

2024 Symposium on Flooding Adaptation – Spotlighting Solutions for Florida

Building Resilience to Coastal Flooding Through Living Shorelines: Lessons from the Resilient Pasco Project

October 30th, 2024 | Kissimmee, Florida

ACKNOWLEDGMENTS

Grant Funding/Administration

- U.S. Department of Housing and Urban Development (HUD)
- Florida Department of Commerce

Pasco County, Florida

- Parks, Recreation, and Natural Resources Department
- Planning and Economic Growth Department
- Office of Strategy and Sustainability
- Resilience Working Group (RWG)

Consultant Team

- Halff (Prime Consultant)
- Taylor Engineering (Subconsultant)





BACKGROUND



ABOUT THE PROJECT

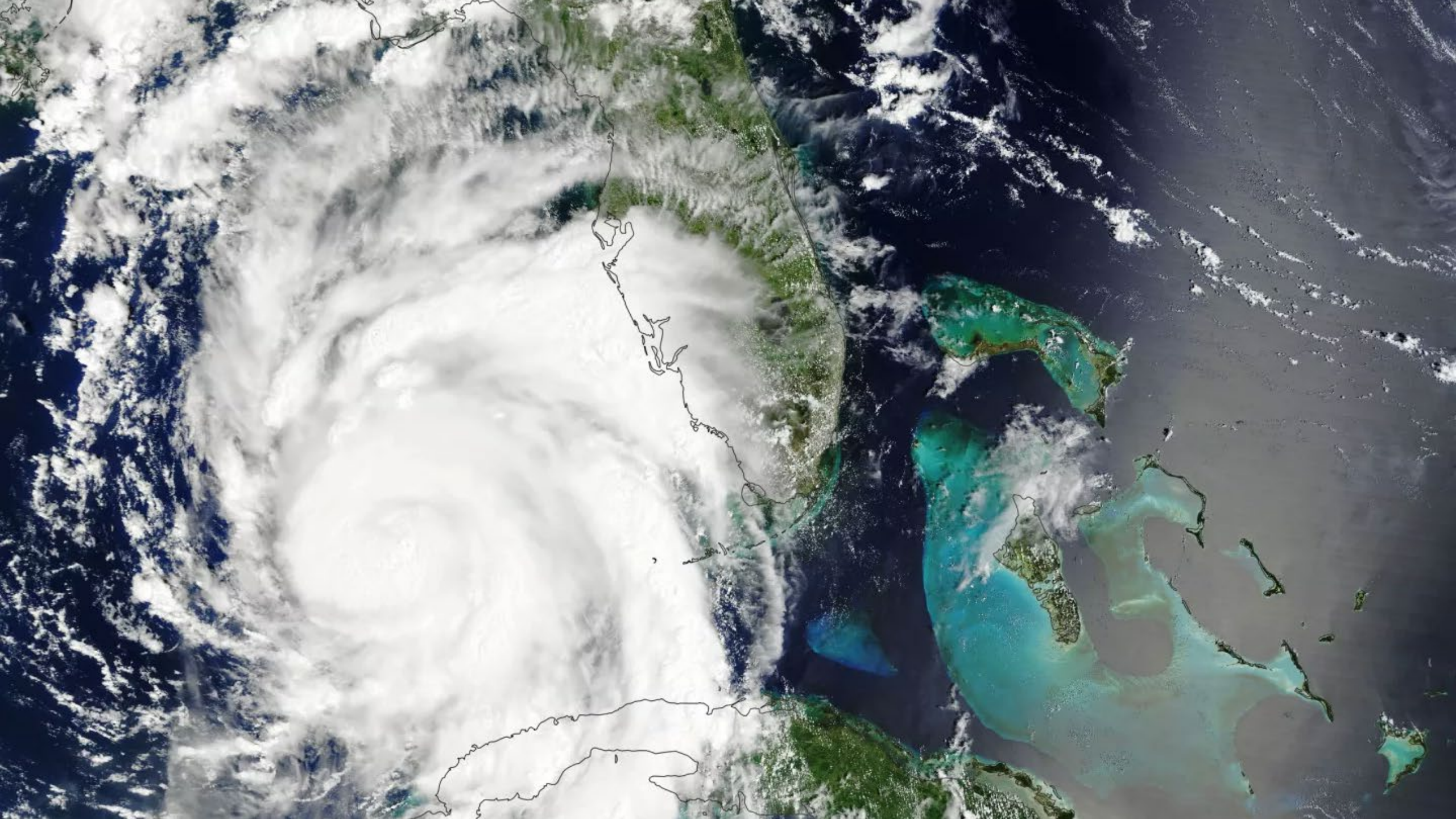
- The **Resilient Pasco Project** is a community resilience and sustainability initiative funded by Rebuild Florida and HUD Community Development Block Grant (CDBG) Mitigation (MIT) grant funds.
- The project includes:
 - Living Shorelines Plan
 - Risk and Vulnerability Assessment
 - Resilience and Sustainability Action Plan
- The project aims to promote countywide resilience and sustainability planning, including the identification of critical infrastructure vulnerabilities and community vulnerabilities to flooding.

