



Seaside Park Bayfront Restoration Project



Zack Royle
Habitat Restoration Coordinator

Capt. Al Modjeski
Habitat Restoration Program Director
American Littoral Society



www.littoralsociety.org



Living Shorelines - A Definition

- A living shoreline is a method of land stabilization that protects the shoreline from erosion while also preserving, enhancing, or creating habitat.
- Maintain the connectivity between land and water
- Employ natural or biodegradable materials such as stone, sand, oyster shells, or coconut fiber (coir) logs that are used in conjunction with the planting of native species.



A Brief History of Living Shorelines

- The modern living shoreline concept was developed in the mid-1970s by Dr. Edgar Garbisch Jr.
- His design (Marsh Sill) became the template for further nature based erosion control projects in the Chesapeake Bay
- In the years since, the living shoreline concept has expanded
 - Different regions
 - Multiple techniques



Examples – Marsh Sill

Before



15 Years After Treatment



Chesapeake Bay, Virginia

Examples – Nature-Based Living Shoreline Using Coir Logs



Examples – Living Reef Breakwater



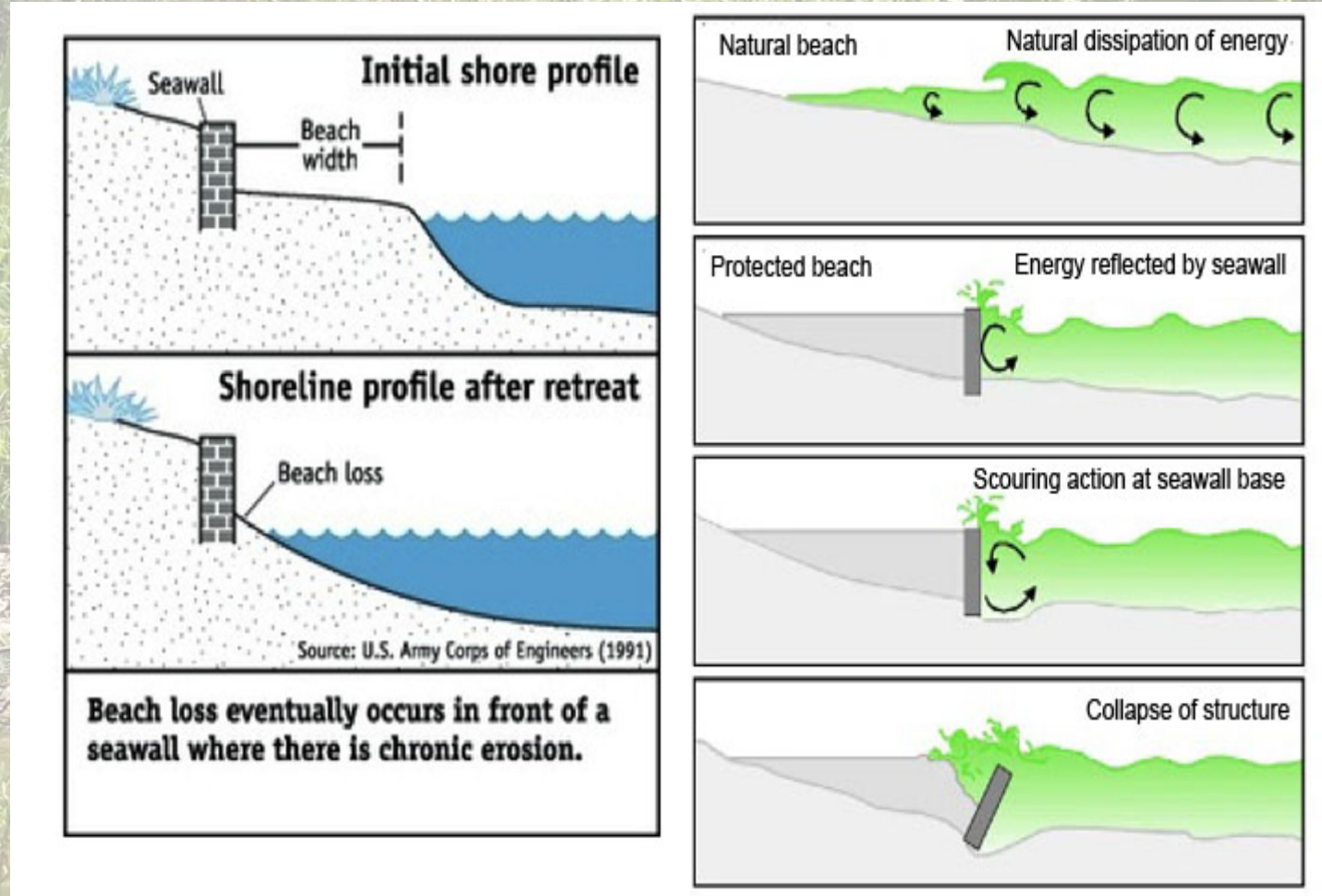
Why Do We Need Living Shorelines?

