

# **Natural Resources Evaluation**

## **Florida Department of Transportation District One**

**SR 659 (Combee Road)  
Project Development and Environment (PD&E) Study  
From US 98 to North Crystal Lake Drive  
Polk County, Florida**

Financial Management Number: 440274-1-22-01  
ETDM Number: 14326

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding December 14, 2016 and executed by FHWA and FDOT.

**June 2021**

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## EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT), District One is conducting a Project Development and Environment (PD&E) Study for SR 659 (Combee Road) in Polk County to determine alternative roadway improvements along the corridor. Combee Road is a two-lane undivided minor arterial roadway with 4-foot wide paved shoulders and little to no sidewalk. The area adjacent to the roadway is a mix of industrial, retail/office, and residential land uses. The proposed improvements will enhance the multimodal mobility along the roadway with the addition of a two-way left turn lane for left-turning traffic and accommodations for pedestrians and bicyclists. Intersection improvements will be made to enhance safety and traffic flow. Additionally, the roadway will be converted from a rural typical section to an urban typical section with curb and gutter and a storm water collection system to improve drainage conditions.

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205), and FDOT's *Project Development and Environment Manual*, Part 2, Chapters 9 (July 1, 2020) and 16 (July 1, 2020), a Wetlands Evaluation and Protected Species and Habitat Assessment was conducted for the proposed improvements along Combee Road. The project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published December 18, 2017 (ETDM #14326 - <https://etdmpub.fla-etat.org/est/>). The project area is not located within or near any coastal resources; thus, an Essential Fish Habitat Assessment is not applicable and was not included in this document. This was confirmed by the National Marine Fisheries Service (NMFS) in the ETDM comments.

This Natural Resource Evaluation (NRE) was prepared as part of the PD&E study. This report reviews the potential impacts to wetland systems and federal- and state-protected species, summarizes the results of these assessments, and identifies measures to avoid, minimize and mitigate for any potential impacts. A summary of the analysis of potential project impacts for the proposed improvements to Combee Road is presented below.

### **Wetlands**

For the purposes of this document, wetlands are defined as per 62.340 Florida Administrative Code (F.A.C.) and Section 373.019 (27), Florida Statutes (F.S.). Surface waters are defined as open water bodies (principally, Crystal Lake) or streams/waterways.

Since Alternative 1 and Alternative 2 have the same alignment and right of way footprint, they are described as the Build Alternatives in the remainder of this report. The Preferred Alternative is Alternative 2.

Impacts resulting from each Build Alternative totaled 0.47 acres and include 0.16 acres of wetlands and 0.31 acres of surface waters.

The No-Build Alternative would result in no impacts to wetlands or surface waters. Although unavoidable wetland impacts will occur as a result of the proposed build alternatives, these wetlands are located adjacent to, and/or within, the existing roadway right of way (ROW) and

were previously disturbed by urban development, roadway construction, maintenance activities, and the invasion of nuisance and exotic species. Wetlands to be impacted by the proposed improvements include the roadside and edges of a disturbed shrub wetland community. Surface waters impacted consist of a lake and streams and waterways. A description of land use, dominant vegetation, soil types, and other pertinent remarks regarding these communities is provided in subsequent sections of this report. The Uniform Mitigation Assessment Methodology (UMAM) analysis was performed on representative wetland impact areas.

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 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 FDOT 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 for roadway improvements and safety considerations. Furthermore, all wetland impacts have been avoided and minimized to the greatest extent possible and have been limited to those areas of previous disturbance and which are required to meet minimum safety requirements.

### **Protected Species and Habitat**

The project area was evaluated for potential occurrences of federal- and state-listed 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 F.A.C. The evaluation included coordination with the Florida Natural Areas Inventory (FNAI) literature review, database searches, and field assessments of the project area to identify the potential occurrence of protected species and/or presence of federal-designated critical habitat. Field evaluations of the project area and adjacent habitats and general wildlife surveys were conducted by project biologists on October 17, 2018, January 24, 2019, and October 6, 2020.

Per the *Protected Species and Habitat Assessment*, 20 federally-listed species and 22 state-listed species have been reviewed for the potential to occur within the Combee Road study area. There will be no adverse impacts to listed species from this project. The project is not within any US Fish and Wildlife Service (USFWS) designated critical habitat. An effect determination was made for each of these federal- and state-listed species based on an analysis of the potential impacts of the proposed project on each species. Based on evaluation of collected data and field reviews, the federal- and state-listed species listed below have been reviewed for the potential to occur within or adjacent to the project area.

**Federal Species**

Project Impact Determination	Federal Listed Species
<b>“No effect”</b>	Florida bonamia ( <i>Bonamia grandiflora</i> )
	Pygmy fringe tree ( <i>Chionanthus pygmaeus</i> )
	Scrub pigeon-wing ( <i>Clitoria fragrans</i> )
	Short-leaved rosemary ( <i>Conradina brevifolia</i> )
	Scrub buckwheat ( <i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i> )
	Britton’s beargrass ( <i>Nolina brittoniana</i> )
	Papery nailwort ( <i>Paronychia chartacea</i> ssp. <i>chartacea</i> )
	Lewton’s polygala ( <i>Polygala lewtonii</i> )
	Florida jointweed ( <i>Polygonella basiramia</i> )
	Carter’s warea ( <i>Warea carteri</i> )
	Blue-tailed mole skink ( <i>Plestiodon egregius lividus</i> )
	Sand skink ( <i>Plestiodon reynoldsi</i> )
	Florida grasshopper sparrow ( <i>Ammodramus savannarum floridanus</i> )
	Florida scrub-jay ( <i>Aphelocoma coerulescens</i> )
	Crested caracara ( <i>Caracara cheriway</i> )
Red-cockaded woodpecker ( <i>Picoides borealis</i> )	
Everglade snail kite ( <i>Rostrhamus sociabilis plumbeus</i> )	
<b>“May affect, but is not likely to adversely affect”</b>	Eastern indigo snake ( <i>Drymarchon couperi</i> )
	Wood stork ( <i>Mycteria americana</i> )

**State Species**

<b>Project Impact Determination</b>	<b>State Listed Species</b>
<b>“No effect anticipated”</b>	Ashe’s savory ( <i>Calamintha ashei</i> )
	Many-flowered grass-pink ( <i>Calopogon multiflorus</i> )
	Chapman’s sedge ( <i>Carex chapmannii</i> )
	Sand butterfly pea ( <i>Centrosema arenicola</i> )
	Cutthroat grass ( <i>Panicum abscissum</i> )
	Hartwrightia ( <i>Hartwrightia floridana</i> )
	Nodding pinweed ( <i>Lechea cernua</i> )
	Florida spiny-pod ( <i>Matelea floridana</i> )
	Celestial lily ( <i>Nemastylis floridana</i> )
	Florida beargrass ( <i>Nolina atopocarpa</i> )
	Yellow fringeless orchid ( <i>Platanthera integra</i> )
	Giant orchid ( <i>Pteroglossaspis ecristata</i> )
	Florida willow ( <i>Salix floridana</i> )
<b>“No adverse effect anticipated”</b>	Gopher tortoise ( <i>Gopherus polyphemus</i> )
	Florida burrowing owl ( <i>Athene cunicularia floridana</i> )
	Little blue heron ( <i>Egretta caerulea</i> )
	Tricolored heron ( <i>Egretta tricolor</i> )
	Florida sandhill crane ( <i>Antigone canadensis pratensis</i> )
	Roseate spoonbill ( <i>Platalea ajaja</i> )
	Florida pine snake ( <i>Pituophis melanoleucus mugitus</i> )
	Short-tailed snake ( <i>Lampropeltis extenuate</i> )
	Southeastern American Kestrel ( <i>Falco sparverius paulus</i> )

**Other Species of Concern**

<b>Project Impact Determination</b>	<b>Additional Protected Species</b>
<b>No impacts to primary or secondary buffer zones</b>	Bald eagle ( <i>Haliaeetus leucocephalus</i> )

## 1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District One is conducting a Project Development and Environment (PD&E) Study to evaluate the proposed roadway improvements for Combee Road from US 98 to North Crystal Lake Drive in Polk County as depicted in **Figure 1-1 - Location Map**.

In accordance with Presidential Executive Order 11990, Federal Highway Administration (FHWA) Technical Advisory T6640.8A, Section 7(c) of the Endangered Species Act (ESA) of 1973 (ESA, P.L. 93-205), and the Florida Department of Transportation (FDOT) *Project Development and Environment (PD&E) Manual*, Part 2, Chapters 9 (July 1, 2020) and 16 (July 1, 2020), a Wetlands Evaluation and Protected Species and Habitat Assessment were conducted for the proposed improvements along Combee Road. The project was screened through the Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST) and the programming screen was published December 18, 2017 (ETDM #14326 -<https://etdmpub.fl-etat.org/est/>). The project area is not located within or near any coastal resources; thus, an Essential Fish Habitat Assessment is not applicable and was not included in this document. This was confirmed by the National Marine Fisheries Service (NMFS) in the ETDM comments.

This Natural Resource Evaluation (NRE) is prepared as part of this PD&E study. This report reviews the potential impacts to wetland systems and federal- and state-protected species, summarizes the results of these assessments, and identifies measures to avoid, minimize and mitigate for any potential impacts.

The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid in determining the type, preliminary design and location of the 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, rules and regulations.



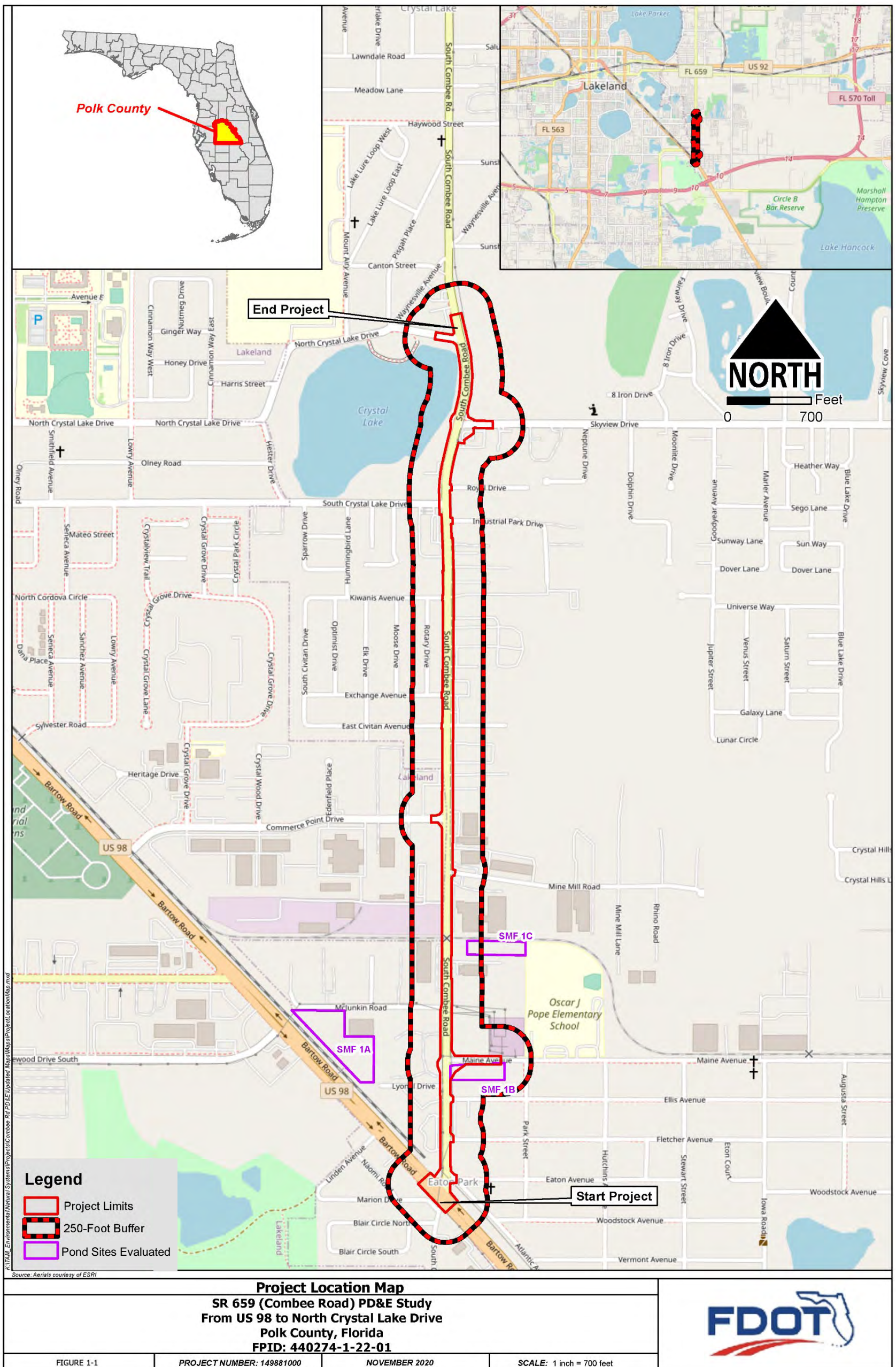


Figure 1-1 Project Location Map

## **2.0 PROJECT DESCRIPTION**

FDOT is conducting a PD&E Study to evaluate a 1.4-mile segment of Combee Road from US 98 to North Crystal Lake Drive in Polk County, Florida. Combee Road is a two-lane undivided minor arterial roadway with 4-foot wide paved shoulders and little to no sidewalk. The area adjacent to the roadway is a mix of industrial, retail/office, and residential land uses. The proposed improvements will enhance the multimodal mobility along the roadway with the addition of a two-way left turn lane for left-turning traffic and accommodations for pedestrians and bicyclists. Intersection improvements will be made to enhance safety and traffic flow. Additionally, the roadway will be converted from a rural typical section to an urban typical section with curb and gutter and a storm water collection system to improve drainage conditions.

### **2.1 PURPOSE AND NEED**

The purpose of this project is to enhance safety and multimodal access through a series of complete street strategies along Combee Road from US 98 to Skyview Drive in Polk County. Improvements such as sidewalks, safer pedestrian crossings, bicycle facilities, and drainage and lighting improvements will be evaluated to enhance the corridor for all types of users. The need for the project is based on the following criteria:

#### **2.1.1 Modal Interrelationships**

The primary purpose of the proposed project is to enhance mobility and access on this corridor for all road users considering context sensitive design opportunities and limitations. Combee Road includes a mix of industrial, retail/office, and residential land uses. Despite the mixture of land uses and heavy volumes of pedestrian and bicycle traffic, the corridor is not well suited for walking or riding a bicycle. Additionally, there are eight transit stops within the corridor (five on the east side and three on the west side) that have minimal amenities and minimal separation from the roadway. Bicycle lanes consist of unpaved shoulders, and there are no pedestrian facilities along the roadway within the project limits except for minimal-width sidewalks on the west side near Commerce Point Drive (approximately 250 feet) and from Royal Street to Skyview Drive (approximately 500 feet). The proposed project will allow for better overall multimodal access to retail, employment, and residential destinations in the area.

#### **2.1.2 Safety**

Combee Road experienced high rates of rear-end crashes, not at signalized intersections, between 2010 and 2014:

- Six rear-end crashes between US 98 and Maine Avenue,
- Four rear-end crashes between Maine Avenue and Commerce Point Drive, and
- 15 rear-end crashes between Commerce Point Drive and South Crystal Lake Road.

The high rate of this crash type is likely attributed to congestion during peak hours where left turning traffic frequently blocks travel lanes and the high percentage of heavy trucks in the corridor mixed with non-truck traffic. Additionally, the project facility experienced two collisions involving pedestrians at Commerce Point Drive. If no improvements occur to the existing roadway, the greater the opportunity for vehicle-to-vehicle and vehicle-to-pedestrian/bicycle conflicts as traffic increases along the project facility.

Combee Road has a safety ratio that ranges between 1.3 and 2.9, indicating that there are between one to almost three times as many crashes on this corridor than the State average for a similar facility type.

The proposed project is anticipated to improve safety conditions along the roadway by constructing a 12-foot center two-way left turn lane, two-foot curb and gutter on both sides, and six-foot enhanced sidewalks on both sides.

### **2.1.3 Transportation Demand**

The existing roadway is operationally deficient and is not able to safely accommodate the multiple transportation modes that use the corridor, which includes a mix of heavy trucks, passenger vehicles, transit buses, and non-motorized modes. During peak congestion hours, traffic queues build-up due to left-turn vehicles blocking travel lanes. The 2016 annual average daily traffic (AADT) for the corridor was 15,600 vehicles. Combee Road serves as a freight route providing access to many industrial businesses in the area. Approximately 11.3% of the 2016 AADT on the roadway is composed of trucks. Not only does this roadway facilitate truck traffic and the distribution of goods to local activity areas, it functions as an important corridor for commuters due to its access to major transportation facilities and surrounding residential and commercial land uses. The project will improve the operational conditions of the corridor by increasing overall capacity, providing a dedicated center two-way left turn lane, and accommodating multiple modes of transportation.

### **2.1.4 Social and Economic Demand**

The complete streets improvement project will promote aesthetics and economic activity in the corridor by providing individuals with enhanced alternative transportation options and improved multi-modal access to businesses, residences, and community facilities in the area. Community facilities in the area that will benefit from improved accessibility include Oscar J. Pope Elementary School, South McKeel Elementary Academy, Crystal Lake Middle School, Southeastern University, churches, and restaurants.

### **2.1.5 Project Status**

The project is identified in the Polk Transportation Planning Organization's (TPO's) Long Range Transportation Plan (LRTP) - Momentum 2045 - as part of the Tier II & III Cost Feasible Complete Street Corridors. Combee Road is also designated a "constrained" roadway in the Momentum 2045 plan, which designates this road as a candidate Congestion Management Plan corridor. The design has been funded, but the right of way or construction phases are currently not funded within the Polk TPO's Transportation Improvement Program (TIP) or within FDOT's State Transportation Improvement Program (STIP).

## 3.0 ALTERNATIVES CONSIDERED

Alternatives for this project include the following:

- No-Build;
- Alternative 1; and
- Alternative 2.

Since Alternative 1 and Alternative 2 have the same alignment and right of way footprint, they are described as the Build Alternatives in the remainder of this report. The Preferred Alternative is Alternative 2.

### 3.1 *NO-BUILD ALTERNATIVE*

The No-Build Alternative assumes no improvement to SR 659 (Combee Road) other than routine maintenance. It provides a benchmark for comparative purposes with the Build Alternatives.

The advantages of the No-Build Alternative include the following:

- No impact to the adjacent natural, physical, and human environments
- No expenditure of funds for right of way acquisition or construction
- No utility impacts

The disadvantages of the No-Build Alternative include the following:

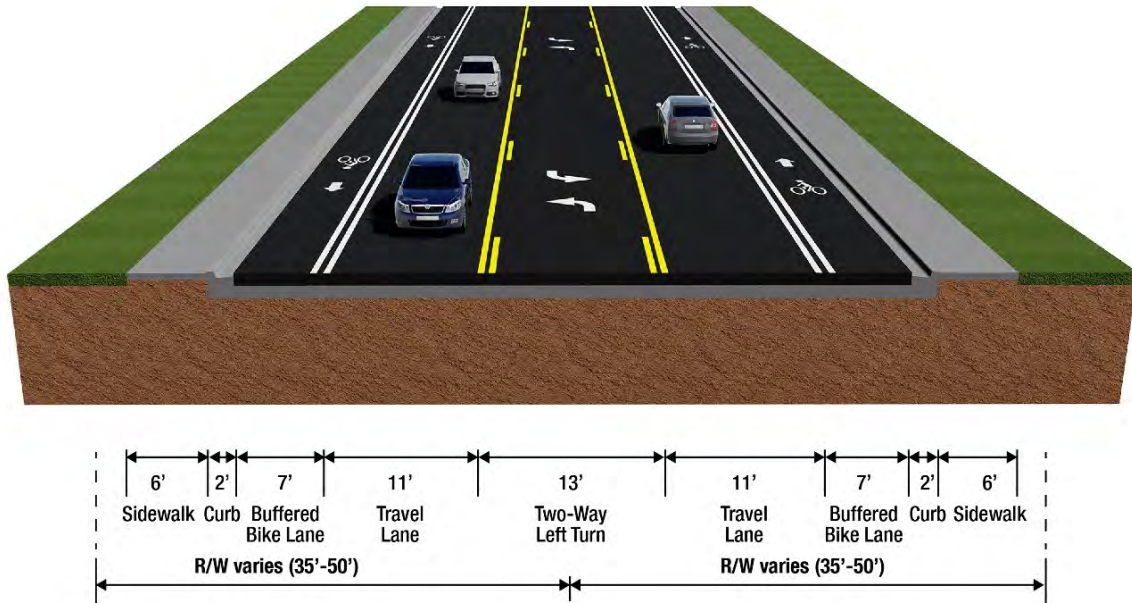
- Not consistent with the Polk TPO's Complete Streets Action Plan
- Does not enhance pedestrian and bicycle accommodations along the roadway
- Does not improve safety conditions
- Does not improve vehicular traffic operations

The No-Build Alternative remains a viable alternative throughout the study and the public involvement process.

### 3.2 *ALTERNATIVE 1*

Alternative 1 proposes one lane in each direction separated by a 13-foot wide two-way left turn lane. This alternative includes 6-foot wide sidewalks for pedestrians and 7-foot wide buffered bicycle lanes for cyclists. The existing roadside stormwater ditches would be replaced by a closed drainage system with curb and gutter. As part of this alternative, roundabouts were considered at the intersections of Maine Avenue and Skyview Drive. The proposed typical section is provided in **Figure 3-1**.

There are three (3) pond options for Alternative 1. Stormwater Management Feature (SMF) 1A is located on the west side of SR 659 (Combee Road), south of McLunkin Road and is 4.27 acres in size. SMF 1B is located on the east side of SR 659 (Combee Road), south of Maine Avenue and is 1.36 acres in size. SMF 1C is located on the east side of SR 659 (Combee Road), south of Mine and Mill Road on the south side of the railroad and is 1.29 acres in size.

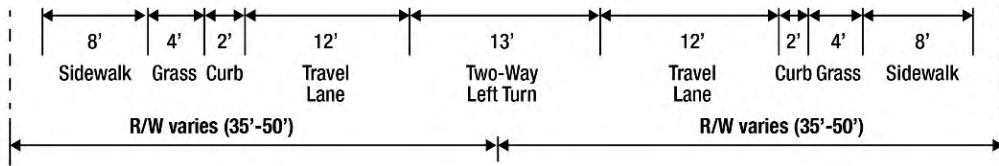


**Figure 3-1 Proposed Typical Section for Alternative 1**

### 3.3 ALTERNATIVE 2

Alternative 2 provides a more comfortable environment for pedestrians and cyclists. This includes 8-foot wide sidewalks and a 4-foot wide minimum buffer between the sidewalk and back of curb. Similar to Alternative 1, Alternative 2 provides one lane in each direction separated by a 13-foot wide two-way left turn lane; however, no separate bicycle lanes are proposed. The proposed 12-foot wide travel lanes provide greater maneuverability for trucks and transit vehicles that regularly use the corridor. The existing roadside stormwater ditches would be replaced by a closed drainage system with curb and gutter. As part of this alternative, roundabouts were considered at the intersections of Maine Avenue and Skyview Drive. The proposed typical section is provided in **Figure 3-2**.

The three (3) pond options for Alternative 2 are the same as for Alternative 1. Stormwater Management Feature (SMF) 1A is located on the west side of SR 659 (Combee Road), south of McLunkin Road and is 4.27 acres in size. SMF 1B is located on the east side of SR 659 (Combee Road), south of Maine Avenue and is 1.36 acres in size. SMF 1C is located on the east side of SR 659 (Combee Road), south of Mine and Mill Road on the south side of the railroad and is 1.29 acres in size.



**Figure 3-2 Proposed Typical Section for Alternative 2**

## 4.0 EXISTING CONDITIONS

Pursuant to Presidential Executive Order 11990 entitled “Protection of Wetlands,” the United States Department of Transportation (USDOT) has developed the policy Preservation of the Nation’s Wetlands (USDOT Order 5660.1A), dated August 24, 1978, which requires all federally-funded highway projects to protect wetlands to the fullest extent possible. In accordance with this policy, the project study area was evaluated to assess potential wetland impacts that may be associated with the proposed improvements.

The study area is defined as the 500-foot corridor (250 feet east and west of the SR 659 centerline). This section presents a description of existing conditions within the project study area, including soils and land use/vegetative cover types within both wetlands and uplands. **Section 5.0** presents a description of the potential impacts to federal- and state- listed species and proposed conservation measures to off-set these impacts. **Section 6.0** presents a description of wetland and surface water impacts that would result from construction of the proposed project and a discussion of the mitigation options to offset these impacts.

### 4.1 METHODOLOGY

To assess the approximate locations and boundaries of existing wetland and upland communities within the project area, the following site-specific data were collected and reviewed:

- Aerial photographs (scale, 1 inch = 400 feet), ESRI 2018;
- U.S. Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), *Soil Survey of Polk County, Florida* (NRCS 1990);
- Florida Association of Environmental Soil Scientists, *Hydric Soils of Florida Handbook*, 4th Edition (Hurt, 2007);
- FDOT, Florida Land Use, Cover and Forms Classification System (FLUCFCS) Handbook, 3rd Edition (FDOT, 1999);
- Southwest Florida Water Management District (SWFWMD) FLUCFCS GIS Database (SWFWMD 2011);
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory, Wetlands Online Mapper (January 2019); 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 as per 62.340 Florida Administrative Code and Section 373.019 (27), Florida Statutes. Surface waters are defined as open water bodies (principally, Crystal Lake) or streams/waterways including roadside ditches.

Environmental scientists familiar with Florida natural communities conducted field reviews of the study area on October 17, 2018 and January 24, 2019. Field reviews consisted of pedestrian transects throughout all natural habitat types found within the 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 photo 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 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.

## 4.2 RESULTS

Based on site-specific data searches and field evaluations, a total of 10 soil types, 12 upland habitat types, and three (3) 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.

### 4.2.1 Soils

Based on the *Soil Survey of Polk County, Florida* (NRCS, 1990), the study area, including the three (3) pond sites, is comprised of 10 soil types. **Appendix A** provides aerial maps depicting the boundaries of each soil type within the study area in addition to individual soil descriptions and their general characteristics. According to the *Hydric Soils of Florida Handbook* (Hurt, 2007), one (1) of the soil types reported within the study area is classified as hydric and nine (9) are listed as non-hydric. Of the nine (9) non-hydric soils, four (4) are reported as having hydric soil inclusions. Mapped hydric soils comprise 1.08 acres (0.87 percent) and non-hydric soils cover 118.11 acres (94.89 percent) of the study area. The remaining 5.28 acres (4.24 percent) of the study area is designated as open water.

**Table 4-1** lists the soil types reported within the study area, their corresponding NRCS reference numbers reported in the *Soil Survey of Polk County, Florida* their hydric classification, and the approximate acreage and percentage of each soil type within the study area.



**Table 4-1 Soil Types and Coverage within the Combee Road Study Area and Pond Sites**

Soil Type	Hydric	Area within Project Study (Acres)	Percent of Project Study Area
	Y/N		
11 Arents-Water complex*	N	0.24	0.19
16 Urban land	N	53.52	43.00
17 Smyrna and Myakka Fine Sands	N	3.66	2.94
21 Immokalee sand*	N	15.91	12.78
22 Pomello fine sand	N	1.96	1.58
25 Placid and Myakka fine sands, depressional	Y	1.08	0.87
31 Adamsville fine sand	N	0.93	0.75
53 Myakka-Immokalee-Urban Land Complex*	N	6.57	5.28
54 Pomello-Urban Land complex*	N	4.19	3.36
63 Tavares-Urban land complex	N	31.14	25.02
99 Water	N/A	5.28	4.24
<b>Total Hydric Soils</b>		<b>1.08</b>	<b>0.87</b>
<b>Total Non-Hydric Soils</b>		<b>118.11</b>	<b>94.89</b>
<b>Total Water</b>		<b>5.28</b>	<b>4.24</b>
<b>Total</b>		<b>124.47</b>	<b>100.00</b>

\* May have hydric soil inclusions

#### 4.2.2 Existing Land Use

A total of 12 upland and three (3) wetland habitat types were found within the study area and pond sites evaluated. Descriptions and aerial maps depicting existing land uses and habitats within the project study area are provided in **Appendix B. Table 4-2** provides land use and habitat types and their FLUCFCS classifications, in addition to their total acreage and percent coverage within the study area.

