PRE-FINAL

LOCATION HYDRAULICS REPORT

CENTRAL POLK PARKWAY

PD&E STUDY

FROM US 17 (SR 35) TO SR 60
ROADWAY CONSTRUCTION PROJECT
FPID: 440897-4-22-01

POLK COUNTY

The Location Hydraulic Report includes a summary of data collection efforts and design analysis for the floodplain impacts associated with the Central Polk Parkway from US 17 to SR 60. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state and local regulatory agencies as well as professional judgment and experience.

FLORIDA DEPARTMENT OF TRANSPORTATION
FLORIDA'S TURNPIKE ENTERPRISE

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JANUARY 2021

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed new toll road extension of Central Polk Parkway Segment 2 between US 17 and SR 60 in Polk County and will traverse mined land that will be bridged due to unsuitable soils, pasture and residential areas. The purpose of this LHR study is to evaluate engineering and environmental data and document information that will aid FDOT and Polk County in determining the type, preliminary design and location of proposed improvements. The study is being conducted to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws.

Floodplain impacts due to the proposed roadway, trail, and stormwater management facilities were analyzed and quantified in a separate Pond Siting Report. Floodplain encroachment was determined to be located in Areas 1 through 4 and can be seen in **Table 1**. Six (6) cross drains and one bridge were analyzed in proposed conditions to ensure no rise in headwater elevation. It was determined that the floodplain encroachment is classified as "minimal" as stated in Section 4.4.

In conclusion, the following statement summarizes the results of our findings:
"The proposed cross drains and floodplain compensation areas will perform hydraulically in a manner equal to or greater than the existing condition, and backwater surface elevations are not expected to increase. As a result, there will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or in emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant."

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) Florida's Turnpike Enterprise (FTE) is performing a Project Development and Environment (PD&E) study to evaluate a new alignment of approximately 2.2 miles of a new alignment in Polk County. This Location Hydraulic Report discusses base floodplain encroachments resulting from the roadway

improvements evaluated in the Project Development and Environment (PD&E) study. The project limits are shown on **Exhibit 1**.

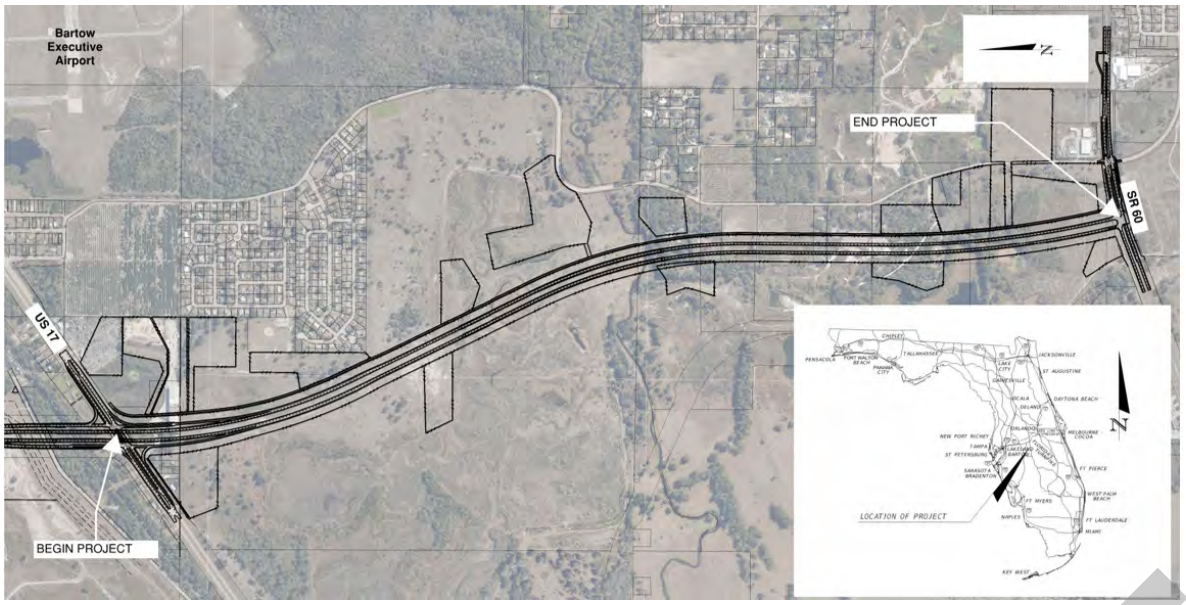

Exhibit 1: Project Location Map

The purpose of this project is to evaluate a new multi-lane limited access facility between US 17 (State Road [SR] 35) and SR 60. The project will improve regional, north/south connectivity, enhance freight mobility and economic competitiveness, improve emergency evacuation times and accommodate future population growth.

According to the University of Florida's Bureau of Economic and Business Research (BEBR), the population of Polk County is estimated to grow from 661,645 (2017) to 906,100 by 2040 (a 27% increase). The Central Polk Parkway (CPP) from US 17 (SR 35) to SR 60 is anticipated to accommodate the increased travel demand expected from the projected freight, residential and employment growth.

The addition of a new alternative north-south facility to the regional transportation network will relieve congestion from parallel facilities, including truck traffic, in central Polk County, particularly US 98 (SR 700), SR 540, US 17 (SR 35) and SR 60. The CPP will provide additional connections to the local roadway network and Strategic Intermodal

System (SIS) facilities such as Polk Parkway (SR 570), US 98 (SR 700) and SR 60. The Polk Parkway is a beltway route that provides connections from Interstate 4 (I-4) to Polk County cities such as Winter Haven, Bartow, Auburndale, and the south side of Lakeland. SR 60 provides coast to coast connections including freight movement to and from the Florida's Gateway Intermodal Logistics Center. US 98 (SR 700) provides north-south connections throughout Polk County

2.0 PROJECT DESCRIPTION

The purpose of this Location Hydraulic Report is to address base floodplain encroachments resulting from the roadway improvements evaluated in the PD&E Study. In accordance with Executive Order 11988 "Floodplain Management", USDOT Order 5650.2, "Floodplain Management Protection", and Federal-Aid Policy Guide 23 CFR 650A, floodplain must be protected. The intent of these regulations is to avoid or minimize highway encroachments within the 100-year (base) floodplains and to avoid supporting land use development incompatible with floodplain values.

The Central Polk Parkway extension begins at US 17 approximately a half mile west of 91 Mine Road and terminating at SR 60 in the vicinity of Connersville Road. The proposed project would be a tolled four-lane divided roadway, as depicted in **Exhibit 1 and Appendix B**.

This project includes a new alignment for the proposed four-lane divided limited access facility. The proposed typical section includes 12' wide travel lanes with 8' inside and 12' outside shoulders and a median width of 74 feet. The proposed right-of-way varies from 300 to 482 feet (**Appendix B, Figure 2**). Stormwater will be conveyed to ponds that are designed for the future six-lane configuration.

The project is located in Sections 22, 27, and 34 of Township 29 South, Range 25 East and Sections 3 of Township 30 South and Range 25 East in Polk County (**Appendix B, Figure 3**). Land use in the area generally includes large sections of pasture and residential housing.

There is a large section of land historically used for phosphate mining located west of CPP. All referenced elevations correspond to the NAVD 1988 datum.

3.0 EXISTING CONDITIONS

The project is a toll road extension between two existing roadways, US 17 and SR 60, and will traverse mined land that will be bridges due to unsuitable soils, pasture and residential areas. The existing drainage patterns were determined using LIDAR and the Peace Creek Canal Watershed model. The off-site drainage basins are shown in the Drainage Maps (**Appendix E**). Drainage basins are considered "open" with basins east of CPP draining mainly to the Peace Creek Canal flowing to the west.

3.1 SOIL CHARACTERISTICS

The *Soil Survey of Polk County* classifies the majority of soils within the project area as Neilhurst sand (#12), Hydraquents clayey (#8), Arents (#68) and Haplaquents clayey (#57). Neilhurst sand is described as an excessively drained soil with a seasonal high water table (SHWT) depth of more than 6 foot below the existing ground and hydrologic soil group (HSG) Type A. Hydraquents clayey is a very poorly drained soil with a seasonal high water table (SHWT) at existing ground and hydrologic soil group (HSG) Type D. Arents are described as a moderately well drained soils with a seasonal high water table (SHWT) depth of 2 to 4 foot below the existing ground. Haplaquents clayey is described as a very poorly drained soil with a seasonal high water table (SHWT) at existing ground and HSG Type D. Refer to **Appendix B, Figure 4** for a map of the soils along the corridor.

3.2 LAND USE

Land use in the area generally includes large sections of pasture and residential housing. There is a large section of land historically used for phosphate mining located east and west of CPP.

3.3 CROSS CULVERTS

There is an existing triple 30" crossdrain under SR 60. Refer to Section 4.1 for the proposed crossdrains.

3.4 BRIDGE STRUCTURES

The are no existing bridge structures within the project limits.

3.5 FLOODPLAINS & FLOODWAYS

The project site is located on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Numbers 12105C0520G and 12105C0510G (dated December 22, 2016), in Polk County. The alignment impacts many FEMA floodplains which are designated as Zone A and Zone AE. Zone AE are areas of the 100-year floodplain where the base flood elevation has been determined. Zone A are areas of the 100-year floodplain where the base flood elevation has not been determined (**Appendix B, Figure 5**). The project also crosses the FEMA floodway at Peace Creek, which will be bridged. In areas of Zone A, where the 100 year elevation is unknown, the elevation will be determined by comparing the FEMA floodplain shapes to the existing ground contours within those shapes. For the floodplain elevations and the areas of impact, see **Table 1**. The project has no known flooding issues.

The CPP project is included within the SWFWMD ICPR model for Peace Creek and Peace River. The 100-year flood elevations from these model are different than those of the FEMA maps, and may be preferred by the SWMFWD as the best available information when establishing floodplain impacts. This report uses the FEMA floodplain elevations to determine the floodplain impact and compensation requirements as a conservative measure with coordination with FTE and the SWFWMD. These elevations are generally higher than those from the SWFWMD model and may require larger FPC sites. The Southwest Florida Water Management District (SWFWMD) has modeled the Peace Creek Watershed to revise the 100-year floodplain elevations in Polk County and to update the Federal

Emergency Management Agency (FEMA) Federal Insurance Rate Maps (FIRM). The Peace Creek Watershed model was approved by the SWFWMD Governing Board on March 29, 2013. It is the best available information and will be used to determine the discharge and basin areas coming to the project. The remaining area of the project is located within the Upper Peace Homeland Watershed where there is a SWFWMD watershed model. The floodplain elevations were determined by matching the FEMA shape to the LiDAR contours.

Table 1: Floodplain Elevations

Area	Begin Station	End Station	Encroachment Volume (ac-ft)	FEMA 100 Yr Elev. (NAVD 88)
1	1330+00	1332+00	6.15	108.00
2	1340+00	1351+00	4.78	108.00
3	1429+00	1431+00	11.83	106.00
4	1442+00	1446+00	37.84	104.00

4.0 PROPOSED CONDITIONS

The typical roadway sections consist of 2-12' travel lanes, a median ditch, two side ditches, berm and shared use path. Stormwater management for water quality (treatment) and water quantity (attenuation) will be provided in ponds. The design of the drainage and stormwater facilities will comply with the standards set forth by the FDOT Drainage Manual, and the SWFWMD ERP Manual. All of the proposed pond site alternatives are sized for the contributing basins with treatment and attenuation for the proposed six lane roadway. For more information regarding the proposed drainage design, refer to the Central Polk Parkway from US 17 to SR 60 Pond Siting Report (KCA).

4.1 CROSS CULVERTS

The off-site drainage basins are shown in the drainage maps in **Appendix E**. Offsite runoff will be conveyed across the right-of-way to prevent the potential for flooding within the right-of-way, adjacent offsite properties, or upstream of the project. Crossdrains are designed to preserve the historic offsite drainage characteristics upstream and downstream of the roadway. There is an existing triple 30" crossdrain and five (5) proposed cross drains and one bridge in proposed conditions. All crossdrains are placed to meet or exceed minimum clear zone criteria. **Table 2** shows the proposed crossdrain sizes. The proposed crossdrains are sized using either the calculated discharge rate or the discharge rate from Peace Creek and Peace River models where available. The existing triple 30″ crossdrain along SR 60 will be extended. Existing topography and cross-sections were analyzed to determine the direction of offsite runoff, elevations at the right-of-way, and the flow rates of runoff approaching the right-of-way.

Table 2: Proposed Crossdrain Summary

No.	Station	Basin Area (ac)	Size (inches)	Outfall
CD-1	1332+90 CPP	6.8	36" Pipe	E of CPP
CD-2	1405+15 CPP	5.0	30" Pipe	W of CPP
CD-3	1429+90 CPP	9.1	36" Pipe	E of CPP
CD-4	1435+40 CPP	18.7	36" Pipe	Pond W of CPP
CD-5	1441+85 CPP	12.3	42" Pipe	Pond W of CPP
CD-6	1447+40 SR 60	25.5	Triple 30"	S of SR 60

4.2 BRIDGE STRUCTURES

A 2500' long bridge is proposed at the Peace Creek crossing of the alignment. In addition to spanning the 1200' floodway, this bridge is spanning over another 1300' of mined area with unsuitable soil. Therefore, the bridge is spanning over the entire

floodplain at this location and will have no impact on the floodplain stages or volumes.

Based on the information from the FEMA maps and Flood Insurance Study (FIS) for Polk County, Peace Creek has a 2400' wide floodplain along with a 1200' wide regulated floodway at the location crossing the CPP alignment. The floodway width downstream of the bridge crossing at FEMA section E is 968' and widens to approximately 1200' at the bridge crossing. The FIS report is included in **Appendix H**. **Table 3** shows the 100-year flow and stage from FEMA FIS (**Appendix H-2 to H-3**) at the Peace Creek bridge crossing.

Table 3: 100-Year Flow and Stage from FEMA FIS at Peace Creek bridge crossing

100-Year Flow/Stage	From FEMA FIS
Flow rate (cfs)	3073
Stage (ft) NAVD 88	102.0

4.3 FLOODPLAINS AND FLOODWAY

Impacts to the 100-year floodplain will occur in three ways:

1. Transverse impacts resulting from the crossdrain extensions and new crossdrains.
2. Longitudinal impacts resulting from the road construction in areas of 100-year floodplain.
3. Impacts due to stormwater management facilities and floodplain compensation ponds located adjacent to wetland and storage areas.

Floodplain compensation sites are required for the floodplain impacts located along the project corridor. Aerial photographs, LIDAR contours, and information from

the Polk County Property Appraiser were used to locate these potential sites. Floodplain encroachment was calculated using the 100-year elevations from the FEMA maps. GIS data provided with the model was converted into CADD files and used to determine impact locations. Compensation for floodplain impacts was provided in floodplain compensation ponds and within the proposed right of way to show no adverse floodplain stage increases. Refer to **Appendix D** for floodplain encroachment/compensation calculations. Floodplain elevations are detailed in **Table 1**. Refer to the Pond Siting Report for the floodplain impacts and the location of the floodplain compensation ponds.

4.4 PROJECT CLASSIFICATION

The floodplain is located in an area with encroachments classified as "minimal." Minimal encroachments on a floodplain occur when there is floodplain involvement, but the impacts on human life, transportation facilities, and natural and beneficial floodplain values are not significant and can be resolved with minimal efforts. Normally, these minimal efforts to address the impacts will consist of applying the Department's drainage design standards and following the Water Management District's procedures to achieve results that will not increase or significantly change the flood elevations and/or limits.

4.5 RISK EVALUATION

There is no change in flood "Risk" associated with this project. The floodplain is located in a non-urbanized, low density area with encroachments classified as "minimal".

4.6 COORDINATION WITH LOCAL AGENCIES

A City of Winter Haven project briefing meeting was held on February 7, 2020 and on June 11, 2019 to discuss watershed wide stormwater needs that could provide mutual benefit and explore alternative permitting approaches. The City of Winter Haven is planning to provide large regional water storage and treatment

areas/ponds within Peace Creek Drainage Canal floodplain to achieve stormwater treatment, flood control, and wetland restoration. Pre-application meetings were held with staff from the SWFWMD on September 26, 2012, March 5, 2014 and April 16, 2020 to discuss the permitting requirements of the project. These meeting minutes are provided in **Appendix A**.

4.7 PD&E MANUAL REQUIREMENTS WITH MINIMAL ENCROACHMENT

The following items must be addressed per Part 2, Chapter 13.2.2.5 FDOT Project Development & Environment Manual, to document the anticipated impacts and risks associated with encroachment classified as "minimal";

1. The history of flooding of the existing facilities and/or measures to minimize any impacts due to the proposed improvements;

   No existing facility, project is a new roadway alignment.

2. Determination of whether the encroachment is longitudinal or transverse, and if it is a longitudinal encroachment an evaluation and discussion of practicable avoidance alternatives;

   There will be both longitudinal and transverse impacts to the floodplain due to the proposed alignment. Maximum allowable roadway embankment slopes will be used to minimize longitudinal impacts.

   The proposed roadway alignment was meandered as much as possible to minimize floodplain impacts; however, some impacts were unavoidable.

3. The practicability of avoidance alternatives and/or measures to minimize impacts;

   The project design will make every effort to minimize the floodplain impacts resulting from the required roadway fill. In the area of the Peace Creek crossing, a bridge will be constructed to reduce impact to the

floodway. Floodplain impacts will be compensated by constructing floodplain compensation ponds.

4. Impact of the proposed improvements on emergency services and evacuation;

   The proposed crossdrains and floodplain compensation sites will perform hydraulically in a manner equal to or greater than the existing condition, and backwater surface elevations are not expected to increase. As a result, there will be no significant change in flood risk. There will not be a significant change in the potential for interruption or termination of emergency services or in emergency evacuation routes.

5. Impacts of the proposed improvement on the base flood, likelihood of flood risk, overtopping, location of overtopping, backwater, etc.;

   The proposed crossdrains and floodplain compensation sites will perform hydraulically in a manner equal to or greater than the existing condition, and backwater surface elevations are not expected to increase. As a result, there will be no significant change in flood risk or overtopping.

6. Determination of the impact of the proposed improvements on regulatory floodways, if any, and documentation of coordination with FEMA and local agencies to determine the project's consistency with the regulatory floodway.

   The Peace Creek crossing is considered a regulatory floodway. A FEMA no-rise certification will be required during the design phase of the project.

7. The impacts on natural and beneficial floodplain values, and measures to restore and preserve these values (this information may also be addressed as part of the wetland impact evaluation and recommendations);

   See Wetland and Protected Species Evaluation – Appendix G.

8. Consistency of the proposed improvements with the local floodplain development plan or the land use elements in the Comprehensive Plan, and the potential of encouraging development in the base floodplain;

The project will remain consistent with local floodplain development plans. The project will not support base floodplain development that is incompatible with existing floodplain management programs.

9. A map showing project, location and impacted floodplains. Copies of applicable FIRM maps should be included in the appendix;

   Copies of applicable FIRM maps are included in Appendix B.

10. Results of any and all project risk assessments performed;

    The proposed crossdrains and floodplain compensation areas will perform hydraulically in a manner equal to or greater than the existing condition, and backwater surface elevations are not expected to increase. As a result, there will be no significant change in flood risk. See Appendix C for crossdrain calculations.

5.0 RECOMMENDATIONS AND CONCLUSIONS

The construction of CPP from US 17 to SR 60 will result in an insignificant change in the capacity to carry floodwater. The proposed cross drains and floodplain compensation areas will perform hydraulically in a manner equal to or greater than the existing condition, and backwater surface elevations are not expected to increase. This change will cause minimal increases in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values or any significant change in flood risks or damage. As a result, there will be no significant change in flood risk, and there will not be a significant change in the potential for interruption or termination of emergency service or in emergency evacuation routes. Therefore, it has been determined that this encroachment is not significant.

6.0 REFERENCES

The following sources were used to locate and size the floodplain compensation sites:

- FDOT Drainage Manual Standards (January 2021)
- FDOT Drainage Design Guide (January 2021)
- Environmental Resource Permit (ERP) Applicant's Handbook Volumes I and II

- SWFWMD Watershed Model (Peace Creek Watershed) (March 2013)
- SWFWMD Watershed Model (Peace River) (December 2015)
- Contours derived from LiDAR (SWFWMD, 2005)
- USDA NRCS Soil Survey of Polk County, Florida (undated)
- USGS Quadrangle Maps (Bartow, Eloise) (1964)
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 12105C0520G and 12105C0510G, (December 22, 2016)
- Flood Insurance Study 12105CV001C (FIS) - Polk County (December 22, 2016)
- Preliminary Archaeologic & Historic Resource Analysis (October 2019)
- Contamination Screening Evaluation Report (November 2020)
- Wetland and Protected Species Evaluation (December 2020)

APPENDIX A

CORRESPONDENCE

Meeting Notes

CENTRAL POLK PARKWAY PD&E FROM US 17 (SR 35) TO SR 60 – PD&E Study

Polk County

Financial Project No.: 440897-4-22-01

CITY OF WINTER HAVEN MEETING

FEBRUARY 7, 2020 AT 3:00 PM

FTE Headquarters – Room 3001

I. INTRODUCTIONS (Attendee Sign-In Sheet attached)

II. PROJECT OVERVIEW

- New alignment of the Central Polk Parkway from US 17 (SR 35) to SR 60
- Alignment differs from 2011 CPP alignment with a more direct connection to SR 60
- Developed Pond Siting Report for the PD&E Study
- Anticipating a Public Hearing in August 2020
- The design contract for the project is anticipated to be executed in November of 2020.

III. PROPOSED PD&E ALIGNMENT

- Approximately 2.2-mile-long roadway
- Four-lane, divided, limited-access highway
- All electronic tolling
- New interchange at US 17
- At grade intersection connecting to SR 60
- Multi-use Trail corridor outside the Limited Access Right of Way

IV. DRAINAGE APPROACH – based on PD&E Pond Siting Report (PSR)

- Drainage, stormwater management facilities (SMF), and floodplain compensation (FPC) sites sized for a six-lane typical section
- Four stormwater ponds. Four floodplain basins. Two alternative SMF evaluated per basin
- Basins 2 and 3 outfall into Peace Creek. Basin 4 is in the Upper Peace River Basin
- One regional pond site alternative evaluated for Basins 2 and 3 since these basins outfall into Peace Creek. Regional pond is not currently the preferred alternative.
- Environmental Look Around: Watershed needs and alternative permitting approach.

V. REGIONAL WATERSHED NEEDS AND PARTNERSHIP OPPORTUNITIES

- City of Winter Haven's Sustainable Water Resource Management Plan, including wetland storage/restoration and aquifer recharge
- Peace Creek Integrated Water Supply Plan status
- 5 largest wetlands being evaluated for future water storage and treatment areas and to provide aquifer recharge and overall net benefit
- One of the wetlands being evaluated for future water storage and treatment area is about one mile upstream of the Peace Creek bridge
- Mutually beneficial interests/long term partnership opportunities

VI. QUESTIONS/DISCUSSION

Listed below are items discussed throughout the meeting.

- Mike Britt (City of Winter Haven) noted that Polk County has a Water Cooperative and that it would be advantageous to have a discussion with them.
- Mike Britt noted that the City of Winter Haven's One Water Initiative will be complete in one year and that the City of Winter Haven is trying to identify projects that will benefit from the proposed regional pond facility.
    - The City of Winter Haven plans to purchase 5500 acres and is currently negotiating with several properties. The intent is to provide large storage lakes within the Peace Creek upstream of our project.
    - The City of Winter Haven desires to provide required stormwater management volumes for projects that are part of the watershed basin of the Peace Creek to reduce the right of way impact necessary for those projects. The project stormwater treatment volume would be conveyed via ditch or pipes to the City of Winter Haven regional facility for a fee.
- Mike Britt noted that City of Winter Haven has not approached SWFWMD to initiate discussions or to permit the regional pond facility because SWFWMD will want to see an actual project(s) that is going to move forward
- Pat Muench inquired what project information the City of Winter Haven would need.
    - The City of Winter Haven requested stormwater volume and estimated pond area.
- It was noted that the Final PD&E Preliminary Engineering Report needs to have language added to the document that notes that the City of Winter Haven project needs to be further evaluated and coordinated in the design phase.

VII. ACTION ITEMS

1) KCA to provide stormwater management volume and area to FTE for the CPP PD&E Study project. FTE will then send preliminary volume and area data to the City of Winter Haven.

    Follow-up:

    Treatment volume credit = 5 ac-ft
    Right of way reduction = 6 acres

    <u>Assumptions</u>: The above treatment volume credit and right of way reduction are preliminary values if the Central Polk Parkway project were to be included as part of the City's regional facility and SWFWMD agreed to this permitting approach for projects that discharge to the Peace Creek.

    SMF 2 and SMF 3 would be eliminated and attenuation would be provided in roadside swales (roadway right of way increase by 25-ft).

2) FTE and the CPP Design Consultant to coordinate with the City of Winter Haven in the design phase to determine if there are any mutually beneficial partnering opportunities.

	MEETING SIGN-IN **CPP (SR 570B)** **FROM US 17 TO SR 60** **POLK COUNTY**	

FDOT Financial ID No. 440897-4-22-01 (PD&E)

Drainage Regional Pond Meeting
Date: February 7th, 2020 @ 3:00 PM

Name	Agency/Firm	Phone	Email Address
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FINANCIAL PROJECT NO.: 440897-4-22-01
CENTRAL POLK PARKWAY PD&E FROM US 17 (SR 35) TO SR 60
PROJECT DEVELOPMENT & ENVIRONMENT STUDY
PRE-APPLICATION MEETING WITH THE SWFWMD
April 16, 2020 AT 10 am via Microsoft Teams Meeting

Attendees
Annemarie Hammond, FTE Environmental Permits Coordinator
Erin Yao, FTE Drainage
Phillip Stein, FTE Environmental Administrator
Dave Kramer, SWFWMD
Gaya Sharpe, SWFWMD
Albert Gagne, SWFWMD
Rob McDaniel, SWFWMD
Stephanie Underwood, HNTB, FTE
Tiffany Crosby, Atkins, FTE
Fred Gaines, Atkins, FTE
Adriana Kirwan, HNTB, FTE
Ali Tayebnejad, KCA
Nicole Selly, KCA
Tom Presby, KCA

I. Introductions
II. Project Overview

Atkins staff provided an overview of the project and purpose for the meeting and KCA staff provided a detailed overview of the project.

The Central Polk Parkway Segment 2 project is currently in the FDOT Project Development and Environment (PD&E) study phase with the no-build option remaining a viable option through the public hearing. If the PD&E study results in a preferred alignment, the proposed project is being evaluated as a four lane extension of the Central Polk Parkway Segment 1 from SR 35 (U.S. 17) to SR 60, approximately 2.2 miles in Polk County. Access to this new alignment, if viable, is being proposed from the south at SR 60 by an at-grade intersection and the facility will feature All-Electronic Tolling (AET). This project also includes a new interchange at SR 35 (U.S. 17). The purpose of this meeting is to discuss and review the environmental and drainage permitting requirements.

III. Summary of Drainage Approach

- Existing condition

The project has open basins that outfall to Lake Hancock to the north, Peace Creek in the middle, and Upper Peace River at the south end of the project.

- Storm Water Criteria

Water Quality: wet detention, treatment will be provided for the first one inch of stormwater runoff from the contributing basin. Water Quantity: open basin, the 25-year/24-hour post-development peak discharge rate must be attenuated to no greater than the 25-year/24-hour pre-development discharge rate. Stormwater management facilities (SMF), and floodplain compensation (FPC) sites will be sized for an ultimate six-lane typical section.
KCA staff asked if there were any projects to improve Peace Creek or upper Peace River water quality with which this project can consider partnering opportunities.

SWFWMD staff stated that they were not aware of any, but would ask district staff the question.

The project crosses three basins: Lake Hancock, Peace Creek, and Upper Peace River. Four stormwater ponds and four floodplain compensation ponds are being evaluated in the PD&E Pond Siting Report. SFM 1 is located in the Lake Hancock basin. SMF 2 and 3 are located in Peace Creek basin. Turnpike indicated there is anticipated treatment credit from the regional pond in FPID No. 440897-2_ CPP Segment 1 to the north. Turnpike is coordinating whether there may be treatment credit from the City of Winter Heaven's sustainable Water Resource Management Plans which is planning to provide large storage lakes within the Peace Creek upstream of our project. This coordination will continue through the design phase. SMF 4b1, and 4b2 are located in the upper Peace River basin. The Upper Peace River and the Lake Hancock are impaired for nutrients, but do not directly connect to our project, therefore nutrient loading calculations are not required.

SWFWMD staff noted the concept for obtaining credit from the regional pond works for SWFWMD – the size of the area was discussed in the previous meeting and SWFWMD agreed. Excess volume from CPP-2 regional pond can be used as long as treatment is for water within the same receiving waterbody. SWFWMD staff noted that the WBID map shows 2 different basins – they show the basin south of U.S. 17 flows south.

KCA staff indicated that basin boundaries used for both SWFWMD Lake Hancock and Peace Creek models show this area is flowing to Lake Hancock. Reviewing the lidar contours, shows that once the two existing wetland/ponds fill up it flows north through a cross drain under U.S. 17. Atkins staff noted that there are numerous WBIDS – KCA design will show how the water flows.

SWFWMD staff said to document this and provide to SWFWMD and noted site specific topography will need to show how it flows today. Site specific topo should be provided to prove the FDEP WBID map is not accurately showing water flow. If there is an interim discharge WBID that has an impairment, it must be addressed. Provide proof there is a connection to the downstream waterbody.

The project concept being evaluated is crossing the Peace Creek 2400' floodplain and 1200' regulated floodway with a bridge spanning both. Floodplain encroachments were evaluated using the latest FEMA effective maps dated 12/22/2016. Floodplain compensation is provided using cup-for-cup methodology in FPC 1 through 4.
SWFWMD staff asked if KCA was using the FEMA Maps and asked whether KCA looked at any models.

KCA staff stated they did, but the FEMA map was more conservative and was used.

SWFWMD staff asked if KCA was relying on the City of Winter Haven for treatment credit.

KCA staff noted that additional coordination was needed with the City of Winter Haven and the ponds we show are conceptual and do not rely on the City of Winter Heaven treatment credit. The ponds that the City showed are also conceptual.

Atkins staff asked if the proposed design was stacking the floodplain volume on top of the stormwater volume similar to the approach for the CPP-2 design project to the north.

KCA staff said this project is not stacking stormwater and floodplain, like the 440897-2 project is doing.

Atkins staff noted that the ponds and FPC's shown today are preliminary. Design will be refined more and discuss in a future meeting with SWFWMD.

IV. Environmental

Wetlands/Surface Waters

- 15 wetlands and 4 surface waters
- Overall (48.69 acres) with 16.01 acres of anticipated impacts – Mainline and Proposed Pond Sites
  - Herbaceous (9.74 acres)
  - Forested (0.28 acres)
  - Channels (0.57 acres)
  - Reservoirs (5.43 acres)
  - Potential wetland impacts WL 1, WL 2, WL 3a, WL 3b, and SW 1 will be mitigated for with the permitting of Central Polk Parkway Segment 1 Design
- Three Mitigation Banks within Peace River Basin
  - Boran Ranch Mitigation Bank
  - Peace River Mitigation Bank
  - Circle B Bar Mitigation Bank

SWFWMD indicated they were not aware of Circle B Bar as a potential mitigation bank and requested it be verified as an option. KCA indicated they would verify and correct as needed.

Protected Species

Technical Assistance with FFWCC and USFWS conducted March 2020 and will continue through design. Coordination with both agencies indicate no wildlife crossing is required for this project.

Anticipated Permits

Individual Environmental Resource Permit – SWFWMD

AGENDA

CENTRAL POLK PARKWAY FROM US 17 (SR 35) TO SR 60

Polk County
Project Development & Environment Study
Financial Project No.: 440897-1-24-01
FTE Contract: C9Y59
KCA Project No. 1201739.00

CITY OF WINTER HAVEN PROJECT BRIEFING
JUNE 11, 2019 AT 8:30 AM

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1. **Introductions**

2. **Purpose and Need**

3. **Central Polk Parkway History**

4. **Proposed Projects**

    a. **Polk Parkway to US 17 (Design)**

        i. **Project Description**

            1. Proposes a new alignment of the Central Polk Parkway from Polk Parkway to US 17
            2. Project is in Design phase
            3. Project alignment is similar to the partial design developed by FDOT District One
            4. Polk Transportation Planning Organization (Polk TPO) updated their priority project to be the Central Polk Parkway in December 2017

        ii. **Design Approach**

            1. Approximately 6-mile long tolled roadway
            2. Four-lane, divided, limited-access highway
            3. All electronic tolling
            4. New interchanges at:
                a. Polk Parkway (SR 570)
                b. Winter Lake Road (SR 540)
                c. US 17 (SR 35)
            5. Drainage and stormwater treatment will be analyzed for a six-lane typical section

        iii. **Project Status**

            1. Notice to Proceed issued in March 2018
            2. Project presently at 30% design plans
            3. 60% design plans in December 2019 (tentative)

iv. Key Issues

1. City of Winter Haven
    a. The impaired hydrology of the Winter Haven area, including lake levels, flooding, water quality, habitat, etc.
    b. Winter Haven's Sustainable Water Resource Management Plan, including:
        - Wetland Storage/Restoration
        - Aquifer Recharge
    c. Winter Haven's Upcoming Integrated/One Water Master Plan
    d. Mutually beneficial interests/long term partnership opportunities
2. Utilities
    a. Florida Gas Transmission
    b. Gulf Stream Natural Gas
    c. Florida Public Utilities (Central Florida Gas)
    d. TECO (overhead transmission and distribution line)
    e. CSX Railroad
3. Geotechnical
    a. Reclaimed lands
4. Right-of-Way
    a. SWFWMD lands
    b. Polk Land Fill
5. Bartow Airport
    a. Flight path
    b. Lighting

b. US 17 to SR 60 (Project Development & Environment Study)

i. Project Description

1. Proposes a new alignment of the Central Polk Parkway from US 17 (SR 35) to SR 60
2. Project is in the Project Development & Environment study phase
3. Project alignment will differ from the 2011 approved CPP alignment with a more direct connection to SR 60
4. Polk Transportation Planning Organization (Polk TPO) requested that Florida's Turnpike Enterprise conduct a PD&E study to extend the CPP from US 17 to SR 60

ii. Design Approach

1. Approximately 2.5-mile-long tolled roadway
2. Four-lane, divided, limited-access highway
3. All electronic tolling
4. New interchanges at US 17
5. At grade intersection connecting to SR 60

6. Drainage and stormwater treatment will be analyzed for a six-lane typical section
7. Two alternative alignments will be developed and assessed as part of PD&E study
8. One proposed alternative will likely utilize the old Bartow Northern Connector north/south corridor (right-of-way owned by Polk County)
9. There is a potential for a multi-use trail along the roadway corridor (what is the County's position on this)

iii. **Project Status**

1. Notice to Proceed issues in September 2018
2. Environmental Analysis on alternative alignments has begun
3. Project survey, geotechnical and design will begin after Public Information Meeting and the selection of a recommended alternative alignment

iv. Key Project Issues

1. Geotechnical
    a. Is key project design constraint?
    b. Reclamation areas – slime soils
    c. Constructability
2. Utilities
    a. TECO solar panel farm
3. Floodplain Impacts
    a. Extensive floodplain in study area
    b. Peace Creek Drainage Canal Floodway
4. Stormwater Management
    a. Extensive floodplain –
        i. Stormwater management pond siting
        ii. Floodplain compensation requirements
5. Wetland Impacts
    a. Extensive wetlands within study area
6. Protected Species
    a. Federal & State species
    b. Sand skink soils
7. Bartow Airport
    a. Flight paths
    b. Lighting

5. Project Schedule

a. Public Information Meetings for both projects are scheduled for 18 June 2019 from 5:30 to 7:30 pm (W.H. Stuart Conference Center, Bartow)
b. These meetings will be held concurrently
c. Public Hearing for the PD&E study and Public Information Meeting for the Design project are scheduled for Winter 2019 (tentatively)
d. These meetings will be held concurrently
e. Completion of PD&E study Summer 2020 (tentatively)

6. Questions/Discussion

7. Next Meeting

8. Action Items

MEETING NOTES
SWFWMD PRE-APPLICATION MEETING

CENTRAL POLK PARKWAY – SEGMENT 2
FROM EAST OF SR 35 (US 17) TO EAST OF POLLARD ROAD
FPID 431641-2-32-01
COUNTY: POLK

MARCH 5, 2014 – 2:00 PM

The meeting began at 2:00 pm with introductions. Brent Setchell stated that the project has no funding for right of way or construction and the Consultants are working on the 30% plans to determine the required right of way for the Central Polk Parkway (CPP). There was discussion of regional stormwater treatment on the project but that is mainly in Segment 1 where Southwest Florida Water Management District (SWFWMD) property is located. Segment 1 has already had a SWFWMD pre-application meeting. Since it appears that stormwater treatment can be accomplished mainly within the proposed right of way using linear ponds or ponds within infield areas, regional treatment options may not be appropriate for Segments 2 and 3. The purpose of this meeting was to discuss Segments 2 and 3. The following issues were discussed for Segment 2.

1. **Project Overview:** Tara Spieler gave an overview of the CPP - Segment 2 project using an aerial photograph. The project begins just east of US 17 and extends approximately 6 miles to Pollard Road. There are spurs to both the Bartow Northern Connector and to SR 60. Design is for a six-lane limited access roadway and KCA is currently in the Pond Siting Phase. KCA is looking at off-site stormwater pond alternatives and sites within the FDOT right-of-way, along with three alternatives for each floodplain compensation pond.

2. **Site Information Discussion:** Tara explained that Segment 2 of the CPP includes large areas of floodplain impacts and crossing the FEMA floodways at both the Peace Creek Drainage Canal and the Wahneta Farms Drainage Canal. The latest information is the SWFWMD Peace Creek Watershed model that was approved on February 26, 2013. The 100 year/5 day stages are used as the floodplain elevations. Between Rifle Range Road and Pollard Road the Peace Creek crosses the CPP mainline in two locations. To avoid bridges in these location, box culverts are proposed for use to maintain flow through the existing Peace Creek channel during low flows.

However, a canal will be constructed south of the CPP mainline for the larger storm events. For floodplain impacts, modeling will be provided in lieu of 'cup for cup' compensation, in order to minimize the size of any floodplain compensation ponds. The post developed floodplain stage differences will be limited to less than 0.01 feet. Both the 100 year/1 day and 100 year/5 day will be analyzed to ensure no adverse impacts. Bridge Hydraulic Reports will be completed at all bridges and a "No-rise" will be shown. Dave Kramer added that all nearby reports of flooding should be reviewed to ensure there is no adverse impacts to these areas.

2. **Environmental Discussion:** Mark Easley stated that the wetlands within the proposed roadway right-of-way have been delineated, surveyed and approved except for the Bartow Northern Connector where the alignment has shifted. In the Clear Springs property, the permitted wetland lines were included for this project. The UMAM scores have also been completed and approved. No delineation of the alternative pond or floodplain sites has begun. This task will be completed once the final pond sites and floodplain compensation sites have been selected. There is one undocumented eagle nest within the proposed roadway right-of-way. The eagle's nest is located directly on the centerline east of 91 Mine Road. Al Gagne stated that you must show no adverse impact if any water is diverted away from an existing wetland.

3. **Sovereign Lands Discussion:** Mark mentioned that this project does not include any sovereign submerged lands. The Peace Creek Drainage Canal is an upland cut ditch. It can be seen on the 1927 NRCS soil survey.

4. **Water Quantity Discussion:** Kenny Yinger added that all basins are open and discharge to the Peace Creek Drainage Canal. KCA is designing the ponds to ensure that the 25 year post discharge rate is less than the pre discharge rate.

5. **Water Quality Discussion:** Tara stated that this project does not include any Outstanding Florida Waters. This project includes discharge to two impaired waterbodies. The Peace Creek Drainage Canal (WBID 1539) and the Wahneta Farms Drainage Canal (WBID 1580) are both impaired for nutrients. For presumptive criteria, we are treating 1" over the contributing basin for wet detention ponds and 0.5" for dry retention. The pollutant loading calculations will show a net improvement where we discharge to an impaired waterbody. Kenny added that in Segment 2, approximately 50% of the land use within the project limits are listed as agriculture on the land

use maps. Dave stated to check that the current land use matches the description used in the pollutant loading calculations and not to just rely on the land use maps which may not be up to date.

The meeting concluded around 3:15 PM. Attached is the sign in sheet and the SWFWMD pre-application meeting minutes dated September 26, 2012 (File Number: PA 399550) with the ETDM comments (# 8487). This project is within Sections 25 to 27 and 34 of Township 29 South and Range 25 East and Sections 27 to 32 of Township 29 South and Range 26 East. The project is approximately 600 acres in size.

3/5/14 Central Polk Parkway - FDOT meeting

David Kramer		SWFWMD
Veronica Craw		SWFWMD
Tom Pillersby	KCA	813-871-5331
Paul Foley	KCA	813-871-5331
Al Gagne	SWFWMD	813-985-7481 x4352
Kenny Yinger	KCA	813-871-5331
Mark Eesley	KCA	813.871.5331
Tara Spieler	KCA	813-871-5331
CARL SPIRIO	FDOT	(863)519-2497
Brent Setzell	FDOT	863-519-2557
JASON LYLE	PGA	863-533-7317
Tori Fera	Scheda	813-989-9600
AMY CROMWELL	PGA	863-533-7317
GORDON GREENE	PGA	863-533-7317
Nicole Monies	FDOT	863-519-2359
Frank Ritchie	SWFWMD	813-985-7481
BOB DASTA	SWFWMD	813-985-7481
Molly Williams	Sarasota County	941-525-2487

THIS FORM IS INTENDED TO FACILITATE AND GUIDE THE DIALOGUE DURING A PRE-APPLICATION MEETING BY PROVIDING A PARTIAL "PROMPT LIST" OF DISCUSSION SUBJECTS. IT IS NOT A LIST OF REQUIREMENTS FOR SUBMITTAL BY THE APPLICANT.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RESOURCE REGULATION DIVISION
PRE-APPLICATION MEETING NOTES

FILE NUMBER:
PA 399550

Date:	9/26/2012
Time:	9:00 AM
Project Name:	Central Polk Parkway Segment 2
Attendees:	Bob Dasta, Joe Andress, Tara Spieler, KCA, 813-871-5331, tspieler@kisingercampo.com; Mark Easley; Ali Tayebnejad (atayebnejad@kisingercampo.com)

County:	Polk	**Sec/Twp/Rge:**	25-27/29/25 & 27-34/29/26
Total Land Acreage:	acres	**Project Acreage:**	acres

Prior On-Site/Off-Site Permit Activity:

- Research Onsite or Nearby Permits Online: The new alignment may impact several authorized facilities http://www8.swfwmd.state.fl.us/wmis/erp/search/ERPSearch.aspx or http://www8.swfwmd.state.fl.us/PermittingViewer/default.aspx.
- Original Polk Parkway main permits: 4X011879.XXX
- Several Watershed Studies within the approximate area:
  Lake Hancock (H. Downing)
  Peace Creek (F. Ritchie)
  Haines City (D. Turner)

Project Overview:

- ETDM # 8487. Programming Report copied below.
- A copy of the latest "Recommended Alternative" is attached below.
- From 17 to Pollard Rd (W-2 and W-1 of recommended alternative)
- 2-4 lane divided (designed for 6 lanes ultimately)
- Coordinate with Harry Downing regarding tie into the Lake Hancock project and model

Environmental Discussion: (Wetlands On-Site, Wetlands on Adjacent Properties, Delineation, T&E species, Easements, Drawdown Issues, Setbacks, Justification, Elimination/Reduction, Permanent/Temporary Impacts, Secondary and Cumulative Impacts, Mitigation Options, SHWL, Upland Habitats, Site Visit, etc.)

- If applicable:
- Provide the limits of jurisdictional wetlands.
- Provide appropriate mitigation using UMAM for impacts, if applicable.
- Demonstrate elimination and reduction of wetland impacts.
- Maintain minimum 15 foot, average 25 foot wetland conservation area setback or address secondary impacts.
- Maintain wetland hydrology
- Address wildlife corridors
- Mitigation banks for mitigation. Boran Ranch and Peace River.
- Need specific purpose survey for the wetlands
- Skinks within project area
- Address wetland impacts for shifting of the Peace Creek Drainage Canal. Mitigation banks may not have these types of credits. Check with Cliff to shift Peace Creek Drainage Canal
- Eagles nests in area
- Provide wildlife surveys

Site Information Discussion: (SHW Levels, Floodplain, Tailwater Conditions, Adjacent Off-Site Contributing Sources, Receiving Waterbody, etc.)

- Existing roadway/intersections.
- Maintain watersheds.
- Possibly discharging to impaired waters.

Water Quantity Discussions: (Basin Description, Storm Event, Pre/Post Volume, Pre/Post Discharge, etc.)

- Demonstrate that discharges from proposed project area will not cause an adverse impact for a 25-year, 24-hour storm event.
- Demonstrate that site will not impede the conveyance of contributing off-site flows.
- Demonstrate that the project will not increase flood stages up- or down-stream of the project area(s).
- Provide equivalent compensating storage for all 100-year, 24-hour riverine floodplain impacts if applicable.
- Numerous Zone A and Zone AE floodplains throughout the recommended alternative
- W-3: Lake Hancock Floodplain
- W-2: An area of known flooding per FDOT information. 16030-1 US 17 at Smith Property.
- Looking into possibly realigning Peace Creek Canal to the south just west of Pollard. Coordinate with Myke Morris, Land Management at District. This realignment would eliminate several bridges. LOMR through FEMA

Water Quality Discussions: (Type of Treatment, Technical Characteristics, Non-presumptive Alternatives, etc.)

- Provide water quality treatment for entire project area and all contributing off-site flows.
- In addition, if the project discharges to an impaired water body, must provide a net environmental improvement.
- Applicant must demonstrate a net improvement for the parameters of concern by performing a pre/post pollutant loading analysis based on existing land use and the proposed land use.
- Also replace treatment function of existing ditches to be filled.
- Will acknowledge compensatory treatment to offset pollutant loads associated with portions of the project area that cannot be physically treated.
- Discussed first inch of rainfall for off-site runoff
- Recommended alignment is within numerous WBIDs, including, but not limited to:
  W3: 1545 Unnamed Drain; 1501A Lake Lena Run; 1623N Eagle Lake Outlet;
  W2: 1539 Peace Creek Drainage Canal; 1608 Unnamed Slough
  W-1: 1539, 1580 Wahneta Farms Drainage Canal, 1629 Brush Lake Outlet, 1634 Mule Island Ditches
  E-1: 1602 Unnamed Ditches; 1626 West Wales Drainage Canal
  E-2: 1539 Lake Annie; 1539F Lake Lee; 1532 Catfish Creek
  E-3: 1480A Lake Marion Outlet
  E-4: 1472A2 Snell Creek; 1436 Horseshoe Creek

Sovereign Lands Discussion: (Determining Location, Correct Form of Authorization, Content of Application, Assessment of Fees, Coordination with FDEP)

- Will need to do a title determination for Peace Creek Drainage Canal and any other natural water bodies/wetlands for potential realignment
-

Operation and Maintenance/Legal Information: (Ownership or Perpetual Control, O&M Entity, O&M Instructions, Homeowner Association Documents, Coastal Zone requirements, etc.)

- The permit must be issued to the property owner(s).
- Provide proof of ownership in the form of a deed or contract for sale.
- Provide appropriate O&M instructions.
- Provide detailed construction surface water management plan.

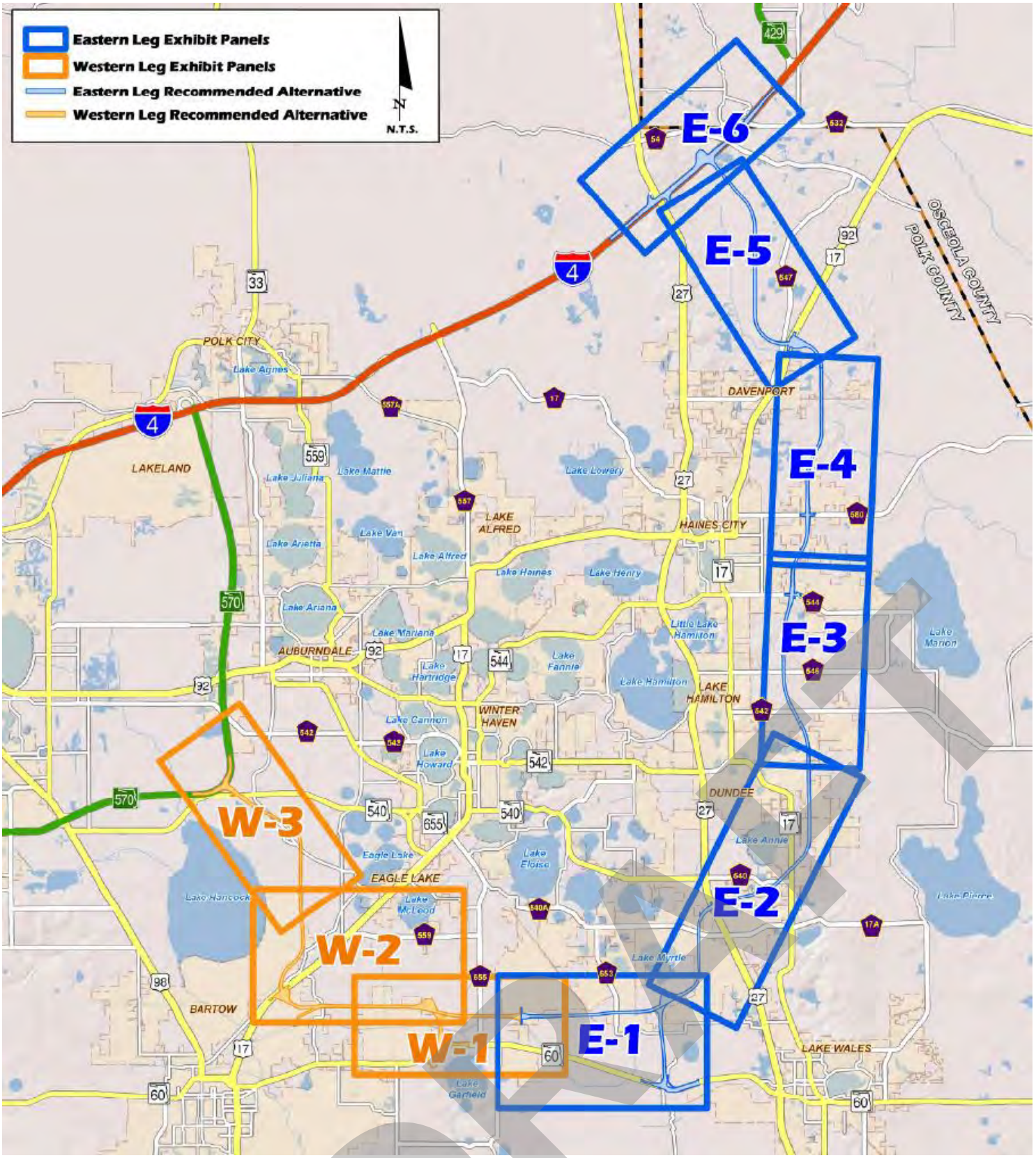
Application Type and Fee Required:

- >1 acre of wetland impacts, Individual Permit. $4550.00.

Other: (Future Pre-Application Meetings, Fast Track, Submittal Date, Construction Start Date, Required District Permits – WUP, WOD, Well Construction, etc.)

- Refer to DEP webpage regarding upcoming statewide stormwater rule. www.dep.state.fl.us/water/wetlands/swerp/index.htm
-
- Check for contaminants on or within 1500 feet of the site and assure that FDEP clearance is secured.
  - o If found within 500 feet, the permit cannot be issued until written verification from FDEP is received demonstrating the proposed system will not cause adverse water quality impacts.
  - o If found between 500 and 1500 feet, the permit may be issued with a condition that all contaminated site assessment concerns have been addressed with FDEP prior to beginning construction.
  - o Verification of Contaminated sites (Brownfields, Petroleum, Superfund, Waste Cleanup)
  - o Verification: http://epic229.dep.state.fl.us/DepClnup/welcome.do
  - o Map Viewer: http://ca.dep.state.fl.us/imf/
-

Disclaimer: The District ERP pre-application meeting process is a service made available to the public to assist interested parties in preparing for submittal of a permit application. Information shared at pre-application meetings is superseded by the actual permit application submittal. District permit decisions are based upon information submitted during the application process and Rules in effect at the time the application is complete.


Eastern Leg Exhibit Panels
Western Leg Exhibit Panels
Eastern Leg Recommended Alternative
Western Leg Recommended Alternative
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N.T.S.
E-6
E-5
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E-1
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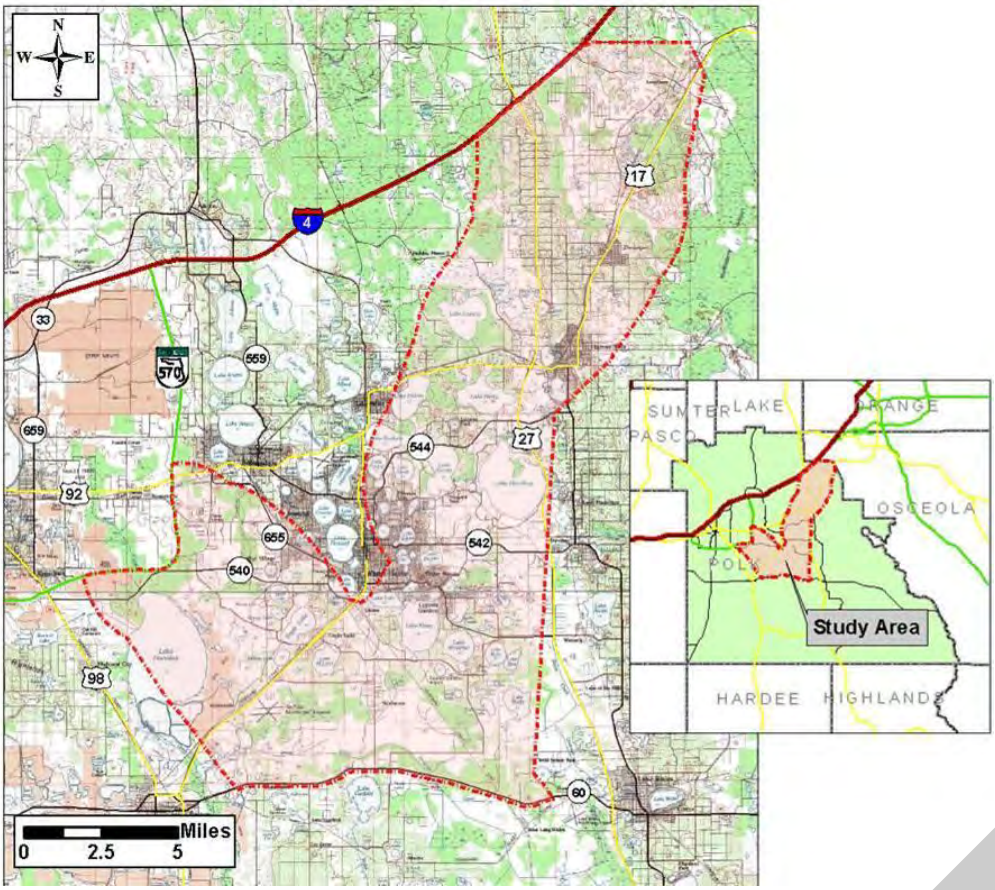
W-1
POLK CITY
LAKELAND
DAVENPORT
HAINES CITY
LAKE ALFRED
AUBURNDALE
WINTER HAVEN
LAKE HAMILTON
DUNDEE
EAGLE LAKE
BARTOW
LAKE WALES
OSCEOLA COUNTY
POLK COUNTY
Lake Agnes
Lake Juliana
Lake Mattie
Lake Lowery
Lake Arietta
Lake Van
Lake Alfred
Lake Haines
Lake Henry
Lake Ariana
Lake Mariana
Lake Hartridge
Lake Fannie
Little Lake Hamilton
Lake Hamilton
Lake Marion
Lake Cannon
Lake Howard
Lake Eloise
Lake Annie
Lake Hancock
Lake McLeod
Lake Myrtle
Lake Garfield
Lake Pierce

Location Map



Summary

Project Name / Number	ETDM Review Screen
Central Polk Parkway / ETDM #8487	Planning
Location	**X** Programming
From SR 60 to Polk County Parkway or I-4 (study area is approximately 300 square miles)	Project Development
County	**Review Period**
Polk	12/20/2007 to 1/17/2008

Description:

The Central Polk Parkway is a new 4-lane toll facility (no existing alignments will be involved) in Polk County that will serve as an additional north-south route connecting south-central Polk County (via SR 60) to northern Polk County (via Polk County Parkway or I-4).

Purpose and Need

The purpose of the Central Polk Parkway is to provide an additional north-south facility to reduce traffic congestion, including truck traffic, on several corridors in central Polk County, particularly parallel facilities (US 98, US 17, and US 27). The Central Polk Parkway will serve as a vital link in Polk County's future transportation system by connecting Bartow (via SR 60) to northern Polk County (via Polk County Parkway or I-4). In serving as an additional north-south route, the new roadway will enhance mobility on the regional roadway network and work to improve emergency evacuation and response times. In addition, the Central Polk Parkway is anticipated to support the increased travel demands expected from projected residential and employment growth within the county. The Transportation Element of the Polk County Comprehensive Plan was amended in 2007 to include the portion of the Central Polk Parkway from SR 60 in Bartow to Polk County Parkway (SR 570).

This project is being screened as a polygon in order to allow a large enough study area to avoid as many sensitive resources as possible. Actual corridors will be developed during the PD&E Study that will be substantially narrower than the width of this polygon. These corridors will be available for review during the agency scoping process being conducted for this project. Therefore, specific alignments are available for detailed study.

Alternatives Under Consideration

No alternatives are under review. A review of the project study area is being conducted so that future alternatives may be developed.

Summary of Public Comments

The Polk Transportation Planning Organization (TPO) distributed questionnaires to members of the Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC). Comments received from the Polk TPO CAC have been afforded equal weight in importance and incorporated into this report. No responses have been received from TAC members.

Mobility is the major issue presented by the ten respondents. Of particular interest is a need for improved traffic flow and coordinated traffic signals, as well as an alternate route to SR 60. The effect to community aesthetics (look and feel) is also of primary concern; respondents do not want Bartow to serve as a pass through community. Respondents also expressed a desire for adequate roadway capacity planning. Additionally, the potential effects on businesses and homes are a concern.

The common themes identified among the comments submitted are as follows:

- Desire for improved traffic flow and congestion relief
- Desire to eliminate pass through traffic in Bartow
- Request for consideration to be given to effects on businesses and homes, and the social aspects of the community
- Desire for appropriate growth planning

Overall, the comments reflect a desire for improved mobility, planned growth, and preservation of community aesthetics.

Public Outreach Activities
Forum: TPO, Citizens Advisory Committee
Date/Time: November 28, 2006

Forum: TPO, Technical Advisory Committee
Date/Time: November 30, 2006

Consistency

Consistent with Air Quality Conformity.
Consistency information for Coastal Zone Consistency is not available.
Consistent with Local Government Comp Plan.
Consistent with MPO Goals and Objectives

Required District Responses Under ETDM

Purpose and Need Statement

Understood (without comments)

Coastal and Marine

Degree of Effect:	None	Minimal	Moderate	Substantial
	Enhanced	**X** N/A No Involvement		Potential Dispute

Coordination	**X** No Involvement	PD&E Support	Permit

Document:		Document	Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

Comment on effects to resources:

Additional Comments:

Contaminated Sites

Degree of Effect:	None	Minimal	Moderate	**X** Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	**X**	PD&E Support Document	Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required		

Identify Resources and level of importance:

This project encompasses a large region in which land use includes residential, commercial, agricultural, and industrial. These types of land uses, especially industrial, commercial, and agricultural, pose a high probability of contaminated site occurrences. There is a significant portion of the proposed project area identified as having groundwater contamination. Specifically the groundwater contamination identified by the Florida Department of Environmental Protection (FDEP) is ethylene dibromide (EDB).

Data research alone shows nearly 100 hazardous waste sites, 500 petroleum tanks, 3 solid waste facilities, and at least 3 dry cleaners within the project study area.

The entire project may be located in a Sensitive Karst Area (SKA). The EST identifies 66 sinkholes with the proposed project area. There are indications that some of the sinkholes reported by the EST are duplicates. Previous SWFWMD studies (i.e., "Development of Proposed Environmental Resource Permit Criteria for Sensitive Karst Areas," Storm Water Resources of Florida, LC, September 2007) indicates 56 sinkholes located within the proposed project area. The previous report also provides a comparison of methodologies for determining if a specific geologic condition exists that may adversely affect surface water management systems.

The project area includes several Water Use Permits (WUPs) which appear to be for public water supply. The following municipalities have WUPs located inside the proposed project: City of Davenport, City of Winter Haven, City of Bartow and others. Public water supplies will have wellhead protection zones.

Comment on effects to resources:

It is expected that groundwater pollution potential due to the disturbance of contaminated soils is likely to pose a high risk to the surficial aquifer and a moderate risk to the Floridian Aquifer. Due to the surficial aquifer's high potential for contamination, construction-related pollution could adversely affect ground water zones of significance to ground water supply facilities used for residential and agricultural irrigation and stock watering. Pollution entering the surficial aquifer also has the potential to degrade adjacent surface waters.

Additional Comments:

The SWFWMD considers the degree of effect as "Substantial" due to the anticipated permitting issues, including the project's potential for:

1. Encountering contaminated sites, both known and unknown, within the project corridor;
2. The high pollution vulnerability of the surficial aquifer;
3. The high recharge rates in large areas of the project polygon;
4. The potential to degrade the water quality of surface water bodies as a result of the disturbance of contaminated subsurface materials.

To minimize groundwater and surface water pollution potential, it may be helpful to:
1. Confirm the presence or absence of existing potable supply wells, both public and domestic, and to identify precisely all potential sources of contamination within the path of construction or in proximity of the proposed surface water management systems;
2. Avoid known concentrations of contaminated sites where possible in the selection of the project alignment;
3. Thoroughly evaluate potential stormwater treatment pond sites for the presence of contamination and eliminate contaminated sites as possible pond sites;
4. Design and construct stormwater treatment facilities to avoid breaching the upper confining unit;
5. Conduct an Environmental Audit at the appropriate level to identify specific facilities of interest and to develop a plan for their proper removal or abandonment;
6. Coordinate with FDEP and EPA and prepare a Contamination Assessment Report as necessary

This project will require an Environmental Resource Permit for Construction Activities. The Southwest Florida Water Management District publication, "Environmental Resource Permitting Information Manual," describes the permit application process. Please refer to "Part B, Basis of Review" for administrative and technical requirements for the design, construction and operation of surface water management systems.

Floodplains

Degree of Effect:	None	Minimal	**X** Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	**X** Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

The Environmental Screening Tool (EST) identifies 21% of the potential project area as FEMA FIRM Zone AE (inside the 100-year flood risk with a defined elevation). Additionally, approximately 18% of the area inside the 100-year flood risk is identified as FEMA FIRM Zone A (inside the 100-year flood risk defined by approximate methods). The majority of the areas identified as FEMA FIRM Zone A or AE are located around lakes and other lowlands. In addition to the identified FEMA floodplains, there could be significant other areas that contain historic basin storage that need to be evaluated to ensure no adverse impacts to surrounding properties.

Comment on effects to resources:

If the project traverses or occupies floodplain areas, the project may reduce storage capacity and alter conveyance characteristics in the affected drainage basins, requiring dedicated floodplain compensation sites in the same drainage basin. Reductions to storage and conveyance in the floodplain and floodway may cause adverse impacts to adjacent lands.