- Living Shorelines are an alternative to dealing with shoreline erosion as opposed to traditional “hard” structure



Disadvantages of “Hard” Structures

- Redirect energy
 - Increased erosion in front of structure
 - Erosion to adjacent structures (at both ends)
- Loss of intertidal habitat
 - Critical habitat for fish, invertebrates, ect.
 - Highly productive



Advantages of Living Shorelines

Not Just Shoreline Stabilization and Erosion Control

- Habitat creation/enhancement
 - Increased abundance of juvenile fish, crabs, and waterfowl
 - Improved water quality - filtration of storm water runoff
 - Aesthetics
 - Recreation
-
- Require maintenance



Delaware Bay Living Shoreline Projects

- 3.24 Miles of Beach Restored (74.5 acres)
- 2,051 Tons of Rubble Removed
- 211,000 Cubic Yards of Sand Trucked and Placed
- 8 Intertidal Oyster Reefs (3,210 lf)
- Delaware Bay Sediment Transport Analysis Tool (D.B.S.T.A.T.)
- 21,500 horseshoe crabs tagged
- Regional 10-year permit
- Non-Federal Match - \$560K to date
- Federal Match - \$1.85M



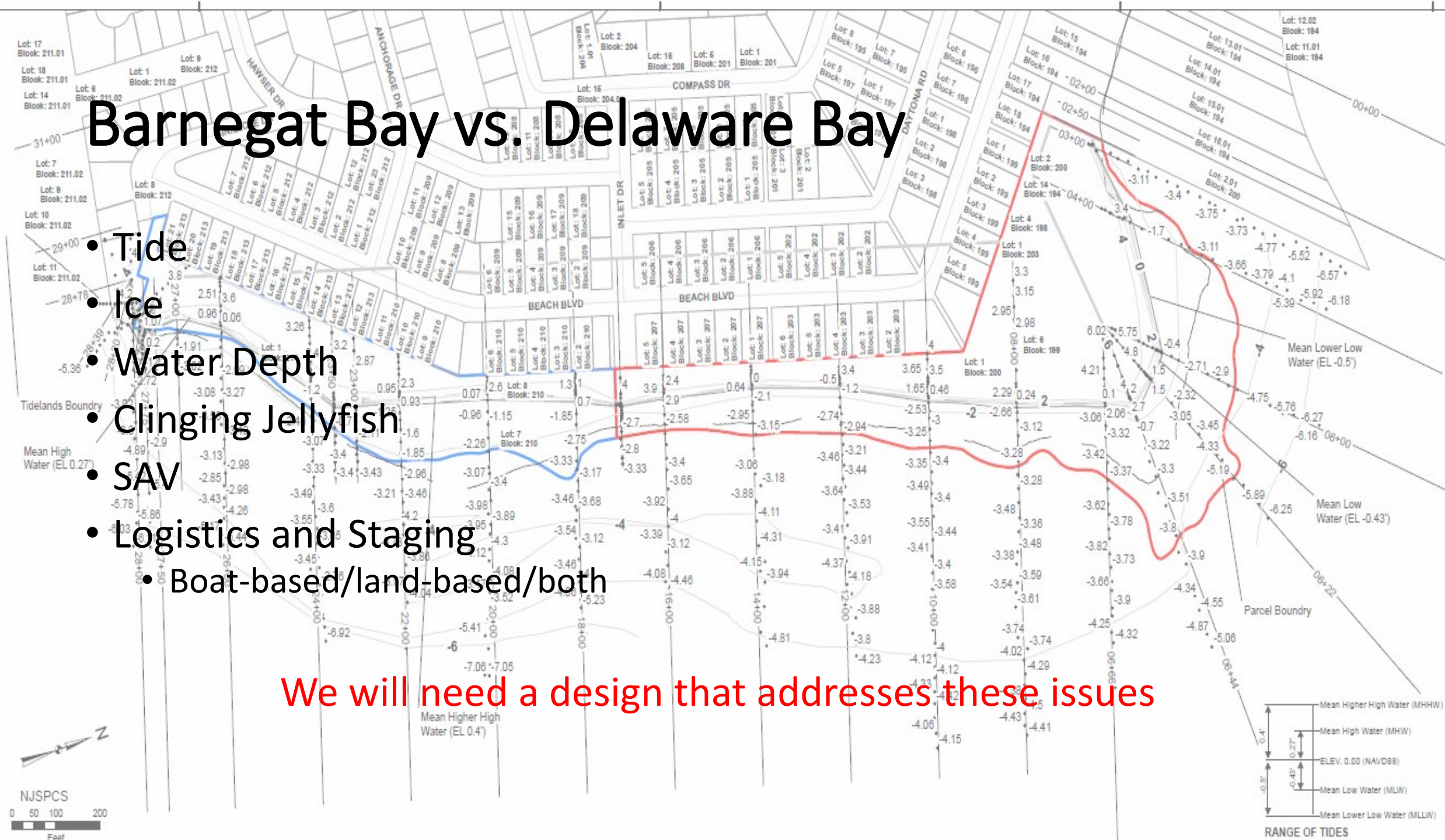


<https://www.youtube.com/watch?v=fNOXuUUctho>

A map of a coastal area with various features overlaid. A blue line representing a water body or channel runs diagonally from the top left towards the bottom right. The map shows numerous land parcels, each labeled with a lot number (e.g., Lot 1, Lot 2, Lot 3) and a block number (e.g., Block 209, Block 210). A street named "BEACH BLVD" is visible at the top right. Water depth values are indicated by numbers along the blue line and in other areas, ranging from -3.68 to 2.51. The background is a light gray grid. Overlaid on the map is a bulleted list of factors.

