

Dauphin Island's East End Beach and Barrier Island Restoration Project

Town of Dauphin Island, Alabama

April 16, 2015

6:00 PM

Dauphin Island Sea Lab, Shelby Hall



“Team” Introduction

South Coast Engineers

Coastal Tech

Hutchinson Moore & Rauch

Purpose of Presentation

Describe the proposed project:



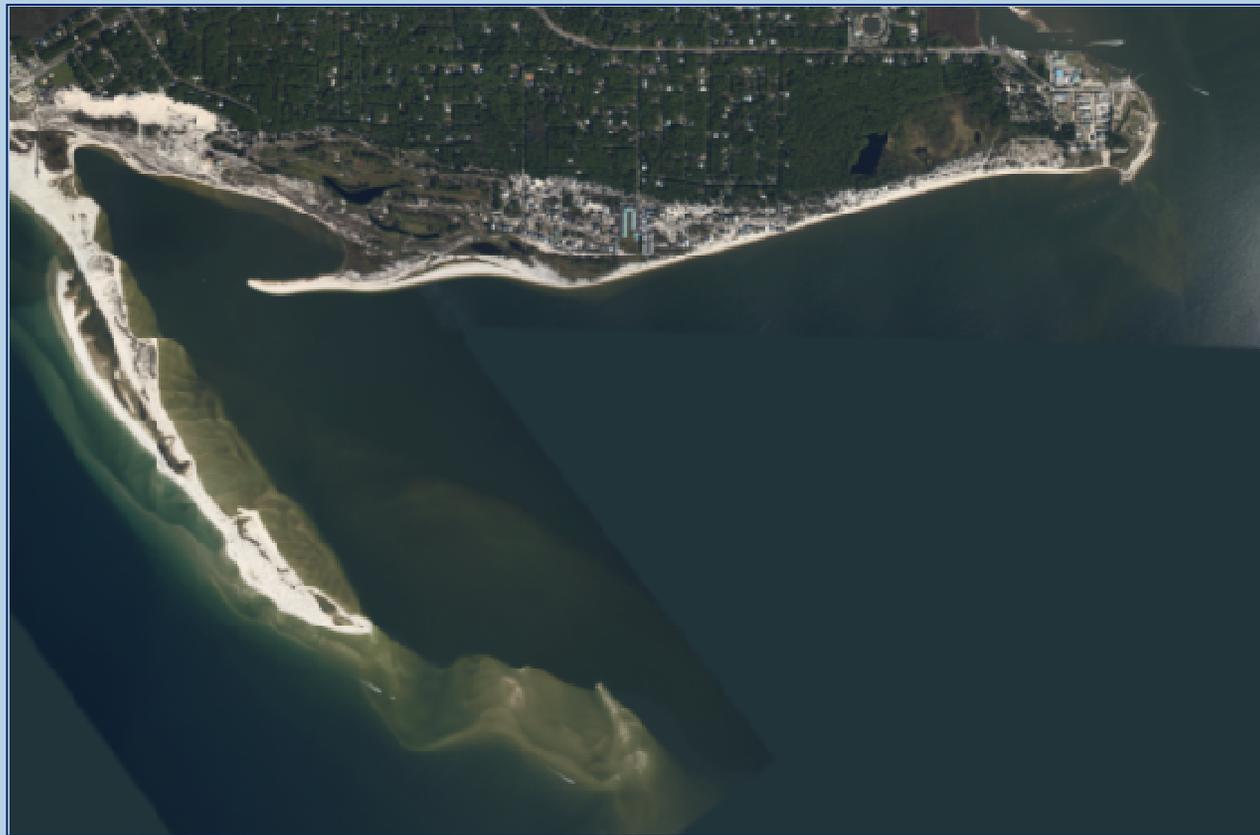
Design Development: *Overall Project Steps*

- Research/Understand Site History & Coastal Processes
- Develop Working Project Goals
- Prepare Conceptual Design(s)
- 'Recon' and Final Borrow Area Investigations
- Begin Regulatory Process
- Finalize Design Work
- Complete Permitting > Final Plans & Specifications
- Establish Mean High Tide Line & Conclude other Easements
- Bidding, Construction, Monitoring

Design Development:

East End Coastal Processes

Beach erosion on eastern mile of beaches is influenced by position/elevation of Pelican and Sand Island shoals



