



City of Port Lavaca

Living Shoreline Project

Revised Alternative Layout and 30% Design Update

September 13, 2023

Non-confidential - Standard



Meeting Agenda

1

Data Collection
Update

2

Revised Layout

3

Next Steps

Meeting Agenda

1

Data Collection
Update

Geotechnical Data

Data collected on week of June 27, 2023

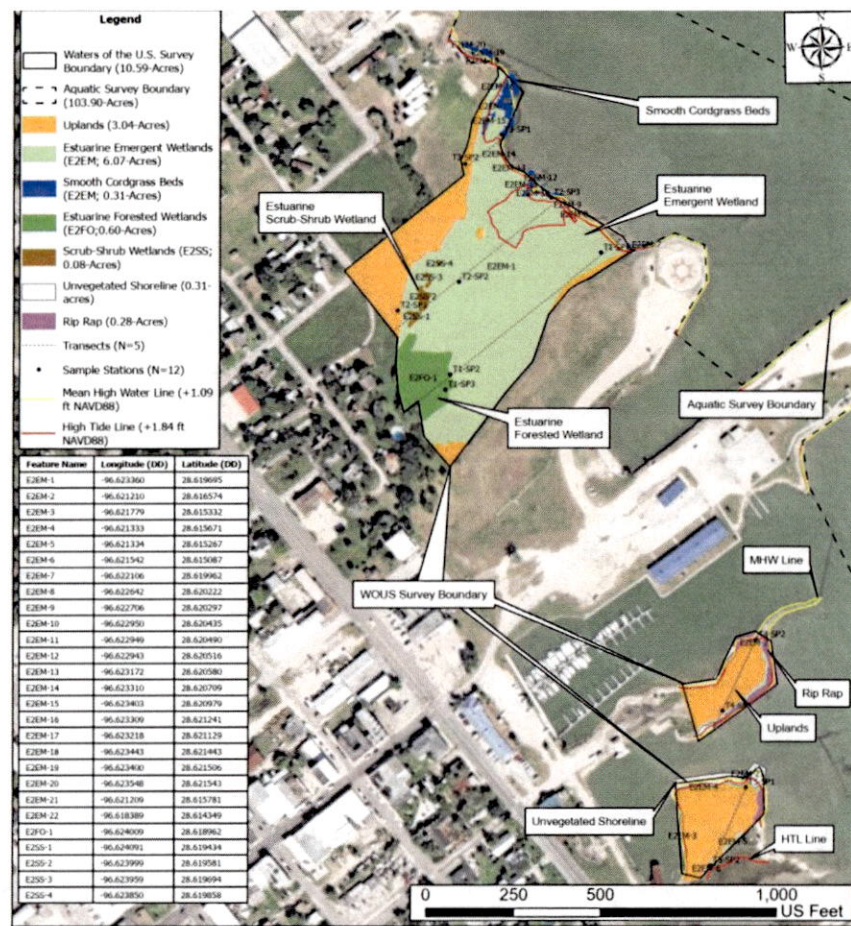
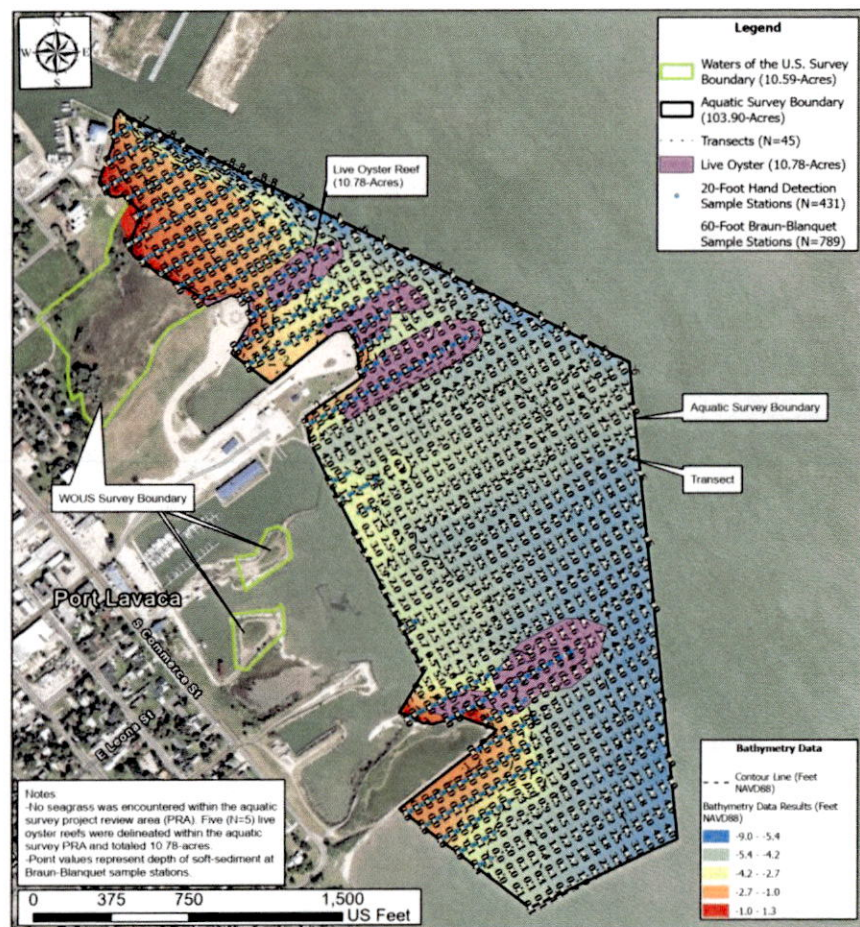
Generally favorable soil conditions

Soil samples obtained largely consisted of soft to hard cohesive soils, LEAN CLAY (CL), SANDY LEAN CLAY (CL), FAT CLAY (CH), FAT CLAY w/ SAND (CH), and SANDY FAT CLAY (CH), and loose to very dense cohesionless/semi-cohesionless soil, CLAYEY SAND (SC).

Mott MacDonald

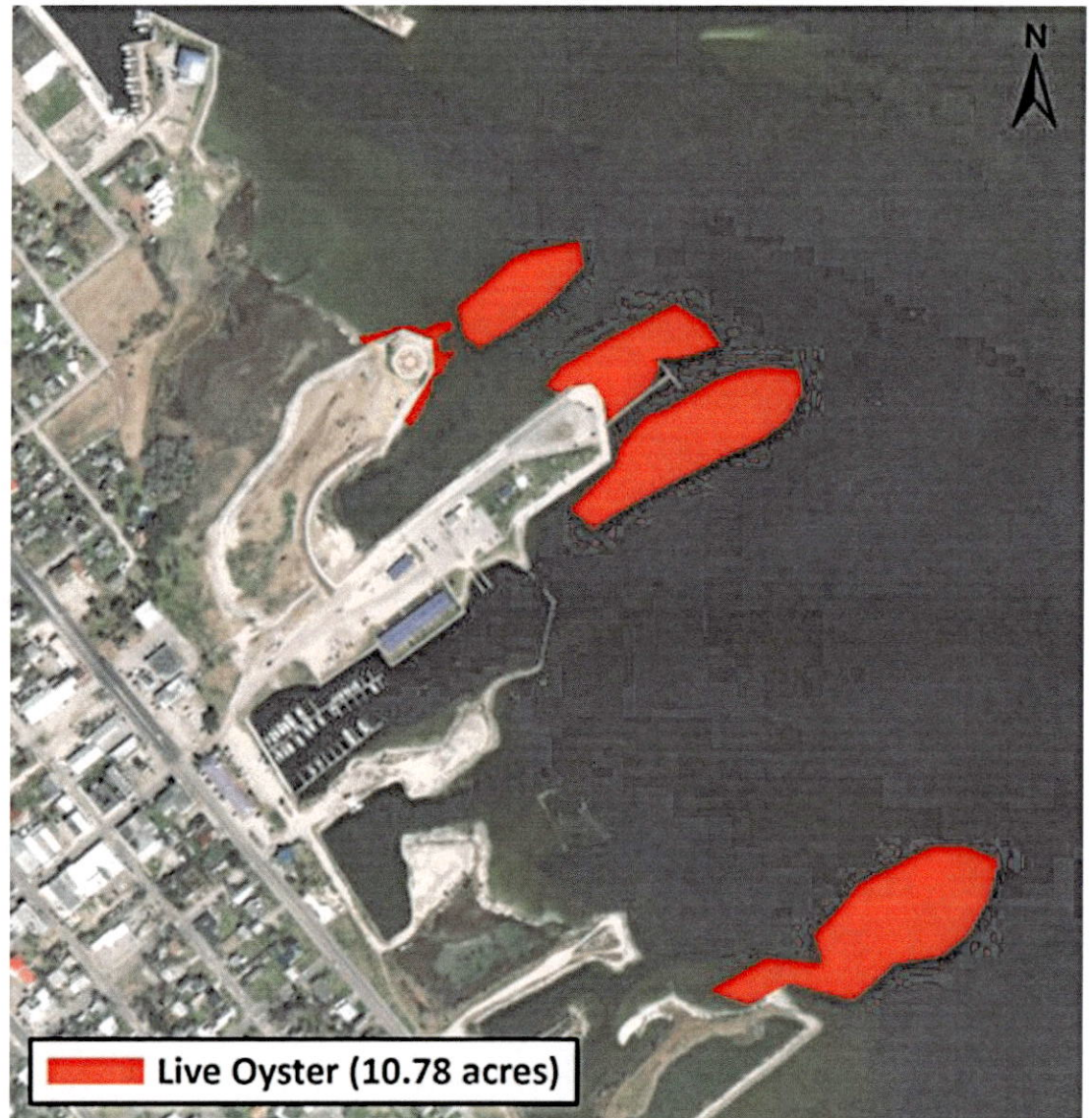


Habitat Survey

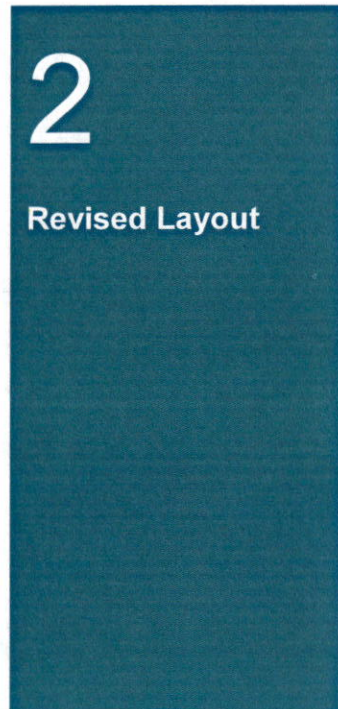


Habitat Survey

- No seagrass was encountered
- Total of 10.78 acres of live oyster reefs found:
 - The current breakwater footprint disrupts the live oysters
 - A new alternative (Alternative 3) was developed to avoid the live oysters



