



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, JACKSONVILLE DISTRICT
41 N. JEFFERSON STREET, SUITE 301
PENSACOLA, FLORIDA 32502

January 22, 2019

Regulatory Division
North Branch
Pensacola Permits Section

PUBLIC NOTICE

Permit Application No. SAJ-2008-03502(SP-EPS)

TO WHOM IT MAY CONCERN: The Jacksonville District of the U.S. Army Corps of Engineers (Corps) has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403) as described below:

APPLICANT: City of Niceville
c/o Bruce Price
208 N. Partin Drive
Niceville, FL 32578

WATERWAY AND LOCATION: The project would affect waters of the United States associated with Boggy Bayou. The project site is located along the shoreline, and in the waters of Boggy Bayou, south of Highway 20 between Highway 85 N and Government Blvd, in Niceville, FL 32578.

Directions to the site are as follows: Travel south from Interstate 10 on Highway 85 to Highway 20, turn right (west), and the project site is immediately on the left (south) side of Highway 20.

APPROXIMATE CENTRAL COORDINATES: Latitude 30° 31' 14.39"
Longitude -86° 29' 52.37"

PROJECT PURPOSE:

Basic: habitat restoration and recreation

Overall: to improve water quality, increase biological diversity and productivity, and enhance recreational opportunities in Boggy Bayou

EXISTING CONDITIONS: The wetland systems consists of emergent and submerged estuarine and forested palustrine systems. The tidal marsh complex within the Boggy Bayou headwaters consists of a dominant freshwater gradient emanating from the Turkey Creek outfall that flows down two bifurcated channels into the marsh complex. In general, the tributary to Turkey Creek that flushes the mill pond and upper marsh through natural flow channels supports freshwater plant communities composed of spikerush (*Eleocharis* sp.) and tapegrass (*Vallisneria americana*) within the channel

beds. Common freshwater vegetation within the marsh consists of St. John's wort (*Hypericum fasciculatum*), cattail (*Typha latifolia*), and a dominance of sawgrass (*Cladium jamaicense*). Canopy species within the forested systems include cypress (*Taxodium ascendens*), Atlantic white cedar (*Chamaecyparis thyoides*), and sweetbay (*Magnolia virginiana*). The southern extent of the marsh complex is dominated by black needle rush (*Juncus roemerianus*), a salt-tolerant indicator species. Smooth cordgrass (*Spartina alterniflora*) and saltmeadow cordgrass (*S. patens*) also occur in small patches along the southern extent of the marsh complex. Two distinct communities of submerged aquatic vegetation (SAV) occur within the project area; freshwater SAV represented by spikerush, and marine SAV represented as shoal grass (*Halodule wrightii*). The latter species tolerates low salinity levels and exposure to air during extremely low tides, which allows for its limited occurrence within the influence of freshwater flows from Turkey Creek. A total of 1.78 acres of freshwater SAV, primarily spikerush, occur within the central marsh complex and in discrete areas on adjacent shoals and along the western shoreline. The sparse patches of shoal grass occur along the southern shoal of the marsh complex and in two small patches west of the Twin Cities Park boat ramp, totaling 1,799 square feet within the entire project area. These discrete patches of shoal grass occur in a sporadic pattern along the southern extents of the marsh shelf. Areas occupied by invasive or exotic species were also identified and delineated as habitats in the FLUCFCS 641x, 619, and 439 categories. The two most dominant species identified were common reed (*Phragmites australis*) and Chinese tallow tree (*Triadica sebifera*).

PROPOSED WORK: The applicant seeks authorization for restoration activities and recreational structures within the headwaters of Boggy Bayou. The scope of the proposed work involves minor excavation of accreted sediments at two key locations that are intended to restore historic flows and manage future sediment accretion, that combined with the creation of intertidal marshes and living shorelines, would provide increased flushing and circulation within upper Boggy Bayou. Years of sedimentation and stormwater runoff from the Turkey Creek drainage basin and adjacent urbanized areas, including the Boggy Bayou drainage basin, have contributed to a reduction in water quality and resulted in ecological degradation within the headwaters of Boggy Bayou. The eradication and management of invasive species throughout the upper bayou prior to restoration activities is another key component of the proposed restoration. In addition to these habitat and water quality improvements, recreational and educational improvements are also being proposed in conjunction with the restoration project to increase public access to the site and encourage public awareness.

Approximately 8,880 cubic yards of clean, locally sourced sand would be used to construct 4.27 acres of tidal marsh habitat and living shorelines. This tidal marsh habitat will be constructed on shallow (-6 to -12 inches in depth) benthic sediments. Changes in bathymetric and topographic contours and broad planting across several tidal elevation zones would result in the conversion of mostly open water aquatic habitat to native sub-tidal (oyster reef/rock sills) and emergent tidal marsh habitat, with the goal of a net increase of biological function and diversity. A total of 43,776 vegetative

plantings, utilizing 15 native species is proposed across five distinct zonal elevations, including shrubs and trees at appropriate grades in forested restoration areas.

In total, 4.27 acres of marsh would be created, 0.25-acre of marsh would be enhanced, 1.37 acres of palustrine areas would be restored through exotic/nuisance species removal, and 0.23-acre of intertidal oyster reef habitat would be created.

Construction of the interior marsh complex and western living shoreline would impact a total of 0.011 acre (497 sq.ft.) of shoal grass and 0.005 acre (234 sq.ft.) of freshwater spikerush.

Mechanical excavation of 0.1 acre (372 cubic yards) of accreted sediments directly adjacent on the south side of the State Road 20 Bridge is proposed to restore historical flows into the secondary channel of Turkey Creek. The accreted sediments include a dense stand of common reed. Mechanical excavation is also proposed for 0.08 acre (88 cubic yards) from the Twin Cities boat ramp to alleviate shallowing from the accretion of sediments that have rendered the ramp unusable. Mechanical excavation within these areas would be accomplished via water- and land-based equipment (e.g., long arm excavator, lined trucks, etc.). The contractor would use best management practices for turbidity (e.g. turbidity screens) during excavation. Transportation and upland disposal of excavated materials at an approved facility would be in accordance with state and local regulations.

Recreational improvements include a new access dock and kayak launch with sheet pile wave-break wall at the Twin Cities boat ramp, and a new boardwalk and observation tower across Mill Pond. Osprey nesting platforms would also be constructed on the eastern and western marsh peninsulas.

AVOIDANCE AND MINIMIZATION INFORMATION – The applicant has provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment:

The spatial orientation of the small SAV patches precluded total avoidance in the marsh and living shoreline design.

COMPENSATORY MITIGATION – The applicant has offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment:

In regards to functional loss of seagrass within the two respective assessment areas, these equate to 0.008 units of FL each, below the stated minimum for mitigation. Furthermore, the creation of 4.27 acres of tidal marsh, 0.23 acres of oyster reef (rock sill) habitat, 0.25 acre living shoreline enhancement planting, and removing 1.37 acres of invasive exotic species provides an inherently significant functional gain.

CULTURAL RESOURCES:

The Corps is aware of historic property/properties within or in close proximity of the permit area. The Corps will initiate consultation with the State Historic Preservation Office and those federally recognized tribes with concerns in Florida and the Permit Area, and the Advisory Council on Historic Preservation as applicable pursuant to 33 CFR 325, Appendix C and Section 106 of the National Historic Preservation Act, by separate letter.

ENDANGERED SPECIES:

The Corps has determined the proposed project may affect, but is not likely to adversely affect the West Indian manatee, Gulf sturgeon, smalltooth sawfish, and swimming sea turtles. The Corps will request U.S. Fish and Wildlife/National Marine Fisheries Service concurrence with this determination pursuant to Section 7 of the Endangered Species Act.

ESSENTIAL FISH HABITAT (EFH): This notice initiates consultation with the National Marine Fisheries Service on EFH as required by the Magnuson-Stevens Fishery Conservation and Management Act 1996. The proposal would impact approximately 4.93 acres of estuarine habitat utilized by various life stages of shrimp, reef fish, red drum, and coastal migratory/pelagic fish. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or Federally-managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

NOTE: This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulation governing the regulatory program. The jurisdictional line has not been verified by Corps personnel.

AUTHORIZATION FROM OTHER AGENCIES: Water Quality Certification may be required from the Florida Department of Environmental Protection and/or one of the state Water Management Districts.

COMMENTS regarding the potential authorization of the work proposed should be submitted in writing to the attention of the District Engineer through the Pensacola Permits Section, 41 N. Jefferson Street, Pensacola, FL 32502 within 21 days from the date of this notice.

The decision whether to issue or deny this permit application will be based on the information received from this public notice and the evaluation of the probable impact to the associated wetlands. This is based on an analysis of the applicant's avoidance and minimization efforts for the project, as well as the compensatory mitigation proposed.

QUESTIONS concerning this application should be directed to the project manager, Ed Sarfert, in writing at the Pensacola Permits Section, 41 N. Jefferson Street, Pensacola, FL 32502; by electronic mail at edward.p.sarfert@usace.army.mil; by facsimile transmission at (850)433-8160; or, by telephone at (850)439-9533.

IMPACT ON NATURAL RESOURCES: Coordination with U.S. Fish and Wildlife Service, Environmental Protection Agency (EPA), the National Marine Fisheries Services, and other Federal, State, and local agencies, environmental groups, and concerned citizens generally yields pertinent environmental information that is instrumental in determining the impact the proposed action will have on the natural resources of the area.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among these are conservation, economics, esthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food, and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act or the criteria established under authority of Section 102(a) of the Marine Protection Research and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest.

The US Army Corps of Engineers (Corps) is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other Interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this determination, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

COASTAL ZONE MANAGEMENT CONSISTENCY: In Florida, the State approval constitutes compliance with the approved Coastal Zone Management Plan.

REQUEST FOR PUBLIC HEARING: Any person may request a public hearing. The request must be submitted in writing to the District Engineer within the designated

comment period of the notice and must state the specific reasons for requesting the public hearing.

BOGGY BAYOU HEADWATERS RESTORATION

OKALOOSA COUNTY, FLORIDA

PREPARED FOR THE CITY OF NICEVILLE

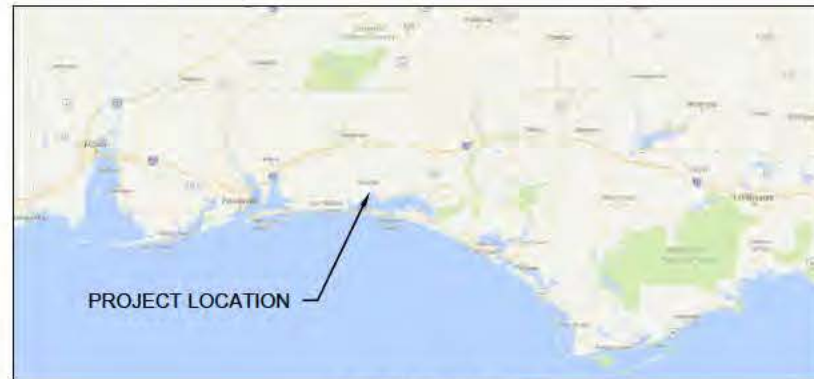


PROJECT TEAM:



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FIG 22	OSPREY PLATFORM DETA L
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VICINITY MAP

NOT TO SCALE



TAYLOR ENGINEERING INC.

4300 LEGENDARY DRIVE
SUITE C246
DESTIN, FLORIDA 32541
CERTIFICATE OF AUTHORIZATION # 4815

FIGURE 1
COVER SHEET
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004
DRAWN BY	AF/CAS
SHEET	1 of 23
DATE	AUGUST 2018

SEAL

MATTHEW TRAMMELL P.E.# 69244

DATE



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SCALE: 1" = 2 miles



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CERTIFICATE OF AUTHORIZATION # 4815

FIGURE 2
LOCATION MAP
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004	SEAL	
DRAWN BY	AF/CAS		
SHEET	2 of 23		
DATE	AUGUST 2018		
		MATTHEW TRAMMELL P.E.# 69244	DATE

PRELIMINARY DRAWINGS: THESE DRAWINGS ARE NOT IN FINAL FORM, BUT ARE BEING TRANSMITTED FOR AGENCY REVIEW.