Existing land use within the study area was determined through the interpretation of 1" = 100' scale aerial photography, review of land cover GIS data obtained from the SWFWMD, and field reconnaissance of the project corridor conducted on October 17, 2018 and January 24, 2019.

Upland communities comprise 117.09 acres (94.07 percent) of the project study area and generally includes residential areas, commercial and services, industrial, upland forests, and transportation. Wetland and surface water communities comprise 7.38 acres (5.93 percent) of the project study area and include wetland shrub, lakes, and streams/waterways. Although not within the 250-foot buffer, there are two schools (Crystal Lake Middle School and Oscar J. Pope Elementary) and two recreational parks (Eaton Park and Holloway Park) within the neighborhood.

**Table 4-2 Existing Land Uses within the Combee Road Study Area and Pond Sites**

<b>FLUCFCS Classification<sup>1</sup></b>	<b>FLUCFCS Description</b>	<b>USFWS Classification<sup>2</sup></b>	<b>Acreage within Study Area</b>	<b>Percent of Study Area</b>
131	Residential High Density	N/A	14.24	11.44
147	Mixed Commercial and Services	N/A	44.11	35.44
150	Industrial	N/A	16.47	13.23
175	Governmental	N/A	0.50	0.40
178	Commercial Child Care	N/A	0.50	0.40
185	Parks and Zoos	N/A	0.40	0.32
190	Open Land	N/A	4.25	3.41
410	Upland Coniferous Forest	N/A	2.39	1.92
434	Hardwood-Conifer Mixed	N/A	3.75	3.02
812	Railroads	N/A	0.53	0.42
814	Roads and Highways	N/A	27.81	23.35
830	Utilities	N/A	2.14	1.72
<b>Total Uplands</b>			<b>117.09</b>	<b>94.07</b>
510x	Streams & Waterways, excavated	PUB2Fx	0.18	0.14
523	Lakes between 10-100 acres	PAB3H	6.01	4.83
631	Wetland Shrub	PSS1C	1.19	0.96
<b>Total Wetlands and Surface Waters</b>			<b>7.38</b>	<b>5.93</b>
<b>Total</b>			<b>124.47</b>	<b>100.0</b>

<sup>1</sup>FDOT 1999.

<sup>2</sup>Cowardin, *et al.*, 1979.

PUB2Fx: Palustrine, Unconsolidated Bottom, Sand, Semi-permanently Flooded, excavated

PAB3H: Palustrine, Aquatic Bed, Rooted Vascular, Permanently Flooded

PSS1C: Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded

### 4.2.3 Wetlands and Surface Waters

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., 2013). Approximate wetland boundaries were identified in accordance with the State of Florida Wetlands Delineation Manual [Chapter 62-340, Florida Administrative Code (F.A.C.)] and 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).

Formal wetland boundary delineations and surveys were not conducted as a part of this study but will be completed as part of the state and federal permit process.

Based on collected field data and in-house reviews, a total of three (3) wetland and surface water habitat types were observed; one (1) wetland and two (2) surface waters were identified within the study area. The wetland type was classified as a wetland shrub and the surface water types included an excavated stream/waterway and a lake.

**Appendix B** provides individual descriptions of the identified wetland and surface water, 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 waters designated as Outstanding Florida Waterways, Aquatic Preserves or Wild and Scenic Rivers within the project study area. Representative photographs of each community type are provided in **Appendix C**.

## 5.0 PROTECTED SPECIES

This project was evaluated for impacts to wildlife and habitat resources, including protected species, in accordance with 50 CFR Part 402 of the Endangered Species Act (ESA) of 1973, as amended, the Florida Endangered and Threatened Species Act, Section 379.2291, Florida Statutes (FS), and Part 2, Chapter 16 of the PD&E Manual. 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 Service (NOAA-NMFS) pursuant to the Endangered Species Act of 1973 (as amended). The USFWS administers the federal list of animal species (50 CFR 17) and plant species (50 CFR 23). Federal protection of marine species is the responsibility of the NOAA-NMFS.

Administered by the FWC, the State of Florida affords special protection to animal species designated 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. Protected species evaluations were completed in accordance with FHWA's 2002 Memorandum, titled "Management of the Endangered Species Act Environmental Analysis and Consultation Process".

An ETDM Programming Screen Summary Report was published on March 29, 2018 containing comments from the Environmental Technical Advisory Team (ETAT) on the project's effects on various natural, physical and social resources. The USFWS, SWFWMD and FWC were commenting agencies for Wildlife and Habitat. Wildlife and Habitat were assigned a degree of effect of 2 – Minimal. The project is located within the USFWS Consultation Areas (CAs) of multiple federally protected species, several wood stork core foraging areas, and potential nesting areas for bald eagles.

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 proposed project alternatives may have on protected species.

### 5.1 DATA COLLECTION

To determine federal- and state-listed protected plant and animal species that have potential to occur within the study area and to identify the approximate locations of existing upland and wetland communities, available site-specific data was collected and evaluated.

Literature reviewed, and databases searched as part of this evaluation included:

- U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, June 2007;
- FWC, Florida's Endangered Species and Threatened Species, January 2017;
- FWC, Eagle Nest Locator website (<https://public.myfwc.com/FWRI/EagleNests/nestlocator.aspx>), April 2015;

- FWC, Wading Bird Rookeries website ([http://ocean.floridamarine.org/TRGIS/Description\\_Layers\\_Terrestrial.htm](http://ocean.floridamarine.org/TRGIS/Description_Layers_Terrestrial.htm)), 1999;
- FNAI Biodiversity Matrix Map Server (<http://www.fnai.org/biointro.cfm>);
- U.S. Fish and Wildlife Service, 2010 Wood Stork Nesting Colonies Maps (<http://www.fws.gov/northflorida/woodstorks/wood-storks.htm>), January 2019;
- U.S. Fish and Wildlife Service, 2020 Peninsular Florida Species Conservation and Consultation Guide, Sand Skink and Blue-tailed (Bluetail) Mole Skink; and
- USFWS, Critical Habitat Portal website (<http://criticalhabitat.fws.gov/crithab/>).

Environmental scientists familiar with Florida natural communities conducted field reviews of the project area and adjacent habitats and general species surveys on October 17, 2018, January 24, 2019, and October 6, 2020. For the purposes of this study, the project study area is defined as a 500-foot corridor (250 feet east and west of the Combee Road centerline). Field reviews consisted of reviewing all natural habitat types located within the 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 photo interpretation. During field investigations, each upland and wetland community within the study area was visually inspected. Attention was given to identifying dominant plant species composition for each community. Additional attention was given to identifying wildlife and signs of wildlife usage in each wetland and upland community within the study area. The FNAI was contacted for documented occurrences of listed species within one mile of the study area (see **Appendix E** for the FNAI data report).

Based on the evaluation of collected data, field reviews, the FNAI data report, and database searches, the federal- and state-listed protected species discussed in **Section 5.2** were considered as having the potential to occur within or adjacent to the study area. For a species to be considered potentially present the study area must be within the species' distribution range. An effect determination was then made for each federal- and state-listed species based on an analysis of the potential impacts of the proposed alternatives to each species.

## **5.2 RESULTS**

Based on the information collected, field reviews, and general species, a list of protected species with the potential to occur within the study area was generated. This list includes a total of 42 federal or state protected species that have the potential for occurrence within the project study area. These protected species include 24 floral, 5 reptilian, and 13 avian species. **Appendix F** presents a list of protected species with the potential to occur within the study area, their federal or state protection status, preferred habitat, and a ranking of potential occurrence. Locations of all listed species documented within one 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 None, Low, Moderate, or High based on the type of habitat present within the study area, its relative condition, and if the species has been previously documented or was observed in the study area. A *None* rating indicates that no habitat for that species was found within the study area. A *Low* rating indicates that minimal/suboptimal habitat for that species was found within the study area, but the species has not been documented within the study area. A *Moderate* rating indicates that suitable habitat exists, and the species has been documented within one mile of the study area. A *High* rating indicates that suitable habitat exists, and the species was observed during field reviews.

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 because 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 below are the “effect” determinations for each species.

## 5.2.1 Federal Protected Species

### 5.2.1.1 Flora

#### **Florida Bonamia (*Bonamia grandiflora*)**

The Florida bonamia is a morning glory vine with large, blue flowers that is listed as **threatened** by the **USFWS**. This species is a member of the morning-glory (*Convolvulaceae*) family and occurs on open or disturbed areas in white sand scrub on central Florida ridges that include scrub oaks, sand pine, and lichens. Suitable habitat for the Florida bonamia is not available within the study area within the xeric oak habitat. According to FNAI data, Florida bonamia has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the Florida bonamia.

#### **Pygmy Fringe Tree (*Chionanthus pygmaeus*)**

The pygmy fringe tree is a shrub/small tree with white and green flowers that is listed as **endangered** by the **USFWS**. This species is a member of the olive (*Oleaceae*) family and occurs on scrub, sandhill, and xeric hammocks, primarily on the Lake Wales Ridge. Suitable habitat for the pygmy fringe tree is not available in the study area. According to FNAI data, the pygmy fringe tree has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the pygmy fringe tree.

### **Scrub Pigeon-Wing (*Clitoria fragrans*)**

The scrub pigeon-wing is a perennial herb with showy white to pink/purplish flowers that is listed as **threatened** by the **USFWS**. This species is a member of the pea (*Fabaceae*) family and occurs on turkey oak barrens with wire grass or scrub/scrubby high pine. Suitable habitat for this species is not available within the study area. According to FNAI data, the scrub pigeon-wing has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the scrub pigeon-wing.

### **Short-Leaved Rosemary (*Conradina canescens* = *C. brevifolia*)**

The short-leaved rosemary is a short-lived, erect, woody, perennial shrub that is listed as **endangered** by the **USFWS**. This species is a member of the mint (*Lamiaceae*) family and occurs on white sands of sand pine-oak scrub of the Lake Wales Ridge and the scattered overstory of sand and scrub oak. Suitable habitat for this species is not available within the study area. According to FNAI data, short-leaved rosemary has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the short-leaved rosemary.

### **Scrub Buckwheat (*Eriogonum longifolium* var. *gnaphalifolium*)**

Scrub buckwheat is a short perennial herb that is listed as **threatened** by the **USFWS**. 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. Suitable habitat is not available within the study area. According to FNAI data, scrub buckwheat has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on 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**. This species is a member of the agave (*Agavaceae*) family and occurs on scrub, sandhill, scrubby flatwoods, and xeric hammock. Suitable habitat is not available within the study area. According to FNAI data, Britton’s beargrass has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on Britton’s beargrass.

### **Papery Nailwort (*Paronychia chartacea* ssp. *chartacea*)**

The papery nailwort is an annual herb with spreading wiry stems and small white flowers that is listed as **threatened** by the **USFWS**. This species is a member of the pink

(*Caryophyllaceae*) family and occurs in white sand clearing of scrub. Suitable habitat is not available within the study area. According to FNAI data, the papery nailwort has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the papery nailwort.

#### **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**. This species is a member of the milkwort (*Polygalaceae*) family and occurs on oak scrub, sandhill, and transition zones between high pine and turkey oak barrens. Suitable habitat for this species is not available within the study area. According to FNAI data, the Lewton’s polygala has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the Lewton’s polygala.

#### **Florida Jointweed (*Polygonella basiramia*)**

The Florida jointweed is a perennial herb with slender, wiry, red or green stems, tiny red or green leaves and very small white/pinkish flowers that is listed as **endangered** by the **USFWS**. This species is a member of the buckwheat (*Polygonaceae*) family and occurs on white sands of sand pine scrub. Suitable habitat for this species is not available within the study area. According to FNAI data, the Florida jointweed has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the Florida jointweed.

#### **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**. This species is a member of the mustard (*Brassicaceae*) family and occurs on sandhill, scrubby flatwoods, and inland scrub habitat. Suitable habitat is not available within the study area. According to FNAI data, the Carter’s warea has the potential to occur within Polk County; however, it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information and the lack of preferred habitat within the study area, it has been determined that the project will have “**no effect**” on the Carter’s warea.

### 5.2.2.1 Fauna

#### ***Reptilian***

#### **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. While there is suitable habitat for this species throughout the undeveloped communities of the study area, the eastern indigo snake was not observed during field reviews. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and the proposed project will impact less than 25 acres of xeric habitat; however, it is reasonable to expect that these species could utilize suitable habitat within the study area. To minimize potential adverse impacts to the eastern indigo snake, FDOT will implement the USFWS *Standard Protection Measures for the Eastern Indigo Snake* (updated August 2013) during the proposed roadway improvements (see **Appendix G**). With the implementation of these measures, it has been determined that the project “**may affect, not likely to adversely affect**” the eastern indigo snake. The path to this determination followed the key steps A →B→C→D→MANLAA as shown in Appendix G.

### **Blue-tailed Mole Skink (*Plestiodon egregius lividus*) and Sand Skink (*Plestiodon reynoldsi*)**

The blue-tailed mole skink and sand skink are small lizard-like reptiles 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 areas, 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 USFWS Sand Skink Survey Protocol (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 28 soil types designated as sand skink soils by the USFWS. The project lies within the USFWS Sand Skink Consultation Area (CA) and includes suitable skink soils at a suitable elevation at the northern end of the project. According to FNAI data, no blue-tailed mole skinks or sand skinks have been documented within one mile of the study area and no skink tracks were observed during field reviews. Additionally, soil samples were taken within the existing ROW in the area that was classified as suitable sand skink soils and were found to be modified soils (see **Appendix H**). Based on this information, it has been determined that the project will have “**no effect**” on the blue-tailed mole skink and sand skink.

### ***Avian***

### **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 study area lies within the USFWS Florida Grasshopper Sparrow CA, there is no habitat for this species within the study area and it was not observed during the field reviews or species surveys. According to FNAI data, the Florida grasshopper sparrow has not been documented within one mile of the study area. Based on this information, it has been determined that the project will have “**no effect**” 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 study area lies within the USFWS Florida Scrub-jay CA, there is no habitat for this species within the study area and it was not observed during the field reviews or species surveys. According to FNAI data, the Florida scrub jay has not been documented within one mile of the study area. Based on this information, it has been determined that the project will have “**no effect**” 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, cabbage palm/live oak hammocks, and shallow ponds and sloughs. It also requires cabbage palms or live oaks with low-growing surrounding vegetation for nesting. While the study area lies within the USFWS Crested Caracara CA, there is no habitat for this species within the study area and it was not observed during the field reviews or species surveys. According to FNAI data, the crested caracara has not been documented within one mile of the study area. Based on these results, it has been determined that the project will have “**no effect**” 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 opportunistic 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 2 and 15 inches is considered suitable foraging habitat for this species. Foraging habitat for the wood stork is present within the study area; however, no individuals were observed foraging in the wetland or surface water areas.

According to the USFWS wood stork colony website, the study area is located within the 18.6-mile buffer of 3 active wood stork nesting colonies; however, none are located within one mile of the study area (see **Figure 5-1 Wood Stork Core Foraging Area Map**). The primary concern for this species is loss of suitable foraging habitat within the CFA of a wood stork colony. Since anticipated impacts are less than 0.5 acres a wood stork suitable foraging analysis was not required. If the amount of wetland and surface water impacts combined are 0.5 acres or more a wood stork suitable foraging analysis will need to be completed.

As part of this project, impacts to wetlands within the study area will be mitigated for 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 pursuant to Section 373.4137, F.S. Therefore, it has been determined that the proposed project “**may affect, not likely to adversely affect**” the wood stork. The path to this determination followed the key steps A →B→C→E→MANLAA as shown in Appendix G.

### **Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)**

The Everglade snail kite is listed as endangered by the USFWS due to degradation of its restricted range of foraging habitat and its highly specific diet, which is made up almost exclusively of apple snails (*Pomacea paludosa*). Snail kites typically prefer large, open, freshwater marshes and shallow lakes (< 4 ft. deep) with a low density of emergent vegetation and typically nest in low

trees or shrubs over water (commonly willow, wax myrtle, pond apple, or buttonbush, but also in non-woody vegetation like cattail or sawgrass). They are protected under the Endangered Species Conservation Act, U.S. Migratory Bird Treaty Act and state wildlife laws. The nesting season for this species occurs between December 1 and July 31 and, if a nest is located on a property, requires two buffer zones around each nest to be established: a 500-foot no-entry buffer zone and a 1,640-foot limited activity buffer zone. Snail kites do not exhibit fidelity to a specific nest site from year to year.

Within the study area, there is a small lake (Crystal Lake). However, suitable snail kite habitat within the lake is minimal, and no impacts to Crystal Lake are proposed by the build alternatives. No snail kites have historically been documented within one mile of the study area and no individuals were sighted during field reconnaissance. Therefore, it has been determined that the proposed project will have “**no effect**” on the Everglade snail kite.

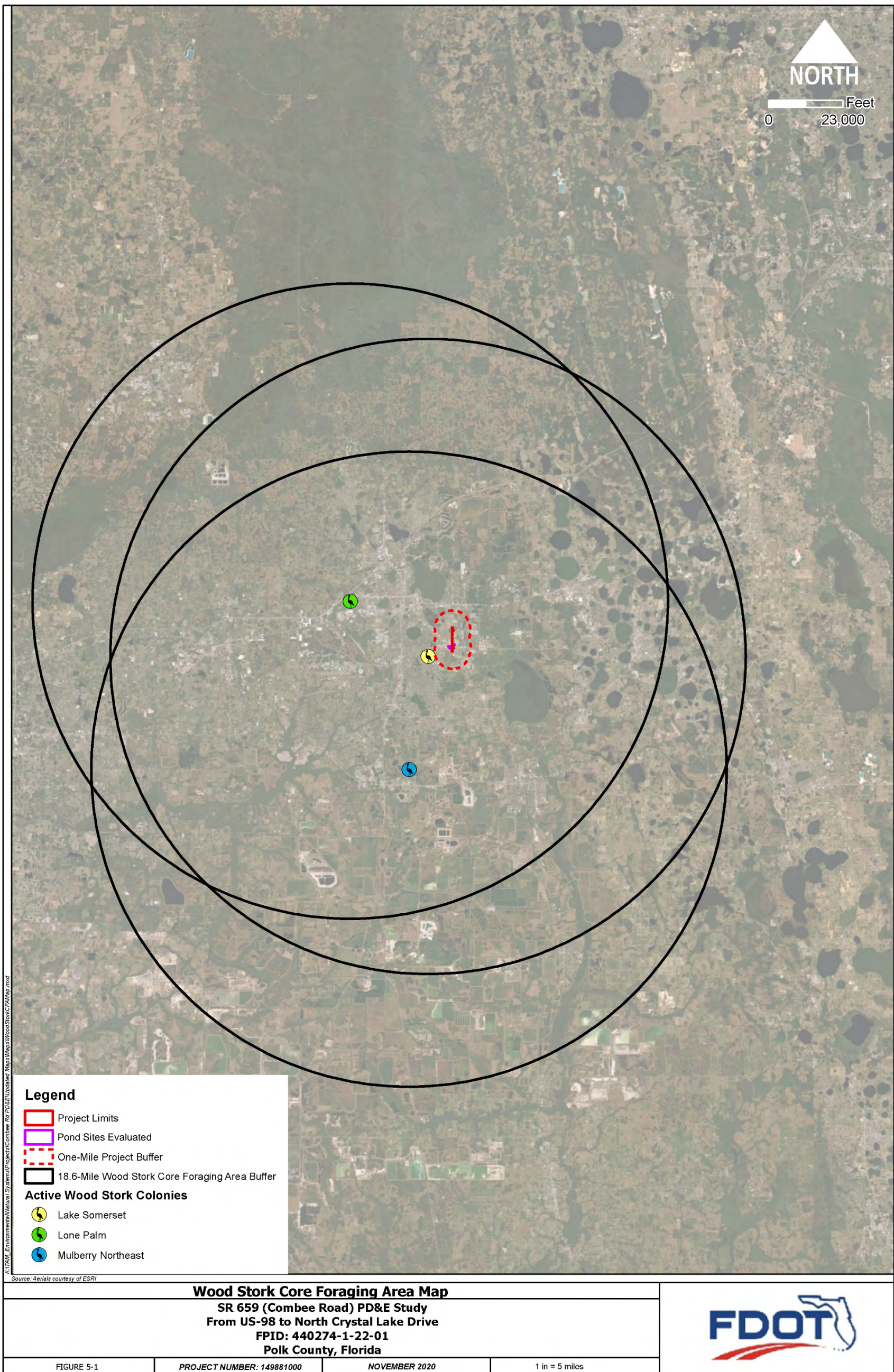


Figure 5-1 Wood Stork Core Foraging Area Map

### **Red-cockaded Woodpecker (*Picoides borealis*)**

The red-cockaded woodpecker is small woodpecker that is listed as **endangered** by the **USFWS**. The red-cockaded woodpecker is found primarily in open, mature pine woodlands that have a diversity of grass and forbs. Though no individuals have been documented within one mile of the study area and no visual observations were made during field reviews, the study area is located within the USFWS Red-cockaded Woodpecker CA. Based on this information and the lack of suitable habitat within the project area, it has been determined that the proposed project “**no effect**” the red-cockaded woodpecker.

## **5.2.2 State Protected Species**

### *5.2.2.1 Flora*

### **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 is found mostly in openings of pine scrub habitat in Florida but can also be found in disturbed areas such as abandoned fields, roadsides, and fire lanes. Suitable habitat for this species is not available within the study area. According to FNAI data, Ashe’s savory has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the 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 dry to moist flatwoods with longleaf pine, saw palmetto, and wiregrass. Suitable habitat for this species is not available within the study area. According to FNAI data, the many-flowered grass-pink has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the many-flowered grass pink.

### **Chapman’s sedge (*Carex chapmannii*)**

Chapman’s sedge is a perennial smooth sedge forming small to large tufts that is listed as **threatened** by the **FDACS**. This species is a member of the sedge (*Cyperaceae*) family and may occur in well-drained hammocks and floodplains of blackwater streams with intermittent floods. Suitable habitat for this species is not available within the study area. According to FNAI data, Chapman’s sedge has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the Chapman’s sedge.

### **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 typically occurs on sandhill, scrubby flatwoods, and dry upland woods. Suitable habitat for this species is not available within the study area. According to FNAI data, the sand butterfly pea has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the sand butterfly pea.

### **Hartwrightia (*Hartwrightia floridana*)**

Hartwrightia is listed as **threatened** by the **FDACS**. This species is a member of the composite (*Asteraceae*) family and occurs on seepage slopes, edges of baygalls and springheads, wet prairies, and flatwoods with wet, peaty soils. Suitable habitat for this species is not available within the study area. According to FNAI data, the hartwrightia has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the hartwrightia.

### **Nodding Pinweed (*Lechea cernua*)**

The nodding pinweed is a small erect forb that is listed as **threatened** by the **FDACS**. This species is a member of the rock-rose (*Cistaceae*) family and is found in deep sands, usually ancient dunes, on which the most common forest is a mixture of evergreen scrub oaks. Suitable habitat for this species is not available within the study area. According to FNAI data, the nodding pinweed has the potential to occur within Polk County and the species has not been documented within one mile of the project area since 1987 (FNAI, 2015). Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the nodding pinweed.

### **Florida Spiny-pod (*Matelea floridana*)**

The Florida spiny-pod is a deciduous herbaceous vining plant that is listed as **endangered** by the **FDACS**. This species is a member of the milkweed (*Asclepiadaceae*) family and occurs on a variety of wooded habitats from fairly moist woods to upland hardwood forests. Suitable habitat for this species is not available within the study area. According to FNAI data, the Florida spiny-pod has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the Florida spiny-pod.

### **Celestial Lily (*Nemastylis floridana*)**

The celestial lily is a perennial herb with a single, tall, slender stem and a dark blue flower 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 cabbage palm hammocks edges. Suitable habitat for this species is not available within the study area. According to FNAI data, the celestial lily has the potential to occur within Polk County, but it has not been documented within

one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the celestial lily.

#### **Florida Beargrass (*Nolina atopocarpa*)**

Florida beargrass is a perennial herb with long, stiff leaves and clusters of small white flowers that is listed as **threatened** by the **FDACS**. This species is a member of the agave (*Agavaceae*) family and occurs on pine flatwoods and scrubby flatwoods. Suitable habitat for this species is not available within the study area. According to FNAI data, the Florida beargrass has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the Florida beargrass.

#### **Cutthroat Grass (*Panicum abscissum*)**

Cutthroat grass is a grass that grows approximately two feet tall with purple panicles and is listed as **endangered** by the **FDACS**. This species is a member of the grass (*Poaceae*) family and occurs on dry prairies, mesic flatwoods, wet flatwoods, depressional marshes, and seepage slopes. Suitable habitat for this species is not available within the study area. According to FNAI data, the cutthroat grass has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect**” on the cutthroat grass.

#### **Yellow Fringeless Orchid (*Platanthera integra*)**

The yellow fringeless orchid is a medium sized terrestrial orchid with orange-yellow flowers that is listed as **endangered** by the **FDACS**. This species is a member of the orchid (*Orchidaceae*) family and occurs in wet pine flatwoods, wet prairies, seepage slopes, and depressions within pinelands, marshes, and swamps. Suitable habitat for this species is not available within the study area. According to FNAI data, the yellow fringeless orchid has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the yellow fringeless orchid.

#### **Giant Orchid (*Pteroglossaspis ecristata*)**

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. This species occurs on sandhill, scrub, pine flatwoods, and pine rocklands. Suitable habitat for this species is not available within the study area. According to FNAI data, the giant orchid has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the giant orchid.

### **Florida Willow (*Salix floridana*)**

The Florida willow is a tall tree or shrub with gray bark and brittle, reddish-brown twigs that is listed as **endangered** by the **FDACS**. This species is a member of the willow (*Salicaceae*) family and occurs in springheads, edges of spring runs, hydric hammocks, and floodplains. Suitable habitat for this species is not available within the study area. According to FNAI data, the Florida willow has the potential to occur within Polk County, but it has not been documented within one mile of the study area. Additionally, this species was not observed during the field reviews or species surveys of the study area. Based on this information, it has been determined that the project will have “**no effect anticipated**” on the Florida willow.

#### 5.2.2.1 Fauna

### ***Reptilian***

### **Gopher Tortoise (*Gopherus polyphemus*)**

The gopher tortoise is listed as **threatened** by the **FWC** and is a candidate species for listing under the Endangered Species Act by **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. Suboptimal habitat was observed adjacent to the existing ROW in the northeast section of the project limits. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and no individuals or burrows were observed during field reviews. If gopher tortoises or burrows are found within the project area, FDOT will coordinate with the FWC to secure all permits needed to relocate the tortoises and associated commensal species prior to construction. With the implementation of these measures, it has been determined that this project will have “**no adverse effect anticipated**” on the gopher tortoise

### **Florida pine snake (*Pituophis melanoleucus mugitus*)**

The Florida pine snake is listed as **threatened** by **FWC**. This species requires dry, sandy soils for burrowing and is most often found in pine hammocks, turkey oak hammocks, scrub, sandhill, and abandoned agricultural fields. Minimal habitat for this species occurs within the study area, and no habitat is proposed to be impacted by the proposed project. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and no individuals were observed during field reviews. Based on this information, it has been determined that the project will have “**no adverse effect anticipated**” on the Florida pine snake.

### **Short-tailed snake (*Lampropeltis extenuate*)**

The short-tailed snake is listed as **threatened** by **FWC**. This species' preferred habitat is longleaf pine-turkey oak forests, but also occurs in scrub and dry oak hammocks. This species requires dry, loose, and sandy soils for burrowing, as the short-tailed snake spends the majority of its time underground. Habitat for this species was not observed within or adjacent to the project limits. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and no individuals were observed during field reviews. No habitat for this species occurs on-site. Based on this information, it has been determined that the project will have “**no adverse effect anticipated**” on the short-tailed snake.



## *Avian*

### **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. While there is minimal suitable habitat for this species adjacent to the project limits, it was not observed during the field reviews and has not been documented within one mile of the study area. Based on this information, 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 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. Suitable habitat for these wading birds is available within the study area within wetland and surface waters. According to FNAI data and the FWC Wading Bird Rookery Database, none of these species or rookeries has been documented within one mile of the study area and none were observed during field reviews.

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 habitat functions and values. Since the mitigation of impacts will be undertaken by FDOT, it has been determined that the proposed project will have “**no adverse effect anticipated**” on the little blue heron, tricolored heron, and roseate spoonbill.

### **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. Nests are generally a mound of herbaceous plant material in shallow water or on the ground in marshy areas. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and no individuals or nests were observed during field reviews. FDOT will survey areas of suitable nesting habitat prior to construction if construction activities take place during the nesting season (January through July), and will coordinate with the FWC if nesting pairs are identified within 400 feet of the project’s construction limits. With the implementation of these measures, it has been determined that the project will have “**no adverse effect anticipated**” on the Florida sandhill crane.