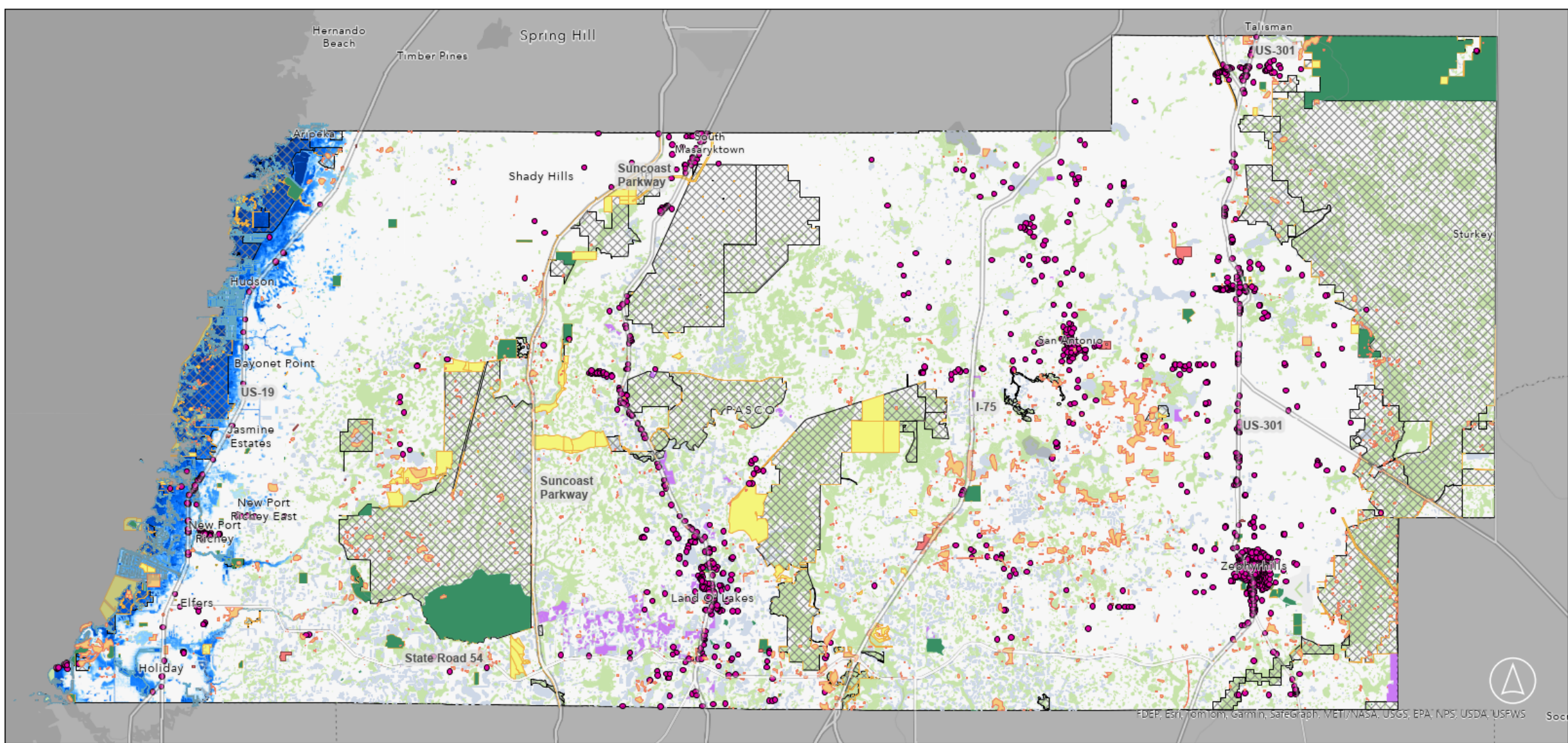


THE CHALLENGE

- Phase 5 (Living Shorelines Plan) of the project emerged in response to worsening conditions presented by coastal flooding along public park locations adjacent to the Gulf of Mexico.
- Hurricane Idalia (2023) brought storm surge and tidal flooding to the forefront of local community priorities.
- Tidal flooding, storm surge, sea level rise (SLR), and erosion were all identified by Pasco County as areas of concern for publicly owned and maintained coastal parks.







