
Wetland Mitigation Plan

**Wetland Mitigation Plan
Gulf State Park Lodge
Gulf Shores, Alabama
USACE Permit Number SAM-2013-00835-GAC
Volkert Job Number 334001.12**

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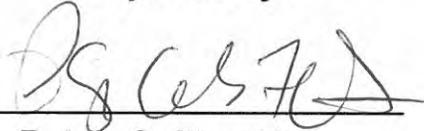
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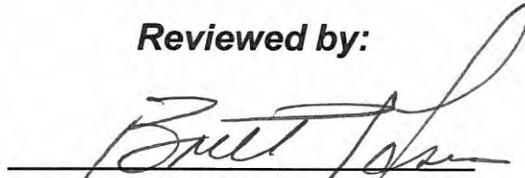
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1.0 MITIGATION OBJECTIVE

The objective of this mitigation project is to compensate for the unavoidable loss of 0.076 acres of emergent wetlands associated with the construction of the Gulf State Park Lodge. Approximately 0.228 acres of emergent wetlands will be created on-site and will provide flood storage capacity, groundwater recharge, water quality maintenance, and wildlife habitat.

2.0 SITE SELECTION

The mitigation area locations were selected due to avoidance of Alabama Beach Mouse habitat and to aid in LEED certification of the proposed facility. Purchase of wetland credits from a commercial mitigation bank would not provide in-kind mitigation.

3.0 SITE PROTECTION INSTRUMENT

The mitigation areas will be protected in perpetuity by a Declaration of Restrictive Covenants.

4.0 BASELINE INFORMATION

4.1 Project Location

4.1.1 Coordinates and Project Location Description

The Gulf State Park Lodge project is located at Latitude N 30.250382° and Longitude W 87.663899°. It is found in Section 22, Township 9 South, Range 4 East on the Gulf Shores, AL topographic quadrangle map.

4.1.2 Maps

Attached in **Appendix A, Figures 1, 2 and 3**, are maps showing the overall project location, the proposed project site plan showing the wetlands for the project that were verified by the U.S. Army Corps of Engineers (Corps) on June 24, 2013 and the proposed created wetlands, and a NRCS soils map for the project.

4.1.3 Aerial/Satellite Photos

Attached in **Appendix A, Figure 4**, is a 2012 aerial photograph of the project site.

4.2 Impacted Wetland Classification and Characteristics

Based on the Cowardin Classification, the impact area would be categorized as a palustrine, emergent, non-persistent wetland that is seasonally flooded and well drained. Native vegetation found in this wetland includes species such as *Spartina patens*, *Juncus effuses*, *Lachnanthes sp.*, and *Xyris sp.*, however, it is dominated by *Imperata cylindrical* (cogon grass) and *Sapium sebiferum* (Chinese tallow). The wetland is underlain by the Coastal beaches soil series. According to the *Baldwin County, Alabama Soil Survey*, Coastal beaches soil type consists of primarily white sand that contains fragments of seashells. The sand is nearly uniform in color and texture to a depth of several feet. Due to the prevalence of invasive species, the wetland is considered low quality.

4.3 Historical and Current Land Use

Historically the proposed project site where the wetland impacts are occurring was developed as a lodge and convention center until 2004 when it was destroyed by Hurricane Ivan. Since then, the site has been cleared of all remnant structures and is currently vacant.

4.4 Current Owners

The project site is owned by the State of Alabama.

4.5 Watershed Context/Surrounding Land Use

The area surrounding the project is contained within the state park boundary. The state fishing pier is directly adjacent to the project site to the west. The state park day use area and Highway 182 are directly adjacent to the north of the project area.

5.0 DETERMINATION OF CREDITS

As previously stated, this wetland is considered low quality due to the prevalence of invasive species. The Corps, in consultation with Alabama Department of Environmental Management (ADEM), has determined that a 3:1 mitigation ratio is appropriate. Therefore, approximately 0.228 acres of emergent wetlands will be created on-site to offset the impacts.

6.0 MITIGATION WORK PLAN

6.1 Mitigation Work Schedule

Mitigation work, i.e. earthwork and planting of target species, will occur within 12 months of when the permitted wetland impacts occur.

6.2 Wetland Creation

Approximately 0.228 acres of emergent wetlands will be created within the project area. Access for the creation and subsequent monitoring will be from Alabama Highway 182. See **Appendix A, Figure 2**, for location and size of mitigation areas.

