GS-10 PRESERVE
LAND MANAGEMENT PLAN

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ACKNOWLEDGEMENTS

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TABLE OF CONTENTS

Table of Contents (Continued) Page

LIST OF TABLES

LIST OF FIGURES

List of Figures (Continued)

LIST OF APPENDICES

LIST OF ACRONYMS

Acronym	Description
BOCC	Lee County Board of County Commissioners
C20/20	Lee County 20/20 Conservation Program
CLASAC	Conservation Lands Acquisition and Stewardship Advisory Committee
DDT	1,1,1-tricholor-2,2 bis-(p-chlorophenyl) ethane
DHR	Division of Historical Resources
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FFS	Florida Forestry Service
FLEPPC	Florida Exotic Pest Plant Council
FLU	Future Land Use
FLUCFCS	Florida Land Use, Cover and Forms Classification System
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Institute for Regional Conservation
LA-MSID	Lehigh Acres Municipal Services Improvement District
LCDCD	Lee County Department of Community Development
LCDNR	Lee County Division of Natural Resources
LCDOP	Lee County Division of Public Safety
LCDP	Lee County Division of Planning
LCMCD	Lee County Mosquito Control District
LCPR	Lee County Parks and Recreation
LIDAR	Light Detection and Ranging
LSOM	Land Stewardship Operations Manual
LMP	Land Management Plan
MOU	Memorandum of Understanding
MU	Management Unit
NAVD	North American Vertical Datum
NCDC	National Climatic Data Center
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resource Conservation Service
NWI	National Wetlands Inventory
ORV	Off-Road Vehicle
SFWMD	South Florida Water Management District
UFIFAS	University of Florida Institute of Food and Agricultural Sciences
USACOE	U.S. Army Corps of Engineers
USDACS	U.S. Department of Agriculture and Consumer Service
USFWS	U.S. Fish and Wildlife Service

VISION STATEMENT

It is the vision of the land stewards in the Lee County Department of Parks and Recreation and the Conservation 20/20 Program to enhance existing native communities and create productive, functional, viable wetlands from disturbed lands on-site. The primary management objective for the Preserve is to improve water quality and flood protection in the Hickey Creek and West Caloosahatchee watersheds. In addition, the creation, restoration, and enhancement of wetland habitats will provide an increase in habitat value for wetland dependent species, while also providing resource-based recreation and educational opportunities for visitors.

1.0 EXECUTIVE SUMMARY

GS-10 Preserve is located in East Lee County within Section 10, Township 44 South, Range 27 East. The Preserve was Nomination Parcel 257-2. The County entered into a memorandum of understanding (MOU) with the Lehigh Acres Municipal Services Improvement District (LA-MSID) on March 19, 2019 (Appendix A). This agreement indicated Lee County and LA-MSID agreed that it was in their mutual interest to cooperate in the restoration and appropriate development and enhancement of passive recreational, environmental, and surface water management functions on the GS-10 Preserve. The land was purchased through the Conservation 20/20 (C20/20) program by Lee County in April 2019 for over 3.5 million dollars.

The C20/20 program was established in 1996 after Lee County voters approved a referendum to increase property taxes by up to 0.5 mil. The increase in property taxes would fund the protection and purchase of environmental sensitive lands (C20/20 2011). The objective of the C20/20 program is to protect and preserve wildlife habitat, protect water quality and supply, protect developed lands from flooding, and provide resource-based recreation (C20/20 2011). In 2016, the program was reaffirmed by voters with an 84 percent majority support (C20/20 2020).

GS-10 Preserve is approximately 624± acres. Along the preserve's eastern boundary is Joel Boulevard. The Preserve is also abutted by King Canal to the north, West Easy Canal to the south, and Pit Canal to the northwest. Within a mile north of the GS-10 Preserve is the Greenbriar Swamp managed by the LA-MSID, as well as the Greenbriar Connector Preserve, Alva Scrub Preserve managed by the C20/20, and Hickey Mitigation Park managed in part by the Florida Fish and Wildlife Conservation Commission (FWC). Single-family residences and undeveloped land surround the immediate area around the Preserve.

Lee County is composed of four physiographic provinces: Gulf Coastal Lowlands, Caloosahatchee Valley, Immokalee Rise, and the Southwestern Slope. The GS-10 Preserve is located in the Immokalee Rise province which is generally 25 feet in elevation; however, some areas are as high as 35 feet to 42 feet. The province was formed by "submarine shoal approximately 100,000 years ago" (Southwest Florida Regional Planning Council (SWFRPC) 2002). The Caloosahatchee Valley province rises less than 15 feet in elevation. Topography results from "natural forces acting upon regional geologic formations from ancient time until the present" (SWFRPC 2002). LiDAR elevations for the Preserve range from less than 15 feet to over 24 feet NAVD in elevation. The property is highest in the southern portions of the parcel which were historically altered. Likewise, the lowest areas of the site, which are located across the property, represent borrow areas from a previous mining operation.

GS-10 Preserve is within the South Florida Water Management Districts (SFWMD) Lower West Coast Region, Okeechobee Basin. More specifically GS-10 Preserve is located within the West Caloosahatchee watershed basin, a sub basin of the Caloosahatchee River Basin, and within the Lee County Division of Natural Resources (LCDNR) Hickey Creek Watershed.

There are nine different soil types found at the Preserve. All of the soils on the property were identified as having severe limitations including being too sandy, wetness, and/or ponding. The

majority of the preserve is underlain by Matlacha Gravely Fine Sand, which is found in the upland areas of the Preserve and is considered a “man-made” soil.

The GS-10 preserve has an extensive history of man-made alterations and development. In the early 1950s a 3,200 foot long runway had been constructed in the southern half of the site, and the northeast section of the site had also been cleared for agricultural uses with several drainage ditches. By the late 1950s, borrow pits were excavated in several areas of the site. By the mid-1960s, the hydroponic farming had been constructed in the southeast portion of the site, and a horse track had been constructed in the northeastern portion of the site. The fill mining in the borrow pits continued to expand between the 1960s and 1970s. Through the 1980s and 1990s, many of the agricultural structures were removed from the site and additional areas excavated for fill. The runway area was mined by scraping the unconsolidated soil down to the underlying bedrock. A yard trash composting operation was set up on portions of the site throughout the 1990s and early 2000s. In the late 2000s, permitting applications for a residential development were submitted but never authorized or constructed as a result of the 2008 housing crash. Currently the Preserve is dominated by disturbed lands with remnant native habitats.

GS-10 Preserve contains a combination of wetlands, uplands, and other surface waters that serve as important habitat for a variety of birds, mammals, reptiles, and amphibians. The Preserve consists of 11 distinguishable plant communities, as identified by the Florida Cooperative Land Cover Map. While freshwater marshes are the most common natural plant communities in the land cover map, the entire site is historically disturbed, and the majority of the site is identified as Rural Open Land.

Proposed management activities at GS-10 Preserve include converting a portion of the borrow lakes into wetland and upland habitats, including development of a filter marsh system. The remaining borrow lakes will be graded to serve as water storage areas. This will improve water quality of discharges into the Hickey Creek and West Caloosahatchee Watersheds, increase flood storage, and reduce flooding to downstream properties. In addition, these management efforts will improve habitat for wildlife utilization. An active exotic removal and maintenance program will be implemented in order to control exotic invasive plant species and enhance wildlife habitat. Pedestrian access will be allowed on designated trail systems. This will allow for limited public use while protecting the Preserve’s integrity and meeting the goals of Lee County and LA-MSID.

The land management plan’s goal is to identify and protect preserve resources, while developing a plan for the creation and enhancement of upland and wetland habitats. Implementation of the management plan will ensure that the property is managed in accordance with the Lee County Parks and Recreation’s Land Stewardship Operations Manual (LSOM) and developed in accordance with the MOU.

The restoration and management activities will focus on creation of wetland habitat, restoration of disturbed areas to more natural communities through exotic removal and maintenance, maintaining fire dependent ecosystems, removing debris, and enhancing wildlife habitat. This plan specifically outlines the goals and strategies for preserve management as well as how those goals will be accomplished.

2.0 INTRODUCTION

GS-10 Preserve was acquired in April 2019 through the C20/20 program for a total cost of $3,873,300.00. The 624± acre preserve is located in East Lee County. The Preserve is situated approximately 2.5 miles south of State Road 80 and immediately west of Joel Boulevard. A location map is attached as Figure 1.

The majority of the Preserve has experienced prior disturbance as it previously was excavated as part of a mining operation. Other previous features of the site included a private airstrip, agricultural fields, and associated facilities. Currently the offsite surrounding area includes Joel Boulevard, single-family residential homes and undeveloped lots.

GS-10 Preserve contains a combination of wetland, upland, and other surface water communities that have potential to provide important habitat for a variety of wildlife including listed species. Wildlife utilization of the Preserve is anticipated to increase as enhancement and wetland creation occurs. Habitat enhancement activities include the removal of exotics from natural communities, upland and wetland creation and restoration, and creation of a filter marsh system. These enhancement activities will provide high quality habitats to be used for foraging and nesting by many wildlife species.

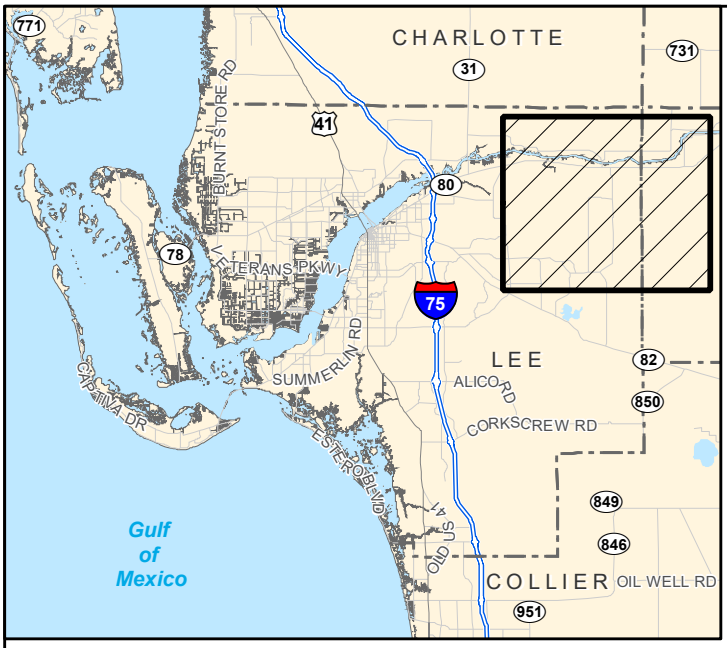
The purpose of this management plan is to define the conservation goals at GS-10 Preserve. The primary purpose at GS-10 Preserve is to increase flood storage and improve water quality in the Hickey Creek and West Caloosahatchee watersheds. The restoration plan includes converting a portion of the Preserve from disturbed uplands and other waters to wetland and upland habitats. Exotic plants will be removed from the remaining uplands and existing wetlands in order to reduce competition with native species. The entire Preserve will continue to provide wildlife habitat and resource-based recreational and educational opportunities, while also increasing flood storage and improving water quality in the watershed.

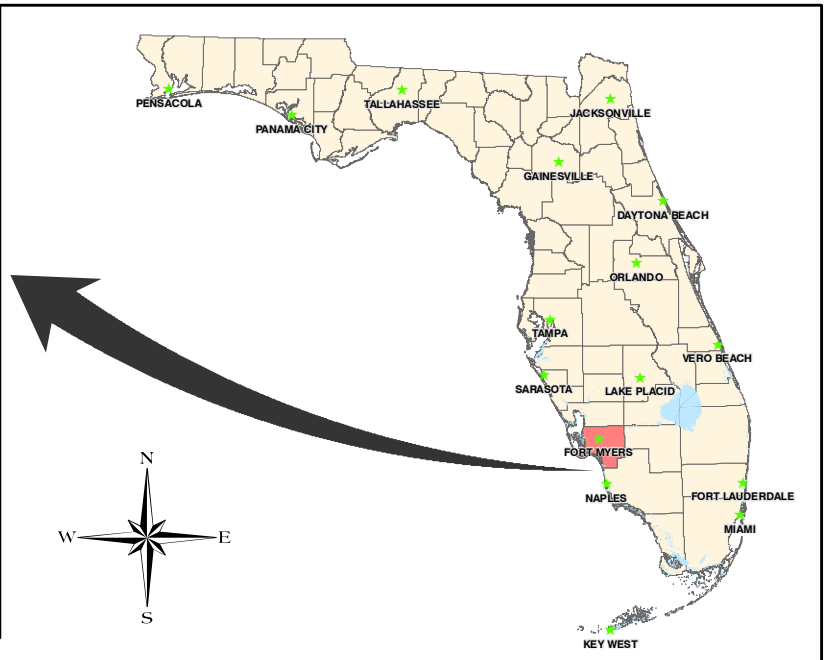
3.0 LOCATION AND LAND USE

The GS-10 Preserve has held many land uses since the 1940s. The property is currently not being utilized and has been vacant since the early 2000s. The Preserve is located approximately 2.5 miles south of State Road 80 and immediately west of Joel Boulevard.

The subject parcel is located in Section 10, Township 44, Range 27 East in Lee County. The parcel identification number for the property is 10-44-27-00-00001.0000. The Lee County Property Appraiser does not list an address for the site. A location map is included as Figure 1.

GS-10 Preserve is surrounded by undeveloped lots and single-family homes. Greenbriar swamp is located approximately one-half mile northwest of the Preserve, and Harns Marsh and the Buckingham Airfield are located approximately six miles southwest of the Preserve. An Aerial Photograph of the property is attached as Figure 2.





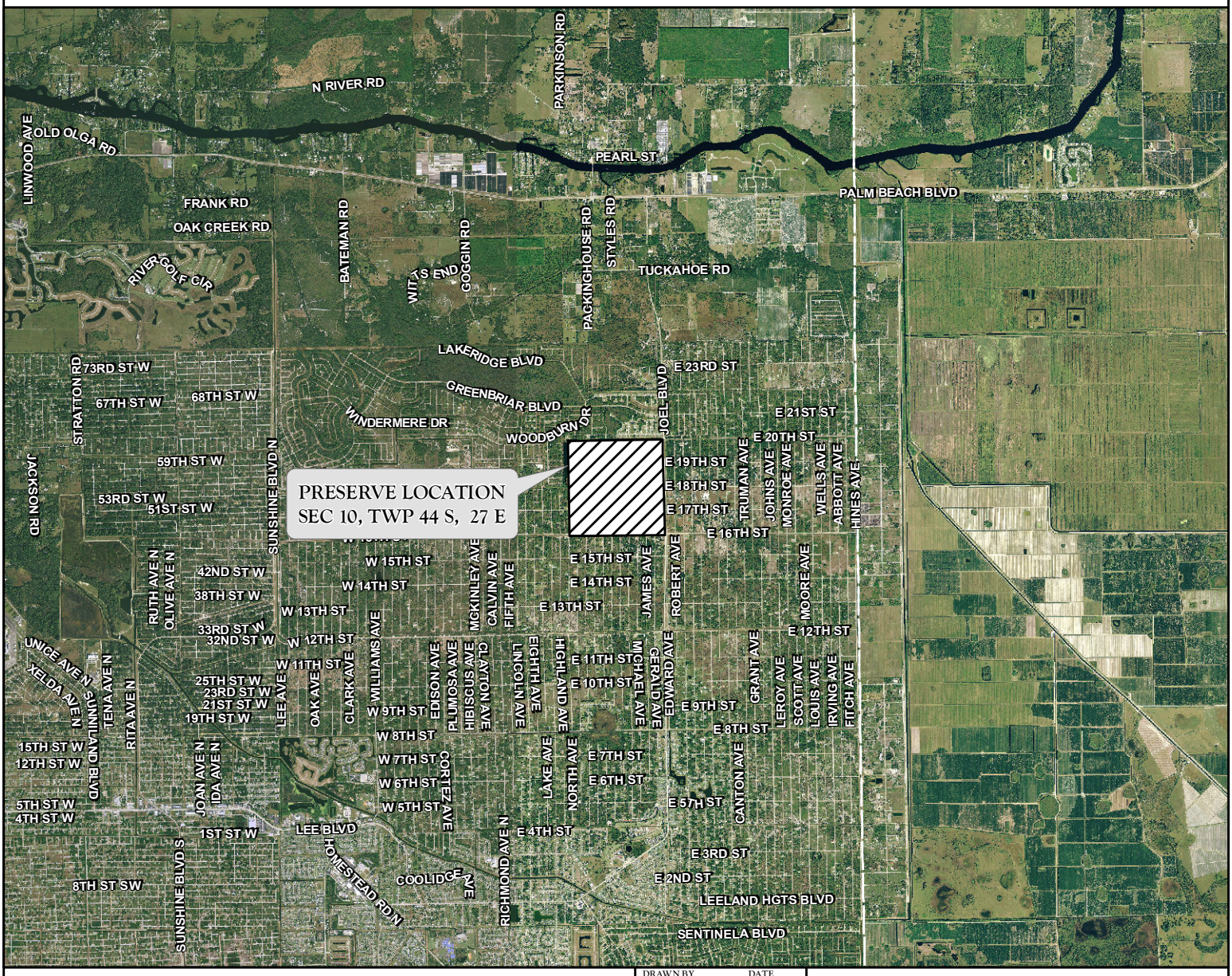


FIGURE 1. PRESERVE LOCATION MAP

GS-10

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H.H.	3/31/20
REVIEWED BY	DATE
H.S.	3/31/20
REVISED	DATE

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GS-10

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NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH A FLIGHT DATE OF JANUARY 2019.

COUNTY INFORMATION AND ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

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GS-10

AERIAL WITH BOUNDARY

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SHEET No. FIGURE 2

Historically the property was developed as a stone aggregate mining site in the 1950s and contained a private air strip. Through the late 1990s the mining operations expanded across the northern and western portions of the site. Agricultural operations have historically occupied the eastern portion of the site between the 1950s and 1990s. The property has sat vacant and begun to naturally revegetate since the early 2000s. Currently preserve contains 11 plant communities, most of which are disturbed as a result of the historic use of the property.

4.0 NATURAL RESOURCES DESCRIPTION

4.1 Physical Resources

4.1.1 Climate

Southwest Florida has a humid, sub-tropical climate due to its maritime influence from the Caribbean Sea and the Gulf of Mexico. The Bermuda high-pressure cell prevents convective clouds from building into thunderstorms in the fall and winter and as the Bermuda High weakens in late spring, thunderstorms occur regularly. Superimposed on the pattern of daily showers and thunderstorms is precipitation resulting from large-scale circulation systems such as tropical storms and hurricanes.

In late fall, winter, and early spring, weather systems (fronts) from the Northeastern United States sweep over the area. These fronts can bring significant swings in temperature and humidity, causing the weather to oscillate between maritime tropical and continental winter weather.

Temperate climate influences are exerted, as well with infrequent, but significant freezes occurring in December and January (FCC 2005). These freezes occasionally damage the vegetation and prevent some of the more, cold sensitive tropical plants from becoming established. Cold fronts regularly push cool, sometimes moist weather from the Southeastern United States to Southwest Florida during the winter. These cold fronts also encourage migratory birds to utilize the preserves as either a stop-off point on a longer voyage, or as a winter roosting and feeding area. Table 1 shows the average high and low temperatures for Fort Myers, Florida compiled by the Southeast Regional Climate Center from 1892 to 2009.

Table 1: Average High/Low Temperatures for Fort Myers, Florida (1892-2009)

Temp (ºF)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
High	74.4	75.8	79.7	84.0	88.1	89.9	90.5	90.8	89.2	85.1	79.5	75.4
Low	53.8	54.7	58.5	62.3	67.3	72.1	73.7	74.1	73.4	68.2	60.4	55.3

Daily mean temperatures collected by the National Oceanic and Atmospheric Administration (NOAA) at Page Field Airport in Fort Myers, Florida between 1981 and 2010 are included in Table 2 below.

Table 2: Monthly Mean Temperature at Page Field Airport, Fort Myers, Florida (1981-2010)

Temp (ºF)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Mean	64.2	66.6	69.9	73.8	79.0	82.5	83.2	83.4	82.4	77.9	71.7	66.5

4.1.2 Geology

Southwest Florida can be divided into ten physiographic provinces (SWFRPC 2002). These provinces are broad-scale divisions based on geographic features including terrain, rock type, geologic structure and history. GS-10 Preserve is located entirely within the Immokalee Rise province. The Immokalee Rise province was formed approximately 100,000 years ago (SWFRPC 2002). This province is usually around 25 feet; however, some areas peak at 35 feet and 42 feet (SWFRPC 2002). The Caloosahatchee Valley was formed during the Pilo-Pleistocene age and is an ancient river valley filled with sands and shells. In general, this province rises less than 15 feet in elevation (SWFRPC 2002).

Scientists believe that Florida's landmass was originally part of northwest Africa during the Paleozoic Era (Lane 1994). However, the present configuration of Florida was not created until the Cenozoic Era. Florida's present configuration occurred as a result sedimentation and erosion from sea level fluctuation (Lane 1994). The current natural topography of Florida was created as the surrounding seas flooded and retreated the state in the Quaternary Period (Lane 1994).

Florida is composed of ten lithostratigraphic units. Lithostratigraphic units are categorized based on the condition under and time when they were formed. According to the Florida Geological Society as cited by the Florida Department of Environmental Protection (FDEP), Lee County is composed of Quaternary or Tertiary sediments (FDEP 2005). Quaternary sediments within Lee County are subdivided into two categories Qh or Qsu. Qh is composed of Holocene sediments of quart sand with organic matter and clay. Qsu is composed of undifferentiated shell beds. The only Tertiary sediment presents in Lee County is Tamiami Formation.

GS-10 Preserve is within the tertiary sediment known as the Tamiami formation, which was created during the Pliocene Epoch between 5.3 and 1.8 million years ago. The Tamiami Formation (a Tertiary sediment) is a "poorly defined lithostratigraphic unit" (Scott 2001) composed of sandy limestone, clays, marls, and sands with phosphate deposits and fossils. Lithologies of the Tamiami Formation in the mapped area include: 1) light gray to tan, unconsolidated, fine to coarse grained, fossiliferous sand; 2) light gray to green, poorly consolidated, fossiliferous sand clay to clayey sand; 3) white to light gray, poorly consolidated, sandy, fossiliferous limestone" (Scott 2001). This soil type can be highly permeable to impermeable. Geological feature maps are attached as Figure 3.

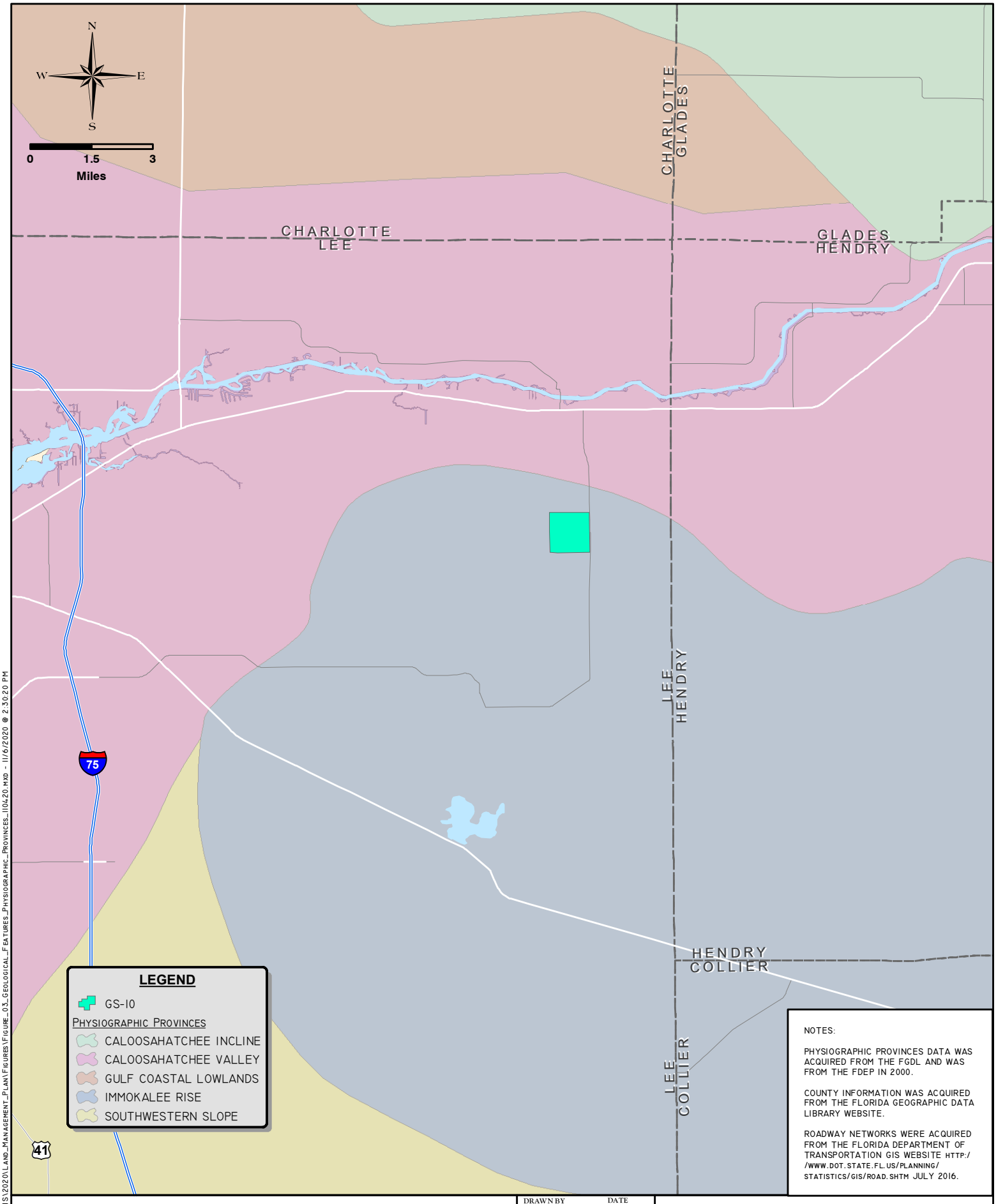

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FIGURE 3. GEOLOGICAL FEATURES: PHYSIOGRAPHIC PROVINCES
GS-10

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A.W.	4/1/20
REVISED	DATE

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4.1.3 Topography

The highest point in Florida is 345 feet above sea level near Lakewood (Advameg 2010). Lee County is located within the Gulf Coastal Lowlands of Florida that extend around the coastal periphery of the state (Cooke 1945). Elevations in the Gulf Coastal lowlands are generally below 100 feet (Stubbs 1940).

Figure 4 is a Topographic Map based on Light Detection and Ranging (LiDAR), an optical remote sensing technology which measures scattered light to find the range and/or other information of a distant target. This data was collected in 2018 and represents the digital elevation model. The change in the color gradient visually demonstrates the change in elevation.

Based on the LiDAR map the majority of the parcel is between 16 and 22 feet NAVD within the unexcavated areas. The depths of the excavated lakes range between 1 and 13 feet NAVD. The highest topographical area of GS-10 Preserve is located in the southern and central portions of the property. These areas represent the location where the private airstrip once sat and where excavation material from the mining operation was piled.

4.1.4 Soils

The Soil Survey of Lee County (Henderson 1984) was designed for use by many individuals. The survey provides a general mapping and description of the soil type, soil composition, soil behavior and land use limitations. The soil survey was created as a joint effort between several government agencies led by Natural Resources Conservation Service (NRCS). The soil map was based on observations of drainage patterns, the presence or absence of certain plant species and bedrock type. Several soil profiles were dug, and a model was created. The model allowed scientist to predicted with “considerable accuracy” the kind of soils present throughout the landscaping (Henderson 1984). Accuracy of the soil mapping is generally between 70 to 80 percent within a typical three acre mapping area (Wilson Miller 2005).

Based on the NRCS mapping GS-10 Preserve contains nine different soil types, of which one is categorized as water and makes up approximately 45.7percent of the site. A soils map of the Preserve is included as Figure 5. The majority of the property comprised of Matlacha Gravely Fine Sand, which is found in the upland areas of the Preserve and is considered a “man-made” soil.

The nine soil types on the property are Boca Fine Sand, Malabar Fine Sand, Wabasso Sand, Limestone Substratum, Felda Fine Sand-Depressional, Oldsmar Fine Sand, Limestone Substratum, Malabar Fine Sand, High, Matlacha Gravely Fine Sand, Pineda Fine Sand, Limestone Substratum, and Water. Further details of these soil types and characteristics as identified in the 1984

LAKERIDGE BLVD
RIDGEMONT DR
WELBY LN
MILL ST
OLSEN LN
JETRIDGE ST
SANBORN DR
GREENBRIAR BLVD
E 21ST ST
GRAYSON AVE
ROGERS ST
TOWNSEND CT
URBANA ST
JUSTICE AVE
SINGER ST
WINTON CT
MARLAY AVE
COX CT
VIEWPOINT DR
NORWALK AVE
WOODBURN DR
WELLER AVE
VICTORY CT
LORNA AVE
WHITMAN AVE
MERCER AVE
SPARTAN AVE
LATONA ST
OCEAN PARK DR
MABRY ST
VICKSBURG AVE
STONYBROOK AVE
ROSANNA AVE
LINDENWOOD DR
LONG BEACH DR
SPOKANE AVE
MURPHY AVE
LUDLOW AVE
JOHANNA AVE
LAWLER AVE
E 19TH ST
JOEL BLVD
ROBERT AVE
E 18TH ST
JEFFERSON AVE
ROOSEVELT AVE
E 17TH ST
E 16TH ST
NORTH AVE
LAKE AVE
MAPLE AVE N
HIGHLAND AVE
THOMPSON AVE
WASHINGTON AVE
CLEVELAND AVE
BROADWAY AVE
DAYTON AVE
E 15TH ST
GLENN AVE
SHELDON AVE
MICHAEL AVE
JAMES AVE
GERALD AVE
EDWARD AVE
E 14TH ST

LEGEND

GS-10

2018 LiDAR

< 15'	19' - 20'
15' - 16'	20' - 21'
16' - 17'	21' - 22'
17' - 18'	22' - 23'
18' - 19'	23' - 24'
	> 24'

N
W E
S

0 400 800
Feet

NOTES:

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LiDAR IMAGERY WAS ACQUIRED FROM THE LEE COUNTY GIS WEBSITE AND IS CURRENT TO 2018.

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TOPOGRAPHY MAP

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SHEET No. FIGURE 4

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GS-10

SOILS

0 400 800

Feet

Soil Unit	Description	Hydric	Acres
13	BOCA FINE SAND	NO	50.70
34	MALABAR FINE SAND	YES	14.88
42	WABASSO SAND, LIMESTONE SUBSTRATUM	NO	33.16
49	FELDA FINE SAND, DEPRESSIONAL	YES	5.58
50	OLDSMAR FINE SAND, LIMESTONE SUBSTRATUM	NO	14.70
63	MALABAR FINE SAND, HIGH	NO	6.09
69	MATLACHA GRAVELLY FINE SAND	NO	208.76
77	PINEDA FINE SAND, LIMESTONE SUBSTRATUM	YES	1.48
99	WATER	UNRANKED	281.84

NOTES:

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

SOILS MAPPING WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE OCTOBER 2007 AND CREATED BY THE NATURAL RESOURCES CONSERVATION SERVICE 1990.

FIGURE 5. SOILS MAP
GS-10

DRAWN BY	DATE
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Soil Survey can be found in the LSOM, Land Stewardship Plan Development and Supplemental Information Section. A brief summary of each soil type on-site and the corresponding acreage and hydric status is provided in Table 3 below.