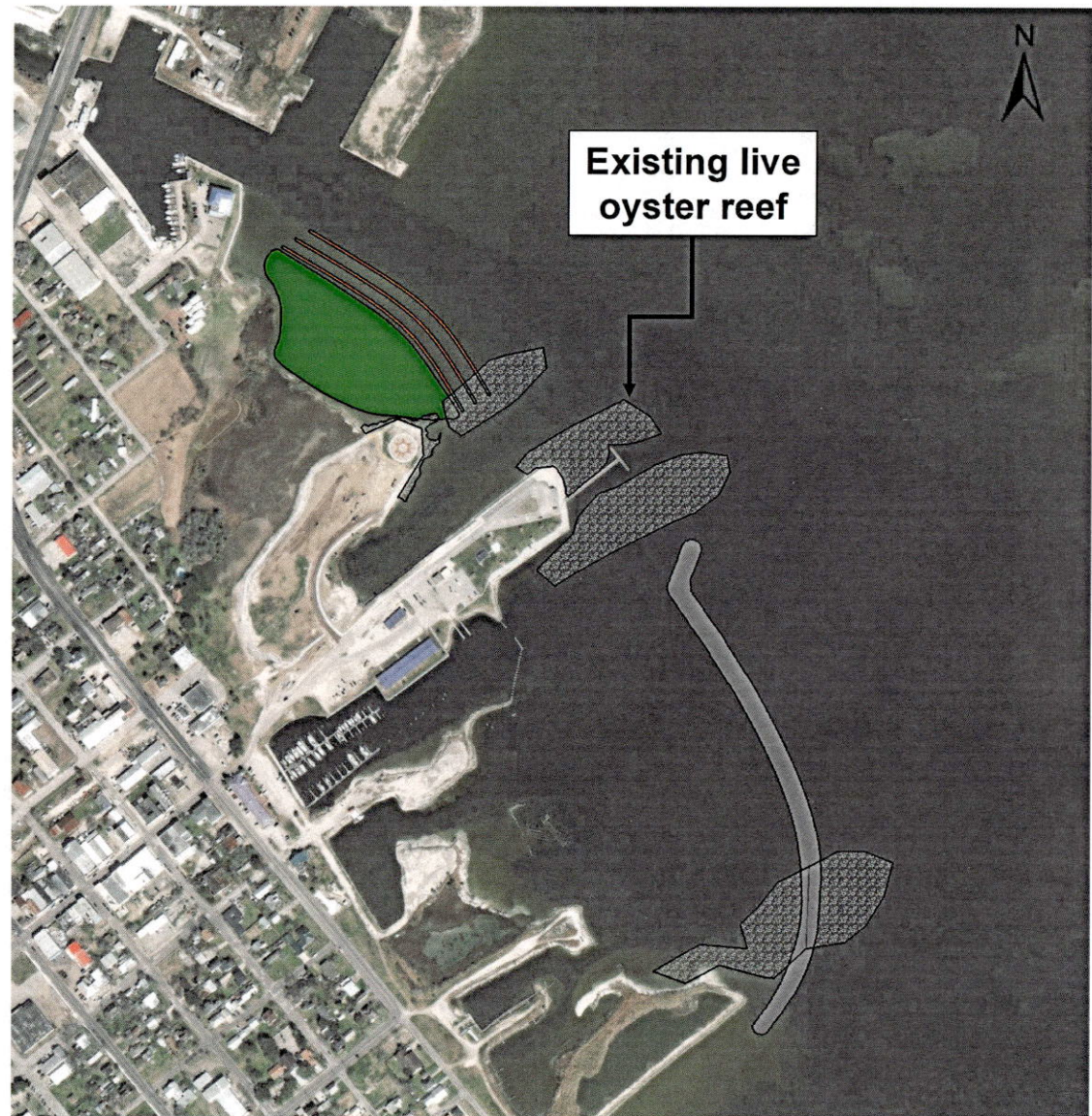
Meeting Agenda



Alternative 2A

Previous Preferred Alternative

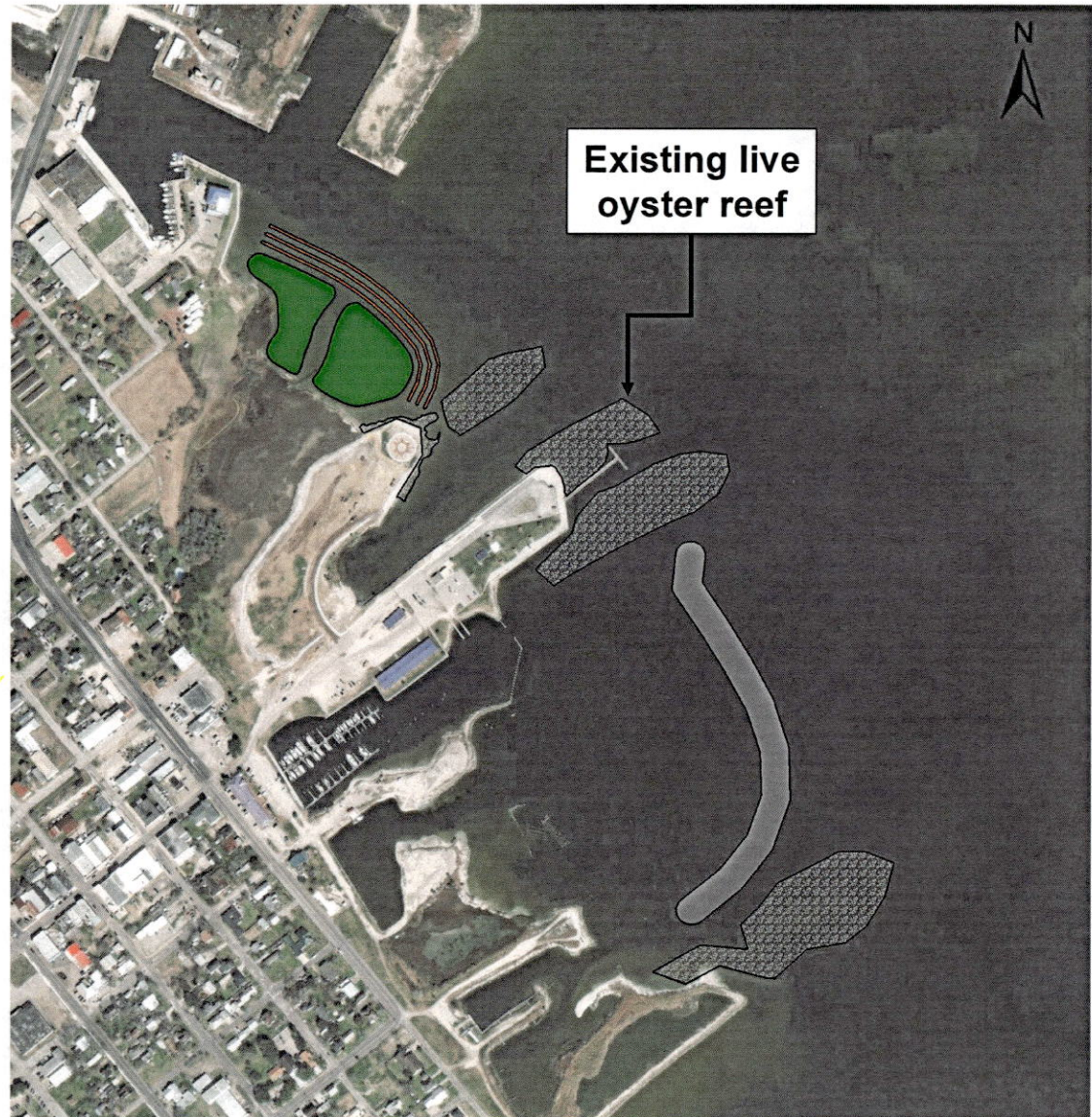
- **Rubble mound breakwater:**
 - ~2,000 ft long
 - +8 ft NAVD88 crest height
 - 5 ft crest width
 - 3H:1V seaward slope
 - 2H:1V landward slope
- **3 rows of oyster reef breakwater**
- **The footprint of Alternative 2A disrupts the existing live oyster reefs**



