Florida Department of
TRANSPORTATION

# NATURAL RESOURCES EVALUATION

Florida Department of Transportation
District Five

PROJECT DEVELOPMENT AND ENVIRONMENT STUDY
I-75 (SR 93) at NW 49th Street

Marion County, Florida
Financial Management Number: 435209-1-22-01
ETDM Number: 14242

OCTOBER 2020

*The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016, and executed by the Federal Highway Administration and FDOT.*

# EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) in conjunction with Marion County is conducting a Project Development and Environment (PD&E) Study for a new interchange on Interstate 75 (I-75) at NW 49 Street, located just west of the City of Ocala in Marion County, Florida. This Natural Resources Evaluation (NRE) documents baseline conditions in the project area and assesses potential impacts to protected species, wetlands, and Essential Fish Habitat (EFH). This NRE also describes avoidance, minimization, and mitigation measures and was prepared in accordance with FDOT's *PD&E Manual: Part 2, Chapter 9* (*Wetlands and Other Surface Waters*), updated July 1, 2020; *Part 2, Chapter 16 (Protected Species and Habitat)*, updated July 1, 2020; and *Part 2, Chapter 17 (Essential Fish Habitat)*, updated July 1, 2020. This NRE incorporates the requirements of the National Environmental Policy Act (NEPA) and related federal and state laws.

The "No Build", Transportation Systems Management and Operations (TSM&O), and the preferred alternative were evaluated for potential impacts using a review of existing project literature and data, Geographic Information System (GIS) resources, field surveys, and coordination with various stakeholders and regulatory agencies. The "No Build" and TSM&O alternatives would have no impacts on listed species, wetlands, or EFH. However, the "No Build" and TSM&O alternatives would not address the needs of the proposed project and would not improve conditions at the existing interchanges.

There are no wetlands or EFH in the project area, so there are no anticipated impacts to those resources. Other Surface Waters (OFWs) in the project area are limited to a Surface Water Retention Basin and small roadside ditches and swales that are part of the manmade drainage system. **Table ES-1** lists the federally and state listed species that were evaluated in this document, their regulatory status, and the effect determinations under the preferred alternative. No federally listed species were definitively observed in the project area during field investigations. An American kestrel (*Falco sparverius*) was sighted in the project area in April 2018. Because of the timing of this observation, it cannot be definitively concluded if this kestrel was a member of the resident, protected sub-species (*Falco sparverius paulus*) or was a migrant from a non-protected *Falco sparverius* population. The project is outside the core foraging areas of all known wood stork (*Mycteria americana*) colonies. Suitable elevations and soils for sand skinks (*Neoseps reynoldsi*) occur in the project area; however, coordination with U.S. Fish and Wildlife Service (USFWS) concluded that potential habitat was highly isolated and relatively poor quality, so no cover-board surveys for sand skinks were required.

**Table ES-1 Species Effect Determinations**

| Common Name | Scientific Name | Federal Status | State Status* | Effect Determination |
|---|---|---|---|---|
| Chapman's fringed orchid | *Platanthera chapmanii* | - | SE | No Adverse Effect Anticipated |
| Eastern indigo snake | *Drymarchon corais couperi* | FT | ST | MANLAA |
| Everglade snail kite | *Rostrhamus sociabilis plumbeus* | FE | SE | No Effect |
| Florida sandhill crane | *Grus canadensis pratensis* | - | ST | No Adverse Effect Anticipated |
| Florida scrub-jay | *Aphelocoma coerulescens* | FT | ST | No Effect |
| Gopher tortoise | *Gopherus polyphemus* | C | ST | No Adverse Effect Anticipated |
| Lewton's polygala | *Polygala lewtonii* | FE | SE | MANLAA |
| Little blue heron | *Egretta caerulea* | - | ST | No Adverse Effect Anticipated |
| Longspurred mint | *Dicerandra cornutissima* | FE | SE | MANLAA |
| Red cockaded woodpecker | *Picoides borealis* | FE | SE | No Effect |
| Pinesap | *Monotropa hypopitys* | - | SE | No Adverse Effect Anticipated |
| Sand skink | *Neoseps reynoldsi* | FT | ST | No Effect |
| Southeastern American kestrel | *Falco sparverius paulus* | - | ST | No Adverse Effect Anticipated |
| Wood stork | *Mycteria americana* | FT | ST | No Effect |

FE = Federally Endangered, FT = Federally Threatened, C = Federal Candidate, ST = State-Threatened, SE = State-Endangered, * All federally listed species are also considered state listed

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# 1.0 PROJECT OVERVIEW

The Florida Department of Transportation (FDOT) in conjunction with Marion County is conducting a Project Development and Environment (PD&E) Study for a new interchange on Interstate 75 (I-75) at NW 49 Street, located just west of the City of Ocala in Marion County, Florida. The proposed interchange is needed to support the economic viability of the Ocala 489, a 489-acre industrial and commercial development, which is intended to serve as an economic engine for job creation in the region. This Natural Resources Evaluation (NRE) documents baseline conditions in the project area and assesses potential impacts to protected species, wetlands, and Essential Fish Habitat. This NRE also describes avoidance, minimization, and mitigation measures and was prepared in accordance with FDOT's *PD&E Manual: Part 2, Chapter 9* (*Wetlands and Other Surface Waters*), updated July 1, 2020; *Part 2, Chapter 16 (Protected Species and Habitat)*, updated July 1, 2020; and *Part 2, Chapter 17 (Essential Fish Habitat)*, UPDATED July 1, 2020. This NRE incorporates the requirements of the National Environmental Policy Act and related federal and state laws.

Within the project area, I-75 generally borders the City of Ocala, seat of Marion County in north central Florida. The greater Ocala area has recently experienced one of the highest growth rates in the country for a city its size, and the Marion County Comprehensive Plan outlines a vision to enhance the livability of its residents and promote economic growth in the region. In this vein, the County has designated approximately 3000 acres adjacent to I-75 as a future commerce park. The Ocala 489, located in this area has been established as a "Florida Enterprise Zone" and is composed of a recently constructed FedEx Ground Distribution Hub, Chewy distribution center, an AutoZone distribution center designated as a CSX Select Site, the Florida Crossroads Logistics Center, a Red Rock Development, and the remaining undeveloped sites. Development in this area will result in traffic volume increases along I-75 and the entire local roadway network.

**Figure 1-1** depicts the project vicinity. There are two existing I-75 interchanges within the project vicinity. The I-75/US 27 interchange is located approximately 2 miles south of the proposed interchange and the I-75/SR 326 interchange, approximately 2 miles to the north. A Justification Report (IJR) completed in May 2016 concluded that the existing I-75 interchange ramp movements and intersections at US 27 and at SR 326 are expected to operate at failing levels of service in 2035. A new I-75 interchange at NW 49 Street (approximately midway between the two existing interchanges) is proposed to relieve congestion on the adjacent interchanges. The western limit of this project is NW 44 Avenue (west of I-75) and the eastern limit is the future NW 35 Street extension to the northern end of limerock pit(Magnum Materials Mine), just southeast of the new proposed interchange (Phase 2B). It should be noted that this proposed NW 35 Street extension (Phase 2B) will be constructed by the County and is funded for construction in 2021, so it will be completed prior to the interchange being constructed.

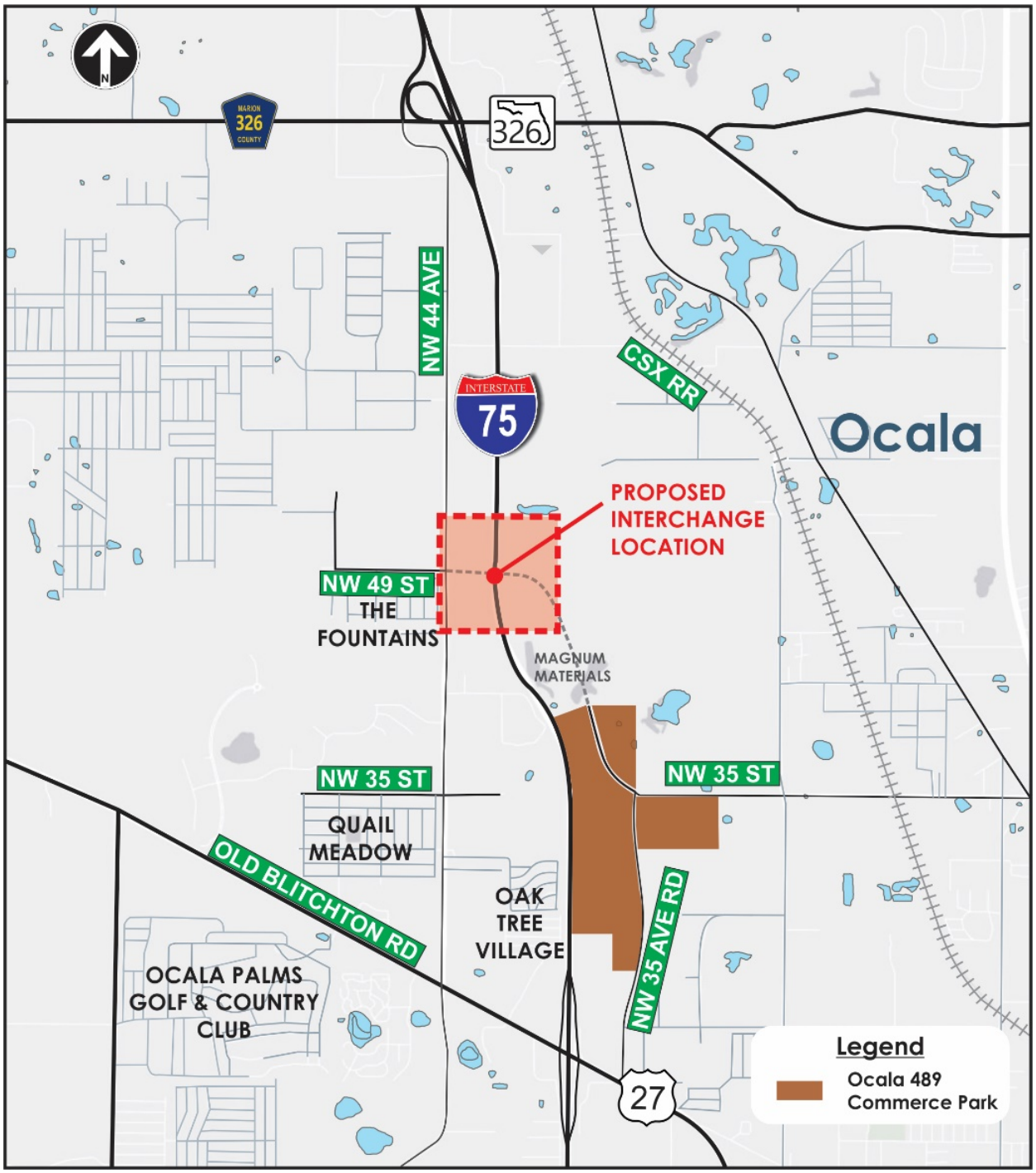


**Figure 1-1 Location Map**

# 2.0 PROJECT PURPOSE AND NEED

## PURPOSE

The purpose of a new I-75 interchange at NW 49 Street is to relieve congestion on adjacent interchanges by providing an alternate access to I-75 for the projected increase in truck volumes resulting from the future commerce district.

## NEED

The overall study was initiated with a detailed, comprehensive analysis of existing/projected substandard conditions. In general terms, some of the most critical potential needs include:

***Economic Viability and Job Creation***

The proposed interchange is needed to support the economic viability of the Ocala 489, a 489 acre industrial and commercial development, which is intended to serve as an economic engine for job creation in the region and is envisioned as a strategic central inland hub for freight-related traffic. The Ocala 489 has been established as a Florida Enterprise Zone, a designation which provides numerous tax credits to businesses located within the Commerce Park. In addition, this commerce park includes a site, recently developed by AutoZone, that was designated as a CSX Select Site (the first in Florida). Select Sites are properties identified and vetted as capable locations for future manufacturing facilities along the CSX rail network. FedEx Ground, Florida Crossroads Logistics Center, and Chewy also completed new facilities within the Ocala 489. Marion County has already made infrastructure improvements within the Park with the extension of NW 35 Street as a divided four lane facility.

It should be noted that the Ocala 489 is zoned M-1/M-2 or Light/Heavy Industrial and the businesses that are intended to occupy the commerce park will depend heavily on interstate and regional movement to transport raw materials and finished goods, around the State and beyond. In summary, due to its strategic location and incentives, the Ocala 489 and the commerce district/employment center will provide needed jobs in the area.

***Improve Interstate and Regional Mobility***

The proposed interchange will provide a more direct and efficient access to I-75 thus facilitating interstate and regional mobility. As previously stated, I-75 is a vital north-south interstate facility connecting six different states. From a regional perspective Marion County is approximately midway between Miami and Atlanta and occupies a strategic location due to its relative proximity to other important metropolitan areas such as Jacksonville, Orlando, and Tampa. This strategic location coupled with the presence of a major interstate facility such as I-75 makes this area a key potential hub for commercial industry. The proposed interchange is thus needed to support the efficient movements of goods.

