Aerial View of Hernando Beach [1]

Shoal Line Boulevard Recreation Project
Feasibility Study

August 15th, 2022

Prepared for

Hernando County BOCC

15470 Flight Path Dr.

Brooksville, FL 34604

Prepared by

Coastal engineering associates, inc.

Engineering
Planning
Surveying
Environmental
Transportation
Construction Management

[1] Cover Photo: Knight, W. (2009). Aerial View of Hernando Beach. https://commons.wikimedia.org/wiki/User:Wknight94/Florida#/media/File:Aerial_view_of_Hernando_Beach,_Florida.jpg

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I. Preface

The Shoal Line Boulevard Recreation Area is a project funded by Hernando County that incorporates intended recreational uses, which were established under the original management plan for the Weeki Wachee Preserve. Uses such as hiking, biking, fishing, birding, picnicking, boating (non-combustible engine), and swimming have been authorized through the original management plan of the Weeki Wachee Preserve. Through the Shoal Line Boulevard Recreation Area, Hernando County intends to create a public park within the Weeki Wachee Preserve that will follow the codes and ordinances set forth by the Hernando County Commissioners. The design criteria considered by Hernando County is consistent with the original plan that was set forth by the Southwest Water Management District (SWFWMD) and Hernando County during the acquisition of the land. The special protection regions of the park will be preserved.

II. INTRODUCTION

The Weeki Wachee Preserve is part of a regional system of conservation lands stretching from the Weeki Wachee River to Osowaw Boulevard and US 19 to Shoal Line Boulevard, preserving the southernmost coastal hardwood hammock in western Florida. The preserve provides a rich mosaic of habitats including several miles of Weeki Wachee River frontage, portions of the Mud River, dense hardwood swamps, freshwater marshes, saltwater marshes, and pine-covered sandhills. The preserve is centered around a mine reclamation area, where limestone was once quarried from deep pits. Now filled with water, these pits form a chain of lakes within a rocky, alkaline landscape surrounded by native habitats. The preserve is best known for its vast array of wildlife, which includes Florida Black Bears, Bald Eagles, and many other species. Public ownership protects the wetlands' natural functions of conveying spring water to the Gulf of Mexico, cleansing surface water and providing flood protection, as well as buffering nearby residential communities from tropical storms.

Figure 1 – Aerial of Weeki Wachee Preserve Lakes

The preserve was acquired by the Southwest Florida Water Management District (District) through a series of successive land purchases conducted between 1993 and 1996. Hernando County contributed funds toward the acquisition of the Preserve through its Environmentally Sensitive Lands Program, which was established to provide a local funding source for the acquisition of significant natural lands. The Preserve is managed by the Southwest Florida Water Management District (SWFWMD), which is responsible for balancing conservation of the resources, while providing access for people to recreate responsibly. The District established a management plan for the Preserve in 1997 that outlines the District's responsibilities to the ownership of state lands. Hernando County's proposed creation of Shoal Line Boulevard Recreation Park is meant to assist SWFWMD in meeting that objective.

FIGURE 2 – GEOREFERENCED TRAIL MAP

III. BASIS OF FINDINGS

A. Property Identification & Ownership Info:

R07 423 17 0000 0020 0010: Hernando County (County) owns a parcel at 4496 Shoal Line Boulevard, Hernando County, Florida. The parcel is currently undeveloped. The site consists of one parcel totaling approximately 56 acres with a 270-ft long unpaved access road from Shoal Line Boulevard and no buildings, parking, or landscaped areas. The County wishes to have a feasibility study performed on the property to assess the potential for redevelopment or repurposing**. (Exhibit 1).**

R18 423 17 0000 0010 0000: Southwest Florida Water Management owns a parcel at Shoal Line Boulevard, Hernando County, Florida. The parcel is currently undeveloped. The site consists of one parcel totaling approximately 631.3 acres. There is vehicular access from Osowaw Boulevard, with a parking lot. On second and fourth Saturday of each month, visitors may drive into preserve through the Osowaw Boulevard entrance and park at end of paved road. There are a series of paved / unpaved trails around the lake sites with a main trail running approx. 3 miles in length from Shoal Line Boulevard to Osowaw Blvd. There is no unauthorized vehicle use permitted. There is a portable restroom located on this parcel, which services the entire preserve, as well as some picnic tables, but otherwise buildings structures, or landscaped areas. The banks of the lakes are cited as being unstable and visitors are warned to use caution when accessing these areas. The County wishes to have a feasibility study performed on the property to assess the potential for development of a public recreation areas **(Exhibit 2).**

R19 423 17 0000 0010 0000: Southwest Florida Water Management owns a parcel at Shoal Line Boulevard, Hernando County, Florida. The parcel is currently undeveloped. The site consists of one parcel totaling approximately 621.1 acres. On second and fourth Saturday of each month, visitors may drive into preserve through the Osowaw Boulevard entrance and park at end of paved road. There are a series of paved / unpaved trails around the lake sites with a main trail running approx. 3 miles in length from Shoal Line Boulevard to Osowaw Blvd. There is no unauthorized vehicle use permitted. There is a portable restroom located on this parcel, which services the entire preserve, as well as some picnic tables, but otherwise buildings structures, or landscaped areas. The banks of the lakes are cited as being unstable and visitors are warned to use caution when accessing these areas. The County wishes to have a feasibility study performed on the property to assess the potential for development of a public recreation areas. **(Exhibit 3**).

Research Methods:

Consulting various agencies and databases for demographic data, land use policies and trends, as well as consulting with construction entities for material pricing and construction costs. Data was also obtained from within Coastal' s archives which is updated regularly for use in all assignments.

B. Regulatory Authorities

The following agencies have land development jurisdiction over the site:

- Southwest Florida Water Management District (SWFWMD)
- Florida Department of Environmental Protection (FDEP)
- Hernando County
- FWC

IV. SITE CONDITIONS

Parcel R07 423 17 0000 0020 0010 is located in Hernando County at 4496 Shoal Line Boulevard in Hernando Beach, Florida, within Section 7, Township 23S, Range 17E. Per the Hernando County Property Appraiser website, the vacant parcel encompasses approximately 56.6 acres **(Figure 3)**. The Development of Revenue (DOR) land use code is 91, "Government and Military parcel designation", and the corresponding zoning description is "Utilities" (railroads, gas, communications, and electricity). Per the Hernando County Zoning/GIS database, this parcel has Special Use Zoning uses for Hernando County Utilities Department (HCUD) and is included within the Agricultural Zoning District **(Figure 4**). According to the 2040 Hernando County Comprehensive Plan Future Land Use Map (adopted on September 25, 2018), future land use categories for this parcel are "Conservation and Public Facility" **(Figure 5)**. A review of land uses based on the most current Hernando County Zoning/Future Land Use GIS database indicates that the primary land use categories within approximately one-half mile of the subject parcel are Conservation, Commercial, Public Assembly, Residential and Agricultural.

R18 423 17 0000 0010 0000: is located in Hernando County at Shoal Line Boulevard in Hernando Beach, Florida, within Section 18, Township 23S, Range 17E. Per the Hernando County Property Appraiser website, the vacant parcel encompasses approximately 631.3 acres **(Figure 3)**. The Development of Revenue (DOR) land use code is 87, "State Lands" designation, and the corresponding zoning description is "Public Administration". Per the Hernando County Zoning/GIS database, this parcel has Special Use Zoning uses as it was zoned as part of the Oak Sound DRI, but this DRI was abandoned **(Exhibit 4)**. The SWFWMD purchased the property in 1996 and the zoning was changed to "Conservation" **(Figure 4)**. According to the 2040 Hernando County Comprehensive Plan Future Land Use Map (adopted on September 25, 2018), future land use categories for this parcel are "Conservation and Public Facility" **(Figure 5).** A review of land uses based on the most current Hernando County Zoning/Future Land Use GIS database indicates that the primary land use categories within approximately one-half mile of the subject parcel are Conservation, Commercial, Public Assembly, Residential and Agricultural.

R19 423 17 0000 0010 0000: is located in Hernando County at Shoal Line Boulevard in Hernando Beach, Florida, within Section 19, Township 23S, Range 17E. Per the Hernando County Property Appraiser website, the vacant parcel encompasses approximately 621.1 acres **(Figure 3)**. The Development of Revenue (DOR) land use code is 87, "State Lands" designation, and the corresponding zoning description is "Public Administration". Per the Hernando County Zoning/GIS database, this parcel has Special Use Zoning uses as it was zoned as part of the Oak Sound DRI, but this DRI was abandoned **(Exhibit 4)**. The SWFWMD purchased the property in 1996 and the zoning was changed to "Conservation" **(Figure 4)**. According to the 2040 Hernando County Comprehensive Plan Future Land Use Map (adopted on September 25, 2018), future land use categories for this parcel are "Conservation and Public Facility" **(Figure 5).** A review of land uses based on the most current Hernando County Zoning/Future Land Use GIS database indicates that the primary land use categories within approximately one-half mile of the subject parcel are Conservation, Commercial, Public Assembly, Residential and Agricultural.

FIGURE 3 - OVERALL PROPERTY AERIAL

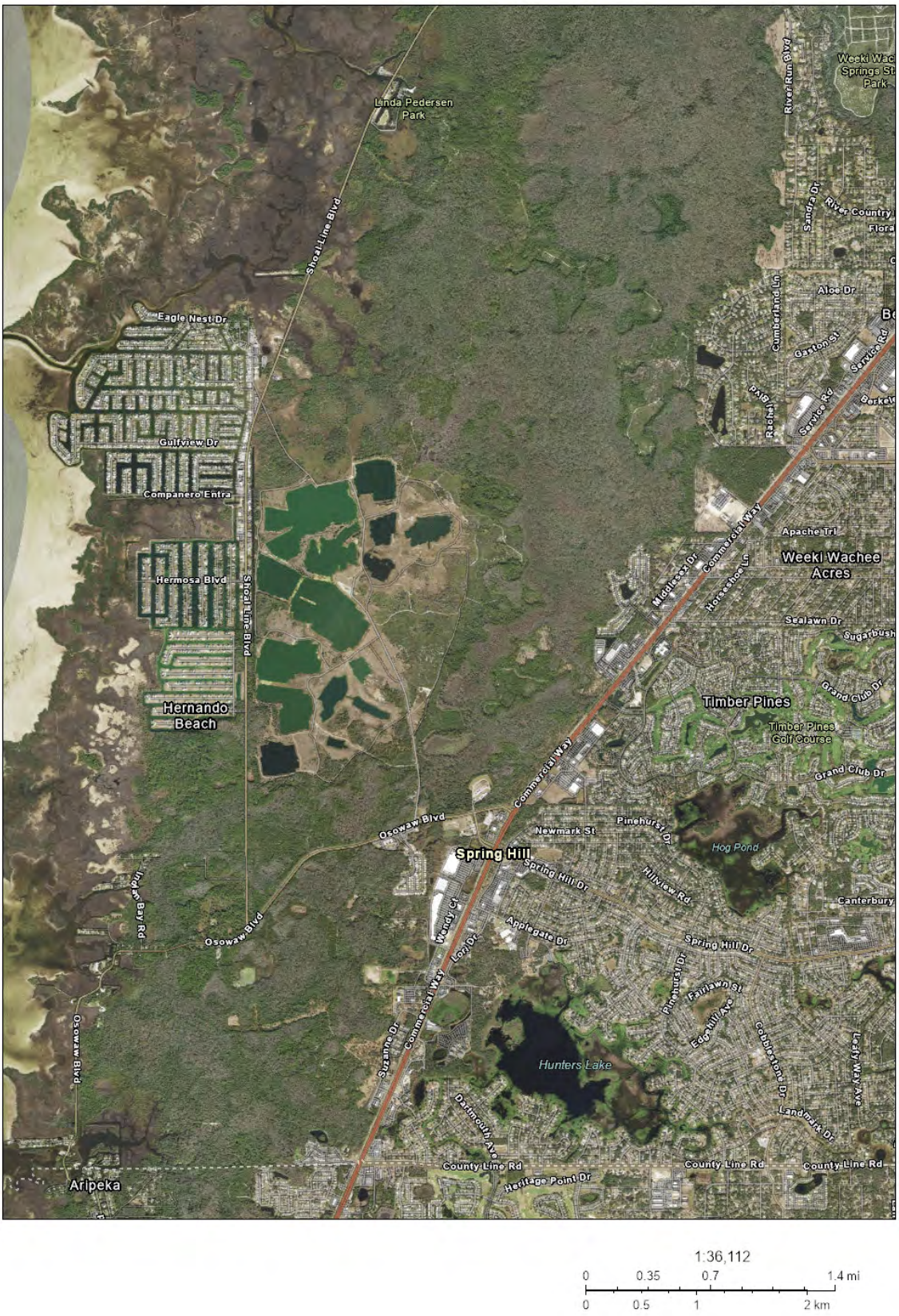


FIGURE 4 - CURRENT ZONING MAP

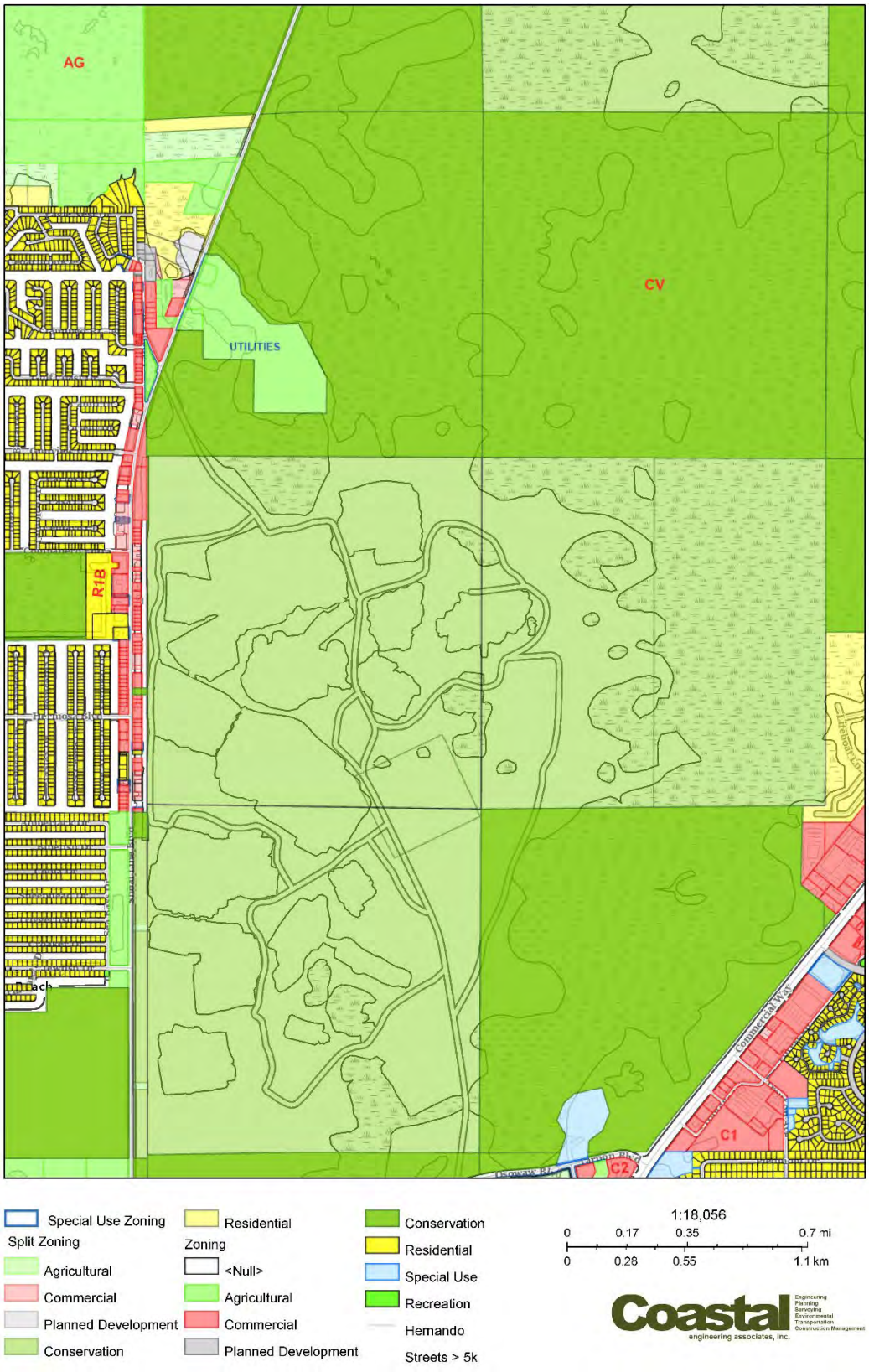
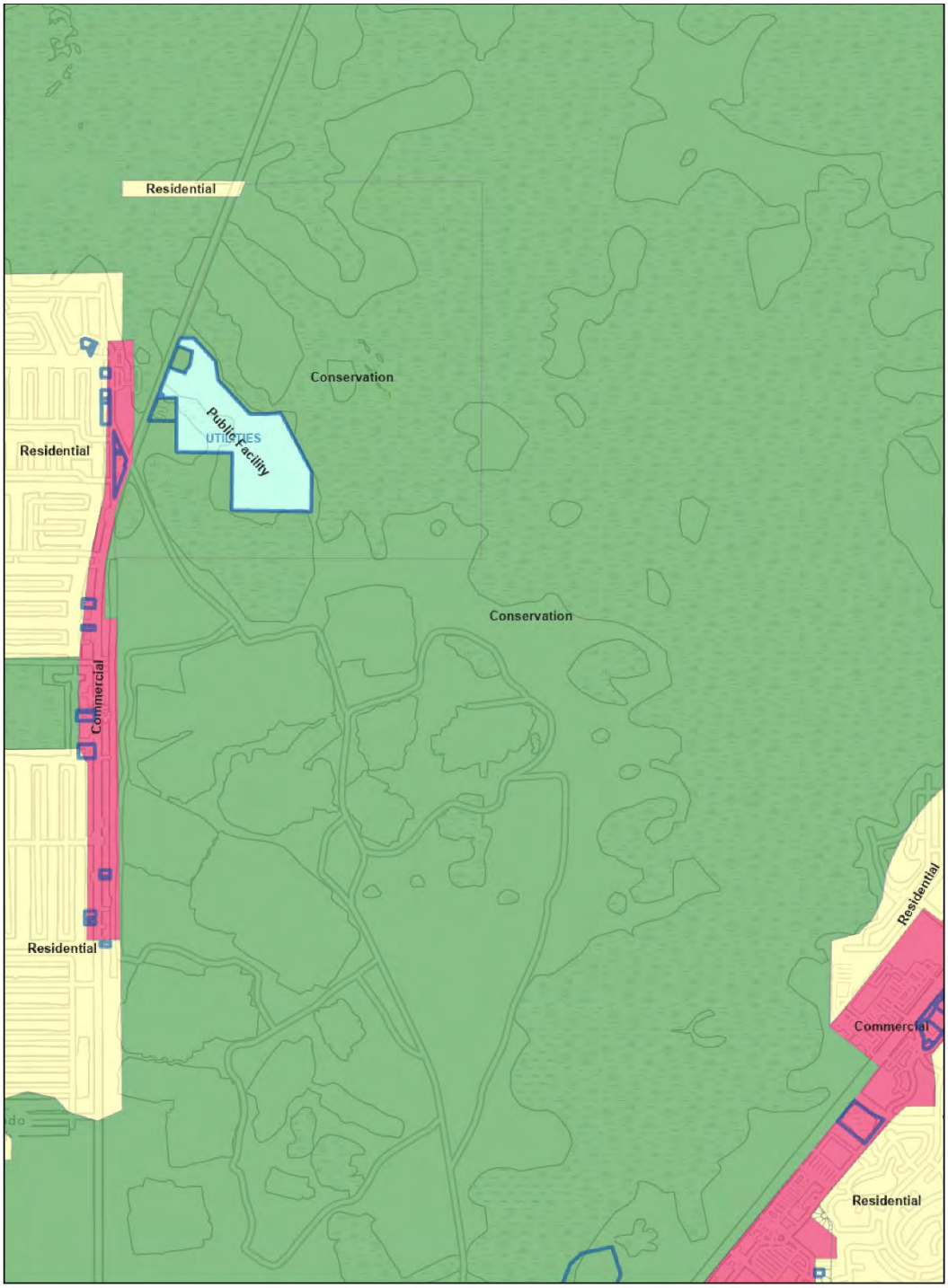


FIGURE 5 - FUTURE LAND USE MAP



V. Project Overview

Consisting of over 7,000 acres of undeveloped land stretching from the Weeki Wachee River to Osowaw Boulevard and US 19 to Shoal Line Boulevard, the Weeki Wachee Preserve incorporates pristine wetlands, upland hammocks, sand hills, several large lakes (former mining pits), and over two miles of frontage on the Weeki Wachee River. This mélange of habitat contains a range of wildlife, including bears and eagles. Acquired between the years 1993 and 1996 through *Florida's Environmentally Sensitive Lands Program.* The Preserve is managed by the Southwest Florida Water Management District (SWFWMD), which is responsible for balancing conservation of the resources, while providing access for people to recreate responsibly. Hernando County's proposed creation of Shoal Line Boulevard Recreation Park is meant to help SWFWMD meet that objective.

In coordination with Hernando County, SWFWMD developed a management plan to establish Special Protection Areas and recreational opportunities within the Weeki Wachee Preserve. The Special Protection Areas were established to preserve wildlife habitats within the Weeki Wachee Preserve. These areas are classified as a shorebird nesting area, a Research Area, active bald eagles nest sites, stands of scrub vegetation, the shoreline of the Weeki Wachee River, and several archaeological sites. Protection of these sites takes precedence over all other uses of the property and has been considered in the establishment of all future recreational uses.

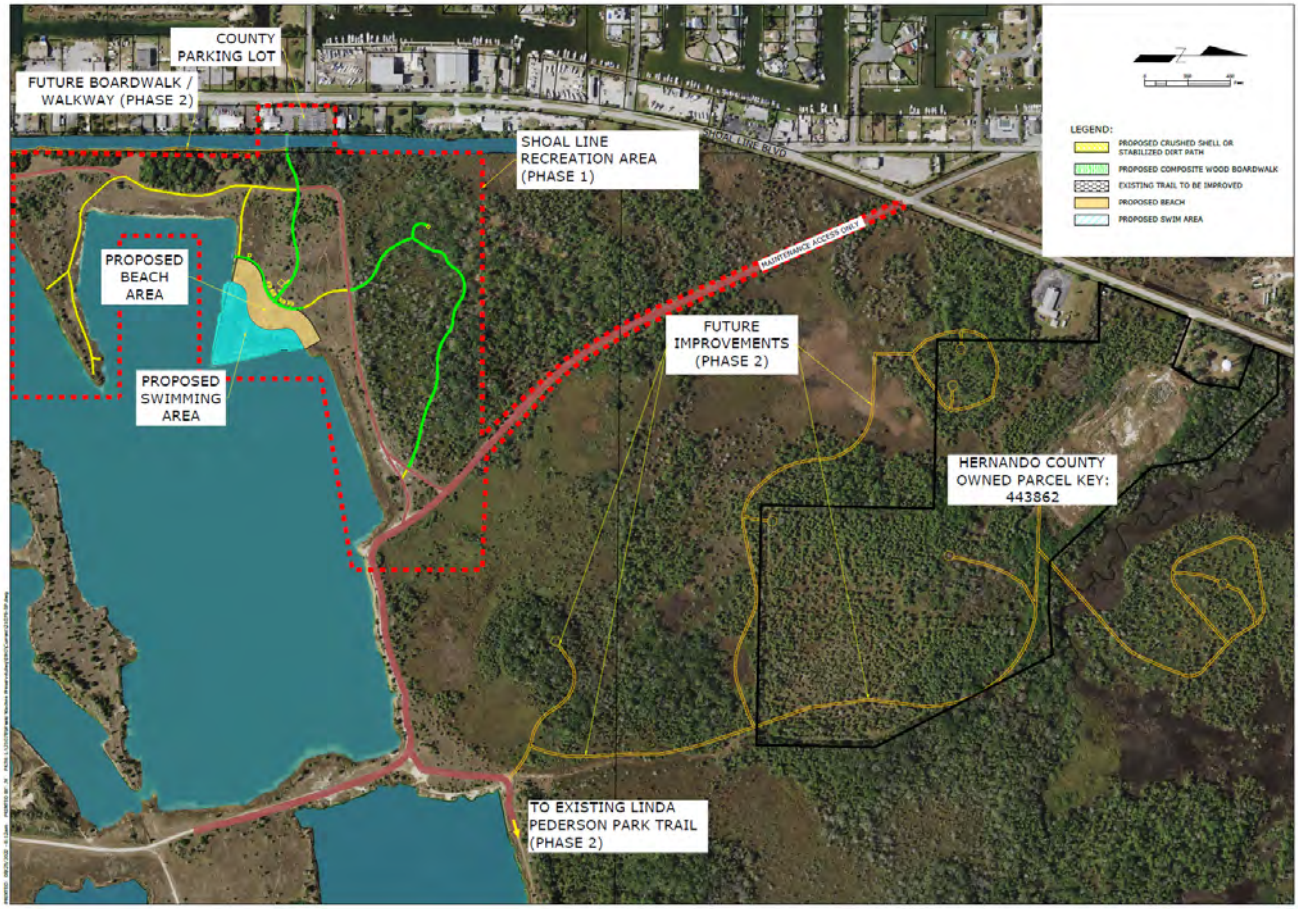
The proposed Shoal Line Boulevard Recreation Area incorporates a number of the authorized recreational uses established under SWFWMD's original management plan for the Weeki Wachee Preserve **(Exhibit 5)**, including hiking, biking, fishing, birding, picnicking, boating, and swimming. Through the Shoal Line Boulevard Recreation Area, Hernando County intends to creatively incorporate public recreational uses in a small portion of the Weeki Wachee Preserve for public uses of the park in compliance with the codes and ordinances set forth by the Hernando County Commissioners. The design criteria considered by Hernando County is consistent with the original plan that was set forth by SWFWMD and Hernando County during the acquisition of the land. The special protection regions of the park will be preserved while additional areas will be designated for recreation uses.

FIGURE 6 – CONCEPTUAL SITE LAYOUT

Since the early 2000s, Hernando County has experienced consistent population growth. According to the United States Census Bureau (USCB) between the years 2000 and 2010 Hernando County has experienced a 31% population increase. The present rate of population growth is reaching the same proportions, resulting in a continued demand for new and expanded public recreation sites in Hernando County.

The Shoal Line Recreation Area, as proposed, will increase recreational accessibility to the Weeki Wachee Preserve without significant impact to the natural habitat or existing conservation efforts. The park will help Hernando County meet the demand for recreation areas and fulfill elements of the original Weeki Wachee Preserve management plan that have heretofore been missing.

FIGURE 7 – OVERALL SITE PLAN

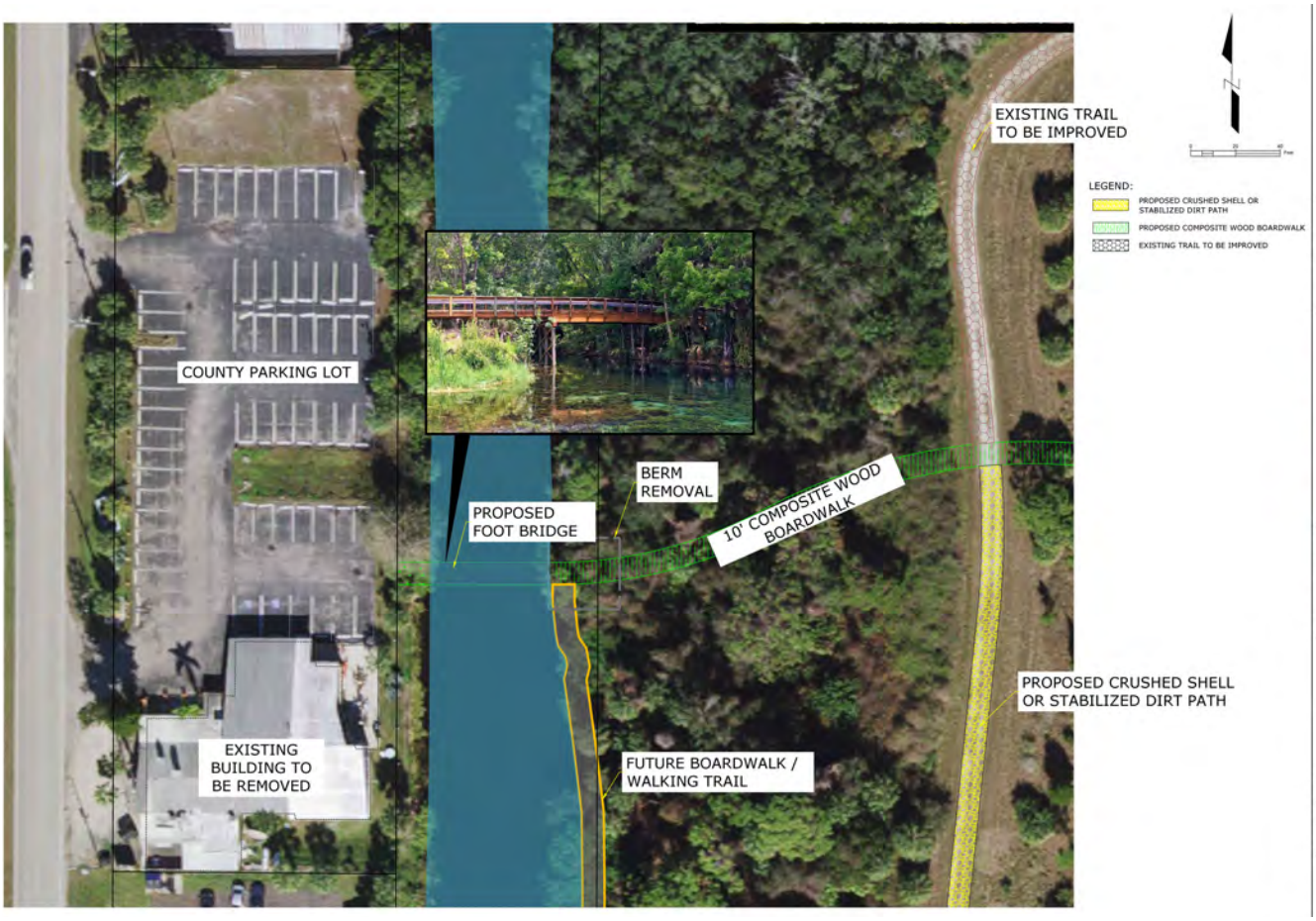


As proposed, the Shoal Line Recreation Area will develop approximately 60 acres, or less than 1% of the Weeki Wachee Preserve, as seen on **Figure 6**. Development of the park will be in two phases as depicted in **Figure 7**. The first phase of the project consists of the creation of a beach with a designated picnic and swim area along the shore of the northernmost lake. This lake will also be used for other active recreation opportunities, such as fishing, kayaking and scenic walking pathways.

For the second phase of the project, pathways and boardwalks will be constructed around environmental features north of the lake **(Figure 7)**. By incorporating boardwalks into the design, additional passive recreation opportunities, such as wildlife observation will be provided. All recreational activities considered in the design are currently identified in SWFWMD's management plan for the Weeki Wachee Preserve.

The proposed project will also address some limitations to access and parking at the Weeki Wachee Preserve. Currently, the preserve does not have parking near the lakes. The parking that is available does not meet the requirements that are set forth by the Americans with Disability Act (ADA). To address these issues, Hernando County has purchased property adjacent to Shoal Line Blvd, across the canal, Parcel Key# 162086. The acquisition of this property was for the intention of developing a designated parking area along Shoal Line Blvd. To connect this parking area to the Shoal Line Recreation Area, a foot bridge will be constructed across an existing canal **(Figure 8**) and will connect to an ADA accessible path leading to the designated beach and picnic area.

FIGURE 8 – BRIDGE & PARKING PLAN



Existing walking trails within the project limits will also be enhanced with natural materials, such as limestone or crushed shell. These improved designated walking trails for visitors to the Preserve will help mitigate the environmental impacts of foot traffic.

VI. Environmental

Prior to the land acquisition by SWFWMD and Hernando County in 1996, the Preserve was the site of a lime rock mining operation. Since the mining operation has ceased, conservation efforts have been promoted to restore the impacted natural environment of the Weeki Wachee Preserve. To mitigate environmental impacts of recreational uses for the Weeki Wachee Preserve, the project area for the Shoal Line Recreation Area has been proposed in a former lime rock mining location **(Figure 9)**. This will limit any additional impact on the natural environment in the preserve. For more details on the environmental impact of the Shoal Line Recreation Area, please refer to the *Preliminary Site Evaluation Report* **(Exhibit 6)**.

FIGURE 9 - PROJECT AREA

Conceptual Enhancements and Proposed Property Lease Area from Southwest Florida Water Management District

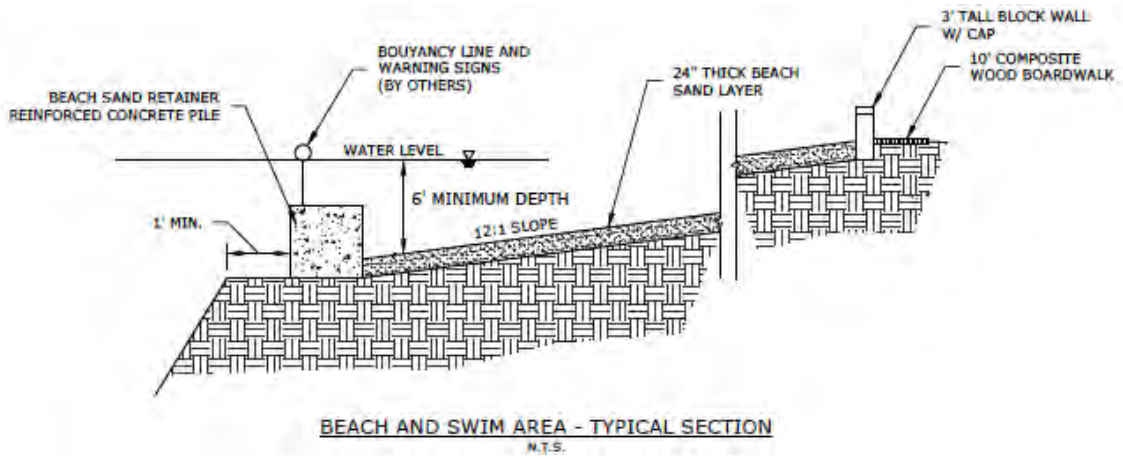
VII. Engineering & Design

The Shoal Line Recreation Area is a project intended to develop the recreational aspects that are permitted in the Weeki Wachee Preserve Land Management Plan. This includes the creation of a beach and swim area along the Northern preserve lake, along with other active and passive amenities. Please see **Exhibits 8 – 11,** which include the Conceptual Site Plans, Bids for Construction, and an Opinion of Cost.

BEACH AREA

The current configuration of lakes within the preserve consists largely of unstable shoreline and steep drop offs, making them unsuitable for swimming. To safely accommodate this use, the shoreline would be excavated creating a beach and swim area that gradually increases in depth. Imported beach sand, 2-ft deep, would cover the proposed beach and swim area. A concrete pile is used around the periphery of the swim area to keep imported beach sand from eroding off the existing steep drop off. Signage and buoy lines are planned to clearly designate the created swim area from the surrounding lake. A cross section of this design can be seen below. The excavation of a beach area is also identified in the 1997 Weeki Wachee Preserve Use and Management Plan.

FIGURE 9 – BEACH AND SWIM AREA TYPICAL SECTION



The current layout provides approximately 1.3 acres of sand beach area. DEP carrying capacity guidelines were used to determine the current layout of the sand beach area can support between 115-285 people **(Exhibit 7)**. Additionally, the four pavilions located adjacent to the beach each have a capacity of 25-30 people. Including the pavilions, the beach area can accommodate approximately 215-405 people.

It should be noted that during the first ini

EXISTING TRAILS AND PATHS

The Weeki Wachee Preserve currently consists of a hiking and bike trail system as shown in Figure 2. Existing trails within the project area would be improved and stabilized with either crushed shell or lime rock. Currently there is gated vehicle access from Shoal Line Boulevard, this access is proposed to be stabilized with 6-in of lime rock and utilized by County and SWFWMD staff as a maintenance access. It should be noted that no public vehicular access, into the preserve, is proposed with this project.

PROPOSED TRAILS AND PATHS

At the southern end of the project area, an upland peninsula extends approx. 750' into the northern lake. This area has been identified as a great location for picnic and other passive recreation. Extension of a new trail utilizing crushed shell is proposed to the end of this peninsula.

The northern end of the project area consists of forested uplands and wetlands. A composite wood boardwalk is proposed through this area to provide an interpretive nature viewing trail. Composite wood boardwalks can be built while minimizing impacts to existing vegetation. Interpretive signs will be installed at points of interest describing the Preserves natural history.

The access to the beach area from the County owned parking lot will consist of a bridge crossing the existing canal into the Preserve. The canal is a man made water feature, and the excavated material was piled along the east side of the canal creating a berm. A section of this berm will need to be excavated prior to bridge construction. Excavated material can be used to create landscaping berms around the beach area, or they can be hauled off for disposal. Proposed from the Bridge to the beach area is a composite wood boardwalk. A composite wood boardwalk was selected to minimize impacts to the Preserve and keep a natural aesthetic.

RESTROOM FACILITIES

Restroom facilities will be provided adjacent to the beach area. Currently a 12-in water main and an 8-in sewer force main are located along Shoal Line Boulevard. County water and sewer service would be provided to the restroom facility. A 3-in water main and 3-in sewer main would be installed under the proposed bridge and then to the restroom facility. A small package grinder pump installed outside the restrooms would convey sewer flows to Hernando County's existing sewer system along Shoal Line Boulevard.

VIII. Public Inquiry Meeting

For further information regarding the meeting or community input, please contact the Hernando County Parks and Recreation Department.

IX. Recommendations and Conclusions

- Due to the previous, significant land alterations and impacts from the historical lime rock mining operation, the wetland and wildlife habitat values are low within the proposed project limits.
- As there were no protected species detected within the proposed project limits, permitting through the applicable regulatory agencies, for protected species, will not be required.
- Permanent wetland impacts associated with the canal crossing and beach creation areas will require an Environmental Resource Permit (ERP) in coordination with SWFWMD and FDEP.

Exhibits

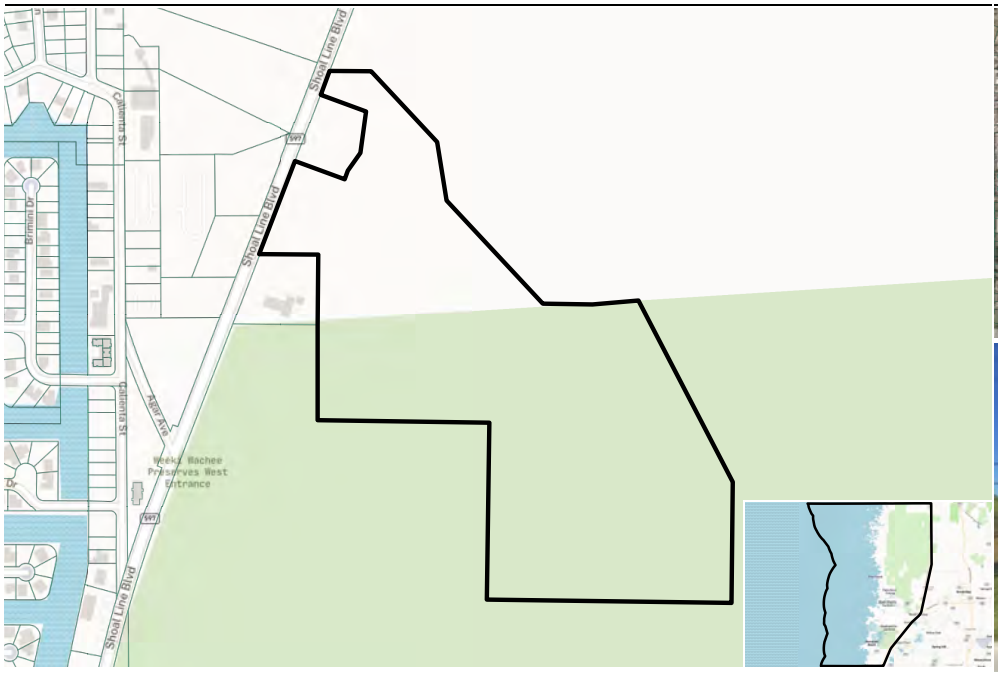
1. Property Details for R07 423 17 0000 0020 0010
2. Property Details for R18 423 17 0000 0010 0000
3. Property Details for R19 423 17 0000 0010 0000
4. DRI Abandonment Letter
5. SWFWMD Preserve Management Plan (1997)
6. Environmental Site Evaluation (2022)
7. DEP Report: Carrying Capacity Standards
8. Conceptual Site Plan Narrative + District Comments
9. Conceptual Site Plans
10. Cost Estimate from Contractor (Bridge, Shelters, Pavilions and Kayak Launch)
11. Engineer's Opinion of Probable Cost

Exhibit
1

PROPERTY DETAILS
R07 423 17 0000 0020 0010

4496 Shoal Line Blvd, Hernando Beach, FL

R07 423 17 0000 0020 0010



In: 34607, Census Tract 415.02, Hernando Beach, Hernando County, Florida

Lat/Long: 28.49686, -82.64416

Parcel Data Fields

Parcel ID:	R07 423 17 0000 0020 0010
Owner Name:	HERNANDO COUNTY
Parcel Address:	4496 SHOAL LINE BLVD
Parcel Address City:	HERNANDO BEACH
Parcel Address Zip Code:	34607
Parcel Use Code:	091
Loveland Calculated Building Count:	0
Cropland Data Layer Raw Values:	[[190, 84.0], [142, 7.2], [121, 2.8], [195, 2.4], [37, 1.6], [122, 1.2], [111, 0.8]]
Cropland Data Layer Majority Category:	Woody Wetlands
Cropland Data Layer Majority Percent:	84.0
Cropland Data Layer Date:	2020
USPS Delivery Point Validation:	N
Delivery Point Validation Codes:	N N
Delivery Point Validation Notes:	AAM3
Delivery Point Match Type:	S
CASS Error Codes:	4.1,A1
USPS Vacancy Indicator Date:	2022-07-01
Land Use Code: Activity:	4300.0
Land Use Code Description: Activity:	Activities associated with utilities (water, sewer, power, etc.)
Land Use Code: Function:	4300.0
Land Use Code Description: Function:	Utilities and utility services

Master Parcel Identification Code:	00373FB3
File (Roll) Type:	R
Assessment Year:	2021
Basic Stratum:	10
Just Value Change:	0.0
Just Value Change Code:	0
Assessed Value School District:	85440.0
Assessed Value Non-School District:	76109.0
Tax Value School District:	0.0
Tax Value Non-School District:	0.0
Just Value Homestead:	0.0
Assessed Value Homestead:	0.0
Just Value Non-Homestead Residential:	0.0
Assessed Value Non-Homestead Residential:	0.0
Just Value Residential & Non-Residential:	85440.0
Assessed Value Residential & Non-Residential:	76109.0
Assessed Agricultural Value:	0.0
Just Value – High-water Recharge (Land Value):	0.0
Assessed Value – High-water Recharge (Land Value):	0.0
Just Value Conservation Land:	0.0
Assessed Value Conservation Land:	0.0
Just Value – Historically Significant Commercial Property:	0.0
Assessed Value – Historically Significant Commercial Property:	0.0
Just Value – Historically Significant Property:	0.0
Assessed Value – Historically Significant Property:	0.0
Just Value – Working Waterfront Property:	0.0

Land Use Code: Site:	6000.0
Land Use Code Description: Site:	Developed site with buildings
Land Use Code: Ownership:	1000.0
Land Use Code Description: Ownership:	No constraints — private ownership
Loveland Calculated Total Address Count:	0
Number of Structures on Parcel:	0
Parcel Value Type:	JUSTIFIED VALUE
Improvement Value:	0.0
Land Value:	85440.0
Total Parcel Value:	85440.0
Agricultural Value:	0.0
Last Sale Price:	0.0
Mailing Address:	20 N MAIN ST RM 460
Mailing Address City:	BROOKSVILLE
Mailing Address ZIP Code:	34601
Primary Address Source:	county;accuzip
Legal Description:	56.1 AC MOL IN W1/2
Latitude:	28.496857
Longitude:	-82.644160
Census 2020 Tract:	12053041502
Census 2020 Blockgroup:	120530415021
Recorded Area (number):	0.0
County-Provided Parcel Square Feet:	2443716.0
Source Land Value:	85440.0
Special Feature Value:	0.0
Uniform Parcel Identification Code:	C37-000-362-0787-6

Assessed Value – Working	0.0
Waterfront Property:	0.0
Deletion Value:	0.0
Parcel Split/Combine Flag:	0.0
Disaster Code:	0
Disaster Year:	420
Date Inspected:	0.0
Construction Class:	0.0
Effective Year Built:	5610.0
Number of Land Units:	0.0
Number of Residential Units:	0.0
Sale Changed Code:	0.0
Last Sale Price 2:	0.0
Sale Changed Code 2:	0.0
Fiduciary Code:	C
Public Land:	0.0
Number of Owners:	56.03491
Calculated Acres:	2441942
Calculated Parcel Sq Ft:	
Federal Qualified Opportunity Zone:	No
LL_UUID:	00f6adff-06d9-4f7c-80ac-4b05f458c76e

R- 250
Parcel No. R07 423 17 0000
Seller Soc. Sec. No. ____________

FILED FOR RECORD Deweer
KAREN NICOLAI, CLERK
HERNANDO COUNTY, FL

004463

93 FEB 19 AM 11:15

O.R. 900 PG 0320

B 10.50
R 10.50
2.00
DOCUMENT

Documentary Tax Pd. $EXEMPT
Intangible Tax Pd. $ —
Karen Nicolai, Clerk of Circuit Ct.
Hernando County, Florida
By [signature] D.C.

CORRECTIVE QUIT CLAIM DEED

THIS INDENTURE, made this 15th day of January, 1993, between TURNER CORPORATION, a Florida corporation, whose mailing address is: 25450 Airport Road, Punta Gorda, Florida 33950, Grantor, and HERNANDO COUNTY WATER AND SEWER DISTRICT, successor to WEST HERNANDO COUNTY WATER AND SEWER DISTRICT, Grantee, whose mailing address is: 202 East Jefferson Street, Brooksville, Florida 34601;

WITNESSETH; that the Grantor, for and in consideration of the sum of FIVE AND NO/100 ($5.00) DOLLARS, in hand paid by the Grantee, the receipt whereof is hereby acknowledged, has remised, released and quitclaimed, and by these presents does remise, release and quitclaim unto the Grantee all of the right, title, interest, claim and demand which the Grantor has in and to the following described property, lying and being situate in the County of Hernando, State of Florida, to-wit:

Commence at the SW corner of Section 7, Township 23 South, Range 17 East, Hernando County, Florida; thence run North 01°00'30" West along the West boundary of said Section 7 a distance of 3069.61 feet; thence run North 88°59'30" East a distance of 929.60 to the Point of Beginning, said point being on the easterly right of way line of S.R. S-595, said point also being 33.00 feet from and at a right angle to the centerline of said S.R. S-595; thence run North 89°40'54" East a distance of 191.32 feet; thence run South 43°57'31" East a distance of 442.71 feet; thence run South 09°57'33" East a distance of 269.98; thence run South 43°55'26" East a distance of 645.75 feet; thence run South 89°51'32" East a distance of 227.67 feet; thence run North 84°08'41" East a distance of 209.43 feet; thence run South 28°30'31" East a distance of 936.21 feet; thence run South 00°00'35" West a distance of 551.61 feet; thence run North 89°59'25" West a distance of 1120.67 feet; thence run North 00°00'35" East a distance of 807.16 feet; thence run North 89°59'25" West a distance of 787.61 feet; thence run North 00°49'03" West a distance of 755.59 feet; thence run South 89°40'54" West a distance of 268.50 feet to a point of the easterly right of way line of said S.R. S-595; thence run North 20°19'35" East a distance of 33.00 feet from and parallel with the centerline of said S.R. S-505 a distance of 896.45 feet to the Point of Beginning. ALL lying in Section 7, Township 23 South, Range 17 East, Hernando County, Florida. LESS AND EXCEPT any portion thereof lying in the SW 1/4 of the NE 1/4 of the NW 1/4 of the SW 1/4 of said Section 7.
SUBJECT TO easement recorded in O.R. Book 372, page 709, public records of Hernando County, Florida.

This instrument was prepared from information supplied by the parties hereto. No guarantee or opinion on title has been rendered by the Law Offices of JOHNSTON & SASSER, P.A.

THIS DEED IS GIVEN TO RELEASE THE INTEREST OF THE GRANTOR IN THE OIL, GAS AND MINERALS IN THE ABOVE PROPERTY AS RESERVED BY INSTRUMENT RECORDED IN O.R. BOOK 386, PAGE 328, PUBLIC RECORDS OF HERNANDO COUNTY, FLORIDA.

THIS IS A CORRECTIVE DEED GIVEN TO CORRECT THE DEED BETWEEN THE PARTIES RECORDED IN O.R. BOOK 891, PAGE 1801, PUBLIC RECORDS OF HERNANDO COUNTY, FLORIDA, TO REFLECT THE PROPER NAME OF THE GRANTEE.

TO HAVE AND TO HOLD the same together with all and singular the appurtenances thereunto belonging or in anywise appertaining and all the estate, right, title, interest and claim whatsoever of

the Grantor, either in law or equity, to the only proper use, benefit and behoof of the Grantee.

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal the day and year first above written.

Signed in our presence:

TURNER CORPORATION

Witness

BY: John C. Norris
John C. Norris, President

Charles Robbins
(Printed Name of Witness)

Witness

H Robert Coleman
(Printed Name of Witness)

STATE OF FLORIDA
COUNTY OF Charlotte

THE foregoing instrument was acknowledged before me by John C. Norris, as President of TURNER CORPORATION, a Florida corporation, who is personally known to me or who produced _____ as identification, and who did not take an oath, this 18 day of January, 1993.