- Tide
- Ice
- Water Depth
- Clinging Jellyfish
- SAV
- Logistics and Staging
 - Boat-based/land-based/both

We will need a design that addresses these issues





Living Shoreline and Oyster Reef Restoration to Improve Water Quality and Resiliency along Forked River Beach, Lacey Township

Building and Applying Past Successes in Delaware Bay to Better Barnegat Bay



Capt. Alek Modjeski

Habitat Restoration Program Director

American Littoral Society

alek@littoralsociety.org



May 2021

www.littoralsociety.org
www.RestoreNJBayshore.org
www.WreckPond.org

Nor'easter 2018

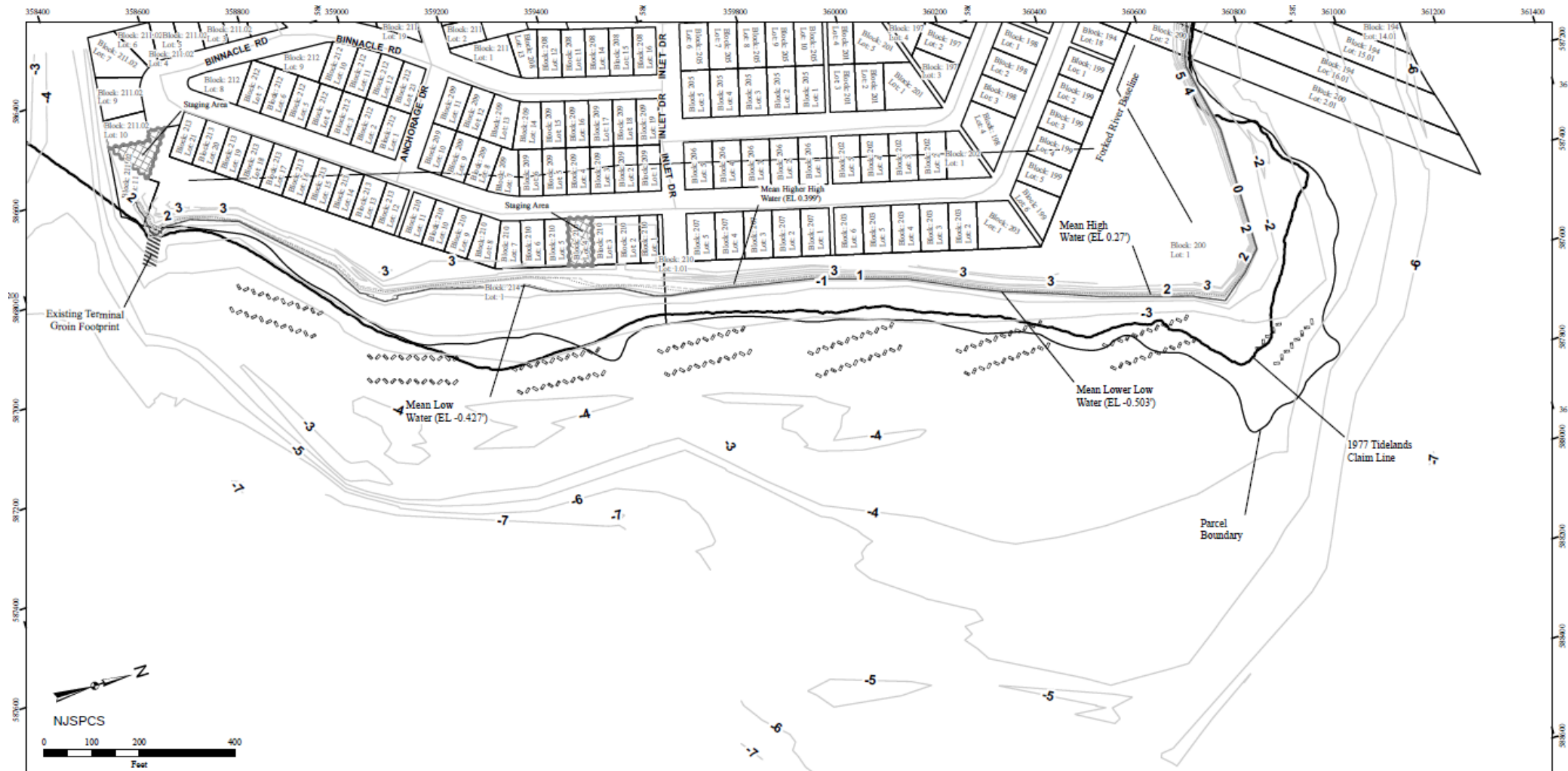


Continued Loss of edge = increased turbidity

Project Goals

- 1) Restore, enhance, and protect approximately 2,600 linear feet of shoreline
- 2) Increased resiliency to adjacent communities and the Bay Front Park with creation of living shoreline, shelled oyster reefs,
- 3) Reduced shoreline erosion through wave attenuation,
- 4) Improvements to local water quality and decreases in turbidity,
- 5) Improvements to the ecological health of the Bay and its designated use for aquatic life, and
- 6) Expand existing outreach

Right in line with the Barnegat Bay Restoration, Enhancement, and Protection Strategy Plan



**STOCKTON UNIVERSITY
COASTAL RESEARCH CENTER
30 WILSON AVE., PORT REPUBLIC, NJ 08241**

**American Littoral Society -
Forked River Restoration Project
Lacey Township, Ocean County, NJ**

Overview Plan

05-19-2021

1" = 200'

1 of 2

DATE

SCALE

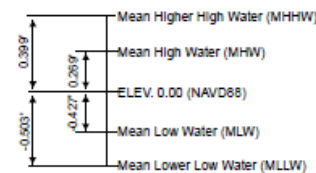
SHEET

This plan is intended for permitting only

Elevations shown hereon are in US Survey feet, NAVD1988 and are the result of a field survey performed by the Coastal Research Center (CRC) in April, 2021.

Mean High Water (MHW) and Mean Low Water (MLW) were calculated using NOAA/NOS VDatum v3.9

Tax parcel information was obtained from the NJ Information Warehouse.

