

Natural Infrastructure and Beneficial Use to Support Marine Corps Air Station Cherry Point Mission

Prepared For:
NCBIWA 2026

Prepared By:
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October 2026

EA Engineering, Science, and Technology, Inc., PBC

Topics to Discuss

- Project Background
- Project Objectives
- Pilot Design and Construction
- Monitoring
- Full-scale Design
- Survey and Sediment Sources
- Next Steps

Project Background

- **Marine Corps Air Station (MCAS) Cherry Point**
  - On South Shore of Neuse River in Havelock, NC
- **Piney Island Bombing Range**
  - 11,913-acres coastal wetland complex used for specialized warfare training
  - High shoreline erosion rate 3.3-8.2 ft/year
  - Vulnerable to coastal flooding and storm surge



Project Objective

- Implement and evaluate Natural Infrastructure (NI) solutions to reduce impacts of natural hazards
  - Shoreline protection
  - Thin Layer Placement (TLP) of dredged material
- Build a pathway for similar projects
  - Build relationships between project partners
  - Identify regulatory pathways









Pilot Design and Construction - TLP

- Constructed spring 2025
- Assess effectiveness of different TLP thicknesses
  - Three sets of three 8 ft x 8 ft plots
  - Control 0 ft, 0.5 ft and 1 ft thickness
- Construction
  - Barged over sediment from existing upland site
  - Low pressure mini excavator and wood mats
- Monitoring
  - Consolidation
  - Vegetation establishment



Image From: Reef Ball Mini-Bay Spec Sheet



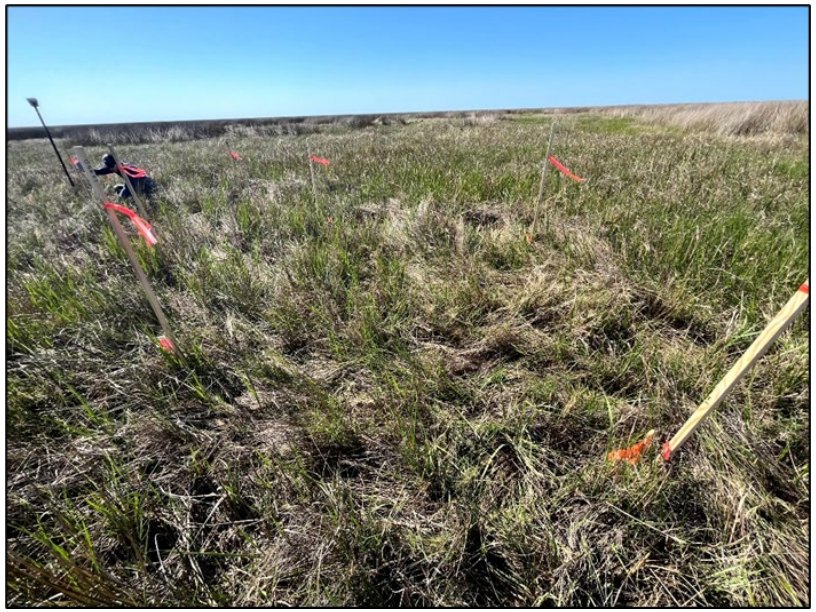
Image From: Natrix Lattice Spec Sheet

Pilot Design and Construction – Shoreline

- Constructed spring 2025
- Assess different shoreline protection materials
  - Two 25 ft long structures
    - Reefball
    - Natrx
- Construction
  - Barge with mini excavator
- Monitoring
  - Settling
  - Oyster colonization