### **Southeastern American Kestrel (*Falco sparverius paulus*)**

The southeastern American kestrel is the smallest falcon in United States. It is listed as **threatened** by the **FWC**. Kestrels are secondary cavity nesters using abandoned woodpecker cavities and prefer to nest in open pine habitats, woodland edges, prairies, and pastures throughout much of Florida. Nest sites are in tall dead trees or utility poles generally with an unobstructed view of surroundings. Sandhill habitats seem to be preferred, but kestrels have been

observed in flatwoods settings. Open patches of grass or bare ground are necessary for kestrels to effectively utilize flatwoods settings, since thick palmettos may prevent detection of prey. Within the study area, suitable habitat for the southeastern American kestrel is limited and cavity trees were not observed during two (2) general wildlife field site reviews. Additionally, according to FNAI data, no individuals have been documented within one mile of the study area and no individuals or nests were observed during field reviews. Based on this information, it has been determined that the project will have “**no adverse effect anticipated**” on the southeastern American kestrel.

#### 5.2.2.1 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 federally de-listed by the **USFWS**. However, it remains federally protected under the Bald and Golden Eagle Protection Act (BGEPA) in accordance with the 16 United States Code 668 and the Migratory Bird Treaty Act of 1918. In addition, the FWC has implemented a bald eagle management plan (FWC 2008). The bald eagle tends to utilize riparian habitat associated with coastal areas, lake shorelines, and river banks. 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 Biostatistics and Modeling maintains a website of known bald eagle nest locations, which was last updated in April 2018. According to this database, two active bald eagle nests are located within one mile of the study area. Bald eagle nest PO160 is located approximately 0.2 miles (1,000 feet) east of SR 659 (Combee) Road and PO190 nest is located approximately 0.65 miles (3,440 feet) southeast of the US 98 and SR 659 (Combee) intersection (see **Figure 6-2 Bald Eagle Location Map**). The project is located outside of both nest’s primary (330 feet) and secondary (660 feet) buffer zones. Both nests were last surveyed and determined active in 2013; during the January field review an adult bald eagle was observed in flight in the vicinity of PO160 nest (see **Figure 6-2 Bald Eagle Location Map**). No bald eagle nests were observed within 660 feet of the project area during field reviews. During design and permitting, FDOT will survey the project area for eagle nests. If a nest is observed within 660 feet of the project area, FDOT will coordinate with the USFWS to secure all necessary permits.

#### 5.2.3 Critical Habitat

The study area was evaluated for the occurrence of Critical Habitat as defined by the Endangered Species Act of 1973 as amended and 50 CFR part 424. The USFWS is the authority, as a federal agency, 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.

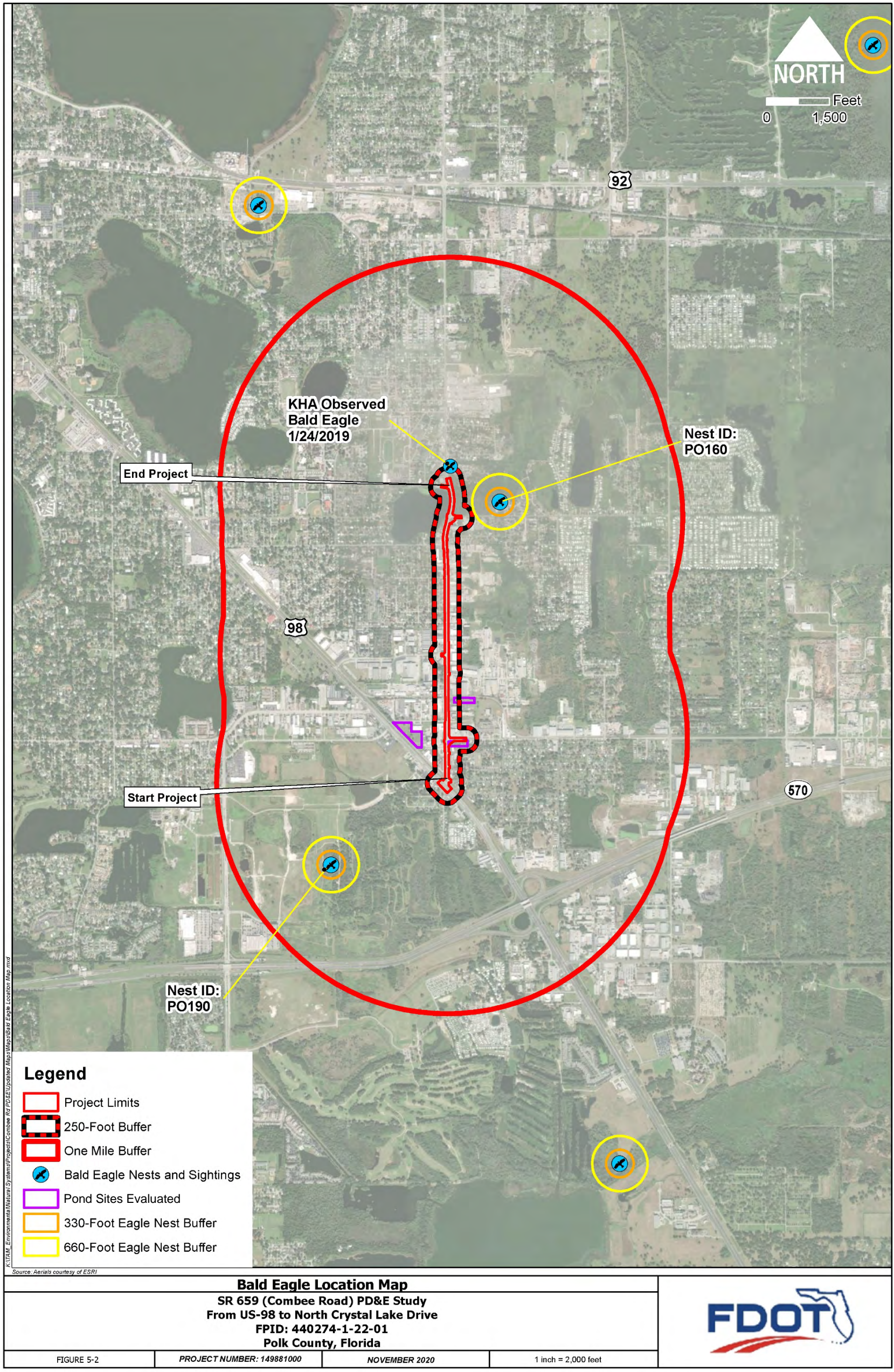


Figure 5-2 Bald Eagle Location Map

## 6.0 WETLANDS EVALUATION

### 6.1 WETLAND AND SURFACE WATER IMPACTS

The jurisdictional limits of the wetlands were estimated in accordance with the State unified wetland delineation methodologies as adopted by the FDEP and the water management districts per Chapter 62-340, Florida Administrative Code (FAC) and described in *The Florida Wetlands Delineation Manual* and the US Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual and regional supplement. The extent and types of wetlands in the project study area were documented in accordance with Executive Order EO 11990, Protection of Wetlands, and Part 2, Chapter 9 of the PD&E Manual.

FDOT 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, FDOT has determined that there is no practicable alternative to construction impacts occurring in wetlands. Any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function. Impacts to wetlands are unavoidable for the build alternatives due to their location within the project area immediately adjacent to the existing road. However, potential wetland impacts have been minimized to the extent possible by incorporating a stormwater management system which would be constructed to meet state water quality criteria, thereby minimizing water quality impacts from stormwater discharges from roadway surfaces.

An ETDM Programming Screen Summary Report was published on March 29, 2018 containing comments from the ETAT on the project's effects on various natural, physical and social resources. The USACE, FDEP, U.S. Environmental Protection Agency (EPA), SWFWMD and NMRS were commenting agencies for Wetlands and Surface Waters. Wetlands and Surface Waters were assigned a degree of effect of 2 – Minimal. The commenting agencies included comments relating to potential impacts for Crystal Lake.

For the purposes of this document, wetlands are defined as per 62.340 Florida Administrative Code and Section 373.019 (27), F.S. Surface waters are defined as open water bodies (principally, Crystal Lake).

The project area is defined as the area occupied by the build alternatives for the roadway alignment as described in **Section 3.0**. The No-Build Alternative would result in no impacts to wetlands or surface waters. For the build alternatives, potential direct impacts to wetlands and surface waters were assessed for the Combee Road corridor. **Table 6-1** shows the proposed wetland and surface water impacts within the project area by alternative. Indirect impacts will be assessed using the Uniform Mitigation Assessment Methodology (UMAM) at the time of permitting to determine loss within the 25-foot buffer of these systems.

**Table 6-1 Proposed Wetland and Surface Water Impacts**

<b>ID</b>	<b>FLUCFCS Classification<sup>1</sup></b>	<b>USFWS Classification<sup>2</sup></b>	<b>Impact Acres for Alternative 1 &amp; 2 (ac)</b>
WL 01	631	PSS1C	0.16
SW 01	523	PAB3H	0.21
SW 02	510x	PUB2Fx	0.10
<b>Total Wetland Impacts</b>			<b>0.16</b>
<b>Total Surface Water Impacts</b>			<b>0.31</b>
<b>Total Impacts</b>			<b>0.47</b>

Impacts resulting from the Build Alternatives total 0.47 acres and include 0.16 acres of wetlands and 0.31 acres of surface waters.

## **6.2 UNIFORM MITIGATION ASSESSMENT METHODOLOGY**

The UMAM per Chapter 62-345, F.A.C., is a state and federally approved method used to assess wetlands in the State of Florida. UMAM was developed by the Florida Department of Environmental Protection (FDEP) and the water management districts to determine the amount of mitigation required to offset adverse impacts to wetlands. The methodology was designed to assess functions provided by wetlands, the amount those functions are reduced by a proposed impact, and the amount of mitigation necessary to offset the proposed functional losses. This method is also used to determine the degree of improvement in ecological value that will be created by proposed mitigation activities.

The UMAM assessment includes a Qualitative Characterization (Part 1) as well as a Quantitative Assessment and Scoring (Part 2). The Qualitative Assessment is a basic descriptor of the site being evaluated. The variables described include the following:

- Significant nearby features,
- Water classifications,
- Assessment area size,
- Hydrology and relationship to contiguous off-site wetlands,
- Uniqueness of the assessment area,
- Functions of the assessment area, and
- Wildlife utilization.

The Quantitative Assessment provides a score of the assessment area in both the current condition and “with impact” condition. The assessment scoring evaluates the following parameters:

- Location and landscape support,
- Water environment, and
- Vegetative community.

### **6.3 UNIFORM MITIGATION ASSESSMENT RESULTS**

For this PD&E Study, representative UMAM scores were developed for each wetland and surface water habitat type (by FLUCFCS category) affected by the proposed project.

To calculate functional loss, the difference between the existing condition (current) scores and the proposed condition (with) scores for each habitat type (see **Table 6-2**) was multiplied by the acreage of proposed impact to determine the lost value of functions to fish and wildlife resulting from construction of the proposed project (see **Table 6-3**). The completed UMAM data sheets for each habitat type are provided in **Appendix D**. Functional loss was calculated by habitat type for the Build Alternatives. Construction of the Build Alternatives results in a loss of 0.29 functional units.

These UMAM calculations are estimates and are based on existing conditions. The UMAM scores and values presented in **Tables 6-2** and **6-3** are subject to agency review and may change during the state and federal permitting process.

**Table 6-2 Representative UMAM<sup>1</sup> Scores for Wetlands and Surface Waters (Direct Impacts)**

FLUCFCS Code	FLUCFCS Description	USFWS Classification	Representative Wetlands	Location and Landscape Support		Water Environment		Community Structure		Score (Sum/30)		Delta
				Current	With	Current	With	Current	With	Current	With	
510x	Streams and Waterways, excavated	PUB2Fx	SW 02	5	0	5	0	5	0	0.50	0	-0.50
523	Reservoirs between 10-100 acres	PAB2H	SW 01	5	0	7	0	7	0	0.63	0	-0.63
631	Wetland Shrub	PSS1C	WL 01	6	0	6	0	6	0	0.60	0	-0.60

<sup>1</sup> UMAM scores have not been approved by permitting agencies and are subject to change during the permitting process.

**Table 6-3 Estimated UMAM<sup>1</sup> Functional Loss from Wetland and Surface Water Impacts for Build Alternatives (Direct Impacts)**

Name	FLUCFCS Classification	USFWS Classification	UMAM Delta	Impact Acres	Functional Loss
<b>Alternative 1 &amp; 2</b>	510x	PUB2Fx	-0.50	0.10	0.05
	523	PAB2H	-0.63	0.21	0.14
	631	PSS1C	-0.60	0.16	0.10
<b>Total</b>				<b>0.47</b>	<b>0.29</b>

<sup>1</sup> UMAM scores have not been approved by permitting agencies and are subject to change during the permitting process.

## 6.4 MITIGATION

In 2008 the USACE and the EPA issued regulations governing compensatory mitigation for activities authorized by the Department of the Army (Federal Register, 2008). These regulations, as promulgated in 33 Code of Federal Regulations (CFR) Part 332, establish a hierarchy for determining the type and location of compensatory mitigation. To briefly summarize, the rule establishes a preference for the use of mitigation bank credits if a mitigation bank has the appropriate number and resource type of credits available. If the permitted impacts are not in the service area of an approved mitigation bank, or if the appropriate number and resource type of credits are otherwise unavailable, then the rule establishes a preference for in lieu fee program credits. If an approved mitigation bank or in-lieu fee program cannot be used to provide the required compensatory mitigation, the rule establishes a preference for permittee responsible mitigation conducted under a watershed approach. 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 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.

Presently, the project area is located within the service area of the Boran Ranch and Peace River Mitigation Banks. Both banks have freshwater herbaceous and forested credits available and are within the Peace River Drainage Basin and service Charlotte, DeSoto, Glades, Hardee, Highlands, Manatee, Polk, and Sarasota Counties. Should the purchase of credits from the Boran Ranch/Peace River Mitigation Banks be pursued as a mitigation option for this project, this option would be available to offset all direct impacts for the project. These impacts are associated with the wetlands and surface waters described in **Section 6.1**, all of which occur within the service area of the two (2) banks described above.

All UMAM scores, UMAM calculations, preliminary wetland lines and determinations discussed are subject to revision and approval by regulatory agencies during the permitting process. The exact type of mitigation used to offset wetland impacts from the proposed Combee Road roadway improvements will be coordinated with the USACE and the SWFWMD during the permitting phase(s) of this project.



## 7.0 PERMITTING REQUIREMENTS AND COORDINATION

Both the USACE and 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 permit for gopher tortoise relocation activities and incidental takes for state protected avian species and the USFWS is the lead agency for eagle nest take permitting or coordination. In addition, the FDEP regulates stormwater discharges from construction sites. The complexity of the permitting process will depend on the degree of the impact to jurisdictional areas. It is anticipated that the following permits will be required for this project:

<b><u>Permit</u></b>	<b><u>Issuing Agency</u></b>
Environmental Resource Permit (ERP)	SWFWMD
Section 404 State Assumption	FDEP
National Pollutant Discharge Elimination System (NPDES)	FDEP
Gopher Tortoise Relocation Permit, if needed	FWC

### **SWFWMD Environmental Resource Permit**

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 likely require an individual permit for this project.

### **FDEP State 404 Program**

In 2018, FDEP was given the authority to begin the rulemaking process to assume the federal dredge and fill permitting program under section 404 of the Clean Water Act within state-assumed waters. This process was completed in July 2020 and created the State 404 Program within Chapter 62-330 and 62-331, F.A.C. to facilitate this assumption. This State 404 Program is responsible for overseeing permitting for any project proposing dredge or fill activities within state-assumed waters. The State 404 Program is a separate program from the existing ERP program, and projects within the state-assumed waters require both an ERP and a State 404 Program authorization. The wetlands and surface waters associated with this project would fall under the state-assumed waters definition and therefore would require a permit through this program.

### **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 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.

Depending on the types of permits required from the regulatory agencies, the permitting process typically ranges from 90 to 180 days. Agency coordination with environmental review agencies has occurred through the ETDM Planning and Programming Screening Tool and Advance Notification (AN) process. The comments received regarding wetlands, EFH and endangered species were published on the ETDM Programming Screen, dated November 19, 2015.

#### **FWC Gopher Tortoise Relocation Permit**

At the time of the site reviews, no gopher tortoise burrows were observed within or adjacent to the project limits. However, if gopher tortoises or burrows are found within the project area, FDOT will coordinate with the FWC to secure all permits needed to relocate the tortoises and associated commensal species prior to construction. FWC requires the excavation and relocation of any gopher tortoise burrows and individuals within the project limits prior to construction. Permits to excavate and relocate tortoises are issued through FWC and would be completed as either a 10 or Fewer Burrows permit or a Conservation permit.

## 8.0 CONCLUSIONS

### 8.1 PROTECTED SPECIES AND HABITAT

The project 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 8-1, 8-2, and 8-3** summarize the impact determination that has 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.

**Table 8-1 Federal Protected Species Impact Determinations**

Project Impact Determination	Federal Listed Species
"No effect"	Florida bonamia ( <i>Bonamia grandiflora</i> )
	Pygmy fringe tree ( <i>Chionanthus pygmaeus</i> )
	Scrub pigeon-wing ( <i>Clitoria fragrans</i> )
	Short-leaved rosemary ( <i>Conradina brevifolia</i> )
	Scrub buckwheat ( <i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i> )
	Britton's beargrass ( <i>Nolina brittoniana</i> )
	Papery nailwort ( <i>Paronychia chartacea</i> ssp. <i>chartacea</i> )
	Lewton's polygala ( <i>Polygala lewtonii</i> )
	Florida jointweed ( <i>Polygonella basiramia</i> )
	Carter's warea ( <i>Warea carteri</i> )
	Blue-tailed mole skink ( <i>Plestiodon egregius lividus</i> )
	Sand skink ( <i>Plestiodon reynoldsi</i> )
	Florida grasshopper sparrow ( <i>Ammodramus savannarum floridanus</i> )
	Florida scrub-jay ( <i>Aphelocoma coerulescens</i> )
	Crested caracara ( <i>Caracara cheriway</i> )
Red-cockaded woodpecker ( <i>Picoides borealis</i> )	
Everglade snail kite ( <i>Rostrhamus sociabilis plumbeus</i> )	
"May affect, but is not likely to adversely affect"	Eastern indigo snake ( <i>Drymarchon couperi</i> )
	Wood stork ( <i>Mycteria americana</i> )

**Table 8-2 State Protected Species Impact Determinations**

<b>Project Impact Determination</b>	<b>State Listed Species</b>
<b>“No effect anticipated”</b>	Ashe’s savory ( <i>Calamintha ashei</i> )
	Many-flowered grass-pink ( <i>Calopogon multiflorus</i> )
	Chapman’s sedge ( <i>Carex chapmannii</i> )
	Sand butterfly pea ( <i>Centrosema arenicola</i> )
	Hartwrightia ( <i>Hartwrightia floridana</i> )
	Nodding pinweed ( <i>Lechea cernua</i> )
	Florida spiny-pod ( <i>Matelea floridana</i> )
	Celestial lily ( <i>Nemastylis floridana</i> )
	Florida beargrass ( <i>Nolina atopocarpa</i> )
	Cutthroat grass ( <i>Panicum abscissum</i> )
	Yellow fringeless orchid ( <i>Platanthera integra</i> )
	Giant orchid ( <i>Pteroglossaspis ecristata</i> )
	Florida willow ( <i>Salix floridana</i> )
<b>“No adverse effect anticipated”</b>	Gopher tortoise ( <i>Gopherus polyphemus</i> )
	Florida burrowing owl ( <i>Athene cunicularia floridana</i> )
	Little blue heron ( <i>Egretta caerulea</i> )
	Tricolored heron ( <i>Egretta tricolor</i> )
	Florida sandhill crane ( <i>Antigone canadensis pratensis</i> )
	Roseate spoonbill ( <i>Platalea ajaja</i> )
	Florida pine snake ( <i>Pituophis melanoleucus mugitus</i> )
	Short-tailed snake ( <i>Lampropeltis extenuate</i> )
Southeastern American Kestrel ( <i>Falco sparverius paulus</i> )	

**Table 8-3 Other Species of Concern Impact Determinations**

<b>Project Impact Determination</b>	<b>Additional Protected Species</b>
<b>No impacts to primary or secondary buffer zones</b>	Bald eagle ( <i>Haliaeetus leucocephalus</i> )

## **8.2 WETLAND EVALUATION**

The proposed project alternatives were evaluated for impacts to wetlands in accordance with EO 11990 and Part 2, Chapter 9 of the PD&E Manual. The proposed project will have no significant short-term or long-term adverse impacts to wetlands. In accordance with EO 11990, FDOT 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, FDOT has determined that there is no practicable alternative to construction impacts occurring in wetlands. Any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function.

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.

A UMAM analysis (**Appendix D**) was performed to determine an estimate to the functional loss due to wetland impacts from the proposed Build Alternatives. Construction of the Build Alternatives results in an estimated total of 0.47 acres of wetland impacts and a loss of 0.29 functional units.

### **8.3 IMPLEMENTATION MEASURES**

Based on the field and literature reviews outlined in this report, federal- or state-listed protected species have the potential to occur within the project study area. To assure that the proposed project will not adversely impacts these species, FDOT will adhere to the following:

- FDOT 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.
- If gopher tortoises or burrows are found within the project area, FDOT will coordinate with the FWC to secure all permits needed to relocate the tortoises and associated commensal species prior to construction.
- If a bald eagle nest is observed within 660 feet of the project area, FDOT will coordinate with the USFWS to secure necessary approvals prior to constructing the project.

### **8.4 COMMITMENTS**

Based on the field and literature reviews outlined in this report, federal- or state-listed protected species have the potential to occur within the project study area. In order to assure that the proposed project will not adversely impacts these species, FDOT will make the following commitment:

- The most recent version of the USFWS' *Standard Protection Measures for the Eastern Indigo Snake* will be adhered to during construction of the proposed project.
- Impacts to suitable foraging habitat for the federally-protected wood stork will be mitigated through the purchase of credits from a U.S. Fish and Wildlife Service-approved mitigation bank pursuant to Section 373.4137, F.S. or as otherwise agreed to by FDOT and the appropriate regulatory agencies.
- If Florida sandhill crane nests are observed during future re-surveys prior to construction, then a 400-foot buffer will be used if construction occurs during the nesting season (January through July). FDOT will coordinate with the FWC during the project construction phase, if necessary.

## 9.0 REFERENCES

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# APPENDIX A

## Soils Descriptions and Map



## **11 – Arents-Water complex**

Arents-water complex is a series of pits that can be filled with water created as a result of phosphate mining. Slopes are steep to very steep. The seasonal high-water table of this soil is variable, but the Arents part generally is greater than 80 inches. The available water capacity is low but varies and the permeability is rapid and varies. Arents-water complex is not classified as a hydric soil but may contain up to 5 percent hydric soil inclusions according to the *Hydric Soils of Florida Handbook* (Hurt 2007).

## **16 – Urban Land**

Urban land are areas that consist of more than 85% covered by buildings, streets, houses, schools, shopping centers, and industrial complexes, open areas include lawns and playgrounds. Since this soil group has been reworked, they can no longer be recognized as a natural soil. Fill material has typically been added in wet areas to alleviate water issues. Urban land soil is not classified as a hydric soil.

## **17 – Smyrna and Myakka Fine Sands**

Smyrna and Myakka fine sands is a poorly to very poorly drained soil that occurs in nearly level areas on flatwoods. Slopes are smooth to concave and are 0 to 2 percent. The seasonal high-water table of this soil is within 18 inches of the surface for one to four months in most years. The available water capacity is low, and the permeability is rapid in the subsoil. Smyrna and Myakka fine sands is not classified as a hydric soil but may contain up to 17 percent hydric soil inclusions according to the *Hydric Soils of Florida Handbook* (Hurt 2007).

## **21 – Immokalee Sand**

Immokalee sand is a poorly drained soil that occurs in broad areas on flatwoods. Slopes are smooth to concave and are less than 2 percent. The seasonal high-water table of this soil is within 12 inches of the surface for one to four months in most years. The available water capacity is low, and the permeability is moderate in the subsoil. Immokalee sand is not classified as a hydric soil but may contain up to 15 percent hydric soil inclusions according to the *Hydric Soils of Florida Handbook* (Hurt 2007).

## **22 – Pomello Fine Sand**

Pomello fine sand is a moderately well drained soil that occurs on low, broad ridges and low areas of flatwoods. Slopes are smooth to convex and are 0 to 2 percent. The seasonal high-water table of this soil is within 24 to 40 inches of the surface for one to four months in most years. The available water capacity is low, and the permeability is moderately rapid in the subsoil. Pomello fine sand is not classified as a hydric soil.

## **25 – Placid and Myakka Fine Sand, Depressional**

Placid and Myakka fine sands, depressional, consist of very poorly drained Placid and Myakka soils occurring in depressions mostly on flatwoods. Slopes are smooth to concave and are 0 to 2 percent. Placid soil is ponded for at least six months during most years and has a moderate available water capacity and a rapid permeability. Myakka soil has a seasonal high-water table that is above the surface for about six months during most years with low available water capacity and a moderate to moderately rapid permeability in the subsoil. Placid and Myakka

fine sands, depressional is classified as a hydric soil according to the *Hydric Soils of Florida Handbook*.

### **31 – Adamsville Fine Sand**

Adamsville fine sand is a poorly drained soil that occurs on low ridges of flatwoods and in low areas of uplands. Slopes are smooth and are 0 to 2 percent. The seasonal high-water table of this soil is within 20 to 40 inches of the surface for two to six months in most years. The available water capacity is low, and the permeability is rapid in the subsoil. Adamsville fine sand is not classified as a hydric soil.

### **53 – Myakka-Immokalee-Urban Land Complex**

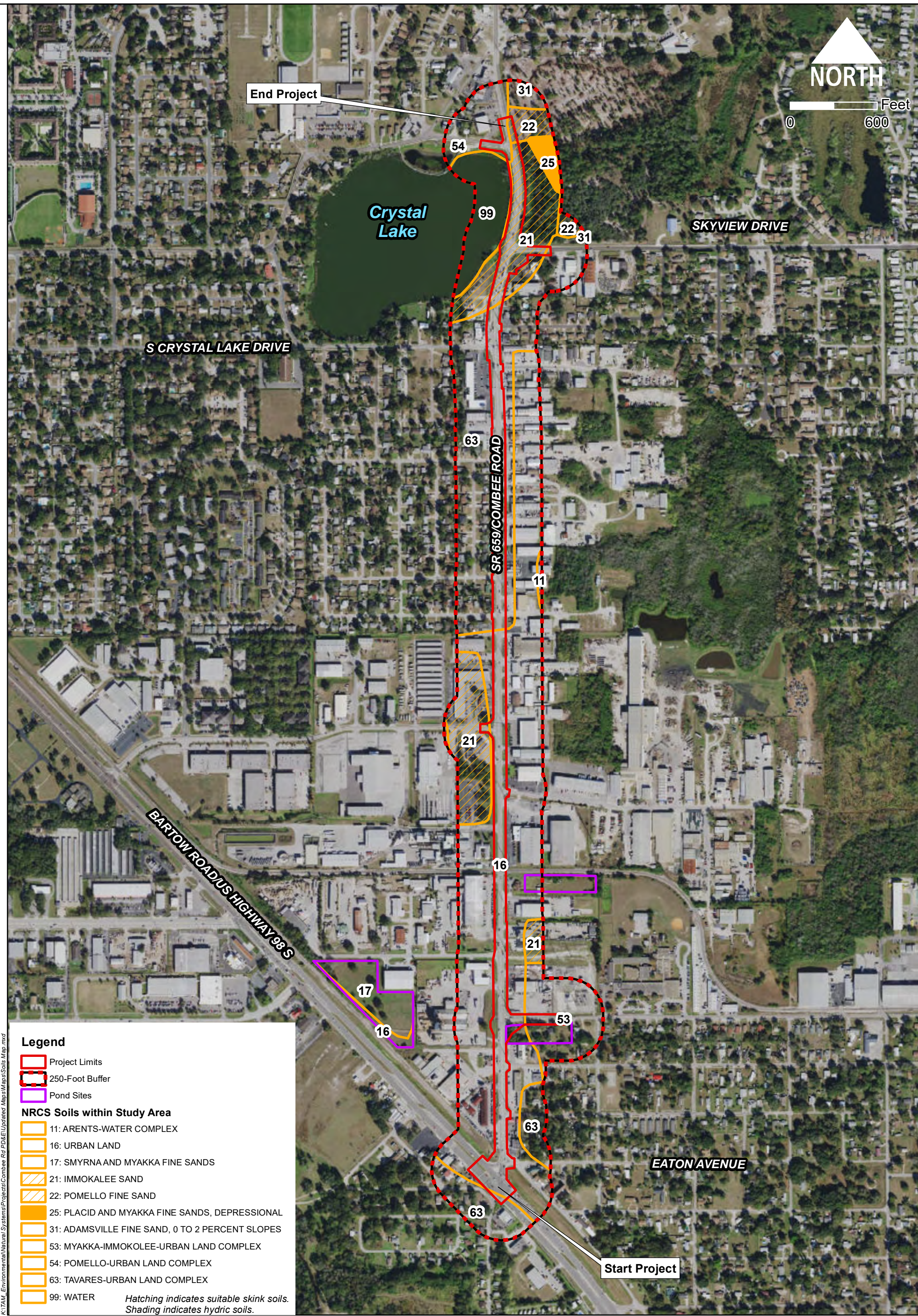
Myakka-Immokalee-urban land complex is a poorly drained soil that occurs in urban areas. Slopes are smooth and are 0 to 2 percent. The seasonal high-water table of this soil is within 12 inches of the surface for one to four months in most years. The available water capacity is low, and the permeability is moderate in the subsoil. Myakka-Immokalee-urban land complex is not classified as a hydric soil but may contain up to 10 percent hydric soil inclusions according to the *Hydric Soils of Florida Handbook* (Hurt 2007).

