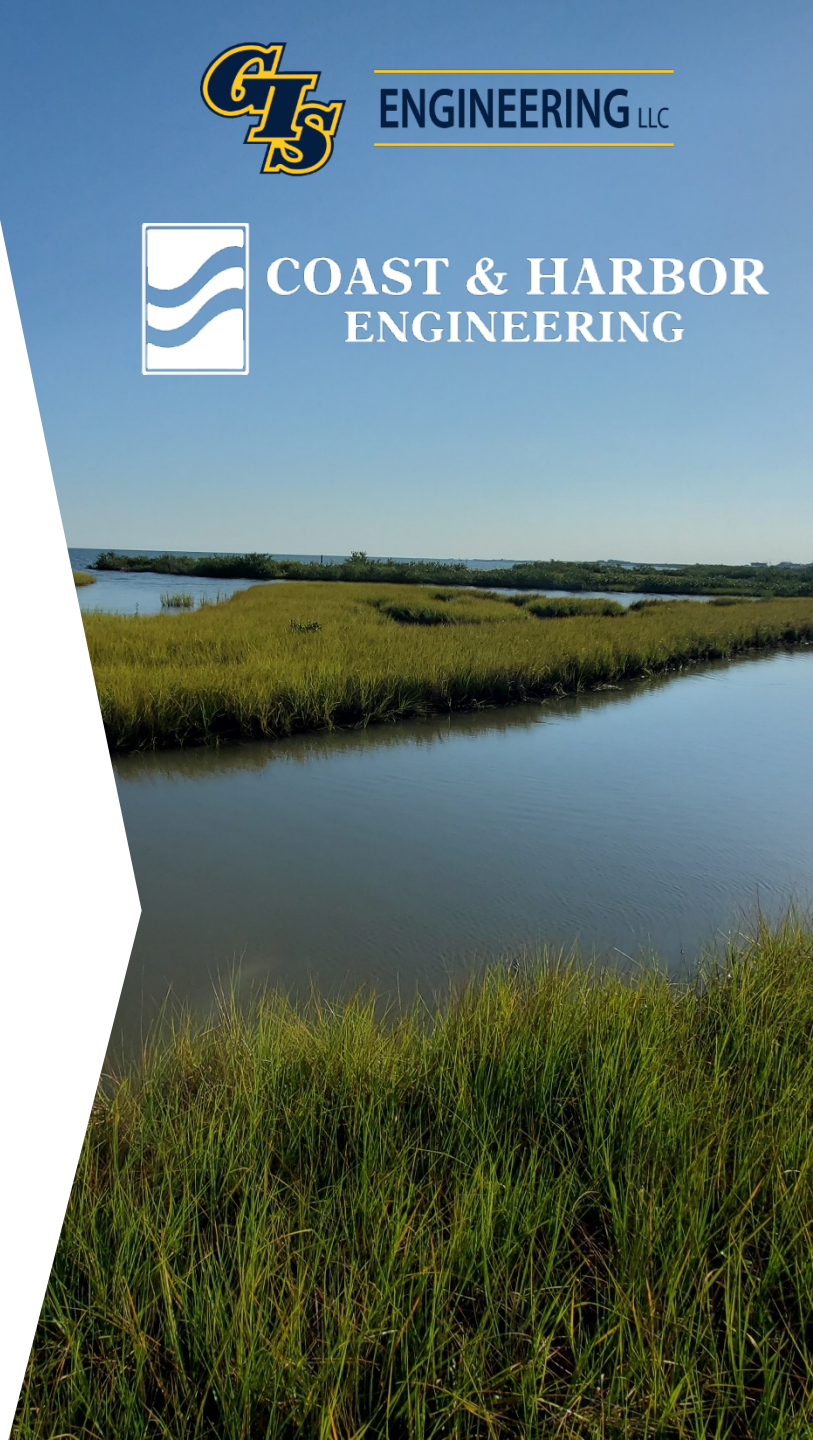
East Timbalier Island

Conceptual Design and Modeling

CPRA Board Meeting

November 18, 2026



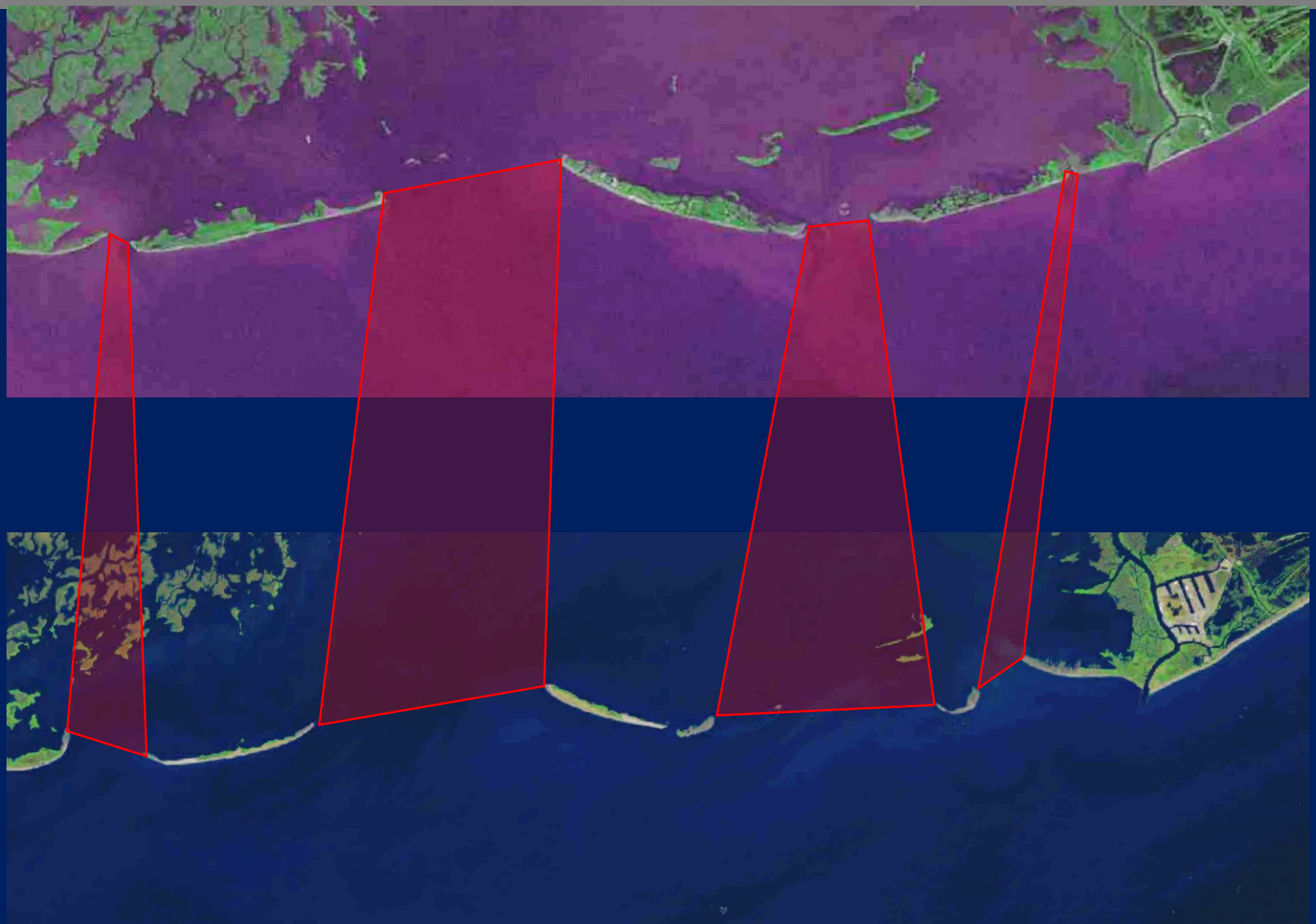
East Timbalier Island – Scope of Work

1. **Data Gap Analysis** - **COMPLETE**
   - ❖ Compilation and evaluation of existing data from studies, reports, permits, and previous projects within the Study Area
2. **Survey Data Collection** - **COMPLETE**
   - ❖ Varying transect spacing between 500 ft, 1500 ft, and 3000 ft