1% Annual Chance Storm Surge Current Conditions and Natural, Cultural, and Historic Resources



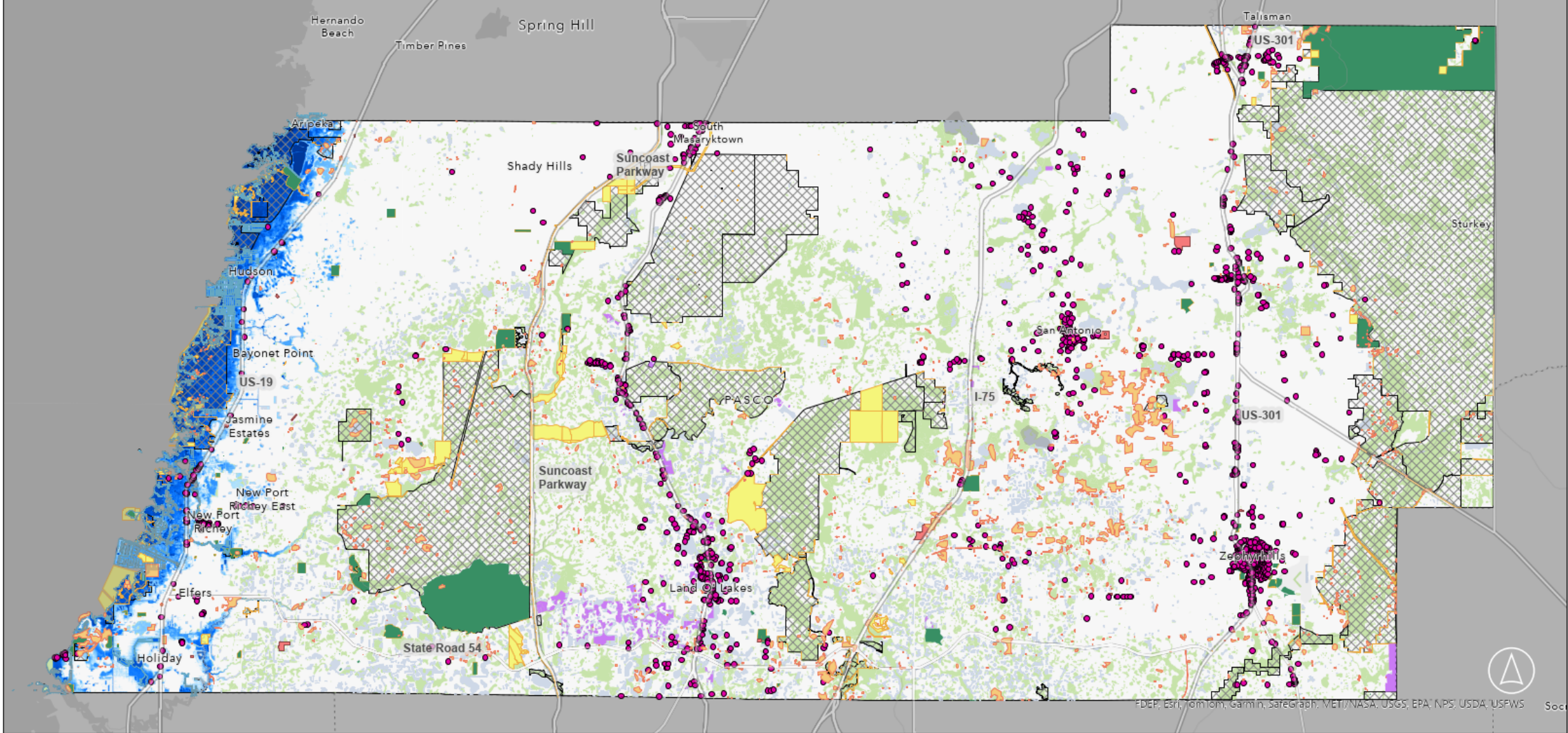
Legend

- County Boundary
 - Historical Sites
 - State Historical Preservation Office Structures
 - Parks
 - Shorelines
 - Wetlands
 - Surface Waters
 - Cultural Assets
 - Conservation Lands
 - FLMA
 - County Conservation Lands
 - Conservation Lands
- 1% Annual Chance Storm Surge Current Conditions

15.08ft

0ft





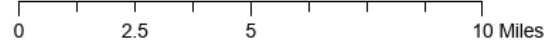
1% Annual Chance Storm Surge + 2040 Int-Low and Natural, Cultural, and Historic Resources



Legend

- County Boundary
 - Historical Sites
 - State Historical Preservation Office Structures
 - Parks
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 - Wetlands
 - Surface Waters
 - Cultural Assets
 - Conservation Lands
- County Conservation Lands
 - FLMA Conservation Lands
- 1% Annual Chance Storm Surge + 2040 Int-Low

15.48ft
0ft



SCOPE OF WORK

- Prepare countywide living shorelines plan to inform the planning and implementation of living shorelines across both public and private properties.
- Publish homeowner's guide to encourage private property owners to consider living shorelines and/or hybrid solutions.
- Evaluate existing conditions of coastal park locations through site visits, upland and subaquatic surveys, and wave analysis.
- Develop detailed construction plans to integrate living shorelines into Anclote River Park, Key Vista Nature Park, and Robert K. Rees Memorial Park.



GUIDANCE MATERIALS



Phase 5: Living Shorelines Plan

Prepared by
Halff
Taylor Engineering



A Homeowner's Guide to Living Shorelines

STORY MAP



Resilient Pasco Project Living Shorelines Story Map



Resilient Pasco Project Living Shorelines Story Map

Pasco County's Living Shorelines Plan (LSP) is a strategic blueprint for sustainable coastal management and ecosystem preservation.