Karen Satornino
Notary Public
Karen Satornino
(Printed Name of Notary Public)

My commission expires:

NOTARY PUBLIC, STATE OF FLORIDA.
MY COMMISSION EXPIRES: June 9, 1995.
BONDED THRU NOTARY PUBLIC UNDERWRITERS.

This instrument was prepared by
David C. Sasser
JOHNSTON & SASSER, P.A.
P.O. Box 997
Brooksville, Florida 34605

Charles Robbins
Witness
Charles Robbins
(Printed Name of Witness)

STATE OF FLORIDA
COUNTY OF Charlotte

THE foregoing instrument was acknowledged before me by John C. Norris, as President of TURNER CORPORATION, a Florida corporation, who is personally known to me ~~or who produced~~ _____ ~~as identification~~, and who did not take an oath, this 11 day of November, 1992.

Karen Saternino
Notary Public
Karen Saternino
(Printed Name of Notary Public)

My commission expires:

NOTARY PUBLIC, STATE OF FLORIDA.
MY COMMISSION EXPIRES: June 9, 1996.
BONDED THRU NOTARY PUBLIC UNDERWRITERS.

039200

FILED FOR RECORD
KAREN NICOLAI, CLERK
HERNANDO COUNTY, FL
92 DEC -8 PM 3:43

This instrument was prepared by
David C. Sasser
JOHNSTON & SASSER, P.A.
P.O. Box 997
Brooksville, Florida 34605

HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2021 FINAL TAX ROLL RECERTIFICATION AFTER V.A.B.

KEY #	00443862	PRINTED	08/13/22	PAGE	1
PARCEL #	R07 423 17 0000 0020 0010	SITUS	4496 SHOAL LINE BLVD		
OWNER(S)	HERNANDO COUNTY (UTILITIES DEPT)	PARCEL DESCRIPTION UPDATED 01/01/12	56.1 AC MOL IN W1/2 ORB 386 PG 328 LESS ORB 408 PG 388 ORB 891 PG 1801 LESS 1.9 ACRES TO COUNTY DES IN ORB 2137 PG 390		
MAILING ADDRESS UPDATED 03/01/07	20 N MAIN ST RM 460 BROOKSVILLE FL 34601				

MISCELLANEOUS PROPERTY INFORMATION

SQUARE FOOTAGE		
ACRES	56.10	
AERIAL MAP	16C	
JURISDICTION	C	COUNTY
LEVY CODE	CWES	COUNTY WIDE EMS
NEIGHBORHOOD	C595	SHOAL LINE BLVD/OSOWAW BLVD
SUBDIVISION	0	
DOR LAND USE	91	UTIL,RR,GAS,COMMICATIONS,ELECT
NON-AD VALOREM DIST1	36	H.C. FIRE/RESCUE DISTRICT

JANUARY 2020 GIS AERIAL

2021-03-00 PROPERTY VALUES

		COUNTY	SCHOOL	SWFWMD	MUNICIPALITY
LAND		85,440	85,440	85,440	
BUILDINGS	+	0	0	0	
FEATURES AND OUT BUILDINGS	+	0	0	0	
JUST/MARKET VALUE	=	85,440	85,440	85,440	
VALUE PRIOR TO CAP		85,440	85,440	85,440	
ASSESSED VALUE		76,109	85,440	76,109	
EXEMPT VALUE	-	76,109	85,440	76,109	
TAXABLE VALUE	=	0	0	0	
CLASSIFIED USE LAND VALUE	0	AD VALOREM TAXES	0.00	NON-AD VALOREM TAXES	0.00

EXEMPTIONS BY TAXING AUTHORITY

COD	DESCRIPTION	L.UPDT	CAP.YR	COUNTY	SCHOOL	SWFWMD	MUNICIPALITY	EST.TAX SAVINGS
003	COUNTY PROPERTY	1990		YES	YES	YES		1,312.56

LAND INFORMATION

CODE	DESCRIPTION	AG	LAST UPDT	CAP YEAR	EXC CAP	GRA DE	FRON TAGE	DEPTH	UNITS	MEASURE				ADJ RATE	VALUE
96	NON-PROD AC	N	2012		Y				49.60	ACRES				150.00	7,440
99	ACREAGE	N	2017		Y	3			6.50	ACRES				12000.00	78,000

ADDRESSES ON PARCEL

SITUS	KEY #
4496 SHOAL LINE BLVD	01785081

NON-RESIDENTIAL OCCUPANCY

BUSINESS NAME	NAICS	BUSINESS TYPE
AT&T MOBILITY LLC 9E-L-01	517312	WIRELESS TELECOMMUNICATIONS CA

BUILDING PERMITS

APPLIC.#	APP.DATE	PERMIT #	CODE	DESCRIPTION	ISSUED	STATUS	FINALED	VALUE
1257276	5/02/11	1257276	CE	COMMERCIAL ELECTRIC	5/03/11	FINALED	5/17/11	50,000
1234997	6/22/09	1234997	ZP	ZONING PERMIT ONLY	6/22/09	VOID		6,000,000

HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2021 FINAL TAX ROLL RECERTIFICATION AFTER V.A.B.

KEY #	00443862	PRINTED	08/13/22	PAGE	2

PROPERTY SALES

SALE DATE	NEW OWNER	CODE	DESCRIPTION	VAC?	INST	OR BOOK	OR PAGE	SALEGRP	VALUE
01/18/93	HERNANDO COUNTY	X	DISQ SALE /RE	Y	QC	0900	0320	0	100
11/11/92	HERNANDO COUNTY	X	DISQ SALE /RE	Y	QC	0891	1801	0	100
01/01/80	HERNANDO COUNTY	Q	QUALIFIED	Y	WD	0386	0328	0	60,000

PROPERTY APPRAISER INSPECTIONS

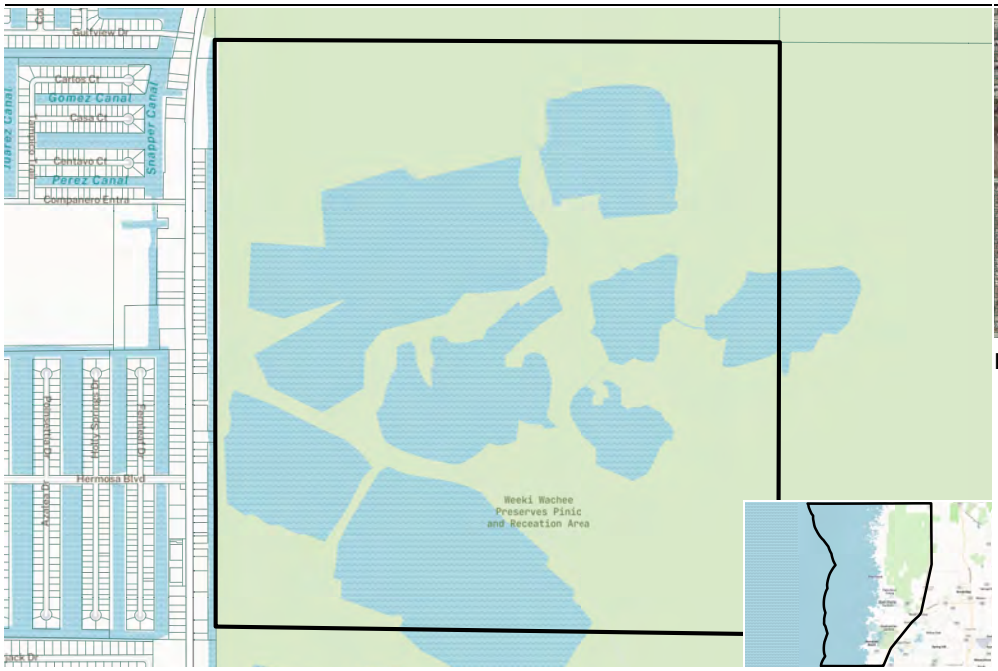
INSP.DATE	ROLL	EMPL	CODE	REASON
04/15/20	2020	248	021	VACANT
12/17/15	2016	248	021	VACANT
09/06/11	2011	195	021	VACANT
03/24/00	2000	154	017	5 YEAR REVIEW

Exhibit
2

PROPERTY DETAILS
R18 423 17 0000 0010 0000

Shoal Line Blvd, Hernando Beach, FL

R18 423 17 0000 0010 0000



Lat/Long: 28.48489, -82.64152

In: 34607, Census Tract 415.02, Hernando Beach, Hernando County, Florida

Parcel Data Fields

Parcel ID:	R18 423 17 0000 0010 0000
Owner Name:	SOUTHWEST FLA W M D
Parcel Address:	SHOAL LINE BLVD
Parcel Address City:	SPRING HILL
Parcel Address Zip Code:	34607
Parcel Use Code:	087
Loveland Calculated Total Address Count:	0
Loveland Calculated Building Footprint Square Feet:	97
Loveland Calculated Building Count:	1
Cropland Data Layer Raw Values:	[[111, 39.9], [190, 23.3], [195, 13.1], [142, 5.9], [122, 4.7], [121, 4.0], [152, 3.2], [176, 2.8], [37, 1.2], [123, 0.9], [131, 0.5], [242, 0.3], [212, 0.1], [59, 0.1], [143, 0.0], [74, 0.0], [124, 0.0]]
Cropland Data Layer Majority Category:	Open Water
Cropland Data Layer Majority Percent:	39.9
Cropland Data Layer Date:	2020
File (Roll) Type:	R
Assessment Year:	2022
Basic Stratum:	10
Just Value Change:	0.0
Just Value Change Code:	0
Assessed Value School District:	102695.0
Assessed Value Non-School District:	102695.0
Tax Value School District:	0.0
Tax Value Non-School District:	0.0
Just Value Homestead:	0.0
Assessed Value Homestead:	0.0
Just Value Non-Homestead Residential:	0.0
Assessed Value Non-Homestead Residential:	0.0
Just Value Residential & Non-Residential:	102695.0
Assessed Value Residential & Non-Residential:	102695.0
Assessed Agricultural Value:	0.0
Just Value - High-water Recharge (Land Value):	0.0
Assessed Value - High-water Recharge (Land Value):	0.0
Just Value Conservation Land:	0.0
Assessed Value Conservation Land:	0.0
Just Value - Historically Significant Commercial Property:	0.0
Assessed Value - Historically Significant Commercial Property:	0.0
Just Value - Historically Significant Property:	0.0
Assessed Value - Historically Significant Property:	0.0
Just Value - Working Waterfront Property:	0.0

USPS Delivery Point Validation:	N
Delivery Point Validation Notes:	A1M1
CASS Error Codes:	3.1,14.1,A1
USPS Vacancy Indicator Date:	2022-07-01
Land Use Code:	6200.0
Function:	
Land Use Code Description:	Public administration
Function:	
Number of Structures on Parcel:	0
Parcel Value Type:	JUSTIFIED VALUE
Improvement Value:	0.0
Land Value:	102695.0
Total Parcel Value:	102695.0
Agricultural Value:	0.0
Last Sale Price:	0.0
Mailing Address:	2379 BROAD ST
Mailing Address City:	BROOKSVILLE
Mailing Address ZIP Code:	34601
Primary Address Source:	county
Legal Description:	ALL OF SEC 18-23-17
Latitude:	28.484885
Longitude:	-82.641521
Census 2020 Tract:	12053041502
Census 2020 Block:	120530415021002
Census 2020 Blockgroup:	120530415021
Total Square Footage of Structures:	0
County-Provided Parcel Square Feet:	27499428.0
PLSS Township:	023S
PLSS Section:	Section 18
PLSS Range:	017E
Source Land Value:	102695.0
Special Feature Value:	0.0
Uniform Parcel Identification Code:	C37-000-363-9738-8
Master Parcel Identification Code:	003789BA
Assessed Value - Working	0.0
Waterfront Property: Deletion Value:	0.0
Parcel Split/Combine Flag:	0.0
Disaster Code:	0.0
Disaster Year:	0
Date Inspected: Construction Class: Effective Year Built:	420
Number of Land Units:	0.0
Number of Residential Units:	63130.0
Sale Changed Code:	0.0
Last Sale Price 2:	0.0
Sale Changed Code 2:	0.0
Fiduciary Code:	0.0
Public Land:	0.0
Number of Owners:	W
Calculated Acres: Calculated Parcel Sq Ft: Federal	0.0
Qualified Opportunity Zone:	631.23953
LL_UUID:	27497366
	No
	be40911a-4acd-4880-bd4f-e91d856b4c6e

Doc Stamps Pd. 105,700.00 R 33.00

4

FILED FOR RECORD
KAREN NICOLAI, CLERK
HERNANDO COUNTY, FL

95 FEB -2 PM 2:28

O.R. 1002 PG 1039

SWF Parcel No. 15-773-101
Approved by Attorney: 003353

This instrument prepared by and returned to:
Wayne Alfieri, Senior Supervising Attorney
Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34609-6899

Documentary Tax Pd. $105,700.00
Intangible Tax Pd. $
Karen Nicolai, Clerk of Circuit Ct.
Hernando County, Florida
By D.C.

R GCT

WARRANTY DEED

This Indenture, made this 2nd day of FEBRUARY, 1995, by and between W. L. Cobb Construction Company, a Florida corporation, whose address is 2121 Osowaw Boulevard, Spring Hill, Florida 34606-0960, hereinafter called "the Grantor", and the Southwest Florida Water Management District, a public corporation created by Chapter 61-691, Laws of Florida, as amended, whose address is 2379 Broad Street, Brooksville, Florida 34609-6899, hereinafter called "the Grantee".

Witnesseth, that the Grantor, for and in consideration of ten dollars and no cents ($10.00), and other good and valuable consideration in hand paid by the Grantee to the Grantor, the receipt of which is hereby acknowledged, have granted, bargained, sold and conveyed to the Grantee and its successors and assigns forever all of that certain non-homestead real property lying and being situated in Hernando County, Florida, more particularly described as follows:

See Exhibit "A" attached hereto and
incorporated herein by reference.

Together with all the tenements, hereditaments and appurtenances thereto belonging or anywise appertaining.

The Grantor hereby covenants with the Grantee that the Grantor is lawfully seized of the property herein described in fee simple; that the Grantor has good right and lawful authority to sell and convey the property; that the Grantor warrants the title to the property and will defend it against the lawful claims of all persons; and that the property is free of any and all encumbrances not stated in this deed.

In Witness Whereof, the Grantor has caused these presents to be executed the day and year first above written.

Signed, sealed and delivered in the presence of:

Signature of Witness #1

John A. Oman, Sr.
(Typed/Printed Name of Witness #1)

Signature of Witness #2

Joseph Kosday Jr
(Typed/Printed Name of Witness #2)

W. L. Cobb Construction Company, a Florida corporation, Grantor

By: Jack A Oman
Jack A. Oman, President

(Corporate Seal)

ACKNOWLEDGMENT

STATE OF FLORIDA
COUNTY OF HERNANDO

The foregoing instrument was acknowledged before me this 2 day of Feb., 1995, by Jack A. Oman, President of W. L. Cobb Construction Company, who is personally known to me or has produced drivers license as identification.

(Seal)

NOTARY PUBLIC STATE OF FLORIDA
OFFICIAL NOTARY SEAL
ROGER D EPPLEY
COMMISSION NUMBER
CC304022
MY COMMISSION EXP.
AUG. 2,1997

Notary Public
ROGER D. EPPLEY
(Name of Notary typed, printed or stamped)
Commission No. CC 304022
My Commission Expires: 8-2-97

Parcel Identification: 32-22-17-0000-0010-0000, 33-22-17-0000-0050-0000, 33-22-17-0000-0800-0000, 12-23-16-0000-0110-0000, 13-23-16-0000-0030-0000, 25-23-16-0000-0030-0110, 04-23-17-0000-0010-0000, 05-23-17-0000-0010-0000, 05-23-17-0000-0030-0000, 07-23-17-0000-0010-0000, 07-23-17-0000-0020-0000, 08-23-17-0000-0010-0000, 09-23-17-0000-0030-0000, 16-23-17-0000-0030-0000, 17-23-17-0000-0010-0000, 18-23-17-0000-0010-0000, 19-23-17-0000-0010-0000, 20-23-17-0010-0000, 20-23-17-0000-0010-0010, 20-23-17-0000-0020-0010, 21-23-17-0000-0010-0000, 29-23-17-0000,0010-0007, 30-23-17-0000-0020-0010

sor\wd\15-773.101 01-25-95

EXHIBIT "A"

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
Coastal Rivers Basin
Weekiwachee Riverine System Project

SWF Parcel No. 15-773-101 February 2, 1995
Oak Sound - Warranty Deed
(Description prepared by others)

All those lands lying above the ordinary high water line or mean high water line described as follows:

DESCRIPTION (Based upon Commitment for Title Insurance Number 864-163543 as issued by Gulf Coast Title Company, Inc. and underwritten by Commonwealth Land Title Insurance Company, with an effective date of October 3, 1994 at 8:00 am, as modified by endorsements dated October 4, 1994, January 5, 1995 and January 18, 1995)

All that part of Section 32, Township 22 South, Range 17 East, Hernando County, Florida, lying South of the WeekiWachee River and East of State Road No. 595, LESS that part of Lot 3 described in Deed Book 126, Page 567, ALSO LESS those lands described in Official Records Book 28, Page 20, Official Records Book 34, Page 438, ALSO LESS Government Lot 4 thereof, ALSO LESS the North 25.00 feet of Government Lot 5 thereof.

AND

All that part of Section 33, Township 22 South, Range 17 East, Hernando County, Florida, lying South of the WeekiWachee River, LESS the East 600.00 feet thereof.

AND

All of Section 4, Township 23 South, Range 17 East, Hernando County, Florida.

AND

All of Section 5, Township 23 South, Range 17 East, Hernando County, Florida, less Government Lot 4 thereof.

AND

All of Section 8, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 9, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The Northwest 1/4 of the Northwest 1/4 AND the South 1/2 of the Northwest 1/4 of Section 16, Township 23 South, Range 17 East, Hernando County, Florida.

File No: 47039

AND

All that part of Section 30, Township 23 South, Range 17 East, Hernando County, Florida, lying North of State Road No. 595.

AND

All that part of Section 7, Township 23 South, Range 17 East, Hernando County, Florida, lying South and East of State Road 595, LESS AND EXCEPT that parcel described in Official Records Book 386, Page 329, public records of Hernando County, Florida, ALSO LESS the following described parcel:

That certain parcel of land described in Official Records Book 133, Page 508, and Official Records Book 294, Page 447, public records of Hernando County, Florida, said certain parcel being more particularly described as follows:

Beginning at the Northwest corner of that certain parcel described in Official Records Book 386, Page 329, public records of Hernando County, Florida, thence run North 89°48'58" East along the boundary of said parcel described in Official Records Book 386, Page 329, a distance of 268.50 feet, thence go South 00°40'59" East along the West boundary of said parcel a distance of 321.43 feet, thence go South 89°52'51" West a distance of 392.23 feet to the Easterly right-of-way of State Road 595, thence go North 20°27'39" East along said right-of-way a distance of 343.00 feet to the POINT OF BEGINNING.

AND

All of Section 18, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The East 1/2 of Section 17, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 17, Township 23 South, Range 17 East, Hernando County, Florida.

AND

All of Section 19, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 20, Township 23 South, Range 17 East, Hernando County, Florida, less road right-of-way.

AND

All that part of the East 1/2 of Section 20, Township 23 South, Range 17 East, Hernando County, Florida, lying North and West of U.S. Highway No. 19.

File No: 47039

AND

Commencing at the Northeast corner of Section 13, Township 23 South, Range 16 East, Hernando County, Florida, go thence South 0°27'25" East along the East line of said Section 13, a distance of 3384.71 feet to the POINT OF BEGINNING, said point being 890 feet South of the Northwest corner of the South 1/2 of Section 18, Township 23 South, Range 17 East, Hernando County, Florida,

thence South 89°32'35" West, a distance of 217.0 feet to a point on the Easterly right-of-way of State Road S-595,
thence South 00°27'25" East along the said State Road S-595 right-of-way, a distance of 100 feet,
thence North 89°32'35" East, a distance of 217 feet,
thence North 00°27'25" West along the East line of said Section 13, a distance of 100 feet to the POINT OF BEGINNING.

AND

All that part of Section 21, Township 23 South, Range 17 East, Hernando County, Florida, lying North and West of U.S. Highway No. 19.

AND

That portion of Section 29, Township 23 South, Range 17 East, Hernando County, Florida, lying North of the Northerly right-of-way line of State Road 595 and West of the Westerly right-of-way line of U.S. Highway No. 19.

AND

Beginning at the Northeast corner of Section 25, Township 23 South, Range 16 East, Hernando County, Florida, thence go South 00°11'02" East along said Section line, a distance of 150.00 feet, thence go North 89°57'07" West, a distance of 216.98 feet, thence go North 00°11'37" West, a distance of 150.00 feet, thence go South 89°57'07" East, a distance of 217.00 feet to the POINT OF BEGINNING.

LESS

Beginning at the Northwest corner of Section 21, Township 23 South, Range 17 East, Hernando County, Florida, and thence go North 89°28'11" East along section line, a distance of 1502.23 feet to a point on the Westerly right-of-way of U.S. Route No. 19, thence go South 38°17'30" West along said right-of-way, a distance of 2120.00 feet, thence go North 51°42'30" West, a distance of 700.00 feet, thence go North 00°35'06" East, a distance of 1212.81 feet, thence go North 89°25'30" East, a distance of 348.56 feet to the POINT OF BEGINNING.

File No: 47039

ALSO LESS

(Proposed Solid Waste Transfer Station)
For a point of reference commence at the Northeast corner of Section 30, Township 23 South, Range 17 East, Hernando County, Florida, thence North 89°33'40" West along the North boundary of the Northeast 1/4 of said Section 30, a distance of 2662.90 feet to the North 1/4 corner of said Section 30, thence departing said North boundary South 21°21'10" West, a distance of 647.36 feet for a POINT OF BEGINNING,
thence South 08°10'32" West, a distance of 132.86 feet,
thence South 31°44'14" East, a distance of 175.01 feet,
thence South 57°08'45" East, a distance of 519.17 feet to a point on the Northerly right-of-way line of State Road No. 595 (per State Road Department right-of-way map, Section No. 08130-250, dated October 13, 1965),
thence the following four (4) courses along said Northerly right-of-way line: (1) South 83° 44'07" West, a distance of 556.42 feet, (2) Westerly 657.10 feet along the arc of a curve to the left, said curve having a radius of 1323.24 feet, a central angle of 28°27'08", and a chord bearing and distance of South 69° 31'45" West, 650.37 feet, (3) North 34°41'49" West, a distance of 5.00 feet to a non-tangent point of curvature, (4) Southwesterly 124.37 feet along the arc of a curve to the left, said curve having a radius of 1328.24 feet, a central angle of 05°21'54", and a chord bearing and distance of South 52°37'14" West, 124.33 feet,
thence departing said right-of-way line North 39°46'02" West, a distance of 616.25 feet,
thence North 68°42'14" East, a distance of 1233.14 feet to the POINT OF BEGINNING.

ALSO LESS

DESCRIPTION (Temporary compound parcel)
A portion of the South 1/2 of Section 18, Township 23 South, Range 17 East, Hernando County, Florida, being more particularly described as follows:
For a point of reference commence at the Southeast corner of Section 13, Township 23 South, Range 16 East, Hernando County, Florida, thence North 00°12'47" East along the boundary between Range 16 East and Range 17 East, a distance of 124.08 feet to the Southwest corner of said Section 18, thence along said boundary between Range 16 East and Range 17 East, said boundary being the West boundary of said Section 18, continue North 00°12'47" East, a distance of 1086.64 feet, thence departing said boundary South 89°47'13" East, a distance of 2528.95 feet for a POINT OF BEGINNING, said point being a non-tangent point of curvature,
thence Easterly 405.71 feet along the arc of a curve to the left, said curve having a radius of 200.00 feet, a central angle of 116°13'41", and a chord bearing and distance of South 88°53'30" East,

339.64 feet to a point of tangency,
thence North 32°59'39" East, a distance of 289.93 feet to a point of curvature,
thence Northwesterly 423.09 feet along the arc of a curve to the left, said curve having a radius of 200.00 feet, a central angle of 121°12'26", and a chord bearing and distance of North 27° 36'34" West, 348.50 feet to a point of tangency,
thence North 88°12'46" West, a distance of 335.98 feet to a point of curvature,
thence Southwesterly 395.74 feet along the arc of a curve to the left, said curve having a radius of 185.00 feet, a central angle of 122°33'53", and a chord bearing and distance of South 30° 30'17" West, 324.49 feet to a point of tangency,
thence South 30°46'39" East, a distance of 321.62 feet to the POINT OF BEGINNING.

ALSO LESS

DESCRIPTION (Existing Transfer Station Site)
A parcel of land lying in Sections 19 and 30, Township 23 South, Range 17 East, Hernando County, Florida, being more particularly described as follows:

For a POINT OF BEGINNING, commence at the Northeast corner of said Section 30,
thence South 00°12'17" East along the East boundary of said Section 30, a distance of 334.98 feet to a point on the Northerly right-of-way line of State Road No. 595 (per State Road Department right-of-way map, Section No. 08130-250, dated October 13, 1965),
thence the following three (3) courses along said Northerly right-of-way line: (1) Westerly 245.01 feet along the arc of a curve to the left, said curve having a radius of 2919.79 feet, a central angle of 04°48'28", and a chord bearing and distance of South 74°37'51" West, 244.94 feet, (2) North 17°46'23" West, a distance of 5.00 feet to a non-tangent point of curvature, (3) Westerly 90.64 feet along the arc of a curve to the left, said curve having a radius of 2924.79 feet, a central angle of 01° 46'32", and a chord bearing and distance of South 71°20'20" West, 90.64 feet,
thence departing said Northerly right-of-way line North 08°44'32" East, a distance of 456.49 feet,
thence South 89°32'14" East, a distance of 252.92 feet,
thence South 00°12'17" East, a distance of 25.00 feet to the POINT OF BEGINNING.

HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2021 FINAL TAX ROLL RECERTIFICATION AFTER V.A.B.

KEY #	00376168	PRINTED	08/13/22	PAGE	1
PARCEL #	R18 423 17 0000 0010 0000	SITUS	SHOAL LINE BLVD		
OWNER(S)	SOUTHWEST FLA W M D	PARCEL DESCRIPTION UPDATED 01/01/12	ALL OF SEC 18-23-17		
MAILING ADDRESS UPDATED 06/10/98	2379 BROAD ST BROOKSVILLE FL 34601				

MISCELLANEOUS PROPERTY INFORMATION

SQUARE FOOTAGE		
ACRES	631.30	
AERIAL MAP	17B	
JURISDICTION	C	COUNTY
LEVY CODE	CWES	COUNTY WIDE EMS
NEIGHBORHOOD	AC06	AC SHOAL LINE/PINE ISLND
SUBDIVISION	0	
DOR LAND USE	87	STATE OTHER THAN MILITARY FORE
NON-AD VALOREM DIST1	36	H.C. FIRE/RESCUE DISTRICT

JANUARY 2020 GIS AERIAL

2021-03-00 PROPERTY VALUES

		COUNTY	SCHOOL	SWFWMD	MUNICIPALITY
LAND		102,695	102,695	102,695	
BUILDINGS	+	0	0	0	
FEATURES AND OUT BUILDINGS	+	0	0	0	
JUST/MARKET VALUE	=	102,695	102,695	102,695	
VALUE PRIOR TO CAP		102,695	102,695	102,695	
ASSESSED VALUE		102,695	102,695	102,695	
EXEMPT VALUE	-	102,695	102,695	102,695	
TAXABLE VALUE	=	0	0	0	
CLASSIFIED USE LAND VALUE	0	AD VALOREM TAXES	0.00	NON-AD VALOREM TAXES	0.00

EXEMPTIONS BY TAXING AUTHORITY

COD	DESCRIPTION	L.UPDT	CAP.YR	COUNTY	SCHOOL	SWFWMD	MUNICIPALITY	EST.TAX SAVINGS
020	STATE PROPERTY - SWFWMD	2001		YES	YES	YES		1,685.73

LAND INFORMATION

CODE	DESCRIPTION	AG	LAST UPDT	CAP YEAR	EXC CAP	GRA DE	FRON TAGE	DEPTH	UNITS	MEASURE				ADJ RATE	VALUE
19	IMPACT FEE VALUE	N	2005		Y				2.00	UNITS				4000.00	8,000
96	NON-PROD AC	N	2012		Y				631.30	ACRES				150.00	94,695

BUSINESSES ON PROPERTY

KEY #	BUSINESS NAME	NAICS	BUSINESS TYPE

ADDRESSES ON PROPERTY

SITUS
SHOAL LINE BLVD

BUILDING PERMITS

APPLIC.#	APP.DATE	PERMIT #	CODE	DESCRIPTION	ISSUED	STATUS	FINALED	VALUE
A004258		8404575		INVALID PERMIT CODE	10/04/84	UNKNOWN	12/05/84	3,200

HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2021 FINAL TAX ROLL RECERTIFICATION AFTER V.A.B.

KEY #	00376168	PRINTED	08/13/22	PAGE	2

PROPERTY SALES

SALE DATE	NEW OWNER	CODE	DESCRIPTION	VAC?	INST	OR BOOK	OR PAGE	SALEGRP	VALUE
03/27/97	SOUTHWEST FLA W M D	D	DISQUALIFIED	N	WD	1116	0755	0	100
02/02/95	SOUTHWEST FLA W M D	D	DISQUALIFIED	N	WD	1002	1039	1	15,100,000
10/01/81	W L COBB CONSTRUCTION CO	D	DISQUALIFIED	Y	WD	0491	1840	0	15,750
01/01/80	TURNER CORP		INVALID CODE	N		0000	0000	0	0

PROPERTY APPRAISER INSPECTIONS

INSP.DATE	ROLL	EMPL	CODE	REASON
04/15/20	2020	248	021	VACANT
12/17/15	2016	248	021	VACANT
09/06/11	2011	195	021	VACANT
03/04/05	2005	197	017	5 YEAR REVIEW
01/07/99	1999	154	017	5 YEAR REVIEW
02/16/95	1995	170	014	DESKTOP REVIEW

PROPERTY APPRAISER NOTES

JANUARY 01 2005

VACANT-ALL STRUCTURES REMOVED FOR 2005 TAX ROLL

PV3 IS RECORDED ON K#1290089

FOUNDATIONS OF DEMOLISHED STRUCTURES REMAINS BUT IS OF NO VALUE PER #197

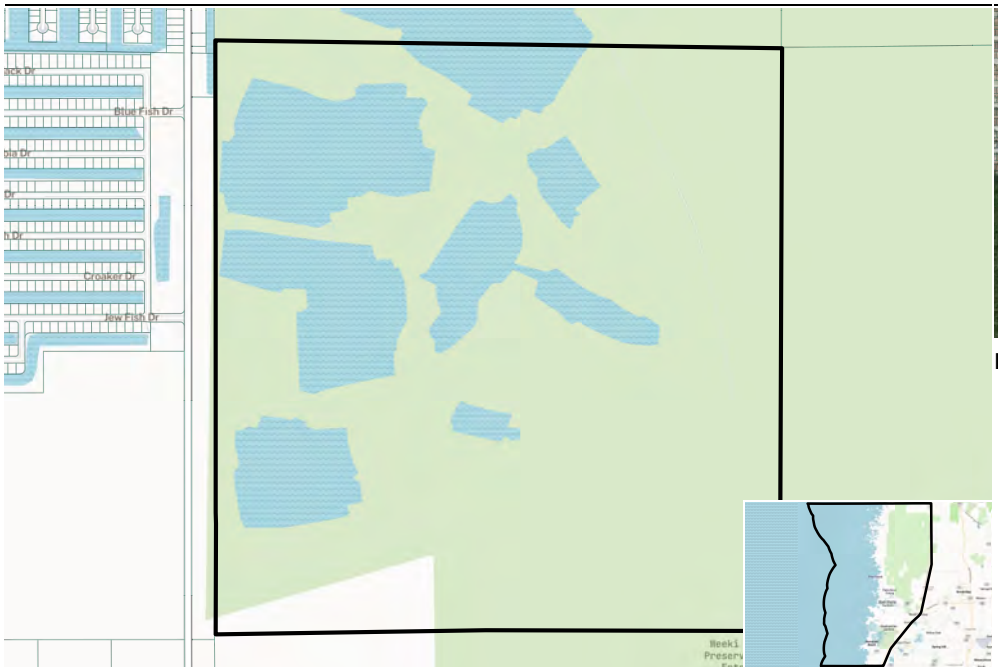
IMPACT FEE VALUES ADDED FOR 1970 WAREHOUSE (STR#1) AND 1950 OFFICE (STR#2) AS BOTH OF THESE STRUCTURES WERE AS'D ON 1986 TAX ROLL

Exhibit
3

PROPERTY DETAILS
R19 423 17 0000 0010 0000

Shoal Line Blvd, Hernando Beach, FL

R19 423 17 0000 0010 0000



Lat/Long: 28.47026, -82.64158

In: 34607, Census Tract 415.02, Hernando Beach, Hernando County, Florida

Parcel Data Fields

Parcel ID:	R19 423 17 0000 0010 0000
Owner Name:	SOUTHWEST FLA W M D
Parcel Address:	SHOAL LINE BLVD
Parcel Address City:	SPRING HILL
Parcel Address Zip Code:	34607
Parcel Use Code:	087
Loveland Calculated Building Count:	0
Cropland Data Layer Raw Values:	[[190, 33.6], [111, 23.3], [142, 12.5], [195, 12.3], [121, 5.7], [122, 5.2], [152, 3.3], [176, 2.7], [37, 0.7], [123, 0.4], [74, 0.1], [242, 0.1], [131, 0.1], [61, 0.1], [69, 0.0]]
Cropland Data Layer Majority Category:	Woody Wetlands
Cropland Data Layer Majority Percent:	33.6
Cropland Data Layer Date:	2020
USPS Delivery Point Validation:	N
Delivery Point Validation Notes:	A1M1
CASS Error Codes:	3.1,14.1,A1

Basic Stratum:	10
Just Value Change:	0.0
Just Value Change Code:	0
Assessed Value School District:	3472545.0
Assessed Value Non-School District:	3472545.0
Tax Value School District:	0.0
Tax Value Non-School District:	0.0
Just Value Homestead:	0.0
Assessed Value Homestead:	0.0
Just Value Non-Homestead Residential:	0.0
Assessed Value Non-Homestead Residential:	0.0
Just Value Residential & Non-Residential:	3472545.0
Assessed Value Residential & Non-Residential:	3472545.0
Assessed Agricultural Value:	0.0
Just Value – High-water Recharge (Land Value):	0.0
Assessed Value – High-water Recharge (Land Value):	0.0
Just Value Conservation Land:	0.0
Assessed Value Conservation Land:	0.0
Just Value – Historically Significant Commercial Property:	0.0
Assessed Value – Historically Significant Commercial Property:	0.0
Just Value – Historically Significant Property:	0.0
Assessed Value – Historically Significant Property:	0.0
Just Value – Working Waterfront Property:	0.0
Assessed Value – Working Waterfront Property:	0.0
Deletion Value:	0.0

USPS Vacancy Indicator Date:	2022-07-01
Land Use Code: Function:	6200.0
Land Use Code Description: Function:	Public administration
Land Use Code: Ownership:	4200.0
Land Use Code Description: Ownership:	State government
Loveland Calculated Total Address Count:	0
Number of Structures on Parcel:	0
Parcel Value Type:	JUSTIFIED VALUE
Improvement Value:	0.0
Land Value:	3472545.0
Total Parcel Value:	3472545.0
Agricultural Value:	0.0
Last Sale Price:	0.0
Mailing Address:	2379 BROAD ST
Mailing Address City:	BROOKSVILLE
Mailing Address ZIP Code:	34601
Primary Address Source:	county;accuzip
Legal Description:	ALL FRACTL SEC 19-23-17
Latitude:	28.470259
Longitude:	-82.641575
Census 2020 Tract:	12053041502
Census 2020 Blockgroup:	120530415021
Recorded Area (number):	0.0
County-Provided Parcel Square Feet:	27072540.0
Source Land Value:	3472545.0
Special Feature Value:	0.0
Uniform Parcel Identification Code:	C37-000-364-0242-8
Master Parcel Identification Code:	00378BB2
Split/Combine Flag:	0.0
	0.0
Disaster Year:	0
Date Inspected:	420
Construction Class:	0.0
Effective Year Built:	0.0
Number of Land Units:	62150.0
Number of Residential Units:	0.0
Sale Changed Code:	0.0
Last Sale Price 2:	0.0
Sale Changed Code 2:	0.0
Fiduciary Code:	0.0
Public Land:	W
Number of Owners:	0.0
Calculated Acres:	621.14814
Calculated Parcel Sq Ft:	27068982
Federal Qualified Opportunity Zone:	No
LL_UUID:	73ec9542-1b89-4b98-8fc8-541725acfa24

Doc Stamps Pd. 105,700.00
R 33.00

FILED FOR RECORD
KAREN NICOLAI, CLERK
HERNANDO COUNTY, FL

95 FEB -2 PM 2:28

O.R. 1002 PG 1039

SWF Parcel No. 15-773-101
Approved by Attorney: 003353

This instrument prepared by and returned to:
Wayne Alfieri, Senior Supervising Attorney
Southwest Florida Water Management District
2379 Broad Street, Brooksville, Florida 34609-6899

Documentary Tax Pd. $105,700.00
Intangible Tax Pd. $
Karen Nicolai, Clerk of Circuit Ct.
Hernando County, Florida
By D.C.

R GCT

WARRANTY DEED

This Indenture, made this 2nd day of FEBRUARY, 1995, by and between W. L. Cobb Construction Company, a Florida corporation, whose address is 2121 Osowaw Boulevard, Spring Hill, Florida 34606-0960, hereinafter called "the Grantor", and the Southwest Florida Water Management District, a public corporation created by Chapter 61-691, Laws of Florida, as amended, whose address is 2379 Broad Street, Brooksville, Florida 34609-6899, hereinafter called "the Grantee".

Witnesseth, that the Grantor, for and in consideration of ten dollars and no cents ($10.00), and other good and valuable consideration in hand paid by the Grantee to the Grantor, the receipt of which is hereby acknowledged, have granted, bargained, sold and conveyed to the Grantee and its successors and assigns forever all of that certain non-homestead real property lying and being situated in Hernando County, Florida, more particularly described as follows:

See Exhibit "A" attached hereto and
incorporated herein by reference.

Together with all the tenements, hereditaments and appurtenances thereto belonging or anywise appertaining.

The Grantor hereby covenants with the Grantee that the Grantor is lawfully seized of the property herein described in fee simple; that the Grantor has good right and lawful authority to sell and convey the property; that the Grantor warrants the title to the property and will defend it against the lawful claims of all persons; and that the property is free of any and all encumbrances not stated in this deed.

In Witness Whereof, the Grantor has caused these presents to be executed the day and year first above written.

Signed, sealed and delivered in the presence of:

Signature of Witness #1

John A. Oman, Sr.
(Typed/Printed Name of Witness #1)

Signature of Witness #2

Joseph Kassay Jr.
(Typed/Printed Name of Witness #2)

W. L. Cobb Construction Company, a Florida corporation, Grantor

By: Jack A. Oman
Jack A. Oman, President

(Corporate Seal)

ACKNOWLEDGMENT

STATE OF FLORIDA
COUNTY OF HERNANDO

The foregoing instrument was acknowledged before me this 2 day of Feb., 1995, by Jack A. Oman, President of W. L. Cobb Construction Company, who is personally known to me or has produced drivers license as identification.

(Seal)

NOTARY PUBLIC STATE OF FLORIDA
OFFICIAL NOTARY SEAL
ROGER D EPPLEY
COMMISSION NUMBER
CC304022
MY COMMISSION EXP.
AUG. 2,1997

Notary Public
ROGER D. EPPLEY
(Name of Notary typed, printed or stamped)
Commission No. CC 304022
My Commission Expires: 8-2-97

Parcel Identification: 32-22-17-0000-0010-0000, 33-22-17-0000-0050-0000, 33-22-17-0000-0800-0000, 12-23-16-0000-0110-0000, 13-23-16-0000-0030-0000, 25-23-16-0000-0030-0110, 04-23-17-0000-0010-0000, 05-23-17-0000-0010-0000, 05-23-17-0000-0030-0000, 07-23-17-0000-0010-0000, 07-23-17-0000-0020-0000, 08-23-17-0000-0010-0000, 09-23-17-0000-0030-0000, 16-23-17-0000-0030-0000, 17-23-17-0000-0010-0000, 18-23-17-0000-0010-0000, 19-23-17-0000-0010-0000, 20-23-17-0010-0000, 20-23-17-0000-0010-0010, 20-23-17-0000-0020-0010, 21-23-17-0000-0010-0000, 29-23-17-0000,0010-0007, 30-23-17-0000-0020-0010

sor\wd\15-773.101 01-25-95

EXHIBIT "A"

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
Coastal Rivers Basin
Weekiwachee Riverine System Project

SWF Parcel No. 15-773-101 February 2, 1995
Oak Sound - Warranty Deed
(Description prepared by others)

All those lands lying above the ordinary high water line or mean high water line described as follows:

DESCRIPTION (Based upon Commitment for Title Insurance Number 864-163543 as issued by Gulf Coast Title Company, Inc. and underwritten by Commonwealth Land Title Insurance Company, with an effective date of October 3, 1994 at 8:00 am, as modified by endorsements dated October 4, 1994, January 5, 1995 and January 18, 1995)

All that part of Section 32, Township 22 South, Range 17 East, Hernando County, Florida, lying South of the WeekiWachee River and East of State Road No. 595, LESS that part of Lot 3 described in Deed Book 126, Page 567, ALSO LESS those lands described in Official Records Book 28, Page 20, Official Records Book 34, Page 438, ALSO LESS Government Lot 4 thereof, ALSO LESS the North 25.00 feet of Government Lot 5 thereof.

AND

All that part of Section 33, Township 22 South, Range 17 East, Hernando County, Florida, lying South of the WeekiWachee River, LESS the East 600.00 feet thereof.

AND

All of Section 4, Township 23 South, Range 17 East, Hernando County, Florida.

AND

All of Section 5, Township 23 South, Range 17 East, Hernando County, Florida, less Government Lot 4 thereof.

AND

All of Section 8, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 9, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The Northwest 1/4 of the Northwest 1/4 AND the South 1/2 of the Northwest 1/4 of Section 16, Township 23 South, Range 17 East, Hernando County, Florida.

File No: 47039

AND

All that part of Section 30, Township 23 South, Range 17 East, Hernando County, Florida, lying North of State Road No. 595.

AND

All that part of Section 7, Township 23 South, Range 17 East, Hernando County, Florida, lying South and East of State Road 595, LESS AND EXCEPT that parcel described in Official Records Book 386, Page 329, public records of Hernando County, Florida, ALSO LESS the following described parcel:

That certain parcel of land described in Official Records Book 133, Page 508, and Official Records Book 294, Page 447, public records of Hernando County, Florida, said certain parcel being more particularly described as follows:

Beginning at the Northwest corner of that certain parcel described in Official Records Book 386, Page 329, public records of Hernando County, Florida, thence run North 89°48'58" East along the boundary of said parcel described in Official Records Book 386, Page 329, a distance of 268.50 feet, thence go South 00°40'59" East along the West boundary of said parcel a distance of 321.43 feet, thence go South 89°52'51" West a distance of 392.23 feet to the Easterly right-of-way of State Road 595, thence go North 20°27'39" East along said right-of-way a distance of 343.00 feet to the POINT OF BEGINNING.

AND

All of Section 18, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The East 1/2 of Section 17, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 17, Township 23 South, Range 17 East, Hernando County, Florida.

AND

All of Section 19, Township 23 South, Range 17 East, Hernando County, Florida.

AND

The West 1/2 of Section 20, Township 23 South, Range 17 East, Hernando County, Florida, less road right-of-way.

AND

All that part of the East 1/2 of Section 20, Township 23 South, Range 17 East, Hernando County, Florida, lying North and West of U.S. Highway No. 19.

File No: 47039

AND

Commencing at the Northeast corner of Section 13, Township 23 South, Range 16 East, Hernando County, Florida, go thence South 0°27'25" East along the East line of said Section 13, a distance of 3384.71 feet to the POINT OF BEGINNING, said point being 890 feet South of the Northwest corner of the South 1/2 of Section 18, Township 23 South, Range 17 East, Hernando County, Florida,

thence South 89°32'35" West, a distance of 217.0 feet to a point on the Easterly right-of-way of State Road S-595,
thence South 00°27'25" East along the said State Road S-595 right-of-way, a distance of 100 feet,
thence North 89°32'35" East, a distance of 217 feet,
thence North 00°27'25" West along the East line of said Section 13, a distance of 100 feet to the POINT OF BEGINNING.

AND

All that part of Section 21, Township 23 South, Range 17 East, Hernando County, Florida, lying North and West of U.S. Highway No. 19.

AND

That portion of Section 29, Township 23 South, Range 17 East, Hernando County, Florida, lying North of the Northerly right-of-way line of State Road 595 and West of the Westerly right-of-way line of U.S. Highway No. 19.

AND

Beginning at the Northeast corner of Section 25, Township 23 South, Range 16 East, Hernando County, Florida, thence go South 00°11'02" East along said Section line, a distance of 150.00 feet, thence go North 89°57'07" West, a distance of 216.98 feet, thence go North 00°11'37" West, a distance of 150.00 feet, thence go South 89°57'07" East, a distance of 217.00 feet to the POINT OF BEGINNING.

LESS

Beginning at the Northwest corner of Section 21, Township 23 South, Range 17 East, Hernando County, Florida, and thence go North 89°28'11" East along section line, a distance of 1502.23 feet to a point on the Westerly right-of-way of U.S. Route No. 19, thence go South 38°17'30" West along said right-of-way, a distance of 2120.00 feet, thence go North 51°42'30" West, a distance of 700.00 feet, thence go North 00°35'06" East, a distance of 1212.81 feet, thence go North 89°25'30" East, a distance of 348.56 feet to the POINT OF BEGINNING.

File No: 47039

ALSO LESS

(Proposed Solid Waste Transfer Station)
For a point of reference commence at the Northeast corner of Section 30, Township 23 South, Range 17 East, Hernando County, Florida, thence North 89°33'40" West along the North boundary of the Northeast 1/4 of said Section 30, a distance of 2662.90 feet to the North 1/4 corner of said Section 30, thence departing said North boundary South 21°21'10" West, a distance of 647.36 feet for a POINT OF BEGINNING,
thence South 08°10'32" West, a distance of 132.86 feet,
thence South 31°44'14" East, a distance of 175.01 feet,
thence South 57°08'45" East, a distance of 519.17 feet to a point on the Northerly right-of-way line of State Road No. 595 (per State Road Department right-of-way map, Section No. 08130-250, dated October 13, 1965),
thence the following four (4) courses along said Northerly right-of-way line: (1) South 83° 44'07" West, a distance of 556.42 feet, (2) Westerly 657.10 feet along the arc of a curve to the left, said curve having a radius of 1323.24 feet, a central angle of 28°27'08", and a chord bearing and distance of South 69° 31'45" West, 650.37 feet, (3) North 34°41'49" West, a distance of 5.00 feet to a non-tangent point of curvature, (4) Southwesterly 124.37 feet along the arc of a curve to the left, said curve having a radius of 1328.24 feet, a central angle of 05°21'54", and a chord bearing and distance of South 52°37'14" West, 124.33 feet,
thence departing said right-of-way line North 39°46'02" West, a distance of 616.25 feet,
thence North 68°42'14" East, a distance of 1233.14 feet to the POINT OF BEGINNING.

ALSO LESS

DESCRIPTION (Temporary compound parcel)
A portion of the South 1/2 of Section 18, Township 23 South, Range 17 East, Hernando County, Florida, being more particularly described as follows:
For a point of reference commence at the Southeast corner of Section 13, Township 23 South, Range 16 East, Hernando County, Florida, thence North 00°12'47" East along the boundary between Range 16 East and Range 17 East, a distance of 124.08 feet to the Southwest corner of said Section 18, thence along said boundary between Range 16 East and Range 17 East, said boundary being the West boundary of said Section 18, continue North 00°12'47" East, a distance of 1086.64 feet, thence departing said boundary South 89°47'13" East, a distance of 2528.95 feet for a POINT OF BEGINNING, said point being a non-tangent point of curvature,
thence Easterly 405.71 feet along the arc of a curve to the left, said curve having a radius of 200.00 feet, a central angle of 116°13'41", and a chord bearing and distance of South 88°53'30" East,

339.64 feet to a point of tangency,
thence North 32°59'39" East, a distance of 289.93 feet to a point of curvature,
thence Northwesterly 423.09 feet along the arc of a curve to the left, said curve having a radius of 200.00 feet, a central angle of 121°12'26", and a chord bearing and distance of North 27° 36'34" West, 348.50 feet to a point of tangency,
thence North 88°12'46" West, a distance of 335.98 feet to a point of curvature,
thence Southwesterly 395.74 feet along the arc of a curve to the left, said curve having a radius of 185.00 feet, a central angle of 122°33'53", and a chord bearing and distance of South 30° 30'17" West, 324.49 feet to a point of tangency,
thence South 30°46'39" East, a distance of 321.62 feet to the POINT OF BEGINNING.

