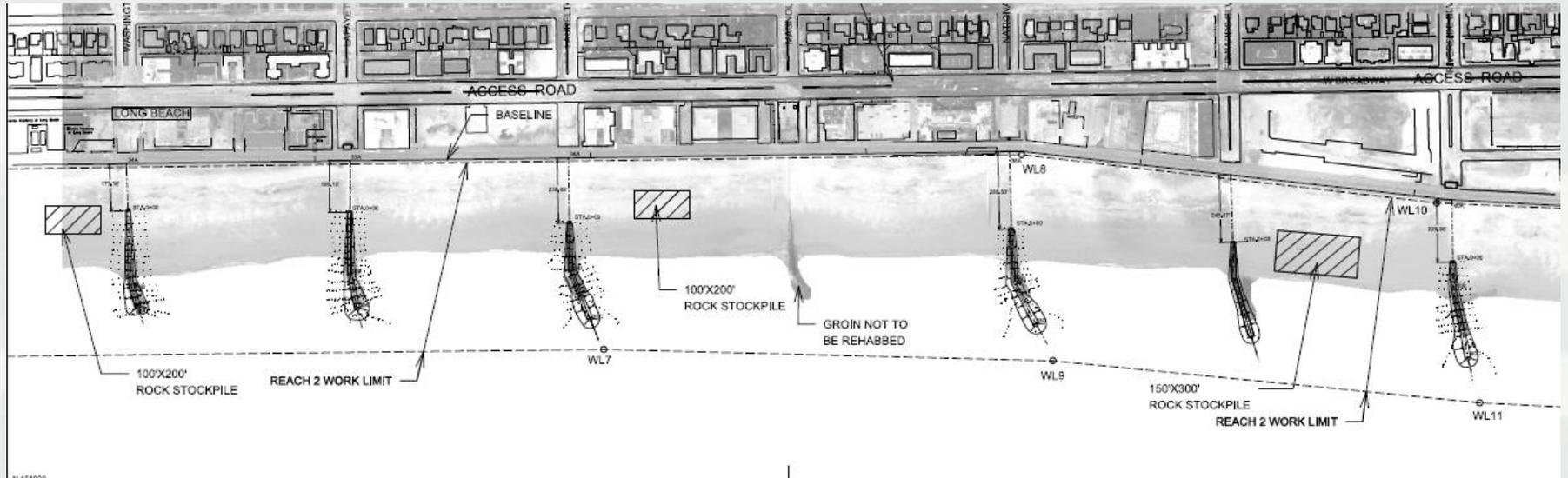
TRANSFER OF MATERIAL & EQUIPMENT ALONG THE BEACH TO BE COORDINATED WITH THE CITY OF LONG BEACH. PUBLIC PASSAGE MUST BE MAINTAINED ALONG SHORE LANDWARD OF GROIN REHAB DESIGNATED WORK SECTIONS.