Prepared for Pasco County, Florida | Prepared by Halff and Taylor Engineering
March 14, 2024



PASC
COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.

ROBERT K. REES MEMORIAL PARK



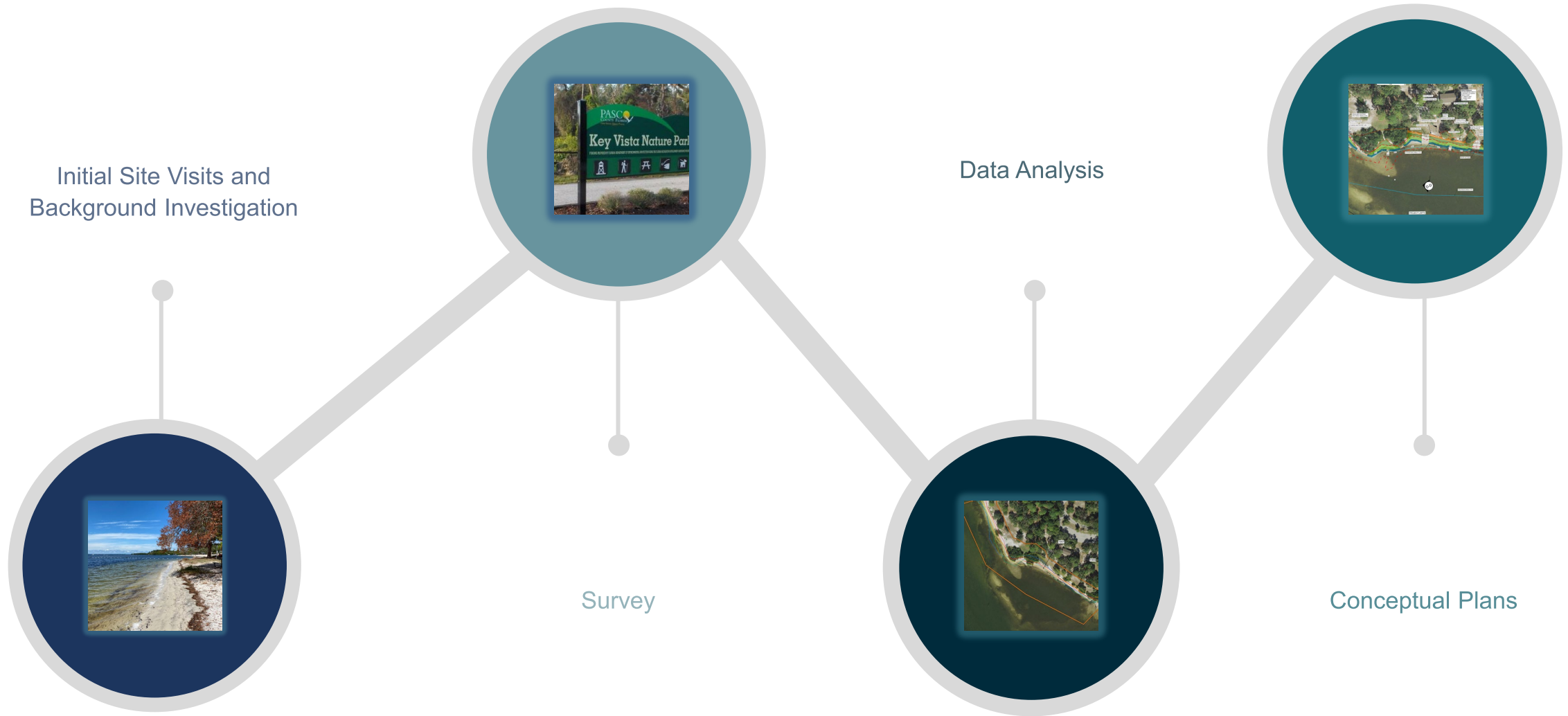
PLANNING AND PROCESS

SITE CONTEXT

- Pasco County has large stretches of coastline that are in a natural state and under conservation by Pasco County, SWFWMD, and FDEP.
- Pasco County is also within the Nature Coast Aquatic Preserve.
- The large intertidal natural communities within the conservation lands include mangrove swamp, salt marsh, and mollusk reefs such as oyster bars.
- These habitats provide significant benefit to the coastline by protecting infrastructure and neighborhoods from storm surge and impacts from SLR.



TIMELINE



SITE VISITS

- Initial site visits provided Pasco County staff and Halff an opportunity to identify planning boundaries, document geographical areas eroded from recent storm events, and assess human-caused impacts from pedestrian activity.
- Site visits captured photos of each site location, documenting primary areas of concern.
- Background investigations were focused on reviewing historical shoreline changes, documenting existing plant species, and identifying possible sources of erosion.
- Historical weather data applicable to major storm and flooding events over the last 50 years was also reviewed.