### **54 – Pomello-Urban Land Complex**

Pomello-urban land complex is a moderately well drained soil that occurs in urban areas. Slopes are smooth to convex and are 0 to 2 percent. The seasonal high-water table of this soil is within 24 to 40 inches of the surface for one to four months in most years. The available water capacity is low, and the permeability is moderately rapid in the subsoil. Pomello-urban land complex is not classified as a hydric soil but may contain up to 5 percent hydric soil inclusions according to the *Hydric Soils of Florida Handbook*.

### **63 – Tavares-Urban Land Complex, 0 to 5 percent slopes**

Tavares-urban land complex is a moderately well drained soil that occurs in urban areas. The seasonal high-water table of this soil is within 40 to 80 inches of the surface for several months in most years. The available water capacity is low, and the permeability is rapid to very rapid in the subsoil. Tavares-urban land complex is not classified as a hydric soil.



K:\TAM\_Environmental\Natural Systems\Projects\Combee Rd PD&E\Updated\_Maps\MapSoils\_Map.mxd

Source: Aerials courtesy of ESRI

**Soils Map**

SR 659 (Combee Road) PD&E Study  
 From US-98 to North Crystal Lake Drive  
 FPID: 440274-1-22-01  
 Polk County, Florida



# **APPENDIX B**

## **Land Use Descriptions and Map**

## **Upland Habitats and Land Uses**

### **FLUCFCS: 131 (Residential, High Density)**

The high-density residential land use classification includes areas with greater than six (6) fixed family or mobile home units per acre. This land use is scattered about the study area, as several neighborhoods are adjacent to the study area. While these areas in the project study area have homes present, the surrounding lands are highly developed with industrial and retail land uses. High density residential areas comprise 14.24 acres (11.44 percent) of the project study area.

### **FLUCFCS: 147 (Mixed Commercial and Services)**

The mixed commercial and services land use is comprised of commercial areas that are predominately associated with the distribution of products and services. This land use includes all secondary structures associated with the enterprise such as sheds, warehouses, driveways, parking areas, and landscaped areas. This land use is evenly distributed throughout the project corridor, with areas of this land use on both sides of Combee Road. Within the project study area, this land use consists of strip malls, convenience stores, repair shops, and retail stores. This area is developed with no natural habitat present. Mixed commercial and services facilities comprise 44.11 acres (35.44 percent) of the project study area.

### **FLUCFCS: 150 (Industrial)**

Industrial land uses consist of lands where manufacturing, assembly or processing of materials and products are accomplished. This land use is concentrated toward the southern terminus of the project, around the CSX Railroad that bisects the southern half of the study area. Within the project study area, this area is developed with little to no natural habitat present. Industrial facilities comprise 16.47 acres (13.23 percent) of the project study area.

### **FLUCFCS: 175 (Governmental)**

The governmental land use is defined as all buildings and facilities identified as non-military governmental. This land use is located on the east side of Combee Road, toward the southeastern extent of the study area. Within the project study area, this land use consists of the Eaton Park Post Office. Governmental lands comprise 0.50 acres (0.40 percent) of the project study area.

### **FLUCFCS: 178 (Commercial Child Care)**

The commercial child care land use includes all privately owned and operated child day care facilities not associated with religious or other institutions. A commercial child care facility, Little Einstein's Preschool, is located at the southeastern terminus of the study area, near the intersection of Combee Road and US-98. Commercial child care consists of 0.50 acres (0.40 percent) of the project study area.

### **FLUCFCS: 185 (Parks and Zoos)**

The parks and zoos land use consist of public recreational areas. Crystal Lake Park is located due west of the northern terminus of the project, on the northern shore of Crystal Lake. This park features a fishing pier, a boat ramp and canoe access point, with little to no natural habitat present. Vegetation observed included Bermuda grass (*Cynodon dactylon*) and beggarticks (*Bidens spp.*). Parks and zoos consist of 0.40 acres (0.32 percent) of the project study area.

**FLUCFCS: 190 (Open Lands)**

The open land classification includes undeveloped land within urban areas and inactive land with street patterns but without structures. Open land in the study area consist of live oak (*Quercus virginiana*), sabal palm (*Sabal palmetto*), and bahiagrass (*Paspalum notatum*). This land use is located west of the sotuehrn terminus of the project in the pond site area. Open lands consist of 4.25 acres (3.41 percent) of the project study area.

**FLUCFCS: 410 (Upland Coniferous Forests)**

The upland coniferous forest land use includes natural forest stands with a canopy of at least 66 percent dominated by coniferous species. Upland coniferous forest communities in the study area consist of a slash pine (*Pinus elliotti*) dominant canopy, with a dense understory of live oak, saw palmetto (*Serenoa repens*), and wax myrtle (*Myrica cerifera*). This land use is located east of the northern terminus of the project. Upland coniferous forests comprise 2.39 acres (1.92 percent) of the project study area.

**FLUCFCS: 434 (Hardwood-Conifer Mixed)**

The hardwood-conifer mixed land use includes forested uplands in which neither upland conifers nor hardwoods achieve 66-percent crown canopy dominance. Dominant vegetation within these communities consists of slash pine, live oak, and cabbage palm, with saw palmetto and wax myrtle. Hardwood conifer mixed communities are located toward the northwestern extents of the study area. Hardwood conifer mixed communities comprise 3.75 acres (3.02 percent) of the project study area.

**FLUCFCS: 812 (Railroads)**

The railroads land use category are areas covered by railroad tracks used for the movement of people and goods, encompassing rail-oriented facilities including stations, round-houses, repair and switching yards, and related areas. Within the project study area, this land use includes the CSX railway that runs through the southern half of the project corridor. Roads and highways comprise 0.53 acres (0.42 percent) of the project study area.

**FLUCFCS: 814 (Roads and Highways)**

The roads and highways land use are transportation facilities used for the movement of people and goods and encompass all areas used for intersections and ROW including pavement, medians, and buffers. Located throughout the project study area, this land use type includes the existing Combee Road ROW and associated roadways. Roads and highways comprise 27.81 acres (22.35 percent) of the project study area.

**FLUCFCS: 830 (Utilities)**

The utilities land use includes power generating facilities, water treatment plants, and their related facilities such as transmission lines for electric generation plants and aeration fields for sewage treatment sites. Within the project study area, this land use includes the electrical substation northeast of the intersection of Combee Road and Maine Avenue. Utilities comprise 2.14 acres (1.72 percent) of the project study area.

## **Wetland and Surface Water Habitats**

**FLUCFCS: 510x (Streams and Waterways, excavated)**  
**USFWS: PUB2Fx (Palustrine, Unconsolidated Bottom, Sand, Semipermanently Flooded, Excavated)**

**Name: SW 02**

This habitat type includes rivers, creeks, canals, and other linear water bodies. Streams and waterways are present throughout the study area and consists of excavated drainage ditches and canals dredged in hydric and non-hydric soils. Toward the northern terminus of the study area, there is a drainage ditch system that runs underneath Combee Road, serving as an overflow outfall from Crystal Lake. Dominant vegetation within the streams and waterways consists of Carolina willow (*Salix caroliniana*), Peruvian primrose willow (*Ludwigia peruviana*), water pennywort (*Hydrocotyle* spp.), and alligatorweed (*Alternanthera philoxeroides*). Streams and waterways comprise 0.18 acres (0.14 percent) of the total study area.

**FLUCFCS: 523 (Lakes between 10-100 acres)**  
**USFWS: PAB2H (Palustrine, Aquatic Bed, Rooted Vascular, Permanently Flooded)**

**Name: SW 01**

This water body type is defined as natural impoundments of fresh water that are between 10 and 100 acres in size. The only example of such a waterbody in the study area is Crystal Lake, located toward the northwestern extent of the study area. Dominant vegetation within the littoral edge of the reservoirs includes Mexican primrose willow (*Ludwigia octovalvis*), Peruvian primrose willow, Carolina willow, Brazilian pepper (*Schinus terebinthifolius*), cattail (*Typha* spp.), and frogfruit (*Phyla nodiflora*). Lakes between 10-100 acres comprise 6.01 acres (4.83 percent) of the study area.

**FLUCFCS: 631 (Wetland Shrub)**  
**USFWS: PSS1C (Palustrine, Scrub Shrub, Broad-leaved Deciduous, Seasonally Flooded)**

**Name: WL 01**

Wetland shrub systems are wetland communities associated with topographic depressions in poorly drained soils. Wetland shrub within the study area is located just east of Combee Road toward the northern terminus of the project. Vegetation observed within this wetland type includes Peruvian primrose willow, Mexican primrose willow, Carolina willow, Torpedograss (*Panicum repens*), cattail, and dollarweed (*Centella* spp.). Wetland shrub communities comprise 1.19 acres (0.96 percent) of the study area.



0 600 Feet

End Project

Crystal Lake

SKYVIEW DRIVE

S CRYSTAL LAKE DRIVE

SR 659/COMBEE ROAD

BARTOW ROAD/US HIGHWAY 98 S

EATON AVENUE

Start Project

**Legend**

- Project Limits
- 250-Foot Buffer
- Pond Sites
- CSX Railroad

**FLUCFCS: Description**

- 131: Residential High Density FSFU (±14.24 ac.)
- 147: Mixed Commercial and Services (±44.11 ac.)
- 150: Industrial (±16.47 ac.)
- 175: Governmental (±0.50 ac.)
- 178: Commercial Child Care (±0.50 ac.)
- 185: Parks and Zoos (±0.40 ac.)
- 190: Open Land (±4.25 ac.)
- 410: Upland Coniferous Forests (±2.39 ac.)
- 434: Hardwood-Conifer Mixed (±3.75 ac.)
- 510x: Streams and Waterways (±0.18 ac.)
- 523: Lakes larger than 10 acres but less than 100 acres (±6.01 ac.)
- 631: Wetland Scrub (±1.19 ac.)
- 812: Railroads (±0.53 ac.)
- 814: Roads and Highways (±27.81 ac.)
- 830: Utilities (±2.14 ac.)

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Source: Aerials courtesy of ESRI

### Land Use Map

SR 659 (Combee Road) PD&E Study  
From US-98 to North Crystal Lake Drive  
FPID: 440274-1-22-01  
Polk County, Florida







K:\TAM\_Environmental\Natural Systems\Projects\Combee Rd\_PD&E\Updated Maps\Wetland Location Map.mxd

Source: Aerials courtesy of ESRI

**Wetland Location Map**

SR 659 (Combee Road) PD&E Study  
 From US-98 to North Crystal Lake Drive  
 FPID: 440274-1-22-01  
 Polk County, Florida



**APPENDIX C**  
**INDIVIDUAL WETLAND AND SURFACE WATER**  
**PHOTOGRAPHS**



WL 01: East of SR 659 (Combee Road) facing east

FLUCFCS: 631 – Wetland Shrub

USFWS: PSS1C – Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded



SW 01: West of SR 659 (Combee Road) facing south

FLUCFCS: 510x – Streams and Waterways, excavated

USFWS: PUB2Fx – Palustrine, Unconsolidated Bottom, Sand, Semipermanently Flooded, excavated



SW 02: West of SR 659 (Combee Road) facing north

FLUCFCS: 523 – Lakes between 10-100 acres

USFWS: PAB2Hx – Palustrine, Aquatic Bed, Rooted Vascular, Permanently Flooded

**APPENDIX D**  
**UNIFORM MITIGATION ASSESSMENT METHODOLOGY**  
**FORMS**

**PART I – Qualitative Description  
(See Section 62-345.400, F.A.C.)**

Site/Project Name SR 659 (Combee Road) PD&E		Application Number		Assessment Area Name or Number SW 01	
FLUCCs code 523 - Lakes from 10-100 acres		Further classification (optional) PAB3H (Palustrine, Aquatic Bed, Rooted Vascular, Permanently Flooded)		Impact or Mitigation Site? Impact	
Assessment Area Size 0.17					
Basin/Watershed Name/Number Peace River Drainage Basin		Affected Waterbody (Class) III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands The surface water is part of the Crystal Lake system and is found adjacent to the SR 659 (Combee Rd) roadway. It connects via a drainage culvert under the roadway to the east to the roadside ditch SW 01.					
Assessment area description Dominant vegetation within this system consists of Mexican primrose willow, Peruvian primrose willow, Carolina willow, Brazilian pepper, cattail, and frogfruit.					
Significant nearby features No significant features nearby			Uniqueness (considering the relative rarity in relation to the regional landscape.) This system is not unique considering the regional landscape.		
Functions Foraging areas for wading birds species, food chain support, natural water flow attenuation, and water quality improvement.			Mitigation for previous permit/other historic use		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found ) Amphibians, reptiles, small mammals, wading birds.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Wood stork (T, foraging); little blue heron (ST, foraging); tricolored heron (ST, foraging)		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): none at time of field review					
Additional relevant factors:					
Assessment conducted by: S. Johnson and T. Bachelier			Assessment date(s): October 15, 2018 and January 24, 2019		

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 659 (Combee Road) PD&E	Application Number	Assessment Area Name or Number SW 01
Impact or Mitigation Impact (direct)	Assessment conducted by: Johnson/Bachelor	Assessment date: October 15, 2018 and January 24, 2019

<b>Scoring Guidance</b> The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed
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<b>Optimal (10)</b>	<b>Moderate(7)</b>	<b>Minimal (4)</b>	<b>Not Present (0)</b>
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>5</td> <td>0</td> </tr> </table>	5	0	<p>SW 02 is located on the west side of SR 659 and south of North Crystal Lake Drive; the impact area connects seamlessly to the large open water portion of Crystal Lake to the west. Crystal Lake is surrounded by residential, commercial, and roadway areas.</p>
5	0		
<p>.500(6)(b)Water Environment (n/a for uplands)</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>7</td> <td>0</td> </tr> </table>	7	0	<p>SW 02 is a permanently flooded feature. Water quality is affected due to stormwater runoff from the existing roadway and surrounding URBAN.</p>
7	0		
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>7</td> <td>0</td> </tr> </table>	7	0	<p>Dominant vegetation within this system consists of Mexican primrose willow, Peruvian primrose willow, Carolina willow, Brazilian pepper, cattail, and frogfruit.</p>
7	0		

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres      with
0.63      0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.11

Delta = [with-current]
0.63

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 SR 659 (Combee Road) PD&E		Application Number		Assessment Area Name or Number SW 02	
FLUCCs code 510x - Streams and Waterways		Further classification (optional) PUB2Fx (Palustrine, Unconsolidated Bottom, Sand, Semipermanently Flooded, Excavated)		Impact or Mitigation Site? Impact	
Assessment Area Size 0.07					
Basin/Watershed Name/Number Peace River Drainage Basin		Affected Waterbody (Class) III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands The drainage ditch is connected to the wetland shrub system to the south. The ditch is located on the east side of SR 659 and adjacent to the wetland shrub area and an upland shrub/forested area to the east. The ditch also connects to a drainage connection under SR 659 to Crystal Lake.					
Assessment area description Dominant vegetation within this system consists of Carolina willow, water pennywort, and alligatorweed. During the dry season, some of the ditches are mowed and maintained.					
Significant nearby features No significant features nearby			Uniqueness (considering the relative rarity in relation to the regional landscape.) This system is not unique considering the regional landscape.		
Functions Foraging areas for wading birds species, food chain support, natural water flow attenuation, and water quality improvement.			Mitigation for previous permit/other historic use		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found ) Amphibians, reptiles, small mammals, wading birds.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Wood stork (T, foraging); little blue heron (ST, foraging); tricolored heron (ST, foraging)		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): none at time of field review					
Additional relevant factors:					
Assessment conducted by: S. Johnson and T. Bacheler			Assessment date(s): October 15, 2018 and January 24, 2019		



**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 659 (Combee Road) PD&E	Application Number	Assessment Area Name or Number SW 02
Impact or Mitigation Impact (direct)	Assessment conducted by: Johnson/Bachelor	Assessment date: October 15, 2018 and January 24, 2019

<b>Scoring Guidance</b>
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed

<b>Optimal (10)</b>	<b>Moderate(7)</b>	<b>Minimal (4)</b>	<b>Not Present (0)</b>
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>5</td> <td>0</td> </tr> </table>	5	0	<p>This drainage ditch is located on the east side of Combee Rd, north of Skyview Drive, and south of North Crystal Lake Drive. This ditch flows into WL 01 to the south and connects via a culvert under SR 659 to Crystal Lake. During the dry season, the ditch is mowed and maintained at the top of bank. Surrounding areas consist of undeveloped land to the east.</p>
5	0		
<p>.500(6)(b)Water Environment (n/a for uplands)</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>5</td> <td>0</td> </tr> </table>	5	0	<p>Ditch had standing water (approximate 6 inches) at the time of the field review and are seasonally flooded during the wet season. Water quality is affected due to stormwater runoff from the existing roadway.</p>
5	0		
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>5</td> <td>0</td> </tr> </table>	5	0	<p>The drainage ditch within the study area are vegetated on the slopes and some areas along the bottom of the ditch. Vegetation includes Carolina willow, Peruvian primrose willow, water pennywort, and alligatorweed. During the dry season, most vegetation is mowed and maintained to the top of bank.</p>
5	0		

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres      with
0.5      0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.04

Delta = [with-current]
0.5

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 SR 659 (Combee Road) PD&E		Application Number		Assessment Area Name or Number WL 01	
FLUCCs code 631 - Shrub wetland		Further classification (optional) PSS1C (Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Seasonally Flooded)		Impact or Mitigation Site? Impact	Assessment Area Size 0.16 ac
Basin/Watershed Name/Number Peace River Drainage Basin	Affected Waterbody (Class) III		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance)		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands This system is located east of SR 659 north of Skyview Drive at the northern end of the SR 659 (Combee Rd) study area. It connects to SW 01 to the north and SW 02 to the west (via a culvert under the roadway).					
Assessment area description Dominant vegetation within this habitat type consists of Peruvian primrose willow, Mexican primrose willow, Carolina willow, Torpedograss, cattail, and dollarweed.					
Significant nearby features No significant features nearby			Uniqueness (considering the relative rarity in relation to the regional landscape.) This system is not unique considering the regional landscape.		
Functions Foraging areas for wading birds species, food chain support, natural water flow attenuation, and water quality improvement.			Mitigation for previous permit/other historic use		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found ) Amphibians, reptiles, small mammals, wading birds.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Wood stork (T, foraging); little blue heron (ST, foraging); tricolored heron (ST, foraging)		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): None					
Additional relevant factors:					
Assessment conducted by: S. Johnson and T. Bacheler			Assessment date(s): October 15, 2018 and January 24, 2019		

**PART II – Quantification of Assessment Area (impact or mitigation)**  
**(See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name SR 659 (Combee Road) PD&E	Application Number	Assessment Area Name or Number WL 01
Impact or Mitigation Impact (direct)	Assessment conducted by: Johnson/Bachelor	Assessment date: October 15, 2018 and January 24, 2019

<b>Scoring Guidance</b> The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed
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<b>Optimal (10)</b>	<b>Moderate(7)</b>	<b>Minimal (4)</b>	<b>Not Present (0)</b>
Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

<p>.500(6)(a) Location and Landscape Support</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>6</td> <td>0</td> </tr> </table>	6	0	<p>This system is located east of SR 659 north of Skyview Drive at the northern end of the SR 659 (Combee Rd) study area. It connects to SW 01 to the north and SW 02 to the west (via a culvert under the roadway).</p>
6	0		
<p>.500(6)(b)Water Environment (n/a for uplands)</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>6</td> <td>0</td> </tr> </table>	6	0	<p>This system appears to be seasonally flooded wetlands but hydrology may be altered based on the disturbance to the area. Water quality is affected due to stormwater runoff from the existing roadway and connection to SW 01 and SW 02.</p>
6	0		
<p>.500(6)(c)Community structure</p> <p>1. Vegetation and/or 2. Benthic Community</p> <p>w/o pres or current      with</p> <table border="1"> <tr> <td>6</td> <td>0</td> </tr> </table>	6	0	<p>The shrub wetland vegetation within the study area contain native and invasive vegetation including Peruvian primrose willow, Mexican primrose willow, Carolina willow, torpedograss, cattail, and dollarweed</p>
6	0		

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres      with
0.6      0

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.10

Delta = [with-current]
0.57

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas
RFG = delta/(t-factor x risk) =

# APPENDIX E

## FNAI DATA REPORT



1018 Thomasville Road  
Suite 200-C  
Tallahassee, FL 32303  
850-224-8207  
fax 850-681-9364  
www.fnai.org

Tori Bacheler  
Kimley-Horn & Associates, Inc.  
445 24<sup>th</sup> Street, Suite 200  
Vero Beach, FL 32960

November 15, 2018

Dear Ms. Bacheler,

Thank you for requesting information from the Florida Natural Areas Inventory (FNAI). We have compiled the following information for your project area.

**Project:** Combee Road from US 98 to Skyview Drive  
**Date Received:** 11/12/18  
**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.*

*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.*



Florida Resources  
and Environmental  
Analysis Center

Institute of Science  
and Public Affairs

The Florida State University

*Tracking Florida's Biodiversity*

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](http://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. 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](mailto:kbrinegar@fnai.fsu.edu).

Sincerely,

*Kerri Brinegar*

Kerri Brinegar  
GIS / Data Services

Encl



1018 Thomasville Road  
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- 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

**Land Acquisition Projects**

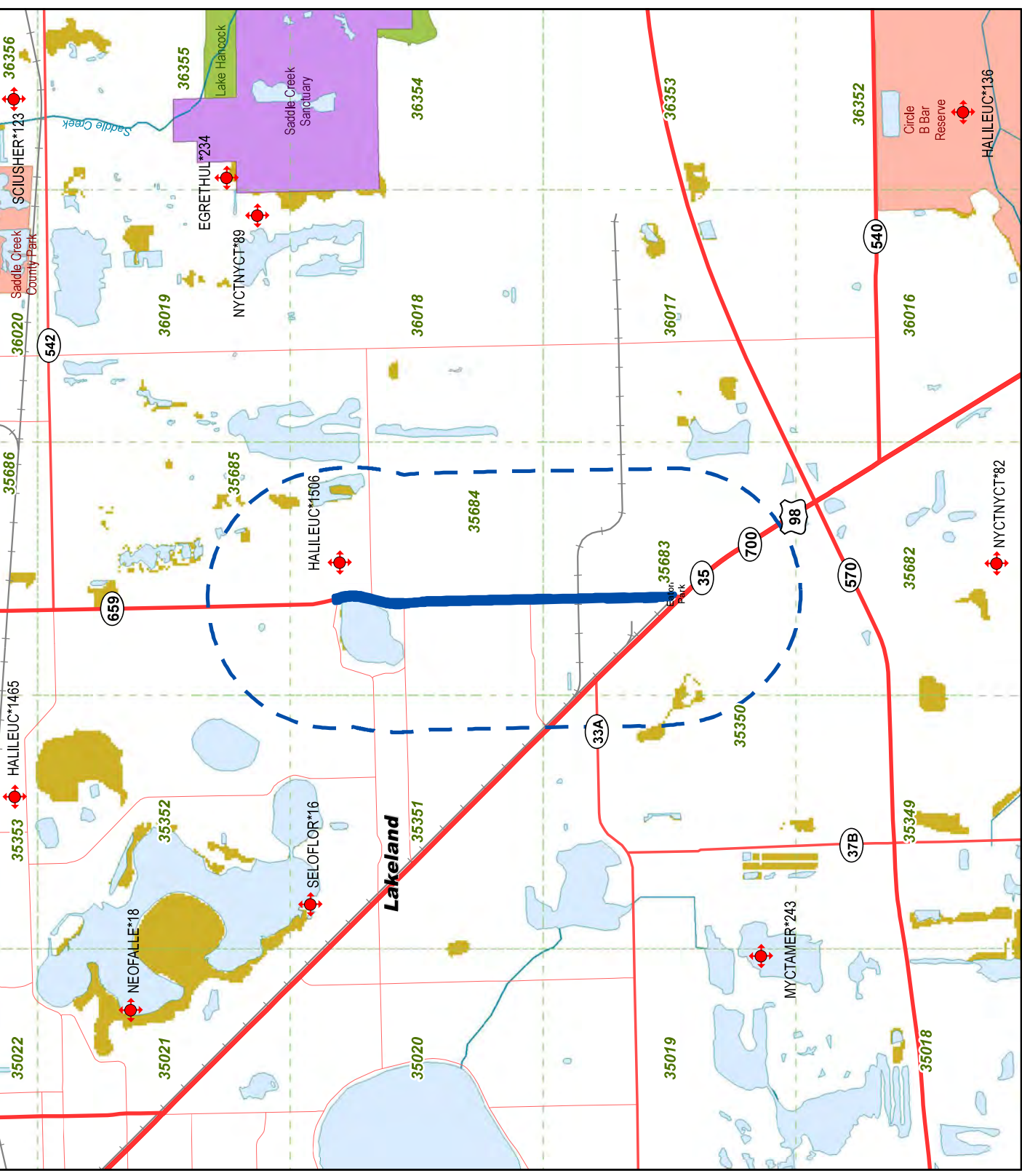
- Florida Forever
- Board of Trustees Projects
- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

- County Boundary
- Interstate
- Turnpike
- Major Highway
- Local Road
- Railroad [Inactive railroads shown in Gray]
- Water

**NOTE**  
Map should not be interpreted without accompanying documents.

**Combee Road from US 98 to Skyview Drive**

**Polk County**



Map produced by KAB  
11/15/2018



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## FNAI ELEMENT OCCURRENCE REPORT on or near Combee Road from US 98 to Skyview Drive

### Global State Federal State Observation

Map Label	Scientific Name	Common Name	Rank	Status	Listing	Date	Description	EO Comments	
EGRETHUL*234	<i>Egretta thula</i>	Snowy Egret	G5	S3	N	N	1989-06-12	Willows in phosphate mine in old phosphate mine area.	1989/06/12: R.B. Renken, GFC, Helicopter flight; species abundance from slides : small wt. 280-298, large wt.= 8 "Total" = F (includes GREG, SNEG, CAEG, GBHE, BCNH, ANHI, SMWWHITE, LRGWHITE).
HALILEUC*1506	<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3	N	N	2003	2005-07-12: Source does not provide a description.	Nest status: Active, 2003; Unknown status or not assessed, 2002, 2001, 2000, 1999;(U03FWC01FLUS)
NEOFALLE*18	<i>Neofiber alleni</i>	Round-tailed Muskrat	G3	S3	N	N	1970-11-09	No general description given	FSM SPECIMENS: ONE SPECIMEN FSM #10188, COLLECTED BY D.S. LEE 1970-11-09.
NYCTNYCT*82	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	G5	S3	N	N	1989-04-25	strip mine pits, spoil	1989-04-25: D.E. Runde, GFC, observation, GREG & GBHE - large young; helicopter flight; "Total" = B (includes GREG, GBHE, BCNH, DCCO).
NYCTNYCT*89	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	G5	S3	N	N	1989-06-12	willows in phosphate mine	1989-06-12: R.B. Renken, GFC, observation. Helicopter flight; colony in old phosphate mine area; species abundance from slides : small wt. 280-298, large wt.= 8 "Total" = F (includes GREG, SNEG, CAEG, GBHE, BCNH, ANHI, SMWWHITE, LRGWHITE).
SELOFLOR*16	<i>Selanodon floridensis</i>	Florida Cebroid Beetle	G2G4	S2S4	N	N	1942-05-30	1942-05-30: No description given (B99GAL01FLUS).	1942-05-30: Five specimens were collected on this date. There is an undated record for two more specimens (B99GAL01FLUS).