Design Development: *Historic Erosion Rates*

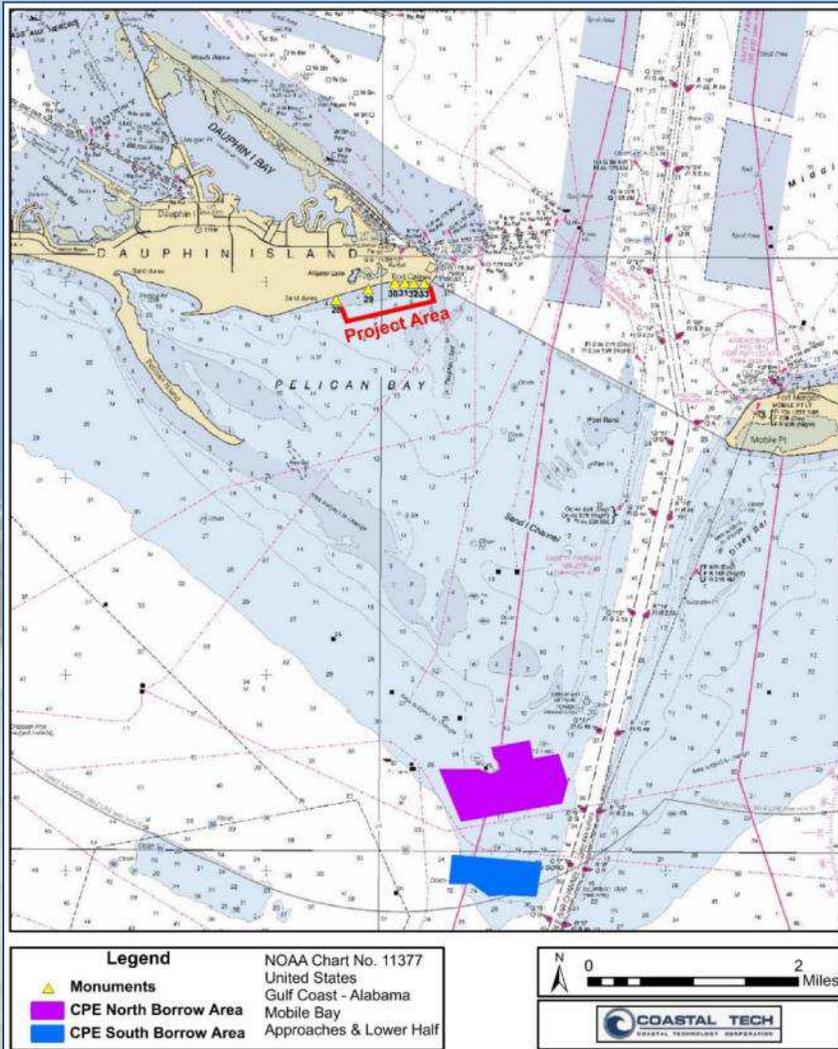
- From 2005 (Katrina)-2010 beach retreated at rate of 8.4 ft/yr (40+ feet). Equates to about 220,000 cu yds of erosion.
- From 2010-2013 another ~50,000 cu yds
- Long-term land loss evidenced by position of old rock groins