Prior to any equipment being used on-site for wetland creation, equipment needs to be treated to reduce or eliminate the potential of invasive plants or their seeds from being artificially transplanted to the site.

In the creation area, existing vegetation; cogon grass, bluestem, torpedo grass, penny wort, and live oaks will be removed. Prior to excavation, existing stands of cogon grass will be heavily treated and the site confirmed to be free of invasives. A nearby, unimpacted wetland will be used as a reference to determine the elevation that will be established in the created wetlands. Spot elevations will be established prior to any land disturbance to ensure an appropriate depth is obtained. Once the desired elevation is obtained, organic material from the impacted wetlands will be

relocated to the mitigation site to provide native seedbed and rootstalk material which will create in-kind wetlands. The site will then be planted equally with *Spartina patens*, *Juncus effuses*, *Lachnanthes sp.*, and *Xyris sp.* obtained from nursery stock or available donor sites within the state park with spacing not to exceed 2 feet. If plant material is obtained from donor sites, the sprigs will not exceed 4 inches by 4 inches by 6 inches deep and no more than 1 sprig per square yard will be collected.

7.0 MAINTENANCE PLAN

General maintenance activities may be necessary to ensure successful ecological function is achieved. General maintenance activities may include but is not limited to removal of exotic and nuisance species. The created wetland will also be subjected to evaluations to ensure hydric soils, hydrophitic vegetation and hydrology are being achieved to meet the definition of a jurisdictional wetland in accordance with the 1987 wetland delineation manual and the 2010 regional supplement.

8.0 PERFORMANCE STANDARDS

Within 6 months of creation, the mitigation area will need to be delineated as a jurisdictional wetland. This means the site will be evaluated to determine that hydric soils, hydrology and hydrophitic vegetation are present and functioning as a jurisdictional wetland. The site will be considered successful when it achieves 100% vegetation cover of the vegetation species that will be planted which includes *Spartina patens*, *Juncus effuses*, *Lachnanthes sp.*, and *Xyris sp.*

9.0 MONITORING PLAN

A multi-year plan has been developed for the monitoring and documentation of the created wetlands. A wetland scientist will conduct the implementation and documentation of the monitoring.

9.1 Monitoring Periods

Monitoring of the mitigation areas will be conducted semi semi-annually (spring and fall) for a period of five years.

9.2 Monitoring Field Procedures

The monitoring plan field procedures have been developed to survey the mitigated wetlands. The survey will document the following parameters:

- Surface water depths
- Vegetation coverage
- Listing of invader species and removal efforts
- Wildlife observed in wetland
- Photographs of the site

9.2.1 Depth of Water Surface and Hydrology

The water surface depth must be determined. In most cases the elevations will be consistent, however, a check is strongly recommended. These depths will be recorded on the field data sheets.

9.2.2 Vegetation Coverage and Composition

During the monitoring periods, a percent cover for each planted species will be generated. In the event of poor coverage, the representative plant species will be obtained from nursery stock or donor stock and will be replanted. If exotic and/or invasive species are observed, it will be noted in the monitoring report and they will be promptly removed from the mitigation areas.

9.2.3 Wildlife Observed in Wetland

Observations of macroinvertebrates, waterfowl, fish, and other associated wildlife are to be made during the survey. An informal listing and approximate numbers of the animals seen are to be included on the survey. Any evidence of the presence of animals

that was seen in the field, such as tracks, dens, scratchings, etc. will be noted. A survey of macroinvertebrates will not be performed during dry periods, when surface water is not present.

9.2.4 Photographs of the Site

As the monitoring is being conducted, photographs are to be taken of the wetlands to document the growth and development. These photographs are to be included with the survey. The location, time and date the picture was taken must be written on each photograph. These photos will be compiled and included with the reports.

9.2.5 Reporting

Reports will be submitted semi-annually for five years. All of the information, which was collected during surveys, must be included in the field data sheets for that monitoring period. Copies of the report will be provided to the ADEM, U.S. Fish & Wildlife Service and the Corps.

10.0 LONG-TERM MANAGEMENT PLAN

The mitigation areas will be managed in perpetuity by the Alabama Department of Conservation and Natural Resources. Maintenance will include any and all activities necessary to improve and sustain the ecological function of the site. Such may include but are not limited to application of mechanical and chemical means to control and eliminate exotic and nuisance species.