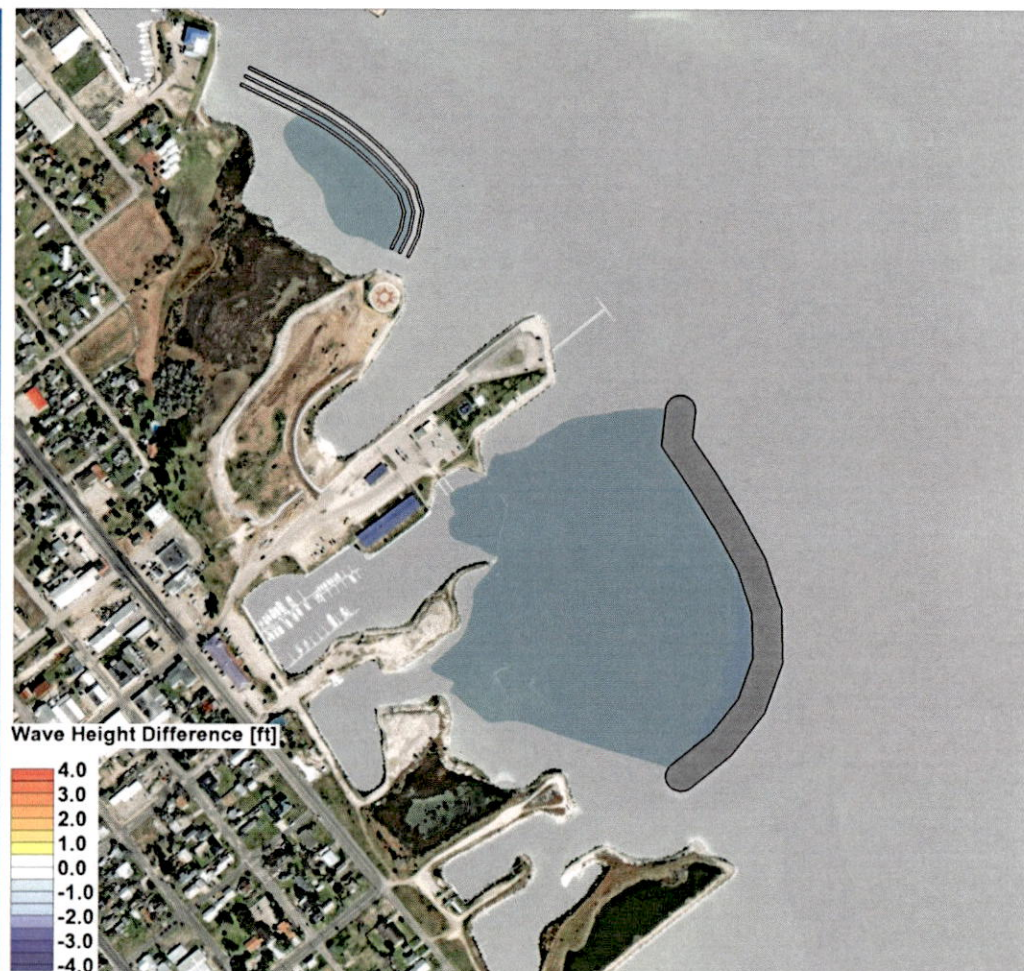
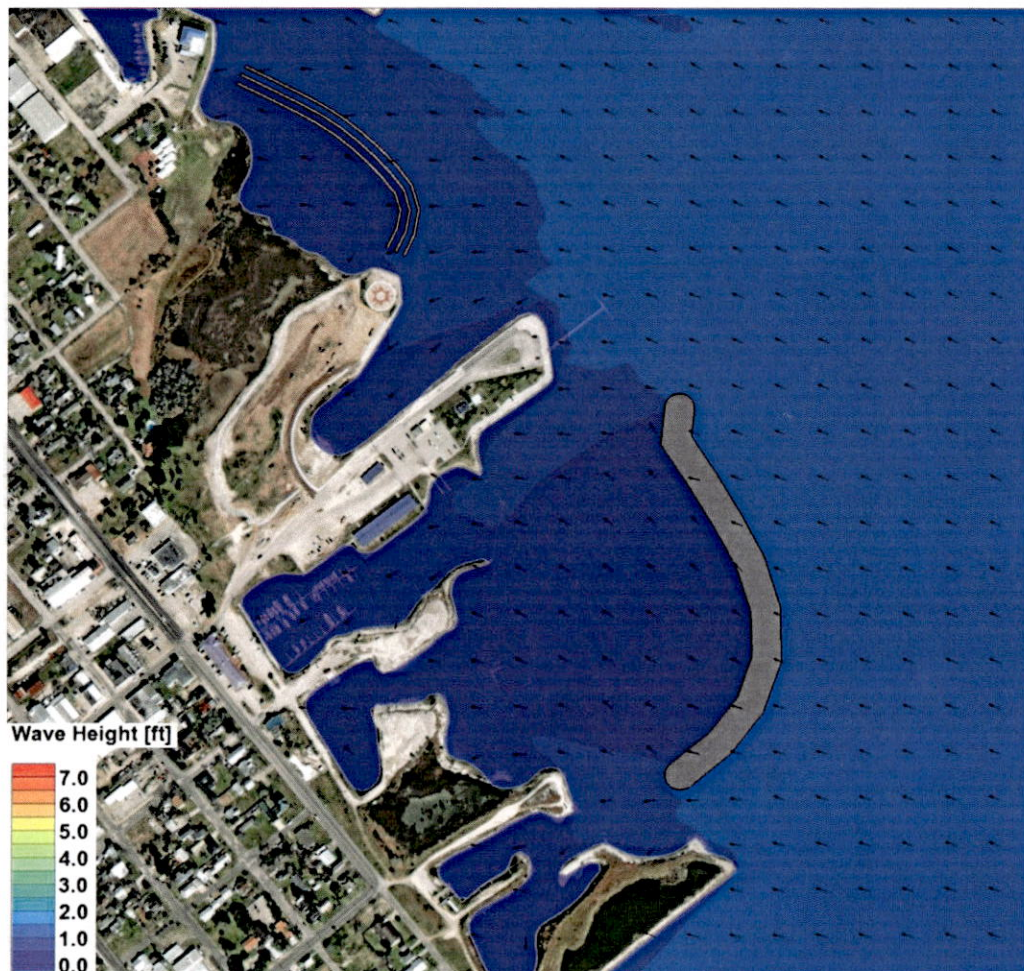
Alternative 3

Layout

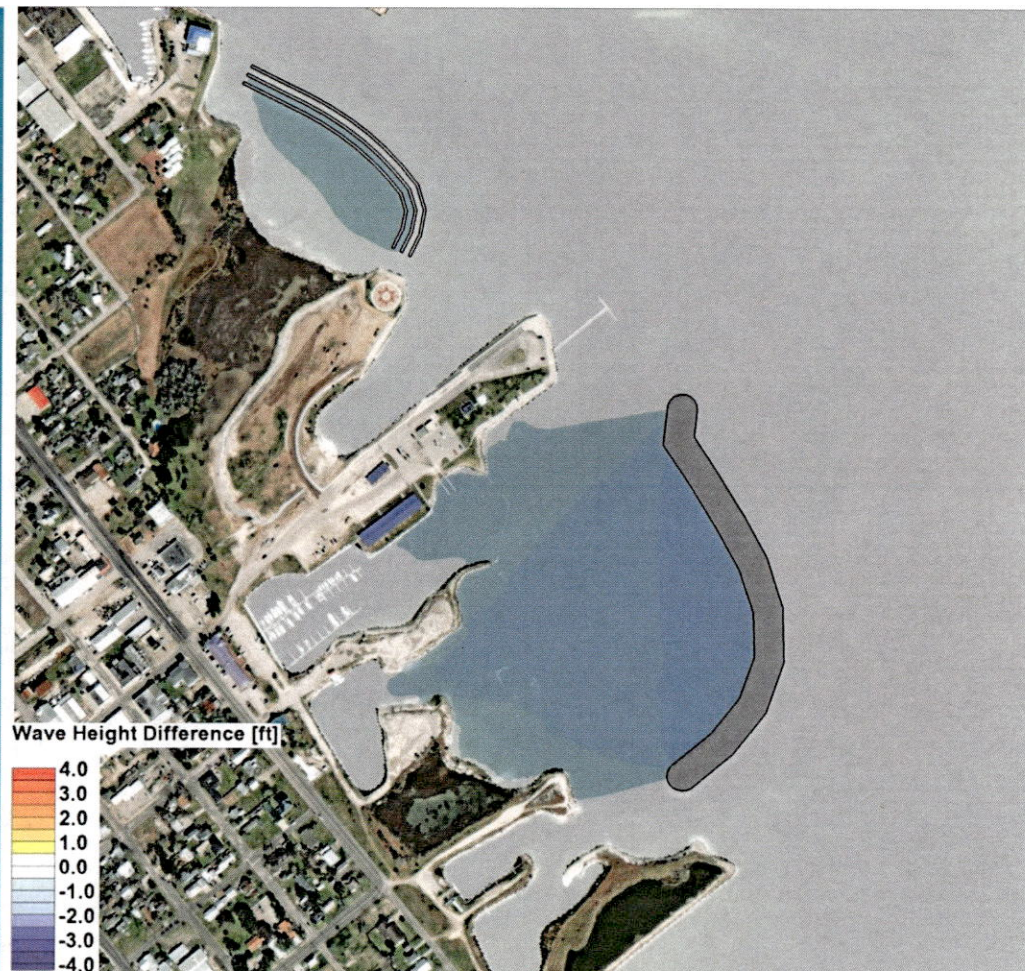
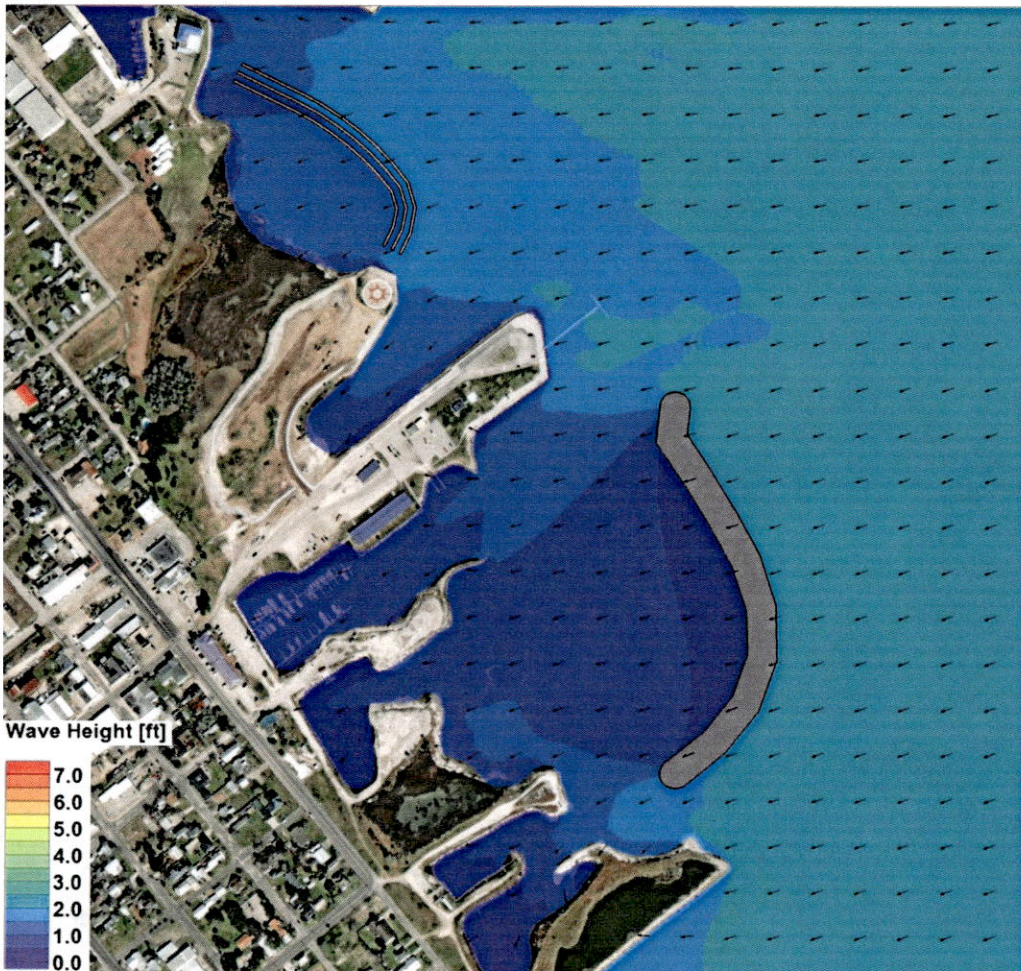
- **Rubble mound breakwater:**
 - ~1,500 ft long
 - +8 ft NAVD88 crest height
 - 5 ft crest width
 - 3H:1V seaward slope
 - 2H:1V landward slope
- **3 rows of oyster reef breakwater**