***Address Locally Supported Long Term Regional Needs***

The proposed project is needed to provide important access to I-75 as part of a locally supported long range vision to provide a future east-west corridor parallel to US 27 and SR 326.

This east-west corridor begins at NE 36 Avenue east of I-75 and Downtown Ocala and terminates at NW 70 Avenue west of the proposed I-75 interchange. In conjunction with this new east-west corridor is a connection to US 27 at NW 35 Avenue Road and at NW 60 Avenue.

The proposed I-75 interchange is currently listed as the number one (1) priority project on the Ocala/Marion Transportation Planning Organization (TPO) FY 2025 Priority Projects List. The County has completed a number of improvements in the area in support of the proposed interchange and the Ocala 489, including extension of NW 35 Avenue Road. Phase 2A of the NW 35 Avenue Road extension was recently completed by the County, Phase 2B (through the Magnum Materials Mine) is a Marion County project currently in Final Design and programmed for construction in 2021, and Phase 2C is the connection between the proposed interchange and the future NW 35 Avenue Road (Phase 2B) that will be completed as part of the proposed interchange.

***Accommodate Future Traffic Growth***

As previously stated, one of the primary justifications for the new interchange is to accommodate projected future year traffic volumes. Marion County has experienced a significant and sustained growth in population since 1970. This significant growth rate is expected to continue in the future. According to the currently adopted Central Florida Regional Planning Model (CFRPM Version 6.1) socio-economic data for 2010 and 2040, the projected population for Marion County is expected to grow from approximately 325,199 to over 490,204 in population by 2040. As a result of this population growth, traffic volumes are increasing and will continue to increase in the future.

It should be noted that the existing SR 326 interchange located north of the proposed interchange would be a rather indirect option for trucks serving the Ocala 489, and therefore most of the truck traffic associated with the Commerce Park would likely utilize the US 27 interchange, severely degrading operations and safety at the interchange throughout the day. The need for the new interchange is based on projected traffic volumes in design year 2045 from build-out of not only the Ocala 489 but also the adjacent commerce district/employment center totaling 5,000 +/- acres. It is projected from the CFRPM 6.1 model that build-out in design year 2045 will add 25,000 daily trips to the roadway network with approximately 12%, or 3,000 vehicles, of which are projected to be trucks. As a result of this projected population growth, traffic volumes are increasing and will continue to increase in the future.

# 3.0 PROJECT ALTERNATIVES

## NO-BUILD

The "No Build" alternative assumes the retainment of existing conditions. It is used as a benchmark condition in order to compare the costs and benefits of implementing the proposed improvements to those incurred by continuing to use the existing facilities.

## PREFERRED ALTERNATIVE

After a comprehensive evaluation process, one alternative was selected as being the most effective option. This alternative is illustrated on **Figures 3-1 and 3-2**. The preferred alternative, diverging diamond interchange (Alternative 3), consists of a diamond interchange in which the two directions of traffic on the minor road (NW 49 Street) crossover, or diverge, to the opposite side between the signalized crossover intersections at the on/off ramps (shown on **Figure 3-2**). This eliminates the need for left-turning vehicles to cross the paths of approaching through vehicles, facilitating operational maneuvers and eliminating the potential for side-impact crashes. This allows for a simple two-phase operation at the two signalized intersections within the interchange (no left turns), thus improving efficiency. The preferred alternative also includes the extension of NW 49 Street from NW 44 Avenue to Marion County's future NW 35 Street extension (currently in final design). NW 49 Street (shown on **Figure 3-1**) will feature four 12-foot travel lanes with 7-foot bicycle lanes, a 28-foot raised median, and 6-foot sidewalk. The proposed right-of-way for NW 49 Street is 122 feet. NW 49 Street will curve towards the south east of I-75 to connect to Marion County's future NW 35 Street extension (Phase 2B) connection through the Magnum Materials Mine which is funded for construction in 2021 by the County. At the western limit, the proposed NW 49 Street will tie in to the existing NW 49 Street at the NW 44 Avenue intersection. Improvements at the NW 44 Avenue intersection include the addition of a northbound right turn lane and a southbound left turn lane for access to the proposed NW 49 Street and interchange ramps. Additionally, based on the preliminary profile of NW 49 Street, the intersection of NW 44 Avenue would need to be reconstructed to raise the profile approximately 2 feet. Four stormwater treatment and attenuation ponds are shown on Figure 3-2 to meet water management district and FDOT drainage requirements.

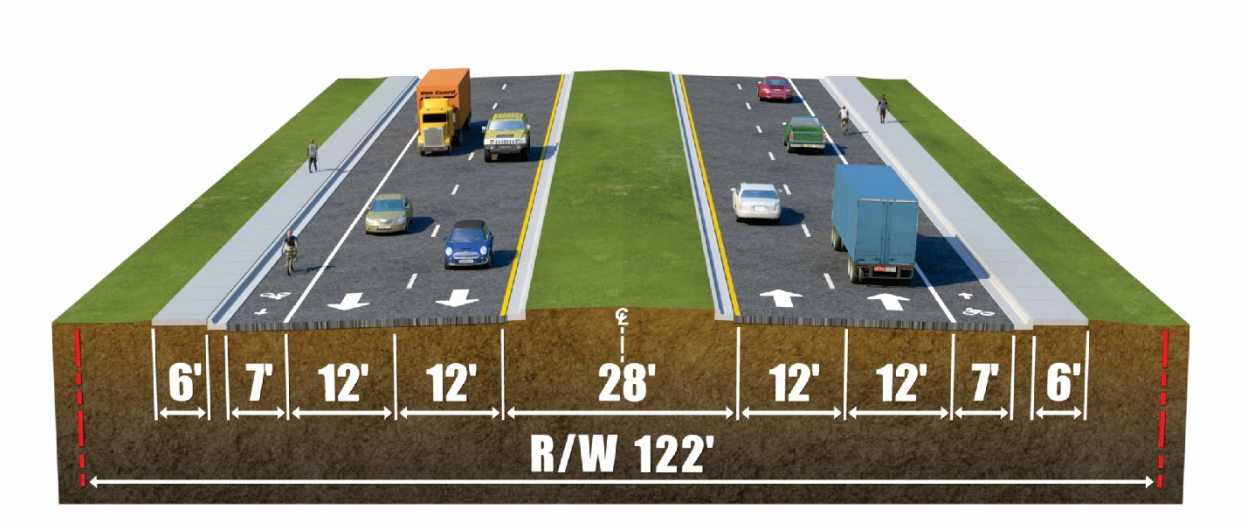


**Figure 3-1 NW 49 Street Preferred Typical Section**


**Figure 3-2 Preferred Alternative and Stormwater Ponds**

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# 4.0 PROJECT AREA DESCRIPTION

The project occurs in Marion County, northwest of the City of Ocala. The term "project corridor" is used in this document to represent the footprint of the preferred alternative. The term "project area" represents a larger expanse that encompasses the project corridor as well as all land within 500 feet.

The project area is bisected by I-75. On the west side of I-75, NW 44 Avenue parallels I-75 and provides a north-south route between the nearest adjacent interstate exit/entrance ramps. To the west of NW 44 Avenue and immediately south of NW 49 Street is a small residential area. Several businesses and complexes of warehouses, some currently unused, are located between NW 44 Avenue and I-75. These include Barracuda Boat and RV Storage, Hickory Springs Manufacturing Company, Quality Bedding, Scorpion Performance Anodize Inc., Just in Time Machining, and All-In Removal waste disposal.

To the east of I-75, most of the project area is under agricultural use and owned by the Baldwin Angus Ranch. Southeast of the project is the Magnum Materials limestone mine. The project will require right-of-way from both the Baldwin Angus Ranch, a small area in the northwest corner of the mine, and parcels west of I-75. South of the mine, and east of I-75, is a recently-developed regional shipping hub, the Ocala 489. This area currently includes major distribution centers for Federal Express, Chewy and Auto Zone.

## LAND USE

Major land uses in the project area include small, undeveloped natural areas, large pastures used for livestock, residential areas, and large industrial parks. Land use cover descriptions provided for both uplands and wetlands are classified utilizing the *Florida Land Use Cover and Forms Classifications System* (FLUCCS) designations. Existing land use in the project area was initially determined utilizing U.S. Geological Survey (USGS) maps, historical images, aerial photographs, and land use mapping from the St. Johns River Water Management District (SJRWMD) (2012). Land use categories reported by SJRWMD were verified in the field.

The most recent FLUCCS data for land use in the project area were downloaded from the SJRWMD website and are mapped on **Figure 4-1.** The predominant land use types in the project area west of I-75 are Other Light Industrial (FLUCCS 1550) and Rural Land in Transition (FLUCCS 7410). East of I-75, the predominant land types are Improved Pastures (FLUCCS 2110) with a smaller area of Field Crops (FLUCCS 2150), both of which are part of the Baldwin Angus Ranch. The Magnum Materials mine in the southeastern part of the project area is mapped as Reclaimed Lands (FLUCCS 1650) and Limerock or Dolomite (FLUCCS 1632).

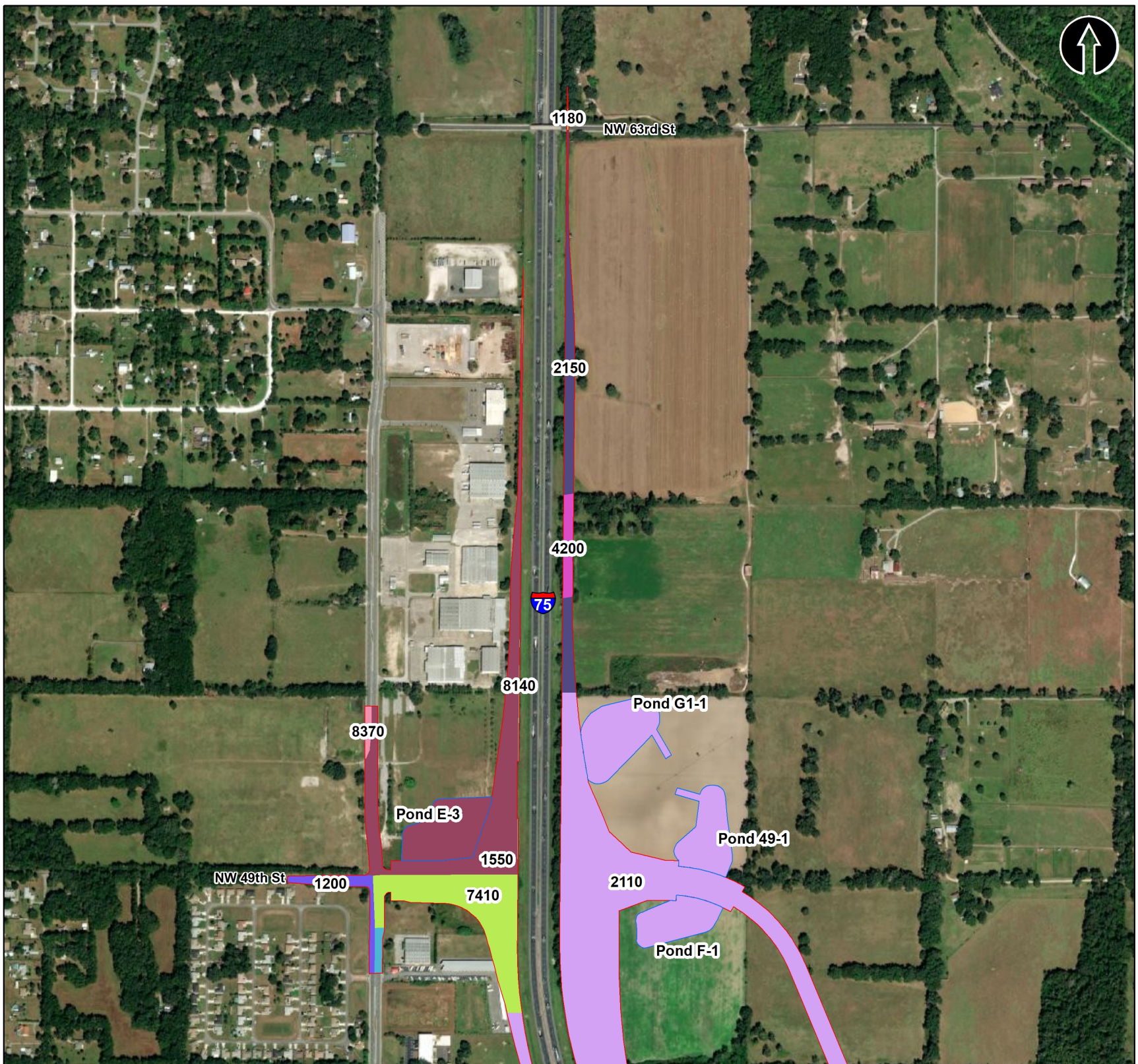


**Figure 4-1 Land Use in the Project Area**

***Residential, Rural (FLUCCS – 1180) and Residential, Medium Density (FLUCCS – 1200)***

Residential, Rural (FLUCCS 1180) and Residential, Medium Density (FLUCCS 1200) land covers are for areas with one dwelling on two or more acres, or two to five dwellings per acre, respectively. A small sliver of land east of I-75, at the northern project terminus, is mapped as Residential, Rural (FLUCCS- 1180). One location in the project area is mapped as Residential, Medium Density (FLUCCS 1200). It is a residential community located to the west of the NW 44 Avenue and immediately south of NW 49 Street. No residences are located within the project corridor.