11.0 ADAPTIVE MANAGEMENT PLAN

In the event it is determined that the mitigation areas are not achieving success, then adaptive management strategies including but not limited to the evaluation of alternate sites, use of commercial banks, and other sources of mitigation credit will be evaluated.

**APPENDIX A
FIGURES**

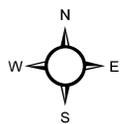
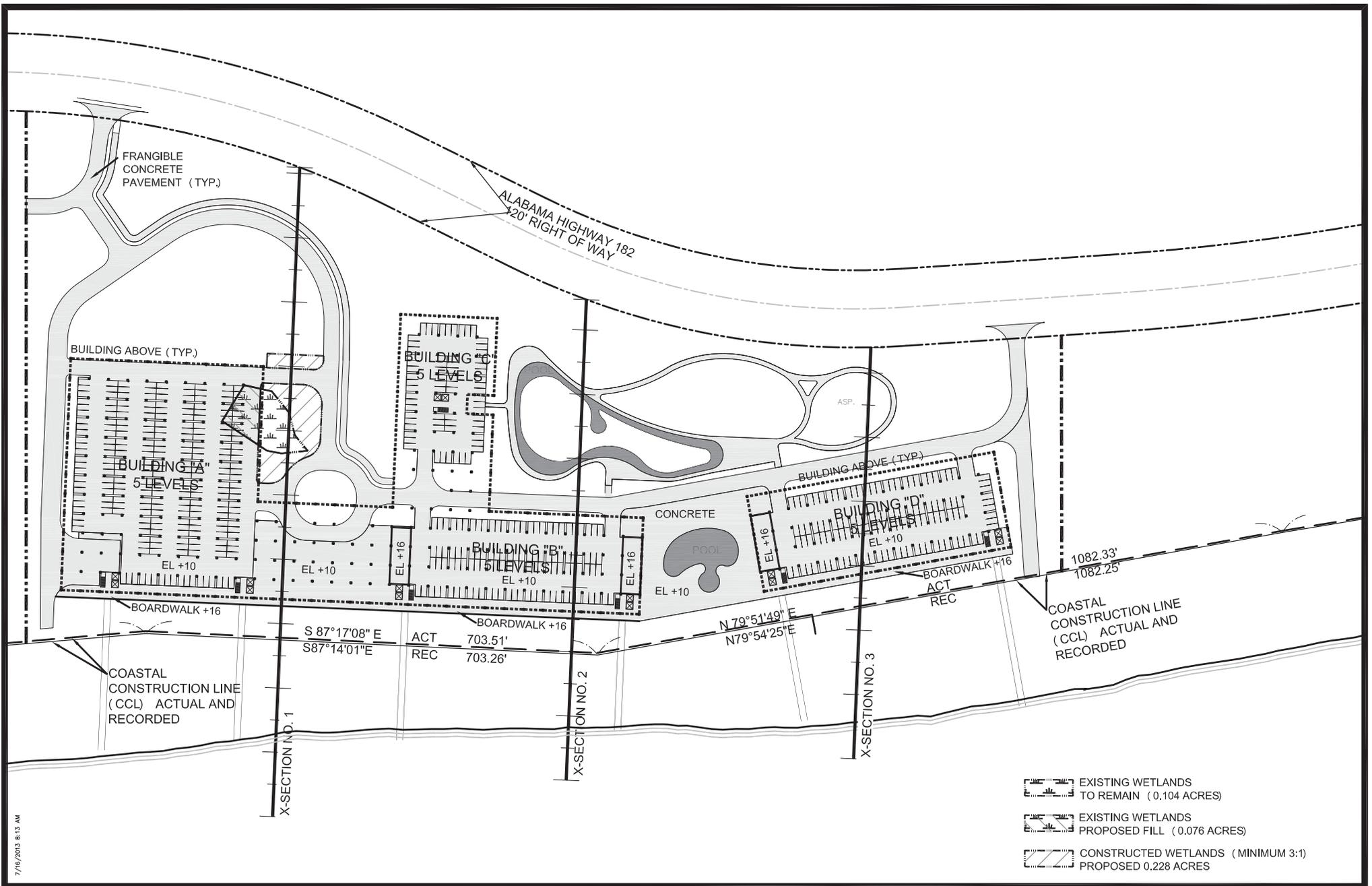


Figure 1
Overall Project Location

1 inch = 2,000 feet



- EXISTING WETLANDS TO REMAIN (0.104 ACRES)
- EXISTING WETLANDS PROPOSED FILL (0.076 ACRES)
- CONSTRUCTED WETLANDS (MINIMUM 3:1) PROPOSED 0.228 ACRES