GENERAL NOTES:

1. DRAWING REFERENCES THE FLORIDA STATE PLANE NORTH, NORTH AMERICAN DATUM OF 1983 (NAD83).
2. ALL ELEVATIONS REFERENCE THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88). ELEVATIONS IN FEET UNLESS NOTED OTHERWISE.
3. AERIAL IMAGERY OBTAINED FROM ESRI (2015). AERIAL IMAGERY DISPLAYED HEREON FOR INFORMATIONAL PURPOSES ONLY. NO PHOTOGRAPHIC ACCURACY IS IMPLIED BY THESE MAPS.
4. TOPOGRAPHIC, BATHYMETRIC, AND MEAN HIGH WATER LINE (MHWL) SURVEY PERFORMED BY GUSTIN, COTHERN & TUCKER, INC DECEMBER 2015.
5. VEGETATION, WETLAND, AND NATURAL COMMUNITY SURVEYS PERFORMED BY ESA SCHEDA CORPORATION, INC. FEBRUARY - MAY, 2016.
6. SUBMERGED AQUATIC VEGETATION SURVEYS PERFORMED BY ESA SCHEDA CORPORATION, INC. APRIL, 2016.
7. PLANTING ZONE DETAILS, INCLUDING PROPOSED SPECIES, SPACING, ETC. IS PROVIDED IN THE PERMIT APPLICATION PACKAGE.
8. VEGETATED SCOUR MATTRESS SHALL BE CONSTRUCTED OF HIGH DENSITY POLYETHYLENE GEO-GRID, GALVANIZED STEEL, OR SIMILAR. DIMENSIONS, MATERIALS, AND MEAN DIAMETER OF ROCK FILL WILL BE DETERMINED DURING FINAL DESIGN.
9. ALL FILL MATERIAL SHALL BE COMPRISED OF CLEAN SAND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
10. STRUCTURE ELEVATIONS AND CONSTRUCTION MATERIALS ARE SUBJECT TO CHANGE IN THE FINAL DESIGN.
11. TIDAL ELEVATION OBTAINED FROM LAND INFORMATION BOUNDARY SYSTEM (WWW.LABINS.ORG), CONFIRMED BY GCT DECEMBER 2015

GENERAL DOCKING FACILITY NOTES:

1. CONSTRUCTION SHALL NOT VIOLATE STATE WATER QUALITY STANDARDS.
2. NO PERMANENT SLIPS ARE PROPOSED.
3. NO FUELING FACILITIES OR SEWAGE PUMPOUTS ARE PROPOSED.
4. MATERIALS ARE SUBJECT TO CHANGE. PILE EMBEDMENT AND DIMENSIONS WILL BE DETERMINED DURING FINAL DESIGN.
5. DOCK PILINGS WILL BE WRAPPED TREATED TIMBER OR OTHERWISE MADE FROM NON-LEACHING MATERIALS.
6. THE LOCATION OF TURBIDITY CURTAINS SHOWN ON THESE DRAWINGS FOR INFORMATIONAL PURPOSES ONLY. TURBIDITY CURTAINS SHALL BE LOCATED AND REPOSITIONED BY THE CONTRACTOR USING BEST MANAGEMENT PRACTICES TO ASSURE WATER QUALITY STANDARDS ARE MAINTAINED THROUGHOUT CONSTRUCTION.

PROPOSED DOCK PLAN:

1. TOTAL NUMBER OF SLIPS: 0
2. TOTAL EXISTING FIXED TIMBER PIER AREA (OVER STATE WATERS): 2,164 S.F.
 - 2.1. EXISTING (PUBLIC ACCESS DOCK): 953 S.F.
 - 2.2. EXISTING (BOARDWALK): 1,211 S.F.
3. TOTAL PROPOSED FIXED TIMBER PIER AREA (OVER STATE WATERS): 3,825 S.F.
 - 3.1. PROPOSED (ACCESS DOCK AND KAYAK LAUNCH): 1,128 S.F.
 - 3.2. PROPOSED (MILL POND OBSERVATION DOCK): 2,472 S.F.
 - 3.3. PROPOSED (BOARDWALK OBSERVATION TOWER): 225 S.F.

PROPOSED EXCAVATION, FILL, AND GRADING PLAN

1. TOTAL MECHANICAL EXCAVATION VOLUME: ~460 CY
 - 1.1. BOAT RAMP: ~88 CY (3,688 S.F.)
 - 1.2. BRIDGE: ~372 CY (4,328 S.F.)
2. TOTAL MARSH CREATION FILL VOLUME: ~8,880 CY
 - 2.1. WESTERN LIVING SHORELINE: ~540 CY
 - 2.2. WESTERN MARSH PENINSULA: ~4,196 CY
 - 2.3. EASTERN MARSH PENINSULA: ~1,408 CY
 - 2.4. INTERIOR MARSH: ~2,736 CY
3. TOTAL MARSH SILL ROCK VOLUME: 286 CY
4. VEGETATED SCOUR MATTRESS: 409 CY (0.23 AC.)

ENVIRONMENTAL RESTORATION

1. OYSTER REEF (SEGMENTED MARSH SILL [ROCK]) HABITAT: ~0.23 AC.
2. NATIVE MARSH PLANTING AREA: ~4.52 AC.
 - 2.1. WESTERN LIVING SHORELINE: 0.54 AC.
 - 2.2. WESTERN MARSH PENINSULA: 1.65 AC.
 - 2.3. INTERIOR MARSH: 1.35 AC.
 - 2.4. EASTERN MARSH PENINSULA: 0.67 AC.
 - 2.5. EASTERN LIVING SHORELINE: 0.25 AC.
 - 2.6. VEGETATED SCOUR MATTRESS: 0.06 AC.
3. TOTAL EXOTIC/NUISANCE SPECIES REMOVAL AND RESTORATION: 1.57 AC.
 - 3.1. RESTORED FRESH/SALT MARSH: 1.22 AC.
 - 3.2. RESTORED FORESTED WETLANDS: 0.19 AC.
 - 3.3. RESTORED MIXED HARDWOODS: 0.16 AC.
4. FLOW PATH MANAGEMENT DETAILS ARE INCLUDED IN THE PERMIT APPLICATION PACKAGE.
 - 4.1. FLOW PATH MANAGEMENT/RESTORATION AREA: 0.25 AC.
5. PLANTING PLAN -- ALL PROPOSED PLANTING SHALL BE PERFORMED IN ACCORDANCE WITH THE PLANTING ZONES AND SPECIES AS DOCUMENTED IN THE PERMIT APPLICATION.



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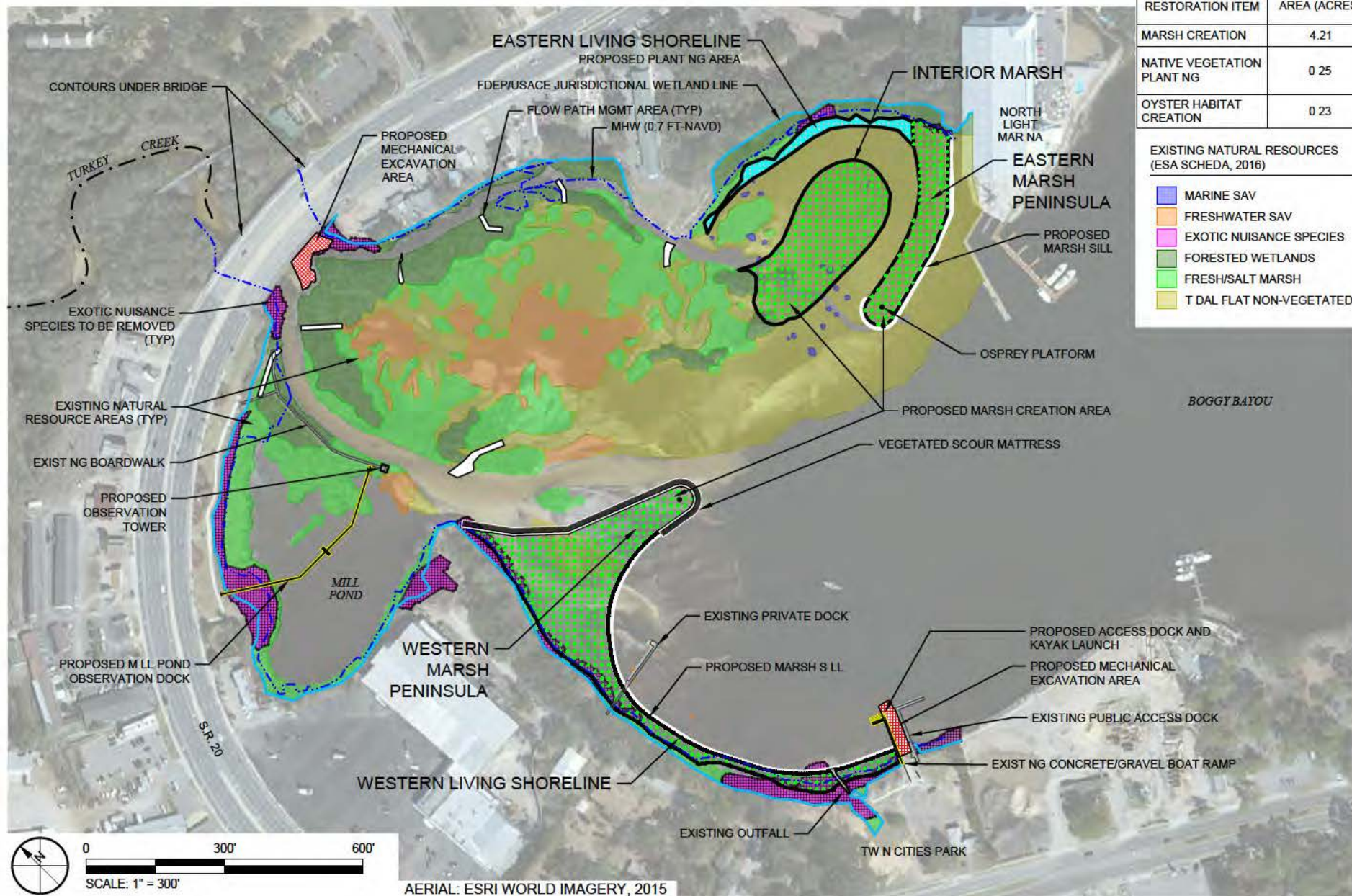
4300 LEGENDARY DRIVE
SUITE C246
DESTIN, FLORIDA 32541
CERTIFICATE OF AUTHORIZATION # 4815

FIGURE 3
PROJECT NOTES
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004	SEAL
DRAWN BY	AF/CAS	
SHEET	3 of 23	
DATE	AUGUST 2018	DATE

MATTHEW TRAMMELL P.E.# 69244

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RESTORATION ITEM	AREA (ACRES)
MARSH CREATION	4.21
NATIVE VEGETATION PLANTING	0.25
OYSTER HABITAT CREATION	0.23

EXISTING NATURAL RESOURCES (ESA SCHEDA, 2016)

- MARINE SAV
- FRESHWATER SAV
- EXOTIC NUISANCE SPECIES
- FORESTED WETLANDS
- FRESH/SALT MARSH
- TIDAL FLAT NON-VEGETATED