ALSO LESS

DESCRIPTION (Existing Transfer Station Site)
A parcel of land lying in Sections 19 and 30, Township 23 South, Range 17 East, Hernando County, Florida, being more particularly described as follows:

For a POINT OF BEGINNING, commence at the Northeast corner of said Section 30,
thence South 00°12'17" East along the East boundary of said Section 30, a distance of 334.98 feet to a point on the Northerly right-of-way line of State Road No. 595 (per State Road Department right-of-way map, Section No. 08130-250, dated October 13, 1965),
thence the following three (3) courses along said Northerly right-of-way line: (1) Westerly 245.01 feet along the arc of a curve to the left, said curve having a radius of 2919.79 feet, a central angle of 04°48'28", and a chord bearing and distance of South 74°37'51" West, 244.94 feet, (2) North 17°46'23" West, a distance of 5.00 feet to a non-tangent point of curvature, (3) Westerly 90.64 feet along the arc of a curve to the left, said curve having a radius of 2924.79 feet, a central angle of 01° 46'32", and a chord bearing and distance of South 71°20'20" West, 90.64 feet,
thence departing said Northerly right-of-way line North 08°44'32" East, a distance of 456.49 feet,
thence South 89°32'14" East, a distance of 252.92 feet,
thence South 00°12'17" East, a distance of 25.00 feet to the POINT OF BEGINNING.

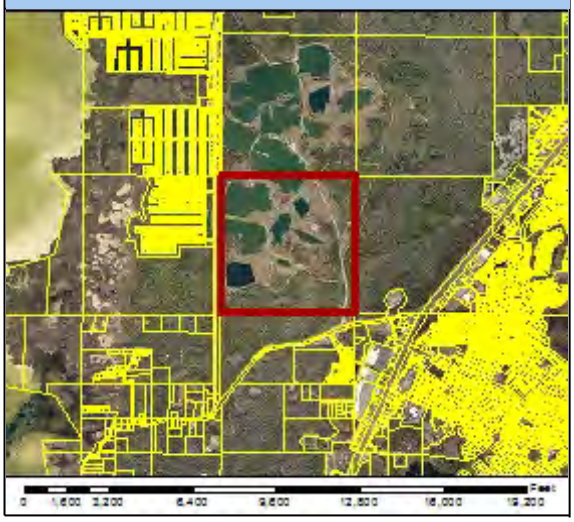
HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2022 PRELIMINARY TAX ROLL

KEY #	00376177	PRINTED	08/13/22 PAGE 1
PARCEL #	R19 423 17 0000 0010 0000	SITUS	SHOAL LINE BLVD
OWNER(S)	SOUTHWEST FLA W M D	PARCEL DESCRIPTION UPDATED 01/01/12	ALL FRACTL SEC 19-23-17
MAILING ADDRESS UPDATED 06/10/98	2379 BROAD ST BROOKSVILLE FL 34601		

MISCELLANEOUS PROPERTY INFORMATION

SQUARE FOOTAGE		
ACRES	621.50	
AERIAL MAP	17C	
JURISDICTION	C	COUNTY
LEVY CODE	CWES	COUNTY WIDE EMS
NEIGHBORHOOD	AC06	AC SHOAL LINE/PINE ISLND
SUBDIVISION	0	
DOR LAND USE	87	STATE OTHER THAN MILITARY FORE
NON-AD VALOREM DIST1	36	H.C. FIRE/RESCUE DISTRICT

JANUARY 2020 GIS AERIAL



2022-01-00 PROPERTY VALUES

		COUNTY	SCHOOL	SWFWMD	MUNICIPALITY
LAND		5,015,142	5,015,142	5,015,142	
BUILDINGS	+	0	0	0	
FEATURES AND OUT BUILDINGS	+	0	0	0	
JUST/MARKET VALUE	=	5,015,142	5,015,142	5,015,142	
VALUE PRIOR TO CAP		5,015,142	5,015,142	5,015,142	
ASSESSED VALUE		3,819,800	5,015,142	3,819,800	
EXEMPT VALUE	-	3,819,800	5,015,142	3,819,800	
TAXABLE VALUE	=	0	0	0	
CLASSIFIED USE LAND VALUE	0				

EXEMPTIONS BY TAXING AUTHORITY

COD	DESCRIPTION	L.UPDT	CAP.YR	COUNTY	SCHOOL	SWFWMD	MUNICIPALITY	EST.TAX SAVINGS
020	STATE PROPERTY - SWFWMD	2001		YES	YES	YES		68,287.67

LAND INFORMATION

CODE	DESCRIPTION	AG	LAST UPDT	CAP YEAR	EXC CAP	GRA DE	FRON TAGE	DEPTH	UNITS	MEASURE				ADJ RATE	VALUE
96	NON-PROD AC	N	1990		Y				100.00	ACRES				150.00	15,000
99	ACREAGE	N	2012		Y	7			521.50	ACRES				9588.00	5,000,142

BUSINESSES ON PROPERTY

KEY #	BUSINESS NAME	NAICS	BUSINESS TYPE

ADDRESSES ON PROPERTY

SITUS
SHOAL LINE BLVD

BUILDING PERMITS

APPLIC.#	APP.DATE	PERMIT #	CODE	DESCRIPTION	ISSUED	STATUS	FINALED	VALUE
1255783	3/23/11	1255783	S3	ON SITE SIGN	5/16/11	FINALED	5/17/11	500

HERNANDO COUNTY, FLORIDA
PROPERTY RECORD CARD
2022 PRELIMINARY TAX ROLL

KEY #	00376177	PRINTED	08/13/22	PAGE	2

PROPERTY SALES

SALE DATE	NEW OWNER	CODE	DESCRIPTION	VAC?	INST	OR BOOK	OR PAGE	SALEGRP	VALUE
02/02/95	SOUTHWEST FLA W M D	X	DISQ SALE /RE	Y	WD	1002	1039	1	15,100,000
10/01/81	W L COBB CONSTRUCTION CO	D	DISQUALIFIED	Y	WD	0491	1840	0	15,750
01/01/80	TURNER CORP		INVALID CODE	N		0000	0000	0	0

PROPERTY APPRAISER INSPECTIONS

INSP.DATE	ROLL	EMPL	CODE	REASON
04/15/20	2020	248	021	VACANT
12/17/15	2016	248	021	VACANT
01/05/12	2012	197	001	BUILDING PERMIT
09/06/11	2011	195	021	VACANT

Exhibit
4

HERNANDO COUNTY
DRI Abandonment Letter
Oak Sound DRI

RECEIVED A.. 2 8 1995

Board of County Commissioners

Hernando County

PLANNING DEPARTMENT

Government Center / Administration Building
20 North Main Street, Room 262
Brooksville, Florida 34601-2807

Planning - (904) 754-4057
Fax - (904) 754-4420

April 26, 1995

Mr. Charles L. Harwood
Executive Director
Withlacoochee Regional Planning Council
1241 SW 10th Street
Ocala, FL 34474-2798

RE: Notice of Abandonment of the Oak Sound Development of Regional Impact (DRI)

Dear Mr. Harwood:

Pursuant to Rule 9J-2.0251, the Hernando County Board of County Commissioners issued a Notice of Abandonment for the Oak Sound Development of Regional Impact at their April 18, 1995, hearing. The Notice and Resolution #95-14 were recorded pursuant to Section 28.222, on April 21, 1995.

Attached is a copy of the Notice of Abandonment for the Oak Sound Development of Regional Impact and Resolution #95-14 for your records.

If you should require anything further, please contact this office.

Sincerely,

Jerry Greif
Chief Planner

cr

Attachment: Notice of Abandonment and Resolution #95-14

R-131

D1285C

** OFFICIAL RECORDS **
BK: 1012 PG: 1506

NOTICE OF ABANDONMENT

NOTICE IS HEREBY GIVEN pursuant to the provisions of Section 380.07, Florida Statutes, and Rule 9J-2.0251, Florida Administrative Code that the Oak Sound Development of Regional Impact has been abandoned and that said abandonment has been approved and authorized by the Board of County Commissioners of Hernando County, Florida at a public hearing on February 7, 1995, which said approval and authorization has been evidenced by Hernando County Resolution 95-14, a certified copy of said resolution is attached hereto, labeled Exhibit "A", and made a part hereof as though incorporated in haec verba.

The abandonment of the Oak Sound Development of Regional Impact involved the following:

FILE# 95-012264
HERNANDO COUNTY, FLORIDA

OWNER:

Oman Construction Company

RCD Apr 21 1995 03:46pm
KAREN NICOLAI, CLERK

PURPOSE:

Request to abandon the Oak Sound Development of Regional Impact.

GENERAL LOCATION:

Located in Southwest Hernando County, West of U.S. 19, South of the Weeki Wachee River and North of C.R. 595.

LEGAL DESCRIPTION:

All or portions of the following sections: 32, 33; Township 22 South, Range 17 East; and all or portions of the following sections: 4, 5, 7, 8, 9, 16, 17, 18, 19, 20, 21, 30; Township 23 South, Range 17 East.

DATE OF ABANDONMENT OF DEVELOPMENT OF REGIONAL IMPACT:

February 7, 1995.

IN WITNESS WHEREOF, this Notice of Abandonment has been executed on the 18th day of April, 1995.

** OFFICIAL RECORDS **
BK: 1012 PG: 1507

BOARD OF COUNTY COMMISSIONERS
HERNANDO COUNTY, FLORIDA

Attest: _____
KAREN NICOLAI
Clerk

By: _____
JOHN RICHARDSON
Chairman

RESOLUTION 95-14

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF HERNANDO COUNTY, FLORIDA, APPROVING THE ABANDONMENT OF THE OAK SOUND DEVELOPMENT OF REGIONAL IMPACT

WHEREAS, Hernando County previously approved a development order pursuant to Chapter 380, Florida States, F.S., on June 19, 1984, for the Oak Sound Development of Regional Impact (hereinafter called "the DRI"), which authorized the development of certain properties in Hernando County consisting of approximately 6,061; acres and

WHEREAS, on April 19, 1985, the Oak Sound Development Order, as a result of a settlement stipulation, was amended to reduce the amount of commercial uses allowed, and extend the buildout date an additional five years; and,

WHEREAS, the owners of the property have not commenced development of the project because it just recently received all permits needed for construction; and,

WHEREAS, the Southwest Florida Water Management District desires to purchase the DRI property and add to lands currently owned by the District for purposes of managing, preserving, and protecting the environmentally sensitive Weekiwachee riverine system; and,

WHEREAS, future development plans for the DRI property by the Southwest Florida Water Management District involve only minimal development directly related to managing, preserving, and protecting the Weekiwachee riverine system; and,

WHEREAS, the Southwest Florida Water Management District desires to abandon the DRI because keeping the DRI in place would result in numerous unnecessary affirmative obligations imposed by the development order; and,

WHEREAS, W.L. Cobb Construction Company, a wholly owned subsidiary of Oman Construction Company, Inc., has submitted an application to Hernando County requesting approval of the abandonment of the DRI; and,

WHEREAS, Hernando County Board of County Commissioners, as governing body of the local government having jurisdiction, and hereafter referred to as the County, is authorized and empowered to consider an Application for Abandonment of a Development of Regional Impact; and,

WHEREAS, the public notice requirements of Hernando County and Rule 9J-20.0251, Florida Administrative Code, have been satisfied and 45 day notice of the scheduled public hearing has been given to the Department of Community Affairs, ("DCA") and the Withlacoochee Regional Planning Council, ("WRPC)" initially on December 20, 1994.

WHEREAS, Hernando County, on February 7, 1995, held a duly noticed public hearing on the Application for Abandonment of a Development of Regional Impact, and has heard and considered the testimony and documents received thereon; and

WHEREAS, Hernando County received and considered public comments and the public was afforded the opportunity to participate in the Application for Abandonment of a Development of Regional Impact hearing on the Oak Sound Development of Regional Impact ("DRI") before Hernando County; and

WHEREAS, Hernando County has reviewed the above referenced documents, as well as all related testimony and evidence submitted by each party and members of the general public;

WHEREAS, Hernando County has made the following findings of fact and conclusions of law concerning abandonment of the DRI development order:

A. The primary reason for abandonment of the DRI is that the owners of the property have decided to sell the Oak Sound property to the Southwest Florida Water Management District.

B. To date, no on-site development on the property has occurred.

C. Since no development has occurred on-site, no material adverse impacts have occurred to either existing resources or facilities because of approved DRI development. The property, once the purchased by the District is completed, will be preserve.

D. The developer has complied substantially with all applicable conditions of the DRI development order.

E. Although no development has occurred on the Oak Sound property, certain off-site improvements were made by the developer to preserve the effectiveness of the Oak Sound Development Order, including the relocation of CR 595, and providing limerock and fill for Jenkins Creek. No compensation will be made to the developer for expenditures associated with the improvements made to maintain and preserve the development order.

F. The developer has not relied upon benefits granted to authorized developments of regional impact, pursuant to Chapters 163, 403 and 380, F.S., which would not otherwise be available after abandonment.

G. Specific future development plans for the property have not been formulated by the Southwest Florida Water Management District at this time; however, any future development will be consistent with the Water Management District's intent to preserve the property.

** OFFICIAL RECORDS **
BK: 1012 PG: 1509

H. Any future development after abandonment shall be consistent with the State Comprehensive Plan, the Withlacoochee Regional Planning Council Regional Policy Plan, and the Hernando County Comprehensive Plan. Current development is consistent with the existing Hernando County Comprehensive Plan, the State Comprehensive Plan, the State Land Development Plan, and the Withlacoochee Regional Planning Council Policy Plan.

I. The development is eligible to request abandonment pursuant to Rule 9J-2.0251, F.A.C., and Subsection 380.06(26), F.S.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Hernando County, Florida, in regular session duly assembled this 7th day of February, 1995, that pursuant to the authority granted in Subsection 380.06(26), F.S. and Rule 9J-2.0251, F.A.C., the development order approving the Oak Sound Development of Regional Imapct is hereby abandoned with conditions (see Exhibit "A").

DONE AND RESOLVED this 7th day of February, 1995.

(SEAL)

ATTEST:

By: _____
Clerk

BOARD OF COUNTY COMMISSIONERS
OF HERNANDO COUNTY, FLORIDA

By: _____
John Richardson, Chairman

APPROVED AS TO LEGAL FORM AND CONTENT

Office of the County Attorney

BY: _____
ATTORNEY

** OFFICIAL RECORDS **
BK: 1012 PG: 1510

EXHIBIT A

**Conditions of Approval for Abandonment -
Oak Sound Development of Regional Impact**

1. The owner agrees to waive, relinquish and release any vested rights under Subsection 163.3167(8), Florida Statutes, which may have arisen by virtue of the approved DRI.

2. Future development on this property shall not exceed 80 percent of any DRI threshold or guideline. During the next Evaluation and Appraisal Report (EAR) of the Hernando County Comprehensive Plan, the Southwest Florida Waster Management District shall work with Hernando County to properly classify this property to achieve the preservation purposes for which the Southwest Florida Water Management District purchased the property.

3. Existing and future development on this property shall be subject to the Comprehensive and Land Development Regulations for Hernando County in effect at the time of submittal of any plan or plat for review and approval by the County, including concurrency.

4. All development on this property will be done in compliance with all applicable Federal, State, local and regional agency permitting requirements.

5. The developer, W.L. Cobb Construction Company, Inc., a wholly owned subsidiary of the Oman Construction Company, Inc., will be required to modify all agency permits associated with the Oak Sound DRI so as to transfer the Department of Environmental Protection (fka Department of Environmental Regulation) and the Army Corp of Engineers permits to the Southwest Water Management District and Hernando County jointly, after the Southwest Florida Water Management District closes on the property.

I hereby certify that the foregoing is a true and
correct copy of the original.
Karen Nicolai, Clerk Circuit Court Hernand
County, Florida [redacted]
Judy A. Rodeus, Deputy

RECEIVED FEB 2 3 1995

Board of County Commissioners
Hernando County
PLANNING DEPARTMENT
Government Center / Administration Building
20 North Main Street, Room 262
Brooksville, Florida 34601-2807

Planning - (904) 754-4057
Fax - (904) 754-4420

SIC 6552

February 21, 1995

Mr. Charles L. Harwood
Executive Director
Withlacoochee Regional Planninnnnnng Council
1241 SW 10th
Ocala, FL 34474-2798

RE: Oak Sound Development of Regional Impact (DRI) Abandonment

Dear Mr. Harwood:

Consistent with Rule 9J-2.0251, please find an original executed resolution abandoning the Oak Sound DRI, with conditions, as approved by the Board of County Commissioners on February 7, 1995.

Within 15 days of the expiration of the appeal period, Hernando County will issue a notice of abandonment of the Oak Sound DRI which shall be recorded by the developer in accordance with Section 28.222, Florida Statutes.

If you should require anything further, please contact this office.

Sincerely,

Jerry Greif
Chief Planner

cr

Attachment: Resolution #95-14

RESOLUTION 95-14

A RESOLUTION BY THE BOARD OF COUNTY COMMISSIONERS OF HERNANDO COUNTY, FLORIDA, APPROVING THE ABANDONMENT OF THE OAK SOUND DEVELOPMENT OF REGIONAL IMPACT

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C. Since no development has occurred on-site, no material adverse impacts have occurred to either existing resources or facilities because of approved DRI development. The property, once the purchased by the District is completed, will be preserve.

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F. The developer has not relied upon benefits granted to authorized developments of regional impact, pursuant to Chapters 163, 403 and 380, F.S., which would not otherwise be available after abandonment.

G. Specific future development plans for the property have not been formulated by the Southwest Florida Water Management District at this time; however, any future development will be consistent with the Water Management District's intent to preserve the property.

H. Any future development after abandonment shall be consistent with the State Comprehensive Plan, the Withlacoochee Regional Planning Council Regional Policy Plan, and the Hernando County Comprehensive Plan. Current development is consistent with the existing Hernando County Comprehensive Plan, the State Comprehensive Plan, the State Land Development Plan, and the Withlacoochee regional Planning Council Policy Plan.

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DONE AND RESOLVED this 7th day of February, 1995.

(SEAL)

ATTEST:

By: _____
Clerk

BOARD OF COUNTY COMMISSIONERS
OF HERNANDO COUNTY, FLORIDA

By: _____
John Richardson, Chairman

APPROVED AS TO LEGAL FORM AND CONTENT

~~Office~~ of ~~the~~ County Attorney

BY: _____
ATTORNEY

EXHIBIT A

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2. Future development on this property shall not exceed 80 percent of any DRI threshold or guideline. During the next Evaluation and Appraisal Report (EAR) of the Hernando County Comprehensive Plan, the Southwest Florida Water Management District shall work with Hernando County to properly classify this property to achieve the preservation purposes for which the Southwest Florida Water Management District purchased the property.

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Exhibit
5

Weeki Wachee Preserve
Management Plan
SWFWMD
1997

Plan for the Use & Management *of the* *Weekinvachee Preserve*

printed on recycled paper

December, 1997

IMAGED

MICROFILMED

IMAGED

A Plan for the Use and Management of the

Weekiwachee Preserve

December 1997

Southwest Florida Water Management District

Principal Authors: Eugene M. Kelly
Jason Robertshaw
Mary Barnwell

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The Southwest Florida Water Management District (District) does not discriminate upon the basis of any individual's disability status. This non-discrimination policy involves every aspect of the District's functions including one's access to, participation, employment, or treatment in its programs or activities. Anyone requiring reasonable accommodation as provided for in the Americans With Disabilities Act should call (904) 796-7211 or 1-800-423-1476, extension 4400; TDD ONLY 1-800-231-6103; FAX (904) 754-6874 / Suncom 663-6874.

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EXECUTIVE SUMMARY

The 7,136-acre Weekiwachee Preserve (Preserve), located in coastal Hernando County, was acquired by the Southwest Florida Water Management District (District) through a series of successive land purchases conducted between 1993 and 1996. Hernando County contributed funds toward the acquisition of the Preserve through its Environmentally Sensitive Lands Program, which was established to provide a local funding source for the acquisition of significant natural lands. The superlative natural values of the Preserve distinguish it as an area of state-wide significance. This plan is designed to guide the future management and public use of the Preserve in a manner that will ensure protection of those natural attributes which served as the impetus for public acquisition of the area.

Water management values associated with the Preserve include water conveyance, natural flood protection and water quality maintenance. The northern boundary is defined by nearly 4 miles of frontage on the Weekiwachee River. Preservation of this natural shoreline will help to preserve the water conveyance function of the river channel and help to maintain water quality in the both the river and downstream estuary. Approximately 84 percent of the Preserve lies in the 100-year floodplain. Maintaining the natural condition of the lands comprising the Preserve will perpetuate the area's natural ability to store floodwaters and buffer inland areas from storm-generated tidal surges.

Approximately 70 percent of the total land area of the Preserve supports native wetland communities including hydric hammock, salt marsh and freshwater marsh. In combination with the mixture of upland communities represented on the remainder of the Preserve, the site provides habitat for a great diversity of wildlife. Many species that have been recognized as threatened or endangered occur in the Preserve including the Florida black bear, Southeastern bald eagle and West Indian manatee. Protection of the resident black bear population has been identified as a management priority on the basis of the species' threatened status and its recognized role as an "umbrella" species due to its broad habitat needs. A research program designed to assess the health of the population and identify critical habitat management needs has been implemented and the results of the research will be employed to guide future management of the Preserve.

A number of sites within the Preserve have been designated Special Protection Areas. These include: a shorebird nesting area located within the lake complex; a Research Area located at the northeast corner of the lake complex; three active bald eagle nest sites; stands of scrub vegetation; the shoreline of the Weekiwachee River; and a number of archaeological sites. Protection of these sites will take precedence over all other land management and public use considerations. Recreational uses will be directed to other portions of the property and management actions such as prescribed burning and control of exotic species will be tailored to meet the site-specific needs of all Special Protection Areas.

Major management needs for the Preserve include the implementation of a prescribed burning program, control of invasive exotic species, habitat restoration, and management and monitoring of wildlife to maintain existing biodiversity. Establishment of an on-site residence to provide housing for a

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security officer will be a high priority to minimize the incidence of illegal activities and enhance public safety.

Recreational use of the Preserve will be limited to day use only. Two access points have been designated. The primary access point, which will allow for vehicular entry, is located on Shoal Line Boulevard. A secondary access point, which is located on the southern boundary of the Preserve along Osowaw Boulevard, will provide a parking area and a walk-thru entrance for hikers and bicyclists. Pets will be prohibited on the Preserve.

Permitted recreational uses of the Preserve will include hiking, bicycling on a designated network of trails around the lake system, fishing, birding, picnicking, boating and swimming. Boating in the lakes will be restricted to boats that are not powered by internal combustion engines and swimming will be permitted only within a proposed beach and picnic complex. Development of the complex will be conducted in partnership with Hernando County and management of the facilities at this site will be the responsibility of the County. Carrying capacities that are consistent with maintenance of a wilderness setting will be established for the developed recreational facilities.

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LIST OF FIGURES

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INTRODUCTION

Description of Property

The Weekiwachee Preserve (Preserve) is located along coastal Hernando County and is bounded generally by County Road 595 (Osowaw Blvd.) to the south, U.S. Highway 19 to the east, County Road 595 (Shoal Line Blvd.) and the Gulf of Mexico to the west, and the Weekiwachee River to the north (Figure 1). The lands comprising the Preserve, which is approximately 7,136 acres in total land area, were acquired by the Southwest Florida Water Management District (District) through a series of successive purchases conducted between 1993 and 1996. Hernando County, through its Environmentally Sensitive Lands Program, contributed funds toward most of the individual acquisitions. An additional 9,500 acres are targeted for acquisition as part of the Weekiwachee Riverine System Save Our Rivers Project. It is anticipated that future acquisitions will increase the total size of the Preserve substantially. This management plan is intended to guide the management and public use of the existing Preserve area, and will be updated as necessary to address the management of future additions. The interim management of additions will be conducted in a manner that is consistent with the general approach and philosophy established for the existing Preserve land area.

The Preserve encompasses a natural area of state-wide significance. The diverse assemblage of natural communities protected within the Preserve provide habitat for a large number of imperiled plant and animal species. Perhaps most significantly, the Preserve serves as core habitat for a critically-imperiled population of the Florida black bear (*Ursus americanus floridanus*). In addition, approximately 70 percent of the Preserve supports sensitive wetland communities and 84 percent lies within the 100-year floodplain. The ability of these wetlands and floodplain to store floodwaters generated by major storm events, and to absorb tidal surges generated by such storms, will help to shield inland areas from the full force of hurricanes and winter storms. Nearly 4 miles of natural, undisturbed frontage on the Weekiwachee River will remain natural in perpetuity and contribute to the maintenance of water quality on this pristine river and in the downstream estuary. The estuary will also benefit from the protection of coastal salt marshes and tidal creeks that originate along the western boundary of the Preserve. Opportunities for resource-based recreational use provide additional values to the public.

The landscape surrounding the project area includes a multitude of land uses and types. Major transportation corridors that adjoin or occur in close proximity to the Preserve include U.S. Highway 19, C.R. 595 and C.R. 550. Several large residential subdivisions and numerous commercial enterprises are associated with these road systems in the immediate vicinity of the Preserve. The coastal communities of Aripeka, Hernando Beach, Pine Island, Bayport, and Weeki Wachee are serviced by C.R. 595 and the sprawl of Spring Hill abuts the Preserve along its entire eastern boundary. Although many of these communities in the surrounding area originated as small fishing villages, the area now supports a large and growing population. The Preserve protects the last remaining expanse of significant natural lands remaining along the developed coastline of Hernando County. It also serves

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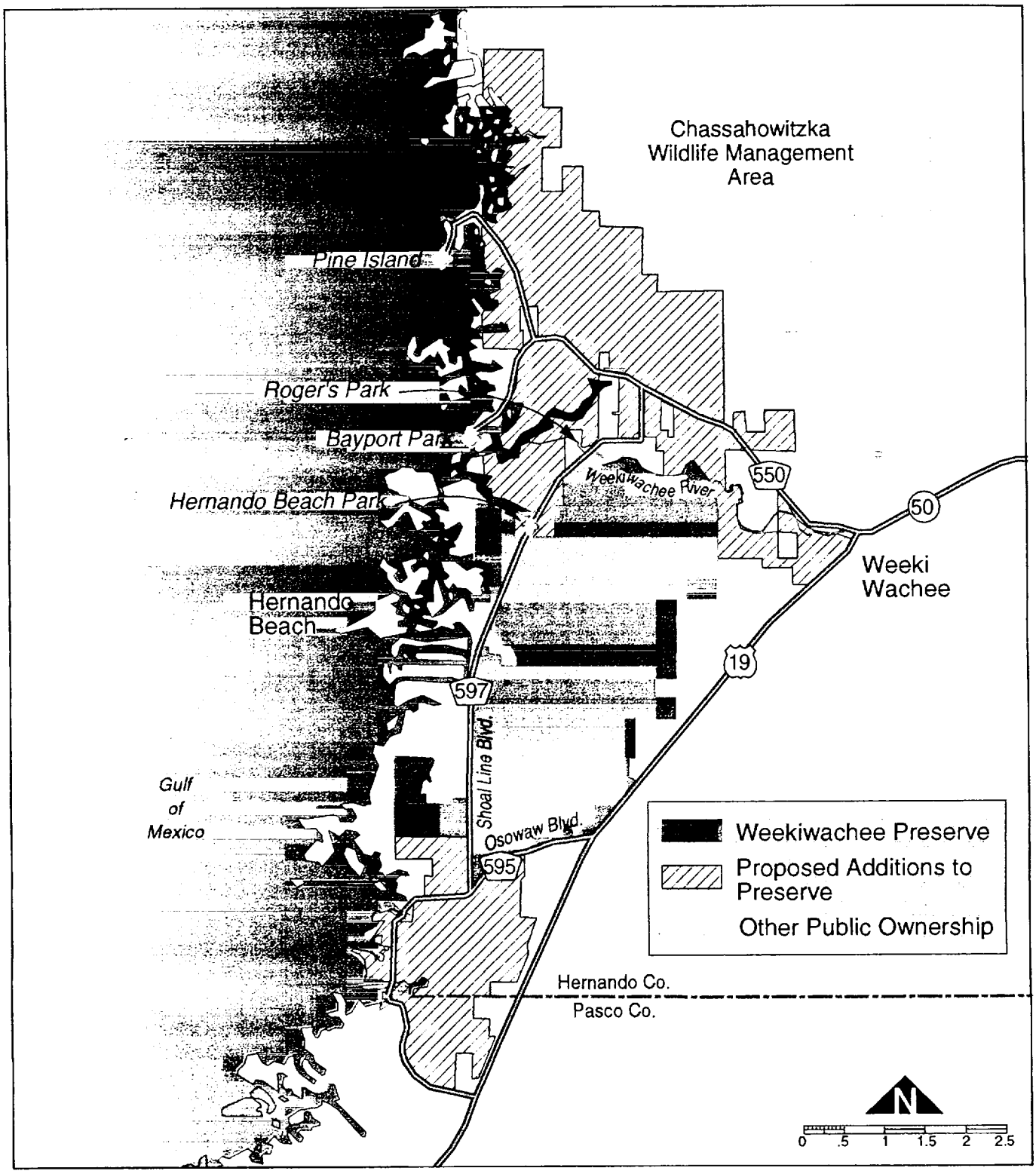

Figure 1. Weekiwachee Preserve Location Map

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as the southern end of a continuous, uninterrupted swath of natural lands that runs northward to Crystal River. The majority of these other coastal lands, which include the Chassahowitzka National Wildlife Refuge, Chassahowitzka Wildlife Management Area, Homosassa Reserve, and the District-held Chassahowitzka Riverine Swamp Sanctuary, have also been protected through public acquisition and, in combination with the Preserve, serve to protect a large and extremely significant natural area (Figure 2).

Planning Process

In accordance with District Procedure 61-3, a standard methodology is employed in the development of land use plans for District-owned properties (Christianson, 1988). The first step of this systematic process is the identification of special protection areas that occur within the property. These areas may include wetlands, floodplains, flood control facilities, potable water sources, and significant ecological features. Restrictions on the use of the property are imposed to ensure the protection of these areas. Land use constraints resulting from the size and configuration of an area also considered during this phase of the process. The ultimate objective is to concentrate land uses in appropriate areas and to prevent incompatible or conflicting uses from occurring within a property.

Each property is also evaluated to determine its placement within a classification system. The two factors upon which the property classifications are based are the population density of the area surrounding the property and the extent to which the property has been developed or altered. The classifications have been devised to provide guidance in the formulation of an overall management philosophy for each property. The management philosophy is an expression of the level of development that should be allowed on the property and the types of uses that are appropriate.

The planning process is initiated by an inter-disciplinary team of District staff. Affected local governments and others with a vested interest in the property may also be invited to appoint a representative to the plan development team. A Hernando County representative was appointed to the Weekiwachee Preserve plan development team to address issues of local concern associated with management of the Preserve. Prior to presenting the plan for approval of the District's Governing Board and the appropriate Basin Board, management plans must be reviewed and approved by the Land Management and Acquisition Task Force. This committee is composed of senior District staff assigned various roles in directing the management and use of District-held lands. Final review and approval of all plans by the Governing Board is conducted in a public hearing during which members of the public may provide comments or recommendations regarding the plan.

Management Philosophy and Emphasis

On the basis of the high population density of the area surrounding the Preserve, and the proximity of roads open to unrestricted motorized traffic, the Preserve has been designated an urban fringe parkland. This designation recognizes the influence that a large human population and easy access can have upon the character of a natural area. It also alludes to the tremendous challenge

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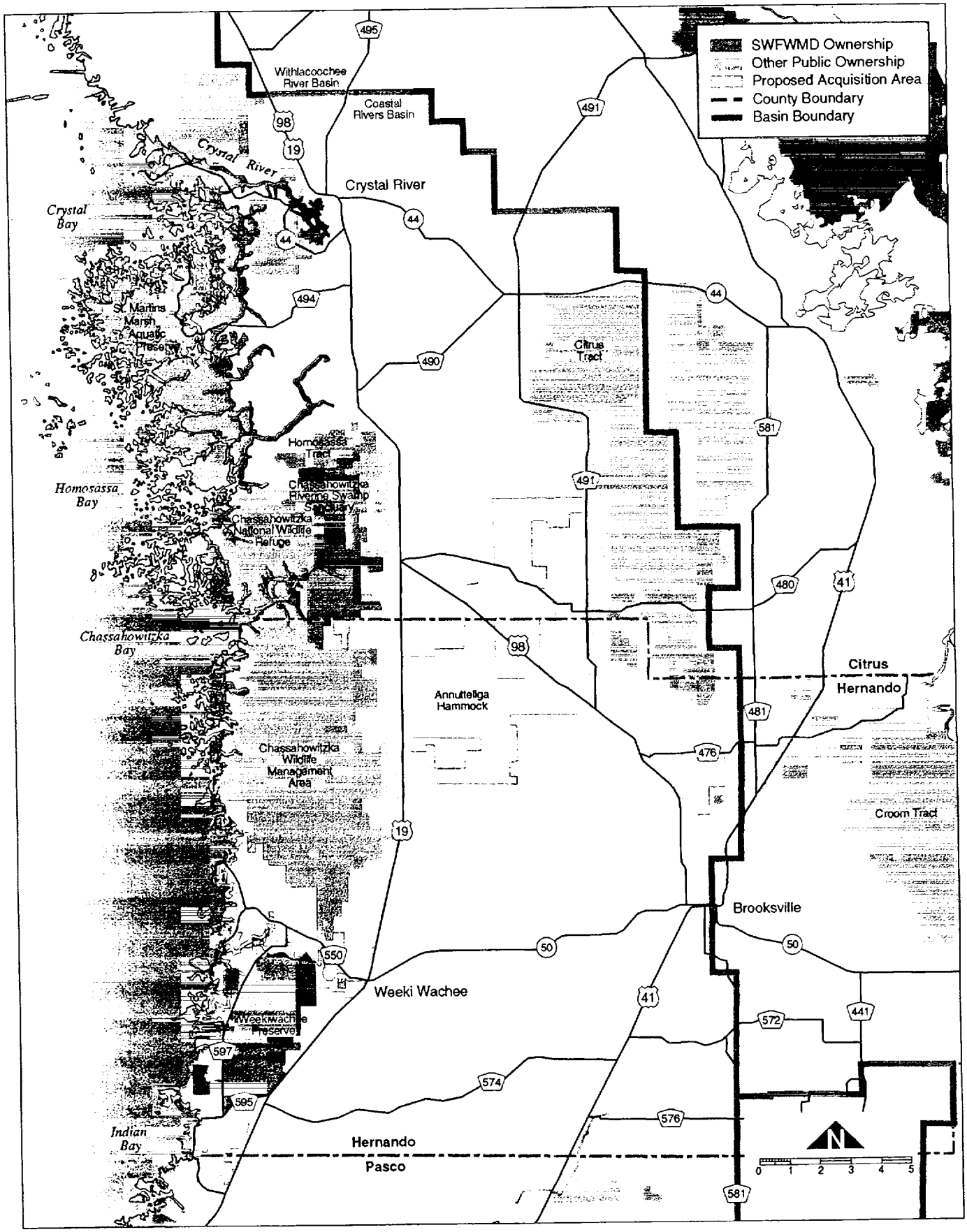

Figure 2. Regional Network of Preserve Lands.

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facing the District in terms of the future management and protection of the Preserve. As noted previously, the Preserve is part of a much larger ecosystem that includes several other extensive tracts of publicly-owned land. This patchwork of public lands protects the last large remnant of natural coastline remaining in west-central Florida. It is also located in one of the fastest growing areas of the state. The abrupt transition from wilderness area to urbanized landscape that occurs along most of the Preserve's boundary will impose certain unavoidable constraints on essential management actions, including especially the use of prescribed fire. The close proximity of a large human population to populations of sensitive wildlife species will require an equally sensitive approach to the management of wildlife. In combination, these characteristics pose a uniquely difficult challenge to the District in terms of it's statutory mandate to achieve the appropriate balance of ecological protection and public use.

The natural attributes of the Weekiwachee Preserve far exceed those of a typical urban fringe parkland. This is primarily a function of its large size and physical linkage with other large tracts, which imparts a wild and isolated character more normally associated with sites far removed from developed, highly populated areas. Another factor that contributes to its atypical character is its coastal location. The salt marshes, tidal creeks, and open water of the Gulf of Mexico add to the diversity of habitats available to support wildlife, while buffering a large section of the western boundary from the severe human influence so characteristic of the eastern boundary. Finally, human intrusion prior to District acquisition was limited by private ownership which restricted access and maintained secluded conditions across the majority of the Preserve. These secluded conditions are manifested clearly in the occurrence of a population of the Florida black bear.

The Florida black bear is a shy species that requires the privacy and refuge conferred by dense forest and expansive habitat. The extent to which human development and population growth has deforested and fragmented the Florida landscape has produced a corresponding reduction in the extent of suitable bear habitat and has eliminated this distinct subspecies of the American black bear from most of its former range. In response to a decline in bear numbers and the ongoing destruction and fragmentation of suitable habitat, the Florida Game and Fresh Water Fish Commission (FGFWFC) has designated the bear a threatened species. It is currently being evaluated for designation as a threatened species under the U.S. Endangered Species Act. The presence of this threatened species on the Preserve, and its extreme sensitivity to human intrusion and disturbance, will require a cautious approach to the management of public use.

Research being conducted jointly by the District, FGFWFC, the Florida Division of Forestry (DOF) and the U.S. Fish and Wildlife Service (USFWS) is attempting to gain insights into the ecology and habitat requirements of the resident bear population so that management of the entire coastal ecosystem can be tailored to preserve this important wildlife resource while accommodating public recreational use. Ultimately, the research will help to identify those recreational uses that would be compatible with bear preservation. This plan outlines a cautious and conservative

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approach to public use with the goal of maintaining the wilderness character and habitat values of the Preserve while accommodating public use and access. Recreational usage beyond that outlined in this plan may be permitted in the future as the results of the research become available to provide more knowledgeable guidance of future management activities. Expansion of the Preserve area through future acquisitions of surrounding lands may also offer opportunities for an expansion of public recreational use.

Description of Land Cover

The majority of the Weekiwachee Preserve (3,800 acres, or 53 percent of the total land area) supports a dense cover of hydric hammock (Figure 3). The canopy of this forested community consists of a very diverse mixture of tree species, including cabbage palm (*Sabal palmetto*), bald cypress (*Taxodium distichum*), pop ash (*Fraxinus caroliniana*), live oak (*Quercus virginiana*), laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), red cedar (*Juniperus silicicola*), sweet bay (*Magnolia caroliniana*), red bay (*Persea borbonia*), loblolly bay (*Gordonia lasianthus*), pignut hickory (*Carya glabra*) and basswood *(Tilia americana).* The distribution of these species across the forest is highly variable, with some species attaining a greater dominance in wetter areas. Periods of inundation occur less frequently in hydric hammocks than in typical floodplain forests, which may otherwise support a fairly similar canopy.

The understory in hydric hammocks can be relatively sparse due to the dense canopy, but includes such species as cinnamon fern (*Osmunda cinnamomea*), shield fern (*Dryopteris leudoviciana*), swamp fern (*Blechnum serrulatum*) and dahoon holly (*Ilex* cassine*).* Cinnamon fern and shield fern have both been designated as threatened species by the Florida Department of Agriculture (FDA). Other noteworthy plant species that occur in the understory of the Preserve's hydric hammock include Florida milkweed (*Matela floridana*) and needle palm (*Rhapidophyllum hystrix*), which have been designated as endangered and commercially exploited, respectively, by the FDA.

Wildlife dependent upon the hydric hammock forests, and the associated cabbage palm hammocks and mesic hammocks discussed below, are highly varied. The occurrence of a black bear population in this area is highly dependent upon these communities, which provide the dense cover and seclusion so coveted by this species. An assortment of resident and migratory bird species also depend on the dense, unbroken canopy provided by these forests.

Cabbage palm hammock, which may actually be considered a variant of the hydric hammock community discussed above, accounts for approximately 137 acres, or 2 percent of the total Preserve land area. These hammocks support a much less diverse canopy, consisting primarily of cabbage palm, live oak and red cedar. They occur as islands scattered through the salt marsh, or as stands sandwiched between hydric hammock and salt marsh. The canopy of cabbage palm hammock consists of the most salt-tolerant species found in hydric hammock.

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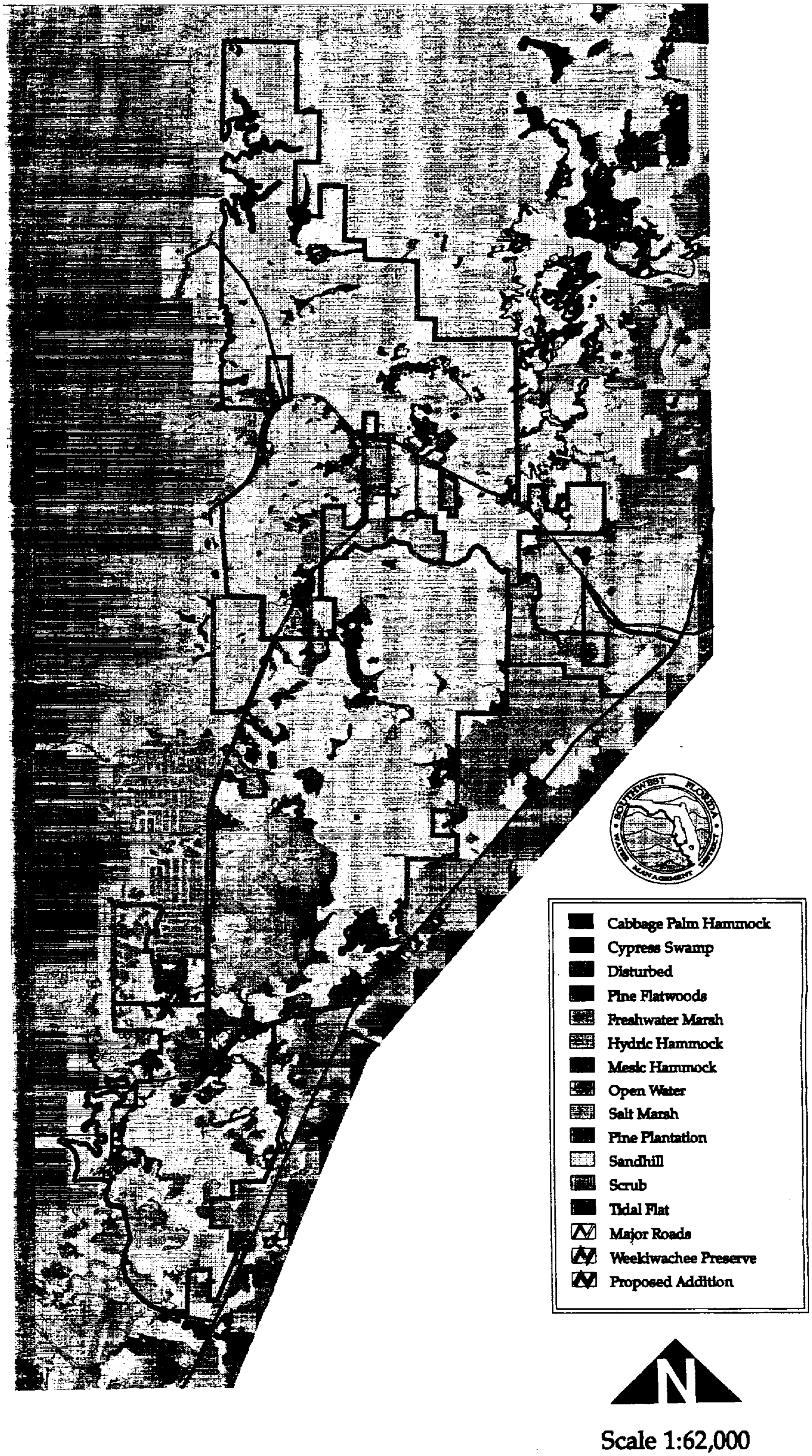
Vegetation Map for the Weekiwachee Preserve



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Like the hydric hammock community, the Preserve's cabbage palm hammocks have special significance to the black bear population. The fruits produced by cabbage palms are an important seasonal food source for black bears.

Small stands of mesic hammock colonize slightly elevated ridges scattered through the hydric hammock. These forests cover approximately 170 acres, or around 2 percent of the Preserve. The composition of the overstory in these areas is similar to that of the hydric hammock, but supports a larger component of hickories, basswoods and oaks. They also support magnolia (*Magnolia grandiflora*).

In contrast to the wetland and mesic communities discussed above, the xeric scrub and sandhill communities occur on well-drained sands that coincide with the areas of highest elevation, generally above 10 feet NGVD. These elevations correspond with relict dune lines and, as such, are configured as a broken series of narrow ridges scattered throughout the hydric hammock forest. Scrub sites are dominated by a sand pine (*Pinus clausa*) overstory and a diverse understory of shrubs including sand live oak (*Quercus geminata*), myrtle oak (*Quercus myrtifolia*), Chapman oak (*Quercus chapmanii*), shiny blueberry (*Vaccinium myrsinites*) and saw palmetto. Although accounting for a total land area of only 170 acres (2.4 percent of total), the scrub sites provide critical habitat for some of the Preserve's most significant wildlife species, including the gopher tortoise (*Gopherus polyphemus*), Eastern indigo snake (*Drymarchon corais couperi*), and Florida black bear. It is likely that many species more dependent on the low lying forests that dominate the Preserve may take refuge in these sites during tidal surges that flood much of the property.

Sandhill accounts for only 5 acres of Preserve area. It supports a canopy of longleaf pine and turkey oak (*Quercus laevis*), and a groundcover of wiregrass (*Aristida stricta*). Like the scrub sites, the sandhill provides habitat for gopher tortoise, Eastern indigo snake, and other upland dependent species.

Pine flatwoods is the second-most prevalent natural community in the Preserve. Nearly 1,000 acres, or 13 percent of the Preserve, supports the longleaf pine (*Pinus palustris*), slash pine (*Pinus elliottii*) and saw palmetto (*Serenoa repens*) that distinguish this community. Pine flatwoods generally occur along the upland-wetland interface, at elevations that are intermediate between those of the wetland communities and the higher scrub and sandhill sites. Like the xeric communities discussed previously, the pine flatwoods support a complement of wildlife species that require upland habitats. They also provide important seasonal foraging areas for the opportunistic black bear.

Salt marsh and freshwater marsh account for 590 acres (8 percent of total) and 190 acres (2.5 percent of total) of total Preserve area, respectively. Both communities are dominated by herbaceous vegetation, with the former representing a transitional community interposed between the marine system of the Gulf of Mexico and the terrestrial areas of the Preserve. It is restricted to intertidal zones and is characteristic of coastlines that are subjected to waves of very low energy. Scattered tidal flats, which support very sparse vegetation, are interspersed within the salt marsh. Salt

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marsh is dominated by a dense growth of black needlerush (*Juncus roemerianus*) and provides habitat for a number of distinctive wildlife species, including Marian's marsh wren (*Cistothorus palustris marianae*) and Scott's seaside sparrow (*Ammodramus maritimus peninsulae*). Both species have been designated species of special concern by the FGFWFC. Other wildlife species that depend on habitat provided by the salt marshes of this coastline include the bald eagle, Florida clapper rail (*Rallus longirostris scottii*) gulf salt marsh snake (*Nerodia clarkii clarkii*) and diamondback terrapin (*Malaclemys terrapin*).

Freshwater marshes are scattered widely across the property and grade into salt marsh at some locations. The freshwater marshes of the Preserve are dominated by sawgrass (*Cladium jamaicense*) and an assortment of shrubs, including wax myrtle (*Myrica cerifera*) and St. Johns Wort (*Hypericum sp.*). These systems support an array of wading birds and amphibians. The gopher frog, which has been designated a species of special concern by the FGFWFC, is dependent upon freshwater wetlands as breeding habitat. The little blue heron (*Egretta caerulea*), snowy egret (*Egretta thula*) and white ibis (*Eudocimus albus*) are also listed as species of special concern and are sighted regularly in the Preserve's freshwater marshes.

Open water accounts for approximately 500 acres, or 7 percent of the Preserve area. Natural surface waters include the headwater springs of Minnow Creek and small areas associated with the Weekiwachee River. The vast majority of open water consists of water-filled mine pits, which are remnants of commercial limerock mining conducted prior to the District's acquisition of the Preserve. Disturbed lands on the Preserve are likewise associated with this historic use of the property and account for a land area of 560 acres surrounding the pits. Together, the pits and adjoining disturbed lands comprise 15 percent of the total Preserve area. Reclamation of the pits resulted in the creation of littoral shelves along some sections of shoreline. Overall, there is very little shallow water habitat in these artificially-created lakes, where average depths range between 40 and 60 feet. However, the lakes draw increasing numbers of waterfowl, particularly during seasonal migrations. The disturbed lands surrounding the lakes support very little native vegetation. The substrate in these areas consists of either exposed limerock or a thin veneer of depauperate soil overlying limerock.

In spite of the degraded, unnatural character of the mine area, the open water of the lakes fulfills an important habitat need for wildlife in the remainder of the Preserve. During the dry season and periods of drought, the water may satisfy a critical need of wildlife. Signs of wildlife use are common around the perimeter of the lakes in the Research Area. The lakes are also the primary attractant for the waterfowl species that use Preserve. Finally, the recreational appeal of the lakes provides the potential for a number of recreational uses that could otherwise not be accommodated on the property. It is anticipated that the lakes will serve as the focal point for most recreational use of the Preserve.

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WATER MANAGEMENT BENEFITS

The District acquires land to achieve a number of different water management benefits, in addition to outright preservation or restoration of natural systems. These benefits include protection of water conveyances, enhancement of water quality and maintenance of natural flood controls. The following discussion describes some of the hydrological features of the Weekiwachee Preserve, the functions associated with them and the benefits expected from their management. This includes any land management objectives or strategies that are critical to maintaining or preserving those benefits.

The primary water management benefits served by public ownership of the Weekiwachee Preserve include preservation of natural water conveyances and discharge areas, as well as the maintenance of surface water quality. Also, since roughly 84 percent of the property is in the 100-year floodplain, flood protection is a major benefit obtained from public ownership. Maintaining the property in a natural, undeveloped state provides a buffer against severe storm damage for nearby inland residential communities such as Spring Hill. These water management functions and benefits are described in greater detail below.

Water Conveyance

The Weekiwachee River and associated lowland forests drain a local watershed that is approximately 34 square miles in total area. The Weekiwachee system is part of the larger Upper Coastal Watershed, which extends roughly from the Withlacochee River in the north to the Anclote River in the south. Most of this water comes from recharge areas located to the east of the Preserve, along the Brooksville Ridge, rather than from percipitation. Most rainfall returns to the atmosphere through evapotranpiration.