Additional Comments:

The SWFWMD considers the degree of effect as "Moderate" due to the following conditions:
1. The design details and the actual footprint of the proposed improvements are not specific,
2. There is potential for floodplain encroachment to occur in isolated areas not presently identified on the FEMA flood plain maps,
3. There is potential for cumulative effects, including decrease in historic basin storage combined with decrease in hydraulic capacity of existing drainage features,
4. The total encroachment area cannot be specifically tallied as there may be significant floodplain areas yet unmapped,

The following strategies may reduce the degree of effect:
1. Restricting the filling of floodplain to only those areas necessary,
2. Constructing stormwater treatment ponds outside floodplain areas,
3. Minimizing the extent of at-grade project segments and cross sections in floodplain areas, and
3. Providing compensation for lost floodplain and historic basin storage.

The FDOT typically completes a bridge hydraulics or location hydraulics report for major bridge-culverts, bridges and cross drains as a standard design task. The SWFWMD recommends that the FDOT utilize data on flows from existing, and soon to be completed, flood studies in preference to generalized data on flows and stages and provide the bridge hydraulic reports in support of the SWFWMD ERP application. In addition to the development

of a Bridge Hydraulics or Location Hydraulics report, an analysis will be needed at each structure to demonstrate no adverse impact to the FEMA floodplain (No-Rise Evaluation).

This project will require an Environmental Resource Permit for Construction Activities. The Southwest Florida Water Management District publication, "Environmental Resource Permitting Information Manual," describes the permit application process. Please refer to "Part B, Basis of Review" for administrative and technical requirements for the design, construction and operation of surface water management systems.

Historic and Archaeological Sites

Degree of Effect:	None	Minimal	**X** Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	**X** PD&E Support Document	Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

Within the project polygon, there have been 110 Cultural Resources Surveys. Over 150 historic sites and over 150 historic standing structures have been reported. Seven structures are listed in the National Register of Historic Places, most of which are located within city limits and/or designated historic districts in Winter Haven, Haines City, and Davenport. Therefore, the density of cultural resource sites is high within the project polygon.

Comment on effects to resources:

The project has a potential to produce adverse effects on historic sites and historic standing structures. The likelihood of impacts to the NHRP-listed facilities is low due to their locations.

Additional Comments:

The SWFWMD considers the degree of effect as "Moderate" due to the potential for impact to cultural resources. A cultural resources survey on the specific alignment is recommended to assess potential impacts. If this survey reveals that additional cultural resources are not present in the project area, then impacts to archaeological resources may be considered minimal, provided that the aforementioned archaeological sites are avoided.

Infrastructure

Degree of Effect:	None	Minimal	**X** Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	Permit Required
	Tech Memo Required	**X** To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

There are approximately 140 SWFWMD-related data collection sites within the project polygon. These sites include lake level, well, rainfall, flow gages. In addition, there are USGS (with SWFWMD joint participation) gages within the project area.

The SWFWMD sites include facilities that are monitored in connection with the implementation of the SWFWMD's Southern Water Use Caution Area (SWUCA) and Minimum Flows and Levels (MFL) programs.

Comment on effects to resources:

The project has the potential to eliminate or impair the information value of some of SWFWMD monitoring sites, resulting in the termination of an established data collection point for the SWFWMD's Hydrologic Data Program. Such loss will adversely affect the volume and quality of data used for the SWFWMD's resource regulation effort.

Additional Comments:

The SWFWMD considers the degree of effect as “Moderate” due to:
1. The importance of the data generated from the monitoring sites to on-going SWFWMD regulatory and resource management programs;
2. The large number of sites that could potentially be affected; and
3. The absence of information on the project alignment.

The SWFWMD requests that the FDOT provide specific information as to the location of all project facilities and to contact SWFWMD staff in the Hydrologic Data Section to make a final determination of whether any data collection point will be disturbed or eliminated to accommodate the project. If monitoring equipment must be removed or re-located, the expense will be borne by the FDOT, and the work will be done with close coordination with the SWFWMD.

Navigation

Degree of Effect:	None	**X** Minimal	Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	Permit Required
	Tech Memo Required	**X** To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

Lakes in the project polygon are used extensively for recreational boating and there are several boat ramps in the area (Personal observations, 1972 – 2007).

Comment on effects to resources:

During construction, the project may reduce access to boating facilities.

Additional Comments:

The SWFWMD considers the degree of effect as “Minimal” since commercial vessels do not utilize the lakes and canals in the project area and it is anticipated that impacts to recreational boats will be temporary.

Recreation Areas

Degree of Effect:	None	Minimal	**X** Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	**X** PD&E Support Document	Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

Public lands contained within the study area include Lake Bonnet Marsh, Lake Lowry Marsh, Green Swamp Land Authority Land Protection Agreements, FL DEP Green Swamp Conservation Easements, Osprey Unit (all located west of US 27 and north of US 17). Public land (Cypress Gardens Conservation Easement) also occurs adjacent to Lake Eloise, south of SR 540.

Additional public lands include: Polk County’s Peace River Canoe Launch on SR 60 east of Bartow; Gordonville Park on Richardson St at Old Bartow Road east of the Bartow Municipal Airport; and Wahneta Park located at 1181/2 Rifle Range Rd., near the intersection of CR 655 and CR 559 (Polk Co Dept of Parks and Recreation, 2007).

SWFWMD properties include the 1267-acre Circle Bar B Reserve located in the project polygon between the Polk Pkwy and the northwest shore of Lake Hancock where hiking, aquatic –dependent wildlife viewing, picnicking opportunities are provided (SWFWMD. 2007. Recreational Guide to District Lands);

The City of Lake Alfred owns and operates several facilities within the project polygon: the 112-acre Mackay Gardens and Lakeside Preserve located on the north shore of Lake Rochelle off US 92; and the parks and boat ramps at Lakes Echo, Haines and Rochelle accessed from US 92 (City of Lake Alfred, 2007).

The State of Florida's Hilochee Wildlife Management Area Osprey Unit is located within the western portion of the project polygon (EST).

The Florida Trail Connector traverses the northern end of the eastern portion of the project polygon (Florida Trail Association, 2007).

Saddle Creek Paddling Trail, identified as the Peace River Canoe Trail in the EST, is located between Lake Hancock and Polk Pkwy (FDEP. 2007. Office of Greenways and Trails web site).

Comment on effects to resources:

Access to multiple, important, public, recreational facilities may be impaired during construction, including three of the City of Lake Alfred's boat ramps, may be adversely impacted by the project.

Additional Comments:

The SWFWMD considers the degree of impact as "Moderate" due to the potential for adverse impacts to multiple recreational facilities, including SWFWMD-owned lands and because of the absence of a project alignment at this time

To the maximum practicable extent, it is recommended that no additional ROW acquisition occur for the roadway footprint or for stormwater management facilities within public lands. These lands were specifically acquired for natural resource conservation, recreation and environmental protection purposes.

Secondary and Cumulative Effects

Degree of Effect:	None	Minimal	**X** Moderate	Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	**X** Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

X Archaeological and Historic Resources

Comments on Effects:

The project has a potential to produce adverse effects on historic sites and historic standing structures. The likelihood of impacts to the NHRP-listed facilities is low due to their locations.

Recommended avoidance, minimization and mitigation measures:

It is recommended that the design and construction of the project not impair the physical integrity or historical value of any of the sites discussed. Coordination with the SHPO will be necessary. The SWFWMD will consider impacts to historical and archeological resources as part of its Secondary Impacts evaluation (ERP Basis of Review 3.2.7).

Recommended actions to improve at-risk resources:

Coordination with the SHPO and avoiding construction at or near known historic sites should preserve the site for future exploration and documentation.

X Water Quality and Quantity

Comments on Effects:

Impacts may include: further alteration of channel cross sections, disruption of flows, increased runoff volumes, decreased runoff quality, sedimentation, bank erosion, and increased flooding potential in steams and lake outlets that have already undergone alterations that have affected their hydraulic characteristics.

The project has the potential to degrade further the water quality in lakes and canals that are already impaired for DO, nutrients, and fecal coliform bacteria.

Due to the high pollution vulnerability of the surficial aquifer and the Floridan Aquifer, the project has the potential to degrade groundwater quality.

Recommended avoidance, minimization and mitigation measures:

Compliance with existing permit requirements, successful use of erosion and sediment control BMPs, and future TMDL and MFL requirements will help assure that minimum water quality standards are met. Water quantity concerns will also be addressed during the ERP process. In general, limiting or otherwise offsetting encroachment on the streams and floodplains in the area can reduce quantity concerns. For groundwater resources, ensure that spillages of petroleum products and other chemicals do not occur during construction, and that stormwater treatment ponds do not intrude into the limerock or penetrate confining material of the aquifer system, either directly or by sinkhole formation.

Recommended actions to improve at-risk resources:

For surface water resources, reduce pollutant loads to the streams in the project area by treating stormwater runoff from currently untreated areas, by controlling erosion from the project site, by limiting activities in surface water, by protecting surface water from the ingress of grease and oils from equipment, by not locating new roadway facilities in or around known sinkholes; and by timing construction to avoid periods of high flows in the Peace Creek Drainage Canal, Saddle Creek, and Lake Lena Run.

X Wetlands

Comments on Effects:

The project may adversely impact wetlands as a result of encroachment and direct impacts. Adverse, secondary impact to these systems may result in additional loss of wetland function, potentially reducing habitat diversity, impairing and reducing the functions provided to wetland-dependant wildlife utilizing the wetlands, reduce abundance of wildlife species, reduce abundance of Listed Species by eliminating nest sites and foraging areas.

Construction activity may degrade water quality in the nearby wetland systems, cause disturbance due to noise and dust, and will result in direct damage to wetland vegetation. Further wetland disturbance may occur and wetland margins disturbed, further reducing their habitat quality and increasing their vulnerability to invasion by exotic species. Further sedimentation in wetlands may accelerate eutrophication and promote wetland conversion to uplands.

Depending upon the constructed depth, stormwater ponds located adjacent to wetlands may alter ground water and surface water flows that formerly maintained wetland hydroperiods. Hydroperiods of wetlands adjacent to stormwater ponds whose bottom elevations are lower than those of the wetlands may be adversely affected resulting in alterations to plant communities, habitats, and wildlife populations.

Recommended avoidance, minimization and mitigation measures:

Wetland impacts can be eliminated or reduced by:

1. Incorporating already-existing roadway crossings of Lake Lena Run and the Peace Creek Canal into the new alignment;
2. Adjusting the alignment and cross section to avoid the larger wetland systems
3. Adjusting the alignment and cross section to minimize disturbance to wetlands that cannot be avoided;
4. Implementing strict controls over sediment transport off site during construction;
5. Restricting the staging area and the movement of vehicles and equipment to non-wetland areas;

6. Avoiding Priority Wetlands;
7. Selecting alignments that avoid the better quality, contiguous wetlands;
8. Not selecting an alignment that traverses the Lake Lowery – Bonnet – Mattie area or crosses the Peace Creek Drainage Canal or Lake Lena Run at canal segments that still support large forested wetlands or encroaches on the floodplains of lakes that still retain large forested wetlands such as around Lakes Lulu, Hamilton, Fannie, Rochelle, Haines, and Henry,
9. Selecting treatment pond sites outside of wetlands, and
10. The results from the recommended reports on wetlands, upland habitats, wildlife, and road kills should be used to eliminate serious impacts to wildlife and habitat.

Recommended actions to improve at-risk resources:

Avoid impacts to wetlands and consider restoration as a mitigation measure for unavoidable wetland impacts.

X Wildlife and Habitat

Comments on Effects:

The project will eliminate habitat within the construction limits of the roadway improvements and associated facilities. The project's potential impacts on wildlife and habitat include:
1. The elimination of high quality upland habitat utilized by listed species,
2. The disruption of foraging areas for listed species,
3. Following construction, the invasion of disturbed habitats by undesirable plant species, further degrading former high quality habitats,
4. The elimination and/or degradation of FFWCC Biodiversity Hot Spots, and
5. The production of temporary impacts during construction, including: noise, dust, habitat damage, and potential turbidity in the lakes in the vicinity of the project area.

Animals crossing the new roadway will be at increased risk upon completion of the project, particularly at the following:
1. At any crossings of the Peace Creek Drainage Canal and Lake Lena Run,
2 In the Lake Mattie-Lowery-Bonnet area, and
3. In the floodplains of lakes that still retain large forested wetlands such as around Lakes Lulu, Hamilton, Fannie, Rochelle, Haines, and Henry.

Further, the project may cause additional isolation of faunal species populations on either side of the roadway, as the presence of the roadway will lower the ability of wildlife to move across the facility to the remaining habitats on either side of the highway.

Recommended avoidance, minimization and mitigation measures:

Excessive habitat damage can be eliminated by restricting construction equipment to the road ROW and designated staging areas. Turbidity will be addressed in the ERP and can be reduced by the use and maintenance of effective stormwater pollution prevention and control measures that are appropriate to the terrain involved.

It is specifically recommended that wildlife movement accommodations be considered in the design of this project to allow for wildlife movement between the remaining wetlands on either side of the proposed interchanges and roadways. A detailed Plan should be prepared and implemented to mitigate adverse impacts. The plan should use either the habitat guidelines developed by the US Fish and Wildlife Service or some combination of other acceptable alternatives. Construction and staging should be limited to only those areas that are necessary in order to minimize wildlife habitat impacts.

Recommended actions to improve at-risk resources:

Because wildlife is focused on the remaining wetlands and uplands, avoiding impacts to those areas, and mitigating previous impacts to those areas by other activities would be an effective tool to improve wildlife habitat.

Section 4(f) Potential

Degree of Effect:	None	Minimal	**X** Moderate	Substantial

	Enhanced	N/A No Involvement	Potential Dispute

Coordination Document:	No Involvement	**X**	PD&E Support Document	Permit Required
	Tech Memo Required		To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

Several parcels of public land are located within the project polygon or within 100' of the polygon's boundaries, including:
1. The SWFWMD-owned Lake Hancock parcel comprising 5749 acres located around Lake Hancock on all sides that was purchased for restoration and water quality improvement/protection purposes.
2. The SWFWMD – owned 1267-acre Circle Bar B Reserve located in the project polygon between the Polk Pkwy and the northwest shore of Lake Hancock provides hiking, aquatic –dependent wildlife viewing, picnicking.
3. Polk County's 159-acre Lake Bonnet Marsh, purchased for wetlands restoration.
4. The 397-acre Lake Lowery Marsh co-owned by Polk County and SWFWMD and purchased for wetlands restoration.
5. Polk County's recreational facilities in the area (Peace River Canoe Launch on SR 60 east of Bartow; Gordonville Park on Richardson St at Old Bartow Road east of the Bartow Municipal Airport; and Wahneta Park located at 1181/2 Rifle Range Rd., near the intersection of CR 655 and CR 559).
6. The City of Lake Alfred's 112-acre Mackay Gardens and Lakeside Preserve located on the north shore of Lake Rochelle off US 92; parks and boat ramps at Lakes Echo, Haines and Rochelle accessed from US 92.
7. The State of Florida's Hilochee Wildlife Management Area Osprey Unit is located within the western portion of the project polygon; the facility is utilized for hunting, hiking, wildlife viewing, and seasonal camping.

Comment on effects to resources:

There is a potential for direct impact to public lands used for recreation and/or restoration and conservation.

Additional Comments:

The SWFWMD considers the Degree of Effect as "Moderate" due to the potential for direct impact to 4(f) lands, the temporary impact to access to 4(f) lands, and the fact that the project alignment is unknown.

To the maximum practicable extent, it is recommended that no additional ROW acquisition occur for the roadway footprint or for stormwater management facilities within public lands. These lands were specifically acquired for natural resource conservation, recreation and environmental protection purposes.

Special Designations

Degree of Effect:	None	**X**	Minimal	Moderate	Substantial
	Enhanced	N/A No Involvement			Potential Dispute

Coordination Document:	No Involvement	**X**	PD&E Support Document	Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required		

Identify Resources and level of importance:

There are no OFWs located within the study area. However Crooked Lake and Catfish Creek are two nearby OFWs located southeast and east respectively. These OFWs may receive stormwater runoff from this project via adjacent drainage basins. Due to the large occurrences of named lakes within the study area, there is a possibility that any of these lakes are Sovereign Submerged Lands. (SSL).

Comment on effects to resources:

The direct effect on waters with special designations is considered Minimal; however, the exact alignment is not known at this time and the potential for adverse impacts exists.

Additional Comments:

Because Sovereign Submerged Lands (SSL) may be involved with this project, a thorough research of title records and information is needed to determine the location and extent of any such lands.

Degree of Effect:	None	Minimal	Moderate	**X** Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	**X** Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

There is a significant portion of the proposed project area identified as having groundwater contamination. Specifically the groundwater contamination identified by the Florida Department of Environmental Protection (FDEP) is ethylene dibromide (EDB).

The entire project may be located in a Sensitive Karst Area (SKA). The EST identifies 66 sinkholes within the proposed project area. There are indications that some of the sinkholes reported by the EST are duplicates. Previous SWFWMD studies (i.e., "Development of Proposed Environmental Resource Permit Criteria for Sensitive Karst Areas," Storm Water Resources of Florida, LC, September 2007) indicates 56 sinkholes located within the proposed project area.

The project area includes several Water Use Permits (WUPs) which appear to be for public water supply. The following municipalities have WUPs located inside the proposed project: City of Davenport, City of Winter Haven, City of Bartow and others.

SWFWMD has issued many Environmental Resource Permits (ERPs) in the potential project area, any of which may be affected by the final, project alignment. For example, there are records of at least 611 ERPs issued with the project area within the last two years in 171 public land survey sections in the study area.

Hydrologically, the multiple drainage basins occupied by the project polygon are part of the Peace River Basin, the Withlacoochee River basin, the Ocklawaha River Basin, or the Kissimmee River basin.

Under its Minimum Flows and Levels program, the SWFWMD has adopted MFLs for Lakes Eagle, McLeod, and Wales. MFLs are scheduled for adoption in 2008 for Lake Hancock and in 2011, for the Upper Peace River (SWFWMD. 2007. Board Approved 2008 Minimum Flows and Levels Priority List and Schedule).

The project study area contains portions of multiple WBIDs that are not meeting designated uses for one or more pollutants. These waterbodies have established TMDLs or will have TMDLs developed to address pollutants in these waterbodies. Some of these WBIDs contain additional sub watersheds that may be impaired for additional parameters or have additional TMDLs to address impairments.

Surface waters within the entire project are designated Class III (Ch. 62-302, F.A.C.) A large volume of water quality data, much of it long-term, is available for the majority of the lakes and the Peace Creek Drainage Canal, the Wahneta Farms Drainage Canal, and Saddle Creek from one or more of the following agencies: Polk County Dept of Natural Resources, LAKEWATCH, the City of Lakeland, the SWFWMD, and the USGS (Polk County Water Atlas, 2007). Evaluation of the water quality datasets for these sampling stations could be valuable

for determining the predevelopment conditions of the water quality of waters of interest within the area of potential project impact. These datasets could also be used as a baseline for existing impaired parameters from which to measure reductions to meet TMDLs. Specific parameters of concern associated with stormwater runoff from this project include dissolved oxygen, phosphorus, nitrogen, TSI, and fecal coliform bacteria.

Hydrologic data are available from the 232 monitoring sites operated by the SWFWMD. Two USGS gaging stations are present in the project polygon: #02293987 – Peace Creek Drainage Canal nr Wahneta, FL and #02297161 – Peace Creek nr Bartow, FL. The SWFWMD participates with USGS in these sites (USGS. 2007. Real-time Hydrologic Data for Florida web site).

Comment on effects to resources:

Construction activities may have adverse impacts on the following:
(1) Potable wells,
(2) Existing surface water management systems (ponds, drainage structures, etc.),
(3) Inducing sub-surface collapse in the vicinity of construction and contributing pollutants to ground water via fractures and small, unidentified sinkholes.
(4) Existing surface water features such as various lakes, streams and water bodies.

Additional Comments:

The SWFWMD considers the degree of effect as "Substantial" due to the project's potential to:
1. Increase runoff volumes downstream of the project and potential to impact various water bodies,
2. Degrade further the water quality in the various water bodies,
3. Contaminate the surficial aquifer during construction because of intercepting a contaminated site,
4. Contaminate the surficial aquifer with stormwater runoff,
5. Be affected by known karstic conditions in the project area, and
6. Contribute to cumulative effects, including decrease in historic basin storage combined with decrease in hydraulic capacity of existing drainage features.

This project will require an Environmental Resource Permit for Construction Activities. The Southwest Florida Water Management District publication, "Environmental Resource Permitting Information Manual," describes the permit application process. Please refer to "Part B, Basis of Review" for administrative and technical requirements for the design, construction and operation of surface water management systems.

When proposed alignment is more defined, a search for Environmental Resource Permits (ERPs) would be advisable. Previously approved permits near the proposed alignment may contain useful information, such as:
1. Permitted discharges and stages;
2. Open/closed basin determination;
3. Seasonal high water table determination;
4. Other engineering and non-engineering information.

This information may be useful during the planning, PD&E, or permitting phases of the proposed project.

A portion of the study area is also located within the Lake Region Lakes Management District. The Lakes Management District designs, builds, and maintains its own docks, boat ramps, and seawalls. The District has the responsibility of operating and maintaining numerous lake level management structures. In order that these structures operate properly, the canals leading to them and away from them must also be maintained. The District is also involved in water quality projects, which are frequently done in conjunction with other agencies.

Geotechnical investigation may be necessary to determine if contamination may be mobilized by the location of stormwater management systems. The SWFWMD Sensitive Karst Area was determined with two tests (see "Development of Proposed Environmental Resource Permit Criteria for Sensitive Karst Areas," Storm Water Resources of Florida, LC, September 2007):
1. Depth to the Floridan Aquifer System is less than 150-feet; or
2. There are more than 88 sinkholes within a 25-mile radius.

Geotechnical investigation may establish that for a particular stormwater management system location that neither of these tests are met.

Due to the potential for ground water contamination, the FDOT should design stormwater ponds as shallow as practical, and the depth of the water storage areas must be limited to prevent any excavation within three feet of the underlying limestone, which is part of a drinking water aquifer. If results of the geotechnical study or other data and information indicate a potential for ground water contamination due to stormwater pond

construction/operation, or if an aquitard, lime rock or sinkholes are inadvertently encountered during construction/operation, the SWFWMD may require additional stormwater treatment Best Management Practices for the project.

Parameters that are frequently over or under estimated include: seasonal high water, seasonal high groundwater table, historic basin storage, floodplain storage, floodway hydraulic capacity, peak discharge rates and timing, total discharged volume, and off-site hydrograph timing impacts. Site-specific design data is preferable to "book values." It is recommended that the FDOT consider providing a pond siting report that addresses these design approaches and criteria.

Products of the SWFWMD's project, B089 – One Foot Orthophotography, generate half-foot resolution aerial imagery which may be useful to FDOT in the PD&E phase and the design stage of the project. FDOT is encouraged to contact the SWFWMD project manager, Dr Steve Dicks, for further information.

If this project's proprietary authorizations qualify as a project of Heightened Public Concern, additional steps will be required during the review process and prior to ERP approvals.

Seven SWFWMD projects are being conducted that will generate information useful to FDOT in the project alignment selection and design phases:
1. Project H034 – Peace Creek Canal Watershed, which will generate data on the hydraulic and hydrologic characteristics of the Peace Creek Drainage Canal; the SWFWMD contact person is Jennette Seachrist of the Brooksville office.
2. L672 – Polk County Watershed Evaluation; the SWFWMD contact person is Dawn Turner of the Brooksville office.
3. L673 – Implementation of BMPs in Lake Belle and Tractor Lake Watersheds; the SWFWMD contact person is Dawn Turner of the Brooksville office.
4. P730 – Peace Creek Canal/Wahneta Drainage System Storage Improvements; the SWFWMD contact person is Dawn Turner of the Brooksville office.
5. H008 – Lake Hancock lake Level Modification; the SWFWMD contact person is Harry Downing of the Brooksville office.
6. H009 – Lake Hancock Outfall Structure P-11 Modification; the SWFWMD contact person is Tanase Bude of the Brooksville office.
7. H014 – Lake Hancock Outfall Treatment System; the SWFWMD contact person is Janie Hagberg of the Brooksville office.

The project must not cause backwatering or dewatering effects in streams and wetlands crossed. The modification or replacement of existing flow-accommodation facilities at stream crossings must not result in a lowering of the controlling elevation of the stream at that point. Adopted MFLs shall not be violated.

Pollution reductions in stormwater runoff via stormwater treatment facilities or BMPs will be required to implement future TMDLs once they are developed. The SWFWMD recommends that the FDOT participate as a stakeholder in future Basin Management Action Plan (BMAP) activities to ensure that stormwater controls associated with the proposed project will address these reductions. The FDEP conducts this process, in which stakeholders take the lead.

Existing stormwater treatment capacity, displaced by any roadway project, will require additional compensating treatment volume for replacement. For example, the existing treatment capacity that is displaced by project construction in neighborhood ponds/swales will need to be replaced in a project pond with suitable treatment volume from the existing contributing area and the road project area. Equivalent stormwater quality treatment from alternate existing areas should be avoided if possible.

The FDOT must make provisions to replace or otherwise mitigate the loss of historic basin storage provided by the project site.

Prior to beginning construction demolition and clearing, it will be necessary to locate and inventory all existing wells on-site and others in proximity to the proposed surface water management system facilities that are used for public and domestic supply. Unused wells within the project area must be properly plugged and abandoned prior to beginning construction, as required by Chapters 62-532 and 40D-3, F.A.C., using a licensed water well contractor who must acquire the appropriate well abandonment/construction permits.

The SWFWMD requests that the FDOT submit names and addresses of individuals or entities, whose property will be necessary for the roadway improvements, with the ERP application. Since the FDOT has power of

eminent domain, the SWFWMD will use this information to provide notice to these individuals, pursuant to Rule 40D-1.607(7), F.A.C. If this project will require the acquisition of new right-of-way areas, any issued permit may include special conditions prohibiting construction until the FDOT provides evidence of ownership and control.

The SWFWMD has assigned a pre-application file (PA# 7093) for the purpose of tracking its participation in the ETDM review of this project. The pre-application file is maintained at the SWFWMD's Bartow Service Office. Please refer to the pre-application file when contacting SWFWMD regulatory staff regarding this project.

Wetlands

Degree of Effect:	None	Minimal	Moderate	**X** Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	**X** Permit Required
	Tech Memo Required	To Be Determined: Further Coordination Required	

Identify Resources and level of importance:

According to SWFWMD's 2004 land use data, within the project polygon, there are approximately 26,000 acres of wetlands that compose 20% of the polygon. These wetlands are approximately one-half forested systems and one-half herbaceous systems. Forested systems include: bay swamps (FLUCFCS 611), cypress (FLUCFCS 621), stream and lake swamps (FLUCFCS 615), wetland coniferous forests (FLUCFCS 620), wetland forested mixed (FLUCFCS 630), and wetland hardwood forests (FLUCFCS 610). Herbaceous systems include: emergent aquatic vegetation (FLUCFCS 644), freshwater marsh (FLUCFCS 641), intermittent ponds (FLUCFCS 653), and wet prairies (FLUCFCS 643). The most prevalent wetland types are freshwater marsh, stream and lake swamp, and wetland forested mixed which, together, compose 80% of the total wetland acreage.

The western portion of the project polygon from SR 60 to Polk Parkway is characterized by a few large forested wetland areas associated with the streams and canals in the area together with smaller, isolated systems. The larger wetlands (> 5.0 acres) within the corridor polygon are:

1. The 123-acre marsh (FLUCFCS 641) surrounded by 201 acres of wetland forest-mixed (FLUCFCS 630) that are adjacent to the east side of Polk Parkway south of CR 542 and north of Winter Lake Rd;
2. The wetland system composed of a 29-acre marsh (FLUCFCS 641) and six acres of wet prairie (FLUCFCS 643) located south of Winter Lake Rd east of the intersection with Thornhill Rd;
3. The extensive (covering hundreds of acres) wetland hardwood system (FLUCFCS 610) associated with the 7-mile Lena Run, a mostly channelized flow way that emerges from the south shore of Lake Lena and runs SSW to the mined areas contiguous to the eastern shore of Lake Hancock;
4. The 46-acres of wetland forest-mixed (FLUCFCS 630) located west of Spirit Lake Road;
5. The 200 acres of wetland hardwood system (FLUCFCS 610) located in the SW quadrant of the Thornhill Rd/Spirit Lake Rd intersection;
6. The 61-acre marsh (FLUCFCS 641) associated with Millsite Lake;
7. The 89-acres of wetland forest-mixed (FLUCFCS 630) located NE of the Bartow Municipal Airport;
8. The 458-acres wetland forest-mixed (FLUCFCS 630) located south of the Bartow Municipal Airport;
9. The extensive (covering hundreds of acres) wetland associated with the Peace Creek Canal that is composed of freshwater marsh (FLUCFCS 641), wetland hardwood forest (FLUCFCS 610), wet prairie (FLUCFCS 643), a mostly channelized flow way that drains a 229-square mile watershed and merges with Saddle Creek at the headwaters of the Peace River south of Lake Hancock.

Proceeding from the presumed approximate location of the interchange at Polk Parkway south to SR 60, potential impacts to wetlands are the least along roughly the existing alignments of Thornhill Rd to Spirit Lake Road, and 91-Mile Road with the exception of the crossing of Lake Lena Run by Thornhill Ave and the crossing of the Peace Creek Drainage Canal by US 17 and Old Bartow Rd. Extensive forested wetlands occur between SR 60 and US 17 east of Lake Hancock in some of the remaining natural areas of the stream; this area was recognized by the FFWCC as a Priority Wetland and it persists today. Extensive wetlands exist associated with Lake Lena Run. Lake Lena is located north of US 17/US 92 and is outside of the project Polygon, but the lake's outlet canal flows south to discharge to the mined area east of Lake Hancock, and the stream supports large areas of forested wetland that are designated as Priority Wetlands by FFWCC.

The eastern portion of the project polygon from SR 60 to I-4 is characterized by numerous lakes, many large forested wetland areas, together with smaller wetland systems associated with lake and stream/canal floodplains. Wetlands become more prevalent and generally larger in areal extent from south to north in the eastern portion of the polygon. The northern portion of the eastern polygon contains wetlands and lakes that contribute to the Green Swamp located just to the north. The larger wetlands (> 5.0 acres) within the corridor polygon are:

1. The area between I-4 south to US 17/US 92 which includes Lakes Lowery, Bonnet, Mattie, and Hammock; this area is very extensive and includes numerous wetlands designated as Priority Wetlands by FFWCC.
2. The area between US 17/US 92 south to CR 544 includes the large lake-adjacent forested wetlands associated with Lakes Hamilton, Fannie, Rochelle, Haines, and Henry.
3. The area between SR 60 and CR 540 includes wetlands on agricultural lands and wetlands associated with Lake Lulu and the Peace Creek Drainage Canal just west of US 27.

The EST reports 2600 acres of FFWCC Priority Wetlands habitat capable of supporting 7-9 focal species in wetlands within the 100' buffer of the project polygon. A review of recent aerial mapping indicated that the majority of those wetlands persist in the Lake Lowery – Bonnet – Mattie area and along some segments of the Peace Creek Drainage Canal in the eastern portion of the project polygon and along Lake Lena Run and the Peace Creek Drainage Canal in the western portion of the polygon.

Comment on effects to resources:

Depending on the design of the roadway and intersections, it is estimated that the total wetland impact acreage could be extremely high, particularly if the selected alignment:

1. Includes the Lake Lowery – Bonnet – Mattie area or
2. Crosses the Peace Creek Drainage Canal or Lake Lena Run at canal segments that still support large forested wetlands or
3. Encroaches on the floodplains of lakes that still retain large forested wetlands such as around Lakes Lulu, Hamilton, Fannie, Rochelle, Haines, and Henry.

Impacts to wetlands within the right-of-way may include:

1. The elimination of high quality forested wetlands,
2. The reduction of wetland systems' functional value relating to wildlife habitat, the loss of flood storage/attenuation capacity, and
3. The transport of sediment to wetlands contiguous to the wetlands within the right-of-way.

Depending upon the constructed depth, stormwater ponds located adjacent to wetlands could intercept ground water and surface water that formerly maintained wetland hydroperiods. Hydroperiods of wetlands adjacent to stormwater ponds whose bottom elevations are lower than those of the wetlands may be reduced and major alterations may occur to plant communities, habitats, and wildlife populations.

The result of project impacts to wetlands will be a loss of wetland-dependent wildlife, including listed species, a decrease in wildlife diversity, deterioration of water quality, damage to remaining wetland vegetation, and a loss of hydrologic benefits now provided by wetlands. Further, wetlands will be adversely affected as a result of erosion and sediment transport to these sensitive areas.

Additional Comments:

The SWFWMD considers the degree of effect as "Substantial" due to the following:

1. The potential to impact adversely hundreds of acres of forested wetlands, some of which are recognized as Priority Wetlands,
2. The potential to impact adversely hundreds of acres of remaining Priority Wetlands;
3. The potential to degrade/eliminate some of the remaining wetland systems in the area; and
4. The high potential for further wetland loss as a result of the construction of stormwater facilities in or immediately adjacent to wetlands.

Wetland impacts can be eliminated or reduced by:

1. Incorporating already-existing roadway crossings of Lake Lena Run and the Peace Creek Canal into the new alignment;
2. Adjusting the alignment and cross section to avoid the larger wetland systems
3. Adjusting the alignment and cross section to minimize disturbance to wetlands that cannot be avoided;
4. Implementing strict controls over sediment transport off site during construction;
5. Restricting the staging area and the movement of vehicles and equipment to non-wetland areas;
6. Avoiding Priority Wetlands;
7. Selecting alignments that avoid the better quality, contiguous wetlands;
8. Not selecting an alignment that traverses the Lake Lowery – Bonnet – Mattie area or crosses the Peace Creek Drainage Canal or Lake Lena Run at canal segments that still support large forested wetlands or

encroaches on the floodplains of lakes that still retain large forested wetlands such as around Lakes Lulu, Hamilton, Fannie, Rochelle, Haines, and Henry, and
9. Selecting treatment pond sites outside of wetlands.

This project will require an Environmental Resource Permit for Construction Activities. The Southwest Florida Water Management District publication, "Environmental Resource Permitting Information Manual," describes the permit application process. Please refer to "Part B, Basis of Review" for administrative and technical requirements for the design, construction and operation of surface water management systems.

It is recommended that the FDOT prepare a Wetland Evaluation Report (WER) and an Endangered Species Biological Assessment (ESBA) for further analysis. Listed Species that are known or expected to utilize the environs of the project include American alligator, Florida sandhill crane, little blue heron, roseate spoonbill, snowy egret, tricolored heron, white ibis, and wood stork (40D-4.301(d); BOR, Appendix 5). Existing data should be collected and specific surveys should be conducted to detect the occurrence and abundance of other Listed Species that are very likely to utilize the wetlands and other surface waters within and adjacent to the ROW. The potential impact of the roadway project on these, and non-listed native animals, should be assessed.

Adequate and appropriate wetland mitigation activities will be required for unavoidable wetland and surface water impacts associated with the project. The project mitigation needs may be addressed in the FDOT Mitigation Program (Chapter 373.4137, F.S.) which requires the submittal of anticipated wetland and surface water impact information to the SWFWMD. This information is utilized to evaluate mitigation options, followed by nomination and multi-agency approval of the preferred options. These mitigation options typically include enhancement of wetland and upland habitats within existing public lands, public land acquisition followed by habitat improvements, and the purchase of private mitigation bank credits. The SWFWMD may choose to exclude a project in whole or in part if the SWFWMD is unable to identify mitigation that would offset wetland and surface water impacts of the project. Under this scenario, the SWFWMD will coordinate with the FDOT on which impacts can be appropriately mitigated through the program as opposed to separate mitigation conducted independently. Depending on the quantity and quality of the proposed wetland impacts, the SWFWMD may propose purchasing credits from a mitigation bank and/or pursue and propose alternative locations for mitigation. For ERP purposes of mitigating any adverse wetland impacts within the same drainage basin, the project polygon is located within the Peace, Withlacoochee, Kissimmee, and Ocklawaha River Basins. As part of FDOT Mitigation Program, the SWFWMD has conducted various mitigation activities within each of these basins; including a few projects selected within the Central Polk Parkway study area. These include the Circle B Bar Reserve (Peace), Lake Lowery Tract (Ocklawaha), and Reedy Creek Mitigation Bank (Kissimmee). The SWFWMD requests that the FDOT continue to collaborate on the potential wetland impacts as this roadway project proceeds into future phases, and include the associated impacts on FDOT's annual inventory.

It is recommended that the FDOT prepare a Wetland Evaluation Report (WER) and an Endangered Species Biological Assessment (ESBA) and provide the results to the SWFWMD. Specific surveys should be conducted to detect the occurrence and abundance of Listed Species that are likely to utilize the wetlands and other surface waters within a 200' buffer and at proposed treatment pond sites. The potential impact of the roadway project on these species should be assessed.

The SWFWMD requests that the FDOT submit names and addresses of individuals or entities, whose property will be necessary for the roadway improvements, with the ERP application. Since the FDOT has power of eminent domain, the SWFWMD will use this information to provide notice to these individuals, pursuant to Rule 40D-1.607(7), F.A.C. If this project will require the acquisition of new right-of-way areas, any issued permit may include special conditions prohibiting construction until the FDOT provides evidence of ownership and control.

The SWFWMD has assigned pre-application file (PA# 7093) for the purpose of tracking its participation in the ETDM review of this project. The pre-application file is maintained at the SWFWMD's Bartow Service Office. Please refer to the pre-application file when contacting SWFWMD regulatory staff regarding this project.

Wildlife and Habitat

Degree of Effect:	None	Minimal	Moderate	**X** Substantial
	Enhanced	N/A No Involvement		Potential Dispute

Coordination Document:	No Involvement	PD&E Support Document	**X** Permit Required

	Tech Memo Required	To Be Determined: Further Coordination Required

Identify Resources and level of importance:

According to the SWFWMD's 2004 land use data, non-wetland land cover types account for roughly 80% of the project polygon. A review of recent aerial mapping indicates that approximately 73% of this area is composed of degraded upland habitats or has been converted for commercial, agricultural or residential purposes. However, some high quality uplands remain in the project polygon and are composed of pine flatwoods (FLUCFCS 411), mixed hardwood/conifer mixed forests (FLUCFCS 434), temperate hardwood forests (FLUCFCS 425), sand pine scrub (FLUCFCS 413), sandhill (FLUCFCS 412), and xeric oak (FLUCFCS 421). High quality uplands account for approximately 7% of the acreage within the 100-foot buffer. Nevertheless, these high quality uplands represent important remnant areas for wildlife that are aquatic or wetland-dependent and that use upland habitats for nesting or denning. Listed upland species that can be expected to use these upland habitats include: gopher tortoise (SSC) and eastern indigo snake (T).

The entire project polygon is located within the Consultation Areas for the Florida scrub jay (T), snail kite (E), and crested caracara (T).

FFWCC Strategic Habitat and Conservation areas occupy the area between US 27 and CR 557 in the eastern portion of the project polygon and are common along Lake Lena Run and the Peace Creek Drainage Canal in the western portion of the polygon. FFWCC Biodiversity Hot Spots occupy virtually the same areas and include approximately 11,550 acres in the project polygon.

In view of the geographical range of the project area and the habitats available in the project polygon, the following Listed Species can be expected: American alligator, gopher tortoise, eastern indigo snake, Florida burrowing owl, wood stork, little blue heron, southeast American kestrel, snowy egret, tricolored heron, snowy egret, roseate spoonbill, Florida scrub jay, Southern bald eagle, crested caracara, and white Ibis.

There are 19 eagles' nests reported within the project polygon; all are reported as active in 2001 to 2003. It will be necessary to confirm the absence of nests within the project impact area. If a nest or a nest tree is lost by natural causes or storm events, USFWS recommends that the No Activity Guidelines apply through two complete breeding seasons. A nest is considered "abandoned" if it is inactive (unused) but intact or partially intact through five complete breeding seasons, in which case the No Activity Guidelines no longer apply.

Comment on effects to resources:

The project will eliminate habitat within the construction limits of the roadway improvements and associated facilities. The project's potential impacts on wildlife and habitat include:
(1) The elimination of habitat utilized by listed species,
(2) The disruption of foraging areas for listed species,
(3) Following construction, the invasion of disturbed habitats by undesirable plant species, further degrading former high quality habitats,
(4) The elimination and/or degradation of FFWCC Biodiversity Hot Spots, and
(5) The production of temporary impacts during construction, including noise, dust, habitat damage, and potential turbidity in the lakes in the vicinity of the project area.

Animals crossing the widened roadway will be at increased risk upon completion of the project, particularly (1) at any crossings of the Peace Creek Drainage Canal and Lake Lena Run, (2) in the Lake Mattie-Lowery-Bonnet area, and (3) in the floodplains of lakes that still retain large forested wetlands such as around Lakes Lulu, Hamilton, Fannie, Rochelle, Haines, and Henry. Further, the project may cause additional isolation of faunal species populations on either side of the roadway, as the presence of the roadway will lower the ability of wildlife to move across the facility to the remaining habitats on either side of the highway.

Additional Comments:

The SWFWMD considers the degree of effect as "Substantial" due to the following:
1. Further elimination and degradation of upland and wetland habitats,
2. Potential to impact public conservation lands,
3. Potential to eliminate remaining remnants of high quality habitat.
4. Elimination or impairment of remaining Priority Wetlands and Biodiversity Hot Spots,
5. Potential for wildlife fatalities due to the new pavement; and
6. Potential to result in increased pollutant loads and runoff volumes to area wetlands used by Listed Species.

This project will require an Environmental Resource Permit for Construction Activities. The Southwest Florida Water Management District publication, "Environmental Resource Permitting Information Manual," describes the permit application process. Please refer to "Part B, Basis of Review" for administrative and technical requirements for the design, construction and operation of surface water management systems.

Because of the documented presence of Listed Species, it is recommended that the FDOT conduct a specific wildlife survey of the habitats within and immediately adjacent to the ROW for the purposes of:
(a) Describing the diversity of species using the habitats,
(b) Determining which Listed Species use the habitats,
(c) Determining the utilization by Listed Species (foraging, cover, protection, breeding), and
(d) Determining the abundance of wildlife utilizing the habitats.

The new pavement may increase animal fatalities in the area. Large and small mammals, birds, amphibians, and reptiles moving across the roadway will be at additional risk upon completion of the project. The SWFWMD recommends specific biological surveys be conducted to detect the occurrence and abundance of wildlife, both listed and non-listed, in order to assess the impact of the project on animals and plants and to determine the need for wildlife accommodations at particularly important locations along the project. The FFWCC data on the site should be updated to the present time and applied to this project. The information generated during this work should be used in project design to reduce wildlife impacts. The data collected should be analyzed for the purpose of determining the value of wildlife crossings.

It is recommended that the FDOT prepare a Wetland Evaluation Report (WER) and an Endangered Species Biological Assessment (ESBA) for further analysis. Listed Species that are known or expected to utilize the environs of the project include Florida sandhill crane, little blue heron, roseate spoonbill, snowy egret, tricolored heron, white ibis, and wood stork (40D-4.301(d); BOR, Appendix 5). Existing data should be collected and specific surveys should be conducted to detect the occurrence and abundance of other Listed Species that are very likely to utilize the wetlands and other surface waters within and adjacent to the ROW. The potential impact of the roadway project on these, and non-listed native animals, should be assessed. The high probability of the eastern indigo snake occurring within the project area may necessitate consultation with the US Fish and Wildlife Service (USFWS) and implementation of the Eastern Indigo Snake Standard Protection Measures.

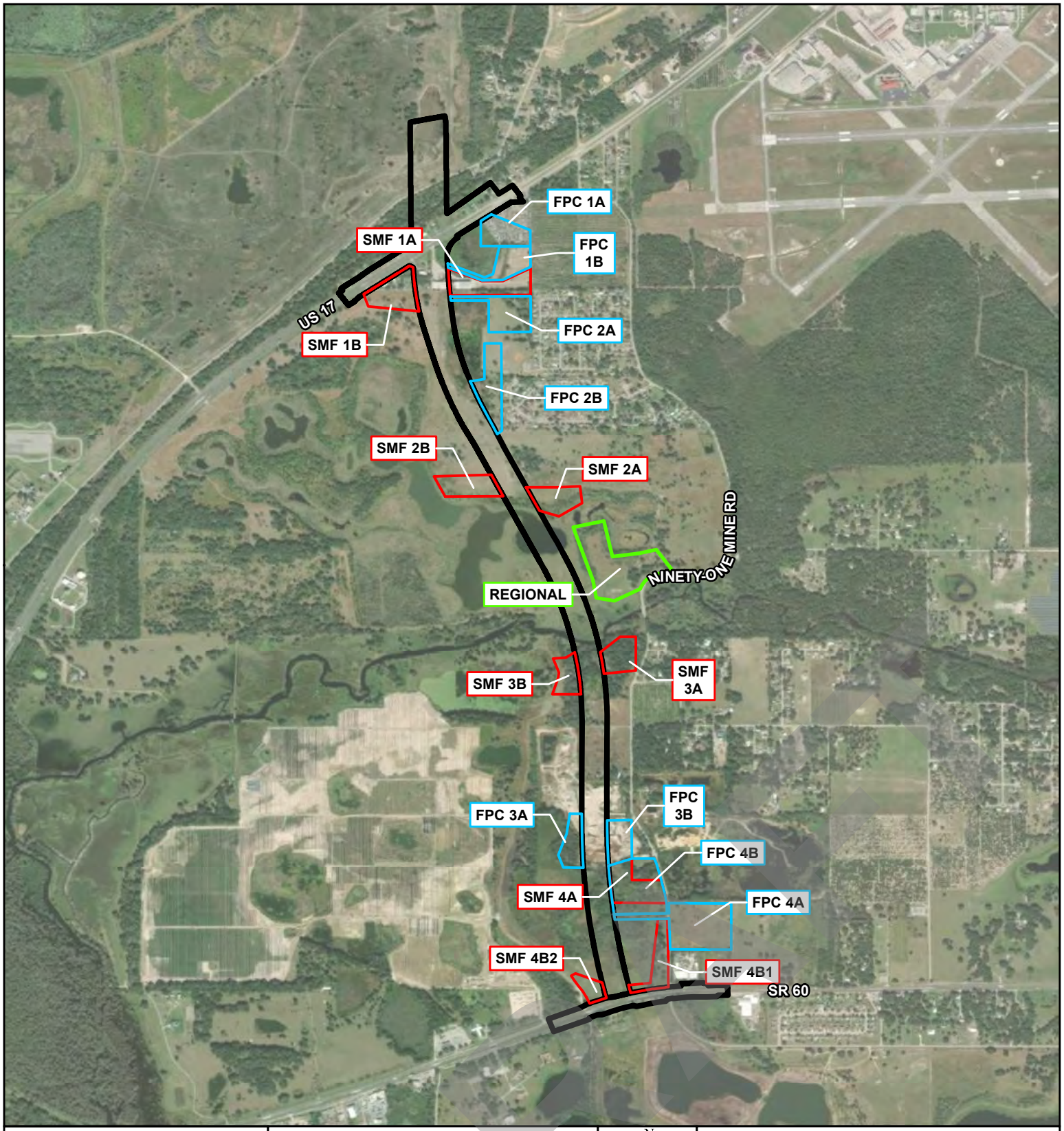
Given the potential that there may be an active eagle's nest within the 660-foot Zone, it may be necessary for the FDOT to comply with USFWS June 5, 2006 Guidance Memo, "CONSTRUCTION ACTIVITIES ADJACENT TO BALD EAGLE NESTS - 2006 Revision."

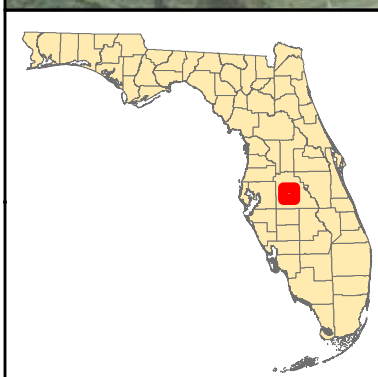
It will be necessary to provide a complete wildlife survey of the corridor(s) including comments from the USFWS, FFWCC, and/or Bureau of Imperiled Species Management.

Coordination with the FFWCC will be required to obtain the appropriate permits to relocate any gopher tortoises that will be impacted as a result of the proposed project. If tortoises are present within the construction zones of the selected alignment, permits and a management plan including details on relocation and mitigation may be required. Several other species are known commensals that have been known to occupy gopher tortoise burrows. These species include the gopher frog, eastern indigo snake, Florida pine snake, and the Florida mouse.

APPENDIX B

FIGURES





Legend

- Project Area
- FPC Site Alternative
- Regional SMF Site Alternative
- SMF Site Alternative

N W E S

2,000 1,000 0 2,000

Feet

Pond Site Location Map

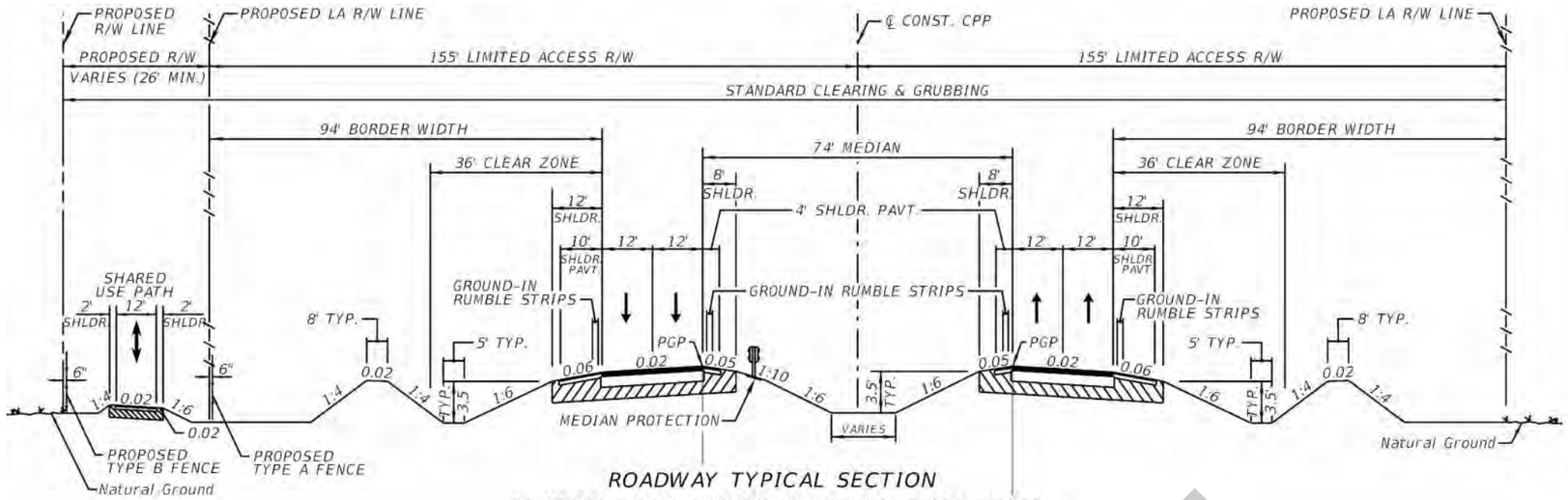
Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

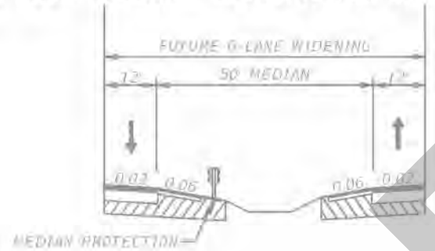
Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Figure 1

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\CPP2_Pond Site Location Map.mxd 12/23/2020



ROADWAY TYPICAL SECTION
CENTRAL POLK PARKWAY MAINLINE (SR 570B)

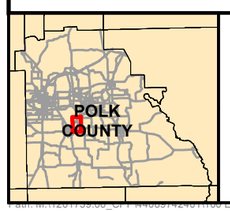


TRAFFIC DATA

CURRENT YEAR = 2018 AADT = N/A
ESTIMATED OPENING YEAR = 2025 AADT = 11,700
ESTIMATED DESIGN YEAR = 2045 AADT = 19,000
K = 10% D = 53% T = 8.5% (24 HOUR)
DESIGN HOUR T = 4%
TRUCK DDHV = 41
DESIGN SPEED = 70 MPH
POSTED SPEED = 65 MPH

STATION LIMITS

STA. 1317+48.00 (MP 6.003) TO STA. 1450+24.61 (MP 8.518)

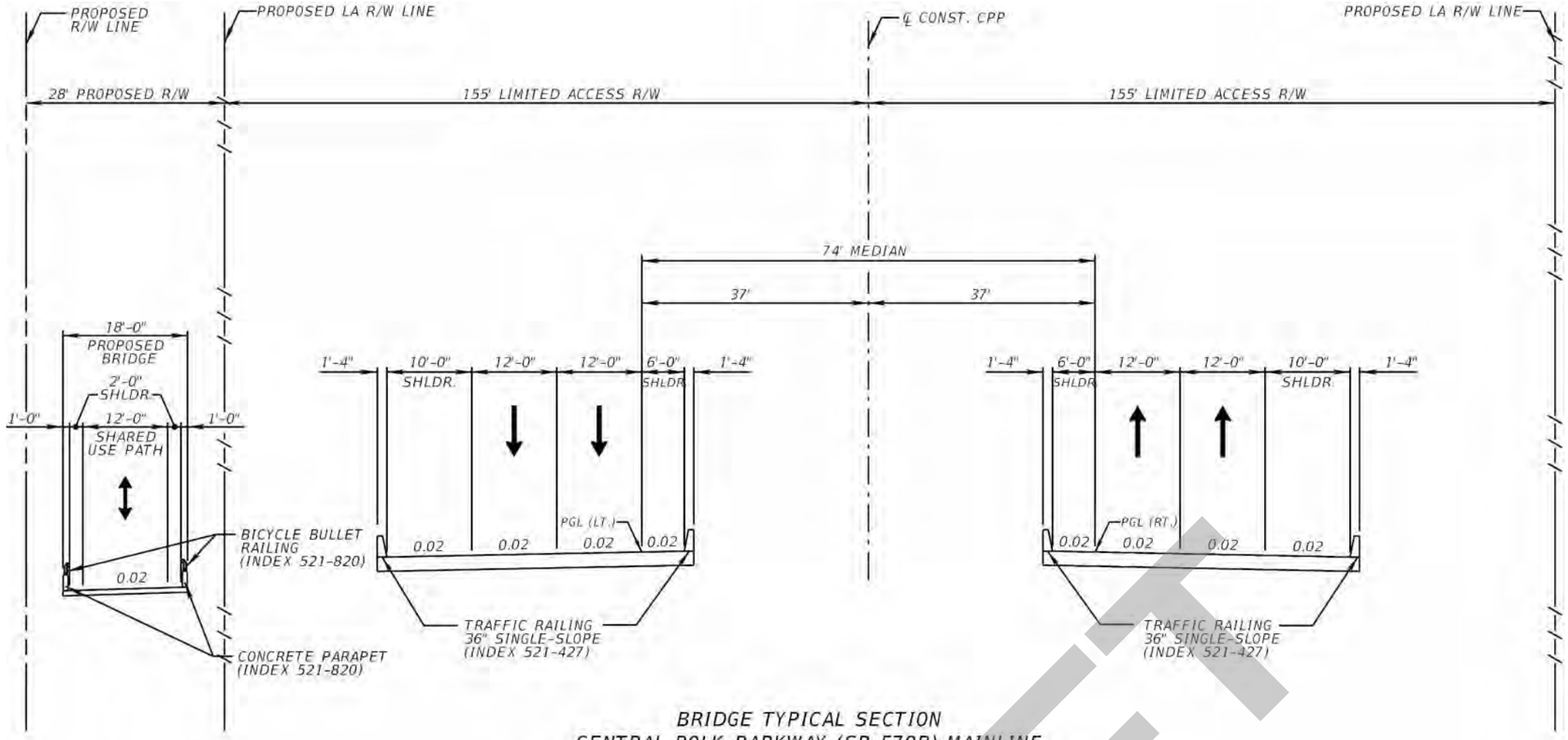


FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60
Polk County, Florida
FPID Number: 440897-4-24-01

Proposed Typical Section

Figure 2a



BRIDGE TYPICAL SECTION
CENTRAL POLK PARKWAY (SR 570B) MAINLINE
BRIDGES OVER PEACE CREEK

TRAFFIC DATA

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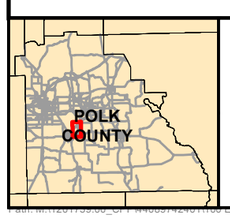
ESTIMATED OPENING YEAR = 2025 AADT = 11,700
ESTIMATED DESIGN YEAR = 2045 AADT = 19,000
K = 10% D = 53% T= 8.5% (24 HOUR)
DESIGN HOUR T = 4%
TRUCK DDHV = 41
DESIGN SPEED = 70 MPH
POSTED SPEED = 65 MPH

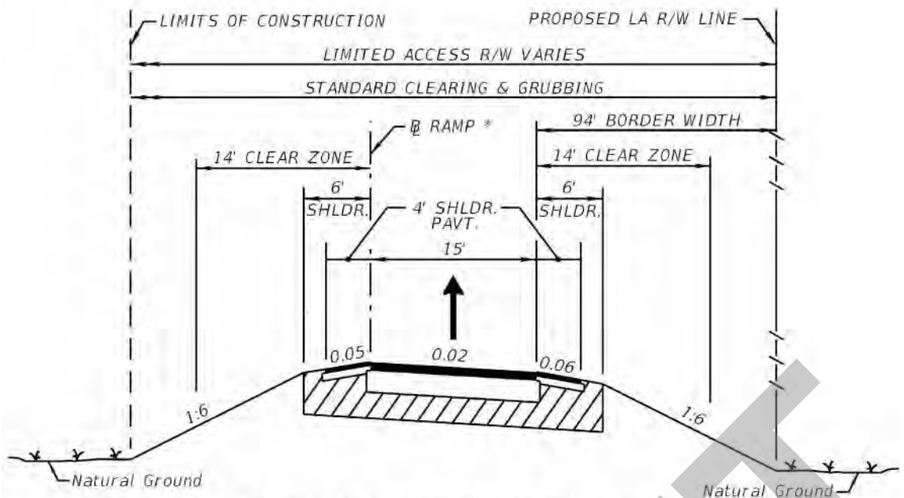


FLORIDA'S TURNPIKE

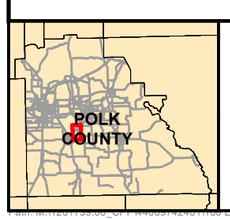
Central Polk Parkway - From US 17 (SR 35) to SR 60
Polk County, Florida
FPID Number: 440897-4-24-01

Proposed Typical Section

Figure 2b



ROADWAY TYPICAL SECTION
SINGLE LANE RAMP



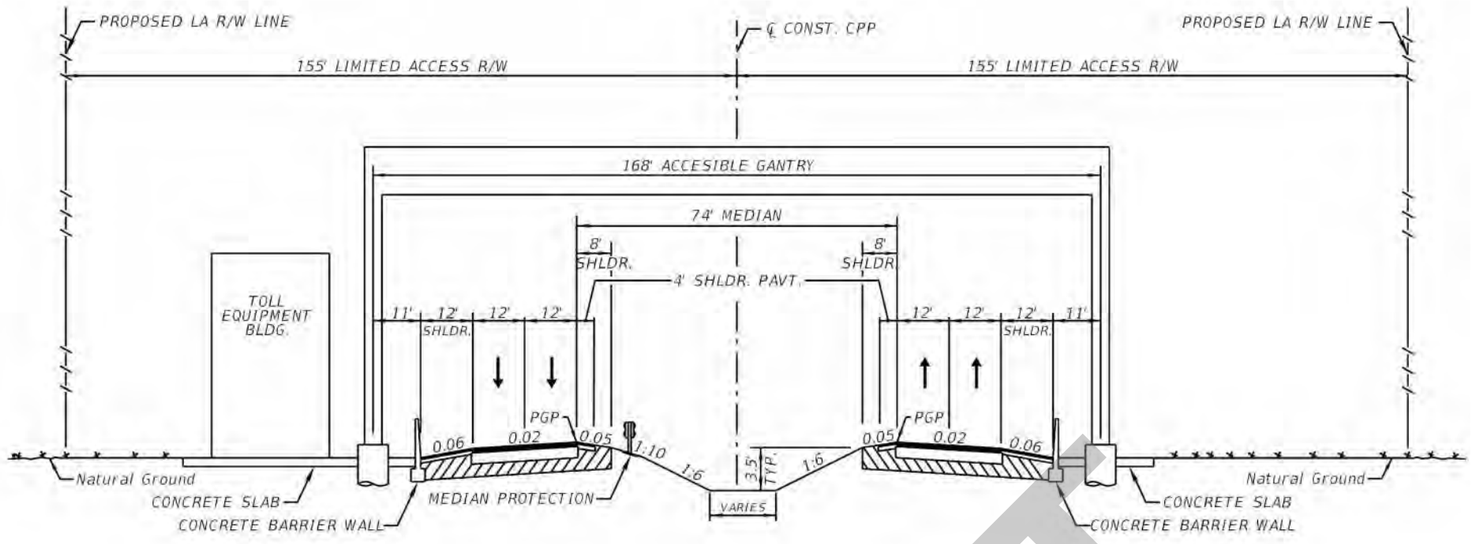
FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60

Polk County, Florida
FPID Number: 440897-4-24-01

Proposed Typical Section

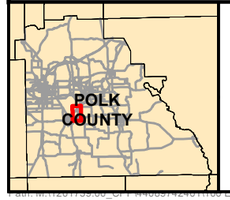
Figure 2c



ROADWAY TYPICAL SECTION
CENTRAL POLK PARKWAY MAINLINE (SR 570B)
4-LANE ALL ELECTRONIC TOLLING

TRAFFIC DATA

CURRENT YEAR = 2018 AADT = N/A
ESTIMATED OPENING YEAR = 2025 AADT = 11,700
ESTIMATED DESIGN YEAR = 2045 AADT = 19,000
K = 10% D = 53% T = 8.5% (24 HOUR)
DESIGN HOUR T = 4%
TRUCK DDHV = 41
DESIGN SPEED = 70 MPH
POSTED SPEED = 65 MPH



FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60
Polk County, Florida
FPID Number: 440897-4-24-01

Proposed Typical Section

Figure 2d

N

0 750 1,500

Feet

Begin Project

End Project

FPC 1A

FPC 1B

FPC 2A

FPC 2B

SMF 1A

SMF 1B

SMF 2A

SMF 2B

REGIONAL

SMF 3A

SMF 3B

FPC 3A

FPC 3B

FPC 4A

SMF 4A

FPC 4B

SMF 4B1

SMF 4B2

Bartow Municipal Airport

Gordonville

Bridge

Tice Lake

Peace Creek

Peace River

Spessard L Holland Bridge

Gandy Cem

Connersville

E GASKIN RD

E GAMDY BLVD

N 9I MINE RD

GANDY CEMETERY RD

CONNERSVILLE RD

SUNUP DR

DIETZ

WARFIELD DR

MORRIS DR

DUDLEY DR

GATE RD

RADFORD RD

OLD BARTON RD

RICHARDSON RD

AVE A

AVE B

2ND ST

4TH ST

555

17

100

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

POLK COUNTY

Legend

- Proposed ROW
- FPC Site
- Regional SMF
- SMF Site

FLORIDA'S TURNPIKE

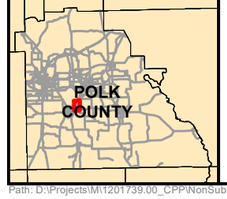
Central Polk Parkway - From US 17 (SR 35) to SR 60

Polk County, Florida

FPID Number: 440897-4-24-01

USGS Quadrangle Map

Figure 3



Legend

- Proposed ROW
- FPC Site
- Regional SMF
- SMF Site
- Soils

FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60

Polk County, Florida
FPID Number: 440897-4-24-01

NRCS Soils Map

Figure 4

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Legend

- Proposed ROW
- FPC Site
- Regional SMF
- SMF Site
- FEMA Zone A
- FEMA Zone AE

FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60

Polk County, Florida
FPID Number: 440897-4-24-01

FEMA Floodplain Map

Figure 5

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\PSR\CPP - Figure 5 - FEMA.mxd 12/23/2020

GASKIN BRANCH 1598

UNNAMED SLOUGH 1608

NINETY-ONE MINE RD

EAGLE LAKE OUTLET 1623N

Begin Project

US 17

FPC 1A

FPC 1B

FPC 2A

FPC 2B

SMF 1A

CD-1

SMF 1B

MINED AREA 1586

REGIONAL

SMF 2A

SMF 2B

PEACE CREEK DRAINAGE CANAL 1539

SMF 3A

SMF 3B

CD-2

FPC 3A

FPC 3B

FPC 4A

FPC 4B

SMF 4A

CD-3

CD-4

CD-5

CD-6

SMF 4B1

SMF 4B2

SR 60

PEACE RIVER ABOVE BOWLEGS CREEK 1623J

End Project

N

0 500 1,000

Feet

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

POLK COUNTY

Legend

- Crossdrain
- Proposed ROW
- FPC Site
- Regional SMF
- SMF Site

FLORIDA'S TURNPIKE

Central Polk Parkway - From US 17 (SR 35) to SR 60

Polk County, Florida

FPID Number: 440897-4-24-01

Impaired Waterbodies Map

Figure 6

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded tenth-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

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Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

Base map information shown on this FIRM was provided in digital format by the Southwest Florida Water Management District. The original orthophotographic base imagery was provided in color with a one-foot pixel resolution at a scale of 1" = 100' from photography flown January - March 2005.