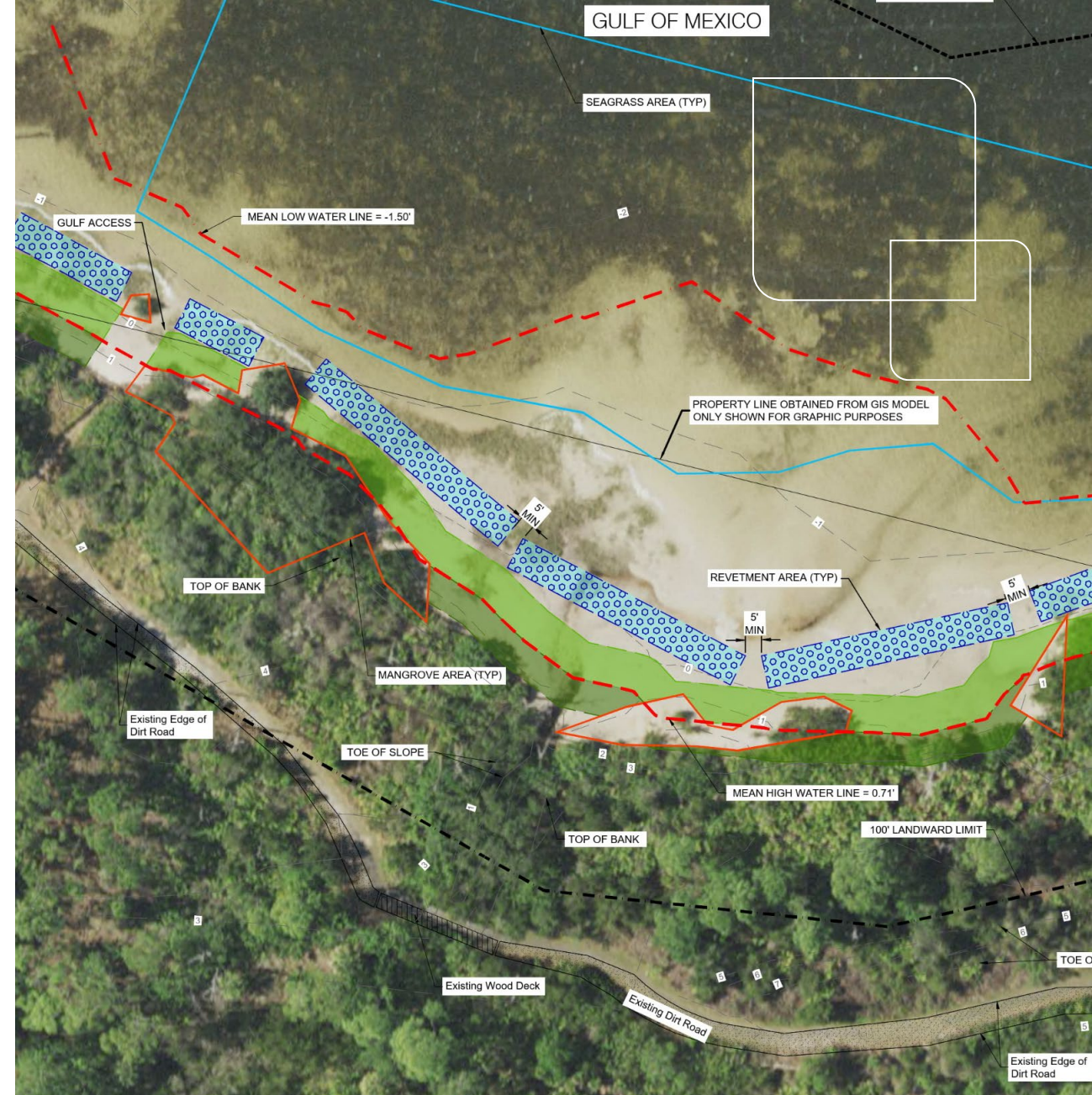
SURVEYS

- Halff conducted upland and subaquatic vegetation surveys for all three parks.
- Surveys delineated planning boundaries and were subsequently utilized to identify areas for low marsh, high marsh, and transition zone plantings.
- Coastal engineers conducted wave analyses to integrate an understanding of tidal flooding, storm surge, and SLR into the design plans, mapping high and mean low water elevations.
- Surveys also identified local government-maintained structures such as existing seawalls, pathways/trails, and observation towers.