Table 3: Soils Legend

Soil No.	Soil Name	Hydric or Non-Hydric	Acreage	Percent Cover at GS-10 Preserve
13	Boca Fine Sand	Non-Hydric	50.70±	8.2
34	Malabar Fine Sand	Hydric	14.88±	2.4
42	Wabasso Sand, Limestone Substratum	Non-Hydric	33.16±	5.4
49	Felda Fine Sand, Depressional	Hydric	5.58±	0.9
50	Oldsmar Fine Sand, Limestone Substratum	Non-Hydric	14.70±	2.4
63	Malabar Fine Sand, High	Non-Hydric	6.09±	1.0
69	Matlacha Gravelly Fine Sand	Non-Hydric	208.76±	33.8
77	Pineda Fine Sand, Limestone Substratum	Hydric	1.48±	0.2
99	Water	N/A	281.84±	45.7

All of the soils on the property have been classified as having severe limitations which impact their suitability for recreational use. A severe limitation means, the soils properties are unfavorable for recreational use and the soils "limitation can be offset only by soil reclamations special design, intensive maintenance, limited use or a combination of these measures" (Henderson 1984). These limitations include; too sandy, wetness and/or ponding. The specific soil characteristics are outlined in Table 4.

GS-10 Preserve will provide passive, resource-based recreation that will complement the natural environment. Public access may be limited in some areas of the site for safety of the public or the for the protection of sensitive habitats and wildlife. Special design features such as elevated trails and boardwalks may be implemented to provide passive recreational opportunities. As such, the limitations of the soil types on-site is not problematic.

4.1.5 Hydrologic Components and Watershed

Hydrology is the study of the distribution and movement of water quantities within a system. This includes the study of the dynamic processes of the source, timing, amount, varying quality and direction of water movement. A watershed is a region of land within which water flow and drains into a specific body of water (i.e., lake, river, stream, wetland, etc.). Topography, geology, soils, biological communities, and anthropogenic alterations to a landscape influence the rate and way in which water drains. The SFWMD delineates watersheds within their boundaries. The SFWMD further delineates basins within each of these watersheds.

Table 4: Soil Attributes (as Defined in The Soil Survey of Lee County (Henderson 1984))

Soil No.	Soil Name	Physical Attributes		Biological Attribute				Limitations for Recreational Use
				Potential for Wildlife Use In				
		Hydrologic Group	% Organic Matter	Open Land	Woodland	Wetland	Rangeland	
13	Boca Fine Sand	B/D	1-3	Fair	Poor	Fair	Good	Severe: wetness, too sandy
34	Malabar Fine Sand	B/D	1-3	Poor	Poor	Fair	_	Severe: wetness, too sandy
42	Wabasso Sand, Limestone Substratum	B/D	2-5	Poor	Fair	Poor	_	Severe: wetness, too sandy
49	Felda Fine Sand, Depressional	D	1-4	Very Poor	Very Poor	Good	_	Severe: ponding, too sandy
50	Oldsmar Fine Sand, Limestone Substratum	B/D	1-2	Fair	Fair	Poor	Fair	Severe: wetness, too sandy
63	Malabar Fine Sand, High	B/D	1-2	Fair	Poor	Fair	Fair	Severe: wetness, too sandy
69	Matlacha Gravelly Fine Sand	C	--					Severe: too sandy
77	Pineda Fine Sand, Limestone Substratum	B/D	1-2	Fair	Poor	Fair	_	Severe: wetness, too sandy
99	Water	--	--	--	--	--	--	--

Hydrologic Soil Group: The runoff producing characteristics of the soil. Slope and plant cover are not considered.
Group B: When wet these soils have moderate infiltration rate. Soils have a moderate rate of water transmission.
Group C: When thoroughly wet these soils have a slow infiltration rate. Soils have a slow rate of water transmission.
Group D: When thoroughly wet these soils have a very slow infiltration rate and high runoff potential.

Potential for Wildlife Use:
Good: Habitat is easily established, improved or maintained.
Fair: Habitat can be established, improved, or maintained. Moderate to intensive management is required.
Poor: Limitations are severe; however, habitat can be created, improved, and/or maintained. Management is difficult and intensive.
Very Poor: Habitat restrictions are very severe and unsatisfactory results can be expected. Creating, improving. or maintaining habitat is impractical or impossible.

GS-10 Preserve is located within the West Caloosahatchee watershed basin, a sub basin of the Caloosahatchee River Basin. A map of the Preserve location within the West Caloosahatchee watershed basin is included as Figure 6. The main water body of the Caloosahatchee River Basin is the Caloosahatchee River. The Caloosahatchee River runs from Lake Okeechobee to the Gulf of Mexico. The Caloosahatchee River was extended in 1881 to connect to Lake Okeechobee by a man-made canal.

The Lee County, the Division of Natural Resources (LCDNR) has refined the watershed/basin boundaries into 48 different watersheds. These watersheds are based on a more refined scale then the SFWMDs designations because LCDNRs area of monitoring and restoration are much smaller. GS-10 Preserve is located within the area defined as Hickey Creek Watershed by the LCDNR. A map depicting these boundaries is attached as Figure 7.

In 1974 the U.S. Fish and Wildlife Service (USFWS) Office of Biological Services conducted an inventory of the nation's wetlands. By 1977 the National Wetlands Inventory (NWI) became operational and wetland maps were prepared analyzing high altitude aerial imagery in conjunction with field work and other data sources (USFWS 2011).

The USFWS NWI map (Figure 8) identified six wetlands on the GS-10 Preserve. The USFWS classified these wetlands as; freshwater emergent and/or freshwater forested/shrub habitats. All of the wetlands on the property are classified as freshwater systems (having low concentrations of dissolved salts and total dissolved solids). All of the wetlands are also classified as Palustrine systems. Palustrine systems are non-tidal wetlands or wetlands in tidal areas with a salinity level below 0.5 ppt. The wetlands at GS-10 Preserve are non-tidal. Emergent wetlands are characterized by dominant coverage by herbaceous species whereas forest/shrub systems are dominated by woody vegetation at least six meters tall. The USFWS also classifies the wetlands on the property as temporarily, seasonally, or semi-permanently flooded. The majority of the wetlands are further classified as excavated, to signify the wetlands were created by human excavation. One wetland is further classified as partially drained.

The NWI map also identified freshwater ponds and lakes on the GS-10 Preserve. The USFWS classified the freshwater ponds as Palustrine systems with unconsolidated bottoms (having at least 25 percent cover of particles smaller than stones and vegetative cover less than 30 percent). The lakes are classified as Limnetic, deep water habitats with unconsolidated bottoms. The USFWS also further classifies both the ponds and lakes as excavated systems that are permanently flooded.

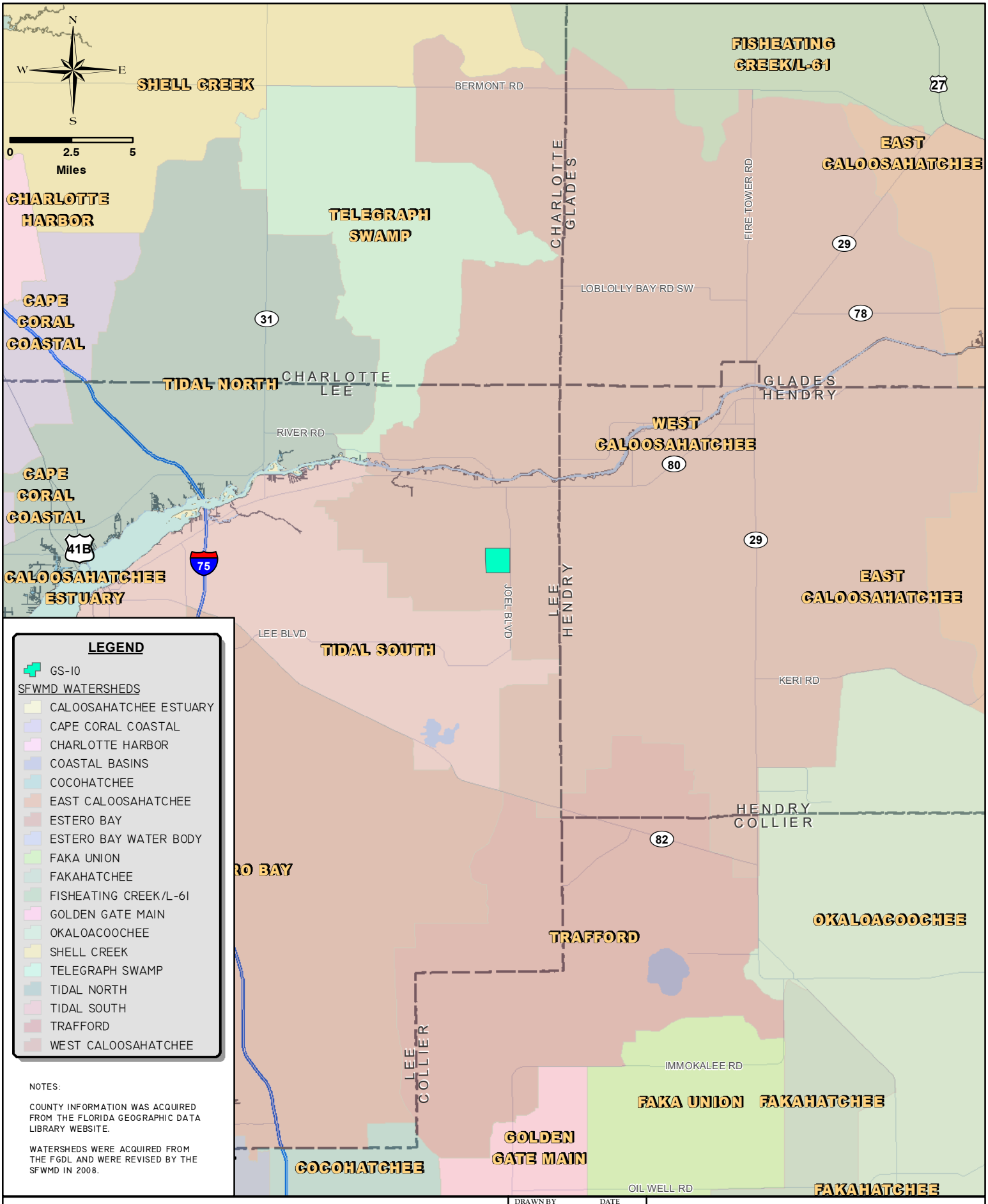

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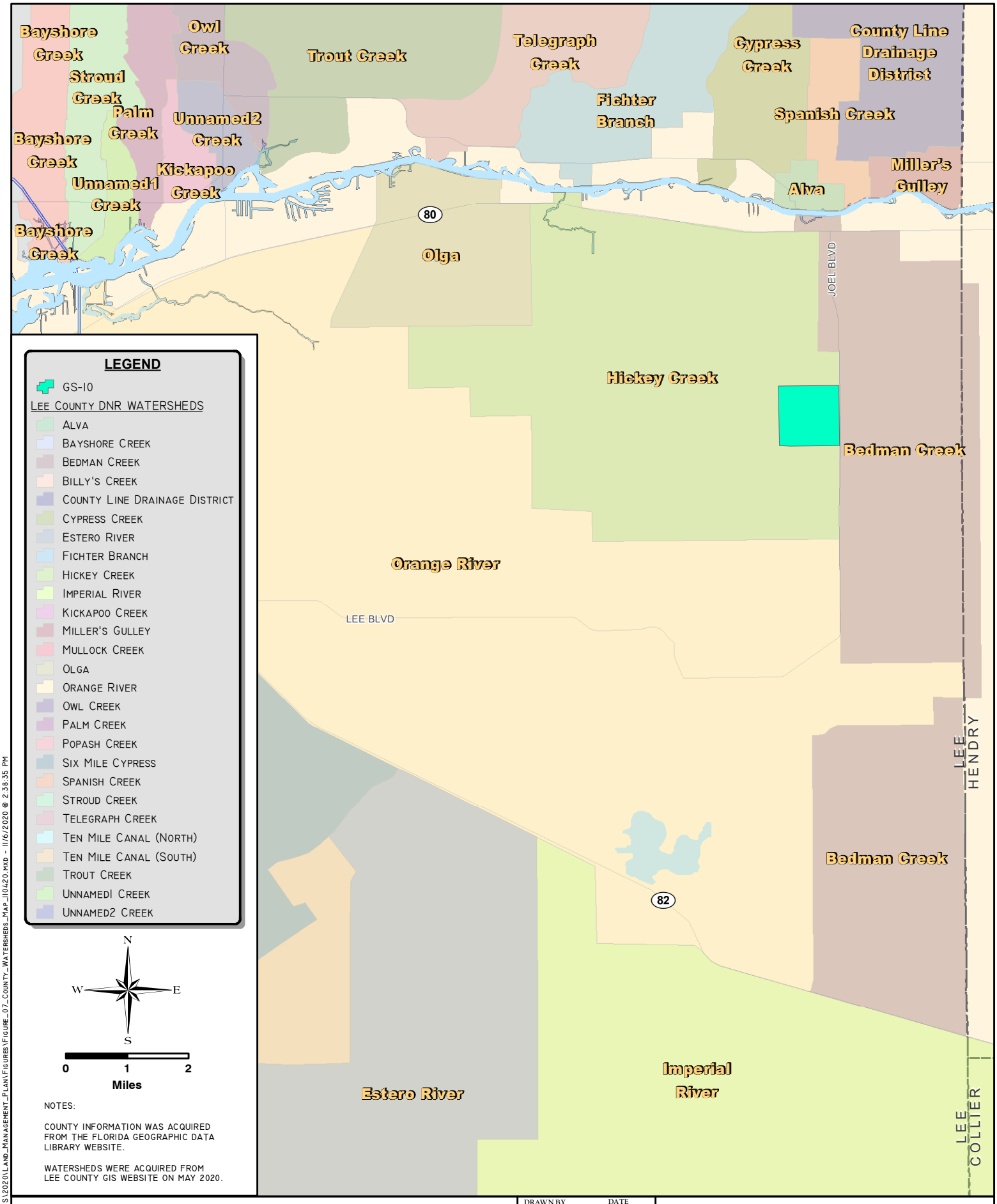
FIGURE 6. SFWMD WATERSHEDS MAP
GS-10

DRAWN BY	DATE
H.H.	4/1/20
REVIEWED BY	DATE
H.S.	4/1/20
REVISED	DATE

Consulting Ecologists
PASSARELLA & ASSOCIATES INC



NOTES:

COUNTY INFORMATION WAS ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

WATERSHEDS WERE ACQUIRED FROM LEE COUNTY GIS WEBSITE ON MAY 2020.

J:\2020\20AIM3209\GIS\2020\LAND_MANAGEMENT_PLAN\FIGURES\FIGURE_07_COUNTY_WATERSHEDS_MAP_J10420.MXD - 11/6/2020 @ 2:38:35 PM

FIGURE 7. LEE COUNTY DEPARTMENT OF NATURAL RESOURCES WATERSHEDS MAP

GS-10

DRAWN BY	DATE
H.H.	4/1/20
REVIEWED BY	DATE
H.S.	4/1/20
REVISED	DATE

PASSARELLA & ASSOCIATES INC
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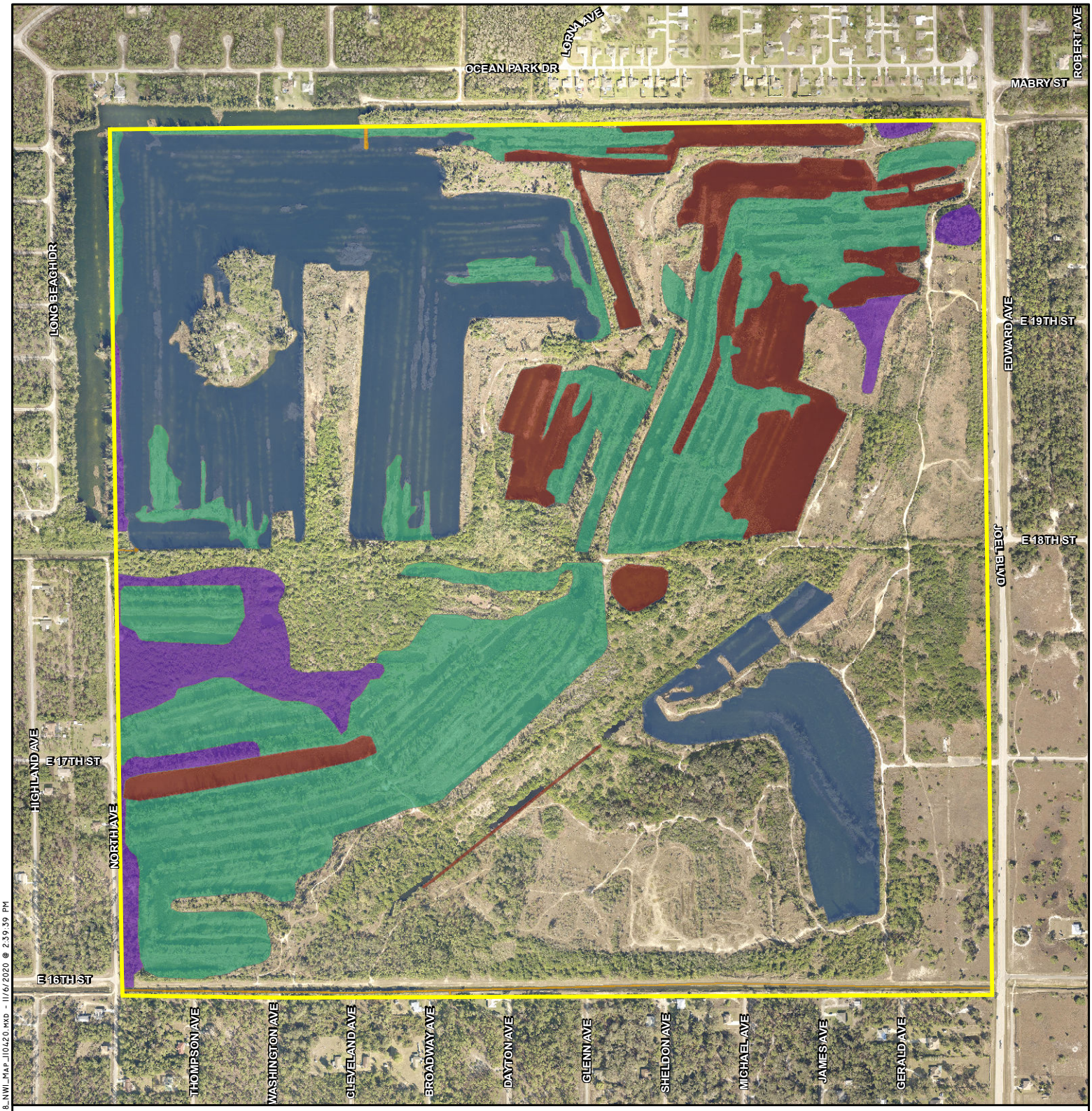

LEGEND

- GS-10

National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

N W E S

0 400 800

Feet

NOTES:

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

NATIONAL WETLAND INVENTORIES WERE ACQUIRED PER THE USFWS WEBSITE MAY 2019.

FIGURE 8. NATIONAL WETLANDS INVENTORY MAP
GS-10

DRAWN BY	DATE
H.H./T.S.	6/4/20
REVIEWED BY	DATE
H.S.	6/4/20
REVISED	DATE

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When acquiring GS-10 Preserve, the site was noted for its potential to provide additional floodplain storage and its potential to improve water quality in the Hickey Creek and West Caloosahatchee watersheds. The concept plan for the preserve proposes utilizing and enhancing the existing excavated mining areas to provide a combination of water storage ponds and a filter marshes. Water quality goals and management practices will follow the Caloosahatchee River and Estuary Basin Management Action Plan:
(https://floridadep.gov/sites/default/files/caloosa-estuary-bmap-final-nov12.pdf).

GS-10 Preserve has been proposed as a component of the Southern Lee County Flood Mitigation Plan. This flood mitigation plan was developed as part of Phase 3 of the flood response plan triggered by flood events resulting from the cumulative rainfall from Invest 92L and Hurricane Irma which occurred on August 25 and September 10, 2017, respectively. An excerpt from the Southern Lee County Flood Mitigation Plan, depicting GS-10 Preserve, with a proposed concept plan is included as Appendix B.

4.2 Biological Resources

4.2.1 Ecosystem Function

GS-10 Preserve currently contains both upland and freshwater wetland plant communities on-site as well as disturbed habitat types. These community types are known to provide a variety of ecosystem functions in South Florida. A general description of these each of these community types and their functions is provided below.

The freshwater wetlands of South Florida are important to a variety of wildlife and people. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality and recharge the aquifers. Seasonal changes profoundly affect the hydrological conditions of preserve areas. During the late spring and summer months, the rain begins to fall and the wetlands fill to capacity. Fish populations begin to increase both in number and biomass. In the fall when the rains end, and the water recedes, fish are concentrated in shallow marshes. The wading birds then come in, to feast, which in turn aids the remaining fish by decreasing the density and increasing the availability of dissolved oxygen. Most wildlife utilizing these communities have adapted by migrating from one wetland to another as the shallow ones dry up.

The depression marshes are also important to some species of wading birds for their nesting success. For example, the white ibis (*Eudocimus albus*) chooses nesting sites near marshes that have appropriate drying conditions. Some herons and wood storks (*Mycteria americana*) need specific falling water conditions over a prolonged four-month nesting season. The faster the marsh dries, the sooner nesting starts. If the water level rises, then nesting success declines (Myers and Ewel 1990). This drying period is not only important to the fauna but also to the flora. Plants in

these areas also benefit from the seasonal wet/dry flux. The plants in these wetlands become completely dry, die, decay and release nutrients that are bound in their tissues. This makes the soils highly productive for the next wet season. Typically, these plants have low nutrient requirements, so they stockpile the excess, which is beneficial to herbivores feeding upon them. Most aquatic plants cannot germinate under water and require a drying phase.

Forested freshwater wetlands include cypress swamps and strands as well as hydric hammock communities. These areas provide excellent cover and foraging for woodpeckers, warblers and other migratory songbirds. Animals depend on the health and long-term viability of the cypress communities for nesting, breeding and feeding. These forested wetlands are highly productive ecosystems, which are directly related to the hydrologic conditions within them. Healthy cypress communities capable of sustainable reproduction occur in depressions with a hydroperiod of approximately 250- 290 days and maximum water levels of one to two feet (Duever et al. 1986). The lower hydroperiod and water level ranges produce smaller cypress and the upper ranges produce larger ones. The cypress domes, or heads, are depressions in which the largest cypress trees occur in the center and get progressively smaller from the center out. Water percolates through the water table. The conditions for growth (i.e., long hydroperiod) are much better in the center as opposed to the edges due to more organic soils in the center. The larger cypress trees populate the lower areas with longer hydroperiods. In the areas where the water is too deep for cypress, treeless ponds occur within the domes, supporting a variety of plants and wildlife. These forested systems play a vital role by storing rainwater and improving water quality by filtering nutrients and pollutants. To sustain the health of the cypress communities, water quality and quantity must be protected and improved on the various Lee County preserves.

Pine flatwoods provide essential cover and forage material for a variety of birds, small mammals, reptiles and amphibians and some large mammals including white-tailed deer (*Odocoileus virginianus*), gopher tortoise (*Gopherus polyphemus*), Eastern indigo snake (*Drymarchon corais couperi*) and Florida panther (*Puma concolor coryi*). Birds find shelter in the palmetto understory, nest in the tall pines and forage in the grasses. The oak toad (*Bufo quercicus*) will dig burrows in the sandy soil and hunt for spiders and insects. There are a number of rare wildlife species that primarily occur in the flatwoods, as well as numerous rare plants, including some endemic species. During the wet season, these communities provide dry refuge for non-aquatic animals. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent land from flooding (Tiner 1998). Hydric pine flatwoods function seasonally as both a wetland and upland. This hydrologic transformation allows for an abundant diversity of flora, which in turn, supports a wide range of wildlife (USFWS 1999).

Fire is an important part of pine flatwoods. Florida has more thunderstorm days per year than anywhere else in the country and, in turn, one of the highest frequencies of lightning strikes of any region in the United States. Fire shapes ecosystem

processes in the flatwoods including creation of soil conditions suitable for germination of seeds of some species, turnover of litter, humus and nutrients, reduction of competition from hardwoods and increasing the hardiness of some species (Myers and Ewel 1990). Mechanical thinning and roller chopping of pine flatwoods is beneficial, especially in areas that have suffered fire suppression or have had hydrologic alterations to surrounding lands which in turn creates conditions favoring growth of pines over hardwood species. Without regular fire or mechanical work, pine flatwoods can become dense stands of palmetto and have tall weak pines which block sunlight from reaching the ground, further decreasing the biodiversity and coverage of native grasses and wildflowers that gopher tortoises, quail and many other species depend upon.

Disturbed portions of Lee County's preserves also have important functions. The abandoned fields provide open habitat for the American kestrel (*Falco sparvarius*), crested caracara (*Caracara cheriway*), and Florida scrub jay (*Aphelocoma coerulescens*) to forage. The sparseness of trees allows the scrub jay a field of view to watch for predators. In the wet summer months standing water creates feeding grounds for many wading birds including snowy egrets (*Egretta thula*), lesser yellow-legs (*Tringa flavipes*), and great blue herons (*Ardea herodius*). The fields also provide foraging habitat for sandhill cranes. In the fall, these fields provide habitat for resident mottled ducks (*Anas fulvigula*) and migratory blue-winged teal (*Anas discors*).

Many of the wetlands in Lee County have been and may continue to be hydrologically impacted by adjacent development (i.e., roadways, berms, residential communities, commercial parks) and exotic plant infestation; they still provide habitat and foraging opportunities for wildlife including frogs, herons, white ibis, and a variety of wading birds. As restoration occurs, these communities will provide more opportunities for additional species. Artificial ponds, ditches, etc. also provide habitat and a source of water for wildlife during the dry season.

4.2.2 Natural Plant Communities

The combination of wetland and upland communities at GS-10 Preserve have potential to serve as important habitat for a variety of wildlife species. The preserve is comprised of 11 plant communities (i.e., natural or altered).

Figure 9 is a Plant Communities Map that depicts the various vegetation communities on-site as mapped by Florida Natural Areas Inventory (FNAI) and FWC as part of the Florida Cooperative Land Cover Map Partnership. This partnership mapped plant communities across the state of Florida, largely through interpretation of aerial photographs. As such, this mapping is subject to some classification errors. Groundtruthed plant community mapping shall be conducted and provided in conjunction with the permitting phase of the Preserve.

LEGEND

- GS-10

Natural Plant Communities

- 1311, Mesic Flatwoods, 7.22
- 1831, Rural Open, 247.56
- 1840, Transportation, 0.07
- 2112, Mixed Scrub-Shrub Wetland, 17.47
- 2120, Marshes, 125.44
- 2210, Cypress/Tupelo(incl Cy/Tu mixed), 1.81
- 3200, Cultural - Lacustrine, 169.73
- 7300, Brazilian Pepper, 36.88
- 18211, Urban Open Land, 1.05
- 18212, Residential Low Density, 5.65
- 22211, Hydric Pine Flatwoods, 4.27

0 400 800
Feet

NOTES:

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

PLANT COMMUNITIES WERE ACQUIRED BY THE FLORIDA NATURAL AREAS INVENTORY WEBSITE ON MAY 2020.

FIGURE 9. NATURAL PLANT COMMUNITIES
GS-10

DRAWN BY	DATE
H.H./T.S.	6/4/20
REVIEWED BY	DATE
H.S.	6/4/20
REVISED	DATE

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A description of the plant communities is included below as defined by the Florida Land Cover Classification System (2018) prepared by FWC and FNAI.

Natural Communities

1311: Mesic Flatwoods – 7.22± acres, 1.2 percent coverage
Flatland with sand substrate; mesic; statewide except extreme southern peninsula and Keys; frequent fire (i.e., two to four years); open pine canopy with a layer of low shrubs and herbs; longleaf pine and/or slash pine (*Pinus elliottii*), saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), dwarf live oak (*Quercus minima*), wiregrass (*Aristida stricta*).

2112: Mixed Scrub/Shrub Wetland- 17.47± acres, 2.8 percent coverage
Wetlands areas that are dominated by woody vegetation less than 20 feet in height. This can occur in many situations, but in most cases involves transitional or disturbed communities on drier sites. Persistent examples of shrub wetlands include shrub bogs and willow swamps.

2120: Marshes- 125.44± acres, 20.3 percent coverage
Long hydroperiod; dominated by grasses, sedges, broadleaf emergents, floating aquatics, or shrubs.

2210: Cypress/Tupelo- 1.81± acres, 0.3 percent coverage
Dominated entirely by cypress or tupelo, or these species important in the canopy; long hydroperiod.

22211: Hydric Pine Flatwood- 4.27± acres, 0.7 percent coverage
Forest with a sparse to moderate canopy of slash pine. The understory is grasses, wiregrass, forbs, and at times with sparse saw palmetto.

Altered Communities

18211: Urban Open Land- 1.05± acres, 0.2 percent coverage
Includes undeveloped land within urban areas and inactive land with street patterns, but without structures. Open Land normally does not exhibit any structures or any indication of intended use. Often, urban inactive land may be in a transitional state and ultimately will be developed into one of the typical urban land uses although at the time of the inventory, the intended use may be impossible to determine.

18212: Residential Low, Density- 5.65± acres, 0.9 percent coverage
This community includes structures within low intensity urban areas. Within GS-10 Preserve this community represents a small area where aerial interpretations of the single-family lots south of GS-10 Preserve crossed over the boundary. It is anticipated that groundtruthed mapping would exclude this community type.

1831: Rural Open- 247.56± acres, 40.1 percent coverage
Herbaceous or shrubby vegetated areas in a rural setting. Ground typically appears improved or disturbed to some degree.

1840: Transportation- 0.07± acres, <0.1 percent coverage
This community includes a variety of transportation related uses, including but not limited to, roads and right of ways, parking lots, airports, docks, and ports. Within GS-10 Preserve this community represents a very small area where aerial interpretations of the Dayton Ave and Glenn Ave right of ways crossed over the southern boundary of GS-10 Preserve. It is anticipated that groundtruthed mapping would exclude this community type.

3200: Cultural Lacustrine- 169.73± acres, 27.5 percent coverage
Communities that are either created, and maintained by human activities, or are modified by human influence to such a degree that the trophic state, morphometry, water chemistry, or biological composition of the resident community are substantially different from the character of the lake community as it existed prior to human influence.

7300: Brazilian Pepper- 36.88± acres, 6.0 percent coverage
Exotic, pestilent tree species is found on peninsular Florida from the Tampa Bay area southward. Commonly found on disturbed sites, this native of Brazil is also an aggressive invader of Florida's plant communities. Communities of these shrub-like trees are often established along borrow-pits, levees, dikes and in old, disturbed fields.

4.2.3 Fauna

Faunal species observed within preserves are, in part, a result of local the diverse plant communities extant, the health of those plant communities, the preserve's location, and its continuity and proximity to other natural areas. Native wildlife (including listed species) and exotic animals have been documented within all of the preserves in Lee County.