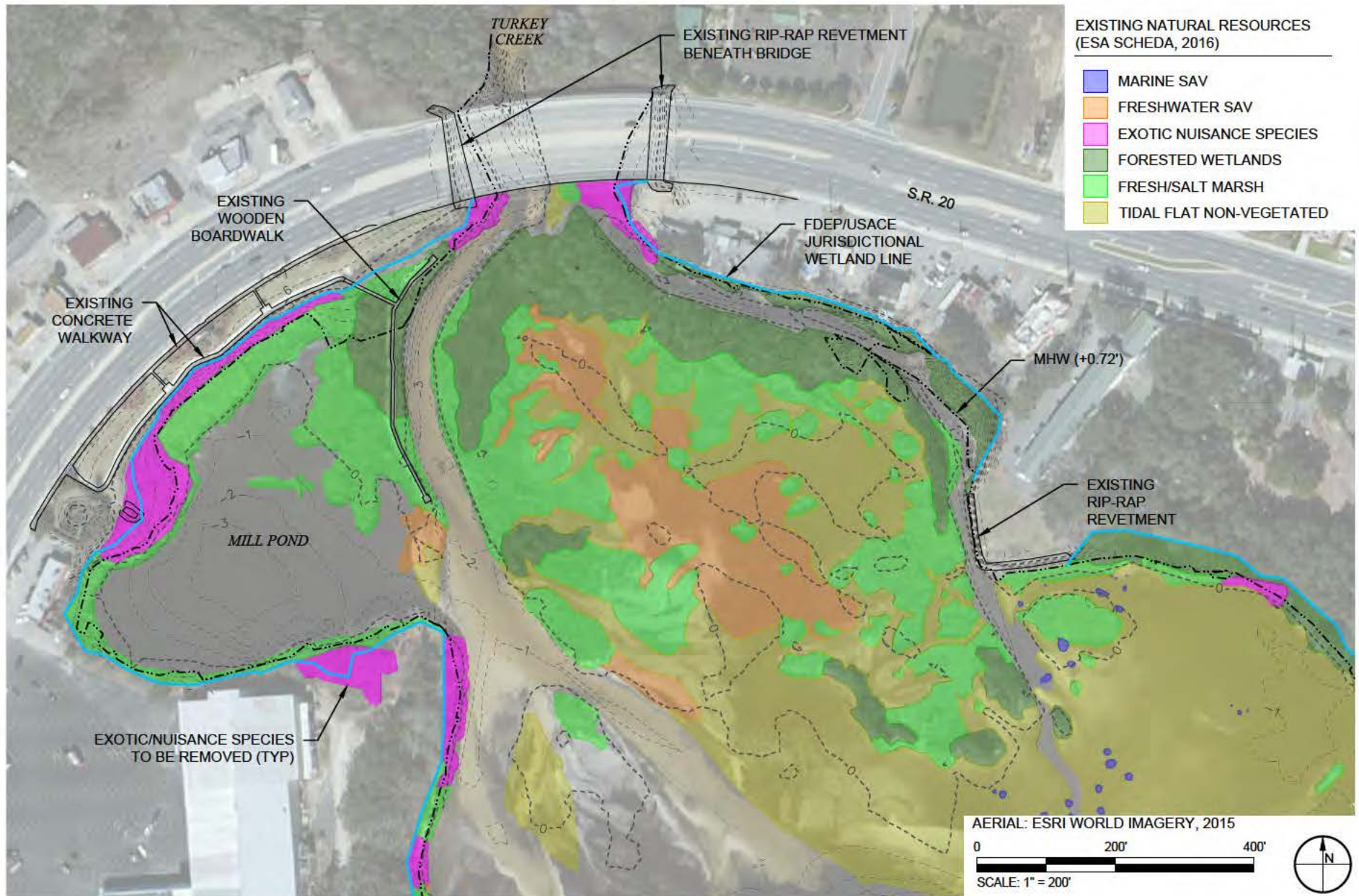
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FIGURE 4
PROJECT OVERVIEW MAP
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004
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SHEET	4 of 23
DATE	AUGUST 2018

SEAL	
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AERIAL: ESRI WORLD IMAGERY, 2015

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SCALE: 1" = 200'



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FIGURE 5
EXISTING CONDITIONS AND ENVIRONMENTAL RESOURCES
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

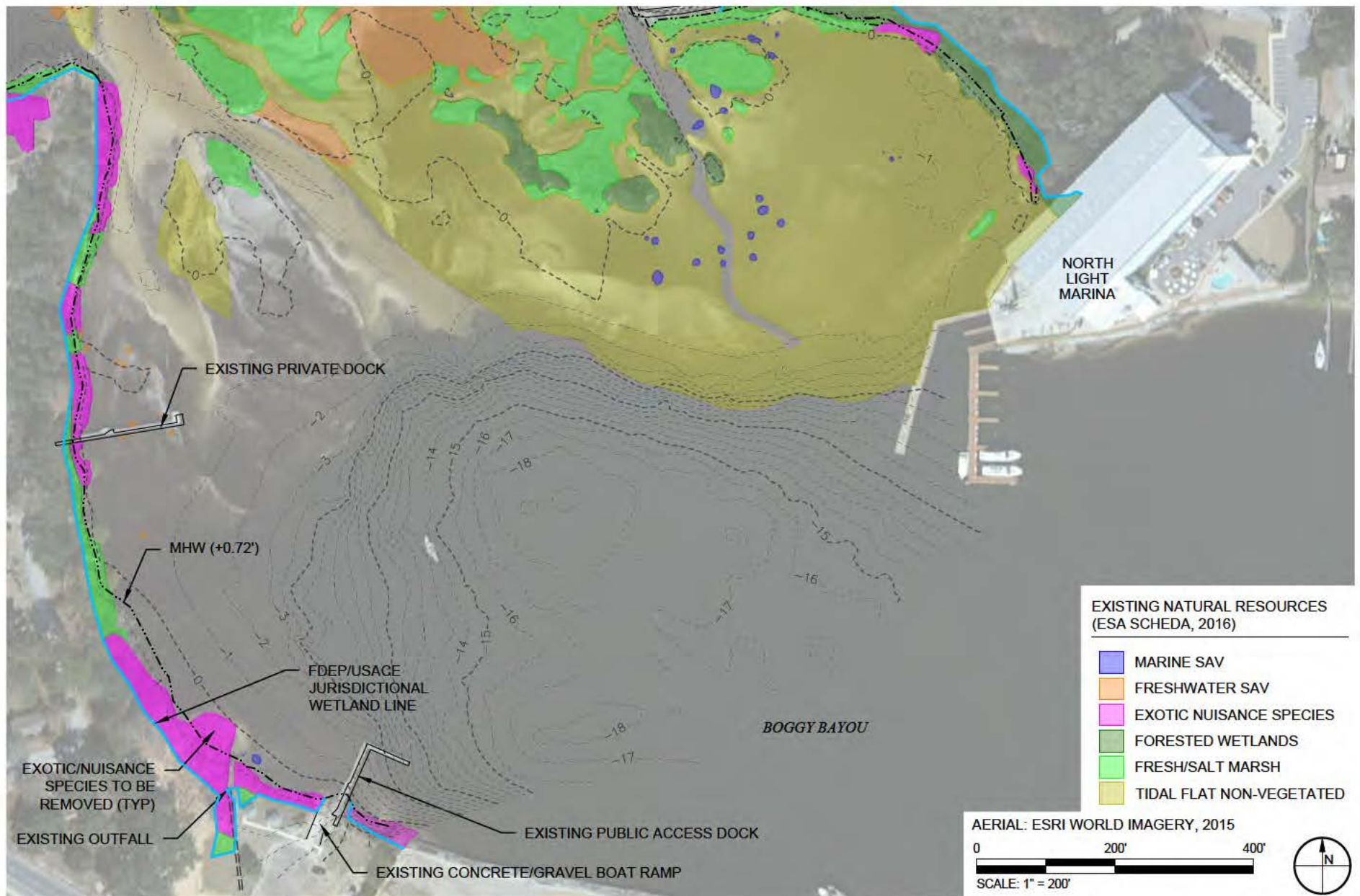
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SHEET	5 of 23
DATE	AUGUST 2018

SEAL

MATTHEW TRAMMELL, P.E. # 69244

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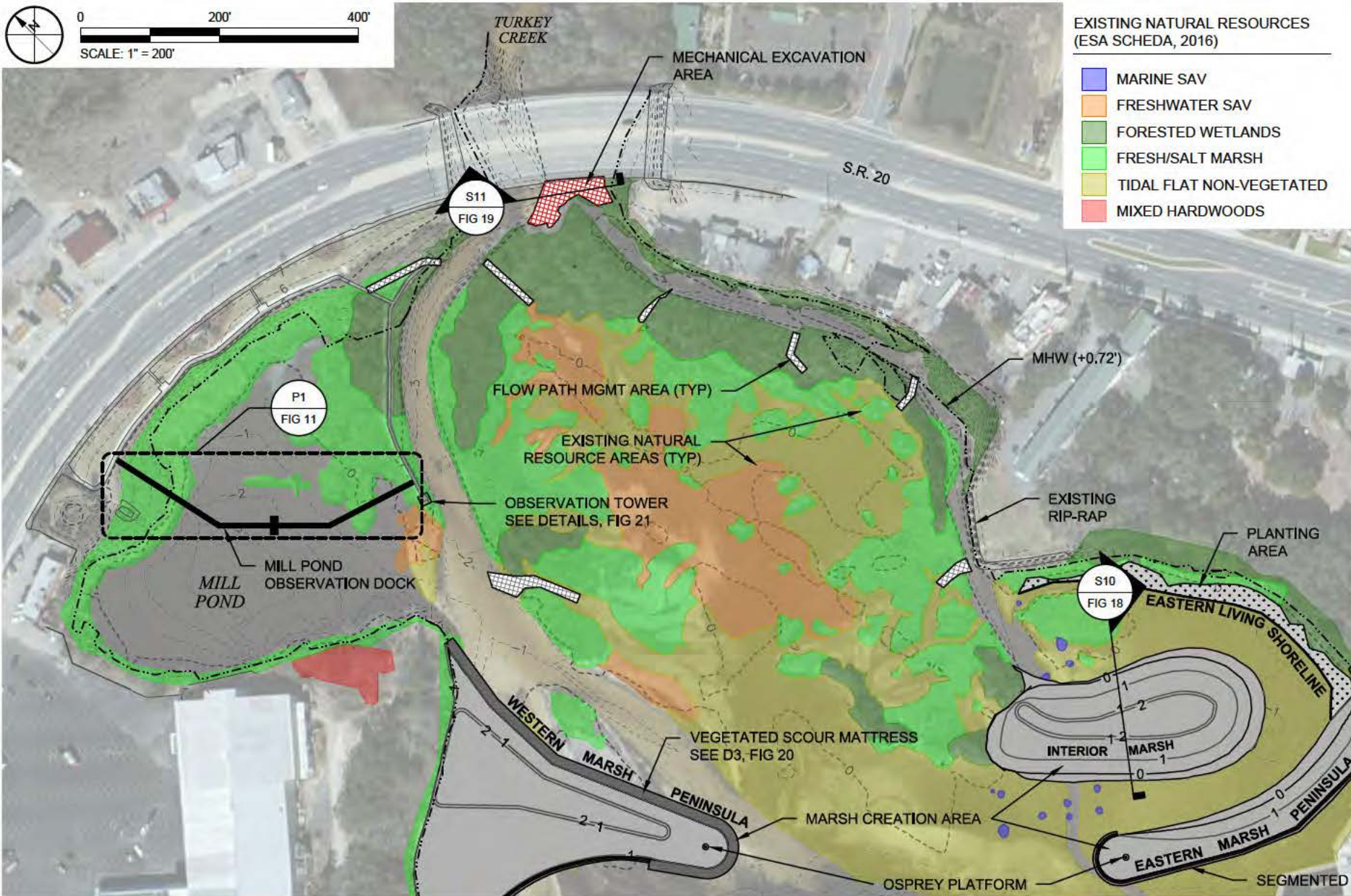
FIGURE 6
EXISTING CONDITIONS AND ENVIRONMENTAL RESOURCES
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004
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SHEET	6 of 23
DATE	AUGUST 2018