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## Florida Natural Areas Inventory

### Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<b>Matrix Unit ID: 35683</b>					
<b>Likely</b>					
<i>Mycteria americana</i>	Wood Stork	G4	S2	T	FT
<b>Potential</b>					
<i>Antigone canadensis pratensis</i>	Florida Sandhill Crane	G5T2	S2	N	ST
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	ST
<i>Bonamia grandiflora</i>	Florida bonamia	G3	S3	T	E
<i>Calamintha ashei</i>	Ashe's savory	G3	S3	N	T
<i>Calopogon multiflorus</i>	many-flowered grass-pink	G2G3	S2S3	N	T
<i>Carex chapmannii</i>	Chapman's sedge	G3	S3	N	T
<i>Centrosema arenicola</i>	sand butterfly pea	G2Q	S2	N	E
<i>Chionanthus pygmaeus</i>	pygmy fringe tree	G2G3	S2S3	E	E
<i>Coleataenia abscissa</i>	cutthroatgrass	G3	S3	N	E
<i>Conradina brevifolia</i>	short-leaved rosemary	G2Q	S2	E	E
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3Q	S3	T	FT
<i>Eriogonum longifolium var. gnaphalifolium</i>	scrub buckwheat	G4T3	S3	T	E
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Gymnopogon chapmanianus</i>	Chapman's skeletongrass	G3	S3	N	N
<i>Lechea cernua</i>	nodding pinweed	G3	S3	N	T
<i>Lithobates capito</i>	Gopher Frog	G3	S3	N	N
<i>Matelea floridana</i>	Florida spiny-pod	G2	S2	N	E
<i>Mustela frenata peninsulae</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	celestial lily	G2	S2	N	E
<i>Neofiber alleni</i>	Round-tailed Muskrat	G3	S3	N	N
<i>Nolina atopocarpa</i>	Florida beargrass	G3	S3	N	T
<i>Nolina brittoniana</i>	Britton's beargrass	G3	S3	E	E
<i>Paronychia chartacea var. chartacea</i>	paper-like nailwort	G3T3	S3	T	E
<i>Picoides borealis</i>	Red-cockaded Woodpecker	G3	S2	E	FE
<i>Plestiodon egregius lividus</i>	Blue-tailed Mole Skink	G5T2	S2	T	FT
<i>Podomys floridanus</i>	Florida Mouse	G3	S3	N	N
<i>Polygala lewtonii</i>	Lewton's polygala	G2G3	S2S3	E	E
<i>Polygonella basiramia</i>	Florida jointweed	G3	S3	E	E
<i>Pteroglossaspis ecristata</i>	giant orchid	G2G3	S2	N	T
<i>Rostrhamus sociabilis</i>	Snail Kite	G4G5	S2	E	FE
<i>Salix floridana</i>	Florida willow	G2	S2	N	E
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	SSC
<i>Selonodon floridensis</i>	Florida Cebrionid Beetle	G2G4	S2S4	N	N
<i>Ursus americanus floridanus</i>	Florida Black Bear	G5T2	S2	N	N
<i>Warea carteri</i>	Carter's warea	G3	S3	E	E
<b>Matrix Unit ID: 35684</b>					
<b>Documented</b>					
<i>Haliaeetus leucocephalus</i>	Bald Eagle	G5	S3	N	N
<b>Likely</b>					
Mesic flatwoods		G4	S4	N	N
<i>Mycteria americana</i>	Wood Stork	G4	S2	T	FT

**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.



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## Florida Natural Areas Inventory

### Biodiversity Matrix Report



Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
<b>Potential</b>					
<i>Antigone canadensis pratensis</i>	Florida Sandhill Crane	G5T2	S2	N	ST
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	G4T3	S3	N	ST
<i>Bonamia grandiflora</i>	Florida bonamia	G3	S3	T	E
<i>Calamintha ashei</i>	Ashe's savory	G3	S3	N	T
<i>Calopogon multiflorus</i>	many-flowered grass-pink	G2G3	S2S3	N	T
<i>Carex chapmannii</i>	Chapman's sedge	G3	S3	N	T
<i>Centrosema arenicola</i>	sand butterfly pea	G2Q	S2	N	E
<i>Chionanthus pygmaeus</i>	pygmy fringe tree	G2G3	S2S3	E	E
<i>Clitoria fragrans</i>	scrub pigeon-wing	G3	S3	T	E
<i>Coleataenia abscissa</i>	cutthroatgrass	G3	S3	N	E
<i>Drymarchon couperi</i>	Eastern Indigo Snake	G3Q	S3	T	FT
<i>Eriogonum longifolium var. gnaphalifolium</i>	scrub buckwheat	G4T3	S3	T	E
<i>Gopherus polyphemus</i>	Gopher Tortoise	G3	S3	C	ST
<i>Gymnopogon chapmanianus</i>	Chapman's skeletongrass	G3	S3	N	N
<i>Hartwrightia floridana</i>	hartwrightia	G2	S2	N	T
<i>Lechea cernua</i>	nodding pinweed	G3	S3	N	T
<i>Lithobates capito</i>	Gopher Frog	G3	S3	N	N
<i>Matelea floridana</i>	Florida spiny-pod	G2	S2	N	E
<i>Mustela frenata peninsulae</i>	Florida Long-tailed Weasel	G5T3	S3	N	N
<i>Nemastylis floridana</i>	celestial lily	G2	S2	N	E
<i>Neofiber alleni</i>	Round-tailed Muskrat	G3	S3	N	N
<i>Nolina brittoniana</i>	Britton's beargrass	G3	S3	E	E
<i>Paronychia chartacea var. chartacea</i>	paper-like nailwort	G3T3	S3	T	E
<i>Picoides borealis</i>	Red-cockaded Woodpecker	G3	S2	E	FE
<i>Platanthera integra</i>	yellow fringeless orchid	G3G4	S3	N	E
<i>Plestiodon egregius lividus</i>	Blue-tailed Mole Skink	G5T2	S2	T	FT
<i>Podomys floridanus</i>	Florida Mouse	G3	S3	N	N
<i>Polygala lewtonii</i>	Lewton's polygala	G2G3	S2S3	E	E
<i>Pteroglossaspis ecristata</i>	giant orchid	G2G3	S2	N	T
<i>Rostrhamus sociabilis</i>	Snail Kite	G4G5	S2	E	FE
<i>Salix floridana</i>	Florida willow	G2	S2	N	E
<i>Sceloporus woodi</i>	Florida Scrub Lizard	G2G3	S2S3	N	N
<i>Sciurus niger shermani</i>	Sherman's Fox Squirrel	G5T3	S3	N	SSC
<i>Selonodon floridensis</i>	Florida Cebionid Beetle	G2G4	S2S4	N	N
<i>Ursus americanus floridanus</i>	Florida Black Bear	G5T2	S2	N	N
<i>Warea carteri</i>	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.

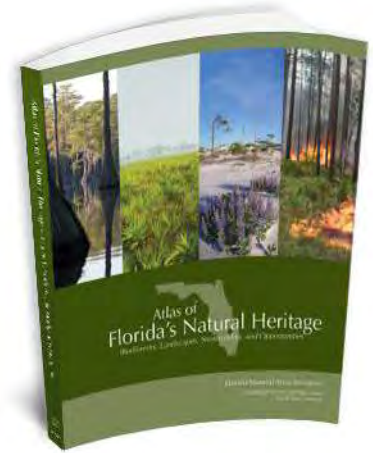
The rank of X is assigned to EOs for which there is documented destruction of habitat or environment, or persuasive evidence of eradication based on adequate survey (i.e., thorough or repeated survey efforts by one or more experienced observers at times and under conditions appropriate for the Element at that location).



# Atlas of Florida's Natural Heritage

*Biodiversity, Landscapes, Stewardship, and Opportunities*

The Florida Natural Areas Inventory is pleased to announce the publication of the ***Atlas of Florida's Natural Heritage: Biodiversity, Landscapes, Stewardship, and Opportunities***. This high-quality, full-color *Atlas* is sure to become a standard reference for anyone involved in the conservation, management, study, or enjoyment of Florida's rich natural resources. We hope the *Atlas* will inspire, educate, and raise awareness of and interest in biodiversity and conservation issues.



Learn more about the Atlas, view sample pages and order your copy today at:  
***FloridasNaturalHeritage.org***

Follow our blog – ***FNAI News & Notes:***

<http://fnai.blogspot.com/>

and



**APPENDIX F**  
**PROTECTED SPECIES POTENTIAL FOR OCCURRENCE AND**  
**MAP**

Species	Designated Status			Habitat Preference	Potential for Occurrence
	Federal	State	FDACS		
<b>Flora</b>					
Florida Bonamia <i>Bonamia grandiflora</i>	T	-	-	Open and disturbed areas in white sand scrub on central Florida ridges that include scrub oaks, sand pine, and lichens.	None
Ashe's Savory <i>Calamintha ashei</i>	-	-	T	Open areas of pine scrub habitat, sandhills, and scrub and disturbed areas such as abandoned fields, roadsides, and fire lanes.	None
Many-Flowered Grass-Pink <i>Calopogon multiflorus</i>	-	-	T	Dry to moist flatwoods with longleaf pine, wiregrass, and saw palmetto.	None
Chapman's sedge <i>Carex chapmani</i>	-	-	T	Hammocks/floodplains of blackwater streams with intermittent floods.	None
Sand Butterfly Pea <i>Centrosema arenicola</i>	-	-	E	Sandhill, scrubby flatwoods, and dry upland woods.	None
Pygmy Fringe Tree <i>Chionanthus pygmaeus</i>	E	-	-	Scrub, sandhills, and xeric hammocks.	None
Scrub pigeon-wing <i>Clitoria fragrans</i>	T	-	-	Turkey oak barrens with wire grass or scrub/scrubby high pine.	None
Piedmont Jointgrass <i>Coelorachis tuberculosa</i>	-	-	T	Margins of lakes and ponds or in wet savanna swales.	None
Cutthroat grass <i>Coleataenia abscissa</i>	E	-	-	Dry prairies, mesic flatwoods, wet flatwoods, depressional marshes, and seepage slopes.	None
Short-Leaved Rosemary <i>Conradina canescens</i> (= <i>C. brevifolia</i> )	E	-	-	Florida scrub habitat on white sand substrates among sand pines and oaks.	None



Species	Designated Status			Habitat Preference	Potential for Occurrence
	Federal	State	FDACS		
Scrub Buckwheat <i>Eriogonum longifolium</i> <i>var. gnaphalifolium</i>	T	-	-	Sandhill, oak hickory scrub, high pinelands, and turkey oak barrens with wiregrass, blue jack, and turkey oak.	None
Hartwrightia <i>Hartwrightia floridana</i>	-	-	T	Seepage slopes, edges of baygalls and springheads, wet prairies, and flatwoods with wet peaty soils.	None
Nodding Pinweed <i>Lechea cernua</i>	-	-	T	Deep sands, usually ancient dunes, on which the most common forest is a mixture of evergreen scrub oaks.	None
Florida Spiny-Pod <i>Matelea floridana</i>	-	-	E	Occurs on a variety of wooded habitats from fairly moist woods to upland hardwood forests.	None
Celestial Lily <i>Nemastylis floridana</i>	-	-	E	Wet flatwoods, prairies, marshes, and cabbage palm hammocks edges.	None
Florida Beargrass <i>Nolina atopocarpa</i>	-	-	T	Pine flatwoods, scrubby flatwoods.	None
Britton's Beargrass <i>Nolina brittoniana</i>	E	-	-	Scrub, sandhill, scrubby flatwoods, and xeric hammock.	None
Papery Nailwort <i>Paronychia chartacea</i> ssp. <i>chartacea</i>	T	-	-	White sand clearings in sand scrub of ancient dunes.	None
Yellow Fringeless Orchid <i>Platanthera integra</i>	-	-	E	Wet pine flatwoods, wet prairies, seepage slopes, and depressions within pinelands, marshes, and swamps.	None
Lewton's Polygala <i>Polygala lewtonii</i>	E	-	-	Oak scrub, sandhill, and transition zones between high pine and turkey oak barrens.	None
Florida Jointweed <i>Polygonella basiramia</i>	E	-	-	Open, sandy areas within sand pine scrub.	None

Species	Designated Status			Habitat Preference	Potential for Occurrence
	Federal	State	FDACS		
Giant Orchid <i>Pteroglossaspis ecristata</i>	-	-	T	Sandhill, scrub, pine flatwoods, and pine rocklands.	None
Florida Willow <i>Salix floridana</i>	-	-	E	Springheads, edges of spring runs, hydric hammocks, and floodplains.	None
Carter's Warea <i>Warea carteri</i>	E	-	-	Scrub and sandhills with longleaf pine and wiregrass.	None
<b>Reptilian</b>					
Eastern Indigo Snake <i>Drymarchon couperi</i>	T	-	-	Mesic flatwoods, upland pine forests, swamps, wet prairies, xeric pinelands, and scrub habitats.	Low
Gopher Tortoise <i>Gopherus polyphemus</i>	C	T	-	Typically found in 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	Low
Blue-Tailed Mole Skink <i>Plestiodon egregius lividus</i>	T	-	-	Sandhill, Scrub, and longleaf pine-turkey oak habitats.	Low
Sand Skink <i>Plestiodon reynoldsi</i>	T	-	-	Sandhill, scrub, and longleaf pine-turkey oak habitats.	Low
<b>Avian</b>					
Florida Sandhill Crane <i>Antigone canadensis pratensis</i>	-	T	-	Wet and dry prairies, marshes, and marshy lake edges.	Low
Florida Grasshopper Sparrow	E	-	-	Requires large areas of frequently burned dry prairie habitat with patchy open areas sufficient for foraging. May persist in pasture lands that	None

Species	Designated Status			Habitat Preference	Potential for Occurrence
	Federal	State	FDACS		
<i>Ammodramus savannarum floridanus</i>				have not been intensively managed so as to remove all vegetation.	
Florida Scrub-Jay <i>Aphelocoma coerulescens</i>	T	-	-	Typically found in 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.	None
Florida Burrowing Owl <i>Athene cunicularia floridana</i>	-	T	-	Areas of short, herbaceous groundcover; including prairies, sandhills, and farmland.	Low
Crested Caracara <i>Caracara cheriway</i>	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.	None
Little Blue Heron <i>Egretta caerulea</i>	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps.	Low
Tricolored Heron <i>Egretta tricolor</i>	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps.	Low
Bald Eagle <i>Haliaeetus leucocephalus</i>	NL <sup>1</sup>	NL <sup>2</sup>	-	Large open water bodies, saltwater marshes, dry prairies, mixed pine, hardwood forests, wet prairies, marshes, pine flatwoods, and sandhills.	High (observed flying overhead)

Species	Designated Status			Habitat Preference	Potential for Occurrence
	Federal	State	FDACS		
Wood Stork <i>Mycteria americana</i>	T	-	-	Fresh and saltwater habitats such as fresh and saltwater marshes, tidal flats, wet prairies, cypress swamps, and agricultural environments.	Low
Red-cockaded Woodpecker <i>Picoides borealis</i>	E	-	-	Mature pine woodlands that have a diversity of grass, forb, and shrub species. Longleaf and slash pine flatwoods.	None
Roseate Spoonbill <i>Platalea ajaja</i>	-	T	-	Freshwater marshes, coastal beaches, mangrove swamps, cypress swamps, hardwood swamps, wet prairies and bay swamps.	Low

Notes:

E = endangered, T = threatened, SSC = species of special concern, SAT = Federal Threatened due to similarity of appearance, C = candidate, NL = not listed

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).



0 1,500 Feet

KHA Observed Bald Eagle 1/24/2019

Nest ID: PO160


End Project

98

Start Project

Nest ID: PO190



**Legend**

-  Project Limits
-  250-Foot Buffer
-  One-Mile Buffer
-  Pond Sites

**Bald Eagle Nests and Sightings**

-  Bald Eagle Nests and Sightings

**Suitable Sand Skink Soils within Study Area**

-  21: IMMOKALEE SAND
-  22: POMELLO FINE SAND

**\*Project site is within the following USFWS Consultation Areas: Crested Caracara, Florida Grasshopper Sparrow, Everglades Snail Kite, Sand Skink, Florida Scrub-Jay.**

**Protected Species Map**

SR 659 (Combee Road) PD&E Study  
From US-98 to North Crystal Lake Drive  
FPID: 440274-1-22-01  
Polk County, Florida



K:\TAM\_Environmental\Natural Systems\Projects\Combee Rd PD&E\Updated\_Maps\Map\Protected\_Species\_Map.mxd

Source: Aerials courtesy of ESRI

**APPENDIX G**

**SPECIES DETERMINATION KEY PATHS AND STANDARD  
PROTECTION MEASURES FOR THE EASTERN INDIGO  
SNAKE**

# Wood Stork Determination Path

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<sup>1</sup>. 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)<sup>2</sup> of an active colony site<sup>3</sup> ..... "may affect"<sup>4</sup>

Project impacts Suitable Foraging Habitat (SFH)<sup>5</sup> at a location greater than 0.76 km (0.47 mile) from a colony site..... "go to B"

<sup>1</sup> 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.

<sup>2</sup> 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).

<sup>3</sup> 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.

<sup>4</sup> Consultation may be concluded informally or formally depending on project impacts.

<sup>5</sup> 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”.

B. Project impact to SFH is less than 0.20 hectare (one-half acre)<sup>6</sup>.....NLAA<sup>1</sup>”

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<sup>7</sup> 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<sup>8</sup>..... NLAA<sup>1</sup>”

Project not as above..... “may affect<sup>4</sup>”

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<sup>7</sup> of the wetlands affected, and provides foraging value similar

<sup>6</sup> 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.

<sup>7</sup> 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.

<sup>8</sup> 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<sup>8</sup> ..... “NLAA<sup>1</sup>”

Project does not satisfy these elements ..... “may affect<sup>4</sup>”

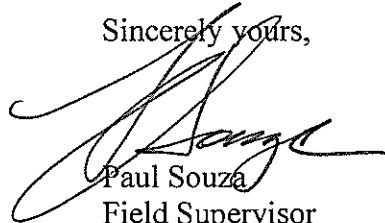
This Key does not apply to Comprehensive Everglades Restoration Plan projects, as they will require project-specific consultations with the Service.

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)

# Eastern Indigo Snake Determination Path

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<sup>1</sup>. 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<sup>2</sup>

Permit will not be conditioned as outlined above.....may affect

## End Key

<sup>1</sup> 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>.

<sup>2</sup> 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

**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](mailto:jaxregs@fws.gov); South Florida Field Office: [verobeach@fws.gov](mailto:verobeach@fws.gov); Panama City Field Office: [panamacity@fws.gov](mailto: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 LIVE 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 DEAD 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.

**IF YOU SEE A LIVE EASTERN  
INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and allow the 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 U.S. Fish and Wildlife Service (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 DEAD EASTERN  
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- 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.

**USFWS Florida Field Offices to be  
contacted if a live or dead eastern indigo  
snake is encountered:**

**North Florida ES Office – (904) 731-3336**  
**Panama City ES Office – (850) 769-0552**  
**South Florida ES Office – (772) 562-3909**

**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.

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**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.

**Killing, harming, or harassing indigo snakes is strictly prohibited and punishable under State and Federal Law.**

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.

**LEGAL STATUS:** 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.



August 12, 2013

**ATTENTION:**  
THREATENED EASTERN INDIGO  
SNAKES MAY BE PRESENT ON  
THIS SITE!!!



Please read the following information provided by the U.S. Fish and Wildlife Service to become familiar with standard protection measures for the eastern indigo snake.



# **ATTENTION:**

## **THREATENED EASTERN INDIGO SNAKES MAY BE PRESENT ON THIS SITE!!!**

### **IF YOU SEE A LIVE EASTERN INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and allow the 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 U.S. Fish and Wildlife Service (USFWS) office, with the location information and condition of the snake.
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**APPENDIX H**  
**SAND AND BLUE-TAIL MOLE SKINK TECHNICAL**  
**MEMORANDUM**

**SAND SKINK  
TECHNICAL MEMORANDUM**

**November 2020**

## 1.0 INTRODUCTION

The proposed SR 659 (Combee Road) from US 98 to North Crystal Lake Drive roadway improvement project falls within the U.S. Fish and Wildlife Service (USFWS) Consultation Area for the sand and blue-tail mole skink. Florida Natural Area Inventory (FNAI, 2018) has not documented the sand or blue-tail mole skink within 1 mile of the project area; however, potential suitable habitat was designated within and adjacent to the northern end of the project limits (see **Attachment A**).

In an effort to gather information on site specific conditions needed to determine the potential involvement the project may have on the sand skink; a review of the soil characteristics was conducted and a description of the methodology and results is provided below.

## 2.0 METHODOLOGY

A desktop analysis using available GIS data was utilized in the assessment of the project area. The Efficient Transportation Decision Making (ETDM) Environmental Screening Tool (EST), FNAI Rare Animals and Rare Plants field guides, USFWS South Florida Ecological Services website, Florida Fish and Wildlife Conservation Commission (FWC) May 2017 Imperiled Species List, FDOT Florida Land Use, Cover and Forms Classification System (FLUCFCS), and the *Peninsular Florida Species Conservation and Consultation Guide for the Sand Skink and Blue-tailed (Bluetail) Mole Skink* (USFWS, 2020) were reviewed for occurrence of sand and blue-tail mole skink and/or their habitat within or adjacent to the project limits.

In addition, field reviews were conducted by environmental scientists familiar with Florida natural communities on January 24, 2019 and October 6, 2020 to verify current soil conditions (see **Attachment B – Soils Map**), existing land uses and land cover within the project limits (see **Attachment C – Land Use Map**), and to review the area for the presence of protected species. Site photos are provided in **Attachment D**.

Field reviews consisted of pedestrian transects throughout the natural habitat types found within the project limits. 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 photo interpretation. During the field review, two soil samples were taken within potential suitable sand skink habitat in the existing right-of-way (ROW). The purpose of this was to observe evidence of soil disturbance compared to the mapped soil type.

## 3.0 RESULTS

There were no previously documented sand skink species occurrences within 1-mile of the project limits. The project falls within the USFWS consultation area for the sand skink/blue-tail mole skink (*Neoseps reynoldsi* / *Eumeces egregious lividus*) and a portion is within suitable soils and elevation. The project was reviewed to determine the land use and soil types within and adjacent to the roadway within the existing right of way. This review was conducted to determine if suitable soils and land use for the federally listed sand skink were present.

The Natural Resources Conservation Service (NRCS) Web Soil Survey identifies the two soil types within the existing right-of-way that are suitable sand skink soils, Immokalee sand and Pomello fine sand. In addition, suitable land use was reviewed within the area that was identified as potential suitable sand skink soils. **Attachment C** depicts the land use within and adjacent to the project limits. Five areas identified as potential suitable sand skink soil within the existing ROW were field verified. During the field review, representative photos were taken at each location (see **Attachment D – Photos**). Environmental scientists reviewed the soils of three (3) areas in the north section of the project limits to determine if the soils adjacent to the project limits contained suitable sand skink soils. These areas were identified as Immokalee sand and Pomello fine sand soils which are typically considered appropriate sand skink soils. The current condition of the soils within the existing right-of-way were observed to be Urban (mixed) soils with fill material found within the top 12 inches of the soil profile (see **Attachment D – Site Photos**). The soil composition has likely been altered due to the construction of the roadways, drainage features, and installation of various utilities. Two (2) additional areas were reviewed based on the soil classification of Immokalee fine sand; however, these areas were developed with no open or natural characteristics remaining. Based on these observations, areas within the project limits previously identified as potential suitable sand skink soils were determined to have been modified and no longer contains suitable sand skink habitat.

## **4.0      *REFERENCES***

Based on the results of the desktop and field reviews, no signs of sand or blue-tail mole skinks were observed and no suitable habitat was identified within the project limits. The soils within the project limits are more typical of urban (mixed) soils and do not retain their native properties suitable for the sand skink or blue tailed mole skink. It is unlikely that sand or blue-tail mole skinks or their habitat will be adversely affected by the proposed project.

## **5.0      *REFERENCES***

FNAI, 2018. Element Occurrence Data Report. Florida Natural Areas Inventory. November 15, 2018.

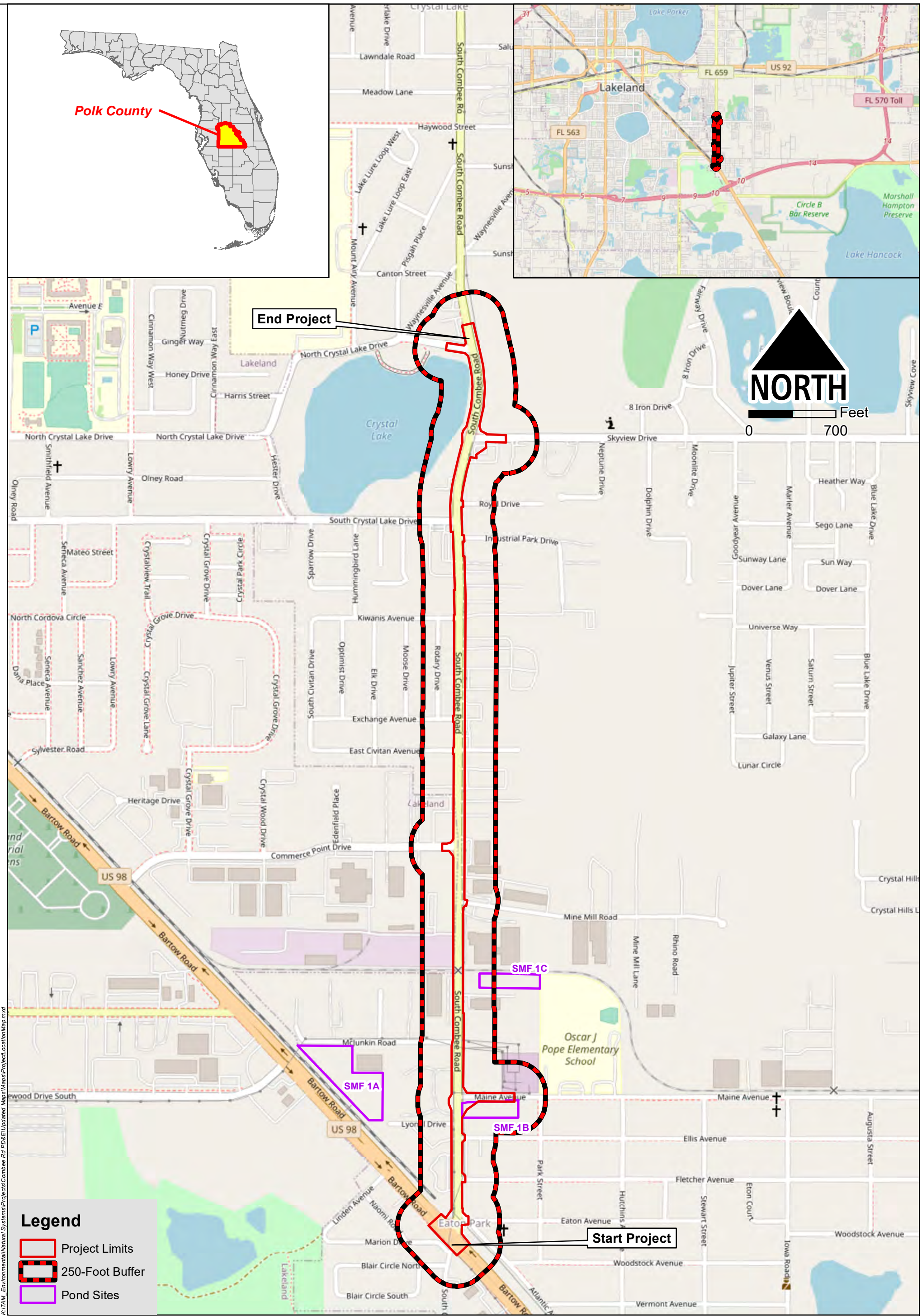
USFWS, 2020. Peninsular Florida Species Conservation and Consultation Guide for the Sand Skink and Blue-tailed (Bluetail) Mole Skink. July 31, 2020.