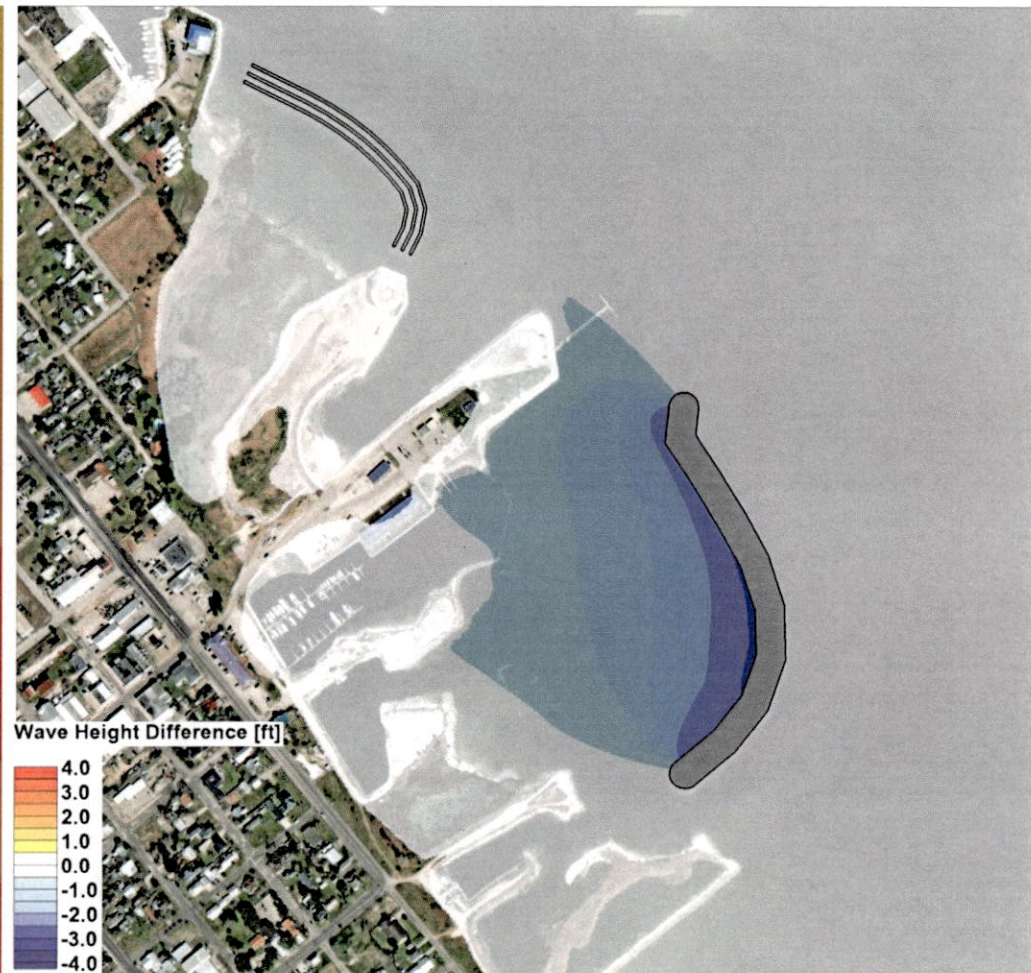
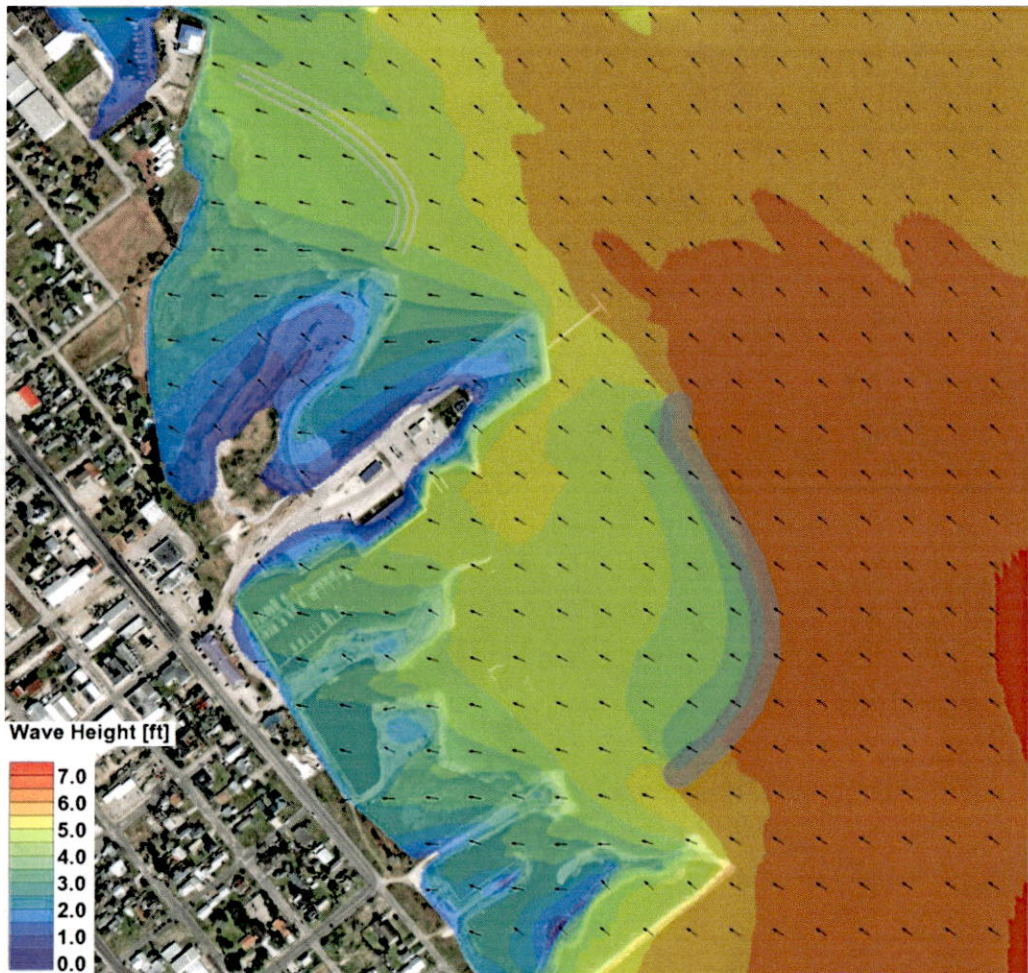
Alt 3 – Typical SE Results