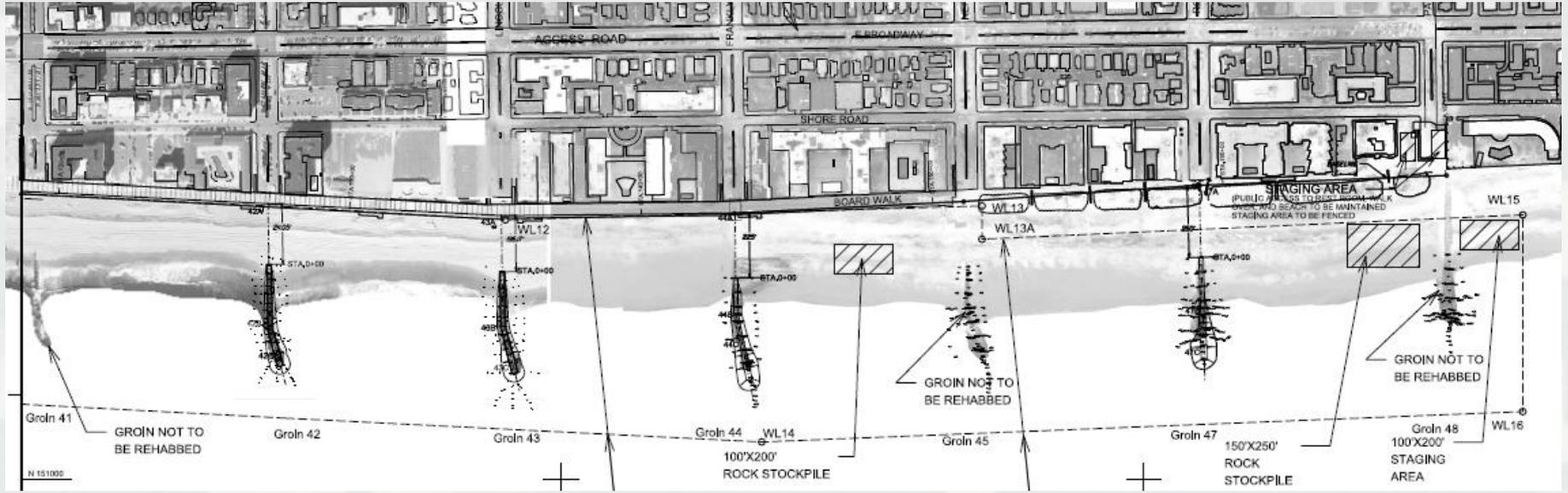


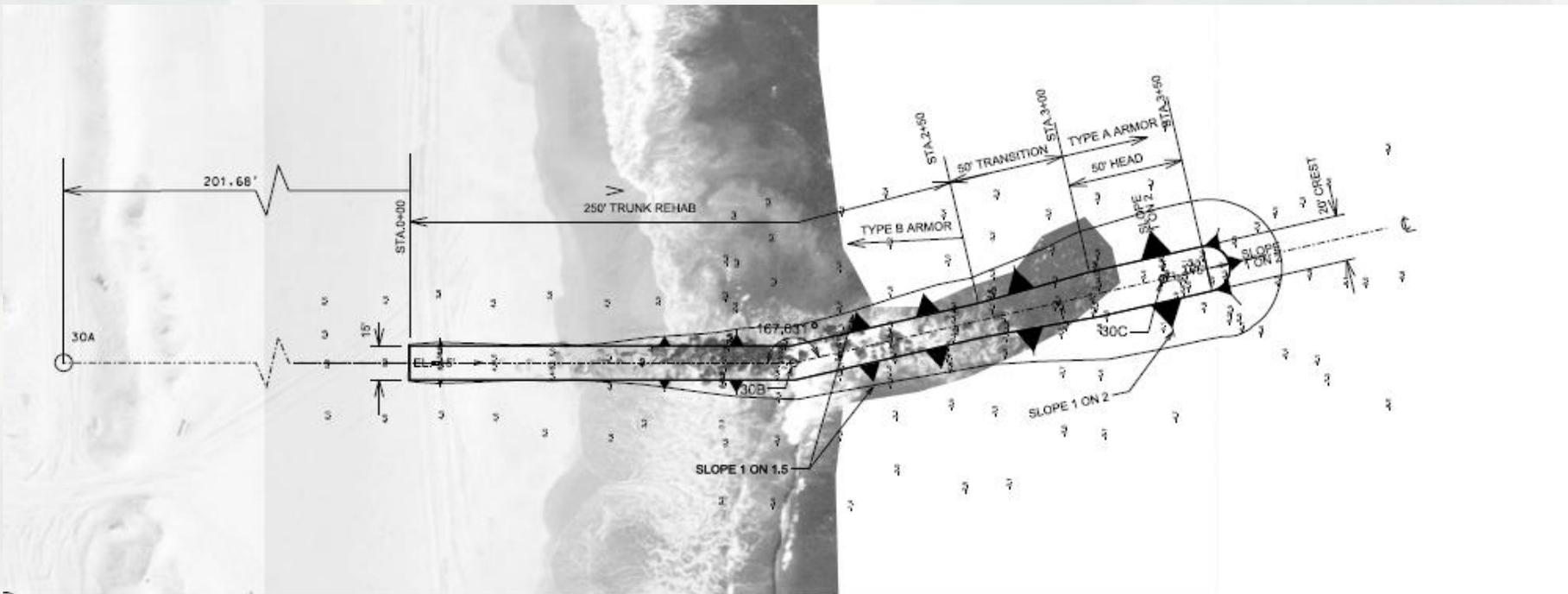
Long Beach Reach 2: Construction

- This work will be year round
- Two different groin areas will be closed for access during construction
- Each groin rehabilitation will take around one month of work depending on condition and size