Exotic animal species have some degree of impact on the native plants, soils and animals within preserves. Of all the exotic animals present in Lee County, feral hogs (*Sus scrofa*) are of primary concern. Feral hogs are generalists in both their diet (omnivores) and their ability to adapt to a variety of environments. Their rooting behavior loosens the soil and accelerates erosion, sets back plant succession, reduces earthworm activity, and exacerbates exotic plant invasion (Mungall 2001). Lee County will continue to work with wildlife trappers to help control the hog populations. Lee County has taken steps to control feral hog populations by utilizing contracted wildlife trappers to remove these animals from select C20/20 preserves using live traps.

All Lee County preserves will not contain, nor will they support feral cat (*Felis catus*) colonies. FWC's Feral and Free Ranging Cats policy is "To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats" (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services. C20/20 staff will continue to work with the Lee County Animal Services staff to prevent the establishment of feral cat colonies on or adjacent to GS-10 Preserve.

Management goals within Preserves will focus on maintaining healthy, functioning ecosystem processes therefore providing optimal habitat for native wildlife (including listed species). Restoration of the disturbed areas, application of prescribed fire in pyric communities and control of invasive exotic plants and animals will be critical components in providing the best possible habitat for native wildlife.

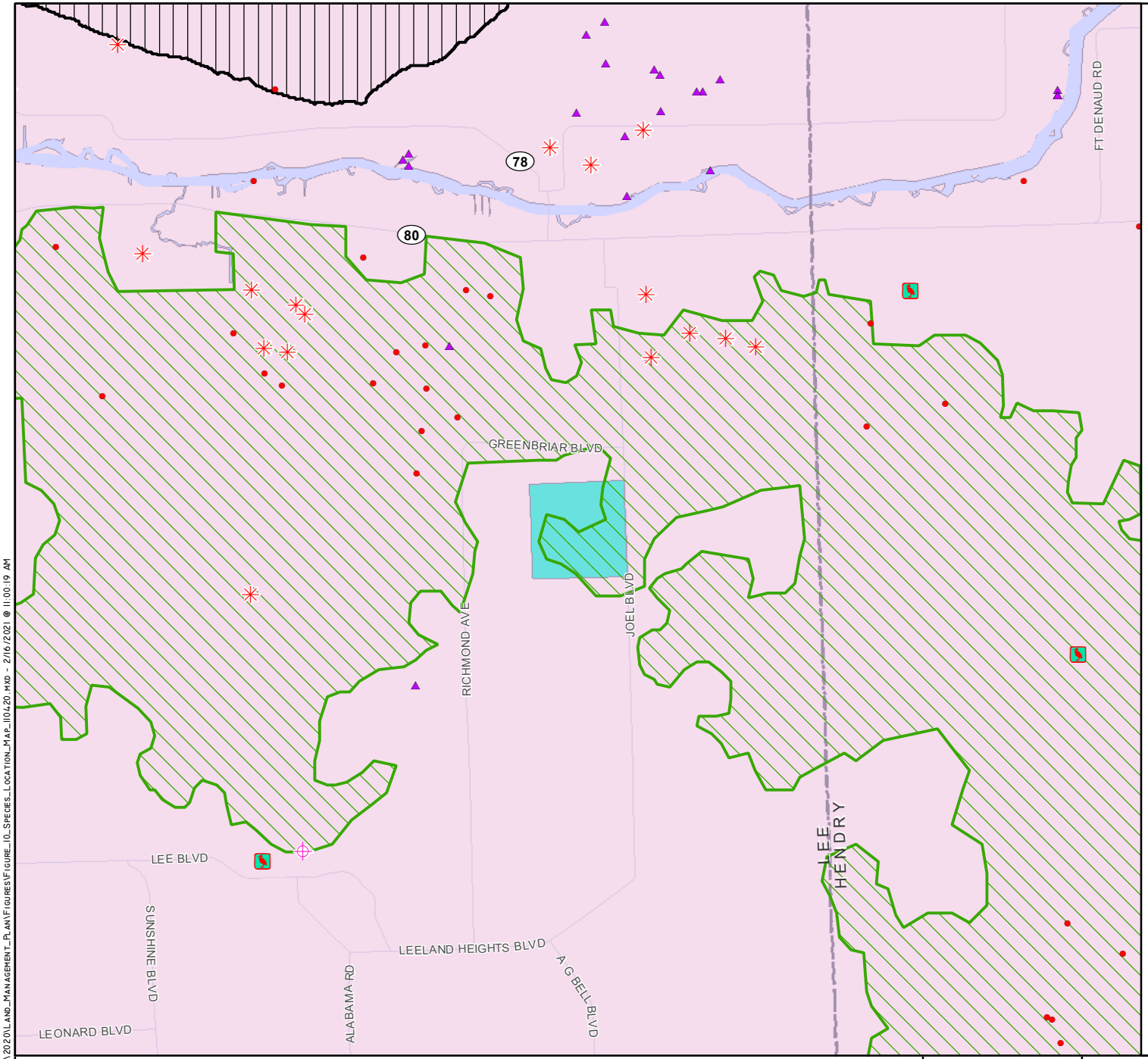
Due to previous and ongoing disturbances to the site (i.e., illegal off-road vehicle (ORV) use) only portions of the site currently provide quality wildlife habitat. It is anticipated that once habitat enhancement and creation activities are completed the preserve will provide a better quality and variety of habitat types for wildlife, including state and federally listed species. A comprehensive list of wildlife observed at the Preserve, including listed species, will be provided once the Project progresses into the design and permitting phase, and field surveys are conducted.

4.2.4 Designated Species

There are a variety of designated animal and plant species found on our Preserves. Although all native plant and animal species found on the Preserve have some protection due to the preservation of this property, certain species need additional attention. For management purposes, all plants and animals listed by the USFWS, FWC, Florida Department of Agriculture and Consumer Services (FDACS), Institute for Regional Conservation (IRC), and FNAI will be given special consideration.

Typically, designated species will benefit from proper stewardship of the biological communities in which they occur. However, some species may require additional measures to ensure their protection. Practices likely to benefit wildlife and plants at the Preserve include exotic plant control, protecting and restoring water resources, prescribed fire, trash removal, wildlife monitoring, feral and exotic animal control, roller chopping, pine tree thinning, restricting construction of maintenance trails in certain areas and enforcement of no littering, no hunting (unless feral hog hunting is approved) and no motorized vehicles regulations.

A survey to document the occurrence of designated species on the Preserve will be conducted in conjunction with the design and permitting phase for the Preserve. A map showing the FWC and USFWS documented occurrences of designated species is included as Figure 10. A portion of the Preserve is located within the USFWS



LEGEND

- GS-10
- Bald Eagle Nest Locations
- Florida Panther Telemetry
- Black Bear Locations
- Wading Bird Locations
- Scrub Jay Locations
- Florida Bonneted Bat Consultation Area

Panther Zones

- Secondary Zone
- Primary Dispersal / Expansion Area

N
W E
S

0 0.75 1.5
Miles

NOTES:

EAGLE NEST LOCATIONS WERE ACQUIRED FROM THE FWCC ON OCTOBER 2019 AND IS CURRENT TO 2017.

BLACK BEAR LOCATIONS WERE ACQUIRED FROM THE FWCC ON OCTOBER 2019 AND IS CURRENT TO 2007.

PANTHER TELEMETRY WAS ACQUIRED FROM THE FWCC ON OCTOBER 2019 AND IS CURRENT TO JUNE 2019.

SCRUB JAY LOCATIONS WERE ACQUIRED FROM THE USFWS FTP SITE ON OCTOBER 2019.

WADING BIRD ROOKERIES WERE ACQUIRED FROM THE FWCC OCTOBER 2019 AND ARE CURRENT TO 1999.

FLORIDA BONNETED BAT CONSULTATION AREA WAS ACQUIRED FROM THE USFWS NOVEMBER 2019.

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FIGURE 10. DOCUMENTED OCCURRENCES OF LISTED SPECIES
GS-10

DRAWN BY	DATE
H.H.	4/1/20
REVIEWED BY	DATE
H.S.	4/1/20
REVISED	DATE

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consultation area for the Florida panther and Florida Bonneted Bat. The preserve is also within the FWC Florida Black Bear Range. Although, no longer a listed species, Florida black bears is still subject to the FWC's Black Bear Management Plan.

Wildlife Species

The following are brief summaries of designated wildlife species that may occur on the preserve due to the presence of potential habitat on-site. The summaries also include reasons for their decline. Unless stated otherwise, the reasons for the species' decline and the management recommendations, if available, were obtained from Hipes et al. (2001).

Gopher Frog

Gopher frogs (*Rana capito*) are becoming increasingly rare throughout its range, primarily due to habitat loss and degradation, as well as the decline of the gopher tortoise, whose burrows often provide homes for this species. Gopher frogs depend on temporary breeding ponds, which rarely support large predatory fish, surrounded by healthy upland ecosystems. They are known to disperse up to a mile from their breeding ponds. In South Florida, gopher frogs may breed year round, but their main breeding season is from October through April when they migrate to ponds during heavy rains. If their presence is discovered, a 30-meter buffer zone around the wetlands should be established where there is no soil disturbance and herbicides are discontinued during breeding and tadpole development periods, which last three to five months (Bailey 2003).

American Alligator

American alligators (*Alligator mississippiensis*) have recovered dramatically since the 1960s. There are now some populations large enough to support limited harvests. Pollution and destruction of wetlands are currently the main threat to this species. Protecting wetlands from ditching, filling and pollution are the management recommendations for this species.

Gopher Tortoise

Gopher tortoises are in decline throughout their range due to loss and degradation of habitat. As a species dependent on dry, upland communities much of their habitat has been lost to urban and residential development, agriculture, citrus groves, mining and pine plantations. Additional threats include a highly contagious respiratory disease and human consumption.

Exotic plant removal, brush reduction, and prescribed burning will benefit this species. Before restoration activities that utilize heavy equipment take place in areas with high burrow concentrations, staff will provide operator burrow maps, or will mark off burrows. Staff will determine if burrows will be flagged and equipment operators will be advised to stay away from the burrows based on type

of work being planned and time of year. High intensity chopping should be planned for winter months when gophers will be less active outside of the burrow.

Eastern Indigo Snake

Eastern indigo snakes are a large, iridescent black snake with a red, coral, or white throat (record length, 8.6 feet). This species is found in a large spectrum of habitats throughout Florida and southern Georgia, often associated with gopher tortoise burrows. Eastern indigo snakes are threatened throughout its range due to habitat loss, degradation and fragmentation. Although it is now illegal to possess this animal without the proper permits, the pet trade is another cause for decline of this species. The most common causes of mortality are human caused, either by people afraid of snakes or accidental highway mortality. Eastern indigo snakes utilize a home range of approximately 125 to 250 acres, and the males are territorial during the breeding season. The indigo snake feeds diurnally on fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals, often around the edge of wetlands. Eastern indigo snakes breed from November through April, then lay five to ten eggs in May or June (USFWS 1982).

Eastern Diamondback Rattlesnake

Although not an officially a listed species, Eastern diamondback rattlesnakes (*Crotalus adamanteus*) are commonly thought to be in decline throughout its range. Scientists believe that it requires 10,000± acres or more to sustain long-term viable populations. Additional threats to this species include indiscriminate killing because of fear, as well as for trade and being hit by cars.

Common Kingsnake

The sub-species of common kingsnakes in our area are Florida kingsnakes (*Lampropeltis getula floridana*). Although rarely seen, it is found in pinelands, hardwood hammocks, cypress strands, prairies, marshes, estuaries, sugar cane plantations, and stands of melaleuca (Australian punk trees). Threats include habitat fragmentation, development, invasive plant species altering habitats and vehicle collisions on roadways.

Herons, Egrets, Ibises, Bitterns, and Spoonbills

The decline of little blue herons (*Egretta caerulea*) and tri-colored herons (*Egretta tricolor*) are due to loss of freshwater wetlands and alteration of their natural hydroperiod. There is also some indication that pesticides and heavy metal contamination may affect this heron. Yellow-crowned (*Nyctanassa violacea*) and black-crowned (*Nycticorax nycticorax*) night heron populations have probably declined due to illegal shooting, disturbance at breeding colonies, and drainage of wetlands used for foraging. In Florida, the destruction and alteration of more than half of the wetlands, due to the phenomenal increase in population has caused a substantial decline in ardeids. Wetlands have been filled and or impacted by housing developments, agriculture, human activity (i.e., sports, recreation) and the infrastructure that supports these activities (Rodgers et al. 1996). Great white heron

(*Ardea herodius occidentalis*) population decline can be attributed to all of the above mentioned issues.

Like the herons; the great egret (*Ardea alba*), reddish egret (*Egretta rufescens*), and snowy egret (*Egretta thula*) has also declined throughout their ranges since the 1950s. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage. Similar to the herons and egrets listed above, the white ibis and glossy ibis (*Plegadis falcinellus*) are declining throughout their range due to the reduction and degradation of wetlands and human disturbances to their rookeries.

During the summer months, least bitterns (*Ixobrychus exilis*) breed throughout the Eastern and Central United States and Southern Ontario from coastal Maine to Florida, and westward to the Eastern Dakotas and Central Texas. They are known to be in scattered locations in the Western United States, in Mexico, Caribbean, and Central and South America. During winter months, least bitterns range from the mid-Atlantic seaboard to South Florida and southward. They prefer freshwater or brackish marshes with tall emergent vegetation and are difficult to survey, so few data are available. Loss of wetland habitat and the encroachment of exotic species of marsh vegetation may pose a threat (CLOa 2003).

Roseate spoonbills (*Platalea ajaja*) nest in coastal mangrove areas with a mix of other bird species and occasionally in willow heads around freshwater systems. They forage in shallow water. Their decline is attributed to human disturbance of nesting colonies, alteration of foraging sites and alterations of hydrologic patterns.

Storks and Cranes

Wood storks are very sensitive to water levels in freshwater wetlands, as they require high concentrations of fish in fairly shallow water for foraging. Florida sandhill cranes (*Grus canadensis pratensis*) and the migratory greater sandhill crane are indistinguishable from each other. Threats to Florida sandhill cranes include loss and degradation of wetlands, fire suppression, free ranging dogs and cats and entanglement in fencing (Rodgers et al. 1996). Unnaturally high water levels during nesting seasons and extended droughts are both threats that wood storks and Florida sandhill crane face.

Ospreys and Eagles

Osprey (*Pandion haliaetus*) populations have declined in South Florida recently and it is speculated that lowered food availability is the cause. Historically, osprey populations declined drastically due to eggshell thinning from the use of organopesticides (DDT). Bald eagle (*Haliaeetus leucocephalus*) numbers have steadily increased in Florida after a low of 120 active nests in 1973, primarily caused by impacts from DDT and related pesticides. Still, loss of habitat and human disturbance due to development is a primary concern for this species. Secondary poisoning of bald eagles from the consumption of lead shot in waterfowl contributed to the 1991 ban on lead shot for waterfowl hunting in the United States.

Kites

Swallow-tailed kites (*Elanoides forficatus*) migrate to Southwest Florida from South America in late February or early March for their nesting season that lasts through late July or early September. In the early 1900s, swallow-tailed kites were confirmed as nesting in 21 states; today they are only found in 7 southeastern states including Florida. Loss of nesting sites through development and conversion to agriculture are the major threats to this species.

Everglade snail kites (*Rostrhamus sociabilis plumbeus*) are the subspecies of the snail kite in the United States, and are endangered due to many of the marshlands that serve as its habitat have been drained for development, which in turn has caused diminishing numbers of the kite's prey species, apple snails (*Pomacea paludosa*). Success in locating apple snails is further obstructed by the introduction of exotic plants such as water lettuce, which hinders foraging. Apple snails have also suffered from agricultural runoff, eutrophication, pesticides and other pollutants. There were only 65 snail kites known to exist when the Endangered Species Act was passed in 1973. This species has managed a comeback resulting in a 1997 population of 995 birds.

White-tailed kites (*Elanus leucurus*) favor agricultural areas, grasslands, marshes or other open lands along the Gulf Coast. Their primary prey is small rodents, although they will occasionally feed on small birds, reptiles and amphibians. Conversion of agricultural or open lands for development, collisions with vehicles, and ingestion of rodents poisoned with rodenticide are causing a decline in the population.

Falcons

The crested caracara's range has contracted and become more fragmented, because their habitat is threatened primarily by residential development and conversion to more intensive agricultural (e.g., citrus) uses. The crested caracara's large habitat requirements make land acquisition and/or development of incentives (e.g., cooperative agreements, conservation easements, tax breaks) for private landowners to maintain their ranch lands for their long-term security an important task.

The Southeastern American kestrel (*Falco sparverius paulus*) is found in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. Nest sites are cavities in tall dead trees or utility poles generally with an unobstructed view of the surroundings. The availability of suitable nesting sites is paramount during breeding season. Open patches of grass or bare ground are needed in flatwoods settings, since thick palmettos prevent detection of prey.

Natural nesting and foraging habitats have declined, as sandhill and open flatwoods habitats are converted to intensive agricultural lands and residential development. Pastures may be used by the breeding species but often lack snags used for nesting sites. A key habitat feature necessary for breeding is a suitable cavity tree. Cavity

trees are usually excavated in large pines and, less frequently, oaks by various woodpeckers. Additional management activities will permit leaving a reasonable number of tree snags to increase nesting opportunities.

The peregrine falcon (*Falco peregrines*) is a migratory, seasonal resident of Florida. Originally listed due to drastic population declines caused by organophosphates such as DDT, peregrine populations recovered enough to be de-listed from the Federal endangered species list in 1999 and from the Florida state list in 2009. Peregrines feed on birds, especially shorebirds and waterfowl during their migration and over-wintering. Pollution and decreased availability of food for wading birds and waterfowl can impact peregrine populations. Alteration of wetlands for development or agricultural purposes an also decrease prey availability.

In Florida, merlins (*Falco columbarius*) are considered non-breeding winter residents (CLOc 2003). Alteration of land for development and infrastructure, collisions with vehicles, illegal shooting and poisoning as a result of rodent baiting directly contribute to the decline of this species. Lack of prescribed burning can allow open meadows and grasslands to become invaded with woody vegetation which can interfere with merlin foraging.

All raptors are subject to collisions with cars, communication towers, high tension powerlines, and buildings. Indiscriminate shooting and poisoning of waterfowl as a result of lead shot also impacts raptors.

Limpkin

The limpkin (*Aramus guarauna*) is a large, long-billed, long-legged wader of swamps and marshes. Its bill is heavy and slightly decurved, allowing easy access to its preferred food, the apple snail. Pollution, hydrological disruptions, and an increase in invasive plants threaten the health of the apple snail population and hence the limpkin.

Burrowing Owls

The Florida burrowing owl (*Athene cunicularia*) is a ground dweller that will dig its own burrow or utilize already formed burrows created by other animals. They reside in sparsely vegetated areas of sandy ground, primarily rural areas such as pastures, road right-of-ways, and residential yards. Their close relationship with human altered habitats exposes them to collisions with vehicles, feral dog and cat attacks, pesticide poisoning and human harassment. Fire ants also prey on eggs and young owls. Maintaining low vegetation around the burrow through use of prescribed burning or mowing is key to management of this species. Buffer zones on preserves should be established to prevent construction of trails or facilities near burrowing owls.

Florida Bonneted Bat

Florida bonneted bats (*Eumops floridanus*) are a large-sized bat with very long ears that extend to the center of the back when laid down. Its long ears distinguish this species from all other Florida bats. It inhabits forested communities, particularly those associated with floodplains, supporting large, hollow trees used for roosting; also pine flatwoods and mixed oak-pine forests. This bat is known from less than a dozen locations in Florida, at least four of which are on public or private conservation lands.

Big Cypress Fox Squirrel

Big Cypress fox squirrels (*Sciurus niger avicennia*) are in decline throughout its range primarily due to loss and degradation of habitat. Although the number of this subspecies of fox squirrel in Florida is unknown, based on the amount of known habitat loss, fox squirrel populations have undoubtedly declined at least 85 percent from pre-settlement levels‖ (Humphrey 1992). Many acres of the fox squirrel's pine-oak forest have been converted to pine plantations, agriculture and development. Collisions with vehicles are another common cause of decline for the species.

Regular burn regimes of two to five years during the growing season (April through July) are critical to maintain their habitat with an open canopy with minimal understory. Fires must be allowed to burn into cypress or other wetland communities to create and maintain broad, diverse transition zones for the Big Cypress fox squirrel.

Florida Panther

Florida panthers are extirpated from most of its historic range in the Southeastern United States but exists in small populations in South Florida. The decline of Florida panthers are due mainly to loss, fragmentation, and degradation of habitat. Other habitat related threats include inbreeding, insufficient numbers of large prey, disease, and mercury and other environmental contaminants. Institutional constraints and negative public perceptions also threaten the future survival of Florida panthers. The large cats require extensive areas of mostly forested communities. Large wetlands that are generally inaccessible to humans are important for diurnal refuge. They will tolerate improved areas in a mosaic of natural communities.

Florida Black Bear

Florida black bears are in decline due to the loss of core habitat and of corridors capable of handling their large ranges. A wide variety of forested communities are needed to support the varied seasonal diet of black bears. Forested wetlands are particularly important for diurnal cover. Florida black bears face numerous challenges including poaching, roadkill mortality, low reproductive rate and most importantly loss of habitat to timber harvesting, development and other uses. Long-term conservation of Florida black bears is dependent upon preservation of large contiguous woodlands. Scientists with FWC have found the average home range

for female black bears is almost 7,000± acres and males average over 42,000± acres (Humphrey 1992). Although preserves may not be large enough to provide year round home range, they can act as foraging and denning sites as well as a safe corridor for travel. Scientists have found that large scale winter burning reduces the diversity of food available to bears as compared to growing season burns (Humphrey 1992). Prescribed burns conducted in the late spring would not only be beneficial to bears, but many other species as well.

Plant Species

In addition to designated wildlife, preserves may provide habitat for plant species listed by the IRC or the FDACS. The following is a brief summary of the FDACS designated plant species that have the potential to occur on the Preserve and an explanation as to why they are in decline and typical communities where they are located.

Pretty False Pawpaw
Pretty false pawpaw (*Asmina pulchella*), also known as white squirrel banana, is a state and federally endangered species rarely found in pine flatwoods.

Wild Birdnest Fern
Wild birdnest fern (*Asplenium serratum*) is a state endangered plant found in moist hammocks and swamps and is epiphytic on stumps, logs, humus piles, and rarely on rocks.

Manyflowered Grasspink
Manyflowered grasspink (*Calopogon multiflorus*) is a state endangered plant found in flatwoods.

Cowhorn Orchid/Cigar Orchid
Cowhorn orchid (*Cyrtopodium punctatum*) is a state endangered plant found in cypress swamps and scrub cypress strands. It is epiphytic and rarely terrestrial.

Cinnamon Fern
Cinnamon fern (*Osmunda cinnamomea*) is listed as Commercially Exploited by FDACS. It can be found in swamps, bogs, and marshes.

Ghost Orchid
Ghost orchid (*Dendrophylax lindenii*) is a state endangered epiphytic plant found in cypress swamps and wet hammocks.

Dingy-Flowered Star Orchid
Dingy-star orchid (*Epidendrum anceps*) is a state endangered epiphytic plant found in swamps.

Umbrella Star Orchid
Umbrella star orchid (*Epidendrum floridense*) is a state endangered epiphytic plant found in cypress and hardwood swamps.

Night-Scented Orchid
Night-scented orchid (*Epidendrum nocturnum*) is a state endangered epiphytic plant found in cypress swamps, moist hammocks, and mangroves.

Stiff-Flower Star Orchid
Stiff-flower star orchid (*Epidendrum rigidum*) is a state endangered epiphytic plant found in swamps and moist hammocks.

Big Cypress Star Orchid
Big cypress star orchid (*Epidendrum strobiliferum*) is a state endangered epiphytic plant found in cypress swamps

Nightblooming Waterlily
Nightblooming waterlily (*Nymphaea jamesoniana*) is a state endangered plant found in shallow ponds, canals and sloughs.

Hand Fern
Hand fern (*Ophioglossum palmatum*) is a state endangered epiphytic plant found in hammocks and cypress swamps usually on *Sabal palmetto*.

Coral Panicum
Coral panicum (*Paspalidium chapmanii*) is a state endangered plant found in hammocks, prairies and disturbed sites.

Plume Polypody
Plume polypody (*Pecluma plumula*) is a state endangered epiphytic plant found in wet hammocks and swamps. It is occasionally found terrestrially or on rocks.

Greater Yellowspike Orchid
Greater yellowspike orchid (*Polystachya concreta*) is a state endangered epiphytic plant found in cypress swamps, hammocks, and mangroves.

Clamshell Orchid
Clamshell orchid (*Prosthechea cochleata*) is a state endangered epiphytic plant found in swamps, mangroves, and hammocks.

Ray Fern
Ray fern (*Schizaea pennula*) is a state endangered plant found in swamps on rotting stumps and on the base of *Osmunda regalis*.

Texas Ladiestresses

Texas ladiestresses (*Spiranthes brevilabris*) is a state endangered plant found in wet flatwoods and flatwoods.

Lattice-Vein Fern

Lattice-vein fern (*Thelypteris reticulata*) is a state endangered plant found in wet hammocks and cypress swamps.

Cardinal, Giant, and Fuzzywuzzy Airplants

Cardinal airplants (*Tillandsia fasciculata* var. *densispica*), giant airplants (*Tillandsia utriculata*), and fuzzywuzzy airplants (*Tillandsia pruinosa*) are found in hammocks, cypress swamps, and pinelands. These airplants are listed by FDACS as endangered. Threats to these plants include illegal collecting, habitat destruction, and the Mexican bromeliad weevil (University of Florida Institute of Food and Agricultural Sciences (UFIFAS) 2020). Now listed as endangered, they were once considered common before the arrival of the weevil in Florida in the late 1980s.

Golden Leather Fern

Golden leather fern (*Acrostichum aureum*) is a state threatened plant found in mangrove swamps, saltwater and brackish marshes and coastal hammocks. Its range is restricted to the southern coastal regions of Florida.

Snowy Orchid

Snowy orchid (*Platanthera nivea*) is a state threatened plant found in wet flatwoods, bogs, prairies, and wet ditches.

Catesby's Lily

Catesby's (or pine) lily (*Lilium catesbaei*) is a state threatened plant found in moist flatwoods and savannas. There is concern that the population of this species is decreasing and is likely to become endangered in the near future. As a plant found in a fire dependent plant community, it generally benefits from occasional fire (Huffman and Werner 2000).

Giant Sword Fern

Giant sword fern (*Nephrolepis biserrata*) is a state threatened species found in swamps and hydric hammocks.

Rose Pogonia

Rose pogonia (*Pogonia ophioglossoides*) is a state threatened species found in marshes and wet flatwoods.

Giant Orchid

Giant orchid (*Orthochilus ecristatus)* is a state threatened species found in sandhills, pinelands and oak hammocks.

Northern Needleleaf

The northern needleleaf (*Tillandsia balbisiana*) is a state threatened species occasionally found in a variety of communities including pinelands, hammocks and mangroves. Threats to this species include the exotic Mexican bromeliad weevil (*Metamasius callizana*) and habitat destruction (UFIFAS 2004). Currently, scientists are researching biological control agents for the exotic Mexican bromeliad weevil. Staff will keep current with the research developments and work with scientists in the future if the United States Department of Agriculture (USDA) is in need of release sites.

Needleroot Airplant Orchid

Needleroot airplant orchid (*Dendrophylax porrectus*) is also known as leafless harrisella and a local common name of jingle bell orchid because the fruits hang in little clusters (Brown 2002). It is listed by FNAI as G4/S1 and by FDACS as threatened. General habitats found in include hardwood hammocks, sloughs, cypress domes, and old citrus groves.

Twisted Airplant

Twisted airplant (*Tillandsia flexuosa*) is a state threatened epiphytic species found in hammocks and cypress swamps.

Leatherleaf Airplant

Leatherleaf airplant (*Tillandsia variabilis*) is a state threatened epiphytic species found in hammocks and cypress swamps.

Redmargin Zephyrlily

Redmargin zephyrlily (*Zephyranthes simpsonii*) is a state threatened species which grows naturally in low pine flatwoods and savannas and at margins of wet hammocks. It also is adapted to pastures developed from such areas and to moist mowed roadsides. The main limiting factor appears to be competition from other plants and habitat destruction.

Royal Fern

Royal fern (*Osmunda regalis* var. *spectabilis*) is listed as commercially exploited by FDACS. This plant is distributed throughout Florida and can be found in wet flatwoods, basin and dome swamp communities.

Florida Butterfly Orchid

Although locally abundant (Brown 2002), the Florida butterfly orchid (*Encyclia tampensis*) is designated as commercially exploited by the FDACS. A plant that is designated as commercially exploited is considered to be threatened by commercial use. When creating any trails, consideration will be made to avoid areas where these plants are growing. If the plants will be damaged during restoration activities, a permit will be obtained from FDACS to remove them before work commences. Plants growing on invasive exotic vegetation, to be destroyed, will be relocated on the site if economically feasible.

The IRC, which is not a regulatory agency, also maintains a listing of threatened plant species, some of which may be found on individual preserves. Land Management Plans will individually address IRC listed plants and management of them. The IRC designation is either obtained from their book Rare Plants of South Florida: Their History, Conservation and Restoration, (Gann 2002) or from the Internet website:
(http://www.regionalconservation.org/ircs/database/search/QuickSearch.asp).

Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas in the ten southernmost counties of Florida. This initial floristic inventory allowed the IRC to rank plant species to indicate how rare/common these plants are in protected areas. Rare plants are defined as being either very rare and local throughout its range in South Florida (21 through 100 occurrences, or less than 10,000 individuals), or found locally in a restricted range. IRC only ranks those taxa as rare with fewer than 100,000 individuals. Imperiled plants are those that are imperiled in South Florida because of rarity (6 through 20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction due to some natural or human factor. IRC only ranks those taxa as imperiled that have fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extreme rarity (5 or fewer occurrences or fewer than 1,000 individuals), or because of extreme vulnerability to extinction due to some natural or human factor. IRC only ranks those taxa as critically imperiled with 10,000 or fewer individuals.

In their book, (Gann et al. 2002), the authors provide an entire chapter of recommendations to help restore South Florida's rare plant diversity. Several of these recommendations, particularly those that protect plants on the Preserve and relate to management practices, will be followed. More information on the specific techniques used will be discussed in the Management Action Plan. The following list highlights those recommendations by IRC that will be incorporated into the management of preserves:

- Prohibit recreational activities such as ORV use to avoid impacts to rare plant populations.
- Prevent illegal poaching of rare plants.
- Prosecute poachers to the fullest extent of the law.
- Implement an ongoing exotic pest plant control program.
- Educate exotic plant control crews about the rare plants to ensure they avoid nontarget damage.
- Trap wild hogs, which can completely destroy the above ground vegetation and disturb all the soil in an area where they are feeding.
- Initiate prescribed fire regimes in communities that are fire adapted since fire as a management tool is extremely critical for the protection of many rare plants.
- Divide the site so the entire area is not burned during the same year will also help protect these communities.

- Ensure that management activities do not negatively impact rare plant populations.

4.2.5 Biological Diversity

Biological diversity (also called biodiversity) is "the variety of life and all the processes that keep life functioning" (Keystone Center 1991). Biodiversity includes: 1) the variety of different species (plants, animals, microbes, etc.), 2) the genes they contain, and 3) the structural diversity in ecosystems. Overall site diversity is dependent on the types of natural plant communities present, their size and the combination of these factors. Larger sites are more likely to maintain sustainable populations of wildlife than smaller sites. Similarly, sites with a greater assortment of plant communities are more likely to host a larger diversity of plants and animals. Biodiversity varies depending on the type plant community present and increases with proper land management activities including invasive exotic plant removal, hydrologic restoration and prescribed fire. The wealth of biodiversity supports ecological processes that are essential to maintain ecosystems.