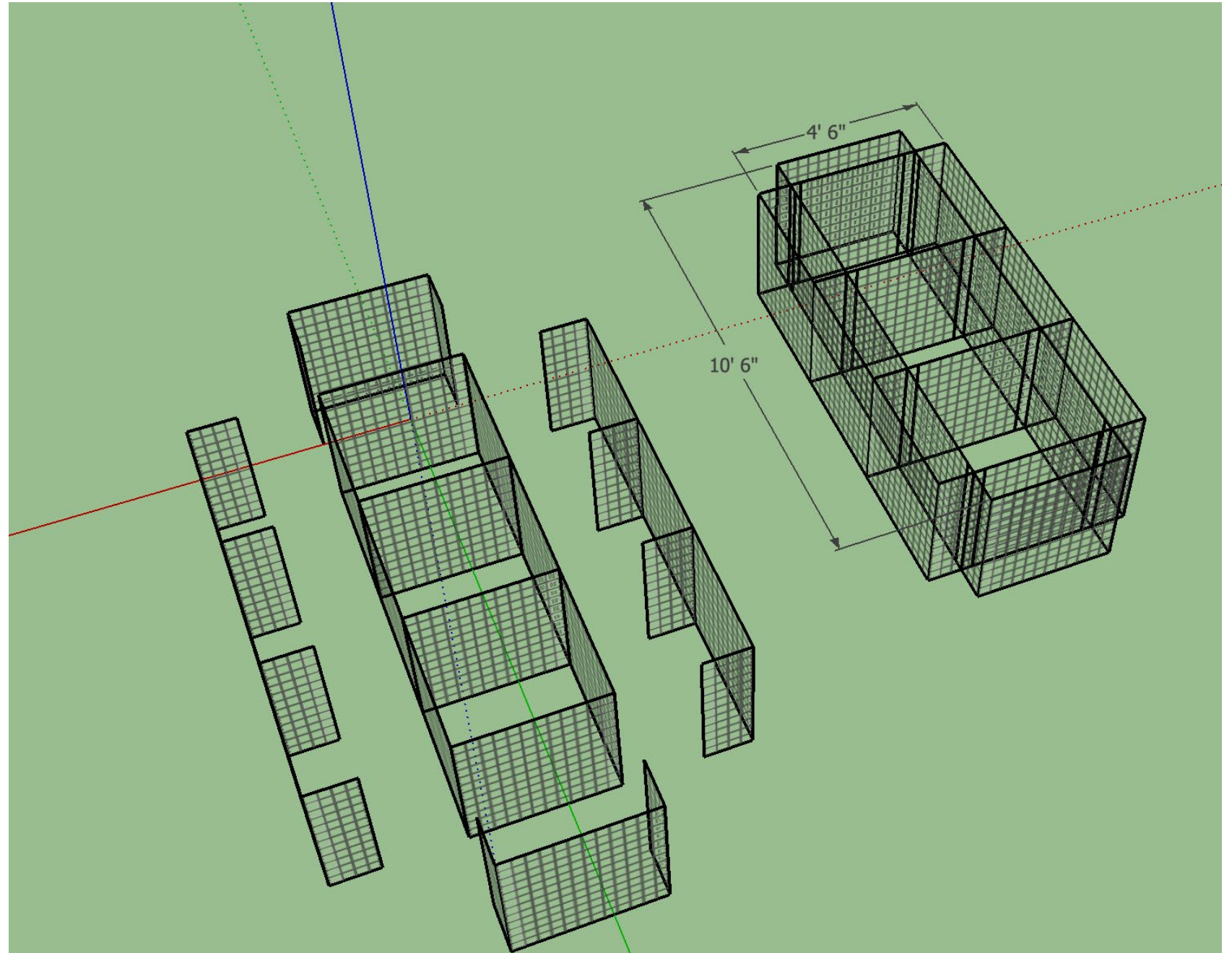


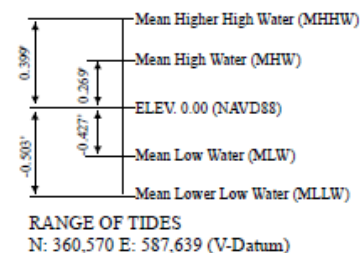
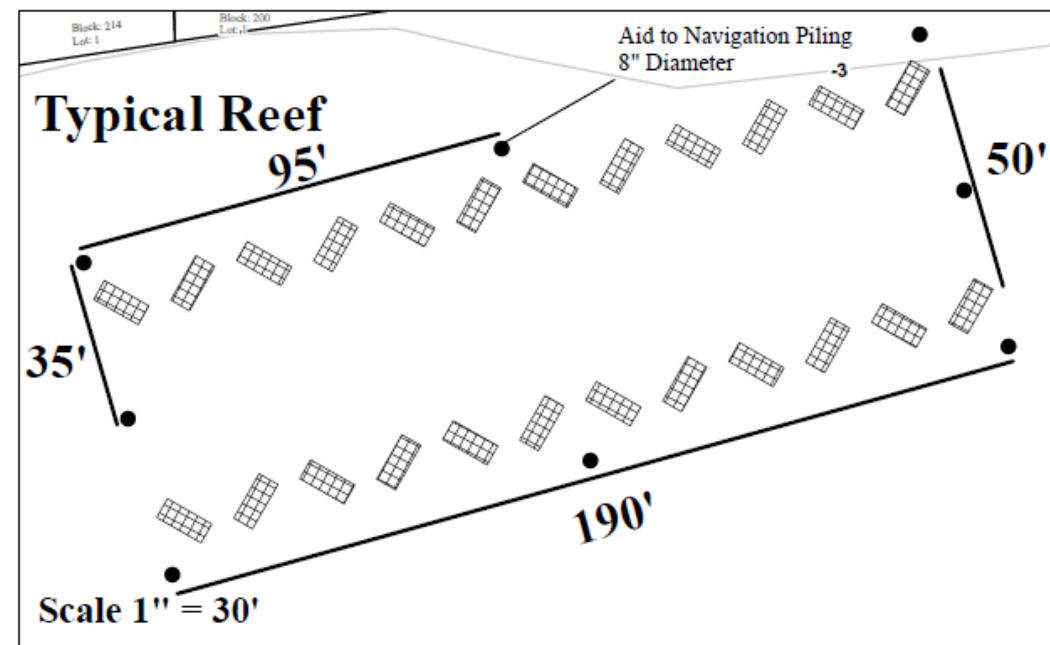