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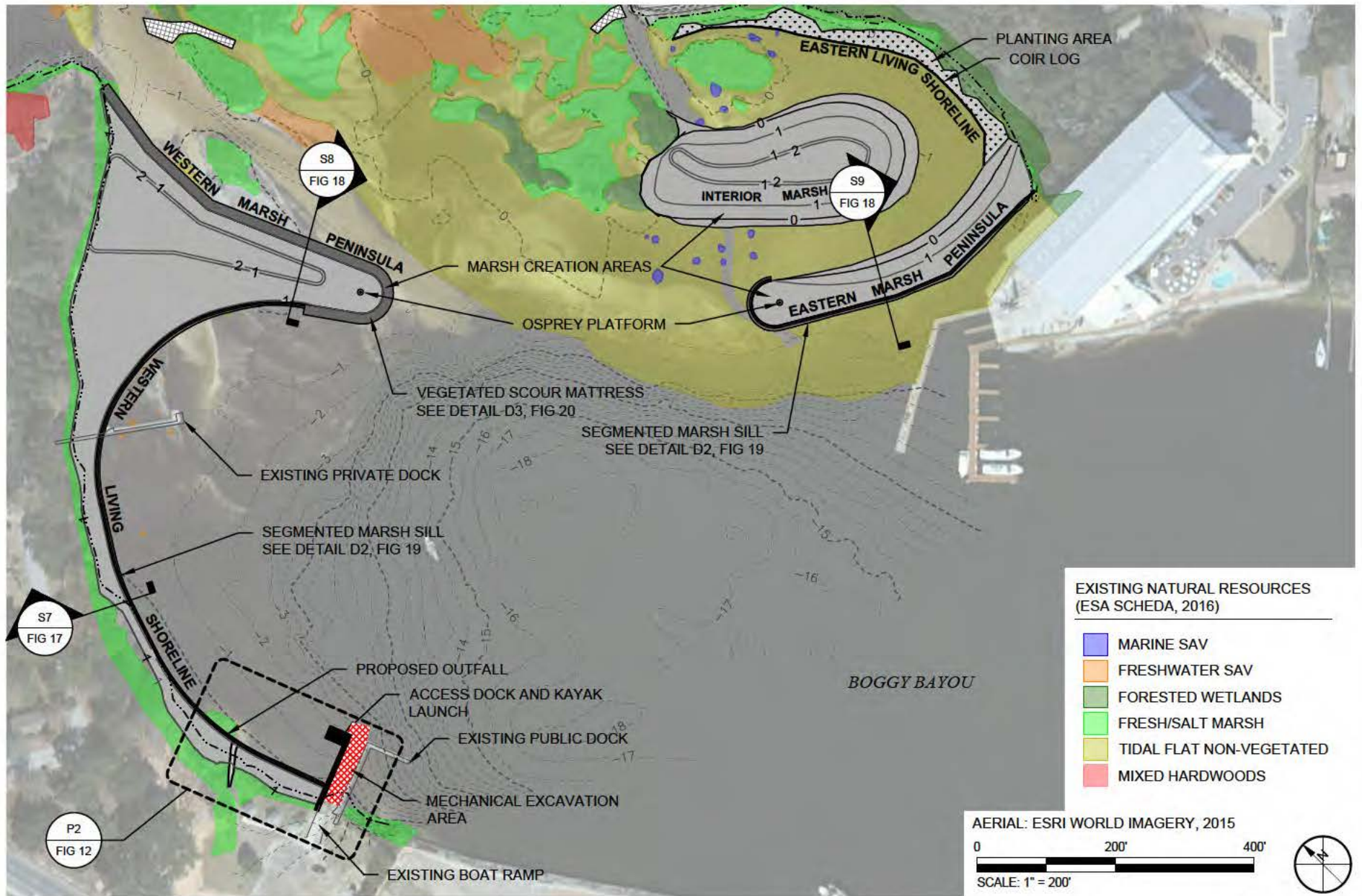
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FIGURE 7
PROPOSED SITE PLAN
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004
DRAWN BY	AF/CAS
SHEET	7 of 23
DATE	AUGUST 2018

SEAL	
MATTHEW TRAMMELL P.E.# 69244	DATE

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FIGURE 8
PROPOSED SITE PLAN
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

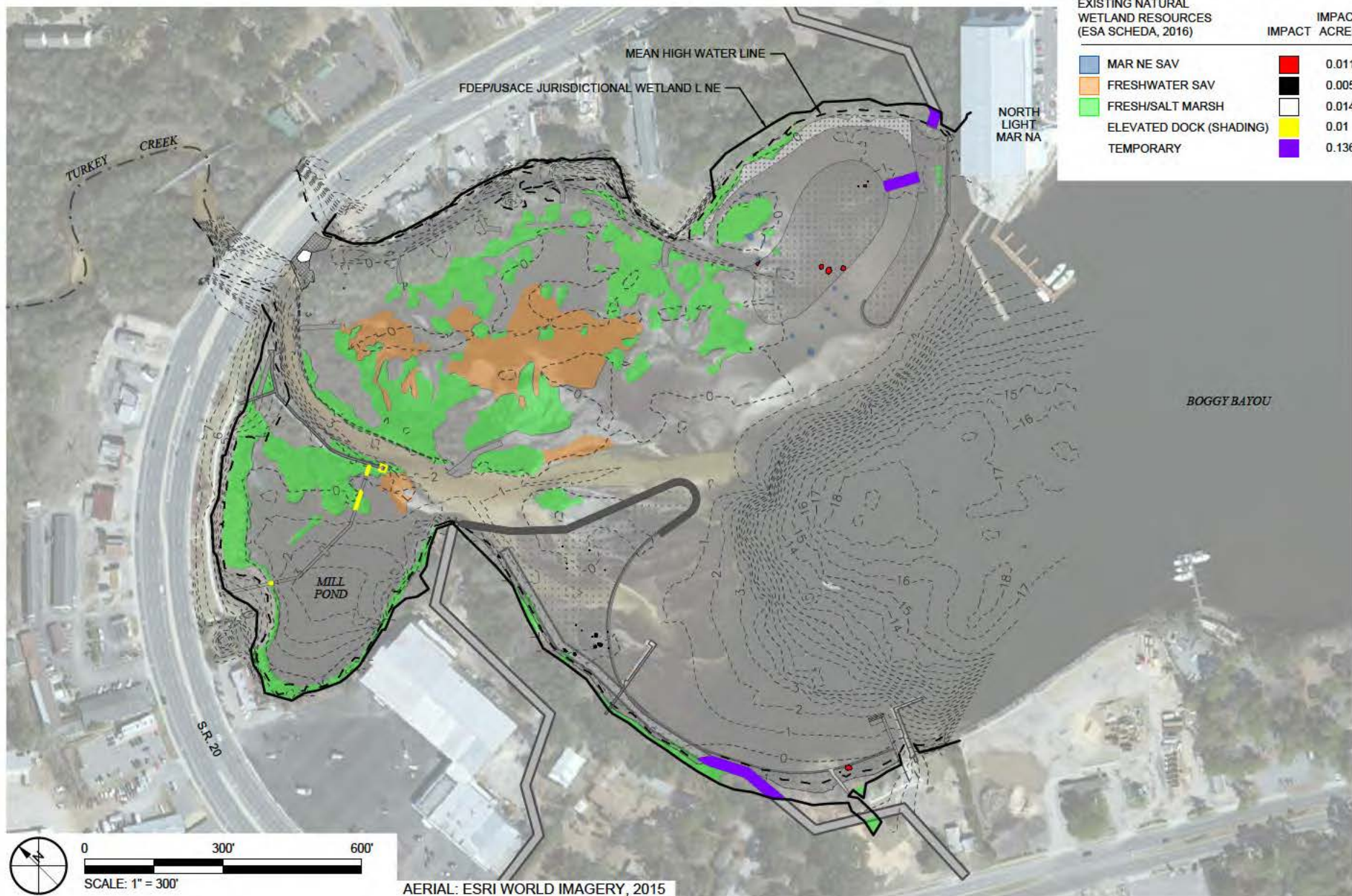
PROJECT	C2016-004
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SHEET	8 of 23
DATE	AUGUST 2018

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MATTHEW TRAMMELL P.E.# 69244

DATE

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EXISTING NATURAL WETLAND RESOURCES (ESA SCHEDA, 2016)		IMPACT	ACRES
MARINE SAV		0.011	
FRESHWATER SAV		0.005	
FRESH/SALT MARSH		0.014	
ELEVATED DOCK (SHADING)		0.01	
TEMPORARY		0.136	



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SCALE: 1" = 300'

AERIAL: ESRI WORLD IMAGERY, 2015



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FIGURE 9
IMPACTS SUMMARY
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

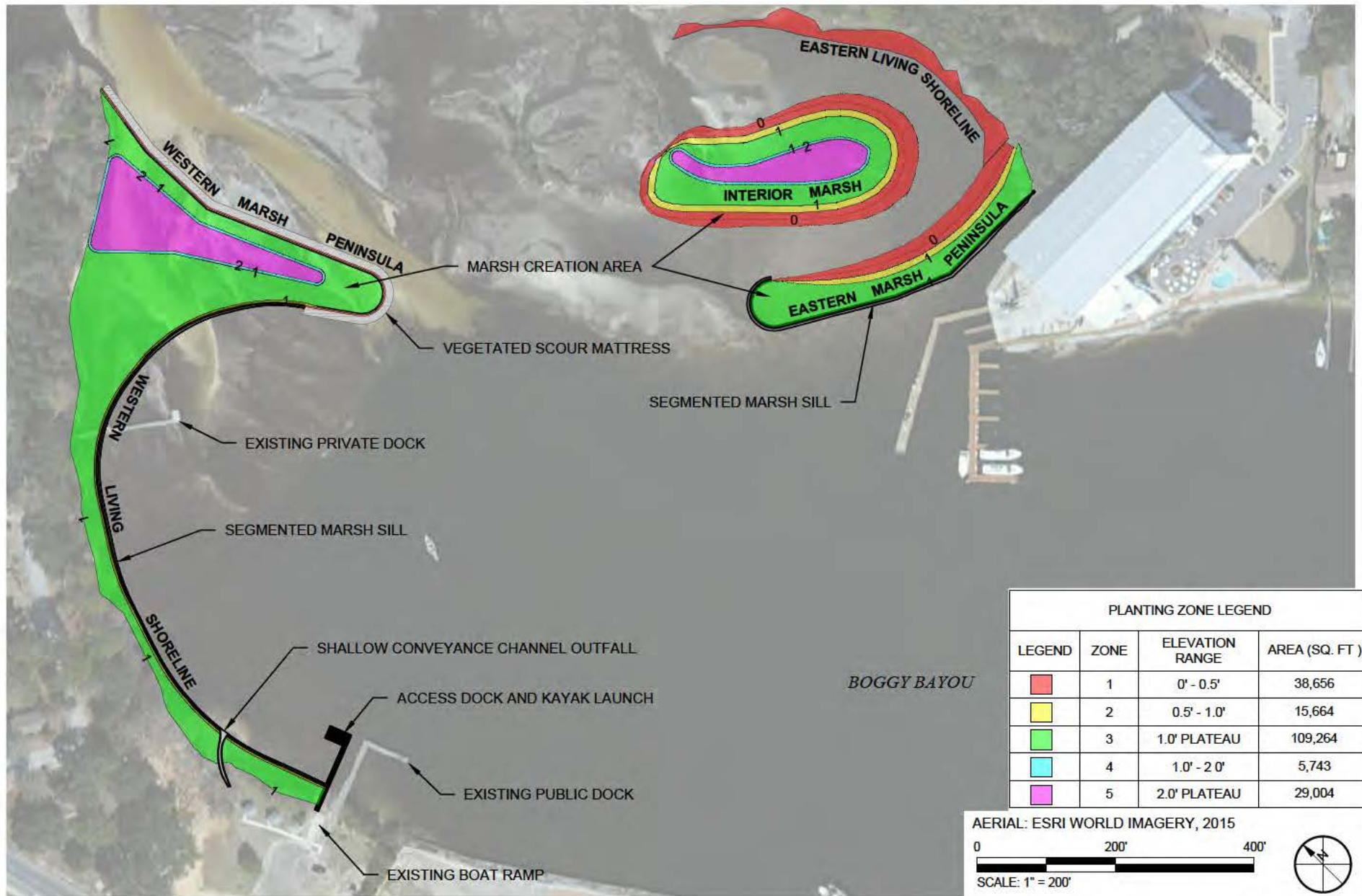
PROJECT	C2016-004
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SHEET	9 of 23
DATE	AUGUST 2018

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DATE

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PLANTING ZONE LEGEND			
LEGEND	ZONE	ELEVATION RANGE	AREA (SQ. FT.)
	1	0' - 0.5'	38,656
	2	0.5' - 1.0'	15,664
	3	1.0' PLATEAU	109,264
	4	1.0' - 2.0'	5,743
	5	2.0' PLATEAU	29,004

AERIAL: ESRI WORLD IMAGERY, 2015

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SCALE: 1" = 200'



TAYLOR ENGINEERING INC.