***Commercial and Services (FLUCCS – 1400)***

Commercial and Services (FLUCCS 1400) land uses in the project area are described as light manufacturing facilities or small equipment shops. This land use type occurs in two locations in the project area, both of which are located between NW 44 Avenue and I-75, south of NW 49 Street.

***Other Light Industrial (FLUCCS – 1550)***

This classification in the project area is primarily vacant industrial land, aside from the active manufacturing plant located at the northwestern limits of the project area. This land use type occurs in one large patch in the project area, between NW 44 Avenue and I-75. This land use type comprises most of the northwest quadrant of the proposed interchange. This area contains a mixture of industrial buildings, some of which are in active use, others are vacant and in disrepair.

***Limestone or Dolomite (FLUCCS – 1632)***

This classification is used for extraction or mining operations and in the project area includes the Magnum Materials mine. This mine is located in the southern portion of the project, east of I-75.

***Reclaimed Lands (FLUCCS – 1650)***

This class is for mining sites that have been or are being restored to approximate a natural state or converted into other types of land use, such as pasture, recreational uses, or development. It does not include portions of active mining areas that are temporarily inactive or abandoned mining lands. This land use type occurs in one location in the project area, immediately adjacent to northbound I-75, on the Magnum Materials mine. This area now contains secondary growth upland forest.

***Improved Pastures (FLUCCS – 2110)***

Improved Pastures are the most intensively managed of the pastureland use classes. The largest portion of this land use within the project area is the Baldwin Angus Ranch, which comprises the majority of the project area east of I-75. This land use class is also found to the

west of I-75, southwest of the proposed interchange. The pastures west of I-75 do not appear to be under agricultural use.

***Unimproved Pastures (FLUCCS – 2120)***

This category includes cleared land within the project area where native grasses and brush have been allowed to develop. This land use type is found in one location in the project area, southwest of the proposed interchange on I-75, near the southwestern limits.

***Field Crops (FLUCCS – 2150)***

Wheat, oats, hay, and grasses are the primary crop types identified as Field Crops. Field Crops are mapped in three locations in the project area. Two of these locations are on the Baldwin Angus Ranch, east of I-75. A third area is mapped as field crops west of I-75, near the southern project limits; however, this area does not appear to be under active agricultural use.

***Upland Hardwood Forests (FLUCCS – 4200)***

This class is for upland hardwoods that do not fit into one of the two subclasses of 4210 Xeric Oak or 4280 Cabbage Palms. The Upland Hardwoods Forests class may include forest communities such as oak-pine-hickory, Brazilian pepper, live oak, wax myrtle-willow (not hydric), mixed temperate or tropical hardwoods, and beech-magnolia. Xeric oak and cabbage palm forests must be broken out separately. However, almost all forests are subject to human influence, and the composition of the forests is, to a large or small degree, determined by management factors. This land use type occurs in one location in the project area, east of I-75, at the northern project limits.

***Upland Mixed Coniferous/Hardwood (FLUCCS – 4340)***

This class is used for those forested areas in which neither upland conifers nor hardwoods achieve a 67 percent crown canopy dominance. This land use type occurs in a small sliver immediately west of I-75, at the southern project terminus.

***Rural Land in Transition (FLUCCS – 7410)***

This class is used for areas that have been cleared with no positive indicators of the intended land use. This category of land use is mapped in a large patch southwest of the proposed interchange. It contains part of Barracuda Boat and RV Storage and adjacent undeveloped lands.

***Roads and Highways (FLUCCS – 8140)***

This class includes all four lane highways with "substantial" median strips. In general, these are specified as the U.S. and State Routes identified as such on USGS 7.5' topo maps. In the project corridor, some areas along the margin of existing roads are mapped as Roads and Highways.

***Surface Water Collection Basins (FLUCCS – 8370)***

This code classifies excavated open spaces, situated within residential sub-divisions or communities and along freeway corridors, for temporary collection and holding of surface water runoff. This land use is mapped at the location of an excavated, rectangular drainage feature located immediately west of NW 44 Avenue, approximately 1100 feet north of NW 49 Street. It is an Other Surface Water. The area mapped as Surface Water Collection Basins also includes large portions of the existing NW 44 avenue, and only a small sliver of new right-of-way would be necessary.

## ELEVATION AND HYDROLOGY

Elevations in the project area range from approximately 64 feet to 130 feet above sea level. The lowest elevation occurs in the northeastern limits of the project area within Improved Pastures. There are also areas of low elevation near the northern and western termini of the project corridor. The area of highest elevation occurs near the southern and southeastern limits of the project area, east of I-75, near the Magnum Materials mine. **Figure 4-2** shows an elevation map created with data collected by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Department of Commerce in 2007 using Light Detection and Ranging (LIDAR) in North American Datum 1983 (NAD 83).

West of I-75, the project lies within the Southwest Florida Water Management District (SWFWMD) jurisdiction. The remaining portion of the project, east of I-75, lies within SJRWMD jurisdiction. The project area also spans the Silver Springs and Rainbow Springs springsheds, which are designated Outstanding Florida Waters (OFW) that have been verified as impaired by excessive nutrient loads.

The project area is considered a sensitive karst area due to the occurrence of limestone within 20 feet of the surface that comprises the barrier above the Floridan Aquifer. Areas in Florida most vulnerable to aquifer contamination from land surface activities have been determined based on the statewide GIS model Florida Aquifer Vulnerability Assessment (FAVA). The project area is mapped by FAVA as being of the highest vulnerability to aquifer contamination. Portions of the project area have subsurface connections to Rainbow Springs, while other portions of the project area have subsurface connections to Silver Springs. Major hydrologic surface-features in the vicinity of the project are shown on **Figure 4-3**. The area mapped as a Freshwater Pond, immediately north of Pond G1-1, is actually a borrow-pit related to nearby road construction. The small area mapped as Freshwater Emergent Wetland in the southern portion of the project corridor, on the mining property east of I-75, has been cleared and graded by mining activities and is not a wetland.

There are no major water features within the project corridor. The closest major water features are the Silver River, located approximately 9 miles southeast of the project, and Silver Springs, located approximately 8.2 miles to the east. Rainbow Springs is approximately 18 miles to the southwest.

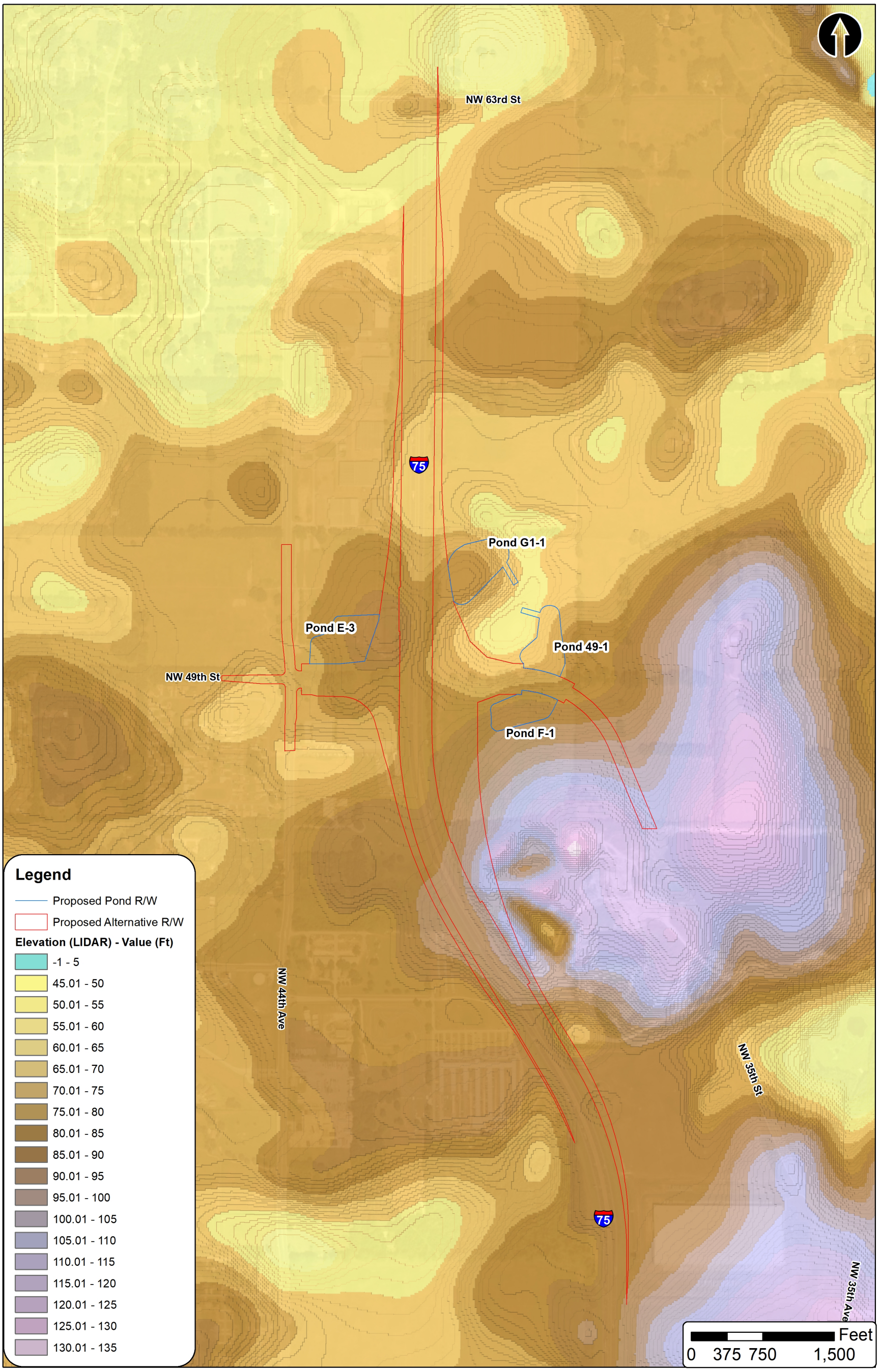


**Figure 4-2 Elevation in Project Corridor**

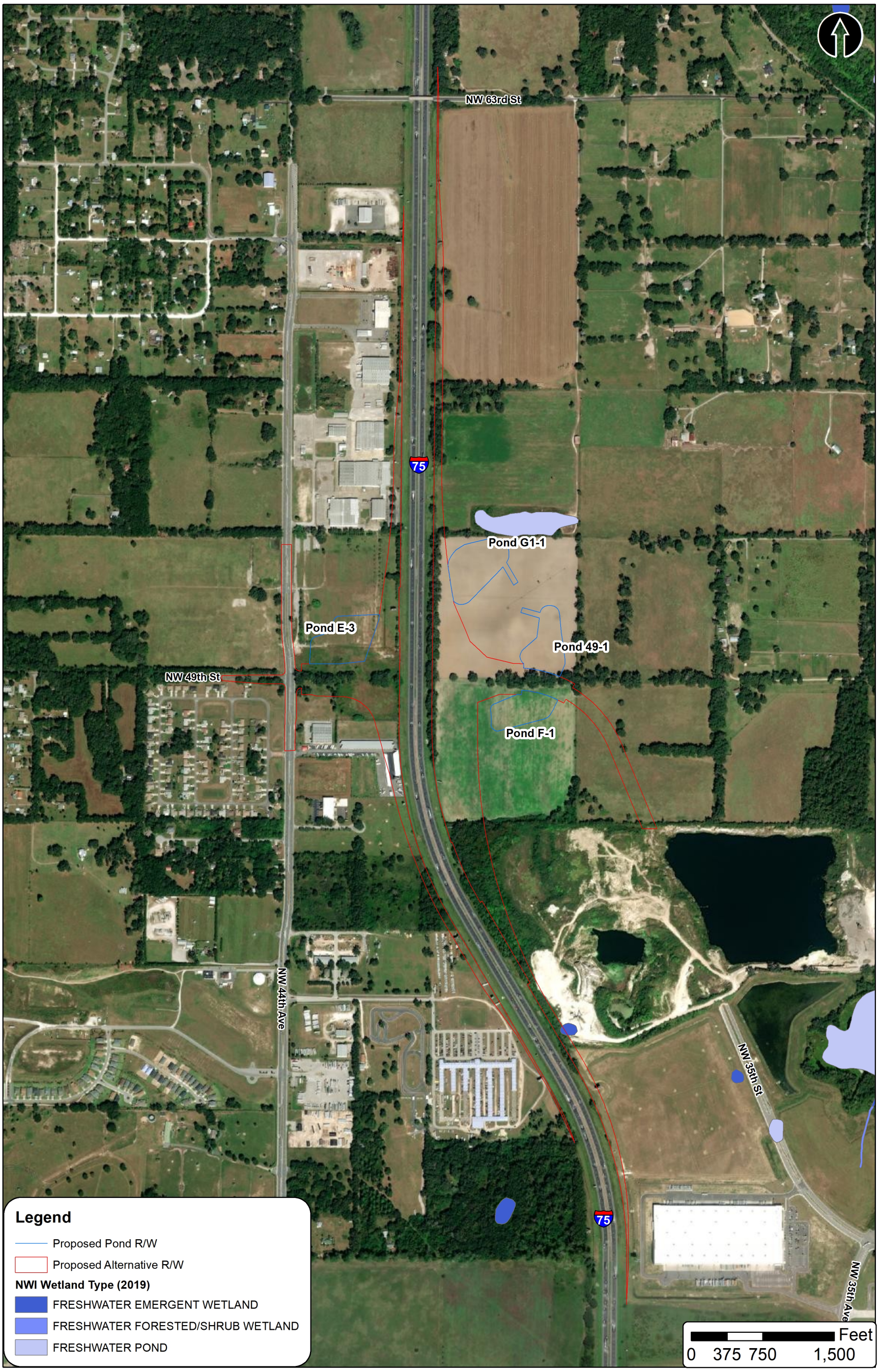


**Figure 4-3 Surface Hydrology of Project Area**

## SOILS

The Natural Resources Conservation Service (NRCS) (2017) maps six soil types occurring in the project area (**Table 4-1** and **Figure 4-4**). No hydric soils are mapped in the project area. Farmland Soils of Local Importance occur in the project area and include Blichton, Gainesville, Hague, and Kendrick soil series.