Surface Water

The Weekiwachee River is a 7.5 mile run that forms part of the northern border of the Weekiwachee Preserve. The Preserve includes about 5.8 miles of the southern bank of the river, which is designated as a Class III surface-water body (suitable for recreational uses and propagation and maintenance of healthy fish and wildlife population). The majority of the river's flow originates from the Weekiwachee Springs complex, a first magnitude spring having an average discharge of 176 cubic feet per second (5 m^3/s; from period of record 1931 to 1984; Fretwell, 1985). The complex lies outside the Preserve's eastern boundaries and is the site of a well-known tourist attraction. Additional sources of flow are contributed by Little Springs and other lesser seeps along the river's course. The flow is rapid through its natural reaches but becomes sluggish downstream in areas where it has been dredged and canalized for riverfront developments. Water movement in the canals is negligible and occurs mainly due to tidal fluctuations.

Numerous other smaller springs and seeps occur in the region in addition to those along the Weekiwachee River. Most of them are tidally influenced and may discharge brackish water. Mud Springs and its associated river emanate from just such a tidally-influenced head and joins the Weekiwachee River near its mouth at the

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Gulf of Mexico. Both the Weekiwachee River and the Mud River serve as conveyance channels for spring discharges and do not receive significant surface runoff from adjacent bottomlands because most precipitation enters directly into the aquifer through the porous land surface (SWFWMD, 1991). It has been suggested that the bottomlands themselves function as one large, diffuse spring (Fretwell, 1985). A shallow watertable, moderate hydroperiod and low frequency of fire are the typical conditions that perpetuate this wet flatland. Water flow through these areas is generally westward toward the Gulf, although evapotranspiration and percolation affect outflow.

The coastline within and adjacent to the Preserve is an area of moderate tidal range (2.4 feet) and very low wave energy. These low energy conditions give rise to extensive salt marshes dominated by black needlerush. The continuous and copious flow of freshwater into the Gulf from the inland areas effectively forms an estuarine environment along the entire coast. Marine flooding of the marsh occurs irregularly as a result of seasonal rises in sea level and by a combination of lunar and windblown tides.

In addition to the natural hydrologic features already mentioned, several artificial features are present inside the Preserve. Nearly 500 acres of the Preserve was mined for limerock prior to the District's acquisition. As a result, a series of 15 pits ranging in depth from 35-60 feet (10 to 18 m) were excavated in the southwest portion of the Preserve. This mining activity exposed the underlying Floridan Aquifer, filling the pits with water. In 1995, reclamation was performed on these artificial lakes as a prerequisite to District acquisition. Additional reclamation was conducted in compliance with mining permit requirements imposed by Hernando County. Several of the lakes were linked together by dredging and culverts to redirect water flow and some of the spoil was recontoured to established littoral vegetation zones along their edges. However, there are still major restoration challenges remaining around the mined area, including: the steep dropoff of the lake edges; altered surface and subsurface soil layers; large overburden mounds and erosion gullies; nuisance and exotic plants and unvegetated limerock and littoral shelf. In addition to the lakes, there is a ditch that extends about 1.25 miles between the mined area and Shoal Line Boulevard. It serves to limit all but pedestrian access along that portion of the Preserve.

Groundwater

The Weekiwachee Preserve lies within the Northern West-Central Groundwater Basin (also called the Coastal Springs Basin, SWFWMD, 1991). An area of approximately 3,400 square miles (8806 km^2) contributes groundwater to the basin, with most of it occurring in the Floridan Aquifer system. This serves as the primary potable water source in Hernando County since the yield and quality of the water is generally high. Groundwater in the aquifer generally flows northwesterly toward Weekiwachee Springs from a potentiometric high southwest of Dade City. The top of the Floridan Aquifer outcrops at the coastline and is approximately 600 feet deep (Yobbi, 1989a). This aquifer is generally unconfined at the Preserve because of the lack of thick clays or low-permeability limestone that may retard vertical flow of water (Fretwell, 1985). As a result, groundwater rises to an

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elevation approximately 10 feet below NGVD at the southern and eastern portions of the Preserve. Infiltration from the aquifer and seepage back into it is quite common in the area. A surficial aquifer system also exists in some areas of Hernando County, although in the area of the Weekiwachee Preserve it is too thin or clayey to comprise a significant secondary aquifer (SWFWMD, 1991).

Hydrographs from two Floridan Aquifer wells located near the Preserve showed a normal seasonal trend with minimum water levels in late spring (Fretwell, 1985). Maximum water levels were recorded in early fall, at the end of the wet season. Water levels for the Weekiwachee Well fluctuated only 10.3 feet (3.14 m) over a 17 year period (1966-1983). Even though water levels have fluctuated seasonally over the years, the hydrographs do not indicate any long-term trend toward higher or lower levels (SWFWMD, 1991).

Several test-wells were drilled on the southwest portion of the property in the vicinity of the mined areas, but these were plugged prior to District acquisition. However, one remnant 3-inch well remains in use as a groundwater monitoring site for tracking conditions in the Floridan Aquifer. It was originally used to supplement water supplies to Hernando Beach residents and it is still referred to as the "Hernando Beach Supply Well." A reinforced foundation remains next to the wellhead from this historic usage. Since the wellhead is adjacent to the area of heaviest recreational use, the liability resulting from leaving this concrete and metal structure in place should be evaluated and, if necessary, the foundation should be removed. The wellhead itself will be raised to a height of three feet and given an aluminum case lock to prevent vandalism (Chris Tomlinson, pers. comm.).

The potential for future groundwater supply development at the site is limited because of its proximity to the saltwater interface and because of the presence of major springs in the area. Pumping from wells or nearby sinks would certainly lower the potentiometric surface of the Floridan Aquifer, thereby increasing saltwater intrusion and lowering spring discharge (SWFWMD, 1991). This would have an adverse impact on the estuaries and other natural communities that rely on the regular, steady flow of freshwater from the Weekiwachee River and other associated sources.

Management Actions and Strategies:

- ❑ **Secure and protect the remnant well for continued use as a monitoring site.**

- ❑ **Refrain from initiating any large-scale withdrawals of groundwater from the Preserve in order to avoid impacts to spring discharge and prevent inducement of saltwater intrusion.**

Water Quality Maintenance

In general the quality of groundwater and surface water at the Preserve is good. Keeping the Preserve in a natural state will help maintain this condition by removing the potential for adverse development on its rivers, estuaries and other sensitive areas. Even so, the Preserve's proximity to the coast and the development already located

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along its borders have a great impact on its water quality. These influences must be considered in order to appropriately manage the Preserve.

The Influence of Salinity

Along the Nature Coast, saltwater is present in the upper reaches of the Floridan Aquifer and within the tidal reaches of the coastal rivers and creeks. Both natural and man-induced actions influence the extent of this saltwater intrusion. Natural causes of intrusion include severe weather, tides and fissures through the aquifer. The underground saltwater/freshwater interface ranges from shallow along the coastline (0-250 feet) to a depth in excess of 2,000 feet further inland. The surface advance of saltwater is largely a function of tidal stages and is held in dynamic equilibrium by the overriding freshwater moving seaward. Along the Weekiwachee River this process results in a salinity gradient which generally extends up to the State Road 597 bridge (Figure1.).

Estuaries occur where freshwater mixes with saltwater at the surface, as at the confluences of the Weekiwachee and Mud rivers and the Gulf of Mexico. The constant, reliable input of freshwater is a critical component in the healthy maintenance of this system. The grassbeds, saltmarshes and other estuarine habitats provide essential foraging and refuge areas for many marine organisms. For instance, oysters (*Crassostrea spp.*) are more tolerant of the lower salinities found in the estuary than are their major predators and commensals. Flow changes caused by freshwater diversion can increase salinity and lead to greater predation and fouling of the oysters (Wolfe, 1990). Many other commercially important fish and shellfish species also depend on estuaries during their larval and juvenile stages. This is of significant importance to human consumers. In Hernando County, nearly 371,000 pounds of shellfish were landed in 1995, representing over 95 percent of all the seafood landings in the county (UF Bureau of Economic Research, 1996). Bluecrabs and shrimp accounted for the majority of shellfish landed.

Much of the productivity of the estuary can be traced to the saltmarshes. The total production of biomass in salt marsh communities may exceed that of intensively-managed agricultural lands (FNAI, 1990). It has been estimated that the economic value of an acre of saltmarsh, based on its overall productivity and contribution to fisheries, is 4-5 times that of high quality farmland (US Fish and Wildlife Service and Minerals Management Service, 1990).

Human activities can have serious negative impacts on this productivity. Flow changes caused by freshwater diversion or alteration can increase salinity. In particular, large withdrawals of water from the aquifer, particularly near the coast, can increase saltwater intrusion. Another major human-induced cause of intrusion is uncontrolled dredging and channel improvements and the excavation of lateral canals along coastal rivers. This may remove natural controls upstream which can lead to lower flow levels and the migration of Gulf tides farther upstream. The water conveyance role of the Weekiwachee and associated rivers is critical to the maintenance of the estuary and the extremely productive habitat it represents. Thus, the long-term protection of the estuary will depend on the preservation of natural

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freshwater flow from the Weekiwachee River and other related sources.

Management Actions and Strategies:

- ❑ **Prevent impacts to the freshwater discharge rate of the Weekiwachee and Mud Rivers by avoiding any large-scale withdrawals of groundwater.**

Elevated Levels of Nitrate

Waters from the Weekiwachee River are characterized by a dilute, relatively constant mineral content (Yobbi, 1989b). However, groundwater nitrate concentrations have been increasing steadily along the entire Coastal Springs basin since the 1960's. The mean nitrate level of the Weekiwachee main headwater spring is 0.53 mg/l, or over 50 times higher than natural background levels (<0.01 mg/l) (Jones et al., 1997). Recent District studies indicate that the greatest local source of groundwater nitrogen is the inorganic nitrate of turf fertilizers used on nearby golf courses and residential lawns. A comparatively minor contribution is made by organic nitrate, with poultry, pasture fertilizer and cattle identified as the greatest sources. Since this nitrogen loading has occurred for so many years it is now entrained in the groundwater system, and there is little that can be done to immediately reduce the load. If nitrogen loading were reduced in the recharge areas to the east of the Preserve, it would likely take a decade or more of flushing time before levels decreased in the Weekiwachee system. Future management of the Preserve must actively promote measures that will minimize additional nitrogen loading to the area. Such measures will include connecting any future restroom facilities to a central sewer system and avoiding the use of managed turf areas or other landscaping that would require the use of fertilizers.

It will be important to determine what impact elevated nitrogen levels are having on the natural communities of the Preserve and the Weekiwachee River channel. At the initiative of the Coastal Rivers Basin Board, the District recently began a two-year study to examine the consequences of the changes occurring in the basin. The study, undertaken by the District's Surface Water Improvement and Management (SWIM) Department and the University of Florida, will examine the nutrient content of the Withlacoochee, Crystal, Homosassa, Chassahowitzka and Weekiwachee rivers. Since nitrogen is a limiting nutrient in the estuary and saltmarsh environments, there is a strong likelihood that significant biotic changes are occurring in these systems as a result of its greater availability. Changes in vegetative composition of the springruns and estuary, relative to baseline conditions documented in the initial stages of monitoring, will provide a basis for projecting future conditions and may suggest methods of remediation. Management recommendations should consider the results of this District study and should be incorporated into future updates to this conceptual plan.

Management Actions and Strategies:

- ❑ **Ensure that any future restroom facilities on the Preserve are sited to accommodate connection to central sewer.**

- ❑ **Avoid establishment of any managed turf areas or other**

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landscaping that would require the use of fertilizer.

- ❑ **Monitor the results of research investigating the impact of elevated nitrates on the natural communities of the Preserve and Weekiwachee River to identify remedial measures for mitigating the impact.**

Elevated Bacteria Counts

In addition to elevated nitrate concentrations, the Weekiwachee River has also periodically experienced increased levels of coliform bacteria. Even as early as 1968, concern was raised about the elevated bacteriological counts found in the lower reaches of the Weekiwachee (SWFWMD, 1968). The highest bacterial counts usually come from the areas of greatest development along the river. Elevated counts can be the result of animal waste and septic tank leachate, stormwater runoff, as well as a result of the natural conditions in the adjacent bottomlands. Coliform counts have exceeded health department standards on several occasions, resulting in closure of the swimming area at Roger's Park. Maintaining the Weekiwachee Preserve in a natural state will eliminate the potential for human-induced coliform contamination originating from the Preserve property.

Former Mining Pits

The former limerock pits are generally considered biologically "sterile" in comparison to a natural lake environment and since the water comes directly out of the Floridan Aquifer, the overall quality is excellent. These conditions have invited an interest in the development of a swimming beach along one of the pits. Such recreational usage may possibly lead to deterioration in overall water quality in the pits, which will be the subject of regular water quality monitoring in order to comply with statutory requirements established for the management of public bathing areas. Adherence with the public health standards dictated by these requirements will be adequate to protect users of the lakes. Increased and continuing use of the pits by shorebirds and migratory waterfowl may also have an impact on water quality through increased nutrient contribution by the birds. The results of regular water quality monitoring, once such a program has been implemented, will be tracked by land management staff for any trends indicative of eutrophication of the lakes.

Management Actions and Strategies:

- ❑ **Evaluate the results of regular water quality monitoring conducted in association with establishment of a public swimming area, to identify trends in nutrient levels.**

Oil Spills

Oils spills may represent the most potentially-catastrophic threat facing the saltmarsh communities of the Nature Coast. The sensitivity of the local coastline to oil contamination has been analyzed and it was determined that of all the various forms of shoreline represented in the region, saltmarsh and mangrove systems are the natural communities that would be most severely affected by oil contamination (Research Planning Institute, Inc., 1984).

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Long-term environmental impacts would be least severe along sandy beaches. It has also been suggested that marshes would be extremely difficult, if not impossible, to clean or rehabilitate following contamination. The District should examine any emergency response strategies that have been outlined for the coastline along the Weekiwachee Preserve and be prepared to assist or expedite the implementation of such measures. In the event that an adequate emergency response strategy has not been elucidated, the Florida Department of Community Affairs should be strongly encouraged to develop such a strategy with a clearly established chain-of-command and assignment of responsibility.

Management Actions and Strategies:

- ❑ **Develop an emergency response strategy for oil spills that may occur along the Preserve's coastline.**

Natural Flood Control

Maintaining the Weekiwachee Preserve as an undeveloped natural area has two major flood control benefits. First, the Preserve functions as a natural buffer between the coast and existing inland developments, providing protection against tidal surge, erosion, high-velocity winds, and other impacts of severe weather. A majority of the Preserve lies within the 100-year floodplain and is extremely susceptible to inundation, as demonstrated during a severe weather event in March, 1993. The wetland areas and floodplains of the Weekiwachee Preserve have a natural ability to store water and slow run-off generated by storms. The loss of this capacity may increase flood heights and runoff velocities elsewhere (FDCA, 1986). Thus the pubic interest in preserving this function is great and is one of the major factors motivating contemporary efforts to preserve such wetlands. This strategy of non-structural flood protection has been embraced by the District and has received greater emphasis as the environmental and fiscal impact of structural controls, and the consequences of their catastrophic failure, have become evident. In addition, structural control is usually a long and costly process, with the price often borne by the majority of the public for the benefit of relatively few.

Unfortunately, communities lying to the west of the Preserve do not receive the major benefit of the Preserve's storm buffering ability. However, in order to alleviate the fears of local residents, the District cut several 100 foot breaches at 500 foot intervals into a berm that parallels Shoal Line Boulevard on the western perimeter of the property. Residents were concerned that the berm would block dispersal of storm surges.

The second flood control benefit of the Weekiwachee Preserve is the effective elimination of future developmental impacts within its boundaries. Unlike other disaster events, flooding occurs in areas which can be defined with a fair degree of certainty. It is therefore possible to prevent catastrophic property damage by avoiding development in flood-hazard areas, like the Preserve. The conservation of this area eliminates the potential cost of rescue operations, disaster relief, rebuilding of flood-damaged public infrastructure, public health precautions and general economic disruption.

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In contrast to coastal flooding, the potential for out-of-bank flooding from rivers associated with the Preserve is nominal. Most of the riverine discharge comes from spring flow and is relatively steady on a year-round basis. In addition, the local watershed is extremely flat and contributes little additional discharge to the rivers. Tidal movement, especially during severe coastal storm surges, is much more likely to influence channel stages and the river floodplain. Only during very high volume storm events (over several days) would the storage volume of adjacent bottomlands be exceeded and produce high discharge rates (SWFWMD, 1991).

Sea Level Rise

One final consideration regarding the water management functions of the Preserve may place increased emphasis and urgency on the need for a thoughtful long-term approach to District stewardship. It has been projected that sea level will rise from 1-2 meters over the next century in response to human-induced global warming trends. If those estimates prove accurate, then 30-80 percent of the nation's coastal wetlands will be inundated by rising water levels (US Environmental Protection Agency, 1987). The ability of coastal wetlands to migrate inland in response to rising tides will be severely limited by a lack of undeveloped uplands adjoining the coast and the relative rapidity of the rise. The marshes of Florida's Gulf Coast, especially those of the Nature Coast, may be among the most resilient given the expanse of natural lands that adjoin the existing salt marsh system and the physical configuration of the shoreline. It has been projected that these salt marshes could expand in total area (USEPA, 1987), although such expansion would be of short duration and would occur at the expense of existing hydric hammock and adjoining upland communities that are also of noteworthy natural value. In any event, the adverse environmental consequences of the projected rise in sea level attaches additional long-term importance to maintaining the integrity of this unaltered coastal system.

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CONCEPTUAL LAND USE PLAN

Special Protection Areas

Certain areas within the Preserve will warrant special protection efforts to more effectively preserve water management functions and/or other outstanding natural values. Any areas that are extremely sensitive to disturbance; that harbor unique or regionally-significant natural features; or that play a critical role in maintenance of the water management values attributed to the property will merit designation as a Special Protection Area. Typically, Special Protection Areas must be discrete features that can be readily defined. Protective measures in these areas must take precedence over other land use and management considerations.

Special Protection Areas designated for the Weekiwachee Preserve include: the Shorebird Nesting Area; the Research Area located in the northeast corner of the mined portion of the Preserve; protection zones around active bald eagle nesting sites; stands of scrub vegetation; the on-site shoreline of the Weekiwachee River; and any archaeological sites known to occur on the property. Additional Special Protection Areas may be designated in the future on the basis of colonization or regular use by an imperiled species, establishment of a colonial nesting site, or in recognition of other significant resource values or concerns.

Shorebird Nesting Area

A central portion of the lake complex has served as a seasonal nesting site for Least terns *(Sterna antillarum)*, Wilson's plovers *(Charadrius wilsonia)*, and killdeers *(Charadrius vociferus)*. Although monitoring of the site during the 1997 nesting season indicated that some of the plover nests successfully fledged young, it was also observed that the terns abandoned the site prior to the end of the nesting season. This abandonment was an apparent response to disturbance associated with recreational use of the area. The nesting area will be closed to human use at the onset of the nesting season and will remain closed until nesting has concluded. Appropriate signage and barriers or fencing will be erected to protect the site from disturbance and exposure to predators. Closure will be discontinued at the conclusion of each nesting season. Measures to reconfigure recreational trails will be considered in order to facilitate uninterrupted recreational use while bypassing the sensitive area around the nesting site.

Management Actions and Strategies:

- ❑ **Close the Shorebird Nesting Area to public access throughout the nesting season.**

Research Area

A segment of the mined portion of the Preserve has been designated a Research Area (Figure 4). This area, which encompasses 4 water-filled mine pits and totals approximately 200 acres in size, is located in the northeast corner of the mined area. Several experimental habitat restoration techniques have been employed at this site to determine their relative effectiveness at restoring natural vegetation to the mined lands. Contiguity of the Research Area with natural lands that

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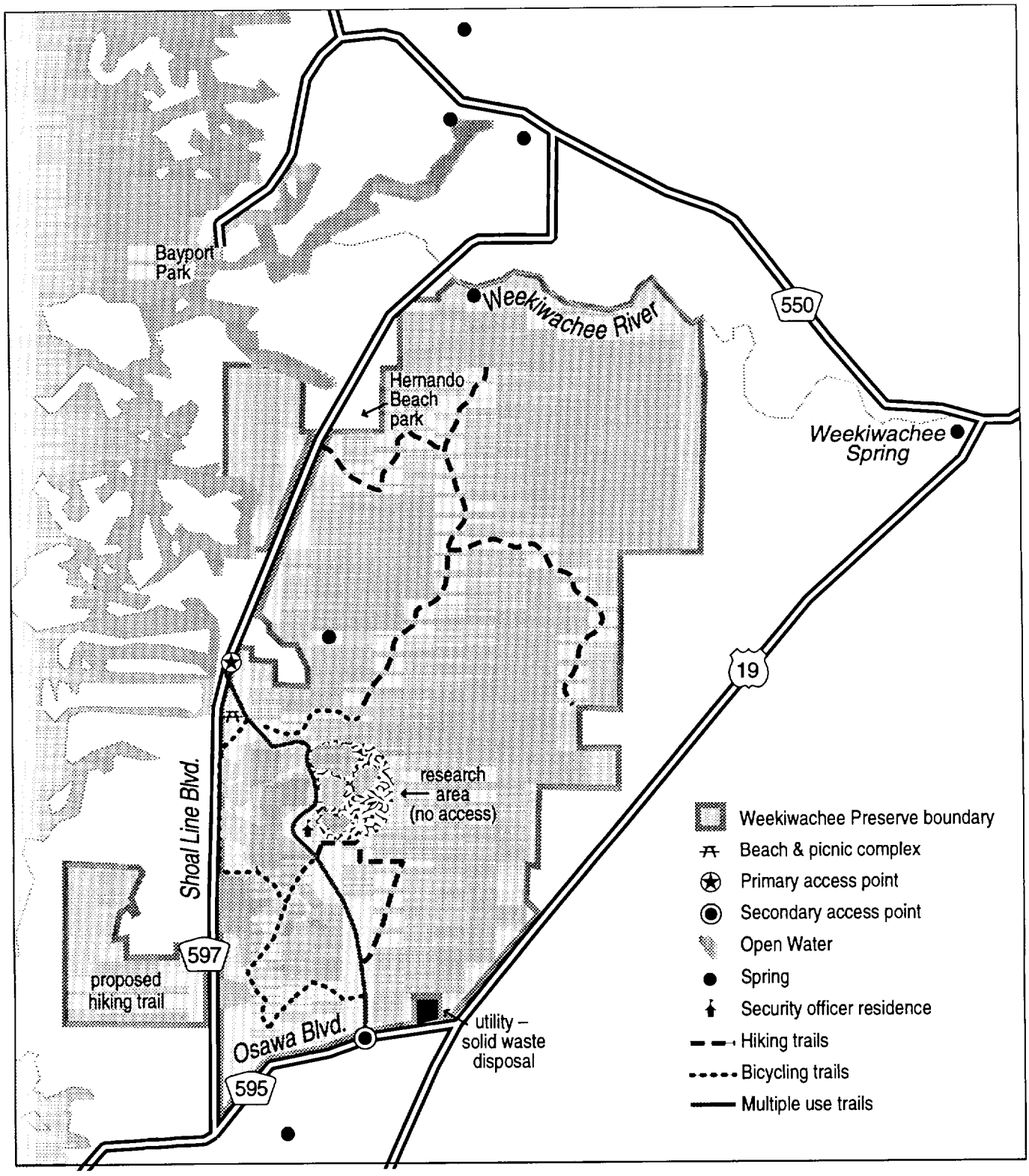

Figure 4 . Conceptual Land Use Plan

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constitute the natural core of the Preserve make restoration at this location a high priority. The reestablishment of vegetative cover will provide additional habitat and cover for wildlife, in addition to enhancing the attractiveness of the pits for wildlife usage. The refinement of restoration techniques through experimentation, and the monitoring of results, will also allow for the application of appropriate technologies to the remainder of the mined lands. Such restoration across the entirety of the mined lands would significantly increase the area's suitability for wildlife while enhancing the aesthetic qualities for recreational users.

A portion of the Research Area will be dedicated to the creation of a sand beach that would be suitable for use by groundnesting shorebirds. As noted above in the discussion of the shorebird nesting area, it is presumed that disturbance associated with recreational use of the lake complex induced abandonment of the site during the 1997 nesting season. The beach creation project will be conducted in order to address long-term concerns regarding conflicts between future recreational use of the lake complex and successful nesting by shorebirds. Various methods will be employed to attract shorebirds to the created beach and to make it attractive for nesting in order to promote a natural shift in future nesting from the existing site to the protected refuge offered by the created site.

The Research Area will remain closed to public access to protect experimental sites and to reserve an undisturbed portion of the lake complex for use by wildlife. Appropriate signage and barriers will be maintained around the perimeter of the area to ensure that the public is clearly informed of its closure to access.

Management Actions and Strategies:

- ❑ **Implement and monitor the success of experimental restoration techniques.**

- ❑ **Maintain closure to public access within the Research Area.**

Bald Eagle Nesting Sites

A total of 3 bald eagle nests have been identified on the Preserve property. Annual monitoring of these nests by the FGFWFC suggests that they are active on a regular basis. The most recent monitoring results indicate that all were active during the 1996-1997 nesting season. Long-term records have documented a cumulative total of 24 fledglings produced by these nests during the 10-year period of 1987-1997.

Riparian areas along the coast or in close proximity to large inland lakes are the preferred habitat of the bald eagle. Historically, the bald eagle population of the central Gulf coast of Florida, together with that of the central Atlantic coast of Florida, comprised one of the most dense concentrations of a large, breeding raptor known to occur anywhere in the world (Florida Committee on Rare and Endangered Plants and Animals, 1978). Wholesale development of the Atlantic coast has essentially eliminated the eagle from that area; however, the west Central coastline, including especially the block of coastal habitat that encompasses the Preserve and extends northward, remains a primary stronghold of Florida's bald eagle population. Eagles are sighted regularly over the forests and water-filled mine pits of the Preserve.

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Individual eagles can differ greatly in terms of their sensitivity to human presence and disturbance. However, disturbance around a nesting site can often induce abandonment of the nest and prevent successful breeding. Eagles that nest in extremely isolated sites may be particularly sensitive to human presence, in contrast to those that nest in more populated areas and may have developed a certain tolerance for human presence. The USFWS has drafted guidelines regarding activities that should be avoided around bald eagle nests (United States Fish and Wildlife Service, 1987). These guidelines, which are described in detail in the Wildlife Management section of this plan, recommend the establishment of exclusion zones around nests. Protective measures for the Preserve's eagle nests will be based on the recommended exclusion zones; however, this shall not preclude the possibility that restrictions on public usage of areas within exclusion zones may exceed those recommended by USFWS.

It is not unusual for a mated pair of eagles to maintain more than one nesting site. As a result, there may be intervals of inactivity at nests that are otherwise considered active. The Special Protection Area status extended to an active eagle nesting site will not be rescinded unless it has experienced at least 5 consecutive years of inactivity.

Management Actions and Strategies:

- ❑ **Establish exclusion zones around active nesting sites, consistent with USFWS guidelines.**

- ❑ **Maintain accurate records of nesting through annual monitoring.**

Scrub Habitat

There are several small stands of scrub habitat occurring on the Preserve. These sites, which account for a cumulative land area of approximately 170 acres, will be managed as Special Protection Areas on the basis of their importance to wildlife and sensitivity to disturbance. Protected species that depend on the Preserve's scrub areas include the Florida black bear, Eastern indigo snake, gopher tortoise, gopher frog and Curtiss milkweed. Although the densely-forested hydric hammock serves as the primary habitat of the Preserve's bear population, these forests cannot provide all the long-term habitat needs of the population. Areas that are inhabited by resident populations of the Florida black bear usually consist of large tracts that support several different types of forested communities (Maehr and Wooding, 1992). Intermingled stands of scrub and pine flatwoods provide valuable areas for foraging. It is suspected that the scrub sites satisfy an essential habitat need of the Weekiwachee/Chassahowitzka bear population on the basis of visual evidence and behavioral observations(Simons, 1990). This species is described as an opportunistic feeder that frequently depends on acorns produced by fall mast as an important seasonal food source (Maehr and DeFazio, 1985). Other highly favored food items, including palmetto berries, blueberries and armadillos, also occur in greater abundance in the scrub than in the adjoining forests. In addition to fulfilling this important seasonal habitat need, the high, well-drained scrub stands may provide important areas of refuge for bears and other wildlife during storm-related tidal flooding of the low-lying hydric hammock that constitutes the bulk of the Preserve.

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Scrub is a fire-maintained community and the primary management need for these sites will be the periodic application of prescribed fire. This need is discussed in greater detail in the Prescribed Burning section of the plan. Protection from disturbance will also represent an important management need. The well-drained sands that are characteristic of scrub cannot support sustained traffic by motorized vehicles, bicycles, or people on horseback. Given the importance of these sites to an array of wildlife species, the shy nature of the Florida black bear, the limited areal extent of scrub, and the inability of the loose scrub sands to support high levels of traffic, human intrusion and disruption will be minimized by reserving access to those on foot only. Vehicular traffic will be restricted to those engaged in official management or related functions.

Management Actions and Strategies:

- ❑ **Use prescribed fire to maintain habitat values for wildlife.**

- ❑ **Prevent disturbance and soil damage by limiting scrub areas to foot access only.**

Weekiwachee River Shoreline

The northern boundary of the Preserve is defined by nearly 4 miles of frontage on the Weekiwachee River. The entire riverfront along this reach of the river is composed of lush, densely-forested hydric hammock. As a wetland community that is frequently saturated and subject to irregular flooding, it is not well-suited to the development of recreational amenities, nor can it support high levels of concentrated physical activity without experiencing possible erosion and compaction of sensitive hydric soils.

Much of the Weekiwachee River shoreline remains in a natural state and provides a beautiful back-drop for canoeists, kayakers, fisherman, and other recreational users of the river. The endangered West Indian manatee *(Trichechus manatus latirostrus)*, which resides in the spring-fed coastal rivers of the region, is sighted regularly in the Weekiwachee. The appeal of the manatee, in combination with the beauty and pristine nature of the river, draw large numbers of recreationists. The recreational use of the river and downstream estuary contribute to the economic base of the surrounding area by drawing residents and tourists to local marinas, bait shops, restaurants, and other nearby commercial enterprises.

In recognition of the natural, aesthetic and economic values of the Preserve's riverfront, it will be managed as a Special Protection Area. No recreational development or physical improvement will be permitted, and access to the Preserve along the designated shoreline will be limited to those on foot. A growing infestation of invasive skunk vine will be aggressively controlled to prevent its spread and maintain the natural character of the river, consistent with District policy regarding invasive exotic species.

Management Actions and Strategies:

- ❑ **Preserve the natural, aesthetic, and economic values of the shoreline by preventing physical alteration or recreational development.**

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- ❑ **Aggressively control the riverfront infestation of skunk vine.**

Archaeological Sites

Although the property does not contain any archaeological sites that are listed in the National Register of Historic Places, it is known to contain a number of sites that have been recorded in the Florida Master Site File. The District will coordinate with the Division of Historical Resources of the Florida Department of State (DHR) to determine the significance of these sites. Any future structures or recreational improvements planned for the Preserve, including foot trails, will be directed away from the known archaeological sites. Management priorities for these sites will focus primarily on the prevention of looting by unauthorized collectors, or "pot hunters". Security personnel assigned to the Preserve will be apprised of the locations of the sites and will be instructed to monitor the areas for signs of looting. Any currently undocumented sites will, upon discovery, be reported to the DHR for entry into the Master Site File and be afforded Special Protection Area status.

Although the District does not generally provide funding to support archaeological investigations and assessments, the Preserve sites may be made available for supervised study by professional archaeological researchers. Proposals to conduct such investigations will be reviewed by the District on a case-by-case basis and must satisfy any requirements or protocols dictated by the Division of Historical Resources of the Florida Department of State, or by accepted methods of professional investigation. The results or conclusions of any such research, including published literature, must be provided to the District for archival purposes and to ensure appropriate future management.

Management Actions and Strategies:

- ❑ **Consult with the DHR regarding the significance of known archaeological sites.**

- ❑ **Prevent disturbance of archaeological sites by directing recreational usage and improvements away from such sites.**

- ❑ **Monitor sites for evidence of looting and implement appropriate security measures.**

- ❑ **Review proposals for professional research to ensure consistency with accepted protocols and methodology.**

- ❑ **Report any undocumented sites to the DHR upon discovery and extend Special Protection Area status.**

Land Management

Prescribed Burning

Approximately 2,372 acres, or 18 percent of the total Preserve area, supports fire-maintained upland communities. These communities, which include scrub, sandhill and pine flatwoods, are dependent upon recurring fire for their long-term maintenance and viability. In the prolonged absence of fire, the structure and species

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composition of these communities would gradually change and be of reduced value to wildlife. Given the degree to which the natural Florida landscape has been altered, and the need to prevent fires from escaping to adjoining private lands, the natural mechanism of lightning-induced fires cannot be expected to fulfill the fire needs of these communities. The use of prescribed fire will be necessary to achieve many of the stated land management objectives for the Preserve. Long-term fire management on the tract will be critical to maintaining these fire dependent communities in a natural, biologically productive state and to maintaining fuel loads that pose less potential for catastrophic wildfires. Appropriate burn seasons and fire return frequencies will be established for each fire-maintained community and will be adhered to whenever possible.

A long history of fire suppression on the lands comprising the Preserve has resulted in high fuel loads in the pine and scrub communities. The duff layer ranges in depth from 1-3 feet in some of the more productive areas, and many of the sand pine stands are extremely dense with low limbs that could act as ladder fuels and promote destructive, hard-to-control wildfires. Many of these on-site uplands are nested in a matrix of low-lying hydric hammock that will function as a natural barrier to the spread of fire and cleared fire lanes are maintained around the perimeter of the Preserve to prevent the off-site spread of fire. Smoke management may ultimately be the most problematic issue associated with implementation of a prescribed burning program due to the density of residential and commercial development adjoining the property and the proximity of heavily-traveled transportation corridors. Prescribed burn units have already been identified and initial hazard-reduction burns, designed to reduce fuel loads and the threat of wildifes, will be conducted in a timely manner. The constraints discussed above necesitate that burn units be small in size and that the prescription parameters guiding the scheduling of burns be carefully defined. Parameters such as wind speed and direction, relative humidity, and soil moisture levels will be carefully monitored prior to igniting any on-site prescribed fires to ensure that fires and smoke can be safely and effectively controlled.

Salt marsh communities are naturally susceptible to fire but the importance of recurring fire to maintenace of these communities remains undetermined. The natural disturbance mechanisms that maintain many coastal systems are primarily physical and geological processes such as wind, wave and tidal actions (Montague and Wiegert, 1991). Very little research has been performed to determine historic fire patterns in coastal vegetation communities or to identify the advantages and disadvantages of burning salt marshes. The USFWS currently utilizes prescribed fire to control encroachment of woody species and to enhance habitat value for wading birds, ducks and geese in the salt marshes of the Chassahowitzka National Wildlife Refuge (Olson, pers. comm.). It has been hypothesized that fire may also function to maintain open channels, or tidal creeks, that permit movement of salt marsh invertebrate species between areas of densly-vegetated marsh and open-water breeding ponds. One of the potential negative effects of marsh burning may be a reduction of detritus in both the water column and sediments. Since detritus is the food base for the estuarine community, severe depletions in such food

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resources may result when burns are conducted. Literature on the burning of salt marsh will continue to be assessed to ascertain prescribed fire needs. If prescribed fires are conducted in these areas, they will be applied conservatively using small burn units on 5-6 year rotation cycles. The USFWS will be consulted to track the success of prescribed burning in the salt marshes of the Chassahowitzka National Wildlife Refuge.

Visions of fire burning through a natural area often evoke an understandable apprehension among neighboring landowners. The public is sometimes skeptical of the need for prescribed fire and may harbor fears or concern for their physical safety and for that of their property. The District will, upon request, provide workshops or seminars for residents of the area surrounding the Preserve apprising them of the rationale for conducting prescribed burns on the property. To the extent feasible, the District will also attempt to provide advance notice of impending prescribed fires to neighboring homeowners to minimize concerns and discomfort.

Management Actions and Strategies:

- ❑ **Maintain cleared fire lanes around the perimeter of the Preserve.**
- ❑ **Reduce fuel loads and the threat of wildfire in fire-maintained communities by conducting fuel-reduction burns.**
- ❑ **Restore, maintain or enhance habitat values of fire-maintained communities by implementing a prescribed fire program that mimics the natural frequency and seasonality of fire in these communities.**
- ❑ **Prescription parameters for prescribed fires will place a priority on careful management of smoke to avoid fouling of populated areas and major transportation corridors.**
- ❑ **To the extent feasible, provide advance notification of prescribed fires to surrounding residents and other affected members of the public.**
- ❑ **Provide educational workshops and literature to the community explaining the importance of prescribed fire to resource management and hazard reduction.**

Exotic Species Management

Management of exotic, or non-native, flora and fauna on District-held lands is addressed by District Procedure 61-9, *Control of Terrestrial Exotics on District-Owned Lands (Flora and Fauna)*. Exotics pose one of the most severe threats to the function and integrity of native landscapes and the ultimate goal of the exotics program is complete eradication of the most invasive species. At a minimum, exotics on the former mine complex will be maintained below current density levels and areal coverage. No encroachment into natural systems will be tolerated, and spot treatment of species that have invaded into

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these communities should occur immediately upon observation. Exotics are problematic on the Weekiwachee Preserve, especially on the old mine lands and adjacent natural communities, and along the Weekiwachee River shoreline. Exotic plant control efforts around the mine pits will focus on eradicating and controlling Brazilian pepper (*Schinus terrebinthifolius*). One of the primary seed dispersal mechanisms for pepper is via wildlife, especially songbirds. The Preserve's black bear population may be another vector for the spread of pepper. Bears have been observed feeding on the ripe fruits of the pepper plants, which fruit prolifically in this portion of the property. Therefore, the ability of Brazilian pepper to encroach into natural systems on the site is high. An eradication strategy has already been implemented at the mined area, and treatment of spot invasions in the natural areas surrounding the mined lands have also been initiated.

Cogongrass (*Imperata cylindrica*) is another non-native species known to aggressively invade natural areas in Florida. Due to its ability to disperse by both seed and vegetative means, and its proclivity for invasion of a variety of habitat types, it will also be a primary target of eradication efforts. Initial herbicide treatments on all known infestations of this plant have already been conducted. Treatment of invasive vines, specifically air potato and skunk vine (*Paederia foetida*) will also receive high priority. Severe spot infestations of these species have been observed along the Preserve's Weekiwachee riverfront. Control of this infestation, given the inaccessibility of the location by overland approach, will require that the sites be accessed via the river.

Cattail and torpedo grass that occur on the littoral zones of the mine pits will be treated on an as-needed basis. These species probably are serving to stabilize the newly created littoral shelves and functioning as filters to trap fine sands eroding from the limestone substrate. Herbicide treatments followed by revegetation will be conducted in phases.

A former Hernando County solid waste transfer station was located on the north side of CR 595 (Osowaw Boulevard), directly adjacent to the southern access gate and abutting the south side of the property. This facility, now closed, contains yard debris and plant cuttings from local residents, and is a point source for the introduction of exotic and nuisance species into the Preserve lands. With the opening of a new facility a short distance to the east, Hernando County is in the process of cleaning up the old site. Following several applications of post-emergent herbicides, one or two treatments of a nonselective pre-emergent may be beneficial to prevent the establishment of assorted nuisance and exotic plant species. The retired site and the perimeter of the new site, which is also adjacent to the Preserve, will be monitored periodically to ensure that there is no spread of undesirable plant species onto the property.

The residential and commercial developments that border most of the Preserve represent additional sources of potential introduction of exotic species. Where property boundaries abut these areas, regular monitoring will be conducted to prevent encroachment of exotics into natural areas.

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Management Actions and Strategies:

- ❑ **Aggressively control known infestations of invasive exotic species and any nuisance species that interfere with the success of restoration projects.**

- ❑ **Monitor the Preserve, particularly boundary areas, for new occurrences of exotic species and eradicate such occurrences to prevent establishment.**

Forest Management

Pine plantation comprises 54 acres, or less than 1 percent, of the total Preserve land area. Approximately 125 acres of planted slash pine, which were installed along the upland perimeters of some of the mine pits and also along road frontages, remain in former plantation sites. These pines range in age from 21 to 25 years (SWFWMD, 1996). The stands were heavily thinned prior to District acquisition of the property, and the groundcover and understory species typical of pine flatwoods have begun to regenerate at these sites. These stands will be maintained in the present condition until future thinning harvests achieve natural stand densities. In stands that are known to support pines of non-local, or "off-site", origin, the ultimate goal will be to remove the off-site species in favor of naturally occurring species.

The District's timber management program has historically established timber management zones on altered sites only, particularly pastures. Natural communities are not displaced in order to site silvicultural operations. Within the Preserve area there are no appropriate sites available for the establishment of a productive plantation. Altered lands on the Weekiwachee Preserve are extensive, but are almost exclusively old mine lands targeted for reclamation and recreation. Due to the highly altered soil strata and the absence of adequate soil depths, establishment of productive pine plantation on the mine landscape is not feasible.

Management Actions and Strategies:

- ❑ **Refrain from establishing or maintaining plantation on the Preserve in recognition of the marginal suitability of the site for silviculture, and of the need to maximize the extent of protected natural habitat in the local area.**

- ❑ **As trees in pre-existing plantation sites achieve appropriate age structure, conduct thinning harvests to restore a natural canopy coverage and promote recovery of natural understory and groundcover vegetation.**

- ❑ **Remove "off-site" pines where they occur and re-establish a canopy consisting of native species and local stock.**

Game Wildlife Management

Several factors make the Weekiwachee Preserve unsuitable for the intensive game management practices associated with tracts made available for public recreational hunting. The property's long, narrow configuration and adjacency to

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heavily-populated areas and major transportation corridors render it unsafe for hunting with firearms. Management goals and needs related to threatened non-game species call for limiting public use of the natural areas of the Preserve to only passive, non-consumptive activities. The imperiled status of the resident black bear population, and the species' need for seclusion, lends additional emphasis to the need for maintaining the Preserve as a haven where bears and other wildlife are protected from a seasonal infusion of hunters.

Over 28,000 acres of publicly-owned land are made available to sport hunters in the Chassahowitzka Wildlife Management Area (Figure 3). Other publicly-owned tracts that are open for hunting provide a combined total of more than 243,000 acres of land that are available to hunters in the local area. This amounts to the vast majority of public landholdings in the region and provides an abundance of hunting opportunities. It also places a premium on sites that are reserved for year-round use by non-consumptive recreationists.

Hunting can fulfill an important wildlife management need when populations of typical game species exceed the carrying capacity of the habitat available to them. Overpopulation can result in damage to the natural resources of an area and produce unhealthy conditions in the population. Prior to the District's acquisition of the Preserve property, the site was leased for hunting and white-tailed deer was a favored game species. At present, deer populations appear to be moderate to high; however, there is no evidence of the vegetative destruction normally associated with overpopulation. Damage from feral hogs also appears to be minimal. If these or other species attain numbers that threaten the health and stability of the population, or the resources of the Preserve, then the District will consider conducting special public hunts as a management measure.

Management Actions and Strategies:

- ❑ **Reserve the property for non-consumptive recreational uses.**
- ❑ **Monitor the Preserve for evidence of game species populations that have exceeded the carrying capacity of the Preserve.**
- ❑ **Implement special public hunts, as necessary, to control wildlife populations.**

Habitat Restoration

A large percentage of the property remains in a relatively natural condition. The former mine area constitutes the most severe category of altered lands within the project boundary, and should be a priority target for restoration efforts. Minimal reclamation standards have already been achieved, including littoral zone creation, rechanneling of surface water flow, and minor recontouring of overburden. For various reasons, the mine pits should be maintained at current depths; these reasons include the recreational and ecological value of these features in their current condition, the inadequate amount of overburden available to fill the pits, and the need to replace upland soils with existing material.

Currently, the mine features provide habitat niches for an array of protected and rare species that was formerly provided by

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natural communities which have been impacted to such a degree that they can no longer provide the required habitat function. For instance, rare plants adapted to karst outcroppings and alkaline conditions have colonized the steep walls of the mine pits, and various shorebirds are utilizing the exposed lime substrate as nesting habitat. Reclamation should be designed to either enhance habitat for these species or to provide vital habitat for other species that may occupy the site.

Revegetation of the limestone surface around the pits must be preceded by reestablishing a soil layer in some areas. The quality of stockpiled overburden will be determined via borings and, if appropriate, the overburden will be spread as evenly and deeply as possible at selected locations. Only plants adapted to high alkalinity levels and exhibiting high salt tolerances should be installed. Due to the limited depth of the soil, the installation of small trees and shrubs should be favored over large trees, especially in areas slated for recreational activities and facilities. Cattails and torpedo grass that currently dominate the littoral zones around the lakes should gradually be treated and replaced with more desirable macrophytes. Methods to recontour and stabilize the interface between the sand pit on the east side of the mine land and the existing sandhill and sand pine scrub habitat may be considered. Reclamation efforts should also target the eradication and control of exotic species, perhaps by removing or reconfiguring features that provide optimal habitat for the most invasive species.

The four lakes in the northeast quadrant of the mine complex have been designated a Research Area. Several experimental restoration efforts are underway in this area. Black bears and other wildlife utilizing this area will be monitored and efforts will made to restore or encourage habitat conducive to increased black bear and shorebird utilization. Efforts will be made to minimize the human impact in this area. Physical and visual buffers (vegetation, boulders, cables) may be established along the west boundary of these pits and the main north-south access road to deter human encroachment. Restoration in this area will focus on wildlife habitat needs.

The area designated for the most intensive recreational use (the western lake area) should be restored to increase aesthetic value, ensure public safety, and enhance fishery production. To increase the aesthetic value of the property, the breaches cut into the berm that extends parallel to Shoal Line Boulevard may be vegetated. It may be possible to spread a thin layer of overburden at these gaps to make them available for plant installation. Small trees and shrubs should be utilized in these areas.

The following provides a tentative restoration plan and implementation schedule for the Weekiwachee Preserve. Additional information, including on-site data and new restoration techniques, will continue to be collected and analyzed to direct restoration and allow appropriate revisions to the plan outlined in this document.

The most severe landscape impacts on the property have resulted directly from limerock mining activities. Approximately 800 acres were mined in the southwest portion of the proposed Oak Sound Development of Regional Impact prior to District ownership. Mining resulted in a series of pits and an exposed limestone

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surface which supports sparse vegetation. The pits range in depth from 40-60 feet, and comprise approximately 430 acres of open water surface. The surface and subsurface soil layers were removed or drastically altered during the mining activities, and large overburden mounds were left in open areas around the pits. A berm approximately 2,900 feet in length was constructed parallel to Shoal Line Road as a visual and sound barrier to mining operations. In 1995, reclamation was performed prior to District acquisition to establish littoral zones, vegetate slopes, redirect water flow, and recontour spoil. Five breaches, each approximately 100 feet long, were cut into the berm at 5oo foot intervals in order to alleviate fears from local residents that it would block disbursement of storm surges and extreme tidal conditions during major storm events. Erosion gullies, nuisance and exotic plants, large spoil mounds, unvegetated limerock and littoral shelf, and deep pits still pose restoration problems.

The mine pits and the surrounding landscape are used heavily by local and migratory wildlife populations, particularly birds. Many of the mine features at least superficially replicate natural habitats which have been lost to development, fragmentation, and human disturbance. This artificial surface feature can be manipulated best to benefit avians. Therefore, shorebirds, waterfowl, wading birds, and songbirds will be monitored in order to ascertain how the current landscape is being utilized and then restoration efforts will be implemented to enhance this habitat function. Birds are also good indicators of how the restoration is progressing, since they are highly visible, very mobile, and require a variety of habitat parameters in order to meet their life needs. Preliminary data suggest that the mine pits provide significant habitat for waterbirds (migratory ducks, terns, gulls, anhingas, cormorants) and, to a lesser extent, marshbirds and shorebirds (plovers, killdeer, oystercatchers, herons, egrets). Although depth profiles have not been generated for all the pits, many of the diving ducks prefer larger open water bodies and deeper depths than wading birds. Habitat parameters that may require evaluation for various avian species include open water requirements, water depth, shoreline slope, shoreline vegetation, existing water conditions, and food/cover plants.

In this plan, each type of restoration is assigned to a classification indicating its priority. Priority 1 is the highest priority and Priority 3 is the lowest. This plan may be revised as more data are collected.

PRIORITY I

The two most urgent problems pertaining to restoration within the mine complex are erosion and exotic plant proliferation. Also requiring attention is hydrological restoration of forested wetlands, enhancement of shorebird nesting habitat, and establishment of plant donor sites.

Erosion - Dissolution of the limestone as surface water drains into the mine pits is causing large gullies and washouts. If left unresolved, sediment will continue to be deposited in the open water pits, degrading water quality and threatening the plant and animal life that is now utilizing the area. More importantly, the formation and expansion of deep gullies pose a safety risk to District staff and the general public, and eventually will reduce or eliminate access at some locations.

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As a condition to purchase of the property, the District required the previous landowner to seed grasses and install sod directly onto the limestone surface. This method has not resulted in sufficient revegetation of the mine surface. Methods used by limerock mines in the local area to control erosion consist primarily of revegetation. Overburden is distributed uniformly over the reclamation unit at depths ranging from 6" - 12" and fast-growing herbaceous plant material is directly seeded over it. Turf grasses such as bahia or bermuda are commonly used. In addition, mixtures of little bluestem and native wildflowers have been used to successfully reduce erosion. The planting method suggested to minimize the effects of erosion while simultaneously establishing native ground cover is interseeding. Using this method, the entire reclamation unit is seeded with native vegetation, and strips of a suitable turf grass are planted at uniform intervals perpendicular to surface runoff flow into the pits. In areas designated for recreation, overburden may be spread at 6" and then seeded with turfgrass.