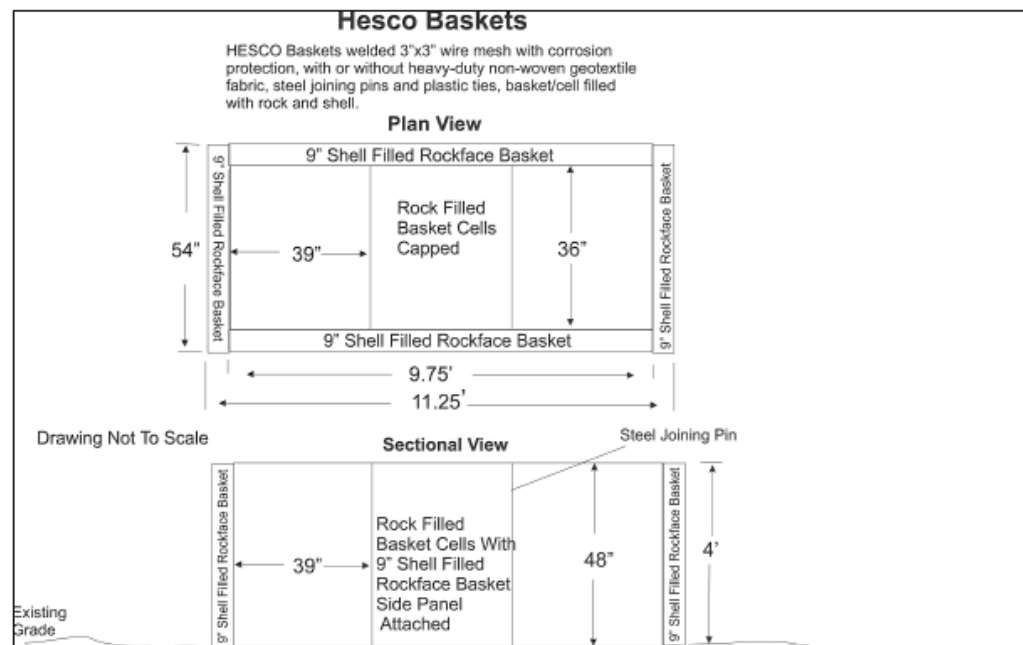
RANGE OF TIDES
N: 360,570 E: 587,639 (V-Datum)