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Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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DATUM INFORMATION

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Base Flood Elevation (BFEs) on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
National Geodetic Survey, NOAA,
N/NGS12
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Example Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

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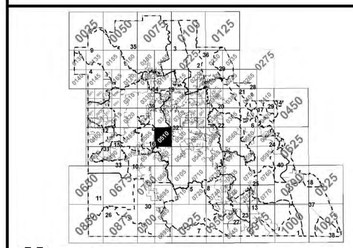

Watershed Boundary

Watershed*	Datum Offset (ft)	Study Type	Total Rainfall Volume (in) 1 Day 100yr	5 Day 100yr	Multi-Day Rainfall Used**	Date of Model
1. Arbuckle Creek	-1.0	Historical Delineation	11.0		YES	11/19/03
2. Big Creek East	-0.96	Historical Delineation				
3. Big Creek West	-0.96	Historical Delineation				
4. Blackwater Creek	-0.96	Redelineation				
5. Bowlegs Creek	-0.96	Redelineation				
6. Catfish Creek	-1.0	Historical Delineation	11.0		YES	11/19/03
7. Charlie Creek	-0.96	Historical Delineation				
8. Crooked Lake	-0.96	Redelineation				
9. Gator Creek	-0.96	Historical Delineation				
10. Homeland	-0.96	Redelineation				
11. Hookers Prairie/South Alafia	-0.96	Historical Delineation				
12. Itchepackesassa Creek	-0.96	Redelineation				
13. Lake Arbuckle	-1.0	Historical Delineation	11.0		YES	11/19/03
14. Lake Cypress	-1.0	Historical Delineation	11.0		YES	11/19/03
15. Lake Drain	-0.96	Redelineation				
16. Lake Hancock Area	-0.87	Detailed	10.5	16.0	YES	04/03/13
17. Lake Hatchineha	-1.0	Redelineation	11.0		YES	11/19/03
18. Lake Kissimmee	-1.0	Redelineation	11.0		YES	11/19/03
19. Lake Van	-0.86	Detailed	10.0	16.0	NO	09/13/12
20. Lake Marion	-1.0	Redelineation	11.0		YES	11/19/03
21. Lake Marion Creek	-1.0	Detailed	–		YES	11/23/09
22. Lake Pierce	-1.0	Redelineation	11.0		YES	11/19/03
23. Lake Reedy	-1.0	Redelineation	11.0		NO	11/19/03
24. Lake Rosalie	-1.0	Redelineation	11.0		YES	11/19/03
25. Lake Wenohyakapka	-1.0	Redelineation	11.0		YES	11/19/03
26. Little Payne Creek	-0.96	Historical Delineation				
27. Livingston Creek	-1.0	Historical Delineation	11.0		NO	11/19/03
28. London Creek	-1.0	Limited Detailed	–		YES	11/23/09
29. Lower Reedy Creek	-1.0	Historical Delineation	11.0		YES	11/19/03
30. McCullough Creek	-0.96	Redelineation				
31. Mulberry (aka Christina)	-1.1	Detailed	10.5	16.0	NO	12/16/10
32. Peace Creek	-0.91	Detailed	9.0	16.0	YES	10/23/13
33. Poley Creek/North Alafia	-0.96	Redelineation				
34. Polk City	-0.86	Detailed	10.0	16.0	NO	09/13/12
35. Pony Creek	-0.96	Historical Delineation				
36. Reedy Creek	-0.96	Historical Delineation				
37. S-65A	-1.0	Historical Delineation	11.0		YES	11/19/03
38. S-65BC	-1.0	Historical Delineation	11.0		YES	11/19/03
39. Saddle Creek	-0.96	Redelineation				
40. Tiger Lake	-1.0	Historical Delineation	11.0		YES	11/19/03

* All Polk County watersheds listed.

** Multi-Day event used only in specific sub-basins, refer to FIS report.

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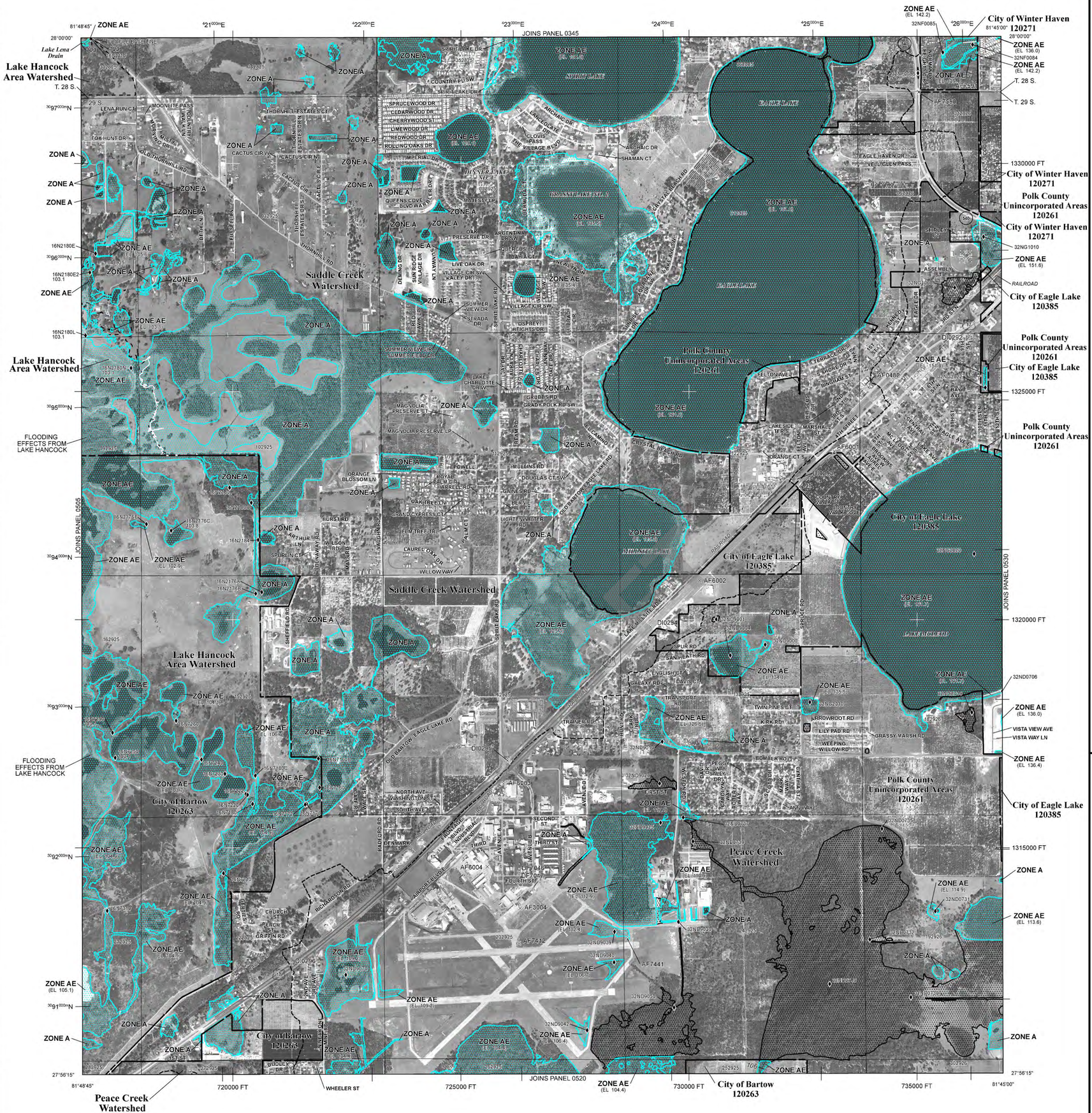

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** No Base Flood Elevations determined.
- **ZONE AE** Base Flood Elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
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- **ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
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- **ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- A / A — Cross section line
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- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
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- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
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- 222218 — Section - Township - Range
- 7NX1000 — Junction - Points defining locations of flow accumulation or hydraulic connectivity. The first two characters of the Junction name represents the specific watershed (as shown in the map collar locator map) in which the Junction is located (note that boundary Junctions, without an associated floodplain, are also shown).
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MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
December 20, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0510G

FIRM

FLOOD INSURANCE RATE MAP
POLK COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 510 OF 1025

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BARTOW, CITY OF	120263	0510	G
EAGLE LAKE, CITY OF	120385	0510	G
POLK COUNTY	120261	0510	G
WINTER HAVEN, CITY OF	120271	0510	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12105C0510G

MAP REVISED
DECEMBER 22, 2016

Federal Emergency Management Agency

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National Geodetic Survey, NOAA,
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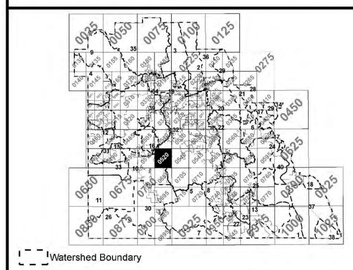

Watershed Boundary

Watershed*	Datum Offset (ft)	Study Type	Total Rainfall Volume (in) 1 Day 100yr	5 Day 100yr	Multi-Day Rainfall Used**	Date of Model
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3. Big Creek West	-0.96	Historical Delineation				
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8. Crooked Lake	-0.96	Redelineation				
9. Gator Creek	-0.96	Historical Delineation				
10. Homeland	-0.96	Redelineation				
11. Hookers Prairie/South Alafia	-0.96	Historical Delineation				
12. Itchepackesassa Creek	-0.96	Redelineation				
13. Lake Arbuckle	-1.0	Historical Delineation	11.0		YES	11/19/03
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25. Lake Wechiykapka	-1.0	Redelineation	11.0		YES	11/19/03
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27. Livingston Creek	-1.0	Historical Delineation	11.0		NO	11/19/03
28. London Creek	-1.0	Limited Detailed	--		YES	11/23/09
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35. Pony Creek	-0.96	Historical Delineation				
36. Reedy Creek	-0.96	Historical Delineation				
37. S-65A	-1.0	Historical Delineation	11.0		YES	11/19/03
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39. Saddle Creek	-0.96	Redelineation				
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* All Polk County watersheds listed.

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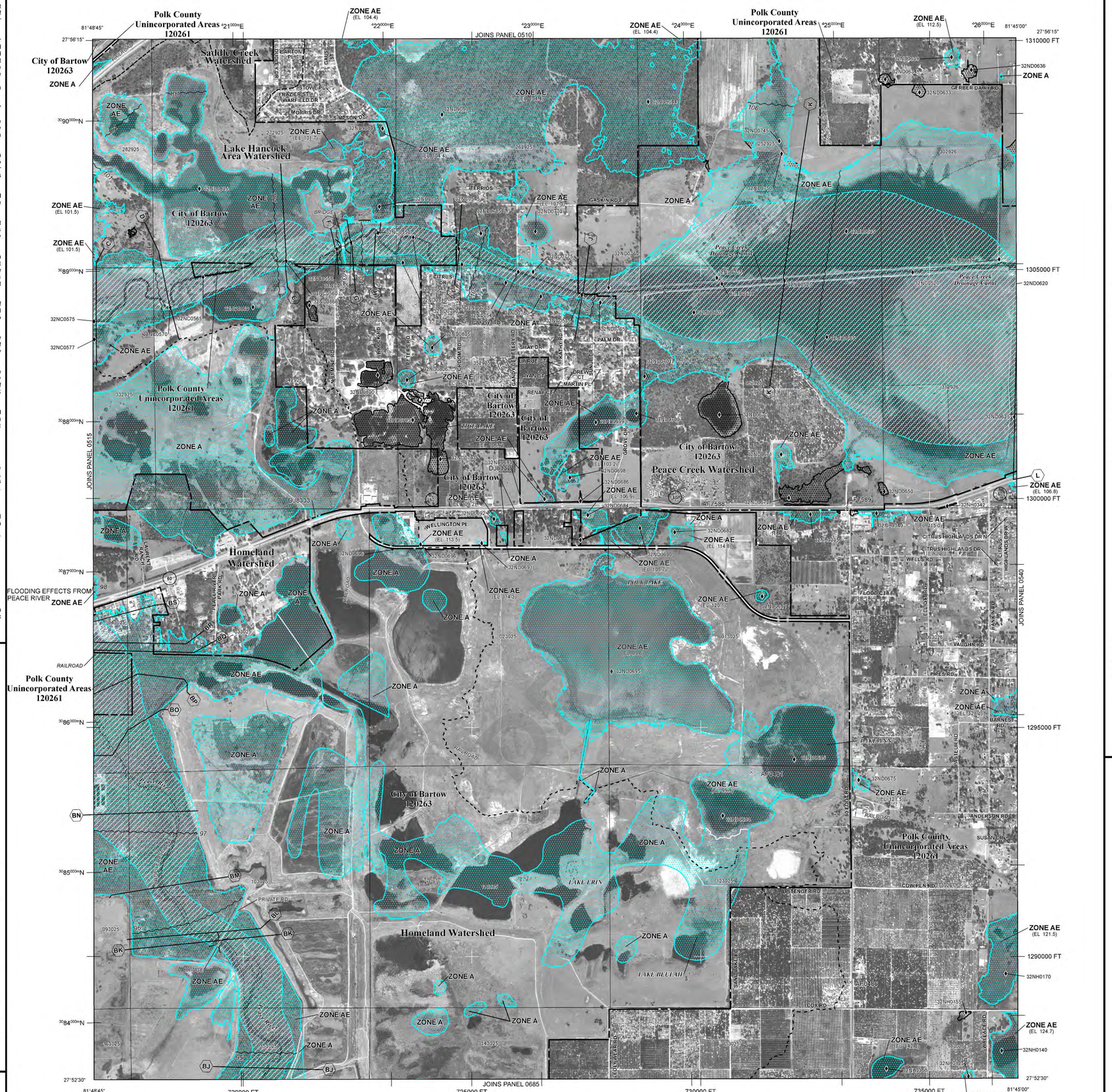

LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

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ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
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ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
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CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513 (EL 987)	Base Flood Elevation line and value; elevation in feet*
	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
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6000000 FT	5000-foot grid values: Florida State Plane coordinate system, West Zone (FIPSZONE = 0902), Transverse Mercator projection
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile
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7NX1000	Junction - Points defining locations of flow accumulation or hydraulic connectivity. The first two characters of the Junction name represents the specific watershed (as shown in the map collar locator map) in which the Junction is located (note that boundary Junctions, without an associated floodplain, are also shown).
	Hydraulic Connectivity - Flow pathway between junctions.

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
December 20, 2000

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 1000'

500 0 500 1,000 1,500 2,000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0520G

FIRM

FLOOD INSURANCE RATE MAP

POLK COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 520 OF 1025

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BARTOW, CITY OF	120263	0520	G
POLK COUNTY	120261	0520	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12105C0520G

MAP REVISED
DECEMBER 22, 2016

Federal Emergency Management Agency

APPENDIX C

CROSSDRAIN ANALYSIS

$T_C = T_{C1} + T_{C2}$

TR-55 Overland Flow (T_{C1})

n = 0.20 (Manning)

I = 4.8 in (2-Year, 24-Hour Rainfall)

L = 100 ft

$$\text{Slope} = \frac{125.0 - 121.0}{100 \text{ ft}} = 0.040 \text{ ft/ft}$$

$$T_{C1} = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}} = \textbf{7.6 min}$$

Unpaved - Shallow Concentrated Flow (T_{C2})

$$T_{C2} = \frac{L}{V}$$

$$V = 16.1345 (S)^{0.5}$$

ΔEL = 121.0 - 110.5 = 10.5 ft T_{C2} = **4.2 min**

L = 554.4 ft

s = 0.019 ft/ft

V = 2.22 ft/sec

TC = TC1 + TC2 = 11.8 min

Crossdrain Location *1332+90*

Rational Method Calculation:

Determine Runoff Coefficient "C"

C_{10} =	0.29
$C_{50} = 1.2 * C_{10}$ =	**0.35**
$C_{100} = 1.25 * C_{10}$ =	**0.37**

Determine Intensity "I"

Time of Concentration =	12 min	
I_{50} =	8.6 in/hr	*(zone 8, 50 year storm)*
I_{100} =	9.2 in/hr	*(zone 8, 100 year storm)*

Determine Area "A"

Area =	7 ac

Calculate Flow "Q"

Q_{50} =	**20.7 cfs**
Q_{100} =	**23.0 cfs**

Extrapolate Flow "Q"

M =	**6.6**
Q_{500} =	**29.4 cfs**

Assumed velocity	4	fps
Pipe Size Required	**36**	**in**

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	50
Time of Concentration =	12 min

Output

Intensity =	8.6 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	100
Time of Concentration =	12 min

Output

Intensity =	9.2 in/hr

Output

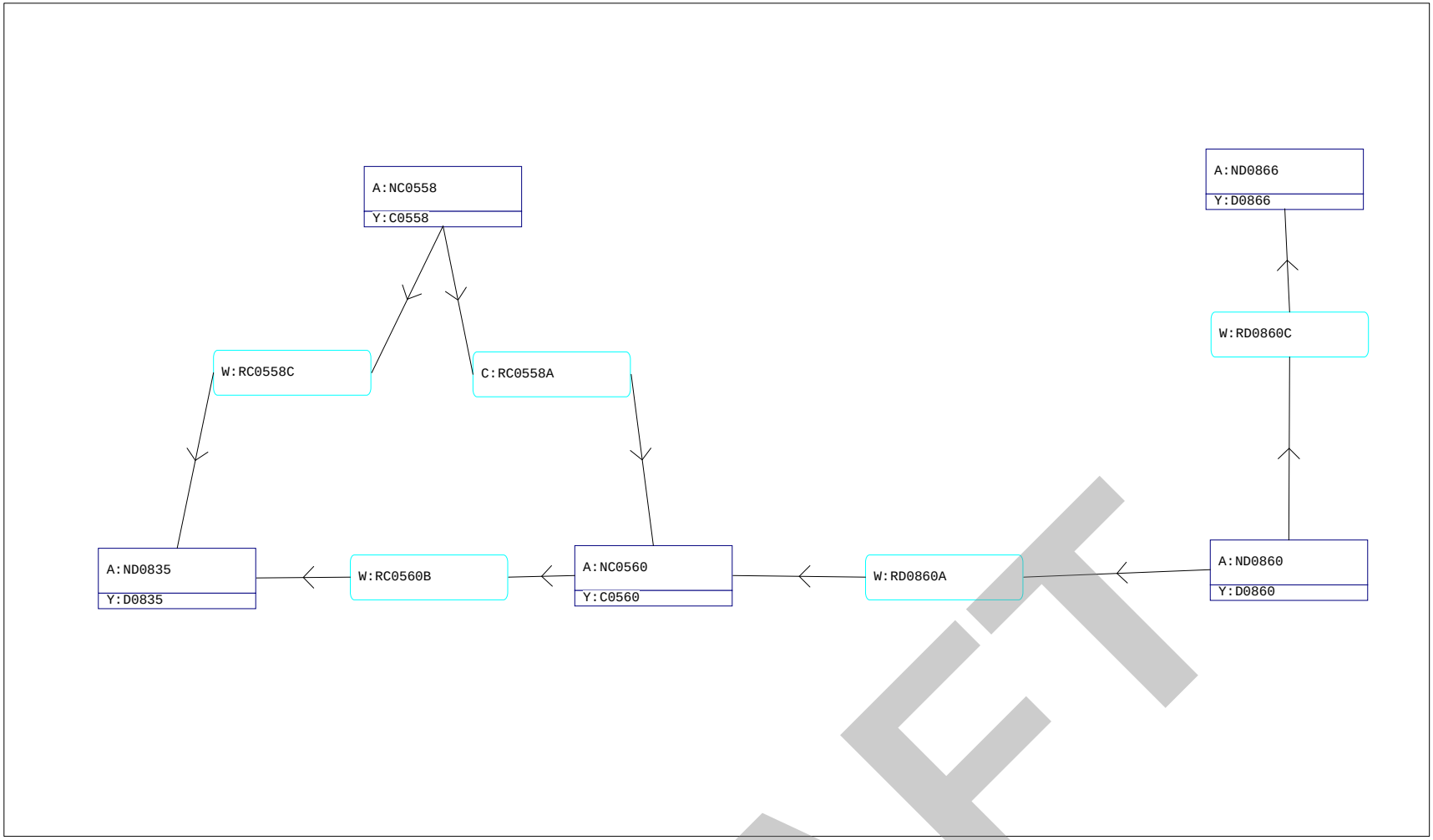
Valid for time of concentrations between 8 - 180 minutes

Node Diagram

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



130.700	386.3670
131.200	386.7030
131.700	387.0100
132.200	387.2730
135.700	388.9570
136.200	389.1870
136.700	389.4350
138.700	390.4840
139.200	390.7430
139.700	390.9810
140.200	391.1870
140.700	391.4030
144.700	392.7300
145.700	393.0700
147.200	393.6670
147.700	393.8370
150.200	394.2900

Name: ND0840 Base Flow(cfs): 0.000 Init Stage(ft): 91.230
Group: D Warn Stage(ft): 96.230
Type: Stage/Area

Initial Stage from: PBSJ ESTIMATION OF INTIAL STAGE FROM PHOTOGRAPHS, DUAL MAPS, AERIALS, AND/OR DEM - Stage Area from: PEACE CREEK DEM

Stage(ft)	Area(ac)
90.900	0.1000
91.500	0.6280
92.000	5.6290
92.500	11.3200
93.000	14.4850
93.500	16.5050
94.000	17.9220
94.500	19.1120
95.000	20.1050
95.500	20.8450
96.000	21.4180
97.000	22.1720
97.500	22.5280
98.000	23.0730
98.500	26.8790
99.500	49.1050
100.000	57.2850
101.000	77.3660
101.500	87.6460
102.500	105.8150
103.000	110.6580
103.500	114.6310
104.000	118.0200
104.500	121.3830
105.000	123.7710
105.500	126.0610
106.000	127.8320
106.500	129.4350
107.000	130.7200
107.500	132.3360
108.000	133.7530
108.500	135.1770
109.000	136.2310
110.500	137.5180

Name: ND0860 Base Flow(cfs): 0.000 Init Stage(ft): 97.730
Group: D Warn Stage(ft): 102.730

Type: Stage/Area

Initial Stage from: BASEFLOW SIMULATION OUTPUT - Stage Area from: PEACE CREEK DEM

Stage(ft)	Area(ac)
94.800	0.1000
95.900	8.9890
96.900	12.0050
97.400	23.6370
97.900	24.8940
98.400	25.4880
99.900	28.2280
100.400	29.0960
100.900	30.2540
101.400	31.1890
101.900	31.6900
102.400	31.9660
102.900	32.3310
103.400	32.6570
103.900	32.9260
105.900	33.8800
106.400	34.1370
107.400	34.7920
107.900	35.1410
108.400	35.5680
108.900	36.2480
109.400	37.0010
109.900	37.7010
110.400	38.6390
110.900	39.3040
111.900	40.3360
112.400	40.8120
112.900	41.4410
113.400	42.1040
113.900	42.9280
114.900	44.4000
115.400	45.2200
115.900	45.9340
116.400	46.4710
116.900	46.7550
117.400	46.9560
118.400	47.2350
118.900	47.3570
119.400	47.4930
121.900	48.3920
122.400	48.5820
122.900	48.7820
123.400	49.0000
123.900	49.3170
124.400	49.6780
124.900	49.9420
126.400	50.6680
126.900	50.9190
127.400	51.1240
127.900	51.3060
128.400	51.4800
129.900	51.8310
130.400	51.9190
130.900	51.9830
131.400	52.0240
134.400	52.1910

Name: ND0866 Base Flow(cfs): 0.000 Init Stage(ft): 97.700

Group: D Warn Stage(ft): 102.700
Type: Stage/Area

Initial Stage from: 2005 LiDAR water elevation - Stage Area from: PEACE CREEK DEM

Stage(ft)	Area(ac)
97.700	0.1000
97.710	1.0460
98.200	1.1940
98.700	1.4410
100.700	2.1170
101.200	2.2860
101.700	2.4490
102.200	2.6040
102.700	2.7240
103.200	2.8330
103.700	2.9470
104.200	3.0410
105.200	3.1760
106.200	3.3040
107.700	3.4550
110.700	3.7930
111.200	3.8630
111.700	3.9180
112.200	3.9990
113.200	5.0070
113.700	5.5360
114.200	6.1420
114.700	6.8740
115.700	9.3550
116.200	10.7010
116.700	11.1030
117.200	11.4530
117.700	11.9780
118.200	12.4030
119.200	12.6600
120.200	12.7810
120.700	12.9800
121.200	13.0850
121.700	13.1500
124.700	13.1930

Name: ND0900 Base Flow(cfs): 0.000 Init Stage(ft): 131.090
Group: D Warn Stage(ft): 136.090
Type: Stage/Area

Initial Stage from: 2005 LiDAR water elevation - Stage Area from: Twin Lake Hills s/d

Stage(ft)	Area(ac)
129.600	0.1000
138.100	1.0810
140.100	1.5330
142.000	1.7660
142.100	2.1990
144.700	4.0400
147.000	5.8120
148.800	7.3010
150.900	9.1530
154.500	12.5870
157.300	15.4780
161.700	20.4360
162.500	21.4300

```
               Top Clip(ft): 0.000
         Weir Discharge Coef: 3.000
       Orifice Discharge Coef: 0.600

Weir Data Obtained From: PEACE CREEK DEM

-------------------------------------------------------------------------------------------------------
         Name: RD0860C             From Node: ND0860
        Group: D                     To Node: ND0866
         Flow: Both                    Count: 1
         Type: Vertical: Gravel     Geometry: Irregular

                        XSec: XD0860C
                  Invert(ft): 115.600
       Control Elevation(ft): 115.600
      Struct Opening Dim(ft): 9999.00
                                       TABLE
              Bottom Clip(ft): 0.000
                 Top Clip(ft): 0.000
         Weir Discharge Coef: 3.000
       Orifice Discharge Coef: 0.600

Weir Data Obtained From: PEACE CREEK DEM

-------------------------------------------------------------------------------------------------------
         Name: RD0900A             From Node: ND0900
        Group: D                     To Node: ND1020
         Flow: Both                    Count: 1
         Type: Vertical: Mavis      Geometry: Rectangular

                     Span(in): 360.00
                     Rise(in): 9999.00
                  Invert(ft): 131.090
       Control Elevation(ft): 131.090
                                       TABLE
              Bottom Clip(in): 0.000
                 Top Clip(in): 0.000
         Weir Discharge Coef: 3.200
       Orifice Discharge Coef: 0.600

Weir Data Obtained From: Twin Lake Hills s/d

-------------------------------------------------------------------------------------------------------
         Name: RD0901B             From Node: ND0901
        Group: D                     To Node: ND0903
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular

                        XSec: XD0901B
                  Invert(ft): 142.200
       Control Elevation(ft): 142.200
      Struct Opening Dim(ft): 9999.00
                                       TABLE
              Bottom Clip(ft): 0.000
                 Top Clip(ft): 0.000
         Weir Discharge Coef: 2.400
       Orifice Discharge Coef: 0.600



-------------------------------------------------------------------------------------------------------
         Name: RD0902B             From Node: ND0902
        Group: D                     To Node: ND0910
         Flow: Both                    Count: 1
         Type: Vertical: Fread      Geometry: Irregular
```

100 yr/1 day output at bridge crossing

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
NC0558	C	PC100y1d	81.08	100.80	101.58	0.0004	453912	75.62	1989.01	75.71	1988.65
NC0560	C	PC100y1d	96.04	100.01	101.40	0.0003	932094	54.84	1286.58	56.08	1281.50
ND0835	D	PC100y1d	96.06	100.01	101.90	0.0002	9619394	12.67	476.28	0.00	0.00

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
ND0860	D	PC50y1d	102.30	99.46	102.73	0.0002	1194486	12.25	92.10	14.01	17.09
ND0866	D	PC50y1d	25.50	97.77	102.70	0.0000	46305	15.58	0.13	0.00	0.00

$T_C = T_{C1} + T_{C2}$

TR-55 Overland Flow (T_{C1})

n = 0.20 (Manning)

I = 4.8 in (2-Year, 24-Hour Rainfall)

L = 100 ft

$$\text{Slope} = \frac{113.0 - 111.5}{100 \text{ ft}} = 0.015 \text{ ft/ft}$$

$$T_{C1} = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}} = \textbf{11.3 min}$$

Unpaved - Shallow Concentrated Flow (T_{C2})

$$T_{C2} = \frac{L}{V}$$

$$V = 16.1345 (S)^{0.5}$$

ΔEL = 111.5 - 103.0 = 8.5 ft T_{C2} = **9.2 min**

L = 880 ft

s = 0.010 ft/ft

V = 1.59 ft/sec

TC = TC1 + TC2 = 20.5 min

Crossdrain Location *1429+90*

Rational Method Calculation:

Determine Runoff Coefficient "C"

C_{10} =	0.28
$C_{50} = 1.2 * C_{10}$ =	**0.33**
$C_{100} = 1.25 * C_{10}$ =	**0.35**

Determine Intensity "I"

Time of Concentration =	21 min	
I_{50} =	7.2 in/hr	*(zone 8, 50 year storm)*
I_{100} =	7.9 in/hr	*(zone 8, 100 year storm)*

Determine Area "A"

Area =	9 ac

Calculate Flow "Q"

Q_{50} =	**21.9 cfs**
Q_{100} =	**25.0 cfs**

Extrapolate Flow "Q"

M =	**5.2**
Q_{500} =	**34.1 cfs**

Assumed velocity	4	fps
Pipe Size Required	**36**	**in**

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	50
Time of Concentration =	21 min

Output

Intensity =	7.2 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	100
Time of Concentration =	21 min

Output

Intensity =	7.9 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

$T_C = T_{C1} + T_{C2}$

TR-55 Overland Flow (T_{C1})

n = 0.20 (Manning)

I = 4.8 in (2-Year, 24-Hour Rainfall)

L = 100 ft

$$\text{Slope} = \frac{129.5 - 118.5}{100 \text{ ft}} = 0.110 \text{ ft/ft}$$

$$T_{C1} = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}} = \textbf{5.1 min}$$

Unpaved - Shallow Concentrated Flow (T_{C2})

$$T_{C2} = \frac{L}{V}$$

$$V = 16.1345 (S)^{0.5}$$

ΔEL = 114.0 - 113.0 = 1.0 ft T_{C2} = **54.3 min**

L = 1404 ft

s = 0.001 ft/ft

V = 0.43 ft/sec

TC = TC1 + TC2 = 59.4 min

Crossdrain Location *1435+40*

Rational Method Calculation:

Determine Runoff Coefficient "C"

C_{10} =	0.28
$C_{50} = 1.2 * C_{10}$ =	**0.34**
$C_{100} = 1.25 * C_{10}$ =	**0.35**

Determine Intensity "I"

Time of Concentration =	59 min	
I_{50} =	4.3 in/hr	*(zone 8, 50 year storm)*
I_{100} =	6.3 in/hr	*(zone 8, 100 year storm)*

Determine Area "A"

Area =	18.7 ac

Calculate Flow "Q"

Q_{50} =	**27.4 cfs**
Q_{100} =	**41.8 cfs**

Extrapolate Flow "Q"

M =	**1.6**
Q_{500} =	**111.6 cfs**

Assumed velocity	4	fps
Pipe Size Required	**36**	**in**

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	50
Time of Concentration =	59 min

Output

Intensity =	4.3 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	100
Time of Concentration =	59 min

Output

Intensity =	6.3 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

$T_C = T_{C1} + T_{C2}$

TR-55 Overland Flow (T_{C1})

n = 0.20 (Manning)

I = 4.8 in (2-Year, 24-Hour Rainfall)

L = 100 ft

$$\text{Slope} = \frac{110.0 - 107.0}{100 \text{ ft}} = 0.030 \text{ ft/ft}$$

$$T_{C1} = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} S^{0.4}} = \textbf{8.6 min}$$

Unpaved - Shallow Concentrated Flow (T_{C2})

$$T_{C2} = \frac{L}{V}$$

$$V = 16.1345 (S)^{0.5}$$

ΔEL = 107.0 - 97.0 = 10.0 ft T_{C2} = **4.7 min**

L = 594 ft

s = 0.017 ft/ft

V = 2.09 ft/sec

TC = TC1 + TC2 = 13.3 min

Crossdrain Location *1441+85*

Rational Method Calculation:

Determine Runoff Coefficient "C"

C_{10} =	0.26
$C_{50} = 1.2 * C_{10}$ =	**0.31**
$C_{100} = 1.25 * C_{10}$ =	**0.33**

Determine Intensity "I"

Time of Concentration =	13 min	
I_{50} =	8.3 in/hr	*(zone 8, 50 year storm)*
I_{100} =	9.0 in/hr	*(zone 8, 100 year storm)*

Determine Area "A"

Area =	12 ac

Calculate Flow "Q"

Q_{50} =	**32.0 cfs**
Q_{100} =	**36.0 cfs**

Extrapolate Flow "Q"

M =	**5.8**
Q_{500} =	**47.5 cfs**

Assumed velocity	4	fps
Pipe Size Required	**42**	**in**

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	50
Time of Concentration =	13 min

Output

Intensity =	8.3 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

FDOT Intensity-Duration-Frequency

Input

IDF zone =	8
Frequency =	100
Time of Concentration =	13 min

Output

Intensity =	9.0 in/hr

Output

Valid for time of concentrations between 8 - 180 minutes

APPENDIX D

FLOODPLAIN CALCULATIONS

Floodplain Pond Caclulations

Designed By AVF 10/7/2019
Checked by AT 10/7/2019

STAGE STORAGE CALCULATIONS - FPC 1A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	108.00	3.45				7.67
			2.56	3.00	7.67	
Bottom	105.00	1.66				0.00

STAGE STORAGE CALCULATIONS - FPC 3A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	106.00	2.75				13.65
			2.28	6.00	13.65	
Bottom	100.00	1.80				0.00

STAGE STORAGE CALCULATIONS - FPC 1B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	108.00	3.17				8.88
			2.96	3.00	8.88	
Bottom	105.00	2.75				0.00

STAGE STORAGE CALCULATIONS - FPC 3B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	106.00	3.42				17.94
			2.99	6.00	17.94	
Bottom	100.00	2.56				0.00

STAGE STORAGE CALCULATIONS - FPC 2A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	108.00	4.77				9.20
			4.60	2.00	9.20	
Bottom	106.00	4.43				0.00

STAGE STORAGE CALCULATIONS - FPC 2B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	108.00	3.50				6.62
			3.31	2.00	6.62	
Bottom	106.00	3.12				0.00

STAGE STORAGE CALCULATIONS - FPC 4A

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	104.00	11.00				42.00
			10.50	4.00	42.00	
Bottom	100.00	10				0.00

STAGE STORAGE CALCULATIONS - FPC 4B

	ELEV.	AREA (AC)	AVG AREA (AC)	DELTA (FT)	DELTA STORAGE (AC-FT)	SUM STORAGE (AC-FT)
Top	104.00	10.00				38.20
			9.55	4.00	38.20	
Bottom	100.00	9.1				0.00

Designed By	AVF	10/7/2019
Checked by	AT	10/7/2019

Floodplain Basin (FPC)	Encroahment							Compensation	
	Sta.	to	Sta.	100 year elevation (ft) *	Average Ground elevation (ft)	Impact Area (AC)	Volume (Ac-ft)	Alt A (Ac-ft)	Alt B (Ac-ft)
1	1330+00	to	1332+00	108.00	105.00	2.05	6.15	7.67	8.88
2	1340+00	to	1351+00	108.00	107.00	4.78	4.78	9.20	6.62
3	1429+00	to	1431+00	106.00	100.00	1.97	11.83	13.65	17.94
4	1442+00	to	1446+00	104.00	100.50	10.81	37.85	42.00	38.20

*** FEMA Zone A. estimated from shading**

APPENDIX E

DRAINAGE MAPS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
201 N. Franklin Street, Suite 400
Tampa, Florida 33602
Engineer of Record: Ali Tayebnejad, P.E.
P.E. No.: 42775

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 570B	POLK	440897-4-24-01

DRAINAGE MAP (1)

SHEET NO. E - 1

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
201 N. Franklin Street, Suite 400
Tampa, Florida 33602
Engineer of Record: Ali Tayebnejad, P.E.
P.E. No.: 42775

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 570B	POLK	440897-4-24-01

DRAINAGE MAP (2)

SHEET NO.
E - 2

APPENDIX F

SOIL SURVEY – POLK COUNTY

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Polk County, Florida

September 12, 2019

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

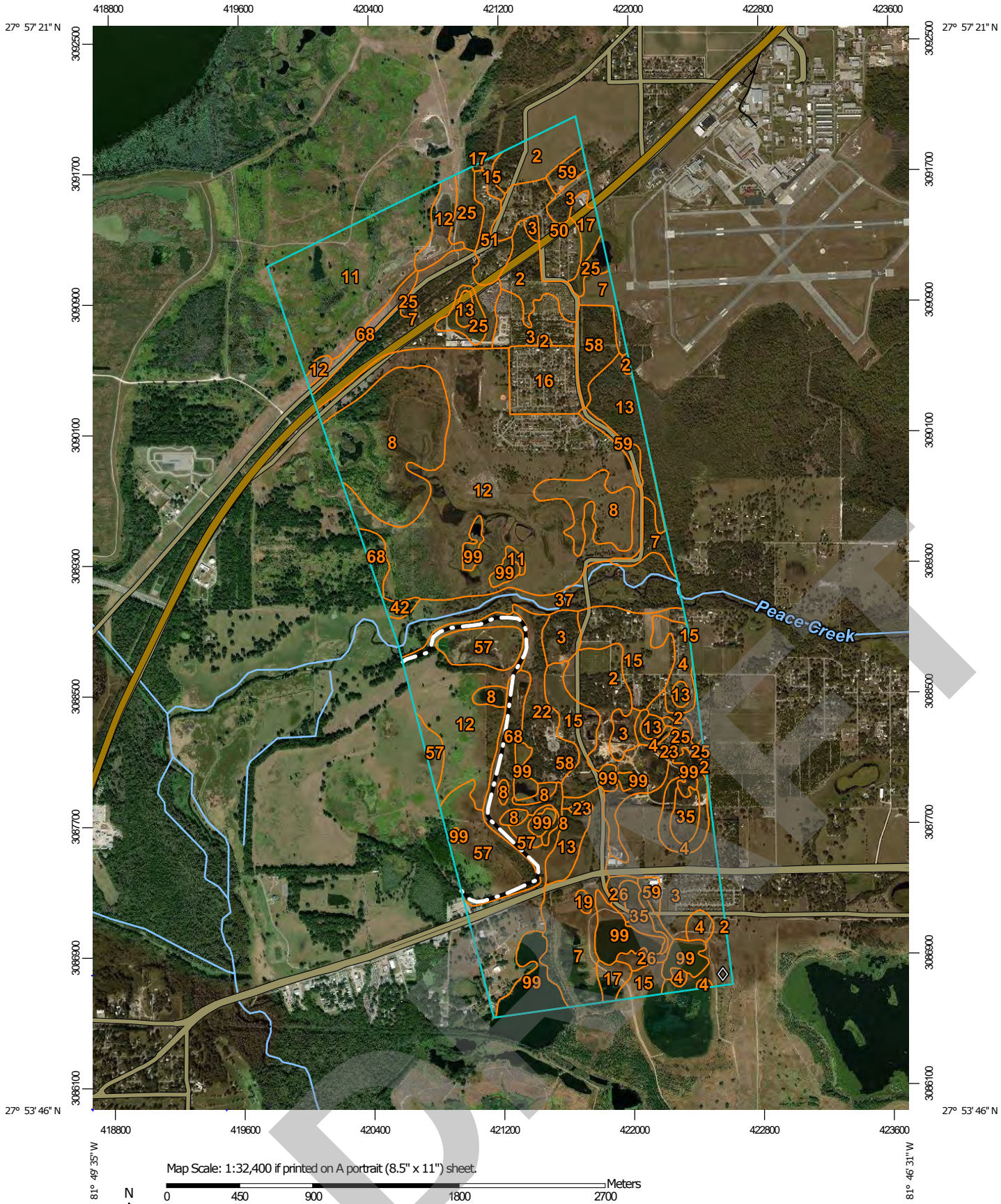
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree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

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

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

Soil Map

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


81° 49' 35" W
81° 46' 31" W
27° 57' 21" N
27° 53' 46" N
418800
419600
420400
421200
422000
422800
423600
3092500
3091700
3090900
3090100
3089300
3088500
3087700
3086900
3086100
Peace Creek
Map Scale: 1:32,400 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 450 900 1800 2700
Feet
0 1500 3000 6000 9000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: Polk County, Florida
Survey Area Data: Version 16, Sep 14, 2018

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

Date(s) aerial images were photographed: Dec 21, 2010—Nov 26, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Apopka fine sand, 0 to 5 percent slopes	143.8	6.4%
3	Candler sand, 0 to 5 percent slopes	172.1	7.6%
4	Candler sand, 5 to 8 percent slopes	49.7	2.2%
7	Pomona fine sand	182.3	8.1%
8	Hydraquents, clayey	184.5	8.2%
11	Arents-Water complex	144.8	6.4%
12	Neilhurst sand, 1 to 5 percent slopes	488.9	21.6%
13	Samsula muck, frequently ponded, 0 to 1 percent slopes	66.9	3.0%
15	Tavares fine sand, 0 to 5 percent slopes	102.2	4.5%
16	Urban land, 0 to 2 percent slopes	44.0	1.9%
17	Smyrna and Myakka fine sands	21.1	0.9%
19	Floridana mucky fine sand, frequently ponded, 0 to 1 percent slopes	2.4	0.1%
22	Pomello fine sand	46.3	2.0%
23	Ona-Ona, wet, fine sand, 0 to 2 percent slopes	5.7	0.3%
25	Placid and Myakka fine sands, depressional	42.5	1.9%
26	Lochloosa fine sand	15.1	0.7%
35	Hontoon muck, frequently ponded, 0 to 1 percent slopes	22.1	1.0%
37	Placid fine sand, frequently flooded	89.1	3.9%
42	Felda fine sand	4.6	0.2%
50	Candler-Urban land complex, 0 to 5 percent slopes	43.0	1.9%
51	Pomona-Urban land complex	21.8	1.0%
57	Haplaquents clayey	98.3	4.3%
58	Udorthents, excavated	28.1	1.2%
59	Arents-Urban land complex, 0 to 5 percent slopes	22.0	1.0%
68	Arents, 0 to 5 percent slopes	118.9	5.3%
99	Water	99.2	4.4%
Totals for Area of Interest		**2,259.4**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

Polk County, Florida

2—Apopka fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2shkg
Elevation: 10 to 260 feet
Mean annual precipitation: 45 to 56 inches
Mean annual air temperature: 66 to 75 degrees F
Frost-free period: 287 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

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

Description of Apopka

Setting

Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Shoulder, summit, footslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Eolian or sandy marine deposits over loamy marine deposits

Typical profile

A - 0 to 7 inches: fine sand
E - 7 to 50 inches: fine sand
Bt1 - 50 to 67 inches: fine sandy loam
Bt2 - 67 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 12.0
Available water storage in profile: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL)
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)

Hydric soil rating: No

Minor Components

Sparr

Percent of map unit: 5 percent
Landform: Rises on marine terraces, flats on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Candler

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Convex, linear
Across-slope shape: Concave, convex, linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Tavares

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

3—Candler sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2t3z1
Elevation: 10 to 260 feet
Mean annual precipitation: 47 to 56 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 280 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Candler and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Candler

Setting

Landform: Ridges on marine terraces, knolls on marine terraces

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve, side slope, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian deposits and/or sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: sand
E - 6 to 63 inches: sand
E and Bt - 63 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL), Sandy soils on ridges and dunes of xeric uplands (G155XB111FL)
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL), Longleaf Pine-Turkey Oak Hills (R155XY002FL)
Hydric soil rating: No

Minor Components

Tavares

Percent of map unit: 5 percent
Landform: Ridges on marine terraces
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex, concave
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Millhopper

Percent of map unit: 5 percent
Landform: Ridges on marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)

Hydric soil rating: No

4—Candler sand, 5 to 8 percent slopes

Map Unit Setting

National map unit symbol: 1jttm
Elevation: 20 to 150 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

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

Description of Candler

Setting

Landform: Hillslopes on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian deposits and/or sandy and loamy marine deposits

Typical profile

A - 0 to 7 inches: sand
E - 7 to 63 inches: sand
E and Bt - 63 to 80 inches: sand

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Forage suitability group: Sandy soils on ridges and dunes of xeric uplands (G154XB111FL)
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Minor Components

Apopka
Percent of map unit: 4 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Millhopper
Percent of map unit: 4 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Astatula
Percent of map unit: 4 percent
Landform: Ridges on marine terraces, hills on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Tavares
Percent of map unit: 3 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

7—Pomona fine sand

Map Unit Setting
National map unit symbol: 1jttq
Elevation: 20 to 120 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Pomona, non-hydric, and similar soils: 70 percent
Pomona, hydric, and similar soils: 20 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pomona, Non-hydric

Setting

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

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 21 inches: sand
Bh - 21 to 26 inches: fine sand
E' - 26 to 48 inches: fine sand
Btg - 48 to 73 inches: fine sandy loam
Cg - 73 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Description of Pomona, Hydric

Setting

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

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 21 inches: sand
Bh - 21 to 26 inches: fine sand
E' - 26 to 48 inches: fine sand
Btg - 48 to 73 inches: fine sandy loam
Cg - 73 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Smyrna, non-hydric

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Wauchula, non-hydric

Percent of map unit: 3 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf

Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

8—Hydraquents, clayey

Map Unit Setting

National map unit symbol: 1jttr
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Hydraquents, clayey and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hydraquents, Clayey

Setting

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

Typical profile

Cg - 0 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 30 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Minor Components

Neilhurst
Percent of map unit: 5 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, side slope, rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

11—Arents-Water complex

Map Unit Setting
National map unit symbol: 1jttv
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Arents and similar soils: 50 percent
Water: 45 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting
Landform: Ridges on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile
AC - 0 to 80 inches: sand

Properties and qualities
Slope: 35 to 65 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Minor Components

Aquents
Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

12—Neilhurst sand, 1 to 5 percent slopes

Map Unit Setting
National map unit symbol: 1jttw
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Neilhurst and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Neilhurst

Setting
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, side slope, rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy mine spoil or earthy fill

Typical profile
A - 0 to 3 inches: sand
C - 3 to 80 inches: sand

Properties and qualities
Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

Minor Components

Arents

Percent of map unit: 5 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Haplaquents, clayey

Percent of map unit: 5 percent
Landform: Depressions, marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

13—Samsula muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2tzw9
Elevation: 0 to 250 feet
Mean annual precipitation: 44 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Samsula

Setting

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

Typical profile

Oa1 - 0 to 24 inches: muck
Oa2 - 24 to 32 inches: muck
Cg1 - 32 to 35 inches: sand
Cg2 - 35 to 44 inches: sand
Cg3 - 44 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very high (about 13.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G155XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Kaliga

Percent of map unit: 3 percent
Landform: Depressions on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave

Across-slope shape: Linear, concave
Hydric soil rating: Yes

Anclote

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: Yes

Floridana

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Sanibel

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

15—Tavares fine sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w0pz
Elevation: 30 to 160 feet
Mean annual precipitation: 44 to 56 inches
Mean annual air temperature: 68 to 75 degrees F
Frost-free period: 290 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

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

Description of Tavares

Setting

Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Interfluve, side slope, tread, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear

Parent material: Eolian or sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
C - 5 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Forage suitability group: Sandy soils on rises, knolls, and ridges of mesic uplands (G154XB121FL)
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Minor Components

Candler

Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Convex, linear
Across-slope shape: Concave, convex, linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Apopka

Percent of map unit: 4 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Summit, shoulder, footslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R154XY002FL)
Hydric soil rating: No

Zolfo

Percent of map unit: 3 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex, linear

Across-slope shape: Linear
Other vegetative classification: North Florida Flatwoods (R154XY004FL)
Hydric soil rating: No

Narcoossee

Percent of map unit: 3 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Linear, convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

16—Urban land, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2x9fc
Elevation: 0 to 200 feet
Mean annual precipitation: 40 to 68 inches
Mean annual air temperature: 68 to 79 degrees F
Frost-free period: 345 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Hills on marine terraces, ridges on marine terraces, knolls on marine terraces, rises on marine terraces, flatwoods on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser, rise, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Parent material: No parent material

Typical profile

M - 0 to 6 inches: cemented material
^C - 6 to 36 inches: paragravelly sand
2Ab - 36 to 46 inches: paragravelly fine sand
2Cb - 46 to 80 inches: paragravelly fine sand

Minor Components

Matlacha

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf

Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

St. augustine

Percent of map unit: 3 percent
Landform: Marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Paola

Percent of map unit: 1 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, interfluve, riser
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Pomello

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Side slope, interfluve, riser
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R155XY001FL)
Hydric soil rating: No

Adamsville

Percent of map unit: 1 percent
Landform: Knolls on marine terraces, rises on marine terraces
Landform position (three-dimensional): Tread, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R155XY008FL)
Hydric soil rating: No

Boca

Percent of map unit: 1 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear, convex
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Eaugallie

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)

Hydric soil rating: No

Hallandale

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: Yes

Immokalee

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Myakka

Percent of map unit: 1 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Apopka

Percent of map unit: 1 percent
Landform: Ridges on marine terraces, hills on marine terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Interfluve, side slope, riser
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Longleaf Pine-Turkey Oak Hills (R155XY002FL)
Hydric soil rating: No

17—Smyrna and Myakka fine sands

Map Unit Setting

National map unit symbol: 1jtv1
Elevation: 20 to 120 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Smyrna, non-hydric, and similar soils: 40 percent

Myakka and similar soils: 40 percent
Smyrna, hydric, and similar soils: 15 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Smyrna, Non-hydric

Setting

Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 12 inches: fine sand
Bh - 12 to 25 inches: fine sand
E' - 25 to 42 inches: fine sand
B'h - 42 to 48 inches: fine sand
C - 48 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Description of Myakka

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 7 inches: fine sand

E - 7 to 25 inches: fine sand
Bh - 25 to 36 inches: fine sand
C - 36 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Description of Smyrna, Hydric

Setting

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

Typical profile

A - 0 to 4 inches: fine sand
E - 4 to 12 inches: fine sand
Bh - 12 to 25 inches: fine sand
E' - 25 to 42 inches: fine sand
B'h - 42 to 48 inches: fine sand
C - 48 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G154XB141FL)
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 2 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Slough (R154XY011FL)
Hydric soil rating: Yes

Pomona, non-hydric

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Immokalee, non-hydric

Percent of map unit: 1 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Ona, non-hydric

Percent of map unit: 1 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

19—Floridana mucky fine sand, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2sm4y
Elevation: 0 to 90 feet
Mean annual precipitation: 45 to 63 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 335 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Floridana

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Sandy and loamy marine deposits

Typical profile

A1 - 0 to 4 inches: mucky fine sand
A2 - 4 to 15 inches: fine sand
Eg - 15 to 32 inches: fine sand
Btg - 32 to 44 inches: sandy clay loam
BCg - 44 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 4 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C/D
Forage suitability group: Sandy over loamy soils on stream terraces, flood plains, or in depressions (G155XB245FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Minor Components

Holopaw

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Felda

Percent of map unit: 4 percent
Landform: Depressions on marine terraces, flats on marine terraces
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Linear
Across-slope shape: Concave, linear
Ecological site: Slough (R155XY011FL)
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Gator

Percent of map unit: 4 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 2 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

22—Pomello fine sand

Map Unit Setting

National map unit symbol: 1jtv5
Elevation: 10 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pomello and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pomello

Setting

Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
E - 5 to 48 inches: fine sand
Bh - 48 to 63 inches: fine sand
BC - 63 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 24 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A

Forage suitability group: Sandy soils on rises and knolls of mesic uplands (G154XB131FL)
Other vegetative classification: Sand Pine Scrub (R154XY001FL)
Hydric soil rating: No

Minor Components

Immokalee, non-hydric
Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Archbold
Percent of map unit: 5 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R154XY001FL)
Hydric soil rating: No

Duette
Percent of map unit: 5 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R154XY001FL), Sand Pine Scrub (R154XY001FL)
Hydric soil rating: No

Satellite
Percent of map unit: 5 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Sand Pine Scrub (R154XY001FL)
Hydric soil rating: No

23—Ona-Ona, wet, fine sand, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 2w4gx
Elevation: 10 to 130 feet
Mean annual precipitation: 46 to 56 inches
Mean annual air temperature: 66 to 77 degrees F

Frost-free period: 325 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Ona and similar soils: 75 percent
Ona, wet, and similar soils: 12 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ona

Setting

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

Typical profile

A - 0 to 9 inches: fine sand
Bh - 9 to 16 inches: fine sand
C - 16 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: No

Description of Ona, Wet

Setting

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

Typical profile

A - 0 to 9 inches: fine sand

Bh - 9 to 16 inches: fine sand
C - 16 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Forage suitability group: Sandy soils on flats of mesic or hydric lowlands (G155XB141FL)
Hydric soil rating: Yes

Minor Components

Myakka

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 4 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Basinger, hydric

Percent of map unit: 4 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL)
Hydric soil rating: Yes

25—Placid and Myakka fine sands, depressional

Map Unit Setting

National map unit symbol: 1jtv8
Elevation: 20 to 150 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Placid, depressional, and similar soils: 60 percent
Myakka, depressional, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Placid, Depressional

Setting

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

Typical profile

A - 0 to 18 inches: fine sand
Cg - 18 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D

Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Description of Myakka, Depressional

Setting

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

Typical profile

A - 0 to 3 inches: fine sand
E - 3 to 25 inches: fine sand
Bh - 25 to 35 inches: fine sand
Cg - 35 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Minor Components

Ona, hydric

Percent of map unit: 3 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: Yes

Basinger, depressional

Percent of map unit: 3 percent

Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Pomona, hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: Yes

St. johns, hydric

Percent of map unit: 2 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Cutthroat Seeps (R154XY007FL)
Hydric soil rating: Yes

26—Lochloosa fine sand

Map Unit Setting

National map unit symbol: 1jtv9
Elevation: 10 to 160 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Farmland of unique importance

Map Unit Composition

Lochloosa and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lochloosa

Setting

Landform: Rises on marine terraces, flats on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 36 inches: fine sand
Btg - 36 to 65 inches: sandy clay loam
BCg - 65 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 30 to 60 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Forage suitability group: Sandy over loamy soils on rises and knolls of mesic uplands (G154XB231FL)
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Minor Components

Kendrick

Percent of map unit: 3 percent
Landform: Knolls on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Adamsville

Percent of map unit: 3 percent
Landform: Ridges on marine terraces, rises on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Millhopper

Percent of map unit: 2 percent
Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear

Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

Sparr

Percent of map unit: 2 percent
Landform: Rises on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: No

35—Hontoon muck, frequently ponded, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2vbpg
Elevation: 0 to 250 feet
Mean annual precipitation: 43 to 63 inches
Mean annual air temperature: 68 to 77 degrees F
Frost-free period: 300 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hontoon

Setting

Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous organic material

Typical profile

Oa - 0 to 75 inches: muck
AC - 75 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very high (about 23.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A/D
Forage suitability group: Organic soils in depressions and on flood plains (G154XB645FL)
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Minor Components

Hontoon, drained

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Samsula

Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Placid

Percent of map unit: 3 percent
Landform: Depressions on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R155XY010FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 2 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

37—Placid fine sand, frequently flooded

Map Unit Setting

National map unit symbol: 1jtvm
Elevation: 10 to 100 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Placid

Setting

Landform: Flood plains on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy marine deposits

Typical profile

A - 0 to 18 inches: fine sand
Cg - 18 to 80 inches: fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: A/D
Forage suitability group: Sandy soils on stream terraces, flood plains, or in depressions (G154XB145FL)
Hydric soil rating: Yes

Minor Components

Basinger

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Slough (R154XY011FL)
Hydric soil rating: Yes

Adamsville

Percent of map unit: 3 percent
Landform: Rises on marine terraces, ridges on marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Holopaw, depressional

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Anclote, depressional

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

Pompano

Percent of map unit: 3 percent
Landform: Drainageways on marine terraces, flats on marine terraces
Landform position (three-dimensional): Dip, talf
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Slough (R154XY011FL)
Hydric soil rating: Yes

42—Felda fine sand

Map Unit Setting

National map unit symbol: 1jtvs
Elevation: 20 to 100 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Felda and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Felda

Setting

Landform: Drainageways on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Sandy and loamy marine deposits

Typical profile

A - 0 to 5 inches: fine sand
Eg - 5 to 22 inches: fine sand
Btg - 22 to 50 inches: sandy clay loam
Cg - 50 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: A/D

Forage suitability group: Sandy over loamy soils on flats of hydric or mesic lowlands (G154XB241FL)
Other vegetative classification: Slough (R154XY011FL)
Hydric soil rating: Yes

Minor Components

Malabar
Percent of map unit: 5 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear
Across-slope shape: Concave
Other vegetative classification: Slough (R154XY011FL)
Hydric soil rating: Yes

Oldsmar, non-hydric
Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Bradenton, hydric
Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Upland Hardwood Hammock (R154XY008FL)
Hydric soil rating: Yes

Floridana, depressional
Percent of map unit: 5 percent
Landform: Depressions on marine terraces
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Freshwater Marshes and Ponds (R154XY010FL)
Hydric soil rating: Yes

50—Candler-Urban land complex, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 1jtw0
Elevation: 50 to 150 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days

Farmland classification: Not prime farmland

Map Unit Composition

Candler and similar soils: 55 percent
Urban land: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Candler

Setting

Landform: Ridges on marine terraces, knolls on marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Eolian deposits and/or sandy and loamy marine deposits

Typical profile

A - 0 to 6 inches: sand
E - 6 to 63 inches: sand
E and Bt - 63 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

51—Pomona-Urban land complex

Map Unit Setting

National map unit symbol: 1jtw1
Elevation: 20 to 120 feet
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Pomona, non-hydric, and similar soils: 45 percent
Urban land: 30 percent
Pomona, hydric, and similar soils: 10 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pomona, Non-hydric

Setting

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

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 21 inches: sand
Bh - 21 to 26 inches: loamy fine sand
E' - 26 to 48 inches: fine sand
Btg - 48 to 73 inches: fine sandy loam
Cg - 73 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Description of Pomona, Hydric

Setting

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

Typical profile

A - 0 to 6 inches: fine sand
E - 6 to 21 inches: sand
Bh - 21 to 26 inches: loamy fine sand
E' - 26 to 48 inches: fine sand
Btg - 48 to 73 inches: fine sandy loam
Cg - 73 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Minor Components

Wauchula, non-hydric

Percent of map unit: 5 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Myakka

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Other vegetative classification: South Florida Flatwoods (R154XY003FL)
Hydric soil rating: No

Immokalee

Percent of map unit: 5 percent
Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

57—Haplaquents clayey

Map Unit Setting

National map unit symbol: 1jtw5
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Haplaquents, clayey, and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Haplaquents, Clayey

Setting

Landform: Marine terraces, depressions
Landform position (three-dimensional): Talf, dip

Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Clayey marine deposits

Typical profile

Cg - 0 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: D
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: Yes

Minor Components

Arents, clayey substratum

Percent of map unit: 5 percent
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

58—Udorthents, excavated

Map Unit Setting

National map unit symbol: 1jtw6
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, excavated, and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Excavated

Setting

Landform: Marine terraces
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Properties and qualities

Slope: 1 to 4 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

59—Arents-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1jtw7
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

Arents and similar soils: 55 percent
Urban land: 45 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting

Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile

C - 0 to 80 inches: sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained

Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 3.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G154XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting
Landform: Marine terraces
Landform position (three-dimensional): Interfluve, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

68—Arents, 0 to 5 percent slopes

Map Unit Setting
National map unit symbol: 1jtwh
Mean annual precipitation: 46 to 54 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 350 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition
Arents and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arents

Setting
Landform: Rises on marine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Altered marine deposits

Typical profile
C - 0 to 80 inches: sand

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very high (19.98 to 50.02 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Very low (about 2.4 inches)

99—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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APPENDIX G

NATURAL RESOURCES EVALUATION

Natural Resources Evaluation

Florida's Turnpike Enterprise

Central Polk Parkway
Project Development and Environment Study

From US 17 (SR 35) to SR 60
New Alignment Project
Polk County, Florida

Financial Project ID: 440897-4-22-01
ETDM No.: 14372

December 2020

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Executive Summary

The Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), is conducting a Project Development and Environment (PD&E) study to evaluate a new tolled expressway, which includes a 2.2-mile extension of the Central Polk Parkway from US 17 (State Road [SR] 35) to SR 60 in Polk County, Florida. The purpose of this PD&E Study is to evaluate engineering and environmental data and document information that will support FTE and Polk County in determining the type, preliminary design and location of the proposed improvements. The study was conducted in order to meet the requirements of the FDOT, the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

This Natural Resources Evaluation (NRE) is being prepared as part of this PD&E study. This report reviews the possible impacts to wetland systems and federal- and state-protected species. The identification of measures to avoid, minimize and mitigate for any potential impacts is also discussed. The preferred alternative was assessed for the purposes of this evaluation. A summary of the analysis of potential project impacts for the proposed Central Polk Parkway is presented below.

Protected Species

The project study area was evaluated for potential occurrences of federal- and state-protected plant and animal species in accordance with Section 7 of the Endangered Species Act of 1973, as amended, and Chapters 5B-40 and 68A-27 of the Florida Administrative Code (F.A.C.). The evaluation included technical assistance with the U.S. Fish and Wildlife Service (USFWS), the Florida Fish and Wildlife Conservation Commission (FWC), and coordination with the Florida Natural Areas Inventory (FNAI). The evaluation also included literature and database reviews, as well as field assessments of the project study area to identify the potential occurrence of protected species and/or presence of federal-designated critical habitat. Project biologists conducted field evaluations of the project area and adjacent habitats in January, February, May, and June 2019.

Based on evaluation of collected data and field reviews, the federal- and state-protected species discussed in **Table ES-1, Table ES-2** and **Table ES-3** were observed or were determined to have the potential to occur within or adjacent to the project study area. An effect determination was made for each of these federally and state protected species based on an analysis of the potential impacts of the proposed project on each species.

Wetland Evaluation

For the purposes of this document, wetlands are defined in accordance with Chapter 62-340 F.A.C., Section 373.019 (27) Florida Statutes (F.S.), and *Corps of Engineers Wetland Delineation Manual* (1987) with *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region* (2010).