**Table 4-1 Soils in Project Corridor**

| Soil Type | Environmental Association |
|---|---|
| Arredondo Sand | 0-5% slopes; Arredondo soils are on nearly level to strongly sloping uplands in the Lower Coastal Plain. The Arredondo series consists of well drained soils that are rapidly permeable in the thick, sandy surface and subsurface layers and moderate to very slow in the subsoil. They form in sandy and loamy marine deposits on the Ocala uplift. This is not a hydric soil. This is a **suitable soil for sand skink habitat**. |
| Blichton Sand | 0-8% slopes; The Blichton series consists of very deep, very poorly drained, moderately slow or slowly permeable soils on uplands in central Florida. They formed in thick beds of loamy and sandy marine sediments. This is not a hydric soil. This is a Farmland Soil of Local Importance. |
| Gainesville Loamy Sand | 0-15% slopes; Gainesville series consists of well drained, rapidly permeable soils formed in thick beds of sandy marine deposits. They are on nearly level to strongly sloping uplands in the lower Coastal Plain. This is not a hydric soil. This is a **suitable soil for sand skink habitat**. This is a Farmland Soil of Local Importance. |
| Hague Sand | 2-5% slopes; The Hague series consists of very deep, well drained soils that formed in sandy and loamy marine deposits. This is not a hydric soil. This is a **suitable soil for sand skink habitat**. This is a Farmland Soil of Local Importance. |
| Kendrick Loamy Sand | 0-8% slopes; The Kendrick series consists of well drained, slowly to moderately slowly permeable soils formed in thick beds of loamy marine sediments on nearly level to sloping areas in the Coastal Plain. This is not a hydric soil. This is a **suitable soil for sand skink habitat**. This is a Farmland Soil of Local Importance. |
| Sparr Fine Sand | 0-8% slopes; The Sparr series consists of very deep, somewhat poorly drained, moderately slowly to slowly permeable soils on uplands of the coastal plain. They formed in thick beds of sandy and loamy marine sediments. This is not a hydric soil. |
| Borrow Pits | These are excavated areas associated with the Magnum Materials mine. |

**Source: NRCS 2017, USDA 1987: 22–23, 25, 28, 31–34, 36, 45, 55**

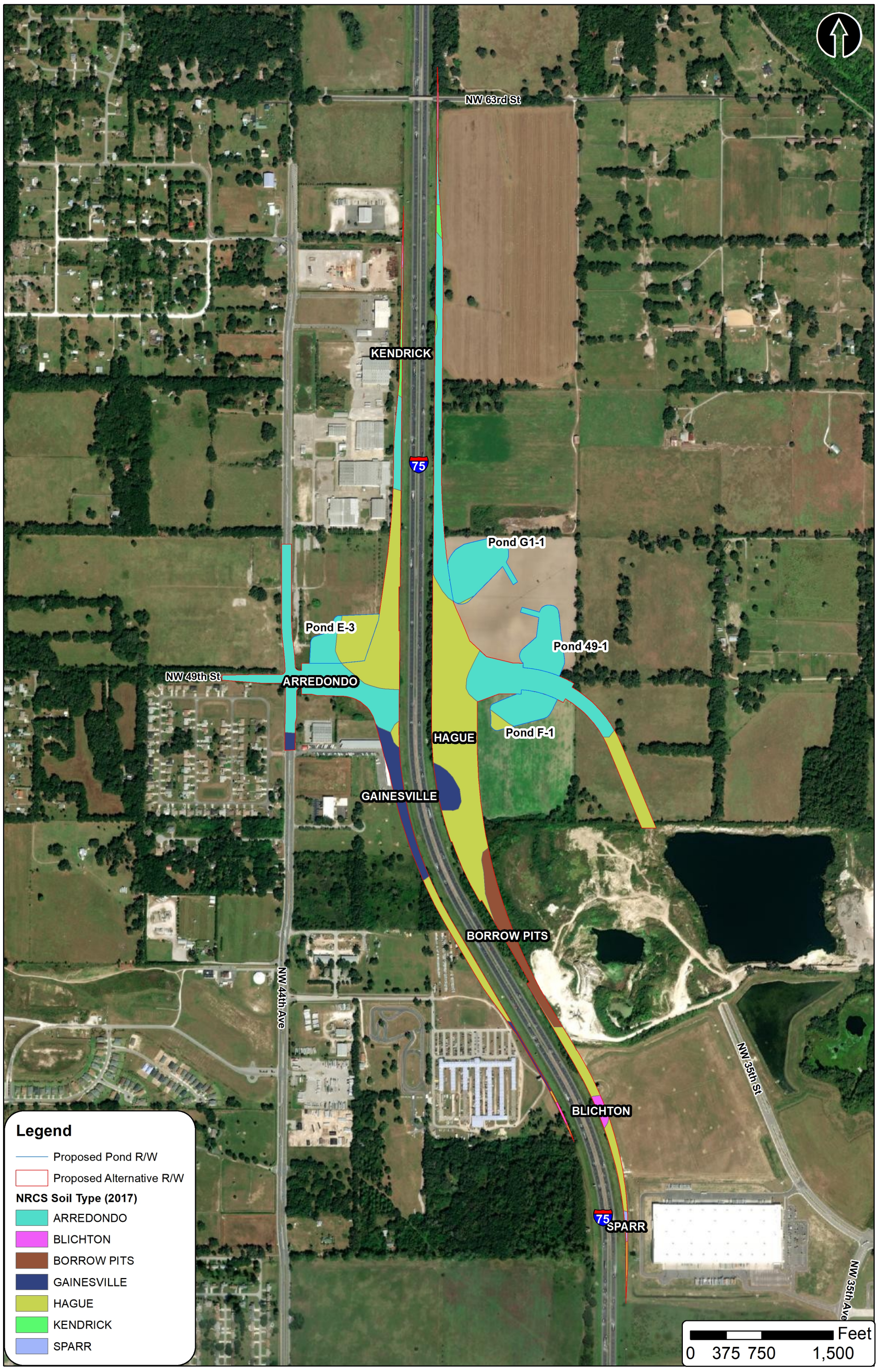


**Figure 4-4 Soils in Project Corridor**

# 5.0 METHODOLOGY

Preliminary data was collected through literature reviews, Efficient Transportation Decision Making (ETDM) process review and comments, GIS maps, database searches, and agency coordination. The baseline conditions in the project area were used to compare potential impacts from each alternative. The following data sources and methods were used to identify existing conditions and evaluate potential impacts. No notable data gaps were identified. Pertinent ETDM comments are also presented along with responses.

## DESKTOP DATA COLLECTION

Preliminary data collection utilized literature reviews, the ETDM system, database reviews, and agency coordination to identify federal and state listed species, wetlands, and EFH with potential to occur in or near the project corridor. Soil maps, land use maps, and aerial imagery were also used. Specific information sources and databases utilized for assessment of potential impacts include the following:

- ETDM Summary Report (Project # 14242)
- USFWS Environmental Conservation Online System
- USFWS National Wetland Inventory (NWI) maps
- Florida Natural Areas Inventory (FNAI) element occurrences database
- Florida Fish and Wildlife Conservation Commission (FWC) databases
- FWC Water Bird Locator (http://atoll.floridamarine.org/waterBirds/)
- FWC's Strategic Habitat Conservation Areas
- USFWS wood stork (*Mycteria americana*) nesting colonies map tool
- SJRWMD land use GIS layers
- Florida Department of Environmental Protection (FDEP) Map Direct data tool
- National Marine Fisheries Service (NMFS) EFH Data and Guidance documents
- FNAI Land Use GIS Layers
- U.S. Department of Agriculture NRCS Web Soil Survey
- Previous survey reports provided by FDOT

The ETDM process assigned a "Summary Degrees of Effect" of *Minimal* for Wetlands and Surface Waters, *Moderate* for Water Quality and Quantity, *Minimal* for Wildlife and Habitat,

and *None* for Coastal and Marine. Environmental Technical Advisory Team (ETAT) members were involved throughout the ETDM process. The Degrees of Effect assigned by ETAT member agencies are provided below and a full copy of comments is available in the ETDM Summary Report.

- For Wetlands and Surface Waters, a Degree of Effect of *Minimal* was assigned by the U.S. Army Corps of Engineers (USACE), SWFWMD, Federal Highway Administration (FHWA), and U.S. Environmental Protection Agency (USEPA). The SJRWMD, FDEP, and NMFS assigned a Degree of Effect of *None*.

- For Water Quality and Quantity, a Degree of Effect of *Moderate* was assigned by SWFWMD, FHWA, and USEPA. SJRWMD assigned a Degree of Effect of Minimal.

- For Wildlife and Habitat, a Degree of Effect of *Minimal* was assigned by FHWA, FWC, SWFWMD and a Degree of Effect of *None* was assigned by the Florida Department of Agriculture and Consumer Services.

- The SJRWMD noted *No Involvement* with Coastal and Marine Resources and SWFWMD and NMFS assigned a Degree of Effect of *None*.

## FIELD INVESTIGATIONS

Multiple field investigations were conducted to document existing conditions in the project area. Field investigations also evaluated the potential presence of listed wildlife species, jurisdictional wetlands, and EFH. A FWC Authorized Gopher Tortoise Agent was present during field surveys. Field personnel compared the land cover/land use types reported by SJRWMD to field observations in order to highlight any recent changes in land use/land cover and assess habitat suitability.

On April 24, 2018, biologists performed driving and walking surveys throughout the project area west of I-75. The entire project area (except the Magnum Materials mine) was assessed during driving and walking surveys on June 13, 2018. Additional field investigations in the project area were conducted on October 23 and December 5, 2018 to provide data from multiple seasons. The proposed impact area on the Magnum Materials mine property was surveyed on December 5, 2018. Barracuda Boat and RV Storage and the property immediately to the north were fenced and entry was not possible. These properties were inspected from outside the perimeter fence; neither property appears to contain wetlands or habitats for protected species.

# 6.0 PROTECTED SPECIES AND HABITATS

The Endangered Species Act of 1973, as amended, and the Florida Endangered and Threatened Species Act, Section 379.2291, Florida Statues, grant the USFWS and FWC, respectively, authority to regulate certain wildlife species. Under 50 Code of Federal Regulations (CFR) Part 402, federal agencies are required to consult with USFWS or NMFS to ensure federal actions are not likely to jeopardize the continued existence of federally endangered or threatened species or result in the destruction or adverse modification of designated critical habitat. The Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act provide additional protections to multiple bird species. In Florida, black bears and all bat species are protected by FWC. The analysis is consistent with Part 2, Chapter 16 of the PD&E Manual.

Potential habitat occurs in the project area for protected species under the jurisdiction of USFWS, FWC and the Florida Department of Agriculture and Consumer Services (for state listed plant species). Listed species addressed in this NRE were identified through ETDM responses, the Advanced Notification process, and species occurrence lists from regulatory agencies. Plant and animal species reported by USFWS (http://ecos.fws.gov/ipac/) as potentially occurring in Marion County were considered for inclusion in this NRE, depending on range and habitat associations. State threatned and endangered plants listed by the Florida Department of Agriculture as potentially occurring in Marion County were also evaluated for inclusion in this NRE, depending on habitat suitability. Additionally, desktop and field surveys were conducted for listed species and their habitats. The federal and state listed species addressed in this NRE are shown in **Table 6-1** and basic information on their natural history and potential impacts from the project is included in the paragraphs below. All federally listed species are also considered state listed.