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FIGURE 10
PLANTING PLAN
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT C2016-004
DRAWN BY AF/CAS
SHEET 10 of 23
DATE AUGUST 2018

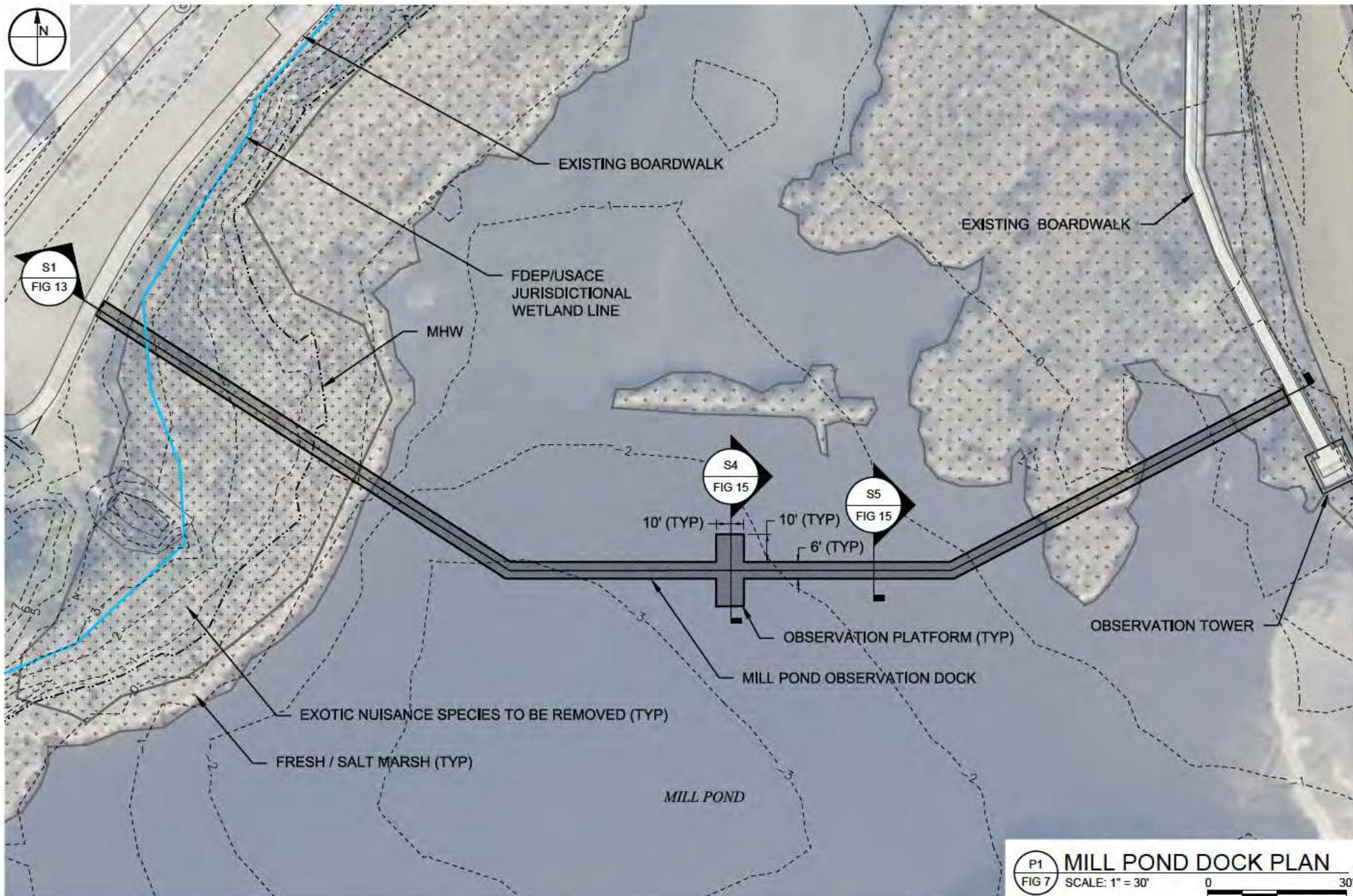
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MATTHEW TRAMMELL P.E.# 69244

DATE

PRELIMINARY DRAWINGS: THESE DRAWINGS ARE NOT IN FINAL FORM, BUT ARE BEING TRANSMITTED FOR AGENCY REVIEW.

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FIGURE 11
MILL POND OBSERVATION DOCK SITE PLAN
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT	C2016-004
DRAWN BY	AF/CAS
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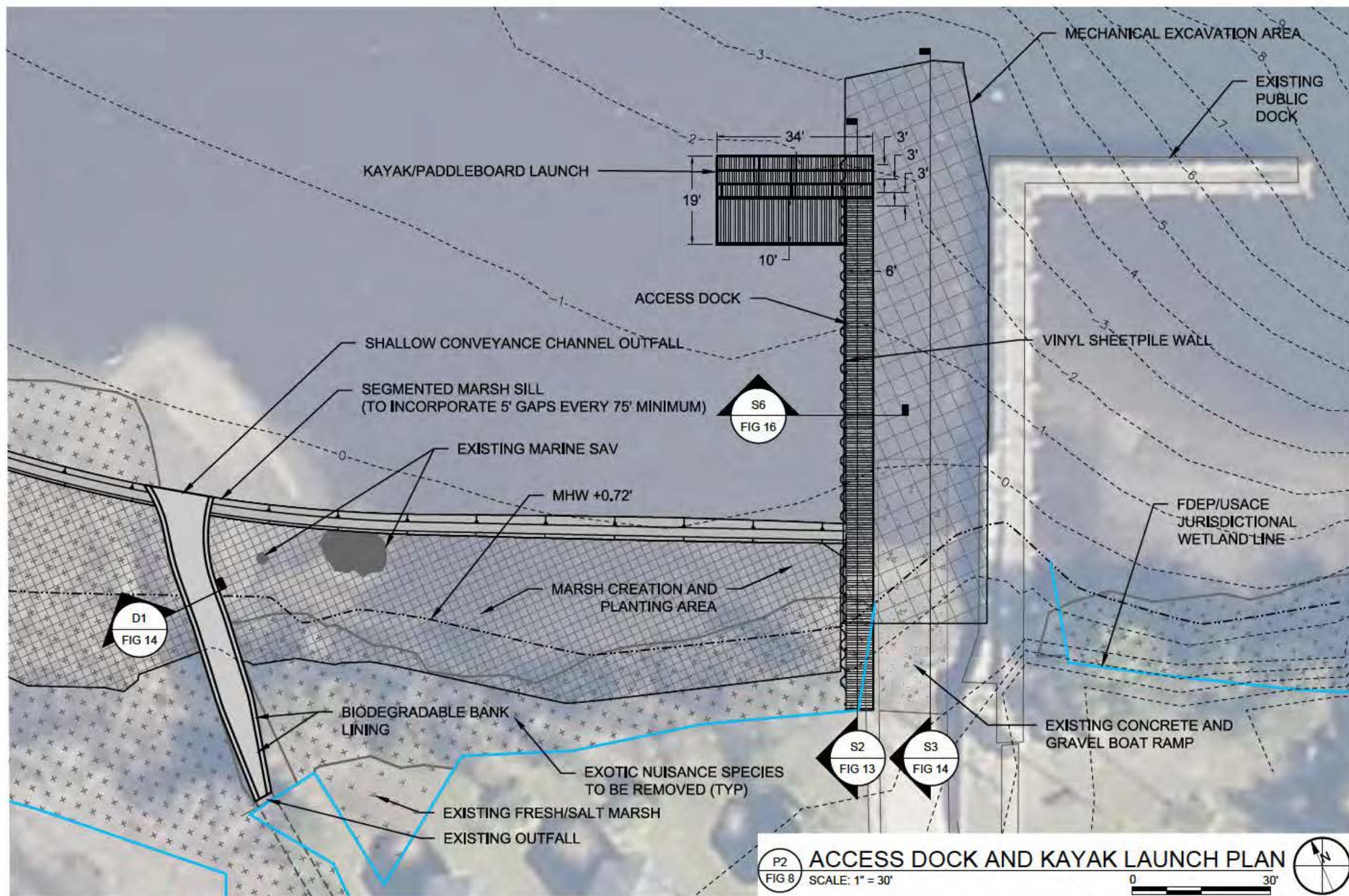
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P2
FIG 8

ACCESS DOCK AND KAYAK LAUNCH PLAN

SCALE: 1" = 30'

0 30'



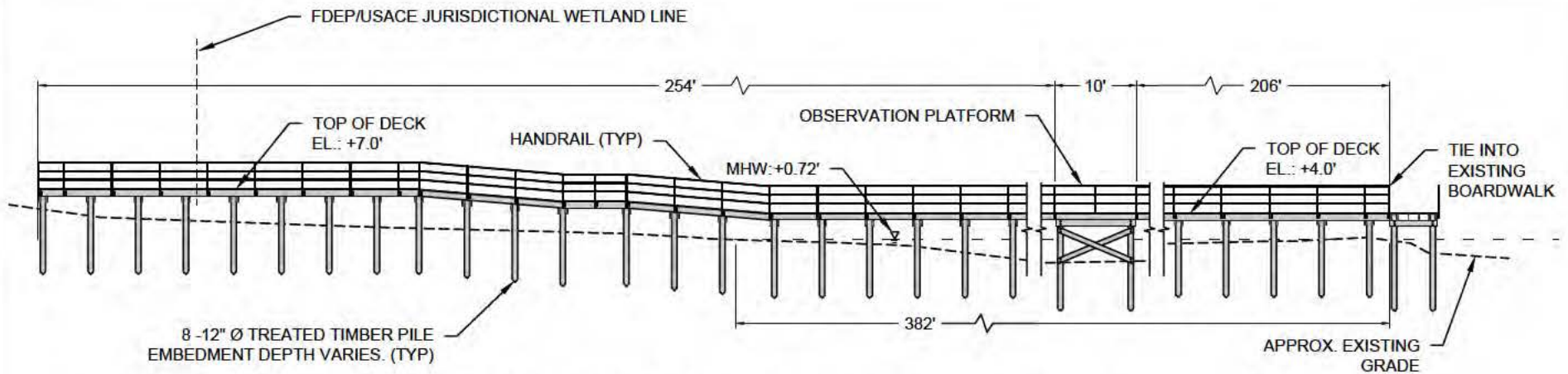
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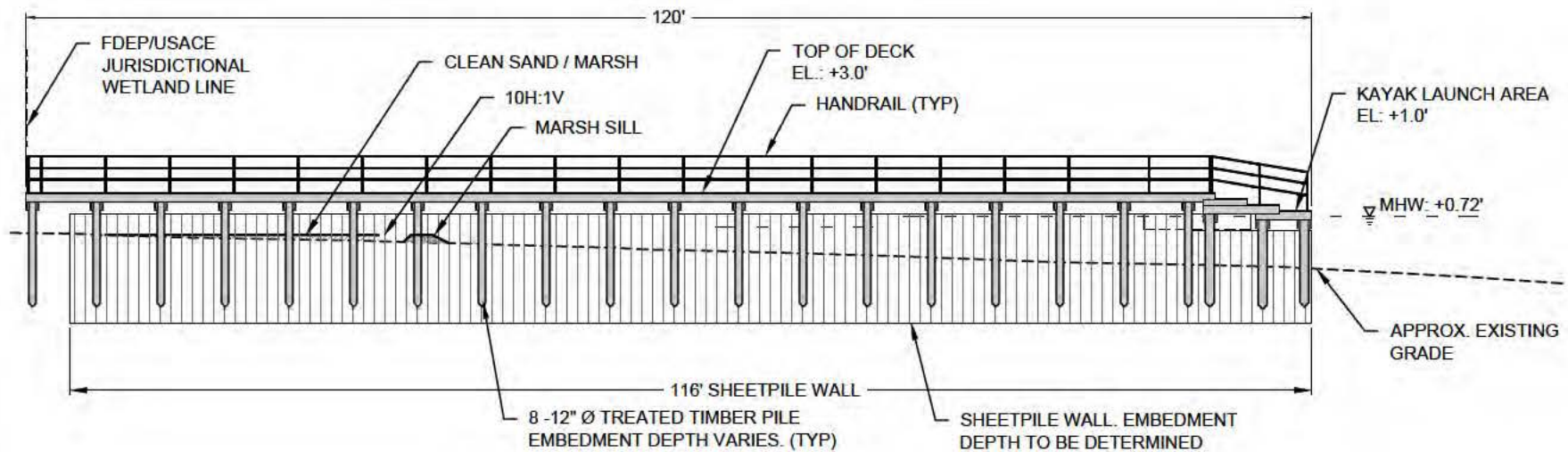
FIGURE 12
ACCESS DOCK AND KAYAK LAUNCH SITE PLAN
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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S1
FIG 11 **MILL POND OBSERVATION DOCK PROFILE**
SCALE: 1" = 20'