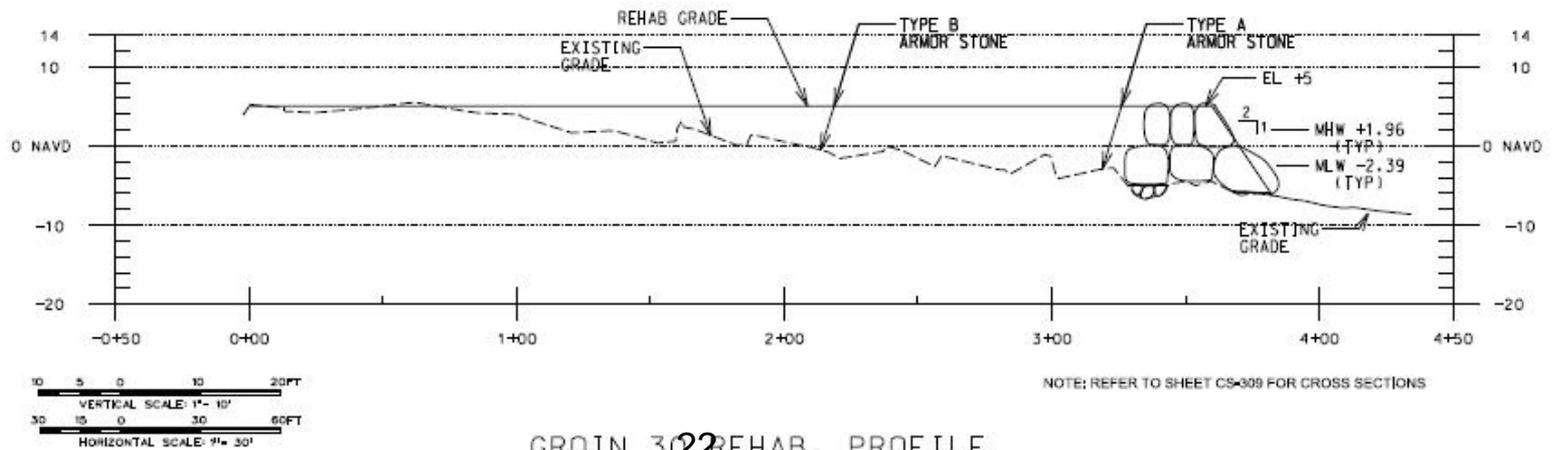








GROIN 30 REHAB. PLAN



GROIN 30 REHAB. PROFILE

For More Information, Contact:

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Programs & Project Management Division
New York District**

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Problem Identification

Physical Setting:

- Continuous strip of a low-lying flat land mass
- Existing low beach berms with intermittent dunes provide minimal barrier to reduce overtopping and inundation

Storms have caused:

- Reduction in beach height/width
- Accelerated deterioration of constructed stone groins
- Most severe erosion at the eastern end
- Decreased risk management capability of the beach
- Increased storm damage vulnerability of communities

Deterioration of existing coastal storm risk management structures:

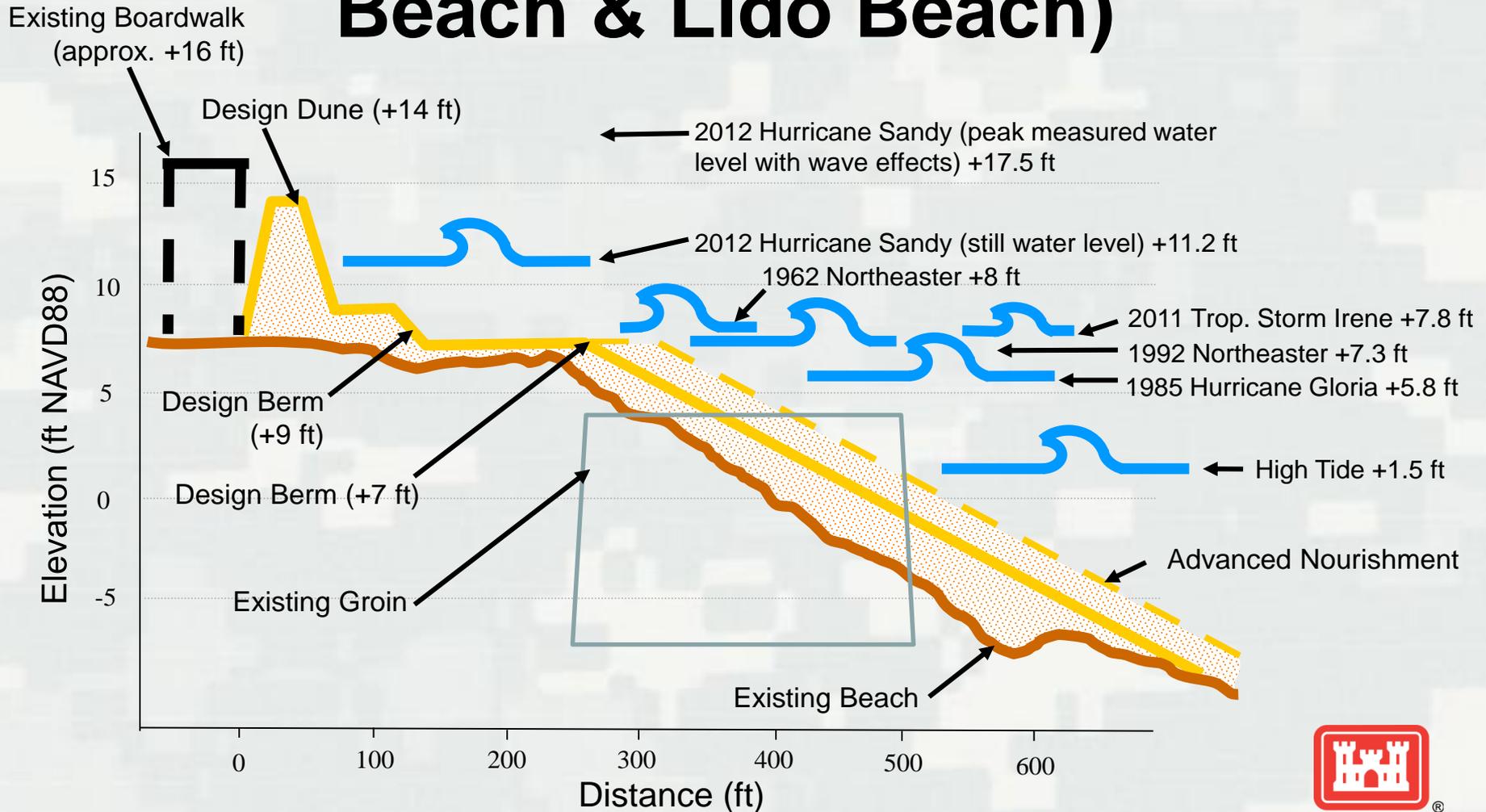
- Groins severely battered by storms
- No repair/maintenance since 1950's (initial construction date)

Hurricane Sandy Effects:

- Dune and beach erosion
- ~294,000 cy of sand lost from beach
- Overwash
- Long Beach Island subjected to wave attack and inundated by storm surge
- Flooding caused by storm surge from both ocean and bay to the point where the two water bodies met
- Extensive damage from inundation to residential and commercial structures