One technique currently being used to control erosion and establish vegetation cover is the Bonded Fiber Matrix System, which is a hydraulically-applied polymer that bonds to the soil surface, protecting against erosion caused by wind, rain, and surface flow. The compound can be used in combination with a hydroseeder. This method will be investigated more thoroughly to determine if it may provide desired reclamation results.

Control of erosion by distributing overburden on the limerock surface and planting vegetation tolerant of alkaline conditions should proceed as soon as possible. Prior to spreading, all exotics present on the overburden should be treated. The soil texture of the overburden is classified as sandy loam and is an adequate planting substrate; however a phosphorus/magnesium fertilizer should be added prior to or during planting/seeding to restore needed elements to the soil. Aesthetic plantings around those mine pits slated for recreational use should be conducted simultaneously with erosion control measures and should consist of small native trees and shrubs at strategic locations.

Exotic and Nuisance Plants - Exotic and nuisance vegetation is problematic throughout the Preserve area, but poses the most severe threat in the highly-altered mine landscape. The complete removal of native vegetation and the surface and subsurface soil layers, and subsequent exposure of the limerock substrate, has created conditions conducive to the establishment and proliferation of exotic and nuisance plant species. Brazilian pepper (*Schinus terebinthifolius*) is probably the most significant of these species. Other exotic species that occur on terrestrial portions of the mined landscape include cogongrass (*Imperata cylindrica*), pampas grass, lantana (*Lantana camara*), natal grass (*Rhynchelytrum repens*), castorbean (*Ricinus communis*), air potato (*Dioscorea bulbifera*), brake fern (*Pteris vitatta*) and the golden raintree (*Koelreuteria formosana*). On the littoral shelves, dense cattails (*Typha* spp.) are preventing the establishment of more desirable vegetation. In areas not dominated by nuisance cattails, non-native torpedo grass (*Panicum repens*) is encroaching.

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Control of exotic and nuisance species must be conducted simultaneously with reintroduction of native plant cover in the mined landscape. Movement of overburden that is heavily infested with exotic species and their seeds may result in widespread reinfestation of these same exotics. One method that may control exotics, particularly Brazilian pepper, entails recontouring the spoil piles. In South Florida, Brazilian pepper has been found to be a favored food for black bears, and if bears are found to heavily utilize this species at Weekiwachee, elimination of Brazilian peppers should be followed by replacement with an ecologically-equivalent species such as saw palmetto or swamp dogwood. Methods of cost-effective soil sterilization will be further investigated. Phosphate mining companies will also be contacted to identify others methods to control exotics on material needed for later restoration efforts.

Shorebird Nesting

The literature indicates that several shore nesting birds utilize mined landscapes as nesting habitat. In 1996, several shorebird species were observed using the limestone substrate for nesting, including least terns, Wilson's plovers and killdeer. Several characteristics make mined landscapes attractive to shore-nesting species. These include light-colored substrate, lack of adjacent forested habitat, and proximity to an open water body that is similar to oceanic habitat - an unvegetated littoral shelf that drops rapidly to a deep water environment. Many shorebirds, including least terns, return to the same nesting habitat year after year. As such, it is imperative that suitable breeding sites be reserved for continued use.

Artificial beach habitat has been created at St. Marks National Wildlife Refuge. Similar work is proposed for the Preserve. Habitat enhancement would consist of spreading a sand mixture of suitable grade, porosity, and color onto the limestone substrate at the recommended configuration and depth. The best location to create shorebird nesting habitat will be in the Research Area, which would provide a protected and secluded site. Recreational use centered around the mine lakes appeared to induce abandonment of the existing nesting area during the 1997 nesting season (see discussion of Special Protection Areas). If it is determined that the proximity of forested edge in the Research Area would result in high incidences of egg and chick predation, then another alternative may consist of creating nesting habitat on the large east-west oriented island located in the northwest pit. An island would provide safety from predators and isolation from recreationists using the property. Nuisance plants may also be less easily dispersed onto the island due to its remoteness from seed sources. The need to control erosion will need to be evaluated against the need to replace dwindling nesting habitat. Ideally, a technique that controls erosion and enhances nesting habitat should be found, although the need to control erosion should take precedence over creation of nesting habitat.

Hydrological Restoration of Forested Wetland

Hydrologic restoration of the forested system to the south of the lake complex should be implemented immediately. Due to the extensive effort that will be required to repair the mine landscape, any simple procedure that can be conducted now that

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will prevent large expenditures at a later date should proceed before the benefits are lost. According to representatives from Coastal Engineering, the wetland previously referred to was cleared just prior to acquisition by the District. Currently, species such as willow, red maple, sawgrass, and weedy ruderal vegetation are recruiting. Soil disturbance has been minimal and many of the hydric soils remain intact. Installation of one or more culverts under the existing limestone road should effectively reestablish hydrology, preventing oxidation of the soil and providing a seed source for progressive colonization of the site by wetland species. Planting of red maples, dahoon holly, and cypress would accelerate complete restoration of this wetland, and will be conducted at a later date.

Establishment of Plant Donor Site

Restoration of the littoral zones around many of the mine pits can be readily accomplished using a combination of herbicide application followed by planting of herbaceous species. The plant material can be propagated in some of the small depressions found on or near the mine complex. Pickerelweed, arrowhead, pond flag, soft rush, cordgrass, sawgrass, spikerush, and smartweed can be planted and allowed to proliferate in these areas, and then harvested periodically for installation on unvegetated littoral shelves. Establishment of on-site donor wetlands will eliminate the need to purchase the material or harvest it from natural on-site wetlands. Plant installation could be conducted during special "Restoration Days" that utilize both District staff and volunteers from the community and various non-profit organizations.

PRIORITY II

Littoral Zone Restoration

Restoration of the aquatic, open water systems should be conducted to improve habitat for water birds, which will entail enhancing and diversifying vegetation composition and structure. These improvements should lead to an increase in invertebrate populations and subsequently, fish populations. The mine pits contribute approximately 430 acres of open water surface to the site and thousands of feet of littoral zone. Currently, most of the littoral shelves are vegetated by cattails (*Typha domingensis*). Although this species can be problematic, it's not as aggressive as *Typha latifolia*. Restoration of the littoral zone will entail progressive replacement of cattails with more desirable macrophytes such as arrowhead, pickerelweed, pond flag and smartweed. Bulrush should be one of the dominant species used along the littoral shelf since it competes well against cattail and is also an extremely valuable duck food along the Gulf coast. Submergent species heavily favored by aquatic turtles and many duck species are already present, including muskgrass and pondweed. Depending on salinity measurements (>15-20 ppt), widgeongrass may be considered for installation in the westernmost pits. Prior to planting, cattails will be removed using a combination of manual removal and spot herbicide treatments. Floating plants and floating leaf plants such as water lotus (*Nelumbo lutea*) may be installed in the open water areas to provide cover for fish and additional substrate for invertebrates. Logs and floating basking sites for aquatic reptiles may also be considered for placement around the littoral zones and in open water.

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Wetland Visual Buffers

Wetland visual buffers will be established between the lake area dedicated to recreational use and those of the Research Area in order to enhance wildlife function. Forest species will be installed adjacent to the ponds and parallel to the defined road. Due to the limited depth of soil, the species chosen for planting must be of sufficient size to provide a visual buffer, yet small enough to receive adequate root penetration and stability in the shallow soil. Suggested species include buttonbush, swamp dogwood, dahoon holly, wax myrtle, and coastal saltbush.

Forested Corridor Linking Mine Lakes to Natural Forest

Several large mammals utilize the lake complex, although the degree of use and habitat function of this area for some of these species is not yet understood. Black bear, deer, and bobcats are known to frequent the area. Signs of these species are frequently observed and several sightings have been documented. A forested connection to the lakes of the Research Area will be created to allow these species to continue to utilize the open water surfaces as public use increases. Forested landscape can be created by spreading overburden at depths of 5-6 feet to connect to existing forests. The forested corridors will be created around an existing wetland core. Both the wetland habitat and the created upland will be planted with tree and shrub species. Upland groundcover can be restored in methods similar to those discussed previously for erosion control.

PRIORITY III

Wading Bird Rookery

Wading birds are frequently observed foraging on the littoral shelves. However, the mine lakes are not as suitable for rookery sites as are shallow marshes and ponds. This is due to limited availability of suitable shallow habitat; low vegetation to water edge ratio; the ability of prey to quickly escape into deep waters; and absence of a diverse selection of such prey items as fish, insects, invertebrates, amphibian and reptile species. Wading birds give birth to young which require protected conditions, and can carry food to their young over long distances since the adults regurgitate their food to their nestlings. Hence, wading birds tend to select for protected, safe nesting sites as opposed to local food availability. One of the favored nesting habitats for these species are shrub/tree islands that are surrounded completely by open water. Great blue herons prefer tall trees for nesting, including red maples, oaks, and mangroves. A number of species will nest in willows; these include wood storks and many of the heron and egret species. Natural recruitment of willows is already occurring on some of the smaller islands, and can be encouraged further by grading surfaces to a lower elevation.

Upland Visual Buffers

Prior to District ownership, berms were erected parallel to Shoal Line Road as sound barriers and visual buffers to the active mine operation. Following closure of the mine and acquisition by the District, gaps were cut into the berm. These gaps, which average 100 feet in length, were constructed to existing grade to allow storm surges to flow

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onto the Weekiwachee property unimpeded. The berms are vegetated primarily with Brazilian pepper, although eastern cedar, cabbage palm, dahoon holly, and pines are also present. Optimal upland species to install are those tolerant of alkaline conditions and include those native species which appear to be well-established on the berms: cedar, cabbage palm, dahoon holly, oaks, and pines. If left unplanted, some native species will colonize, but Brazilian pepper may also become problematic.

FUNDING SOURCES FOR RESTORATION

The suitability of the Weekiwachee Preserve for establishment of a mitigation bank to help offset restoration costs appears limited. No significant hydrologic alterations are evident and the riverine systems, hydric hammocks, estuarine marshes and springheads appear unimpaired. As a rule, agencies regulating wetland impacts grant very little credit for upland restoration/reclamation and littoral zone creation/restoration. Exceptions may be granted if an upland restoration technique restores hydrologic function to an important system, provides significant habitat value for listed species, or provides important regional functions.

The location and configuration of altered uplands in the Preserve severely limits alternatives for restoration that could result in wetland enhancement credit. The mine landscape may possibly qualify for mitigation credit since upland restoration may enhance surface water quality of the pits and improve wildlife habitat in both the uplands and wetlands. The District will be amenable to exploring options or alternatives whereby on-site restoration projects can be funded as compensation for off-site impacts through a mitigation banking approach. In the absence of such external funding sources, funds available through the Water Management Lands Trust Fund will be used to finance restoration projects.

Biodiversity Management

PLANT COMMUNITIES

The composition and vigor of the Preserve's native plant communities, and the species diversity of these communities, will be enhanced and maintained primarily through implementation of the prescribed fire program. Prescribed fire will restore the vigor of the Preserve's fire-maintained communities which are currently in a degraded, overgrown condition as a result of years of fire exclusion and suppression. All natural communities will also be protected from impacts associated with recreational use by excluding incompatible uses. The eradication and control of exotic species, which has been addressed in other sections of this plan, will also be critical to maintaining the biodiversity of the Preserve.

PROTECTED FLORA

A number of protected plant species have been confirmed on the Weekiwachee Preserve, and several others are anticipated to occur either on lands already acquired or proposed for acquisition. Most of these species are afforded sufficient protection by the preservation status of the land and by implementation of natural systems management strategies such as exotic vegetation control and prescribed fire application. Vehicular access will be confined to a disturbed area at the Preserve's

periphery, which will prevent disturbance to natural areas. Collection of plant or animal species for commercial or private use will not be permitted on any portion of the Preserve and this policy will be strictly enforced. Such collection will be permitted only in association with approved research projects.

Management guidelines for protected plant species will be implemented as described in Table 1. Several of these species occur in wetlands and will not require special management beyond protection from illegal collection or harvest. Inventories of plant species will continue to be updated and species-specific management practices will be implemented as necessary. For any federally protected plant species discovered on the property, USFWS recovery plans will be obtained and special management recommendations implemented. Plant species of special concern will be mapped using a Global Positioning System and these sites will be added to the Land Management GIS Database.

General Wildlife Management

The Preserve provides habitat for a great diversity of wildlife. These range from the relatively common, such as white-tailed deer and raccoon, to species less common or more rarely sighted, including Florida black bear, bobcat and river otter. Like the plant communities discussed previously, the primary management tool for maintaining populations of these species will be prescribed fire. The foraging value of the Preserve's natural communities will be enhanced and maintained for a broad array of wildlife through use of prescribed fire. Populations of typical game species, as noted in the section of the plan devoted to game management, will be controlled through special hunts, as necessary. At present, there is no apparent need to implement such hunts and hunting will be prohibited on the property.

Protected Wildlife

Many rare and protected animal species have been documented on the Weekiwachee Preserve and many others are suspected to occur there. Natural landscape management techniques, including prescribed fire, exotic vegetation control, and natural systems restoration/mine reclamation will be conducted to maintain or expand suitable habitat and help perpetuate these species. When necessary, species-specific management strategies will be employed. Protected species known to occur on the property, and their current status, are listed in Table 2.

For any federally protected wildlife species discovered on the property, USFWS recovery plans will be obtained and special management recommendations implemented. Areas that serve critical habitat needs for listed species, such as rookeries and denning sites, will be mapped using a Global Positioning System and these sites will be added to the Land Management GIS Database.

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Table 1. Protected plant species documented at the Weekiwachee Preserve, their current listing status, and general management needs or guidelines.

FDA	USFWS	SCIENTIFIC NAME	MANAGEMENT GUIDELINES
T		*Acrostichum aureum*	Wetland protection
E		*Anemia wrighti*	Access restrictions
E		*Asclepias curtissii*	Prescribed fire application.
T		*Dryopteris leudoviciana*	Prevent disturbance in hydric hammock
T		*Garberia hetrophylla,*	Prescribed fire application.
T		*Lilium catesbaei*	Enforcement of no collecting policy.
T		*Lobelia cardinalis*	Enforcement of no collecting policy.
E		*Matela floridana*	Wetland protection.
CE		*Osmunda cinnamomea*	Enforcement of no collecting policy and wetland protection.
CE		*Osmunda regalis*	Enforcement of no collecting policy.
T		*Pinguicula caerulea*	
CE		*Rhapidophyllum hystrix*	Enforcement of no collecting policy.
CE		*Zamia floridana*	Enforcement of no collecting policy.
T		*Zephyranthes atamasco*	Enforcement of no collecting policy.

Key: T = Threatened
E = Endangered
CE = Commercially Exploited

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Table 2. Protected wildlife species documented at the Weekiwachee Preserve, their current listing status, and general needs or guidelines.

GFC	USFWS	SPECIES	MANAGEMENT ACTIONS
SSC	T (S/A)	American Alligator *(Alligator mississippiensis)*	Warning signs in swimming area
SSC		Gopher Tortoise *(Gopherus polyphemus)*	Prescribed fire for habitat maintenance
T	T	Eastern Indigo Snake *(Drymarchon corais couperi)*	Prescribed fire for habitat maintenance. Resource protection against illegal collecting and user education.
T		Short-tailed Snake *(Stilosoma extenuatum)*	Minimize barriers in sandhill/scrub soils. Resource protection and user education.
SSC		Gopher Frog *(Rana capito)*	Identify and maintain breeding ponds. Maintain tortoise habitat
SSC		Limpkin *(Aramus guarauna)*	Littoral shelf reclamation
SSC		Little Blue Heron *(Egretta caerulea)*	Littoral shelf reclamation. Protect rookeries.
SSC		Snowy Egret *(Egretta thula)*	Littoral zone reclamation. Protect rookeries.
SSC		White Ibis *(Eudocimus albus)*	Littoral zone reclamation. Protect rookeries.
T		Southeastern American Kestrel *(Falco sparverius paulus)*	Prescribed fire for habitat maintenance. Maintain snags and tree cavities.
SSC		American Oystercatcher *(Haematopus palliatus)*	Littoral zone reclamation.
SSC		Marian's Marsh Wren *(Cistothorus palustris marianae)*	Protect salt marsh habitat. Conduct any prescribed burns in small blocks.
SSC		Scott's Seaside Sparrow *(Ammodramus maritimus peninsulae)*	Protect salt marsh habitat. Conduct any prescribed burns in small blocks.

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GFC	USFWS	SPECIES	MANAGEMENT ACTIONS
E	E	Wood Stork (*Mycteria americana)*	Littoral zone reclamation. Protect rookeries and water quality.
T	T	Southern Bald Eagle (*Haliaeetus leucocephalus leucocephalus)*	Protect nest sites and water quality. Monitor annual nesting activity.
E		Arctic Peregrine Falcon (*Falco peregrinus tundrius*)	
T		Least Tern (*Sterna antillarum)*	Maintain and enhance nesting habitat. Protect nesting site during breeding season.
T	under review	American Black Bear (*Ursus americanus floridanus)*	Minimize human disturbance. Maintain movement corridors and feeding habitat. Public Education. Prescribed fire.
E	E	West Indian Manatee (*Trichechus manatus*)	Post signs on river if needed. Maintain natural shoreline.

Key: SSC = Species of Special Concern
T = Threatened
E = Endangered

More detailed species-specific management actions and strategies are discussed below. The proposed management of these species will be adapted, as appropriate, to meet changing circumstances or to be consistent with new information derived from research and resource monitoring.

SOUTHERN BALD EAGLE

The Southern bald eagle is designated a threatened species at both the state and federal level. Three active bald eagle nests have been identified within the Weekiwachee Preserve and two others are known to occur within areas proposed for future acquisition. Eagles nest from October 1 to May 15, and it is during nesting that they are most vulnerable to disturbance. All active eagle nests have been designated Special Protection Areas (see preceding discussion) and habitat management guidelines outlined by the USFWS will be implemented.

Management Actions and Strategies:

- ❑ **Establish primary zone 750-1,500 feet around nest. Within this zone, no chemicals toxic to wildlife will be used and no additional clearing or tree removal will occur. During nesting season, no human entry will be allowed and no**

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District-employed aircraft will operate within 500 feet vertical distance or 1,000 feet horizontal distance of nest. Recreational uses will be directed to areas outside the primary zone.

- ❑ **Establish secondary zone extending 750 feet beyond primary zone. No new trails or roads will be developed in this zone and chemicals toxic to wildlife will not be utilized at any time. Prescribed fire will not be conducted within this zone during nesting season. Intensive recreational use will be directed to areas outside the secondary zone.**

- ❑ **Monitor all eagle nests on the property and map locations using GPS equipment. Maintain a cumulative history of nest use and success.**

ROOKERIES AND COLONIAL GROUND-NESTING SITES

At present, there are no known wading bird rookeries on the Preserve. Jim Rodgers (pers. comm.) reports that wood storks nested in forested wetlands on the north side of the Weekiwachee River directly west of the Weekiwachee Springs attraction, several years prior to development of this plan. Great blue herons were also observed nesting during this time. Several wading bird species, including great blue herons (*Ardea herodias*) and occasionally wood storks *(Mycteria americana)* currently utilize the mine lakes and wet depressions on the mine surface for foraging and loafing. Solitary nesting by green herons (*Buterides striatus*) has been observed in willows growing along the mine lakes. As the lakes age and suitable vegetation such as willows and other hardwood shrubs and trees colonize the lake perimeters and islands, nest site availability will increase and there is high potential for rookery establishment. Features of the lake complex that make it favorable for wading bird rookeries include open water habitat, presence of small islands, inhospitable nature of the landscape to predators, and protected coves and windbreaks provided by spoil mounds and rough terrain.

Several species of shorebirds utilize the mine landscape for nesting, including killdeer (*Charadrius vociferus*), Wilson's plovers (*Charadrius wilsonia*) and the least tern *(Sterna antillarum).* Several characteristics of the lake complex make it an attractive alternative to traditional nesting beaches, including a large expanse of open water bodies, the physical and chemical similarity of the limestone substrate to beaches, and the remoteness of the site to forested habitat. Least terns and plovers utilized a large portion of the mine landscape for nesting in both 1996 and 1997. The 1996 nesting season was successful; however, the 1997 season was unsuccessful for least terns and only marginally successful for plovers. Empirical and anecdotal evidence suggests that human disturbance and coyote predation may have caused the nesting failure during of 1997.

Human disturbance is a major cause of colonial nesting bird failure and nest abandonment (Burger 1984, Gotmark, 1992). When disturbed, adults flush and leave eggs and nestlings unprotected from predators (seagulls and crows) and direct sun (high temperatures). Vehicular traffic has

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also been shown to cause mortality of chicks, who typically leave the nest soon after hatching and forage on the ground with adult birds (Cox et al. 1994, Melvin et al. 1994). Koenen et al. (1996) found that predation by coyotes and flooding were the two main causes of nesting failure in simulated least tern and snowy plover nests on an alkaline flat in Oklahoma.

A beach creation project planned for the Research Area (see discussion of Habitat Restoration), which is off-limits to public use, will provide a protected site more suitable for shore-nesting birds, particularly least terns. The unauthorized recreational use and coyote predation thought to be the main causes of nesting failure in 1997 will not be as critical a factor at the proposed site. It has been demonstrated that least terns will nest on a beach created with sand dumped 24 inches (61 cm) deep over an area at least .70 acres in size. Creation of a 3.1 acre protected breeding site is proposed for the Research Area. The proposed site is surrounded by water on three sides, and fencing will be used to deter predators and unauthorized recreational use. Additional earthwork may also be conducted to further protect the beach from predators. Suitable sand will be transported to the site and decoys will be utilized to attract terns to the site. The site will then be maintained in an early successional stage characterized by sparse grasses, which will entail removal of additional grasses.

Management Actions and Strategies:

- ❑ **Close the Research Area and created beach to public access using appropriate buffers, signs, and barriers. Buffer distance will be based on the composition of species nesting and nesting period, per guidelines recommended by Rodgers (1993) and O'Meara (1988).**

- ❑ **Maintain and enhance nesting habitat, as appropriate and practicable, using herbicide application, mechanical recontouring and earthmoving, predator control, tree/shrub installation, and other applicable methods.**

- ❑ **Limit vehicular access into the property. This will be accomplished by locating high activity zones at periphery of property.**

WATERFOWL

Several migratory and resident duck species have been documented utilizing the Preserve's mine pit lakes, including gadwells, redheads, red-breasted mergansers, lesser scaups, blue-winged teal, mottled ducks, and American coots. The Florida coasts are important resting and foraging habitat for migrating shorebirds in the spring and fall, and the Weekiwachee Preserve is a strategically-significant refuge along the important Atlantic Flyway migratory route. Along the Gulf coast, wintering birds occur most frequently from Apalachicola to Tampa Bay. In fact, there is a series of protected preserves along the Gulf coast which are managed as refuges for these migrants, including St. Marks National Wildlife Refuge, St. Martins Marsh Aquatic Preserve, Chassahowitzka National Wildlife Refuge, and Pinellas County Aquatic Preserve. The Weekiwachee Preserve

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supplements this chain of protected marshes and open water surfaces and adds habitat diversity to the landscape.

Several landscape features make the Preserve particularly attractive to waterfowl. These characteristics include the extensive open water surface, the vegetated littoral zones, the irregular shoreline, a few broad littoral shelves which are protected by steep banks, the presence of isolated islands, and high spoil mounds which may function as thermal coves. Other physical characteristics of the lakes are less desirable for waterfowl, including depths ranging from 25-60 feet. Although plant and animal forage is currently low, aquatic invertebrates and shoreline/littoral zone vegetation will increase and diversify as the lakes age and as habitat restoration projects progress. Restoration performed on the lakes will enhance their overall habitat value for many species, including migratory waterfowl.

Management Actions and Strategies:

- ❑ **Increase diversity of vegetation and structure along the littoral zone by planting native herbaceous aquatic plant species.**
- ❑ **Increase cover and substrate surface over open water surface by installing floating and emergent vegetation.**
- ❑ **Promote continued development of dense cover of shrub and grasses in certain areas to improve nesting habitat for species such as mottled ducks and blue-winged teal.**
- ❑ **Plant native mast-producing trees as a component of habitat restoration to provide forage for ducks and other species utilizing the Preserve, including the Florida black bear. Preferred species include swamp dogwood, hackberry, blackgum, cypress, water oak, and elm.**
- ❑ **Enhance shallow, wet depressions on the mined surface to improve habitat for dabbling ducks, such as teals, gadwells, mergansers, and mottled ducks.**

FLORIDA BLACK BEAR

The Florida black bear is perhaps the most critically-imperiled wildlife species documented on the Weekiwachee Preserve, and its presence on the Preserve has important management implications due to its wide-ranging habitat needs and its sensitivity to human intrusion. This species is designated a threatened species by the FGFWFC and is a candidate for protection under the United States Endangered Species Act. A decision regarding the federal designation is due by December, 1998. There are five major black bear populations in the state, centered in the following areas: Osceola National Forest; Ocala National Forest; Big Cypress National Preserve; Apalachicola National Forest; and Eglin Air Force Base (Cox et al. 1994). Based on habitat analyses that considered land cover classifications, proximity of habitat areas to protected lands of sufficient size, road densities, habitat diversity, and a carrying capacity estimate of 0.05 breeding individuals per km2, Cox et al.(1994) estimated the Weekiwachee/Chassahowitzka population at <20 breeding individuals and concluded that the population was too small for long-term survival. However, bear

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density in the region was determined using average density values derived from bear studies in Ocala National Forest and Osceola National Forest. In these forests, habitat suitability is only moderate and low, respectively, and bear densities are estimated to be lower than in most other bear populations throughout the United States. In addition, recent field studies (Maehr 1997; Marchington 1995) have demonstrated that bears can tolerate much higher densities than habitat modeling estimates suggest.

Maehr (1994) conducted field studies on the Big Cypress population in Collier County and arrived at a population estimate of approximately 1,000 bears, significantly higher than the previous estimate of 105-210 individuals estimated by the GFC using habitat models. Similarly, Marchinton (1995) and Anderson (unpub. data) reported unusually high black bear densities in agricultural fields 10 miles north of Tensas National Wildlife Refuge in Louisiana. At least 30 bears occupy and reproduce in highly fragmented woodland patches that range in size from 1,359 to 2,100 acres, interspersed among agricultural fields. These and other studies suggest that high quality habitat can support higher bear densities.

Based on field observations, the Weekiwachee Preserve appears to be an enormously productive environment for black bears. Signs of bear activity are abundant and the population appears stable, with sightings of females with cubs relatively common. Preferred bear habitat, specifically sand pine scrub and hardwood swamp, is present on the Preserve. Thick and diverse vegetation provides adequate cover and abundant food resources. Within the region the Weekiwachee, Chassahowitzka, and Homosassa Rivers, as well as the Weekiwachee Preserve's mine lakes, provide abundant and non-lapsing freshwater resources.

The key to black bear persistance in the region will be the human element. Bears are tolerant of human disturbance to a degree, but extensive habitat loss and fragmentation in the region has left the population concentrated in a much smaller core area than more secure populations in the remainder of the state. Even in these secure populations, which inhabit much larger expanses of habitat with protected cores, researchers have documented impacts related to human disturbance. When disturbance is severe enough, black bears will abandon an area, resulting in additional habitat loss. The smaller the total area of core habitat available to them, the more critical any additional loss can be to the security of the population. This suggests that it will be essential to prevent any additional habitat loss for this region's population.

Human disturbance disrupts normal bear behavioral patterns, which typically include more activity during daylight hours, or at dawn or dusk (Amstrup and Beecham 1976, Garshelis and Pelton 1980). Ayres et al. (1986) showed that bears shifted from diurnal activity patterns to nocturnal ones in areas of heavy human disturbance. Hellgren et al. (1991) studied macrohabitat use by black bears in a southern wetland and found that black bears were sensitive to human disturbance and recommended limiting public access to roads within preserves in order to maintain feeding and travel corridors. Several other researchers have found that although bears utilize trails, they tend to avoid roads (Hamilton 1978,

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Hugie 1982, Beringer et al. 1990). Mollohan and LeCount (1989) argued for the maintenance of corridors between useable blocks of habitat, especially to permit access to seasonally important but spatially clumped food supplies. Similar findings that human encroachment limited bear use of important habitat were reported by Pelton (1986) and Brody and Pelton (1989). The Hellgren study also investigated denning ecology and found that den sites subjected to human disturbance were often abandoned, which can lead to decreased productivity or force bears into even more inhospitable habitat in search of den sites. The importance of sufficiently large upland buffers to large forested swamp systems was recognized by Mykytka and Pelton (1989), who advocated limiting construction of new roads and closing roads in preserves. Many experts recommend human access management in occupied black bear habitat (Hillman and Yow 1986, McLellan 1989).

In order to maintain black bears in west-central Florida, resource managers need to know how many bears are in the population, what type of habitat they use, what their seasonal and daily movement patterns are, where they den, and how they respond to natural systems management, recreational activities, and surrounding land use patterns. The District, in conjunction with the USFWS, has contracted with the University of Kentucky Research Foundation to conduct a 2-year study of the Weekiwachee/Chassahowitzka black bear population. The purpose of the study is to assess population demographics and health and to determine home ranges, movement patterns, seasonal habitat use, food habits and den ecology. A genetic analysis will also be conducted to estimate the rate of gene flow within and between this, and other, bear populations. The subsequent data will then be analyzed to identify important landscape connections and to describe the possible effects of current land practices and natural resource management practices on the behavior and distribution of black bears. One of the products of the study will be a black bear management plan and a population monitoring methodology for the region.

Upon the completion of the black bear study, the District will implement the management guidelines recommended in the black bear management plan. In the interim, the District will utilize best management practices based on studies of other bear populations in the United States.

Management Actions and Strategies:

- ❑ **Conduct prescribed burns in small blocks using existing swamps and other features as firebreaks whenever possible. Any scheduled winter burns should be preceded by an extensive search for active dens, and canceled if dens are located within the burn unit. After initial fuel reduction burns, firelanes should be allowed to revegetate and larger burn units defined.**

- ❑ **Prescribed fire application will include both winter and summer burns to maintain good production of both hard and soft mast. Develop strategy to monitor mast production.**

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- ❑ **Establish and maintain fencelines and other barriers in conjunction with bear movement patterns.**

- ❑ **Confine all but the most passive recreational uses to small areas at the periphery of property.**

- ❑ **Confine public vehicular access within the Preserve to the high-use beach and picnic area.**

- ❑ **Maintain important foraging habitat, movement corridors and denning habitat through appropriate management of recreational use and vehicular access.**

- ❑ **Require the use of bear-proof trash receptacles in the Preserve.**

- ❑ **Deter human/bear conflicts and black bear habituation to humans by providing undisturbed habitat where likelihood of encounters between bears and humans will be minimized.**

Land Maintenance

Primary routine maintenance needs will consist of maintaining a secure perimeter fenceline and adequate signage. Fencelines will be planned to accommodate black bear movement patterns while preventing unauthorized access and use. Alternatives to fencing, such as maintaining dense growths of vegetation and strategic placement of barriers, may effectively deter illegal access while allowing unimpeded wildlife movement. In other areas, fencing could be used to direct safer passage across roads and other landscape features. Interior fencing used to limit and direct public vehicular and pedestrian traffic will also be designed to accommodate wildlife movement.

Signage that identifies the District as steward of the Preserve lands and lists prohibited activities will be maintained at strategic locations around the perimeter of the property. Improved access points for recreational users will be marked with signs that clearly acknowledge the public's right to enter and will include informational displays that summarize permitted and prohibited activities. The informational signs will also include statements attesting to the protected status of the Preserve as a refuge for wildlife and affirming that all plant and animal life in the Preserve is protected.

Maintenance of the improved facilities proposed for the northwest corner of the lake complex, including restrooms, picnic areas and a beach and bathing area, will be the responsibility of Hernando County. A cooperative relationship with the County will permit the establishment of these high-use facilities and greatly enhance recreational potential.

Land Use

Access

The large human population combined with the lack of certain recreational amenities within the project region indicates the need for comprehensive visitor and property management. Management of the visitor and property includes considerations for access, infrastructure, maintenance of visitor experience, carrying capacity, vehicle traffic, provision of amenities, security and

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coordination with other local and state agencies. Before the District can make thoroughly-informed decisions about the location, type and intensity of public use that is appropriate for the tract, it is imperative that the District gain a more intimate knowledge of the biota and natural limitations of the system. In order to assure that any future public use and management program implemented on the tract is in harmony with the important natural attributes which exist there, the aforementioned monitoring program is crucial. This program has been initiated and public use and management programs will be phased in gradually and carefully as knowledge of the system increases.

The determination of visitor carrying capacity is a complex and comprehensive evaluation of many use factors, their possible impacts, and a determination of an acceptable level of impact. Such a determination is outside the scope of this plan but it is considered an important concept in the evaluation of potential use of the property. The District, in developing the use of this property, should establish a level of impact that is acceptable. Once that level is determined, the Land Management and Land Use and Protection sections will work together to monitor, assess, and prevent unacceptable impacts.

A preliminary survey of the property boundary identified more than 20 access points. Of these 20 access points, most are located in remote areas and are not readily accessible by the public. The property offers two convenient entry points that are easily accessed by the public and that were used by the previous owner for such purposes. These two access points will be used in combination. The primary access point, which will eventually provide direct vehicular access to a planned beach and picnic complex, is located on Shoal Line Boulevard along the Preserve's western boundary (Figure 4). The secondary access point is located on the southern boundary on Osowaw. A parking area and walk-thru entrance will be provided at this site.

A more detailed discussion of public access to sites within the Preserve is provided below, in association with the discussion of permitted recreational use.

Security

The Weekiwachee Preserve has experienced episodes of poaching, vandalism, destructive use of all-terrain vehicles and other problems commonly associated with publicly-owned natural areas. Maintaining property integrity and ensuring visitor safety will be dependent upon the placement of warning signs, vehicle barriers, fencing, and regular patrol by law enforcement officers.

The poaching, vandalism, and all terrain vehicle use that are currently experienced at the Preserve indicate the need for a law enforcement presence. Most of the criminal activity and all-terrain vehicle use have been centered around the lake complex, whereas the poaching is concentrated in the forested areas. Law enforcement needs will be met through the combination of a resident security officer and contracted services. A residence for an officer will be placed in a central area of the lake complex to provide a 24-hour presence, control crime, observe the general activities of visitors and detect unauthorized entry when the property is closed. The officer will also serve as a point of contact during emergencies. Although the officer's residence should allow a

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panoramic view of the lakes, it should also be visually buffered from the high-use recreational area so that it does not detract from the aesthetic character of the recreational area. The interior forests and perimeter are best served by contracted security officers. Contract officers can also augment the services of the resident officer or be used for resource protection issues that are beyond the capabilities of the resident officer. Resource protection issues such as large-scale poaching, pot hunting at archaeological sites, and vandalism will require a 24-hour presence. Through a well-implemented security program, the safety of the visitor and protection of the property's natural resources will be assured.

Approximately half the Preserve perimeter adjoins densely forested wetland or canal, making it inaccessible to all but pedestrian entry. However, there are approximately 18 remote access points that could allow for unauthorized entry by vehicles. These sites will be secured and monitored to prevent unauthorized vehicular use. The primary and secondary access points (Figure 4) will maintain barriers to control entry during off-hours and direct vehicles to designated parking or staging areas during daytime operation. Roads associated with these access points are bounded by forest precluding the need for fencing. However, open areas and crossroads will require interior fencing, gates, or other barriers. The final choice of barrier type should be dependent upon considerations for aesthetics and wildlife.

Informational signage will be important for guiding visitors. An informational sign indicating the rules for use of the property and directional information will be placed at the primary and secondary access points. Warning signs such as "no parking" and "no swimming" may also be required at various points within the property's interior. Interior trail signs indicating trail name and authorized uses will also be required to direct and inform the public.

Additional security presence will be afforded by Hernando County staff after development of the beach and picnic complex discussed in following sections of this plan. Although the District will be responsible for maintaining security outside the developed facilities, the daily presence of park staff may help to dissuade illegal and prohibited activities.

Management Actions and Strategies:

- ❑ **Provide a resident security officer on the Preserve.**
- ❑ **Maintain appropriate perimeter fencing and other barriers to unauthorized access while minimizing disruption of normal wildlife movements**
- ❑ **Maintain appropriate signage to apprise the public of permitted and prohibited activities.**

Recreational Use

It is the policy of the District (Board Policy 610-3) that appropriate public recreational usage of District lands be permitted, provided that the usage is compatible with water resource management and protection needs. Generally, the development and maintenance of approved recreational facilities must be at the expense of outside entities. Board policy directs that the

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developed facilities must be open to the public. Recreational activities that are not dependent on the natural resource values of the site will not normally be allowed. Permitted recreational uses of the Preserve will include hiking, bicycling, fishing, swimming, picnicking, birdwatching, nature interpretation, canoeing, and boating use by small craft that lack internal combustion engines. The Preserve will also be made available for environmental education.

The primary goal in developing a program of recreational use for the Preserve is to provide a high-quality user experience while protecting the resources that led to acquisition of the lands, and which make the Preserve attractive for such use. The State of Florida and the District have adopted an ecosystem approach to land management that requires a holistic, landscape-level perspective to ensure the protection of entire natural systems. Public use must likewise be viewed from a landscape perspective. The Weekiwachee Preserve is part of a vast network of protected lands that provide valuable economic and environmental benefits to the rural counties and communities in the area (see Figure 2). Each of the protected areas is managed by a separate public agency that is guided by their own rules and objectives for the lands under their stewardship. However, in combination they provide a wide array of recreational opportunities, including some that have been deemed incompatible for the Preserve. The following is a brief listing of the public agencies and the properties they manage, and a summary of the comprehensive, cumulative recreational benefits provided by these public lands:

Hernando County parks in proximity to the Weekiwachee Preserve include **Hernando Beach** and **Jenkins Creek**, which are located on the northwest border of the Preserve (Figure 2), and **Rogers Park** which lies a short distance north on the shores of the Weekiwachee River. It is estimated that nearly 60,000 people attended Rogers Park during the County's 96/97 fiscal year. The county also has two other nearby facilities at **Pine Island** and **Bayport**. Attendance at Pine Island was estimated at 70,000 during fiscal year 96/97.

The **Chassahowitzka Wildlife Management Area** lies a short distance north of the Weekiwachee Preserve. It is an 18,707-acre state-owned property managed by the Florida Game and Fresh Water Fish Commission. A separate segment of the Chassahowitzka WMA lies along the northern bank of the Weekiwachee River. Proposed additions to the Preserve would bridge the gap between these two tracts.

The District-owned **Chassahowitzka Riverine Swamp Sanctuary** is a 5,676-acre property that lies to the north of the Chassahowitzka Wildlife Management Area. A lease agreement between the District and Citrus County allows the county to manage recreational usage of the Chassahowitzka River Campground. The total of boat and site attendance at the campground during 1997 was 17,854.

There are two National Wildlife Refuges to the north of the

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Weekiwachee Preserve. They are the **Chasshowitzka** and **Crystal River National Wildlife Refuges**. These areas are managed by the US Fish and Wildlife Service. An estimated 91,515 people visited the Crystal River NWR in 1996. Most visitors participated in some form of water related activity. The Chassahowitzka NWR is a 30,465-acre area. It received an estimated 33,340 overall visitors in 1996 (Ilene Nunez, pers. comm.).

Between the two Natonal Wildlife Refuges lies the Florida Department of Environemtal Protection's **St. Martins Marsh Aquatic Preserve** (23,100 acres). The FDEP **Crystal River Buffer Preserve** (36,000 acres) is adjacent to the USFWS Crystal River NWR. Hiking and fishing are the main recreational activities available in the preserves.

The **Withlacochee State Forest**, managed by the Florida Division of Forestry, is a 143,348-acre complex with tracts lying to the north and east of the Weekiwachee Preserve. These feature natural wildlands dotted with improved recreational areas. About 500,000 people visit the forest annually to hunt, fish, camp, picnic, hike and nature watch. There are five major divisions of the State Forest: the Citrus tract (42,613-acres); the Croom tract (21,359-acres); the Richloam tract (49,200-acres); the Jumper Creek tract (10,068-acres); and the 5,500-acre Homosassa Tract which is contiguous with the District's Chassahowitzka Riverine Swamp Sanctuary.

The FDEP Division of Parks and Recreation maintains over 70 miles of recreational hiking, biking and horseback riding trails within the area. These are the **Withlacoochee** and **General James Van Fleet State Trails**.

Fishing

Demographic profiles of the surrounding population and observations of pubic use of the Preserve during the period preceding development of this plan suggest there is a high level of interest in fishing opportunities. This interest is focused on the lakes created by limerock mining conducted prior to District acquisition of the property. The lakes provide approximately 472 acres of open water, accounting for nearly all the open water occurring in the Preserve. Fishing opportunities are extremely limited elsewhere in the property given the relative absence of open water areas that are both accessible and capable of supporting sport fish.

The mine pit lakes are readily accessible from the two approved points of entry to the Preserve; however, the mining origin of the lakes results in physical characteristics that hamper access for fishing. Most of the extensive shoreline can be characterized as a shallow shelf of silt and limestone that extends approximately 6-10 feet into the lake, followed by a shear vertical drop to a depth of 40-60 feet. Although this gives the appearance of a stable shoreline, the clay silts cannot safely support the weight of an individual attempting to fish from the bank, nor are they suitable for attempting to launch

canoes or small boats. The extreme drop in depth also limits the amount of shallow water habitat available to support fish. This factor is compounded by the relative "sterility" of the water, or an absence of the nutrients and food base required to support a growth of the planktonic and invertebrate faunas that are necessary to support the subsequent growth and production of the sport fish sought by recreational fishermen. Water quality analyses have confirmed the nutrient-poor condition of the water and field sampling has confirmed that the lakes support a depauperate complement of aquatic organisms.

Surveys of other mine lakes in the area indicate that uncontrolled numbers of fisherman taking the legal limits of sport fish have resulted in the depletion of entire lakes within one month. A sustained fishery and the maintenance of a quality fishing experience would therefore be dependent upon limiting the numbers of people fishing and restricting the size and number of their take. The natural inability of the lakes to support a large-scale fishery, coupled with the funding and staffing resources that would be required to manage a regulated fishing program on the tract, render such an approach impractical. It is anticipated that fishing in the lakes will be self-regulated by supply (fish) and demand (fishermen).

The littoral zones that have been created by shoreline reclamation activities and native plant installation, and the additional habitat restoration measures described previously in this plan, will significantly enhance the fishery potential of the lakes over time. These measures will be managed and implemented with the dual goals of habitat restoration and improvement of fisheries potential. More immediate measures to enhance fishing will also be implemented, including the construction of a stable launching site for boats in order to expand access for fishermen. Signage warning of the unstable nature of the shoreline will be maintained around the perimeter of the lakes to ensure public safety.

Hiking

Hiking is a low-impact recreational activity that can appeal to a broad segment of the public. Some hikers derive their enjoyment of the activity from the physical exercise associated with it, while others are more inclined to seek an outdoor experience. It is anticipated that those seeking exercise will generally hike the lake area due to its accessibility. The remainder of the Preserve provides exceptional opportunities for those seeking an outdoor experience in an area that showcases a natural Florida landscape. When planning trails, the needs of these two contrasting groups will be carefully considered, as will be the sensitivity of the Preserve's wildlife and natural communities. Any improved trails will be comprehensively planned and marked, and will highlight areas of natural significance and interesting scenery. Rest areas and points of interest will also be considered in any trail plans. The District has coordinated with the Florida Trail Association in the development of trails at other sites and will be solicited for assistance in the planning and construction of trails on the Preserve.

A short interpretive nature trail will be developed in association with the swimming beach and picnic complex planned for the northwest corner of the lake area (Figure 4). The site possesses a variety of natural communities including hydric hammock, cabbage palm hammock, pine flatwoods,

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scrub and freshwater marsh, within a small and well-defined area that will be immediately adjacent to the picnic complex. The short length of the trail will allow it to easily accommodate day-visitors and children, and should permit the installation of an improved or stabilized surface that will meet the needs of mobility-impaired individuals. The diverse nature of the terrain should appeal to both experienced and inexperienced nature lovers and offer a valuable opportunity for environmental education. Interpretive signs will be installed at appropriate points of interest and construction of a kiosk containing literature describing the Preserve's natural history and land management program will be considered.

A longer and more primitive trail will be developed for users interested in a more lengthy hike. The site proposed for this trail is located west of County Road 597 and would be conveniently located for vehicular access to the trailhead (Figure 4). It also features a variety of natural communities and affords the opportunity to view an expansive Gulf saltmarsh coastline in a secluded setting. Construction of an observation tower will be considered for a coastal location on the trail to showcase a sweeping view and offer a special point-of-interest for users.

In addition to the developed trails discussed above, the unimproved trail roads of the Preserve will be open for foot use. The trail roads provide access to the most remote areas of the property and will appeal to more experienced hikers and those interested in a true backcountry hiking experience. Development of new trails through these remote reaches will not be undertaken until wildlife surveys and research now in progress has been completed. Information provided by the surveys and research will be essential to guiding future decisions regarding any expansion of public use.

The District will consider offering guided interpretive walks that capitalize on the diversity offered by the trail system. These walks may be sponsored by District personnel or other experienced naturalists, or through development of a volunteer naturalist program. The walks should be scheduled to take advantage of seasonal variation. The subject matter of the walks should highlight the ecology of the Preserve, land management goals, and the natural values which served as the motivation for preservation of the property.

Bicycling

As in the case of fishing, demographic profiles for the area and observations of public use of the Preserve during the period preceding development of this plan suggest a strong interest in bicycle riding. It is expected that most of this use has been by local residents. For most participants, bicycling provides a healthful exercise or sport where enjoyment of a pristine natural area is not a primary concern; however, a growing number of people are using the bicycle as a means of experiencing the outdoors. Off-road bicycling on the Preserve has been limited to use of the lake area and an approach for expanding or enhancing such use will be explored; however, no new trails will be developed in the undisturbed natural areas that surround the lake complex. Although off-road bicycling can be a compatible use of natural areas when directed to sites with dry, stable soils, the predominance of wetland communities in the Preserve severely limits

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such opportunities. Management concerns associated with wildlife needs and ongoing research place additional constraints on the use of off-road bicycles in areas outside the lake area. Upland communities in the heart of the Preserve are configured as narrow fingers within a large matrix of hydric hammock and include scrub sites with coarse, sandy soils that are not conducive to bicycle use. The habitat value of the scrub to the local black bear population, in combination with its limited areal extent and the sensitivity of black bears to human presence, suggest that public use of the backcountry trail roads be reserved for the most passive use possible. As such, they will remain limited to foot traffic and day-use only.

The enhancement of existing trails that remain open for bicycling (Figure 4) will consider a variety of alternatives in order to satisfy the needs of both the resource-based and exercise-based riding groups. Loop trails of various lengths will be provided to accommodate different levels of riders and will be clearly marked. The trails could be shortened or lengthened through the use of cross-links. This kind of network may also be necessary to allow bicycle use during periods when segments of the trail system must be closed due to adverse conditions or when sensitive migratory wildlife are present. Localized nesting by least terns and Wilson's plovers, and increased seasonal use of the lakes by migratory waterfowl, have been observed during recent years. The need to close trail segments will be evaluated on a case-by-case, as-needed basis. The construction of several covered rest areas that would shelter riders and other users from sun or rain will also be considered.

As ongoing research of wildlife needs in the interior of the Preserve progresses, the results of the research will be examined to identify backcountry areas that might support off-road bicycle use. Opportunities for incorporating the Preserve into a regional network of multiple use trails will also be explored. Such opportunities may expand considerably if additional lands are added to the Preserve. It is also worth noting that the Croom Tract of the Withlacoochee State Forest provides 35 miles of unpaved, off-road bicycling trails.

Swimming

The present configuration of the lakes, with unstable shorelines and precipitous drops in depth, make them unsuitable for swimming and this use will be prohibited. Shorelines will be clearly posted to warn the public of the dangers and inform of the prohibition of swimming; however, a site at the northwest corner of the lake complex has been identified as a beach and picnic area (Figure 4). Safe accommodation of this use will require the excavation and development of an enclosed swimming area and beach where supervision of the use can be provided. Hernando County suffers from a deficiency of public swimming areas and development of a beach at the Preserve will assist in addressing this deficiency while providing for public enjoyment of the natural setting offered by the property. At present, the total of the County's public swimming access in the coastal region is limited to 3.5 acres of beach and 4.2 acres of swimming area, divided among 4 separate sites. The site earmarked for development of a beach and swimming area at the Preserve is approximately 8 acres in size and may double existing capacity in the local area. Swimming at the Preserve will be limited to

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the developed beach area and will be prohibited in the remainder of the lake complex.

The clear and pristine quality of the mine lakes makes them attractive for swimming and provides an ideal setting for picnicking conducted in conjunction with a day at the beach. A picnic area and interpretive nature trail, discussed in other sections of this plan, will be developed adjacent to the beach and swimming area. It is anticipated that this location will serve as the focal point for most recreational use of the Preserve, and parking adequate to meet the needs of hikers, bicyclists, fishermen, and other users will be sited here.

The supervision and maintenance needs associated with such a high-use area will require that full-time staffing be provided. Hernando County's active promotion of the proposed facilities and expressed interest in management of the use ensures the presence of a local sponsor and manager. Appropriate management will require the provision of lifeguards and routine maintenance staff. As a public swimming area, there would also be water quality monitoring requirements in order to ensure compliance with state-mandated standards. The County's experience in management of such sites, and cooperative relationship with health department personnel that supervise the required water quality monitoring, will help to ensure that the area remains safe for public use.

The clarity and depth of the water in the lakes may appear enticing for scuba diving. However, the risks associated with this activity and the possibility for conflicts with other uses requires that recreational scuba diving be prohibited on the property. This will not preclude scuba diving associated with training exercises for professional divers or search and recovery operations.

Picnicking

Many people picnic in conjunction with another outdoor activity and often do not use defined areas for such a purpose. However, tourists and visitors from urbanized areas often incorporate the use of designated picnic areas into their outdoor recreation plans and are typically families or large social groups. The picnic experience is primarily dependent upon the immediate surroundings with scenic views and nearby water features being desirable. Land requirements for such an activity are typically small and involve facilities such as tables, grills, garbage cans and restroom facilities.