S2
FIG 12 **ACCESS DOCK AND KAYAK LAUNCH PROFILE**
SCALE: 1" = 20'



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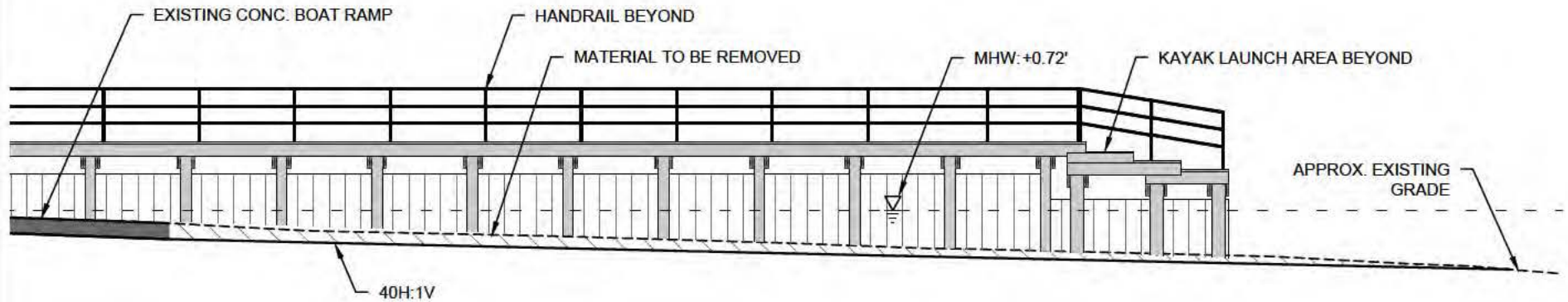
FIGURE 13
TIMBER DOCK PROFILES
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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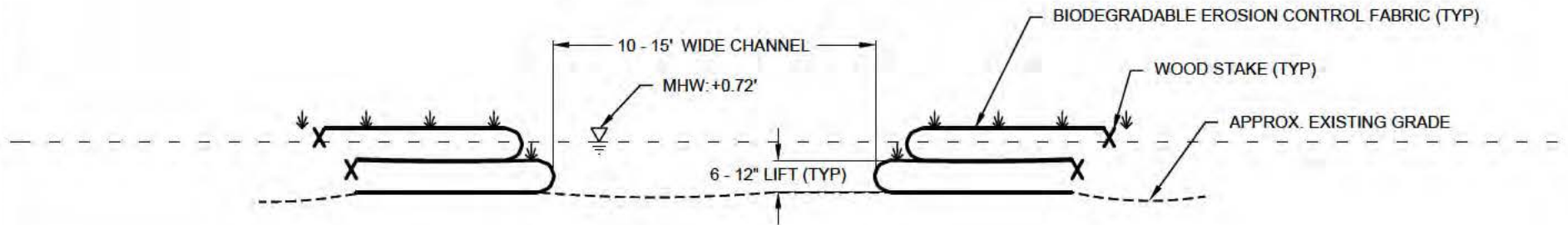
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S3
FIG 12

EXISTING BOAT RAMP SECTION

SCALE: 1" = 10'



D1
FIG 12

SHALLOW CONVEYANCE CHANNEL DETAIL

SCALE: 1" = 5'



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FIGURE 14
BOAT RAMP AND SWALE DETAIL
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

PROJECT C2016-004

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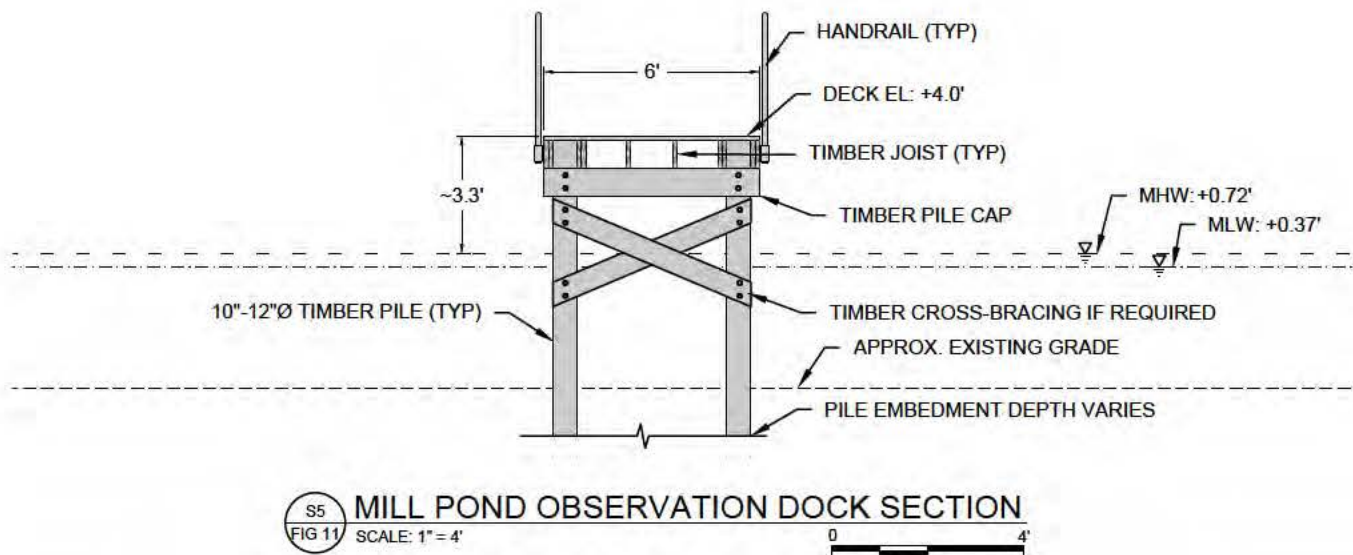
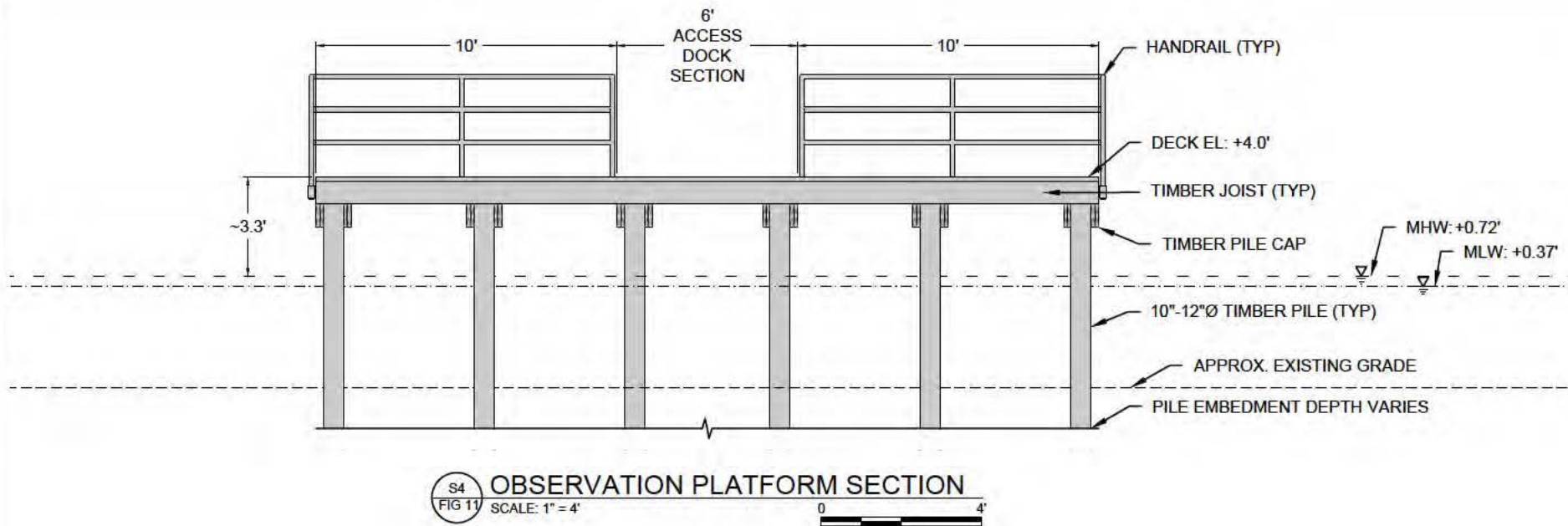
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FIGURE 15
 MILL POND OBSERVATION DOCK SECTION
 BOGGY BAYOU HEADWATERS RESTORATION
 OKALOOSA COUNTY, FLORIDA

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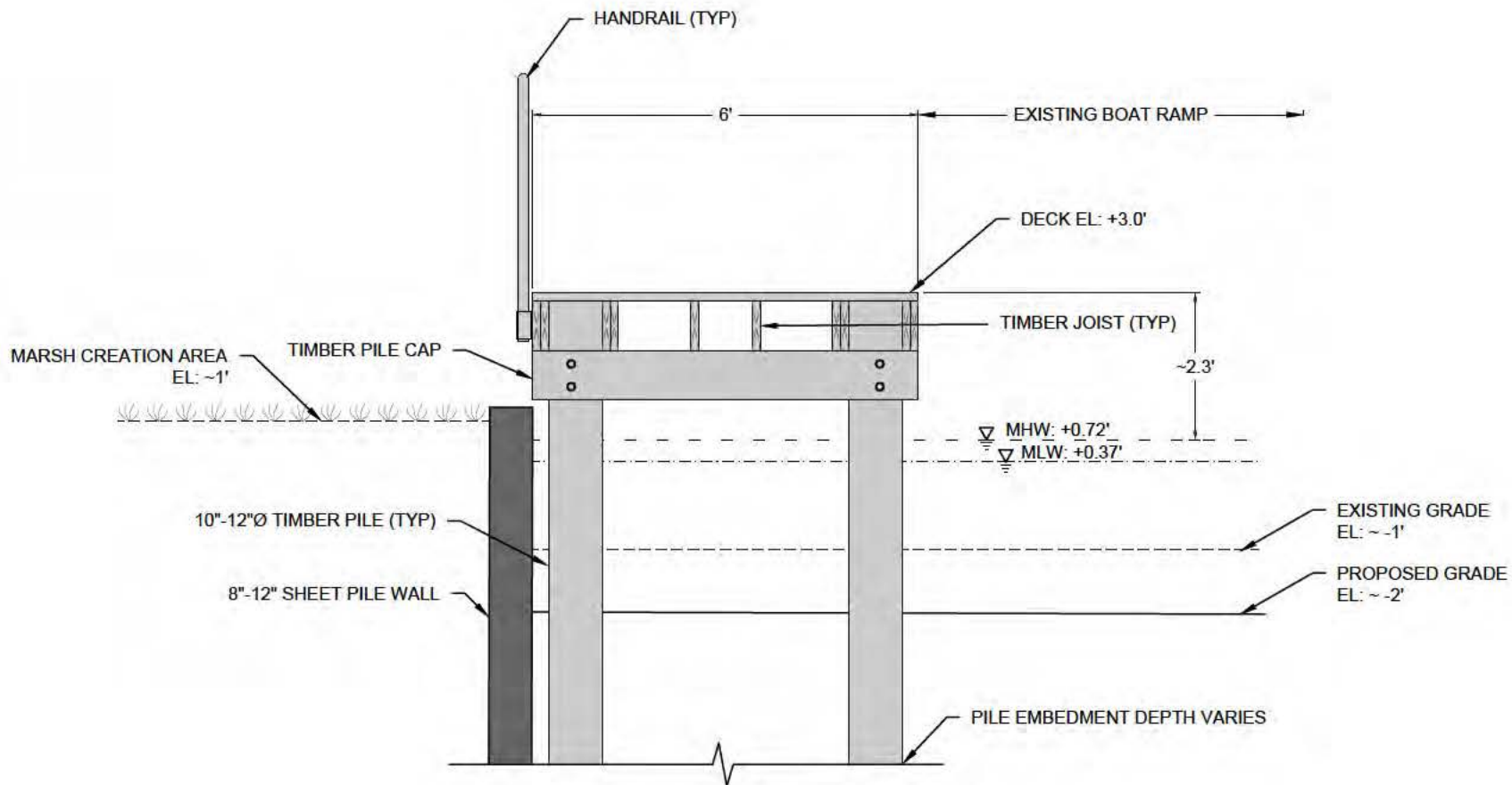
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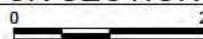
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ACCESS DOCK SECTION