Through the ETDM, a *Minimal* degree of effect was assigned to Wildlife and Habitat by FHWA, FWC, and SWFWMD. The Florida Department of Agriculture and Consumer Services assigned a degree of effect of *None*. Potential impacts will be avoided and minimized, including through the implementation of the FDOT *Standard Specifications for Road and Bridge Construction*.

Habitats are mapped by FLUCCS code in **Figure 4-1**. Sensitive environmental features and sightings of listed species are shown in **Figure 6-1**. An American kestrel (*Falco sparverius*) was sighted in the project area in April 2018. Because of the timing of this observation, it cannot be definitively concluded if this kestrel was a member of the resident, protected sub-species (*Falco sparverius paulus*) or was a migrant from a non-protected sub-species (*Falco sparverius sparverius*). No other indications of listed species were detected in or adjacent to the project area. No designated Critical Habitat, wood stork Core Foraging Areas, or EFH occur in or adjacent to the project area, so there would be no destruction or adverse modification of these resources. The project occurs in the USFWS consultation areas for sand skink and Florida scrub-jay.

Bald eagles are protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The nearest bald eagle (*Haliaeetus leucocephalus*) nest reported by the FDEP Map Direct tool is approximately six miles north of the project. USFWS and FWC generally do not

require any special protective measures or monitoring if a bald eagle nest is further than 660 feet from a project.

## FEDERALLY LISTED SPECIES IN THE PROJECT AREA

Below is a description of each federally listed species in **Table 6-1** along with pertinent aspects of their ecology and conservation, as well a description of potential habitat in the project area. In evaluating the likelihood of a species to occur in the project area, the terms "Unlikely, Low, Medium, High" are used and defined for general use here. Typically, a species is considered unlikely to occur in the project area if they have particularly specialized habitat associations (like wetlands) that do not occur in the project area. If potential habitat is present but there are no known adjacent/nearby populations and limited dispersal abilities, species will be considered as having low probabilities of occurrence in the project area. Species with limited dispersal abilities but wider ranges, species with larger, more distributed ranges/populations (like gopher tortoise), or species with more robust dispersal abilities (like some birds) are considered as having a medium probability of occurrence. Species with high dispersal abilities (like many birds) and wide habitat associations, or species with nearby populations or particularly attractive potential habitat are considered as having a high probability of occurrence. These probabilities of occurrence are qualitative and general in nature and each species has highly unique aspects of their ecology and conservation that can locally affect the probability of occurrence.

**Table 6-1 Listed Species Potentially Occurring in Project Area**

| Common Name | Scientific Name | Federal Status | State Status* | Detected During Surveys | Potential to Occur in Project Area |
|---|---|---|---|---|---|
| Chapman's fringed orchid | *Platanthera chapmanii* | - | SE | No | Low |
| Eastern indigo snake | *Drymarchon corais couperi* | FT | ST | No | Low |
| Everglade snail kite | *Rostrhamus sociabilis plumbeus* | FE | SE | No | Unlikely |
| Florida sandhill crane | *Grus canadensis pratensis* | - | ST | No | High |
| Florida scrub-jay | *Aphelocoma coerulescens* | FT | ST | No | Unlikely |
| Gopher tortoise | *Gopherus polyphemus* | C | ST | No | Medium |
| Lewton's polygala | *Polygala lewtonii* | FE | SE | No | Low |
| Little blue heron | *Egretta caerulea* | - | ST | No | Low |
| Longspurred mint | *Dicerandra cornutissima* | FE | SE | No | Low |
| Pinesap | *Monotropa hypopitys* | - | SE | No | Low |
| Red cockaded woodpecker | *Picoides borealis* | FE | SE | No | Unlikely |
| Sand skink | *Neoseps reynoldsi* | FT | ST | No | Unlikely |
| Southeastern American kestrel | *Falco sparverius paulus* | - | ST | Yes | High (Observed during surveys) |
| Wood stork | *Mycteria americana* | FT | ST | No | Low |

FE = Federally Endangered, FT = Federally Threatened, C = Federal Candidate, SE = State-Endangered, ST = State-Threatened, * All federally listed species are also considered state listed

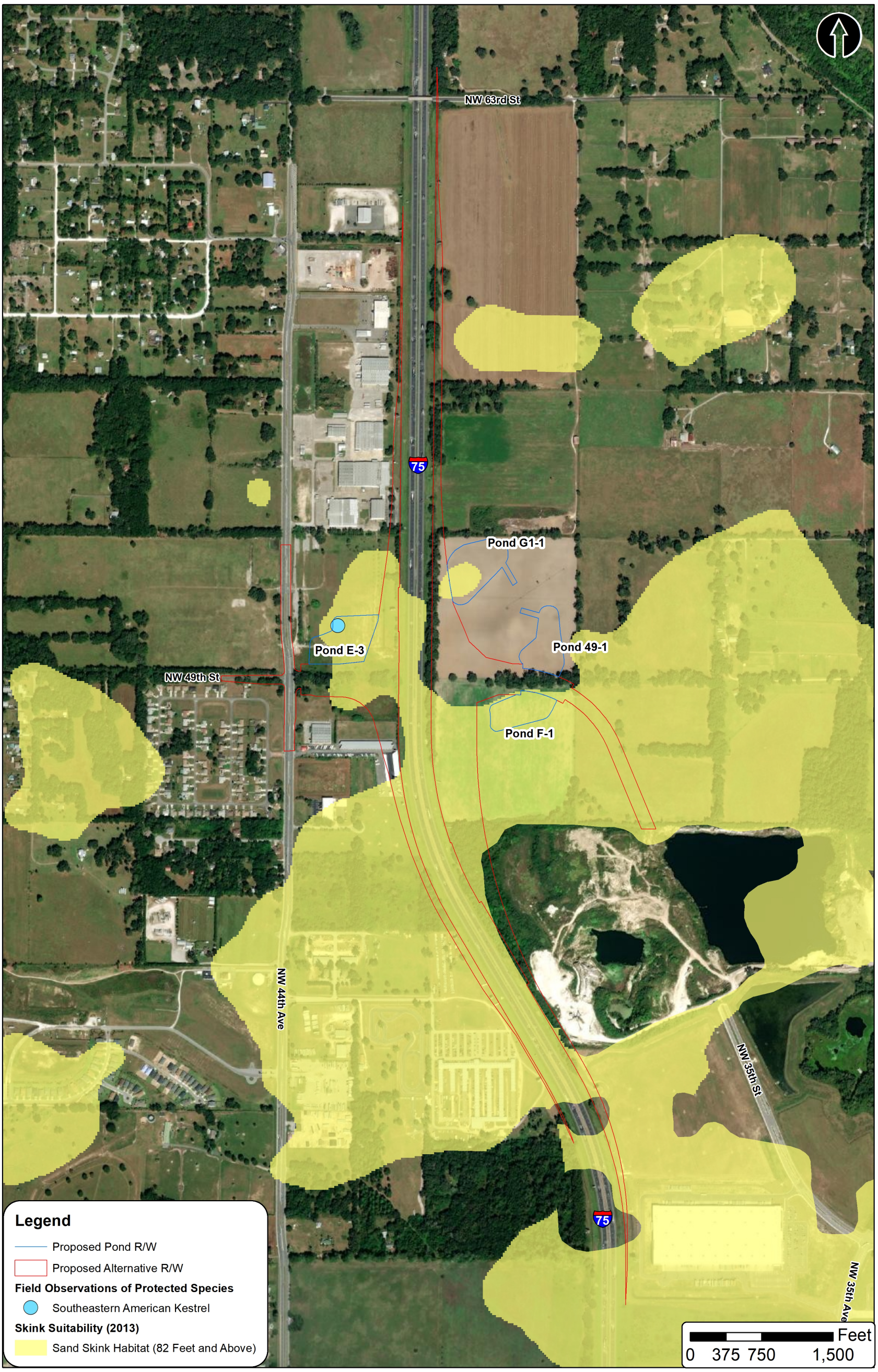


**Figure 6-1 Sensitive Environmental Features**

***Eastern indigo snake (Threatened-Federal)***

Habitat loss is the primary threat to eastern indigo snakes and the most recent five-year status review of the species reported that populations are declining. In central, south central, and coastal Florida, the eastern indigo snake inhabits hammocks, coastal scrub, dry glades, palmetto flats, prairie, brushy riparian areas, canal corridors, and wet fields (Matthews and Moseley 1990, Tennant 1997, Ernst and Ernst 2003).

Vegetated lands in the project area contain potential habitat for eastern indigo snakes including those mapped by SJRWMD as Residential Rural (FLUCCS 1180), Reclaimed Lands (FLUCCS 1650), Improved Pastures (FLUCCS 2110), Unimproved Pastures (FLUCCS 2120), Field Crops (FLUCCS 2150), Upland Hardwood Forests (FLUCCS 4200), and Upland Mixed Coniferous Hardwood (FLUCCS 4340). Potential direct impacts could occur through destruction of these habitats. Indirect impacts are possible through disturbance and edge effects diminishing habitat quality. No cumulative impacts are anticipated. Because eastern indigo snakes are highly mobile, it is anticipated they would flee construction and relocation nearby. However, caution is advised whenever burrows, holes, or other possible refugia are encountered because eastern indigo snakes may inhabit them.

There are no known records of eastern indigo snake occurring the project area. The *Eastern Indigo Snake Programmatic Effect Determination Key* (USFWS 2013) was followed in evaluating potential impacts from the proposed project. A copy of the key is provided in **Appendix A** along with appropriate project-related notations. The key concludes that because FDOT will implement the *USFWS Standard Protection Measures for the Eastern Indigo Snake* and no gopher tortoise burrows or other refugia were found in the project corridor, a determination of ***May Affect Not Likely to Adversely Affect*** is made for the eastern indigo snake. No further consultation is required.

***Everglade snail kite (Endangered-Federal)***

The Everglade snail kite is a medium-sized raptor endemic to south Florida. Everglade snail kite populations dropped to extremely low levels in the mid-20$^{th}$ century due to modification and destruction of wetlands. This species once ranged as far north as Crescent Lake and Lake Panasoffkee in north-central Florida, but today their range is greatly reduced. Everglade snail kite was included in this NRE because it was introduced in the project Advanced Notification. However, this species is extremely rare as far north as Marion County and unlikely to occur in the project area.

Typical Everglade snail kite habitat consists of freshwater marshes and the vegetated margins of lakes where apple snails can be found. This habitat type does not occur in the project corridor and no wetlands impacts are anticipated. No Everglade snail kites were encountered during surveys and there are no records of Everglade snail kites inhabiting the project area. For these reasons, a determination of ***No Effect*** is made for the Everglade snail kite.

***Florida scrub-jay (Threatened-Federal)***

Florida scrub-jays generally inhabit sandpine scrub, scrubby flatwoods, oak scrub, and coastal scrub habitats of peninsular Florida where the canopy is less than ten feet tall. These habitat types require well-drained sandy soils and occur along the coastlines, ridges, and dry portions of the central Florida peninsula (USFWS 2014). Florida scrub-jay populations continue to show decreasing trends, predominantly due to habitat loss from development and habitat degradation through fire suppression (USFWS 2014).

This species was included in this NRE because it was introduced in the project Advanced Notification. There are no known occurrences of Florida scrub-jay in the project area and its presence is unlikely due to a lack of suitable habitat. Potential habitat in the project area for Florida scrub-jays was evaluated following descriptions in USFWS (2014) as well as the *USFWS Scrub-Jay Survey Guidelines*. No potential habitat for Florida scrub-jays occurs in the project area and no indications of their presence was encountered during surveys. Therefore, the project is not anticipated to cause any direct, indirect, or cumulative impacts and an effect determination of ***No Effect*** is made for the Florida scrub-jay.

***Lewton's polygala (Endangered-Federal)***

Lewton's polygala is a perennial herb typically associated with transitional areas between oak scrub and high pine vegetation communities. This habitat type was historically maintained by fire. Lewton's polygala has also been documented on maintained roadsides. Development and habitat destruction for agriculture are primary threats to Lewton's polygala. Low-quality potential habitat for Lewton's polygala occurs along the mowed sides of I-75. This habitat is low-quality because it is isolated, small in size, highly fragmented, and lacks natural vegetative communities. This species was not observed during field surveys and there are no known occurrences from the project area. If this species were present, direct and indirect impacts would be possible through the destruction of individuals and degradation of potential habitat in mowed roadsides. No cumulative impacts are anticipated. For these reasons, a determination of ***May Affect, Not Likely to Adversely Affect*** is made for Lewton's polygala.

***Longspurred mint (Endangered-Federal)***

Longspurred mint is an herbaceous plant growing up to about a foot and a half tall. It is traditionally found in open areas in sand pine scrub or oak scrub and in similar ecotones. It has been known to colonize the edges of road rights-of-way. Longspurred mint was previously known from a population south of the City of Ocala, in a neighborhood known as Ocala Waterway. Longspurred mint was documented along the western side of I-75 adjacent to the Ocala Waterway neighborhood, approximately ten miles south of the project.