Healthy and functioning ecosystems provide optimal habitat for the plants and animals that depend on them and provide ecosystem services such as the protection of water resources, appropriate flood control, the proper maintenance of nutrient cycles and carbon sequestration.

GS-10 Preserve currently contains highly disturbed habitats due to previous and ongoing activities (i.e., illegal ORV use). However, following habitat enhancement and creation activities, it is anticipated that biodiversity will increase.

In addition, GS-10 Preserve is located approximately one half a mile southeast from Greenbriar Swamp. Greenbriar Swamp connects to the Hickey Creek Preserve through the Hickey Creek Greenbriar Connector Preserve. These landscape connections will provide an opportunity to serve as a corridor for mammals with

large home ranges. The Preserve will also be managed for the purpose of providing water storage and improving water quality. The creation of the wetland areas will also provide additional habitat for wading birds, and other wetland dependent species.

LA-MSID and Land Management staff will work in collaboration to conduct the following actions in order to enhance the integrity and diversity of the GS-10 Preserve.

- Control of Florida Exotic Plant Pest Council (FLEPPC) listed invasive, exotic species of vegetation. Frequency of treatment events will be as needed to maintain exotic levels below five percent coverage and in conjunction other state and federal permits.

- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals and soils.

- Maintain boundary signs and fencing to prevent illegal access to the Preserve and protect fragile ecosystems.

- Install and maintain “no berry picking” signs to inform palmetto pickers it is illegal to harvest them on the preserves.

- Where necessary, install fire breaks to protect resources on the Preserve and surrounding neighbors in the event of wildfires.

- Remove any debris and prevent future dumping on-site.

- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.

- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.

- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.

- Offer public access that allows citizens to enjoy the preserve while protecting sensitive plant communities and wildlife needs.

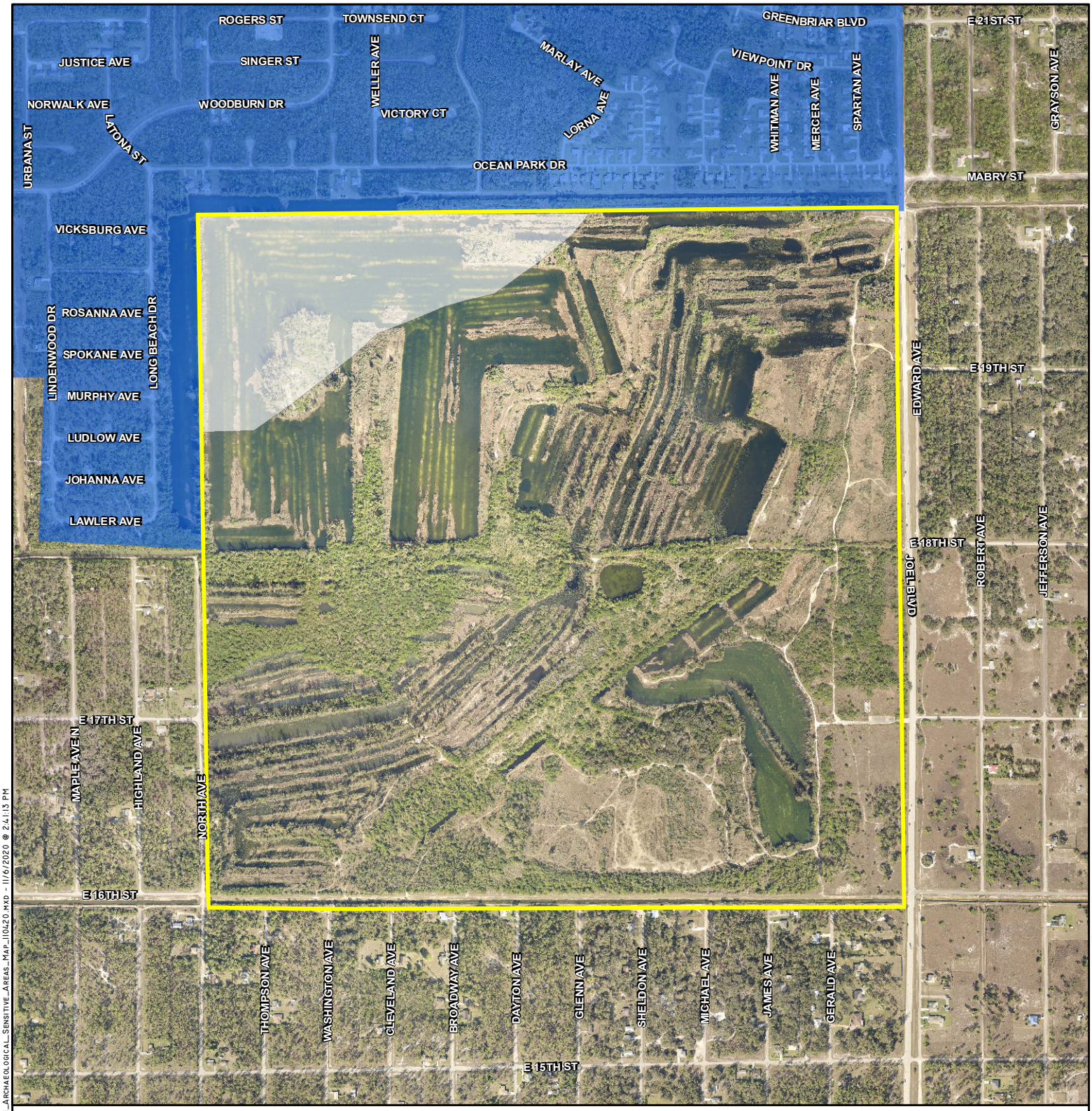
- Enhance hydrologic conditions to return to historic hydroperiods. Improve hydrologic flow and create littoral shelves on numerous borrow ponds.

- Prevent and prosecute poaching and removal activities (e.g., palmetto berries, illegal hunting, pinecone and orchid collection).

4.3 Cultural Resources

4.3.1 Archaeological Features

Piper Archaeological Research conducted an archaeological site inventory of Lee County in 1987. As part of the study Piper Archaeological Research created a site predictive model and archaeological sensitivity map for Lee County. The northwest corner of GS-10 Preserve is designated as archaeological Sensitivity Area Level 2 (Figure 11). Archaeological Sensitivity Area Level 2 is defined by the Piper Study as, “areas that contain known archaeological sites that have not been assessed for significance and/or conform to the site predictive model in such a way that there is



LEGEND

GS-10

Archaeological Sensitive Areas

- Sensitivity Level 2
- Sensitivity Level 2 - Previously Surveyed

N W E S

0 500 1,000

Feet

NOTES:

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

ARCHAEOLOGICAL SENSITIVE AREAS WERE ACQUIRED FROM LEE COUNTY IN 2015.

FIGURE 11. ARCHAEOLOGICAL SENSITIVE AREAS MAP

GS-10

DRAWN BY	DATE
H.H.	4/1/20
REVIEWED BY	DATE
H.S.	4/1/20
REVISED	DATE

PASSARELLA & ASSOCIATES INC. Consulting Ecologists

J:\2020\20AIM3209\GIS\2020\LAND_MANAGEMENT_PLAN\FIGURES\FIGURE_11_ARCHAEOLOGICAL_SENSITIVE_AREAS_MAP_110420.MXD - 11/6/2020 @ 2:41:13 PM

a high likelihood that unrecorded sites of potential significance are present." If these areas are to be impacted by development activities, then they should be subjected to a cultural resource assessment survey by a qualified professional archaeologists in order to determine the presence of any archaeological sites in the impact area and/or assess the significance of these sites (Austin 1987). However, it is worth noting that the areas within the Preserve boundary that were identified as Sensitivity Area Level 2 are located within excavated borrow lakes associated with the previous aggregate mining operation. As such, the likelihood of discovering archeeological resources is presumably low.

A cultural resource survey and coordination with the State Division of Historical Resources (DHR) will be conducted as part of the design and permitting phase of the Project. If evidence of artifacts is found in the area during restoration activities, staff will follow the Best Management Practices: An Owner's Guide to Protecting Archaeological Sites (http://www.dos.myflorida.com/media/30904/handbook.pdf) and immediately contact the DHR. Collection of artifacts and/or any disturbance of the archaeological site will be prohibited unless prior authorization has been obtained from the DHR. The site will be managed in coordination with recommendations of the DHR and, if necessary, the site will be kept confidential with periodic monitoring for impacts. If any significant archaeological resources are found and confidentiality is not found to be necessary, they will be incorporated into a public educational program.

4.3.2 Land Use History

The GS-10 Preserve has an extensive history of various land uses. The property contained a mining operation and airstrip in the mid to late 1950s, both of which appear to have disrupted two wetland flow-ways previously visible on the 1944 aerial. By the late 1960s the mining operation had expanded to include buildings on the site and a new row crop operation was present. The mining operation continued to expand through the 1990s but by this time the row crop operation was abandoned. By 1999 the mining operation had also stopped. The property had shown signs of revegetating by the mid-2000s and has continued to do so through the 2010s. FDEP records also indicate the property was used to receive yard waste from hurricane activity in 2004 and 2005. During this time the facility was processing the yard debris by mulching and spreading it around the property. Historic aerials of the property depicting these land use changes over the years 1944, 1953, 1958, 1968, 1990, and 2008 are included as Figures 12 through 17, respectively.

SCALE: 1" = 600'

~JOEL BLVD~

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE STATE UNIVERSITY SYSTEM OF FLORIDA WHICH WERE DIGITIZED PHOTOGRAPHS TAKEN BY THE USDA.

J:\2020\20AIM3209\20\LAND MANAGEMENT PLAN\FIGURE 12 1944 AERIAL WITH BOUNDARY 110420.DWG TAB: 11X17-C NOV 06, 2020 - 2:53PM PLOTTED BY: FELIPE

DRAWN BY	DATE
R.F.	4/01/20
REVIEWED BY	DATE
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REVISED	DATE

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GS-10

1944 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 12

SCALE: 1" = 600'

~JOEL BLVD~

AGRICULTURAL OPERATIONS

PRIVATE AIRSTRIP

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE STATE UNIVERSITY SYSTEM OF FLORIDA WHICH WERE DIGITIZED PHOTOGRAPHS TAKEN BY THE USDA.

J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 13 1953 AERIAL WITH BOUNDARY 110420.DWG TAB: 11X17-C Nov 06, 2020 - 2:54PM PLOTTED BY: FELIPE

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1953 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 13

SCALE: 1" = 600'

~JOEL BLVD~

AGRICULTURAL FACILITIES

AGGREGATE MINING OPERATION

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE STATE UNIVERSITY SYSTEM OF FLORIDA WHICH WERE DIGITIZED PHOTOGRAPHS TAKEN BY THE USDA.

J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 14 1958 AERIAL WITH BOUNDARY 110420.DWG TAB: 11X17-C Nov 06, 2020 - 2:55PM PLOTTED BY: FELIPE

DRAWN BY	R.F.
DATE	4/01/20
REVIEWED BY	H.S.
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1958 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 14

SCALE: 1" = 600'

~JOEL BLVD~

HORSE TRACK

AGRICULTURAL FACILITIES

AGGREGATE MINING OPERATION

AGRICULTURAL FACILITIES

PRIVATE AIRSTRIP

NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) WEBSITE WITH A FLIGHT DATE OF MARCH 1968.

J:\2020\20AIM3209\2020 LAND MANAGEMENT PLAN\FIGURE 15 1968 AERIAL WITH BOUNDARY 110420.DWG TAB: 11X17-C NOV 06, 2020 - 2:56PM PLOTTED BY: FELIPE

DRAWN BY	R.F.
DATE	4/01/20
REVIEWED BY	H.S.
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REVISED	
DATE	

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GS-10

1968 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 15

SCALE: 1" = 600'

~OCEAN PARK DR~

~JOEL BLVD~

AGGREGATE MINING OPERATION

PRIVATE AIRSTRIP REMOVED

FALLOW/ABANDONED AGRICULTURE FACILITY

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J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 16 1990 AERIAL WITH BOUNDARY 110420.DWG TAB: 11X17-C NOV 06, 2020 - 2:57PM PLOTTED BY: FELIPE

DRAWN BY	DATE
R.F.	4/01/20
REVIEWED BY	DATE
H.S.	4/01/20
REVISED	DATE

13620 Metropolis Avenue
Suite 200
Ft. Myers, FL 33912
Phone (239) 274-0067
Fax (239) 274-0069

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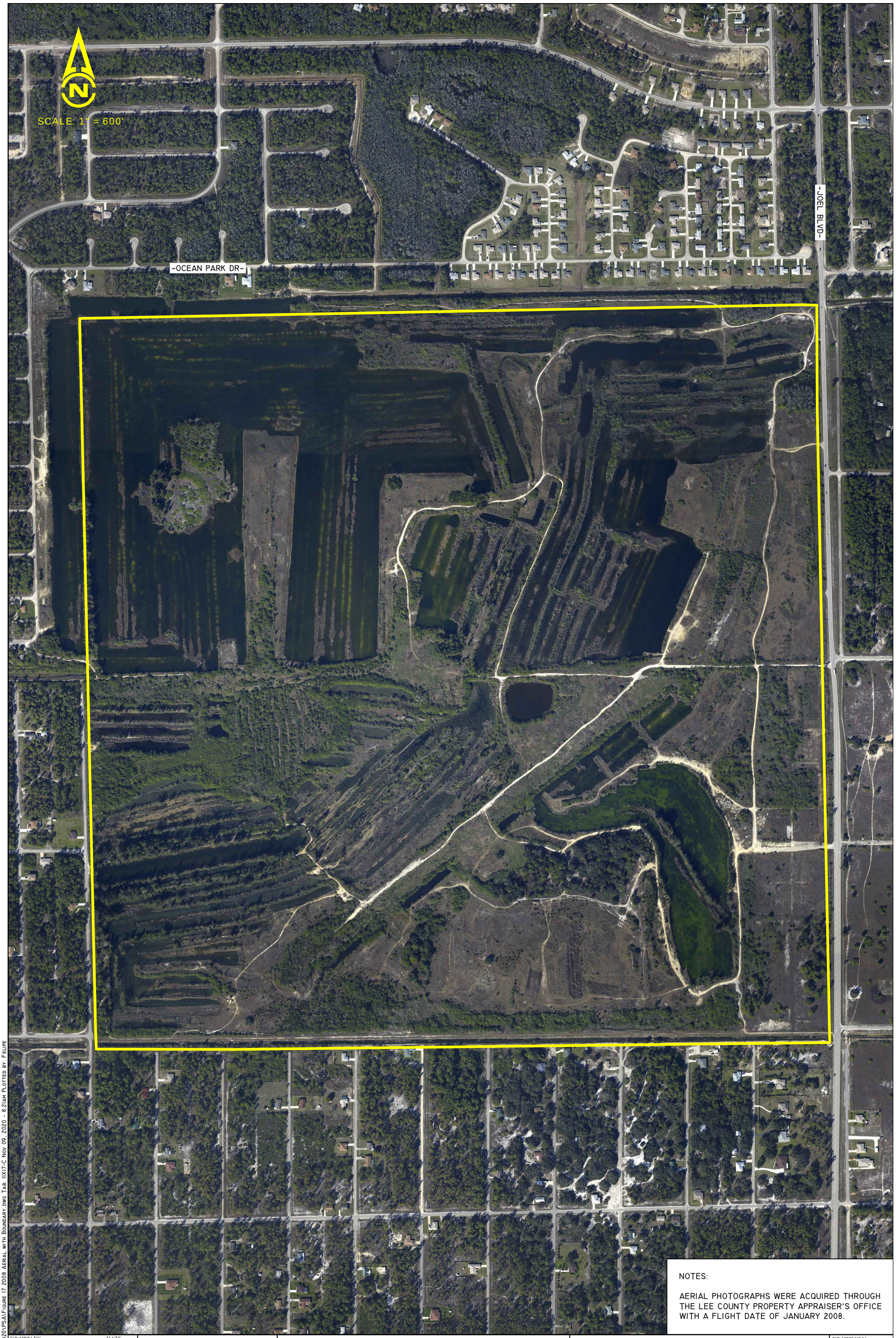
GS-10

1990 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 16



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2008 AERIAL WITH BOUNDARY

DRAWING No. 20AIM3209

SHEET No. FIGURE 17

J:\2020\20AIM3209\2020\PSA\FIGURE 17 2008 AERIAL WITH BOUNDARY.DWG TAB: 11X17-C NOV 09, 2020 - 8:21AM PLOTTED BY: FELIPE

4.3.3 Public Interests

GS-10 Preserve was purchased by C20/20. C20/20's primary goal is to protect and preserve wildlife habitat, protect water quality and supply, protect developed lands from flooding and provide resource based recreations (C20/20 2011). The primary goal at GS-10 Preserve is to provide water storage and to improve water quality. Water quality goals will follow the Caloosahatchee River and Estuary Basin Management Action Plan:
(https://floridadep.gov/sites/default/files/caloosa-estuary-bmap-final-nov12.pdf), and performance will be monitored at inflow and outflow locations, with specific monitoring locations to be determined at design and permitting.

Following the implementation of the water quality project, it is anticipated the site will provide habitat for wildlife, including listed species; as a result, public access will be restricted to designated areas and uses. Access may also be limited over time, or seasonally, as wildlife uses change (i.e., nesting), and a phased approach to public access may initially be implemented following the water quality project as wildlife reacclimates to the preserve.

Publicly available information concerning this preserve and all the C20/20 preserves can be found on the C20/20 website along with copies of their associated management plans (www.conservation2020.org).

5.0 FACTORS INFLUENCING MANAGEMENT

5.1 Natural Trends and Disturbances

A variety of weather trends and natural disturbances affect Southwest Florida including hurricanes, flooding, wildfires, occasional freezes and wet and dry seasons. This Management Action Plan will take these weather trends and their influences on projects at GS-10 Preserve into consideration. Natural disasters such as a hurricane or wildfire may damage vegetation. While the extent of the vegetation damage that may occur cannot be predicted; it is known that it may be necessary to remove downed vegetation if the debris would negatively affect wildlife, habitat, hydrology, or public safety.

Wildfires caused by lightning strikes are natural occurrences in Florida. A Fire Management Plan has been completed for Lee County owned conservation lands to help decrease the impact of catastrophic wildfires on the preserves and neighboring lands. Firebreaks will be kept clear of debris and mowed a minimum of once a year during the onset of the dry (wildfire) season. Where firebreaks are located on berms associated with the water quality project, LA-MSID will mow three times a year and conduct maintenance related to structural integrity.

Management (i.e., invasive exotic plant control, prescribed burning, etc.) of the preserve is influenced by seasonal flooding. The LSOM's exotic plant prescription form will be used

to define the conditions for control activities by contractors. Care shall be taken to prevent herbicide from running off during a typical summer thunderstorm so as not to affect non-target plants. Only herbicides approved for aquatic application will be used for treatment of vegetation in standing water or where flooding may occur. The use of heavy equipment will be limited to the dry season for the majority of the site. The timing and use of prescribed burns will also be influenced by seasonal rain, weather, wind patterns and wildlife needs.

5.2 Internal Influences

There are numerous human influences that have impacted GS-10 Preserve. Hydrological impacts have resulted from the previous land uses of the site which include a private airstrip, agricultural operations and an aggregate mining operation. The locations of these land use alterations are depicted on Figure 18.

The prevalence of human alteration of the property has resulted in aggressive invasive exotic plant species infestation which has further disrupted the regeneration of native plant communities. Removal and management of exotic plant species is a critical part of the restoration of the Preserve.

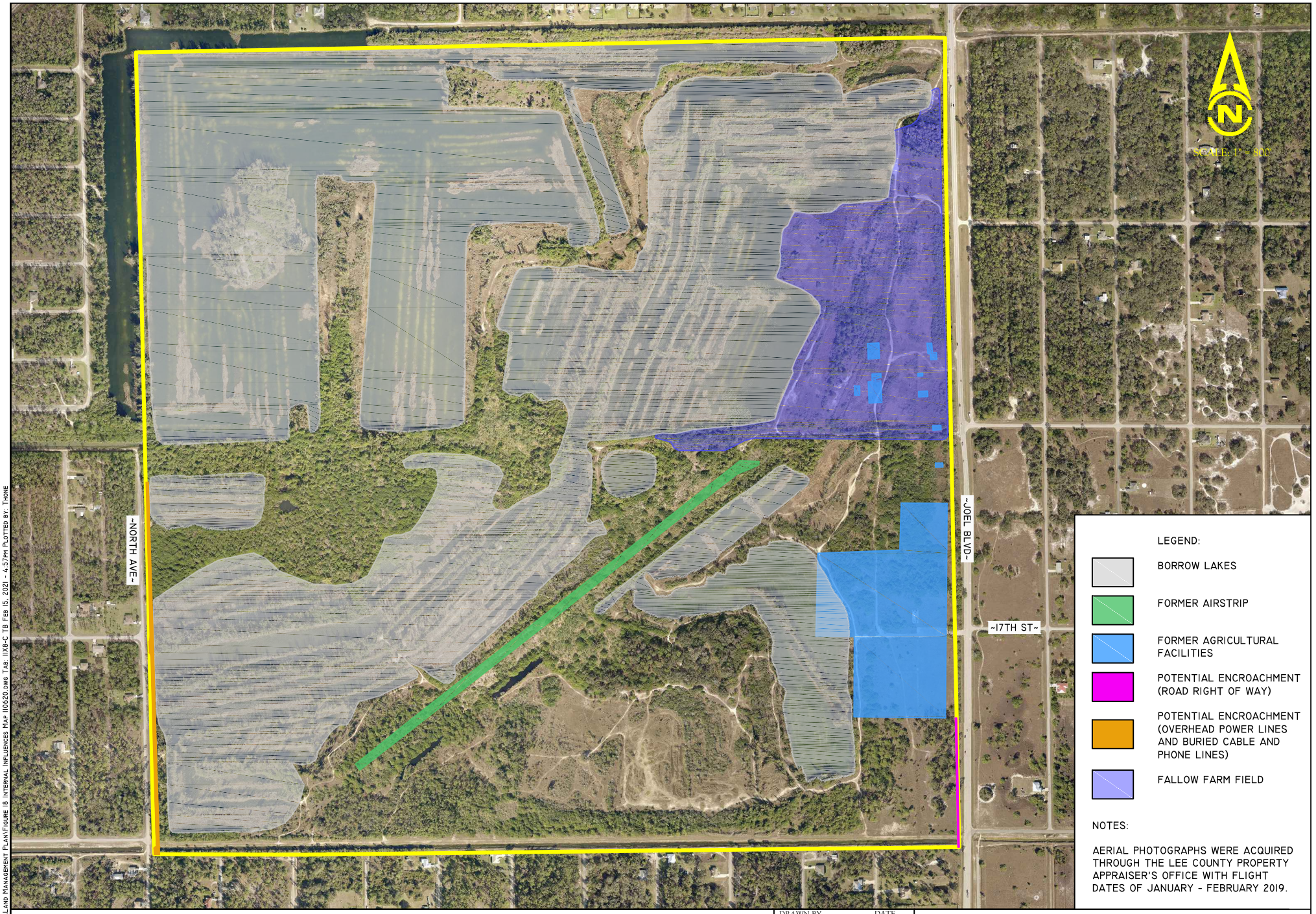
Exotic animals can have a detrimental effect on native flora and fauna. For example, feral hogs consume ground-nesting bird eggs and disturb soil and sensitive vegetation during rutting activities, which can provide optimal substrate for invasive exotic plant growth. Exotic fish and amphibians can compete with native fauna for habitat and food. A range of removal methods will be considered for problematic invasive exotic animals found on the Preserve, specially to control problems with feral hogs.

5.3 External Influences

GS-10 Preserve is subject to a variety of external influences (Figure 19). GS-10 Preserve abuts the Pit, King and West Easy Canals and is located in close proximity to Greenbriar Swamp (managed by LA-MSID), Greenbriar Connector Preserve, Alva Scrub Preserve (managed by C20/20) , and Hickey Creek Mitigation Park (managed by C20/20 and FWC) (Figure 19).

There have been ongoing problems with illegal public use of the Preserve, including ORVs and littering. Protecting the boundaries from dumping, poaching, and vehicular access will always be a priority for the Preserve.

Additionally, a survey plat for the property noted that there were potential encroachments onto the boundary of the Property. These encroachments include overhead power lines and buried cable and phone lines along Joel Boulevard and the North Avenue right of way along the southwest boundary. A copy of this survey is provided as Appendix C. No required changes to these potential encroachments are anticipated.



J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 18 INTERNAL INFLUENCES MAP 110620.DWG TAB: 11X8-C TB FEB 15, 2021 - 4:57PM PLOTTED BY: THONE

FIGURE 18. INTERNAL INFLUENCES MAP
GS-10

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H.S.	6/8/20
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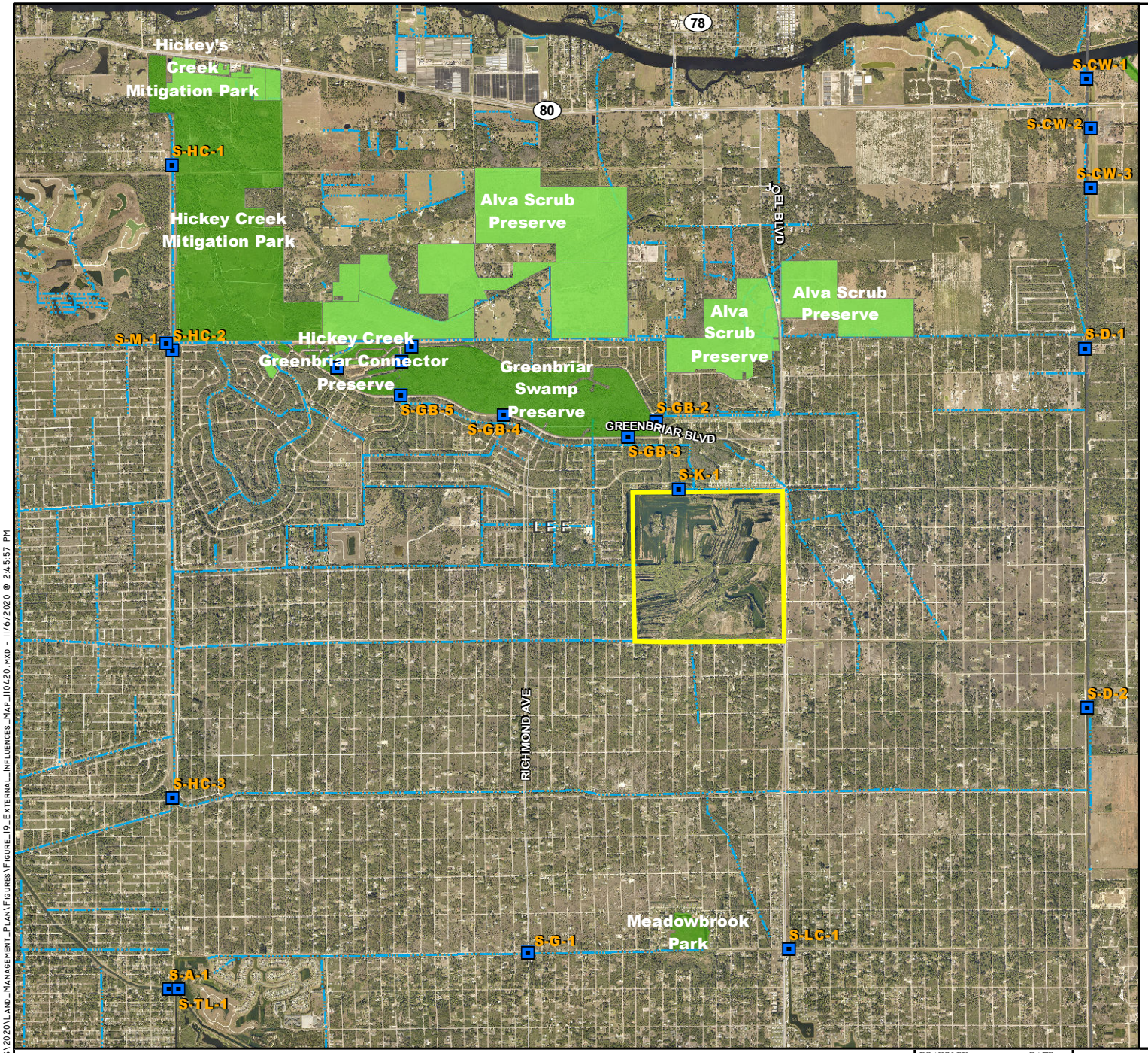

LEGEND

- GS-10
- Florida Managed Areas
- Control Structures
- Ditch or canal

Lee 2020

- Nomination Acquired

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NOTES:

AERIAL PHOTOGRAPHS WERE ACQUIRED FROM THE USDA-FSA AERIAL PHOTOGRAPHY FIELD OFFICE AND WERE FLOWN IN THE YEAR 2017.

FLORIDA MANAGED AREAS WERE ACQUIRED FROM THE FLORIDA NATURAL AREAS INVENTORY WEBSITE MAY 2019.

LEE 2020 WAS ACQUIRED FROM THE LEE COUNTY GIS WEBSITE MAY 2019.

ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA DEPARTMENT OF TRANSPORTATION GIS WEBSITE HTTP://WWW.DOT.STATE.FL.US/PLANNING/STATISTICS/GIS/ROAD.SHTM JULY 2016.

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FIGURE 19. EXTERNAL INFLUENCES MAP
GS-10

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T.S.	6/8/20
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H.S.	6/8/20
REVISED	DATE

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5.4 Legal Obligations and Constraints

5.4.1 Permitting

Permits from regulatory agencies will be required to conduct the proposed enhancement activities at the GS-10 Preserve. The proposed hydrologic improvements as well as any future improvements that impact wetlands may require permits from the FDEP, SFWMD and/or the U.S. Army Corps of Engineers (USACOE). Hydrological and/or habitat restoration projects that would require heavy equipment or tree removal in uplands will require notification to the Lee County Department of Community Development (LCDCD). Prior to conducting prescribed burns at GS-10 Preserve, burn authorization is required from the Florida Forestry Service.