Table ES-1 Federal Protected Species Effect Determinations

Project Effect Determination	Federal Listed Species
"No effect"	Florida Grasshopper Sparrow (*Ammodramus savannarum floridanus*)
	Florida Panther (*Puma concolor couguar*)
"May affect, but is not likely to adversely affect"	Scrub Buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*)
	Britton's Beargrass (*Nolina brittoniana*)
	Lewton's Polygala (*Polygala lewtonii*)
	Carter's Warea (*Warea carteri*)
	Eastern Indigo Snake (*Drymarchon couperi*)
	Florida Scrub-jay (*Aphelocoma coerulescens*)
	Crested Caracara (*Caracara cheriway*)
	Wood Stork (*Mycteria americana*)
	Everglade Snail Kite (*Rostrhamus sociabilis*)
"May affect"	Blue-tailed Mole Skink (*Plestiodon egregius lividus*)
	Sand Skink (*Plestiodon reynoldsi*)
	Florida Bonneted Bat (*Eumops floridanus*)

Table ES-2 State Protected Species Effect Determinations

Project Effect Determination	State Listed Species
"No adverse effect anticipated"	Incised Groove-bur (*Agrimonia incisa*)
	Ashe's Savory (*Calamintha ashei*)
	Many-flowered Grass-pink (*Calopogon multiflorus*)
	Sand Butterfly Pea (*Centrosema arenicola*)
	Piedmont Jointgrass (*Coelorachis tuberculosa*)
	Star Anise (*Illicium parviflorum*)
	Florida Spiny-pod (*Matelea floridana*)
	Celestial Lily (*Nemastylis floridana*)
	Hand Fern (*Ophioglossum palmatum*)
	Giant Orchid (*Orthochilus [Pteroglossaspis] ecristatus*)
	Plume Polyplody (*Pecluma plumula*)
	Comb Polyplody (*Pecluma ptilota* var. *boureauana*)
	Florida Willow (*Salix floridana*)
	Gopher Tortoise (*Gopherus polyphemus*)
	Short-tailed Snake (*Lampropeltis extenuata*)
	Florida Pine Snake (*Pituophis melanoleucus mugitus*)
	Florida Sandhill Crane (*Antigone canadensis pratensis*)
	Florida Burrowing Owl (*Athene cunicularia floridana*)
	Little Blue Heron (*Egretta caerulea*)
	Tricolored Heron (*Egretta tricolor*)
	Southeastern American Kestrel (*Falco sparverius paulus*)
	Roseate Spoonbill (*Platalea ajaja*)

Table ES-3 Other Species of Concern Effect Determination

Project Effect Determination	Other Species of Concern
"No adverse effect anticipated"	Bald Eagle (*Haliaeetus leucocephalus*)

Although unavoidable wetland impacts will occur as a result of the proposed preferred alternative, these wetlands are located within the proposed road right-of-way (ROW) and were previously disturbed by extractive and agricultural activities, residential development, roadway construction, maintenance activities, and the invasion of nuisance and exotic species. Wetland habitat types proposed to be impacted by construction include wetland scrub, freshwater marshes, emergent aquatic vegetation, wet prairies, exotic wetland hardwoods, and intermittent ponds. Surface water habitat types proposed to be impacted include reservoirs and streams and waterways (**Table ES-4**). Impacts associated with the preferred alternative total 21.64 acres and include 14.53 acres of wetlands and 7.11 acres of surface waters. A description of land use, dominant vegetation, soil type, and other descriptors regarding these communities is provided in subsequent sections of this report. The Uniform Mitigation Assessment Method (UMAM) analysis was performed on representative wetland impact areas. Construction of the preferred alternative results in an estimated loss of 9.55 functional units.

Table ES-4 Proposed Wetland and Surface Water Impacts by FLUCFCS Description

Impact Type	FLUCFCS Description	FLUCFCS Classification [1]	USFWS Classification [2]	Impact Acreage
Surface Waters	Streams and Waterways	510	R2UB2Hx, PSS1Cx, PEM1Cx	1.68
	Reservoirs	530	PUB2Hx	5.43
			Total Surface Water Impacts	**7.11**
Wetlands	Exotic Wetland Hardwood	619	PSS1C	0.28
	Wetland Scrub	631	PSS1C	4.94
	Freshwater Marshes	641	PEM1C	5.06
	Wet Prairie	643	PEM1C	0.10
	Emergent Aquatic Vegetation	644	PEM1C	2.17
	Intermittent Pond	653	PEM1C	1.98
			Total Wetland Impacts	**14.53**
			Total Impacts	**21.64**

[1] Florida Land Use Cover and Forms Classification System (FLUCFCS) FDOT 1999

[2] Cowardin, *et al.*, 1979

PEM1C: Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1Cx: Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated
PSS1C: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded
PSS1Cx: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated
PUB2Hx: Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated
R2UB2Hx: Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

Wetland impacts resulting from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 33 U.S.C. § 1344. Compensatory mitigation for this project will be completed through the use of mitigation banks and any other mitigation options that satisfy state and federal requirements.

Final determination of jurisdictional boundaries, in addition to mitigation requirements, will be coordinated between FTE and permitting agencies during the final design phase of the project. The results of this PD&E study indicate there are no practicable alternatives to the proposed impacts

due to the need to increase roadway capacity and safety considerations. In accordance with Presidential Executive Order (EO) 11990, the FTE has undertaken all actions to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. Nonetheless, the FTE has determined that there is no practicable alternative to construction impacts occurring in wetlands. The proposed project will have no significant short-term or long-term adverse impacts to wetlands because any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function. Furthermore, all wetland impacts will be avoided and minimized to the greatest extent possible and have been limited to those areas of previous disturbance and those which are required to meet minimum safety requirements.

Essential Fish Habitat

The proposed project will not involve Essential Fish Habitat as none exists within the project study area.

Section 1.0 Introduction

1.1 Project Description

1.1.1 Project Background

A Project Development and Environment (PD&E) study for the Central Polk Parkway, conducted by the FDOT, District One, FPID 423601-1-22-01, concluded in March 2011 with the approved State Environmental Impact Report. The 2011 PD&E study evaluated a new six-lane limited access facility with two recommended alternatives: the Western Leg (SR 60 to the Polk Parkway [SR 570]) and the Eastern Leg (SR 60 to I-4). In February of 2013, the design for Segment One (Polk Parkway [SR 570] to US 17 [SR 35]) of the Western Leg was partially completed to Phase I design by FDOT District One, FPID 431641-1-52-01. The District One project was placed on hold in April 2016 due to insufficient funding and traffic volume support. Segment One is currently under design by the FTE to provide a new four-lane divided limited access expressway from the Polk Parkway to US 17, FPID 440897-2-52-01. This new expressway will feature all electronic tolling (AET).

The east/west extension from US 17 to SR 60, which is being evaluated as part of this PD&E study, was not evaluated as part of the previous Central Polk Parkway PD&E study, FPID 423601-1-22-01. It should also be noted that the Central Polk Parkway nomenclature is still being utilized.

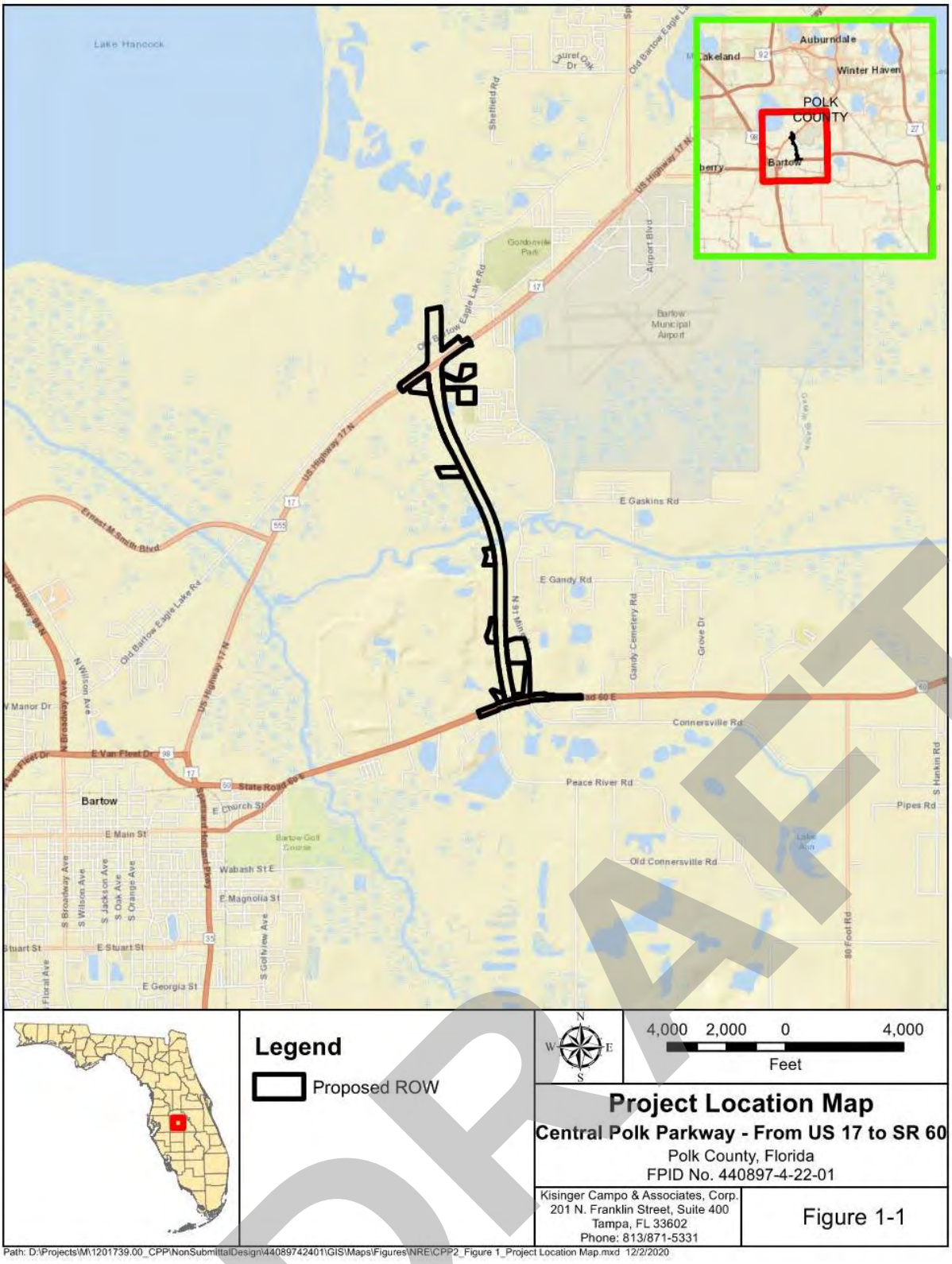
1.1.2 Project PD&E Study

The FDOT's FTE is conducting a PD&E study to evaluate a new tolled four-lane limited access expressway located in Polk County, Florida. The study will evaluate extending the Central Polk Parkway beginning at US 17 approximately a half mile west of 91 Mine Road and terminating at SR 60 west of 91 Mine Road. The project is located in Sections 22, 27 and 34 of Township 29 South Range 25 East, and Section 3 of Township 30 South Range 25 East. The project limits (proposed ROW) are shown in **Figure 1-1**. The results of the study will support determination of the type, preliminary design and location of the proposed improvements.

The study evaluates the need for capacity improvements and provides engineering and environmental documentation and analysis to establish the optimal location of the Central Polk Parkway. Other components of the PD&E study include a preliminary engineering report, concept plans, environmental studies, a public involvement program and other information for use in the development of this project.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project #14372. An ETDM *Programming Screen Summary Report* containing comments from the Environmental Technical Advisory Team (ETAT) was published on June 5, 2019. The ETAT evaluated the project's effects on various natural, physical and social resources. ETAT comments are summarized in **Section 2.4**.

Figure 1-1 Project Location Map



1.2 Purpose and Need

The purpose of this study is to evaluate a new multi-lane limited access facility between US 17 and SR 60. This segment of the Central Polk Parkway will improve regional, north/south connectivity, enhance freight mobility and economic competitiveness, improve emergency evacuation times and accommodate future population growth. This project is a component of a larger regional east/west facility.

According to the University of Florida's Bureau of Economic and Business Research (BEBR), the population of Polk County is estimated to grow from 661,645 (2017) to 906,100 by 2040 (a 27 percent increase). The Central Polk Parkway from US 17 (SR 35) to SR 60 is anticipated to accommodate the increased travel demand expected from the projected freight, residential and employment growth.

The addition of a new east/west facility to the regional transportation network will relieve congestion from parallel facilities, including truck traffic, in central Polk County, particularly US 98 (SR 700), SR 540, US 17 (SR 35) and SR 60. The Central Polk Parkway will provide additional connections to the local roadway network and Strategic Intermodal System (SIS) facilities such as Polk Parkway (SR 570), US 98 (SR 700) and SR 60. The Polk Parkway is a beltway route that provides connections from Interstate 4 (I-4) to Polk County cities such as Winter Haven, Bartow, Auburndale, and the south side of Lakeland. SR 60 provides coast to coast connections including freight movement to and from the Florida's Gateway Intermodal Logistics Center. US 98 (SR 700) provides north-south connections throughout Polk County.

1.3 Proposed Improvements

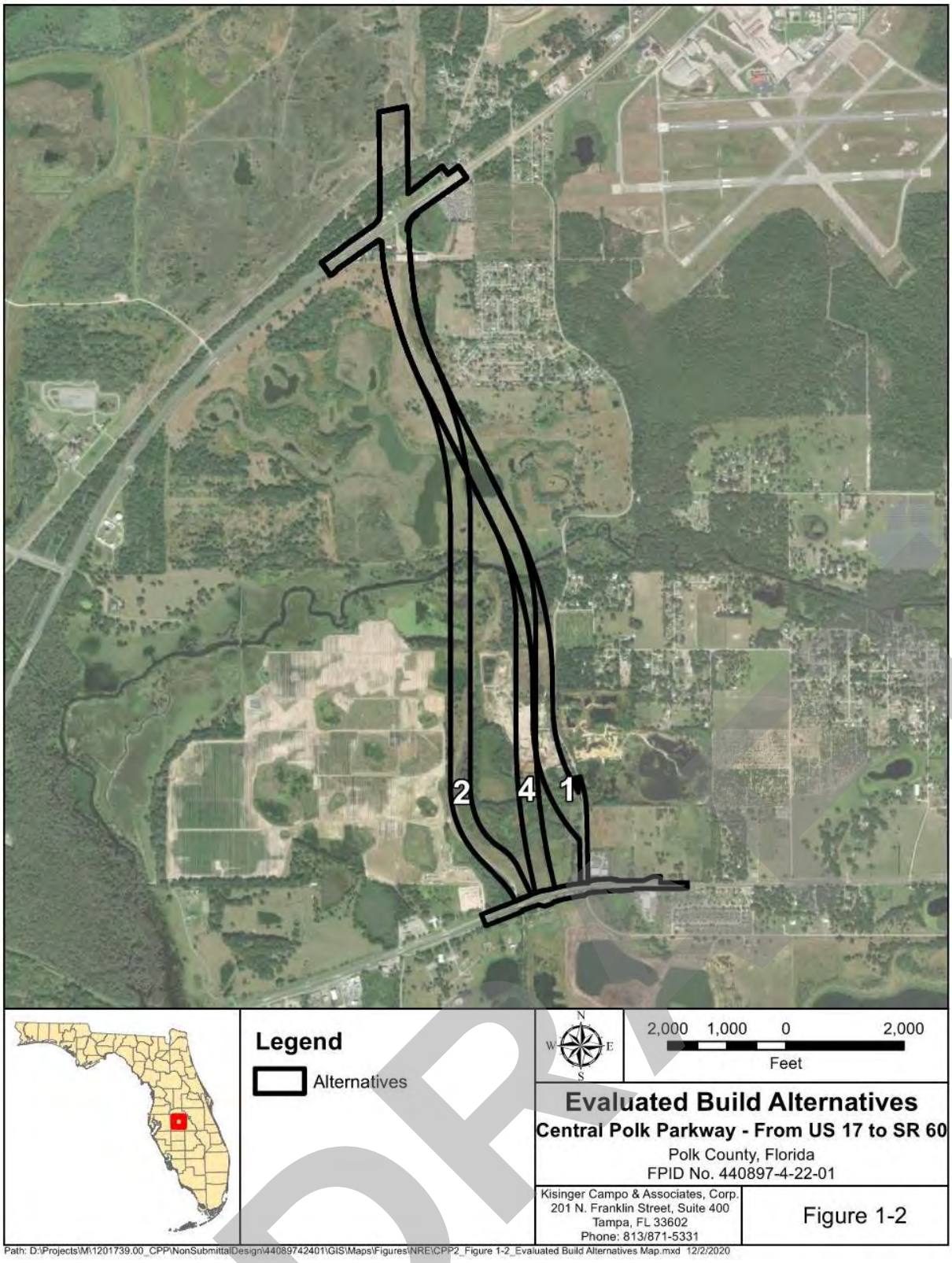
1.3.1 No-Build Alternative

The No-Build Alternative remains a viable option throughout the study process. It assumes that both normal and evacuation traffic volumes continue to increase in the future without construction of the roadway. The No-Build Alternative minimizes right-of-way and construction costs along with environmental impacts. However, it does not accomplish the purpose and need for this project.

1.3.2 Preferred Alternative

Three (3) build alternatives were evaluated in this PD&E study **(Figure 1-2)**. The preferred alternative (Alternative 4) was selected based on the natural, physical, social, and right of way information. A detailed alternatives analysis is included in the Preliminary Engineering Report. The preferred alternative includes a new diamond interchange connection with US 17 to the north and the alignment extends south to connect with SR 60 approximately 700 feet west of 91 Mine Road by means of an at grade intersection.

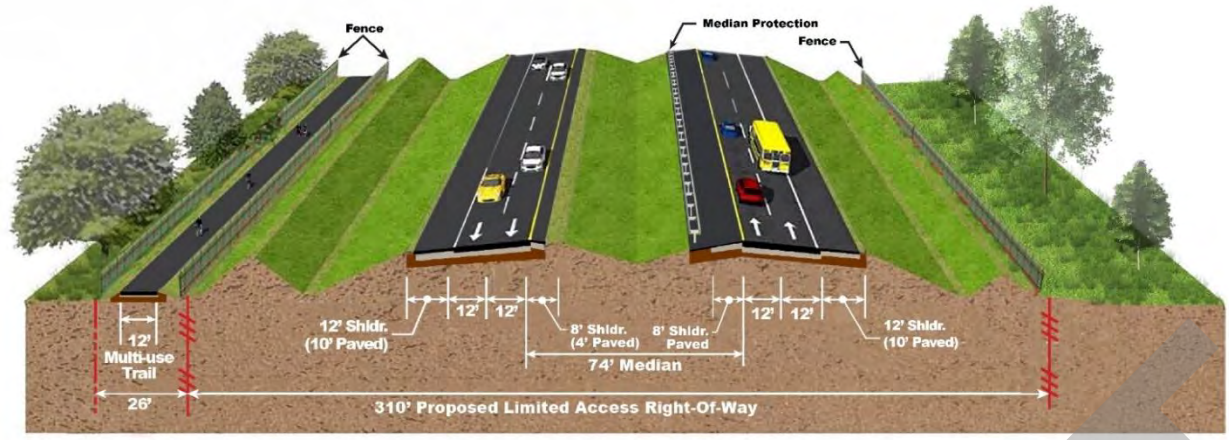
Figure 1-2 Evaluated Build Alternatives



1.3.3 Typical Section

The typical section (**Figure 1-3**) consists of a rural, four-lane divided, limited access facility with a 74-foot median, 12-foot travel lanes, 12-foot outside shoulders (10-foot paved), eight-foot median shoulders (4-foot paved) and open roadside ditches. A 12-foot multi-use recreational trail is also being evaluated as part of this PD&E study which will be located within a separate 26-foot right-of-way corridor to run parallel with the Central Polk Parkway alignment.

Figure 1-3 Four-lane Typical Section



1.4 Purpose of Report

The purpose of this report is to document wetlands and protected species within the proposed project study area. Pursuant to Presidential Executive Order 11990 entitled "Protection of Wetlands," the U.S. Department of Transportation (USDOT) has developed a policy, Preservation of the Nation's Wetlands (USDOT Order 5600.1A), dated August 24, 1978, which requires all federal-funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, as well as Part 2, Chapter 9 – Wetlands and Other Surface Waters of the FDOT PD&E Manual, four (4) project alternatives, three (3) Build and one (1) No-Build, were assessed to determine the potential wetland impacts associated with construction of each alternative. The No-Build Alternative would result in no impacts to wetlands or surface waters.

This report documents existing wildlife resources and includes an assessment of existing habitat types found within the project study area, in addition to the potential occurrence of federally and state protected plant and animal species in accordance with Part 2, Chapter 16 – Protected Species and Habitat of the FDOT PD&E Manual. Potential impacts to protected species and critical habitat that may support these species are also addressed in this report.

Section 2.0 Existing Conditions

2.1 Introduction

This section presents a description of existing conditions within the project study area, including soils and land use/vegetative cover types within both upland and wetland communities. **Section 3.0** presents a description of the potential impacts to federally and state protected species and proposed conservation measures to offset these impacts. **Section 4.0** presents a description of wetland and surface water impacts that would result from the construction of the proposed project and a discussion of the mitigation options to offset these impacts.

For this report, the project study area is defined as the proposed pond site parcels, the 12-foot multi-use recreational trail, and the 250-foot buffer around the preferred alternative proposed ROW (**Figure 2-1**).

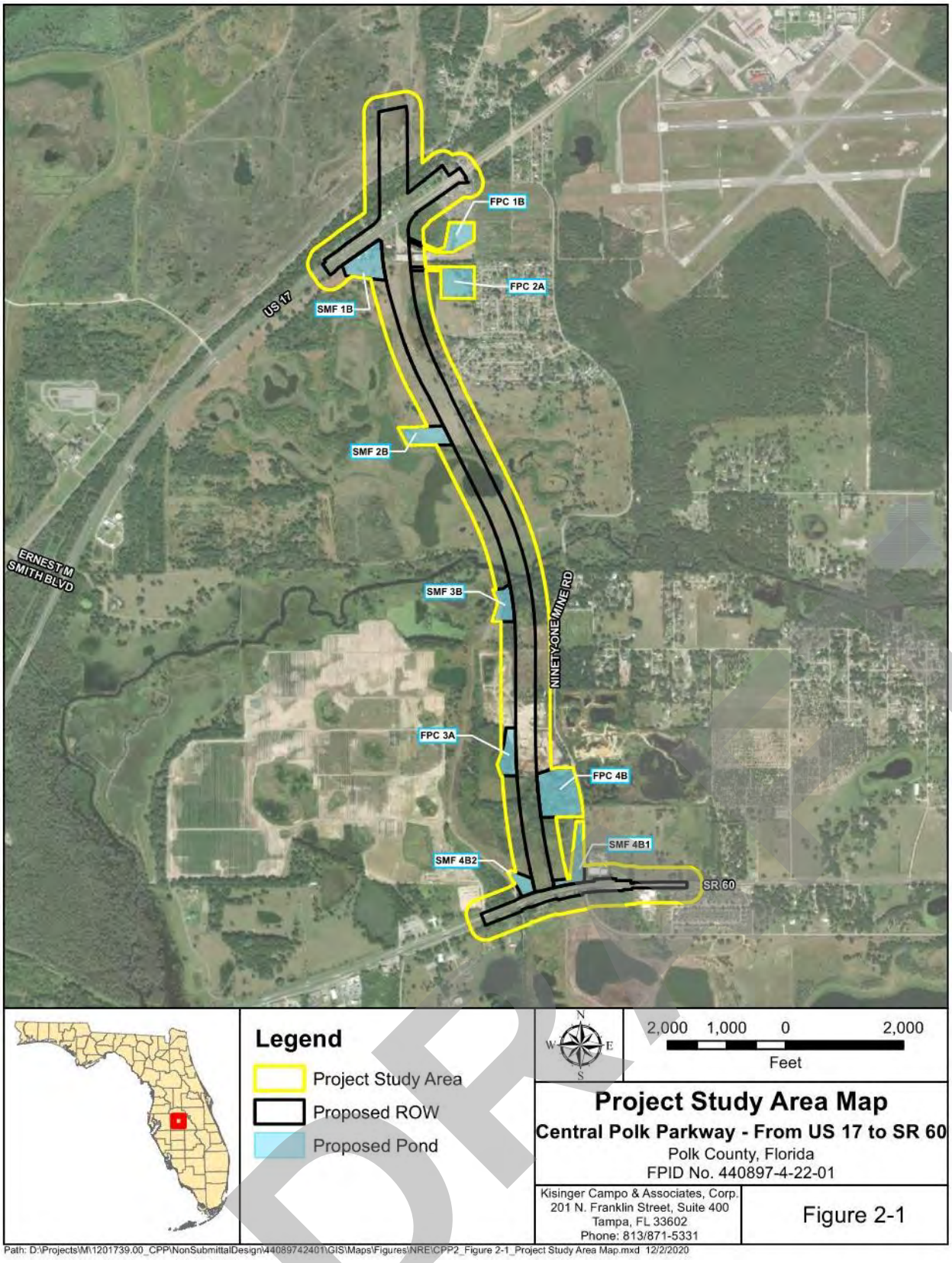
2.2 Methodology

In order to assess the approximate locations and boundaries of existing wetland and upland communities within the project area, the following site-specific data was collected and reviewed:

- Aerial photographs, (scale 1"=200') ESRI 2018;
- Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 4th ed., (Hurt *et al*., 2007);
- Florida Department of Transportation (FDOT), Florida Land Use, Cover and Forms Classification System (FLUCFCS), 3rd ed., January 1999;
- Southwest Florida Water Management District (SWFWMD), Florida Land Use, Cover and Forms Classification System GIS Database, (SWFWMD 2011);
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Soil Survey of Polk County, Florida, 1990;
- USDA, NRCS. Web Soil Survey website (May 2018);
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI), Wetlands Online Mapper (January 2018); and
- USFWS, Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et al*., 1979).

For the purposes of this document, wetlands are defined in accordance with Chapter 62-340 F.A.C., Section 373.019 (27) F.S., and *Corps of Engineers Wetland Delineation Manual* (1987) with *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Atlantic and Gulf Coastal Plain Region* (2010). Surface waters are defined as open water bodies.

Figure 2-1 Project Study Area Map



Environmental scientists familiar with Florida's natural communities conducted field reviews of the project study area in January, February, May, and June 2019. Field reviews consisted of pedestrian transects throughout all natural habitat types found within the project study area. The purpose of the reviews was to verify and/or refine preliminary habitat boundaries and classification codes established through in-office literature reviews and aerial photographic interpretation. During field investigations, each wetland and surface water habitat within the study area was visually inspected and photographed. Attention was given to identifying plant species and composition for each community. Exotic plant infestations and other disturbances such as soil subsidence, clearing, canals, power lines, etc., were noted. Attention was also given to identifying wildlife and signs of wildlife usage in each wetland and adjacent upland habitats within the study area.

2.3 Results

Based on site-specific data searches and field evaluations, a total of 21 soil types, 16 upland habitat types, and eight (8) wetland and surface water habitat types were identified within the study area. The following subsections describe the soils, upland and wetland community types, and individual wetlands and surface waters that occur within the study area.

2.3.1 Soils

Based on the *Soil Survey of Polk County, Florida* (USDA, 1990), the study area is comprised of 21 soil types. **Appendix A** provides an aerial map depicting the boundaries of each soil type within the project study area. According to the *NRCS Web Soil Survey*, seven (7) soil types reported within the project study area are classified as hydric and 14 are listed as non-hydric. Of the 14 non-hydric soils, four (4) are reported as having possible hydric soil inclusions. Mapped hydric soils comprise 57.42 acres (14.23 percent) and non-hydric soils cover 341.06 acres (84.53 percent) of the study area. The remaining 4.99 acres (1.24 percent) of the study area is designated as open water.

Table 2-1 lists the soil types reported within the study area, their corresponding USDA reference numbers reported in the *Soil Survey of Polk County, Florida*, their hydric classification, and the approximate acreage and percentage within the project study area.

2.3.2 Land Use

A total of 16 upland, six (6) wetland and two (2) surface water habitat types were found within the project study area. Aerial maps depicting existing land uses and habitats within the project study area are provided in **Appendix B**. Each habitat type within the project study area was classified using the Florida Land Use, Cover and Forms Classification System (FLUCFCS; FDOT 1999) and the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979), if applicable. **Table 2-2** quantifies land use and habitat types, and provides their classifications, total acreage and percent coverage within the project study area.

Table 2-1 NRCS Soil Types and Coverage within the Central Polk Parkway Study Area

Soil Number	Soil Type	Hydric (Y/N)	Acreage within the Project Study Area	Percent of Project Study Area
2	Apopka Fine Sand, 0 to 5 Percent Slopes	N	7.16	1.77%
3	Candler Sand, 0 to 5 Percent Slopes	N	35.80	8.87%
7	Pomona Fine Sand	N*	79.40	19.68%
8	Hydraquents, Clayey	Y	12.39	3.07%
11	Arents-Water Complex	N	6.72	1.67%
12	Neilhurst Sand, 1 to 5 Percent Slopes	N*	124.25	30.80%
13	Samsula Muck	Y	19.48	4.83%
15	Tavares Fine Sand, 0 to 5 Percent Slopes	N	20.61	5.11%
16	Urban Land	N	0.33	0.08%
19	Floridana Mucky Fine Sand, Depressional	Y	0.45	0.11%
22	Pomello Fine Sand	N	36.09	8.94%
23	Ona Fine Sand	N*	2.16	0.53%
25	Placid and Myakka Fine Sands, Depressional	Y	12.25	3.04%
26	Lochloosa Fine Sand	N	2.33	0.58%
35	Hontoon Muck	Y	1.18	0.29%
37	Placid Fine Sand, Frequently Flooded	Y	7.66	1.90%
51	Pomona-Urban Land Complex	N*	7.25	1.80%
57	Haplaquents Clayey	Y	4.01	0.99%
58	Udorthents, Excavated	N	0.84	0.21%
59	Arents-Urban Land Complex, 0 to 5 Percent Slopes	N	1.85	0.46%
68	Arents, 0 to 5 Percent Slopes	N	16.27	4.03%
99	Water	N/A	4.99	1.24%
	Total Hydric		**57.42**	**14.23%**
	Total Non-Hydric		**341.06**	**84.53%**
	Total Water		**4.99**	**1.24%**
	Total		**403.47**	**100.00%**

*May have hydric soil inclusions

Upland communities comprise 353.99 acres (87.74 percent) of the project study area and include residential development, commercial and services, industrial, extractive, reclaimed land, tree crops, nurseries and vineyards, other open lands, mixed rangeland, upland coniferous forest, temperate hardwoods, hardwood-conifer mixed, mixed hardwoods, transportation, and utilities. Wetland and surface water communities comprise 49.48 acres (12.26 percent) of the project study area. Based on collected field data and in-house reviews, a total of eight (8) wetland and surface water habitat types – including six (6) wetlands and two (2) surface waters – were identified within the project study area. Wetland and surface water habitats include streams and waterways, reservoirs, exotic wetland hardwoods, wetland scrub, freshwater marshes, wet prairies, emergent aquatic vegetation, and intermittent ponds.

Appendix C provides descriptions of all identified wetland and surface water habitats, a table of their acreage within the project study area, and aerial maps of the location of these systems within the project study area. There are no wetlands or surface water designated as Outstanding Florida

Waters within the project study area. Representative photographs of each wetland and surface water community type are provided in **Appendix D**.

Table 2-2 Land Use Types within the Central Polk Parkway Study Area

Habitat Type	FLUCFCS Classification[1]	FLUCFCS Description[1]	USFWS Classification[2]	Acreage within Project Study Area	Percent of Project Study Area
Developed	120	Medium Density Residential	N/A	19.75	4.90%
	140	Commercial and Service	N/A	20.98	5.20%
	150	Industrial	N/A	2.92	0.72%
	160	Extractive	N/A	45.29	11.23%
	165	Reclaimed Land	N/A	136.44	33.82%
	170	Institutional	N/A	5.37	1.33%
Undeveloped	220	Tree Crops	N/A	9.58	2.37%
	240	Nurseries and Vineyards	N/A	1.18	0.29%
	260	Other Open Lands [Rural]	N/A	29.34	7.27%
	330	Mixed Rangeland	N/A	4.56	1.13%
	410	Upland Coniferous Forest	N/A	6.97	1.73%
	425	Temperate Hardwood	N/A	0.06	0.01%
	434	Hardwood-Conifer Mixed	N/A	29.20	7.24%
	438	Mixed Hardwoods	N/A	11.39	2.82%
Infrastructure	810	Transportation	N/A	23.96	5.94%
	830	Utilities	N/A	7.00	1.74%
			Total Uplands	**353.99**	**87.74%**
Surface Waters	510	Streams and Waterways	R2UB2Hx, PSS1Cx, PEM1Cx	3.26	0.81%
	530	Reservoirs	PUB2Hx	10.29	2.55%
Wetlands	619	Exotic Wetland Hardwoods	PSS1C	3.06	0.76%
	631	Wetland Scrub	PSS1C	10.65	2.64%
	641	Freshwater Marshes	PEM1C	13.10	3.24%
	643	Wet Prairies	PEM1C	0.11	0.03%
	644	Emergent Aquatic Vegetation	PEM1C	6.56	1.62%
	653	Intermittent Ponds	PEM1C	2.45	0.61%
			Total Wetlands and Surface Waters	**49.48**	**12.26%**
			Total	**403.47**	**100.00%**

[1] FDOT 1999

[2] Cowardin, *et al*., 1979

PEM1C: Palustrine, Emergent, Persistent, Seasonally Flooded

PEM1Cx: Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated

PSS1C: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded

PSS1Cx: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated

PUB2Hx: Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

R2UB2Hx: Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

2.4 ETDM Comments

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as project No.: 14372. An ETDM *Programming Screen Summary Report* containing comments from the Environmental Technical Advisory Team (ETAT) was published on June 5, 2019. The ETAT evaluated the project's effects on various natural, physical and social resources.

2.4.1 Wetlands and Surface Waters

The U.S. Army Corps of Engineers (USACE) stated that approximately three (3) acres of Lacustrine Wetlands, 223 acres of Palustrine Wetlands, and six (6) acres of Riverine Wetlands lie within the 1,000-foot study area buffer. The USACE recommends continued emphasis on wetland avoidance and minimization throughout the planning process.

The Southwest Florida Water Management District (SWFWMD) recommended that a Formal Wetland Determination Petition is submitted prior to the Environmental Resource Permit (ERP) application submittal. SWFWMD stated that an analysis utilizing the Uniform Mitigation Assessment Method (UMAM) to determine the wetland mitigation required to offset the wetland impacts will be required.

The U.S. Fish and Wildlife Service (USFWS) noted that wetlands may occur within the study area buffer and that impacts should be avoided, where practicable. If wetland impacts are unavoidable, adequate mitigation should be provided that fully compensates for the loss of resources.

The National Marine Fisheries Service (NMFS) determined that the project will not directly impact any NMFS trust resources; however, the project has the potential to impact waterways and wetlands that drain to the Peace River, which drains to Charlotte Harbor. The NMFS recommends the design and implementation of stormwater treatment systems to prevent degraded water from reaching Peace River and Charlotte Harbor.

During this PD&E study, a wetland evaluation was prepared and documented in this NRE report in accordance with Part 2, Chapter 9 Wetlands and Other Surface Waters of the FDOT PD&E Manual to determine the potential adverse impacts to wetlands. All necessary measures will be taken to avoid and/or minimize impacts to wetlands to the greatest extent practicable during project design. Should avoidance and/or minimization not be practicable, a mitigation plan will be prepared. Please refer to the Pond Siting Report for details on the design and implementation of stormwater treatment systems. The FTE will reinitiate technical assistance with USFWS and coordinate with USACE and SWFWMD throughout the project's design phase, as applicable.

2.4.2 Wildlife and Habitat

Southwest Florida Water Management District (SWFWMD) commented that an Environmental Resource Permit (ERP) will be required for this project.

Florida Fish and Wildlife Conservation Commission (FWC) noted that primary wildlife issues associated with this project include: an increase in habitat fragmentation; direct loss of wetland habitats due to road construction; potential adverse effects to a moderate number of species listed

by the Federal Endangered Species Act as Endangered or Threatened, or by the State of Florida as Threatened; potential increase in wildlife roadkill; and potential water quality degradation as a result of additional stormwater runoff from the expanded roadway surface draining into adjacent wetlands and Peace Creek.

Florida Department of Agriculture and Consumer Services (FDACS) stated that there is potential to impact state and federally listed plant species, some of which are very limited in geographic distribution and have small populations. State and federally listed plant species have a low potential for occurrence throughout the project study area due to a high level of disturbance resulting from previous mining activities.

The USFWS stated that the project corridor is located in the Core Foraging Area of several active nesting colonies of the endangered wood stork. USFWS commented that the following federally listed species have the potential to occur in or near the project site: blue-tailed mole skink, Eastern indigo snake, Florida scrub-jay, sand skink, wood stork, and Federally listed plants. USFWS recommends that a Biological Assessment (Natural Resources Evaluation [NRE]) for the project be prepared during the PD&E study. USFWS requested that a wildlife passage be provided over the Peace River to allow safe passage for wildlife.

This NRE has been prepared in accordance with Part 2, Chapter 16, Protected Species and Habitat, of the PD&E Manual. Design phase surveys will be conducted for the listed species potentially occurring within the project study area and the effects on listed species will be re-evaluated. Avoidance, minimization and mitigation for unavoidable impacts was assessed during the alternatives development to avoid and minimize effects on protected species and wetlands. The FTE will reinitiate technical assistance with USFWS and coordinate with FWC and FDACS throughout the project's design phase.

Section 3.0 Protected Species

3.1 Introduction

Listed species are afforded special protective status by federal and state agencies. This special protection is federally administered by the United States Department of the Interior, USFWS, and National Oceanic and Atmospheric Administration – National Marine Fisheries Services (NOAA-NMFS) pursuant to the Endangered Species Act (ESA) of 1973 (as amended). The USFWS administers the federal list of animal species (50 CFR 17) and plant species (50 CFR 23). Impacts to critical habitat were also evaluated per Section 3(5)(A) of the ESA. The study area was also evaluated for the occurrence of Critical Habitat as defined by the ESA as amended, and 50 CFR Part 424.

Administered by the Florida Fish and Wildlife Conservation Commission (FWC), the State of Florida affords special protection to animal species identified as state-designated threatened or state species of special concern, pursuant to Chapter 68A-27, F.A.C. The state of Florida also protects and regulates plant species designated as endangered, threatened or commercially exploited as identified on the Regulated Plant Index (5B-40.0055, F.A.C.), which is administered by the Florida Department of Agriculture and Consumer Services (FDACS), Division of Plant Industry, pursuant to Chapter 5B-40, F.A.C.

The following sections describe the methodology used to assess the potential for occurrence of protected species and to identify the effects that implementation of the preferred alternative may have on protected species.

3.2 Methodology

In order to determine the potential for occurrence of federal- and state-protected plant and animal species within the project study area, available site-specific data was collected and evaluated.

Literature reviewed and databases searched as part of this evaluation included:

- Aerial photographs, (scale 1"=200') ESRI 2018;
- Audubon. Florida Eagle Watch Nest Map website;
- Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 4th Edition (Hurt *et al*., 2007);
- Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service, Florida's Federally Listed Plant Species website (2010);
- FDACS, Florida Forest Service, Notes on Florida's Endangered and Threatened Plants: Botany Contribution No. 38, 5th edition, (2010), website. May 2020;

- Florida Department of Transportation (FDOT*), Florida Land Use, Cover and Forms Classification System* (FLUCFCS), 3rd ed., January 1999;
- Florida Fish and Wildlife Conservation Commission (FWC), Florida's Endangered Species and Threatened Species, December 2018;
- FWC, Eagle Nest Locator website, May 2020;
- FWC, Wading Bird Rookeries website, September 1999;
- Florida Natural Areas Inventory (FNAI) Element Occurrence Data Report (http://www.fnai.org/trackinglist.cfm), June 2019;
- FNAI Biodiversity Matrix Map Server, May 2020;
- Southwest Florida Water Management District (SWFWMD), Florida Land Use, Cover and Forms Classification System GIS Database; (SWFWMD 2011);
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), *Soil Survey of Polk County, Florida*, 1990;
- USDA, NRCS. Web Soil Survey website (May 2018);
- U.S. Fish and Wildlife Service (USFWS), Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, June 2007;
- USFWS, 2019 Wood Stork Nesting Colonies Maps, May 2020;
- USFWS, Critical Habitat Portal website, May 2020;
- USFWS, Information for Planning and Consultation (IPaC) Mapper, May 2020.

Environmental scientists familiar with Florida natural communities conducted field reviews of the project study area and adjacent habitats in January, February, May, and June 2019. Field reviews consisted of pedestrian transects throughout the natural habitat types located within the project study area. The purpose of the reviews was to verify and/or refine preliminary habitat boundaries and classification codes established through in-office literature reviews and aerial photographic interpretation. During field investigations, upland and wetland communities within the study area were visually inspected. Attention was given to identifying dominant plant species and composition for each community. Additional attention was given to identifying potential wildlife and signs of wildlife usage in each wetland and upland community within the project study area. The FNAI was contacted for documented occurrences of listed species within one (1) mile of the study area (**Appendix E**).

Based on the evaluation of collected data, field reviews, FNAI data, and database searches, the federally and state protected species discussed in **Section 3.3** were considered as having the potential to occur within or adjacent to the project study area. Protected species documented

occurrence locations were received from the FNAI and FWC. For a species to be considered potentially present the project study area must be within the species' distribution range. An effect determination was then made for each federally and state protected species based on an analysis of the potential impacts of the preferred alternative on each species.

3.3 Results

Based on the information collected and field reviews conducted between January and June of 2019, a list of protected species with the potential to occur within the project study area was developed. This list includes a total of 37 federal or state protected species that have the potential for occurrence within the project study area. These protected species include 17 plants, six (6) reptiles, 12 birds and two (2) mammal species. **Table 3-1** presents a list of protected species with the potential to occur within the project study area, their federal or state protection status, preferred habitat, and ranking of potential occurrence. Locations of all listed species documented within one (1) mile of the project study area as well as the locations of all protected species observed during field reviews are also provided in **Appendix F**.

The potential for occurrence for each species was designated as Low, Moderate or High based on the type of habitat present within the project study area, its relative condition, if the species has been previously documented within one (1) mile of the project study area or if the species was observed in the project study area. A *Low* rating indicates that habitat for that species is present within the project study area but meets little to none of the habitat requirements of the species and the species has not been documented within proximity to the project study area. A *Moderate* rating indicates that suitable habitat exists and it is reasonable to assume the species is present. A *High* rating indicates that suitable habitat exists and the species was observed during field reviews. Protected plant species with preferred habitat exclusively limited to scrub were omitted due to a lack of suitable habitat within the project study area. Remaining state and federally listed plant species have a low potential for occurrence throughout the project study area due to a high level of disturbance resulting from previous mining activities. Because of the high level of soil disturbance, the potential for occurrences of the blue-tailed mole skink and sand skink were also ranked as low. Soil classifications have not been updated by the NRCS to show previous mining disturbances. Historical aerial imagery from March 21, 1971 of the project area is provided in **Appendix G**.

While the proposed project has taken all practicable measures to avoid and minimize impacts to potentially occurring protected species and their habitats, unavoidable impacts may occur as a result of roadway and pond site construction. A determination of the anticipated project "effect" on protected species was made based on their probability of occurrence within the project study area, the proposed changes to their habitat quality, quantity and availability as a result of project construction and how each species is expected to respond to anticipated habitat changes. Listed in **Sections 3.3.1** and **3.3.2** are the descriptions and "effect" determinations for each species.

Table 3-1 Protected Species Potential for Occurrence

Species	Designated Status			Habitat Preference	Suitable Habitat Acreages	Potential for Occurrence
	Federal	State	FDACS			
Plants						
Incised Groove-Bur *Agrimonia incisa*	-	-	T	Sandhills and sometimes at the edges of more mesic habitats	222.55	Low
Ashe's Savory *Calamintha ashei*	-	-	T	Openings of pine scrub and disturbed areas such as abandoned fields, roadsides, and fire lanes	235.07	Low
Many-Flowered Grass-Pink *Calopogon multiflorus*	-	-	T	Dry to moist flatwoods with longleaf pine, wiregrass, and saw palmetto	211.11	Low
Sand Butterfly Pea *Centrosema arenicola*	-	-	E	Sandhills, scrubby flatwoods, and dry upland woods	258.70	Low
Piedmont Jointgrass *Coelorachis tuberculosa*	-	-	T	Margins of shallow lakes and ponds, and in marshes	25.80	Low
Scrub Buckwheat *Eriogonum longifolium* var. *gnaphalifolium*	T	-	E	Sandhill, oak hickory scrub, high pinelands, and turkey oak barrens with wiregrass, blue jack, and turkey oak	240.30	Low
Star Anise *Illicium parviflorum*	-	-	E	Banks of seepage streams, hydric hammocks, and baygalls	11.45	Low
Florida Spiny-Pod *Matelea floridana*	-	-	E	Upland hardwood forests	40.65	Low
Celestial Lily *Nemastylis floridana*	-	-	E	Wet flatwoods, prairies, marshes, and edges of cabbage palm hammocks	13.07	Low
Britton's Beargrass *Nolina brittoniana*	E	-	E	Scrub, sandhill, scrubby flatwoods, and xeric hammock	211.11	Low
Hand Fern *Ophioglossum palmatum*	-	-	E	In "boots" or old leaf bases of cabbage palms in maritime or wet hammocks	11.45	Low
Giant Orchid *Orthochilus (Pteroglassaspis) ecristatus*	-	-	T	Sandhill, scrub, pine flatwoods, and pine rocklands	211.11	Low
Plume Polyplody *Pecluma plumula*	-	-	E	Wet hammocks and swamps	11.45	Low
Comb Polypody *Pecluma ptilota* var. *bourgeauana*	-	-	E	Floodplain forests, moist hammocks, and swamps	11.45	Low
Lewton's Polygala *Polygala lewtonii*	E	-	E	Oak scrub, sandhill, and transition zones between high pine and turkey oak barrens	211.11	Low

Species	Designated Status			Habitat Preference	Suitable Habitat Acreages	Potential for Occurrence
	Federal	State	FDACS			
Florida Willow *Salix floridana*	-	-	E	Wet, mucky soils in bottomland forests, floodplains, hydric hammocks, swamps, edges or spring-runs, and streams	24.04	Low
Carter's Warea *Warea carteri*	E	-	E	Sandhill, scrubby flatwoods, and inland scrub habitat	211.11	Low
Reptiles						
Eastern Indigo Snake *Drymarchon couperi*	T	-	-	Mesic flatwoods, upland pine forests, swamps, wet prairies, xeric pinelands, and scrub habitats	280.93	Moderate
Gopher Tortoise *Gopherus polyphemus*	C	T	-	Dry upland habitats including sandhills, scrub, xeric oak hammock, and dry pine flatwoods; also commonly uses disturbed habitats such as pastures, old fields, and road shoulders	258.75	High (Observed 2019)
Short-tailed Snake *Lampropeltis extenuata*	-	T	-	Dry upland habitats with open canopies and dry sandy soils including sandhill, rosemary-sand pine scrub and adjacent xeric oak hammocks	258.75	Moderate
Florida Pine Snake *Pituophis melanoleucus mugitus*	-	T	-	Dry sandy soils with open canopies. Sandhill, sand pine scrub, and scrubby flatwoods	258.75	Moderate
Blue-Tailed Mole Skink* *Plestiodon egregius lividus*	T	-	-	Central Florida in habitat with loose sandy areas, such as rosemary scrub, sand pine scrub, oak scrub, scrubby flatwoods, and turkey oak barrens	119.91	Low
Sand Skink* *Plestiodon reynoldsi*	T	-	-	Central Florida in habitat with loose sandy areas, such as rosemary scrub, sand pine scrub, oak scrub, scrubby flatwoods, and turkey oak barrens	119.91	Low
Birds						
Florida Grasshopper Sparrow *Ammodramus savannarum floridanus*	E	-	-	Large areas of frequently burned dry prairie habitat with patchy open areas sufficient for foraging	211.13	Low
Florida Sandhill Crane *Antigone canadensis pratensis*	-	T	-	Wet and dry prairies, marshes, and marshy lake edges	243.60	High (Observed 2019)

Species	Designated Status			Habitat Preference	Suitable Habitat Acreages	Potential for Occurrence
	Federal	State	FDACS			
Florida Scrub-jay *Aphelocoma coerulescens*	T	-	-	Early successional stages of fire-dominated xeric oak communities located on well-drained, sandy soils; preferred habitat consists of scrub oaks between 3 and 10 feet tall, with open sand and scattered clumps of herbaceous vegetation	40.59	Low
Florida Burrowing Owl *Athene cunicularia floridana*	-	T	-	Areas of short, herbaceous groundcover; including prairies, sandhills, and farmland	211.13	Moderate
Crested Caracara *Caracara cheriway*	T	-	-	Open country such as dry prairie and pasture lands with scattered cabbage palm, cabbage palm/live oak hammocks, and shallow ponds and sloughs. Cabbage palms or live oaks with low-growing surrounding vegetation are required for nesting	251.77	Moderate
Little Blue Heron *Egretta caerulea*	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps	35.35	High (Observed 2019)
Tricolored Heron *Egretta tricolor*	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps	35.35	High (Observed 2019)
Southeastern American Kestrel *Falco sparverius paulus*	-	T	-	Pine scrub, dry prairies, mixed pine hardwood forests, and pine flatwoods	240.33	Moderate
Bald Eagle *Haliaeetus leucocephalus*	NL[1]	NL[2]	-	Large open water bodies, saltwater marshes, dry prairies, mixed pine, hardwood forests, wet prairies, marshes, pine flatwoods, and sandhills	80.52	High (Observed 2019)
Roseate Spoonbill *Platalea ajaja*	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps	35.35	High (Observed 2019)

Species	Designated Status			Habitat Preference	Suitable Habitat Acreages	Potential for Occurrence
	Federal	State	FDACS			
Wood Stork *Mycteria americana*	T	-	-	Fresh and saltwater habitats such as fresh and saltwater marshes, tidal flats, wet prairies, cypress swamps, and agricultural environments	49.48	High (Observed 2019)
Everglade Snail Kite *Rostrhamus sociabilis*	E	-	-	Large open freshwater marshes and lakes with shallow water and a low density of emergent vegetation	29.92	Low
Mammals						
Florida Bonneted Bat *Eumops floridanus*	E	-	-	Roosts in forested communities or artificial structures and forages in open areas	47.62	Moderate
Florida Panther *Puma concolor couguar*	E	-	-	A variety of habitats including upland forests, prairies, wetlands, stands of saw palmetto, and swamps	271.92	Moderate

Notes:

E = endangered, T = threatened, C = candidate for listing, NL = not listed

*Due to the high level of disturbed soils resulting from mining activities, the blue-tailed mole skink and sand skink potential for occurrences were determined to be low.

[1] While not listed under the ESA, the Bald Eagle is federally protected under the Bald and Golden Eagle Protection Act.

[2] While not listed under Chapter 68A-27 FAC, the Bald Eagle is state protected under the FWC Bald Eagle Management Plan (2008).

3.3.1 Federal Species

3.3.1.1 Plants

Scrub Buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*)

Scrub buckwheat is a short perennial herb that is listed as ***threatened*** by the **USFWS** and ***endangered*** by the **FDACS**. This species is a member of the buckwheat (*Polygonaceae*) family and occurs on sandhill, oak-hickory scrub, high pinelands, and turkey oak barrens with wiregrass, blue jack, and turkey oak. The project study area contains approximately 240.30 acres of suitable habitat for scrub buckwheat within its sandhill habitats. Previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**); therefore, scrub buckwheat has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, scrub buckwheat was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" the scrub buckwheat.

Britton's Beargrass (*Nolina brittoniana*)

Britton's beargrass is a perennial herb with long, stiff leaves and clusters of small white flowers that is listed as ***endangered*** by the **USFWS** and the **FDACS**. This species is a member of the *Nolinoideae* subfamily and occurs on scrub, sandhill, scrubby flatwoods, and xeric hammock. The project study area contains approximately 211.11 acres of suitable habitat for Britton's beargrass within its sandhill habitats. Previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**); therefore, Britton's beargrass has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, Britton's beargrass was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" Britton's beargrass.

Lewton's Polygala (*Polygala lewtonii*)

Lewton's polygala is a short-lived perennial herb with bright pink flowers that is listed as ***endangered*** by the **USFWS** and the **FDACS**. This species is a member of the milkwort (*Polygalaceae*) family and occurs in oak scrub, sandhills, and transition zones between high pine and turkey oak barrens. The project study area contains approximately 211.11 acres of suitable habitat within its sandhill habitats. Previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**); therefore, Lewton's polygala has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, Lewton's polygala was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" Lewton's polygala.

Carter's Warea (*Warea carteri)*

Carter's warea is an annual herb with many slender, branching stems and white flower clusters that is listed as ***endangered*** by the **USFWS** and the **FDACS**. This species is a member of the mustard (*Brassicaceae*) family and occurs on sandhill, scrubby flatwoods, and inland scrub habitat. The project study area contains approximately 211.11 acres of suitable habitat for Carter's warea within its sandhill habitats. Previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**); therefore, Carter's warea has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, Carter's warea was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" Carter's warea.

3.3.1.2 Reptiles

Eastern Indigo Snake (*Drymarchon couperi*)

The Eastern indigo snake is a large, glossy, black snake that is listed as ***threatened*** by the **USFWS**. This species can be found in a variety of habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, as well as human-altered habitats. It may also utilize gopher tortoise burrows for shelter to escape hot or cold ambient temperatures within its range. According to FNAI data, Eastern indigo snakes have the potential to occur within Polk County. While there is suitable habitat for this species throughout undeveloped communities of the project study area, the species has not been documented within one (1) mile of the project study area. Additionally, the Eastern indigo snake was not observed during field reviews. However, it is reasonable to expect that this species could utilize suitable habitat within the project study area. Approximately 280.93 acres of suitable habitat is available for the Eastern indigo snake within the project study area. The path followed through the Eastern Indigo Snake Determination of Effect Key was A>B>C>may affect (**Appendix H**). To minimize adverse impacts to the Eastern indigo snake, the FTE will commit to use the USFWS-approved Standard Protection Measures for the Eastern Indigo Snake (**Appendix I**, updated August 2013) during construction of the proposed roadway improvements. Additionally, the FTE will survey the project study area prior to construction to determine the presence and location of gopher tortoise burrows within the project study area. If gopher tortoises or burrows are found within 25 feet of the limits of construction, the FTE will reinitiate technical assistance with the FWC to secure all permits needed to relocate the tortoises and associated commensal species. With the implementation of these measures, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" the Eastern indigo snake. The FTE will reinitiate technical assistance with the USFWS during the project's design phase to revisit this effect determination relative to updates to project design and the implementation of specific protection actions and measures.

Blue-tailed Mole Skink (*Plestiodon egregius lividus*) and Sand Skink (*Plestiodon reynoldsi*)

The blue-tailed mole skink and sand skink are small lizards that are listed as ***threatened*** by the **USFWS**. Blue-tailed mole skinks are expected to occur with sand skinks where the two species overlap in distribution. These species are found in central Florida in habitat with loose sandy soils, such as rosemary scrub, sand pine scrub, oak scrub, scrubby flatwoods, and turkey oak barrens. They are also known to utilize disturbed habitats with suitable soils, such as pine plantations, citrus groves, open fields, and pastures. According to the Sand and Blue-tailed Mole Skink Consultation Guide (USFWS 2020), skink distribution is defined by three factors: location within a county designated by the USFWS with primary populations, at an elevation of 82 feet above sea level or higher, and is comprised of any of the 26 soil types designated as sand skink soil by the USFWS. Approximately 119.91 acres may require surveys to determine presence or absence for the blue-tailed mole skink and sand skink (**Appendix F**). Although there are suitable skink soils at a suitable elevation, much of these soils have been overturned by previous mining activities (**Appendix G**). Due to the high level of soil disturbance, the blue-tailed mole skink and sand skink potential for

occurrences were reduced to low. FNAI data has not documented the blue-tailed mole skink documented within one (1) mile of the project study area and these species were not observed during field reviews. Technical assistance with the USFWS initiated in March 2020 established that the FTE will conduct coverboard surveys pursuant to the Sand and Blue-tailed Mole Skink Consultation Guide (USFWS 2020) in areas of suitable habitat during the project's design phase. The FTE will reinitiate technical assistance with the USFWS during the project's design phase to determine soil suitability and the extent of skink habitat that will require coverboard surveys. With the implementation of this measure, it has been determined that the proposed project "**may affect**" the blue-tailed mole skink and sand skink.

3.3.1.3 Birds

Florida Grasshopper Sparrow (*Ammodramus savannarum floridanus*)

The Florida grasshopper sparrow is a small, short-tailed, flat-headed sparrow that is listed as ***endangered*** by the **USFWS**. This species requires large areas of frequently burned dry prairie habitat with patchy open areas sufficient for foraging. It may persist in pasture lands that have not been intensively managed. While the project study area lies within the USFWS Florida Grasshopper Sparrow Consultation Area (**Appendix F**), suitable habitat within the project study area is not subject to routine fire management and only meets minimal habitat requirements for this species. Approximately 211.13 acres of suitable habitat are available within the pasture lands of the project study area. FNAI data has not documented the Florida grasshopper sparrow within one (1) mile of the project study area. Additionally, the closest Florida grasshopper sparrow population documented by USFWS is at Salt Lake Wildlife Management Area, which is located more than 39 miles from the project area. No Florida grasshopper sparrows were identified during field reviews. Technical assistance with the USFWS in March 2020 determined surveys would not be required. Based on the lack of frequently burned dry prairie habitat and technical assistance with the USFWS, it was also determined that the project will have "**no effect**" on the Florida grasshopper sparrow.

Florida Scrub-jay (*Aphelocoma coerulescens*)

The Florida scrub-jay is similar to the common blue jay in size and shape, with a pale blue crestless head, nape, wings, and tail. It is listed as ***threatened*** by the **USFWS**. Optimal scrub-jay habitat consists of low growing, scattered scrub species with patches of bare sandy soil such as those found in sand pine scrub and scrubby flatwoods habitats that are occasionally burned. In areas where these types of habitats are unavailable, Florida scrub-jays may be found in less optimal habitats such as pine flatwoods with scattered oaks. While the project study area is located within the USFWS Florida Scrub-jay Consultation Area (**Appendix F**), there is minimal suitable habitat for this species within the project study area and it was not observed during field reviews. Additionally, FNAI data has not documented the Florida scrub-jay within one (1) mile of the project study area. Approximately 40.59 acres of habitat are available for the Florida scrub-jay within the project study area. The FTE committed to conducting surveys pursuant to USFWS Florida Scrub-jay General Survey Guidelines and Protocol (USFWS 2007a) in areas of suitable

habitat during the project's design phase during technical assistance with the USFWS in March 2020. With the commitment to perform surveys and through technical assistance coordination with the USFWS, preliminarily, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" the Florida scrub-jay.

Crested Caracara (*Caracara cheriway*)

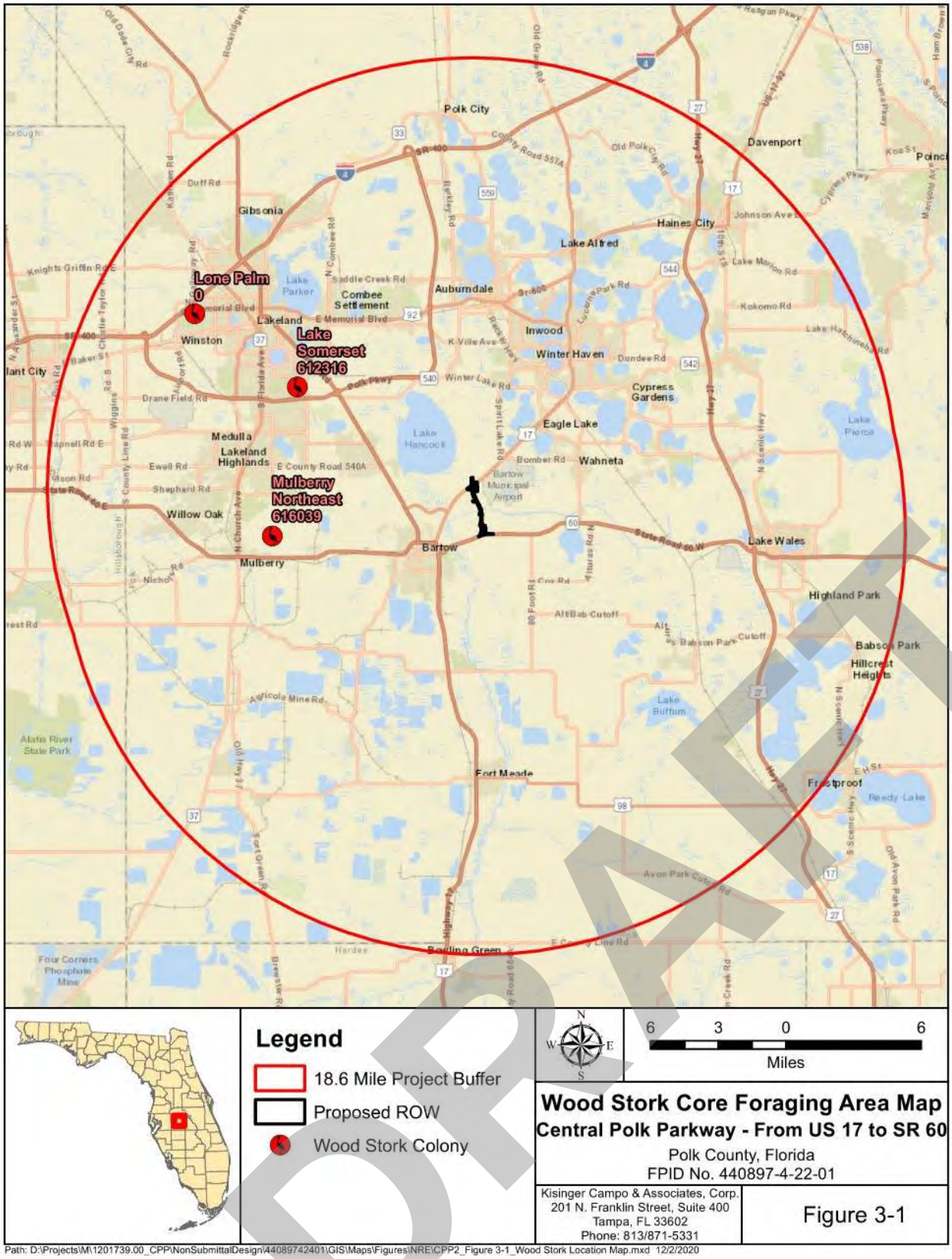
The crested caracara is a large, boldly patterned raptor with a crest that is listed as ***threatened*** by the **USFWS**. This species often inhabits open country, such as dry prairie and pasture lands with scattered cabbage palms and cabbage palm/live oak hammocks. It also requires cabbage palms or live oaks with low-growing surrounding vegetation for nesting. While the project is located within the USFWS Crested Caracara Consultation Area (**Appendix F**), FNAI data has not documented the species within one (1) mile of the project study area. Additionally, the crested caracara was not observed during field reviews. Approximately 251.77 acres of suitable habitat are available for the crested caracara within the project study area. The FTE committed to conducting surveys pursuant to the USFWS Crested Caracara Draft Survey Protocol (USFWS 2016) in areas of suitable habitat during the project's design phase during technical assistance with the USFWS in March 2020. With the commitment to perform surveys and through technical assistance with the USFWS, preliminarily, it has been determined that the project "**may affect, but is not likely to adversely affect**" the crested caracara.