SCALE: 1" = 2'



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FIGURE 16
ACCESS DOCK SECTION
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

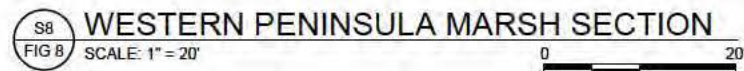
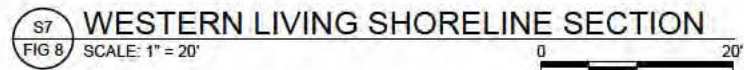
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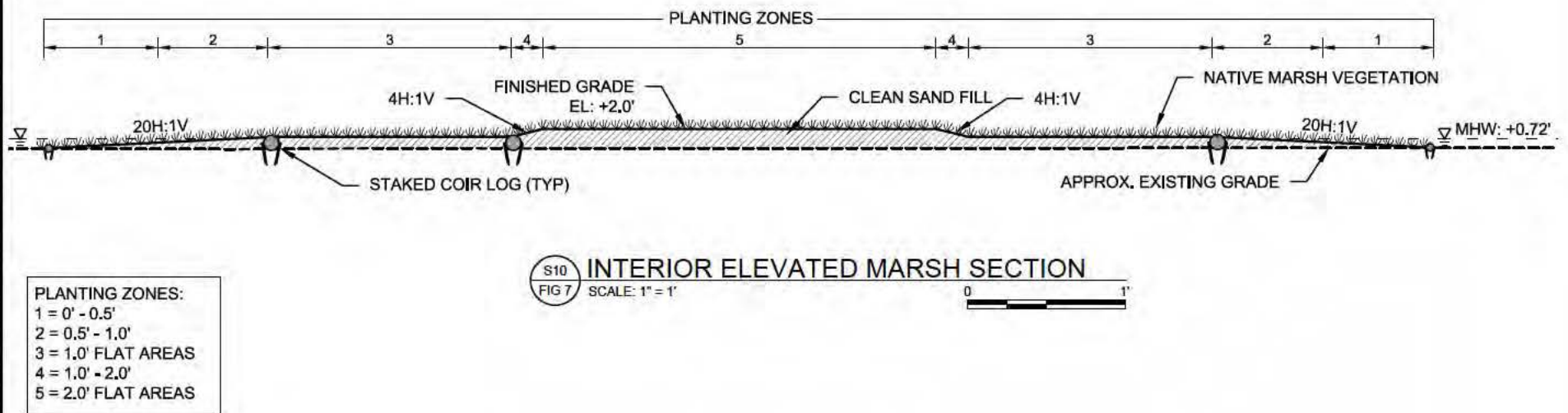
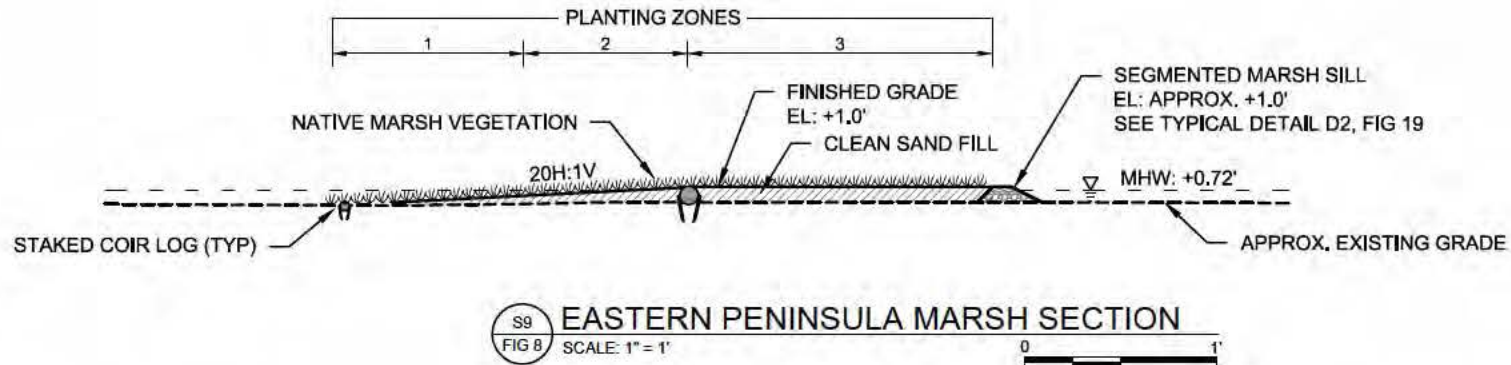
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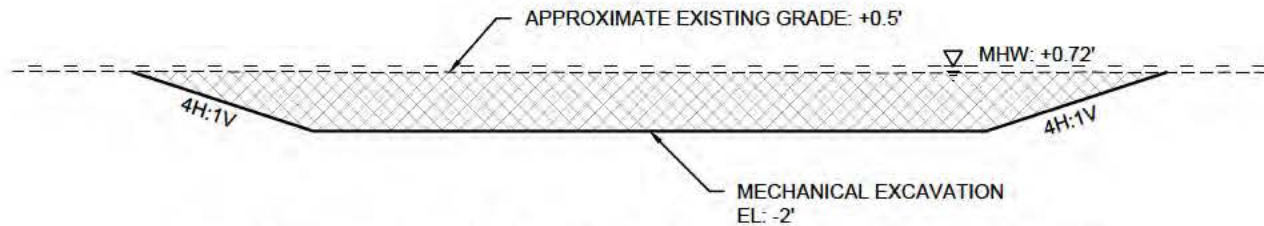
FIGURE 18
CROSS-SECTIONS – EASTERN SHORELINE
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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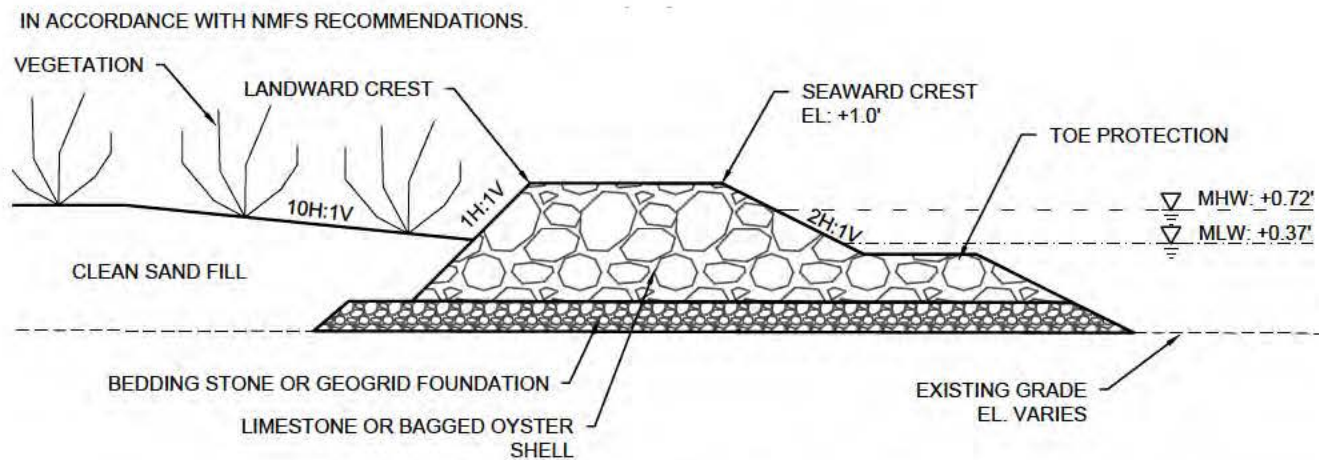
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S11
FIG 7 **MECHANICAL EXCAVATION AREA TYPICAL SECTION**
NOT TO SCALE



D2 **SEGMENTED MARSH SILL TYPICAL DETAIL**
SCALE: 1" = 2'



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FIGURE 19
MARSH SILL TYPICAL DETAIL
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

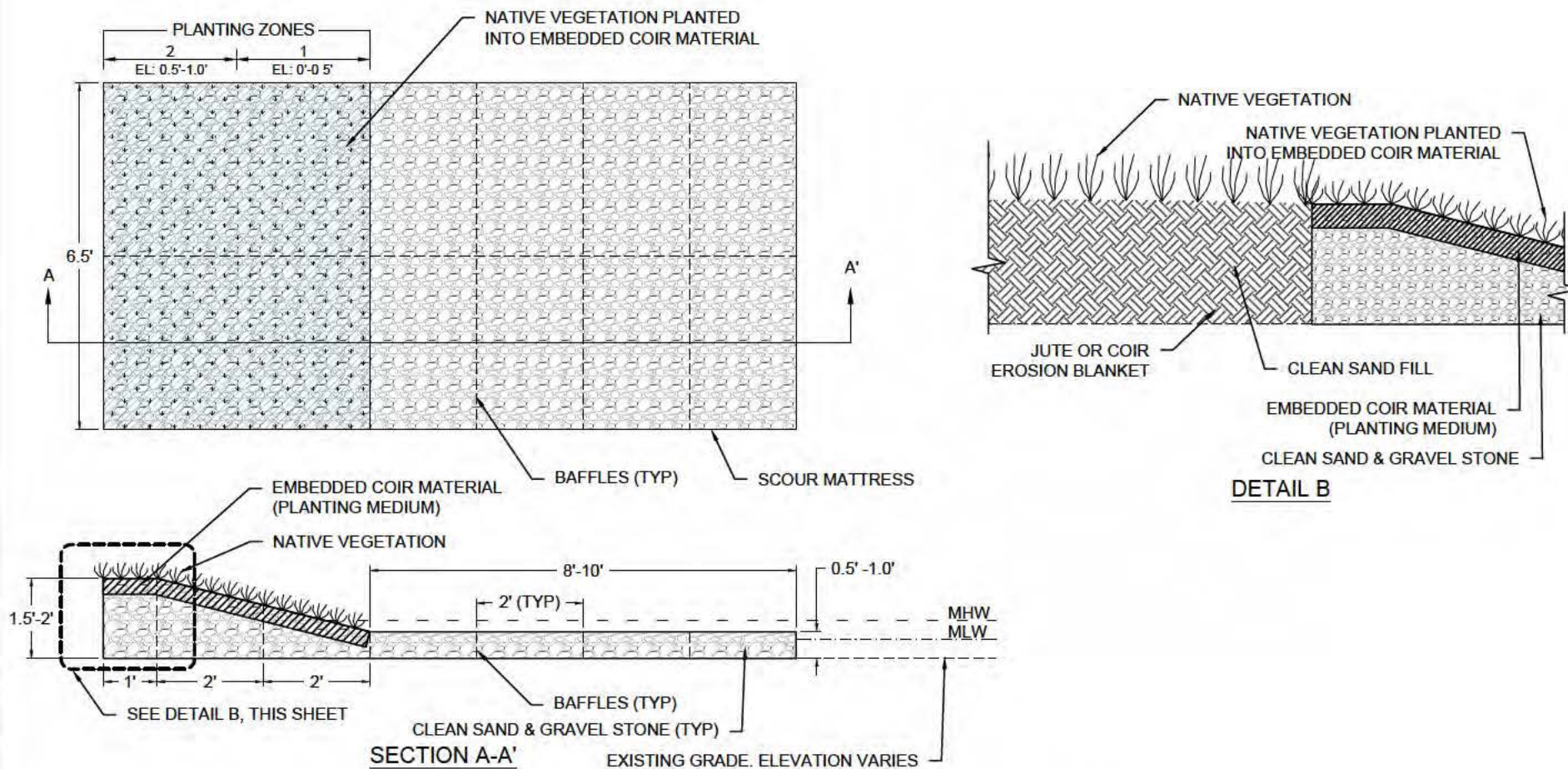
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(D3) VEGETATED SCOUR MATTRESS TYPICAL DETAIL
NOT TO SCALE