   - ❖ Utilized GPS RTK and single beam bathymetry equipment to collect data
3. **Conceptual Alternative Development and Screening** - **COMPLETE**
   - ❖ Develop beach nourishment and shoreline protection features for evaluation and consideration
4. **Feasibility Assessment (Recommended Implementation Plan) – COMPLETE**
   - ❖ Finalize project alternatives for performance evaluation through numerical modeling

East Timbalier Island
➢ Landform Changes



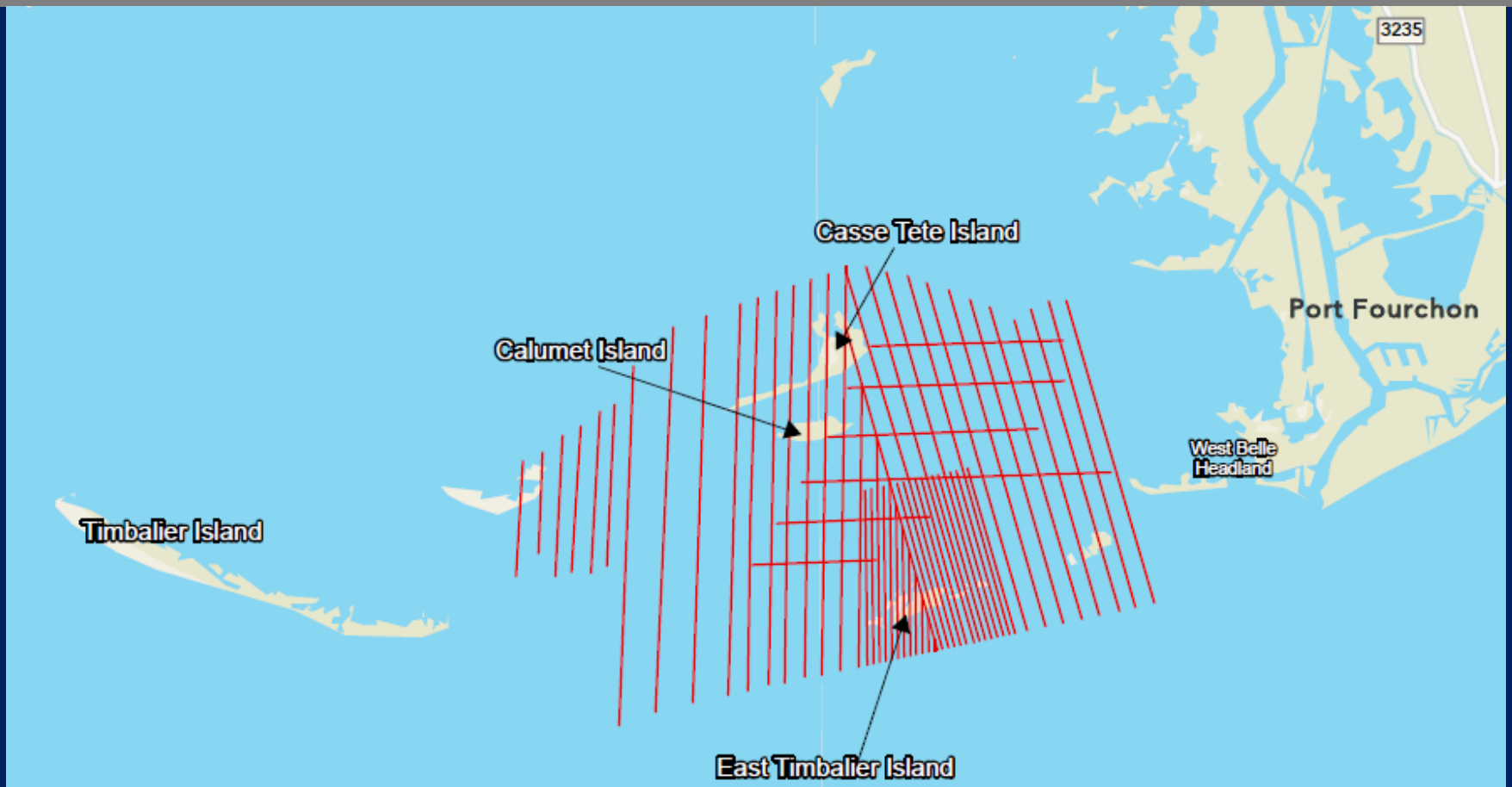
East Timbalier Island
- Tidal Inlet Changes