J. Richard Weggel 5/17/2021
J. Richard Weggel Date
Professional Engineer NJ License GE 31540
DRAWN: MRD CHECKED: SH

Overall

- 208 Hesco segments
- 26 reef segments per reef
- 13 reef segments per row
- 196.5 feet long
 - Inc. 5 foot gaps
 - Add. 50cy rock
 - Add 75cy shell

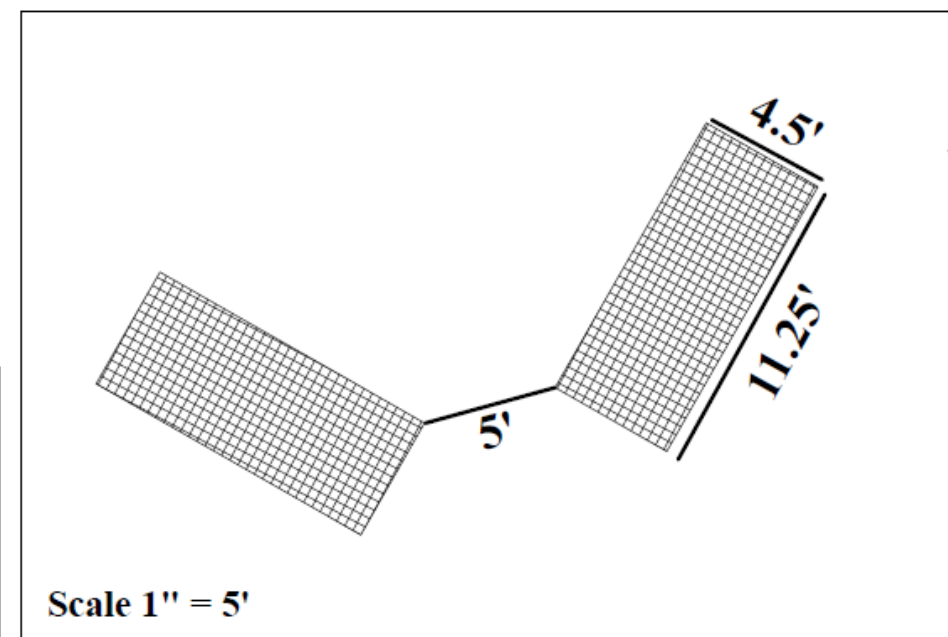





Typical Reef Piling

Eight navigation pilings will be placed per reef section, 5 feet from the structure, 8" in diameter and 10' long, untreated wood installed via impact hammer.


All Aid to Navigation pilings will be affixed with USCG approved reflective orange Diamond markers to warn boaters of an Exclusion Area and with any additional identification as required by USCG regulations.



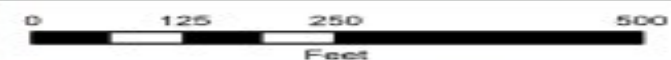
<div> J. Richard Wegel Date Professional Engineer NJ License GE 31540</div>	STOCKTON UNIVERISTY COASTAL RESAERCH CENTER 30 WILSON AVE., PORT REPUBLIC, NJ 08241			*This plan is intended for permitting only*
	American Littoral Society - Forked River Restoration Project Lacey Township, Ocean County, NJ			Elevations shown hereon are in US Survey feet, NAVD1988.
	Detail			Tidal vertical datums were calculated using NOAA/NOS VDatum v3.9
	05-19-2021	1" = As Shown	2 of 2	Tax parcel information was obtained from the NJ Information Warehouse.
	DRAWN: MRD	CHECKED: SH	DATE	SCALE

Forked River SAV Percent Coverage



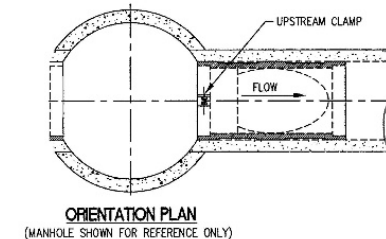
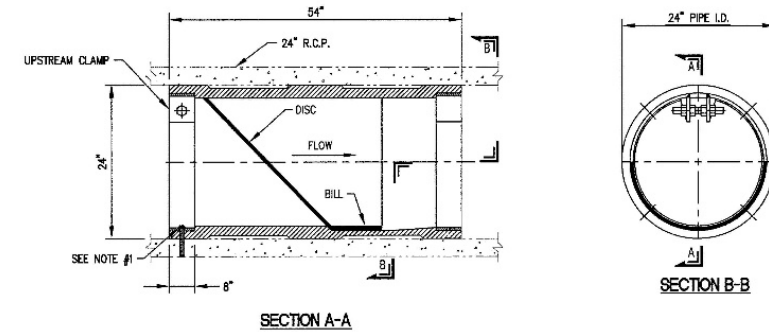
 Proposed Oyster Reef Locations