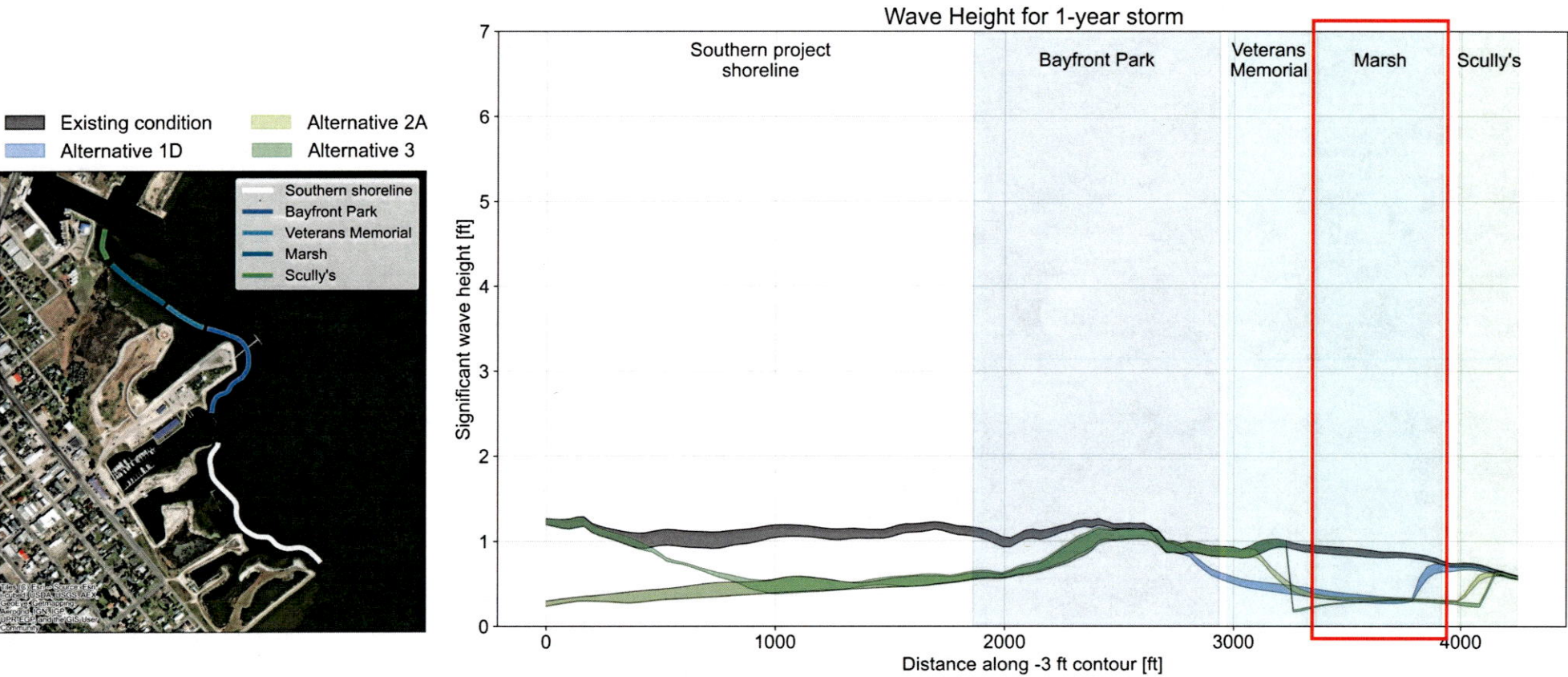
Alt 3 – 5yr NE Results



Alt 3 – 100yr SE Results

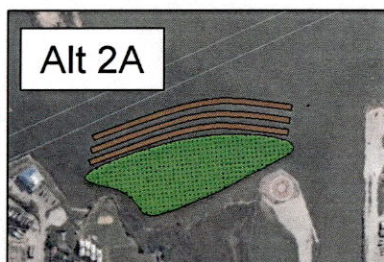
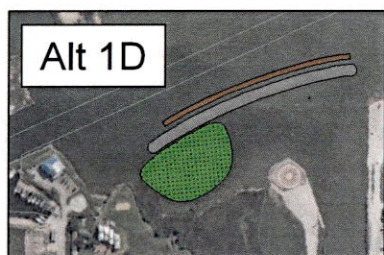


Typical Conditions for Marsh Tolerance

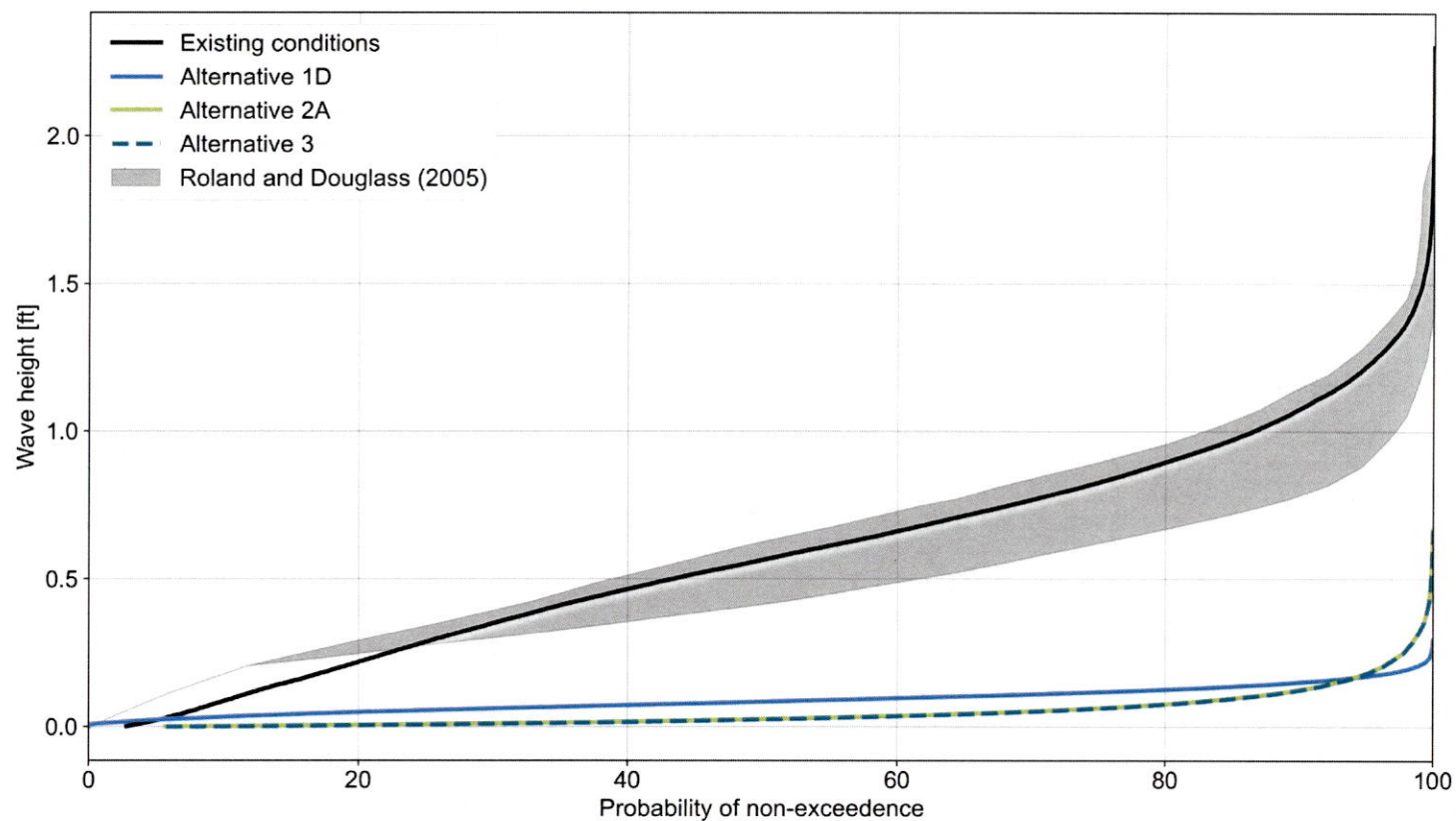


Marsh Creation

Wave transmission and marsh vegetation tolerance for day-to-day conditions

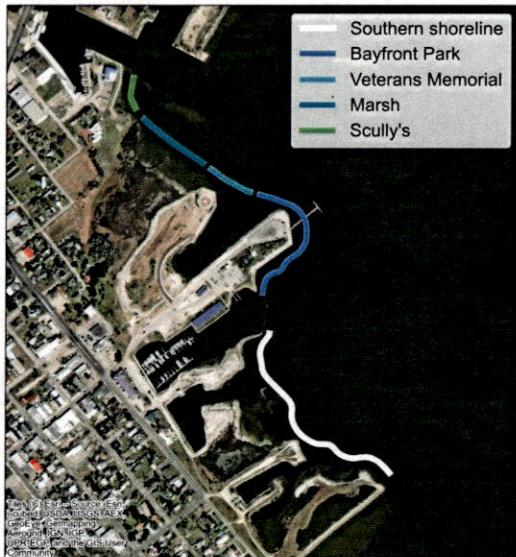


Mott MacDonald

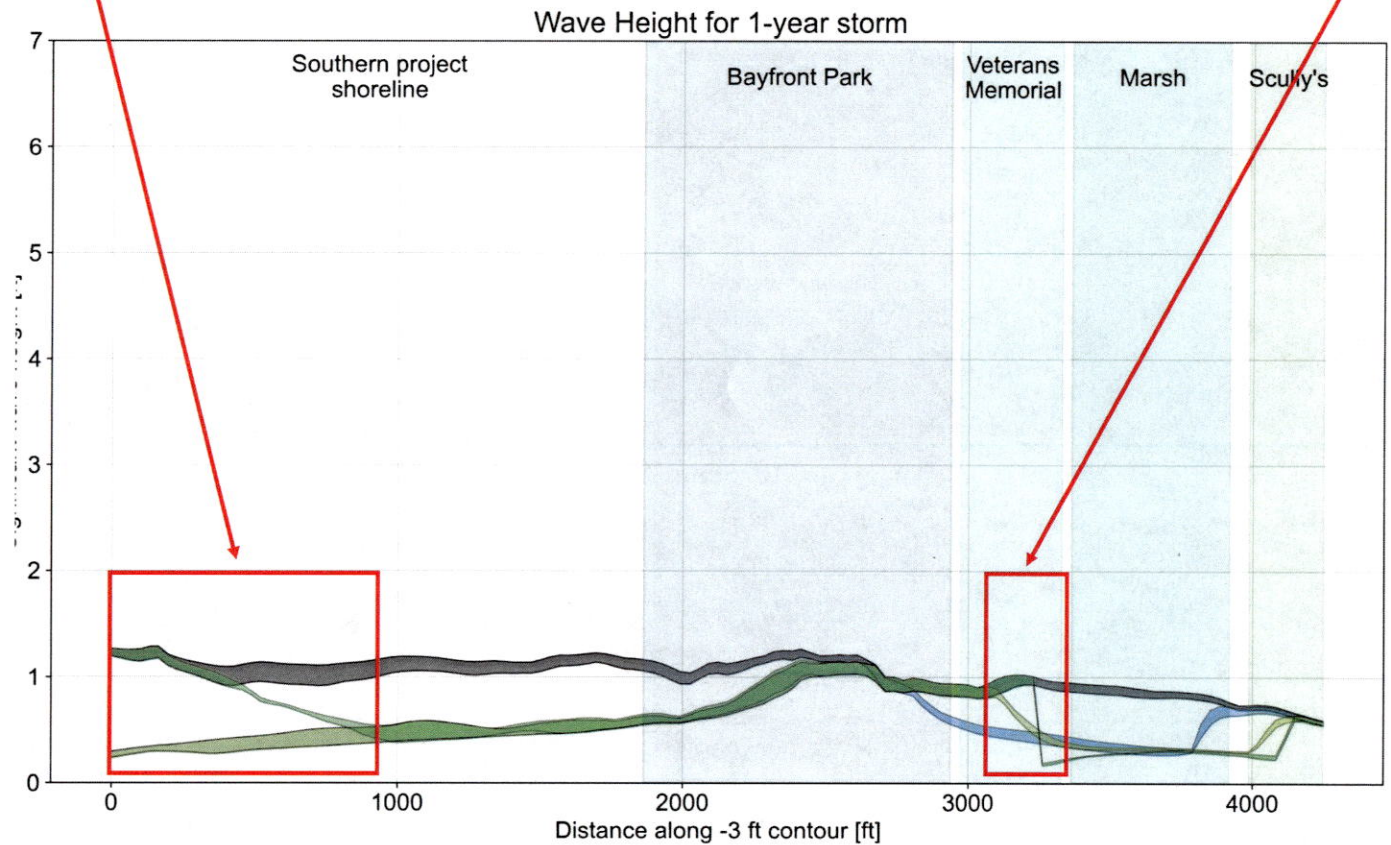


Typical Results

- Existing condition
- Alternative 1D
- Alternative 2A
- Alternative 3



Alternative 3 has gaps in shoreline protection in these areas due to the rubble mound breakwater being shortened and the oyster reef breakwaters being turned landward to avoid the existing live oyster reefs