East Timbalier Island – Project Performance Metrics

1. **Habitat Restoration and Creation**
   - ❖ Acreage of habitat and land created, classified by elevation and tracked over time through modeling
2. **Littoral Sediment Transport Connectivity**
   - ❖ Sediment transport flux through control areas as part of a littoral sediment budget
3. **Gulf – Bay Exchange Modifications**
   - ❖ Improve Terrebonne Bay Tidal Prism and Tidal Discharge through Project Area tidal inlets
4. **Storm Protection**
   - ❖ Reduce wave heights and current velocities within Terrebonne Bay during tropical storm impacts
5. **Marsh Edge Erosion Mitigation**
   - ❖ Reduce marsh edge erosion in locations throughout Terrebonne Bay
6. **Longevity**
   - ❖ Evaluate the performance of all metrics throughout the Project lifetime

East Timbalier Island
➢ Survey Data Collection



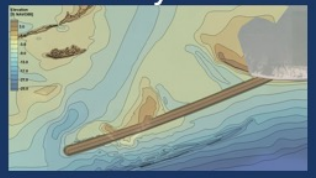
Total Survey Area

- **204 miles of data collection**

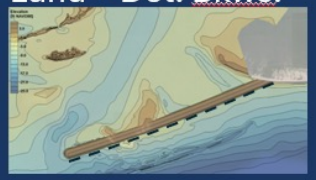
East Timbalier Island
➢ Alternative Development Process

Features

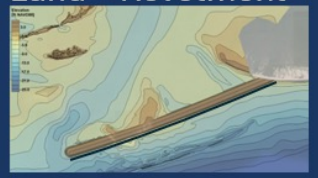
Land-Only



Land + Det. Bkws.



Land + Revetment

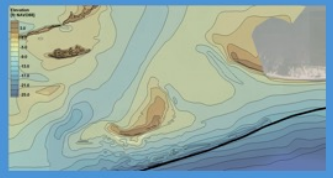


Breakwater Only

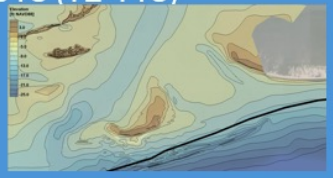


Shoreline Position

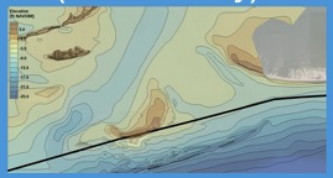
1988



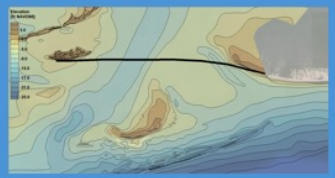
2015 (TE-118)



2025 (Present Day)



Retreat



Extents

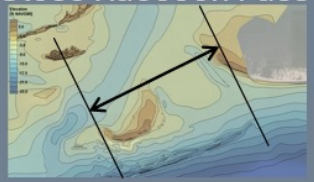
Current



Close E. Tim Shoal Pass



Close Raccoon Pass

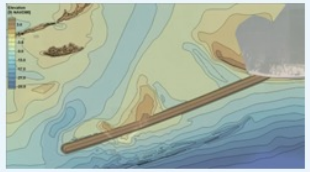


Close Little Pass Timb.

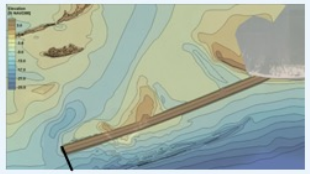


Secondary Features

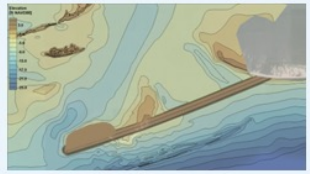
None



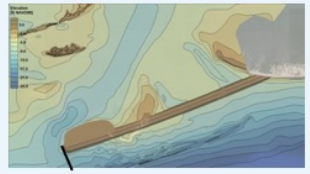
Jetties



Marsh



Jetties + marsh



East Timbalier Island
➢ Alternative Development Process

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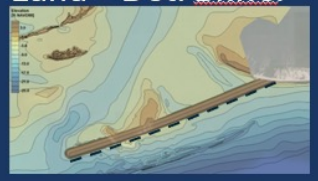
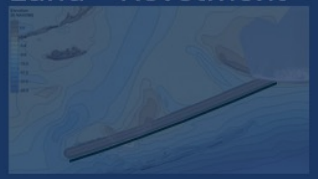
Land + Det. Bkws.



Land + Revetment



Breakwater Only



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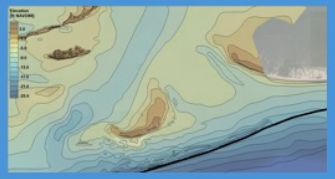


2015 (TE-118)



2025 (Present Day)

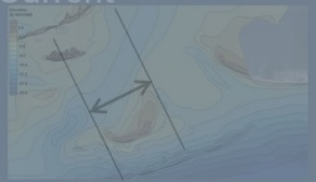


Retreat



Extents

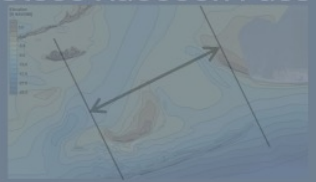
Current



Close E. Tim Shoal Pass



Close Raccoon Pass

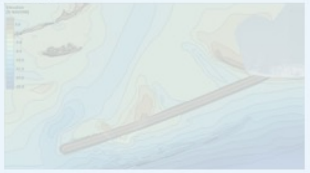


Close Little Pass Timb.