The Preserve's lake system provides an appropriate setting for a picnic area and one will be developed in conjunction with the beach and bathing area discussed previously (Figure 4). Direct access to the interpretive nature trail and a parking area that can accommodate large groups will also be provided. The facilities associated with the site will be designed to serve as a staging area for all recreational users of the Preserve and to provide fishermen, hikers and bike riders with convenient parking and a place to rest. They will also be designed to accommodate mobility-impaired visitors. The forested site chosen for the picnic area will provide shade from the sun in an aesthetically pleasing, natural setting. Development of a picnic pavilion or complex of pavilions will provide shelter from rain and meet the needs of a variety of user groups. Management and maintenance of the improved facilities and supervision of

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public use will be the responsibility of Hernando County and will be conducted in tandem with management of the adjoining beach and bathing area.

Black bears are frequently attracted to picnic areas and other sites where food may be easily obtained, and this poses an important management concern. The use of bear-proof trash receptacles will be required at the beach and picnic area complex, at the secondary access point, and at any other sites where trash may be generated.

Bird Watching

The coastal location, diversity of habitats and opportunity to view a diversity of species makes the Preserve an ideal site for bird watching. Preliminary surveys of the property confirm the presence of a great diversity of bird species, including an impressive array of seasonal migrants. The lakes currently attract moderate numbers of waterfowl and these numbers should increase as the enhanced littoral zones become established.

Existing trail roads, which will be open to foot access, serve as a ready-made trail system for birding enthusiasts. The District will be amenable to making the property available for scheduled birding by organized, guided groups and will also consider constructing observation sites at strategic locations.

Canoeing/Boating

The qualities of the mine lakes that make them attractive, yet unsuitable, for swimming holds true for canoeing and boating. The unstable shoreline is unsuitable for landing or launching boats and canoes. As noted in the discussion of fishing, an improved launching site will be constructed at the site of the beach and swimming area. Launching of canoes and small boats powered by electric motors will be permitted. The use of internal combustion engines on boats will be prohibited to prevent shoreline erosion and to maintain the quiet and aesthetic qualities associated with a preserve area. A floating dock may also be provided at the launching site for the convenience of boaters and canoeists.

The Weekiwachee River, which forms the northern boundary of the Preserve, serves as a very popular site for canoeing, kayaking and boating. As noted in the discussion of the Weekiwachee shoreline's designation as a Special Protection Area, the natural shoreline of the Preserve provides a scenic and environmentally-significant backdrop for recreational use. These qualities will be maintained for future recreational users of the river.

Creation of a Salt Water Paddling Trail

On October 20, 1992, the Governor and Cabinet of the State of Florida passed a resolution designating the vast length of coastline between Pasco County and Wakulla County as the "Nature Coast". This stretch of coastline, also known as the Big Bend, is easily distinguished as the most natural and pristine coastline remaining in the state. The Weekiwachee Preserve is situated near the southern end. Formal designation as the Nature Coast is intended to reflect the prevailing natural condition of the coastline. It also seeks to unite affected local governments in an effort to promote the development of a tourist industry that would be compatible with the superlative

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natural resources of the region. Much of the Big Bend/Nature Coast shoreline is protected through public ownership. Appropriate tourist-related recreational usage of these protected lands may provide important economic benefits to the rural counties and communities in the area.

The State of Florida has developed an extensive network of recreational trails, including a marked system of canoe trails. However, the Big Bend Historic Salt Water Paddling Trail, which extends from the mouth of the St. Marks River to the mouth of the Suwannee River, and a trail presently being established through St. Martin's Marsh Aquatic Preserve, are the only formally-established state trails that highlight coastal habitats. The springrun rivers, coastal hammocks and salt marshes of the Hernando County and Citrus County section of the Nature Coast may provide the finest setting for a coastal paddling trail in the entire State of Florida. The maze-like arrangement of salt marsh and hydric hammock that characterize this shoreline create a more sheltered environment for canoeists and kayakers than the comparatively open waters of the Big Bend trail. The scenic vistas and extensive swathes of natural coastline that lie off the Citrus/Hernando shoreline are punctuated by the mouths of the Crystal River, Homosassa River, St. Martins River, Chassahowitzka River and Weekiwachee River. The coastal communities and developed facilities associated with the upstream reaches of these rivers would greatly enhance the utility of any trail established along this shoreline. Users could choose among many different sites for embarking upon the trail, and alternatives for use would range from day-trips to overnight treks of 2 or 3 days. At the discretion of the paddler, overnight accommodations could range from commercial lodging to primitive campsites.

During development of a management plan for the Chassahowitzka Riverine Swamp Sanctuary (Figure 2), the District proposed development of a coastal kayak and canoe trail in this region in cooperation with the FGFWFC, USFWS, DOF, and Citrus and Hernando County local governments. The District will continue to explore the feasibility of establishing a paddling trail along the Citrus and Hernando shoreline. As noted, a trail through the St. Martin's Marsh Aquatic Preserve, which lies at the northern end of the study area, has recently received formal designation. Linkage with this trail, from a southern terminus associated with the Weekiwachee Preserve, would create a trail system that includes access to the Weekiwachee, Chassahowitzka and Homosassa Rivers. Hernando Beach Park, which is situated at the head of Jenkins Creek near the mouth of the Weekiwachee, would provide a logical southern terminus for the hypothetical trail. Restrooms and launching facilities are available at the county-operated park, which allows for vehicular access and convenient access to lodging.

The practicality of establishing the coastal paddling trail hinges primarily upon the occurrence of upland sites at regular, frequent intervals along the entire length of the trail. Upland sites provide important areas of refuge during storms and other life-threatening emergencies. Campsites or other overnight landings must also be available at intervals that conform with the daily range of paddlers. Other needs, beyond these essential physical requirements, include a system of numbered trail markers installed along the length of the

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trail and accurate maps that would be available to all users of the trail. Responsibility for the maintenance of trail markers and campsites, and for the proper administration of a reserved network of campsites, would need to be assigned appropriately.

In the event that all of the affected agencies and local governments support establishment of a coastal paddling trail, a joint proposal will be submitted to the Florida Department of Environmental Protection (DEP) in accordance with Chapter 16D-7 of the Florida Administrative Code. The proposal will delineate a conceptual route and a network of essential support facilities, including campsites. The DEP will be solicited to seek formal designation of the trail as a component of the Florida Recreational Trails System and to play a lead role in securing permits and funding assistance necessary for installing trail markers and preparing maps and guidebooks.

Horseback Riding

The incompatibility of the Preserve for horseback riding parallels that discussed previously for bicycling. However, in contrast to the compatibility of the lake area for bicycling, the limerock surface of the former mine lands cannot accommodate horses. The limerock fragments that litter the surface make it unsuitable for horses. As such, the entire Preserve will be closed to equestrian use.

Camping

Profiles of the population in the region surrounding the Preserve indicates that there is not a high demand for camping. Other public lands in the area provide such opportunities and should be adequate to meet current demand. However, the only camping opportunity along the local coastline is at the Chassahowitzka River Campground in Citrus County. Management concerns associated with wildlife issues and the high fuel loads resulting from an extended period of fire suppression make the Preserve unsuitable for camping at this time. As ongoing research and resource monitoring continue, and as a prescribed burning program is implemented, the District will evaluate the Preserve for suitable camping sites in order to meet future demand and better serve the local population. The acquisition of additional lands, and their incorporation into the Preserve, may present new possibilities for providing camping opportunities.

Opportunities for Environmental Education

Most people who are attracted to visiting a property like the Weekiwachee Preserve are committed to protecting the area and the ecosystems it sustains. However, many of these visitors may be totally unaware of the dynamics of the surrounding environment and of the effects their recreational activities may have on ecological processes at work within the Preserve. Opportunities to learn about the ecology of the Preserve will be woven into the recreational activities occurring on the property through development of the interpretive nature trail. The District will facilitate and promote opportunities for environmental education at the Preserve.

District staff, the Hernando County School Board, volunteers, and non-profit organizations will be solicited to provide

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interpretive hikes and implement outreach efforts to the local community. Volunteer opportunities to assist in activities like tree planting, habitat surveys, or wildlife observation will also be provided when possible. Local schools may be permitted to use the Preserve as an outdoor classroom for environmental education purposes, provided the planned activities are approved and coordinated through the District.

Coordination With Hernando County Government

A continuing, cooperative relationship with Hernando County will be a necessary prerequisite to implementing many of the public uses proposed in this plan. County sponsorship and management of the facilities associated with the beach and swimming area will be essential to constructing them and making them available to the public. Limiting the Preserve to day-use activities will also require a daily presence for opening and closing the primary access point (Figure 4).

In addition to the management of public use, the District will work closely with the County to ensure that incompatible uses do not occur on lands adjoining the Preserve. The Future Land Use Element of the Hernando County Comprehensive Plan identifies the patterns and types of development proposed within the county. Achieving the management goals and objectives established in this plan will be partially dependent upon land use and development patterns for lands surrounding the Preserve. The actual lands comprising the Weekiwachee Preserve are designated as a mixture of *Conservation, Residential* and *Strip Commercial* future land use categories. Future land uses around the Preserve property include *Residential, Strip Commercial*, and *Conservation* categories. A vast majority of the surrounding lands have already been developed in a manner consistent with these categories. The *Conservation* future land use category was established to ensure the protection of forests and wetlands, and promote preservation of wildlife and marine habitat. The *Residential* and *Strip Commercial* future land use categories identify areas where residential and commercial growth and development is expected to occur because of favorable infrastructure or site development conditions. While the *Conservation* category is consistent with the goals of this plan, the *Residential* and *Strip Commercial* categories are clearly inappropriate and incompatible with management goals for the property. The Future Land Use Map should be amended to designate the entire Weekiwachee Preserve as *Conservation* land. The District will coordinate with Hernando County to appropriately amend the Future Land Use Map and to ensure that undeveloped areas surrounding the Preserve are not dedicated to incompatible uses.

In the future, similar cooperation with Pasco County government may be required. A portion of the lands proposed for acquisition and eventual addition to the Preserve are located in Pasco County, adjacent to the community of Aripeka. If these lands are acquired, the District will initiate such a cooperative relationship with Pasco County.

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Exhibit
6

Environmental Site Evaluation

Hernando Beach – Shoal Line Boulevard Recreational Area

Hernando County, Florida

Preliminary Site Evaluation Report

Prepared for

Hernando County Board of County Commissioners
20 North Main Street
Brooksville, Florida 34601

Prepared by

Coastal engineering associates inc.
Engineering
Planning
Surveying
Environmental
Transportation
Construction Management

CEA # 21078 **August 2022**

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APPENDIX

- Study and Proximity Location Map
- USDA Soils Map Report
- Florida Natural Areas Inventory – Biodiversity Matrix Report

ABBREVIATIONS & ACRONYMS

BIA	Bureau of Indian Affairs
CEQ	Council on Environmental Quality
CFR	*Code of Federal Regulations*
COE	U.S. Army Corps of Engineers
CZMA	Coastal Zone Management Act of 1972, as amended
CZMP	Coastal Zone Management Program
ER	Environmental Report
EMF	Electric and Magnetic Fields
E.O.	Executive Order
EPA	U.S Environmental Protection Agency
ESA	Endangered Species Act of 1973, as amended
FEMA	Federal Emergency Management Agency
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOHR	Florida Department of Historical Resources
FDOT	Florida Department of Transportation
FLUFCS	Florida Land Use, Cover and Forms Classification System
FWC	Florida Fish and Wildlife Conservation Commission
FPPA	Farmland Protection Policy Act, as amended
FR	*Federal Register*
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act of 1966, as amended
NMFS	National Marine Fisheries Service
NPS	National Park Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service (previously known as Soil Conservation Service)
HC	Hernando County
ROW	right-of-way
RUS	Rural Utilities Service
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SWFWMD	Southwest Florida Water Management District
THPO	Tribal Historic Preservation Officer
U.S.C.	*United States Code*
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WWW	World Wide Web

1.0 INTRODUCTION

Background History -
Hernando County owns a parcel of land (approximately 60 acres) located on the east side of Shoal Line Boulevard (near Petit Lane), which was previously utilized for county utility operations, for the Hernando Beach area. The 60-acre parcel is surrounded on three sides by the Weeki Wachee Preserve (+/-7,136 acres), which is owned and managed by the Southwest Florida Water Management District (SWFWMD). The Weeki Wachee Preserve (Preserve) was acquired between 1993 and 1996, through a series of successive purchases. Hernando County has contributed funds towards the acquisition of the Preserve through its Environmentally Sensitive Lands Program, which was established to provide for the acquisition of significant natural lands.

The 60-acre county owned parcel once contained a wastewater treatment plant and its associated spray fields, for the treatment of residential waste from the residents of the Hernando Beach area. The wastewater treatment plant was taken offline in 1999 and the plant was dismantled soon thereafter. Subsequently, the county parcel was used during the Hernando Beach Channel Dredge Project, circa 2009, as a dewatering and spoil stockpile area for the channel dredge project. Upon completion of channel project, portions of the parcel were rough-graded, and the parcel has remained vacant since that time.

Hernando County, with coordination from the SWFWMD, are currently evaluating the 60-acre county-owned parcel, along with previously impacted lands within the Weeki Wachee Preserve, to provide for a low environmental impact, recreational facility for the residents of Hernando County.

Primary Study Area-
The primary study area for this Preliminary Site Evaluation Report is focused on a +/-60-acre portion of the Weeki Wachee Preserve, which is located in the northwest corner of the former mine pit area. The study area is located south of the county owned, former wastewater treatment plant property.

Portions of the Preserve, within the study area, were once used as areas for open pit limerock mining. The current open water pits, which are the remnants of the commercial limerock mining operation, occurred prior to the SWFWMD acquisition. These open water pits and adjoining disturbed lands comprise approximately 15 percent of the entire Weeki Wachee Preserve area. Reclamation of some of the pits, which are outside of the study area, was conducted and the pit reclamation included the creation of shallow littoral zones/shelves, along sections of the pit shorelines. Per the SWFWMD's land management plan, entitled *Plan for the Use & Management of the*

Weeki Wachee Preserve (1997), there is very little shallow water habitat in the artificially created lakes, where the depths can range between 40 and 60 feet. The disturbed lands surrounding the man-made lakes support very little native vegetation and the substrate consists of either exposed limerock or a thin veneer of depauperate soil, overlying the limerock.

2.0 Project Description

Proposed Recreation Area -

Hernando County is proposing to construct a low-impact recreational area along the east side of Shoal Line Boulevard, within the previously mined area of the Weeki Wachee Preserve. The project area consists of approximately 60 acres.

The proposed project will include the construction of a beach, with associated swimming area, parking area, picknick tables, pavilions, improved nature trails, low impact boardwalks, a kayak/canoe launch, and a restroom. Areas to the north of the proposed recreational area, located between the proposed recreational area and the old county wastewater treatment plant site may include possible, future elevated boardwalks, for nature and wildlife viewing.

Proximity and location maps of the proposed recreation area are included within portions of this report.

A preliminary layout drawing of the proposed recreation area is included within portions of this report.

2.1 Need for the Project -

Hernando County is one of the fastest growing counties in Florida. According to the U.S. Census Bureau (USCB), there has been a 31% increase in population from 2000 to 2010. The 2022 county population is currently 203,934, which is a 1.66% growth rate from 2021.

Due to its close proximity to the City of Tampa, Hernando County is experiencing a continued high growth rate. Fueling the county's growth, is the economic recovery in neighboring Pasco and Hillsborough Counties and the City of Tampa, to the south. With the urban area spreading over into Hernando County, the need for recreational areas for county citizens is needed. The proposed project will provide the needed recreational area for the citizens of Hernando County.

2.2 Potential Environmental Impacts -

The proposed project will have minimal environmental impact to the area's natural resources. As mentioned in the introduction, the proposed project area is located within an area which once contained a former limerock mining operation and most of the proposed project area has been historically altered/impacted by the mining operation and the historical impacts of dredging and development of Hernando Beach. The historical mining operation included subsurface dredging and removal of the limerock and the filling of adjacent areas with overburden and lower quality limerock. Since the mining operation has ceased, seasonal weather, including hurricanes and tropical storms, has continued to impact the proposed project area and other areas of the preserve, by the continued weathering and soil erosion of the unvegetated mine pit sidewalls, littoral areas and exposed soil (limerock).

The following sections identify the potential environmental impact(s).

2.2A WETLANDS -

State and federal jurisdictional wetlands are located within the proposed project study area. Proposed temporary and permanent wetland impacts will occur at the proposed bridge location, over the existing man-made canal, east of the old R Beach Restaurant property (recently purchased by Hernando County) and at the existing mine pit shoreline, within the proposed beach area. Proposed permanent wetland impacts will be minimized to the greatest extent practical, or avoided, if possible.

Wetland delineation of these areas will be required prior to or during the permitting phase of the proposed project. Coordination and wetland line approval will be conducted with representatives from the Southwest Florida Water Management District (SWFWMD) and the Florida Department of Environmental Protection (FDEP), which has taken over Section 404 federal wetlands permitting in Florida.

Once the wetland areas are defined and quantified, any proposed permanent wetland impacts would be evaluated and mitigated for, if necessitated, per the requirements of the applicable regulatory agencies.

2.2B PROTECTED SPECIES –

Federally protected and State protected flora and fauna species, which may potentially occur within the proposed project limits, include the following:

Species	Status FWC/FWS [1]	Estimated Likelihood of Occurrence				Comments
		Observed	Expected	Possible	Unlikely	
BIRDS						
Bald Eagle (*Haliaeetus leucocephalus*)	Not listed but protected		X			Not detected. Preferred large, water bodies are present. Eagle nests located south and outside of the project site.
Florida Sandhill Crane *(Grus Canadensis pratensis*)	T/--		X			Not detected. Preferred habitat is present. Cranes were seen outside of the project area.
Florida Burrowing Owl (*Athene cunicularia floridana)*	T/--				X	Not detected. Preferred burrowing habitat is not present.
Red-cockaded Woodpecker (*Picoides borealis*)	E/E				X	Not detected. Preferred habitat is not present.
Little Blue Heron (*Egretta caerulea*)	T/--		X			Not detected. Preferred habitat is present.
Tri-colored Heron (*Egretta tricolor*)	T/--		X			Not detected. Preferred habitat is present.
Wood Stork (*Mycteria Americana*)	T/T			X		Not detected. Preferred habitat is marginally present.
Southeastern American Kestrel (*Falco sparverius Paulus)*	T/--			X		Not detected. Marginal preferred habitat is present in the area.
Piping Plover (*Charadrius melodus)*	--/T			X		Not detected. Preferred habitat is not present.
Florida Scrub-Jay (*Aphelocoma coerulescens*)	--/T				X	Not detected. Preferred habitat is not present.
Rufa Red Knot (*Calidris canutus rufa*)	--/T			X		Not detected. Preferred habitat is marginally present.
Eastern Black Rail (*Laterallus jamaicensis ssp.*)	--/T				X	This species is federally proposed threatened. Not detected. Preferred habitat is not present
Scott's Seaside Sparrow (*Ammopiiza martitima peninsulae*)	T/--			X		Not detected. Preferred habitat is not present in the project area.
Marian's Marsh Wren (*Cistothorus palustris mariane)*	T/--			X		Not detected. Preferred habitat is not present in the project area.
Least Tern (*Sternula antillarum*)	T/--			X		Not detected. Preferred habitat is not present in the project area.
MAMMALS						
West Indian Manatee (*Trichechus mamatus*)	--/T				X	Not detected. Preferred habitat is not present
Florida Black Bear (*Ursus americanus floridanus*)	NL			X		Not detected. Large undeveloped forested wetlands and uplands present in the area.

REPTILES						
Gopher Tortoise (*Gopherus Polyphemus*)	T/C				X	Gopher tortoise burrows were not detected on the project site.
Florida Pine Snake (*Pituophis melanoleucus mugitus)*	T/--				X	Not detected. Preferred habitat is not present.
Short-tailed Snake (*Stilosoma extenuatum)*	T/--				X	Not detected. Preferred habitat is not present.
Eastern Indigo Snake (*Drymarchon corais couperi*)	T/T			X		Not detected. Gopher tortoise burrows are not present. Large undeveloped land is present in the area.
American Alligator (*Alligator mississippiensis*)	--/T(SA)		X			Not detected. Preferred habitat is present.
Loggerhead Sea Turtle (*Caretta caretta*)	--/T				X	Not detected. Preferred habitat is not present
Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)	--/UR			X		This species is under review for Federal listing. Not detected. Preferred habitat is present.
AMPHIBIANS						
PLANTS						
Sand Butterfly Pea (*Centrosema Arenicola*)	T/--				X	Not detected. Preferred habitat is not present.
Godfrey's Swampprivet (*Forestiera godfreyi*	E/--				X	Not detected. This species has not been found in Hernando County.
Cooley's water-willow (*Justicia cooleyi*)	E/E				X	Not detected. Preferred habitat is not present.
Celestial Lily (*Nemastylis floridana*)	E/--			X		Not detected. Marginal preferred habitat is present.
Florida Mountain Mint (*Pycanthemum floridanum*)	T/--			X		Not detected. Marginal preferred habitat is present.
Florida Filmy Fern (*Trichomanes punctatum sp*p.)	E/E			X		Not detected. Further review is needed.
Craighead's Nodding-caps (*Triphora craigheadii*)	E/--			X		Not detected. Marginal preferred habitat is present.

T= Threatened; E= Endangered; C= Candidate for Listing; UR= Under Review for Federal Listing; NL = Not listed.

It is noted that the above list was obtained from the Florida Natural Areas Inventory, Tallahassee, Florida and the *Florida's List of Endangered and Threatened Species*, FWC, Updated June 2021.

The following section will discuss each specific protected species and the potential for occurrence within the proposed project limits and whether they were observed within the proposed project limits, during site visits.

2.2C LISTED SPECIES DESCRIPTIONS AND POTENTIAL OBSERVATIONS

Bald Eagle – Not Listed but Protect Under Various Protection Acts
Florida has one of the densest concentrations of nesting bald eagles in the lower 48 states, with an estimated 1,500 nesting pairs. Concentrations of nesting territories are clustered around several significant lake, river, and coastal systems throughout the state. The Florida Fish and Wildlife Conservation Commission has monitored the population of nesting bald eagles in Florida since 1972.

The bald eagle was removed from the USFWS endangered species list and the FWC imperiled species list in 2007 and 2008, respectively. The bald eagle continues to be protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act, along with the state Bald Eagle Rule (68A-16.002, F.A.C.).

The FWC's – Bald Eagle Nest locator website was reviewed to confirm Bald Eagle nests in the vicinity of the proposed project site. The nest locator website confirmed that there is one Bald Eagle nest (HN007), approximately 1.54 miles south of the proposed project site. However, the SWFWMD's 1997 *Plan for the Use & Management of the Weeki Wachee Preserve*, stated that there are three bald eagle nests, in the same vicinity of eagle nest HN007. Either way, bald eagle nest(s) are located south of the proposed project area, within the Weeki Wachee Preserve. (Please see Appendix for Eagle Nest Map)

According to the Cornell Ornithology Lab eBird website, there have been numerous bald eagle sightings throughout the years, along the west coast of Hernando County and in the Hernando Beach area. Bald eagles have also been observed within the Weeki Wachee Preserve, at numerous locations.

Although the proposed project site does have large, open water bodies for eagle foraging, there are no large trees in the proposed project area for nest building or perching and the existing bald eagle nest(s) are far away from the proposed project site. Due to the distance from the existing eagle nests, permitting is not required for this species. No adverse effect is anticipated.

Eastern Indigo Snake – Federally Threatened
The Eastern indigo snake is a non-venomous, bluish-black colored snake that can reach lengths of eight feet (2.4 meters). Its chin, cheek, and throat are mostly red or brown, but can also be white or black. Most indigo snakes have smooth scales, although adults do have keels (ridges) on the front of some of their scales. When approached, the Eastern indigo snake shows no aggression. They are also exothermic species – their body temperature is externally regulated. The Eastern indigo snake's diet primarily consists of a variety of species, including small mammals, birds, toads, frogs, turtles and their eggs, lizards, and small alligators. Indigo snakes begin breeding between the

months of November and April and nest between the months of May and August. Females lay 4-12 eggs yearly or bi-yearly, with the eggs hatching 90 days after being laid. Since the indigo snake is a commensal of the gopher tortoise, females usually deposit their eggs in gopher tortoise burrows. Eastern indigo snakes inhabit pine flatwoods, hardwood forests, moist hammocks, and areas that surround cypress swamps. They can be found throughout Peninsular Florida and southeastern Georgia.

According to the U.S. Fish and Wildlife Service (USFWS), in order to maintain species viability, resilient eastern indigo snake populations need very large habitat patches (> 10,000 acres) of good, quality habitat (diverse, unfragmented, few roads), with adequate shelter sites (e.g., gopher tortoise burrows) and connectivity among one or more populations for genetic exchange.

During site visits to the proposed project site, no eastern indigo snakes or their snake sheds were observed during the environmental survey. However, communication with SWFWMD staff mentioned observing an indigo snake outside of the proposed project area, north of the proposed project site. No adverse effect is anticipated.

Little Blue Heron – State Threatened

The little blue heron is a small wading bird species that can reach a length of up to 29 inches, with a wingspan of 41 inches and a weight of 14 ounces. Little blue herons have a grayish-blue body and a dark red head during breeding, and a purplish head and neck during non-breeding periods. The diet of the little blue heron primarily consists of fish, insects, shrimp, and amphibians. Little blue herons feed alone, usually along freshwater systems and on floating vegetation. The little blue heron nests in colonies, often with other species of long-legged waders. Nests of sticks are placed in trees and shrubs on islands, thickets near water, or emergent vegetation over water. Little blue herons will lay three to five blue-green eggs that hatch in 20 to 24 days. The young are able to leave the nest and fly (fledge) at 28 days of age.

Little blue herons inhabit fresh, salt, and brackish water environments in Florida including swamps, estuaries, ponds, lakes, and rivers. In the U.S., the little blue heron can be found from Missouri, east to Virginia, down to Florida, and west to Texas. In peninsular Florida they are relatively common and widespread but somewhat rare in the Panhandle. Outside of the U.S, the little blue heron can be found in Cuba, both coasts of Mexico and Central America, down into central South America.

The proposed project site does have the preferred habitat to support this avian species, however, no Little blue herons were detected during the environmental review. No adverse effect is anticipated.

Tri-Colored Heron – State Threatened

The tricolored heron is a midsized member of the genus *Egretta.* This species can reach a length between 24-26 inches with a wingspan of approximately 36 inches. The tricolored heron is named for its distinct coloration. It has a dark slate-blue colored head and upper body, a purple chest, and white underparts. This species also has a long, slender neck and bill, and is the only dark heron with light underparts.

The diet of the tricolored heron primarily consists of fish. Tricolored herons breed in colonies between the months of February and August. Females construct nests out of sticks and vegetation collected by the males. Nests are found in trees or shrubs on salt marsh islands or standing water. Females lay between three to five eggs and both parents share incubation duties. Eggs hatch approximately 21-25 days after being laid. The young remain in the nest until they are approximately 35 days old.

Tricolored herons inhabit fresh and saltwater marshes, estuaries, mangrove swamps, lagoons, and river deltas. They can be found from Massachusetts, down through the Gulf of Mexico and Caribbean, to northern Brazil. Breeding sites can also be found on the Pacific Coast from Baja California down to Ecuador. Tricolored herons are widespread, permanent residents in Florida, although they are less common in some parts of the Panhandle.

The proposed project site does have the preferred habitat to support this avian species, however, no Tri-colored herons were detected during the environmental review. No adverse impact is anticipated.

<u>Rufa Red Knot</u> – Federally Threatened
The rufa red knot is a medium-sized shorebird about 9 to 11 inches in length. The red knot is easily recognized during the breeding season by its distinctive rufous (red) plumage (feathers). The face, prominent stripe above the eye, breast, and upper belly are a rich rufous-red to a brick or salmon red, sometimes with a few scattered light feathers mixed in. The feathers of the lower belly and under the tail are whitish with dark flecks. Upperparts are dark brown with white and rufous feather edges; outer primary feathers are dark brown to black. Females are similar in color to males, though the rufous colors are typically less intense, with more buff or light gray on the dorsal (back) parts.

Coastal habitats used by red knots in migration and wintering areas are similar in character, generally coastal marine and estuarine habitats, with large areas of exposed intertidal sediments. Migration and wintering habitats include both high-energy ocean- or bay- front areas, as well as tidal flats in more sheltered bays and lagoons. Preferred wintering and migration habitats are muddy or sandy coastal areas, specifically, bays and estuaries, tidal flats, and unimproved tidal inlets. Along the U.S. Atlantic coast, dynamic and ephemeral features are important red knot habitats, including sand spits, islets, shoals, and sandbars, features often associated with inlets. In many wintering and

stopover areas, quality high-tide roosting habitat (i.e., close to feeding areas, protected from predators, with sufficient space during the highest tides, free from excessive human disturbance) is limited. In nonbreeding habitats, *Calidris canutus* require sparse vegetation and open landscapes to avoid predation. Available information suggests that red knots use inland saline lakes as stopover habitat in the Northern Great Plains. There is little information to indicate whether or not red knots may also utilize inland freshwater habitats during migration, but data suggest that certain freshwater areas (e.g., wetlands, riverine sandbars) may warrant further federal study as potential stopover habitats. Available data indicate that small numbers of red knots sometimes use manmade freshwater habitats (e.g., impoundments) along inland migration routes. The diet across all six subspecies, *Calidris canutus* is a specialized molluscivore, eating hard-shelled mollusks, sometimes supplemented with easily accessed softer invertebrate prey, such as shrimp and crab-like organisms, marine worms, and horseshoe crab eggs.

The proposed project site does have some marginal habitat (freshwater impoundments), however, the *Calidris canutus* prefers marine, coastal environments, including mud flats, for feeding.

No Rufa red knots were detected within the proposed project area during the environmental review. No adverse effect is anticipated.

Wood Stork – Federally Threatened

The wood stork is a large, long legged wading bird that reaches a length of 35-45 inches (89-114 centimeters) with a wingspan of 60-65 inches (152-165 centimeters). The primary and tail feathers are black. The head and upper neck of adult wood storks have no feathers but have gray rough scaly skin. Wood storks also have a black bill and black legs with pink toes. Adult wood storks are voiceless and are capable of only making hissing sounds. Wood storks feed on small to medium-sized fish, crayfish, amphibians, and reptiles. Their hunting technique is unique as they will move their partially opened bill through water, snapping up prey when the prey comes in contact with the bill. The wood stork is the only species of stork that breeds in the U.S. Wood storks are very social in nesting habitats, as they are often seen nesting in large colonies of 100-500 nests. Colonies in South Florida form late November to early March, while wood storks in Central and North Florida form colonies from February to March. After copulation, males begin gathering twigs for constructing nests. Wood stork nests are primarily built in trees that stand in water. In Florida, wood storks are capable of laying eggs from October to June. Females lay a single clutch of two to five eggs per season. The average incubation period is 30 days, with young wood storks able to fly 10-12 weeks after hatching. Wood storks nest in mixed hardwood swamps, sloughs, mangroves, and cypress domes/strands in Florida. They forage in a variety of wetlands including both freshwater and estuarine marshes, although limited to depths less than 10-12 inches.

The wood stork breeds in Florida, Georgia, South Carolina, and North Carolina. Non-breeding wood storks have an extensive range throughout North America, to northern Argentina in South America.

Since the majority of the water bodies within the proposed project limits are deep water habitats, it's highly unlikely that woods storks would utilize these areas for foraging and no wood storks were observed during the environmental survey. No adverse effect is anticipated.

Florida Scub-Jay – Federally Threatened

The Florida scrub-jay is a blue and gray bird about the size of a blue jay. Scrub-jays have blue wings, head, and tail, and gray back and underparts, and a whitish forehead and neck. Unlike blue jays, this species does not have black markings or a crest. The diet of the Florida scrub-jay primarily consists of insects, frogs, toads, lizards, mice, bird eggs, and acorns. Florida scrub-jays live in family groups that consist of a breeding pair and young helpers, which are usually the offspring of the pair. Scrub-jays begin breeding around two to three years of age and will continue breeding throughout their lifetime. Scrub-jays are cooperative breeders, as offspring of the breeding pair may stay as helpers for one or more years to help raise other young and defend the territory. Scrub-jays breed from March to June and nests are built from twigs and palmetto fibers 3 to 10 feet (0.9 – 3 meters) off of the ground in shrubby oaks. Scrub-jays are non-migratory and typically defend the same nesting territory year after year. Florida scrub-jays usually have one brood (the young hatched from a single clutch) per year but will renest if failure occurs early in the season. The average clutch size for the scrub-jay is two to five eggs per nesting. Eggs are incubated for 18 days, and the juveniles fledge at about 18 days after hatching. Immature scrub-jays usually remain in their natal territory as helpers for the first year. The Florida scrub-jay is the only species of bird that is endemic to Florida. Scrub-jays inhabit sand pine and xeric oak scrub, and scrubby flatwoods, which occur in some of the highest and driest areas of Florida – ancient sandy ridges that run down the middle of the state, old sand dunes along the coasts, and sandy deposits along rivers in the interior of the state. Scrub-jays do best in areas that contain large quantities of oak shrubs that average 3.28-6.56 feet (1-2 meters).

The proposed project site does not have the preferred habitat to support this species and no Scrub-jays were observed during the environmental survey. No adverse effect is anticipated.

Scott's Seaside Sparrow – State Threatened

The Scott's seaside sparrow is a larger member of the Genus *Ammodramus* that can reach a length of six inches (15 centimeters) with a wingspan of 7.9 inches (20 centimeters). Scott's seaside sparrow has a grayish-brown or grayish-olive upper body, a brown breast, a long bill, and short pointed tail. The diet of the Scott's seaside

sparrow consists of crustaceans, insects, spiders, and seeds mainly from marsh floors. The bill is used in foraging for prey in the mud on the marsh floor. Seaside sparrows nest in clumps of fallen cordgrass (*Spartina alterniflora)* and black needle rush (*Juncus roemarianus*). Nesting is unique because two different types of nests are built. Open nests are built deep in vegetation while more complicated domed nests are built in less dense vegetation. They will form a canopy over the nest by pulling down blades of grass. During one nesting, three to four eggs will be laid with incubation lasting for 12 to 13 days. Young seaside sparrows are able to fly at nine to ten days of age. Seaside sparrows primarily inhabit tidal marshes in Florida. Scott's seaside sparrow can be found from Pasco County to Pepperfish Keys in Dixie County, Florida.

The proposed project area does not contain the preferred marsh habitat to support this avian species and Scott's seaside sparrows were not observed during the environmental review. Brackish and saltwater marshes are located to the north and northeast of the proposed project area. No adverse effect is anticipated.

Florida Sandhill Crane – State Threatened

Florida sandhill cranes occur from southern Georgia, primarily in the Okefenokee Swamp, to the Everglades. However, most of the population is in peninsular Florida from Alachua County in the north to the northern edge of the Everglades in the south. Sandhill cranes rely on shallow marshes for roosting and nesting and open upland and wetland habitats for foraging. Preferred crane habitat occurs where most vegetation is less than 50 cm (20 in) high. Cranes in north Florida spent 86% of their time in 4 habitat types: pasture, freshwater marsh, pasture– marsh transition, and pasture–forest transition. A pair's average home range is about 450 ha (1,100 ac). Home ranges overlap but core nesting areas are defended from other cranes and vary from 120 to 250 ha (300 to 635 ac).

The proposed project site does have some marginal, preferred habitat for foraging and to support this species. Nesting may possibly occur outside of the proposed project area, in shallow freshwater marshes. A pair of sandhill cranes were observed foraging in the uplands, outside of the proposed project area, east of the surface water mine pits, during the environmental review. **No nests or cranes were observed within the proposed project limits. No adverse effect is anticipated.**

Florida Burrowing Owl – State Threatened

Burrowing owls inhabit open-type habitats that offer short groundcover. Historically, these habitat requirements were met by native dry prairies that covered much of central Florida; however, due to human development in natural areas there has been a range expansion into north and south Florida. More recently, burrowing owls have turned to pastures, agricultural fields, golf courses, airports, schools, and vacant lots in residential areas as most native open habitats have been converted by humans to these new uses.

The project site does have some marginal preferred habitat for foraging but due to the limerock at the surface and subsurface, burrowing owls cannot burrow into this hard material. No burrowing owls or their burrows were observed during the environmental review. No adverse effect is anticipated.

Piping Plover – Federally Threatened

The piping plover is a small shorebird, measuring up to 7.25 inches in length with a wingspan of 14-15.5 inches. This species has a white belly, pale grayish upperparts, bright yellow-orange legs, and a small bi-colored bill. Breeding piping plovers have a black stripe across their forehead and a dark ring partially surrounding their neck. The diet of the piping plover primarily consists of insects, crustaceans, and marine worms.

Piping plovers do not breed in Florida but spend a large portion of their year "wintering" here. Pairs of piping plovers arrive at breeding grounds from southern Canada to Nebraska starting in late March and early April. In courtship, the male flies over his territory while tilting side to side and performing deep, slow wing beats. After courtship, the breeding pair forms a nest by scraping a depression in the sand, sometimes using pebbles to line the nest. Nests with a pebble lining can take five to ten days to construct, while a nest without pebbles can be constructed in a couple of hours. Nesting occurs in May and June. Females lay up to four eggs (one egg every other day) that are incubated for 31 days. The young are precocious (require very little assistance). Young are able to forage with their parents soon after hatching and fledge at 30 days old.

Piping plovers inhabit sandy beaches, sand flats, and mudflats along coastal areas. The species can be found along Gulf Coast states and Mexico, along the Atlantic Coast from Florida to Newfoundland, and west to northern Michigan and Wisconsin. The nesting range extends from southern Canada to Nebraska.

On Florida's west coast, populations of wintering Piping plovers may be seen from Bayport, north to Crystal River and south from Port Richey to the Florida Keys.

According to the Cornell Ornithology Lab - eBird mapping website, there have been no reported Piping Plover observations in the Hernando Beach area, and none were observed within the proposed project area during the environmental review. However, due to the openness of the areas surrounding the open water mine pits, piping plovers may potentially visit the area, as a stopover, on their way to coastal beaches in the southern part of the state. No adverse effect is anticipated.

Marians Marsh Wren – State Threatened

Marian's marsh wren is a small wren that can reach a length of five inches. This species of marsh wren has a dark brown neck, upper back, head, wings, and tail, and a light brown belly. As with all marsh wrens, they have a white band above their eye and a white-streaked black triangle on their back. The diet of the Marian's marsh wren consists of spiders, insects, and invertebrates. Marian's marsh wrens prefer nesting in cordgrass (*Spartina alterniflora)* and black needle rush *(Juncus roemarianus)* that are located along tidal creeks during the months of March and April. During courtship, males will fly up to 23 feet over their marsh habitat in a showing of territorial ownership. Marsh wrens usually nest in colonies building 5-12 dome-shaped nests with a side entrance. These nests are used for courting females as the female will pick one mate and finish the nest by adding fine grasses to the inner lining. Males also court females by singing to them. During nesting and incubation, the female will protect the nest as the male will show no interest in it. Females lay three to five eggs in one nesting and incubation lasts 11 to 12 days. Young wrens are very loud and can be heard up to 98.4 feet away, days before fledging. Marian's marsh wren inhabits marshes dominated by black needle rush (*Juncus roemarianus)* and cordgrass (*Spartina alterniflora*) on the Florida Gulf coast. This marsh wren species can be found from Pasco to Escambia County, Florida, and into southwest Alabama.

The Cornell Ornithology Lab – eBird mapping website had no information regarding this avian species. The proposed project area does not contain the preferred habitat for this species and no Marians marsh wrens were observed during the environmental review. Brackish and saltwater marshes are located outside of the proposed project area to the north and northeast. No adverse effect is anticipated.

Least Tern – State Threatened

The least tern is the smallest tern in North America. Least terns can reach a length between 8.3-9.1 inches, with a wingspan of 21-23 inches. Least terns have long pointed wings and a deeply forked tail. Other physical characteristics include a yellow beak, gray back, white belly, and black cap. Like all North American terns, the least tern has long, pointed wings and a deeply forked tail. It is the smallest of the terns and bears outer wing feathers that edge the light-gray wings in black. The breeding adult is gray above, white below, with a black cap.

Not only are the birds extremely susceptible to nest disturbance, but they have also lost extensive nesting habitat to beach development and increased human activity. Least terns are colony nesters, meaning they nest in a group, which allows them to exchange information about food sources, as well as to detect and mob predators. An entire colony can be easily destroyed by predation by red foxes, raccoons, dogs and house cats, by human trampling, or by catastrophic storms. In the past couple of decades, due to habitat loss, least terns have taken to nesting on flat roofs, especially gravel ones. The Florida Fish and Wildlife Conservation Commission (FWC) has developed an educational program implemented in Pinellas County. The program is to help business (or home)

owners educate their customers about having tolerance for least terns that are 'squatting' on their flat, gravel roofs. A poster was developed to promote the public educational project.

Least terns do respond quickly to improved habitat, such as the removal of beach vegetation or the dumping of dredged sand. Least tern populations seem to be slowly rising, although they are still listed as 'threatened' by the state. At many nesting areas, signs warn people against entering colonies, many of which are roped off during breeding season.

The least tern inhabits areas along the coasts of Florida including estuaries and bays, as well as areas around rivers in the Great Plains. In Florida, the least tern can be found throughout most coastal areas. Outside of Florida, least terns are found along the U.S. Atlantic Coast, mid-Atlantic states, and down from Mexico to northern Argentina.

According to the Cornell Ornithology Lab eBird website, area Least tern observations included Gulfview Drive (west end), Weeki Wachee Preserve (at the Preserve's entrance off Osowaw Blvd.), areas within Timber Pines and the Sunwest Mine, located south of the proposed project site, in Pasco County.

No Least terns were observed within the proposed project limits, but they may occur as a stopover to southern Florida beach areas (i.e., Pinellas County). No adverse effect is anticipated.

<u>Eastern Black Rail</u> – Federally Threatened
Black rails require dense vegetative cover that allows movement underneath the canopy. Because birds are found in a variety of salt, brackish, and freshwater marsh habitats that can be tidally or non-tidally influenced, plant structure is considered more important than plant species composition in predicting habitat suitability. Vegetation height is generally less than or equal to 1 meter in coastal habitats, but taller in occupied cattail and bulrush marshes. However, the 2019 species status assessment noted that when shrub densities become too high, the habitat becomes less suitable for eastern black rails. Soils are moist to saturated, occasionally dry, and interspersed with, or adjacent to, very shallow water of 1 to 6 centimeters. Eastern black rail habitat can be tidally or non-tidally influenced, and range in salinity from salt to brackish to fresh. Tidal height and volume vary greatly between the Atlantic and Gulf coasts, and therefore, contribute to differences in salt marsh cover plants in the bird's habitat.

In the northeastern United States, the eastern black rail can typically be found in salt and brackish marshes with dense cover but can also be found in upland areas of these marshes. Further south along the Atlantic coast, eastern black rail habitat includes impounded and unimpounded salt and brackish marshes.

Along portions of the Gulf Coast, eastern black rails can be found in higher elevation wetland zones with some shrubby vegetation. Impounded and unimpounded intermediate marshes, which are marshes that are closer to high elevation areas, also provide habitat for the subspecies. Inland coastal prairies and associated wetlands may also provide habitat for the bird but are largely uninvestigated.

There were no Eastern black rail sightings during the environmental review. No adverse effect is anticipated.

Gopher Tortoise – State Threatened

The gopher tortoise is one of five North American tortoise species and is the only tortoise naturally found east of the Mississippi River. Its range includes the southeastern Coastal Plain from southeastern Louisiana east to southern South Carolina, and south to Florida. Gopher tortoises occur in parts of all 67 Florida counties.

The gopher tortoise is unique in that it is Federally listed as Threatened under the Endangered Species Act only in the portion of its range occurring west of the Mobile and Tombigbee Rivers in Alabama. In the eastern portion of its range, the gopher tortoise is a Candidate species for federal protection. The gopher tortoise has some form of state-level protection in each state which it occurs and is a State-designated Threatened species in Florida.

The gopher tortoise is a moderate-sized, terrestrial turtle, averaging 9–11 inches in length when fully grown, though it can reach lengths of up to 15 inches. The species is identifiable by its stumpy, elephantine hind feet and flattened, shovel-like forelimbs covered in thick scales. Hatchling (<1-year-old) and juvenile tortoises tend to be yellow-orange and brown in color, but the bright coloration fades with age. The shell of an adult gopher tortoise is generally tan, brown, or gray in coloration. Adult male and female tortoises can be differentiated by the presence or absence of a concavity on their lower shell (plastron); mature males will exhibit this concavity, whereas females will have a flat lower shell.

Gopher tortoises can live 40 to 60 years in the wild, though captive tortoises may live 90+ years. Males reach adulthood at approximately 9-12 years of age, whereas a female may take 10-21 years to reach maturity depending on local resource abundance and latitude. The breeding season occurs between March and October. Females typically lay one clutch of 5-9 ping pong ball-sized eggs per year. Eggs are deposited between May and July. Gopher tortoises nest in open, sunny locations, frequently within the soft mound of sand at the entrance of their burrow, called the burrow apron. Egg incubation lasts 80 to 110 days, and hatchlings typically emerge from their nests between August and November. Tortoises exhibit no maternal care of their eggs or young.

The life of a gopher tortoise revolves around its burrow(s) where gopher tortoises spend up to 80% of their time. Burrows average 15 feet long and 6.5 feet deep, though they have been documented reaching up to 40 feet long and 10 feet deep. They often use multiple burrows throughout their lives, the number of which varies depending on the individual. Gopher tortoises are ectotherms, meaning they depend upon their environment to maintain their body temperature. Their burrows maintain a stable temperature and humidity year-round, providing protection from extreme temperatures, drought, and fire. Due to its warm climate, tortoises are essentially active year-round in Florida, though peak activity outside burrows occurs from May through August. In northern Florida, tortoises typically remain within their burrows during cold winter months but will bask or forage near their burrows on warm winter days. Burrows also offer shelter from predators and serve as refugia for more than 350 other species, called commensals. Some examples of commensal species include burrowing owls, Florida mice, indigo snakes, rabbits, gopher frogs, and invertebrates.

Gopher tortoises are herbivorous; they feed on low-growing plants like wiregrass, broadleaf grasses, gopher apple, and legumes (bean family plants). Tortoises are opportunistic grazers, so the dominant plants within their environment likely make up the bulk of their diet. Tortoises may alter their diet seasonally depending on forage availability. They typically forage within 160 ft of their burrow but will travel farther if forage is unavailable. Gopher tortoises may drink water that has pooled following a rainstorm, but generally consume an adequate amount of water from forage plants.

Gopher tortoises prefer well-drained, sandy soils found in habitats such as longleaf pine sandhills, xeric oak hammocks, scrub, pine flatwoods, dry prairies, and coastal dunes. They are also found in a variety of disturbed habitats including pastures and urban areas. Suitable gopher tortoise habitat contains well-drained sandy soils for digging burrows and nesting, abundant herbaceous plants for forage, and open, sunny areas with sparse canopy for nesting and basking. Periodic natural fires historically played an important role in many of the habitats where tortoises are found, as fire reduces canopy cover and promotes growth of herbaceous forage plants. When fire is suppressed from these environments, the habitat may become unsuitable for gopher tortoises. Prescribed fire is frequently used today to maintain these habitats.

Although Hernando County does have a very large population of gopher tortoises and gopher tortoise burrows, the proposed project site does not have the dry, well-drained soils suitable for the construction of gopher tortoise burrows and no gopher tortoise burrows were detected within the proposed project area, during the environmental review. Gopher tortoise burrows were confirmed outside of the proposed project area, in areas of drier, well-drained, sandy soils, along the Preserves long, paved entrance road (west side), off of Osowaw Blvd. No impacts to this species are anticipated.

Florida Black Bear – Not Listed

The Florida black bear (*Ursus americanus floridanus*), is one of 16 subspecies of the American black bear and is the only bear species in Florida. While other subspecies of the American black bear can have different coat colors from black to blonde to cinnamon, Florida black bears are black furred.

The Florida black bear historically occurred throughout the state but experienced a severe reduction in abundance prior to the mid-20th century due to loss of habitat, persecution, and unregulated hunting. Bear range was fragmented before the 1970s, when the first detailed bear range maps were created. The FWC classified the black bear as a Threatened Species from 1974 through 2012, when the species was considered recovered.

Black bears prefer habitats with a dense understory such as forested wetlands and uplands, natural pinelands, hammocks, scrub, and shrub lands, but will use just about every habitat type in Florida, including swamps.

While black bears tend to shy away from people, they are adaptable and will take advantage of human-provided food sources. This includes sources that are currently available near this site, sources that may be available during construction, and sources available after construction including unsecured garbage, pet food, and bird seed. Once bears become accustomed to finding food around people, their natural wariness is reduced to the point that there can be an increased risk to public safety or private property.

During construction, construction sites should be kept clean, with refuse that might attract bears kept separate from construction debris and stored securely in bear-resistant containers or removed daily from the construction site before dark. Refuse that might attract bears includes all food and drink-related materials, as well as any items with strong scents like cleaning agents. Once the project is completed, county staff should utilize bear-resistant garbage cans as part of their regular waste service and any larger waste storage containers should also be bear-resistant.

Hernando County does have a population of black bears, located primarily along the coast, from the Weeki Wachee Preserve to areas to the north, including the Chassahowitzka Wildlife Management Area.

It is possible that a black bear may occasionally visit or walk through the proposed project site during the closed hours of the recreational area. No adverse effect is anticipated.

American Alligator – Federally Designated Threatened due to Similarity of Appearance
Historically, alligators were depleted from many parts of their range as a result of market-hunting and habitat loss. Forty years ago, many people believed this unique reptile would never recover. In 1967, under a law that preceded the Endangered Species Act of 1973, the alligator was listed as endangered, meaning it was considered in danger of extinction throughout all or a significant portion of its range.