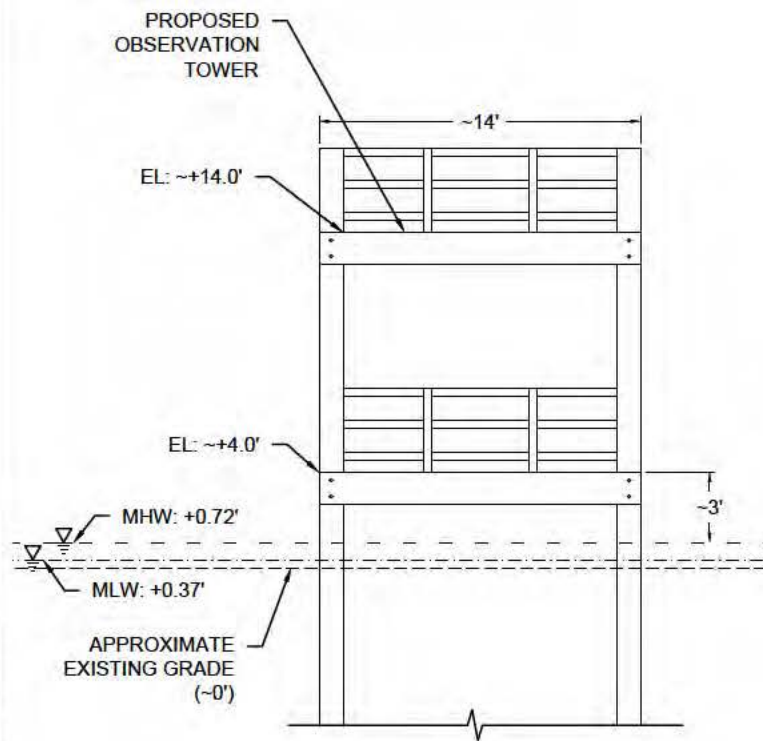
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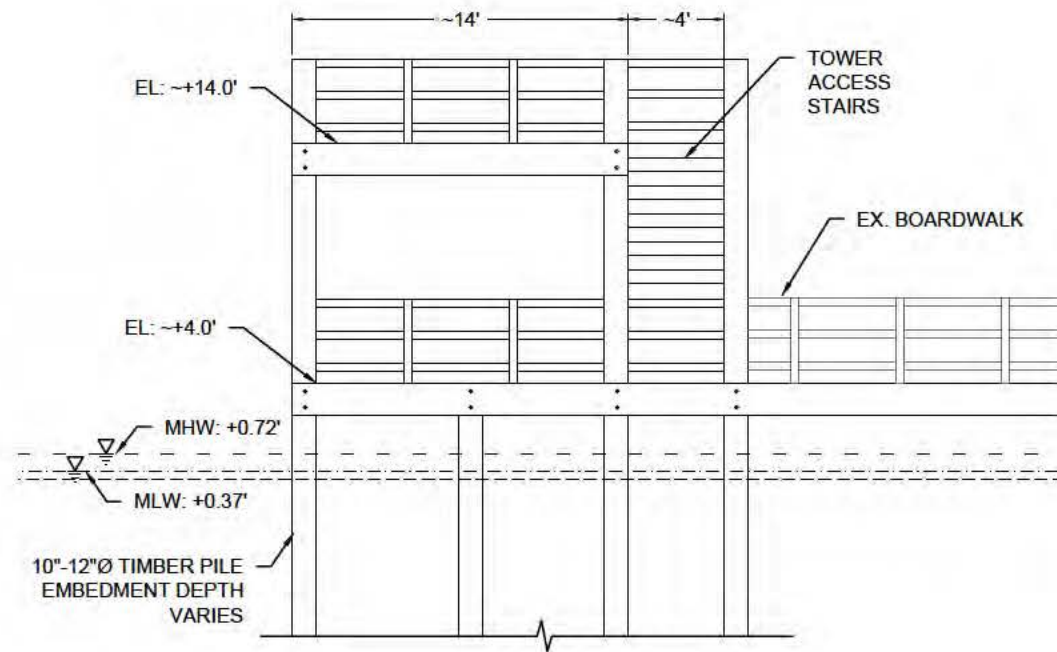
FIGURE 20
VEGETATED SCOUR MATTRESS TYPICAL DETAIL
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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FRONT VIEW



SIDE VIEW

D4 OBSERVATION TOWER DETAILS
NOT TO SCALE



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FIGURE 21
OBSERVATION TOWER DETAIL
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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1-3/8" x 14" Galv.
metal straps

Center supports notched and joined
to form 4 cross-lap joints

Perch

1" x 2" wire
fabric stapled to
top of platform

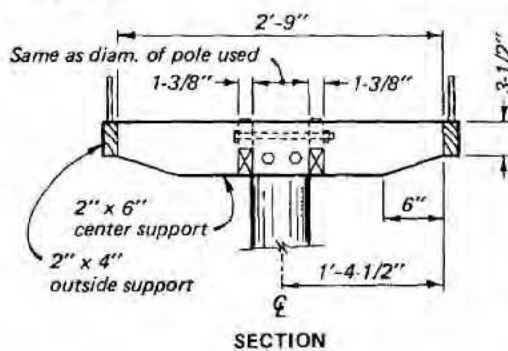
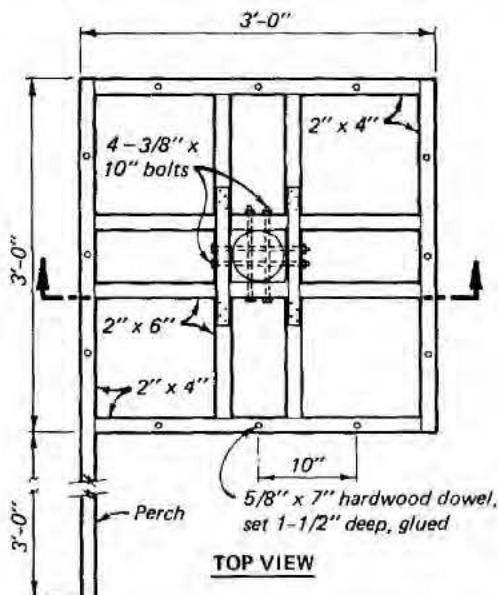
25'-0" Pressure-
treated pole, with
5" min. top diam.

19'-0"

Ground surface

6'-0"

PERSPECTIVE



NOTES

- Staple a 3' x 3' piece of 1" x 2" galv. welded wire fabric over the top of platform.
- All joints shall be glued and nailed.
- Platform material is redwood, cedar, or cypress.
- Four 3/8" x 4" lag bolts may be substituted for the four 3/8" x 10" bolts.

OSPREY PLATFORM DETAIL

NOT TO SCALE

NOTE: FINAL DESIGN SHALL BE MODELED FROM THE NESTING
PLATFORM SHOWN ABOVE PROVIDED BY THE PEREGRINE
FUND AND THE U.S. BUREAU OF RECLAMATION



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FIGURE 22
OSPREY PLATFORM DETAIL
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

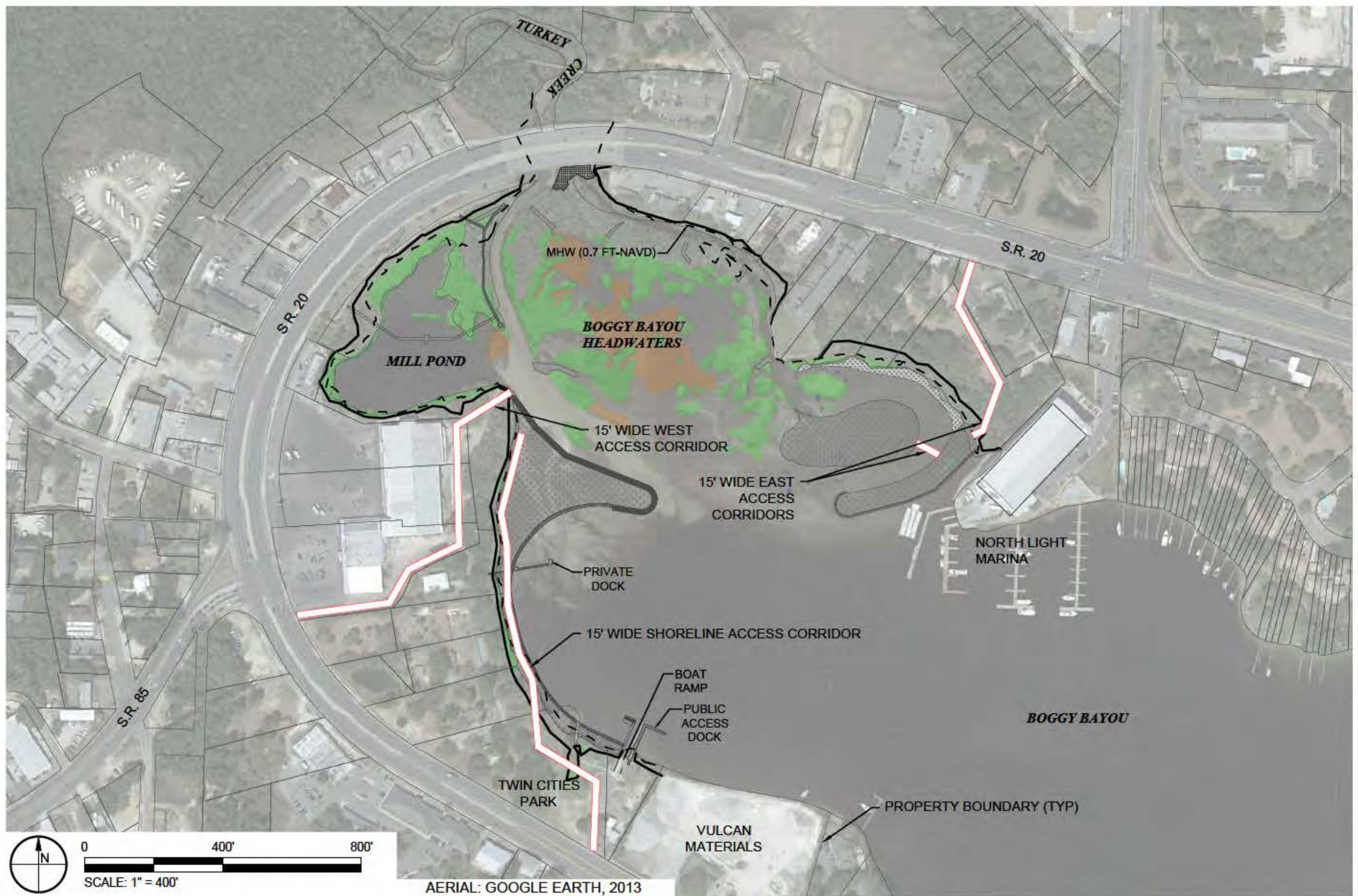
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FIGURE 23
PROPOSED ACCESS CORRIDORS
BOGGY BAYOU HEADWATERS RESTORATION
OKALOOSA COUNTY, FLORIDA

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