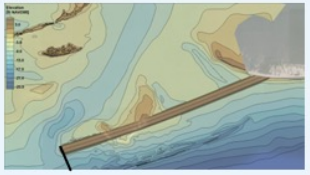


Secondary Features

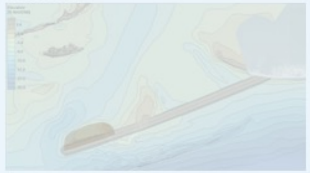
None



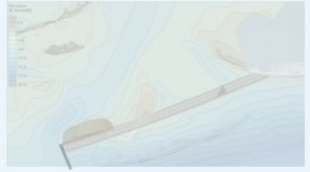
Jetties



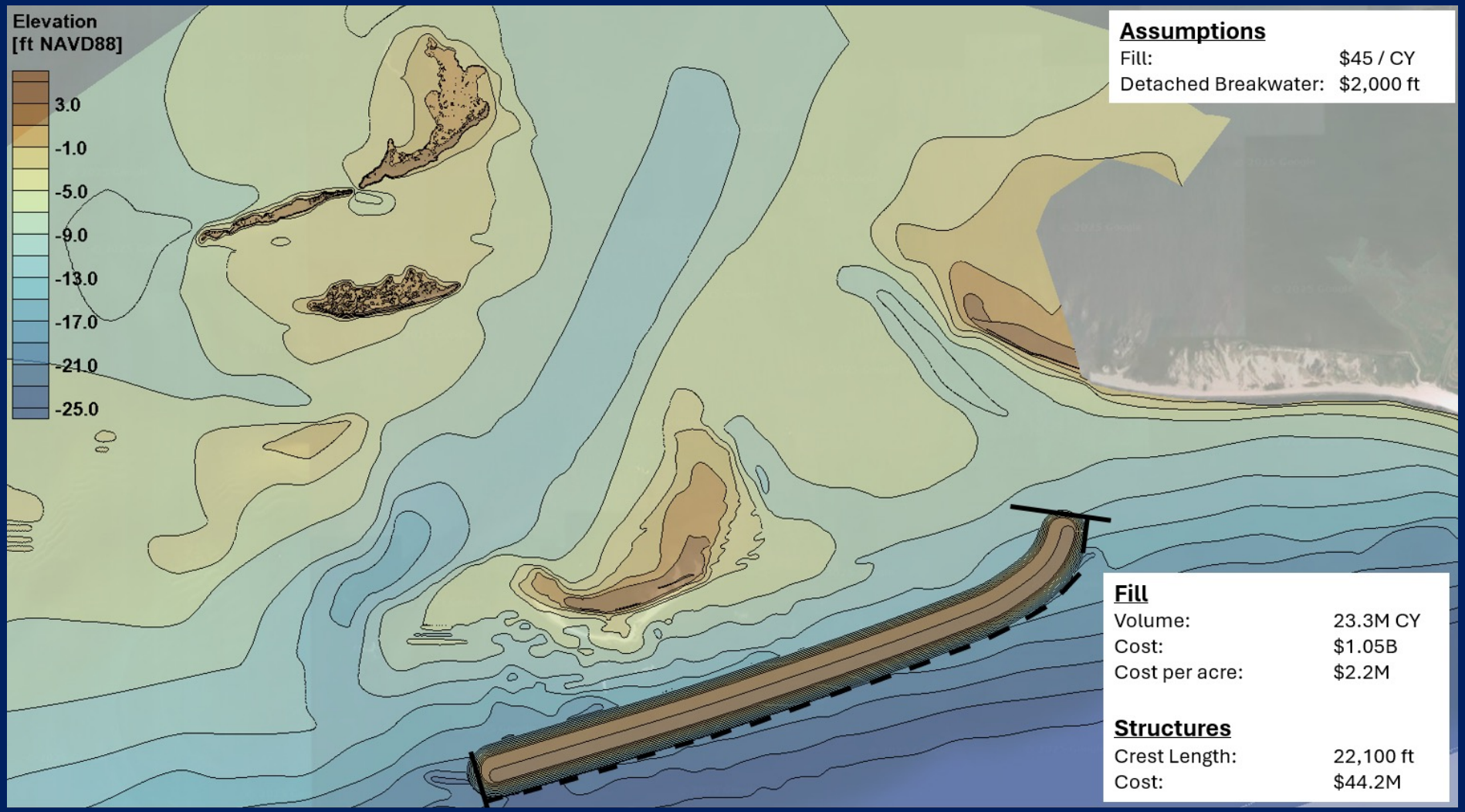
Marsh



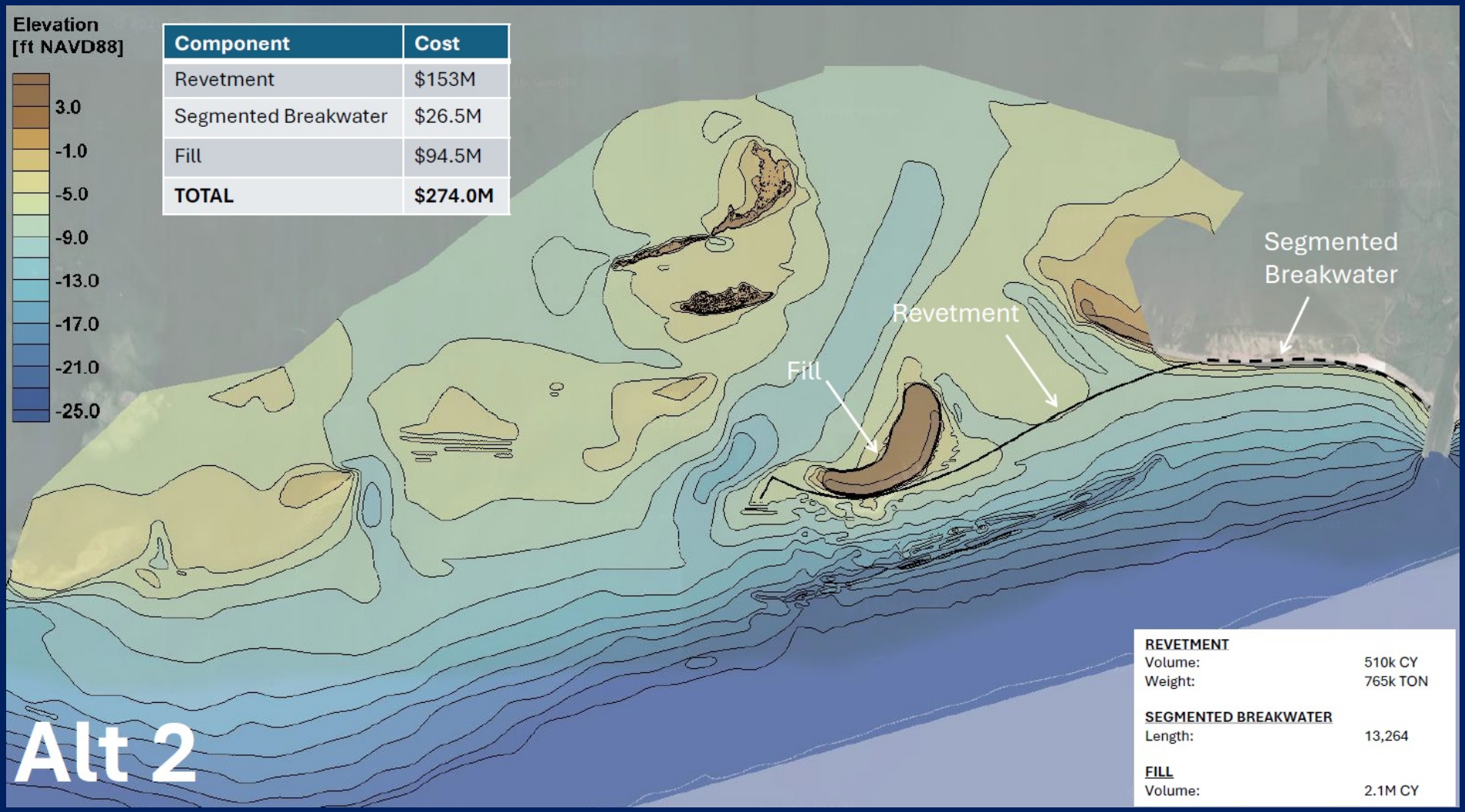
Jetties + marsh



East Timbalier Island
➢ Example Alternative



East Timbalier Island
➢ Example Alternative



East Timbalier Island
➢ Summary of Alternatives

	Alignment	# Revetments	Revetment Quantity [TON]	Segmented Breakwater Length [ft]	Fill Volume [CY]	Cost
Alt 1	2025	1	765k	13,200	-	$179.5M
Alt 2	2025	1	765k	13,200	2.10M	$274.0M
Alt 3	2025	2	1.16M	13,200	-	$257.5M
Alt 4	2025	3	1.52M	-	-	$304.0M
Alt 5	2025	-	-	20,000	5.46M	$285.8M
Alt 6	Calumet	1	285k	20,000	-	$97.2M
Alt 7	Calumet	1	285k	20,000	3.98M	$279.2M
Alt 8	Calumet	1	285k	20,000	2.10M	$191.7M
Alt 9	Calumet	2	435k	20,000	-	$127.2M
Alt 10	Calumet	2	435k	20,000	3.98M	$306.2M
Alt 11	Calumet	2	435k	20,000	2.10M	$221.7M
Alt 12	Calumet	-	-	20,000	6.10M	$314.6M
Alt 13	West Belle	2	1.12M	13,200	-	$251.3M
Alt 14	West Belle	3	1.49M	-	-	$297.0M

East Timbalier Island
➢ Next Steps

1. **Numerical Modeling**
   - ❖ Model set-up and calibration of a 3-Dimensional model of the East Timbalier Island vicinity

2. **Constructability Review of Alternatives**
   - ❖ Geotechnical Analysis
   - ❖ Pipeline and Oil/Gas Review
   - ❖ Update Quantities and Cost Estimates

3. **Evaluation of Alternatives Through Numerical Modeling**

QUESTIONS?



COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA

GIS ENGINEERING LLC

COAST & HARBOR ENGINEERING

ENGINEERING LLC

ROYAL engineeringpossibilities.

ANGELETTE DESIGN LLC
Consulting Engineers & Surveyors

Fourchon Island Resiliency Project (TE-0178)

COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA

FOURCHON
65 Years Strong

November 18, 2026



Conceptual Design - Scope of Work

1. **Data Gap Analysis**
   - ❖ Compilation and evaluation of existing data from studies, reports, permits, and previous projects
2. **Survey Data Collection**
   - ❖ Collection of nearshore bathymetry and beach/dune topography data
3. **Conceptual Alternative Development and Screening**
   - ❖ Development of conceptual alternatives using information from data gap analysis survey collection. Alternatives include combinations of beach/dune nourishment and hard structures for shoreline stabilization
4. **Development of Feasibility Assessment Plan**
   - ❖ Refinement of alternatives utilizing hydrodynamic modeling and evaluation of performance metrics of alternatives. Identifications of remaining design work, preliminary design budget, and design schedule.

Fourchon Island Resiliency – Project Area



GREATER LAFOURCHE PORT COMMISSSION

FOURCHON BEACH RESILIENCY

FOURCHON

Data Gap Analysis

- Bathymetric & Topographic Survey Data
- Geotechnical and Geophysical Data
- Existing Infrastructure
- Hydrologic and Coastal Processes Data
- Land Rights and Oyster leases
- Numerical Models, Model Grids, Studies, and Reports
- Previous/Existing Permits for Offshore Sediment Leases
- Project Design Reports from past Restoration Efforts