A combined effort by the U.S. Fish and Wildlife Service and State wildlife agencies in the South saved these unique animals. The Endangered Species Act prohibited alligator hunting, allowing the species to rebound in numbers in many areas where it had been depleted. As it began to make a comeback, States established alligator monitoring programs and used the information to ensure that numbers continued to increase. In 1987, the Fish and Wildlife Service pronounced the American alligator fully recovered and consequently removed the animal from the list of endangered species.

Although the American alligator is secure, some related animals—such as several species of crocodiles and caimans —are still in trouble. For this reason, the Fish and Wildlife Service continues to protect the alligator under the ESA classification as "threatened due to similarity of appearance." The Service thus regulates the harvest of alligators and legal trade in the animals, their skins, and products made from them, as part of efforts to prevent the illegal take and trafficking of endangered "look-alike" reptiles.

The American alligator is a large aquatic reptile and is one of two crocodilians native to Florida. Alligators can be distinguished from the American crocodile by head shape and color. Alligators have a broad, rounded snout with no lower teeth visible when their jaw is closed. The American crocodile has a narrow snout, and the fourth tooth of the lower jaw protrudes when closed. Adult alligators are primarily dark gray in color with a lighter color underside, although juvenile alligators will have light colored stripes on their sides for camouflage. American crocodiles are a brownish gray color and are generally paler colored than alligators. It is not uncommon for alligators to take on the colors of their environment. Many people associate alligators with the color green, but this misconception comes from the green algae and floating vegetation that frequently adheres to an alligator's back. Female alligators rarely exceed 10 feet in length, but males can grow much larger. The Florida state record for length is a 14-foot 3 1/2-inch male from Lake Washington in Brevard County. The Florida record for weight is a 1,043-pound (13 feet 10-1/2 inches long) male from Orange Lake in Alachua County. Armored plates (scutes) cover the body dorsally, and alligators have a vertically flattened tail.

Alligators occur from southeast Oklahoma and east Texas on the western side of their range to North Carolina and Florida in the east. They prefer freshwater lakes and slow-moving rivers and their associated wetlands, but they also can be found in brackish water habitats and rarely in salt water.

Alligators are opportunistic feeders. Their diets include prey species that are abundant and easily accessible. Juvenile alligators eat primarily insects, amphibians, small fish, and other invertebrates. Adult alligators eat rough fish, snakes, turtles, small mammals, and birds. Nearly all alligators become sexually mature by the time they reach about 7 feet in length although females can reach maturity at 6 feet. A female may require 10 to 15 years and a male 8 to 12 years to reach these lengths. Courtship begins in early April, and mating occurs in May or June. Females build a mound nest of soil, vegetation, or debris and deposit approximately 32 to 46 eggs in late June or early July. Incubation requires approximately 60-65 days, and hatching occurs in late August or early September. From an average clutch size of 35, an estimated 4 alligators will reach maturity. This estimate is for a growing alligator population. As an alligator population matures (and has a higher percentage of large animals), the survival rate would be expected to be lower, in part due to a higher rate of cannibalism. Alligators are ectothermic (cold blooded). They regulate their body temperature by basking in the sun or moving to areas with warmer or cooler air or water temperatures. They are most active when temperatures are between 82° to 92° F. They stop feeding when the ambient temperature drops below approximately 70° F, and they become dormant below 55° F. Alligators are dormant throughout much of the winter. During this time, they can be found in burrows that they construct adjacent to an alligator hole or open water, but they occasionally emerge to bask in the sun during periods of warm weather.

Florida currently has a statewide, limited hunting permit program, in place, to conduct annual alligator hunts in order to reduce the states alligator population.

The proposed project site does contain wetlands and/or other surface waters to support this species, however, no alligators or their nests were observed. No adverse effect is anticipated.

Sand Butterfly Pea – State Threatened

The Sand Butterfly Pea is a perennial vine with stems up to 1 foot long, twining over bushes. Leaves with 3 oval or lance-shaped leaflets to 2 inches long, dark green, somewhat leathery. Flowers 1.5 inches wide, purplish-blue (rarely pink or white), twisted so that large, notched banner petal is lowest. Calyx with 4 triangular lobes, the lower lobe forked, the upper lobes much shorter than the lower. Two small bracts beneath the flower partially hide the calyx. Fruit a flattened pod, 4.8 inches long, linear, with a long curving beak.
The Sand Butterfly Pea may possibly be seen in sandhill, scrubby flatwoods, and dry upland woods.

The proposed project area does not have the habitat to support this species and no Sand Butterfly Pea plants were observed during the environmental review. No adverse effect is anticipated.

Godfrey's Swampprivet – State Endangered
Godfrey's swampprivet is a deciduous shrub or small tree. The ovate leaves have pubescent lower surface and yellow fuzzy flowers appear in early spring on last season's twigs. Female plants may bear small dark blue berries. This rare species is found on calcareous soils, but it is adaptable to most garden soils. *Forestiera godfreyi* is known from a fairly limited range: nine counties in northern Florida and north along the coast to southeastern Georgia and extreme southeastern South Carolina. Approximately 18 occurrences are believed extant, mostly in Florida. Plants appear to be locally abundant at least a few sites, but sparse at least a few others; number of individuals can be difficult to estimate due to the species' propensity to form thickets. At least half of the occurrences are protected on parks or preserves. Threatened by competition with exotic plants such as Chinese privet and Nandina at some protected sites; unprotected sites may be impacted by logging and residential development.

This flora species has not been found in Hernando County. No adverse effect is anticipated.

Cooley's Water Willow – State and Federally Endangered
Cooley's water-willow is a rhizomatous perennial herb with upright stems that grow about 16 in tall. The lavender-rose flowers, which resemble small snapdragons, appear from August to December on forked, zigzag branches. The petals are fused into a two-lipped corolla. The slightly longer lower lip is mottled lavender and white; the upper lip is bright lavender-rose.

The species grows in a single Florida county (Hernando County), where it is found on moist, sand to clay soils in hard-wood forests (hammocks), often on limestone substrate. These forests include such trees as southern magnolia, black gum, sweet gum, live oak, pignut hickory, cabbage palm, and yaupon holly. The understory is mostly ferns, woodland grasses, and sedge. Cooley's water-willow is only found on a portion of the Brooksville Ridge, an unusual region of the Florida peninsula noted for its extensive limestone outcrops and sinkholes. Surface streams are few, and most drainage is to ponds, prairies and sinkholes.

Cooley's Water-willow is not found along the coastal areas. This species may be found around Brooksville and areas to the north (towards Sugarmill Woods and Floral City). No adverse effect is anticipated.

Celestial Lily – State Endangered
Celestial lilies are perennial herbs, from a bulb with a single, tall, slender stem, occasionally branching on robust plants. Basal leaves few, grass-like, sometimes more than 2 feet long. Stem leaves small and scattered along the stem. Flowers more than 1.5 inches across, with 6 dark blue, spreading petals and

sepals (tepals); flowers open around 4 pm and close by dusk. Stamens with 3 coiled, yellow anthers; style divided into 6 narrow, pointed branches. Fruit an erect, oval capsule, about .5 inch long. Celestial lilies may be found in wet flatwoods (often in cabbage palm flatwoods), prairies, marshes, cabbage palm hammocks edges.

Although the proposed project area does contain some marginal habitat for this flora species, no Celestial lilies were detected within the proposed project area. No adverse effect is anticipated.

Florida Mountain Mint – State Threatened
Florida mountain mint is a perennial herb, which can grow to several feet tall with square stems. Leaves are opposite with slightly toothed margins and a pleasant spearmint odor when crushed. Toward the top of the plant, leaves become whitish bracts with flowers developing in tight axillary clusters. The typical mint-type flowers are white with pink/purple spots.

Florida mountain mint plants may be found in roadside ditches and in moist areas of sandhill communities.

Although the proposed project area does contain some marginal habitat for this flora species, no Florida mountain mint plants were detected within the proposed project area. No adverse effect is anticipated.

Florida Filmy Fern – State and Federally Endangered
Florida filmy fern is a small fern with crowded, overlapping leaves and long, thread-like stems. Leaves less than 1 inch long, filmy and delicate; blades rounded or elongated, with dark, branched hairs on margins (visible with magnification). Midvein extends less than halfway up the leaf then repeatedly forks. Spores are produced in several tiny, conical, flaring, dark-lipped structures (soral involucres) on the tips of each leaf; a bristle protrudes from each involucre.

Four species of filmy fern occur in Florida, and all are rare or endangered, including: winged filmy fern (*Trichomanes holopterum*), Peter's filmy fern (*Trichomanes petersii*), and lined filmy fern (*Trichomanes lineolatum*).

Florida filmy fern may be seen in tree trunks in hammocks, edges of limesinks, and limestone boulders, often with mosses and liverworts.

Filmy ferns may be commonly mistaken for moss, algae or liverworts. Due to the limerock within the proposed project limits, this flora species will need further review.

Craighead's Nodding-caps – State Endangered
Craighead's nodding-caps are a terrestrial, perennial herb to 3.2 inches tall. The stem is purple, succulent, usually less than 1.5 inches tall. Leaves are 1 - 4, less than 0.5 inch long, dark green above, purple below, clasping the stem, oval or heart-shaped with finely wavy margins. The flowers are 1 - 3, tubular, opening only at tips, opening at night and closing by noon of the next day. Sepals and petals greenish white with pink tips; lip white with purple spots and 3 parallel, entire crests. The fruit is an oval capsule, at first nodding then becoming erect.

Craighead's nodding-caps may be seen in mesic hardwood hammocks. Although there is some marginal habitat to support this flora species, no Craighead's nodding-caps were detected in the proposed project limits during the environmental review. No adverse effect is anticipated.

2.2D Potential Impact to Natural Resources and Protected Species

As mentioned above, the proposed project area is located in the area of the previous limerock mining operation and most, if not all, of the project area has been altered/impacted from its native, natural condition, by limerock mining and the dredging, as part of the development of the Hernando Beach community.

Although the mining operation has ceased 26 years ago, remnants of the mining operation are still evident, including the excavated mine pits, overburden piles, bare limerock surfaces and steep walls of the mine pits. Still, with these previous, significant land alterations, the mined portion of the Weeki Wachee Preserve does offer some marginal habitat for listed wildlife species utilization. Water quality is generally good (observation) and revegetation of exposed limerock areas (with both native and non-native vegetation) has slowly occurred over the course of time. Although not optimal, the freshwater bodies of water (the existing mine pits) do contain fish and aquatic organisms to support protected and unprotected mammals, reptiles and avian species. The SWFWMD's *Plan for the Use & Management of the Weeki Wachee Preserve* report, states that "the former limerock pits are generally considered biologically "sterile" in comparison to a natural lake environment and since the water comes directly from the Floridan Aquifer, the overall water quality is excellent."

Based on site visits and observations, the proposed project area is generally lacking significant usage by protected wildlife species and no protected wildlife species, with the potential to occur, were detected within the proposed project limits. This does not mean that protected wildlife species will not occur, merely that they were not detected during the site visits, and this can be taken to imply that there are possibly other, better suitable areas within the Weeki Wachee Preserve (outside of the proposed project area) which provide greater natural foraging and nesting habitats for protected species. The areas adjacent to the existing mine pits are currently regularly used for fishing, hiking,

trail running, swimming, mountain biking, dog walking and to a lesser degree, non-motorized boating. These human activities may tend to "push" native wildlife species away, into less frequented portions of the preserve, where wildlife species can forage, nest, and reproduce with limited human interactions/disturbances.

The proposed project will have minimal disturbance to protected species and no adverse effects to listed species is anticipated.

3.0 LAND USE

The general land use categories at the proposed project site, include the following land use codes and categories, which were obtained from the Florida Department of Transportation (FDOT) 1985 Handbook, entitled, *Florida Land Use, Cover and Forms, Classification System* (FLUCFCS). The SWFWMD's land use cover maps were used to identify the specific land use categories and codes.

FLUCFCS CODE	FLUCFCS DESCRIPTION
140	Commercial & Services
260	Other Open Lands
411	Pine Flatwoods
530	Reservoirs

140: Commercial & Services (former R Beach Restaurant) -
Commercial areas are predominately associated with the distribution of products and services. This category is composed of a large number of individual types of commercial land uses, which often occur in complex mixtures. The Commercial and Services category included all secondary structures associated with an enterprise, in addition to the main building and integral areas assigned to support the base unity. Included are shed, warehouses, office buildings, driveways, parking lots and landscaped areas. Other types of commercial areas include shopping centers and commercial strip developments. These areas have distinctive patterns which are readily identifiable on aerial photographs. Frequently, individual houses and other classes of urban land use may be found within commercial areas. Such uses normally are not delineated unless they can be plotted into polygons of at least one acre size at Level III mapping. Otherwise, the Mixed category would be used. Lastly, a commercial use which cannot be easily identified on aerial photography is the commercial report. These businesses cater to vacationing patrons and often contain associated recreational facilities, such as swimming pools and ball courts.

260: Other Open Lands (land surrounding mine pits) –
This category included those agricultural lands whose intended usage cannot be determined.

411: Pine Flatwoods (forested areas within the project area) -
These forest types are quite common throughout much of northern and central Florida. Originally, longleaf pine trees were common on drier sites, while slash pines, which are less fire-resistant, were confined to moist sites; wildfire being the contributing factor in this distribution. However, fire control and artificial reforestation have extended the range of slash pine into former longleaf pine communities. The pine flatwoods class is dominated by either slash pine, longleaf pine or a combination of both. The common flatwoods understory species include saw palmetto, wax myrtle, gallberry and a wide variety of both herbs and brush.

530: Reservoirs (former mine pits) -
Reservoirs are artificial impoundments of water. They are used for irrigation, flood control, municipal and rural water supplies, recreation, and hydro-electric power generation. Dams, levees, other water control structures or the excavation itself usually will be evident to aid in the identification.

3.1 SOILS

According to the USDA Soil Conservation Service Soil Survey of Hernando County, Florida and the USDA Web Soil Survey, the site consists of the following (6) soil types (see Appendix for USDA Soils Report):

Soil Code	Soil Type	Drainage	Approx. Depth to Water Table
4	Aripeka fine sand	Somewhat poorly drained	18 to 30 inches = 2-6 months 30 to 60 inches = 6 months
30	Lacoochee fine sandy loam	Poorly drained	Fluctuates with tide
50	Udalfic Arents-Urban land complex	No drainage class	40-60 inches
53	Weekiwachee muck	Very poorly drained	Fluctuates with tide
99	Water	No drainage class	0
100	Waters of the Gulf of Mexico	No drainage class	0

#4 Aripeka fine sand –
This soil mapping unit consists of nearly level, somewhat poorly drained soils on low ridges, adjacent to saltwater marsh. This soil is formed in marine sandy and loamy sediments and is underlain by limestone at a depth of 23 to 40 inches, except in solution holes, where thickness ranges to 45 inches or more. The water table is at a depth of 18 to 30 inches for 2 to 6 months and at a depth of 30 to 60 inches for 6 months or more during most years. During severe storms, this soil may be very briefly flooded by storm tides.

#30 Lacoochee fine sandy loam –
This is a nearly level, poorly drained soil in low, broad, tidal marsh areas. Included with this soil in mapping are similar soils that do not have a highly calcareous surface lay6er. Also included are similar soils in which limestone is below a depth of 20 inches. The underlying limestone has cracks and solution holes, and in many places the soil has a loamy subsoil. The water table fluctuates with the tide, and the soil is frequently flooded during normal high tides.

#50 Udalfic Arents-Urban land complex –
This soil complex is located in the western part of the county, near the Gulf of Mexico. Individual areas range from about 40 to 300 acres in size. About 30 to 50 percent of each area is Udalfic Arents, and 15 to 25 percent is Urban land – areas covered by houses, street, highways, buildings, parking lots and the like. The remainder of the area is canals, leading to the Gulf of Mexico.

Udalfic Arents consist of soil materials dug from canals through areas of former Aripeka, Homosassa and Lacoochee soils. The material dug from the canals has been reworked and shaped into building sites. Udalfic Arents consist of mineral material and fragments of hard and soft limestone. Part of the former loamy layers is mixed throughout the soil. Arents do not have an orderly sequence of soil layers, but are a variable mixture of lenses, streaks and pockets within short distances. Depth of the fill material ranges from about 40 to 60 inches. Beneath the fill material in most places is a layer of the former soil, which in turn is underlain by limestone.

The water table is at a depth of 40 to 60 inches throughout the year.

#53 Weekiwachee muck –
This is a very poorly drained organic soil in the tidal marsh. The water table fluctuates with the tide. This soil is flooded during normal high tides.

4.0 **FLOODPLAINS**

Floodplain information was obtained from the Federal Emergency Management Agency (FEMA), Hernando County and the Southwest Florida Water Management District (SWFWMD).

A review of the Federal Emergency Management Agency, National Flood Insurance Program FIRM Panel #282, confirmed the proposed project area is located in the floodplain. It is also noted that the entire Hernando Beach area is located in the floodplain. Please reference the attached Firmette, which shows a velocity zone, in which those areas do not provide compensation (Please see Appendix for FEMA Firmette).

5.0 **CULTURAL RESOURCES**

Correspondence from the Hernando County Planning Department confirmed no listed cultural resources sites in the vicinity of the proposed project site. **No cultural resources were identified within the project area. No adverse effect to cultural resources is anticipated.**

6.0 **SMOKE SHED** -

The proposed project site is within a smoke corridor that originates from the use of prescribed fire as a management tool on the Weeki Wachee Preserve. Prescribed fire is required to maintain many of the natural upland communities that exist on the Preserve property. SWFWMD Land Resources Department staff will continue to use prescribed burning to sustain the existing communities and to reduce fuel loads that may otherwise lead to catastrophic wildfires. The SWFWMD notifies area residents, via media releases, in advance of proposed prescribed fire events and that the area is within a smoke corridor, and the periodic use of prescribed burning will continue at the Weeki Wachee Preserve. Development projects of lands within two miles of native habitat managed by fire may wish to consider Florida Forest Service recommendations at https://www.fdacs.gov/Forest-Wildfire/For-Communities/Firewise-USA to create Fire-Wise communities.

7.0: PHOTOS

PHOTO 1: Typical view looking west towards the proposed project site.

PHOTO 2: Existing bathroom facility within the Weeki Wachee Preserve.

PHOTO 3: Typical view of the existing former mine pit.

PHOTO 4: Typical view of the former mine pits littoral zone.

PHOTO 5: Typical view of the proposed swimming area.

PHOTO 6: Typical view of the interior trail/road network.

PHOTO 7: Typical view of the proposed project area.

PHOTO 8: Sandhill cranes foraging outside of the proposed project area.

PHOTO 9: Existing, dilapidated pedestrian resting bench with roof, in Weeki Wachee Preserve.

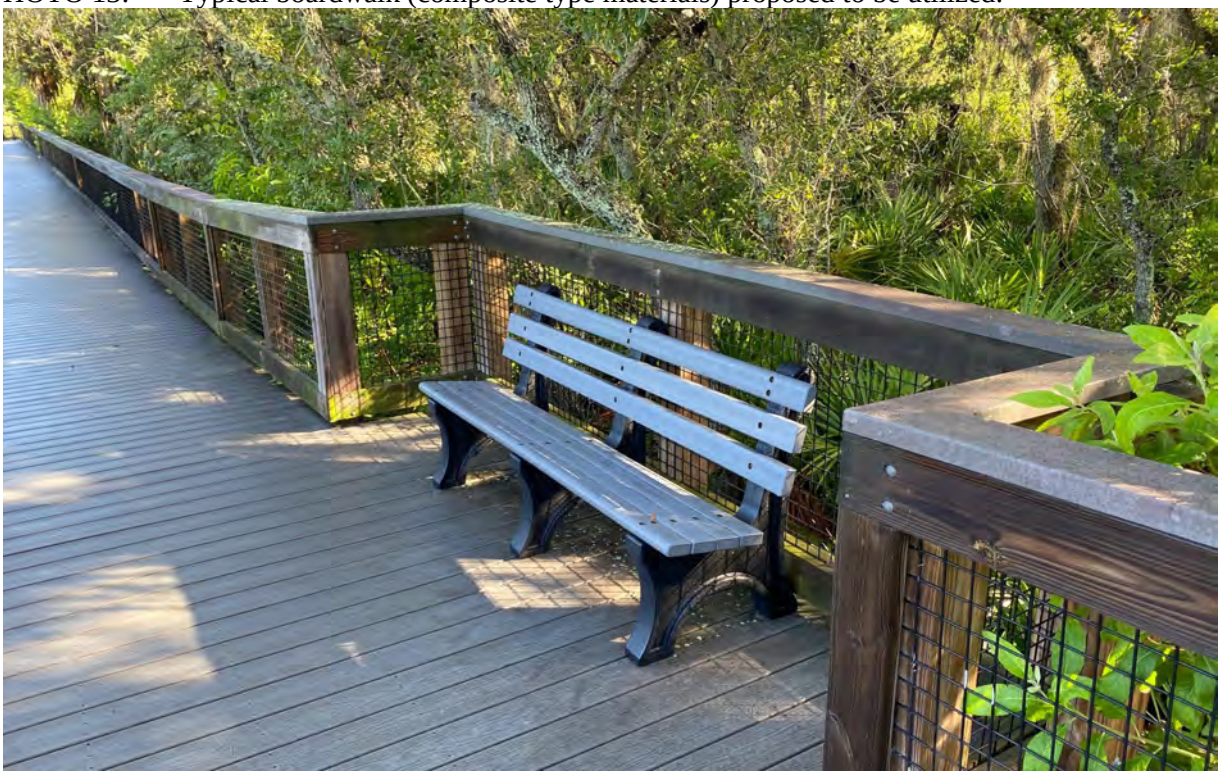
PHOTO 10: Former R Beach Restaurant and parking area.

PHOTO 11: Former R Beach Restaurant parking area.

PHOTO 12: Canal located on the east side of the former R Beach Restaurant.

PHOTO 12: Typical boardwalk (composite type materials) proposed to be utilized.

PHOTO 13: Typical boardwalk (composite type materials) proposed to be utilized.



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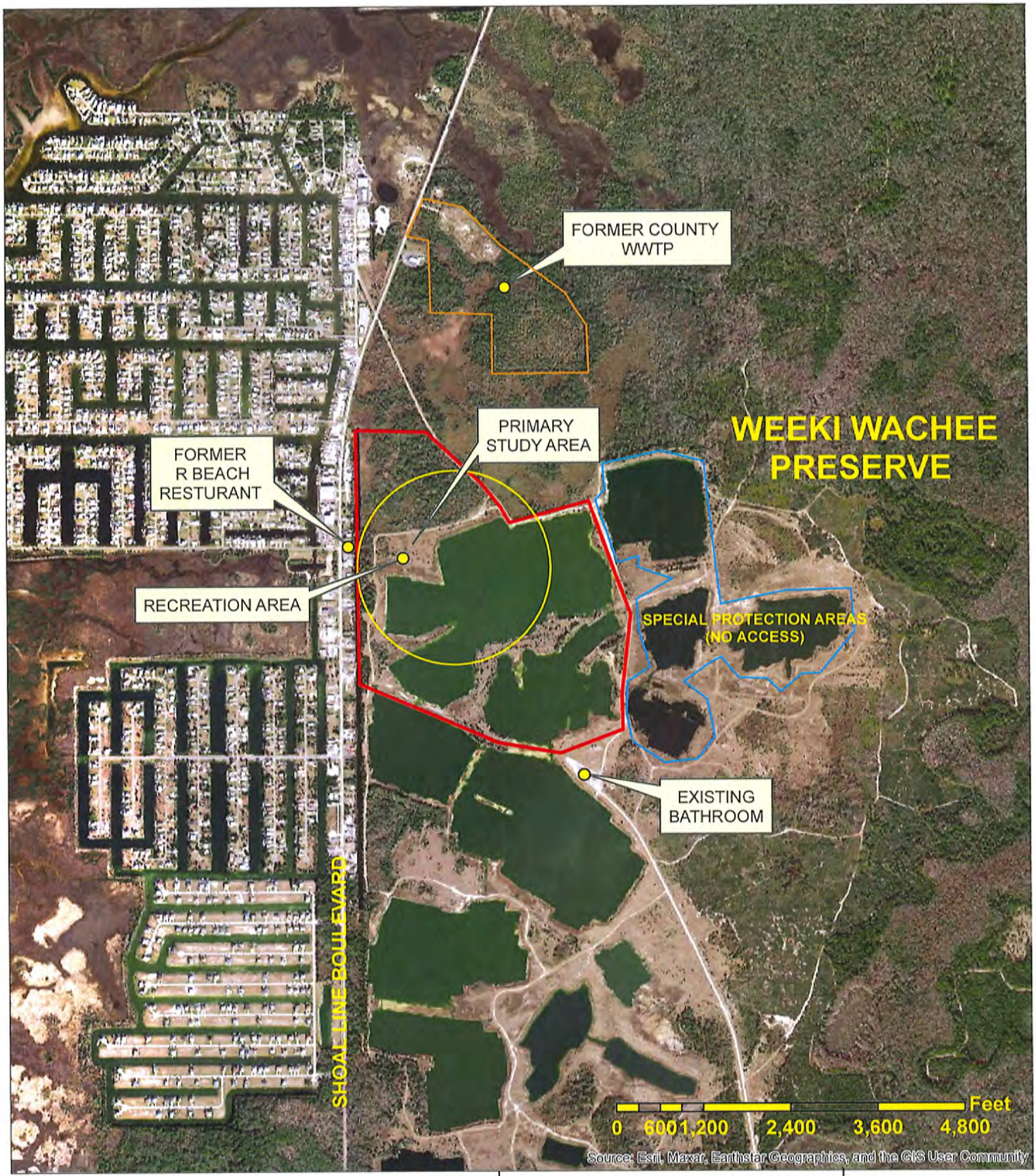
STUDY AND PROXIMITY

LOCATION MAP



Coastal engineering associates, inc.
Engineering
Planning
Surveying
Environmental
Construction Management

AERIAL PHOTOGRAPH

Source: ESRI

N
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USDA SOILS MAP REPORT

United States Department of Agriculture

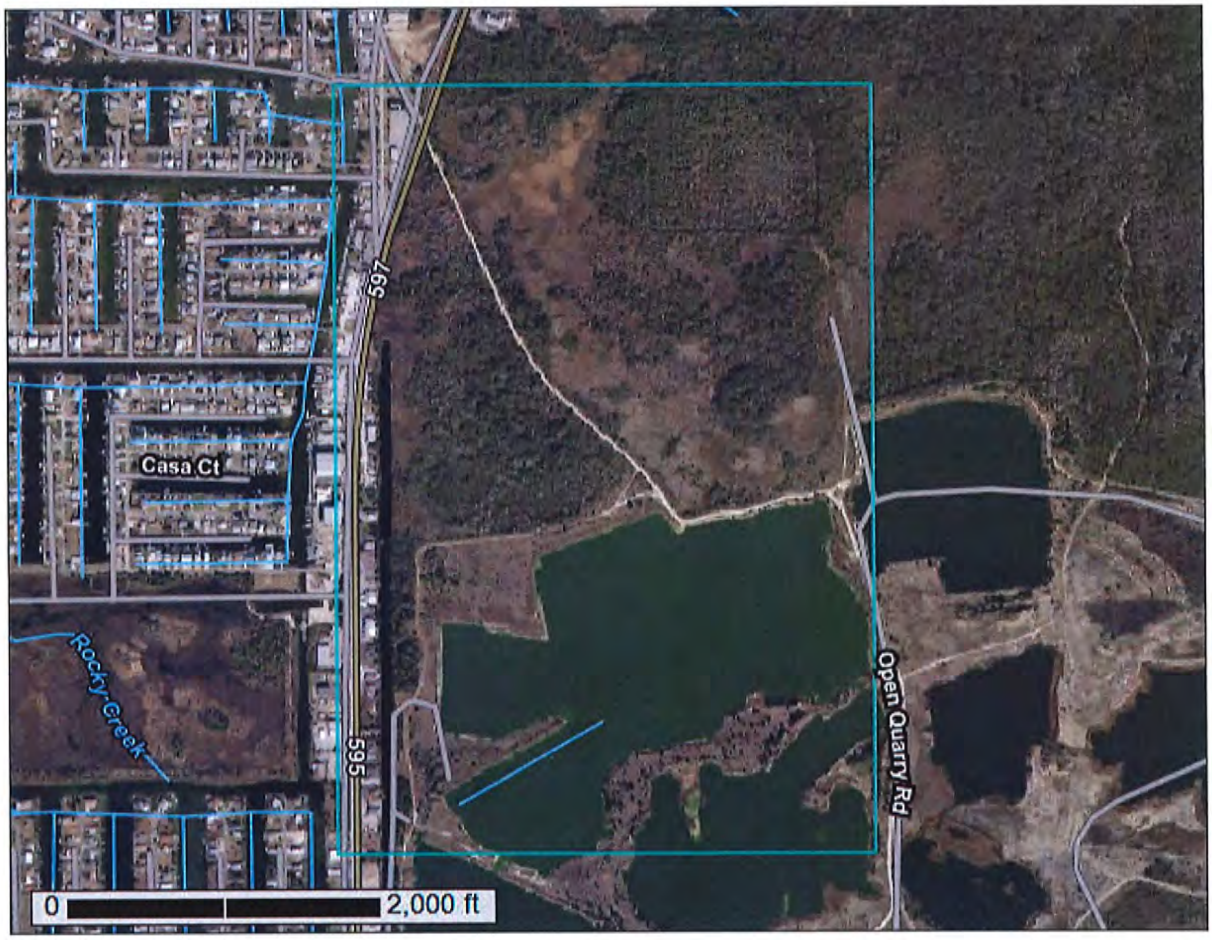
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hernando County, Florida

SHOAL LINE RECREATION AREA



August 4, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hernando County, Florida
Survey Area Data: Version 18, Aug 27, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 6, 2022—Jan 30, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Aripeka fine sand	91.8	24.0%
5	Aripeka-Okeelanta-Lauderhill association	36.3	9.5%
30	Lacoochee fine sandy loam	61.8	16.2%
37	Okeelanta-Terra Ceia association	6.4	1.7%
50	Udalfic Arents-Urban land complex	72.2	18.9%
53	Weekiwachee muck	1.0	0.3%
99	Water	108.8	28.4%
100	Waters of the Gulf of Mexico	4.5	1.2%
Totals for Area of Interest		**382.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not

mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hernando County, Florida

4—Aripeka fine sand

Map Unit Setting

National map unit symbol: bt5g
Elevation: 0 to 20 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Aripeka and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aripeka

Setting

Landform: Rises on karstic marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 13 inches: fine sand
Bt - 13 to 21 inches: cobbly fine sandy loam
2Cr - 21 to 29 inches: weathered bedrock
3R - 29 to 33 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 30 inches to paralithic bedrock; 23 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Forage suitability group: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G154XB521FL)

Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G154XB521FL)
Hydric soil rating: No

Minor Components

Wabasso, hydric

Percent of map unit: 15 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: Yes

5—Aripeka-Okeelanta-Lauderhill association

Map Unit Setting

National map unit symbol: bt5t
Elevation: 0 to 100 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Aripeka and similar soils: 35 percent
Okeelanta and similar soils: 30 percent
Lauderhill and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Aripeka

Setting

Landform: Rises on karstic marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits over limestone

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 13 inches: fine sand
Bt - 13 to 21 inches: cobbly fine sandy loam
2Cr - 21 to 29 inches: weathered bedrock
3R - 29 to 33 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: 20 to 30 inches to paralithic bedrock; 23 to 40 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Forage suitability group: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G154XB521FL)
Other vegetative classification: Shallow or moderately deep, sandy or loamy soils on rises and ridges of mesic uplands (G154XB521FL)
Hydric soil rating: No

Description of Okeelanta

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 37 inches: muck
2C - 37 to 60 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: High (about 11.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G154XB645FL)

Other vegetative classification: Organic soils in depressions and on flood plains (G154XB645FL)
Hydric soil rating: Yes

Description of Lauderhill

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over limestone

Typical profile

Oa - 0 to 26 inches: muck
2R - 26 to 30 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G154XB645FL)
Other vegetative classification: Organic soils in depressions and on flood plains (G154XB645FL)
Hydric soil rating: Yes

Minor Components

Terra ceia

Percent of map unit: 15 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Organic soils in depressions and on flood plains (G154XB645FL)
Hydric soil rating: Yes

30—Lacoochee fine sandy loam

Map Unit Setting

National map unit symbol: bt54
Elevation: 0 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Lacoochee and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lacoochee

Setting

Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

Ak - 0 to 6 inches: fine sandy loam
Bk - 6 to 15 inches: loamy fine sand
2Cr - 15 to 26 inches: weathered bedrock
3R - 26 to 30 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 14 to 36 inches to paralithic bedrock; 20 to 40 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 45 percent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8
Hydrologic Soil Group: C/D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Minor Components

Homosassa

Percent of map unit: 15 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Aripeka

Percent of map unit: 15 percent
Landform: Tidal marshes on karstic marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

37—Okeelanta-Terra Ceia association

Map Unit Setting

National map unit symbol: bt5c
Elevation: 0 to 120 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Okeelanta and similar soils: 60 percent
Terra ceia and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Okeelanta

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip

Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material over sandy marine deposits

Typical profile

Oa - 0 to 27 inches: muck
Cg - 27 to 65 inches: fine sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G154XB645FL)
Other vegetative classification: Organic soils in depressions and on flood plains (G154XB645FL)
Hydric soil rating: Yes

Description of Terra Ceia

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material

Typical profile

Oa - 0 to 65 inches: muck

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Very high (about 23.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G154XB645FL)
Other vegetative classification: Organic soils in depressions and on flood plains (G154XB645FL)
Hydric soil rating: Yes

Minor Components

Myakka, non-hydric

Percent of map unit: 2 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: No

Tavares

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, flats on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sandy soils on rises, knolls, and ridges of mesic uplands (G154XB121FL)
Hydric soil rating: No

Delray

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Hydric soil rating: Yes

Anclote

Percent of map unit: 2 percent
Landform: Marshes on marine terraces, depressions on marine terraces
Landform position (three-dimensional): Dip

Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)
Hydric soil rating: Yes

50—Udalfic Arents-Urban land complex

Map Unit Setting

National map unit symbol: bt5v
Elevation: 0 to 130 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Udalfic arents and similar soils: 63 percent
Urban land: 35 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udalfic Arents

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy and sandy dredge spoils over cobbly and loamy marine deposits

Typical profile

C1 - 0 to 48 inches: loamy fine sand
C2 - 48 to 58 inches: fine sand
Bt - 58 to 70 inches: cobbly fine sandy loam
2R - 70 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 60 to 80 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: About 42 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 4.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Unranked

Minor Components

Aripeka

Percent of map unit: 2 percent
Landform: Rises on karstic marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

53—Weekiwachee muck

Map Unit Setting

National map unit symbol: bt5y
Elevation: 0 feet
Mean annual precipitation: 48 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 309 to 339 days
Farmland classification: Not prime farmland

Map Unit Composition

Weekiwachee and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Weekiwachee

Setting

Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Herbaceous organic material over sandy marine deposits over limestone

Typical profile

Oa - 0 to 32 inches: muck
Cg - 32 to 36 inches: fine sand
2Cr - 36 to 45 inches: weathered bedrock
2R - 45 to 49 inches: unweathered bedrock

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 30 to 40 inches to paralithic bedrock; 40 to 60 inches to lithic bedrock
Drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Very frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Strongly saline (16.0 to 32.0 mmhos/cm)
Sodium adsorption ratio, maximum: 80.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: B/D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Minor Components

Lacoochee

Percent of map unit: 10 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)

Hydric soil rating: Yes

Homosassa

Percent of map unit: 10 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Unranked

100—Waters of the Gulf of Mexico

Map Unit Composition

Waters of the gulf of mexico: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waters Of The Gulf Of Mexico

Interpretive groups

Land capability classification (irrigated): None specified
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Other vegetative classification: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Unranked

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FLORIDA NATURAL AREAS INVENTORY

BIODIVERSITY MATRIX REPORT

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Florida Natural Areas Inventory

Biodiversity Matrix Query Results

UNOFFICIAL REPORT

Created 6/1/2022

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 4 Matrix Units: 22498 , 22499 , 22742 , 22743

Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 22498

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

4 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	T	FT
Ursus americanus floridanus Florida Black Bear	G5T4	S4	N	N

Matrix Unit ID: 22499

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

4 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	T	FT
Ursus americanus floridanus Florida Black Bear	G5T4	S4	N	N

Matrix Unit ID: 22742

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

5 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphelocoma coerulescens Florida Scrub-Jay	G2?	S1S2	T	FT
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Mycteria americana Wood Stork	G4	S2	T	FT
Scrub	G2	S2	N	N
Ursus americanus floridanus Florida Black Bear	G5T4	S4	N	N

Matrix Unit ID: 22743

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

5 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Mesic flatwoods	G4	S4	N	N
Mycteria americana Wood Stork	G4	S2	T	FT
Scrub	G2	S2	N	N
Ursus americanus floridanus Florida Black Bear	G5T4	S4	N	N

Matrix Unit IDs: 22498 , 22499 , 22742 , 22743

28 **Potential** Elements Common to Any of the 4 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing

Acipenser oxyrinchus desotoi Gulf Sturgeon	G3T2T3	S2?	T	FT
Ammospiza maritima peninsulae Scott's Seaside Sparrow	G4T3	S3	N	ST
Amphiuma pholeter One-toed Amphiuma	G3	S3	N	N
Antigone canadensis pratensis Florida Sandhill Crane	G5T2	S2	N	ST
Asplenium x curtissii Curtiss' spleenwort	GNA	S1	N	N
Asplenium x plenum ruffled spleenwort	G1Q	S1	N	N
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	ST
Caretta caretta Loggerhead Sea Turtle	G3	S3	T	FT
Centrosema arenicola sand butterfly pea	G2Q	S2	N	E
Charadrius melodus Piping Plover	G3	S2	T	FT
Chelonia mydas Green Sea Turtle	G3	S2S3	T	FT
Cistothorus palustris marianae Marian's Marsh Wren	G5T3	S3	N	ST
Digitaria floridana Florida fingergrass	G1	S1	N	N
Forestiera godfreyi Godfrey's swampprivet	G2	S2	N	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Justicia cooleyi Cooley's water-willow	G2Q	S2	E	E
Lithobates capito Gopher Frog	G2G3	S3	N	N
Mustela frenata peninsulae Florida Long-tailed Weasel	G5T3?	S3?	N	N
Nemastylis floridana celestial lily	G2	S2	N	E
Neofiber alleni Round-tailed Muskrat	G2	S2	N	N
Neovison vison halilimnetes Gulf Salt Marsh Mink	G5T2	S2	N	N
Nerodia clarkii clarkii Gulf Salt Marsh Snake	G4T3	S2	N	N
Podomys floridanus Florida Mouse	G3	S3	N	N
Pycnanthemum floridanum Florida mountain-mint	G3	S3	N	T
Rallus longirostris scottii Florida Clapper Rail	G5T3?	S3?	N	N
Trichechus manatus latirostris Florida Manatee	G2G3T2	S2S3	T	N
Trichomanes punctatum ssp. floridanum Florida filmy fern	G4G5T1	S1	E	E
Triphora craigheadii Craighead's nodding-caps	G1	S1	N	E

Disclaimer

The data maintained by the Florida Natural Areas Inventory represent the single most comprehensive source of information available on the locations of rare species and other significant ecological resources statewide. However, the data are not always based on comprehensive or site-specific field surveys. Therefore, this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. FNAI shall not be held liable for the accuracy and completeness of these data, or opinions or conclusions drawn from these data. FNAI is

not inviting reliance on these data. Inventory data are designed for the purposes of conservation planning and scientific research and are not intended for use as the primary criteria for regulatory decisions.

Unofficial Report
These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

EAGLE NEST MAP

Eagle Nest Map

Bald Eagle Nest Locations

330ft Buffer Around Nest Locations

660ft Buffer Around Nest Locations

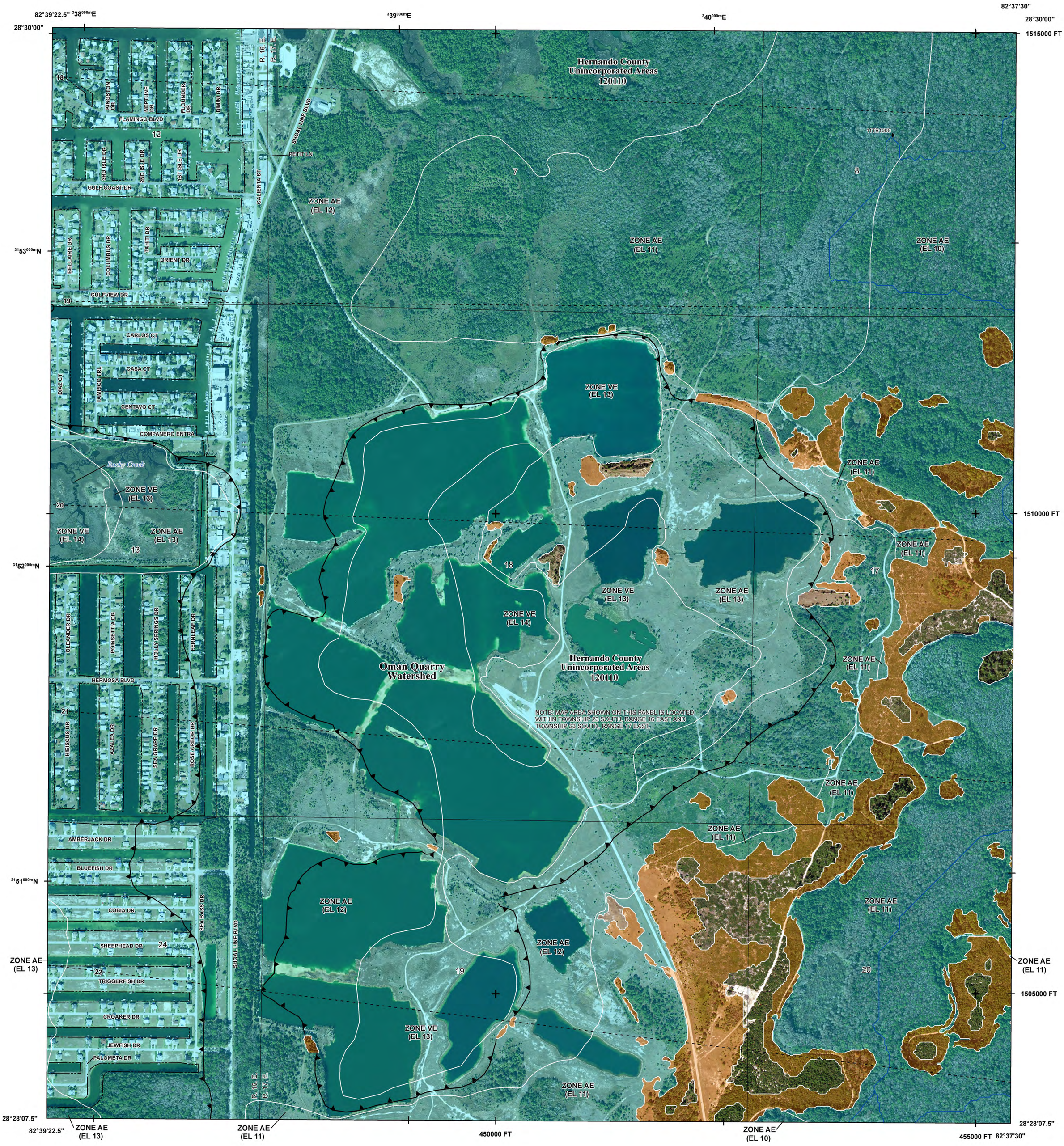
1:36,112

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

Nest ID	Latitude	Longitude	Buffer
HN011	28° 30' 20.4" N	82° 37' 44.4" W	330 ft
HN030	28° 28' 27.05" N	82° 37' 5.49" W	330 ft
HN007	28° 27' 47.4" N	82° 38' 46.8" W	330 ft

FEMA FIRMETTE



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A,V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- E 18.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 — Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the Florida Department of Transportation and Hernando County. Imagery was derived from digital orthophotography flown in 2017 by the U.S. Department of Agriculture Farm Service Agency and was produced with a 6-inch ground sample distance. NAIP imagery was also provided by the U.S. Department of Agriculture Farm Service Agency that was flown in 2017 and was produced with a 1-meter ground sample distance.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in the Zone VE.

Limit of Moderate Wave Action (LiMWA)

SCALE

N

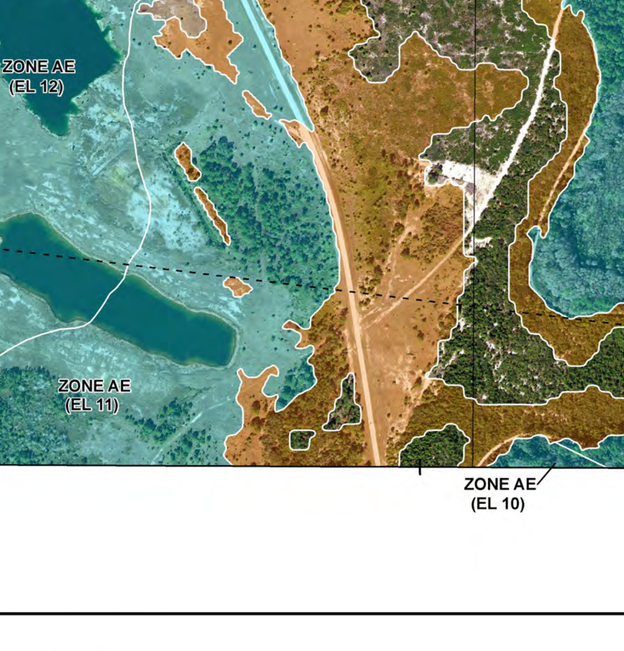
Map Projection:
State Plane Transverse Mercator, Florida West Zone 0902; North American Datum 1983 HARN; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 750 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

HERNANDO COUNTY, FLORIDA
and Incorporated Areas

PANEL 282 OF 410

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
HERNANDO COUNTY	120110	0282	E

VERSION NUMBER
2.4.3.2

MAP NUMBER
12053C0282E

MAP REVISED
JANUARY 15, 2021

Exhibit 7

Department of Environmental Protection
RECREATIONAL CARRYING CAPACITY GUIDELINES

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF RECREATION AND PARKS

RECREATIONAL CARRYING CAPACITY GUIDELINES

THE SELECTION AND CAPACITY DETERMINATION OF USE SITES

Introduction

The Division of Recreation and Parks has the responsibility of planning the use of and managing a sizable portion of Florida's public lands and water areas. With tremendous population increases and the constant and extensive development of private lands, the state recreation and parks system has a more significant role than ever before in (a) providing opportunities for quality outdoor recreation experiences, and (b) preserving representative and unique natural areas of the state. Both the quality of the recreation experience and the protection of the natural areas are directly affected by the implementation of the site plans, or land use plans, which are prepared for the various areas of the system and which designate sites to be established for public use and lands to be set aside for preservation purposes. Important factors given thorough study during the site planning process are the types of recreation activities to be provided, where these activities are to take place, and the amount of public use to be allowed.

Site Selection and Site Deterioration

Proper site selection is a critical part of the site planning process. Deterioration of recreation sites through normal use can be minimized when a designer remains sensitive to the plant communities he is working with. Some communities are significantly more tolerant of man's presence than others.

To assure the consideration of these factors, it is helpful to map plant communities existing at each site. This, coupled with analysis of plant communities' characteristics as summarized in Attachment A, should insure selection of the best available site which in turn will minimize the degree of deterioration from normal use.

Other factors, such as wildlife, soils, topography, and hydrology, should also be considered during the site planning process. Plant communities, once identified, suggest the soil makeup and animals which will be found at the site, but geology and hydrology should be considered separately.

Plant Community Limitations

Attachment A, "Characteristics of Florida's Major Plant Communities," was prepared to assist in the study of areas' plant community limitations. Included is a relative ranking of each community's ability to tolerate use other than that normally associated with wilderness. Practically all of the plant communities of Florida are represented on lands of the state recreation and parks system. They vary from unstable types which cannot withstand trampling, such as sand dunes, to stable types, such as pine flatwoods.

Several plant communities are rare or endangered because of extensive development which has taken place over the past 30 years. For example, the coastal hammocks which were once found in a continuous band along the barrier islands of the Atlantic Coast, have been reduced to remnants, due to extensive coastal development. To encourage active use of unstable and fragile plant communities is contrary to sound environmental management. Wherever possible, use sites will be located in communities and on terrain resistant to trampling. Similarly, communities which are considered to be rare or endangered, will be avoided. These areas best serve the public in scenic, interpretive, and biological research categories.

In some instances, planners are faced with the dilemma of not having a stable community in which to place a use site. Many east coast barrier islands consist of three basic communities--dune, coastal hammock, and mangroves. The coastal hammock is stable but endangered, and the dunes and mangroves are unstable as well as endangered. The most suitable location, therefore, is the outer portion of the coastal hammock. In areas which do not possess suitable plant communities, and yet some degree of use is determined desirable, the degree of development and corresponding intensity of use will be low.

Additional biological factors must be considered during the initial planning. Sand dunes are unable to withstand trampling, but high intensity use of adjacent beaches can be allowed by the installation of boardwalks over the dunes. Also, the location of a use site adjacent to an important wildlife nesting or feeding area may be detrimental even though the community is well suited for active use. Early field investigations for the purpose of inventorying plant communities, will provide such information.

Overcrowding and Site Deterioration

Areas in the state recreation and parks system have always been popular with large segments of the public and have accordingly received considerable use. But previously, they were seldom overcrowded to the extent that a lessening of the quality of the users' outdoor recreation experiences resulted. Now, in several areas, the number of persons seeking outdoor recreation exceeds the space allotments of the public use sites. Carrying capacities--limitations on the number of persons to use each site at a given time--can protect users' experiences by preventing overcrowding which (a) causes deterioration of the natural attribute of each use site and (b) impedes each user's ability to move freely and to fully enjoy the natural setting without undue distraction.