Wood Stork (*Mycteria americana*)

The wood stork is a large, white, wading bird that is listed as ***threatened*** by the **USFWS**. The wood stork is an opportunistic feeder and utilizes various habitat types including freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures, and ditches. Water that is relatively calm, uncluttered by dense aquatic vegetation, and with a permanent or seasonal water depth between two (2) and 15 inches is considered optimal foraging habitat for this species. Suitable foraging habitat exists within the project study area and the species was observed during field reviews (**Appendix F**). According to the USFWS wood stork colony website, the project study area is located within the 18.6-mile core foraging area (CFA) of three (3) wood stork nesting colonies: Mulberry Northeast, Lake Somerset, and Lone Palm (**Figure 3-1**). One of the primary concerns for this species is loss of suitable foraging habitat within the core foraging area (CFA) of a wood stork colony. A wood stork foraging analysis (**Appendix J**) was conducted to determine the amount of biomass lost from wetlands and surface water impacts resulting from the preferred alternative. Approximately 49.48 acres of suitable habitat is available for the wood stork within the project study area. There are 14.53 acres of wetlands and 7.11 acres of surface waters that could be utilized by the wood stork for foraging in the preferred alternative. Results of the wood stork foraging analysis concluded that the preferred alternative will result in a total of 60.56 kg of lost biomass; 7.63 kg are from short hydroperiod wetlands and 52.93 kg are from long hydroperiod wetlands.

As part of this project, impacts to wetlands will be mitigated within the CFA of one (1) or more of the affected rookeries or at a regional mitigation bank that has been approved by the USFWS or

Figure 3-1 Wood Stork Core Foraging Area Map



pursuant to Section 373.4137, F.S. The SWFWMD will be contacted to determine the need and extent for mitigation of wetlands and surface waters within the project area and the loss of wood stork foraging habitat will be mitigated through the acquisition of wetland and surface water credits. With the implementation of these measures, it was determined that additional surveys for the wood stork will not be required for this project. Additionally, the path followed through the Wood Stork Determination of Effect Key for southern counties was A>B>C>E>NLAA (**Appendix H**). Therefore, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" the wood stork.

Everglade Snail Kite (*Rostrhamus sociabilis*)

The Everglade snail kite is a medium-sized raptor that is listed as ***endangered*** by the **USFWS**. The Everglade snail kite is found primarily in lowland freshwater marshes in tropical and subtropical America from Florida, Cuba, and Mexico south to Argentina and Peru. Nesting almost always occurs over waters that maintain fairly consistent water levels, which deters predation. Although the project study area occurs within the USFWS Snail Kite Consultation Area (**Appendix F**), FNAI data has not documented the species within one (1) mile of the project study area and the Everglade snail kite was not observed during field reviews. Approximately 29.92 acres of foraging habitat are available for the Everglade snail kite within the project study area. Technical assistance with the USFWS in March 2020 determined that there is no need for additional surveys since suitable nesting habitat does not exist within the project area. However, the FTE will reinitiate technical assistance with the USFWS during the project's design phase to confirm the lack of nesting habitat within the project study area. Based on the lack of available nesting habitat within the project study area, it has been determined that the proposed project "**may affect, but is not likely to adversely affect**" the Everglade snail kite.

3.3.1.4 Mammals

Florida Bonneted Bat (*Eumops floridanus*)

The Florida bonneted bat is a large, free-tailed bat with joined ears that varies in color from dark gray to brownish gray or cinnamon brown. It is listed as ***endangered*** by the **USFWS**. Precise roosting and foraging habitat requirements are unknown; however, the species forages in open areas and is closely associated with forested communities due to their roosting habits. They are thought to nest in tree cavities or building crevices. The project study area is within the USFWS Florida Bonneted Bat Consultation Area (**Appendix F**). Approximately 47.62 acres of suitable roosting habitat are available for the Florida bonneted bat within the project study area. According to FNAI data, the Florida bonneted bat has not been documented within one (1) mile of the project study area. Additionally, no visual observations of individuals were made during field reviews. The FTE will commit to performing design-phase full acoustic and roost surveys to verify activity and occupancy status. The Florida bonneted bat determination of effect key cannot be completed until the design-phase surveys are complete (**Appendix H**). With the commitment to perform surveys, preliminarily, it has been determined that the proposed project "**may affect**" the Florida bonneted bat. The FTE will reinitiate technical assistance with the USFWS during the project's

design phase to revisit this effect determination relative to updates to project design and the implementation of specific actions and measures.

Florida Panther (*Puma concolor couguar*)

The Florida panther is a large, tan subspecies of the cougar that has black tips on the ears and tail and is listed as ***endangered*** by the **USFWS**. This species prefers a variety of habitats, including upland forests, prairies, wetlands, stands of saw palmetto, and swamps. The study area does not fall within the USFWS Consultation Area or the "Primary", "Secondary", or "Dispersal" zones for this species; however, the USFWS has documented the Florida panther in Polk County. Approximately 271.92 acres of suitable habitat is available for the Florida panther within the project study area. Though suitable habitat exists within undeveloped communities, FNAI data has not documented the species within one (1) mile of the project study area. Additionally, this species was not observed during field reviews. Since the project is not within the USFWS Consultation Area or the "Primary," "Secondary," or "Dispersal" zones, technical assistance with the USFWS determined that the proposed project will have "**no effect**" on the Florida panther.

3.3.2 State Species

3.3.2.1 Plants

Incised Groove-bur (*Agrimonia incisa*)

The incised groove-bur is a herbaceous perennial with thickened tuberous roots that is listed as ***threatened*** by the **FDACS**. This species is a member of the rose (*Rosaceae*) family and occurs on sandhills and sometimes at the edges of more mesic habitats. The project study area contains approximately 222.55 acres of suitable habitat for the incised groove-bur within its sandhill habitats and along the edges of mesic oak hammocks. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the incised groove-bur has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the incised groove-bur was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the incised groove-bur.

Ashe's Savory (*Calamintha ashei*)

Ashe's savory is a bushy shrub that has small whitish to lavender flowers that is listed as ***threatened*** by the **FDACS**. This species is a member of the mint (*Lamiaceae*) family and occurs mostly in openings of pine scrub in Florida, but can also be found in disturbed areas such as abandoned fields, roadsides, and fire lanes. The project study area contains approximately 235.07 acres of suitable habitat for Ashe's savory within its sandhill habitats and roadside areas. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), Ashe's savory has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project

study area. Additionally, Ashe's savory was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on Ashe's savory.

Many-flowered Grass-pink (*Calopogon multiflorus*)

The many-flowered grass-pink is a small plant with grass-like leaves and dark pink flowers that is listed as ***threatened*** by the **FDACS**. This species is a member of the orchid (*Orchidaceae*) family and occurs on sandhills and dry to moist flatwoods with longleaf pine, saw palmetto, and wiregrass. The project study area contains approximately 211.11 acres of suitable habitat for many-flowered grass-pink within its sandhill habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the many-flowered grass-pink has been assigned a *low* potential for occurrence. According to FNAI data, the species was not documented within one (1) mile of the project study area. Additionally, the many-flowered grass-pink was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the many-flowered grass-pink.

Sand Butterfly Pea (*Centrosema arenicola*)

The sand butterfly pea is a large perennial vine with purplish-blue flowers that is listed as ***endangered*** by the **FDACS**. This species is a member of the pea (*Fabaceae*) family and occurs on sandhills, scrubby flatwoods, and dry upland woods. The project study area contains approximately 258.70 acres of suitable habitat for the sand butterfly pea within its sandhill and upland forested habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the sand butterfly pea has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the sand butterfly pea was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the sand butterfly pea.

Piedmont Jointgrass (*Coelorachis tuberculosa*)

Piedmont jointgrass is a tall, slender, rhizomatous perennial grass that is listed as ***threatened*** by the **FDACS**. This species is a member of the grass (*Poaceae*) family and occurs in margins of shallow lakes and ponds, and in marshes. The project study area contains approximately 25.80 acres of suitable habitat for Piedmont jointgrass within its freshwater marshes and reservoirs. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), Piedmont jointgrass has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, piedmont jointgrass was not observed during field reviews.

Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on Piedmont jointgrass.

Star Anise (*Illicium parviflorum*)

Star anise is an evergreen shrub with small yellow flowers that is listed as ***endangered*** by the **FDACS**. This species is a member of the *Schisandraceae* family and occurs on banks of seepage streams, hydric hammocks, and baygalls. The project study area contains approximately 11.45 acres of suitable habitat for the star anise within its hydric hammock habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the star anise has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, star anise was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the star anise.

Florida Spiny-Pod (*Matelea floridana*)

Florida spiny-pod is a twining, perennial vine that is listed as ***endangered*** by the **FDACS**. This species is a member of the dogbane (*Apocynaceae*) family and occurs in upland hardwood forests. The project study area contains approximately 40.65 acres of suitable habitat for the Florida spiny-pod within its hardwood hammock habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the Florida spiny-pod has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, Florida spiny-pod was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the Florida spiny-pod.

Celestial Lily (*Nemastylis floridana*)

The celestial lily is a perennial herb with purple flowers that is listed as ***endangered*** by the **FDACS**. This species is a member of the iris (*Iridaceae*) family and occurs in wet flatwoods, prairies, marshes, and edges of cabbage palm hammocks. The project study area contains approximately 13.07 acres of suitable habitat for the celestial lily within its freshwater marsh habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the celestial lily has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the celestial lily was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the celestial lily.

Hand Fern (*Ophioglossum palmatum*)

The hand fern is a fleshy epiphytic fern with seven (7) lobes or fingers on long leaf stalks. It is listed as ***endangered*** by the **FDACS**. This species is a member of the hand fern (*Ophioglossaceae*) family and typically occurs in "boots" or old leaf bases of cabbage palms in maritime or wet hammocks. The project study area contains approximately 11.45 acres of available suitable habitat for the hand fern within its mesic hardwood hammock habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the hand fern has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the hand fern was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated"** on the hand fern.

Giant Orchid (*Orthochilus [Pteroglossaspis] ecristatus*)

The giant orchid is a perennial herb with yellow-green flowers twisted in towards the stalk that is listed as ***threatened*** by the **FDACS**. This species is a member of the orchid (*Orchidaceae*) family and occurs on sandhill, scrub, pine flatwoods, and pine rocklands. The project study area contains approximately 211.11 acres of suitable habitat for the giant orchid within its sandhill habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the giant orchid has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the giant orchid was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the giant orchid.

Plume Polyplody (*Pecluma plumula*)

Plume polyplody is a small epiphytic fern that is listed as ***endangered*** by the **FDACS**. This species is a member of the fern (*Polypodiaceae*) family and occurs in wet hammocks and swamps. The project study area contains approximately 11.45 acres of available suitable habitat for plume polypody within its mesic hardwood hammock habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the plume polypody has been assigned a *low* potential for occurrence. According to FNAI data, however, the species has not been documented within one (1) mile of the project study area. Additionally, plume polypody was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the plume polypody.

Comb Polyplody (*Pecluma ptilota* var. *bourgeauana*)

Comb polyplody is a small terrestrial or epiphytic fern that is listed as ***endangered*** by the **FDACS**. This species is a member of the fern (*Polypodiaceae*) family and occurs in floodplain forests, moist

hammocks, and swamps. The project study area contains approximately 11.45 acres of available suitable habitat for comb polypody within its mesic hardwood hammock habitats. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the comb polyplody has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, comb polypody was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the comb polypody.

Florida Willow (*Salix floridana*)

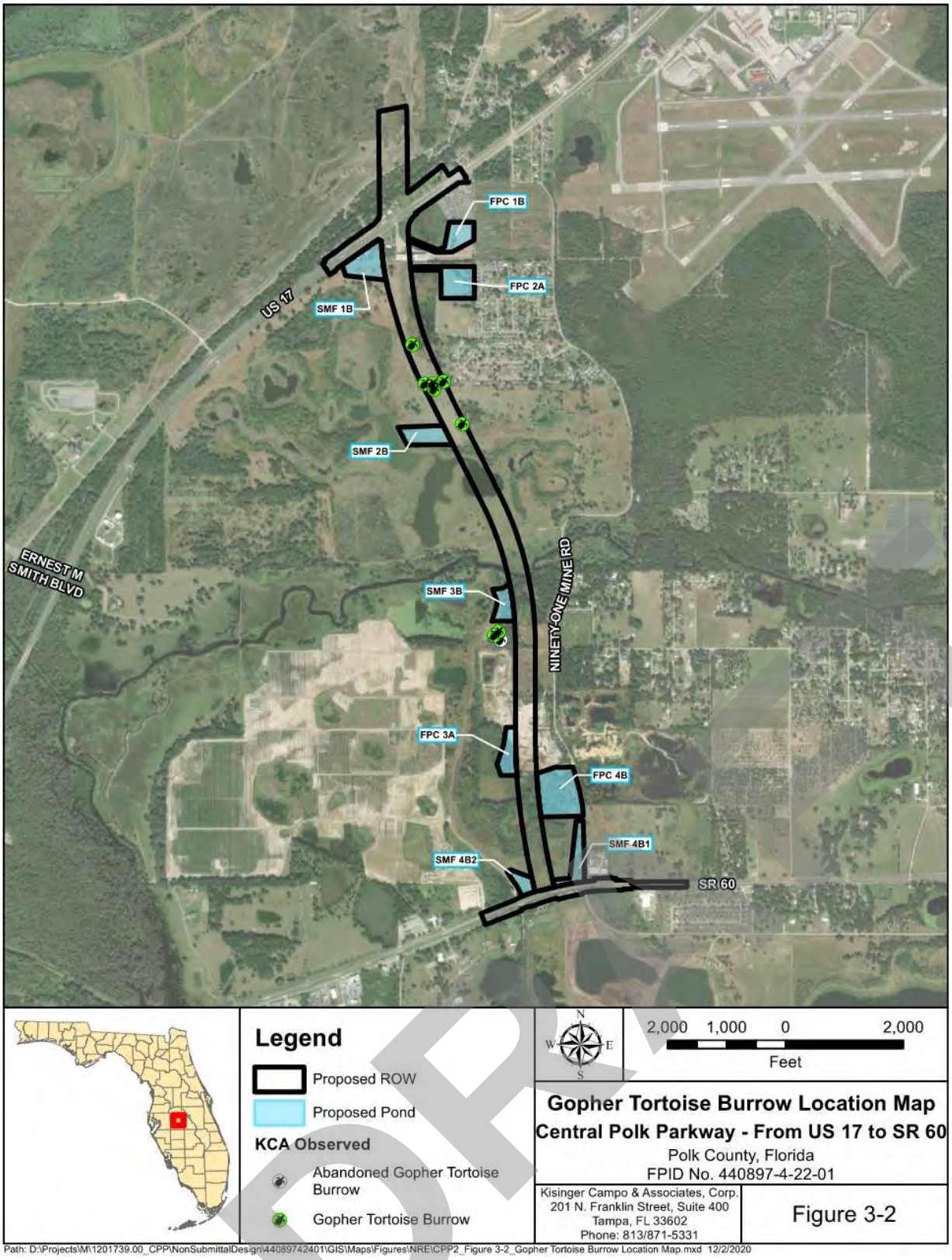
The Florida willow is a perennial shrub that is listed as ***endangered*** by the **FDACS**. This species is a member of the willow (*Salicaceae*) family and occurs in wet, mucky soils in bottomland forests, floodplains, hydric hammocks, swamps, edges or spring-runs, and streams. The project study area contains approximately 24.04 acres of available suitable habitat for the Florida willow within its hydric hammocks, wetland scrub, and at the edges of the Peace Creek. Considering that previous mining activities have severely disturbed suitable habitat within the project study area (**Appendix G**), the Florida willow has been assigned a *low* potential for occurrence. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the Florida willow was not observed during field reviews. Based on the existing conditions of available suitable habitat within the project study area and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the Florida willow.

3.3.2.2 Reptiles

Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise is a large terrestrial tortoise that is listed as ***threatened*** by the **FWC** and as a ***candidate*** species by the **USFWS**. This species requires well drained and loose sandy soils for burrowing, and low-growing herbs and grasses for food. These conditions are best found in the sandhill (longleaf pine-xeric oak) community, although tortoises are known to use many other habitats including sand pine scrub, xeric oak hammocks, dry prairies, pine flatwoods, and ruderal sites. Approximately 258.75 acres of suitable habitat is available for the gopher tortoise throughout the project study area. During field reviews, several active gopher tortoise burrows were observed (**Figure 3-2**). The most recent FWC Gopher Tortoise Permitting Guidelines will be followed if gopher tortoises or their burrows are found within 25 feet of the limits of construction. The FTE will reinitiate technical assistance with the FWC to secure all permits needed to relocate the tortoises and associated commensal species if the gopher tortoise burrows cannot be avoided. With the implementation of these measures and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the gopher tortoise.

Figure 3-2 Gopher Tortoise Burrow Location Map



Short-tailed Snake (*Lampropeltis extenuata*)

The short-tailed snake is a grayish slender snake with numerous dark brown blotches and areas of red, orange, or yellow that is listed as ***threatened*** by the **FWC**. This species requires dry upland habitats with open canopies and dry sandy soils including sandhill, rosemary-sand pine scrub, and adjacent xeric oak hammocks. Short-tailed snakes may be considered commensal species of the gopher tortoise and found in burrows. The project study area contains approximately 258.75 acres of suitable habitat available for the short-tailed snake. This species was not observed during field reviews of the project study area. The FTE will survey the preferred alternative for gopher tortoise burrows prior to construction and will reinitiate technical assistance with the FWC to secure the necessary permits to relocate gopher tortoises and associated commensal species prior to construction. With the implementation of this measure and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the short-tailed snake.

Florida Pine Snake (*Pituophis melanoleucus mugitus*)

The Florida pine snake is a large, stocky, tan or rusty colored snake with an indistinct pattern of blotches. This snake is listed as ***threatened*** by the **FWC**. This species requires habitats with open canopies and dry sandy soils such as sandhills, sand pine scrub, and scrubby flatwoods, in which it burrows and often coexists with pocket gophers and gopher tortoises. Suitable habitat for the pine snake is available within the project study area in areas with identified gopher tortoise burrows. The project study area contains approximately 258.75 acres of suitable habitat available for the Florida pine snake. According to FNAI data, this species has the potential to occur in Polk County, but has not been documented within one (1) mile of the project study area. Additionally, this species was not observed during field reviews. The FTE will survey the preferred alternative for gopher tortoise burrows prior to construction and will reinitiate technical assistance with the FWC to secure the necessary permits to relocate gopher tortoises and associated commensal species prior to construction. With the implementation of this measure and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the pine snake.

3.3.2.3 Birds

Florida Sandhill Crane (*Antigone canadensis pratensis*)

The Florida sandhill crane is a tall, long-necked, long-legged crane that is listed as ***threatened*** by the **FWC**. This species requires wet and dry prairies, marshes, and marshy lake edges. Approximately 243.60 acres of suitable habitat is available for the Florida sandhill crane within the project study area. Nests are generally a mound of herbaceous plant material in shallow water or on the ground in marshy areas. Suitable nesting habitat is available within freshwater marshes throughout the project study area. Although FNAI data has not documented the species within one (1) mile of the project study area, the species was observed during field reviews. The FTE will survey areas of suitable nesting habitat prior to construction if construction activities take place during the nesting season (January through July), and will reinitiate technical assistance with the

FWC if nesting pairs are identified within 400 feet of the project's construction limits. With the implementation of these measures and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the Florida sandhill crane.

Florida Burrowing Owl (*Athene cunicularia floridana*)

The Florida burrowing owl is a small ground-dwelling owl that is listed as ***threatened*** by the **FWC**. This species requires areas of short, herbaceous groundcover such as prairies, sandhills, and farmland. Approximately 211.13 acres of suitable habitat is available for the Florida burrowing owl in pasture lands throughout the project study area. Burrowing owls may also utilize gopher tortoise burrows for shelter. According to FNAI data, this species has not been documented within one (1) mile of the project study area. Additionally, the Florida burrowing owl was not observed during field reviews of the project study area. The FTE will conduct pre-construction surveys and adhere to the components of the Imperiled Species Management Plan and permitting guidelines for this species. If burrowing owls are found, the FTE will reinitiate technical assistance with the FWC to discuss avoidance, minimization, and permitting options. With the implementation of this measure and through technical assistance with the FWC, it has been determined that the project will have "**no adverse effect anticipated**" on the Florida burrowing owl.

Wading Birds
Little Blue Heron (*Egretta caerulea*), Tricolored Heron (*Egretta tricolor*), and Roseate Spoonbill (*Platalea ajaja*)

The little blue heron, tricolored heron, and roseate spoonbill are listed as ***threatened*** by the **FWC**. While each species is distinct, wading birds are discussed collectively since they occupy similar habitats and have similar feeding patterns. These wading birds nest and forage among both fresh water and saltwater habitats such as freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies, and bay swamps. The populations of these species have been primarily impacted by the destruction of wetlands for development and by the drainage of wetlands for flood control and agriculture. Approximately 35.35 acres of suitable habitat for these wading birds is available throughout the project study area in much of the wetlands and surface waters. According to the FNAI database and the FWC Wading Rookery Database, there is one (1) active wading bird rookery documented within one (1) mile of the project study area; however, this rookery is not located within 330 feet of the project study area (**Appendix F**). Additionally, the little blue heron, tricolored heron, and roseate spoonbill were observed during field reviews of the project study area.

The primary concern for impacts to these species is the loss of foraging habitat (wetlands). As part of implementing the proposed project, all wetland impacts will be mitigated to prevent a net loss of wetland functions and values. The mitigation of wetland impacts will be undertaken by the FTE. With the implementation of this measure and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated**" on the little blue heron, tricolored heron, and roseate spoonbill.

Southeastern American Kestrel (*Falco sparverius paulus*)

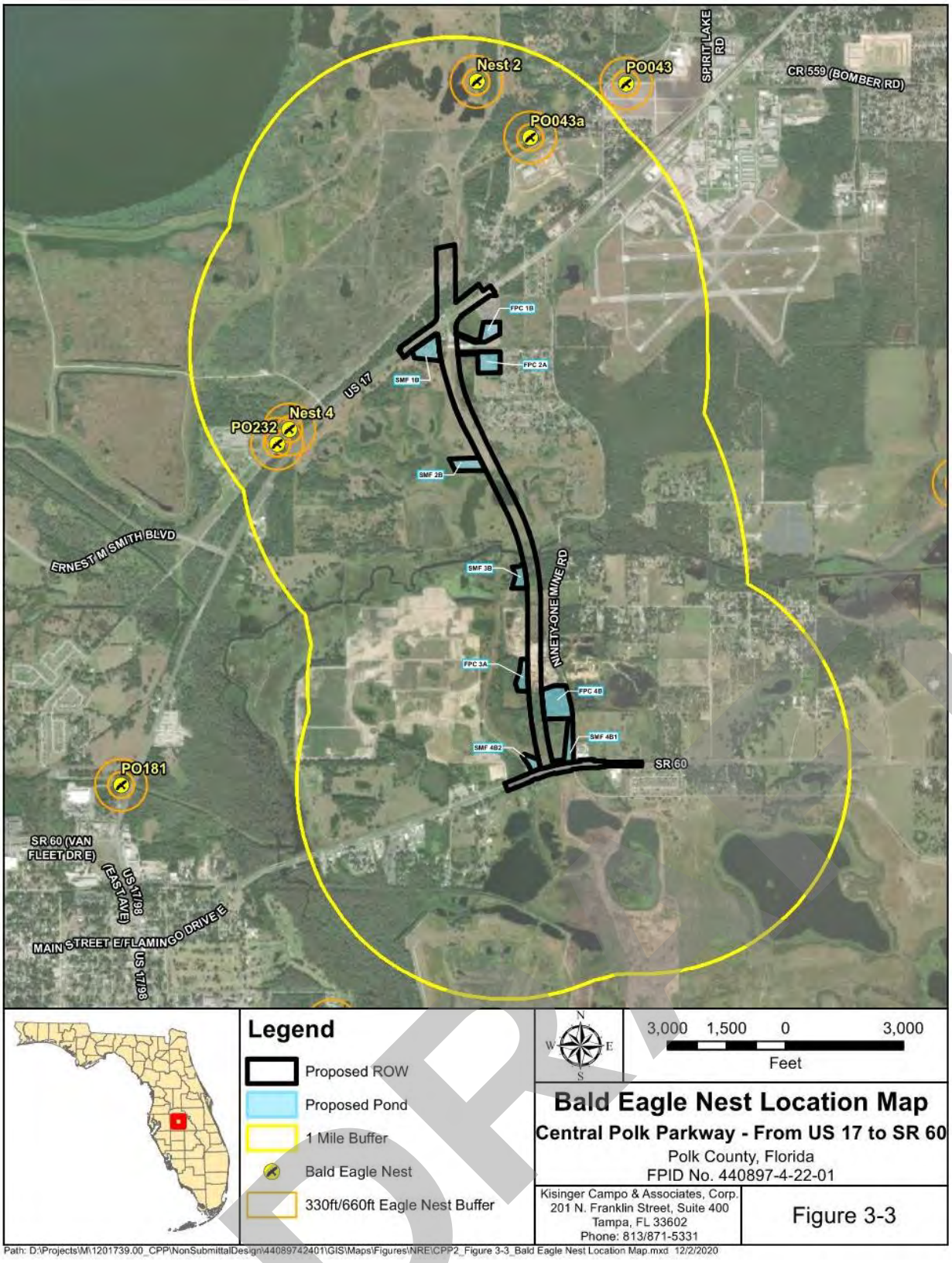
The southeastern American kestrel is the smallest falcon species found in the southeastern United States and is listed as ***threatened*** by the **FWC**. This species utilizes pine scrub habitat, dry prairies, mixed pine hardwood forests, and pine flatwoods. Approximately 240.33 acres of suitable habitat is available for the Southeastern American kestrel within the project study area. Nests are typically built in tall dead trees or utility poles with an unobstructed view of surroundings. Suitable nesting habitat is present throughout the project study area within its open pastures and forested areas. According to FNAI data, the species has not been documented within one (1) mile of the project study area. Additionally, the Southeastern American kestrel was not observed during field reviews. The FTE will conduct pre-construction surveys and adhere to the components of the Imperiled Species Management Plan and permitting guidelines for this species. If southeastern American kestrel nests are found, the FTE will reinitiate technical assistance with the FWC to discuss avoidance, minimization, and permitting options. With the implementation of this measure and through technical assistance with the FWC, it has been determined that the proposed project will have "**no adverse effect anticipated"** on the southeastern American kestrel.

3.3.3 Other Species of Concern

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle is a large raptor with a distinctive white head and yellow bill. This species has been de-listed from the Endangered Species Act by the **USFWS**. However, it remains federally protected under the Bald and Golden Eagle Protection Act (BGEPA) in accordance with 16 United States Code (USC) 668 and the Migratory Bird Treaty Act of 1918. In addition, the FWC has implemented a Species Action Plan for the Bald Eagle (FWC 2017). The bald eagle tends to utilize riparian habitats associated with coastal areas, lake shorelines, and riverbanks. Nests are generally located near water bodies that provide a dependable food source. Nests within Florida are closely monitored by the FWC, and the FWC Center for Biostatics and Modeling maintains a website of known bald eagle nest locations. This database was relinquished to the Audubon's Eagle Watch program in 2019. According to the Audubon Florida Eagle Watch Nest Map website, the closest bald eagle nest to the project study area is PO043a which is located approximately 0.64 miles northeast of the project's northern terminus (**Figure 3-3**). This nest was last surveyed and determined to be active in 2013. One additional documented nest (PO232) is located within one (1) mile of the project study area. Nest PO232 is located approximately 0.73 miles southwest of the project's northwestern terminus (**Figure 3-3**). This nest was last surveyed and determined to be active in 2013. However, osprey were observed utilizing this nest during 2019 field reviews. Two additional undocumented nests (Nest 2 and Nest 4) were observed within one (1) mile of the project study area during 2019 field reviews (**Figure 3-3**). Based on field observations, Nest 2 was determined to be active in 2019 and is located approximately 0.79 miles northeast of the project's northern terminus. Nest 4 was also determined to be active in 2019 and is located approximately 0.62 miles southwest of the project's western terminus along US 17. Nest 4 is suspected to be an alternate nest to PO232, which was observed being utilized by osprey in 2019. The project is

Figure 3-3 Bald Eagle Nest Location Map



located outside of the primary (330 feet) and secondary (660 feet) buffer zones of all of the above-mentioned bald eagle nests (**Figure 3-3**).

Approximately 80.52 acres of suitable riparian habitat is available for the bald eagle within the project study area. During the project design and permitting phase, the FTE will review the project area for active bald eagle nests. If an active nest is identified within 660 feet of the proposed project area, the FTE will reinitiate technical assistance with the USFWS to secure all necessary approvals prior to the start of construction.

3.3.4 Critical Habitat

The project study area was evaluated for the occurrence of Critical Habitat as defined by the Endangered Species Act of 1973 as amended, 50 CFR Part 424. The USFWS is the authority to protect critical habitat from destruction or adverse modification of the biological or physical constituent elements essential to the conservation of listed species. Critical Habitat is defined as the specific areas within the geographical area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which defined may require special management considerations or protection. No designated critical habitat for any federal listed species occurs within the project study area. Based on this information, it has been determined that the proposed project will have "**no effect**" on any Critical Habitat.

3.3.5 Indirect, Secondary, and Cumulative Impacts

Indirect and secondary effects are those that are reasonably certain to occur later in time as a result of the proposed project. They may occur outside of the area directly affected by the proposed project. Potential secondary effects include increased noise, traffic, and development, which could impact wildlife or result in a change in wildlife migration patterns by reducing habitat connectivity. Cumulative effects include the effects on the environment that results from the incremental impact of the action when added to other past, present, and future state, local, or private actions that are reasonably certain to occur in the project area. Cumulative effects can result from individually minor but collectively significant actions taking place over time. Future federal actions that are unrelated to the proposed project are not considered in the determination of cumulative effects because they require a separate consultation in accordance with Section 7 of the ESA. Indirect, secondary, and cumulative impacts will be further defined and addressed through agency coordination during the project's design phase. However, a brief summary of these impacts is provided in **Sections 3.3.5.1** and **3.3.5.2**.

3.3.5.1 Preferred Alternative

Indirect, secondary, and cumulative impacts associated with the proposed project have the potential to be high because this is a new roadway alignment. Indirect, secondary, and cumulative effects are anticipated to impact land use, visual and aesthetic resources, transportation, habitat connectivity, and population.

In areas designated for stormwater treatment, secondary impacts of increased nuisance/exotic vegetation are anticipated. Species such as Brazilian pepper (*Schinus terebinthifolia*) and cogongrass (*Imperata cylindrica*) are particularly aggressive and successful colonizers of the project study area. Therefore, the disturbance of construction may allow these species to colonize and outcompete native vegetation. Nuisance/exotic vegetation has negative impacts to native wildlife and their habitats as they take over the natural habitats upon which the species rely.

According to the University of Florida's Bureau of Economic and Business Research (BEBR), the population of Polk County is estimated to grow from 661,645 (2017) to 906,100 by 2040 (a 27 percent increase). The Central Polk Parkway is anticipated to accommodate the increased travel demand expected from the projected freight, residential and employment growth. The increased travel capacity and connectivity provided by the Central Polk Parkway will facilitate commercial development and economic competiveness. Visual and aesthetic resources will be converted as a result. As the general progression continues from agricultural and undeveloped land uses to residential and commercial development, habitat connectivity decreases and native wildlife may be negatively impacted. Technical assistance with USFWS and FWC in March 2020 determined that wildlife crossings would not be required due to the artificial nature of the project area.

3.3.5.2 No-Build Alternative

There are no indirect, secondary, or cumulative impacts to wildlife associated with the No-Build Alternative.

Section 4.0 Wetland Evaluation

4.1 Introduction

During field reviews of the project study area, environmental scientists delineated the approximate boundaries of existing wetland and surface water communities on 1"= 200' true-color aerial photographs. Each wetland and surface water habitat within the project study area was classified using FLUCFCS (FDOT 1999) and the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et al*., 1979). Approximate wetland boundaries were identified in accordance with the State of Florida Wetlands Delineation Manual (Chapter 62-340, Florida Administrative Code [F.A.C.]), the criteria found within the U.S. Army Corps of Engineers (USACE) 1987 Corps of Engineers Wetland Delineation Manual (Y-87-1) and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Plain Region (Version 2.0) (ERDC/EL TR-10-20), EO 11990, and Part 2, Chapter 9 - Wetlands and Other Surface Waters of the FDOT PD&E Manual. Formal wetland boundary delineation and surveys were not conducted as part of this study and will be completed as part of the state and federal permit process.

4.2 Methodology

In order to assess the approximate locations and boundaries of existing wetland and surface water communities within the project area, the following site-specific data was collected and reviewed:

- Florida Department of Transportation (FDOT), Florida Land Use Cover, and Forms Classification System (FLUCFCS), 3rd ed., January 1999;
- Southwest Florida Water Management District (SWFWMD), Florida Land Use, Cover and Forms Classification System GIS Database, (SWFWMD 2011);
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory (NWI), Wetlands Online Mapper (January 2018); and
- USFWS, Classification of Wetlands and Deepwater Habitats of the United States (Cowardin *et al*., 1979)

Environmental scientists familiar with Florida's natural communities conducted field reviews of the project study area in January, February, May, and June 2019. Field reviews consisted of pedestrian transects throughout all natural habitat types found within the project study area. The purpose of the reviews was to verify and/or refine preliminary habitat boundaries and classification codes established through in-office literature reviews and aerial photographic interpretation. During field investigations, each wetland and surface water habitat within the study area was visually inspected and photographed. Wetland and surface water descriptions are provided in **Appendix C** and representative photographs are provided in **Appendix D**. Attention was given to identifying plant species and composition for each community. Exotic plant infestations and other disturbances such as soil subsidence, clearing, canals, power lines, etc., were noted.

4.3 Wetland and Surface Water Impacts

Potential direct impacts to wetlands and surface waters were assessed for the preferred alternative of the Central Polk Parkway. Impacts associated with the preferred alternative total 21.64 acres and include 14.53 acres of wetlands and 7.11 acres of surface waters. **Table 4-1** shows the proposed wetland and surface water impacts within the project study area. A map showing the locations of the wetland and surface water impacts associated with the preferred alternative is provided in **Appendix K**.

Table 4-1 Proposed Wetland and Surface Water Impacts within the Project Study Area for the Preferred Alternative

ID	FLUCFCS Classification [1]	USFWS Classification [2]	Acres within the Project Study Area	Preferred Alternative Impact Acreage
WL 1	641	PEM1C	5.47	3.65
WL 2	641	PEM1C	1.66	0.00
WL 3a	653	PEM1C	1.02	1.02
WL 3b	643	PEM1C	0.11	0.10
WL 4a	631	PSS1C	3.03	1.48
WL 4b	619	PSS1C	3.06	0.28
WL 5	653	PEM1C	0.64	0.17
WL 6	653	PEM1C	0.79	0.79
WL 7a	641	PEM1C	3.20	0.81
WL 7b	644	PEM1C	6.56	2.17
WL 8	641	PEM1C	0.48	0.00
WL 9a	631	PSS1C	1.32	0.69
WL 9b	641	PEM1C	2.29	0.60
WL 10	631	PSS1C	2.68	0.53
WL 11	631	PSS1C	3.62	2.24
SW 1	510	PSS1Cx	0.62	0.21
SW 2	510	PSS1Cx	0.26	0.26
SW 3	530	PUB2Hx	10.29	5.43
SW 4	510	R2UBHx	1.67	0.57
SW 5	510	PEM1Cx	0.71	0.64
		Total Wetlands	**35.93**	**14.53**
		Total Surface Waters	**13.55**	**7.11**
		Total	**49.48**	**21.64**

[1] FDOT 1999

[2] Cowardin, *et al*., 1979

PEM1C: Palustrine, Emergent, Persistent, Seasonally Flooded

PEM1Cx: Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated

PSS1C: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded

PSS1Cx: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated

PUB2Hx: Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

R2UB2Hx: Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

4.4 Uniform Mitigation Assessment Method Results

Functional loss was calculated by wetland and surface water habitat type for the preferred alternative using the Uniform Mitigation Assessment Method (UMAM). Construction of the preferred alternative results in a loss of 9.55 functional units. The completed UMAM data sheets for each habitat type are provided in **Appendix L**. The UMAM scores and values presented in **Table 4-2** are subject to agency review and may change during the state and federal permitting process.

Table 4-2 Estimated UMAM[1] Functional Loss from Wetland and Surface Water Impacts of the Preferred Alternative

FLUCFCS Classification[2]	FLUCFCS Description	USFWS Classification[3]	UMAM Delta	Total Impact Acreage	Total Functional Loss
510	Streams and Waterways	PSS1Cx, PEM1Cx	0.30	1.11	0.33
510	Streams and Waterways	R2UB2Hx	0.57	0.57	0.32
530	Reservoirs	PUB2Hx	0.47	5.43	2.55
619	Exotic Wetland Hardwoods	PSS1C	0.30	0.28	0.08
631	Wetland Scrub	PSS1C	0.43	4.94	2.12
641	Freshwater Marshes	PEM1C	0.47	5.06	2.38
643	Wet Prairie	PEM1C	0.30	0.10	0.03
644	Emergent Aquatic Vegetation	PEM1C	0.50	2.17	1.09
653	Intermittent Pond	PEM1C	0.33	1.98	0.65
			Total	**21.64**	**9.55**

[1] UMAM Scores have not been approved by permitting agencies and are subject to change during the permitting process.
[2] FDOT, 1999
[3] Cowardin, *et al.*, 1979
PEM1C: Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1Cx: Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated
PSS1C: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded
PSS1Cx: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated
PUB2Hx: Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated
R2UB2Hx: Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

4.5 Avoidance and Minimization

As part of this evaluation, three (3) build alternatives were evaluated in this PD&E study. The preferred alternative (Alternative 4) was selected based on the natural, physical, social, and right of way information. Wetlands and surface waters were considered in the selection of the preferred alternative to avoid and minimize impacts to wetlands to the greatest extent possible. A detailed alternatives analysis is included in the Preliminary Engineering Report.

4.6 Indirect, Secondary, and Cumulative Impacts

Indirect and secondary effects are those impacts that are reasonably certain to occur later in time as a result of the proposed project. They may occur outside of the area directly affected by the proposed project. Cumulative effects include the effects of future state, local, or private actions that are reasonably certain to occur in the project area. Indirect, secondary, and cumulative impacts will be further defined and addressed through agency coordination during the project's design phase. However, a brief summary of these impacts is provided in **Sections 4.6.1** and **4.6.2**.

4.6.1 Preferred Alternative

Indirect impacts are anticipated to occur as a result of the preferred alternative. Secondary impacts of edge effects will likely occur. At locations where natural areas meet development, edge effects such as increased cover of nuisance/exotic vegetation and changes in microclimate generally take place. The wetlands within the preferred alternative project footprint already experience edge effects due to previous mining activities. The severity of these edge effects should not increase; however, it is expected that these effects would migrate to the new transitional area between remaining wetlands and new construction. In areas designated for stormwater treatment, secondary impacts of increased nuisance/exotic vegetation are anticipated. Species such as Brazilian pepper (*Schinus terebinthifolia*) and cogongrass (*Imperata cylindrica*) are particularly aggressive and successful colonizers of the project study area. Therefore, the disturbance of construction may allow these species to colonize and outcompete native vegetation. Nuisance/exotic vegetation has negative impacts to wetlands and surface waters as these species may take over native vegetation. Since wetland impacts resulting from the construction of this project will be mitigated, no cumulative impacts are anticipated to occur.

4.6.2 No-Build Alternative

There are no indirect, secondary, or cumulative impacts to wetlands associated with the No-Build Alternative.

4.7 Mitigation

Wetland impacts, which will result from the construction of this project, will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and 22 U.S.C. §1344. In accordance with EO 11990, the FTE has undertaken all actions to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. Nonetheless, the FTE has determined that there is no practicable alternative to construction impacts occurring in wetlands. The proposed project will have no significant short-term or long-term adverse impacts to wetlands because any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function.

Compensatory mitigation for this project will be completed using mitigation banks and other mitigation options to satisfy state and federal requirements. The project study area is currently

located within the service area of the Boran Ranch Mitigation Bank, Peace River Mitigation Bank, and Horse Creek Mitigation Bank.

All preliminary UMAM scores, UMAM calculations, wetland lines and determinations discussed are subject to revision and approval by regulatory agencies during the permitting process. The exact amount and type of mitigation used to offset wetland impacts from the proposed Central Polk Parkway will be coordinated with the USACE and SWFWMD during the permitting phase(s) of this project.

5.0 Essential Fish Habitat

5.1 Summary

The National Marine Fisheries Service (NMFS) determined that the project will not directly impact any NMFS trust resources; however, the project has the potential to impact waterways and wetlands that drain to the Peace River, which drains to Charlotte Harbor. The NMFS recommends the design and implementation of stormwater treatment systems to prevent degraded water from reaching the Peace River and Charlotte Harbor. The proposed project will not involve Essential Fish Habitat as none exists within the project study area.

Waterbodies within the project study area consist of man-made reservoirs and Peace Creek. Peace Creek is a man-made drainage canal that drains into the Peace River, which ultimately outfalls into Charlotte Harbor. The portion of Peace Creek that is within the project study area is located on newly reclaimed mined lands.

Section 6.0 Permitting and Review Agencies

Both the USACE and the SWFWMD regulate impacts to wetlands within the project area. Other agencies, including the USFWS, NMFS, EPA, and the FWC, review and comment on wetland permit applications. The FWC also issues permits for gopher tortoise relocation activities and incidental take permits for state protected species. In addition, the Florida Department of Environmental Protection (FDEP) regulates stormwater discharges from construction sites. The complexity of the permitting process will depend on the degree of impact to jurisdictional areas. It is anticipated that the following permits will be required for this project:

Permit	Issuing Agency
Section 404 Dredge and Fill Permit	USACE
Environmental Resource Permit (ERP)	SWFWMD
National Pollutant Discharge Elimination System (NPDES)	FDEP
Sovereign Submerged Land (SSL) Easement	FDEP
Gopher Tortoise Relocation Permit (as necessary)	FWC
Incidental Take Permit (as necessary)	FWC
Incidental Take Permit (as necessary)	USFWS

6.1 Federal Permits

Section 404 Dredge and Fill Permit

It is anticipated that a standard permit will be required from the USACE. A standard permit will require compliance with the Section 404(b)(1) Clean Water Act (CWA) guidelines, including verification that all wetland impacts have first been avoided to the greatest extent possible, that unavoidable impacts have been minimized to the greatest extent possible, and lastly that unavoidable impacts have been mitigated. The USACE is currently working toward delegation of Section 404 review to the Florida Department of Environmental Protection (FDEP), while retaining jurisdiction over some (retained) waters. It is likely that this project would be delegated to FDEP for review and issuance of federal dredge and fill authorization. In addition, consultation with the USFWS may be necessary for potential effects to federally listed protected species. Since this project will require a USACE permit for jurisdictional wetlands within the project study area, Section 7 Consultation with the USFWS will be initiated in place of Section 10 Consultation.

USFWS Incidental Take Permit (as necessary)

The project study area contains suitable habitat for the Eastern indigo snake, blue-tailed mole skink, sand skink, Florida grasshopper sparrow, Florida scrub-jay, crested caracara, and Florida bonneted bat. If Formal Consultation is required, the FTE will prepare a Biological Assessment (BA) to submit to the USFWS through the USACE for review. The USFWS will prepare a Biological Opinion (BO) in which the terms and conditions of mitigation and implementation measures will be finalized. When an action is reasonably certain to result in the incidental take of a species but is not likely to jeopardize its continued existence, the USFWS provides the USACE with an incidental take statement in the BO to be included in the Section 404 dredge and fill permit.

6.2 State Permits

Environmental Resource Permit (ERP)

SWFWMD requires an ERP when construction of any project results in the creation of a new or modification of an existing surface water management system, or results in impacts to waters of the state. As with USACE permits, the complexity associated with the ERP permitting process will depend on the size of the project and/or the extent of wetland impacts. Under current state rules, the SWFWMD will require an individual ERP for this project.

National Pollutant Discharge Elimination System (NPDES)

40 CFR Part 122 prohibits point source discharges of stormwater to waters of the U.S. without a NPDES permit. Under the State of Florida's delegated authority to administer the NPDES program, construction sites that will result in greater than one (1) acre of disturbance must file for and obtain either coverage under an appropriate generic permit contained in Chapter 62-621, F.A.C., or an individual permit issued pursuant to Chapter 62-620, F.A.C. A major component of the NPDES permit is the development of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP identifies potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the site and discusses good engineering practices (i.e., best management practices) that will be used to reduce the pollutants.

Gopher Tortoise Relocation Permit

According to the FWC Gopher Tortoise permitting guidelines, there are four (4) available options to address the presence of gopher tortoises on lands slated for development:

1. Avoid development,
2. Avoid destruction of tortoise burrows,
3. Relocate tortoises on-site (permit required), or
4. Relocate tortoises off site (permit required).

In accordance with the requirements of Rules 68A-25.002 and 68A-27.004 (F.A.C.), a permit for gopher tortoise capture/release activities must be secured from FWC before initiating any relocation work. A Conservation Permit is available for development projects that require the relocation of gopher tortoises when more than 10 burrows occur on the development site. The 10 or Fewer Burrows Permit is available for projects that contain 10 or fewer gopher tortoise burrows on the development site. Both of these permits allow for relocation either to an on-site preserve or off-site to a FWC-certified Recipient Site. The FWC will require a 100 percent gopher tortoise survey to be conducted within 90 days of construction commencement.

FWC Incidental Take Permit (as necessary)

Based on field reviews, suitable foraging and nesting habitat exists within the project study area for the species listed in **Section 3.0**. In accordance with 68A-27.001(4), 68A-27.003(a), 68A-25.002(10), 68A-27.003(2)(a), 68A-27.001(4), 68A-1.004, and 68A-27.005 F.A.C., a permit for removal of state protected species must be secured from the FWC before initiating incidental take.

While avoidance and minimization is the preferred course of action, a Listed Species Incidental Take Permit is available for situations that require the removal of these species. Further technical assistance will be reinitiated during the design phase of the project.

Sovereign Submerged Lands Easement

A Sovereign Submerged Lands Title Determination request was submitted to the Division of State Lands in Tallahassee for Peace Creek within the project study area. The state determined that this portion of the project area is within state-owned lands and easements may be required. Because the portion of the Peace Creek within the project study area is located on newly reclaimed mined land, additional coordination with FDEP may be required during the project's design phase regarding this title determination. Typically, easements are obtained during the permitting phases of the project. A copy of the correspondence with the Division of State Lands is provided in **Appendix M**.

Section 7.0 Conclusions

7.1 Protected Species and Habitat

The project study area was evaluated for the presence of federal and/or state protected species and their suitable habitat in accordance with Section 7 of the ESA and Part 2, Chapter 16 of the PD&E Manual. **Tables 7-1**, **7-2**, and **7-3** summarize the effect determinations that have been made for each federal and state listed species based upon their probability ranking and the implementation measures and/or commitments to offset any potential impacts to each species. Other protected species with the potential to occur in the project area include the bald eagle (*Haliaeetus leucocephalus*).

Table 7-1 Federal Protected Species Effect Determinations

Project Effect Determination	Federal Listed Species
"No effect"	Florida Grasshopper Sparrow (*Ammodramus savannarum floridanus*)
	Florida Panther (*Puma concolor couguar*)
"May affect, but is not likely to adversely affect"	Scrub Buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*)
	Britton's Beargrass (*Nolina brittoniana*)
	Lewton's Polygala (*Polygala lewtonii*)
	Carter's Warea (*Warea carteri*)
	Eastern Indigo Snake (*Drymarchon couperi*)
	Florida Scrub-jay (*Aphelocoma coerulescens*)
	Crested Caracara (*Caracara cheriway*)
	Wood Stork (*Mycteria americana*)
	Everglade Snail Kite (*Rostrhamus sociabilis*)
"May affect"	Blue-tailed Mole Skink (*Plestiodon egregius lividus*)
	Sand Skink (*Plestiodon reynoldsi*)
	Florida Bonneted Bat (*Eumops floridanus*)

Table 7-2 State Protected Species Effect Determinations

Project Effect Determination	State Listed Species
"No adverse effect anticipated"	Incised Groove-bur (*Agrimonia incisa*)
	Ashe's Savory (*Calamintha ashei*)
	Many-flowered Grass-pink (*Calopogon multiflorus*)
	Sand Butterfly Pea (*Centrosema arenicola*)
	Piedmont Jointgrass (*Coelorachis tuberculosa*)
	Star Anise (*Illicium parviflorum*)
	Florida Spiny-pod (*Matelea floridana*)
	Celestial Lily (*Nemastylis floridana*)
	Hand Fern (*Ophioglossum palmatum*)
	Giant Orchid (*Orthochilus [Pteroglossaspis] ecristatus*)
	Plume Polyplody (*Pecluma plumula*)
	Comb Polyplody (*Pecluma ptilota* var. *boureauana*)
	Florida Willow (*Salix floridana*)
	Gopher Tortoise (*Gopherus polyphemus*)

Project Effect Determination	State Listed Species
"No adverse effect anticipated"	Short-tailed Snake (*Lampropeltis extenuata*)
	Florida Pine Snake (*Pituophis melanoleucus mugitus*)
	Florida Sandhill Crane (*Antigone canadensis pratensis*)
	Florida Burrowing Owl (*Athene cunicularia floridana*)
	Little Blue Heron (*Egretta caerulea*)
	Tricolored Heron (*Egretta tricolor*)
	Southeastern American Kestrel (*Falco sparverius paulus*)
	Roseate Spoonbill (*Platalea ajaja*)

Table 7-3 Other Species of Concern Effect Determination

Project Effect Determination	Other Species of Concern
"No adverse effect anticipated"	Bald Eagle (*Haliaeetus leucocephalus*)

7.2 Wetland Evaluation

Wetland and surface water habitat types to be impacted by the proposed construction include wetland scrubs, freshwater marshes, emergent aquatic vegetation, wet prairies, exotic wetland hardwoods, intermittent ponds, reservoirs and streams and waterways. Impacts associated with the preferred alternative total 21.64 acres and include 14.53 acres of wetlands and 7.11 acres of surface waters. A UMAM analysis (**Appendix L**) was performed to estimate the functional loss due to wetland impacts from the proposed preferred alternative. Construction of the preferred alternative results in a loss of 9.55 functional units. Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S. to satisfy all mitigation requirements of Part IV Chapter 373, F.S. and 33 U.S.C. 1344. Compensatory mitigation for this project will be completed through the use of mitigation banks and any other mitigation options that satisfy state and federal requirements.

7.3 Implementation Measures

Based on the field and literature reviews detailed in this report, federal and state protected species have the potential to occur within the project study area. In order to assure that the proposed project will not adversely impact these species, the FTE will adhere to the following:

- During the design and permitting phase of this project, gopher tortoise surveys will be conducted and if any burrows are found within 25 feet of construction limits, technical assistance with the FWC will be reinitiated to secure any necessary permits for gopher tortoises and associated commensal species before construction.
- If a bald eagle nest is observed within 660 feet of the project study area, the FTE will reinitiate technical assistance with the USFWS to discuss avoidance and minimization options and secure any necessary approvals prior to constructing the project.
- Impacts to suitable foraging habitat for the federally-protected wood stork will be mitigated through the purchase of credits from a USFWS-approved mitigation bank pursuant to Section 373.4137, F.S. or as otherwise agreed to by the FTE and the appropriate regulatory agencies.

- During the design and permitting phases of this project, the FTE will conduct a general plant survey concurrently with other wildlife surveys. If any federal or state protected plant species are found within 25 feet of construction limits, coordination will occur with USFWS (through USACE) and FDACS to secure any necessary permits.
- Compliance with Federal Endangered Species Act and other Wildlife Regulations of the FDOT Standard Specifications for Road and Bridge Construction manual will be adhered to for wildlife during construction.

7.4 Commitments

- As needed, the FTE will perform updated wildlife surveys for the species discussed in this report and other wildlife species, during the project design phase to ascertain the involvement, if any, of listed species.
- The FTE will conduct design-phase coverboard surveys in accordance with the most recent USFWS guidelines to verify activity and occupancy status of the blue-tailed mole skink and sand skink. During the design and permitting phases of this project, the FTE will conduct Florida scrub-jay surveys in accordance with the most recent USFWS guidelines in areas of suitable habitat.
- During the design and permitting phases of this project, the FTE will conduct crested caracara surveys in accordance with the most recent USFWS guidelines in areas of suitable habitat.
- The FTE will conduct design-phase Florida bonneted bat surveys in accordance with the most recent USFWS guidelines.
- In an effort to mitigate impacts to protected plant species within the project study area, FTE will coordinate with FDACS and coordinate with local native plant organizations prior to construction for possible relocation of protected plants.
- The USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be implemented to assure that the Eastern indigo snake will not be adversely impacted by the project.
- The FTE will conduct design-phase surveys to verify activity and occupancy status of the Southeastern American kestrel.
- The FTE will conduct pre-construction surveys to determine the occupancy status of the Florida burrowing owl and will adhere to the components of the Imperiled Species Management Plan and permitting guidelines. If burrowing owls are found, the FTE will reinitiate technical assistance with the FWC to discuss avoidance, minimization, and permitting options.
- If Florida sandhill crane nests are observed during future surveys conducted prior to construction, then a 400-foot buffer will be implemented if construction occurs during the nesting season (January through July). The FTE will reinitiate technical assistance with the FWC during the project construction phase, if necessary.

7.5 Agency Coordination

The ETAT evaluated the project's effects on various natural, physical and social resources. ETAT comments are summarized in **Section 2.4**. Coordination with FDEP took place on July 8, 2019 for a sovereign submerged lands determination for Peace Creek. For more details on the FDEP sovereign submerged lands determination, please refer to **Appendix M**. A technical assistance meeting with the USFWS was held on March 10, 2020 to determine the implementation of specific actions and measures relative to federally protected species with available suitable habitat within the project study area. Meeting notes for the technical assistance meeting with the USFWS are provided in **Appendix N**. A technical assistance meeting with the FWC was held on March 13, 2020 to determine the implementation of specific actions and measures relative to state protected species with available suitable habitat within the project study area. Meeting notes for the technical assistance meeting with the FWC are provided in **Appendix O**. A pre-application meeting with the SWFWMD was held on April 16, 2020 to discuss and review the environmental and drainage permitting requirements. Meeting notes for the SWFWMD pre-application meeting are provided in **Appendix P**.

Agency coordination will continue to take place during the project's design and permitting phases. Coordination with the USFWS, FWC, and FDACS will be required to determine species survey methodologies and to secure any necessary permits regarding protected species. Technical assistance with the USACE will be required to obtain the permits described in **Section 6.1**. Coordination with the SWFWMD will be required to request a Formal Wetland Determination petition and to obtain the permits described in **Section 6.2**. Coordination with the FDEP will be required to obtain necessary easements for the state owned lands within the project area. For more information on the permits required for this project, please see the permit list provided in **Section 6.0**.