Figure 5: Identified Pipelines in Project Vicinity

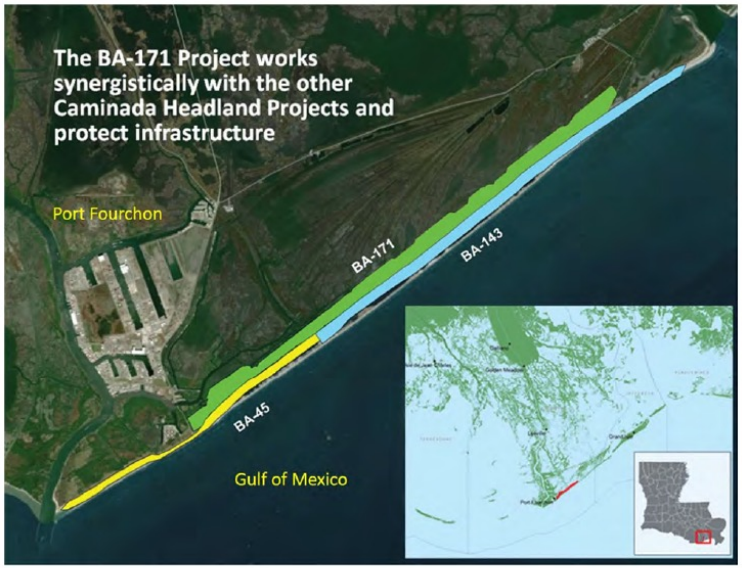
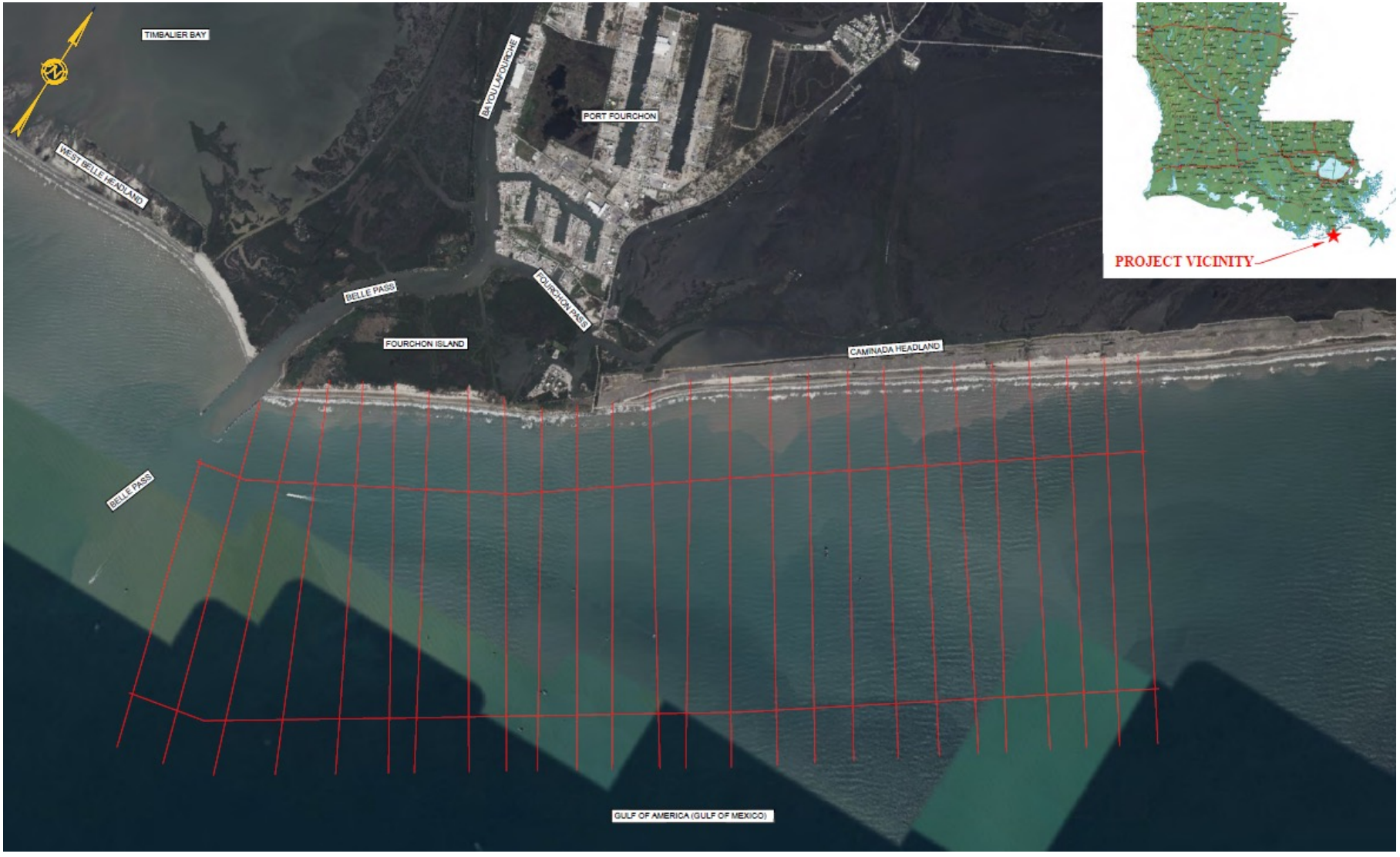


Figure 9: Caminada Headlands Restoration Projects[21]