Piney Island Pilot Monitoring

Pre-Construction Plot E Stakeout – April 2025



Post-Construction Plot E 0.5 ft TLP – June 2025



Post-Construction Plot E 0.5 TLP – October 2025



Post-Construction Plot E 0.5 TLP - September 2026



Placement of Natrx Living Shoreline Structures June - 2025



Monitoring of Natrx Living Shoreline Structures - October 2025





Monitoring of Natrx Living Shoreline Structures – September 2026

Placement of Reef Balls Living Shoreline Structures - June 2025

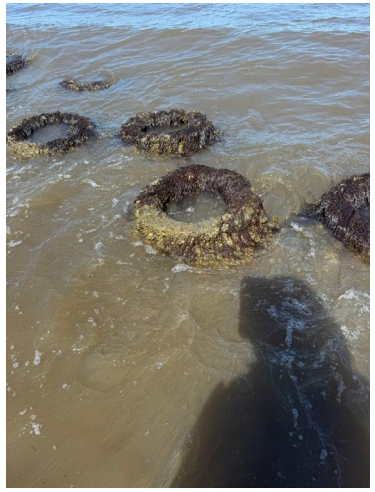




Monitoring of Reef Balls Living Shoreline Structures - October 2025







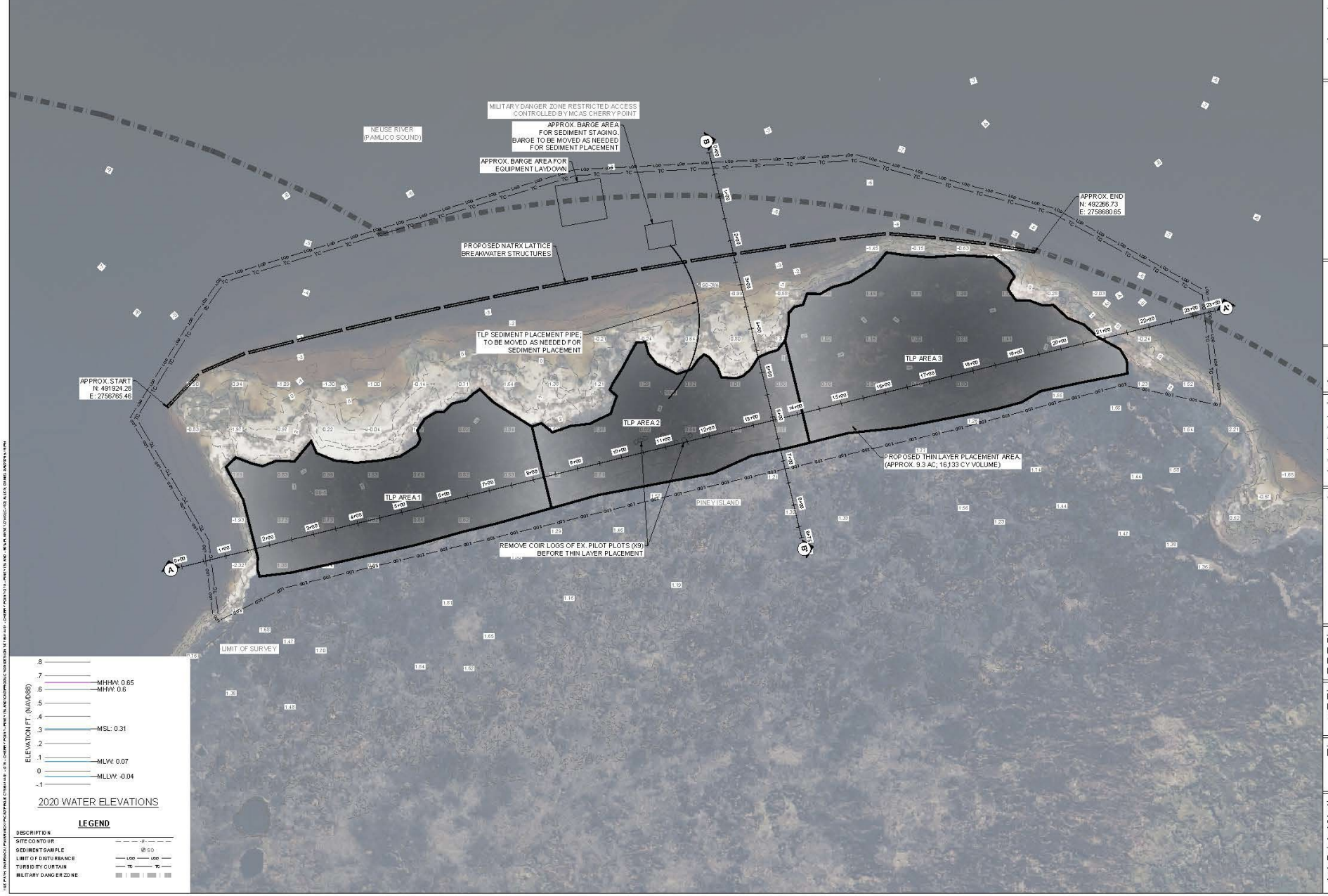


Monitoring of Reef Balls Living Shoreline Structures – September 2026

Full-scale Design Summary

- ~9.3-acre placement footprint
- Three placement areas (1–3)
- Target elevation 1.15 ft NAVD88
- Tolerance ±0.25 ft
- Upper limit 1.4 ft NAVD88
- Estimated fill quantity: ~7,000–10,000 CY
- Planting post placement to final elevations





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N

HORIZONTAL DATUM: NORTH CAROLINA STATE PLANE, NAD83

VERTICAL DATUM: NAVD88

0 60 100 200
GRAPHIC SCALE IN FEET

FULL SIZE PLOT: 22" x 34"