Section 8.0 References

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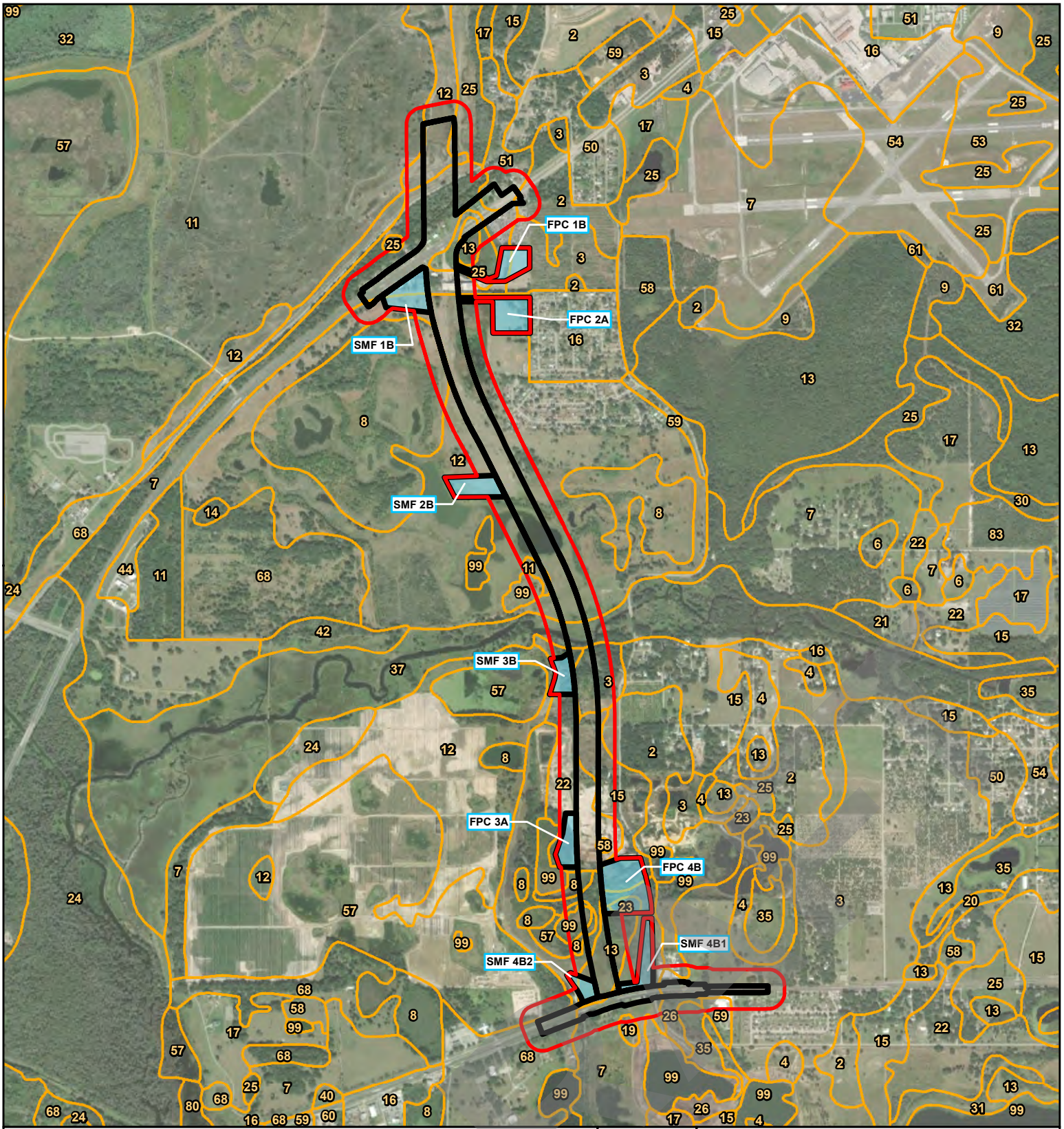
APPENDIX A

Soils Map



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond

2: APOPKA FINE SAND, 0 TO 5 PERCENT SLOPES

3: CANDLER SAND, 0 TO 5 PERCENT SLOPES

7: POMONA FINE SAND

8: HYDRAQUENTS, CLAYEY

11: ARENTS-WATER COMPLEX

12: NEILHURST SAND, 1 TO 5 PERCENT SLOPES

13: SAMSULA MUCK

15: TAVARES FINE SAND, 0 TO 5 PERCENT SLOPES

16: URBAN LAND

19: FLORIDANA MUCKY FINE SAND, DEPRESSIONAL

22: POMELLO FINE SAND

23: ONA FINE SAND

25: PLACID AND MYAKKA FINE SANDS, DEPRESSIONAL

26: LOCHLOOSA FINE SAND

35: HONTOON MUCK

37: PLACID FINE SAND, FREQUENTLY FLOODED

51: POMONA-URBAN LAND COMPLEX

57: HAPLAQUENTS CLAYEY

58: UDORTHENTS, EXCAVATED

59: ARENTS-URBAN LAND COMPLEX, 0 TO 5 PERCENT SLOPES

68: ARENTS, 0 TO 5 PERCENT SLOPES

99: WATER

N W E S

2,000 1,000 0 2,000

Feet

Soils Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Appendix A

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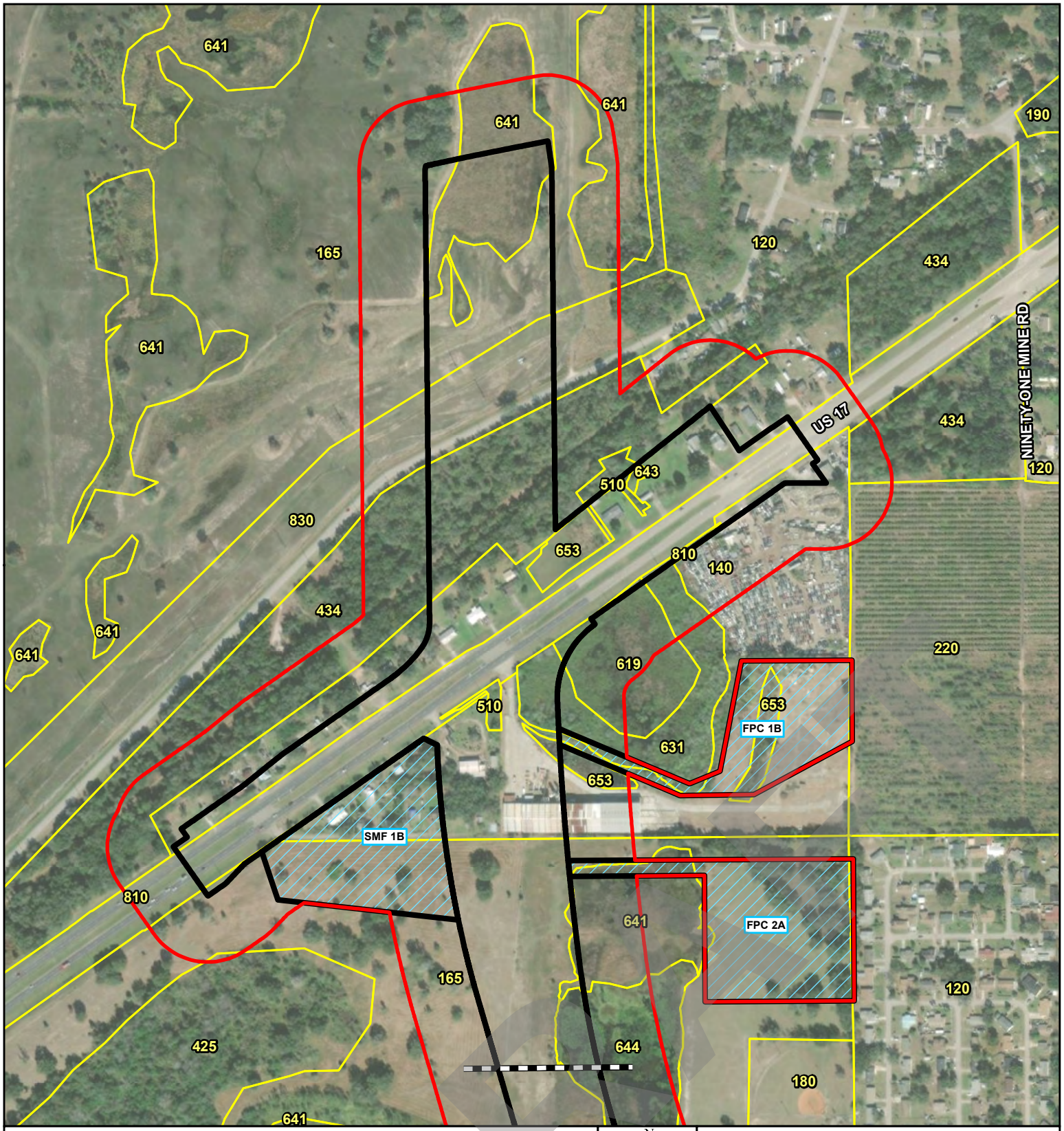
APPENDIX B

Land Use Map



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond

120: RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT

140: COMMERCIAL AND SERVICES

165: RECLAIMED LAND

180: RECREATIONAL

190: OPEN LAND

220: TREE CROPS

425: TEMPERATE HARDWOOD

434: HARDWOOD CONIFER MIXED

510: STREAMS AND WATERWAYS

619: EXOTIC WETLAND HARDWOODS

631: WETLAND SCRUB

641: FRESHWATER MARSHES

643: WET PRAIRIES

644: EMERGENT AQUATIC VEGETATION

653: INTERMITTENT PONDS

810: TRANSPORTATION

830: UTILITIES

N W E S

500 250 0 500

Feet

Land Use Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

FPID No. 440897-4-22-01

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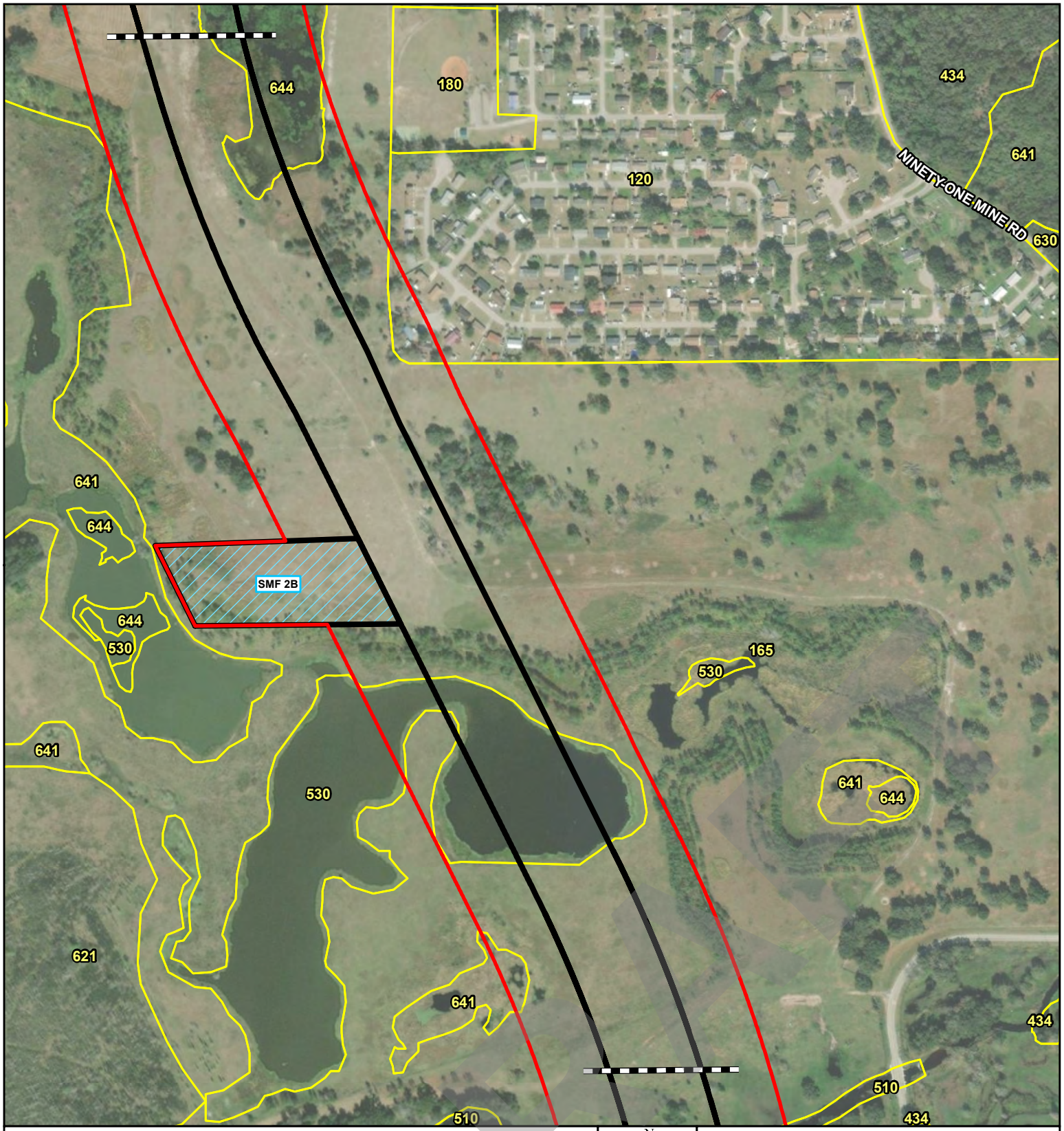

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond

120: RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT

165: RECLAIMED LAND

180: RECREATIONAL

425: TEMPERATE HARDWOOD

434: HARDWOOD CONIFER MIXED

510: STREAMS AND WATERWAYS

530: RESERVOIRS

621: CYPRESS

630: WETLAND FORESTED MIXED

641: FRESHWATER MARSHES

644: EMERGENT AQUATIC VEGETATION

G - 67

N W E S

500 250 0 500

Feet

Land Use Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

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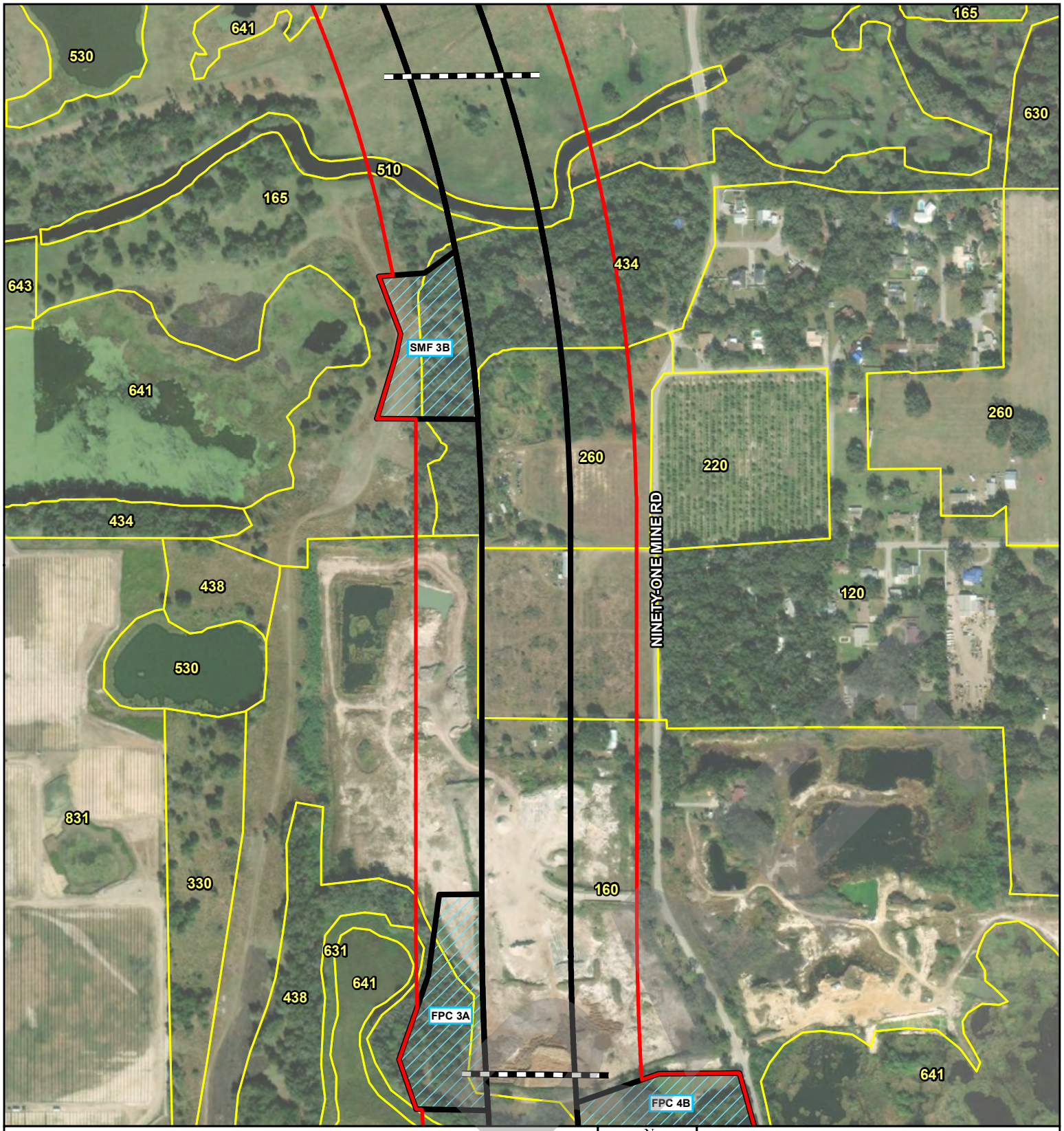

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- 120: RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT
- 160: EXTRACTIVE
- 165: RECLAIMED LAND
- 220: TREE CROPS
- 260: OTHER OPEN LANDS <RURAL>
- 330: MIXED RANGELAND
- 434: HARDWOOD CONIFER MIXED
- 438: MIXED HARDWOODS
- 510: STREAMS AND WATERWAYS
- 530: RESERVOIRS
- 621: CYPRESS
- 630: WETLAND FORESTED MIXED
- 631: WETLAND SCRUB
- 641: FRESHWATER MARSHES
- 643: WET PRAIRIES
- 831: ELECTRICAL POWER FACILITIES

N W E S

500 250 0 500

Feet

Land Use Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

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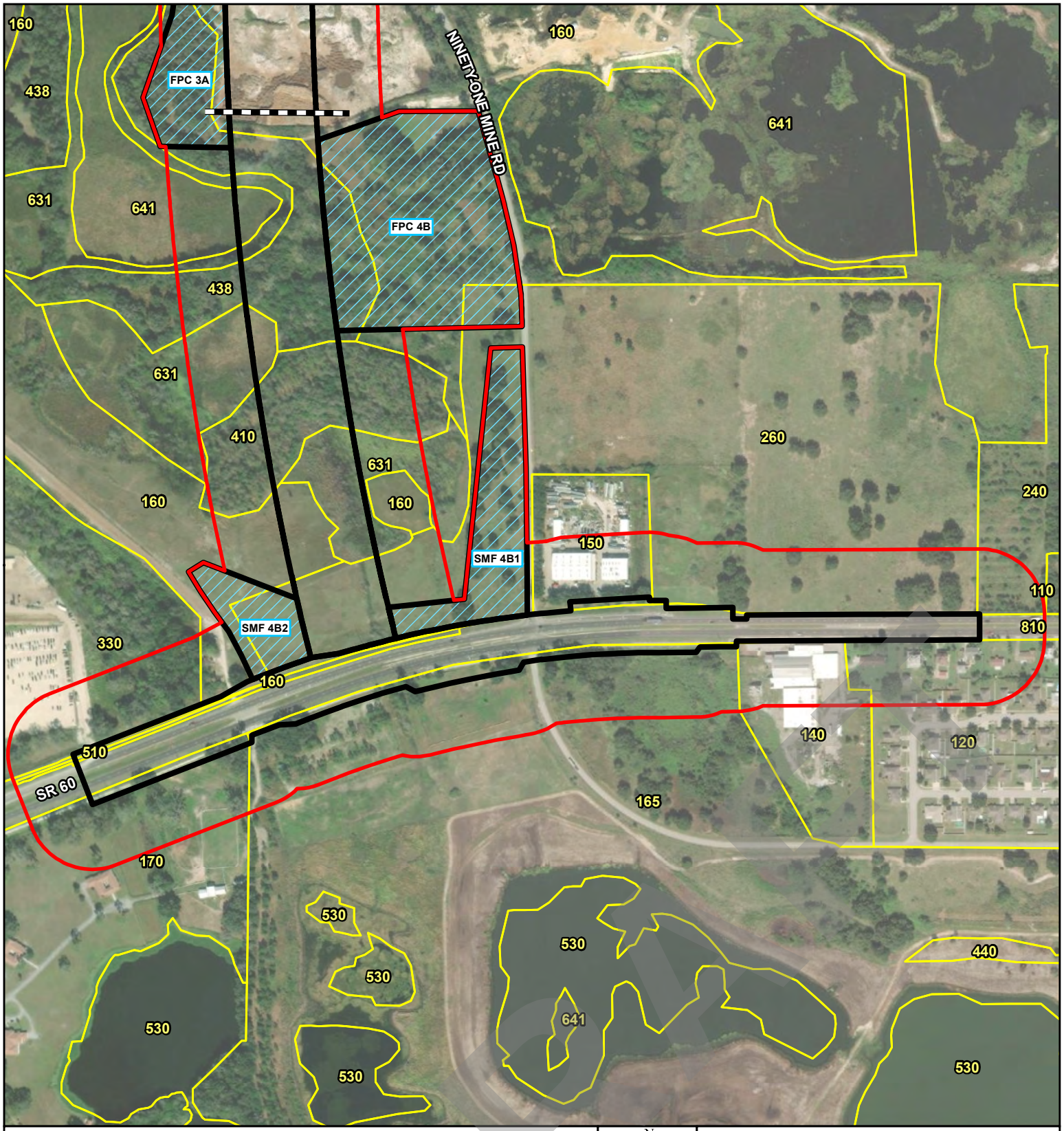

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond

110: RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS

120: RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT

140: COMMERCIAL AND SERVICES

150: INDUSTRIAL

160: EXTRACTIVE

165: RECLAIMED LAND

170: INSTITUTIONAL

240: NURSERIES AND VINEYARDS

260: OTHER OPEN LANDS <RURAL>

330: MIXED RANGELAND

410: UPLAND CONIFEROUS FORESTS

438: MIXED HARDWOODS

440: TREE PLANTATIONS

510: STREAMS AND WATERWAYS

530: RESERVOIRS

631: WETLAND SCRUB

641: FRESHWATER MARSHES

810: TRANSPORTATION

N W E S

500 250 0 500

Feet

Land Use Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

FPID No. 440897-4-22-01

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APPENDIX C

Wetland and Surface Water Table, Descriptions and Map

Individual Wetlands and Surface Waters within the Central Polk Parkway Study Area

ID	FLUCFCS Classification [1]	USFWS Classification [2]	Acres within the Project Study Area
WL 1	641	PEM1C	5.47
WL 2	641	PEM1C	1.66
WL 3a	653	PEM1C	1.02
WL 3b	643	PEM1C	0.11
WL 4a	631	PSS1C	3.03
WL 4b	619	PSS1C	3.06
WL 5	653	PEM1C	0.64
WL 6	653	PEM1C	0.79
WL 7a	641	PEM1C	3.20
WL 7b	644	PEM1C	6.56
WL 8	641	PEM1C	0.48
WL 9a	631	PSS1C	1.32
WL 9b	641	PEM1C	2.29
WL 10	631	PSS1C	2.68
WL 11	631	PSS1C	3.62
		Total Wetlands	**35.93**
SW 1	510	PSS1Cx	0.62
SW 2	510	PSS1Cx	0.26
SW 3	530	PUB2Hx	10.29
SW 4	510	R2UBHx	1.67
SW 5	510	PEM1Cx	0.71
		Total Surface Waters	**13.55**
		Total Wetlands and Surface Waters	**49.48**

[1] FDOT 1999

[2] Cowardin, *et al*., 1979

PEM1C: Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1Cx: Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated
PSS1C: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded
PSS1Cx: Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated
PUB2Hx: Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated
R2UB2Hx: Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated

Individual Wetlands

Wetland 1
FLUCFCS: 641 (Freshwater Marshes)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 1 (WL 1) is a freshwater marsh that is located just north of Old Bartow Eagle Lake Road, approximately 0.4 miles west of the Thomas Street and Old Bartow Eagle Lake Road intersection. WL 1 is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. Vegetation within WL 1 is dominated by cattail (*Typha* spp.). Other vegetative species include soft rush (*Juncus effusus)*, paragrass (*Urochloa mutica*), and smartweed (*Persicaria* spp.). Standing water was not observed at the time of evaluation. Upland habitat surrounding WL 1 consists of previously mined and reclaimed pasture land (FLUCFCS 165).

Wildlife observed at the time of evaluation included osprey (*Pandion haliaetus*) and cattle (*Bos taurus*). A total of 5.47 acres of this wetland is found within the project study area.

Wetland 2
FLUCFCS: 641 (Freshwater Marshes)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 2 (WL 2) is a freshwater marsh that is located just north of Old Bartow Eagle Lake Road, approximately 0.2 miles west of the Thomas Street and Old Bartow Eagle Lake Road intersection. WL 2 is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. Dominant vegetative species within WL 2 consist of Peruvian primrosewillow (*Ludwigia peruviana*), alligator flag (*Thalia geniculata*), Cuban bulrush (*Cyperus blepharoleptos*), soft rush, marsh pennywort (*Hydrocotyle umbellata*), and other various sedges (*Cyperus* spp.). At the time of evaluation, there was approximately 12-18 inches of standing water. Upland habitats surrounding WL 2 include a combination of reclaimed pasture land (FLUCFCS 165) and residential development (FLUCFCS 120). Wildlife was not observed at the time of evaluation. A total of 1.66 acres of this wetland is found within the project study area.

Wetland 3a
FLUCFCS: 653 (Intermittent Ponds)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 3a (WL 3a) is an intermittent pond that is located just north of US 17 at the northern terminus of the project. WL 3a is part of a larger wetland system that includes SW 2 – streams and waterways – and WL 3b – a wet prairie. WL 3a is hydrologically connected to WL 4a and WL 4b via a culvert under US 17. Dominant vegetative species within WL 3a consist of Peruvian primrosewillow, Brazilian pepper (*Schinus terebinthifolia*), paragrass, bushy bluestem (*Andropogon glomeratus*), marsh pennywort, and various sedges. At the time of evaluation, soils were saturated but standing water was not observed. Upland habitats surrounding WL 3a include a combination of US 17 roadway (FLUCFCS 810), residential development (FLUCFCS 120), and hardwood conifer mixed forest (FLUCFCS 434). Wildlife was not observed at the time of evaluation. A total of 1.02 acres of this wetland is found within the project study area.

Wetland 3b
FLUCFCS: 643 (Wet Prairies)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 3b (WL 3b) is a wet prairie that is located just north of US 17 at the northern terminus of the project. WL 3b is part of a larger wetland system that includes SW 2 – streams and waterways – and WL 3a – an intermittent pond. WL 3b is hydrologically connected to WL 4a and WL 4b via a culvert under US 17. Dominant vegetative species within WL 3a consist of Peruvian primrosewillow, marsh pennywort, paragrass, turkey tangle frogfruit (*Phyla nodiflora*), beggarticks (*Bidens alba*), and various sedges. At the time of evaluation, soils were saturated but standing water was not observed. Upland habitats surrounding WL 3a include a combination of US 17 roadway (FLUCFCS 810), residential development (FLUCFCS 120), and hardwood conifer mixed forest (FLUCFCS 434). Wildlife was not observed at the time of evaluation. A total of 0.11 acres of this wetland is found within the project study area.

Wetland 4a

FLUCFCS: 631 (Wetland Scrub)
USFWS: PSS1C (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)

Wetland 4a (WL 4a) is a wetland scrub that is located just south of US 17, approximately 0.5 miles west of the US 17 and 91 Mine Road intersection. WL 4a is part of a larger wetland system that includes WL 4b – an exotic wetland hardwood. WL 4a is characterized by overgrown vegetation with a high percentage of exotics and is hydrologically connected to WL 3a, WL 3b and SW 2 via a culvert under US 17. Standing water at a depth of approximately 1-2 inches was observed at the time of evaluation. Dominant vegetation within WL 4a is comprised of Brazilian pepper, Carolina willow (*Salix caroliniana*), Peruvian primrosewillow, elderberry (*Sambucus nigra*), castor bean (*Ricinus communis*), cattail, and cogongrass (*Imperata cylindrica*). Upland habitats surrounding WL 4a include a combination of the US 17 roadway (FLUCFCS 810) and commercial development (FLUCFCS 140). Wildlife was not observed at the time of evaluation. A total of 3.03 acres of this wetland is found within the project study area.

Wetland 4b

FLUCFCS: 619 (Exotic Wetland Hardwoods)
USFWS: PSS1C (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)

Wetland 4b (WL 4b) is a exotic wetland hardwood that is located just south of US 17, approximately 0.5 miles west of the US 17 and 91 Mine Road intersection. WL 4b is part of a larger wetland system that includes WL 4a – a wetland scrub. WL 4b is characterized by a high percentage of exotics and is hydrologically connected to WL 3a, WL 3b and SW 2 via a culvert under US 17. Standing water at a depth of approximately 2-6 inches was observed at the time of evaluation. Dominant vegetation within WL 4b is comprised almost entirely of Peruvian primrosewillow with scattered Brazilian pepper. Other hydrophytic vegetation within WL 4b included Carolina willow, torpedo grass (*Panicum repens*), marsh pennywort, and smartweed. Upland habitats surrounding WL 4b include a combination of the US 17 roadway (FLUCFCS 810) and commercial development (FLUCFCS 140). Wildlife was not observed at the time of evaluation. A total of 3.06 acres of this wetland is found within the project study area.

Wetland 5

FLUCFCS: 653 (Intermittent Ponds)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 5 (WL 5) is an intermittent pond that is located just south of US 17, approximately 0.5 miles west of the US 17 and 91 Mine Road intersection. This wetland is characterized by open water with hydrophytic vegetation along the banks. At the time of evaluation, approximately 1-3 inches of standing water was observed. Dominant species within WL 5 included Carolina willow, Peruvian primrosewillow, cattail, American white waterlily (*Nymphaea odorata*), bulltongue arrowhead, alligator weed (*Alternanthera philoxeroides*), and paragrass. Upland habitat surrounding WL 5 consists of commercial development (FLUCFCS 140). Wildlife was not observed at the time of evaluation. A total of 0.64 acres of this wetland is found within the project study area.

Wetland 6

FLUCFCS: 653 (Intermittent Ponds)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 6 (WL 6) is an intermittent pond that is located just south of US 17 at the northern terminus of the project. This wetland is characterized by open water with hydrophytic vegetation along the banks. At the time of evaluation, approximately 1-2 inches of standing water was observed. Dominant species within WL 6 included Carolina willow, Peruvian primrosewillow, cattail, American white waterlily, bulltongue arrowhead, alligator weed, and paragrass. Upland habitat surrounding WL 6 consists of commercial development (FLUCFCS 140). Wildlife was not observed at the time of evaluation. A total of 0.79 acres of this wetland is found within the project study area.

Wetland 7a

FLUCFCS: 641 (Freshwater Marshes)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 7a (WL 7a) is a freshwater marsh that is located approximately 0.6 miles southwest of the US 17 and 91 Mine Road intersection. WL 7a is part of a larger wetland system that includes WL 7b – emergent aquatic vegetation. These systems are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. At the time of evaluation, the soils within WL 7a were saturated. Dominant species within WL 7a included cattail, soft rush, bushy bluestem, torpedograss, cogongrass, and bermudagrass (*Cynodon dactylon*). Upland habitat surrounding WL 7a consists of reclaimed mine lands used as pasture (FLUCFCS 165). Wildlife observed at the time of evaluation included the snowy egret (*Egretta thula*) and the red-winged blackbird (*Agelaius phoeniceus*). A total of 3.20 acres of this wetland is found within the project study area.

Wetland 7b

FLUCFCS: 644 (Emergent Aquatic Vegetation)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 7b (WL 7b) is emergent aquatic vegetation that is located approximately 0.6 miles southwest of the US 17 and 91 Mine Road intersection. WL 7b is part of a larger wetland system that includes WL 7a – a freshwater marsh. These systems are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. WL 7b is characterized by open water with hydrophytic and emergent aquatic vegetation. Dominant vegetation within WL 7b consists of cattails, American white waterlily, dotted duckweed (*Landoltia punctata*), soft rush, and various sedges. Upland habitat surrounding WL 7b consists of reclaimed mine lands used as pasture (FLUCFCS 165). Wildlife observed at the time of evaluation included the wood stork (*Mycteria americana*) and the little blue heron (*Egretta caerulea*). A total of 6.56 acres of this wetland is found within the project study area.

Wetland 8

FLUCFCS: 641 (Freshwater Marshes)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 8 (WL 8) is a freshwater marsh that is located approximately 0.4 miles northwest of the River Oaks Drive and 91 Mine Road intersection. WL 8 is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. At the time of evaluation, standing water was not observed. Dominant species within WL 8 consist of Brazilian pepper, pickerel weed (*Pontederia cordata*), alligator flag, soft rush and various sedges. Upland habitats surrounding WL 8 consist of reclaimed mine lands used as pasture (FLUCFCS 165). Wildlife observed at the time of evaluation included a great blue heron (*Ardea herodias*). A total of 0.48 acres of this wetland is found within the project study area.

Wetland 9a

FLUCFCS: 631 (Wetland Scrub)
USFWS: PSS1C (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)

Wetland 9a (WL 9a) is wetland scrub that is located approximately 0.2 miles southwest of the Snake Valley Road and 91 Mine Road intersection. WL 9a is part of a larger wetland system that includes WL 9b – a freshwater marsh. These systems are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. Dominant vegetation within WL 9a consists of Carolina willow, Peruvian primrosewillow, soft rush, marsh pennywort, and various sedges. At the time of evaluation, approximately 12-18 inches of standing water was observed. Upland habitats surrounding WL 9a consist of reclaimed mine lands used as pasture (FLUCFCS 165), extractive land (FLUCFCS 160), and upland coniferous forest (FLUCFCS 410). Wildlife was not observed at the time of evaluation. A total of 1.32 acres of this wetland is found within the project study area.

Wetland 9b

FLUCFCS: 641 (Freshwater Marsh)
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

Wetland 9b (WL 9b) is a freshwater marsh that is located approximately 0.2 miles southwest of the Snake Valley Road and 91 Mine Road intersection. WL 9b is part of a larger wetland system and is surrounded by WL 9a – a wetland scrub. These systems are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. Dominant vegetation within WL 9b consists of cattail, Peruvian primrosewillow, soft rush, dogfennel, and various grasses and sedges. At the time of evaluation, approximately 12-18 inches of water was observed. Wildlife was not observed. A total of 2.29 acres of this wetland is found within the project study area.

Wetland 10

FLUCFCS:	**631**	**(Wetland Scrub)**
USFWS:	**PSS1C**	**(Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)**

Wetland 10 (WL 10) is wetland scrub that is located on the north side of SR 60 near the project's southern terminus. WL 10 is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. The canopy layer within WL 10 is limited to large Carolina willows. Other dominant vegetative species included Peruvian primrosewillow, alligator flag, cattail, soft rush, and marsh pennywort. Upland habitats surrounding WL 10 consist of previously mined lands being used as pasture (FLUCFCS 160) and mixed hardwoods (FLUCFCS 438). Extractive lands are characterized by open pasture. There was approximately 2-6 inches of standing water observed at the time of assessment. Low water quality was evidenced by siltation and signs of cattle usage. Wildlife observed at the time of evaluation included fish, frogs, ducks, a sandhill crane (*Antigone canadensis pratensis*) and a great egret (*Ardea alba*). A total of 2.68 acres of this wetland is found within the project study area.

Wetland 11

FLUCFCS:	**631**	**(Wetland Scrub)**
USFWS:	**PSS1C**	**(Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)**

Wetland 11 (WL 11) is wetland scrub that is located on the north side of SR 60 near the project's southern terminus. WL 11 is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. The canopy layer within WL 11 is limited to large Carolina willows. Groundcover species are composed of soft rush, Carolina redroot (*Lachnanthes caroliana*), and dogfennel (*Eupatorium capillifolium*). The upland habitat surrounding WL 11 consists of reclaimed mine lands used as pasture (FLUCFCS 160 & FLUCFCS 260) and upland coniferous forest (FLUCFCS 410). The extractive and other open lands are characterized by open pasture. At the time of evaluation, no standing water or wildlife was observed. A total of 3.62 acres of this wetland is found within the project study area.

Individual Surface Waters

Surface Water 1, 2, and 5

FLUCFCS:	**510**	**(Streams and Waterways)**
USFWS:	**PSS1Cx**	**(Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated)**
	PEM1Cx	**(Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated)**

Surface Waters (SW) 1, 2, & 5 are roadside ditches located perpendicular and parallel to the north and south side of US 17 at the northern terminus of the project. These ditches are overgrown and dominated by exotic nuisance species. Vegetation includes Carolina willow, Brazilian pepper, Peruvian primrosewillow, alligator flag, paragrass, and cogongrass. The surrounding areas consist of a combination of residential areas (FLUCFCS 120), commercial services (FLUCFCS 140), and

hardwood-conifer mixed forests (FLUCFCS 434). A total of 0.62 acres of SW 1, 0.26 acres of SW 2, and 0.71 acres of SW 5 is found within the project study area.

Surface Water 3

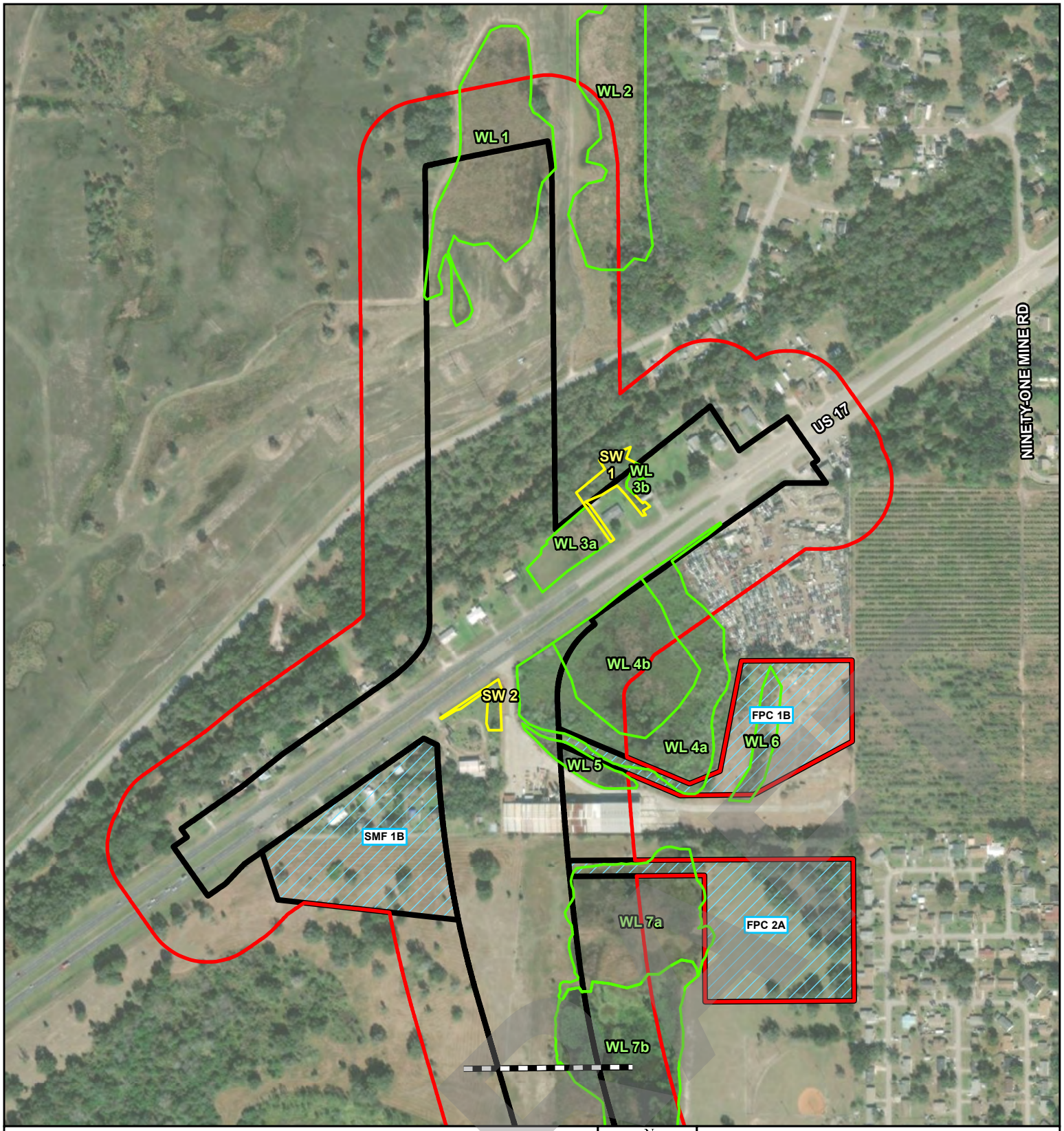
FLUCFCS: 530 (Reservoirs)
USFWS: PUB2Hx (Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated)

Surface Water 3 (SW 3) is a large reservoir located south of US 17, approximately 0.6 miles southeast of the US 17 and Crossover Road intersection. SW 3 was formed by reclamation of mined lands. SW 3 is characterized by open water with hydrophytic vegetation along the edges. Dominant vegetative species within this system includes water lettuce, soft rush, smartweed, paragrass, cogongrass, and various sedges. The surrounding areas consist of previously mined, reclaimed land currently used as pasture (FLUCFCS 165) and cypress (FLUCFCS 621). Wildlife observed at this surface water included wild hog (*Sus scrofa*), anhinga, great egret, and cattle. A total of 10.29 aces of this surface water is found within the project study area.

Surface Water 4

FLUCFCS: 510 (Streams and Waterways)
USFWS: R2UB2Hx (Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated)

Surface Water 4 (SW 4) is a portion of Peace Creek that runs from east to west through the project study area, and ultimately flows west into Peace River. The surrounding areas consist of reclaimed, previously mined, land used as pasture (FLUCFCS 165) and mixed hardwood conifer forests (FLUCFCS 434). Dominant vegetative species along the banks of SW 4 consist of laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), lantana (*Lantana strigocamara*), smartweed, dogfennel, caesarweed, and cogongrass. Wildlife observed at this surface water included cattle and fish. A total of 1.67 acres of this surface water is found within the project study area.



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland

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Feet

Wetland and Surface Water Location Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Appendix C
Page 1 of 4

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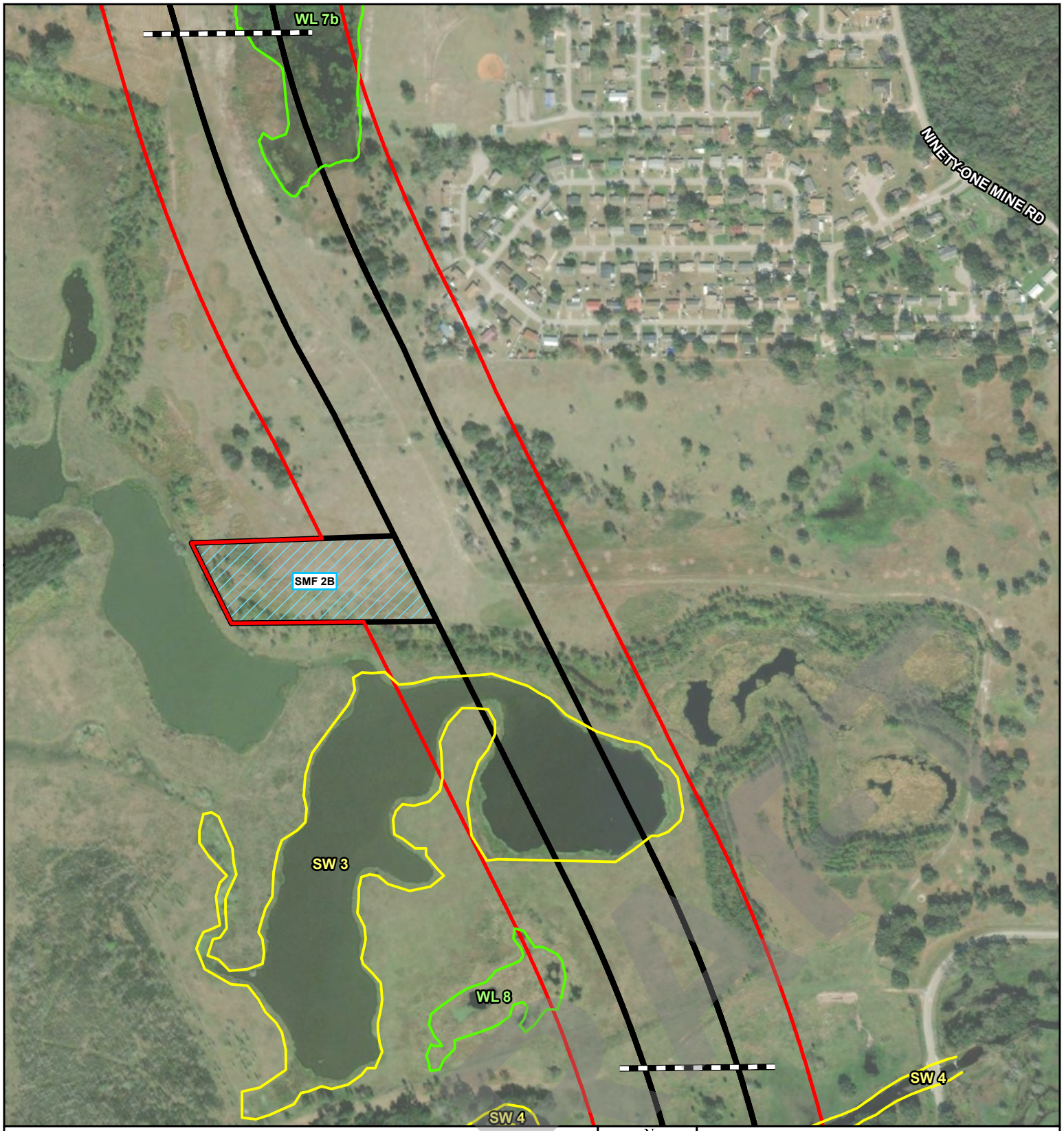

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland

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Wetland and Surface Water Location Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
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Tampa, FL 33602
Phone: 813/871-5331

Appendix C
Page 2 of 4

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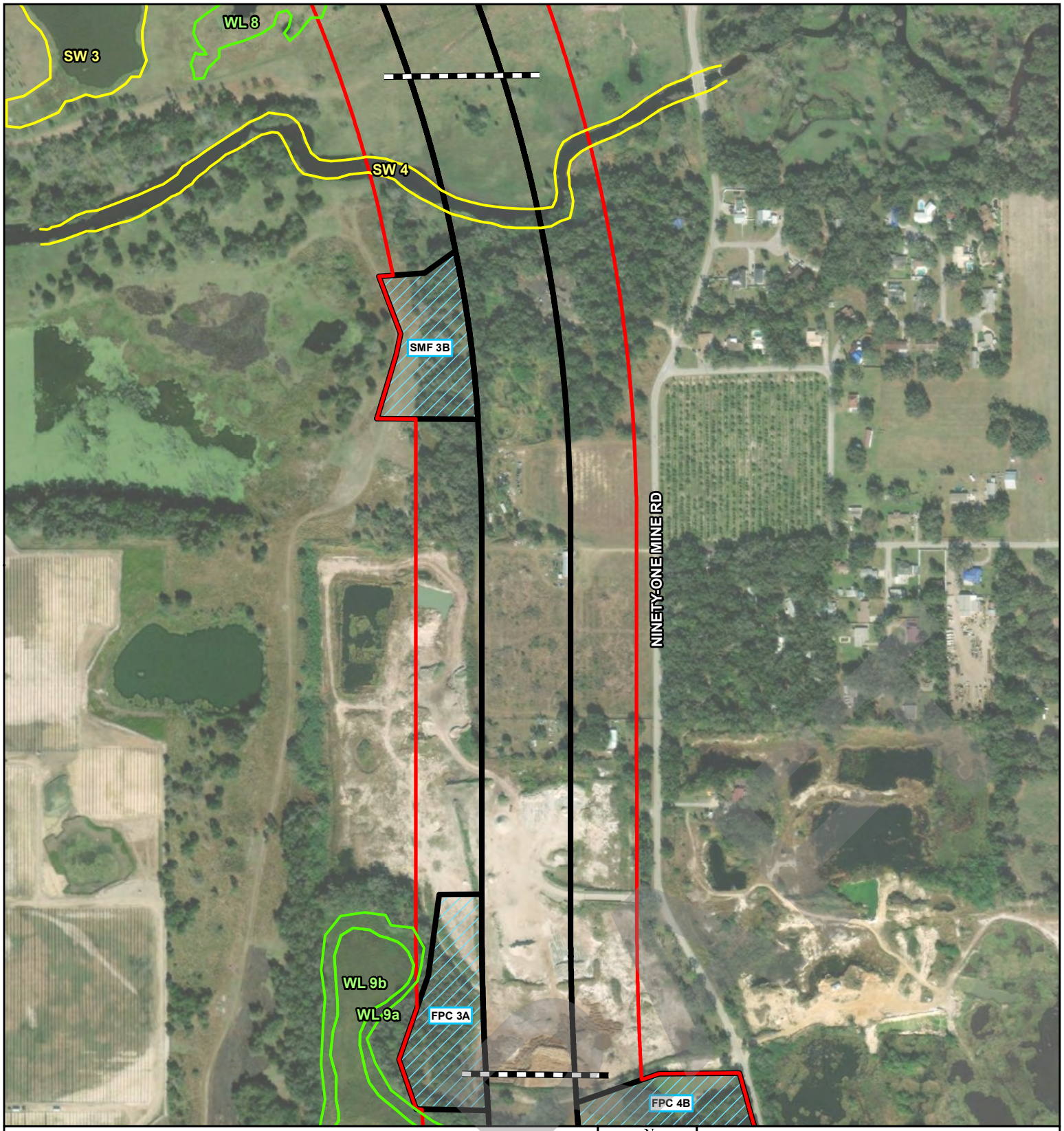

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland

G - 80

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Wetland and Surface Water Location Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
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Tampa, FL 33602
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Appendix C

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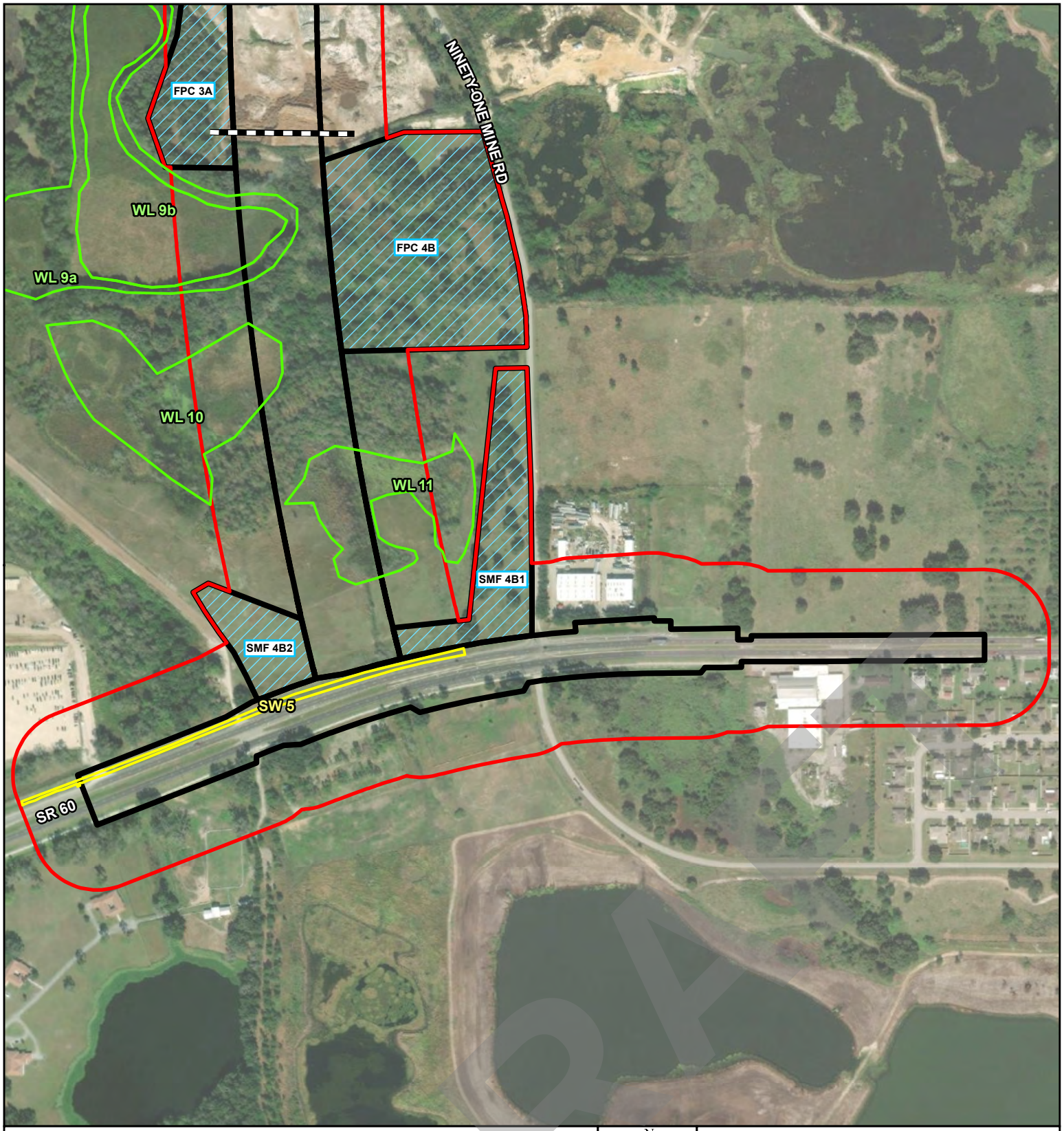

Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland

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500 250 0 500
Feet

Wetland and Surface Water Location Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

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Appendix C
Page 4 of 4

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix C_Wetlands Map.mxd 12/2/2020

APPENDIX D

Representative Wetland and Surface Water Photographs

FLUCFCS: 619 – Exotic Wetland Hardwoods
USFWS: PSS1C (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)

FLUCFCS: 631 – Wetland Scrub
USFWS: PSS1C (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded)

FLUCFCS: 641 – Freshwater Marshes
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

FLUCFCS: 643 – Wet Prairies
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

FLUCFCS: 644 – Emergent Aquatic Vegetation
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

FLUCFCS: 653 – Intermittent Pond
USFWS: PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded)

FLUCFCS: 510 – Streams and Waterways (Ditches)
USFWS: PSS1Cx (Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated)

FLUCFCS: 510 – Streams and Waterways (Peace Creek)
USFWS: R2UB2Hx (Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated)

FLUCFCS: 530 – Reservoirs
USFWS: PUB2Hx (Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated)

APPENDIX E

FNAI Data Report

FLORIDA
Natural Areas
INVENTORY

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
850-224-8207
fax 850-681-9364
www.fnai.org

June 20, 2019

Christen Cerrito
Kisinger, Campo & Associates
201 North Franklin Street, Suite 400
Tampa, FL 33602

Dear Ms. Cerrito,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). At your request we have produced the following report for your project area.

The purpose of this Standard Data Report is to provide objective scientific information on natural resources located in the vicinity of a site of interest, in order to inform those involved in project planning and evaluation. This Report makes no determination of the suitability of a proposed project for this location, or the potential impacts of the project on natural resources in the area.

Project: Central Polk Parkway

Date Received: 06/14/19

Location: Polk County

Element Occurrences

A search of our maps and database indicates that we currently have several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

CLIP

The enclosed map shows natural resource conservation priorities based on the Critical Lands and Waters Identification Project. CLIP is based on many of the same natural resource data developed for the Florida Forever Conservation Needs Assessment, but provides an overall picture of conservation priorities across different resource categories, including biodiversity, landscapes, surface waters, and aggregated CLIP priorities (that combine the individual resource categories). CLIP is also based primarily on remote sensed data and is not intended to be the definitive authority on natural resources on a site.

For more information on CLIP, visit http://www.fnai.org/clip.cfm .

Managed Areas

Portions of the site appear to be located within the Lake Hancock, managed by the Southwest Florida Water Management District.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

The Inventory always recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. **The maps contain sensitive environmental information, please do not distribute or publish without prior consent from FNAI.** FNAI data may not be resold for profit.

Thank you for your use of FNAI services. An invoice will be mailed separately. If I can be of further assistance, please contact me at (850) 224-8207 or at kbrinegar@fnai.fsu.edu.

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services

Encl

Central Polk Parkway

Site boundaries are approximate.

Polk County

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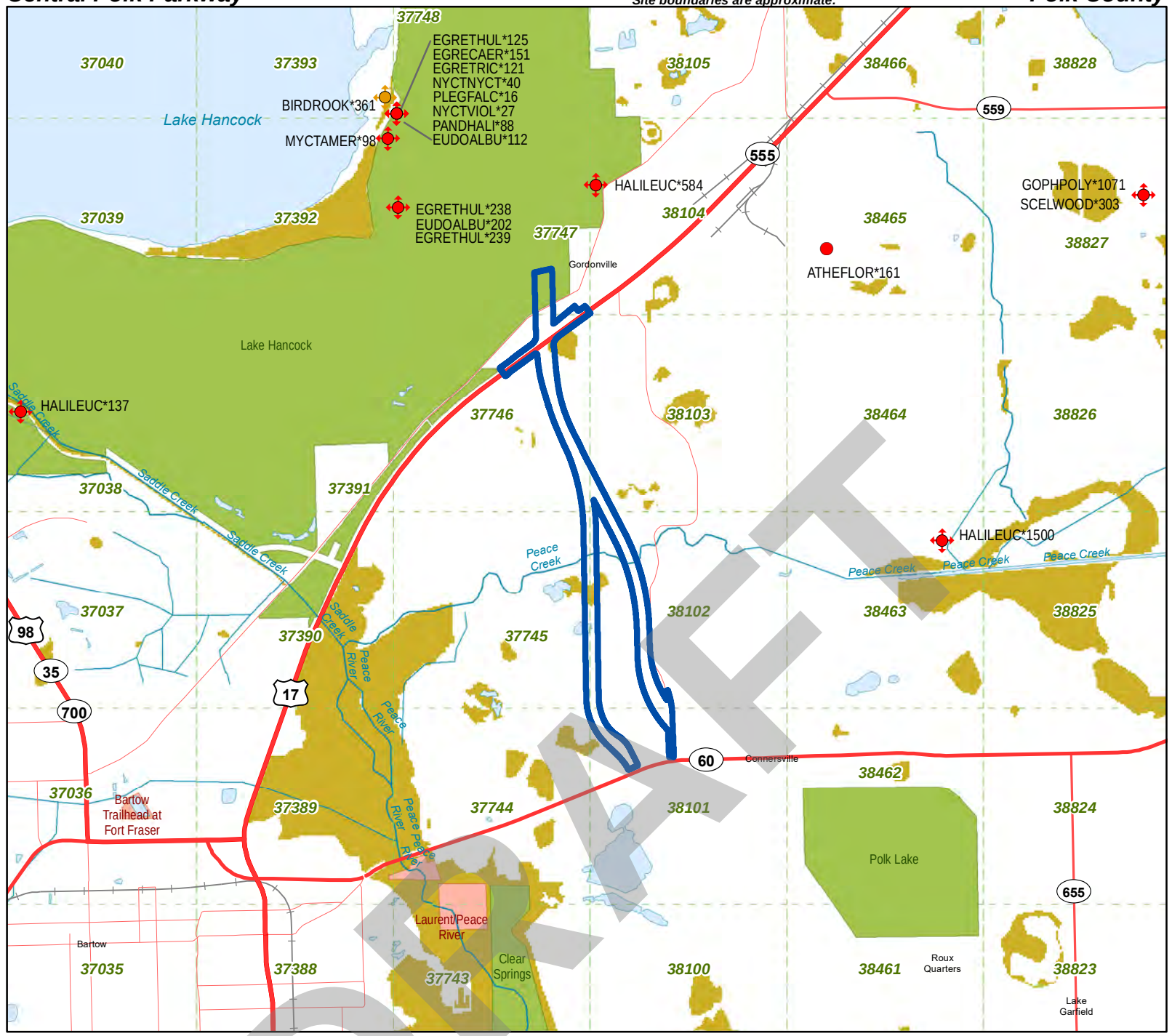
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax
www.fnai.org

FLORIDA Natural Areas INVENTORY



Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive
- Point Indicates General Vicinity of Element
- U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

N

Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units
- County Boundary
- Roads
- Water

NOTE

This map contains environmentally sensitive information. Please do not distribute or publish without prior consent from FNAI. Map should not be interpreted without accompanying documents.

Map produced by KAB 6/20/2019

Central Polk Parkway

Site boundaries are approximate.

Polk County

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FLORIDA Natural Areas INVENTORY

CLIP v4.0 Resource Priorities

Biodiversity Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

Landscape Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

Surface Water Resource Category

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

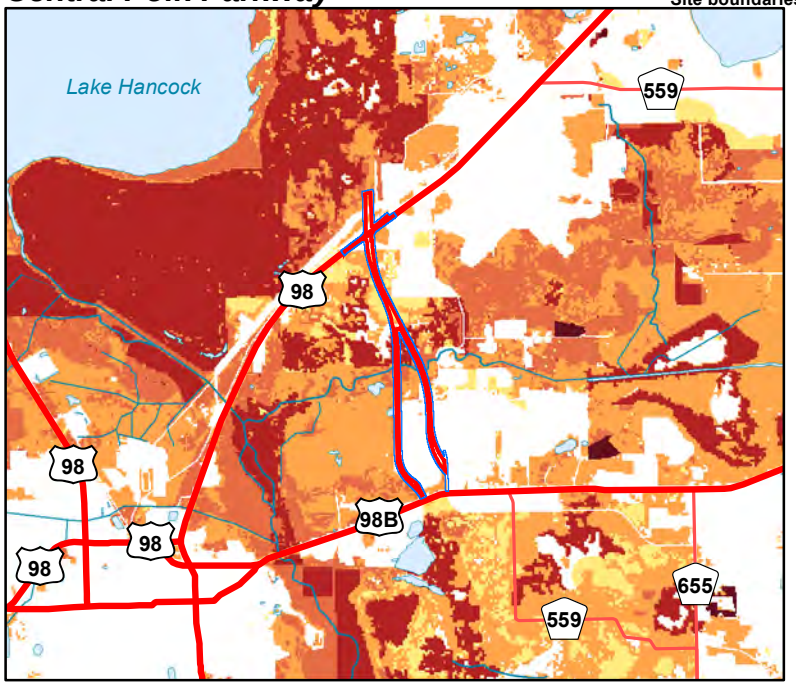
Aggregated CLIP Priorities

- Priority 1 - highest
- Priority 2
- Priority 3
- Priority 4
- Priority 5

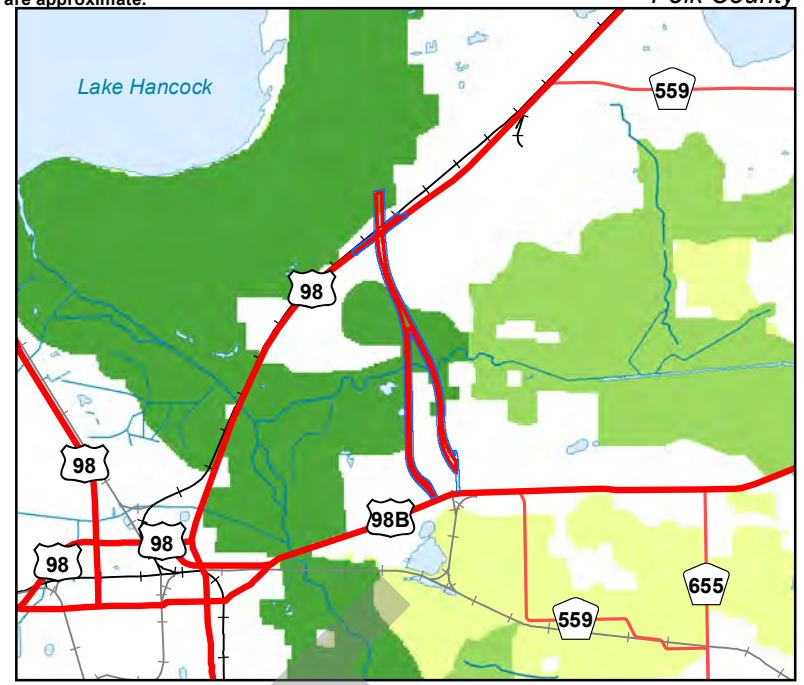
- Site Boundary

Map should not be interpreted without accompanying documents.

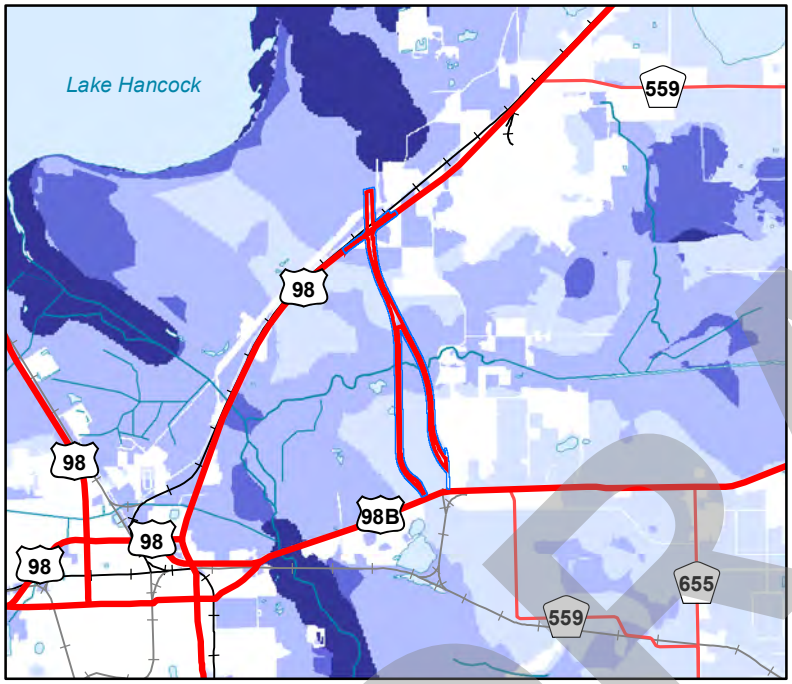
Critical Lands and Waters Identification Project (CLIP) is a cooperative effort between the FSU Florida Natural Areas Inventory, UF Center for Landscape Conservation Planning, and FL Fish & Wildlife Conservation Commission, with additional funding from FL Dept of Environmental Protection and US Fish & Wildlife Service.



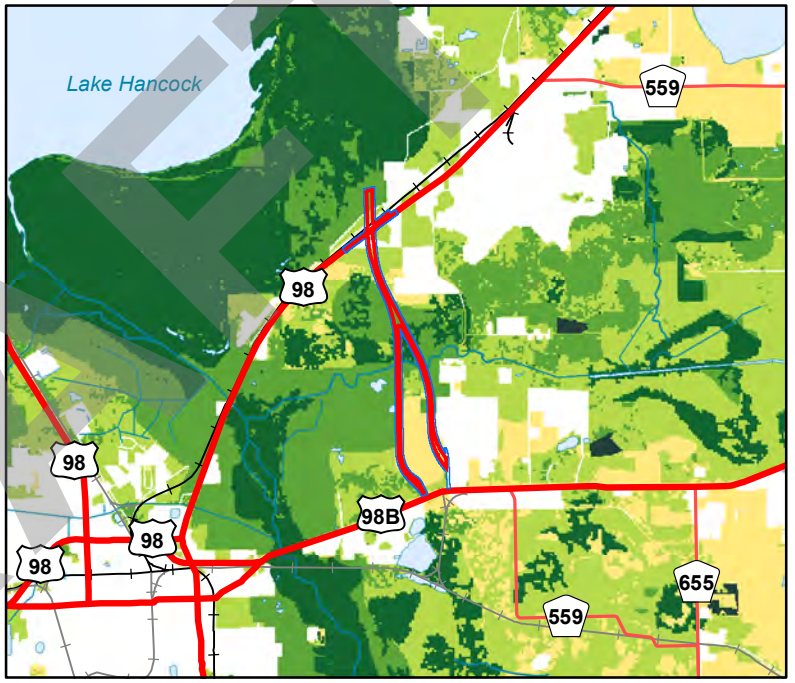
CLIP Biodiversity Resource Priorities



CLIP Landscape Resource Priorities



CLIP Surface Water Resource Priorities



CLIP Aggregated Resource Priorities

0 0.5 1 2 3 4 6 Miles

G 592

Map produced by KAB
6/21/2019

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FNAI ELEMENT OCCURRENCE REPORT on or near

Central Polk Parkway

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
ATHEFLOR*161	*Athene cunicularia floridana*	Florida Burrowing Owl	G4T3	S3	N	ST	1999-06-24	Urban; airport	1 burrow; 2 adults, 3 young (U99BOW01FLUS)
BIRDROOK*361	Bird Rookery		G5	SNR	N	N	1989-04-19	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Multi-species rookery, 14 species. 11-100 birds 1976-04, 1-10 birds 1977-04, 11-100 birds 1978-04, 101-250 birds and 251-500 birds 1987-04-28 (two surveys), 101-250 birds 1989-04-19. Great Egret present 1987-04-28, 1989-04-19; Snowy Egret present 1987-04-28, 1989-04-19; Little Blue Heron present 1987-04-28, 1989-04-19; Tricolored Heron present 1987-04-28; White Ibis present 1987-04-28; Glossy Ibis present 1987-04-28; Black-crowned Night Heron present 1987-04-28; Yellow-crowned Night Heron present 1987-04-28; Wood Stork present 1987-04-28; Osprey present 1987-04-28, 1989-04-19; Great Blue Heron present 1976-04, 1977-04, 1978-04, 1987-04-28, 1989-04-19; Cattle Egret present 1987-04-28, 1989-04-19; Green-backed Heron present 1987-04-28; Double-crested Cormorant present 1987-04-28, 1989-04-19. Unidentified small white waders and unidentified large white waders present 1987-04-28 (second survey).
EGRECAER*151	*Egretta caerulea*	Little Blue Heron	G5	S4	N	ST	1989-04-19	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (both surveys) and 1989-04-19. Not observed 1976-04, 1977-04, and 1978-04.
EGRETHUL*125	*Egretta thula*	Snowy Egret	G5	S3	N	N	1989-04-19	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (both surveys) and 1989-04-19. Not observed 1976-04, 1977-04, and 1978-04.
EGRETHUL*238	*Egretta thula*	Snowy Egret	G5	S3	N	N	1987-04-29	Artificial lake, pond, or borrow pit	1987/04/29: B.A. Millsap, GFC, observed 20 individuals. WADING BIRD RECORD FROM MILLSAP'S OCCUR.DBF

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www.fnai.org

FNAI ELEMENT OCCURRENCE REPORT on or near

Central Polk Parkway

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
EGRETHUL*239	*Egretta thula*	Snowy Egret	G5	S3	N	N	1987-04-28	Floodplain Swamp; swamp/river floodplain lake.	1987/04/28: B.A. Millsap, GFC, observed 30 individuals. WADING BIRD RECORD FROM MILLSAP'S OCCUR.DBF (SITE # PO-01B).
EGRETRIC*121	*Egretta tricolor*	Tricolored Heron	G5	S4	N	ST	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (first survey). Not observed 1976-04, 1977-04, and 1978-04, 1987-04-28 (second survey), and 1989-04-19.
EUDOALBU*112	*Eudocimus albus*	White Ibis	G5	S4	N	N	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (second survey). Not observed 1976-04, 1977-04, and 1978-04, 1987-04-28 (first survey), and 1989-04-19.
EUDOALBU*202	*Eudocimus albus*	White Ibis	G5	S4	N	N	1987-04-28	Floodplain Swamp; swamp/river floodplain lake.	1987/04/28: B.A. Millsap, GFC, observed 10 individuals. WADING BIRD RECORD FROM MILLSAP'S OCCUR.DBF (SITE # PO-01B).
HALILEUC*584	*Haliaeetus leucocephalus*	Bald Eagle	G5	S3	N	N	2003	No general description given	Nest status 1995-2003: Continuously active. (U03FWC01FLUS). Previous data (note different format) NEST; 1991: PRODUCED 2 YOUNG; 1990: ACTIVE, PRODUCED 0 YOUNG; 1989: PRODUCED 2 YOUNG; 1988: ACTIVE, PRODUCED 0 YOUNG; 1987: PRODUCED 2 YOUNG; 1986: PRODUCED 2 YOUNG; 1985-80: NO DATA; 1979: INACTIVE; 1978: ACTIVE, PRODUCED 0 YOUNG; 1977: ACTIVE, PRODUCED 0 YOUNG.
MYCTAMER*98	*Mycteria americana*	Wood Stork	G4	S2	T	FT	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01FLUS).	Colony inactive in 2010 (U11TSA01FLUS). Colony active for 1 year in 1987; unknown number of nests (U11TSA01FLUS, U91RUN01FLUS, U82NES01FLUS).
NYCTNYCT*40	*Nycticorax nycticorax*	Black-crowned Night-heron	G5	S3	N	N	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (second survey). Not observed 1976-04, 1977-04, 1978-04, 1987-04-28 (first survey), and 1989-04-19.