Low-quality potential habitat for longspurred mint occurs along the mowed sides of I-75. This habitat is low-quality because it is isolated, small in size, highly fragmented, and lacks natural vegetative communities. This species was not observed during field surveys and there are no known occurrences from the project area. If this species were present, direct and indirect

impacts would be possible through the destruction of individuals and degradation of potential habitat in mowed roadsides. No cumulative impacts are anticipated. For these reasons, a determination of ***May Affect, Not Likely to Adversely Affect*** is made for longspurred mint.

***Red cockaded woodpecker (Endangered-Federal)***

The red cockaded woodpecker is a medium sized woodpecker that occurs in Florida and throughout the southeastern U.S. They are dependent on old growth pine trees for nesting, particularly longleaf pine. The species has faced significant population declines due to logging and replacement of forests with managed silviculture. No suitable habitat for red cockaded woodpecker exists in the project area so it is unlikely to occur there. This species was included in this NRE because it was introduced in the project Advanced Notification. No red cockaded woodpeckers were detected during surveys, and there are no records of occurrence in the project area. Therefore, a determination of ***No Effect*** is made for the red cockaded woodpecker.

***Sand skink (Threatened-Federal)***

Sand skinks are small, slender lizards with a grey to light brown coloration and shiny scales. Adults can reach lengths of approximately five inches and have a black band on each side of the body running from the snout to the eye. Sand skinks eat a variety of hard- and soft-bodied arthropods such as beetle larvae, termites, spiders, and larval antlions. Populations of sand skinks are threatened by habitat destruction and isolation. Typical sand skink habitat consists of sand pine (*Pinus clausa*)-rosemary (*Ceratiola ericoides*) scrub or longleaf pine (*Pinus palustris*)-turkey oak (*Quercus laevis*) plant communities. Skinks are also documented in pine plantations, citrus groves, pastures, and residential developments. They typically occur in areas with a well-defined leaf litter layer that contain scattered open sandy patches separated by herbaceous plants, shrubs, and trees. The project occurs within the USFWS consultation area for this species and is under the jurisdiction of the USFWS North Florida Ecological Services Field Office.

According the *USFWS Sand Skink and Blue-tailed (Bluetail) Mole Skink Species Conservation and Consultation Guide*, potential sand skink habitat includes all areas that meet three criteria: 1) presence of any sand skink soils (Apopka, Arredondo, Archbold, Astatula, Candler, Daytona, Duette, Florahome, Gainesville, Hague, Kendrick, Lake, Millhopper, Orsino, Paola, Pomello, Satellite, St. Lucie, Tavares, and Zuber soils); 2) at or above 82 feet elevation; 3) located in Highlands, Lake, Marion, Orange, Osceola, Polk, and Putnam Counties.

Portions of the project area (**Figure 6-1**) contain suitable soils and elevations for sand skinks. However, those patches of potential habitat, particularly those west of I-75, are relatively small and isolated from other potential habitat by roads and other land uses that act as barriers to movement. The fields north of 45$^{th}$ Street were used to store hundreds of vehicles during the 1980's and some areas show signs of substantial earth moving and soil compaction. To the east of I-75, the fields and pastures on the Baldwin Angus Ranch have been regularly disked and tilled for decades, greatly reducing the suitability for sand skinks. A small portion of the project that overlaps the Magnum Materials mine property also contains suitable soils and elevations

but is small and isolated between I-75 and a mine pit. There are no known occurrences of sand skink from the project area and their presence is unlikely due to habitat disturbance. Coordination between FDOT and USFWS was conducted to evaluate sand skink habitat potential and survey needs (**Appendix B**). As a result of this coordination, it was determined that sand skink cover-board surveys are not warranted due to the low quality and isolation of potential habitat. A determination of ***No Effect*** is made for this species.

***Wood stork (Threatened-Federal)***

The main threat to wood storks stems from the loss, fragmentation, and modification of habitat, typically through urban encroachment and alterations of hydrology (USFWS 2014b). Wood stork population data suggest a decline in the area and quality of breeding and foraging habitats range wide. However, data from 1991 to 1995 suggest an increasing number of nests within the U.S. breeding range (USFWS 2014b).

Wood storks occur in a variety of wetland habitats, including freshwater marshes, stock ponds, shallow, seasonally flooded roadside and agricultural ditches, narrow tidal creeks, managed impoundments, and depressions in cypress heads and swamp sloughs. Because of their foraging method of wading and feeling for prey with their open bill, wood stork forage most effectively in shallow water with highly concentrated prey. High-quality foraging conditions include relatively calm water with a depth of 5 to 15 inches lacking dense vegetation. Wood storks form nesting colonies that are typically located in medium to tall trees that are isolated and protected by open water so that human disturbance and exposure to land-based predators is minimized.

There are no documented occurrences of wood stork in the project area and no Suitable Foraging Habitat (SFH) is present. Determinations of wood stork SFH follow the definitions described in the USFWS *Habitat Management Guidelines for the Wood Stork in the Southeast Region* (USFWS 1990) and the USFWS *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*. According to the USFWS key shown in **Appendix C** with project-specific notations, because the project is more than 2,500 feet from an active colony and does not affect SFH, a determination of ***No Effect*** was made for the wood stork. No further consultation is required.

## STATE LISTED SPECIES IN THE PROJECT AREA

Below is a description of each state listed species in **Table 6-1** along with pertinent aspects of their ecology, conservation, and potential habitat in the project area.

***Chapman's fringed orchid (Endangered-State)***

Chapman's fringed orchid range from Florida into Georgia and as far west as Texas. Stems typically have two to four leaves and the plant produces orange blooms from July through September. This species is reported from a wide range of habitats, including bogs and floodplains but also including flatwoods, woodlands, and roadsides. Wooded areas and roadsides in the project area are potential habitat. This species was not detected during surveys

and none are known to have occurred in the project area. For these reasons, a determination of ***No Adverse Effect Anticipated*** is made for Chapman's fringed orchid.

***Florida sandhill crane (Threatened-State)***

Florida sandhill cranes, a subspecies of sandhill crane, have a range that includes Florida and extends as far north as the Okefenokee Swamp in Georgia. Florida sandhill cranes are non-migratory and usually nest over freshwater ponds and marshes, where they typically lay two eggs. Young Florida sandhill cranes are able to leave the nest within 24 hours of hatching and become independent after ten months. Florida sandhill cranes inhabit freshwater marshes, prairies, and pastures throughout the state. The drainage of wetlands and conversion of prairies to agriculture are the primary threats to Florida sandhill cranes. Their former range included parts of coastal Texas, Alabama, and Louisiana, but habitat loss and overhunting greatly diminished the populations in the 20$^{th}$ century and their range shrank. The most recent Biological Status Review of Florida Sandhill Cranes, from 2011, indicates continuing population declines from 1974 to 2003.

Potential foraging habitat for Florida sandhill cranes occurs throughout all vegetated portions of the project area. The high intensity agricultural, mining, and commercial land uses in the project area make the potential foraging habitat of relatively low-quality compared with more natural habitats. Florida sandhill cranes are highly mobile and if they were present during construction, are anticipated to flee and relocate in nearby available habitats. Direct impacts are possible through habitat destruction and secondary impacts are possible through disturbance and edge effects diminishing habitat quality. No cumulative impacts are anticipated, and similar potential foraging habitat is widely available in the vicinity of the project. There are no known occurrences of Florida sandhill crane from the project area. For these reasons, an effect determination of ***No Adverse Effect Anticipated*** is made for the Florida sandhill crane.

***Gopher tortoise (Threatened-State; Candidate-Federal)***

Gopher tortoise range from south-central Florida, north into Georgia and southern South Carolina, west through Mississippi and into part of eastern Louisiana. Gopher tortoises live in areas with well drained, sandy soils and a sparse tree canopy that allows sunlight to reach the ground and support abundant herbaceous vegetation. They are commonly found in sandhill, pine flatwoods, scrub, scrubby flatwoods, dry prairies, xeric hammock, pine-mixed hardwoods, and coastal dunes. In habitats where fire is suppressed, encroachment of woody vegetation makes it more difficult for gopher tortoises to move around and restricts the low growing plants that they eat. Gopher tortoises excavate burrows which offer a refuge from fire, extreme temperatures, and predators. These burrows are often co-inhabited by other species, which has caused the gopher tortoise to be considered a keystone species in some Florida ecosystems.

The primary threat to gopher tortoises is habitat loss, degradation, and fragmentation. Urbanization, agriculture, and mining have all caused habitat loss, and suppression of fire and silviculture methods that allow a closed canopy have reduced habitat quality in some forests.

Gopher tortoises were once threatened due to over-collecting by humans, and mortality from pets and other predators is a continuing problem. The most recent Biological Status Report, from 2006, cites a population size reduction in Florida of 50-60 percent in the past 60 to 93 years and notes that increasing habitat fragmentation and destruction will affect the long-term viability of remaining populations.

Low-quality potential habitat for gopher tortoises occurs throughout vegetated portions of the project area. In the project area west of I-75, the degree of residential and commercial development and the disruption of native plant communities greatly degrade the quality of potential gopher tortoise habitat. To the east of I-75, gopher tortoises could potentially inhabit the agricultural lands in the project area. However, those fields and pastures have been under intense agricultural use for many decades, reducing the likelihood of persistence by gopher tortoises.

A walking survey for gopher tortoise burrows was conducted throughout potential habitat by an FWC Authorized Gopher Tortoise Agent. No gopher tortoises or their burrows were encountered, and there are no documented occurrences from the project area. Interviews with local ranchers did not reveal any indications of the presence of gopher tortoises. For these reasons, a determination of ***No Adverse Effect Anticipated*** is made for the gopher tortoise. If gopher tortoises or burrows are later discovered within 25 feet of the project corridor, coordination with FWC is recommended. Any project activities within 25 feet of an active burrow entrance will require a permit from FWC and potential mitigation or relocation fees.

***Little blue heron (Threatened-State)***

Little blue herons occur along the entire eastern and Gulf coasts of the U.S. as well as throughout the Mississippi River Valley, southern California, and into Central and South America. The threats to little blue heron include coastal development, disturbance at foraging and breeding sites, environmental issues, degradation of feeding habitat, reduced prey availability, and predators. Other threats may include exposure to pesticides, toxins, and infection by parasites. According to the Biological Status Report published in 2011, little blue heron populations increased gradually throughout the 20$^{th}$ Century until the 1990's, when a slow but steady decline was observed.

Little blue herons inhabit a variety of aquatic environments including fresh, salt, and brackish water systems like swamps, estuaries, ponds, lakes, and rivers. Their nests are typically built in trees and shrubs on islands, emergent vegetation, or in dense thickets near water. These aquatic habitats do not occur in the project area, though little blue heron could pass through the project area. No little blue heron were detected during field surveys and there are no documented occurrences in the project area. Because little blue herons are highly mobile, if they were present, they would be anticipated to avoid construction and relocate nearby. Indirect impacts to downstream habitats could be possible through increased erosion and will be minimized through implementation of *FDOT Standard Specifications for Road and Bridge Construction*. No cumulative impacts are anticipated. For these reasons, a determination of ***No Adverse Effect Anticipated*** is made for the little blue heron.

**Pinesap (Endangered-State)**

Pinesap can grow to about 13 inches tall and the entire plant ranges in color from pale, creamy-white to pink or red. Leaves are scale-like and occur on the flower stalk. Pinesap does not exhibit photosynthesis but instead uptakes nutrients from other plants through root and soil fungi. It is widespread across North America but is not frequently encountered and was included in this NRE because it can occur in wooded uplands, which exist in small patches in the project area. No pinesap were encountered during surveys and none are known to occur in the project area. Therefore, a determination of ***No Adverse Effect Anticipated*** is made for pinesap.

***Southeastern American kestrel (Threatened-State)***

The southeastern American kestrel is a non-migratory subspecies that can be found throughout Florida, as well as the coastal plains of Louisiana, Georgia, and South Carolina. A northern subspecies of American kestrel also occurs in Florida but is migratory. Any American kestrel seen in Florida in May through July is assumed to be a southeastern American kestrel, and so is considered a state threatened species. Kestrels and nest cavities were sought during all field investigations across multiple seasons; however, surveys specifically for kestrels following USFWS or FWC protocols were not performed.

In Florida, southeastern American kestrels inhabit open woodlands, sandhill, fire maintained savannah pine forests, as well as pastures and open fields near residential areas. They primarily nest in dead trees using cavities that they do not construct themselves. The primary threat to southeastern American kestrels is loss of nesting and foraging habitat. Habitat is lost primarily through development of residential areas and farmland, removal of trees in agricultural fields, and through the suppression of fire that maintains open pine habitats. Southeastern American kestrels are also vulnerable to pollutants, predation, collision with vehicles and aircraft, and the West Nile Virus. According to the Biological Status Review published in 2011, southeastern American kestrels have been experiencing significant population declines that appear to be ongoing.