REVISIONS

SEAL

PROJECT NAME
USMC COASTAL RESILIENCE NATURE BASED SOLUTIONS AT MCAS CHERRY POINT - PINEY ISLAND

PROJECT ADDRESS
MCAS CHERRY POINT
PINEY ISLAND BOMBING RANGE
CARTERET COUNTY, NC

DRAWING TITLE
PROPOSED CONDITIONS PLAN

DRAWING INFORMATION

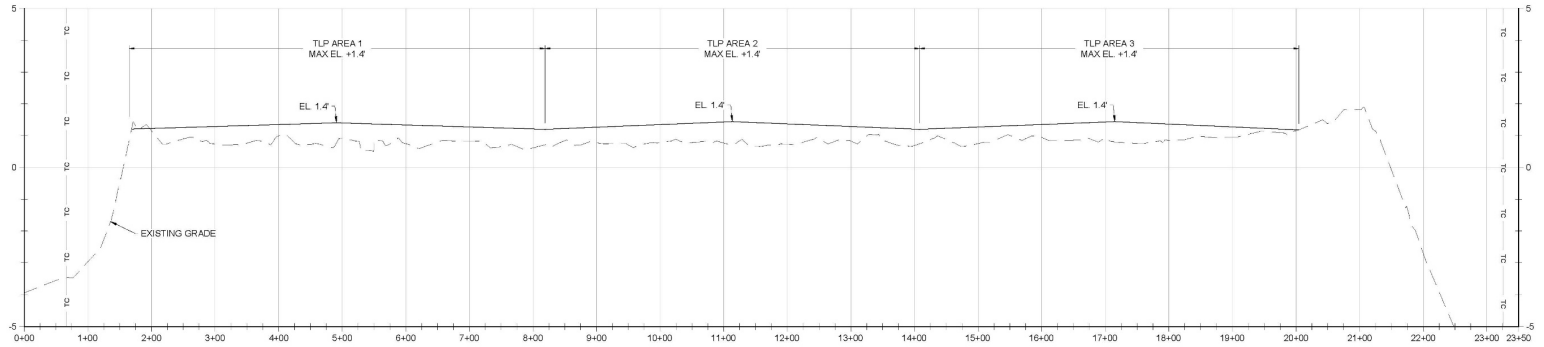
DRAWN BY: DA	DESIGNED BY: ND
CHECKED BY: TM	PROJECT MANAGER: JP

PROJECT NUMBER: 6414401

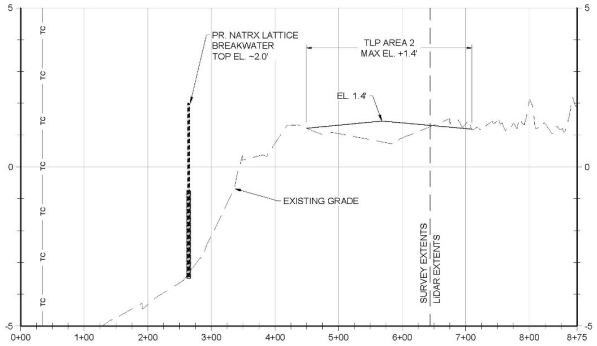
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C-102

DATE: AUGUST 2026 SHEET: 4 OF 5

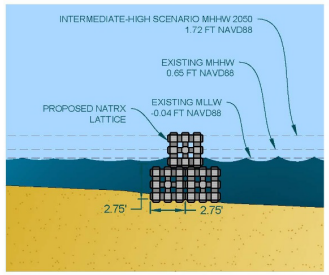
60% PLANS - NOT FOR CONSTRUCTION



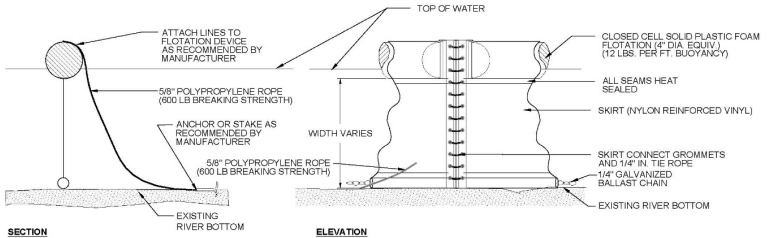
PROFILE VIEW A-A'
HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 2'



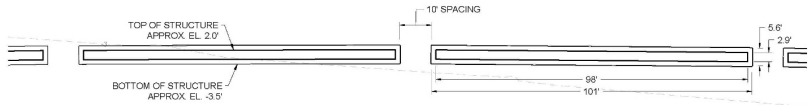
PROFILE VIEW B-B'
HORIZONTAL SCALE: 1" = 100'
VERTICAL SCALE: 1" = 2'



PROPOSED NATRX LATTICE DETAIL
SCALE: 1" = 5'



TURBIDITY CURTAIN DETAIL
NOT TO SCALE



PROPOSED NATRX LATTICE BREAKWATER LAYOUT
HORIZONTAL SCALE: 1" = 20'