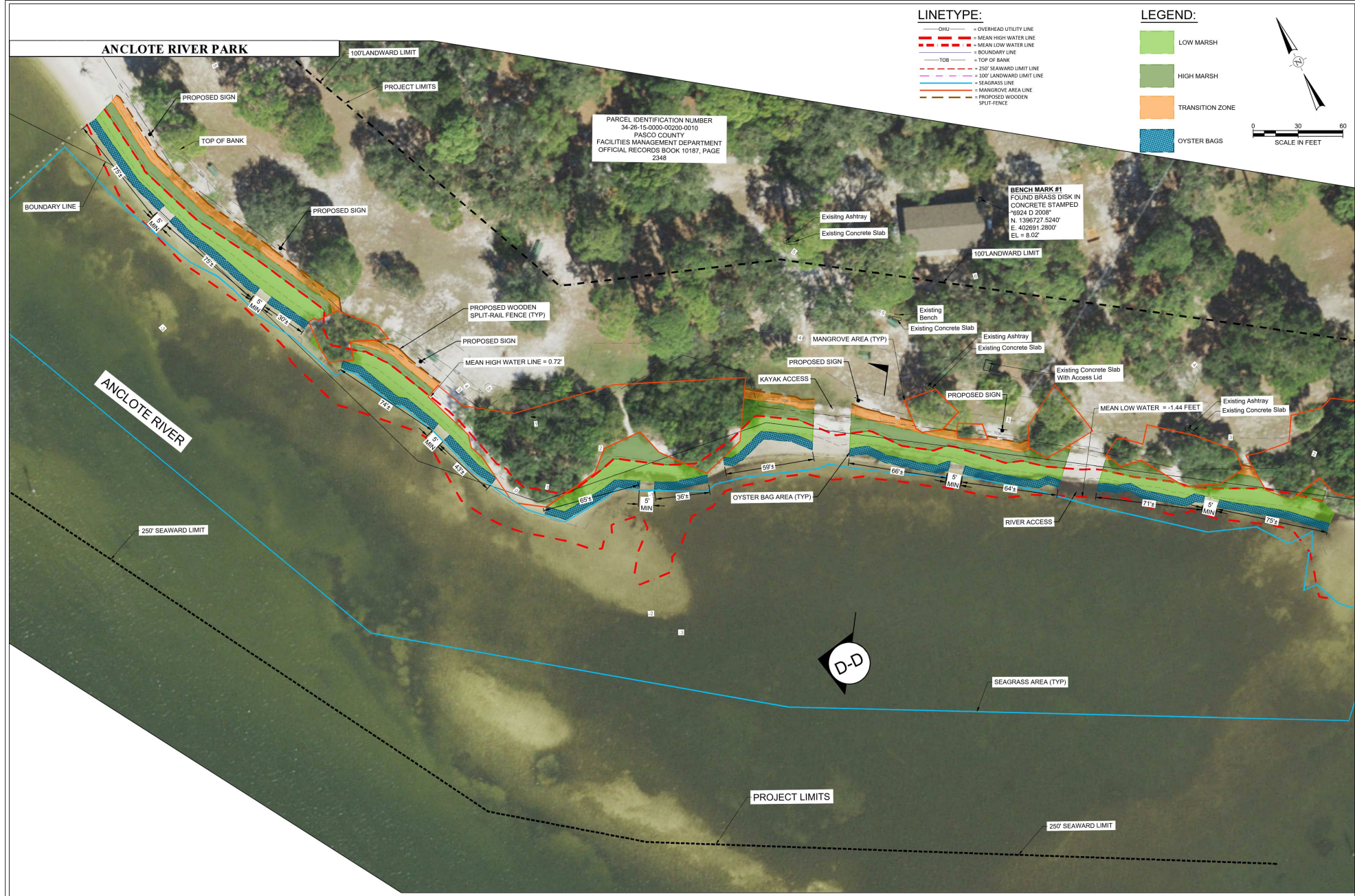
CONCEPTUAL PLANS

- The conceptual plans explored various solutions to address shoreline erosion and enhance coastal resilience.
- Solutions were tailored to the local conditions of each site, including the use of natural materials like oyster bags, planting of vegetation such as mangroves and seagrasses, installation of erosion control structures, and shoreline stabilization techniques.
- Detailed construction plans and typical sections were subsequently prepared and finalized, identifying proposed solutions for each site.





SOLUTION AND RESULTS



LINETYPE:

- OHU = OVERHEAD UTILITY LINE
- MHW = MEAN HIGH WATER LINE
- MWL = MEAN LOW WATER LINE
- BOUNDARY LINE
- TOB = TOP OF BANK
- 250' = 250' SEAWARD LIMIT LINE
- 100' = 100' LANDWARD LIMIT LINE
- SEAGRASS = SEAGRASS LINE
- MANGROVE = MANGROVE AREA LINE
- WOODEN = PROPOSED WOODEN SPLIT-FENCE

LEGEND:

- LOW MARSH
- HIGH MARSH
- TRANSITION ZONE
- OYSTER BAGS

SCALE IN FEET: 0, 30, 60

PARCEL IDENTIFICATION NUMBER
34-26-15-0000-00200-0010
PASCO COUNTY
FACILITIES MANAGEMENT DEPARTMENT
OFFICIAL RECORDS BOOK 10187, PAGE 2348

BENCH MARK #1
FOUND BRASS DISK IN
CONCRETE STAMPED
"6924 D 2000"
N. 1336727.5240'
E. 402691.2800'
EL. = 8.02'