5.4.2 Other Legal Constraints

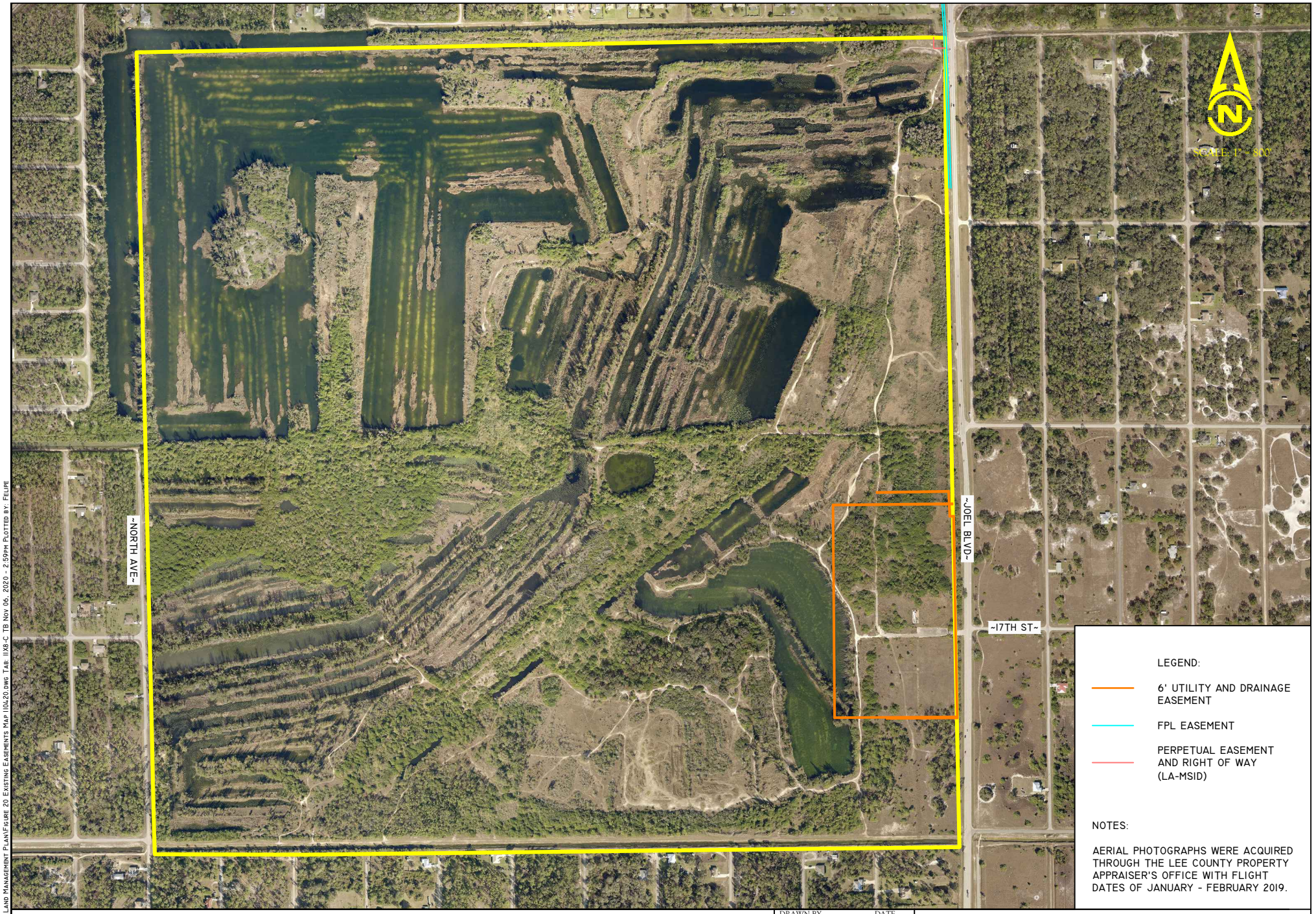
There are three easements recorded along the eastern edge of the Preserve (Figure 20). One is a perpetual easement and right-of-way issued to East County Water Control District (now known as LA-MSID) located in the northeast corner of the preserve. The second is a Florida Power and Light easement located along the western edge of the boundary. The final is a six-foot utility and drainage easement located within the southeast portion of the boundary. These easements are referenced in Appendix C, and a copy of the six-foot utility and drainage easement is provided as Appendix D. Lee County staff will determine if this easement needs to be vacated and pursue if necessary.

5.4.3 Relationship to Other Plans

Lee County's comprehensive plan (Lee Plan) depicts Lee County as anticipated to appear in the year 2030. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2020). These themes are:

- The growth patterns of Lee County will be dictated by the Future Land Use map.
- The natural resource base of the county will be protected.
- The diversification of the county's traditional economic base.
- Cultural, educational, and recreational opportunities will be expanded.
- An increase in urbanized areas will require investment in the county's social and physical infrastructure.

The entire Lee Plan Can be found on the Internet at:
http://www.leegov.com/dcd/Documents/Planning/LeePlan/LeePlan.pdf



J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 20 EXISTING EASEMENTS MAP 11104.20.DWG TAB: 11X8-C TB Nov 06, 2020 - 2:59PM PLOTTED BY: FELIPE

FIGURE 20. EXISTING EASEMENTS MAP
GS-10

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The four chapters that affect the management of GS-10 Preserve are Chapter II – Future Land Use, Chapter IV – Community Facilities and Services, Chapter V – Parks, Recreation and Open Space, and Chapter VII – Conservation and Coastal Management.

Chapter II, Policy 1.4.6 states that Conservation Lands includes uplands and wetlands that are owned and used for long range conservation purposes. Upland and wetland conservation lands will be shown as separate categories on the FLUM. Upland conservation lands will be subject to the provisions of this policy. Wetland conservation lands will be subject to the provisions of both the Wetlands category described in Objective 1.5 and the Conservation Lands category described in this policy. The most stringent provisions of either category will apply to wetland conservation lands. Conservation lands will include all public lands required to be used for conservation purposes by some type of legal mechanism such as statutory requirements, funding and/or grant conditions, and mitigation preserve areas required for land development approvals. Conservation Lands may include such uses as wildlife preserves; wetland and upland mitigation areas and banks; natural resource based parks; ancillary uses for environmental research and education, historic and cultural preservation, and natural resource based parks (such as signage, parking facilities, caretaker quarters, interpretive kiosks, research centers, and quarters and other associated support services); and water conservation lands such as aquifer recharge areas, flow ways, flood prone areas, and well fields. 2020 lands designated as conservation are also subject to more stringent use provisions of the 2020 Program or the 2020 ordinances. (Added by Ordinance No. 98-09, Amended by Ordinance No. 02-02.)

Chapter IV, Policy 59.1.6 states, "The county will, through appropriate regulations, continue to provide standards for construction of artificial drainage ways compatible with natural flow ways and otherwise provide for the reduction of the risk of flood damage to new development." (Amended by Ordinance No. 94-30, 00-22.)

Chapter IV, Policy 60.1.3 states, The county will "examine steps necessary to restore principal flow-way systems to assure the continued environmental function, value and use of natural surface water flow-ways and associated wetland systems." (Amended by Ordinance No. 00-22, 18-28, Relocated by Ordinance No. 07-12.)

Chapter V provides that Land Management staff will ensure that any public use facilities and recreational opportunities will comply with **Goal 85: Park Planning and Design**, which requires that parks and recreation sites are planned, designed and constructed to comply with the best professional standards of design, landscaping, planning, and environmental concern. (Amended by Ordinance No. 07-09.)

Chapter VII, Goal 123: RESOURCE PROTECTION provides to manage the county's coastal, wetland and upland ecosystems so as to maintain and enhance

native habitats, floral and faunal species diversity, water quality, and natural surface water characteristics. **Objective 123.1: RESOURCE MANAGEMENT PLAN** provides the county will continue to implement resource management policies and regulations that ensure the long-term protection and enhancement of the natural upland and wetland habitats by retaining the interconnectedness and functionality, of hydro-ecological systems in order to progress towards a more ecologically productive and sustainable environment. (Amended by Ordinance No. 94-30, 00-22, 18-28, Relocated by Ordinance No. 18-28) Under Policy 123.1.2c the county will create a Land Stewardship Plan (LSP) for each C20/20 property, providing information relating to the long term maintenance and enhancement of acquired properties. The LSP will determine the use of the acquired properties and will address necessary people management (e.g., fences and signage to prevent incompatible uses such as off road vehicle use and hunting); surface water management and restoration; ecosystems restoration; litter control; fire management; invasive exotic plant and animal control; and, where appropriate, compatible recreational use facilities. The plan will also address maintenance funding. Creation of the LSP will provide opportunity for public input.

Chapter VII, Objective 123.2: PLANT COMMUNITIES. Lee County will maintain and enhance the biodiversity of the natural plant communities within Lee County to create a more resilient and sustainable ecosystem. (Amended by Ordinance No. 94-30, 18-28, Relocated by Ordinance No. 18-28.)

Chapter VII, Objective 123.3: WILDLIFE provides the county will maintain and enhance the fish and wildlife diversity and distribution within Lee County for the benefit of a balanced ecological system. (Amended by Ordinance No. 94-30, Relocated by Ordinance No. 18-28) Policy 123.3.1: encourages upland preservation in and around preserved wetlands to provide habitat diversity, enhance edge effect, and promote wildlife conservation. (Relocated by Ordinance No. 18-28.) Initiating a prescribed fire regime and removing invasive exotics will follow this policy.

Chapter VII, Objective 123.4: ENDANGERED AND THREATENED SPECIES IN GENERAL provides Lee County will continue to protect habitats of endangered and threatened species and species of special concern in order to maintain or enhance existing population numbers and distributions of listed species. (Relocated by Ordinance No. 18-28) Policy 123.4.1 states to identify, inventory, and protect flora and fauna indicated as endangered, threatened, or species of special concern in the "Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida," FWC, as periodically updated. (Relocated by Ordinance No. 18-28.) Lee County's Protected Species regulations will be enforced to protect habitat of those listed species found in Lee County that are vulnerable to development.

Chapter VII, Objective 123.10, Policies 123.10.1 and 123.10.2 WOODSTORK. There is existing habitat on the property that have the potential to be used by wood storks for nesting and/or foraging. Land Management staff will continue to

document wood stork utilization of the Preserve and ensure that the GS-10 Preserve management plan follows the USFWS "Habitat Management Guidelines for the Wood Stork in the Southeast Region" (USFWS 1990). (Amended by Ordinance No. 94-30, 00-22.) (Relocated by Ordinance No. 18-28).

Chapter VII, Objective 123.11: FLORIDA PANTHER. County staff will develop strategies to protect the Florida panther. (Amended by Ordinance No. 92-48, 00-22, 18-28, Relocated by Ordinance No. 18-28.)

Chapter VII, Objective 123.12: FLORIDA BLACK BEAR. County staff will maintain sustainable black bear populations in suitable habitats and promote connectivity between sub-populations. (Amended by Ordinance No. 18-28.)

Chapter VII, Objective 124.1 WETLANDS. The natural functions of existing wetlands at GS-10 Preserve will protected and preserved. The wetlands created at GS-10 Preserve will provided additional flood protection, water quality treatment for downstream receiving waters, and habitat for wetland dependent species. (Relocated by Ordinance No. 18-28.)

5.5 Management Constraints

Management responsibility for GS-10 preserve is divided between LA-MSID and Lee County and is defined in the MOU which is provided as Appendix A.

The principle management constraints for GS-10 Preserve include limited funding, the brief dry season for management activities, and conducting land management activities concurrently with recreational use.

Signs will be installed at designated entrance gates to warn the public that the area is temporarily closed and when restoration activities and prescribed burns, which could be dangerous to visitors, are in progress.

5.6 Public Access and Resource-Based Recreation

When determining the resource-based activities that will be offered at GS-10 Preserve, several factors are considered including, but not limited to: preserve size, access areas, access points, presence of similar facilities nearby, plant communities present, listed species utilization, soil constraints, hydrologic components, and the primary and secondary preserve purposes. Permissible activities may include activities such as hiking, on-trail bicycling, fishing, non-motorized boating, and walking leashed dogs. Prohibited activities will include horseback riding and use of motorized vehicles (other than on ingress/egress routes, parking areas, and appropriate maintenance activities).

A Preliminary Master Concept Plan is provided as Figure 21. The locations of features depicted on this Master Concept Plan are conceptual in nature and are subject to change as elements are further refined in the design and permitting process. The southern portion of

SECTION 10 CONCEPT MAP

N

N.T.S.

OUTFLOW
TO GREENBRIAR PRESERVE

Existing Culverts

KING CANAL

PUBLIC PARKING AREA

Preserve

Equalizer Pipes

Weir

Maintenance Road

Perimeter Berm

JOEL BLVD

20-Foot Walking Path

SETTLING POND

Existing Tree Canopy and Recreational Area

Emergency Outflow

FOX CANAL

Uplands

FILTER MARSH

Existing Oak Preserve

SETTLING POND

CHANNELIZED FILTER MARSH

Pedestrian Trail

JOEL BLVD

Pump

Existing Culverts

Proposed Culverts

WEST EASY CANAL

EAST EASY CANAL

FILTER MARSH

INFLOW
FROM EAST/WEST EASY CANALS

LEHIGH ACRES
MUNICIPAL SERVICES IMPROVEMENT DISTRICT

CONSERVATION 20/20
LEE COUNTY Parks & Recreation

AIM Engineering & Surveying, Inc.
Corporate Office
5300 Lee Boulevard (33971-1026)
Post Office Box 1235
Lehigh Acres, Florida 33971-1235

the Preserve will include wetland creation and enhancement to develop a filter marsh system. The creation of the filter marsh system will increase on-site water storage while providing wildlife habitat and improving water quality. The lakes and settling ponds will be managed for exotics species, and the uplands will also be enhanced by removal of exotics species.

A parking area and kayak launch is proposed to be installed within the northeast corner of the Preserve. Public access to the parking areas and the Preserve will be available from Joel Boulevard. A network of internal trail systems are also proposed. No additional public access entry points are proposed at this time. Gates from private property onto the Preserve will not be allowed due to legal and liability issues. Figure 22 depicts the proposed public access and trail locations; these locations are conceptual in nature and are subject to change.

The primary purpose of the Project is to improve water quality and provide flood protection. As a result, a significant area of the property will contain lakes and sensitive wetland habitats. For these reasons, only limited emergency vehicle access will be provided at GS-10 Preserve in order to ensure protection of the plant communities, wildlife, and water quality. Vehicular access onto the Preserve will be restricted to designated parking areas, and pedestrian access will be limited to designated trail systems.

Allowable recreational uses may change seasonally or overtime as habitats are restored or created and as wildlife uses change (i.e., nesting). In the initial stages, a phased approach to public access may be utilized as habitats are restored to reduce disturbance to wildlife as they reacclimate to the Preserve.

If there are additional recreational amenities that are to be offered on a C20/20 preserve that were not specifically considered in this plan, Lee County staff will evaluate the possibility of allowing those uses at the public's request. Otherwise, recreational amenities will be reexamined in ten years during the next revision of this plan.

5.7 Acquisition

GS-10 Preserve was acquired by Lee County through the C20/20 program for $3,873,300.00. The parcel was Nomination Parcel 257-2, and the Conservation Lands Acquisition and Stewardship Advisory Committee (CLASAC) recommended the acquisition of the GS-10 Parcel through the C20/20 Programs on November 8, 2018. The property was purchased in April 2019.

Figure 23 documents the parcels that were nominated and/or acquired by the C20/20 program in the immediate vicinity of GS-10 Preserve. Three properties were nominated in close proximity to GS-10 Preserve (269, 278-2, 323-2). Parcel 278-2 is under review, parcels 269 and 323-2 have been withdrawn.

GS-10 Preserve contains two Future Land Use categories on the Future Land Use Map. The categories include Urban Community and Wetlands. In the future, C20/20 may choose

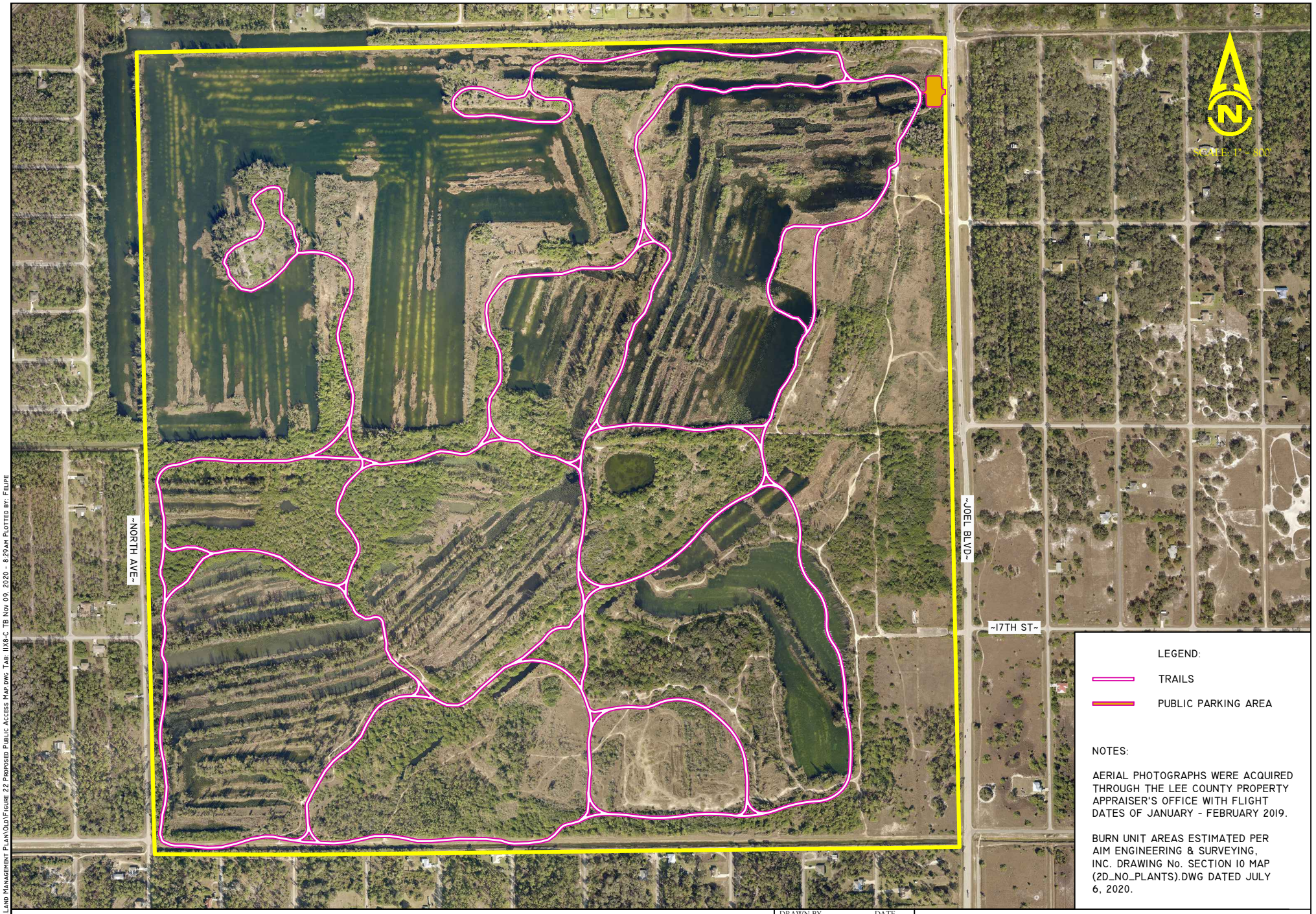

FIGURE 22. PROPOSED PUBLIC ACCESS MAP
GS-10

DRAWN BY	DATE
T.S.	7/6/20
REVIEWED BY	DATE
H.S.	7/6/20
REVISED	DATE

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J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\OLD\FIGURE 22 PROPOSED PUBLIC ACCESS MAP.DWG TAB: 11X8-C TB NOV 09, 2020 - 8:29AM PLOTTED BY: FELIPE

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NOTES:

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FIGURE 23. ACQUISITION AND NOMINATIONS MAP
GS-10

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REVIEWED BY	DATE
H.S.	6/4/20
REVISED	DATE
H.H.	2/23/21

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to coordinate with the Lee County Department of Community Development, Division of Planning (LCDP) to change the Future Land Use (FLU) to "Conservation Lands." A Future Land Use Map is attached as Figure 24.

Currently, all of GS-10 Preserve is zoned as Mixed Use Planned Development, "MPD" (Figure 25). C20/20 may coordinate a change with LCDP to change the zoning to Environmentally Critical, "EC."

6.0 MANAGEMENT ACTION PLAN

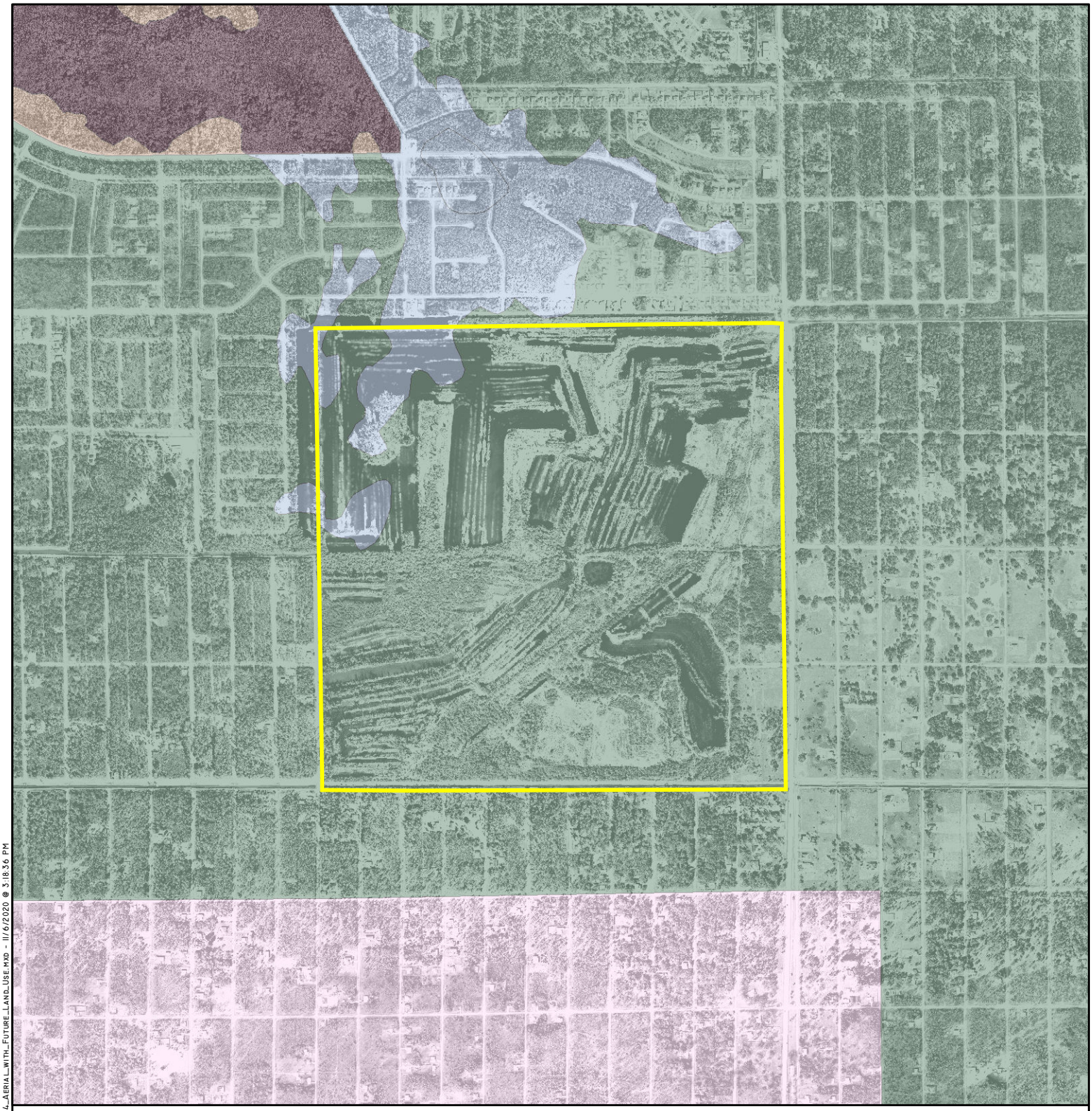
6.1 Management Unit Descriptions

GS-10 Preserve has been divided into three management units (MU) to better organize and achieve management goals. Figure 26 delineates the MUs that were created based on the target habitat types and trail locations in proposed master plan. If prescribed burns are to be conducted at GS-10 Preserve, they are anticipated to be limited to the boundary of MU2 (Figure 27).

- MU 1 (278.91± acres) is located on the northern half of GS-10 Preserve and is comprised primarily of lakes. This management unit is boarded by King Canal to the north. A weir located on the northern boundary will provide outflow to Greenbriar Preserve. Exotics within the lakes and native habitats will be removed by hand or treated with herbicide. Only herbicides approved for aquatic application will be permitted in areas where the vegetation is below the existing water level. Mechanical and/or manual reduction in woody vegetation may be conducted as need in place of prescribed burns.

- MU 2 (262.02± acres) is located in the southern half of the Preserve and will includes a proposed filter marsh comprised of a mosaic of uplands and forested and herbaceous wetland habitats. The southern portion of the MU is bordered by the West Easy Canal. Under the preliminary concept plan, a proposed pump system would input water from the canal into a filter marsh system.

  Following the initial restoration and construction of the filter marsh system, management activities may include prescribed fires, if feasible; mechanical vegetation reduction in lieu of/in conjunction with prescribed fire; and herbicide treatment of exotics. Only herbicides approved for aquatic application will be permitted in areas where the vegetation is below the existing water level. Regular harvesting of vegetation as deemed necessary by LA-MSID and C20/20 will increase nutrient removal, and thus improve water quality in the area.



NOTES:

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FIGURE 24. AERIAL WITH FUTURE LAND USE MAP
GS-10

DRAWN BY	DATE
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H.S.	4/7/20
REVISED	DATE

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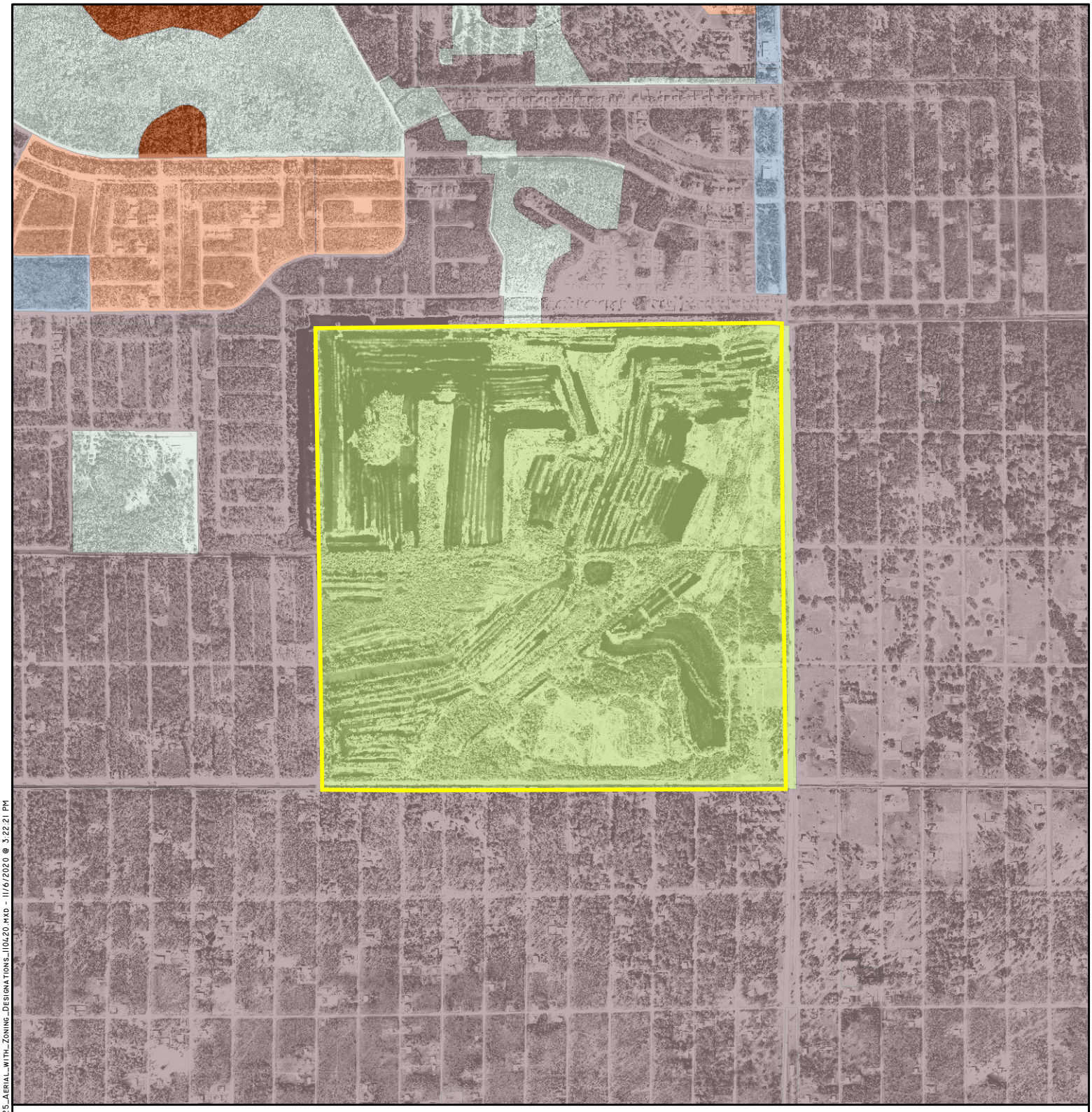

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ROADWAY NETWORKS WERE ACQUIRED FROM THE FLORIDA GEOGRAPHIC DATA LIBRARY WEBSITE.

LEE FLU WAS ACQUIRED FROM THE LEE COUNTY GIS WEBSITE MAY 2019.

FIGURE 25. AERIAL WITH ZONING DESIGNATIONS
GS-10

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H.S.	4/7/20
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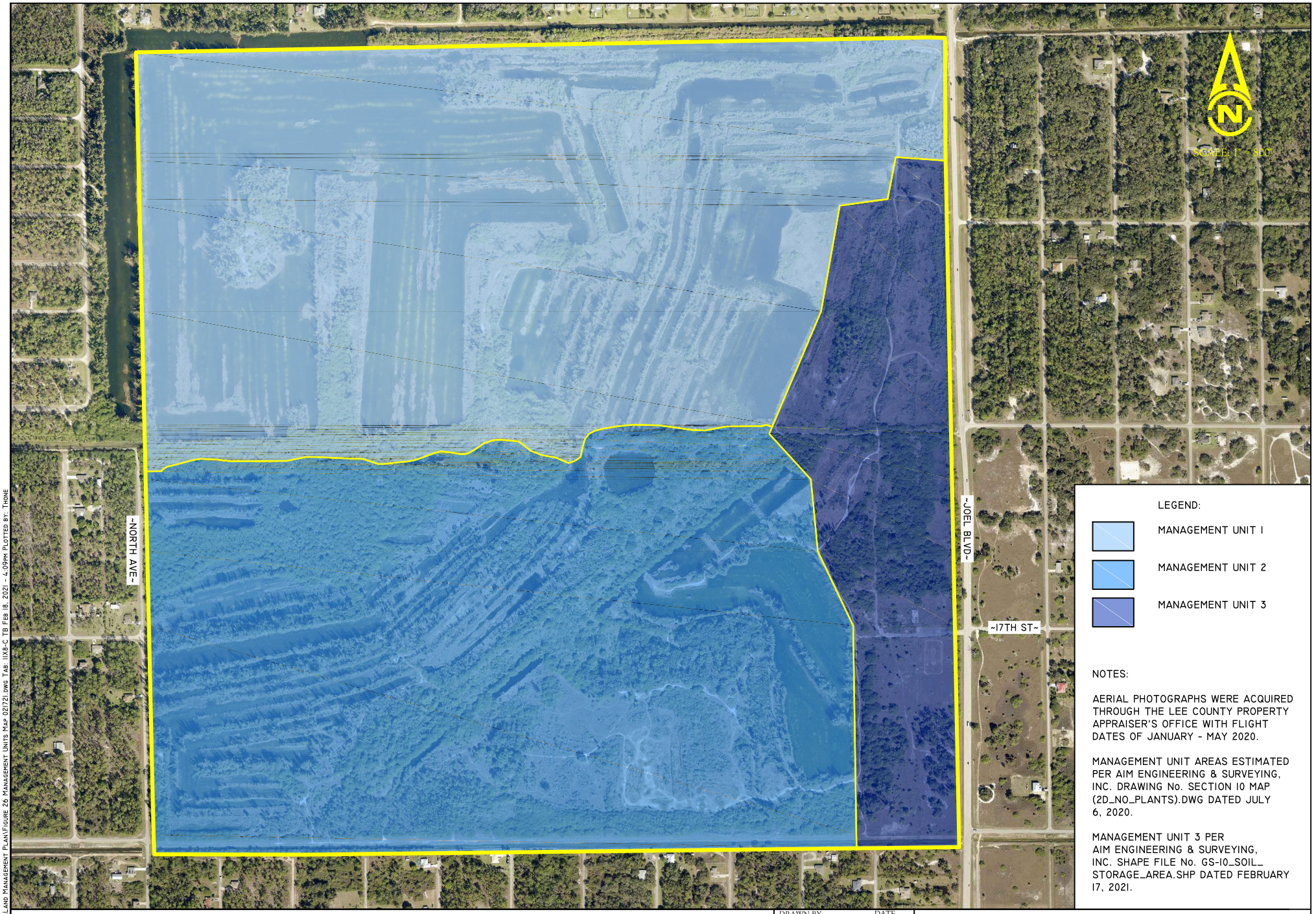

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AERIAL PHOTOGRAPHS WERE ACQUIRED THROUGH THE LEE COUNTY PROPERTY APPRAISER'S OFFICE WITH FLIGHT DATES OF JANUARY - MAY 2020.