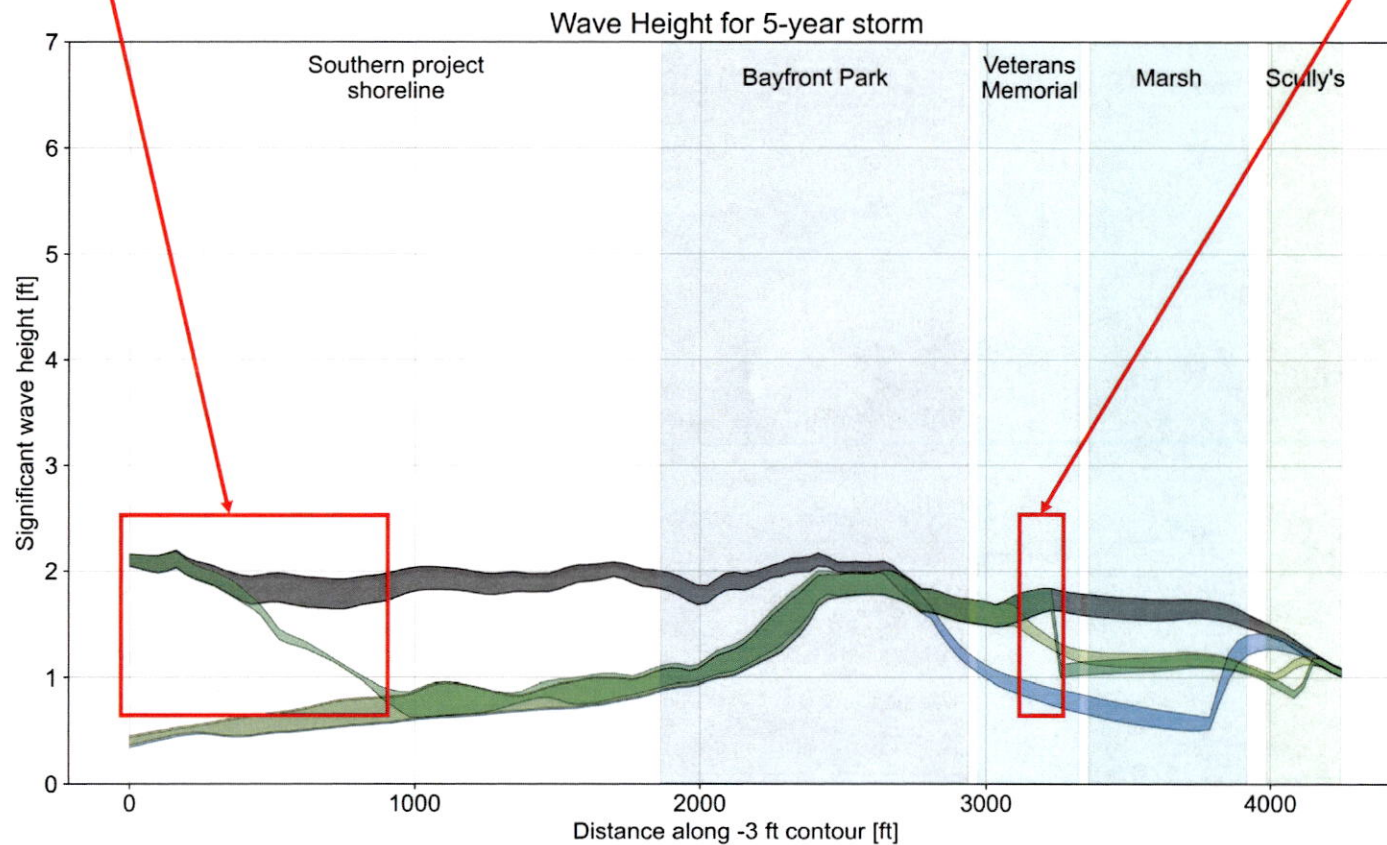


5yr Results

- Existing condition
- Alternative 1D
- Alternative 2A
- Alternative 3



Alternative 3 has gaps in shoreline protection in these areas due to the rubble mound breakwater being shortened and the oyster reef breakwaters being turned landward to avoid the existing live oyster reefs

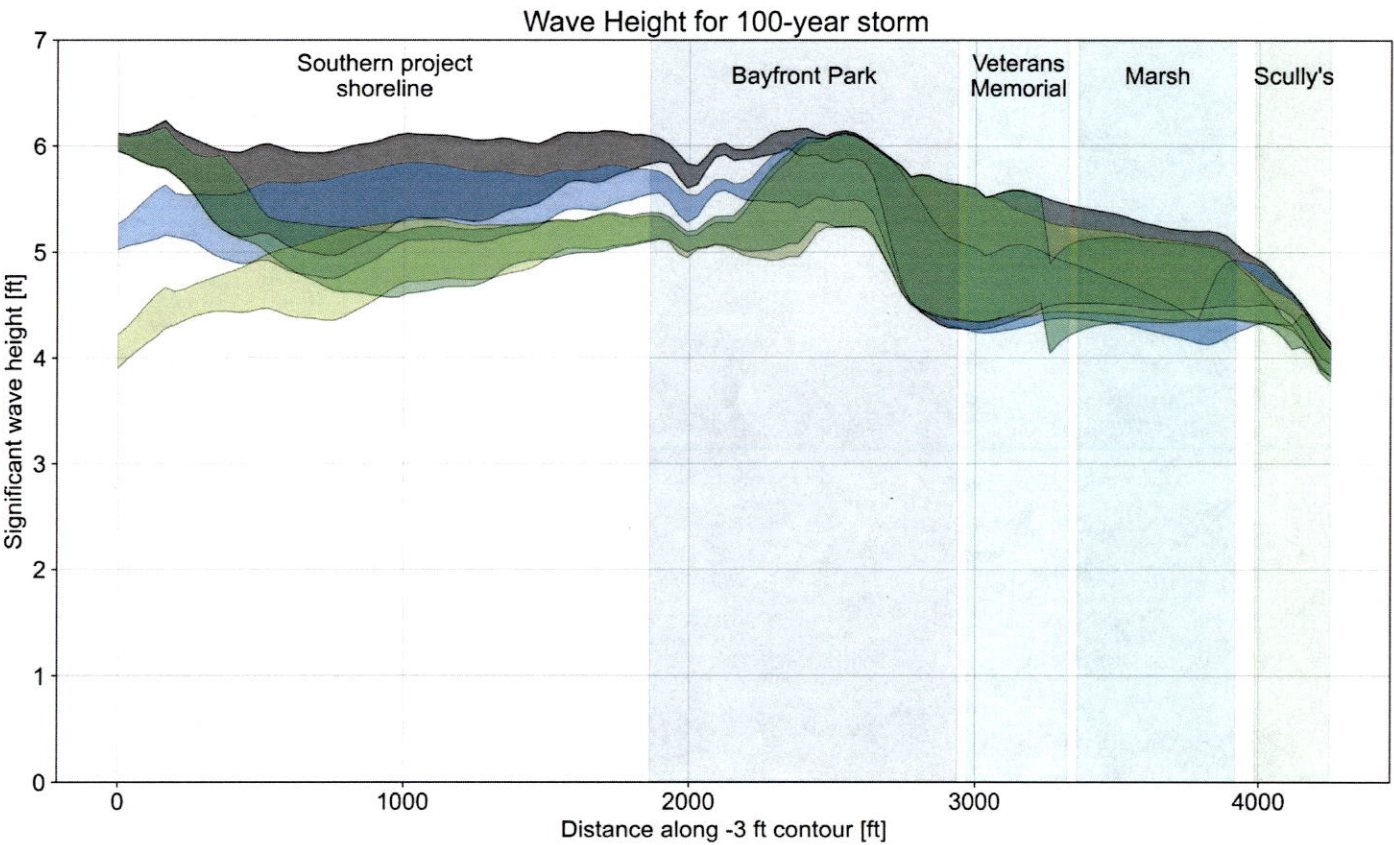
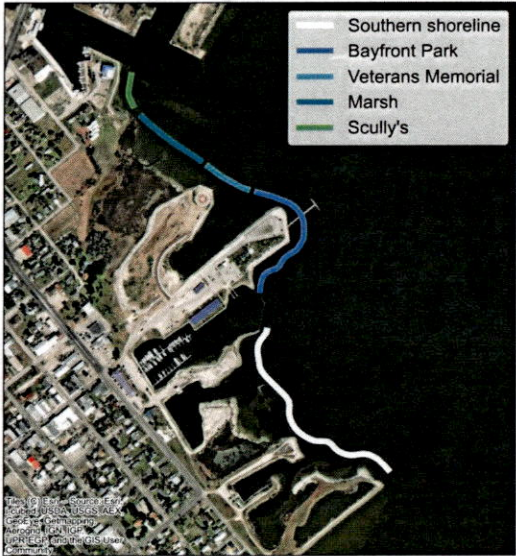