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SCALE AS SHOWN

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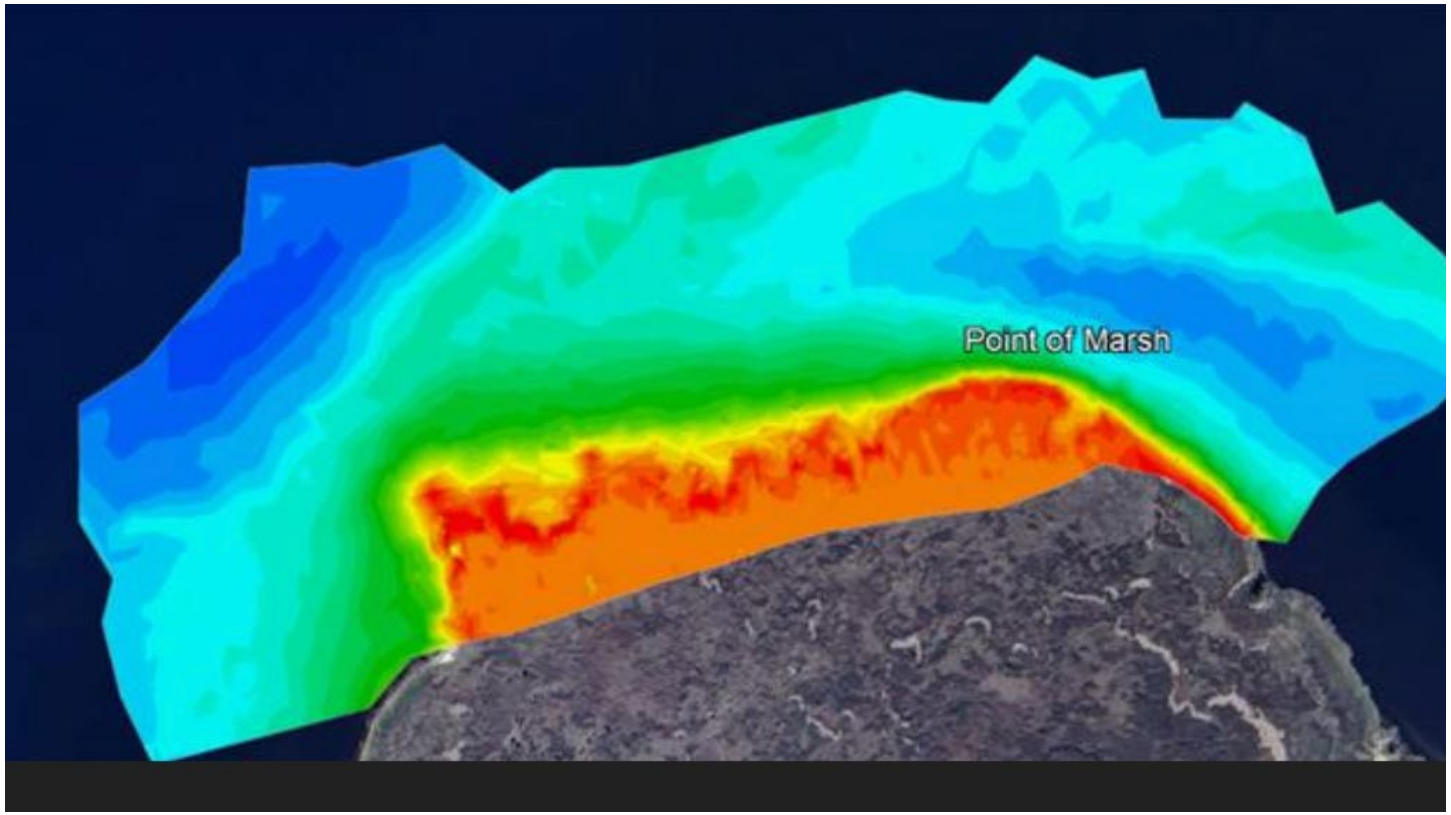
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C-501

DATE: AUGUST 2026 SHEET: 5 OF 5

60% PLANS - NOT FOR CONSTRUCTION

Survey and Site Photos









Sediment Sources

- Northern Range of Core Creek (~15 miles to placement site)
- Wainwright Slough (~15 miles to placement site)
- Compatibility testing and characterization are underway



Next Steps

- Continued monitoring
- Coordination with resource agencies
- Permitting of full-scale project
- Full scale project design and construction
  - TLP will increase vegetation density and reduce flood risk
  - Shoreline structures will attenuate waves, reduce shoreline erosion and provide habitat
- Align with future maintenance dredging operations



Acknowledgements

- Marine Corps Systems Command
- MCAS Cherry Point
- USACE Engineer Research and Development Center Engineering With Nature Program®
- Naval Facilities Engineering and Expeditionary Warfare Center
- USACE Wilmington District
- NC Coastal Federation
- NCDOT and NCDEQ
- National Oceanic and Atmospheric Association (NOAA)
- National Marine Fisheries Service (NMFS)
- Marstel Day



QUESTIONS

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