Optimum Carrying Capacities for Users

In order to determine appropriate carrying capacities for each park situation, two guides are provided here: Attachment A, “Characteristics of Florida's Major Plant Communities,” already discussed, and Attachment B, “Optimum Carrying Capacities for Outdoor Recreation Activities.” Attachment B gives the recommended limits on the number of users for most outdoor recreation activities in an attempt to prevent overcrowding, and a recommended land base to assure that sufficient support area and buffer area are provided. A range is given for almost every activity, to allow for differences in each site. The site's classification is a main factor in density variation. For state parks, special feature sites and preserves, the carrying capacities should be reduced to insure compatibility with the management objectives of each category.

The carrying capacities determined by these guidelines are to be followed in the preparation of site plans for new use sites and for authorized alterations of existing use sites. The applicable carrying capacity for a given use site also governs the number of parking spaces, the size of restrooms, and all quantities of support facilities to be provided.

Control of Established Carrying Capacities

Carrying capacity computations derived with the help of the guidelines contained here are vital to planning of new use sites, renovation of older developed sites and continuous management of all areas of the system, to prevent overcrowding and resource deterioration. The estimated optimum carrying capacity is included in each approved park unit management plan, in a tabular format. This estimate is evaluated and revised, as needed, as part of the periodic unit management plan update procedure

ATTACHMENT A

CHARACTERISTICS OF FLORIDA'S MAJOR PLANT COMMUNITIES

	Moisture Level Moist-▲ Dry-◊ Moderate-❖	Shade Potential Dense-▲ None-◊ Moderate-❖	Understory Buffer Dense-▲ None-◊ Moderate-❖
Group 1			
Pine Flatwoods	❖	❖	❖
Mixed Hardwood/Pine	❖	▲	▲
Group 2			
Xeric Hammock	◊	▲	❖
Coastal Hammock*	◊	▲	◊
Mesic Hammock	❖	▲	◊
Tropical Hammock*	❖	▲	❖
Group 3			
Sand Pine Scrub*	◊	❖	▲
Sandhill*	◊	❖	◊
Group 4			
Low Flatwoods	▲	◊	❖
Hydric Hammock	▲	▲	◊
Group 5			
Dunes*	◊	◊	◊
Wetlands*	▲	varies	▲

*Indicates rare and endangered communities.

The group number indicates the relative degree to which each community is affected by development. Group 1 is least affected, Group 5 is most affected.

ATTACHMENT B
OPTIMUM CARRYING CAPACITY FOR OUTDOOR RECREATION ACTIVITIES
LAND-BASED ACTIVITIES

Recreation Activity	Required Land Base	Area Requirements	People/Unit of Facility	Turnover Rate
Camping				
Hike-in	**10-50 acres/site**	**Sites clustered to a maximum of 4 sites/acre**	**4/site**	**1/day**
Short-walk, Tent	**2-10 acres/site**	**3-8 sites/acre**	**4/site**	**1/day**
Limited Facility	**1-5 acres/site**	**3-8 sites/acre**	**4/site**	**1/day**
Standard Facility	**1-3 acres/site**	**3-10 sites/acre**	**8/site**	**1/day**
Groups	**20-50 acres/area**	**5-20 acres/area**	**10-30/site**	**1/day**
Cabins	**1-3 acres/cabin**	**2-6/acre**	**4-12/cabin**	**1/day**
Amphitheater/Campfire	**1-2 acres/facility**	**1/4-1/2 acre/facility**	**1/2 camping capacity**	**1/day**
Museum/Visitor Center	**1-5 acres/structure**	**1/4-1/2 acre/structure**	**1/20 sq. ft.**	**4/day**
Picnicking	**1/4-4 acres/site of exhibit area**	**8-15 tables/acre**	**4/table**	**2/day**
Trails				
General Hiking (Nature Trails)	**min. of 25 acres/mile of trail, max. length 1 mile**	**5-20 groups/mile**	**2/group**	**4/day**
Primitive Hiking	**min. of 100 acres/mile of trail, min. length 1 mile**	**1-5 groups/mile**	**2/group**	**2/day**
Bicycle	**min. of 25 acres/mile of trail**	**10-20 bikes/lane/mile**	**1/bike**	**4/day**
Equestrian	**min. 75 acres/mile of trail min. length 5 miles**	**2-8 groups/mile**	**4/group**	**1 to 2/day**

ATTACHMENT B
OPTIMUM CARRYING CAPACITY FOR OUTDOOR RECREATION ACTIVITIES
WATER-BASED ACTIVITIES

Recreation Activity	Required Water/Land Base	Area Requirements	People/Unit of Facility	Turnover Rate
Swimming	min. 1/8 acre of land/ swimmer	50-200 sq. ft. of water and 200-500 sq. ft. of beach/ swimmer		2/day
Surfing	min. 1/2 mile of beach for a surfing area, and 1/8 acre of land/surfer	40-100 linear ft. of beach/surfer		2/day
Fishing				
Shoreline	min. 1/4 mile of shoreline for a fishing area, and 1/8 acre of land/fisherman	1 fisherman/20-100 linear feet		2/day
Jetty Pier	min. 1/8 acre of land/ fisherman	1 fisherman/10-40 linear feet		2/day
Boating				
Limited Power (10 HP or less)	min. 200 acres of water, and 1/4 acre of land/boat	1 boat/5-10 acres of water	2/boat	2/day
Unlimited Power	min. 600 acres of water and 1/4 acre of land/boat	1 boat/10-20 acres of water	4/boat	1/day
Water-skiing	min. 600 acres of water and 1/4 acre of land/boat	1 boat/20-50 acres of water	4/boat	1/day
Sailing	min. 200 acres of water and 1/4 acre of land/boat	1 boat/5-10 acres of water	2/boat	2/day
No Power, Still Water	min. 50 acres of water and 1/4 acre of land/boat	1 boat/5-10 acres of water	2/boat	2/day
No Power, Moving Water	min. 1 mile of stream	2-10 boats/mile	2/boat	2/day

Exhibit 8

Conceptual Narrative

Conceptual Site Plan Development
Weeki Wachee Preserve and Hernando County Properties

1. Utilize a portion of the existing County owned site (Utilities) as an improved location to construct a multi-agency facility which will serve as the new Nature Coast Aquatic Preserve headquarters.
    a. Agencies include but not limited to are; Hernando County Waterways/aquatics (HC), Hernando County Sherriff's Office (HCSO), Florida Fish and Wildlife Conservation Commission Law Enforcement and Biologists (FWC), University of Florida IFAS County Extension and Sea Grant, United States Coast Guard (USGC), Florida Department of Environmental Protection (DEP), United States Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and Southwest Florida Water Management District (SWFWMD).
    b. This proposed facility would replace existing waterways building on Calienta Street. Agencies would still have access to boat ramp and could leave a vessel at the dock.
    c. This facility could also serve as a marine education center.
2. Designate the undeveloped portions of the existing County owned property as "Conservation" and manage under the Environmentally Sensitive Lands Program with cooperative assistance from the SWFWMD.
    a. This would expand critical wildlife habitat and provide a small level of mitigation for any potential impacts to surrounding sensitive areas.
    b. Assist in controlling the spread of encroaching invasive exotic plants such as brazillian pepper and lead tree into the Preserve.
    c. Activities for management and restoration could include prescribed fire, invasive plant control, timber management, native plant revegetation, etc.
3. Develop a series of educational interpretive hiking trails
    a. Trails would traverse the property and connect with the adjacent Weeki Wachee Preserve.
    b. Existing trails on the Weeki Wachee Preserve could be enhanced to provide connectivity to Linda Pedersen Park.
4. Utilize newly purchased property and work with DPW to realign entrance to Weeki Wachee Preserve and Hernando County Utilities properties in conjunction with Petit Lane improvements.
    a. Potentially provide a signalized intersection for improved traffic flow.
5. Utilize existing northern access road to Weeki Wachee Preserve to create access to improved passive recreation which will move traffic away from Hernando beach residents and avoid fragmenting essential wildlife corridors.
    a. Previous efforts to access Weeki Wachee Preserve encountered issues with critical wildlife corridors and conflicts with neighboring residential area. Moving the primary access point to this location would mitigate for both of those issues.
6. Create an environmentally friendly ADA compliant parking area within the uplands and accompanying trail head with restroom facilities. Number of parking spaces would TBD (potentially based on intensity of recreation)

    a. Historically the District has set limits for available parking and daily use in its natural areas.
7. Develop a paddle craft launching point
    a. Weeki Wachee River business owners recently expressed the need for additional areas paddle craft opportunities available to the public.
8. Explore water recreation opportunities
    a. Based on the input gathered from the Weeki Wachee River carrying capacity study it is apparent that some resources are being overused and as good stewards we should find ways to balance and spread the load to accommodate.
9. Potential Boardwalk
    a. Create a boardwalk along the Hernando County owned canal providing access to the proposed recreation area.

Conceptual Enhancements and Proposed Property Lease Area from Southwest Florida Water Management District

N

Feet
0 875 1,750 3,500

Southwest Florida Water Management District

2379 Broad Street, Brooksville, Florida 34604-6899
(352) 796-7211 or 1-800-423-1476 (FL only)
WaterMatters.org

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1-800-492-7862 (FL only)

Sarasota Office
78 Sarasota Center Boulevard
Sarasota, Florida 34240-9770
(941) 377-3722 or
1-800-320-3503 (FL only)

Tampa Office
7601 U.S. 301 North (Fort King Highway)
Tampa, Florida 33637-6759
(813) 985-7481 or
1-800-836-0797 (FL only)

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Vice Chair, Charlotte, Sarasota
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Secretary, Hillsborough, Pinellas
James G. Murphy
Treasurer, Polk
Ed Armstrong
Pinellas
Ashley Bell Barnett
Polk
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Roger Germann
Hillsborough
John Mitten
Hernando, Marion
Seth Weightman
Pasco
Michelle Williamson
Hillsborough

Brian J. Armstrong, P.G.
Executive Director

March 15, 2021

Mr. Jeff Rogers
County Administrator
Hernando County Board of County Commissioners
20 North Main Street
Room 263
Brooksville, FL 34601

Subject: Weeki Wachee Preserve

Dear Mr. Rogers:

As a follow up to our recent meeting regarding Hernando County's (County) Conceptual Narrative regarding the Weeki Wachee Preserve, below please find the Southwest Florida Water Management District's (District) position as to each of the proposals set forth on the Conceptual Narrative. The itemized numbers below correspond to those on the Conceptual Narrative, and the District's response to each is in bold type below each itemized number. Of course, any subsequent revisions to the Conceptual Narrative may lead to modifications of this response.

1. Utilize a portion of the existing County owned site (Utilities) as an improved location to construct a multi-agency facility which will serve as the new Nature Coast Aquatic Preserve headquarters.

District Response: This item does not pertain to the District since the proposal is not on District-owned land.

2. Designate the undeveloped portions of the existing County owned property as "Conservation" and manage under the Environmentally Sensitive Lands Program with cooperative assistance from the SWFWMD.

District Response: Conceptually, the District is willing to consider cooperating in management of any designated Conservation lands with defined terms for said cooperation so long as it does not create management inefficiencies; otherwise, this item does not pertain to the District since the proposal is not on District-owned land.

3. Develop a series of educational interpretive hiking trails

District Response: Conceptually, this item is acceptable to the District but more information must be provided as to location of the trails and who will obtain permitting, construct, maintain, and manage these trails, all which would require District approval.

4. Utilize newly purchased property and work with DPW to realign entrance to Weeki Wachee Preserve and Hernando County Utilities properties in conjunction with Petit Lane improvements.

   District Response: Conceptually, the District has no issue with this proposal; however, parking as set forth in Item 6. will need to be resolved and no natural areas must be disturbed when implementing this proposed item. It will be the County's responsibility to get District approval and obtain permitting, construct, maintain, and manage this improvement.

5. Utilize existing northern access road to Weeki Wachee Preserve to create access to improved passive recreation which will move traffic away from Hernando Beach residents and avoid fragmenting essential wildlife corridors.

   District Response: Conceptually, the District has no issue with this proposal; however, parking as set forth in Item 6. will need to be resolved and no natural areas must be disturbed when implementing this proposed item. It will be the County's responsibility to get District approval and obtain permitting, construct, maintain, and manage this improvement.

6. Create an environmentally friendly parking area that is ADA compliant and trail head with restroom facilities. Number of parking spaces would be TBD (potentially based on intensity of recreation).

   District Response: This proposed parking area is the only natural area within the proposed lease boundaries therefore the District wants to preserve it. The District is concerned that the area would not afford adequate parking given the existing conditions for any level of passive or other recreation. Previously, 250 spaces were discussed but after current evaluation the District has determined that there likely isn't adequate space for 250 spaces.

7. Develop a paddle craft launching point

   District Response: Conceptually, the District has no issue with this proposal and this level of recreation is higher than that which the District generally authorizes. No natural areas shall be disturbed, and the District would require additional information as to who will obtain permitting, construct, maintain and manage this launching point. The current littoral shelf in the pits is about 10-20 feet in most cases, dropping straight down from there. This poses a safety risk that may require contouring of the slopes and potentially exclusion of visitors in some location. Additionally, there are some areas around the pits that have been restored that must not be disturbed by this proposal.

8. Explore water recreation opportunities

District Response: Conceptually, the District has no issue with this proposal. No natural areas shall be disturbed, and the District would require additional information as to these "water recreation opportunities" being proposed. The current littoral shelf in the pits is about 10-20 feet in most cases, dropping straight down from there. This poses a safety risk that may require contouring of the slopes and potentially exclusion of visitors in some location. Additionally, there are some areas around the pits that have been restored that must not be disturbed by this proposal.

The District always remains open to exploring recreation opportunities with cooperators. In order to adequately evaluate the proposals in the Conceptual Narrative provided by the County, the District will require buy-in from our stakeholders and the public via public forums and/or workshops that the County would be responsible for arranging and conducting. Additionally, agreement as to any of these proposals would be subject to the District's Governing Board approval. Finally, the District's position remains that as set forth in the letter to the County from Brian Armstrong dated June 26, 2018, regarding Proposed Use of Current District Lands, Access to the Project, and Stakeholder Engagement, with the exception as to the number of parking spaces mentioned above. A copy of that June 26, 2018 letter is enclosed herewith for your reference.

Our understanding is that the County will now retain a consultant to further expand on the details in the Conceptual Narrative prior to seeking stakeholder buy-in. The District looks forward to working with the County towards a mutually satisfactory resolution to the proposals above. Please let me know if you need any additional information, as well as when the County would like to discuss these matters further.

Sincerely,

Ellen Morgan Morrison
Bureau Chief
Land Resources Bureau

EMM/
Enclosure as stated
cc: Brian Starford, Division Director, SWFWMD

Southwest Florida
Water Management District

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Hillsborough, Pinellas
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Hernando, Marion

Brian J. Armstrong, P.G.
Executive Director

June 26, 2018

VIA REGULAR U.S. MAIL

Mr. Leonard Sossamon
County Administrator
Hernando County
20 North Main Street
Brooksville, Florida 34601

Subject: Potential Voter Referendum on Recreation/Beach Complex within Weekiwachee Preserve

Dear Mr. Sossamon:

Thank you for your letter dated June 14, 2018. The Southwest Florida Water Management District (District) understands that Hernando County (County) is considering a voter referendum to gauge public support for a land exchange between the District and the County, for the purpose of developing a recreation/beach complex within the Weekiwachee Preserve. As you know, the District is obligated to be a responsible steward of the lands it holds in trust for the public and must be vigilant about potential impacts to those lands. This letter is intended to provide feedback on several key points, which will hopefully assist the County as it navigates the decision-making process.

Land Exchange

The District evaluates potential land acquisitions based on ecological value, and whether an acquisition will help to further the District's mission and goals. Any exchange of lands must be in the best interest of the District and in this instance, its efforts to manage the Weekiwachee Preserve. The District considers such exchanges based on fair market value, as calculated by an independent appraisal commissioned by the County and performed by an appraiser acceptable to the District.

In addition, the County-owned property proposed for exchange is in a highly altered state. A map showing the parcels under consideration for exchange is attached hereto as Exhibit A. The District would expect a land acquisition in this area to match as closely as possible the condition of the surrounding Preserve. Therefore, prior to any exchange, the County's parcels would have to be restored to natural conditions at the County's expense.

Proposed Use of Current District Lands

The District must balance the competing goals of public access to conservation lands with preservation of those lands. The District has a long history of partnering with local and state authorities to cooperatively achieve those objectives and hopes to continue that tradition in this instance.

The property sought by the County for the proposed project was purchased by the District for conservation purposes. Shortly after acquisition, a land use and management plan was adopted for the property. The plan requires that any partnership between the District and the County for the design and construction of a beach complex be based on carrying capacities that are consistent with maintenance of a wilderness setting. The most recent proposal presented by the County showed an intensity in excess of that to which the District, and our conservation partners, are accustomed.

The District would expect the intensity associated with any proposal from the County to be commensurate with that found on other District properties. Accordingly, the District will only entertain proposals showing no more than 250 parking spaces. That level of intensity would be similar to what was previously proposed in the County's 2002 project plan, a copy of which is attached as Exhibit B.

In addition, the District must insist that the wetland area identified on Exhibit B remain in its natural state, and that the project include buffers to separate the project from the Weekiwachee Preserve.

Access to the Project

In order for the District to consider supporting the proposed project, the issue of access to the proposed project will need to be addressed. The existing entrance to the Preserve is located in a parking lot accessed from Osowaw Boulevard. The entrance road leads from that parking lot into the heart of the Preserve. The District keeps that road closed to avoid bisecting the natural attributes of the Preserve. Utilization of that road by the County to access the project would defeat that goal and is thus not an option the District could support.

Stakeholder Engagement

As you know, the District is a regional agency encompassing all or part of 16 counties. Our stakeholders reach beyond county boundaries and include not only the surrounding community but also many organizations interested in our environment. Groups such as the Audubon Society, Nature Conservancy, Native Plant Society, and Gulf Coast Conservancy, to name but a few, are informed and engaged stakeholders. The District values being a good neighbor. The District would expect the County to engage with our various stakeholders for input and feedback, both at present and in the future, should the proposed project proceed.

Finally, the District would suggest that the County and District work together to see if the details of the potential land exchange can be resolved prior to a referendum. Resolution of this issue will greatly reduce the uncertainty associated with the planning for the proposed project, and if a referendum takes place, allow voters to make an informed decision.

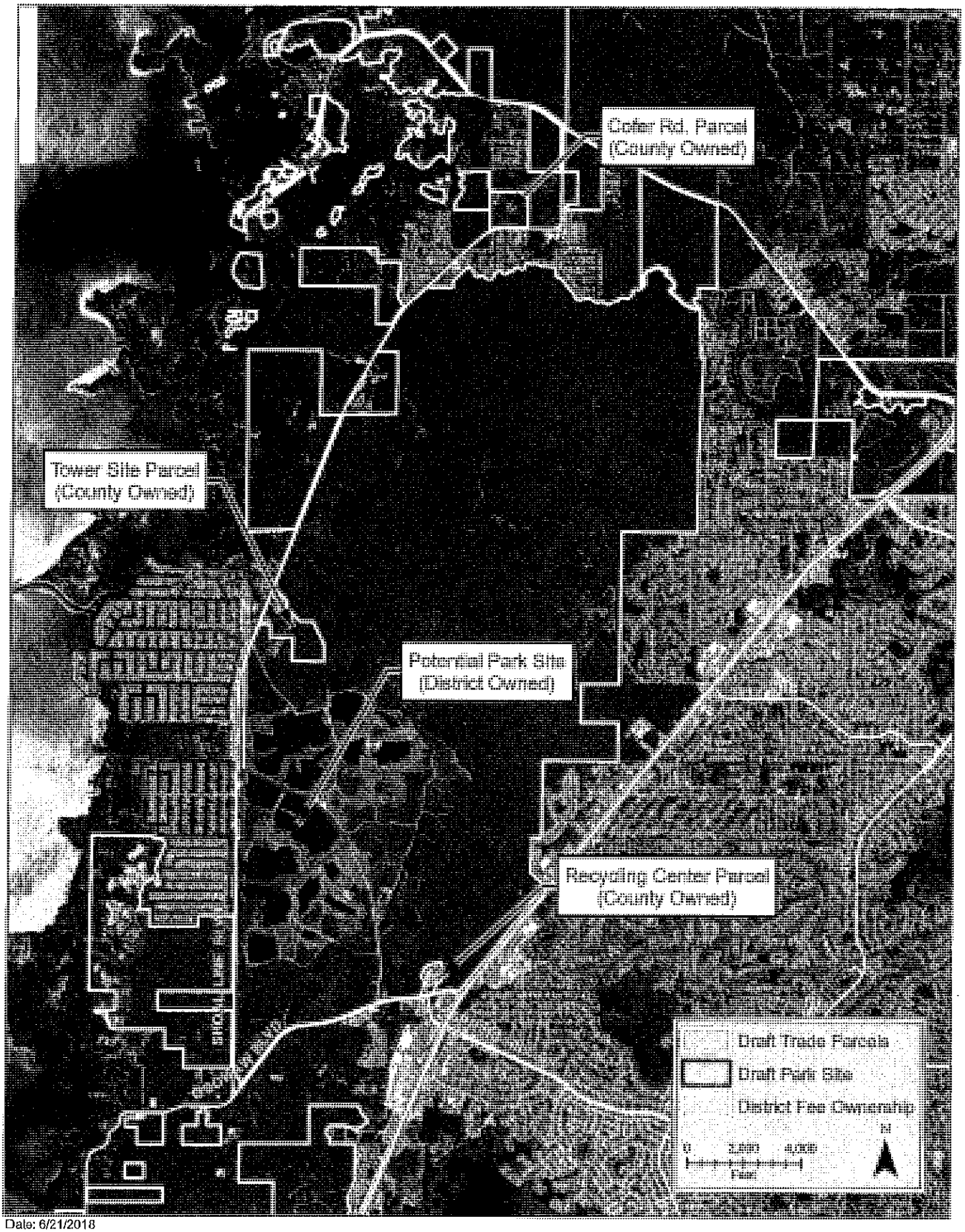
If you would like to discuss or if you have questions, please feel free to contact Ken Frink, Operations, Lands and Resource Monitoring Division Director at 352-796-7211.

Sincerely,

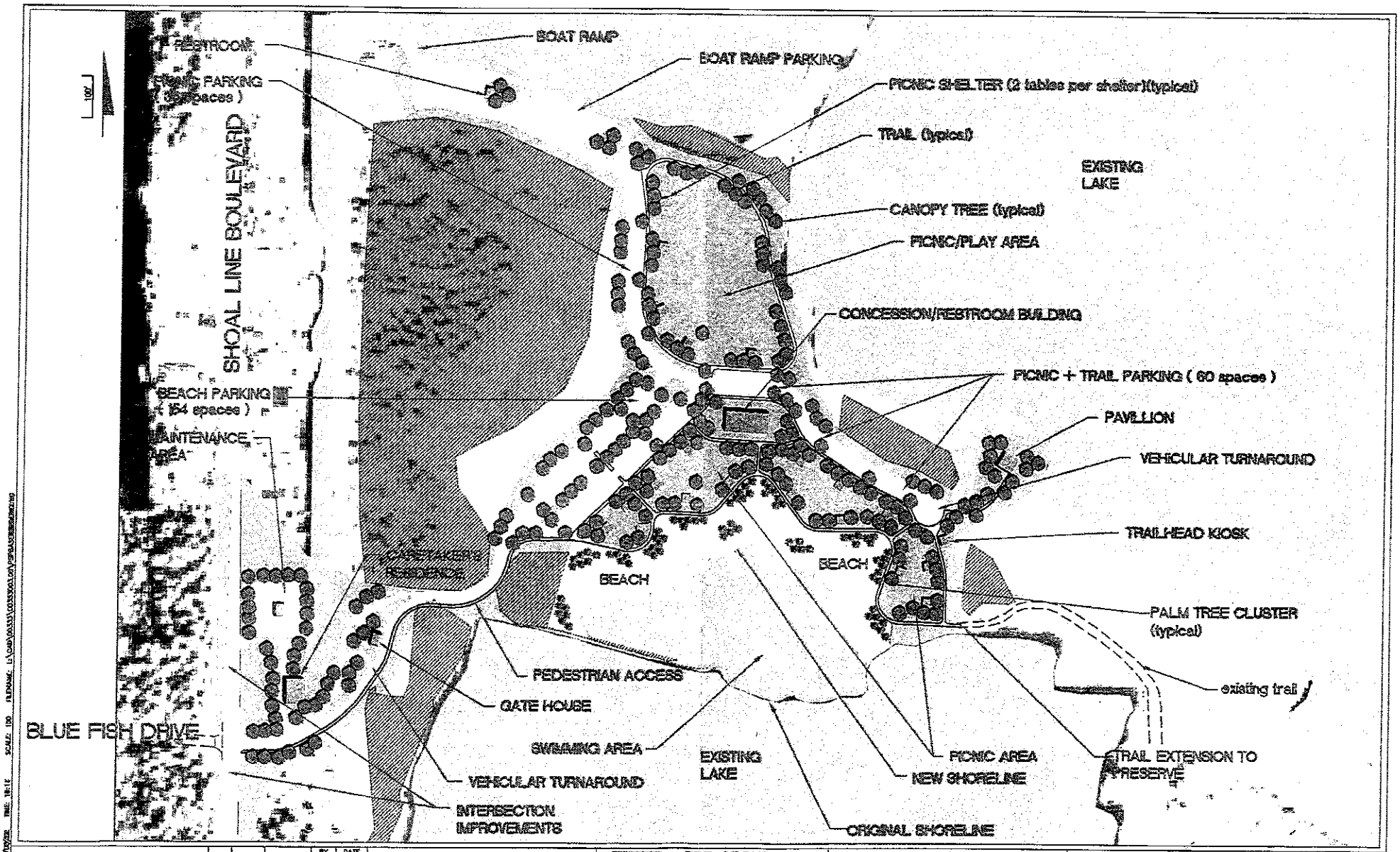
Brian J. Armstrong
Executive Director

cc: SWFWMD Governing Board
Jeff Rogers, Deputy County Administrator

Exhibit A, Weekiwachee Preserve - Trade Parcels



Date: 6/21/2018



REVISIONS	BY	DATE	CHECKED	BY	DATE
			DESIGNED	ROB	6/06/02
			DRAWN	ROB	6/06/02
			CHECKED		6/06/02

HERNANDO COUNTY

TBE GROUP, INC.
Civil Engineering · Transportation · Environmental · Planning
CLEARWATER
TAMPA
License No. 3643

PEDERSEN PARK

PLAN

DATE: 6/06/02
SCALE: NONE
SHEET: 1

Exhibit B

Exhibit

9

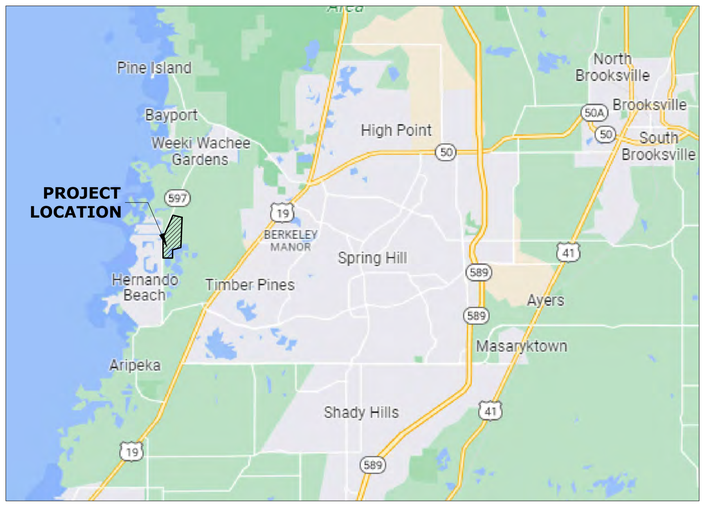
Conceptual Site Plans

CONCEPTUAL PLANS
for
SHOAL LINE RECREATION AREA

55 ACRES ±

HERNANDO COUNTY, FLORIDA

Project Number 21078



LOCATION MAP
N.T.S.
S/T/R
7 & 18/ 23 S/ 17 E

N

PREPARED FOR:

HERNANDO COUNTY BOARD
OF COUNTY COMMISSIONERS

PREPARED BY:

Coastal engineering associates, inc.
Engineering
Planning
Surveying
Environmental
Construction Management

966 Candlelight Boulevard - Brooksville - Florida 34601
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EB-0000142

SHEET LIST TABLE

PLAN REVISIONS

DATE	REVISION NO.	REVISION

AGENCY APPROVALS

AGENCY	PERMIT TYPE	PERMIT NO.	EXP. DATE

BRIAN M. MALMBERG LICENSE No. 59405 STATE OF FLORIDA PROFESSIONAL ENGINEER

DESIGN ENGINEER BRIAN M. MALMBERG, P.E., REGISTRATION NO. 59405

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JOB No.: 21078

SHEET C-02

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BRIAN M. MALMBERG
LICENSED
No. 59405
STATE OF FLORIDA
PROFESSIONAL ENGINEER

EXISTING CONDITIONS

SHOAL LINE RECREATION AREA

OVERALL SITE PLAN

SHOAL LINE RECREATION AREA

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SHEET
C-03

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FUTURE BOARDWALK / WALKING TRAIL

PROPOSED BEACH AREA

SWIM AREA BOUNDARY FLOAT LINE

PROPOSED SWIMMING AREA

SHOAL LINE RECREATION AREA

MAINTENANCE ACCESS TO BE IMPROVED

TO LINDA PEDERSON PARK

0 100 200 Feet

LEGEND:

- PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH
- PROPOSED COMPOSITE WOOD BOARDWALK
- EXISTING TRAIL TO BE IMPROVED
- PROPOSED BEACH
- PROPOSED SWIM AREA

SHOAL LINE RECREATION AREA
OVERALL SITE PLAN

SHOAL LINE RECREATION AREA

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SHEET
C-04

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LEGEND:

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

EXISTING TRAIL TO BE IMPROVED

N

0 40 80 Feet

MATCHLINE SHEET C-06

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

FUTURE BOARDWALK / WALKING TRAIL

EXISTING TRAIL TO BE IMPROVED

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

PICNIC SHELTER 1 TABLE

PICNIC PAVILION

PICNIC SHELTER 1 TABLE

PRELIMINARY SITE PLAN (1)

SHOAL LINE RECREATION AREA

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C-05

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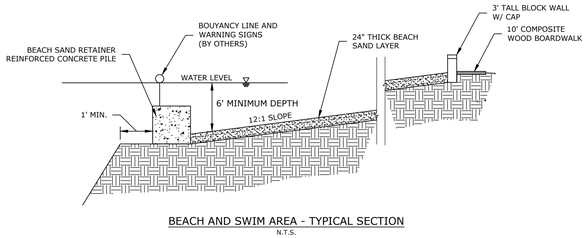


BEACH AND SWIM AREA - TYPICAL SECTION
N.T.S.

LEGEND:

- PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH
- PROPOSED COMPOSITE WOOD BOARDWALK
- EXISTING TRAIL TO BE IMPROVED
- PROPOSED BEACH
- PROPOSED SWIM AREA
- PROPOSED EDGE OF WATER

N

0 40 80 Feet

MATCHLINE SHEET C-07

EXISTING TRAIL TO BE IMPROVED

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

3' WOOD PEDESTRIAN WALL

PICNIC PAVILION

BIKE RACK

RESTROOM FACILITY

SHOWER STATION

DECROTIVE 3' BLOCK WALL W/ CAP

85'

130'

BEACH AREA

GAZEBO

FUTURE BOARDWALK / WALKING TRAIL

3' WOOD PEDESTRIAN WALL

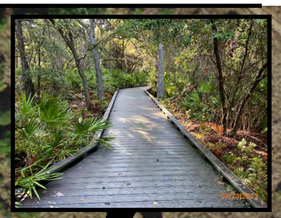
SWIMMING AREA

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

KAYAK LAUNCH

SWIM AREA BOUNDARY FLOAT LINE

KAYAK/PADDLE BOARD AREA



MATCHLINE SHEET C-05

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PRELIMINARY SITE PLAN (2)

SHOAL LINE RECREATION AREA

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SHEET
C-06

JOB No.: 21078

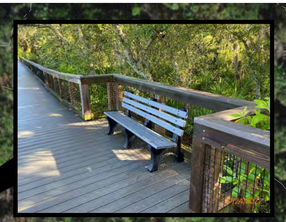
LEGEND:

- PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH
- PROPOSED COMPOSITE WOOD BOARDWALK
- EXISTING TRAIL TO BE IMPROVED

N

0 40 80 Feet

GAZEBO



PROPOSED COMPOSITE WOOD BOARDWALK

PROPOSED COMPOSITE WOOD BOARDWALK

EXISTING TRAIL TO BE IMPROVED

PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH

MATCHLINE SHEET C-06

MATCHLINE SHEET C-08

PRELIMINARY SITE PLAN (3)

SHOAL LINE RECREATION AREA

PLAN MALMBERG LICENSE No. 59405 STATE OF FLORIDA REGISTERED PROFESSIONAL ENGINEER

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SHEET

C-07

JOB No.: 21078

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LEGEND:

- PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH
- PROPOSED COMPOSITE WOOD BOARDWALK
- EXISTING TRAIL TO BE IMPROVED

N

0 40 80 Feet

MATCHLINE SHEET C-07

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PRELIMINARY SITE PLAN (4)

SHOAL LINE RECREATION AREA

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SHEET
C-08

JOB No.: 21078

N

0 20 40 Feet

LEGEND:

- PROPOSED CRUSHED SHELL OR STABILIZED DIRT PATH
- PROPOSED COMPOSITE WOOD BOARDWALK
- EXISTING TRAIL TO BE IMPROVED

BRIDGE & PARKING SITE PLAN

SHOAL LINE RECREATION AREA

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SHEET
C-09

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ALCOHOL PROHIBITED

Exhibit

10

Contractor
ConstructionCost Estimate

FenderMarineConstruction

Wednesday, August 03, 2022

Jon Riley
Project Manager
O: (352) 796-9423 C: (352) 804-0042
Coastal Engineering Associates Inc.

Email:

Subject: Budgetary Estimate and Specifications for Construction of The Bridge, Picnic Table Shelters, Picnic Pavilions, and The Kayak Launch at The Weeki Wachee Preserve Recreation Area

Dear Mr. Riley,

Thank you for the opportunity to work with you on your project. We have reviewed the drawings you provided labeled: Weeki Wachee Preserve Recreation Area. We have provided a breakdown of the items included in our budgetary estimate as well as recommended specifications that will allow you to provide the very best contractors to bid the project for your customer.

First the general specifications:

Licensing- The bidders must provide proof that the bidding contractor's company holds a Florida State Certified General Contractor's license. Proof of the General Contractor's licensing in the bidding company's name shall be provided with the bid submission.
Insurance- The bidding contractor company shall provide proof of their coverage by United States Longshore and Harbor Worker's Act insurance as is required by law for this scope of work. The bidders shall submit their certificate of insurance showing the required Workers Compensation insurance with the 6006F code which indicates the required USL&H coverage. Worker's compensation Exemption Certificates shall not be accepted.
Marine Contractor may use only in-house employees, not subcontractors.
Experience- The contract shall submit (5) projects over the past (3) years for timber bridges or boardwalks over water using driven pile.

The following is a list of items included in our budgetary estimate:

The 10’ wide x 56’ long Foot Bridge is a prefabricated glued laminated wood bridge with +- 54’ between supports. The access boardwalk on each side of the bridge will be with (2) 10’x20’ wood framed boardwalk sections one at each end of the prefabricated bridge built to the following specifications:

- The prefabricated bridge:
  - Pile shall be (4) 12” butt diameter Southern Yellow Pine (SWP) treated to .60 CCA on each end. The pile shall be set by a combination of water jetting and driving with a pile hammer to a maximum embedment of 10’-0”.
  - The pile cap shall be a 12”x12” SYP .60 CCA fastened to 12” diameter pile with fabricated metal brackets.
  - The prefabricated bridge shall be constructed by Enwood Structures to the following specifications:
    - QTY: (1) ONE RAIL TYPE: 3 Glulam rails each side with
    - MODEL: WOODLAND 2"x 2" vertical pickets at 5 1/2" o.c.
    - WIDTH: 10'-0" (OUT-TO-OUT OF DECK) BRIDGE PROFILE: High or Low (Customer Option)
    - 9'-6" (INSIDE-TO-INSIDE OF SAFETY RAILS) ASSEMBLED APPROX. WEIGHT: 23,500 lbs.
    - SPAN: 56'-0" Out to Out of Stringers. STRINGER WEIGHT: 4,200 lbs. each
    - BRIDGE DESIGN:
    - The bridge system is designed for 90 PSF live load. Designed for wet conditions of use.
    - Bridge shall be fabricated according to the approved Enwood Structures design.
    - LAMINATED STRINGERS, DIAPHRAGMS, POSTS and SAFETY RAILS:
    - Fabricated with Southern Pine Lumber, AITC ARCHITECTURAL APPEARANCE GRADE,
    - pressure treated with 0.6 pcf CCA, per AITC 109, for above ground use.
    - (LAMINATING LUMBER TREATED PRIOR TO GLUING).
    - BRIDGE DECK:
    - 2" Southern Pine Lumber, #1 SPIB, specified lengths, pressure treated per AITC 109, for above ground use.
    - STEEL AND HARDWARE:
    - All steel and hardware required for complete assembly, excluding anchor bolts or leveling plates. All steel and
    - hardware to be hot-dipped galvanized.
- The access boardwalk deck shall be built to the following specifications:
  - Pile shall be 6”x6” .60 ACQ #2 SYP @ 10’ O.C. max. jetted into position with minimum 5’ embedment.
  - The bents (floor carrier beams/crossties) shall be 2”x10” #2 .40 ACQ Southern Yellow Pine bolted to pile with (2) 3/4” HDG through bolts at each end.
  - The joists shall be 2”x8” #2 .40 ACQ Southern Yellow Pine spaced at 16” O.C.
  - Knee bracing ”2x6” #2 SYP ACQ treatment with (2) 1/2” HDG lag at each end.
  - The decking shall be 2”x6” eased edge paraffin-based water repellant treated wood deck boards fastened to wood joist with (2) galvanized wood screws.
- The boardwalk handrail shall be built to the following specifications:
  - Top rail shall be (2) 2”x6” #1 GC .60 ca/acq fastened to posts with galvanized wood screws.

- Bottom rail shall be a single 2”x6” #1 GC ca/acq fastened to the posts with galvanized wood screws.
- The pickets shall be 2”x2” #1 eased edge set so a 4” sphere cannot pass through.
- The cap shall be 2”x6” eased edge paraffin-based water repellant treated wood deck boards fastened to wood top rails with (2) galvanized wood screws set at 16” on center.

The Budgetary Price for this item is $237,068.00

The image above is an example of the prefabricated bridge.

The (3) Picnic Bench Shelters are 10’ x12’ total footprint including a 1’-0” overhang on the roof are built to the following specifications:

- The pile shall be 6”x6” .60 ACQ #2 SYP- Southern Yellow Pine embedded to a maximum depth of 4’-0”.
- The roof headers shall be double 2”x10”.40 ACQ #1 SYP boxed beam and bolted for shingle roof loading.
- The rafters shall be hand crafted open beam and shall be 3”x8” and 3”x10” .40 ACQ #2 SYP depending on the spans and as recommended by our engineer, at 48” O.C. spacing or larger framing members as may be engineered.
- The roof decking shall be constructed of 2”x6” T&G V-Joint SYP for a beautiful, tongue and groove V-joint finished appearance.
- The roof will have a 1’ overhang and will have a roof pitch of 4/12 and shall be a hip.
- The roofing shall be a 26. Gauge Ultra-rib metal roof or architectural asphalt/fiberglass shingles.
- The bench seats and table shall be 2”x6”.40 ACQ #1 SYP.

The Budgetary Price for this item is $54,340.00

The (5) Picnic Pavilions are 15’x27’ total footprint including a 1’-0” overhang on the roof and a 15’x27’x4” thick concrete floor are built to the following specifications:

- We have included the finish grade. Rough grade to +-1” of grade is by others.
- The concrete floor shall be 15’x27’’x 4” cast in place using 3,000 psi concrete with commercial fiber and a broom finish.
- The footers shall be 16’’ diameter x 3’-6” deep 3,000 psi cast in place concrete spaced at 10’-0” on center maximum.

- The pile shall be 6”x6” .60 ACQ #2 SYP- Southern Yellow Pine embedded into the concrete footers
- The roof headers shall be double 2”x10”.40 ACQ #1 SYP boxed beam and bolted for shingle roof loading.
- The rafters shall be hand crafted open beam and shall be 3”x8” and 3”x10” .40 ACQ #2 SYP depending on the spans and as recommended by our engineer, at 48” O.C. spacing or larger framing members as may be engineered.
- The roof decking shall be constructed of 2”x6” T&G V-Joint SYP for a beautiful, tongue and groove V-joint finished appearance.
- The roof will have a 1’ overhang and will have a roof pitch of 4/12 and shall be a hip.
- The roofing shall be a 26. Gauge Ultra-rib metal roof or architectural asphalt/fiberglass shingles.

The Budgetary Price for this item is $399,453.00

The image above is the style of rafter and ceiling for the Picnic Pavilions and the picnic bench shelters.

The Floating kayak launch is a 5’x16’ fixed access walkway with a 4’x8’ EZ Dock Polyethylene Gangway, a 60”x20’ EZ Dock Polyethylene floating access walkway, an 60”x10’ EZ Dock Polyethylene tee dock with an EZ Dock Polyethylene kayak launch constructed to the following specifications:

- The fixed access walkway shall be built to the following specifications:
  - Pile shall be 6”x6” .60 ACQ #2 SYP @ 10’ O.C. max. jetted into position with minimum 5’ embedment.
  - The bents (floor carrier beams/crossties) shall be 2”x10” #2 .40 ACQ Southern Yellow Pine bolted to pile with (2) 3/4” HDG through bolts at each end.
  - The joists shall be 2”x8” #2 .40 ACQ Southern Yellow Pine spaced at 16” O.C.
  - Knee bracing ”2x6” #2 SYP ACQ treatment with (2) 1/2” HDG lag at each end.
  - The decking shall be 2”x6” eased edge paraffin-based water repellant treated wood deck boards fastened to wood joist with (2) galvanized wood screws.
- The floating EZ Dock components are as follows:

- EZ Dock Kayak Launch
- 60’x10’ Floating EZ Dock sections configured as described above fastened together per the manufacturer’s recommendations.
- Anchored into the lake bottom with 2” galvanized pipes. The galvanized pipes are sleeved with PVC for a clean finished look.

The Budgetary Price for this item is $55,443.00

The above image is of an EZ Dock polyethylene floating kayak launch like our proposal. The proposed dock will be a 5’x16’ fixed wood walkway connecting the gangway and floating access walkway to shore.

General Conditions.

- Engineered detail drawings required for the local building permits and construction of this scope of work is included. You would provide us with a recent survey of the property on which our site plan will be based.
- 10k Forklift for moving material.
- Turbidity curtain around our work area during pile installation.

The Budgetary Price for this item is $62,593.00.

The following is a list of the items that are specifically excluded from our proposal:

- This proposal is based on all the above work being awarded, permitted, and performed at the same time and performed on a single mobilization.
- We must be provided access to the site as well as a laydown area for our personnel, material, and equipment.
- We must be provided stabilized access to all work sites suitable for a lumber delivery truck and a 10k forklift.
- We must be provided stabilized access to deliver the 10’x56’ prefabricated bridge to the location close enough to the installation location to be lifted into place with a 100-ton truck crane. We must be provided a stabilized pad to mobilize the 100-ton truck crane and erect the 10’x56’ prefabricated bridge.
- Access to all worksites must be maintained by others.
- We have excluded the work to repair ruts or any other damage to the access roads to our work sites.
- Temporary barricades, maintenance of traffic or fencing if required is excluded.
- The paths to our work site will need to be closed to the public and all other traffic during our mobilization, demobilization, signage, barricades, and cones or fencing is by others.

- We have excluded sod or landscaping installation or repair.
- Irrigation has been excluded.
- Electrical and plumbing is excluded.
- We have not included importing any fill dirt.
- Clearing and grubbing is excluded.
- We have excluded the removal of any trees or landscaping of any kind.
- We will call in for the necessary utility locates, however we have excluded relocating any utilities or irrigation.
- We have not included the restoration of the concrete, pavement, or landscaping in our proposal. However, if you wish for us to handle the shrub and irrigation repair work, we will be happy to provide pricing for that scope of work.
- Our prices are based on the lake bottom being stable sandy soils, free of logs, muck, rocks and other substratum that would hamper our ability to set the wood piling to a minimum 10'+- tip elevation. If any unforeseen conditions in the lake bottom are discovered, we would stop work, perform research to acquire a solution to the problem and present you with an additive change order to cover any additional costs we would incur. Our prices are based on the soils encountered having an N value of 20 or less.
- Any unsuitable material removal or replacement.
- Any item not specifically mentioned above as being included is excluded.

The total price for the above items is $808,898.00

Note: if paying the invoice by credit card, please add 3.5% to the invoice amount.

Rick Fender 8/3/2022

Fender Marine Construction, Inc. **Date**

Below are some photos of like structures that we are proposing here-

Here you see the heavy rafters and T&G V-Joint decking

Here you can see the scroll cut rafter tails and roof decking

This photo shows the double 2”x10” boxed beam roof header along with the rafter tails, roof decking and pile with the upper trim block. Note: this photo is of a tile roof and yours is priced as Ultra-rib metal or architectural grade asphalt/fiberglass shingle.

Exhibit

11

Opinion of Probable Cost

SHOAL LINE RECREATION AREA ENGINEER'S OPINION OF PROBABLE COST

I. General Conditions/Misc

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
Mob/Overhead/General Conditions	LS	1	$162,375.00	$162,375.00
Perf Bond & Insurance	LS	1	$109,230.00	$109,230.00
Survey Layout/As-builts	LS	1	$73,500.00	$73,500.00
Construction Materials Testing	LS	1	$49,000.00	$49,000.00
Maintenance of Traffic	LS	1	$25,000.00	$25,000.00
Temporary Construction Access	LS	1	$10,000.00	$10,000.00
			SUBTOTAL:	**$429,105.00**

II. Clearing, Grubbing and Earthwork

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
Clearing/grubbing	AC	4	$5,000.00	$17,500.00
Embankment Excavation, Filling and Grading	LS	1	$28,500.00	$28,500.00
Beach/Swimming Excavation	CY	18,850	$15.00	$282,750.00
Final Grading	LS	1	$33,880.00	$33,880.00
Silt Fence Installation and Removal	LF	19,160	$3.00	$57,480.00
Floating Turbidity Barrier	LF	530	$26.00	$13,780.00
NPDES Monitor, Report, Management	LS	1	$15,000.00	$15,000.00
Building Demolition	SF	6,970	$15.00	$104,550.00
Sod Restoration of Disturbed Areas	LS	1	$62,000.00	$62,000.00
Dewatering	LS	1	$50,000.00	$50,000.00
			SUBTOTAL:	**$665,440.00**

SHOAL LINE RECREATION AREA ENGINEER'S OPINION OF PROBABLE COST

III. Site Amenities

DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
Beach Sand Fill	CY	9,630	$68.00	$654,840.00
Concrete Sand Retainer Pile	LF	840	$70.00	$58,800.00
Decrotive 3' Block Wall w/Cap	SF	700	$45.00	$31,500.00
3' Wood Pedestrian Wall	SF	1,140	$25.00	$28,500.00
Shower Station	EA	1	$3,500.00	$3,500.00
Restroom	LS	1	$125,000.00	$125,000.00
Grinder Sewer Pump Station	LS	1	$35,000.00	$35,000.00
Sewer Force Main	LF	840	$100.00	$84,000.00
Water Main	LF	840	$100.00	$84,000.00
Wood/Composite Boardwalk	SF	23,280	$70.00	$1,629,600.00
Picnic Pavillion	EA	5	$75,000.00	$375,000.00
Picnic Table Shelter	EA	2	$18,000.00	$36,000.00
Picnic Tables	EA	22	$1,500.00	$33,000.00
Kayak Launch	EA	1	$56,000.00	$56,000.00
Improve Existing Maint Access	SY	2,030	$20.00	$40,600.00
Crushed Shell Path	LF	2,680	$30.00	$80,400.00
Improve Existing Trail	LF	3,840	$18.00	$69,120.00
Foot Bridge	LS	1	$238,000.00	$238,000.00
Existing Parking Lot Rehab	SF	23,100	$4.00	$92,400.00
New Parking	SF	10,200	$9.00	$91,800.00
Drainage for New Parking Lot	LS	1	$30,000.00	$30,000.00
Electric/Lighting	LS	1	$40,000.00	$40,000.00
Entry and Site Signage	LS	1	$65,000.00	$65,000.00
Bike Rack (20 spaces)	LS	1	$8,500.00	$8,500.00
Landscaping	LS	1	$250,000.00	$250,000.00
Wooden Gazebo	EA	2	65,000.00	130,000.00
Wetland Mitigation Allowance	LS	1	121,000.00	121,000.00
			SUBTOTAL	**$4,491,560.00**

SUMMARY	
General Conditions	$429,105.00
Clearing/Earthwork	$665,440.00
Site Improvements	$4,491,560.00
SUBTOTAL	**$5,586,105.00**
15% Professional	$837,916.00
20% Contingency	$1,284,804.00
TOTAL	**$7,708,825.00**

NOTE: THIS OPINION OF COST IS BASED ON CONCEPTUAL PLANS, NOT FINAL DESIGN DOCUMENTS. A FOLLOW UP EVALUATION IS RECOMMENDED UPON COMPLETION OF FINAL DESIGN DOCUMENTS. THE DESIGN PROFESSIONAL HAS NO CONTROL OVER THE COST OF LABOR, MATERIALS, COMPETITIVE MARKET CONDITIONS AND OTHER VARIABLE FACTORS.

PREPARED BY: COASTAL ENGINEERING ASSOCIATES, INC.

DATE: AUGUST, 2022