USFWS, 2011. Sand Skink Survey Protocol. US Fish and Wildlife Service. April 4, 2011.

# ***ATTACHMENT A***

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**Project Location Map**



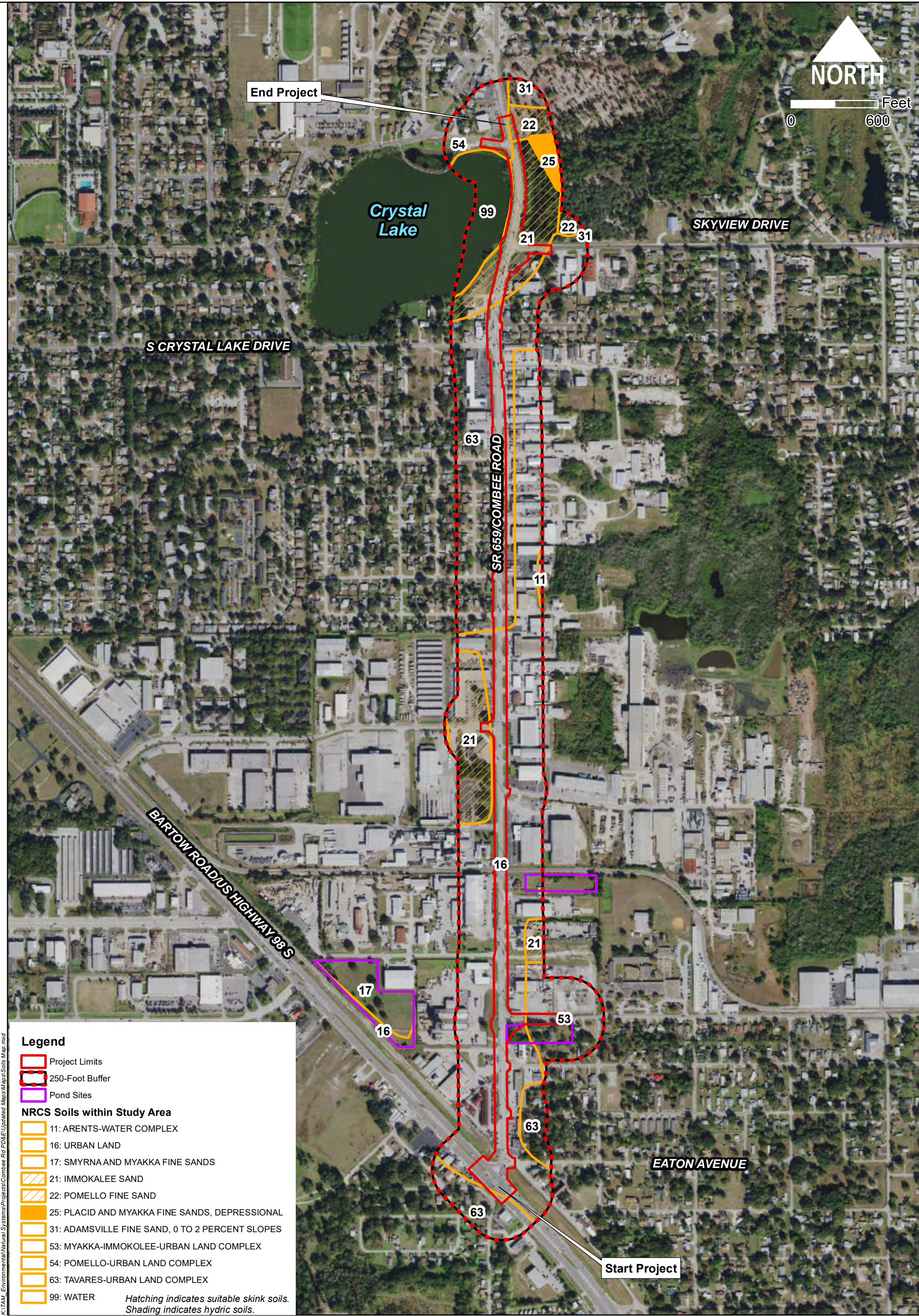
Project Location Map  
 SR 659 (Combee Road) PD&E Study  
 From US 98 to North Crystal Lake Drive  
 Polk County, Florida  
 FPID: 440274-1-22-01



***ATTACHMENT B***

---

**Soils Map**



0 600 Feet

End Project

Start Project

**Legend**

- Project Limits
- 250-Foot Buffer
- Pond Sites

**NRCS Soils within Study Area**

- 11: ARENTS-WATER COMPLEX
- 16: URBAN LAND
- 17: SMYRNA AND MYAKKA FINE SANDS
- 21: IMMOKALEE SAND
- 22: POMELLO FINE SAND
- 25: PLACID AND MYAKKA FINE SANDS, DEPRESSIONAL
- 31: ADAMSVILLE FINE SAND, 0 TO 2 PERCENT SLOPES
- 53: MYAKKA-IMMOKOLEE-URBAN LAND COMPLEX
- 54: POMELLO-URBAN LAND COMPLEX
- 63: TAVARES-URBAN LAND COMPLEX
- 99: WATER

*Hatching indicates suitable skink soils.  
Shading indicates hydric soils.*

K:\TAM\_Environmental\Natural Systems\Projects\Combee Rd PD&E\Updated\_Maps\MapSoils\_Map.mxd

Source: Aerials courtesy of ESRI

**Soils Map**

SR 659 (Combee Road) PD&E Study  
From US-98 to North Crystal Lake Drive  
FPID: 440274-1-22-01  
Polk County, Florida





# ***ATTACHMENT C***

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**Land Use Map**

NORTH

0 600 Feet

End Project

Crystal Lake

SKYVIEW DRIVE

S CRYSTAL LAKE DRIVE

SR 659/COMBEE ROAD

BARTOW ROAD/US HIGHWAY 98 S

EATON AVENUE

Start Project

Legend

- Project Limits
- 250-Foot Buffer
- Pond Sites
- CSX Railroad

FLUCFCS: Description

- 131: Residential High Density FSFU (±14.24 ac.)
- 147: Mixed Commercial and Services (±44.11 ac.)
- 150: Industrial (±16.47 ac.)
- 175: Governmental (±0.50 ac.)
- 178: Commercial Child Care (±0.50 ac.)
- 185: Parks and Zoos (±0.40 ac.)
- 190: Open Land (±4.25 ac.)
- 410: Upland Coniferous Forests (±2.39 ac.)
- 434: Hardwood-Conifer Mixed (±3.75 ac.)
- 510x: Streams and Waterways (±0.18 ac.)
- 523: Lakes larger than 10 acres but less than 100 acres (±6.01 ac.)
- 631: Wetland Scrub (±1.19 ac.)
- 812: Railroads (±0.53 ac.)
- 814: Roads and Highways (±27.81 ac.)
- 830: Utilities (±2.14 ac.)

K:\TAM\_Environmental\Natural Systems\Projects\Combee Rd\_PD&E\Updated\_Maps\Land Use\_Map.mxd

Source: Aerials courtesy of ESRI

Land Use Map

SR 659 (Combee Road) PD&E Study  
 From US-98 to North Crystal Lake Drive  
 FPID: 440274-1-22-01  
 Polk County, Florida



# ***ATTACHMENT D***

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**Photographs**



Soil sample #1 – fill material observed within sample.



Soil sample #2 – fill material observed within sample.



Drainage ditch – located on the east side of Combee Road north of North Crystal Lake Drive.



Soil sample #3 – fill material observed within sample.



Open land – located on the west side of Combee Road at North Crystal Lake Drive.

# **FLORIDA SAND SKINK SOILS INVESTIGATION REPORT**

**SR 659 (Combee Road) from US 98 to Skyview Drive**

**Polk County, Florida**

Financial Project Identification (FPID) Number: 440274-1  
Polk County

Prepared for:

**Florida Department of Transportation  
District Environmental Management Office  
801 North Broadway  
P.O. Box 1249  
Bartow, FL 33831**

Prepared by:

**Atkins North America, Inc.  
482 South Keller Road  
Orlando, Florida 32810**

**September 11, 2020**

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**Field Investigation Date: August 25, 2020**

**Project / Location:** Florida Department of Transportation (FDOT), Florida Sand Skink (*Neoseps reynoldsi*) and bluetail mole skink (*Eumeces egregious lividus*) Soil Investigation/SR 659 from US 98 to Skyview Drive, Polk County, Florida.

**Client:** Florida Department of Transportation, District One.

**Inspection Staff:** Soil borings and data were collected at the direction of Terry Zable by Patrick Bates and Michael Ray, Atkins Ecological staff. Report prepared and submitted by Terry Zable, Atkins.

**Project Footprint:** SR 659 from US 98 to Skyline Drive Polk County, Florida (**Figure 1**).

**Introduction**

At the client's request, the project site (Project) as described above was investigated to identify potential areas that may have been subject to past soil alterations (filling, excavation, and excavation/filling) which may have sufficiently altered the soils such that they no longer exhibit surface or shallow surface characteristics required to meet the Florida Sand Skink (*Neoseps reynoldsi*) soils criteria as identified by the U.S. Fish and Wildlife Service (USFWS) within the Polk County Consultation Area. The soil series identified by the USFWS as suitable sand skink habitat soils that have been mapped by the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS), as occurring within the Project consists of the Pomello mapping unit, however, areas mapped as Pomello-Urban land complex and Tavares-Urban land complex were also investigated.

**Pomello Soil**

The Pomello map unit is mapped within a small portion of the overall project area and is one of a few remaining somewhat natural landscapes in the general project area. This soil is moderately well to somewhat poorly drained soils that formed in sandy marine sediments. Pomello soils are found on low, broad ridges, low knolls in the flatwoods. Areas of this soils range from 10 to 100 acres. Slopes range from 0 to 2 percent. The parent materials composed of sandy marine sediments. Typically, this soil has a dark grey fine sand surface layer about 5 inches thick. The subsurface layers are white fine sand to a depth of about 48 inches. The subsoil to a depth of about 53 inches is dark reddish-brown fine sand that is coated with organic matter. To a depth of about 63 inches it is black fine sand that is coated with organic matter. The underlying material is dark brown fine sand to a depth of at least 80 inches.

The Pomello soil has a seasonal high-water table at a depth of 24 to 40 inches for about 1 to 4 months during most years. The available water capacity is very low. Permeability is moderately rapid in the subsoil.

Most areas with this soil are used for range or woodland. Areas where water control is adequate are used for citrus, improved pasture, or truck crops. The natural vegetation consists of mostly slash pine (*Pinus elliottii*), longleaf pine (*Pinus palustris*), saw palmetto (*Serenoa repens*), running



oak (*Quercus pumila*), gallberry (*Ilex glabra*), wax myrtle (*Morella cerifera*), wiregrass (*Aristida stricta*), and scattered fetterbush (*Lyonia lucida*). The soils are severe limitations affecting most cultivated crops. Doughtiness, low fertility and rapid leaching of plant nutrients limit the choice of plants and potential yields.

### **Pomello-Urban Land Complex**

The Pomello-Urban land complex map unit consists of moderately well drained Pomello soil and urban land. The individual areas of Pomello soil and urban land are so small and intermixed that mapping them separately at the selected soil mapping scale is not practical. The areas supporting this map unit are generally somewhat rectangular. Slopes are generally smooth or convex and are 0 to 2 percent.

Depending upon location the Pomello soil can comprise up about 50 to 70 percent of the map unit. In places it has been reworked or reshaped but is still recognizable as Pomello soil. Typically, it has a dark grey fine sand surface layer about 5 inches thick. The subsurface is white fine sand to a depth of about 48 inches. The subsoil to a depth of about 53 inches is dark reddish-brown fine sand that is coated with organic matter. To a depth of about 63 inches it is black fine sand that is coated with organic matter. The underlying material is dark brown fine sand to a depth of at least 80 inches.

Under natural conditions Pomello soil has a seasonal high-water table at a depth of 24 to 40 inches for about 1 to 4 months during most years. The available water capacity is low. Permeability is moderately rapid in the subsoil.

The urban land makes up about 20 to 45 percent of this map unit. The land is covered by streets, parking lots, buildings, and other structures. Present development precludes the use of Pomello soils for cultivated crops or improved pasture.

### **Tavares-Urban Land Complex**

Tavares-Urban land complex map unit consists of moderately well drained Tavares soil and urban land. The individual areas of Tavares soil and urban land are so small and intermixed that mapping them separately at the selected scale is not practical. The areas are generally somewhat rectangular.

The Tavares soil makes up about 45-65 percent of the map unit. Typically, it has a dark grayish brown fine sand surface layer about 8 inches thick. The underlying material to material to a depth of at least 80 inches is brownish fine sand.

Under natural conditions the Tavares soils has a seasonal high-water table of 40 to 80 inches for several months during most years. The available water capacity is low. Permeability is rapid to very rapid.

The urban land makes up about 20-45 percent of the map unit. It is covered by streets, driveways houses, and other buildings, parking lots and other similar structures. Included in the mapping unit

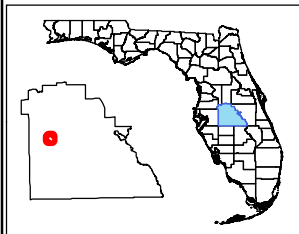
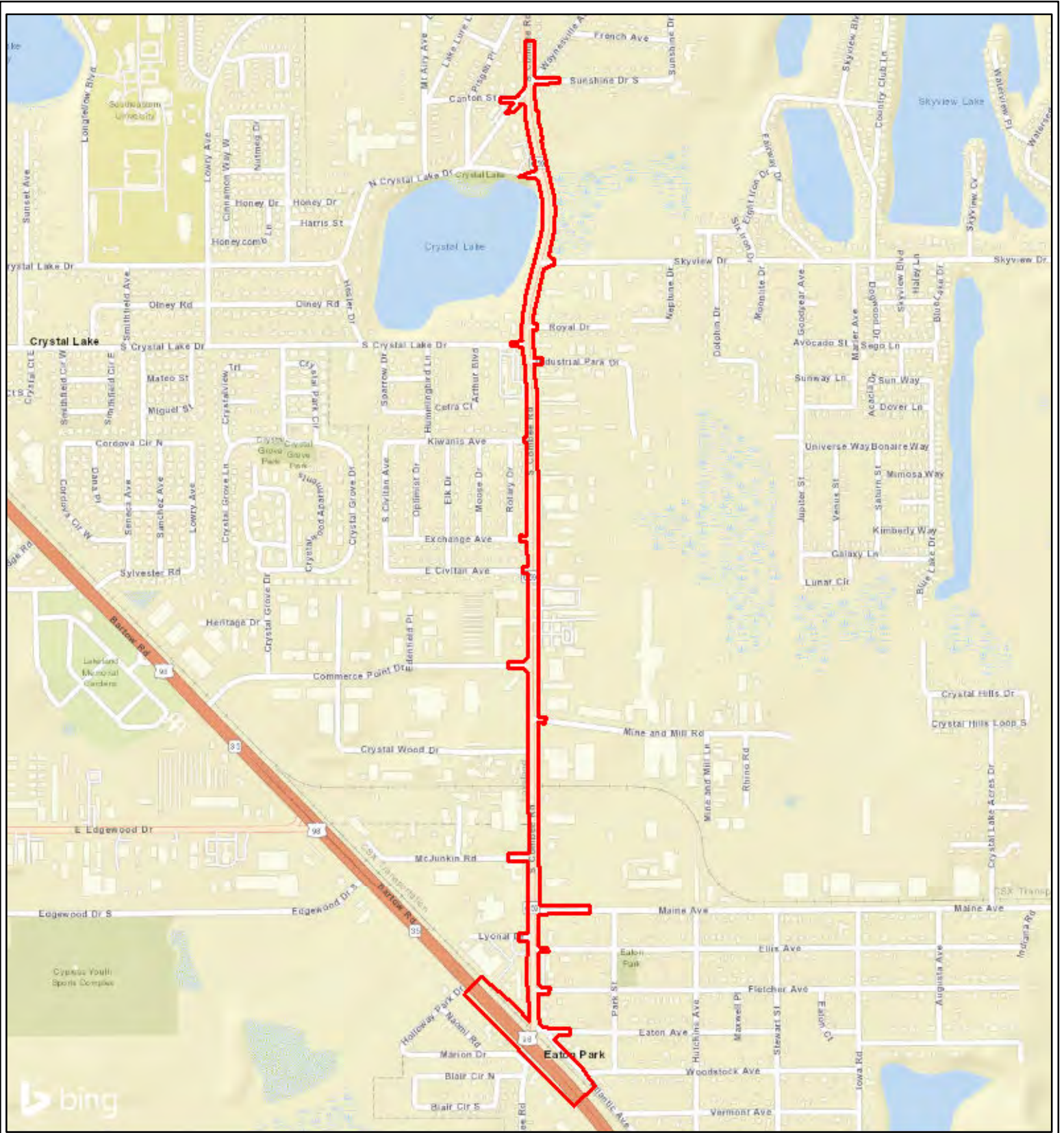
are other sandy soils. These soils make up 15 to 20 percent of the map unit. Present development precludes the use of Tavares soils for crops, pasture, or pine tree production.

### **Methodology**

The entire Project area was field-reviewed and soil borings were undertaken within proposed project areas to verify the soil mapping (**Figures 2, 2A-C**). The borings were field analysed as they were excavated for soil texture, soil color, soil horizonation, or indicators of soil disturbance. Soil probes were then conducted within the proposed Project area where suitable soils were identified or expected (**Figures 3, 3A-C**). The probes generally commenced either where natural soils exist, or at the project boundary and continued until a surface disturbance was encountered. Surface disturbance commonly identified include fill material (lime rock, gravel, clay, fine textured fill), excavation (wetness, organic material deposition) or structures (curbs, sidewalks, signal or utility equipment or foundations). The location of each soil boring was recorded utilizing a Trimble Global Positioning System (GPS) unit. The numerous hand probes, also completed in the process of identifying the limits of the natural soils, were not GPS recorded. Soil boring and photograph locations are shown on the attached soil boring/photo location map (**Figures 4, 4A-J**). Digital photographs of the Project work areas can be found in the **Photolog**.

### **Results**

From the field work and soil borings, it can generally be assumed that all areas immediately adjacent to paved road surfaces, driveways, sidewalks, or intersections with signalization structures and control equipment, above ground utility structures, and signage have all been subject to filling activities. In addition, all areas mapped as the Pomello-Urban land complex, and Tavares-Urban land complex map units have been subject to long-term urbanization and therefore no areas of suitable unaltered sand skink soil and habitat remain. The Project area mapped with the Pomello map unit does support a narrow band of suitable soils that are located between the east top-of-bank of the roadside ditch and eastern limits of the Project area. Based on field evaluations and current project footprint, the project provides limited to no sand skink habitat. However, if project footprint is expanded to include right of way or pond sites within adjacent upland habitat east of Combee Road and Crystal Lake Drive, then further soil evaluation would be recommended.



**Project Location Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



 Proposed Project Limits (ROW)

**Figure 1**

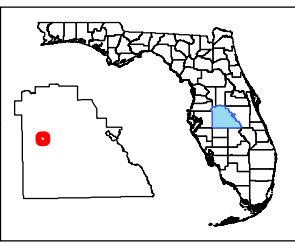
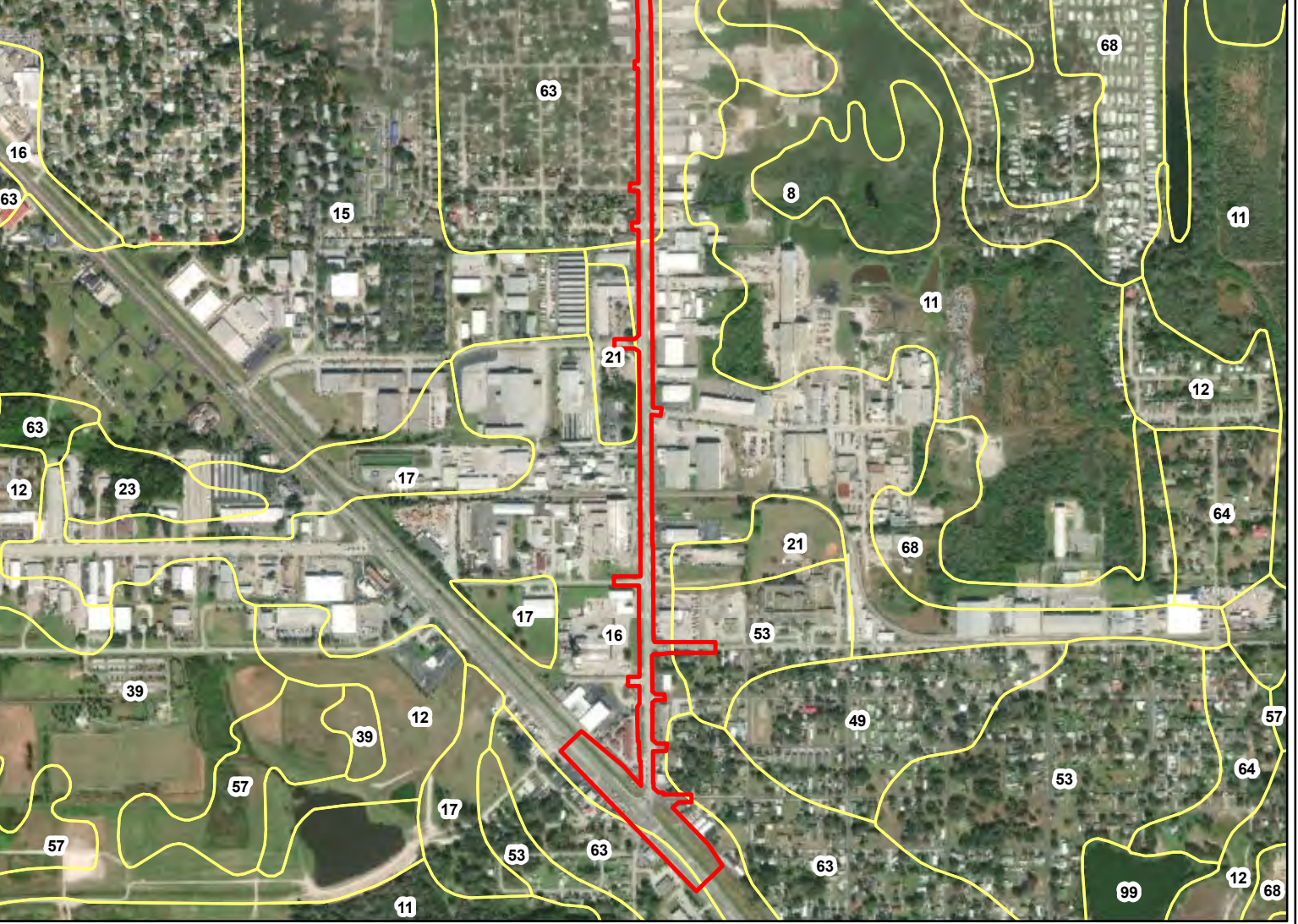
1 inch equals 0.2 miles

Date: 8/17/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



SOIL ID: DESCRIPTION
8: HYDRAQUENTS, CLAYEY
11: ARENTS-WATER COMPLEX
12: NEILHURST SAND, 1 TO 5 PERCENT SLOPES
15: TAVARES FINE SAND, 0 TO 5 PERCENT SLOPES
16: URBAN LAND
17: SMYRNA AND MYAKKA FINE SANDS
21: IMMOKALEE SAND
22: POMELLO FINE SAND
23: ONA FINE SAND
25: PLACID AND MYAKKA FINE SANDS, DEPRESSIONAL
30: POMPANO FINE SAND
31: ADAMSVILLE FINE SAND
39: ARENTS, CLAYEY SUBSTRATUM
49: ADAMSVILLE-URBAN LAND COMPLEX
53: MYAKKA-IMMOKALEE-URBAN LAND COMPLEX
54: POMELLO-URBAN LAND COMPLEX
57: HAPLAQUENTS CLAYEY
63: TAVARES-URBAN LAND COMPLEX
64: NEILHURST-URBAN LAND COMPLEX, 1 TO 5 PERCENT SLOPES
68: ARENTS, 0 TO 5 PERCENT SLOPES
99: WATER



**Natural Resources Conservation Service (NRCS) Soils Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- NRCS Soils Boundary
- Proposed Project Limits (ROW)

**Figure 2**

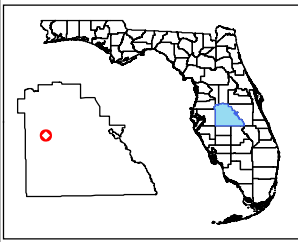
1 inch equals 0.2 miles

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



SOIL ID:	DESCRIPTION
11:	ARENDS-WATER COMPLEX
16:	URBAN LAND
22:	POMELLO FINE SAND
25:	PLACID AND MYAKKA FINE SANDS, DEPRESSIONAL
31:	ADAMSVILLE FINE SAND
49:	ADAMSVILLE-URBAN LAND COMPLEX
53:	MYAKKA-IMMOKOLEE-URBAN LAND COMPLEX
54:	POMELLO-URBAN LAND COMPLEX
63:	TAVARES-URBAN LAND COMPLEX
64:	NEILHURST-URBAN LAND COMPLEX, 1 TO 5 PERCENT SLOPES
68:	ARENDS, 0 TO 5 PERCENT SLOPES
99:	WATER



**Natural Resources Conservation Service (NRCS) Soils Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- NRCS Soils Boundary
- Proposed Project Limits (ROW)

**Figure 2A**

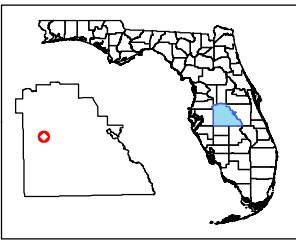
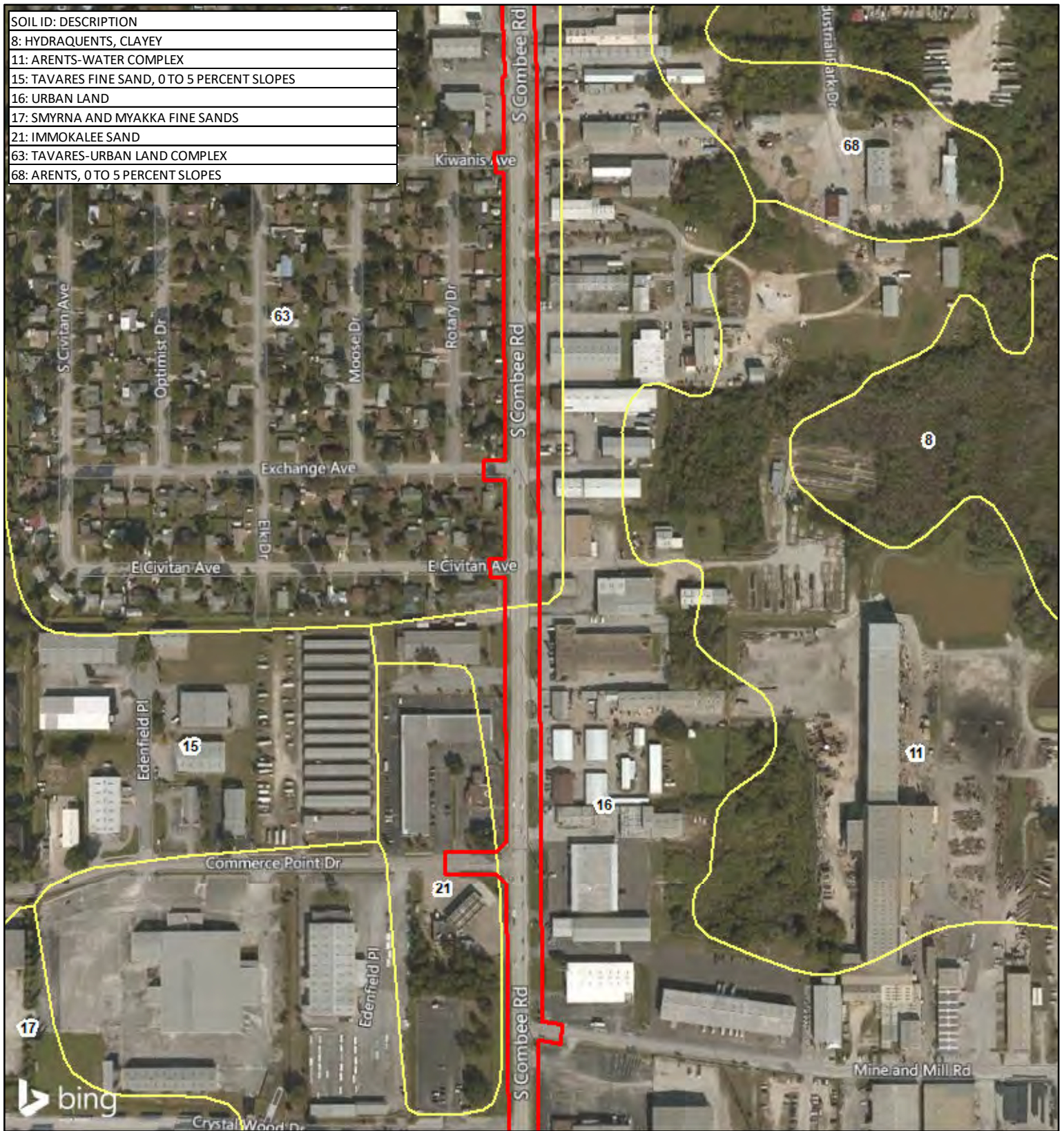
1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