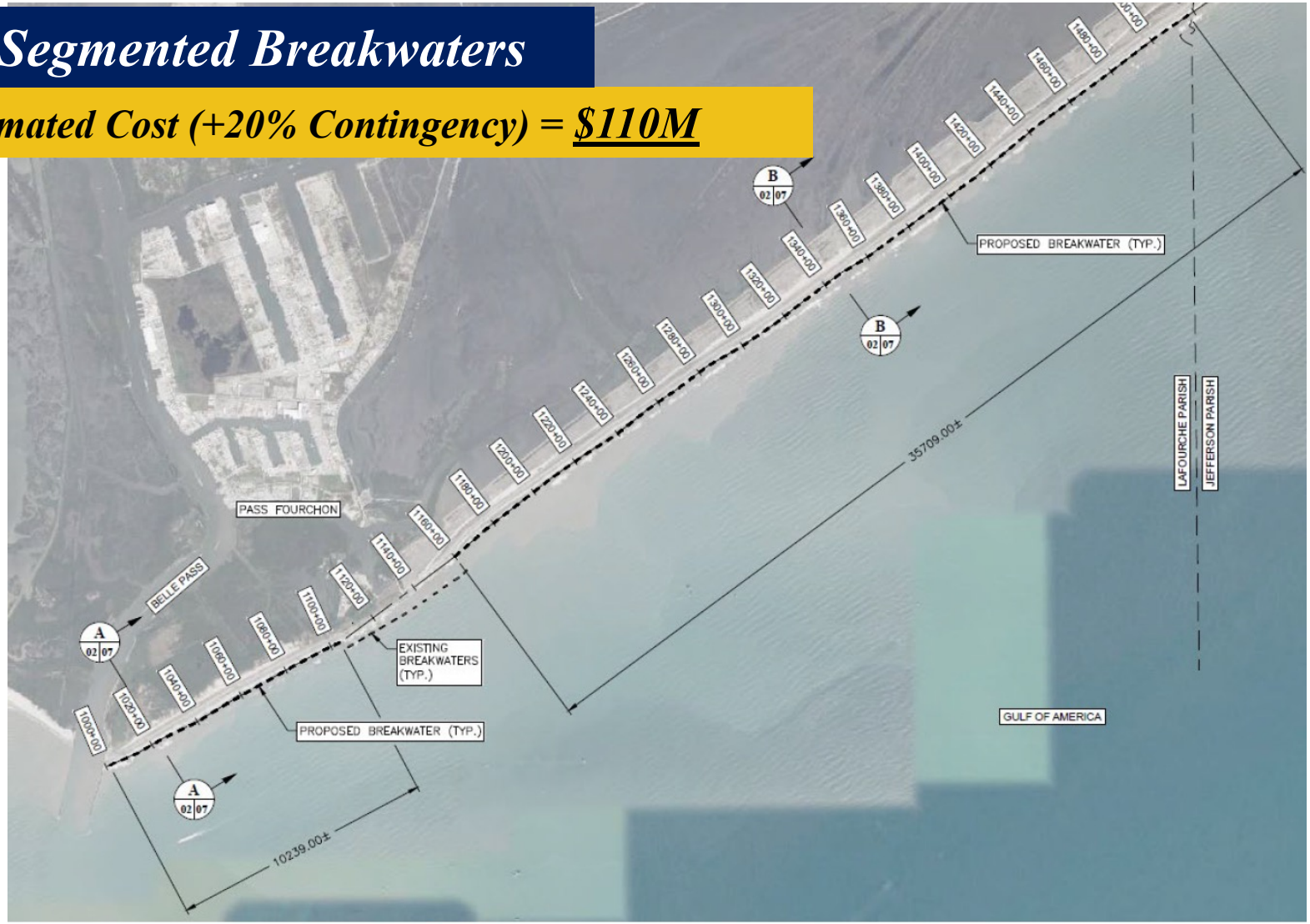
Survey Data Collection



Conceptual Alternatives Development – Alt. A

93 Segmented Breakwaters

Estimated Cost (+20% Contingency) = $110M