Design Development: *Project Goals*

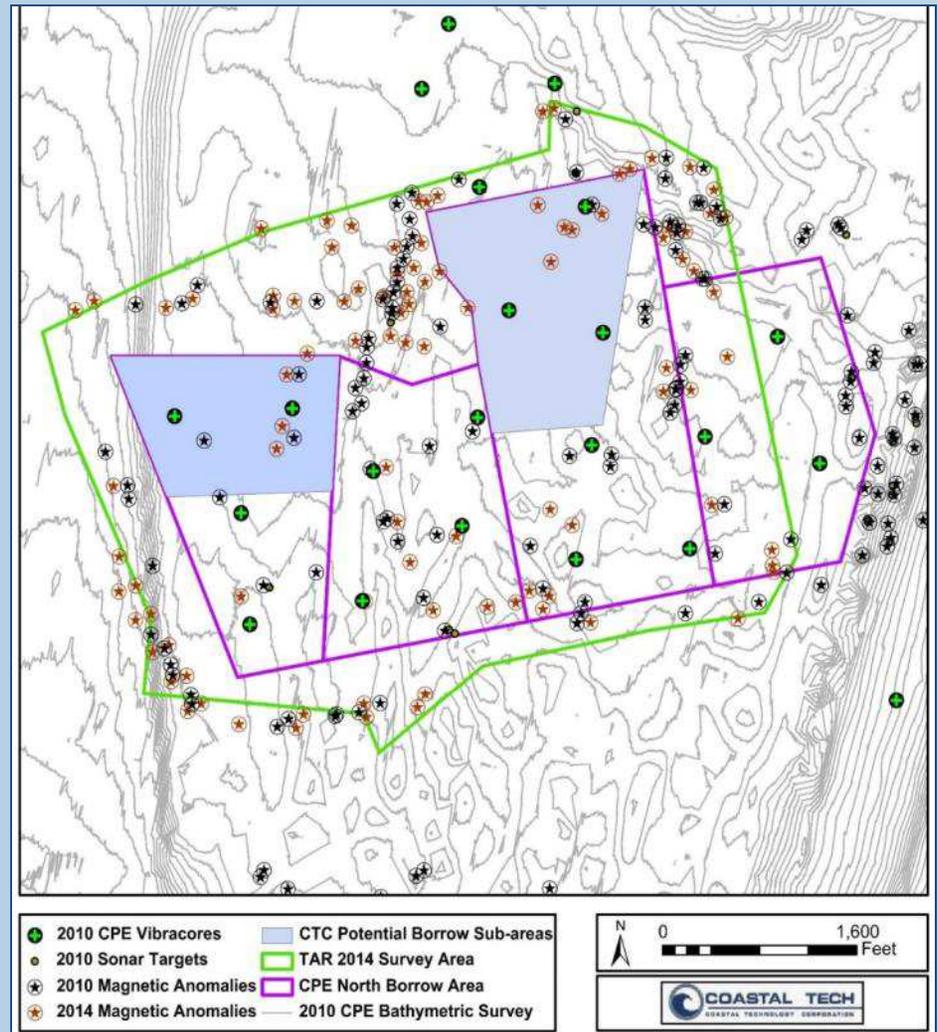
- Restore and protect wildlife habitats on the east end including Gulf-front foraging and nesting habitats for seabirds, shorebirds, neotropical migratory birds, and sea turtles
- Reduce risk of saltwater intrusion into the freshwater lake in bird sanctuary
- Introduce beach sands into the littoral drift of the Gulf barrier island
- Increase longevity of new sand by concurrent use of rock breakwaters

Design Development: *Borrow Area*



- Recon looked at western flank Mobile Bay ebb tidal delta
- Final investigation sought to identify a sub-area:
 - (1) is most proximal to the fill Project Area,
 - (2) avoids cultural resources to the maximum extent possible, and
 - (3) contains sufficient sand quantities with a factor of safety of at least 2 (sub-area volume is 600,000 cubic yards).

- Borrow sub-area as requested in permits
- No indication in any of field work of contaminants
- Laboratory testing of proposed Borrow Area sand compared to Native Beach



Sample	gINT Granularmetrics							USC	Munsell Color			
	Size Class (wt%)				Descriptive Statistics				Wet		Dry	
	Gravel	Sand	<#200	<#230	Mean (mm)	Verbal	Std. Dev. (phi)		Value	Chroma	Value	Chroma
CTC Native	0.72	98.8	0.48	0.47	0.28	F	0.76	SP	6	3	8	2
CPE Native^	1.09*	98.57	0.34	0.33	0.28	F	0.82	SP	6	2	7	2
CPE + CTC Native	0.71	98.86	0.43	0.42	0.28	F	0.79	SP	6	3	7	2
Sub-Area 2	0.27*	98.31	1.42	1.4	0.26	F	0.65	SP	6	1	7	1

Project Description - Funding

Funded through the State Lands Division of
the Alabama Department of Conservation
and Natural Resources

Coastal Impact Assistance Program

(AL-28: Dauphin Island Shoreline Stabilization Project)