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FNAI ELEMENT OCCURRENCE REPORT on or near

Central Polk Parkway

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
NYCTVIOL*27	*Nyctanassa violacea*	Yellow-crowned Night-heron	G5	S3	N	N	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (second survey). Not observed 1976-04, 1977-04, 1978-04, 1987-04-28 (first survey), and 1989-04-19.
PANDHALI*88	*Pandion haliaetus*	Osprey	G5	S3S4	N	N	1989-04-19	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (second survey) and 1989-04-19. Not observed 1976-04, 1977-04, 1978-04, and 1987-04-28 (first survey).
PLEGFALC*16	*Plegadis falcinellus*	Glossy Ibis	G5	S3	N	N	1987-04-28	Colony site is cypress along lake edge; habitat surrounding colony is cypress strand, lake, and willow marsh; nesting substrate is willows over water (U82NES01).	Species present 1987-04-28 (first survey). Not observed 1976-04, 1977-04, 1978-04, 1987-04-28 (second survey), and 1989-04-19.

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 37744					
Likely					
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Mycteria americana	Wood Stork	G4	S2	T	FT
Potential					
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S1	N	N
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Lechea cernua	nodding pinweed	G3	S3	N	T
Lithobates capito	Gopher Frog	G3	S3	N	N
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E
Matrix Unit ID: 37745					
Likely					
Mycteria americana	Wood Stork	G4	S2	T	FT
Potential					
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T

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Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Lechea cernua	nodding pinweed	G3	S3	N	T
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 37746

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT

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Florida Natural Areas Inventory

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Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Egretta thula	Snowy Egret	G5	S3	N	N
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Eudocimus albus	White Ibis	G5	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Lechea cernua	nodding pinweed	G3	S3	N	T
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 37747

Likely

Haliaeetus leucocephalus	Bald Eagle	G5	S3	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bird Rookery		G5	SNR	N	N
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Egretta caerulea	Little Blue Heron	G5	S4	N	ST

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Florida Natural Areas Inventory

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Egretta thula	Snowy Egret	G5	S3	N	N
Egretta tricolor	Tricolored Heron	G5	S4	N	ST
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Eudocimus albus	White Ibis	G5	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Nyctanassa violacea	Yellow-crowned Night-heron	G5	S3	N	N
Nycticorax nycticorax	Black-crowned Night-heron	G5	S3	N	N
Pandion haliaetus	Osprey	G5	S3S4	N	N
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plegadis falcinellus	Glossy Ibis	G5	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 38101

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E

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Florida Natural Areas Inventory

Biodiversity Matrix Report

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Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Lechea cernua	nodding pinweed	G3	S3	N	T
Lithobates capito	Gopher Frog	G3	S3	N	N
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 38102

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Illicium parviflorum	star anise	G2	S2	N	E

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Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Platanthera integra	yellow fringeless orchid	G3G4	S3	N	E
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 38103

Likely

Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S1	N	N
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

1018 Thomasville Road
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Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Hartwrightia floridana	hartwrightia	G2	S2	N	T
Heterodon simus	Southern Hognose Snake	G2	S2S3	N	N
Illicium parviflorum	star anise	G2	S2	N	E
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Matrix Unit ID: 38104

Likely

Haliaeetus leucocephalus	Bald Eagle	G5	S3	N	N
Mycteria americana	Wood Stork	G4	S2	T	FT

Potential

Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2	N	ST
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3	N	ST
Bonamia grandiflora	Florida bonamia	G3	S3	T	E
Calamintha ashei	Ashe's savory	G3	S3	N	T
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Carex chapmannii	Chapman's sedge	G3	S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chionanthus pygmaeus	pygmy fringe tree	G2G3	S2S3	E	E
Clitoria fragrans	scrub pigeon-wing	G3	S3	T	E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3	N	T
Coleataenia abscissa	cutthroatgrass	G3	S3	N	E
Conradina brevifolia	short-leaved rosemary	G2Q	S2	E	E
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Dryobates borealis	Red-cockaded Woodpecker	G3	S2	E	FE

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Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Eriogonum longifolium var. gnaphalifolium	scrub buckwheat	G4T3	S3	T	E
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Lechea cernua	nodding pinweed	G3	S3	N	T
Liatris ohlingerae	Florida blazing star	G2	S2	E	E
Lithobates capito	Gopher Frog	G3	S3	N	N
Lupinus aridorum	scrub lupine	G3T1	S1	E	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Mustela frenata peninsulae	Florida Long-tailed Weasel	G5T3?	S3	N	N
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Paronychia chartacea var. chartacea	paper-like nailwort	G3T3	S3	T	E
Peucaea aestivalis	Bachman's Sparrow	G3	S3	N	N
Plestiodon egregius lividus	Blue-tailed Mole Skink	G5T2	S2	T	FT
Podomys floridanus	Florida Mouse	G3	S3	N	N
Polygala lewtonii	Lewton's polygala	G2	S2S3	E	E
Polygonella basiramia	Florida jointweed	G3	S3	E	E
Polygonella myriophylla	Small's jointweed	G3	S3	E	E
Prunus geniculata	scrub plum	G3	S3	E	E
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Rostrhamus sociabilis	Snail Kite	G4G5	S2	E	FE
Salix floridana	Florida willow	G2	S2	N	E
Sceloporus woodi	Florida Scrub Lizard	G2G3	S2S3	N	N
Sciurus niger niger	Southeastern Fox Squirrel	G5T5	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T4	S4	N	N
Warea carteri	Carter's warea	G3	S3	E	E

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.
GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
GNR = Element not yet ranked (temporary).
GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
S4 = Apparently secure in Florida (may be rare in parts of range).
S5 = Demonstrably secure in Florida.
SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
SX = Believed to be extirpated throughout Florida.
SU = Unrankable; due to a lack of information no rank or range can be assigned.
SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
E = Endangered: species in danger of extinction throughout all or a significant portion of its range.
E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
E, PDL = Species currently listed endangered but has been proposed for delisting.
E, PT = Species currently listed endangered but has been proposed for listing as threatened.
E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.
T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
PE = Species proposed for listing as endangered
PS = Partial status: some but not all of the species' infraspecific taxa have federal
PT = Species proposed for listing as threatened
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: http://www.doacs.state.fl.us/pi/.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability
A? = Possibly excellent estimated viability
AB = Excellent or good estimated viability
AC = Excellent, good, or fair estimated viability
B = Good estimated viability
B? = Possibly good estimated viability
BC = Good or fair estimated viability
BD = Good, fair, or poor estimated viability
C = Fair estimated viability
C? = Possibly fair estimated viability
CD = Fair or poor estimated viability
D = Poor estimated viability
D? = Possibly poor estimated viability
E = Verified extant (viability not assessed)
F = Failed to find
H = Historical
NR = Not ranked, a placeholder when an EO is not (yet) ranked.
U = Unrankable
X = Extirpated

*For additional detail on the above ranks see: http://www.natureserve.org/explorer/eorankguide.htm

FNAI also uses the following EO ranks:

H? = Possibly historical
F? = Possibly failed to find
X? = Possibly extirpated

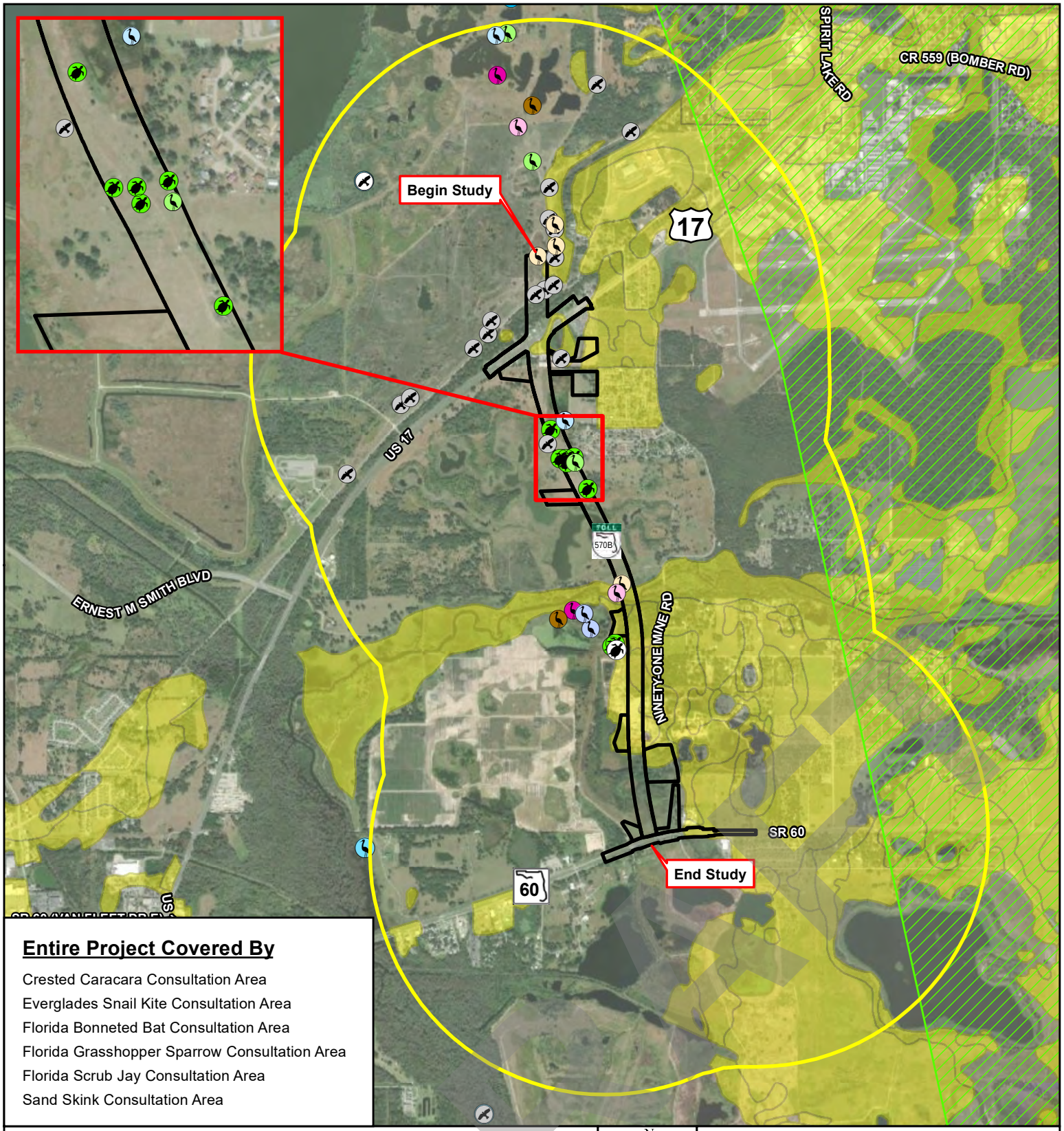
The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).

APPENDIX F

Protected Species Location Map



Entire Project Covered By

- Crested Caracara Consultation Area
- Everglades Snail Kite Consultation Area
- Florida Bonneted Bat Consultation Area
- Florida Grasshopper Sparrow Consultation Area
- Florida Scrub Jay Consultation Area
- Sand Skink Consultation Area

Legend

- Preferred Alternative
- 1 Mile Buffer
- Florida Scrub Jay Mitigation Service Area
- Potential Sand Skink Habitat
- Osprey (Documented)
- Wading Bird Rookery

KCA Field Observations

- Abandoned Gopher Tortoise Burrow
- Gopher Tortoise Burrow
- Florida Sandhill Crane
- Florida Sandhill Crane Nest
- Little Blue Heron
- Osprey Nest
- Roseate Spoonbill
- Southeastern American Kestrel
- Tricolor Heron
- Wood Stork

N W E S

3,000 1,500 0 3,000

Feet

Protected Species Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

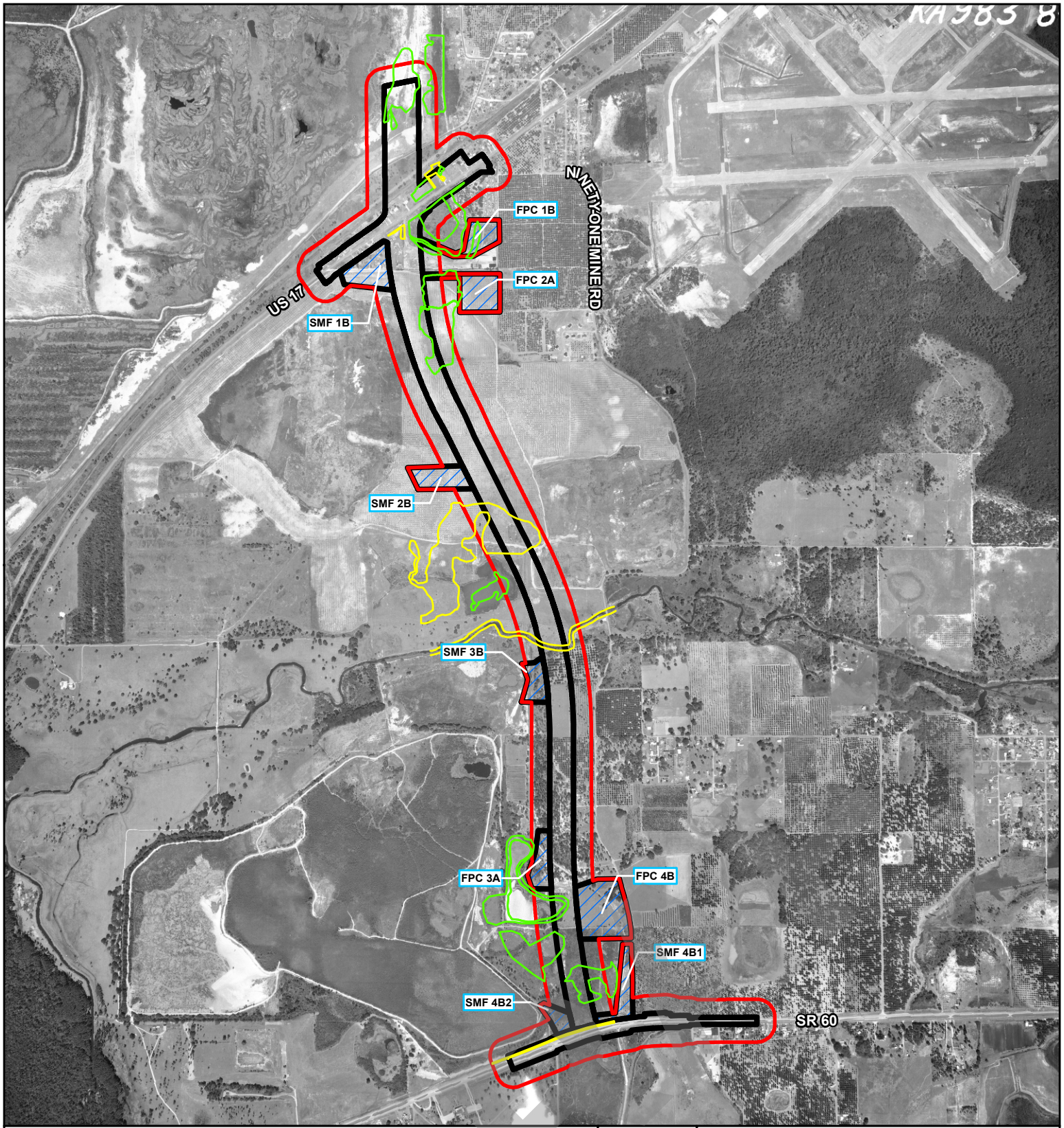
FPID No. #440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Appendix F

APPENDIX G

Historical Aerial Imagery Map



Legend

- Surface Water
- Wetland
- Project Study Area
- Proposed ROW
- Proposed Pond

Imagery Date: 3/21/1971

N
W E
S

2,000 1,000 0 2,000
Feet

Historic Aerial Imagery Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Appendix G

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix G_Historic Aerial Map.mxd 12/2/2020

APPENDIX H

Species Determination of Effect Keys (Eastern Indigo Snake, Wood Stork, and Florida Bonneted Bat)

Eastern Indigo Snake Determination of Effect Key

A. Project is not located in open water or salt marsh.....go to B

Project is located solely in open water or salt marsh.....**no effect**

B. Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site preparation and project construction.....go to C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested.....**may affect**

C. The project will impact less than 25 acres of eastern indigo snake habitat (*e.g.*, sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....go to D

The project will impact 25 acres or more of eastern indigo snake habitat (*e.g.*, sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....**may affect**

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured during project activities.....**NLAA**

The project has known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and /or injured.....go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of the burrow[1]. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.....**NLAA**[2]

Permit will not be conditioned as outlined above.....**may affect**

End Key

[1] If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise.

[2] Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range

Wood Stork Determination of Effect Key

The SFESO recognizes a 29.9 kilometer [km] (18.6-mile) core foraging area (CFA) around all known wood stork colonies in south Florida. Enclosure 2 (to be updated as necessary) provides locations of colonies and their CFAs in south Florida that have been documented as active within the last 10 years. The Service believes loss of suitable wetlands within these CFAs may reduce foraging opportunities for the wood stork. To minimize adverse effects to the wood stork, we recommend compensation be provided for impacts to foraging habitat. The compensation should consider wetland type, location, function, and value (hydrology, vegetation, prey utilization) to ensure that wetland functions lost due to the project are adequately offset. Wetlands offered as compensation should be of the same hydroperiod and located within the CFAs of the affected wood stork colonies. The Service may accept, under special circumstances, wetland compensation located outside the CFAs of the affected wood stork nesting colonies. On occasion, wetland credits purchased from a "Service Approved" mitigation bank located outside the CFAs could be acceptable to the Service, depending on location of impacted wetlands relative to the permitted service area of the bank, and whether or not the bank has wetlands having the same hydroperiod as the impacted wetland.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing the Wood Stork Effect Determination Key below. If the use of this key results in a Corps determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination[1]. This Key is subject to revisitation as the Corps and Service deem necessary.

The Key is as follows:

A. Project within 0.76 km (0.47 mile)[2] of an active colony site[3] ..... "*may affect*[4]"

Project impacts Suitable Foraging Habitat (SFH)[5] at a location greater than 0.76 km (0.47 mile) from a colony site..... ....."*go to* B"

[1] With an outcome of "no effect" or "NLAA" as outlined in this key, and the project has less than 20.2 hectares (50 acres) of wetland impacts, the requirements of section 7 of the Act are fulfilled for the wood stork and no further action is required. For projects with greater than 20.2 hectares (50 acres) of wetland impacts, written concurrence of NLAA from the Service is necessary.

[2] Within the secondary zone (the average distance from the border of a colony to the limits of the secondary zone is 0.76 km (2,500 feet, or 0.47 mi).

[3] An active colony is defined as a colony that is currently being used for nesting by wood storks or has historically over the last 10 years been used for nesting by wood storks.

[4] Consultation may be concluded informally or formally depending on project impacts.

[5] Suitable foraging habitat (SFH) includes wetlands that typically have shallow-open water areas that are relatively calm and have a permanent or seasonal water depth between 5 to 38 cm (2 to 15 inches) deep. Other shallow non-wetland water bodies are also SFH. SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to freshwater marshes, small ponds, shallow, seasonally flooded roadside or agricultural ditches, seasonally flooded pastures, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs.

Project does not affect SFH……..…..*"no effect[1]"*.

B. Project impact to SFH is less than 0.20 hectare (one-half acre)[6]……..……*NLAA[1]*"

Project impact to SFH is greater in scope than 0.20 hectare (one-half acre)...……*go to* C

C. Project impacts to SFH not within the CFA (29.9 km, 18.6 miles) of a colony site ……..…….…….……*go to* D

Project impacts to SFH within the CFA of a colony site …….…...…….*go to* E

D. Project impacts to SFH have been avoided and minimized to the extent practicable; compensation (Service approved mitigation bank or as provided in accordance with Mitigation Rule 33 CFR Part 332) for unavoidable impacts is proposed in accordance with the CWA section 404(b)(1) guidelines; and habitat compensation replaces the foraging value matching the hydroperiod[7] of the wetlands affected and provides foraging value similar to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]…….. *NLAA[1]*"

Project not as above.…….... "*may affect[4]*"

E. Project provides SFH compensation in accordance with the CWA section 404(b)(1) guidelines and is not contrary to the HMG; habitat compensation is within the appropriate CFA or within the service area of a Service-approved mitigation bank; and habitat compensation replaces foraging value, consisting of wetland enhancement or restoration matching the hydroperiod[7] of the wetlands affected, and provides foraging value similar

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[6] On an individual basis, SFH impacts to wetlands less than 0.20 hectare (one-half acre) generally will not have a measurable effect on wood storks, although we request that the Corps require mitigation for these losses when appropriate. Wood storks are a wide ranging species, and individually, habitat change from impacts to SFH less than one-half acre are not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[7] Several researchers (Flemming et al. 1994; Ceilley and Bortone 2000) believe that the short hydroperiod wetlands provide a more important pre-nesting foraging food source and a greater early nestling survivor value for wood storks than the foraging base (grams of fish per square meter) than long hydroperiod wetlands provide. Although the short hydroperiod wetlands may provide less fish, these prey bases historically were more extensive and met the foraging needs of the pre-nesting storks and the early-age nestlings. Nest productivity may suffer as a result of the loss of short hydroperiod wetlands. We believe that most wetland fill and excavation impacts permitted in south Florida are in short hydroperiod wetlands. Therefore, we believe that it is especially important that impacts to these short hydroperiod wetlands within CFAs are avoided, minimized, and compensated for by enhancement/restoration of short hydroperiod wetlands.

[8] For this Key, the Service requires an analysis of foraging prey base losses and enhancements from the proposed action as shown in the examples in Enclosure 3 for projects with greater than 2.02 hectares (5 acres) of wetland impacts. For projects with less than 2.02 hectares (5 acres) of wetland impacts, an individual foraging prey base analysis is not necessary although type for type wetland compensation is still a requirement of the Key.

to, or higher than, that of impacted wetlands. See Enclosure 3 for a detailed discussion of the hydroperiod foraging values, an example, and further guidance[8]……..... *"NLAA[1]"*

Project does not satisfy these elements ……..……..…..…..... *"may affect[4]"*

This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued where the effect determination was: "may affect, not likely to adversely affect." We request that the Corps send us an annual summary consisting of: project dates, Corps identification numbers, project acreages, project wetland acreages, and project locations in latitude and longitude in decimal degrees.

Thank you for your cooperation and effort in protecting federally listed species. If you have any questions, please contact Allen Webb at extension 246.

Sincerely yours,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

Enclosures

cc: w/enclosures (electronic only)
Corps, Jacksonville, Florida (Stu Santos)
EPA, West Palm Beach, Florida (Richard Harvey)
FWC, Vero Beach, Florida (Joe Walsh)
Service, Jacksonville, Florida (Billy Brooks)

Florida Bonneted Bat Determination of Effect Key

Florida Bonneted Bat Consultation Key[#]

Use the following key to evaluate potential effects to the Florida bonneted bat (FBB) from the proposed project. Refer to the Glossary as needed.

1a. Proposed project or land use change is partially or wholly within the Consultation Area (Figure 1).....**Go to 2**
1b. Proposed project or land use change is wholly outside of the Consultation Area (Figure 1).....**No Effect**

2a. Potential FBB roosting habitat exists within the project area.....**Go to 3**
2b. No potential FBB roosting habitat exists within the project area.....**Go to 13**

3a. Project size/footprint* ≤ 5 acres (2 hectares)..... **Conduct Limited Roost Survey (Appendix C)** then **Go to 4**
3b. Project size/footprint* > 5 acres (2 hectares).....**Conduct Full Acoustic/Roost Surveys (Appendix B)** then **Go to 6**

4a. Results show FBB roosting is likely .....**Go to 5**
4b. Results do not show FBB roosting is likely.....**MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

5a. Project will affect roosting habitat.....**LAA[+] Further consultation with the Service required.**
5b. Project will not affect roosting habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

6a. Results show some FBB activity.....**Go to 7**
6b. Results show no FBB activity.....**No Effect**

7a. Results show FBB roosting is likely.....**Go to 8**
7b. Results do not show FBB roosting is likely.....**Go to 10**

8a. Project will not affect roosting habitat.....**Go to 9**
8b. Project will affect roosting habitat.....**LAA[+] Further consultation with the Service required.**

9a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of foraging habitat.....**LAA[+] Further consultation with the Service required.**
9b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of foraging habitat..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

10a. Results show high FBB activity/use.....**Go to 11**
10b. Results do not show high FBB activity/use.....**Go to 12**

11a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **LAA[+] Further consultation with the Service required.**
11b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat (roosting and/or foraging)..... **MANLAA-C with required BMPs (Appendix D). Further consultation with the Service required.**

12a. Project will affect* > 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **LAA[+] Further consultation with the Service required.**
12b. Project will affect* ≤ 50 acres (20 hectares) (wetlands and uplands) of FBB habitat..... **MANLAA-P if BMPs (Appendix D) used and survey reports are submitted. Programmatic concurrence.**

13a. FBB foraging habitat exists within the project area and foraging habitat will be affected…..……..**Go to 14**

13b. FBB foraging habitat exists within the project area and foraging habitat will not be affected **OR** no FBB foraging habitat exists within the project area…..……..**No Effect**

14a. Project size* > 50 acres (20 hectares) (wetlands and uplands) ……..…….....**Go to 15**

14b. Project size* ≤ 50 acres (20 hectares) (wetlands and uplands) ……...….. **MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**

15a. Project is within 8 miles (12.9 kilometers) of high quality potential roosting areas^……..……**Conduct Full Acoustic Survey (Appendix B) and Go to 16**

15b. Project is not within 8 miles (12.9 kilometers) of high quality potential roosting area^…….....….**MANLAA-P if BMPs (Appendix D) used. Programmatic concurrence.**

16a. Results show some FBB activity……...…….....**Go to 17**

16b. Results show no FBB activity……..…….…....**No Effect**

17a. Results show high FBB activity/use……...…...…....**LAA⁺ Further consultation with the Service required.**

17b. Results do not show high FBB activity/use……....…….. **MANLAA-P if BMPs (Appendix D) used and survey reports submitted. Programmatic concurrence.**

If you are within the urban environment and you are renovating an existing artificial structure (with or without additional ground disturbing activities), these Guidelines do not apply. The Service is developing separate guidelines for consultation in these situations. Until the urban guidelines are complete, please contact the Service for additional guidance

*****Includes wetlands and uplands that are going to be altered along with a 250- foot (76.2- meter) buffer around these areas if the parcel is larger than the altered area.

⁺Project modifications could change the **LAA** determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations.

^Determining if **high quality potential roosting areas** are within 8 mi (12.9 km) of a project is intended to be a desk-top exercise looking at most recent aerial imagery, not a field exercise.

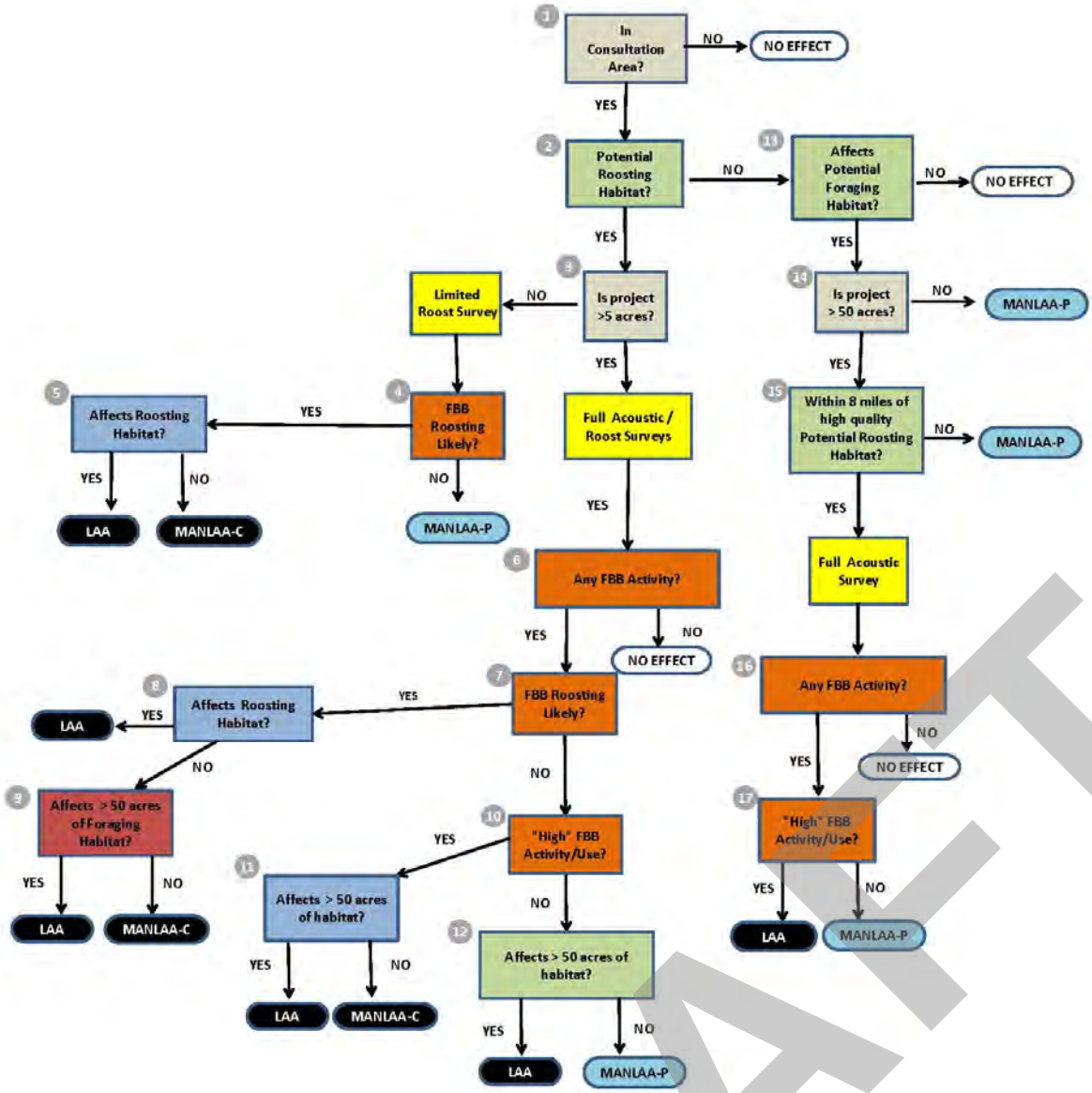

Figure 3. Florida bonneted bat Consultation Flowchart. "**No effect**" determinations do not need Service concurrence. "May affect, but not likely to adversely affect", **MANLAA-P,** in blue have programmatic concurrence through the transmittal letter of these Guidelines, and therefore no further consultation with the Service is necessary unless assistance is needed in interpreting survey results. **MANLAA-C** determinations in black require further consultation with the Service. Applicants are expected to incorporate the appropriate **BMPs** to reach a **MANLAA** determination. "May affect, and is likely to adversely affect", **LAA, (**also in black) determinations require consultation with the Service. Further consultation with the Service may identify project modifications that could change the **LAA** determinations in numbers 5, 8, 9, 11, 12, and 17 to **MANLAA** determinations. The Service requests Florida bonneted bat survey reports for all determinations.

APPENDIX I

Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE
U.S. Fish and Wildlife Service
August 12, 2013

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

SIMILAR SNAKES: The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

LIFE HISTORY: The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTION UNDER FEDERAL AND STATE LAW: The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

Telephone numbers of USFWS Florida Field Offices to be contacted if a live or dead eastern indigo snake is encountered:

North Florida Field Office – (904) 731-3336
Panama City Field Office – (850) 769-0552
South Florida Field Office – (772) 562-3909

PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

APPENDIX J

Wood Stork Foraging Habitat Assessment

WOOD STORK FORAGING HABITAT ASSESSMENT

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) Florida's Turnpike Enterprise (FTE) is conducting a Project Development and Environment (PD&E) study to evaluate the proposed preferred alternative for the Central Polk Parkway from US 17 to SR 60, a distance of approximately 2.2 miles. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid FTE and Polk County in determining the type, preliminary design, and location of the proposed improvements. The study was conducted in order to meet the requirements of the FDOT, the National Environmental Policy Act (NEPA) and other related federal and state laws, rules and regulations.

2.0 WOOD STORK NESTING AND SUITABLE FORAGING HABITAT

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located in swamps or on islands surrounded by relatively broad expanses of open water. Successful breeding sites are those that have limited human disturbance and low exposure to land-based predators. Nesting sites protected from land-based predators are characterized as areas surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle.

In addition to limited human disturbance and land-based predation, successful nesting depends on the availability of suitable foraging habitat. Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamps sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Suitable foraging habitat is described as wetland or open water areas that are relatively calm, uncluttered by dense thickets of aquatic vegetation and have a water depth between 5 and 15 inches. Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydraulic regimes that exhibit short and long hydroperiods. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow open-water areas provide sites for concentration of the prey during daily or seasonal low water periods. In Polk County, suitable wetland and open water habitats within 18.6 miles of a wood stork nesting colony are considered Core Foraging Areas (CFA) by the USFWS.

The loss of wetland habitats, or wetland function, has been the primary cause of the wood stork population decline in the United States. The alteration of wetlands and the manipulation of wetland hydroperiods to suit human needs have also reduced the amount of available habitat to wood storks and affected prey base availability. The altered hydrology of these systems has also enhanced the invasion of these systems by exotic plant species. These exotic plants can produce a dense

understory and closed canopy, limiting suitability of these wetland systems to foraging by wood storks, although a sufficient prey base may be present in the wetlands.

Four (4) variables are indicative of the necessities and functions of optimal or suitable foraging habitat required by the wood stork:

1. Vegetation Density: the density of vegetation within habitats suitable for wood stork foraging;
2. Wetland Hydroperiods: the hydroperiod of the wetland, which includes two (2) subcomponents; (1) the fish density per hydroperiod; and (2) the fish biomass per hydroperiod;
3. Prey Size Suitability: the suitability of prey size for the wood stork, which provides an adjustment to the fish biomass per hydroperiod and is referenced hereafter as the "wood stork suitability prey base"; and
4. Competition with other wading bird species: the likelihood that the wood stork is the wading bird species that actually consumes the concentrated prey.

3.0 SUITABLE FORAGING HABITATS WITHIN THE PROJECT STUDY AREA

The proposed project study area contains wood stork foraging habitat and is located within the 18.6-mile CFA of three (3) active wood stork nesting colonies: Mulberry Northeast, Lake Somerset, and Lone Palm. There are 14.53 acres of wetlands and 7.11 acres of surface waters that could be utilized by the wood stork for foraging in the preferred alternative. These wetlands and surface waters were grouped by similar habitat types and evaluated relative to exotic species density and hydroperiod.

Exotic Vegetation Density

Wood stork habitat quality can be adversely affected by the level of exotic species infestation within wetlands and surface waters. The availability of the prey base for wood storks and other foraging wading birds is reduced by the restriction of access caused from dense and thick exotic vegetation. **Table 1** provides the foraging suitability percentages used in the Wood Stork Biomass Analysis.

The wetland habitats within the Central Polk Parkway from US 17 to SR 60 project area vary in the percentage of exotic vegetation. As a result, **Foraging Suitability Values** of **100**, **64**, **37**, and **3** were assigned to the potential foraging habitat available to wood storks within the project study area.

Table 1 Exotic Vegetation Cover Percentage Foraging Suitability Value

PERCENTAGE OF EXOTIC VEGETATION	FORAGING SUITABILITY VALUE (PERCENT)
Between 0 and 25 Percent Exotics	**100**
Between 25 and 50 Percent Exotics	**64**
Between 50 and 75 Percent Exotics	**37**
Between 75 and 90 Percent Exotics	**3**
Between 90 and 100 Percent Exotics	**0**

Hydroperiod

Hydroperiod of the wetlands potentially affected by a project is an important consideration in determining effects on wood stork foraging habitat due to the dependency of fish and crayfish (potential foraging biomass) on hydroperiod. Wetlands and surface waters within the project area were grouped according to hydroperiod class.

4.0 IMPACTS

The proposed project includes the construction of a four-lane divided limited access facility with 12-foot travel lanes, 10-foot paved shoulders, and a 8-foot median shoulders, and open roadside ditches. A 12-foot multi-use recreational trail is also being evaluated as part of this PD&E study which will be located within a separate 26-foot right-of-way corridor to run parallel with the Central Polk Parkway alignment. The project will be constructed in a single, disruptive event, with the associated permanent disturbance resulting in a loss of habitat currently available to the wood stork. Fragmentation of habitat will also occur as a result of project construction. This section analyzes the impacts of the proposed project on the wood stork and wood stork habitat.

For assessment purposes, this wood stork biomass analysis addresses the loss of wetlands and surface waters within the proposed right-of-way of the preferred alternative. For the assessment of the preferred alternative, 14.53 acres of wetlands and 7.11 acres of surface waters were analyzed.

The analysis determined that the preferred alternative will result in the net loss of 60.56 kg total (fish and crayfish) biomass. Of the 60.56 kg, 7.63 kg of total biomass are from short hydroperiod wetlands and 52.93 kg of total biomass are from long hydroperiod wetlands. **Table 2** presents the analysis of the impacts to wood stork foraging habitat and forage resulting from the preferred alternative.

5.0 MITIGATION

Mitigation for the proposed project will provide adequate functional units of compensatory credits for encroachment into USACE-regulated wetlands and surface waters. These mitigation measures will include compensation for the loss of wood stork foraging habitat and prey resulting from construction of the project. Compensation for the loss of wetlands, as well as wood stork habitat

Table 2 Preferred Alternative Wood Stork Foraging Analysis Summary

Wood Stork Foraging Analysis Summary - Total Biomass (including Crayfish and Fish)									
Impact Area									
Hydroperiods	**Acres**	**% exotics**	**F.S.V.**	**m^2**	**m^2 suitable**	**crayfish & fish g/m^2**	**available biomass**	**32.5% consum.**	**Biomass (kg)**
Class 3 (120-180 days)	3.65	0-25	1	14,771.09	14,771.09	1.32	19,497.83	6,336.80	6.34
Class 3 (120-180 days)	1.12	25-50	0.64	4,532.50	2,900.80	1.32	3,829.05	1,244.44	1.24
Class 3 (120-180 days)	0.90	75-90	0.03	3,642.19	109.27	1.32	144.23	46.87	0.05
Class 5 (240-300 days)	0.81	25-50	0.64	3,277.97	2,097.90	2.93	6,146.84	1,997.72	2.00
Class 5 (240-300 days)	3.72	50-75	0.37	15,054.37	5,570.12	2.93	16,320.44	5,304.14	5.30
Class 5 (240-300 days)	0.28	75-90	0.03	1,133.12	33.99	2.93	99.60	32.37	0.03
Class 6 (300-330 days)	0.60	25-50	0.64	2,428.12	1,554.00	3.36	5,221.44	1,696.97	1.70
Class 6 (300-330 days)	1.70	50-75	0.37	6,879.68	2,545.48	3.36	8,552.82	2,779.67	2.78
Class 7 (330-365 days)	8.17	0-25	1	33,062.95	33,062.95	3.63	120,018.52	39,006.02	39.01
Class 7 (330-365 days)	0.69	25-50	0.64	2,792.34	1,787.10	3.63	6,487.17	2,108.33	2.11
Total Short Hydroperiod (Classes 1, 2 & 3)	5.67			22,945.77	17,781.15		23,471.12	7,628.11	7.63
Total Long Hydroperiod (Classes 4, 5, 6 & 7)	15.97			64,628.56	46,651.54		162,846.83	52,925.22	52.93
Total	**21.64**			**87,574.33**	**64,432.69**		**186,317.95**	**60,553.33**	**60.56**

and foraging, will be provided at a state and federal approved mitigation bank. Mitigation for the loss of foraging habitat will compensate for the same amount of short and long hydroperiod foraging habitat.

6.0 SUMMARY

The preferred alternative will result in the direct loss of 21.64 acres of suitable wood stork foraging areas. Wood stork foraging biomass productivity is calculated based on the hydroperiods class of affected wetlands. The preferred alternative will impact 5.67 acres of short hydroperiod wetlands and 15.97 acres of long hydroperiod wetlands (see **Table 2**). Analysis results concluded that the preferred alternative will result in the net loss of 60.56 kg total (fish and crayfish) biomass.

Loss of potential wood stork foraging habitat attributable to the project will be offset by providing the equivalent credits at a USFWS-approved mitigation bank.

7.0 REFERENCES

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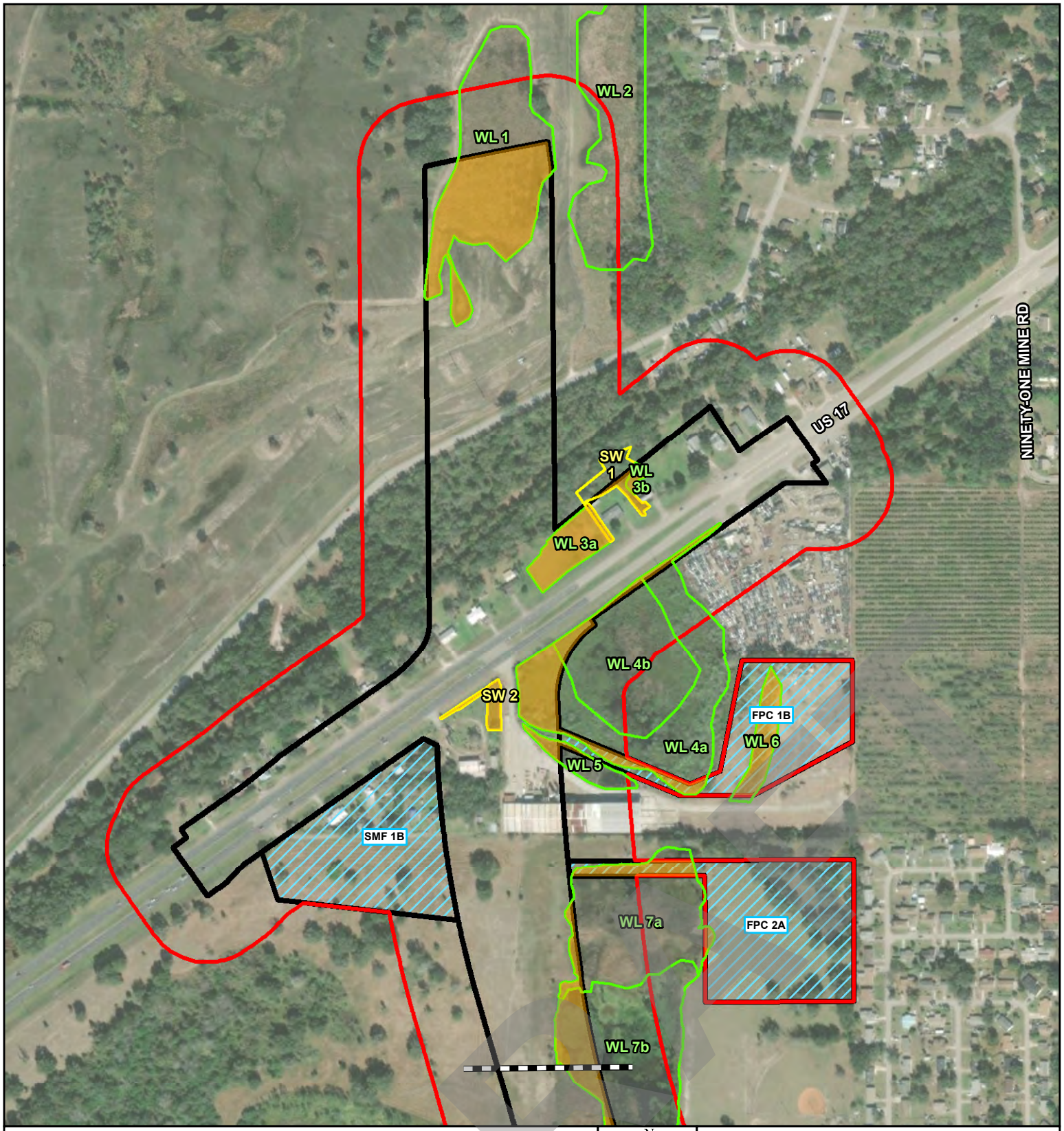
U.S. Fish and Wildlife Service. 2010. United States Department of the Interior, Fish and Wildlife Service, Jacksonville District Corps of Engineers, South Florida Programmatic Concurrence for the Wood Stork, Wood Stork Effect Determination Key. 34 pp.

U.S. Fish and Wildlife Service. 2019. Wood Stork Nesting Colonies and Core Foraging Areas, GIS Shapefiles.

APPENDIX K

Preferred Alternative Wetland and Surface Water Impact Map



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland
- Potential Impact

G - 133

N W E S

500 250 0 500

Feet

Wetland and Surface Water Impact Map

Central Polk Parkway - From US 17 to SR 60

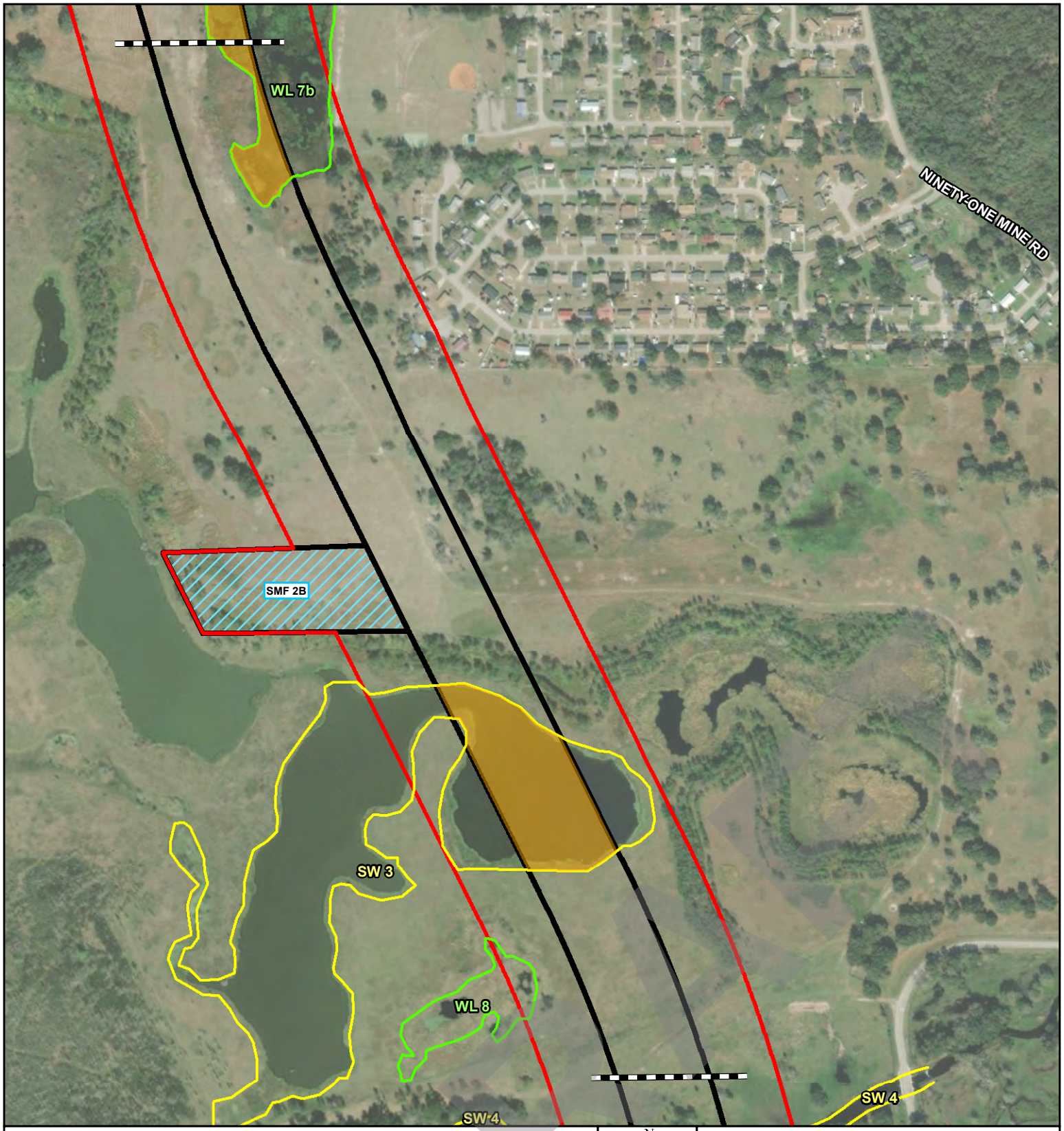
Polk County, Florida

FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331

Appendix K

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix K_Wetlands Impact Map.mxd 12/2/2020



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland
- Potential Impact

G - 134

N
W E
S

500 250 0 500
Feet

Wetland and Surface Water Impact Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

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Appendix K
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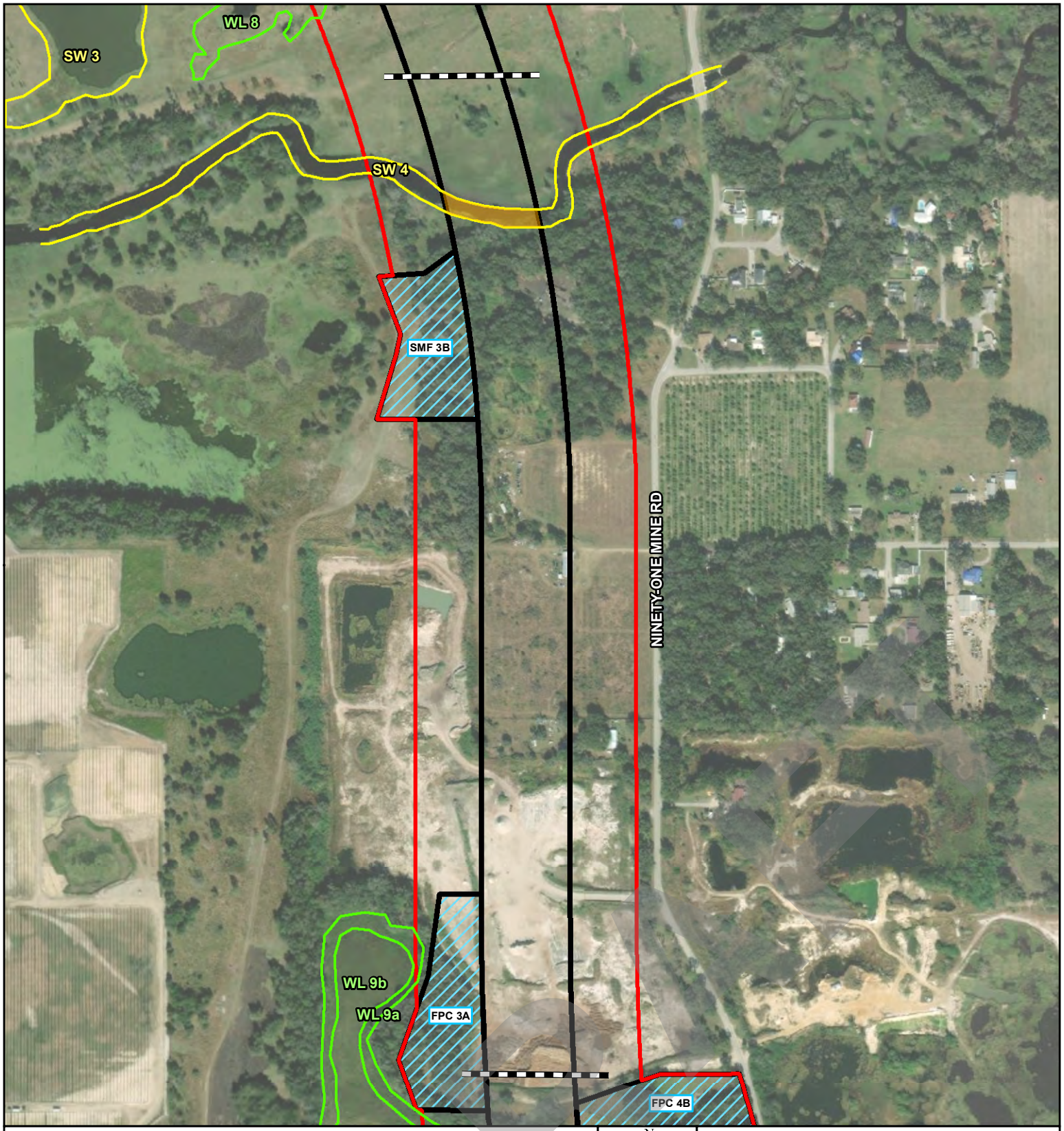
Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix K_Wetlands Impact Map.mxd 12/2/2020



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland
- Potential Impact

N
W E
S

500 250 0 500
Feet

Wetland and Surface Water Impact Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida
FPID No. 440897-4-22-01

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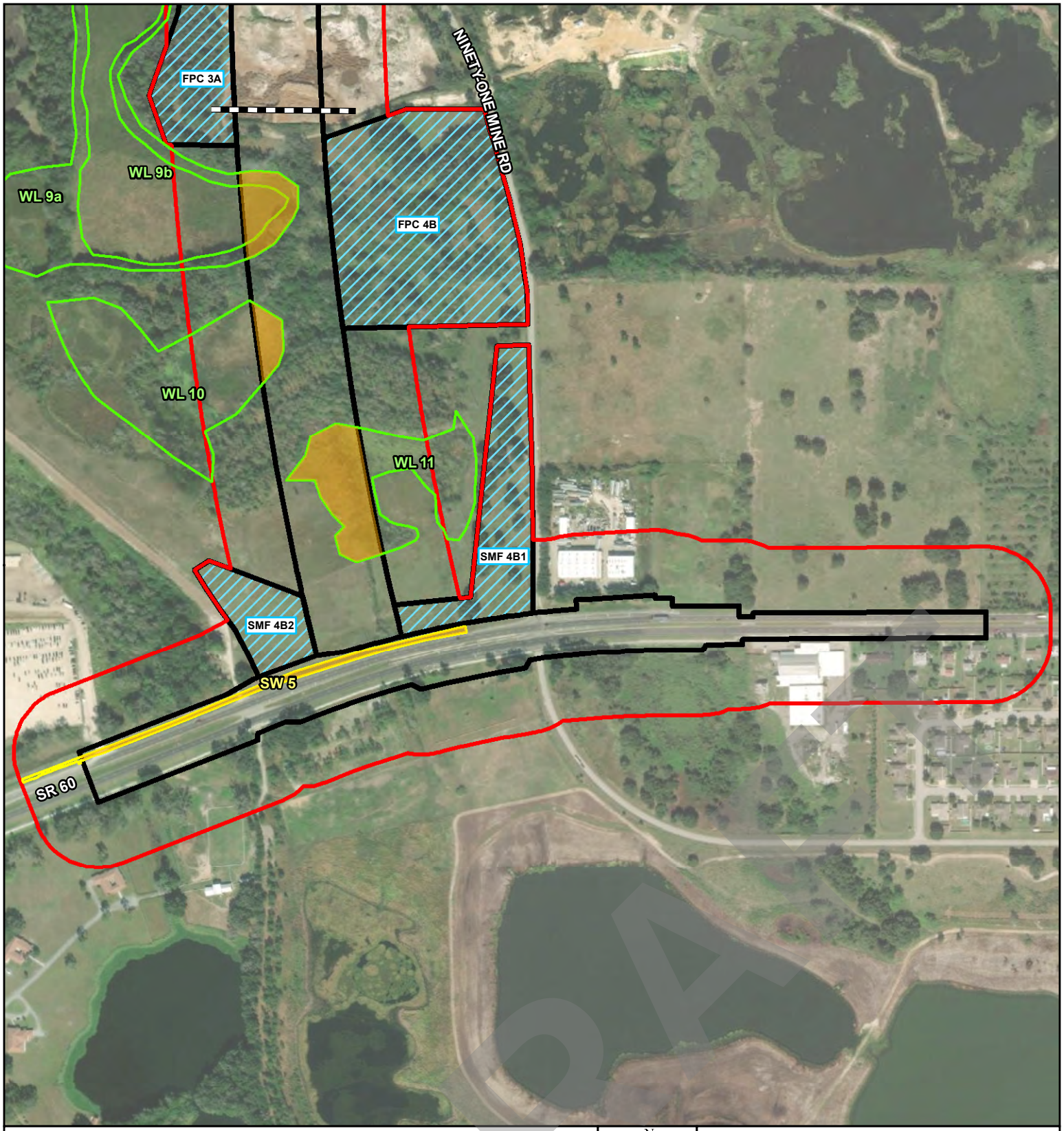
Appendix K
Page 3 of 4

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix K_Wetlands Impact Map.mxd 12/2/2020



Legend

- Project Study Area
- Proposed ROW
- Proposed Pond
- Surface Water
- Wetland
- Potential Impact

G - 136

N W E S

500 250 0 500

Feet

Wetland and Surface Water Impact Map

Central Polk Parkway - From US 17 to SR 60

Polk County, Florida

FPID No. 440897-4-22-01

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
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Appendix K

Path: D:\Projects\M\1201739.00_CPP\NonSubmittalDesign\44089742401\GIS\Maps\Figures\NRE\CPP2_Appendix K_Wetlands Impact Map.mxd 12/2/2020

APPENDIX L

UMAM Datasheets

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 1, 2 & 5

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
510 - Streams and Waterways (Ditches)	PSS1Cx - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded, Excavated; PEM1Cx - Palustrine, Emergent, Persistent, Seasonally Flooded, Excavated	Impact	1.11

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Roadside drainage ditches are located at the northern and southern terminus of the project study area along US 17 and SR 60. Hydrological connections to other ditches are available via culverts under the surrounding roadways.

Assessment area description

Dominant vegetation includes Brazilian pepper, Carolina willow, Peruvian primrose willow, cattail, alligator flag, bulltongue arrowhead, paragrass, and cogongrass.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Foraging habitat for wading birds, fish, small mammals, and invertebrates. Food web support and stormwater runoff treatment and attenuation.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging) Crested caracara, (FT, low intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, frogs, fish, and great blue heron by observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 1, 2 & 5
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 3	with: 0
Roadside ditches within the project study area are located at the northern and southern terminus of the project, along US 17 and SR 60. Wildlife access is limited by the surrounding roadways. Portions of the assessment areas are located on hydric soils but surrounding development impedes access, soil hydrology, and water quality. Surroundings include a combination of extractive and mixed hardwood-conifer forests, US 17, SR 60, residential development and commercial services. Hydrological connections to other roadside ditches within the vicinity are available through culverts under the surrounding roadways. Cover of invasive exotic species is dominant throughout these systems.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 3	with: 0
Water quality is adversely affected by runoff received from US 17. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from roadway runoff creates minor alteration in flow rates. Vegetation and plant community composition is dominated by nuisance exotic invasive vegetation. Long duration of standing water in deeper cut portions of these excavated ditches exhibited signs of degraded water quality.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 3	with: 0
Roadside ditches are dominated by overgrown exotic vegetation. These assessment areas are dominated by Peruvian primrosewillow (*Ludwigia peruviana*), Brazilian pepper (*Schinus terebinthifolius*), Carolina willow (*Salix caroliniana*), cattail (*Typha* sp.), bulltongue arrowhead (*Sagitaria lancifolia*), alligator flag (*Thalia geniculata*), cogongrass (*Imperata cylindrica*), and paragrass (*Urochloa mutica*). Typical age/structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, commercial activities and mowing/maintenance that have caused a shift in the plant community. Nuisance exotic invasive vegetation was present at approximately 80 percent cover at the time of assessment. Topographic features are reduced and habitat and fish and wildlife support is high but less than optimal.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.30	with: 0.00

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.33

Delta = [with-current]
-0.30

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 4

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
510 - Streams and Waterways (Peace Creek)	R2UB2Hx - Riverine, Lower Perennial, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated	Impact	0.57

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Peace Creek intersects the project study area at the center. Within the project study area, Peace Creek is surrounded by reclaimed mined lands now used as pasture and mixed hardwood-conifer forest. This creek has been altered (channelized) to help with flood control within the Peace River Basin.

Assessment area description

Dominant vegetation along the banks of Peace Creek includes laurel oak, cabbage palm, lantana, dogfennel, ceasarsweed, smartweed, cogongrass, and various sedges.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
None	None

Functions	Mitigation for previous permit/other historic use
Foraging habitat for wading birds, fish, small mammals, and invertebrates. Food web support and stormwater runoff treatment and attenuation.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging) Crested caracara, (FT, low intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, cows, frogs, fish, and great egret by observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 4
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	The portion of Peace Creek located within the project study area is bordered by a combination of reclaimed mined lands currently being used as pasture and mixed hardwood-conifer forests. It is located on hydric soils and cover of invasive exotics is minimal. Wildlife access is unrestricted as the creek is surrounded by agricultural pasture land. However, the surrounding habitat is reclaimed land where soils and topography have been severely disturbed due to previous mining activities.	w/o pres or current: 5 / with: 0
.500(6)(b)Water Environment (n/a for uplands)	Peace Creek flows east to west and is connected to Peace River, which ultimately flows into Charlotte Harbor. Water quality is somewhat affected by runoff received from cattle access. Flowing water was observed at the assessment area. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from agricultural activities creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are no signs of hydrologic stress. The assessment area is permanently flooded. Topographic alteration affects hydrology and hydroperiod.	w/o pres or current: 7 / with: 0
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	Predominantly open water, a mixture of desirable and undesirable species are present in ground and shrub strata. Existing vegetation along banks includes laurel oak (*Quercus laurifolia*), cabbage palm (*Sabal palmetto*), lantana (*Lantana strigocamara*), dogfennel (*Eupatorium capillifolium*), caesarsweed (*Urena lobata*), smartweed (*Persicaria* spp.), cogongrass (*Imperata cylindrica*), and various sedges (*Cyperus* spp.). Invasive exotic species are present at minimal densities. Typical age structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. The creek is mostly characterized by open water. Habitat and fish and wildlife support is moderate.	w/o pres or current: 5 / with: 0

Score = sum of above scores/30 (if uplands, divide by 20)		
current or w/o pres: 0.57	with: 0.00	

Delta = [with-current]
-0.57

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 0.32

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 3

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
530 - Reservoirs	PUB2Hx - Palustrine, Unconsolidated Bottom, Sand, Permanently Flooded, Excavated	Impact	5.43

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

A reservoir is located north of Peace Creek; this system is reclaimed habitat from previous mining activities. Surrounding habitat includes reclaimed pasture lands and a cypress wetland.

Assessment area description

Dominant vegetation includes water lettuce, soft rush, paragrass, smartweed, cogongrass and various sedges.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and wading birds. Foraging and denning habitat for small and medium size mammals.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging) Everglade snail kite (FT, low intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, cows, wild hogs, frogs, fish, anhinga, and great egret by observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		SW 3
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 4	with: 0
The reservoir within the project study area is reclaimed habitat where soil and topography have been severely disturbed due to previous mining activities. Surrounding habitats include reclaimed pasture and a cypress wetland. Wildlife access is partially restricted by fencing around the system. The system is located on nonhydric soils and cover of invasive exotic species is moderate throughout the system.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 4	with: 0
Water quality is adversely affected by cattle access. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from agricultural activities creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are no signs of hydrologic stress. The assessment area is permanently flooded. Topographic alteration affects hydrology and hydroperiod as this system is reclaimed habitat from previous mining activities.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 6	with: 0
The reservoir within the project study area is mostly open water but contains a combination of native and exotic vegetation along the banks. The assessment area is an excavated reservoir dominated by water lettuce *(Pistia stratiotes*), soft rush (*Juncus effusus*), smartweed (*Persicaria* spp.), cogongrass (*Imperata cylindrica*), paragrass (*Urochloa mutica*) and various sedges (*Cyperus* spp.). Typical age/structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. This system is characterized by mostly open water with approximately 40 percent cover of nuisance exotic invasive vegetation. Topographic features are reduced and habitat and fish and wildlife support is high.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.47	with: 0.00

Delta = [with-current]
-0.47

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 2.55

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 4b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
619 - Exotic Wetland Hardwoods	PSS1C - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded	Impact	0.28

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

An exotic hardwood wetland is located at the projects northern terminus, south of US 17. This wetland system is bordered by US 17 and commercial property. It is hydrologically connected to WL 2a, 2b and SW 2 via a culvert under US 17.