RESILIENT PASCO PROJECT
PASCO COUNTY, FLORIDA
PASCO COUNTY
8919 GOVERNMENT DRIVE
NEW PORT RICHEY, FL 34654

100% ANSLEY PARK, SUITE 600
TAMPA, FLORIDA 33602
TEL: 813.974.4400

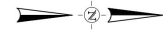
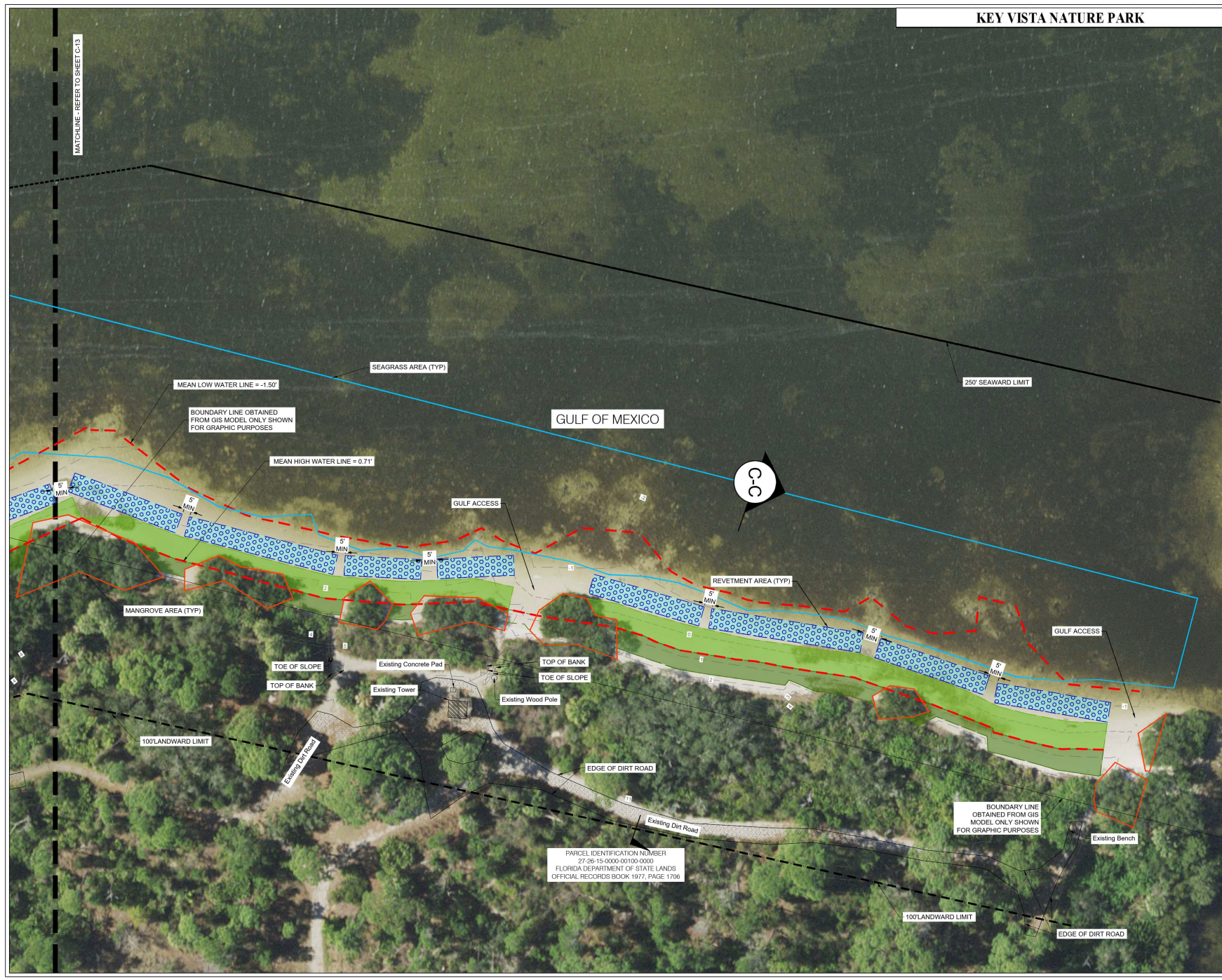
REVISION NO.	DATE	DESCRIPTION

PROJECT NO.: 53106-005
ISSUED: FEBRUARY, 2024
DRAWN BY: SR
CHECKED BY: DS
SCALE: 1" = 30'
SHEET TITLE:
PLANTING PLAN
ANCLOTE RIVER

C-14

KEY VISTA NATURE PARK

MATCHLINE - REFER TO SHEET C-3



0 30 60
SCALE IN FEET

LEGEND:

- LOW MARSH
- HIGH MARSH
- TRANSITION ZONE
- REVETMENT AREA (GENERIC BREAKWATER)

LINETYPE:

- OVERHEAD UTILITY LINE
- MEAN HIGH WATER LINE
- MEAN LOW WATER LINE
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- TOB
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RESILIENT PASCO PROJECT