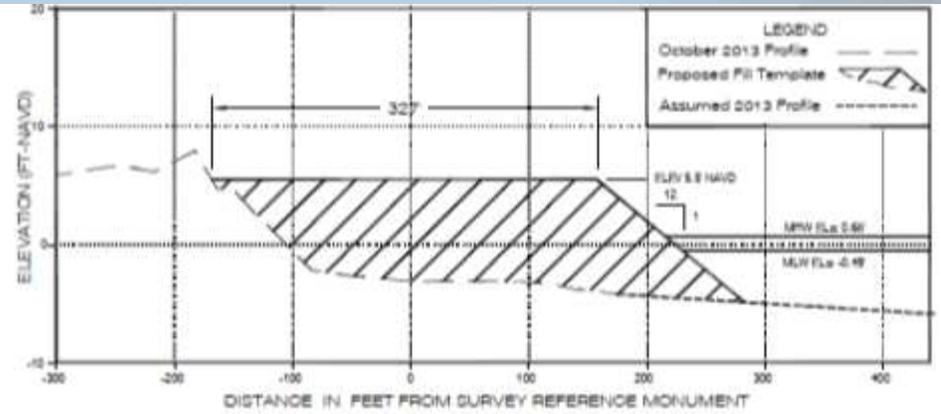
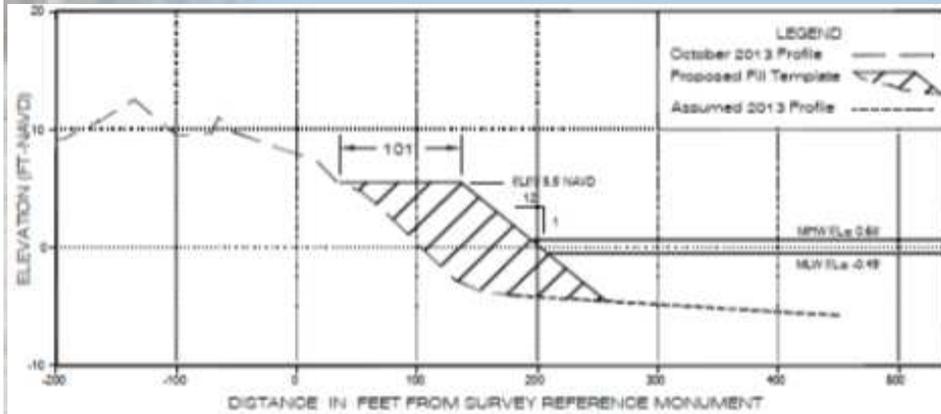
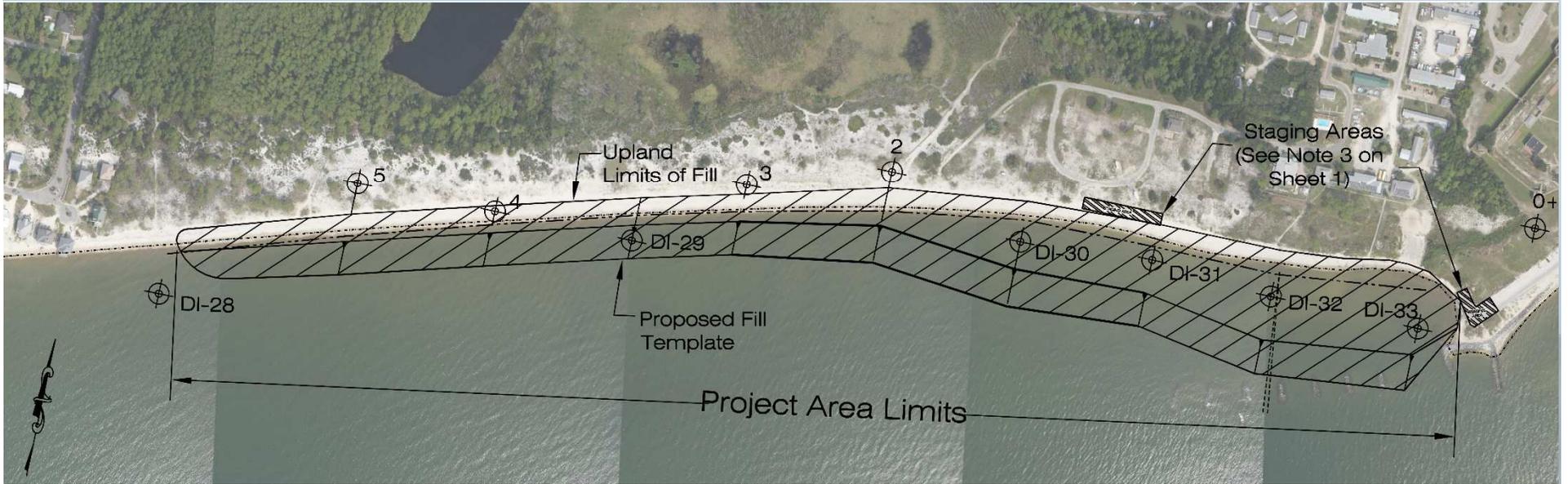
Project Description – Introduce New Sand by Beach Nourishment

Features:

~300,000 cubic yards of beach fill concentrated behind renovated rock structures and extending west to near the west side of the bird sanctuary

Beach nourishment:
The placement of large quantities of good quality sand directly on the beaches to restore the beach.