Assessment area description

Exotic wetland hardwoods within the project study area are dominated by Peruvian primrose willow, Brazilian pepper, Carolina willow, torpedo grass, smartweed, and marsh pennywort.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
US 17 and commercial property.	This system is not unique to the regional landscape.

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and avian species. Foraging and denning habitat for small and medium size mammals.	This system is not part of a previously permitted system.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium sized mammals.	little blue heron (ST, foraging), tricolored heron (ST, foraging), wood stork (FT, foraging), roseate spoonbill (ST, foraging), American alligator (FT, habitat and foraging), and Eastern indigo snake (FT, feeding and refuge)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 4b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 3	with: 0	The exotic wetland hardwood within the project study area is bounded by US 17 and commercial property. Wildlife access is limited due to barriers (US 17) and adjacent land uses (commercial). WL 4b Is located on hydric soils and is hydrologically connected to WL 3a, 3b, and SW 1 via a culvert under US 17. Cover of invasive exotic species is dominant throughout the system.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 3	with: 0	Water quality is adversely affected by runoff received from US 17. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from roadway runoff and foreign debris creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are no signs of hydrologic stress.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 3	with: 0	The exotic wetland hardwood within the project study area is comprised of almost entirely Peruvian primrose willow (*Ludwigia peruviana*) with scattered Brazilian pepper (*Schinus terebinthifolia)* . Other hydrophytic vegetative species within the system included Carolina willow (*Salix carolinana*), cattail (*Typha sp.*) torpedograss (*Panicum repens*), smartweed (*Persicaria* sp.), and marsh pennywort (*Hydrocotyle umbellata*). Invasive exotic species are present at high densities. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. There was approximately 90 percent cover of overgrown nuisance exotic invasive vegetation at the time of assessment. Habitat and fish and wildlife support is suboptimal.

Score = sum of above scores/30 (if uplands, divide by 20)		
current or w/o pres	with	
0.30	0.00	

Delta = [with-current]
-0.30

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 0.08

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 4a, 9a, 10 & 11

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
631 - Wetland Scrub	PSS1C - Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded	Impact	4.94

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Wetland scrub is located just north of SR 60 and just south of US 17. These areas are surrounded by a combination of pasture lands, industrial and commercial development, and upland oak hammocks. Hydrological connections are available via culverts under roadways and soil hydrology.

Assessment area description

Dominant vegetation includes Carolina willow, Peruvian primrose willow, Brazilian pepper, soft rush, Carolina redroot, Alligator flag, smartweed, torpedograss and cogongrass.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and wading birds. Foraging and denning habitat for small and medium size mammals.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, frogs, fish, ducks, great egrets, and sandhill cranes by observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 4a, 9a, 10 & 11
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current: 5 — with: 0	Wetland scrubs within the project study area are bordered by US 17, SR 60, commercial services, and extractive upland pasture lands. Wetland scrubs within the project area are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. Wildlife access is limited due to barriers (US 17 & SR 60) and adjacent land uses (commercial). WL 4a, 9a, 10 and 11 are located on hydric soils. WL 4a is hydrologically connected to WL 3a, 3b, and SW 2 via a culvert under US 17. WL 9a is hydrologically connected to its adjacent freshwater marsh - WL 9b. WL 10 and WL 11 are isolated systems. Cover of invasive exotic species is dominant throughout these systems.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current: 4 — with: 0	Water quality is adversely affected by cattle access. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from agricultural activities creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are signs of hydrologic stress. The assessment areas are seasonally flooded. Topographic alteration affects hydrology and hydroperiod as these systems are reclaimed habitats from previous mining activities.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current: 4 — with: 0	Wetland scrub is characterized by a dense shrubby canopy comprised of Peruvian primrose willow (*Ludwigia peruviana*), Brazilian pepper (*Schinus terebinthifolius*), and Carolina willow (*Salix carolinana*). Herbaceous groundcover species consist of torpedograss (*Panicum repens*), smartweed (*Persicaria* sp.), soft rush (*Juncus effusus*), Carolina redroot (*Lachnanthes caroliniana*), alligator flag (*Thalia geniculata*), and cogongrass (*Imperata cylindrica*). Invasive exotic species are present at approximately 60 percent cover. Typical age/structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. Wetland scrubs within the project study area are located land that has been historically mined and has been severely disturbed. Habitat and fish and wildlife support is suboptimal.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.43	0.00

Delta = [with-current]
-0.43

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 2.12

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 1, 2, 7a, 8 & 9b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
641 - Freshwater Marshes	PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded	Impact	5.06

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Freshwater marshes are located throughout the project study area. These areas are surrounded by a combination of pasture lands, industrial and commercial development, extractive land and upland oak hammocks. Freshwater marshes within the project study area are often surrounded by other wetland habitats.

Assessment area description

Dominant vegetation includes Peruvian primrosewillow, soft rush, Cuban bulrush, alligator flag, bushy bluestem, smartweed, marsh pennywort, and other various sedges.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and wading birds. Foraging and denning habitat for small and medium size mammals.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging) Crested caracara (FT, low intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, wild hogs, frogs, fish, ducks, great egret, cattle egret, snowy egret, little blue heron, tricolored heron, wood stork, limpkin, glossy ibis, red-winged black bird, and anhinga by observation. Cows present near edges of freshwater marshes during every site visit.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 1, 2, 7a, 8 & 9b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 5	with: 0
Freshwater marshes within the project study area are bordered by a combination of extractive and reclaimed mined land currently being used as pasture, mixed hardwood-conifer forests, and commercial services. Freshwater marshes within the project area are reclaimed habitats where soils and topography have been severely disturbed due to previous mining activities. Wildlife access is mostly unrestricted for freshwater marshes within the project study area. Some of the assessment areas are located on hydric soils. WL 7a is hydrologically connected to adjacent emergent aquatic vegetation - WL 7b - and WL 9b is hydrologically connected to adjacent wetland scrub - WL 9a. Cover of WL 1, 2, and 8 are isolated systems. invasive exotic species is moderate throughout these systems.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 5	with: 0
Water quality is adversely affected by cattle access. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from agricultural activities creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are no signs of hydrologic stress. The assessment areas are seasonally flooded. Topographic alteration affects hydrology and hydroperiod as these systems are reclaimed habitats from previous mining activities.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 4	with: 0
Dominant vegetative species of freshwater marshes within the project study area consist of Peruvian primrosewillow (*Ludwigia peruviana*), alligator flag (*Thalia geniculata*), marsh pennywort (*Hydrocotyle umbellata*), Cuban bulrush (*Cyperus blepharoleptos*), smartweed (*Persicaria* spp.), soft rush (*Juncus effusus*), bushy bluestem (*Andropogon glomeratus*), cogongrass (*Imperata cylindrica*), and other various sedges (*Cyperus* spp.). Invasive exotic species are present at moderate densities. Typical age structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. Freshwater marshes within the project study area are located on lands that were historically mined and have been severely disturbed. They contain approximately 40-60 percent nuisance/exotic vegetation and habitat and fish and wildlife support is moderate.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.47	with: 0.00

Delta = [with-current]
-0.47

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 2.38

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 3b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
643 - Wet Prairies	PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded	Impact	0.10

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

A wet prairie is located at the projects northern terminus, north of US 17. The wet prairie within the project study area is surrounded by upland mixed conifer hardwood forest, residential property, streams and waterways, and US 17. WL 3b is hydrologically connected to adjacent roadside drainage ditch - SW 1 - which connects WL 3b to WL 3a.

Assessment area description

The wet prairie within the project study area is dominated by Peruvian primrose willow, marsh pennywort, frogfruit, beggarticks, and various sedges.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
US 17 and residential property.	This system is not unique to the regional landscape.

Functions	Mitigation for previous permit/other historic use
Foraging habitat for anurans, reptiles, and avian species. Foraging and denning habitat for small and medium size mammals.	This system is not part of a previously permitted system.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	little blue heron (ST, foraging), tricolored heron (ST, foraging), wood stork (FT, foraging), roseate spoonbill (ST, foraging), American alligator (FT, habitat and foraging), and Eastern indigo snake (FT, feeding and refuge)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 3b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 3	with: 0
The wet prairie within the project study area is bordered by residential units, mixed conifer hardwood forest, a drainage ditch, and US 17. Wildlife access is limited due to barriers (US 17) and adjacent land uses (residential). This system is located on hydric soils. WL 3b is bordered by a drainage ditch - SW 1 - that drains the surrounding residential properties and hydrologically connects WL 3b to WL 3a. This wet prairie is also hydrologically connected to WL 4a and WL 4b which drain the assessment area via a culvert under US 17. Invasive exotic species are moderately present throughout the system.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 3	with: 0
Water quality is adversely affected by runoff received from US 17. Water levels, flows, and indicators are appropriate considering natural vegetation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from runoff received from US 17 creates minor alterations in flow rates. The assessment area is seasonally flooded. Vegetative community composition is appropriate in all strata but exhibit some signs of hydrologic stress.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 3	with: 0
The wet prairie within the project study area is dominated by herbaceous vegetation including Peruvian primrose willow (*Ludwigia peruviana*), marsh pennywort (*Hydrocotyle umbellata*), turkey tangle frogfruit (*Phyla nodiflora*), beggarticks (*Bidens alba*), paragrass (*Urochloa mutica*), and various sedges (*Cyperus spp.*). Plant community age and structure are a little unusual due to hydrologic stress. Invasive exotic species were moderate within the system. There is near-normal regeneration and recruitment. Land management practices are minimal with fire suppression, water control features, and mowing/maintenance that have caused a shift in the plant community. Nuisance exotic invasive vegetation was present at approximately 70 percent cover at the time of assessment. Habitat and fish and wildlife support is minimal.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.30	with: 0.00

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.03

Delta = [with-current]
-0.30

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 7b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
644 - Emergent Aquatic Vegetation	PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded	Impact	2.17

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Emergent aquatic vegetation is located at the northern terminus of the project, just south of the industrial development along US 17. This wetland is surrounded by pasture lands. WL 7b is hydrologically connected to adjacent freshwater marsh - WL 7a.

Assessment area description

Dominant vegetation includes cattails, American white waterlily, dotted duckweed, soft rush, and various sedges.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and wading birds. Foraging and denning habitat for small and medium size mammals.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging) Crested caracara (FT, low intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, frogs, fish, ducks, great egret, cattle egret, snowy egret, little blue heron, and wood stork observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 7b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 5	with: 0
The emergent aquatic vegetation within the project study area is reclaimed habitat where soils and topography have been severely disturbed due to previous mining activities. Habitats surrounding emergent aquatic vegetation within the project study area includes reclaimed upland pasture lands. Wildlife access is mostly unrestricted. This system is located on hydric soils and is hydrologically connected to the adjacent freshwater marsh - WL 7a. Cover of invasive exotic species is minimal.		
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 4	with: 0
Water quality is adversely affected by cattle access. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil desiccation, oxidation, or subsidence. Soil erosion from agricultural activities creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata and there are no signs of hydrologic stress. The assessment area is seasonally flooded. Topographic alteration affects hydrology and hydroperiod as these systems are reclaimed habitats from mining activities.		
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 6	with: 0
Emergent aquatic vegetation within the project study area consists of cattails (*Typha* spp.), soft rush (*Juncus effusus*), American white water lily (*Nymphea odorata*), dotted duckweed (*Landoltia punctata*) and various sedges (*Cyperus* spp.). Nuisance exotic invasive vegetation is present at minimal densities below 20 percent. Typical age/structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, agricultural activities and mowing/maintenance that have caused a shift in the plant community. Topographic features are reduced and habitat and fish and wildlife support is high.		

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres: 0.50	with: 0.00

Delta = [with-current]
-0.50

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

If mitigation
Time lag (t-factor) =
Risk factor =

For impact assessment areas
FL = delta x acres = 1.09

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 3a, 5, & 6

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
653 - Intermittent Pond	PEM1C - Palustrine, Emergent, Persistent, Seasonally Flooded	Impact	1.98

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Peace River Basin	Class III	None

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Intermittent ponds are located at the northern terminus of the project, north and south of US 17. Habitats surrounding these systems include commercial and residential development and US 17. WL 3a is hydrologically connected to its adjacent roadside drainage ditch - SW 1 - which connects WL 3a to WL 3b. WL 3a is also hydrologically connected to WL 4a and WL 4b via a culvert under US 17.

Assessment area description

Dominant vegetation includes Peruvian primrose willow, Carolina willow, alligator flag, cattail, bulltongue arrowhead, American white waterlily, and alligator weed.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
The study area crosses Peace Creek.	None

Functions	Mitigation for previous permit/other historic use
Nesting and feeding habitat for anurans, reptiles, and wading birds. Foraging and denning habitat for small and medium size mammals.	None

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Anurans, snakes, lizards, small fish, wading birds, hawks, song birds, deer, wild hog, raccoon, and other small to medium size mammals.	Florida sandhill crane (ST, high intensity foraging) Wood stork (FT, high intensity foraging) Little blue heron (ST, high intensity foraging) Tricolored heron (ST, high intensity foraging) Roseate spoonbill (ST, high intensity foraging)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Songbirds by call, frogs and fish by observation.

Additional relevant factors:

None.

Assessment conducted by:	Assessment date(s):
Christen Cerrito	8-Jul-19

Form 62-345.900(1), F.A.C. [effective date 02-04-2004]

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
Central Polk Parkway from SR 35 (US17) to SR 60		WL 3a, 5, & 6
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Impact	Christen Cerrito	8-Jul-19

Scoring Guidance	**Optimal (10)**	**Moderate(7)**	**Minimal (4)**	**Not Present (0)**
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support	w/o pres or current: 3	with: 0	Intermittent ponds within the project study area are bordered by US 17, commercial services, and upland berms. WL 3a and 5 are located on hydric soils. Wildlife access is limited by barriers such as US 17 and the surrounding development. WL 3a is hydrologically connected to WL 4a and 4b via a culvert under US 17. WL 5 and WL 6 are isolated systems. Cover of invasive exotic species is moderate throughout these systems.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 3	with: 0	Water quality is adversely affected by runoff received from roadway runoff. Water levels, flows, and indicators are appropriate considering natural variation. Soil moisture is appropriate with no evidence of soil dessication, oxidation, or subsidence. Soil erosion from roadway runoff creates minor alteration in flow rates. Vegetation and plant community composition are appropriate in all strata but exhibit some signs of hydrologic stress. The assessment areas are seasonally flooded. Topographic alteration affects hydrology and hydroperiod.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 4	with: 0	Intermittent ponds within the project study area are disturbed wetlands dominated by cattail (*Typha* sp.), Peruvian primrosewillow *(Ludwigia peruviana*), Carolina willow (*Salix caroliniana*), cogongrass (*Imperata cylindrica*), American white water lily (*Nymphea odorata*), alligator flag (*Thalia geniculata*), bulltongue arrowhead (*Sagittaria lancifolia)* , alligator weed (*Alternanthera philoxeroides)* , and paragrass (*Urochloa mutica*). Typical age/structure of plant community. Regeneration and recruitment are near-normal. Land management practices are minimal with fire suppression, water control features, commercial activities and mowing/maintenance that have caused a shift in the plant community. There was approximately 55 percent cover of nuisance exotic invasive vegetation at the time of assessment. Topographic features are reduced and habitat and fish and wildlife support is moderate.

Score = sum of above scores/30 (if uplands, divide by 20)		
current or w/o pres: 0.33	with: 0.00	

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.65

Delta = [with-current]
-0.33

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

APPENDIX M

State Lands Determination Correspondence

July 8, 2019

Division of State Lands
Florida Department of Environmental Protection
3900 Commonwealth Boulevard, MS 101
Tallahassee, FL 32399

Re: **Sovereignty Submerged Lands Determination Request**
Central Polk Parkway from SR 35 (US 17) to SR 60
Polk County
Sections 22, and 27, Township 29 S, Range 25 E
Section 34, Township 29 S, Range 23 E
Section 03, Township 30 S, Range 25 E
FPID Number: 440897-4-22-01

To Whom It May Concern,

Kisinger Campo & Associates is conducting an environmental analysis on the behalf of the Florida Department of Transportation, District 1 (FDOT D1), Florida's Turnpike Enterprise for the proposed construction of the Central Polk Parkway from SR 35 (US 17) to SR 60 in Polk County, Florida. The project crosses a freshwater creek: the Peace Creek. It's location can be seen on the attached Project Location Map and Quadrangle Map.

As part of our environmental analysis, we are requesting a Sovereignty Submerged Lands determination for the above listed waterway. Please refer to the attached figures to facilitate your determination.

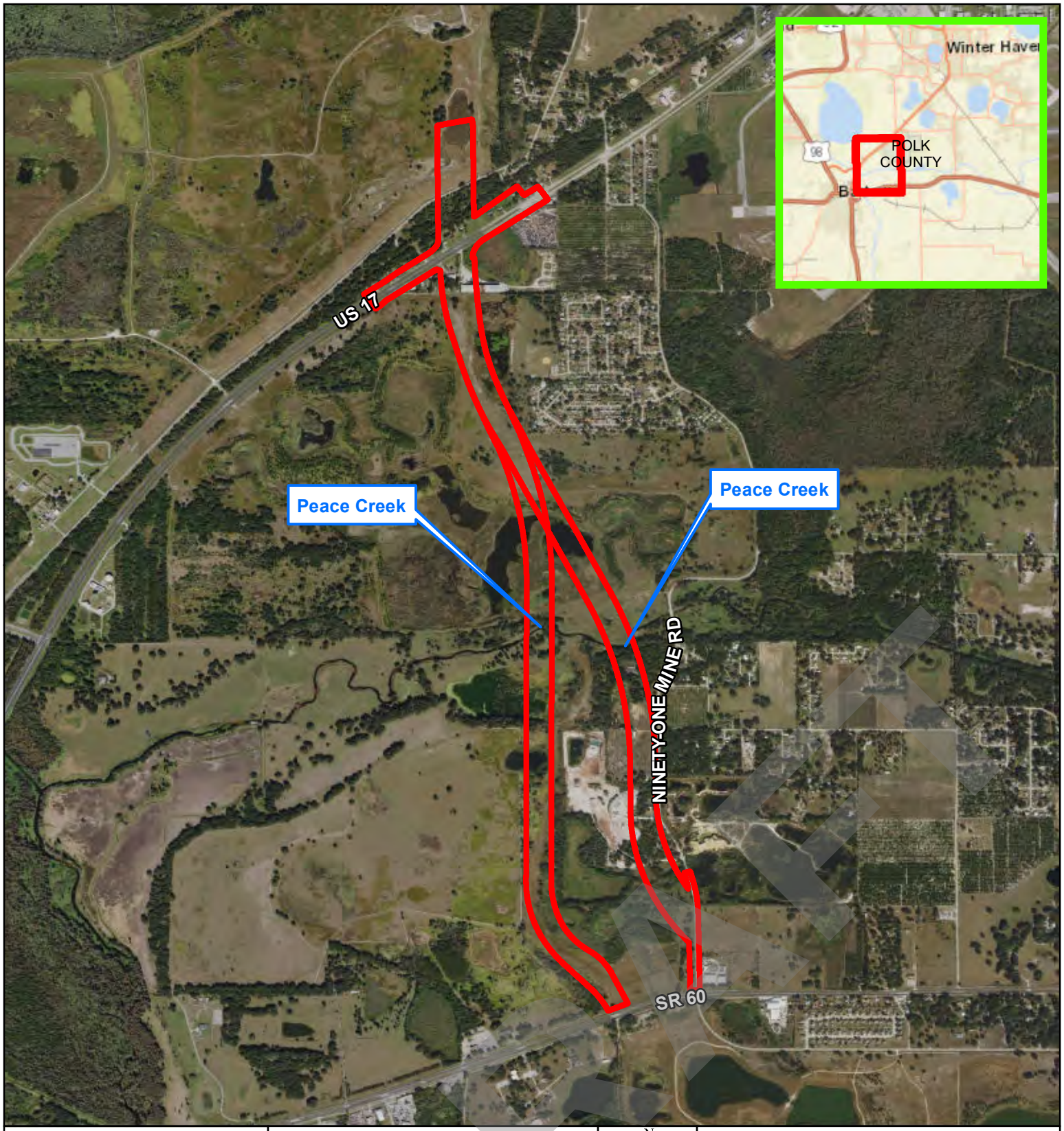
We appreciate your prompt response to this request for a Sovereignty Submerged Lands determination for the referenced channels. If you have any questions or require additional information, please contact me at christen.cerrito@kisingercampo.com or 813.871.5331.

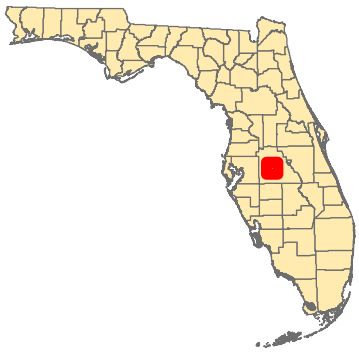
Sincerely,

Christen Cerrito

Christen Cerrito
Environmental Scientist

Attachments: Project Location Map
Project Quadrangle Map





Legend

Project Area

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S

2,000 1,000 0 2,000

Feet

Central Polk Parkway - From US 17 to SR 60

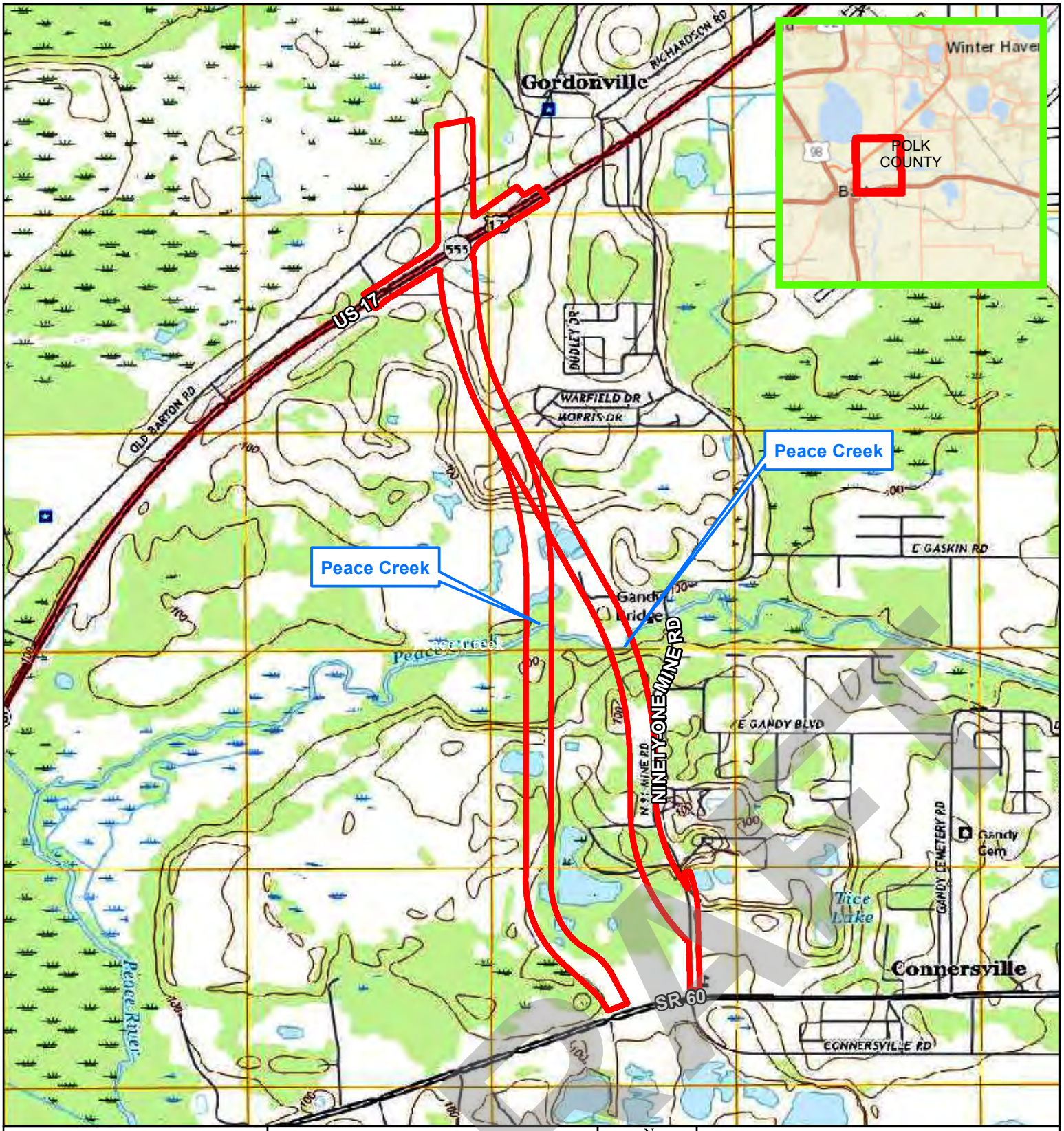
Polk County, Florida

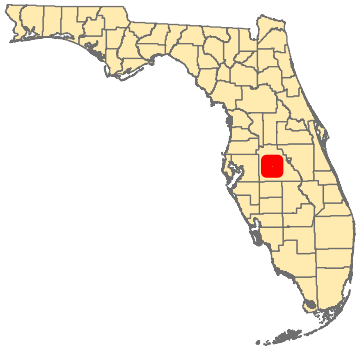
Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

Figure 1

G - 158

Path: M:\1201739.00_CPP\44089742401\100 Environmental\104 Environmental Data Report\GIS\Maps\CPP2_Project Location Map.mxd 7/22/2019





Legend

Project Area

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Feet

Project Quadrangle Map
Central Polk Parkway -
From US 17 to SR 60
Polk County, Florida

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

Figure 2

G - 159

Path: M:\1201739.00_CPP\44089742401\100 Environmental\104 Environmental Data Report\GIS\Maps\CPP2_Project_Quadrangle_Map.mxd 7/22/2019

FLORIDA DEPARTMENT OF Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, FL 32399

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

July 26, 2019

Christen Cerrito
Environmental Scientist
Kisinger Campo & Associates
201 N. Franklin Street, Suite 400
Tampa, Florida 33602

Re: Proposed Central Polk Parkway Extension begins at SR 35 (US 17) and ends at SR 60 - Peace Creek – Polk County, Florida

Dear Ms. Cerrito,

This letter is in response to your recent inquiry requesting a State lands title determination for the proposed Central Polk Parkway Extension begins at SR 35 (US 17) and ends at SR 60 crossings for Peace Creek in Polk County, Florida.

Records on file within the Title and Land Records Section indicate that the submerged lands lying below the ordinary high water line of Peace Creek at the proposed crossings are State-owned sovereign submerged lands.

The conclusions stated herein are based on a review of records currently available within the Department of Environmental Protection as supplemented, in some cases, by information furnished by the requesting party and do not constitute a legal opinion of title. A permit from the Department of Environmental Protection and other federal, state and local agencies may be required prior to conducting activities.

If this office can be of any further assistance regarding this determination, please address your questions to Eric Sellers, PSM, Professional Land Surveyor II, mail station No. 108 at the above letterhead address, by telephone at (850) 245-2607, or by e-mail at Eric.Sellers@FloridaDEP.gov.

Sincerely,

Marcus Ashman, PSM, Program Manager
Division of State Lands
Bureau of Survey and Mapping
Attachment:
MJA/els
F:\Eric\Peace_Creek

Legend

Project_Site

2017 AERIAL
PEACE CREEK
POLK COUNTY

F:\Eric\Peace_Creek

FOR ILLUSTRATIVE AND INFORMATIONAL PURPOSES ONLY

APPENDIX N

USFWS Technical Assistance Meeting Notes

Florida Department of Transportation

RON DESANTIS
GOVERNOR

Florida's Turnpike Enterprise
P.O. Box 613069, Ocoee, FL 34761
407-532-3999

KEVIN J. THIBAULT, P.E.
SECRETARY

FDOT, Florida's Turnpike Enterprise/USFWS Technical Assistance Meeting Notes
FPID 440897-4 Central Polk Parkway
Segment 2 from US 17 (SR 35) to SR 60
Polk County

Date: March 10, 2020
Time: 1:00 PM
Conference Call

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1. **Introductions**
   - **Turnpike Environmental Administrator – Philip Stein**
   - **Turnpike Environmental Permits Coordinator – Annemarie Hammond** AH
   - **HNTB/Turnpike Project Manager – Stephanie Underwood**
   - **Atkins/Turnpike Permits Coordinator – Fred Gaines**
   - **Atkins/Turnpike Permits Coordinator – Tiffany Crosby**
   - **USFWS Staff – John Wrublik**
   - **KCA Project Manager – Thomas Presby**
   - **KCA Senior Environmental Scientist – Catie Neal**

2. **Project Overview (map provided)**
   - Current Alignment
     - 2.2 miles through various land uses (residential/commercial, reclaimed mined land, pasture, forests, and wetlands – herbaceous and forested)
   - ETDM #14372 published on Dec 3, 2010
   - The following federal listed species have the potential for occurrence within the project area (Figure 2)
     - Eastern indigo snake (*Drymarchon couperi*)
     - Blue-tailed mole skink (*Plestiodon egregius lividus*)
     - Sand skink (*Plestiodon reynoldsi*)
     - Florida grasshopper sparrow (*Ammodramus savannarum floridanus*)
     - Florida scrub-jay (*Aphelocoma coerulescens*)
     - Crested caracara (*Caracara cheriway*)
     - Wood stork (*Mycteria americana*)
     - Everglade snail kite (*Rostrhamus sociabilis*)
     - Florida bonneted bat (*Eumops floridanus*)
     - Florida panther (*Puma concolor couguar*)

- 48.69 acres of wetlands and surface waters within the project area
  - 15 wetlands and 4 surface waters
  - 21.09 acres of wetlands/surface water impacts

Turnpike provided a brief overview of limits and explained that this project is the continuation of Segment 1 that was previously discussed with USFWS in December 2019. Turnpike explained this project will be a new corridor consisting of above listed land uses. The Peace Creek Drainage Canal is included within the project limits.

USFWS indicated at the start of the meeting that the meeting minutes will be reviewed by USFWS, but no concurrence agreement on the determinations will be provided.

3. Eastern indigo Snake

- 265.35 acres of potential habitat within the project area
- No observations within the project area and no documented occurrences within one mile
- Estimated more than 25 acres of habitat will be impacted
- Determination based on key "A>B>C"
- ***May affect anticipated***
- Potential mitigation provided by Platt Branch. Quantities determined by home ranges for male and female snakes

Turnpike indicated that the majority of project area is considered potential habitat for the eastern indigo snake. There are no surveys proposed during the design phase. There are more than 25 acres of impacts anticipated, resulting in a "may affect" determination using key. No documented occurrences.

USFWS indicated that if there are no occurrences within 0.62 miles then the determination can be "may affect, not likely to adversely affect" (MANLAA). USFWS indicated that new guidelines with the 0.62 mile guidance are being developed. USFWS verified there were no documented occurrences with 0.62 miles and confirmed the MANLAA determination can be used for the PD&E phase.

Turnpike asked for confirmation that despite greater than 25 acres of impacts are anticipated the MANLAA determination applies. USFWS confirmed that is correct.

4. Blue-tailed mole skink & sand skink

- 77.91 acres of suitable sand skink soils present (map provided)
- No observations within the project area and no documented occurrences within one mile
- Full survey protocol proposed for Design phase
- ***May affect anticipated***
- Potential mitigation provided by Conservation bank credit purchase

Turnpike indicated that there are no documented occurrences of sand skinks within the project area. As the project is within the Consultation Area, Turnpike anticipates standard survey protocol for the Design phase. Turnpike indicated that many suitable soils based on the NRCS may be historically mined soils and inquired if these areas could be eliminated from survey if Turnpike provides aerials showing mining operation that altered the soils.

USFWS indicated that aerial maps alone would be insufficient to exclude mined areas. However, information provided by a NRCS Soil Scientist confirming the lack of current soil suitability would be accepted. If a soil scientist performs surveys, then NRCS will provide a report and USFWS would use that information to make any determinations. If sandy soils are present, then surveys would still be required. However, if vegetation is not appropriate then surveys may not be necessary. USFWS indicated that if thick grasses are present then no surveys are required.

Turnpike inquired if there are DEP records showing mining in the area, should they be sent to USFWS. USFWS indicated that they could be provided but it is not necessary without the NRCS field review.

Turnpike indicated that pending the results of the survey a "may effect" determination is being used.

USFWS agreed with the approach.

5. Florida grasshopper sparrow

- 192.82 acres of potential habitat in pasturelands within the project area
- No observations within the project area and no documented occurrences within one mile
- Technical assistance with USFWS will be re-initiated during design phase to determine if surveys are required
- No impacts anticipated
- ***May affect, but not likely to adversely affect***

Since the project is within the grasshopper sparrow Consultation Area, Turnpike indicated that if we were to follow the key, then surveys would be required. However, there is no prairie habitat available. Most of the project area is composed of previously mined lands that are now being utilized as pasture. Surveys in the Design phase are not proposed as the known populations of grasshopper sparrows are many miles away.

USFWS agreed that surveys would not be required and indicated that a "No Effect" determination should be sufficient.

6. Florida scrub-jay

- 41.35 acres of potential habitat in scrub-shrub within the project area
- No observations within the project area and no documented occurrences within one mile
- Technical assistance with USFWS re-initiated during Design phase to determine if surveys are required
- ***May affect, but not likely to adversely affect***
- Potential mitigation provided by Conservation Bank credit purchase

Turnpike indicated that there is some remnant scrub within the project area, but it is very overgrown (Type II or III). Since the project is within the Consultation Area, surveys are proposed within those areas during the Design phase following standard protocol. However, technical assistance will be re-initiated during the Design phase to confirm.

USFWS agreed with the approach.

7. Audubon's crested caracara

- 234.24 acres of potential habitat in pasturelands within the project area
- No observations within the project area and no documented occurrences within one mile
- Full survey protocol proposed for Design phase
- ***May affect, but not likely to adversely affect***
- Potential mitigation to be coordinated with FWS as required

The project is within the crested caracara Consultation Area. Turnpike indicated that there are no observations within the project area. Habitat is very similar to that of Segment 1. Surveys are proposed during the Design phase following standard protocol.

USFWS agreed with the approach.

8. Wood stork

- 34.61 acres of potential habitat within the project area
- One (1) observation within the project area
- Located within the 18.6-mile core foraging area (CFA) of three (3) nesting colonies
  - Mulberry Northeast
  - Lake Summerset
  - Lone Palm
- Foraging analysis conducted to determine biomass loss – mitigation to occur via ERP during Design
- Determination based on key "A>B>C>E"
- ***May affect, but not likely to adversely affect***

Turnpike indicated that herbaceous wetlands are available for foraging within the project area. The project is also located within a CFA of 3 colonies. Mitigation will take place via the ERP during the Design phase.

USFWS agreed with the approach.

9. Everglade snail kite

- 29.88 acres of potential habitat in freshwater marshes within the project area
- No observations within the project area and no documented occurrences within one mile
- Technical assistance with USFWS re-initiated during Design phase to determine if surveys are required
- ***May affect, but not likely to adversely affect***

The project is within the Consultation Area. Turnpike indicated that the key resulted in a MANLA determination, but based on the lack of occurrences and habitat available within the project area, Turnpike is anticipating "no effect" and surveys are not currently proposed for the Design phase.

USFWS agreed that if no suitable nesting habitat is available, then surveys would not be required.

Turnpike confirmed that technical assistance would be re-initiated during the Design phase to confirm if suitable nesting habitat is available.

10. Florida bonneted bat

- 48.40 acres of potential habitat in forested communities within the project area
- No observations within the project area and no documented occurrences within one mile
- Full acoustic and roosting survey protocol proposed for Design phase
- Determination based on key "1a>2a>3b>?" cannot be completed until survey results are determined
- ***May affect***

Turnpike indicated that full acoustic and roosting survey protocol is proposed for the Design phase as the project is within the Consultation Area for the species. Results of the survey will likely result with a "May affect" determination and the use of BMPs. Turnpike will request Technical Assistance in Design phase to get survey details verified ahead of time.

Turnpike inquired about the age of the trees available within the project area and how they might affect a survey design. Much of the area was reclaimed in the 1980s and 1990s resulting in a lack of old growth trees. Is there an opportunity during the Design phase to provide some of that information? Or will full surveys be assumed despite the age of the trees?

USFWS replied that there is an opportunity to discuss previous mining activities and reclaimed habitat relative to the species. USFWS indicated that unless the trees are extremely immature, then surveys will likely be required.

11. Florida panther

- 254.34 acres of potential habitat within the project area
- No observations within the project area and no documented occurrences within one mile
- Technical assistance with USFWS re-initiated during Design phase
- Determination based on key "A>B"
- ***May affect***

Turnpike indicated that the project does not fall within the Focus area and there are no documented occurrences.

USFWS replied that if the project is not in the focus area, then there are no concerns. If Turnpike wants to keep in the report, then a "No Effect" determination can be used.

12. Bald Eagle Coordination

- 80.57 acres of potential nesting habitat within the project area
- Observed during field reviews and three (3) documented nests within one mile of the project area
  - PO043a is located 0.2 miles northeast of the project's northern terminus (last active 2013)
  - PO232 is located 0.8 miles southwest of the project's northern terminus (last active 2013)
  - Nest 2 is located 0.72 miles northeast of the project's northern terminus (last active 2019-2020)
  - Previous coordination with Ulgonda Kirkpatrick on adjacent CPP Segment 1

Turnpike explained there are currently no bald eagle nests within 660 feet of the project area. However, Turnpike will request Technical Assistance as needed in Design if anything changes.

USFWS replied that Ulgonda Kirkpatrick should be the point of contact for bald eagles.

13. Anticipated Permits

- Section 404 Dredge and Fill Permit (USACE)
- Environmental Resource Permit (ERP – SWFWMD)
- National Pollutant Discharge Elimination System (NPDES – FDEP)
- Gopher Tortoise Relocation Permit (as necessary) (FFWCC)
- Incidental Take Permit (as necessary – FFWCC)
- Incidental Take Permit (as necessary – USFWS)

Turnpike listed the anticipated permits for the project. Turnpike does not anticipate needing an ITP for species unless the surveys come back differently than expected (sand skink, caracara, eastern indigo). Standard Section 7 consultation by the US Army Corps of Engineers is expected.

USFWS agreed.

14. Wildlife Crossings

Turnpike inquired if the project area would be considered a wildlife corridor and whether a wildlife crossing should be considered. Based on current FDOT criteria, a wildlife crossing would not be warranted. Turnpike requested confirmation if the project area is considered a wildlife corridor warranting a crossing for wildlife. Any wildlife crossing would be a by-product of the bridge spans over the Peace Creek Drainage Canal and floodplain as is currently proposed for the concept plans in PD&E.

USFWS replied that no wildlife crossing would be required and agreed that a bridge would provide a wildlife crossing but is not required. No additional wildlife crossings are necessary.

15. Roundtable/Questions/Comments

Turnpike inquired if there are any additional wildlife habitat concerns based on the reclaimed areas.

USFWS indicated there were no other concerns.

Turnpike requested concurrence that the existing reclaimed wetland areas would be treated as natural systems and impacts to those systems would be mitigated directly and not require additional mitigation to address previous mining reclamation responsibilities. USFWS agreed with this approach.

APPENDIX O

FWC Technical Assistance Meeting Notes

Florida Department of Transportation

RON DESANTIS
GOVERNOR

Florida's Turnpike Enterprise
P.O. Box 613069, Ocoee, FL 34761
407-532-3999

KEVIN J. THIBAULT, P.E.
SECRETARY

FDOT, Florida's Turnpike Enterprise/FWC Technical Assistance Meeting Notes
FPID 440897-4 Central Polk Parkway
Segment 2 from US 17 (SR 35) to SR 60
Polk County

Date: 3/13/2020
Time: 1:30 pm
Conference Call

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1. **Introductions**
   - **Turnpike Environmental Administrator – Philip Stein**
   - **Turnpike Environmental Permits Coordinator – Annemarie Hammond** AH
   - **FWC Staff – Brian Barnett**
   - **HNTB/Turnpike Project Manager – Stephanie Underwood**
   - **Atkins/Turnpike Permits Coordinator – Fred Gaines**
   - **Atkins/Turnpike Permits Coordinator – Tiffany Crosby**
   - **KCA Project Manager – Thomas Presby**
   - **KCA Senior Environmental Scientist – Catie Neal**

2. **Project Overview (map provided)**
   - Current Alignment
     - 2.2 miles through various land uses (residential/commercial, reclaimed mined land, pasture, forests, and wetlands – herbaceous and forested)
   - 48.69 acres of wetlands and surface waters within the project area, approximately 21.09 acres of wetlands/surface water impacts anticipated
   - ETDM #14372 published on Dec 3, 2010
   - The following state listed species have the potential for occurrence within the project area (Figure 2)
     - Southeastern American kestrel (*Falco sparverius paulus*)
     - Florida sandhill crane (*Antigone canadensis pratensis*)
     - Wading birds
       - Little blue heron (*Egretta caerulea*)
       - Tricolored heron (*Egretta tricolor*)
       - Roseate spoonbill (*Platalea ajaja*)
     - Florida burrowing owl (*Athene cunicularia floridana*)
     - Short-tailed snake (*Lampropeltis extenuata*)
     - Florida pine snake (*Pituophis melanoleucus mugitus*)
     - Gopher tortoise (*Gopherus polyphemus*)
     - State protected plants

Turnpike provided a background of the project and explained this project is the extension to Segment 1 discussed with FWC in January 2020. This segment was evaluated by FDOT, District 1. Turnpike described the general areas where mining took place (northern portion). The Peace Creek Drainage Canal is within the project area but was mined and reclaimed and currently is not a natural system. There are 49 acres of wetlands/surface waters within the project area and approximately 21 acres if anticipated impacts.

3. Southeastern American kestrel

- 222.77 acres of suitable habitat within the project area (open woodlands, previously mined lands, sandhill, and pine habitats)
- No observations of the Southeastern American kestrel within the project area and no known documentation within one mile
- No known nests within the project area
- Design and pre-construction surveys proposed
- If a nest is found, avoid as practicable, and minimize impacts by maintaining a 150-meter buffer of active nests; an FWC Incidental Take Permit may be required if impacts cannot be avoided
- ***No adverse effect anticipated***

Turnpike indicted there is a lot of habitat available within the project area. Surveys to be conducted during the Design phase. If any nests are found, then Turnpike will discuss with FWC at that time. No adverse effect anticipated.

FWC had no comment.

4. Florida sandhill crane

- 225.24 acres of potential habitat within the project area (freshwater marshes, previously mined lands, prairies, and pasture)
- Two (2) observations of the FL sandhill crane within the project area and no other known documentation within one mile (map provided)
- No known nests within project area
- Design and pre-construction surveys proposed
- If a nest is found, avoid as practicable, and minimize impacts by maintaining a 400-foot buffer; an FWC Incidental Take Permit may be required if project results in unavoidable impacts
  - Mitigation to occur via ERP with freshwater marsh credits
- ***No adverse effect anticipated***

Turnpike indicated that there is suitable nesting habitat on site. Observations have been made, but none are nest locations. A precautionary ITP may be considered. Coordination will take place during the Design phase. No adverse effect anticipated.

FWC had no comment

5. Wading birds (little blue heron, tricolored heron, and roseate spoonbill)

- 34.61 acres of herbaceous wetlands within the project area
- Three (3) observations of wading birds within the project area
- One rookery documented within one mile (map provided)
- Design surveys proposed
- Mitigation to occur via ERP with wetland mitigation credits
- ***No adverse effect anticipated***

Turnpike indicated that wading birds have been observed within the project area. Habitat is available. There are no rookeries within the project area, but one exists within a mile. Wading bird nests within the project area are not anticipated. Mitigation will take place via ERP. No adverse effect anticipated.

FWC had no comment

6. Florida burrowing owl

- 192.82 acres of potential habitat within the project area (improved pasture)
- No observations of the FL burrowing owl within the project area and no known documentation within one mile – closest documented observation is 1.25 miles away at the airport
- Design surveys proposed
- If a burrow is found that cannot be avoided, an FWC Incidental Take Permit will be obtained
- ***No adverse effect anticipated***

Turnpike indicated suitable habitat is available within the project area. No observations have been made within the project area. Closest documented occurrence is approximately 1.25 miles away at the airport. Standard surveys are proposed during Design phase. Turnpike will coordinate as needed for ITP with FWC. No adverse effect anticipated.

FWC had no comment.

7. **Short-tailed snake**

- 241.21 acres of potential habitat within project area (upland habitats with open canopies and dry sandy soils, pasture)
- No observations of the short-tailed snake within the project area and no known documentations within one mile
- No surveys proposed- cryptic species
- ***No adverse effect anticipated***

Turnpike indicated that this species was not included in the Segment 1 discussion. Remnant scrub is available in both projects. Do we need to evaluate for this species?

FWC indicated that the species will be included as a potential commensal with the gopher tortoise permit, surveys are not required.

Turnpike indicated this species was a big concern for the Suncoast project and they were required to add extra protection measures. Is that anticipated for this project?

FWC indicated no, it is a rare situation. If it is observed on site, then FWC will need to be notified. This project will not require the extra fencing requirement. FWC indicated that Turnpike could add educational aspect if Turnpike desired.

8. Florida pine snake

- 241.21 acres of potential habitat within project area (well-drained, sandy soils with moderate to open canopy and previously mined lands)
- No observations of the pine snake within the project area and no known documentation within one mile
- No surveys proposed – cryptic species
- Mitigation to occur via FWC Gopher Tortoise Relocation Permit obtained for unavoidable impacts to burrows and commensals – implement FWC guidelines for Priority Commensals
- ***No adverse effect anticipated***

Turnpike indicated that remnant scrub is present within the project area. This species will be addressed via the gopher tortoise permit commensal. Turnpike is aware that there are new guidelines coming out and this species will be re-addressed as the new information is issued by FWC.

FWC had no comment

9. Gopher tortoise

- 241.21 acres of potential habitat within the project area (well-drained, sandy soils found in pine systems, scrub, hammocks, dry prairies, and previously mined lands)
- Nine (9) burrows observed within the project area and no other known documentation within one mile (map provided)
- FTE will obtain an FWC Gopher Tortoise Relocation Permit for any unavoidable impacts as required by FWC guidelines
- ***No adverse effect anticipated***

Turnpike indicated that suitable habitat is present. Turnpike will obtain required permits during the Design phase. No adverse effect.

FWC had no comment.

10. Protected plants

- Includes incised groove-bur (*Agrimonia incisa*), ashe's savory (*Calamintha ashei*), many-flowered grass-pink (*Calopogon multiflorus*), sand butterfly pea (*Centrosema arenicola*), piedmont jointgrass (*Coelorachis tuberculosa*), star anise (*Illicium parviflorum*), Florida spiny-pod (*Matelea floridana*), celestial lily (*Nemastylis floridana*), hand fern (*Ophioglossum palmatum*), giant orchid (*Orthochilus eristatus*), plume polyplody (*Pecluma plumula*), comb polyplody (*Pecluma ptilota var. bourgeauana*), and Florida willow (*Salix floridana*)

- No observations of any protected plants within the project area and no known documentations within one mile
- Any species observed during other surveys during design will be documented
- If protected plant species are observed within the proposed impacts limits, FTE will coordinate with the Florida Department of Agriculture and Consumer Services (FDACS) and local native plant societies to address any impacts to protected plants
- ***No adverse effect anticipated***

Turnpike indicated that there have been no observations of protected plant species. There is limited natural habitat present within the project area. Turnpike does not anticipate observations of protected plant species but will continue to look for them as other surveys are conducted. Turnpike will coordinate with local native plant societies and FDACS to address any issues. No effect anticipated.

FWC had no comment.

11. Southern fox squirrel

- Potential habitat with project area
- No observations within the project area
- Pre-construction surveys
- No impacts anticipated
- ***No adverse effect anticipated***

Turnpike stated that southern fox squirrel nests are protected. Pre-construction surveys will take place to document any potential nests. If the nests cannot be avoided, then Turnpike will coordinate with FWC as necessary.

FWC provided no comment.

12. Osprey

- No nests within the project area
- Design surveys
- Inactive nest removal
- ***No adverse effect anticipated***

Turnpike indicated that there are currently no nests within the project area. However, if a nest is observed within the proposed construction area, it will be removed during the Design phase. Turnpike only removes inactive nests.

FWC had no comment.

13. Federal Species

- Species being addressed with USFWS include:
  - Eastern indigo snake (*Drymarchon couperi*)
  - Bluetail mole skink (*Plestiodon egregius lividus*)
  - Sand skink (*Plestiodon reynoldsi*)
  - Florida scrub-jay (*Aphelocoma coerulescens*)

- Audubon's crested caracara (*Caracara cheriway*)
- Wood stork (*Mycteria americana*)
- Everglade snail kite (*Rostrhamus sociabilis*)
- Florida grasshopper sparrow (*Ammodramus savannarum floridanus)*
- Florida bonneted bat (*Eumops floridanus*)
- Florida panther (*Puma concolor couguar*)
- Bald eagle (*Haliaeetus leucocephalus*)

Turnpike indicated that discussions with USFWS for federal species are ongoing and will continue throughout the Design phase.

14. Anticipated Permits

- Section 404 Dredge and Fill Permit (USACE)
- Environmental Resource Permit (ERP – SWFWMD)
- National Pollutant Discharge Elimination System (NPDES – FDEP)
- Gopher Tortoise Relocation Permit (as necessary) (FFWCC)
- Incidental Take Permit (as necessary – FFWCC)
- Incidental Take Permit (as necessary – USFWS)

Turnpike listed the anticipated permits. A state listed species ITP is not currently anticipated but Turnpike will coordinate with FWC during the Design phase.

FWC had no comment.

15. Wildlife Corridor/Crossings

- FWS ETAT comment to provide wildlife passage over the Peace River (creek)
- Critical habitat, document use/need, conservation land adjacent, etc.
- Current proposed design

Turnpike indicated that Peace Creek Drainage Canal was part of the Clear Springs Mine and is a reclaimed system. Turnpike requested FWC's opinion on the project area, specifically, the Drainage Canal as being a significant wildlife corridor to determine if wildlife crossings should be included in the concept plans. Currently, there are no wildlife crossings proposed because the FDOT Wildlife Crossing Guidelines do not indicate they are warranted. No critical habitat or conservation lands exist on either side of the proposed roadway. However, the current PD&E concept includes a large bridge over the drainage canal floodplain to avoid impacts.

FWC responded that if bridging the entire floodplain, then it likely provides connectivity anyways.

Turnpike inquired if changes with the current PD&E concept plans occur which reduces or eliminates the proposed bridge over the Drainage Canal, would additional wildlife crossing(s) need to be considered?

FWC responded that this area would be a low priority area because of the artificial nature. Additionally, the project area consists mostly of pasture right up to the bank of the Peace Creek Drainage Canal. A general wildlife crossing will likely be addressed because of the need for a bridge. This is not the typical area FWC would prioritize for a wildlife crossing. A bridge is better

than a culvert. No black bears, panther or their habitat present; therefore, a wildlife crossing would not be a priority or requested.

Turnpike indicated that there are no other wildlife connectivity issues proposed to be addressed.

FWC agreed with the approach.

16. Roundtable/Questions/Comments

FWC indicated the multi-species ITP to address potential construction encounters discussed during the Segment 1 would require some time for internal discussion. FWC has experienced a large turnover in staff and they will require some time for new staff to become settled.

Turnpike indicated they would check back in with FWC in 6 months to a year, or possibly closer to permitting for Segment 1.

APPENDIX P

SWFWMD Pre-Application Meeting Notes

FINANCIAL PROJECT NO.: 440897-4-22-01
CENTRAL POLK PARKWAY PD&E FROM US 17 (SR 35) TO SR 60
PROJECT DEVELOPMENT & ENVIRONMENT STUDY
PRE-APPLICATION MEETING WITH THE SWFWMD
April 16, 2020 AT 10 am via Microsoft Teams Meeting

Note: The italicized text below in the meeting agenda are the topic points and notes that were discussed throughout the meeting.

Attendees
SWFWMD: Dave Kramer, Gaya Sharpe, Albert Gagne, Rob McDaniel FTE: Phillip Stein, Stephanie Underwood, Tiffany Crosby, Adriana Kirwan, Annemarie Hammond, Fred Gaines, Erin Yao KCA: Ali Tayebnejad, Nicole Selly, Tom Presby

I. Introductions

The Central Polk Parkway Segment 2 project is currently in the FDOT Project Development and Environment (PD&E) study phase with the no-build option remaining a viable option through the public hearing. If the PD&E study results in a preferred alignment, the proposed project is being evaluated as a four lane extension of the Central Polk Parkway Segment 1 from SR 35 (U.S. 17) to SR 60, approximately 2.2 miles in Polk County. Access to this new alignment, if viable, is being proposed from the south at SR 60 by an at-grade intersection and the facility will feature All-Electronic Tolling (AET). This project also includes a new interchange at SR 35 (U.S. 17). The purpose of this meeting is to discuss and review the environmental and drainage permitting requirements.

Fred Gaines provided overview of the project and purpose for the meeting.

Tom Presby provided a detailed overview of the project.

II. Summary of Drainage Approach

- Existing condition
  - The project has open basins that outfall to Lake Hancock to the north, Peace Creek in the middle, and Upper Peace River at the south end of the project.
  - Existing permits
- Joint use pond opportunities
  - Any projects to improve Peace Creek or upper Peace River water quality that this project can benefit by partnering?
  - *Ali Tayebnejad asked, if there are any other projects that the SWFWMD is aware of that the CPP project can partner with?*
  - *Dave Kramer stated that he was not aware of any, but would ask district staff the question.*
- Stormwater criteria
  - Water Quality: For wet detention, treatment will be provided for the first one inch of stormwater runoff from the contributing basin.
  - Water Quantity: For an open basin, the 25-year/24-hour post-development peak discharge rate must be attenuated to no greater than the 25-year/24-hour pre-development discharge rate.
- Stormwater management facilities (SMF), and floodplain compensation (FPC) sites will be

sized for an ultimate six-lane typical section.

- Four stormwater ponds and four floodplain compensation ponds are being evaluated in the PD&E Pond Siting Report.
- The project crosses three basins: Lake Hancock, Peace Creek, and Upper Peace River
    - SFM 1 is located in the Lake Hancock basin.
    - There is anticipated treatment credit from the regional pond in FPID No. 440897-2_ CPP Segment 1 to the north.
    - *Fred Gaines noted that this could be done for the future*
    - *Dave Kramer noted the concept works for SWFWMD – the size of the area was discussed in the previous meeting and SWFWMD agreed*
    - *Rob McDaniel noted that the WBID map shows 2 different basins – they show the basin south of U.S. 17 flows south*
    - *Ali Tayebnejad noted that basin boundaries used for both SWFWMD Lake Hancock and Peace Creek models show this area is flowing to Lake Hancock. Reviewing the lidar contours, shows that once the two existing wetland/ponds fill up it flows north through a cross drain under U.S. 17.*
    - *Rob McDaniel said to document this and provide to SWFWMD*
    - *Fred Gaines noted that there are numerous WBIDS – KCA design to show how the water flows*
    - *Rob McDaniel noted that he was looking at site specific topography – show how it flows today*
    - SMF 2 and 3 are located in Peace Creek basin.
    - The Turnpike is coordinating whether there may be treatment credit from the City of Winter Heaven's Sustainable Water Resource Management Plans which is planning to provide large storage lakes within the Peace Creek upstream of our project. This coordination will continue through the design phase.
    - SMF 4b1, and 4b2 are located in the upper Peace River basin
- The Upper Peace River and the Lake Hancock are impaired for nutrients, but do not directly connect to our project, therefore nutrient loading calculations are not required
- The project concept it is being evaluated is crossing the Peace Creek 2400' floodplain and 1200' regulated floodway with a bridge spanning both.
- Floodplain encroachments were evaluated using the latest FEMA effective maps dated 12/22/2016.
- Floodplain compensation is provided using cup-for-cup methodology in FPC 1 through 4.
- *Rob McDaniel noted KCA was using the FEMA Maps*
- *Did KCA look at ay models?*
- *Ali Tayebnejad-yes, we did, but FEMA map was more conservative and was used.*
- *Rob McDaniel asked if KCA was relying on the City of Winter Haven*
- *Ali Tayebnejad noted that additional coordination was needed with the City of Winter Haven and the ponds we show are conceptual and do not rely on the City of Winter Heaven treatment credit. The ponds that the City showed are also conceptual.*
- *Tiffany Crosby asked if the design was stacking the floodplain volume on top of the stormwater volume the same as the design project.*
- *Ali Tayebnejad said not doing this for the PD&E project*
- *Fred Gaines noted that the ponds and FPC's shown today are completely preliminary…. Design will refine more and discuss in a future meeting with SWFWMD.*

III. Environmental

- **Wetlands/Surface Waters**
  - 15 wetlands and 4 surface waters
  - Overall (48.69 acres) with 16.01 acres of anticipated impacts – Mainline and Proposed Pond Sites
    - Herbaceous (9.74 acres)
    - Forested (0.28 acres)
    - Channels (0.57 acres)
    - Reservoirs (5.43 acres)
    - Potential wetland impacts WL 1, WL 2, WL 3a, WL 3b, and SW 1 will be mitigated for with the permitting of Central Polk Parkway Segment 1 Design
  - Three Mitigation Banks within Peace River Basin
    - Boran Ranch Mitigation Bank
    - Peace River Mitigation Bank
    - Circle B Bar Mitigation Bank
    - *KCA to remove review mitigation banks and remove Circle B Bar from documents*
- **Protected Species**
  - Technical Assistance with FFWCC and USFWS conducted March 2020 and will continue through design.
- **Anticipated Permits**
  - Individual Environmental Resource Permit – SWFWMD

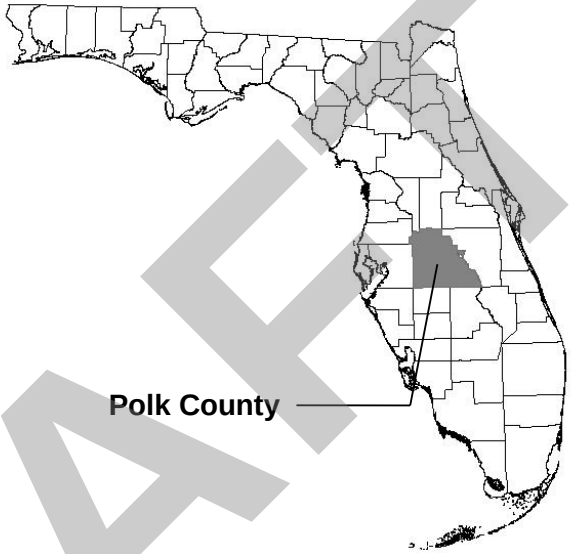
APPENDIX H
FLOOD INSURANCE STUDY

FLOOD INSURANCE STUDY

VOLUME 1 of 3

POLK COUNTY, FLORIDA
AND INCORPORATED AREAS

Community Name	Community Number
AUBURNDALE, CITY OF	120262
BARTOW, CITY OF	120263
DAVENPORT, CITY OF	120410
DUNDEE, TOWN OF	120409
EAGLE LAKE, CITY OF	120385
FORT MEADE, CITY OF	120264
FROSTPROOF, CITY OF	120265
HAINES CITY, CITY OF	120266
HIGHLAND PARK, VILLAGE OF	120386
HILLCREST HEIGHTS, TOWN OF	120666
LAKE ALFRED, CITY OF	120667
LAKE HAMILTON, TOWN OF	120414
LAKE WALES, CITY OF	120390
LAKELAND, CITY OF	120267
MULBERRY, CITY OF	120268
POLK CITY, CITY OF	120665
POLK COUNTY (UNINCORPORATED AREAS)	120261
WINTER HAVEN, CITY OF	120271



REVISED:
December 22, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
12105CV001C

Table 5: Summary of Discharges (continued)

Flooding Source and Location	Drainage Area (Square miles)	Peak Discharges (Cubic Feet per Second) 10-percent	2-percent	1-percent	0.2-percent
LAKE PARKER DRAIN					
At CSX Transportation	23.6	145	195	213	257
LAKE PARKER TRIBUTARY	3.5	120	165	195	275
LAKE ROSALIE TRIBUTARY					
Below confluence of North Fork Lake Rosalie Tributary	6.5	292	658	713	1,180
Above confluence of North Fork Lake Rosalie Tributary	2.5	227	513	524	835
MEADOW VIEW DITCH	**	**	**	**	**
MUD LAKE DRAIN					
At cross-section A	1.89	44	69	84	111
NORTH FORK LAKE ROSALIE TRIBUTARY	4.0	65	145	189	346
NORTH PRONG ALAFIA RIVER					
At county boundary	64.4	4,140	7,320	8,980	13,500
Above confluence of Poley Creek	39.0	2,170	4,000	4,950	8,050
OAKHILL DITCH CREEK					
Approximately 570 feet upstream of Unnamed Dirt Road	*	*	*	288	*
PEACE CREEK DRAINAGE CANAL					
At confluence with Peace River	*	*	*	3,073	*

*Data not available

**No revised Summary of Discharges table information provided in LOMR 04-04-B007P

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY[2]	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE[3]
Peace Creek Drainage Canal								
A	1,345	556	3,045	3.7	99.7	99.7	100.4	0.8
B	3,217	792	4,939	1.9	100.6	100.6	101.1	0.5
C	3,384	988	6,057	2.0	100.7	100.7	101.2	0.5
D	6,131	918	4,940	4.6	101.1	101.1	101.8	0.7
E	9,350	968	5,918	2.0	101.4	101.4	102.4	1.0
F	10,724	300	1,180	4.7	102.7	102.7	102.7	0.1
G	11,089	123	1,033	5.2	104.2	104.2	104.5	0.3
H	11,815	711	5,745	2.7	104.3	104.3	105.1	0.8
I	14,706	500	3,576	3.3	104.9	104.9	105.6	0.8
J	17,620	427	3,047	3.2	105.5	105.5	106.4	0.9
K	22,105	2,975	23,913	0.5	105.6	105.6	106.6	1.0
L	27,358	3,802	24,333	0.5	105.7	105.7	106.6	1.0
M	32,393	630	3,490	2.3	106.7	106.7	107.5	0.8
N	33,687	307	1,848	3.2	106.9	106.9	107.9	1.0
O	35,322	145	1,370	3.2	108.1	108.1	108.8	0.7
P	35,657	280	1,637	3.8	108.6	108.6	109.0	0.4
Q	38,131	455	2,430	2.8	109.9	109.9	110.5	0.5
R	39,977	268	1,762	2.9	110.2	110.2	111.0	0.9
S	42,108	173	1,331	3.4	110.7	110.7	111.7	0.9
T	42,392	336	2,212	2.7	111.4	111.4	112.0	0.6
U	46,956	400	2,823	1.9	111.7	111.7	112.4	0.7

[1] Stream length in feet above is measured from the confluence between Peace Creek Drainage Canal, Lower Saddle Creek, and Upper Peace River

[2] Regulatory Base Flood Water Surface Elevation is obtained from SWFWMD Governing Board Approved Peace Creek Watershed Management Plan

[3] Increase calculated by regulatory elevation (approved ICPR model) deducted from encroached elevation (encroachment HEC-RAS model)

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

POLK COUNTY, FL AND INCORPORATED AREAS

FLOODWAY DATA

PEACE CREEK DRAINAGE CANAL