MANAGEMENT UNIT AREAS ESTIMATED PER AIM ENGINEERING & SURVEYING, INC. DRAWING No. SECTION 10 MAP (2D_NO_PLANTS).DWG DATED JULY 6, 2020.

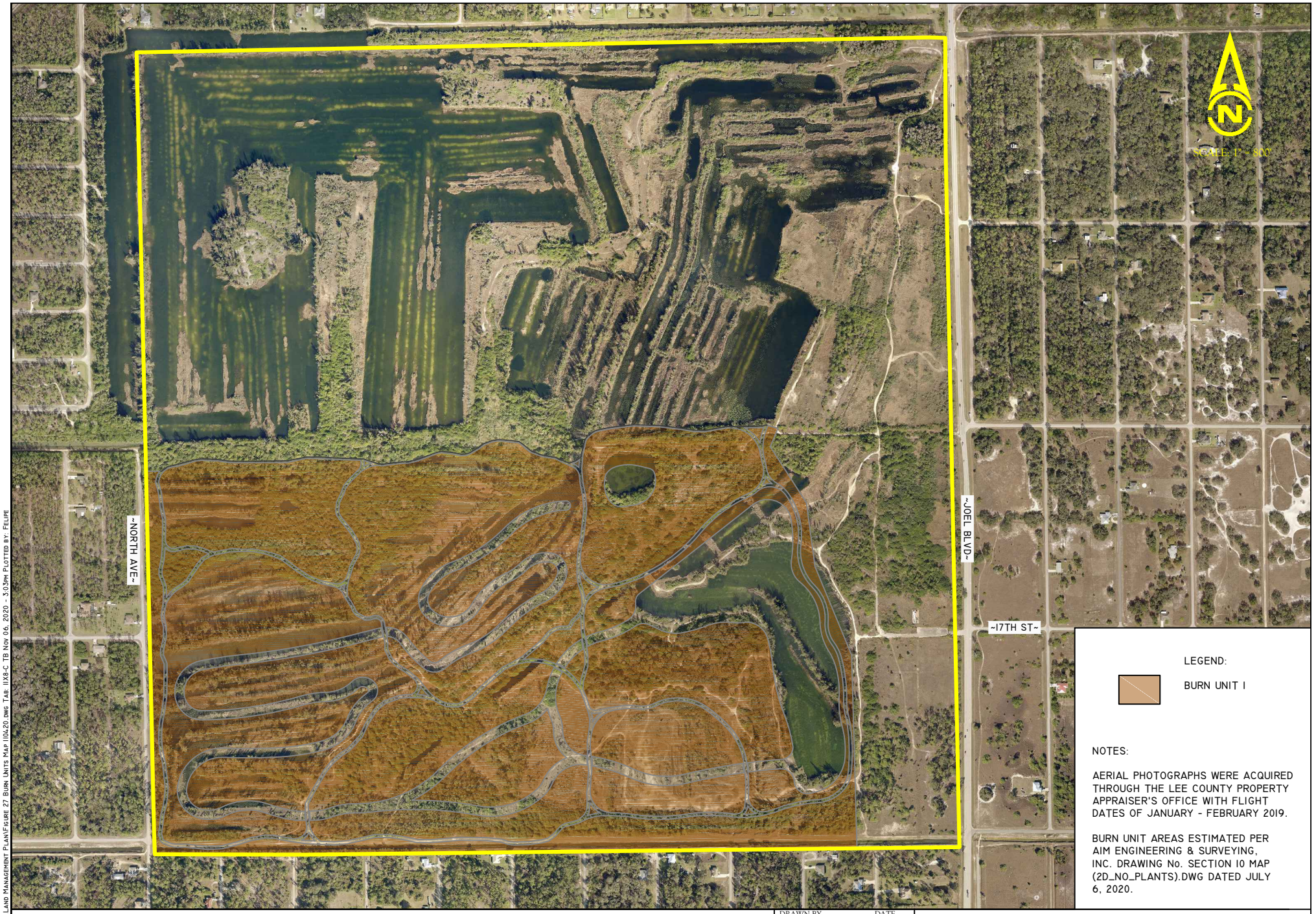
MANAGEMENT UNIT 3 PER AIM ENGINEERING & SURVEYING, INC. SHAPE FILE No. GS-10_SOIL_STORAGE_AREA.SHP DATED FEBRUARY 17, 2021.

FIGURE 26. MANAGEMENT UNITS MAP
GS-10

DRAWN BY	DATE
T.S.	7/6/20
REVIEWED BY	DATE
H.S.	7/6/20
REVISED	DATE
T.S.	2/17/21

PASSARELLA & ASSOCIATES, INC. Consulting Ecologists

J:\2020\20AIM3209\2020\LAND MANAGEMENT PLAN\FIGURE 26 MANAGEMENT UNITS MAP 021721.DWG TAB: 11X8-C TB FEB 18, 2021 - 4:09PM PLOTTED BY: THANE



J:\2020\20aim3209\2020\Land Management Plan\Figure 27 Burn Units Map 110420.dwg Tab 11X8-C TB Nov 06, 2020 - 3:03pm Plotted by: Felipe

FIGURE 27. BURN UNITS MAP
GS-10

DRAWN BY	DATE
T.S.	7/6/20
REVIEWED BY	DATE
H.S.	7/6/20
REVISED	DATE

PASSARELLA & ASSOCIATES INC
Consulting Ecologists

- MU3 (78.22± acres) is located on the eastern portion of the Preserve. This area is excluded from the preliminary Master Concept Plan as it is not proposed for enhancement activities. This area is to be designated as an excess soil storage area and may also be used as a hurricane debris storage area as was indicated in the MOU. This area will receive minimal exotic maintenance which will be focused on reducing potential exotic seed sources adjacent to the other MUs and ensuring coverage of exotic species does not exceed the current baseline conditions.

6.2 Goals and Strategies

The primary management objectives at GS-10 Preserve are to provide water storage and improve water quality. The secondary objectives include habitat improvement and public use. Funding is not currently available to conduct all of the management tasks. Therefore, the management activities that take place at GS-10 Preserve will focus on water storage and improving water quality prior to completing the secondary tasks. Management activities will be prioritized in order of importance and ease of accomplishment.

Outside Consultants

- Wetland and control structure design and permitting
- Construction
- Public access design and permitting
- Environmental/Engineering

Natural Resource Management

- Hydrologic enhancement/wetland creation
- Exotic plant control/maintenance
- Prescribed fire management and fire break maintenance
- Mechanical brush reduction
- Monitor and protect listed species
- Exotic and feral animal removal

Overall Protection

- Boundary fence installation and maintenance
- Boundary sign installation and maintenance
- Debris removal and prevention of dumping
- Change Zoning and Future Land Use categories

Public Use

- Infrastructure improvements for public access

Volunteers

- Assist volunteer group

The following is a description of how each of these goals will be carried out, the success criteria used to measure accomplishment of each goal, and a projected timetable outlining when and in which units each activity will take place.

Outside Consultants

Wetland and Control Structure Design and Permitting
Environmental and/or engineering contractors will be hired by LA-MSID to perform all or most aspects of the wetland and control structure design and permitting.

Construction and Plant Installation
The construction of the filter marsh system, placement of the control structures and native plant installation may be contracted out. A consultant may be hired by LA-MSID to implement and oversee construction.

Public Access Design and Permitting
Environmental and/or engineering may be hired by C20/20 to perform all or most aspects of the public access design and permitting. If feasible this task will be completed concurrently with the wetland and control structure design and permitting. A consultant may be hired to implement and oversee construction.

Environmental/Engineering
Environmental and/or engineering contractors will need to be hired to perform all or most aspects of the hydrological creation/restoration projects. The consultant will also be responsible for coordinating and obtaining appropriate environmental permits before restoration efforts begin.

Natural Resource Management

Hydrologic Enhancement/Wetland Creation
Several control structures are proposed on the master site plan. These structures will be inspected regularly by LA-MSID to ensure the structures are functioning property.

Water Quality Monitoring
LA-MSID may potentially use existing and additional water quality sampling locations to analyze pre and post nutrient levels to assist in guiding short and long term management of the Preserve.

Exotic Plant Control and Maintenance
The Florida Exotic Pest Plant Counsel (FLEPPC) List of Invasive Species will be utilized to determine invasive exotic plant species to be targeted for treatment within the MUs. The goal of the treatment is to remove or control Category 1 and Category 2 exotic invasive species to a maintenance level (i.e., less than 5 percent coverage), after construction of all hydrologic improvements. LA-MSID will attempt to maintain a balance between the exotic removal and water quality goals.

Specific methodology for exotic removal will depend on stem size, plant type and season, and location within a plant community. However, generally the stem shall be cut near the ground and sprayed with appropriate herbicide, or a foliar application will be applied to the entire plant. Hand pulling shall be utilized when possible with appropriate species in order to minimize herbicide use. Basal bark treatment may be used in some situations.

Herbicides shall be applied per the manufacturer's recommendation under the direction of a state certified applicator. Herbicides must be applied in such a manner as to protect non-target organisms, the environment, and the public. Most herbicides are not to be applied within two (2) hours of rainfall (previous or eminent), if the vegetation is wet and/or in windy conditions. Only herbicides approved for aquatic use may be used.

Prior to any contractor conducting invasive exotic plant control at GS-10 Preserve, a Prescription Form (located in the LSOM and provided herein as Appendix E) will be completed by the contractor(s) and reviewed and approved by LA-MSID staff.

Wetland Vegetation Harvesting

Maintenance of the filter marsh system will include harvesting of wetland vegetation on a regular basis to reduce possible reintroduction of nutrients though decaying biomass of dead plants. A composting location will be identified on-site for disposal of plant material collected during harvesting events. The location of the composing site will be determined during the design and permitting phase.

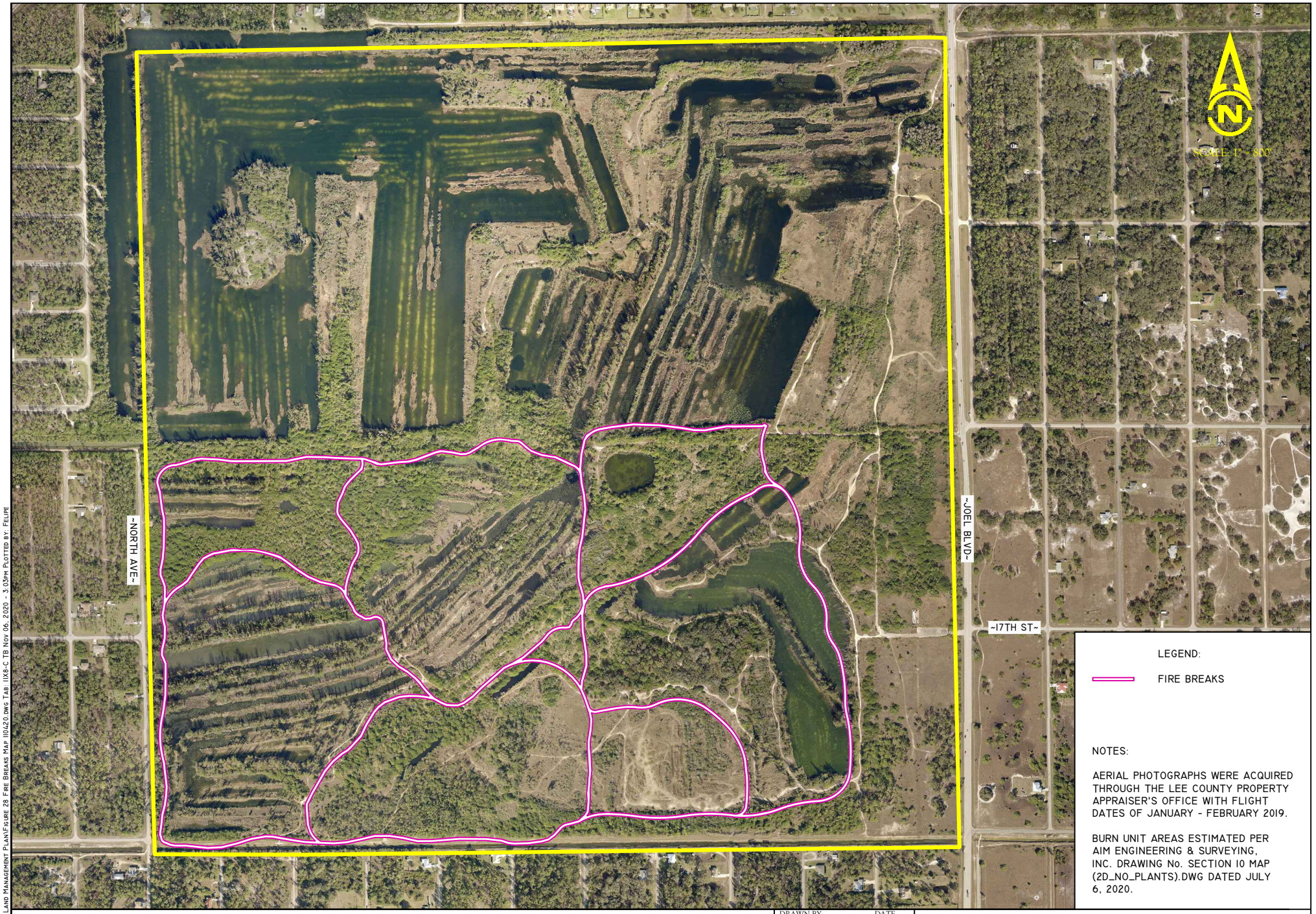
Prescribed Fire Management and Fire Break Maintenance

Several of the plant communities on the Preserve are considered fire dependent and require some type of fire or mechanical brush control. As a result, a fire management program may be implemented by C20/20 that closely mimics natural fire regimes. This will increase plant diversity and maintain open tree canopies. If conducted, prescribed burns shall be performed after the creation of appropriate fire lines/breaks. The timing of prescribed burns will be based on a seasonal rain, staff and equipment availability, listed species requirements, and wind patterns. A C20/20-wide Fire Management Plan was coordinated with FDOF and the finalized plan applies to all C20/20 Preserves.

Prescribed fire may also be used to control exotic plant seedlings and saplings in previously treated areas.

C20/20 will coordinate prescribed burn efforts with the managers of nearby conservation lands and inform adjacent neighbors of imminent burn plans.

Firebreaks located on berms associated with the water quality project will be maintained mowed times a year by LA-MSID and maintained for structural integrity. Firebreaks located outside of these berms or maintenance on berms beyond to what was described above, shall be conducted by C20/20. See Figure 28 for a map of the locations for firebreaks.



J:\2020\20aim3209\2020\Land Management Plan\Figure 28 Fire Breaks Map 110420.dwg Tab: 11x8-C TB Nov 06, 2020 - 3:03pm Plotted by: Felipe

FIGURE 28. FIRE BREAKS MAP
GS-10

DRAWN BY	DATE
T.S.	7/6/20
REVIEWED BY	DATE
H.S.	7/6/20
REVISED	DATE

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Mechanical Brush Reduction

In some cases, fuel loads may need to be reduced prior to a prescribed fire. In these instances, overgrown areas will be mechanically thinned to prevent crown fires or intense fires from occurring. If brush control is required and a prescribed burn is not feasible, then mechanical reduction may be substituted for a prescribed burn. Some patches of dense vegetation shall be left in areas to provide cover for wildlife.

Monitor and Protect Listed Species

Benefits to listed species are expected through the creation and enhancement of native habitats on the Preserve. During management activities, efforts will be made to minimize negative impacts to listed species.

Exotic and Feral Animal Removal

Exotic animal species are prevalent in Eastern Lee County and are known to occupy GS-10 Preserve. If necessary, LA-MSID may develop a methodology consistent with LSOM that can be implemented for unwanted exotic animal species.

If feral cats are observed, then they will be trapped and taken to Lee County Animal Services. Feral cats are not allowed to be released at GS-10 Preserve or any C20/20 Preserve.

Overall Protection

Fence Installation

In accordance with Section 6.2A of the Memorandum of Understanding between LA-MSID and Lee County, fencing the property boundaries will be performed by C20/20.

Boundary Sign Installation and Maintenance

Boundary signs are to be installed by C20/20 staff on all property boundaries and will be maintained by C20/20.

Debris Removal and Prevent Dumping

GS-10 Preserve contains scattered debris throughout areas of the Preserve. It is anticipated that the debris will be removed during wetland creation and preserve enhancement activities. During site inspections and regular patrols, any debris that can reasonably be removed by hand will be removed.

Change Zoning and Future Land Use Categories

C20/20 staff will coordinate with LCDP staff to change the zoning and future land use categories at GS-10 Preserve, as necessary. All zoning designations will be changed to "Environmentally Critical." Future land use designations will be changed to either "Conservation Lands-Uplands" or "Conservation Lands-Wetlands," as appropriate.

Public Use

Infrastructure Improvements for Public Access

Public access facilities are anticipated to include a picnic area, restroom facilities, and parking area. These structures will be installed following completion of the wetland restoration/creation, wetland enhancement, and upland enhancement. Public access of the preserve will be limited to an established trail system. Maintenance of public access facilities shall be conducted on an as-needed basis.

Volunteers

Assist Volunteer Group(s)

The LSOM identifies the Land Management Volunteer Program's mission statement as:

> "To aid in the management and preservation of Lee County resource based public parks and preserves and to provide volunteers with rewarding experiences in nature."

If there is interest from the community to form a volunteer group, C20/20 will work with them to assist with the many diverse management activities that will be associated with this Preserve, such as wildlife monitoring and other land management projects.

7.0 PROJECTED TIMETABLE FOR IMPLEMENTATION

The water quality project timeline outlined below is an estimate. This schedule may change dependent on available funding and permitting agency review timeframes.

Table 5. Projected Water Quality Project Timeline

Management Objective	To Be Completed By
Submittal of the Land Management Plan to MSC, CLASAC, and BOCC	April 2021
Completion of 60 percent Project design plans	March 2022
Completion of 100 percent Project design plans	March 2024
Construction commencement	March 2026
Completion of construction	March 2031
Completion of as-built plans	Within 60 days of construction completion

8.0 FINANCIAL CONSIDERATIONS

C20/20 is funded by the County's general fund in accordance with Ordinance 15- 08 (as amended). This annual allocation funds restoration, maintenance of the preserves and C20/20 staff costs. Funds not used in the annual allocation rolls over to the following year for maintenance and restoration. LA-MSID funds will be used to continue with maintenance of their restoration project, including the berms, weir, and filter marshes.

Funding for the management of GS-10 Preserve will be provided by the LA-MSID and C20/20.

Other possible funding for continued exotic plant removal and restoration projects might be requested through grants from agencies such as the SFWMD, the FDEP, the FWC, and the USFWS.

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APPENDIX A

MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING
BETWEEN LEE COUNTY AND
LEHIGH ACRES MUNICIPAL SERVICES IMPROVEMENT DISTRICT
FOR MAINTENANCE OF NOMINATION 257-2 (a/k/a GS-10)

This **Memorandum of Understanding between Lee County and the Lehigh Acres Municipal Services Improvement District for Maintenance of Nomination 257-2 (a/k/a GS-10) (*"Agreement"*)** is made and entered in this 19th day of March, 2019, by and between the **LEHIGH ACRES MUNICIPAL SERVICES IMPROVEMENT DISTRICT,** an independent special district and successor to East County Water Control District pursuant to Chapters 2015-202 and 2017-216, Laws of Florida, and general law (hereafter "*District*") and **LEE COUNTY**, a political subdivision and charter county of the State of Florida, acting by and through its Board of County Commissioners, the governing body thereof (hereafter "*County*"). (Collectively, the foregoing may be referred to as the "*Parties*" herein.)

WITNESSETH:

WHEREAS, the Board of Commissioners is the governing body in and for the District, and the Board of County Commissioners ("*BOCC*") is the governing body in and for County; and

WHEREAS, the County has established a Conservation 20/20 Program, the purpose of which is "*[t]o acquire properties of environmental significance, restore those lands to their natural state and condition, manage them in an environmentally acceptable manner and provide public recreational opportunities that are compatible with protecting the natural resources*"; with the main objectives being "*to protect and preserve natural wildlife habitat; protect and preserve water quality and supply; protect developed lands from flooding; and provide resource based recreation*"; and

WHEREAS, the County has also established a Conservation Lands Acquisition and Stewardship Advisory Committee ("*CLASAC*"), which meets monthly to review offers of property from willing sellers to ensure that the property meets the established criteria, to make recommendations to the BOCC regarding the purchase of property, and to oversee stewardship of the properties once acquired; and

WHEREAS, CLASAC at its meeting on November 8, 2018, recommended acquisition by the County through the Conservation 20/20 Program of a certain, ±624 acre parcel of real property identified as "Conservation 20/20 Nomination Parcel 257-2" or the "GS-10", located along Joel Boulevard and more particularly described in the attached **Exhibit "A"**, and illustrated on the attached **Exhibit "B"**, both made a part hereof (the "*Property*"); and

WHEREAS, the District operates and maintains surface water management systems, facilities and lands within its jurisdictional area pursuant to general and special law; and

WHEREAS, notwithstanding the District's agreement and execution of this Agreement, the District will continue to operate all other existing water management facilities and infrastructure within the District in accordance with the applicable regulatory permit(s) governing the water management system ; and

WHEREAS, the District will continue to plan, permit, construct and operate surface water management facilities and infrastructure to increase, improve and supplement the capacity of existing facilities as to both quantity and quality, as well as for the development of new surface water management facilities and infrastructure within the District; and

WHEREAS, the District's powers also include certain environmental powers including the restoration and perpetual maintenance of conservation, mitigation and wildlife habitats; and

WHEREAS, the Property is located adjacent to and may be easily connected hydrologically to certain surface water management facilities and environmentally sensitive lands currently owned, operated and maintained by the District; and

WHEREAS, the County and the District agree that it is in their mutual interest and convenience to cooperate in the restoration, appropriate development and enhancement of the Property's public recreational, environmental, and surface water management functions and to provide for the ongoing maintenance thereof; and

WHEREAS, the County and the District have the mutual obligation to reduce nutrient loading to the Caloosahatchee River in fulfillment of the Florida Department of Environmental Protection ("*FDEP*") mandated Total Maximum Daily Loads ("*TMDL*") and have the ability to partner in meeting these requirements through joint projects; and

WHEREAS, the construction of certain facilities and improvements on the Property will significantly improve the treatment and storage of water within the region, and further reduce the TMDLs; and

WHEREAS, County and District anticipate that a collaborative approach to incorporating this Property into the area's regional surface water treatment prior to discharge to the Caloosahatchee River will improve overall water quality and flood protection for the region for the public's benefit and use; and

WHEREAS, this Agreement is intended to define the respective duties and responsibilities of the Parties hereto to provide facilities and services upon the Property and the maintenance responsibilities therefore.

NOW, THEREFORE, in consideration of the foregoing, and of the mutual covenants and conditions hereinafter set forth, the sufficiency and adequacy of which is acknowledged by the Parties herein, both intending to be legally bound, hereby agree as follows:

Section One: Recitals.

The above-referenced recitals are true and correct and are incorporated into this Agreement and made a part hereof.

Section Two: Purpose.

2.1 The purpose and intent of this Agreement is to define the terms and conditions under which the District and the County will share responsibility for the appropriate development, management, operation and perpetual maintenance of the resulting Project on the Property.

2.2 The Parties agree that this Agreement may be supplemented by written amendments or addendums to further implement its purposes.

Section Three: Authority.

3.1 The District represents to the County that the execution and delivery of this Agreement has been duly authorized by all appropriate actions of the governing body of the District, has been executed and delivered by the authorized officers of the District, and constitutes a legal, valid and binding obligation of the District.

3.2 The County represents to the District that the execution and delivery of this Agreement has been duly authorized by all appropriate actions of the governing body of the County, has been executed and delivered by an authorized officer of the County, and constitutes a legal, valid and binding obligation of the County.

Section Four: Definitions.

For the purpose of this Agreement, the following terms will have the meaning ascribed thereto:

"BOCC" means the Lee County Board of County Commissioners.

"CLASAC" means the Conservation Lands Acquisition and Stewardship Committee of Lee County, Florida.

"**Conservation 20/20 Ordinance**" means the "Lee County Conservation Lands Implementation Ordinance", Ordinance 05-17 of Lee County, Florida, as amended.

"Corps" means United States Army Corps of Engineers.

"FDEP" means Florida Department of Environmental Protection.

"FWC" means Florida Fish and Wildlife Conservation Commission.

"**Land Management Plan**" (*"LMP"*), means a written report governing the conservation, protection and stewardship of lands acquired pursuant to Lee County's Conservation 20/20 Program in accordance with the County's Land Stewardship Operations Manual. The LMP provides an overview of the environment and ecosystems on each preserve and outlines the actions necessary to restore, conserve and protect the land. The LMP is reviewed by the public, the Management Subcommittee of CLASAC, CLASAC and approved by the Lee County Board of County Commissioners.

"MSC" means Management Subcommittee of CLASAC

"Project" means the Water Quality and Storage Project to be designed, permitted, constructed, operated and maintained on the Property to treat area surface waters prior to discharge to the Caloosahatchee River and provide flood protection.

"Property" means the ±624 acre parcel of real property identified as "Conservation 20/20 Nomination Parcel 257-2" or the "GS-10", located along Joel Boulevard and more particularly described in attached **Exhibit "A"**, and illustrated on attached **Exhibit "B"**.

"SFWMD" means South Florida Water Management District.

"TMDL" means Total Maximum Daily Load.

"USFWS" means United States Fish and Wildlife Service.

"**Water Control Plan**" means the comprehensive operational document that describes the activities and improvements to be conducted by the District, as provided in Chapter 298, Florida Statutes.

Section Five: District Responsibilities.

5.1 The District's responsibilities will take effect as follows:

A. With respect to the planning, design and permitting of improvements and facilities upon the Property for which it is responsible, upon the execution of this Agreement; and

B. With respect to the installation and construction of improvements and facilities upon the Property for which it is responsible and the provision of continuing maintenance thereof, upon final approval of an amendment to the District's Water Control Plan for Unit of Development No. 5, as amended; and

C. Effective upon the execution of this Agreement, the District will otherwise waive assessments on the Property as described in **Exhibit "A"** and illustrated on the attached **Exhibit "B"**, for the life of the Agreement, or so long as the Project is operated with water quality and water storage infrastructure. It is mutually agreed this provision will survive any termination of this Agreement.

5.2 The District's responsibilities will include:

A. Funding, planning, design, permitting, site restoration, construction, inspections, monitoring and maintenance for all improvements and subsequent modifications made to and facilities installed upon the Property, more particularly described in **Exhibit "A"** and illustrated on the attached **Exhibit "B"**, and consistent with the District's adopted Water Control Plan, except as otherwise identified herein; and

B. Coordination in the review and approval of all matters relating to the Property with the Lee County Land Management Staff, Lee County Natural Resources Staff for the Project, their designees or successors in interest; and

C. Preparation and proper notice of a public meeting for the proposed Land Management Plan for the Property, in accordance with the criteria, terms and conditions therefore and be in accordance with the terms of the County's Conservation 20/20 Ordinance. The Land Management Plan will be developed in consultation with County's Land Management Staff and in accordance with the County's Land Stewardship Operations Manual. The District will be responsible for all District costs incurred in preparing and adopting the Land Management Plan; and

D. Submittal of the proposed Land Management Plan to MSC, CLASAC and BOCC for approval within two (2) years of the County's acquisition and prior to any permitting or earthwork; the diligent processing thereof until conclusion, in the manner provided in the Conservation 20/20 Ordinance; and re-submittal of the Land Management Plan to MSC, CLASAC and BOCC every ten (10) years thereafter for review, update, revision and approval; and

E. Unless otherwise provided herein, general management over and perpetual maintenance of all improvements (except as otherwise provided herein) and natural areas (both native and created or recreated communities) upon the Property identified in **Exhibit "D"** (and the restoration thereof following disturbance by natural disasters), according to the terms and conditions of the Property's approved Land Management Plan to insure Project performance as designed; and

F. Removal and continuing maintenance of all those plants identified as Categories I and II Invasive Pests by the Florida Exotic Pest Plant Council (http://www.fleppc.org) or identified in the Property's Land Management Plan. Providing an annual accounting of herbicide use to the County (directed to the Lee County Department of Parks and Recreation) by January 31st of each year; and

G. Use of native plants appropriate for each hydrological regime in all created areas; and

H. The prior approval and permitting from the County of any improvement or facility for public access to or use of the Property for recreational, educational or other public access purpose; and

I. Maintenance, repair and replacement of the surface water and flood protection facilities and improvements, excluding those facilities used for or related to public access to and public recreation upon the Property; and

J. Providing to the County and CLASAC, upon request, periodic status reports regarding the permitting, design, construction and performance of facilities and improvements; and

K. Responsibility for any environmental hazards and any mitigation thereof within or upon the Property existing on the date the District commences construction; and

L. Responsibility to pay all fines and/or penalties levied under the authority of permitting agencies associated with the District's construction of improvements on the Property; and

M. Responsibility to pay all permitting requirements and fees for the Project from applicable regulatory agencies that are not a party to this Agreement (USACE, SFWMD, FDEP, USFWS, FWC) and Lee County Development Order requirements and fees; and

N. Responsibility to submit 60% of Project design plans within three (3) years of the date of this Agreement to the County for review and approval prior to any submittal to the permitting agencies; and

O. Responsibility to submit 100% of Project design plans, along with County approved revisions, within five (5) years of the date of this Agreement to the appropriate permitting agencies; and

P. Responsibility to commence construction of the Project within seven (7) years of the date of this Agreement; and

Q. Responsibility to complete construction of the Project within twelve (12) years from the date of this Agreement; and

R. Responsibility to provide as-built plans to the County within 60 days of construction completion and acceptance by permitting agencies; and

S. The County has the right to complete any portion of design, permitting, and construction of the Project and obtain proportionate share of TMDL credits as cited in Section 7.4 should the District fail to meet the deadlines prescribed above; and

T. Responsibility to monitor and maintain water quality performance of the Project; and

U. In all events, the District agrees to continue to negotiate in good faith with the County to provide connectivity to other canals or waterways for the Project or any subsequent County-initiated water quality and/or drainage project. It is mutually agreed by the Parties this provision will survive any subsequent termination of the Agreement. Notwithstanding the

foregoing, any subsequent water quality and/or drainage projects negotiated between the Parties will be the subject of a separate, negotiated agreement that outlines the Parties respective obligations for said project.