Conceptual Alternatives Development – Alt. A



Conceptual Alternatives Development – Alt. A

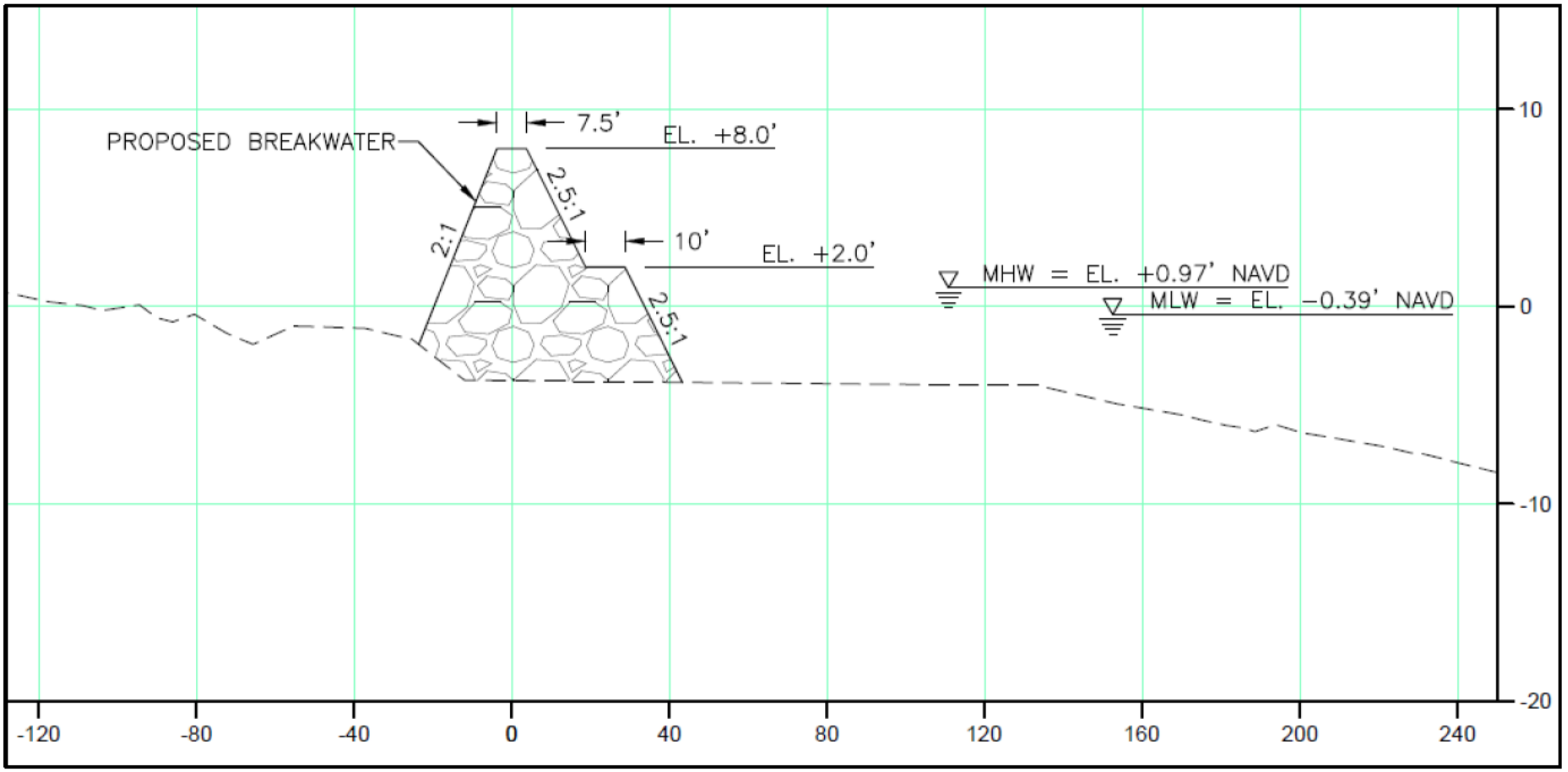
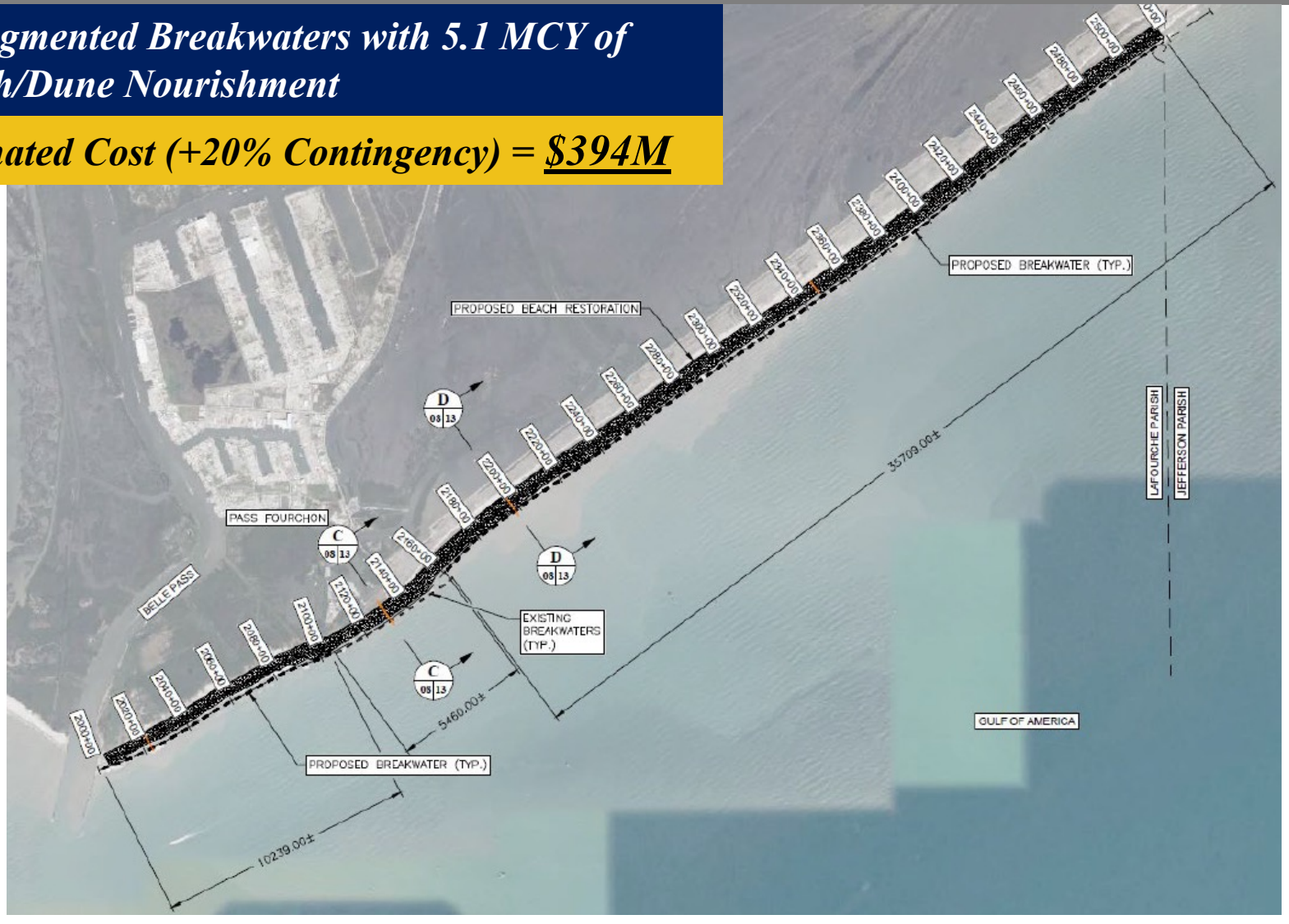