100yr Results

- Existing condition

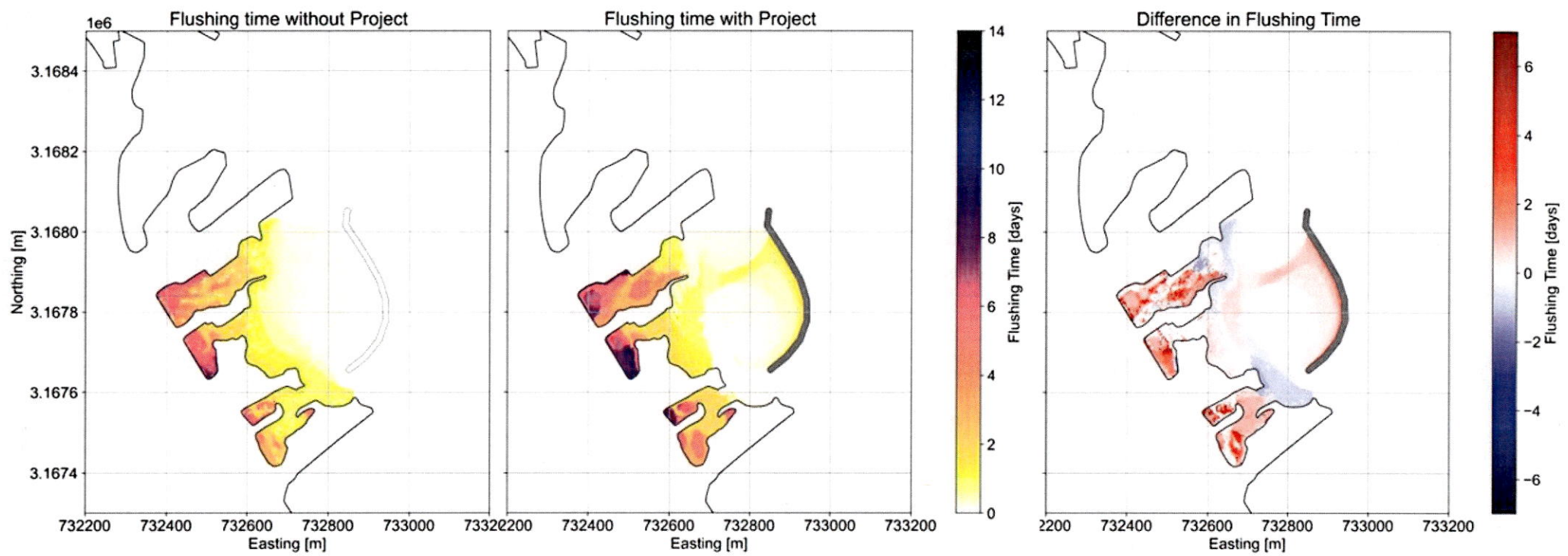
Alternative 1D
- Alternative 2A

Alternative 3



Flushing Analysis

Alternative 3

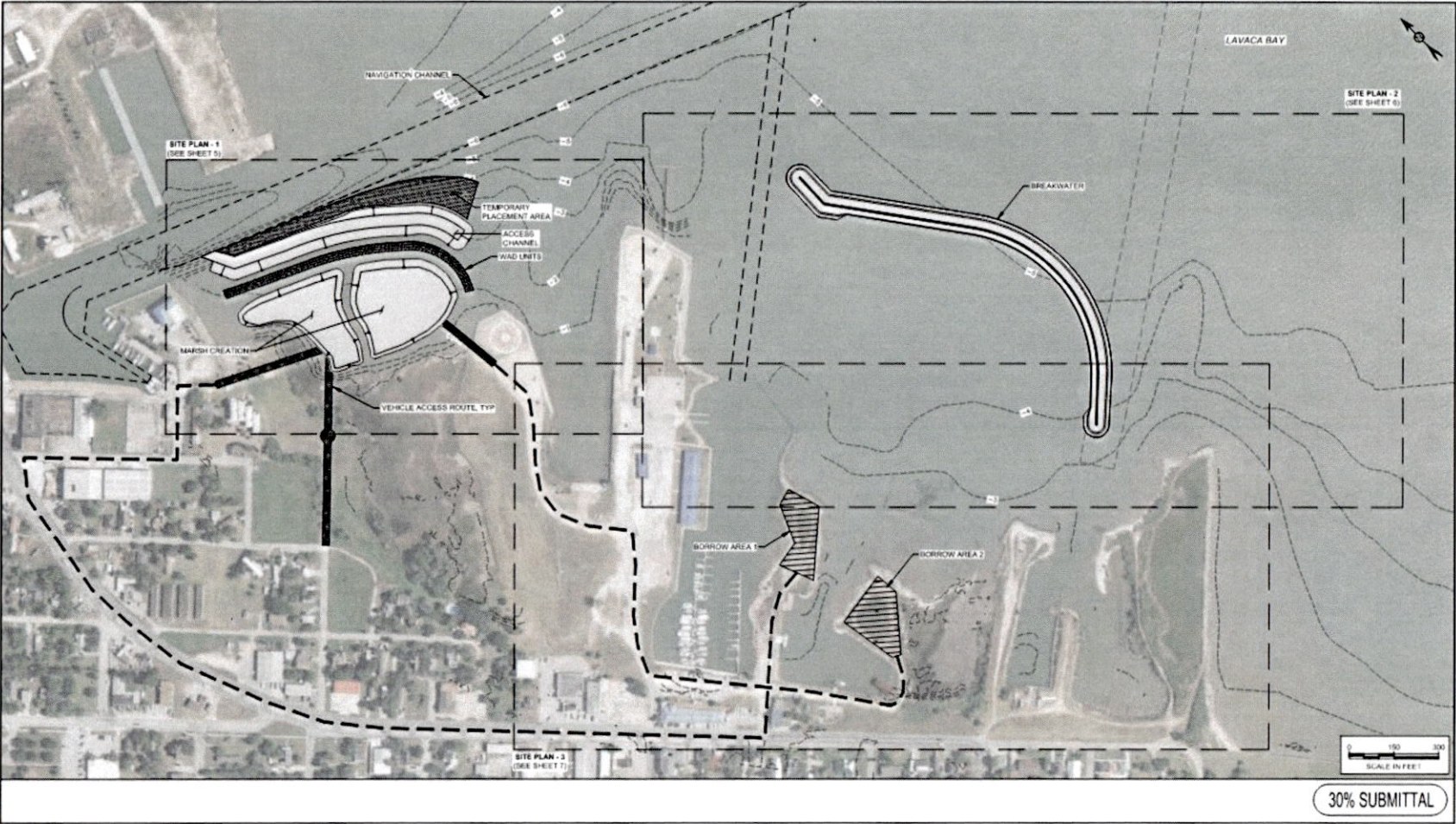


Meeting Agenda

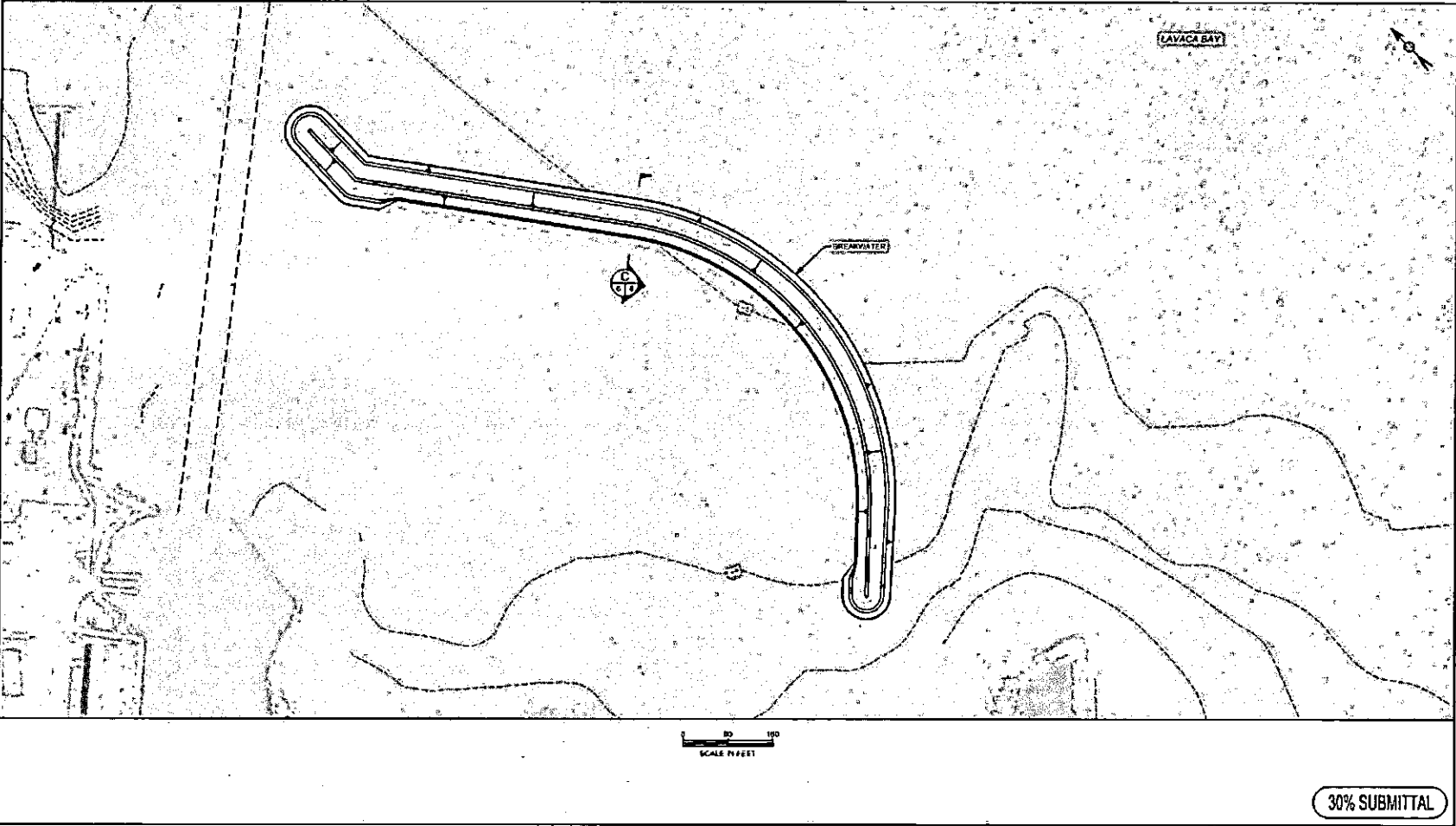
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Conclusions and
Next Steps