GULF STATE LODGE



Scale: 1" = 200'



Gulf State Park Enhancement Project

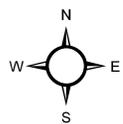
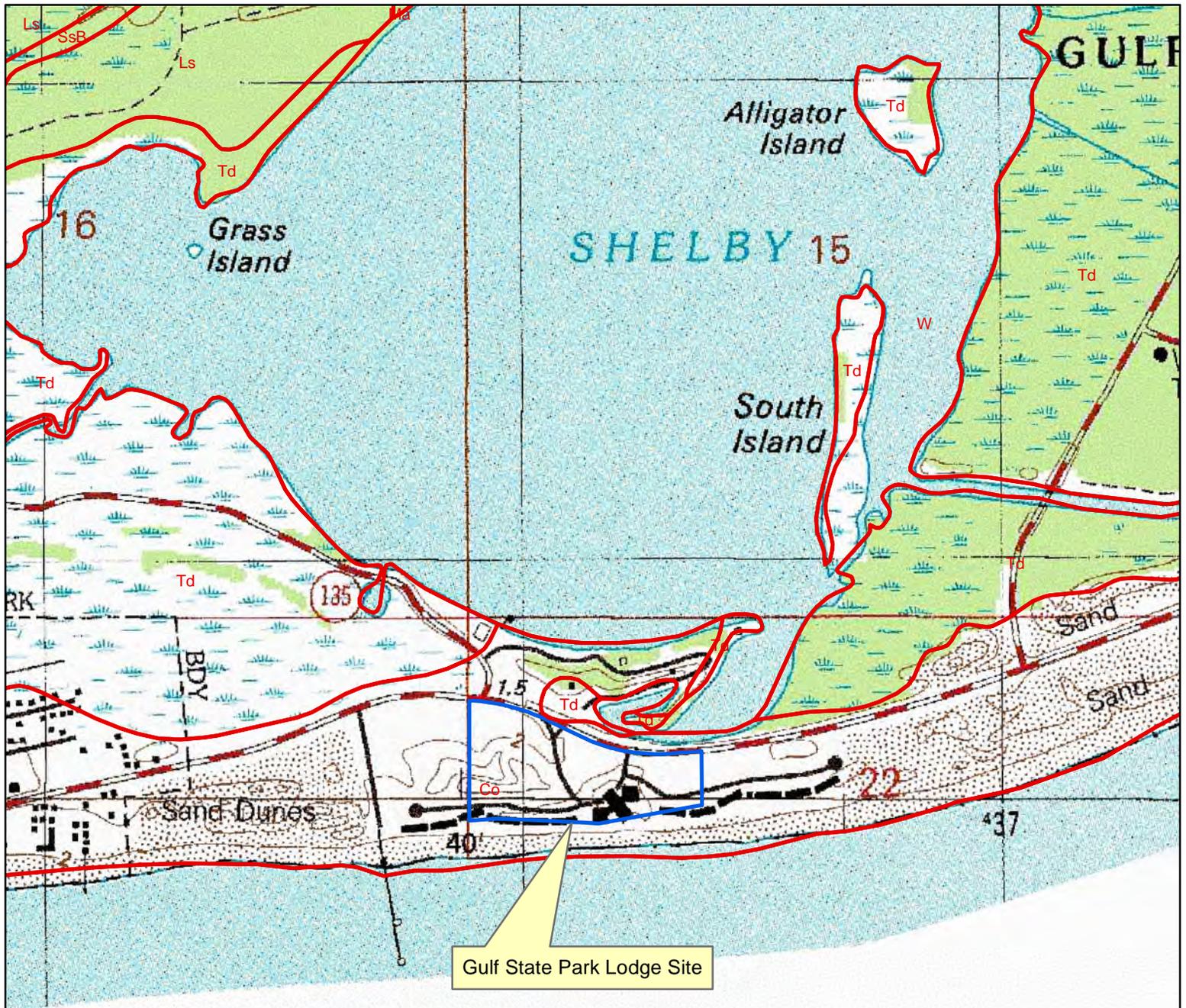


Figure 3
Soils Map

1 inch = 1,000 feet



Gulf State Park Lodge Site

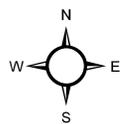


Figure 4
2012 Aerial

1 inch = 300 feet