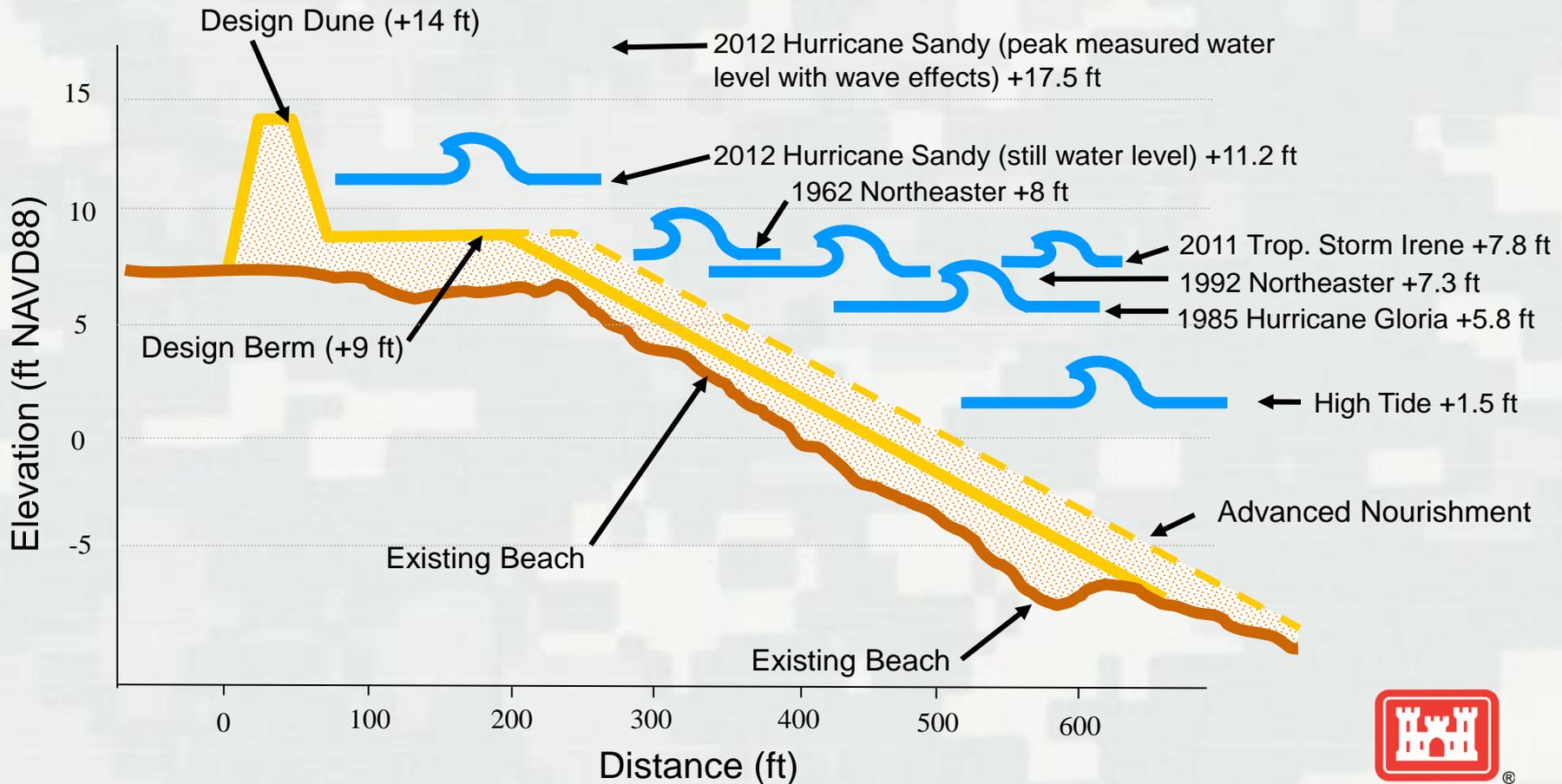


Historical Storm Water Levels with Stepped Fill Cross-Section (Long Beach & Lido Beach)



Note: Wave heights not drawn to scale. Hurricane Sandy water levels are average of USGS gage readings.

Historical Storm Water Levels Compared with Fill Cross-Section (Town of Hempstead & Nassau Co.)



Note: Wave heights not drawn to scale. Hurricane Sandy water levels are average of USGS gage readings.