Potential foraging habitat for southeastern American kestrels occurs throughout the project area, particularly in the large, open fields and pastures. Cavities in trees and telephone poles were observed on ranches within the project area east of I-75 and form potential breeding habitat. One adult kestrel was observed in the project area, west of I-75, on April 24, 2018 (**Figure 6-1**). Although the FWC survey season for southeastern American kestrels extends from April through August to cover the entire breeding season, only individuals sighted from May through July can be definitively concluded to belong to the protected Florida subspecies (FWC 2020). There are no previously documented occurrences of southeastern American kestrels from the project area.

Direct impacts could occur from habitat destruction (particularly nest cavities), and indirect impacts are possible through edge effects. No cumulative impacts are anticipated. Additional surveys for southeastern American kestrel are anticipated. For these reasons, a determination of ***No Adverse Effect Anticipated*** is made for the southeastern American kestrel.

## POTENTIAL IMPACTS TO PROTECTED SPECIES

The extent of potential impacts to wildlife and habitats was assessed by overlaying the preferred alternative onto maps of habitats (FLUCFCS code, NWI Wetlands) and known species occurrences. Typical sections for the preferred alternative along with illustrations and an aerial view of the roadway are provided in **Section 3**.

***Direct Impacts to Protected Species***

Direct impacts are those that occur in direct association with the project, such as noise, dust, sedimentation/runoff, and habitat destruction/conversion that can involve changes to the vegetative cover/composition. Direct impacts to wildlife habitats from the preferred alternative are reported by FLUCCS code in **Table 6-2**. Direct impacts from ponds are listed by FLUCCS code in **Table 6-3**.

The "No Build" alternative would cause no impacts to listed species or their habitats; however, the "No Build" alternative would not address the needs of the proposed project. Potential habitats that would be impacted by the preferred alternative total 50.5 acres and include areas mapped as Reclaimed Lands (FLUCCS 1650), Improved Pastures (FLUCCS 2110), Unimproved Pastures (FLUCCS 2120), Field Crops (FLUCCS 2150), Upland Hardwood Forest (FLUCCS 4200), Upland Mixed Coniferous/Hardwood (FLUCCS 4340), Rural Land in Transition (FLUCCS 7410), and Surface Water Collection Basins (FLUCCS 8370). Stormwater ponds would cause impacts to areas mapped as Improved Pastures (FLUCCS 2110) and Other Light Industrial (FLUCCS 1550). No wetlands would be impacted by the proposed project.

***Indirect Impacts to Protected Species***

Indirect Impacts are those impacts that are linked and causally related to the proposed project and may be temporary or permanent. For transportation projects, indirect impacts typically include disturbance to areas adjacent to the project area. These impacts include the short-term impacts associated with road construction activities as well as other long-term impacts, such as edge effects due to the proximity of the roadway to wildlife habitat.

Potential short-term indirect impacts for the preferred alternative could result from the use of heavy equipment, the staging or stockpiling of equipment and materials, and sedimentation resulting from increased erosion associated with soil disturbance. Species protection measures and Best Management Practices (BMPs) typically associated with road construction projects will be implemented and maintained throughout all construction activities to avoid and minimize these short-term indirect impacts.

Temporary indirect impacts to protected species are also possible due to disturbance during construction. Most protected species that could occur in the project corridor are highly mobile and are anticipated to readily relocate to adjacent habitats. Potential long-term indirect impacts to protected species could result from increased noise or traffic along the project corridor and increased edge effects. Through the implementation of protection measures and BMPs, no adverse indirect impacts to protected species are anticipated.

**Table 6-2 Direct Impacts by FLUCCS Code**

| FLUCCS CODE | Acres of Direct Impacts (Preferred alternative) |
|---|---|
| 1180: RESIDENTIAL, RURAL | 0.04 |
| 1200: RESIDENTIAL, MEDIUM DENSITY | 1.45 |
| 1400: COMMERCIAL AND SERVICES | 1.18 |
| 1550: OTHER LIGHT INDUSTRIAL | 11.6 |
| 1632: LIMEROCK OR DOLOMITE | 6.81 |
| 1650: RECLAIMED LANDS | 3.77 |
| 2110: IMPROVED PASTURES | 30.51 |
| 2120: UNIMPROVED PASTURES | 0.56 |
| 2150: FIELD CROPS | 5.44 |
| 4200: UPLAND HARDWOOD FORESTS | 1.15 |
| 4340: UPLAND MIXED CONIFEROUS/HARDWOOD | 0.05 |
| 7410: RURAL LAND IN TRANSITION | 8.36 |
| 8140: ROADS AND HIGHWAYS | 0.38 |
| 8370: SURFACE WATER COLLECTION BASINS | 0.33 |

**Table 6-3 Direct Impacts from Stormwater Ponds**

| FLUCCS Code | E-3 | F-1 | 49-1 | G1-1 |
|---|---|---|---|---|
| 1550 Other Light Industrial | 4.80 | - | - | - |
| 2110 Improved Pastures | - | 3.41 | 4.0 | 5.29 |

***Avoidance and Minimization***

Impacts to protected species and habitats were avoided and then minimized by following the existing right-of-way as much as possible and by limiting the footprint of the project using a Diverging Diamond interchange. The USFWS *Standard Protection Measures for the Eastern Indigo Snake* will be observed during all construction activities. No gopher tortoises were encountered during field surveys and no impacts to gopher tortoises are anticipated. If gopher tortoises or their burrows are found that could be impacted by the project, the FWC Gopher Tortoise Permitting Guidelines will be followed. The *Standard Specifications for Road and Bridge Construction* will be implemented to further avoid and minimize impacts.

***Effect Determinations for Federally Listed Species***

Effect determinations for federally listed species are presented in **Table 6-3**. No adverse impacts are anticipated to any federally listed species. Habitat types were compared with known habitat preferences, range, and occurrences of protected species to identify potential protected species habitats in the project area.

Due to an absence of suitable habitat in the project corridor, a determination of *No Effect* is made for Everglade snail kite, Florida scrub-jay, and red cockaded woodpecker. A determination of *No Effect* is also made for sand skink following coordination and habitat evaluations with USFWS that are summarized in **Appendix B**.

A determination of *May Affect Not Likely to Adversely Affect* was made for the Eastern indigo snake using the USFWS Effect Determination Key (**Appendix A**). Because the project is not located in open water or salt marsh, because FDOT will implement the USFWS *Standard Protection Measures for the Eastern Indigo Snake*, and because no holes, refugia, or gopher tortoise burrows were identified, the key yields a determination of May Affect, *Not Likely to Adversely Affect*.

The USFWS effect determination key for wood stork (**Appendix C**) was used to assess impacts to that species. Because the project is more than 2,500 feet from a colony site and would not impact SFH, a determination of *No Effect* is made for wood stork.

***Effect Determinations for State Listed Species***

Effect determinations for state listed species are presented in **Table 6-3**. No adverse impacts are anticipated to any state listed species. Habitat types were compared with known habitat preferences, range, and occurrences of protected species to identify potential protected species habitats in the project area. For state listed species, a determination of *No Adverse Effect Anticipated* is made for Chapman's fringed orchid, Florida sandhill crane, little blue heron, gopher tortoise, pinesap and southeastern American kestrel. No Chapman's fringed orchid or pinesap were detected during surveys and none are known to occur in the project area. Florida sandhill crane and little blue heron are highly mobile and likely to relocate to nearby available habitats if disturbed by the project. Additional surveys will be conducted for southeastern American kestrel. No gopher tortoise are reported from the area and none were encountered during field surveys. If gopher tortoise are found in the project area, they will be relocated in accordance with FWC guidelines.

**Figure 6-2 Effect Determinations**

| Common Name | Scientific Name | Federal Status | State Status* | Effect Determination |
|---|---|---|---|---|
| Chapman's fringed orchid | *Platanthera chapmanii* | - | SE | No Adverse Effect Anticipated |
| Eastern indigo snake | *Drymarchon corais couperi* | FT | ST | MANLAA |
| Everglade snail kite | *Rostrhamus sociabilis plumbeus* | FE | SE | No Effect |
| Florida sandhill crane | *Grus canadensis pratensis* | - | ST | No Adverse Effect Anticipated |
| Florida scrub-jay | *Aphelocoma coerulescens* | FT | ST | No Effect |
| Gopher tortoise | *Gopherus polyphemus* | C | ST | No Adverse Effect Anticipated |
| Lewton's polygala | *Polygala lewtonii* | FE | SE | MANLAA |
| Little blue heron | *Egretta caerulea* | - | ST | No Adverse Effect Anticipated |
| Longspurred mint | *Dicerandra cornutissima* | FE | SE | MANLAA |
| Pinesap | *Monotropa hypopitys* | - | SE | No Adverse Effect Anticipated |
| Red cockaded woodpecker | *Picoides borealis* | FE | SE | No Effect |
| Sand skink | *Neoseps reynoldsi* | FT | ST | No Effect |
| Southeastern American kestrel | *Falco sparverius paulus* | - | ST | No Adverse Effect Anticipated |
| Wood stork | *Mycteria americana* | FT | ST | No Effect |

FE = Federally Endangered, FT = Federally Threatened, C = Federal Candidate, ST = State-Threatened, SE = State-Endangered * All federally listed species are also considered state listed

# 7.0 WETLAND EVALUATION

Wetlands and OSW were sought throughout the project area during desktop reviews and field surveys. No wetlands were identified within the project area, so no impacts are anticipated. One Surface Water Collection Basin (FLUCCS 8370) occurs in the excavated corner of a pasture immediately west of NW 44 Avenue (**Figure 6-1**). This Surface Water Collection Basin is considered an OSW.

This NRE was prepared in accordance with FDOT's *PD&E Manual: Part 2, Chapter 9* (*Wetlands and Other Surface Waters*), updated July 1, 2020. Wetlands are protected under Section 404 of the Clean Water Act. Guidance is provided in Executive Order 11990, Protection of Wetlands, which establishes a national policy to "avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative." USACE has the authority to regulate work in Waters of the US under Section 10 of the Rivers and Harbors Act of 1899 and the USFWS acts as a commenting body where permitted actions may affect listed species. In Florida, state authority over activities in state surface waters and wetlands is administered by FDEP and the five Water Management Districts (WMDs). This project falls under the authority of both the SWFWMD and the SJRWMD.

Wetlands, as stated in Section 373.019(27) F.S. and in 33 CFR 328.3(b) and as used by the USACE in administering Section 404 of the Clean Water Act, are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."

Surface waters are considered by Section 373.019(21) F.S. to be waters on the surface of the earth, contained in bounds created naturally or artificially, including, the Atlantic Ocean, the Gulf of Mexico, bays, bayous, sounds, estuaries, lagoons, lakes, ponds, impoundments, rivers, streams, springs, creeks, branches, sloughs, tributaries, and other watercourses. Regulatory agencies do not typically require mitigation for impacts to surface waters other than wetlands.

Where present, wetlands were evaluated using three parameters: presence of hydrophytic vegetation, hydric soils, and hydrology. The evaluation of wetlands and OSW was consistent with the USACE *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (USACE 2010), Chapter 62-340, Florida Administrative Code, and the *Florida Wetlands Delineation Manual* (Gilbert et. al. 2011).

Through the ETDM system, the USEPA, USACE, FHWA and SWFWMD assigned a degree of effect of *Minimal* for wetlands and the NMFS, SJRWMD and FDEP assigned a degree of effect of *None* for wetlands. The presence of one wetland was noted but no significant comments regarding wetlands were provided.

## WETLANDS IN THE PROJECT AREA

There are no wetlands in the project corridor, so there are no anticipated short-term or long-term adverse impacts to wetlands. OSWs in the project corridor are limited to a Surface Water Collection Basin (FLUCCS 8370) west of NW 44 Avenue and small roadside ditches and swales that are part of the manmade drainage system. Several stormwater ponds and detention ponds occur on the mine property as well as the residential area west of NW 44 Avenue, but all are outside the project area.

# 8.0 ANTICIPATED PERMITS

Because no impacts to wetlands are anticipated, no federal or state wetland permits (dredge and fill) will be required. Impacts to the existing stormwater management system as well as increases in impermeable cover will necessitate an Environmental Resource Permit (ERP). The ERP could be issued by each respective WMD, by FDEP, or by one WMD that agrees to permit the entire project. FDOT will conduct gopher tortoise burrow surveys and permitting in accordance with FWC guidelines.

# 9.0 IMPLEMENTATION MEASURES

As an implementation measure to be followed during subsequent project phases, FDOT will perform gopher tortoise burrow surveys, permitting, and relocation in accordance with FWC guidelines.

# 10.0 COMMITMENTS

In order to avoid and minimize environmental impacts, FDOT will:

- The Standard Protection Measures for the Eastern Indigo Snake will be implemented during construction.
- A survey for the Southeastern American kestrel will be performed during the design phase.
- A survey for listed plant species Lewton's polygala and longspurred mint will be performed during the design phase.