Project Description – Beach Nourishment



State Permitting

State Regulatory Agencies

- Alabama Department of Environmental Management (ADEM)
- AL Department of Conservation & Natural Resources, State Lands Division (ADCNR)
- Alabama State Historical Preservation Commission (SHPO)
 - Tribal Authorities

State Permitting

State Permitting Process

ADEM's Administrative Code requires that all permitted projects:

- Meet state water quality standards
- Utilize only quality fill material
- Are consistent with the AL Coastal Area Management Program
- Do not impact submerged cultural resources
- Include mitigation for project impacts, if warranted

State Permitting

Pre-application meeting held October 30, 2013

ADEM-COE Joint Application submitted March 12, 2014

Responses to ADEM's requests for clarification and/or additional information

ADEM permits issued on October 3, 2014

- Coastal Consistency Certification
- Water Quality Certification

ADEM

Required Monitoring/Submittals

- Implementation of Post Construction Monitoring Plan
- Project Completion Certification
- Turbidity monitoring during construction
- Topographic/bathymetric surveys of beach
 - 90 days prior to construction
 - 60 days following construction
 - Annually for 3 years
- Bathymetric survey of borrow area
 - 90 days prior to construction (or prior survey)
 - 60 days following construction
- Engineering report with monitoring data within 90 days of each post construction and annual monitoring survey
- Aerial photography
 - Immediate post construction
 - Year 1 post construction
- Lighting surveys/report
 - Year 1 post construction – 2 surveys
- Sea turtle monitoring/reports
 - 2 nesting seasons post construction
- Tilling/escarpment surveys
 - Prior to May 1 for 3 years post construction

Federal Permitting Process

The National Environmental Protection Act (NEPA)

- Requires federal agencies to integrate environmental issues into their decision making process

Section 404 of the Clean Water Act

- Regulates the discharge of dredged or fill material into waters of the state

Section 10 of the Rivers and Harbors Act of 1899

- Regulates construction of any structure in or over navigable waters of the United States

Commenting agencies:

- Alabama Historical Commission, State Historic Preservation Officer (SHPO)
 - Preservation of non-renewable cultural resources
- U.S. Fish & Wildlife Services (FWS)
 - Protection of listed species under the Endangered Species Act
- National Marine Fisheries Service (NMFS)
 - Implementation of Terms & Conditions for dredging offshore areas within the Gulf of Mexico Regional Biological Opinion (GRBO)
- Tribal Authorities
 - Preservation of Tribal cultural resources

Federal Submittals

Responses to requests for clarification
and/or additional information

USACE permit issued 12/4/2014

SHPO concurrence issued 8/11/2014

Federal Requirements/Submittals

- Construction may occur year round
- Pre-construction meeting with agencies, contractor monitors, surveyors, Town representatives
- Sea turtle monitoring/reports
 - during construction (if construction occurs between May 1 and September 30) and 2 nesting seasons post construction
- Use of beach quality sand free of contaminants
- Installation of predator-proof trash receptacles
- Provide U.S. Coast Guard Notice to Mariner
- Compliance with National Flood Insurance Program
- Endangered species monitor during dredge operations
- Dredge Quality Management operational during all dredging
- Turbidity monitoring during construction
- Notify USACE and SHPO if cultural resources are found
- Immediate post construction summary report to USFWS
- Tilling/Escarpment Surveys
 - immediate post construction and annually for 3 years
- Lighting surveys/Report
 - year 1 post construction

Required Easements and Conveyances

Dauphin Island Park and Beach Board and Dauphin Island Sea Lab have signed easements

United States Coast Guard has provided a construction staging area license and will be providing a conveyance agreement (equivalent to these easements for federal lands)

Mean High Tide Line

Establishment of a line is required by state law before construction of a beach restoration project

Established by a public hearing with associated map or documentation

Mean High Tide Line

MHT line as surveyed as it existed in
January 2010

Adopted by the Town Council at public
hearing May 7, 2014

To be established *only* for the specified
project area

Mean High Tide Line



CCCL

2010 MHT Line

Project Limits



Mean High Tide Line

Title to filled land lying seaward of the “designated” MHT line is retained by the state

Affected landowners retain all “statutory and common-law riparian or littoral rights of access” to the filled land, “subject to reasonable regulation” by the Town.

Next Steps

ADCNR/ADEM receives public input
(tonight!)

Permit issuance decision by ADCNR

Bids & Construction
(this spring/summer)