SOIL ID: DESCRIPTION
8: HYDRAQUENTS, CLAYEY
11: ARENTS-WATER COMPLEX
15: TAVARES FINE SAND, 0 TO 5 PERCENT SLOPES
16: URBAN LAND
17: SMYRNA AND MYAKKA FINE SANDS
21: IMMOKALEE SAND
63: TAVARES-URBAN LAND COMPLEX
68: ARENTS, 0 TO 5 PERCENT SLOPES



**Natural Resources Conservation Service (NRCS) Soils Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- NRCS Soils Boundary
- Proposed Project Limits (ROW)

**Figure 2B**

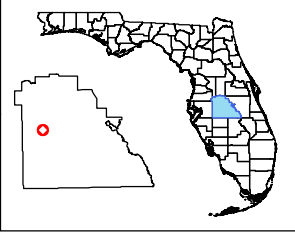
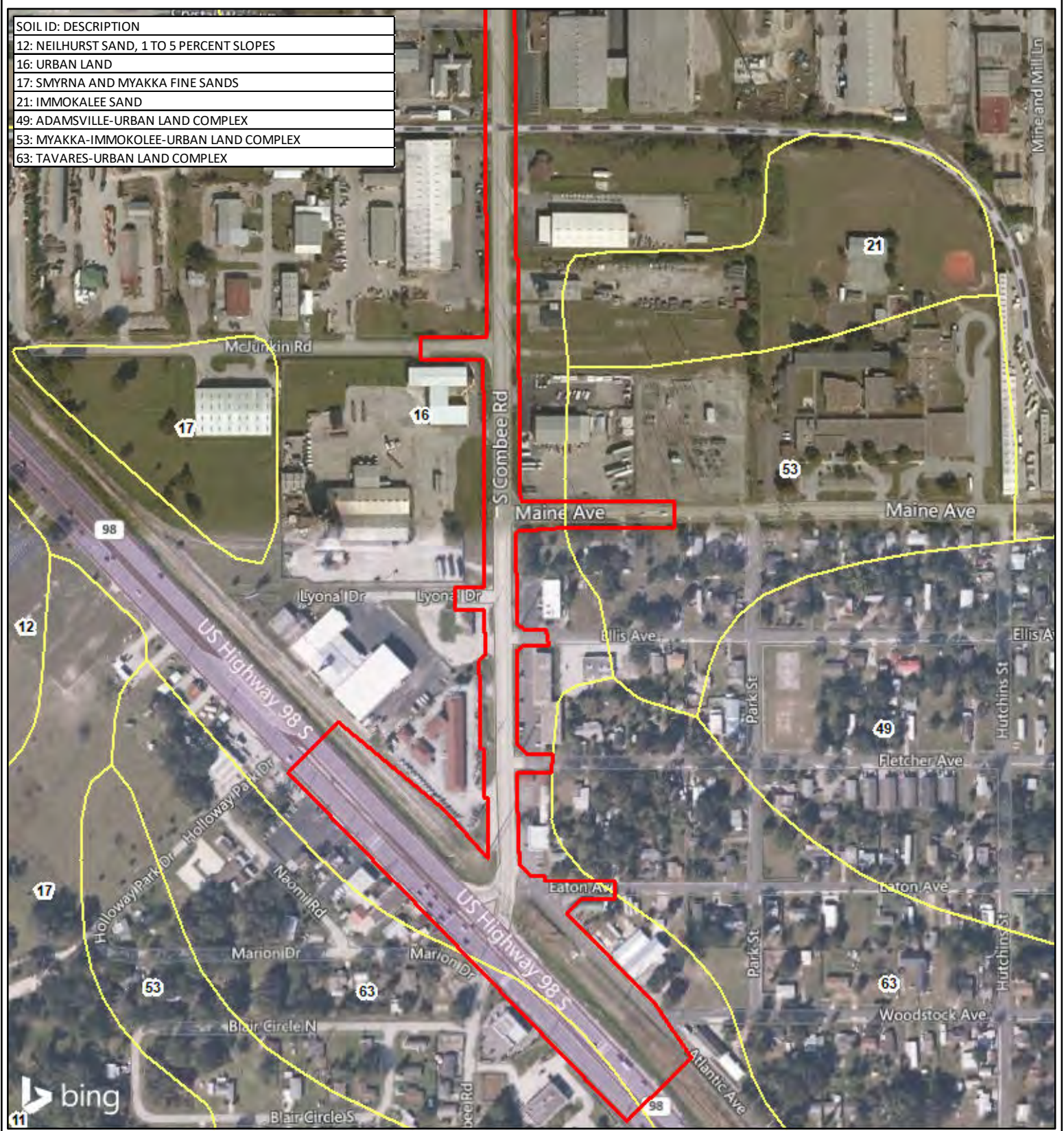
1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



SOIL ID:	DESCRIPTION
12:	NEILHURST SAND, 1 TO 5 PERCENT SLOPES
16:	URBAN LAND
17:	SMYRNA AND MYAKKA FINE SANDS
21:	IMMOKALEE SAND
49:	ADAMSVILLE-URBAN LAND COMPLEX
53:	MYAKKA-IMMOKALEE-URBAN LAND COMPLEX
63:	TAVARES-URBAN LAND COMPLEX



**Natural Resources Conservation Service (NRCS) Soils Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- NRCS Soils Boundary
- Proposed Project Limits (ROW)

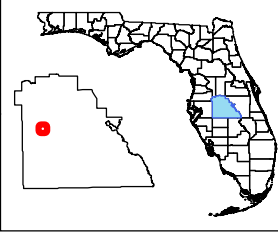
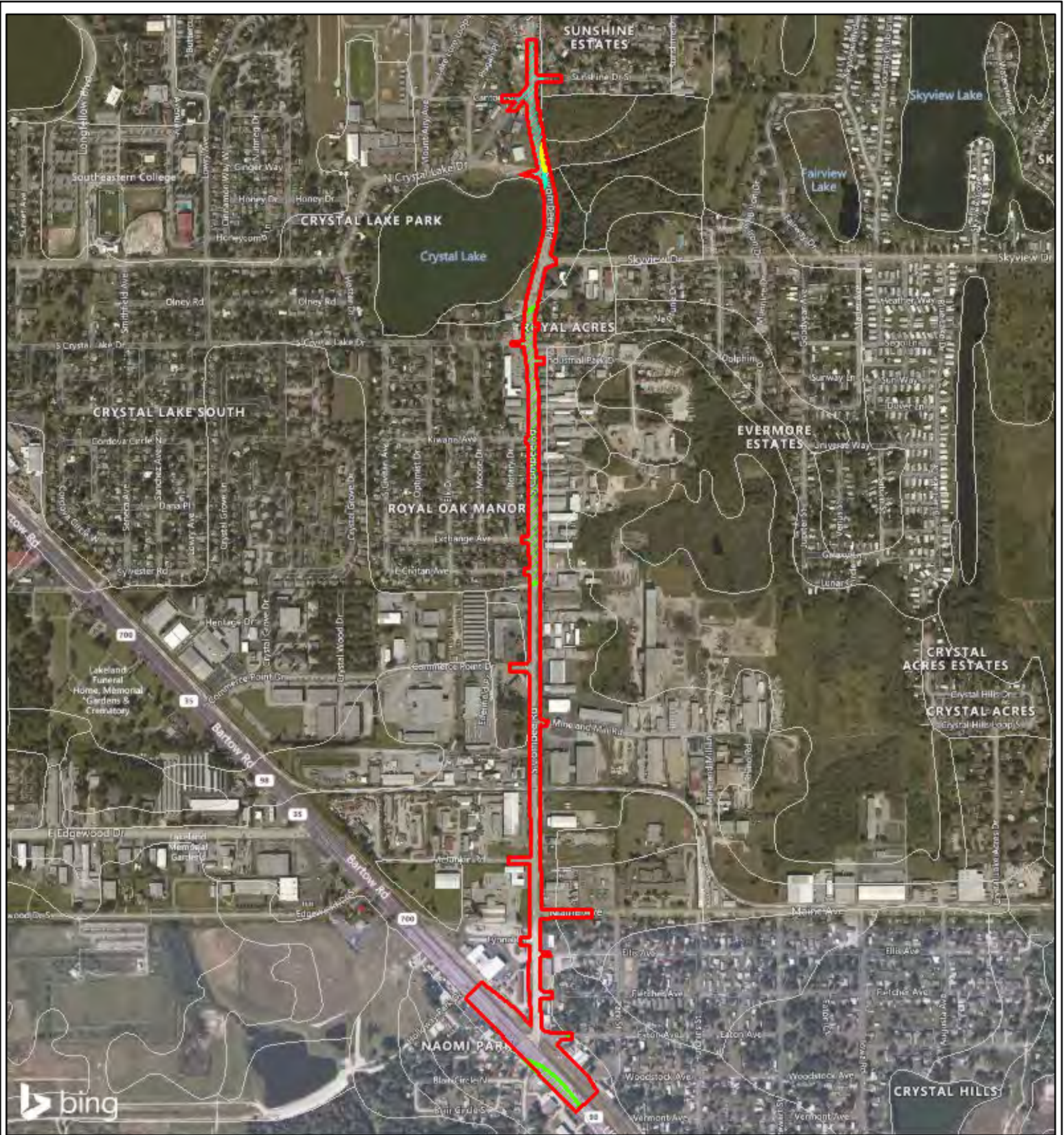
**Figure 2C**

1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Investigation Areas Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)
- NRCS Soils Boundary

**Figure 3**

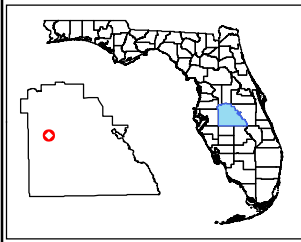
1 in = 1,075 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East












**Skink Soils Investigation Areas Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



**Skink Soils Investigation Areas**

-  Area A: Pomello-Urban Land Complex
-  Area B: Pomello Fine Sand
-  Area C: Tavares-Urban Land Complex
-  Proposed Project Limits (ROW)
-  NRCS Soils Boundary

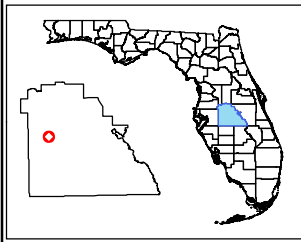
**Figure 3A**

1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East










**Skink Soils Investigation Areas Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



**Skink Soils Investigation Areas**

-  Area A: Pomello-Urban Land Complex
-  Area B: Pomello Fine Sand
-  Area C: Tavares-Urban Land Complex
-  Proposed Project Limits (ROW)
-  NRCS Soils Boundary

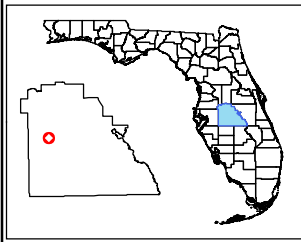
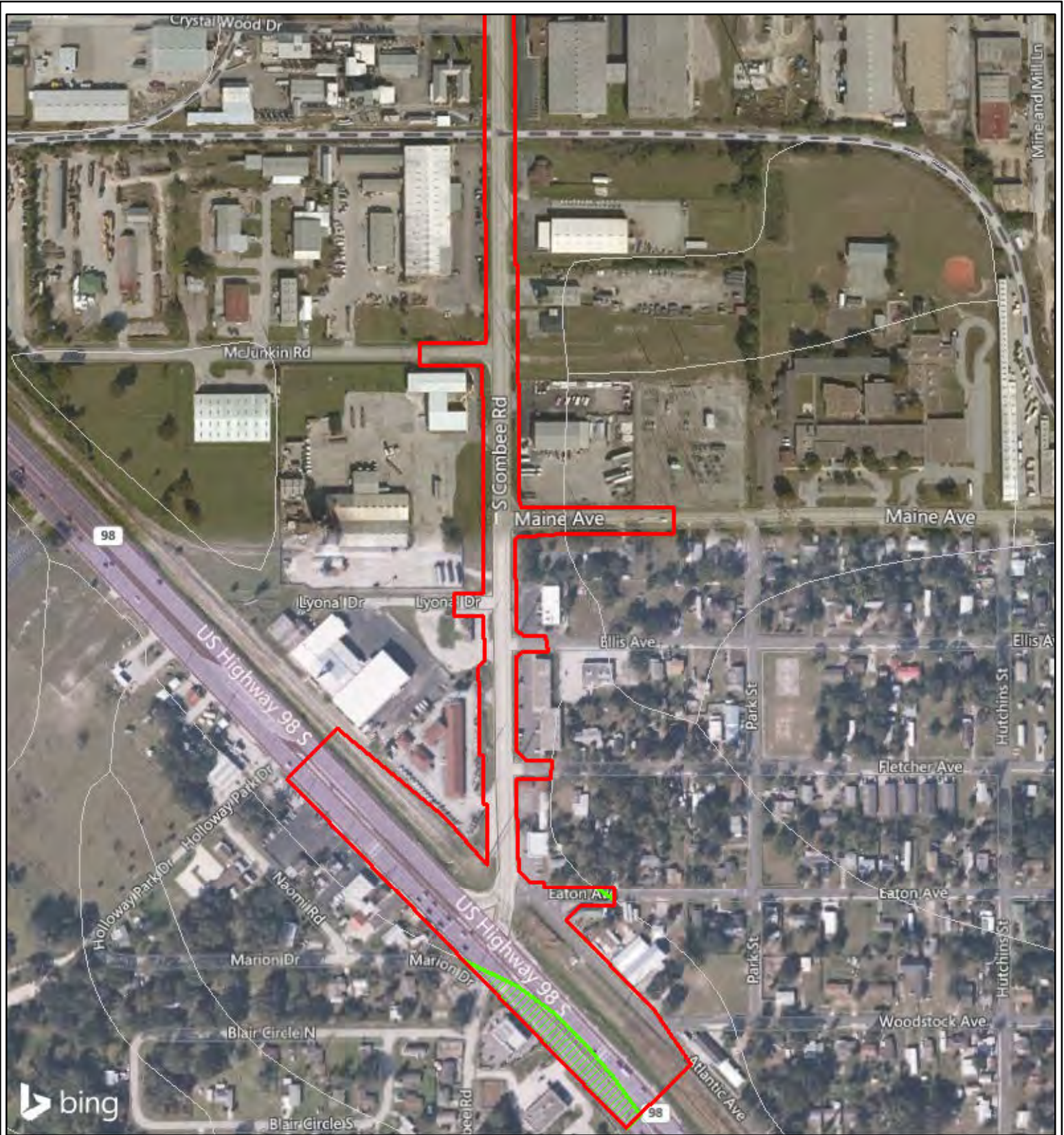
**Figure 3B**

1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Investigation Areas Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)
- NRCS Soils Boundary

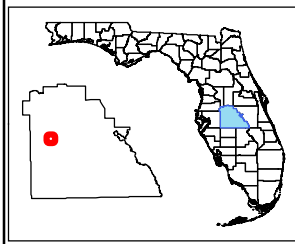
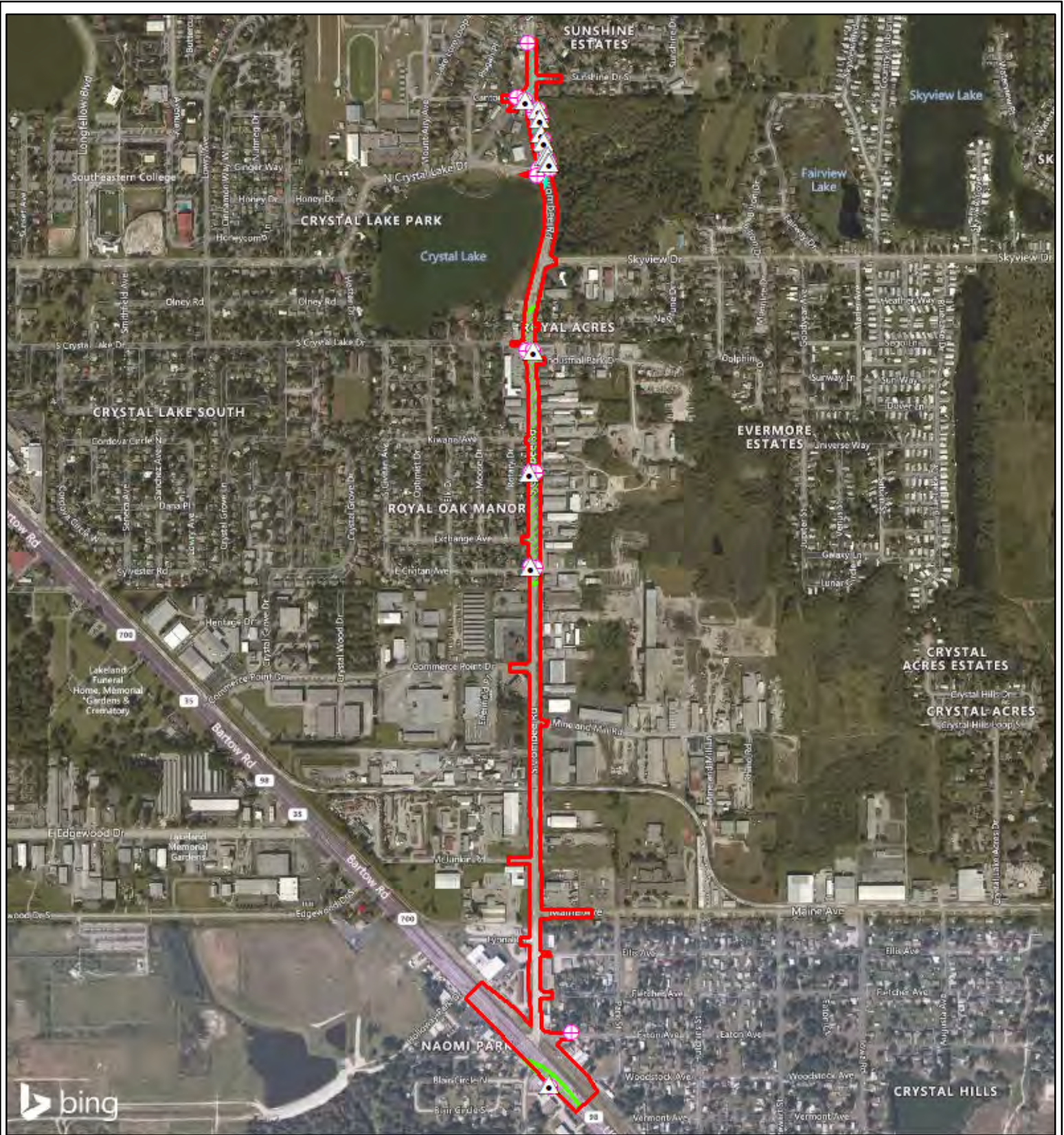
**Figure 3C**

1 in = 350 ft

Date: 8/26/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



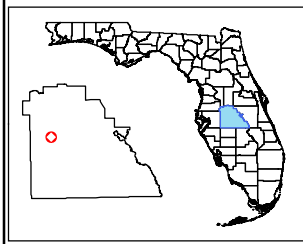
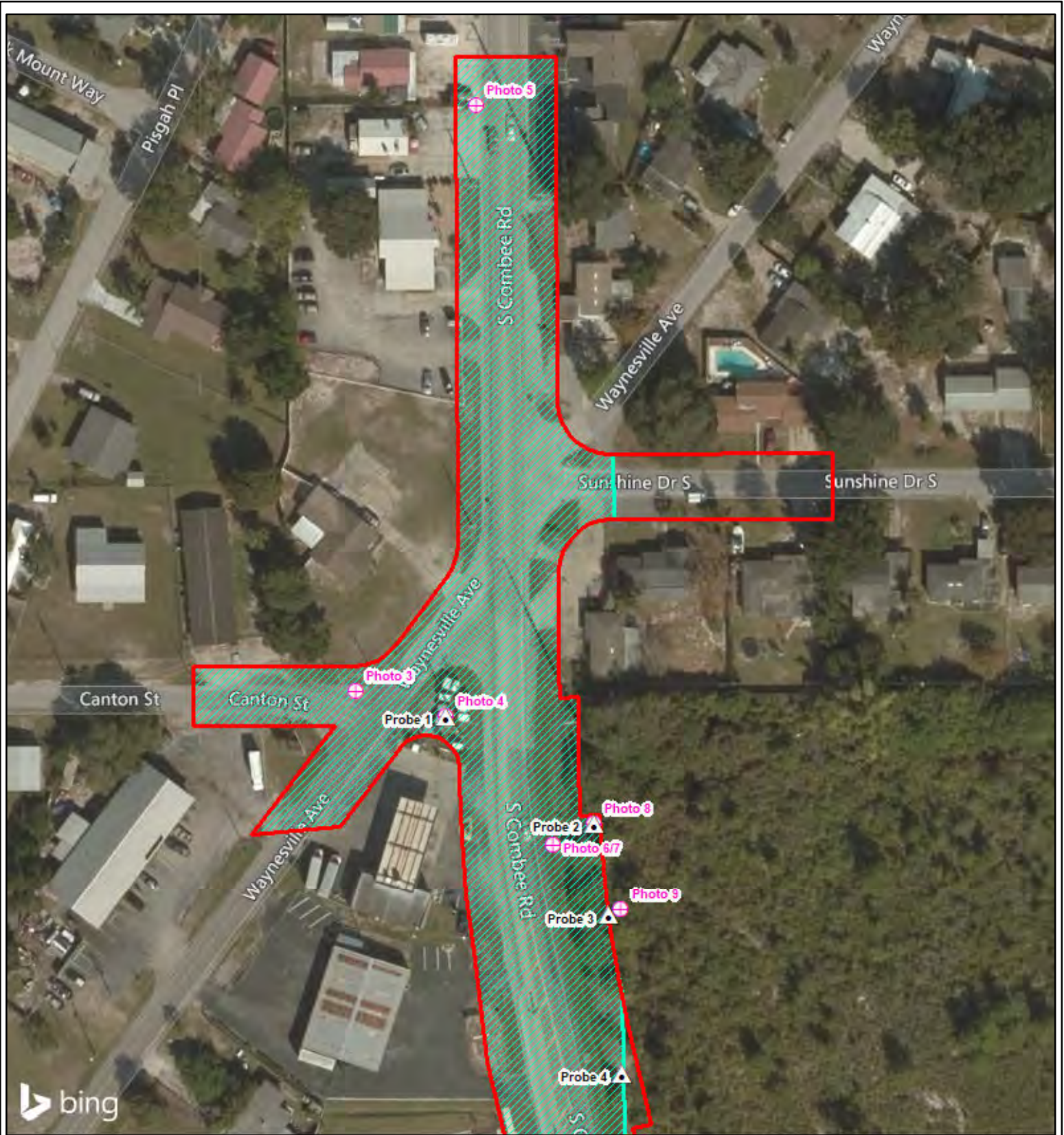
- Combee Rd. Soil Inspection Points
- Combee Rd. Photo Points
- Skink Soils Investigation Areas**
- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

**Figure 4**

1 inch equals 0.2 miles

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- ▲ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

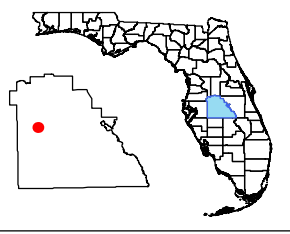
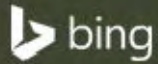
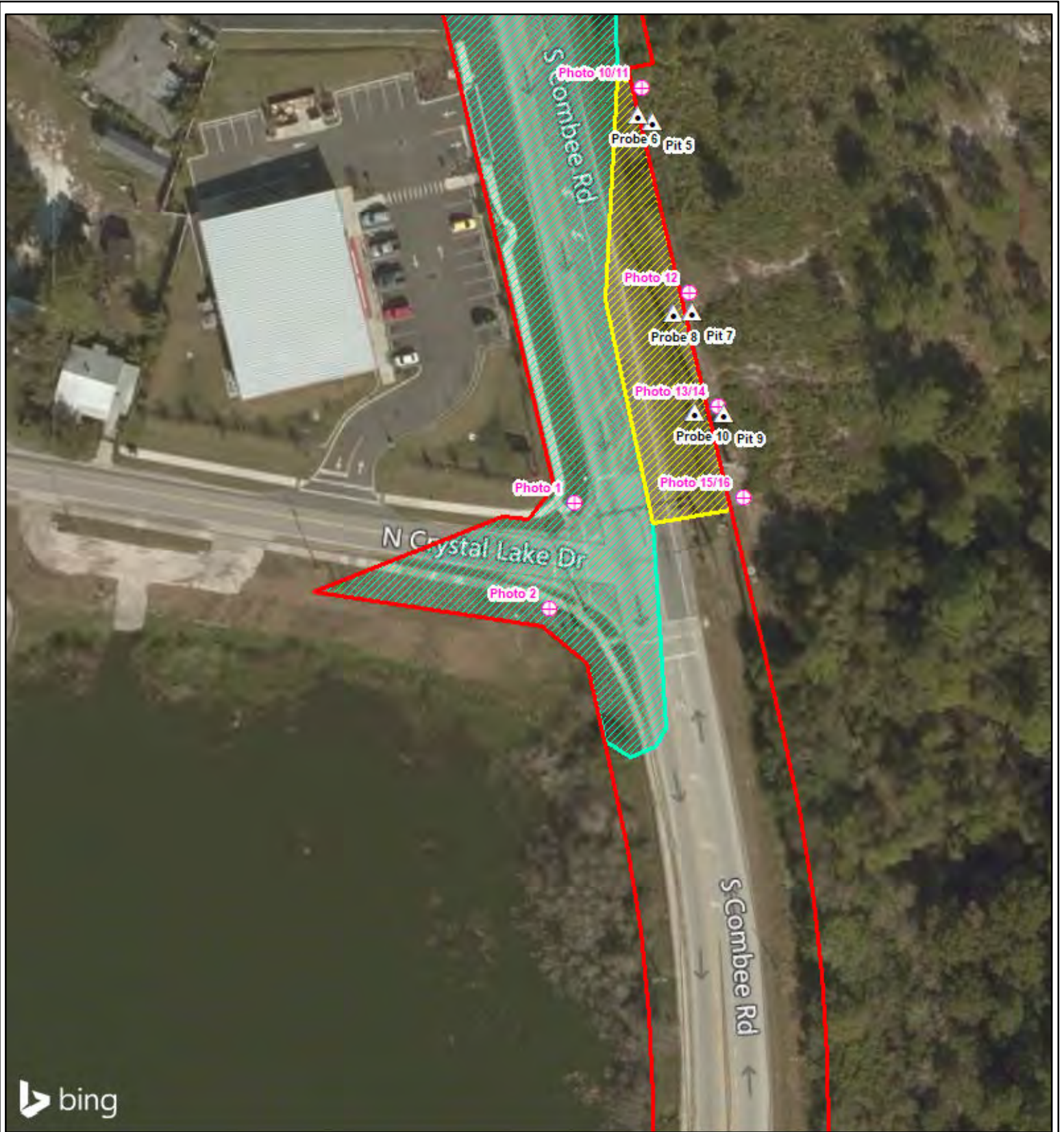
**Figure 4A**

1 in = 100 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

**Figure 4B**

1 in = 75 ft

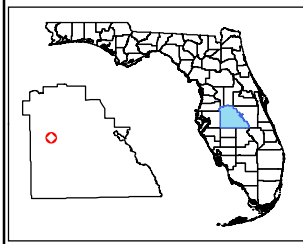
Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