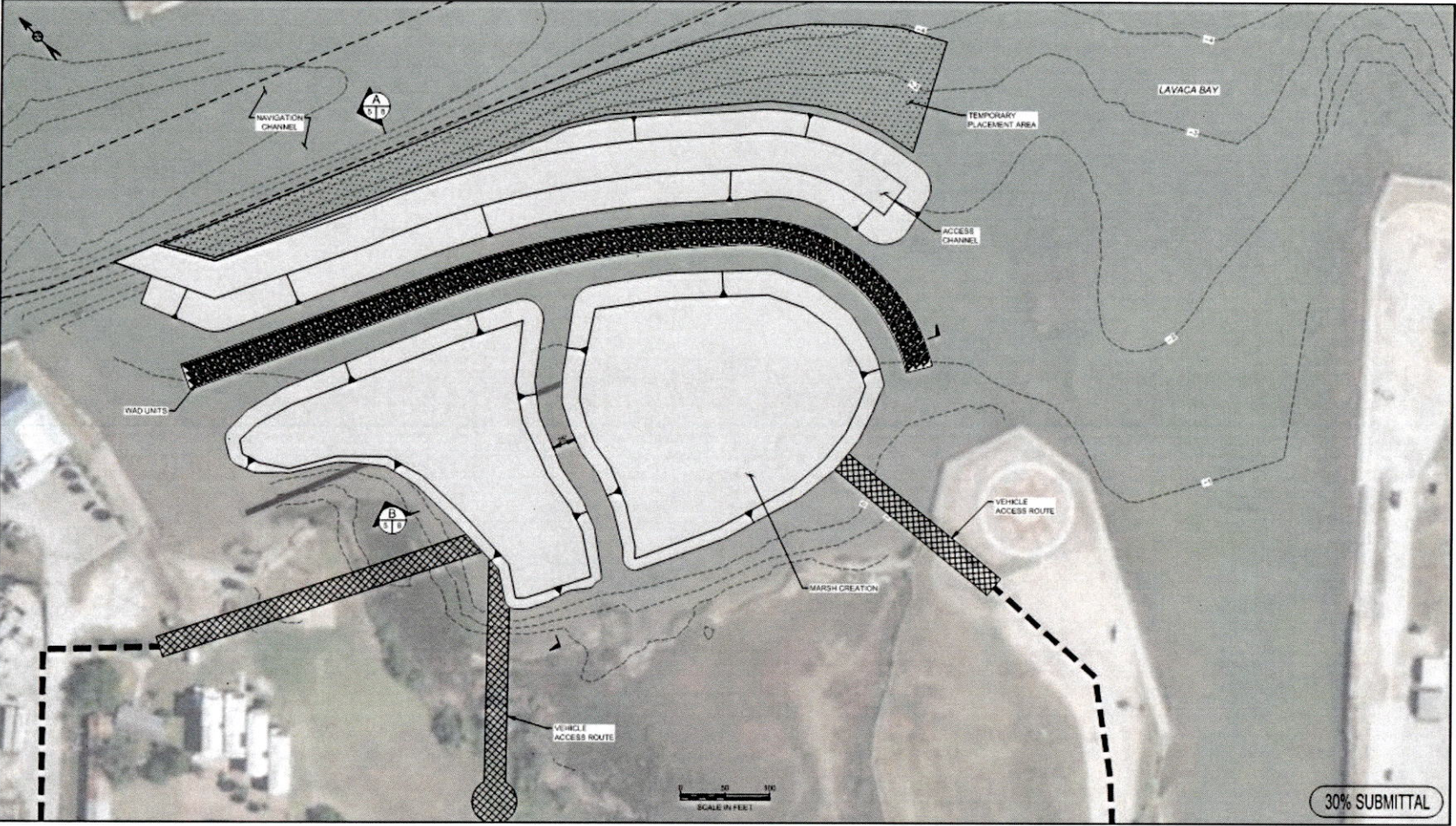
30% Design Plans



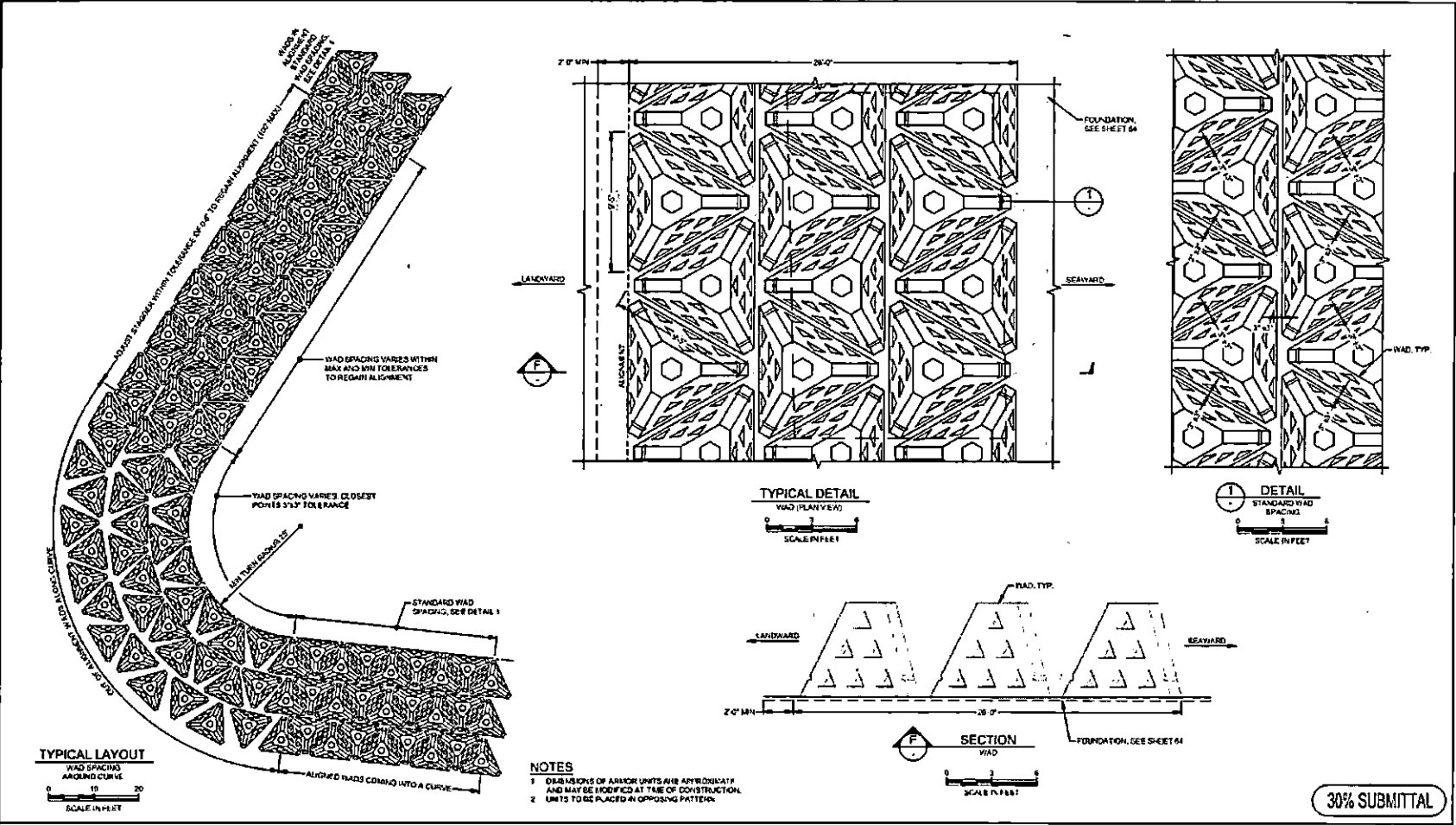
30% Design Plans



30% Design Plans

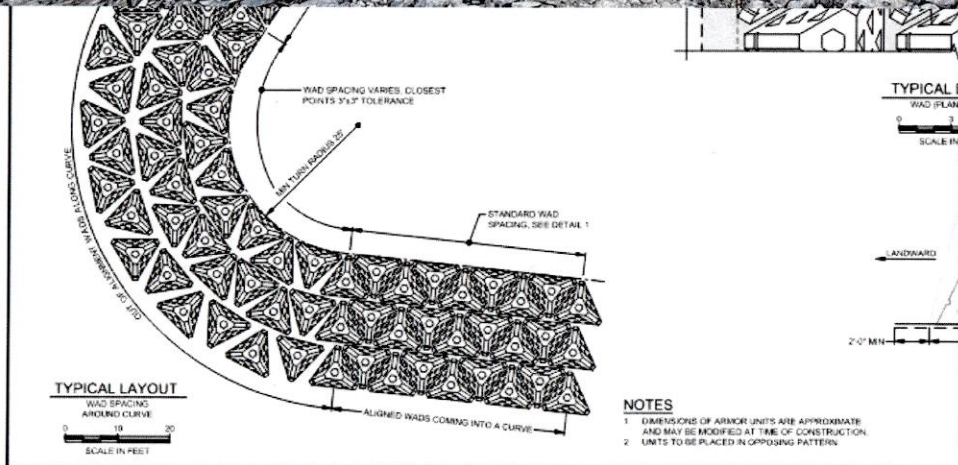
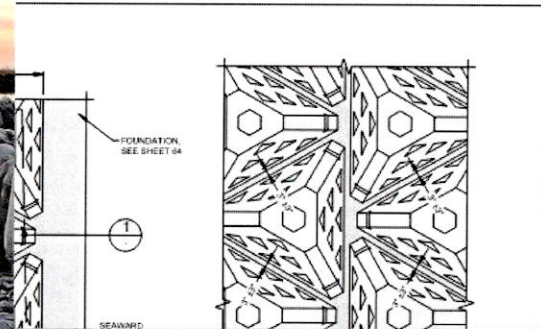


30% Design Plans



30% Design Plans

Future stages of design will include ability to use alternate products



<https://natrx.io/living-shorelines-by-natrx>

Engineering Schedule

Task	Start	End
Engineering Notice to Proceed	May 9, 2022(A)	
✓ Task 1. Develop Project Understanding	May 2022(A)	June 2022(A)
✓ Task 2 Data Collection Coordination and Analysis (historical data; new bathy and mag survey)	June 2022(A)	Nov 2022(A)
✓ Task 3 Coastal Analysis, Alternatives Development & Evaluation	June 2022(A)	May 2023(A)
✓ Task 4 Preliminary Design (30% design)	May 2023 (A)	Sep 2023 (A)
Task 5 Regulatory Compliance	Sep 2023 (A)	June 2024
Submit Permit Application		Nov 2023
Task 6 Final Design	Oct 2023	July 2024
Task 7 Bidding Support	Aug 2024	Oct 2024
Task 8 Engineering Services During Construction	Nov 2024	Aug 2025
Project Close		Aug 2025



Thank you