PASCO COUNTY, FLORIDA
PASCO COUNTY
8919 GOVERNMENT DRIVE
NEW PORT RICHEY, FL 34654



REVISION NO.	DATE	DESCRIPTION

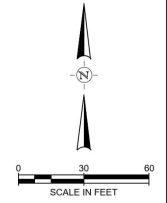
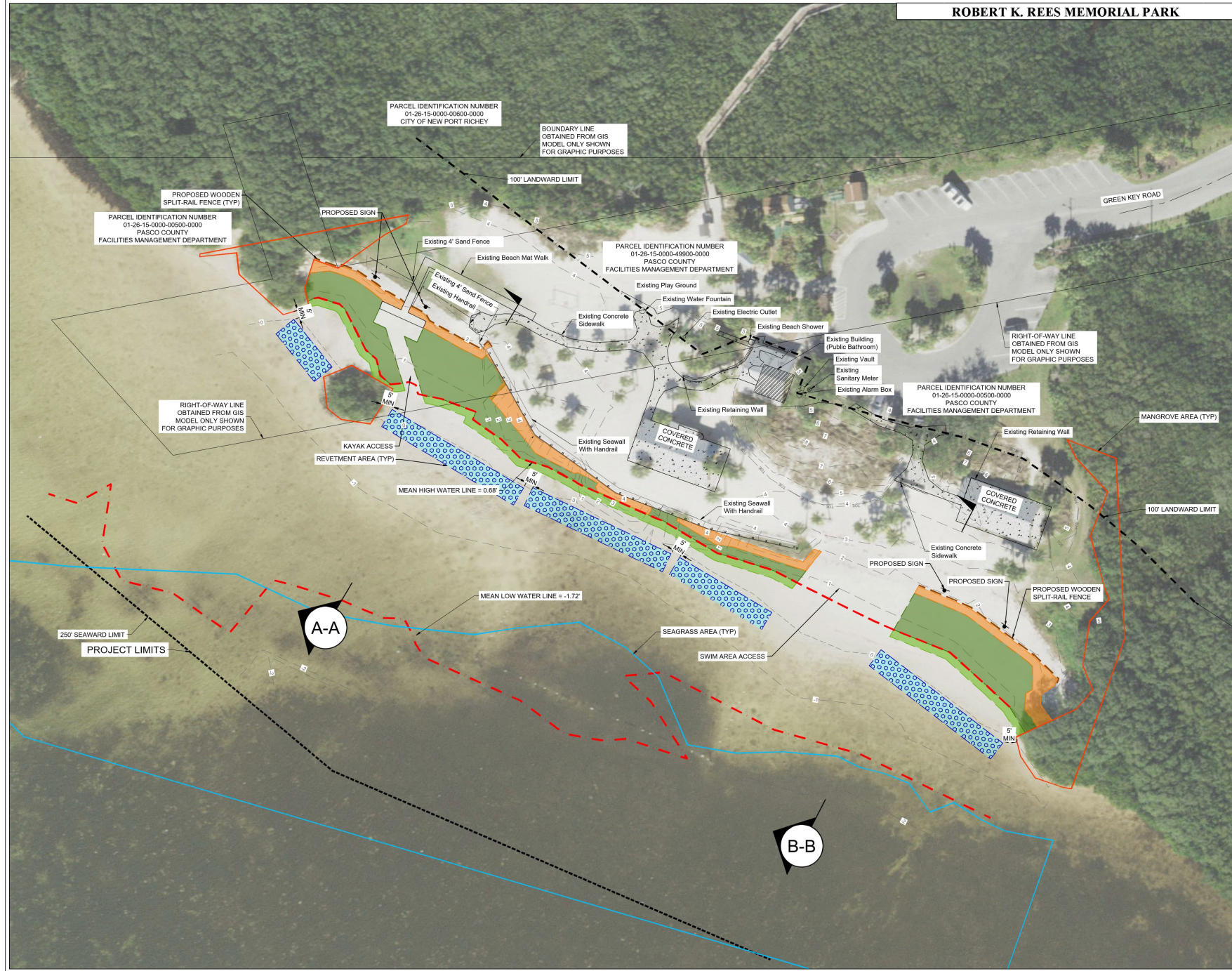
PROJECT NO.: 53106-005
ISSUED: FEBRUARY, 2024
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CHECKED BY: DS
SCALE: 1" = 30'
SHEET TITLE:

PLANTING PLAN
KEY VISTA

PARCEL IDENTIFICATION NUMBER
27-26-15-0000-00100-0200
FLORIDA DEPARTMENT OF STATE LANDS
OFFICIAL RECORDS BOOK 1977, PAGE 1706

BOUNDARY LINE
OBTAINED FROM GIS
MODEL ONLY SHOWN
FOR GRAPHIC PURPOSES

ROBERT K. REES MEMORIAL PARK



LEGEND:

- LOW MARSH
- HIGH MARSH
- TRANSITION ZONE
- REVETMENT AREA (GENERIC BREAKWATER)

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PLANTING PLAN
ROBERT K. REES



REFLECTIONS

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Challenges

- Funding constraints
- Regulatory and permitting design constraints
- Geographic constraints
- Local governments are limited when it comes to promoting solutions and technologies maintained by private companies

Lessons Learned

- Collaboration is essential
- Funding will be critical in turning plans into reality; particularly leveraging a combination of funding sources
- Adaptive management and ongoing monitoring will be vitally important once plans are implemented
- Solutions must be tailored to local conditions



Q&A

GET IN TOUCH

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