No Sand Skink Soils



**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

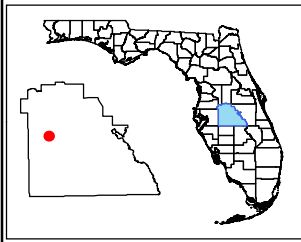
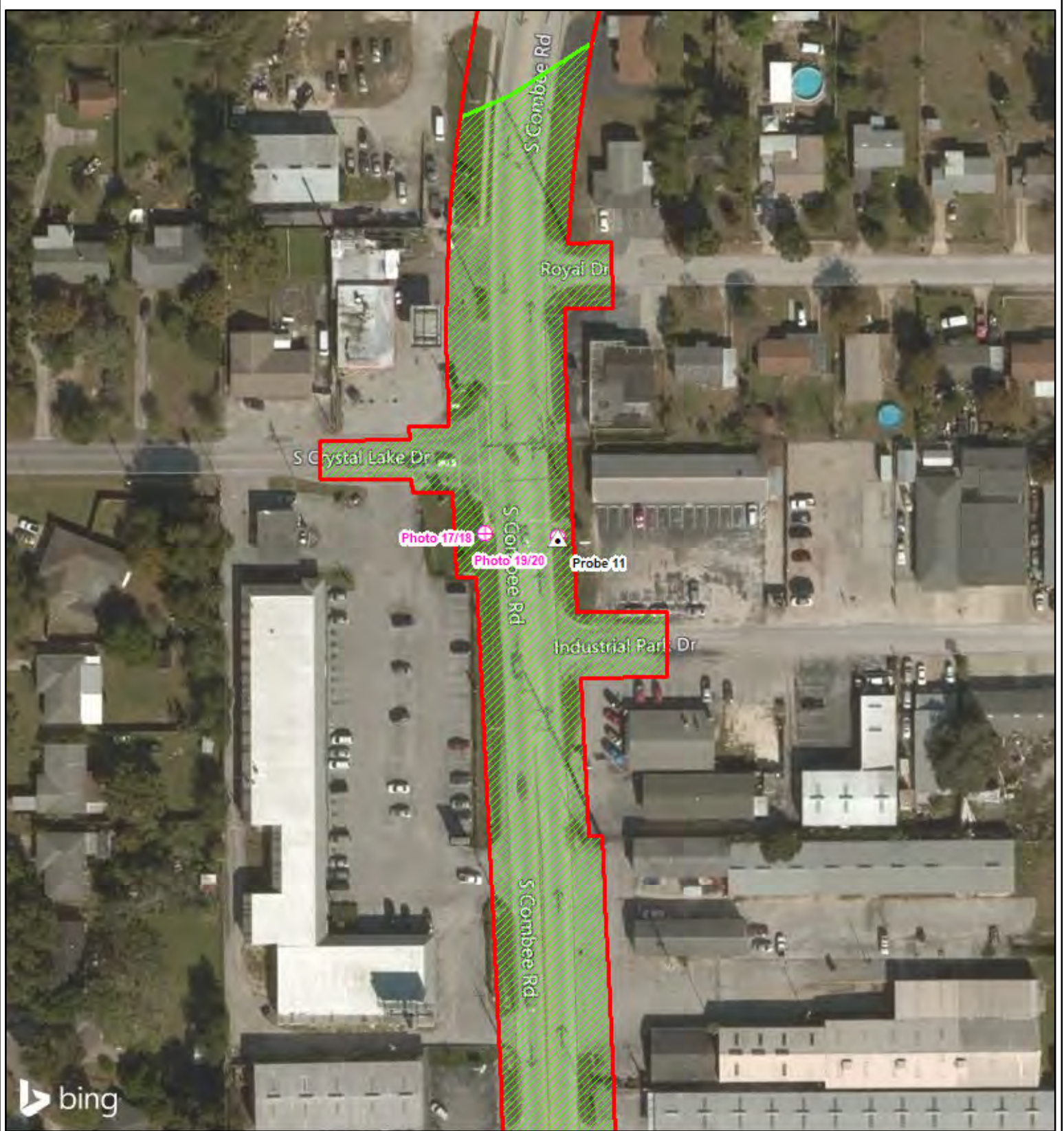
**Figure 4C**

1 in = 100 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

**Figure 4D**

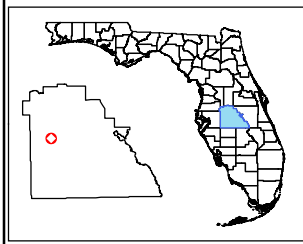
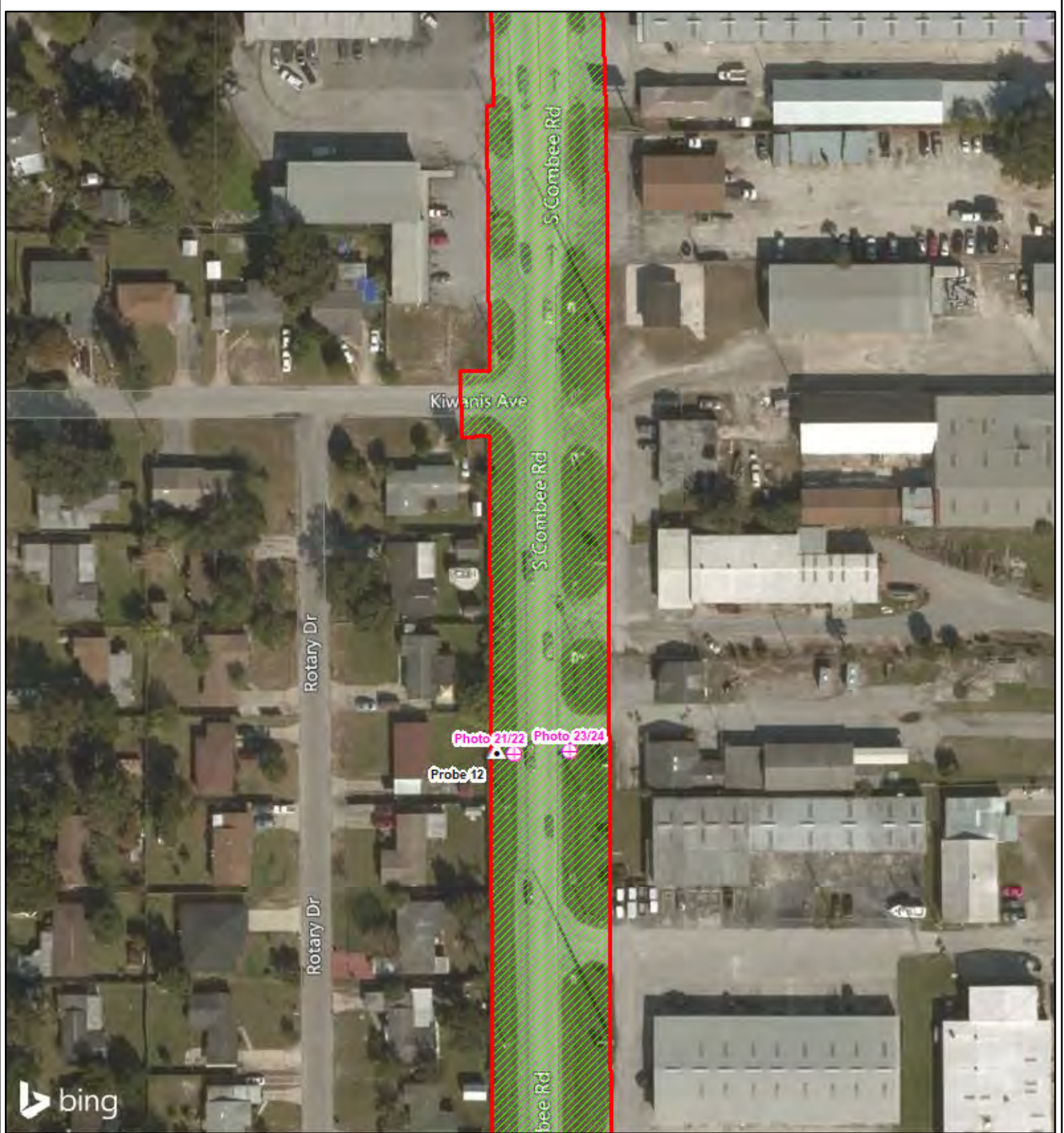
1 in = 100 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East







**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- ▲ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

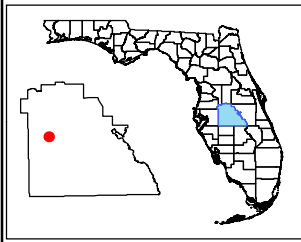
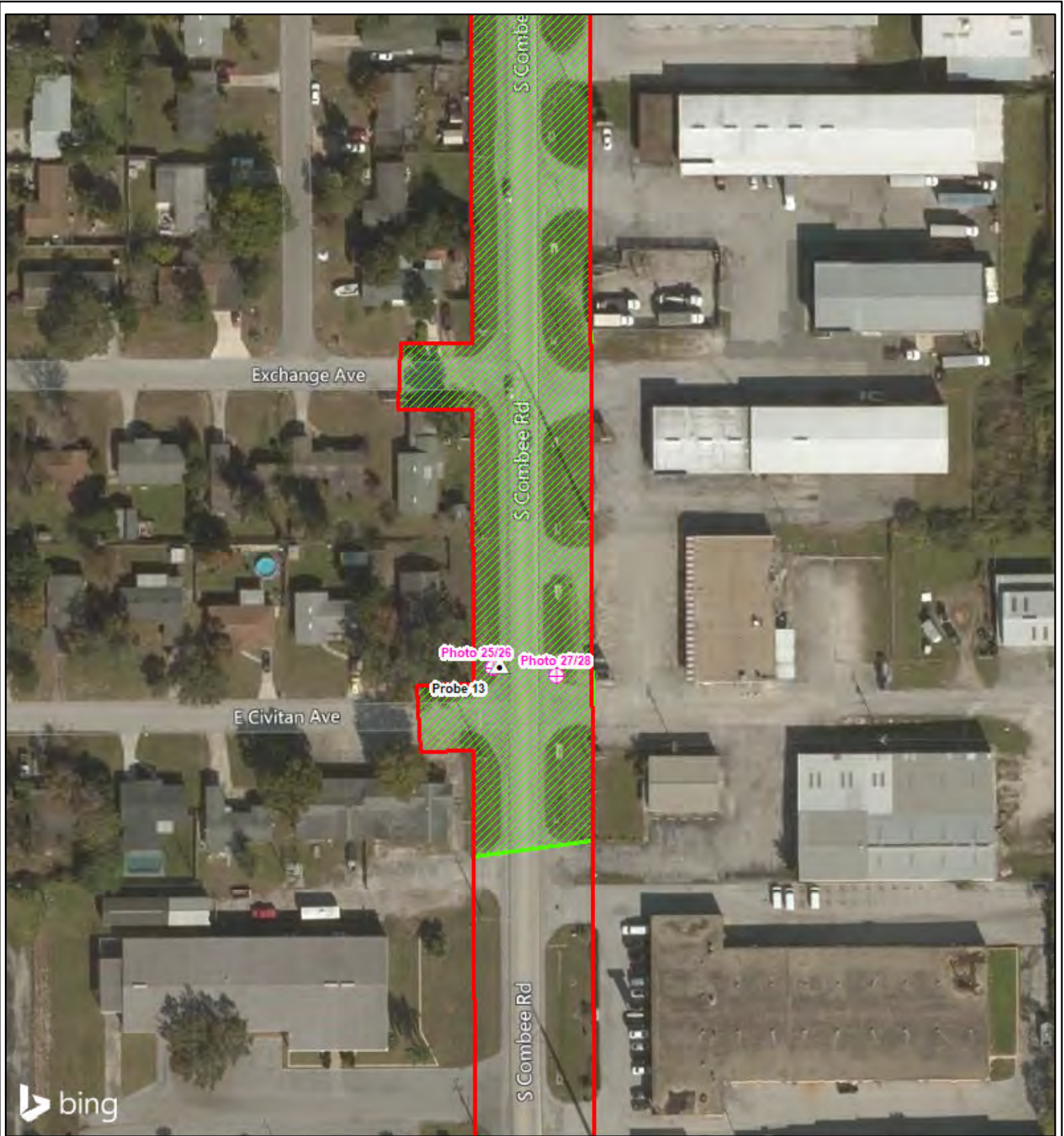
**Figure 4E**

1 in = 100 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

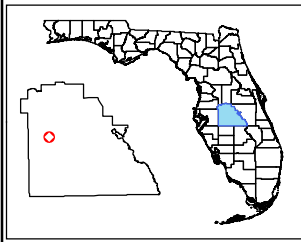
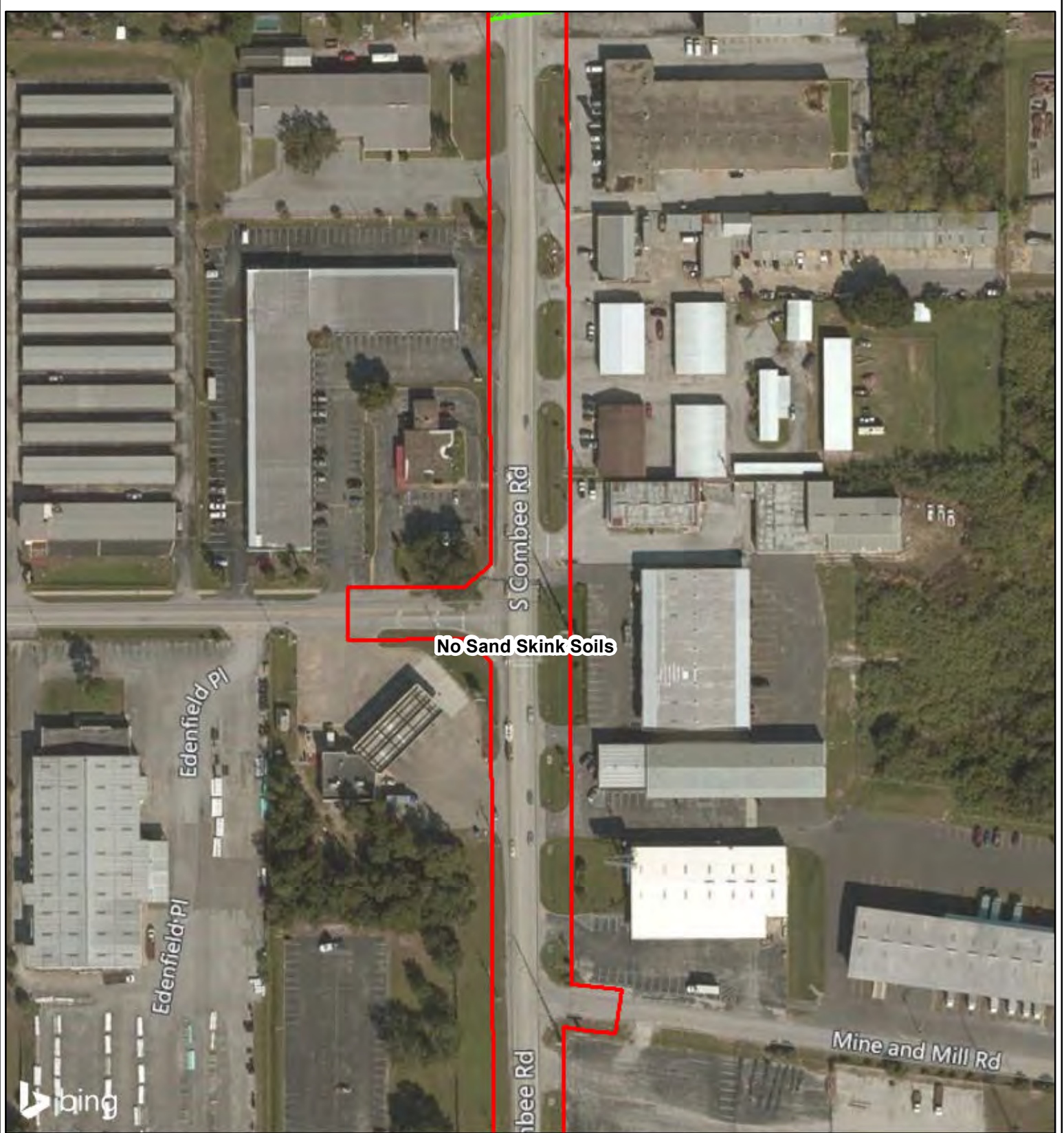
**Figure 4F**

1 in = 100 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

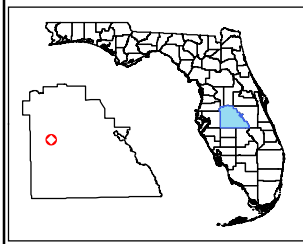
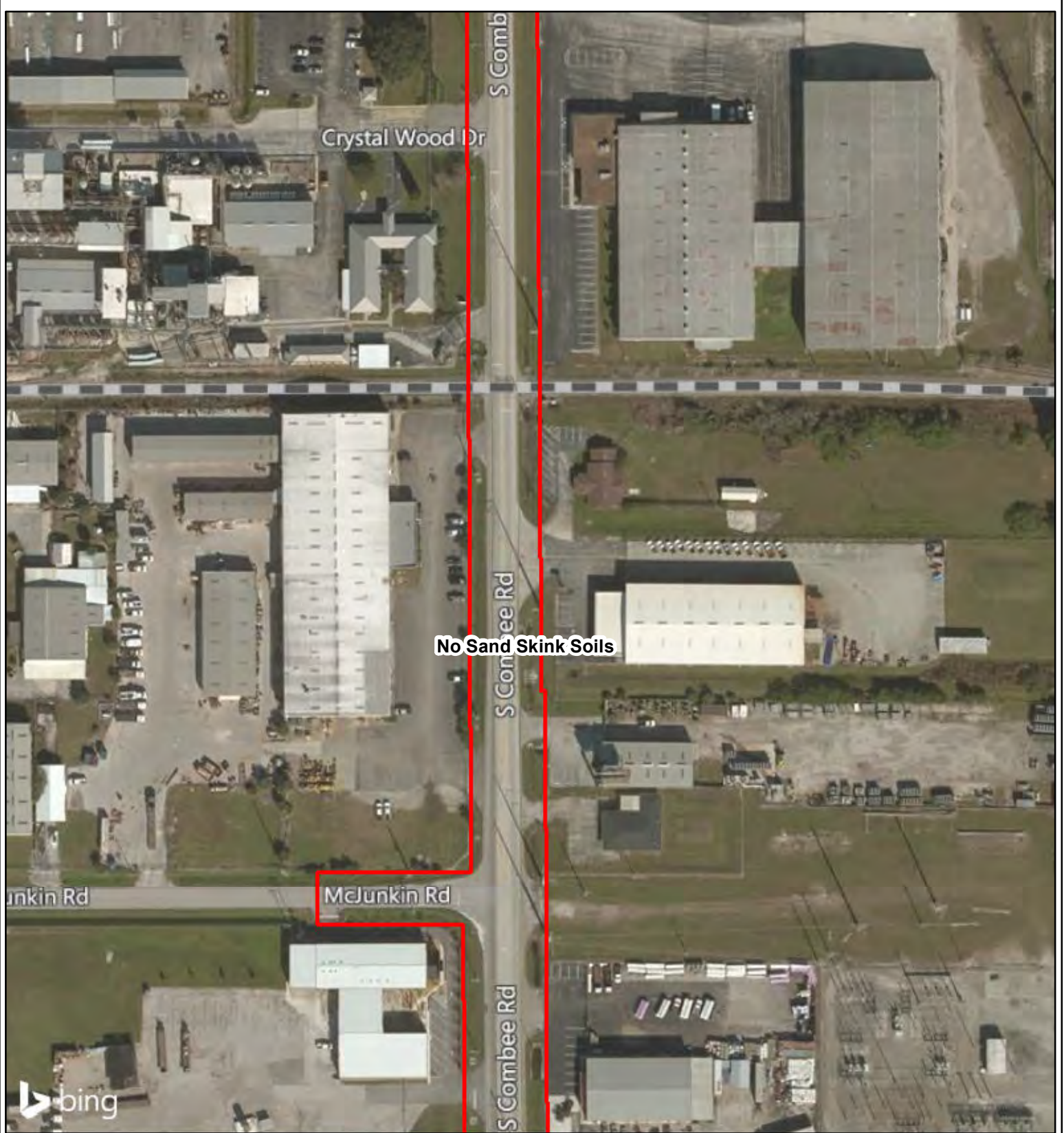
**Figure 4G**

1 in = 150 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

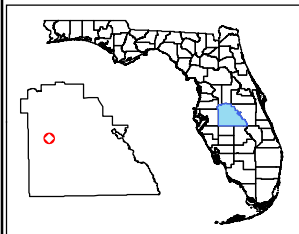
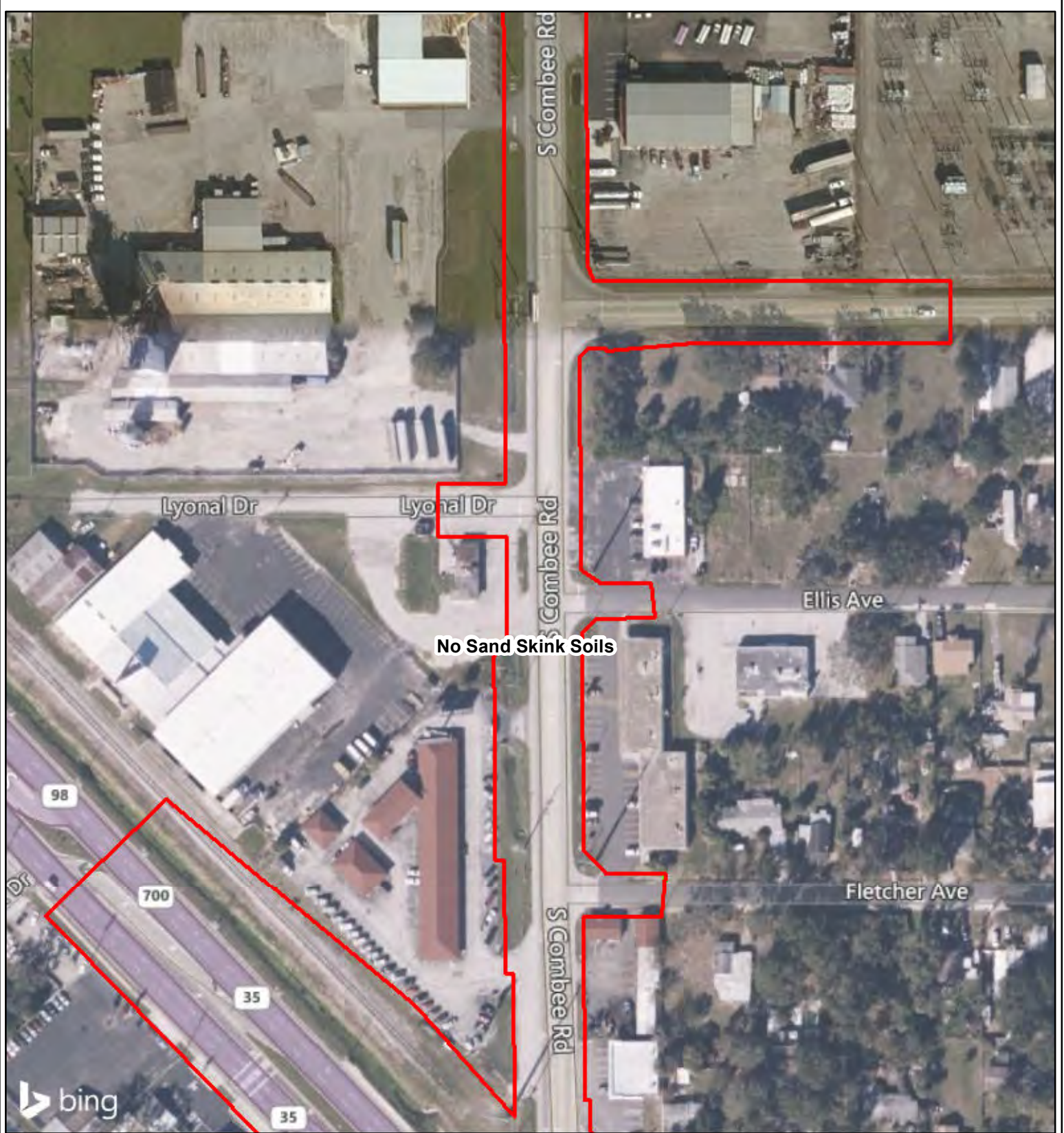
**Figure 4H**

1 in = 150 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- ▲ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

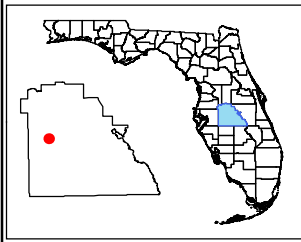
**Figure 41**

1 in = 150 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East





**Skink Soils Probe/Pit & Photopoint Locations Map**

**FDOT D1 PD&E Study  
Skink Soil Evaluation  
Combee Rd. from US 98 to Skyview Dr.  
Polk County, Florida**



- △ Combee Rd. Soil Inspection Points
- ⊕ Combee Rd. Photo Points

**Skink Soils Investigation Areas**

- Area A: Pomello-Urban Land Complex
- Area B: Pomello Fine Sand
- Area C: Tavares-Urban Land Complex
- Proposed Project Limits (ROW)

**Figure 4J**

1 in = 125 ft

Date: 8/27/2020

Section: 21, 22, 27, 28 & 33  
Township: 28 South  
Range: 24 East



FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 1 – Looking North



Photo 2 – Looking West



Photo 3 - Looking Northeast



Photo 4 - Looking North

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 5 – Looking South



Photo 6 – Looking South



Photo 7 - Looking North



Photo 8 - Looking East



FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 9 – Looking North



Photo 10 – Looking South



Photo 11 - Looking South East to Adjacent



Photo 12 - Looking South

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 13 – Looking South



Photo 14 – Looking North



Photo 15 - Looking South



Photo 16 - Looking North

FDOT D1 Combee Rd. Sand Skink Soils Evaluation

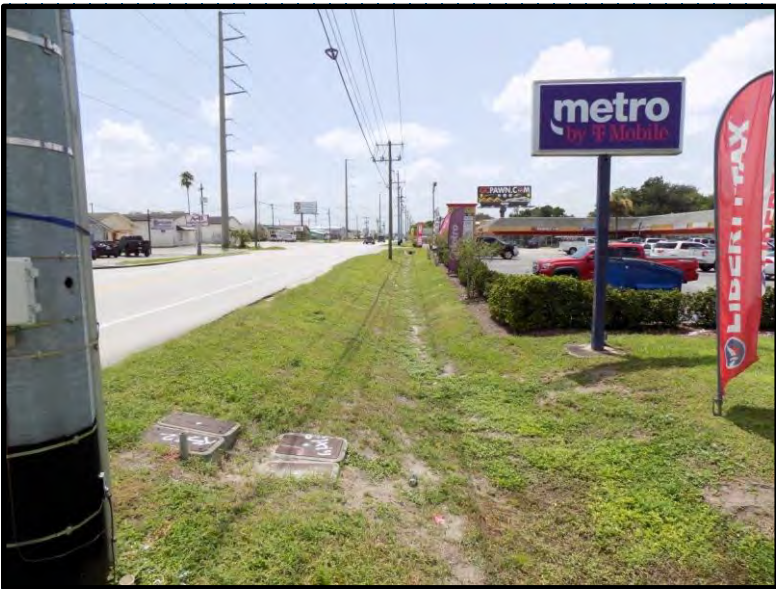


Photo 17 – Looking South



Photo 18 – Looking North



Photo 19 - Looking South



Photo 20 - Looking North

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 21 – Looking South



Photo 22 – Looking North



Photo 23 - Looking South



Photo 24 - Looking North

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 25 – Looking South



Photo 26 – Looking North



Photo 27 - Looking South



Photo 28 - Looking North

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Photo 29 – Looking West



Photo 30 – Looking Northwest



Photo 31 - Looking Southeast

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Soil Probe 1: Pomello - Urban Land Complex



Soil Probe 2 : Pomello - Urban Land Complex



Soil Probe 3 : Pomello - Urban Land Complex



Soil Probe 4 : Pomello - Urban Land Complex

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Soil Pit 5: Pomello Fine Sand



Soil Pit 5 : Pomello Fine Sand



Soil Probe 6 : Pomello Fine Sand



Soil Pit 7: Pomello Fine Sand



FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Soil Pit 7: Pomello Fine Sand



Soil Pit 7 : Pomello Fine Sand



Soil Probe 8 : Pomello Fine Sand



Soil Pit 9: Pomello Fine Sand

FDOT D1 Combee Rd. Sand Skink Soils Evaluation



Soil Pit 9: Pomello Fine Sand



Soil Probe 10: Pomello Fine Sand



Soil Probe 11: Tavares – Urban Land Complex



Soil Probe 12: Tavares – Urban Land Complex



Soil Probe 13: Tavares – Urban Land Complex



Soil Probe 14: Tavares – Urban Land Complex