Percent Coverage



Seaside Park Proposed Project

1. Retrofit 6 Outfalls with Tide Flex Valves
2. Restore Vegetated Sand Dune and Beach Habitat
3. Create a Series of Offshore Oyster Reefs



NOTES:

1. BOLT OR PIN TIDE VALVE TO PIPE A MINIMUM OF 2 PLACES WITH PREDRILLED HOLES IN CLAMP(S).
2. TIDE VALVE SHALL BE INSTALLED IN DOWNSTREAM PIPE.

TIDE CONTROL VALVE DETAIL

N.T.S.

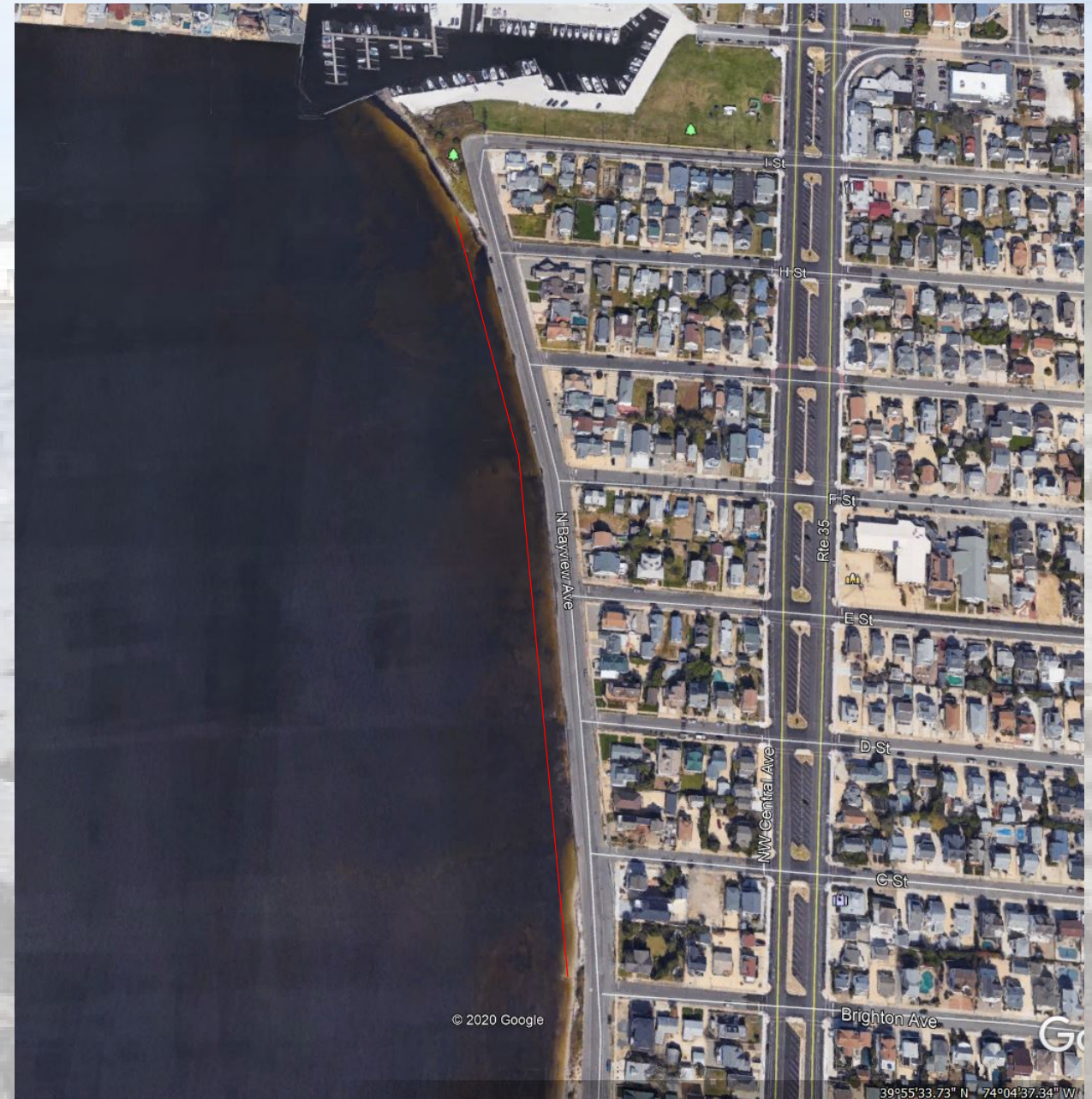
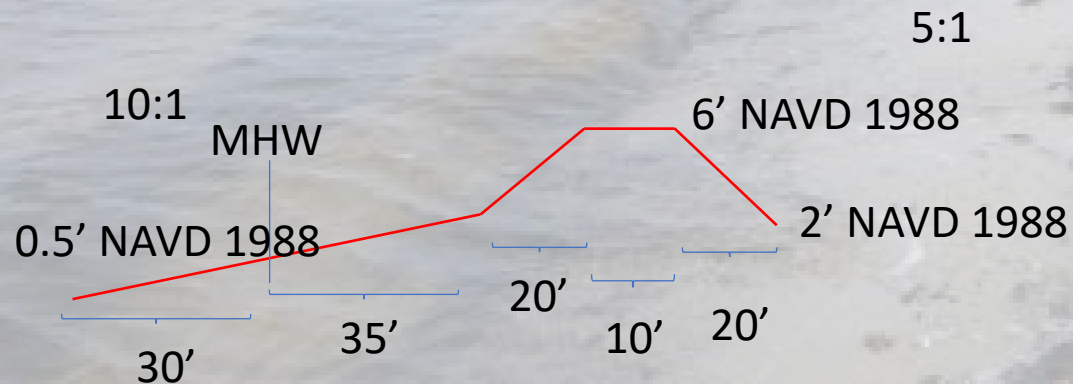
Proposed Project