V. Subject to the prior review and approval by the County during initial plan of development of the Project, including, but not limited to, such aspects as location, placement and stabilization of construction soil, the District will subsequently be responsible for the management, operation and maintenance of the portion of the Property used as the construction soil area, more particularly identified in attached **Exhibit "C**," during the construction of the Project. Upon completion of the Project construction, the County will be responsible to manage, operate and maintain said area.

W. The District will continue their operation of existing surface water management facilities and infrastructure within the District, but located outside of the Property. This requirement does not prohibit or preclude the District from continuing to plan, permit, construct and operate existing, expanded or new surface water management facilities and infrastructure resulting in a modification of the flow of surface water into the Property from such existing or expanded surface water management facilities and infrastructure, provided the District obtains the prior written approval of the County, which approval will not be unreasonably withheld.

X. In all events, the District will not modify the volume/quantity nor degrade the quality of water flowing into the Property from any existing, expanded or new District owned, or managed, surface water management facility or infrastructure located outside of the Property without the prior written approval of the County, which approval will not be unreasonably withheld. Additionally, the District will not reduce, restrict, prevent or otherwise modify the outflow from the Property without the prior written approval of the County, which approval will not be unreasonably withheld.

Y. Nothing within this Agreement will prevent or preclude the District's ability to manage and maintain its facilities pursuant to current operational requirements of applicable regulatory and permitting agencies.

Section Six: County Responsibilities.

6.1 The County's responsibilities will take effect when title to the Property vests in the County.

6.2 The County's responsibilities will include:

A. Marking and posting boundary signs and installing fencing around the perimeter of the Property; and

B. Incorporation of the Property in the County's regular, tri-annual site inspection schedule. The County may recommend to the District reasonable techniques for maintaining successful natural community restoration, provided such recommendations do not conflict with the Property's approved Land Management Plan; and

C. Managing all interactions with neighboring property owners; and

D. The enforcement of County ordinances upon the Property;

E. The planning, design, permitting, construction and perpetual maintenance of any recreational amenities or other improvements, at County expense, relating to use of the Property by the public for recreational, educational or any other purpose, including, but not limited to, signage, interpretative or maintenance structures and buildings, shelters, parking, fencing, privies, trails and boardwalks; and

F. Providing appropriate vessels, containers and services for trash and solid waste collection and disposal attributable to public access to the Property; and

G. Maintenance, repair and replacement of facilities and improvements used by the public or incidental to public access or public recreation and education (excluding berms). However, nothing herein shall prevent the County from electing to perform higher levels of maintenance service at the County's expense beyond the District's general maintenance standards on berms if desired by the County; and

H. Provide consultation and timely review of the Project designs and submittals from the District; and

I. Complete Project elements as allowed under Section 5.2(R), District Responsibilities; and

J. Manage, operate and maintain the portion of the Property used as the construction soil area, as identified in **Exhibit "C"**, following the District's completion of the Project construction. The County may utilize this area for hurricane debris staging in the event of a declared state of emergency and will be responsible for associated liability resulting from the placement, presence and subsequent disposal of the debris.

K. Concurrent monitoring during construction of the Project, including the construction of the soil area identified in attached Exhibit "C".

L. Provide the District with any environmental assessment obtained by the County on the Property within 60 days of the Effective date of this Agreement.

M. Additionally, the County agrees to not unreasonably withhold District requested Project permitting and construction extensions, provided reasonable progress with the Project's completion or operation is otherwise being advanced.

Section Seven. Common Responsibilities

7.1 All entrance signs and printed materials distributed to the public describing the Property or any recreational, educational or other facilities or services available thereon must identify the District, the County and the Conservation 20/20 Program as contributing partners in acquisition, restoration and maintenance of the Property.

7.2 The Parties will, upon reasonable request, cooperate with each other, their agents and assigns by providing necessary authorizations and consents and the execution of documents necessary to obtain all required permits and approvals from applicable regulatory agencies to improve and maintain the Property and construct facilities according to the County's Land Stewardship Plan.

7.3 Notwithstanding the design requirement to seek to match or balance "cuts and fills" for the Project, all uncontaminated excavated soil or other fill material, not required for construction on-site of the District facilities identified in the Land Management Plan or SFWMD permits, will be considered "Excess Soil". Excess Soil will be an asset and property of the County. The District will place and retain all Excess Soil on-site on the area identified on attached **Exhibit "C"**, or other County-approved areas, unless off-site removal is first approved in writing by County.

7.4 The District will be responsible to obtain all required permits if off-site removal of Excess Soil is approved for District use. Any contaminated soil, or other material excavated in the process of constructing District facilities, must be disposed of by the District in the manner required by State or Federal law.

7.5 The costs associated with the treatment and removal of any contaminated soil may be shared jointly by the Parties, unless such contamination has been caused by the District, or any contractor or other third-party engaged by, or on behalf of, the District. Under such circumstances the District will be fully responsible for such costs.

7.6 With respect to FDEP TMDL Credits:

A. All FDEP TMDL credits earned, either by the entire Project completion, or as Project phasing is completed, will be apportioned between the Parties based on proportionate share towards the summation of the Property acquisition, planning, design, construction, permitting, construction services costs related to the Project.

B. In all events, while this Agreement is in force and effect, the County will receive a minimum of thirty percent (30%) of any TMDL credits issued, with no maximum limit and without regard to any final cost-share split. Notwithstanding the foregoing, if either Party does not need its full allocation of TMDL credits for the Project (i.e., where either the District or the County is in full compliance), any excess credits will be allocated to the other Party, regardless of cost or share.

C. Any mitigation or remediation costs for environmental hazards not caused by either Party will count towards TMDL credit cost sharing by the Parties.

7.7 The District may utilize upland portions of the Property along Joel Boulevard, as shown in attached Exhibit "C," for staging purposes as part of the LMP for the Project only. Use of these areas must be approved by the County prior to being utilized. The County may, if necessary, also use these same areas for hurricane debris staging, if necessary.

7.8 So long as this Agreement is in effect, the Parties agree all resulting improvements and facilities, developed or constructed by the District on the Property will be deemed to be the property of the District. Notwithstanding the foregoing, and in all events, if this Agreement is terminated, said improvements and facilities will become and remain the property of the County. The County will not be obligated or required to compensate or reimburse the District for any remaining value of or in the improvements and or facilities constructed by the District.

7.9 Insofar as the Project is located within the District and is being planned, permitted, constructed and operated for the mutual benefit of the improvement of both water quality and surface water management, the Parties also agree, in the event of termination of this Agreement, they will subsequently seek to develop a new or replacement agreement for the continued maintenance and operation of the Project. Such an agreement will include, as may be reasonably achievable, joint participation by the Parties.

Section Eight: Indemnification

8.1 The Parties agree that by execution of this Agreement, neither Party will be deemed to have waived its statutory defense of sovereign immunity or increased its limits of liability, as provided in §768.28, Florida Statutes.

8.2 The Parties agree to use only licensed and insured contractors for any work on the Project. Any contractor so engaged by the Parties during the term of this Agreement must provide the other Party with a Certificate of Insurance naming that Party as a third-party loss payee, on an insurance policy meeting the County's minimum insurance requirements, a copy of which is attached hereto as Exhibit "E", as those requirements may be revised.

Section Nine: Term

This Agreement will remain in full force and effect from its Effective Date for an initial term of fifty (50) years. On or before year forty-five (45) of this Agreement, representatives of the parties shall meet to discuss the continued duration of this Agreement. Thereafter, unless otherwise modified in writing or terminated in the manner provided in Section Ten, below, this Agreement will be automatically renewed for an additional term of fifty (50) years.

Section Ten: Termination.

10.1 This Agreement will terminate and be of no further force or effect if the Property is not acquired by the County.

10.2 The Parties to this Agreement recognize that the Project contemplated by this Agreement requires a substantial financial commitment from both the County and the District to improve water quality, improve water storage, and prevent flooding for the public benefit on the Property. Accordingly, the Parties agree that this Agreement may only be terminated as follows:

A. By either party providing written notice of termination to the other no earlier than one (1) year prior to the expiration of the term set forth in Section Nine; or

B. By the County upon District's failure to perform the responsibilities identified in Section Five. Prior to termination, County will serve written notice upon District identifying specifically the allegation(s) of failure to perform or acts of default. The District will then have ninety (90) calendar days from the date of receipt of County's notice within which to submit an action plan to timely remedy the alleged failure(s). The District will be responsible for paying all costs of such corrective or remedial actions to address the District's default. If the District is unable to cure the default, and the default is not subject to Force Majeure as provided in Section Fourteen of this Agreement, then the County may terminate this Agreement with the District and complete and operate the Project on its own. It is mutually agreed by the Parties this provision will survive any subsequent termination of this Agreement.

10.3 Notwithstanding any termination of this Agreement, the Parties agree all surface water inflows and outflows, presently existing or as developed as part of this Project will remain available for use and benefit of the Project in perpetuity.

10.4 Notwithstanding any other provision contained herein, this Agreement is contingent upon funding and budget approval by both Parties. The failure of either Party to obtain sufficient funding to cover its respective obligations pursuant to the terms of this Agreement will be a cause for either to terminate this Agreement for convenience. In such event, both Parties will, except as otherwise provided herein, be relieved of any and all future obligations under this Agreement as of the effective date of termination. Under such circumstances termination of the Agreement is the sole and exclusive remedy unless the Parties mutually agree otherwise.

Section Eleven: Assignment

No assignment, delegation, transfer, or novation to this Agreement may be made unless in writing and approved by both the District and the County.

Section Twelve: Notices

Any notices or other documents permitted or required to be delivered pursuant to this Agreement, will be delivered to the following addresses:

To District:

Lehigh Acres Municipal Services
Improvement District
601 East County Lane
Lehigh Acres, FL 33936
Attn: District Manager

To County:

Lee County
Parks and Recreation
3410 Palm Beach Blvd.
Fort Myers, FL 33916
Attn: Parks and Recreation Director

With copies to:

Lee County
Attn: County Attorney
P.O. Box 398
Fort Myers, FL 33902-0398

Lee County
Parks and Recreation
P.O. Box 398
Fort Myers, FL 33902
Attn: Conservation 2020 Manager

Lee County
Division of Natural Resources
P.O. Box 398
Fort Myers, FL 33902-0398
Attn: Natural Resources Director

Section Thirteen: Amendment

This Agreement may only be amended in writing duly executed by the District and the County.

Section Fourteen: Force Majeure

If either the County or District is unable to perform, or is delayed in its performance of any of its obligations under this Agreement by reason of any event of Force Majeure, such inability or delay shall be excused at any time during which compliance therewith is prevented by such event and during such period thereafter as may be reasonably necessary for the County or District to correct the adverse effect of such event of Force Majeure.

An event of "Force Majeure" will mean the following events or circumstances to the extent that they delay the County or District from performing any of its obligations under this Agreement:

1. Strikes and work stoppages unless caused by a negligent act or omission of either party;
2. Acts of God, tornadoes, hurricanes, floods, sinkholes, fires, explosions, landslides, earthquakes, epidemics, quarantine, pestilence, and extremely abnormal and excessively inclement weather;
3. Acts of public enemy, acts of war, terrorism, effects of nuclear radiation, blockages, insurrection, riots, civil disturbances, or national or international calamities;
4. Suspension, termination or interruption of utilities necessary to the performance of the obligation; and
5. Delay caused by state and federal regulatory agencies that are outside of the control of the Parties.

In order to be entitled to the benefit of this section, a party claiming an event of Force Majeure will be required to give prompt written notice to the other Party specifying in detail the event of Force Majeure and will further be required to diligently proceed to correct the adverse effect of any Force Majeure. The terms of this Section will survive the termination of this Agreement.

Section Fifteen: Severability.

The invalidity of any provision of this Agreement will in no way affect the validity of any other provision.

Section Sixteen: Entire Agreement.

It is understood and agreed that this Agreement incorporates and includes all prior negotiations, agreements or understandings applicable to the matters contained herein and the Parties agree that there are no commitments, agreements or understandings concerning the subject matter of this Agreement that are not contained in this document. Accordingly, it is agreed by the Parties that no deviation from the terms hereof will be predicated upon any prior representations or agreements, whether oral or written.

Section Seventeen: Waiver.

The waiver by any party to this Agreement of any failure on the part of another party to perform in accordance with any of the terms or conditions of this Agreement may not be construed as a waiver of any future or continuing similar or dissimilar failure.

Section Eighteen: **Third-Party Beneficiaries**.

Neither the County nor the District intends to directly or substantially benefit a third party by this Agreement. Therefore, the Parties agree that there are no third-party beneficiaries to this Agreement and that no third party will be entitled to assert a claim against either of them based on this Agreement. The Parties expressly acknowledge that it is not their intent to create any rights or obligations in any third person or entity under this Agreement.

Section Nineteen: **Joint Preparation**.

The Parties acknowledge that they have sought and received whatever competent advice and counsel as was necessary for them to form a full and complete understanding of all rights and obligations herein and that the preparation of this Agreement has been a joint effort. The language agreed to expresses mutual intent and the resulting documents for the Project, may not, solely, as a matter of judicial construction, be construed more severally against one of the Parties than the other.

Section Twenty: **Applicable Law and Venue**.

This Agreement will be interpreted and construed in accordance with and governed by the laws of the State of Florida. Any controversies or legal problems arising out of this Agreement and any action involving the enforcement or interpretation of any rights hereunder will be submitted to the jurisdiction of the State Court of the 20th Judicial Circuit of Lee County, Florida, the venue site and will be governed by the Laws of the State of Florida.

Section Twenty-One: **Dispute Resolution**.

In the event of a dispute between the District and County occurs regarding the Project, improvements or delivery of services under this Agreement, the Parties agree that their designated representatives shall review such dispute and options for resolution. Any dispute not resolved by the representatives shall be referred to the District Manager and the County Administrator. In the event the District Manager and County Administrator are unable to agree, the matter will be referred to the dispute resolution process set forth in Chapter 164 of the Florida Statutes.

Section Twenty-Two: **Effective Date**.

This Agreement will be deemed effective when signed by both Parties ("*Effective Date*").

END OF PROVISIONS – SIGNATURE PAGES FOLLOW

IN WITNESS OF THE ABOVE, the District and the County have executed this Agreement on the day in the month indicated below.

EXECUTED BY THE DISTRICT THIS 11 **DAY OF** March, **2019.**

ATTEST:

By: _____
Secretary

LEHIGH ACRES MUNICIPAL SERVICES IMPROVEMENT DISTRICT

By: _____
District Board of Commission Chair

(District Seal)

APPROVED AS TO FORM:

By: _____
Office of the District Attorney

EXECUTED BY THE COUNTY THIS 19th DAY OF March, 2019.

ATTEST:

LINDA DOGGETT, CLERK

By: _____
Deputy Clerk

(County Seal)

BOARD OF COUNTY COMMISSIONERS, OF LEE COUNTY, FLORIDA

By: _____
Vice Chair

APPROVED AS TO FORM FOR THE RELIANCE OF LEE COUNTY ONLY:

By: _____
Office of the County Attorney

Attachments: Exhibit "A" – Legal Description of the Property
Exhibit "B" – Sketch Illustrating Location of the Property
Exhibit "C" – Excess Soil Storage Area
Exhibit "D" – District Improvement Area
Exhibit "E" – County Insurance Requirements

(022619/1035)

EXHIBIT "A"

LEGAL DESCRIPTION OF THE PROPERTY

All of Section 10, Township 44 South, Range 27 East, Lehigh Acres, Lee County, Florida, less road right of way.

[STRAP Nos.:10-44-27-00-00001.0000, 10-44-27-00-00001.0010, 10-44-27-00-00002.0000 and 10-44-27-00-00003.0000]

EXHIBIT "B"

SKETCH ILLUSTRATING LOCATION OF THE PROPERTY

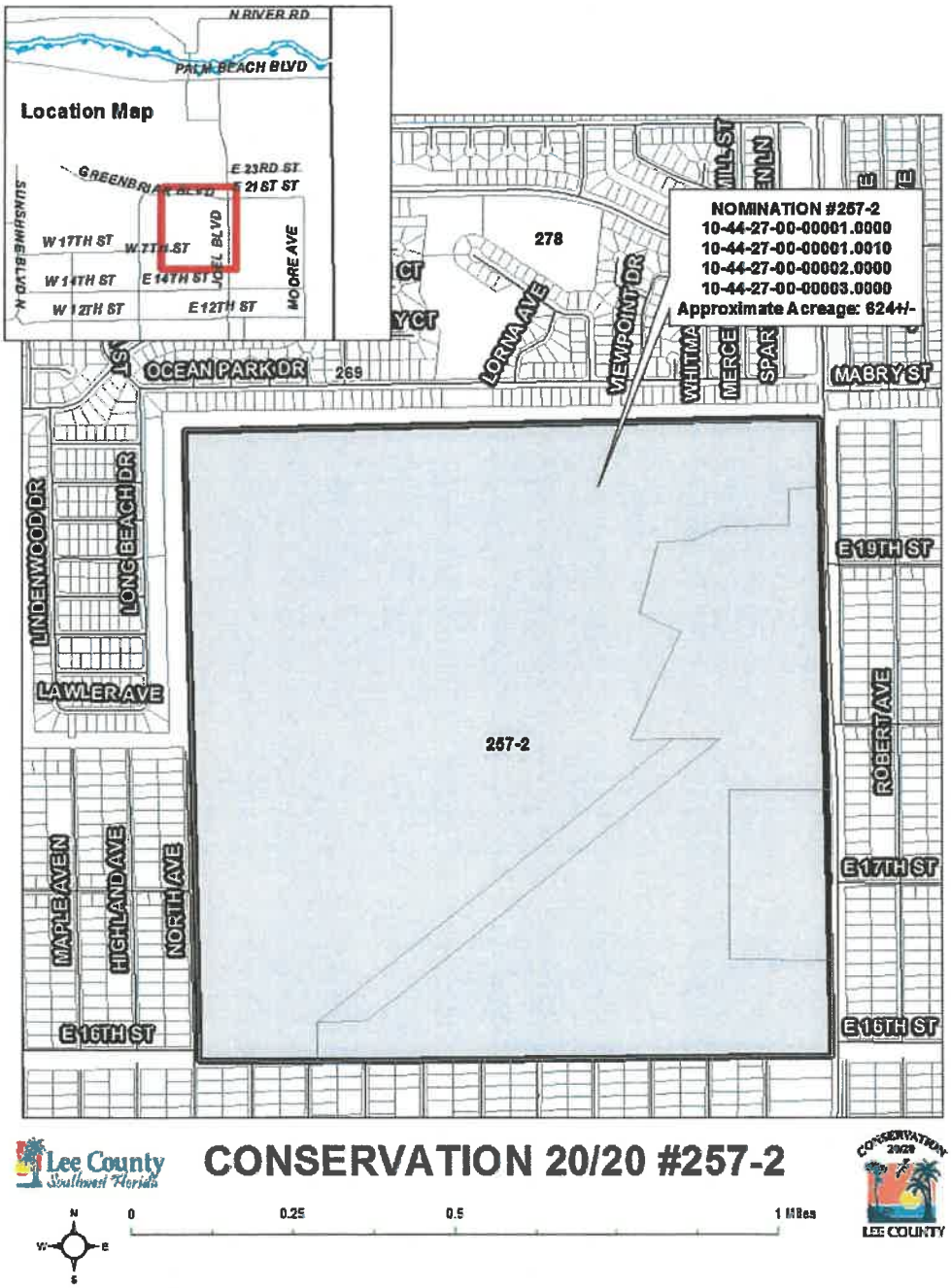


EXHIBIT "C"
EXCESS SOIL STORAGE AREA

EXHIBIT "D"
DISTRICT IMPROVEMENT AREA

EXHIBIT E

LEE COUNTY
SOUTHWEST FLORIDA

Standard Insurance Requirements

Minimum Insurance Requirements: ***Risk Management in no way represents that the insurance required is sufficient or adequate to protect the vendors' interest or liabilities. The following are the required minimums the vendor must maintain throughout the duration of this contract. The County reserves the right to request additional documentation regarding insurance provided***

a. **Commercial General Liability** - Coverage shall apply to premises and/or operations, products and completed operations, independent contractors, contractual liability exposures with minimum limits of:

   $500,000 per occurrence
   $1,000,000 general aggregate
   $500,000 products and completed operations
   $500,000 personal and advertising injury

b. **Business Auto Liability** - The following Automobile Liability will be required and coverage shall apply to all owned, hired and non-owned vehicles use with minimum limits of:

   $500,000 combined single limit (CSL)
   $300,000 bodily injury per person
   $500,000 bodily injury per accident
   $300,000 property damage per accident

c. **Workers' Compensation** - Statutory benefits as defined by FS 440 encompassing all operations contemplated by this contract or agreement to apply to all owners, officers, and employees regardless of the number of employees. Workers Compensation exemptions may be accepted with written proof of the State of Florida's approval of such exemption. Employers' liability will have minimum limits of:

   $100,000 per accident
   $100,000 disease limit
   $500,000 disease – policy limit

****The required minimum limit of liability shown in a and b. may be provided in the form of "Excess Insurance" or "Commercial Umbrella Policies." In which case, a "Following Form Endorsement" will be required on the "Excess Insurance Policy" or "Commercial Umbrella Policy."***

EXHIBIT E

LEE COUNTY
SOUTHWEST FLORIDA

Verification of Coverage:

1. Coverage shall be in place prior to the commencement of any work and throughout the duration of the contract. A certificate of insurance will be provided to the Risk Manager for review and approval. The certificate shall provide for the following:

   a. **The certificate holder shall read as follows:**

      Lee County Board of County Commissioners
      P.O. Box 398
      Fort Myers, Florida 33902

   b. **"*Lee County, a political subdivision and Charter County of the State of Florida, its agents, employees, and public officials*" will be named as an "Additional Insured" on the General Liability policy, including Products and Completed Operations coverage.**

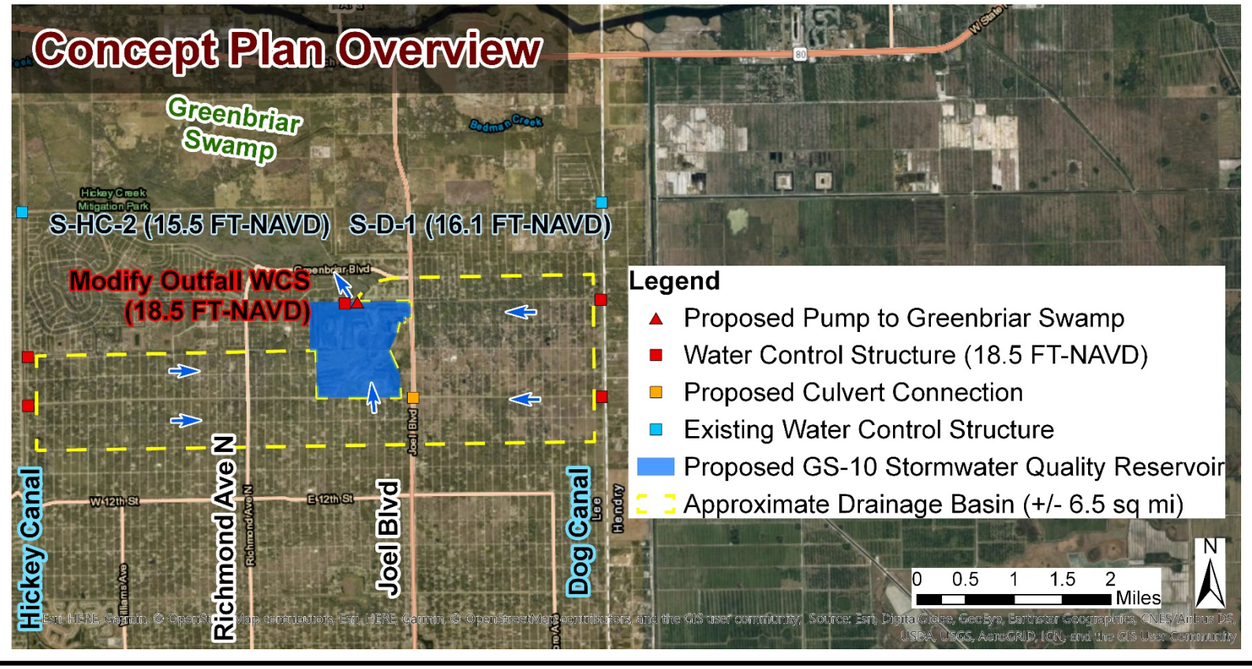
Special Requirements:

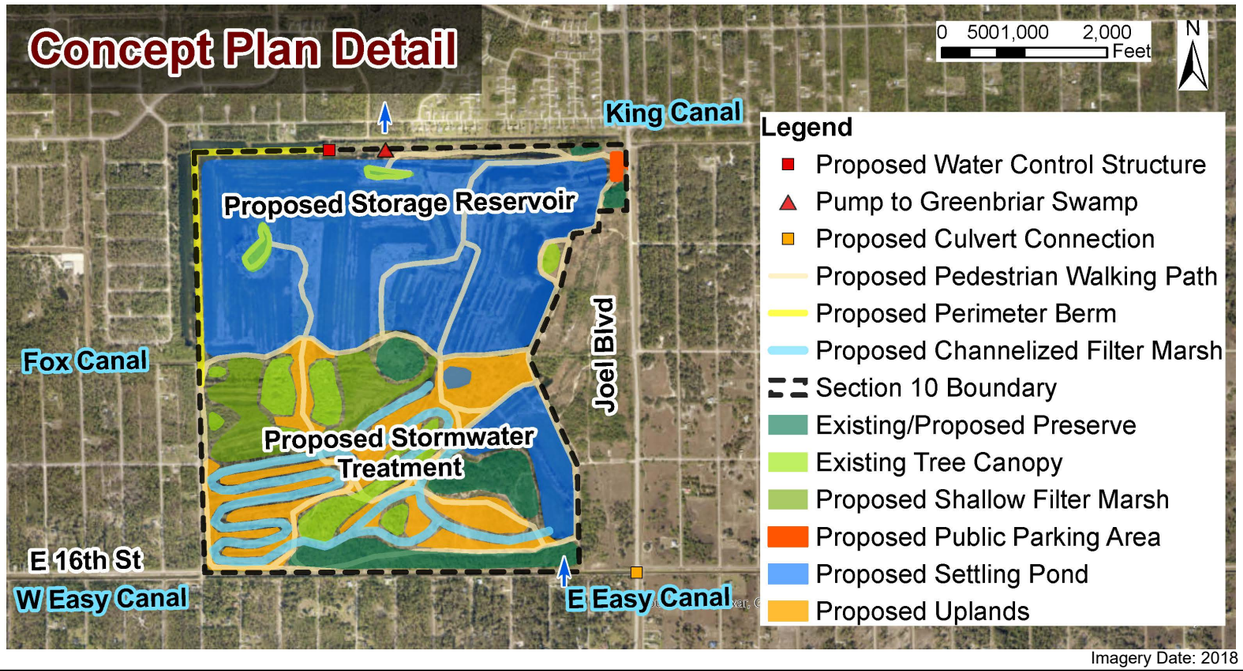
1. An appropriate "Indemnification" clause shall be made a provision of the contract.

2. It is the responsibility of the general contractor to insure that all subcontractors comply with all insurance requirements.

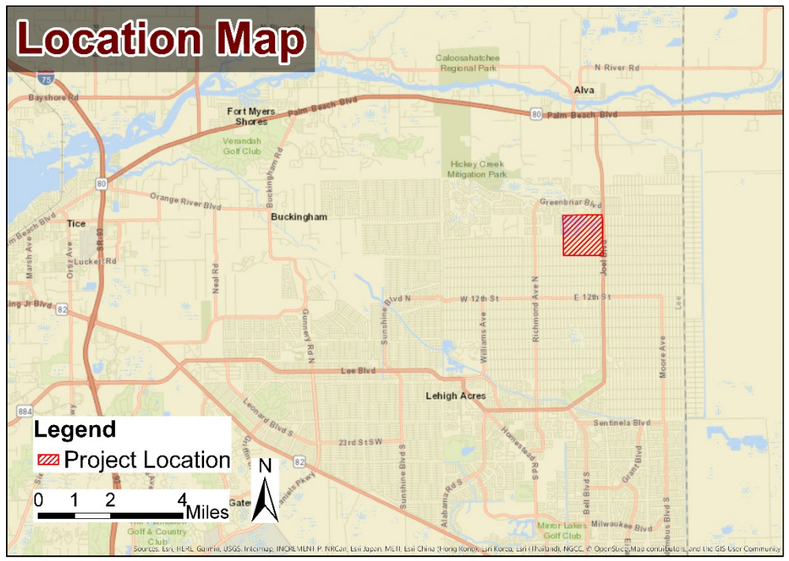
APPENDIX B

EXCERPT FROM SOUTHERN LEE COUNTY FLOOD MITIGATION PLAN





Imagery Date: 2018



Project Narrative

DESCRIPTION: This proposed conceptual project reconfigures an existing mine lake into a filter marsh for stormwater treatment and a storage reservoir for flood control. Stored water may be diverted into the Greenbriar Swamp for extending wetland hydro-periods. This conceptual project controls flow in a six square mile area with control weirs to control discharges and utilizes the mine lake as a stormwater detention basin.

PURPOSE: This project offers a storage reservoir to attenuate peak flows from large storm events, a water quality treatment improvement, and a water source for hydration of offsite wetlands.

CONSTRAINTS: This project is planned as a public lands project and may include private lands requiring governmental approvals and land acquisition. Weir structures to manage water levels and drainage structures would be required. Environmental impacts, if any, would necessitate mitigation.