Figure 2: Typical Cross-Section for Alternative A

Conceptual Alternatives Development – Alt. B

92 Segmented Breakwaters with 5.1 MCY of Beach/Dune Nourishment

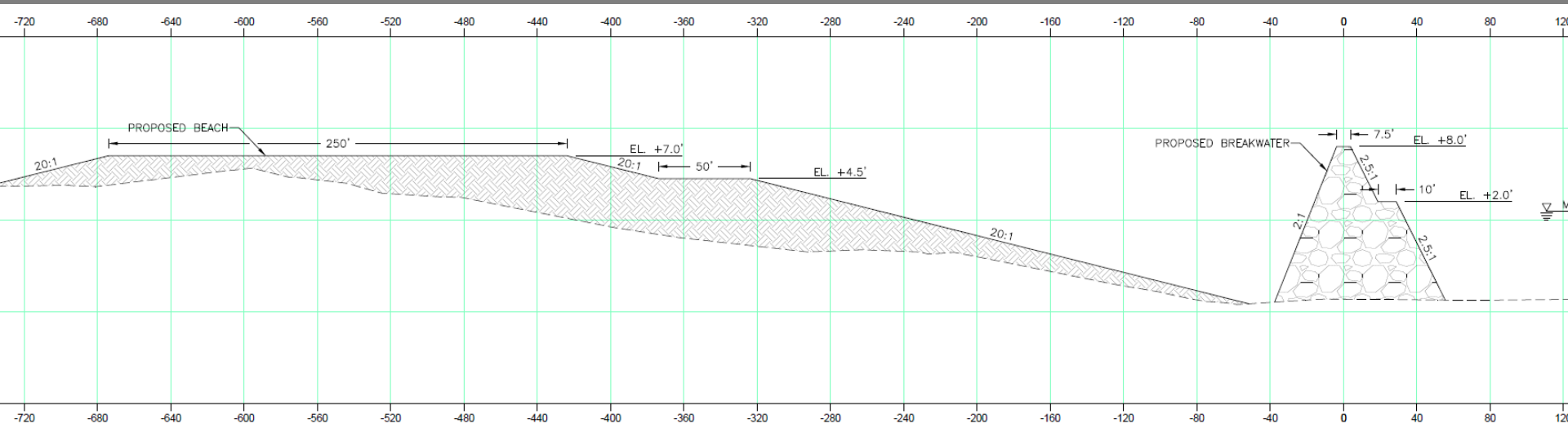
Estimated Cost (+20% Contingency) = $394M



Conceptual Alternatives Development – Alt. B



Conceptual Alternatives Development – Alt. B



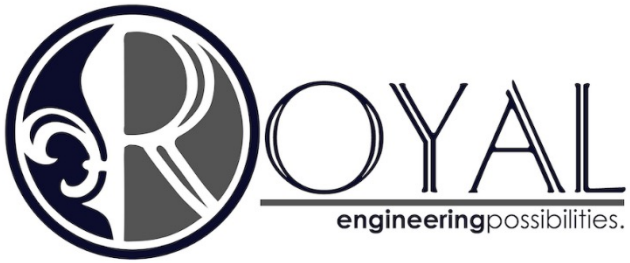
Project Schedule

✓ *Data Gap Analysis*	*September 2025*
✓ *Survey Data Collection*	*January 2026*
✓ *Conceptual Alternatives Development*	*February 2026*
✓ *Development of Feasibility Assessment Plan*	*July 2026*
❑ *Hydrodynamic Modeling of Alternatives*	*January 2027*
❑ *Preliminary/Final Design and Permitting*	*TBD*

QUESTIONS?



ENGINEERING LLC





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Consulting Engineers & Surveyors