1. Retrofit and Construct 6 Inlets/Outfalls with Tide Flex Valves
2. Restore Vegetated Sand Dune and Beach Habitat
3. Create a Series of Offshore Oyster Reefs



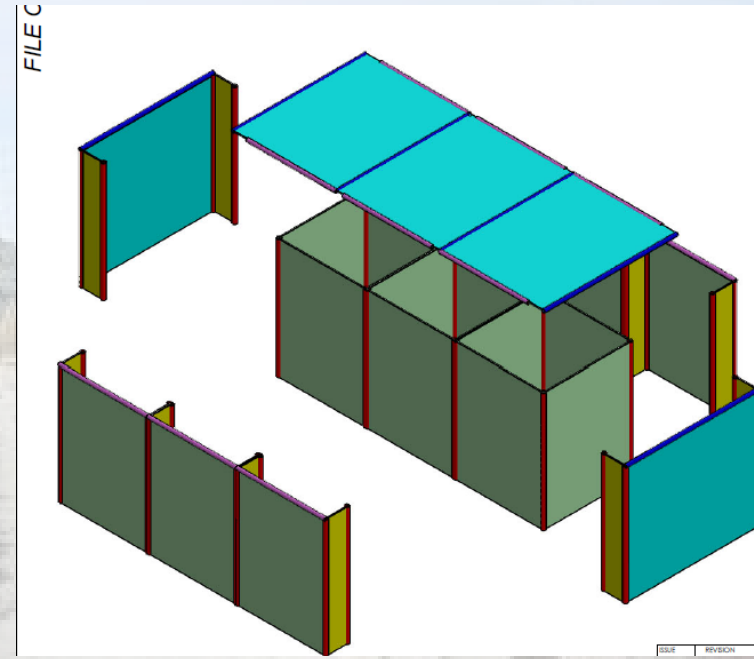
Proposed Project

1. Retrofit and Construct 6 Inlets/Outfalls with Tide Flex Valves
2. Restore Vegetated Sand Dune and Beach Habitat
3. Create a Series of Offshore Oyster Reefs



Proposed Project

1. Retrofit and Construct 6 Inlets/Outfalls with Tide Flex Valves
2. Restore Vegetated Sand Dune and Beach Habitat
3. Create a Series of Offshore Oyster Reefs
 - Attenuate westerly wind driven waves
 - Improve water quality
 - Create habitat
 - Keep sand on beach





Barnegat Bay

Proposed Beach Restoration Limits

- Proposed Offshore Oyster Reef
- Attenuate Westerly Wind Driven Waves
 - Improve Water Quality
 - Create Habitat
 - Keep Sand On Beach

Proposed Sand Dune
Top Of Dune: 10' Wide, Elevation 6.0ft
Bottom Of Dune: 50' Wide, Sloped 5:1 From Top

Existing Outfall Piping To Be
Extended Past The Proposed Dune
And Retrofitted With Tide Flex Valves



SCOUR OF SEASIDE PARK
H.M.G.P. WAVE ENERGY DISSIPATION
AND FLOOD MITIGATION
Ocean County New Jersey
7-20-2016 Scale: 1" = 60'
RVE
RIVINGTON & VERNER ENGINEERS
1000 RIVINGTON AVENUE, SUITE 200
FREEHOLD, NJ 07728
(732) 326-1000
WWW.RVEENGINEERS.COM

GRAPHIC SCALE
1" = 60'
0 10 20 30
Feet

Seaside Park SAV/Reef Overlay