January 2019

GS-10 Stormwater Quality Reservoir
East Lee County Area

AIM Engineering & Surveying, Inc.
2161 Fowler Street
Fort Myers, Florida 33901
(239) 332-4569
www.aimengr.com

EXHIBIT 1.1.3

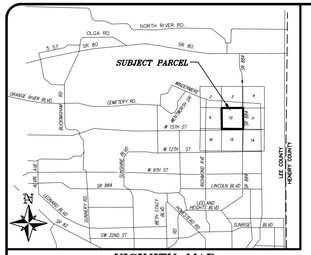
APPENDIX C

SURVEY PLAT

SURVEY PLAT

OF

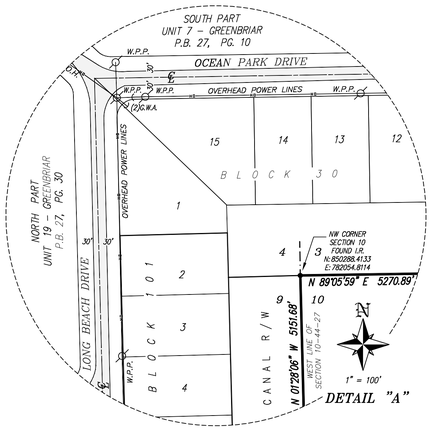
A TRACT OR PARCEL OF LAND LYING IN
SECTION 10, TOWNSHIP 44 SOUTH, RANGE 27 EAST
LEE COUNTY, FLORIDA

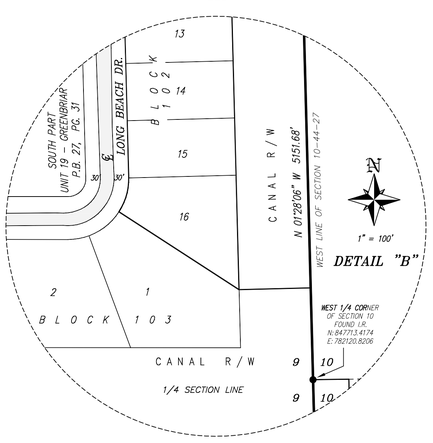


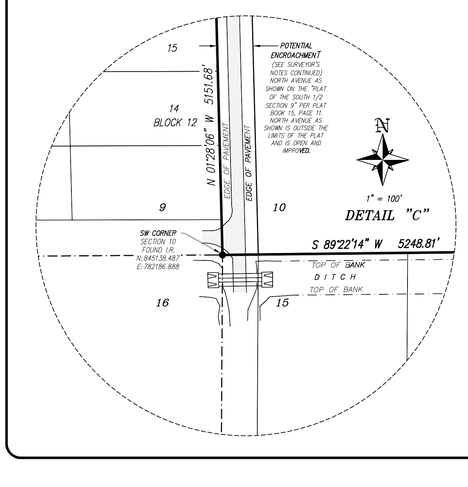
VICINITY MAP
NOT TO SCALE

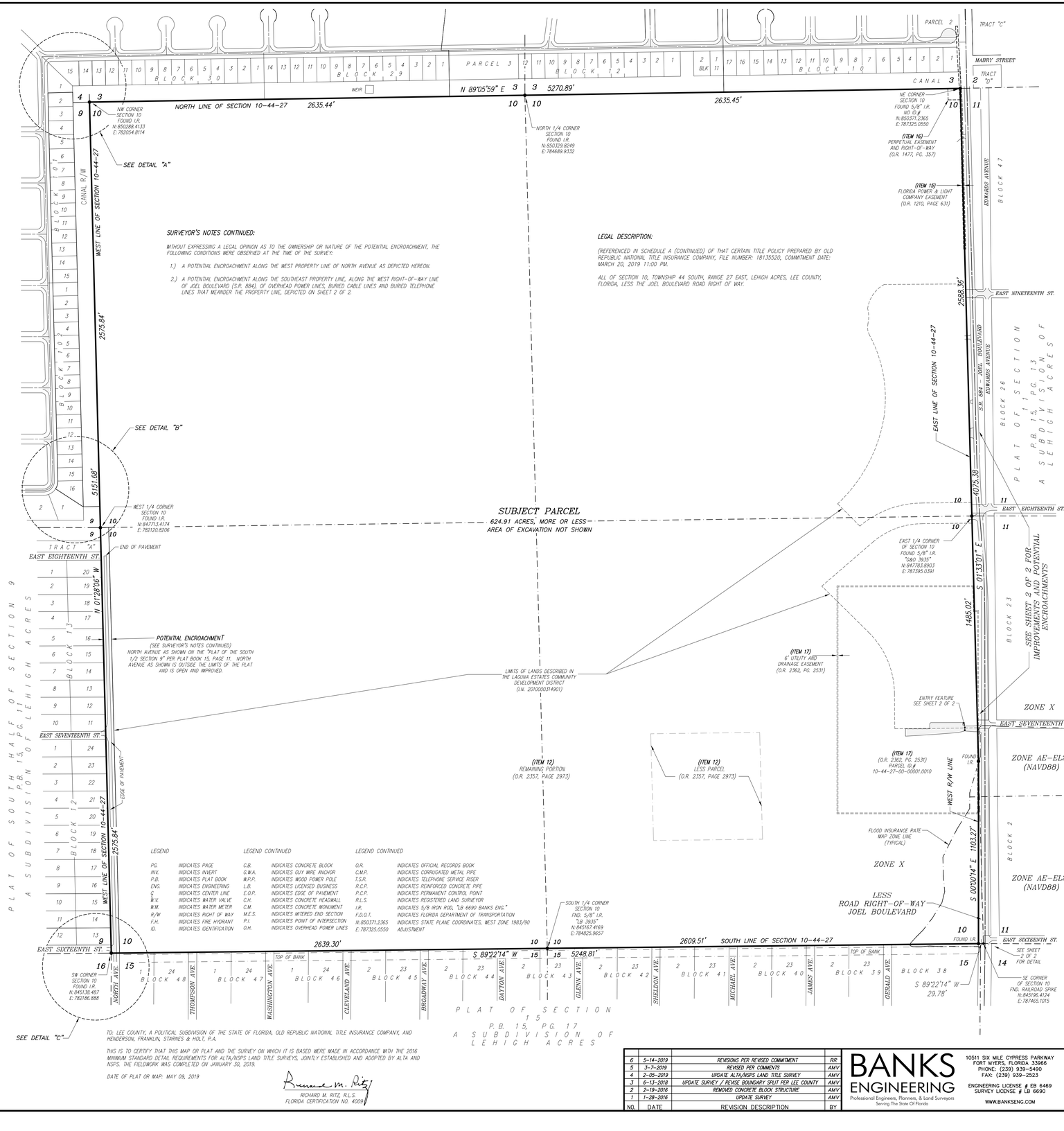
150' 0 150' 300'

GRAPHIC SCALE 1"=300'









SURVEYOR'S NOTES:

THIS PLAT PREPARED AS A BOUNDARY SURVEY IS NOT INTENDED TO DELINEATE THE JURISDICTION OR JURISDICTIONAL AREAS OF ANY FEDERAL, STATE, TO DELINEATE THE JURISDICTION OR JURISDICTIONAL AREAS OF ANY FEDERAL, STATE, REGIONAL OR LOCAL AGENCY, BOARD, COMMISSION OR OTHER ENTITY.

BOUNDARY BASED ON THE FOLLOWING:

(1) LEGAL DESCRIPTION REFERENCED IN SCHEDULE A (CONTINUED) OF THAT CERTAIN TITLE POLICY PREPARED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, FILE NUMBER: 18135520 PP, REV 1, REVISED DATE (COMMITMENT): FEBRUARY 08, 2019 11:28 AM.

(2) THE FOLLOWING SUBDIVISION PLATS RECORDED IN THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA:

A) GREENBRIAR, UNITS 1 THRU 58, A SUBDIVISION OF LEHIGH ACRES, RECORDED IN PLAT BOOK 27, PAGES 1 THRU 82.
B) LEHIGH ACRES, RECORDED IN PLAT BOOK 15, PAGES 1 THRU 101.

(3) FLORIDA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY MAPS (SECTION 12005-1508/2508 DATED 1-30-95)

(4) EXISTING MONUMENTATION.

THE FOLLOWING SURVEY RELATED MATTERS REFERENCED IN SCHEDULE B-II EXCEPTIONS OF THE AFOREMENTIONED POLICY ARE ADDRESSED AS FOLLOWS:

ITEM 10. SEWER AND WATER COVENANTS AND RESTRICTIONS RECORDED IN MISCELLANEOUS BOOK 58, PAGE 266, OFFICIAL RECORDS BOOK 10, PAGE 695, AS AMENDED BY INSTRUMENT RECORDED AT OFFICIAL RECORDS BOOK 41, PAGE 264. (ALL OF THE SUBJECT PARCEL LIES WITHIN LANDS DESCRIBED IN COVENANTS AND RESTRICTIONS)

ITEM 12. DEVELOPER'S AGREEMENT BETWEEN LEHIGH CORPORATION, CLIFFSIDE PROPERTIES, INC. AND LEHIGH UTILITIES, INC. AFFECTING WATER SYSTEMS, SEWAGE SYSTEMS AND LIFT STATIONS THROUGHOUT LEHIGH ACRES RECORDED AT OFFICIAL RECORDS BOOK 2357, PAGE 2973 AND AS MODIFIED BY INSTRUMENT RECORDED IN OFFICIAL RECORDS BOOK 2551, PAGE 833. (PORTION OF THE SUBJECT PARCEL LIES WITHIN LANDS DESCRIBED IN AGREEMENT - SHOWN HEREON)

ITEM 15. EASEMENT TO FLORIDA POWER & LIGHT COMPANY RECORDED IN OFFICIAL RECORDS BOOK 1210, PAGE 631. (SHOWN HEREON)

ITEM 16. EASEMENT TO EAST COUNTY WATER CONTROL DISTRICT RECORDED IN OFFICIAL RECORDS BOOK 1477, PAGE 357. (SHOWN HEREON)

ITEM 17. 6 FOOT UTILITY AND DRAINAGE EASEMENT RESERVED IN DEEDS RECORDED IN OFFICIAL RECORDS BOOK 2133, PAGE 3186, OFFICIAL RECORDS BOOK 2322, PAGE 1804, OFFICIAL RECORDS BOOK 2322, PAGE 1805, OFFICIAL RECORDS BOOK 2322, PAGE 1806, OFFICIAL RECORDS BOOK 2322, PAGE 1807, OFFICIAL RECORDS BOOK 2322, PAGE 1808, OFFICIAL RECORDS BOOK 2362, PAGE 2531, OFFICIAL RECORDS BOOK 2382, PAGE 4166, OFFICIAL RECORDS BOOK 2382, PAGE 4168, OFFICIAL RECORDS BOOK 2382, PAGE 4169, OFFICIAL RECORDS BOOK 2382, PAGE 4170, OFFICIAL RECORDS BOOK 2382, PAGE 4171, OFFICIAL RECORDS BOOK 2384, PAGE 542. (SHOWN HEREON)

ITEM 18. STIPULATION AND SETTLEMENT AGREEMENT CONTAINED IN FINAL JUDGMENT RECORDED IN OFFICIAL RECORDS BOOK 2042, PAGE 12, OFFICIAL RECORDS BOOK 2319, PAGE 1488, OFFICIAL RECORDS BOOK 2332, PAGE 148 AND RE-RECORDED IN OFFICIAL RECORDS BOOK 2385, PAGE 857. (SUBJECT PARCEL LIES WITHIN LANDS DESCRIBED IN STIPULATION - NOTHING SHOWN)

ITEM 21. RIPARIAN AND LITTORAL RIGHTS ARE NOT INSURED.

ITEM 22. THOSE PORTIONS OF THE PROPERTY HEREIN DESCRIBED BEING ARTIFICIALLY FILLED IN LAND IN WHAT WAS FORMERLY NAVIGABLE WATERS, ARE SUBJECT TO THE RIGHT OF THE UNITED STATES GOVERNMENT ARISING BY REASON OF THE UNITED STATES GOVERNMENT CONTROL OVER NAVIGABLE WATERS IN THE INTEREST OF NAVIGATION AND COMMERCE.

ITEM 23. THE RIGHTS, IF ANY, OF THE PUBLIC TO USE AS A PUBLIC BEACH OR RECREATION AREA ANY PART OF THE LAND LYING BETWEEN THE BODY OF WATER ABUTTING THE SUBJECT PROPERTY AND THE NATURAL LINE OF VEGETATION, BLUFF, EXTREME HIGH WATER LINE, OR OTHER APPARENT BOUNDARY LINES SEPARATING THE PUBLICLY USED AREA FROM THE UPLAND PRIVATE AREA.

ITEM24. ANY ADVERSE OWNERSHIP CLAIM BY THE STATE OF FLORIDA BY RIGHT OF SOVEREIGNTY TO ANY PORTION OF THE LANDS INSURED HEREUNDER, INCLUDING SUBMERGED, FILLED AND ARTIFICIALLY EXPOSED LANDS AND LANDS ACCRETED TO SUCH LANDS.

ITEM 25. THE INALIENABLE RIGHT OF THE PUBLIC TO USE NAVIGABLE WATERS.

ITEM 26. THE RIGHT OF THE STATE OF FLORIDA AND THE UNITED STATES OF AMERICA TO REGULATE THE USE OF THE RIGHT OF THE STATE OF FLORIDA AND THE UNITED STATES OF AMERICA TO REGULATE THE USE OF THE NAVIGABLE WATERS.

BEARINGS, DISTANCES AND COORDINATES, UNLESS OTHERWISE NOTED, ARE BASED ON THE "STATE PLANE COORDINATE SYSTEM" FLORIDA ZONE WEST NAD 83/2011 (CORS), WHEREIN THE NORTH LINE OF SECTION 10, TOWNSHIP 44 SOUTH, RANGE 27 EAST BEARS N 89°05'59" E. THE STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA BASED AT PAGE FIELD. THE STATION IS A GPS CONTINUOUSLY OPERATING REFERENCE STATION (CORS) DESIGNATION - FORT MYERS CORS ARP. HORIZONTAL VALUES WERE ESTABLISHED AND ADJUSTED BY THE NATIONAL GEODETIC SURVEY IN AUGUST 2011. THE HORIZONTAL VALUES WERE ESTABLISHED BY GPS OBSERVATIONS. THE SCALE FACTOR IS 0.999956219.

THE SUBJECT PARCEL AS SHOWN HEREON IS LOCATED IN A SPECIAL FLOOD HAZARD AREA ON THE NATIONAL FLOOD INSURANCE PROGRAM'S FLOOD INSURANCE RATE MAPS.

PER FLOOD INSURANCE RATE MAP 12071C0336F, EFFECTIVE AUGUST 28, 2008. THE PARCEL LIES IN FLOOD ZONE AE (EL 23), HAVING A BASE FLOOD ELEVATION OF 23 FEET (NAVD 88), FLOOD ZONE AE (EL 24) HAVING A BASE FLOOD ELEVATION OF 24 FEET (NAVD 88), AND ZONE X HAVING NO BASE FLOOD ELEVATION.

ABOVEGROUND AND UNDERGROUND IMPROVEMENTS WERE NOT LOCATED, UNLESS OTHERWISE NOTED OR SHOWN.

PARCEL SUBJECT TO EASEMENTS, RIGHT-OF-WAY, RESTRICTIONS AND RESERVATIONS OF RECORD.

DATE OF LAST FIELD WORK: 1-30-2019 (UPDATE BOUNDARY SURVEY).

SITE IMPROVEMENTS LOCATED ON 5-9-2005.

SURVEYOR'S NOTES CONTINUED:

WITHOUT EXPRESSING A LEGAL OPINION AS TO THE OWNERSHIP OR NATURE OF THE POTENTIAL ENCROACHMENT, THE FOLLOWING CONDITIONS WERE OBSERVED AT THE TIME OF THE SURVEY:

1.) A POTENTIAL ENCROACHMENT ALONG THE WEST PROPERTY LINE OF NORTH AVENUE AS DEPICTED HEREON.

2.) A POTENTIAL ENCROACHMENT ALONG THE SOUTHEAST PROPERTY LINE, ALONG THE WEST RIGHT-OF-WAY LINE OF JOEL BOULEVARD (S.R. 884), OF OVERHEAD POWER LINES, BURIED CABLE LINES AND BURIED TELEPHONE LINES THAT MEANDER THE PROPERTY LINE, DEPICTED ON SHEET 2 OF 2.

LEGAL DESCRIPTION:

(REFERENCED IN SCHEDULE A (CONTINUED) OF THAT CERTAIN TITLE POLICY PREPARED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, FILE NUMBER: 18135520, COMMITMENT DATE: MARCH 20, 2019 11:00 PM.

ALL OF SECTION 10, TOWNSHIP 44 SOUTH, RANGE 27 EAST, LEHIGH ACRES, LEE COUNTY, FLORIDA, LESS THE JOEL BOULEVARD ROAD RIGHT OF WAY.

LEGEND		LEGEND CONTINUED		LEGEND CONTINUED	
PG.	INDICATES PAGE	C.B.	INDICATES CONCRETE BLOCK	O.R.	INDICATES OFFICIAL RECORDS BOOK
INV.	INDICATES INVERT	G.W.A.	INDICATES GUY WIRE ANCHOR	C.M.P.	INDICATES CORRUGATED METAL PIPE
P.B.	INDICATES PLAT BOOK	W.P.P.	INDICATES WOOD POWER POLE	T.S.R.	INDICATES TELEPHONE SERVICE RISER
ENG.	INDICATES ENGINEERING	L.B.	INDICATES LICENSED BUSINESS	R.C.P.	INDICATES REINFORCED CONCRETE PIPE
℄	INDICATES CENTER LINE	E.O.P.	INDICATES EDGE OF PAVEMENT	P.C.P.	INDICATES PERMANENT CONTROL POINT
W.V.	INDICATES WATER VALVE	C.H.	INDICATES CONCRETE HEADWALL	R.L.S.	INDICATES REGISTERED LAND SURVEYOR
W.M.	INDICATES WATER METER	C.M.	INDICATES CONCRETE MONUMENT	I.R.	INDICATES 5/8 IRON ROD, "LB 6690 BANKS ENG."
R/W	INDICATES RIGHT OF WAY	M.E.S.	INDICATES MITERED END SECTION	F.D.O.T.	INDICATES FLORIDA DEPARTMENT OF TRANSPORTATION
F.H.	INDICATES FIRE HYDRANT	P.I.	INDICATES POINT OF INTERSECTION	N:850371.2365	INDICATES STATE PLANE COORDINATES, WEST ZONE 1983/90
ID.	INDICATES IDENTIFICATION	O.H.	INDICATES OVERHEAD POWER LINES	E:787325.0550	ADJUSTMENT

TO: LEE COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA, OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, AND HENDERSON, FRANKLIN, STARNES & HOLT, P.A.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS. THE FIELDWORK WAS COMPLETED ON JANUARY 30, 2019.

DATE OF PLAT OR MAP: MAY 09, 2019

RICHARD M. RITZ, R.L.S.
FLORIDA CERTIFICATION NO. 4009

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, THAT THIS PLAT OF THE HEREON DESCRIBED PROPERTY IS A TRUE REPRESENTATION OF A FIELD SURVEY MADE UNDER MY DIRECTION AND THAT IT IS IN STANDARDS OF PRACTICE AS SET FORTH IN CHAPTER 5J-17 FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027, FLORIDA STATUTES.

RICHARD M. RITZ, R.L.S.
FLORIDA CERTIFICATION NO. 4009
DATE SIGNED: 5-21-2019

- ADDITIONS OR DELETIONS TO SURVEY MAPS OR REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
- THIS CERTIFICATION IS ONLY FOR THE LANDS DESCRIBED HEREON.
- IT IS NOT A CERTIFICATION OF TITLE, ZONING, SETBACKS, OR FREEDOM OF ENCUMBRANCES.
- THIS SURVEY WAS PREPARED WITH THE BENEFIT OF THAT CERTAIN TITLE POLICY PREPARED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, FILE NUMBER: 18135520, COMMITMENT DATE: MARCH 20, 2019 AT 11:00 PM, AND THAT ALL ITEMS WITHIN THAT COMMITMENT THAT CAN BE DELINEATED ON THE SURVEY ARE SHOWN OR ADDRESSED HEREON.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF ABSTRACT OF TITLE AND ALL MATTERS OF TITLE SHOULD BE REFERRED TO AN ATTORNEY AT LAW.

NO.	DATE	REVISION DESCRIPTION	BY
6	5-14-2019	REVISIONS PER REVISED COMMITMENT	RR
5	3-7-2019	REVISED PER COMMENTS	AMV
4	2-05-2019	UPDATE ALTA/NSPS LAND TITLE SURVEY	AMV
3	6-13-2018	UPDATE SURVEY / REVISE BOUNDARY SPLIT PER LEE COUNTY	AMV
2	2-19-2016	REMOVED CONCRETE BLOCK STRUCTURE	AMV
1	1-28-2016	UPDATE SURVEY	AMV

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FAX: (239) 939-2523

ENGINEERING LICENSE # EB 6469
SURVEY LICENSE # LB 6690

WWW.BANKSENG.COM

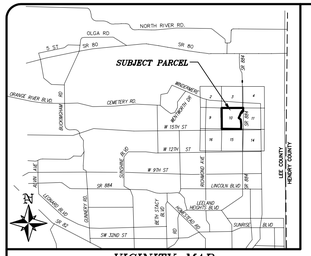
ALTA/NSPS LAND TITLE SURVEY
SECTION 10, TWNSHP. 44 SOUTH, RNG. 27 EAST
LEE COUNTY, FLORIDA

DATE	PROJECT	DRAWING	DRAWN	CHECKED	SCALE	SHEET	OF	FILE NO. (S-T-R)
11-22-04	1966SG	UPDATE 2019	AJR	JDW	1"=300'	1	2	10-44-27

S:\Jobs\19xxx\1966\Survey\dgn\PLAT 1-2019-1966_SR_UPDATE 1-2019 SECTION 10.dwg, 5/21/2019 9:29:19 AM, RRitz

SURVEY PLAT

OF
A TRACT OR PARCEL OF LAND LYING IN
SECTION 10, TOWNSHIP 44 SOUTH, RANGE 27 EAST
LEE COUNTY, FLORIDA

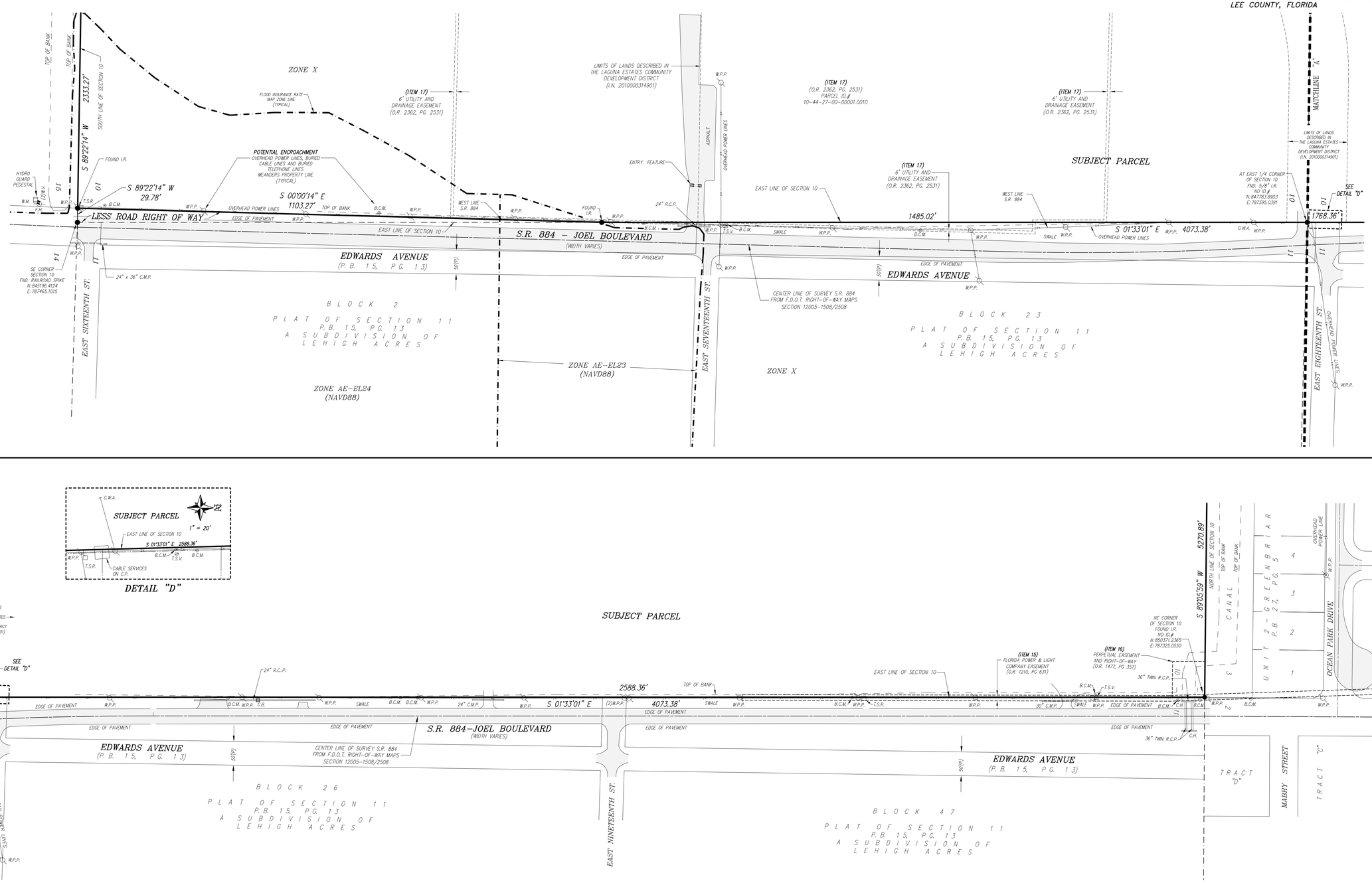


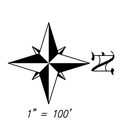
VICINITY MAP
NOT TO SCALE

1" = 100'

100 0 50 100

GRAPHIC SCALE 1"=100'





1" = 100'

100 0 50 100

GRAPHIC SCALE 1"=100'

DETAIL "D"

LEGEND		LEGEND CONTINUED		LEGEND CONTINUED		LEGEND CONTINUED	
PG.	INDICATES PAGE	C.B.	INDICATES CONCRETE BLOCK	O.R.	INDICATES OFFICIAL RECORDS BOOK		
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ENG.	INDICATES ENGINEERING	L.B.	INDICATES LICENSED BUSINESS	R.C.P.	INDICATES REINFORCED CONCRETE PIPE		
℄	INDICATES CENTER LINE	E.O.P.	INDICATES EDGE OF PAVEMENT	P.C.P.	INDICATES PERMANENT CONTROL POINT		
W.V.	INDICATES WATER VALVE	C.H.	INDICATES CONCRETE HEADWALL	R.L.S.	INDICATES REGISTERED LAND SURVEYOR		
W.M.	INDICATES WATER METER	C.M.	INDICATES CONCRETE MONUMENT	I.R.	INDICATES 5/8 IRON ROD, "LB 6690 BANKS ENG."		
R/W	INDICATES RIGHT OF WAY	M.E.S.	INDICATES MITERED END SECTION	F.D.O.T.	INDICATES FLORIDA DEPARTMENT OF TRANSPORTATION	-OH-	INDICATES OVERHEAD LINES
F.H.	INDICATES FIRE HYDRANT	P.I.	INDICATES POINT OF INTERSECTION	N:850371.2365	INDICATES STATE PLANE COORDINATES, WEST ZONE 1983/90	B.C.M.	INDICATES BURIED CABLE MARKER
ID.	INDICATES IDENTIFICATION	O.H.	INDICATES OVERHEAD POWER LINES	E:787325.0550	ADJUSTMENT	T.S.V.	INDICATES TELEPHONE SERVICE VAULT

NO.	DATE	REVISION DESCRIPTION	BY
6	5-9-2019	REVISED PER DRAFT TITLE POLICY	AMV
5	3-7-2019	REVISED PER COMMENTS	AMV
4	2-05-2019	UPDATE ALTA/NSPS LAND TITLE SURVEY	AMV
3	6-13-2018	UPDATE SURVEY / REVISE BOUNDARY SPLIT PER LEE COUNTY	AMV
2	2-19-2016	REMOVED CONCRETE BLOCK STRUCTURE	AMV
1	1-28-2016	UPDATE SURVEY	AMV

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ALTA/NSPS LAND TITLE SURVEY
SECTION 10, TWNSHP. 44 SOUTH, RNG. 27 EAST
LEE COUNTY, FLORIDA

DATE	PROJECT	DRAWING	DRAWN	CHECKED	SCALE	SHEET	OF	FILE NO. (S-T-R)
11-22-04	1966SG	UPDATE 2019	AJR	JDW	1"=100'	2	2	10-44-27

S:\Jobs\19xx\1966\Survey\dgn\UPDATE 1-2019\1966_SR_UPDATE 1-2019 SECTION 10.dwg, 5/21/2019 9:39:18 AM, RRiz

APPENDIX D

SIX FOOT UTILITY EASEMENT

Prepared By
Sandra Allen
1990 Red Bug Alley
Middleburg, FL
32068

3340764

Form A298 Quitclaim Deed

QUITCLAIM DEED

600
6.70

THIS QUITCLAIM DEED, Executed this 23rd day of November, 1992

by first party, SANDRA ALLEN
1990 Red Bug Alley
whose post office address is Middleburg, FL 32068

to second party, OCEAN HYDROPONICS, INC.
1699 Joel Boulevard
whose post office address is Lehigh Acres, FL 33936

OR 2362 PG 2531

WITNESSETH, That the said first party, for good consideration and for the sum of Ten dollars $10.00 - - - - - paid by the said second party, the receipt whereof is hereby acknowledged, does hereby remise, release and quitclaim unto the said second party forever, all the right, title, interest and claim which the said first party has in and to the following described parcel of land, and improvements and appurtenances thereto in the County of LEE, State of FLORIDA to wit:

Hydroponic Farm
located in Section 10, Township 44 S, Range 27 E
Commencing at the Southeast corner of Section 10, Township 44, South, Range 27 East, Lee County, Florida; thence South 89°-31'-32" West, along the South Section line of said Section 10, a distance of 29.77 feet, to the West right-of-way line of Joel Boulevard; thence North 00°-9'-31" East, along the West right-of-way line of Joel Boulevard, a distance of 784.72 feet, to the point of beginning of a tract of land herein described; thence North 89°-50'-29" West, a distance of 856.50 feet; thence North 00°-09'-31" East, a distance of 1380.80 feet; thence South 89°-50'-29" East, a distance of 828.59 feet, to the West right-of-way line of Joel Boulevard; thence South 01°-22'-02" East, along the right-of way line of Joel Boulevard, a distance of 150.03 feet, to a jog in the right-of way line of Joel Boulevard; thence North 89°-37'-58" East, a distance of 23.92 feet; thence South 00°-09'-31" West, along the West right-of-way line of Joel Boulevard, a distance of 1231.46 feet to the point of beginning. Said tract of land containing 27.06 acres, more or less. Creating and reserving a 6 foot utility and drainage easement on the perimeter of the tract.

IN WITNESS WHEREOF, The said first party has signed and sealed these presents the day and year first above written.

Signed, sealed and delivered in presence of:

Sandra Allen

State of Florida

23rd of November, 1992

County of Clay SS.

Then personally appeared Sandra Allen, Personally Known to me known to be the person described in and who executed the foregoing instrument and acknowledged before me that she executed the same.

Jane W. Hartzog

Notary Public
My Commission Expires:

NOTARY PUBLIC, STATE OF FLORIDA.
MY COMMISSION EXPIRES: Oct. 18, 1995.
BONDED THRU NOTARY PUBLIC UNDERWRITERS.

e. E-Z Legal Forms

RECORD VERIFIED - CHARLIE GREEN, CLERK
BY: J. TURNER, D.C.

Documentary Tax Pd. $ .70
Intangible Tax Pd $
CHARLIE GREEN, CLERK, LEE COUNTY
By Deputy Clerk

93FEB 18 PM 3:53
CHARLIE GREEN LEE CTY FL

0 53926 20040 5

APPENDIX E

INVASIVE PLANT CONTROL PRESCRIPTION FORM

Invasive Plant Control Prescription Form

TO BE FILLED OUT BY LEE COUNTY STAFF

Site Name/ Management Unit:		Date:	
Acres to Treat:		Prepared By:	

GENERAL SITE CONDITIONS								
Plant Community Type(s):								
General Soil	Sand		Muck		Clay		Other	
Any special concerns (public use, time of year, hydrology, cattle, rare plants or wildlife, etc.):								
Weather conditions: Herbicide application **must** be conducted under label specifications according to temperature and rainfall								

TO BE FILLED OUT BY CONTRACTOR

Date:		Name:		Company	
Address					
Phone		Email		Fax	

Treatment methods

Control methods: ex: foliar spray, basal spray, cut stump etc.	Herbicide	Application rate (%)	Target plant species

County Staff will attach aerial and scope of work to this form