# 11.0 CONCLUSIONS

Potential habitat for federally and state listed species in the project area was assessed for species presence and habitat suitability. No adverse impacts to any listed species and no mitigation for impacts to listed species are anticipated. No designated Critical Habitat or Essential Fish Habitat occurs in the project area, so there would be no impacts to either of those resources. No wetlands occur in the project and no wetland impacts are anticipated.

Potential wildlife habitats that would be impacted by the preferred alternative total 50.5 acres and include areas mapped as Reclaimed Lands (FLUCCS 1650), Improved Pastures (FLUCCS 2110), Unimproved Pastures (FLUCCS 2120), Field Crops (FLUCCS 2150), Upland Hardwood Forest (FLUCCS 4200), Upland Mixed Coniferous/Hardwood (FLUCCS 4340), Rural Land in Transition (FLUCCS 7410), and Surface Water Collection Basins (FLUCCS 8370). Stormwater ponds would cause impacts to areas mapped as Improved Pastures (FLUCCS 2110) and Other Light Industrial (FLUCCS 1550). One listed species, the southeastern American kestrel, was potentially observed during field surveys. Due to the seasonality of that observation, it cannot be definitively determined that the bird was a member of the state listed subspecies and not a member of the unprotected northern population.

No permitting or additional coordination with USACE is anticipated because no wetlands or Waters of the US would be impacted by the project. This project is not anticipated to impact any federally listed species, so no additional consultation with USFWS is required. Additional coordination with FWC regarding kestrel and gopher tortoise surveys, and potentially with Florida Department of Agriculture and Consumer Services regarding listed plants, is anticipated.

# 12.0 REFERENCES


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Florida Fish and Wildlife Conservation Commission. 2020. How to Identify Southeastern American Kestrels. Available at: https://myfwc.com/research/wildlife/birds/southeastern-american-kestrel/id/#:~:text=The%20most%20reliable%20way%20to,not%20present%20during%20this%20time. Last Accessed August 2020.

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Natural Resources Conservation Service. 2014. Web Soil Survey. Online tool provided by U.S. Department of Agriculture. Available at:

http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Last accessed November 27, 2018.

# Appendix A- Eastern Indigo Snake Effect Determination Key and Protection Measures

United States Department of the Interior
U. S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
August 13, 2013

Colonel Alan M. Dodd, District Engineer
Department of the Army
Jacksonville District Corps of Engineers
P.O Box 4970
Jacksonville, Florida 32232-0019
(Attn: Mr. David S. Hobbie)

RE: Update Addendum to USFWS Concurrence Letter to U.S. Army Corps of Engineers Regarding Use of the Attached Eastern Indigo Snake Programmatic Effect Determination Key

Dear Colonel Dodd:

This letter is to amend the January 25, 2010, letter to the U.S. Army Corps of Engineers regarding the use of the attached eastern indigo snake programmatic effect determination key (key). It supersedes the update addendum issued January 5, 2012.

We have evaluated the original programmatic concurrence and find it suitable and appropriate to extend its use to the remainder of Florida covered by the Panama City Ecological Services Office.

**On Page 2**

The following replaces the last paragraph above the signatures:

"Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to Annie Dziergowski (North Florida ESO) at 904-731-3089, Harold Mitchell (Panama City ESO) at 850-769-0552, or Victoria Foster (South Florida ESO) at 772-469-4269."

**On Page 3**

The following replaces both paragraphs under "Scope of the key":

"This key should be used only in the review of permit applications for effects determinations for the eastern indigo snake within the State of Florida, and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH)."

**On Page 4**

The following replaces the first paragraph under Conservation Measures:

"The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that

our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes.htm will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake."

**On Page 4 and Page 5 (Couplet D)**

The following replaces D. under Conservation Measures:

D. The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2].....*"may affect"*

**On Page 5**

The following replaces footnote #3:

"[3]If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a FWC 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 ."

Thank you for making these amendments concerning the Eastern Indigo Snake Key. If you have any questions, please contact Jodie Smithem of my staff at the address on the letterhead, by email at jodie_smithem@fws.gov, or by calling (904)731-3134.

Sincerely,

Dawn Jennings
Acting Field Supervisor

cc:
Panama City Ecological Services Field Office, Panama City, FL
South Florida Ecological Services Field Office, Vero Beach, FL

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

January 25, 2010

David S. Hobbie
Chief, Regulatory Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2009-FA-0642
Service Consultation Code: 41420-2009-I-0467
41910-2010-I-0045
Subject: North and South Florida Ecological Services Field Offices Programmatic Concurrence for Use of Original Eastern Indigo Snake Key(s) Until Further Notice

Dear Mr. Hobbie:

The U.S. Fish and Wildlife Service's (Service) South and North Florida Ecological Services Field Offices (FO), through consultation with the U.S. Army Corps of Engineers Jacksonville District (Corps), propose revision to both Programmatic concurrence letters/keys for the federally threatened Eastern Indigo Snake (*Drymarchon corais couperi*), (indigo snake), and now provide one key for both FO's. The original programmatic key was issued by the South Florida FO on November 9, 2007. The North Florida FO issued a revised version of the original key on September 18, 2008. Both keys were similar in content, but reflected differences in geographic work areas between the two Field Offices. The enclosed key satisfies each office's responsibilities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*).

Footnote number 3 in the original keys indicated "A member of the excavation team should be authorized for Incidental Take during excavation through either a section 10(a)(1)(A) permit issued by the Service or an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission (FWC)." We have removed this reference to a Service issued Section 10(a)(1)(A) permit, as one is not necessary for this activity. We also referenced the FWC's revised April 2009 Gopher Tortoise Permitting Guidelines with a link to their website for updated excavation guidance, and have provided a website link to our Standard Protection Measures. All other conditions and criteria apply.

We believe the implementation of the attached key achieves our mutual goal for all users to make consistent effect determinations regarding this species. The use of this key for review of projects

located in all referenced counties in our respective geographic work areas leads the Service to concur with the Corps' determination of "may affect, not likely to adversely affect" (MANLAA) for the Eastern indigo snake. The biological rationale for the determinations is contained within the referenced documents and is submitted in accordance with section 7 of the Act.

Should circumstances change or new information become available regarding the eastern indigo snake or implementation of the key, the determinations may be reconsidered as deemed necessary.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to either Allen Webb (Vero Beach) at 772-562-3909, extension 246, or Jay Herrington (Jacksonville) at 904-731-3326.

Sincerely,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

David L. Hankla
Field Supervisor
North Florida Ecological Services Office

Enclosure

cc: electronic only
FWC, Tallahassee, Florida (Dr. Elsa Haubold)
Service, Jacksonville, Florida (Jay Herrington)
Service, Vero Beach, Florida (Sandra Sneckenberger)

**Eastern Indigo Snake Programmatic Effect Determination Key**

## Scope of the key

This key should be used only in the review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices Geographic Areas of Responsibility (GAR), and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH). Counties within the **North** Florida GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

Counties in the **South** Florida GAR include Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, St. Lucie.

## Habitat

Over most of its range, the eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (Service 1999). Eastern indigo snakes appear to need a mosaic of habitats to complete their life cycle. Wherever the eastern indigo snake occurs in xeric habitats, it is closely associated with the gopher tortoise *(Gopherus polyphemus),* the burrows of which provide shelter from winter cold and summer desiccation (Speake et al. 1978; Layne and Steiner 1996). Interspersion of tortoise-inhabited uplands and wetlands improves habitat quality for this species (Landers and Speake 1980; Auffenberg and Franz 1982).

In south Florida, agricultural sites, such as sugar cane fields, created in former wetland areas are occupied by eastern indigo snakes (Enge pers. comm. 2007). Formerly, indigo snakes would have only occupied higher elevation sites within the wetlands. The introduction of agriculture and its associated canal systems has resulted in an increase in rodents and other species of snakes that are prey for eastern indigo snakes. The result is that indigos occur at higher densities in these areas than they did historically.

Even though thermal stress may not be a limiting factor throughout the year in south Florida, indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigos use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma guanhumi*) burrows in coastal areas (Service 2006). Natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and crevices of rock-lined ditch walls are also used (Layne and Steiner 1996). These refugia are used most frequently where tortoise burrows are not available, principally in low-lying areas off the central and coastal ridges. In extreme south Florida (the Everglades and Florida Keys), indigo snakes are found in tropical

hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats (Steiner et al. 1983). It is suspected that they prefer hammocks and pine forests, because most observations occur in these habitats disproportionately to their presence in the landscape (Steiner et al. 1983). Hammocks may be important breeding areas as juveniles are typically found there. The eastern indigo snake is a snake-eater so the presence of other snake species may be a good indicator of habitat quality.

**Conservation Measures**

The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2004) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing an Eastern Indigo Snake Effect Determination Key, similar in utility to the West Indian Manatee Effect Determination Key and the Wood Stork Effect Determination Keys presently being utilized by the Corps. 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 and no additional correspondence will be necessary[1]. This key is subject to revisitation as the Corps and Service deem necessary.

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 *Standard Protection Measures For The Eastern Indigo Snake* 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[2] .....*"may affect"*

C. There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*go to* D

   There are no gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*"NLAA"*

D. The project will impact less than 25 acres of xeric habitat supporting less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]..... *"may affect"*

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow[3]. If an 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 indigo snake, no work will commence until the snake has vacated the vicinity of proposed work..... *"NLAA"*

Permit will not be conditioned as outlined above and consultation with the Service is requested[2] ..... *"may affect"*

---

[1]With an outcome of "no effect" or "NLAA" as outlined in this key, the requirements of section 7 of the Act are fulfilled for the eastern indigo snake and no further action is required.

[2]Consultation may be concluded informally or formally depending on project impacts.

[3] If burrow excavation is utilized, it should be performed by experienced personnel. The method used should minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the Florida Fish and Wildlife Conservation Commission's revised April 2009 Gopher Tortoise Permitting Guidelines located at **http://myfwc.com/License/Permits_ProtectedWildlife.htm#gophertortoise**. A member of the excavation team should be authorized for Incidental Take during excavation through an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission.

**STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE**
**U.S. Fish and Wildlife Service**
**August 12, 2013**

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: jaxregs@fws.gov; South Florida Field Office: verobeach@fws.gov; Panama City Field Office: panamacity@fws.gov). As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the attached poster and brochure), no further written confirmation or "approval" from the USFWS is needed and the applicant may move forward with the project.

If the applicant decides to use an eastern indigo snake protection/education plan other than the approved Plan below, written confirmation or "approval" from the USFWS that the plan is adequate must be obtained. At least 30 days prior to any clearing/land alteration activities, the applicant shall submit their unique plan for review and approval. The USFWS will respond via e-mail, typically within 30 days of receiving the plan, either concurring that the plan is adequate or requesting additional information. A concurrence e-mail from the appropriate USFWS Field Office will fulfill approval requirements.

The Plan materials should consist of: 1) a combination of posters and pamphlets (see **Poster Information** section below); and 2) verbal educational instructions to construction personnel by supervisory or management personnel before any clearing/land alteration activities are initiated (see **Pre-Construction Activities** and **During Construction Activities** sections below).

## POSTER INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (a final poster for Plan compliance, to be printed on 11" x 17" or larger paper and laminated, is attached):

**DESCRIPTION**: The eastern indigo snake is one of the largest non-venomous snakes in North America, with individuals often reaching up to 8 feet in length. They derive their name from the glossy, blue-black color of their scales above and uniformly slate blue below. Frequently, they have orange to coral reddish coloration in the throat area, yet some specimens have been reported to only have cream coloration on the throat. These snakes are not typically aggressive and will attempt to crawl away when disturbed. Though indigo snakes rarely bite, they should NOT be handled.

**SIMILAR SNAKES:** The black racer is the only other solid black snake resembling the eastern indigo snake. However, black racers have a white or cream chin, thinner bodies, and WILL BITE if handled.

**LIFE HISTORY:** The eastern indigo snake occurs in a wide variety of terrestrial habitat types throughout Florida. Although they have a preference for uplands, they also utilize some wetlands

and agricultural areas. Eastern indigo snakes will often seek shelter inside gopher tortoise burrows and other below- and above-ground refugia, such as other animal burrows, stumps, roots, and debris piles. Females may lay from 4 - 12 white eggs as early as April through June, with young hatching in late July through October.

**PROTECTION UNDER FEDERAL AND STATE LAW:** The eastern indigo snake is classified as a Threatened species by both the USFWS and the Florida Fish and Wildlife Conservation Commission. "Taking" of eastern indigo snakes is prohibited by the Endangered Species Act without a permit. "Take" is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses, if convicted.

Only individuals currently authorized through an issued Incidental Take Statement in association with a USFWS Biological Opinion, or by a Section 10(a)(1)(A) permit issued by the USFWS, to handle an eastern indigo snake are allowed to do so.

**IF YOU SEE A <u>LIVE</u> EASTERN INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and allow the live eastern indigo snake sufficient time to move away from the site without interference;
- Personnel must NOT attempt to touch or handle snake due to protected status.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- If the snake is located in a vicinity where continuation of the clearing or construction activities will cause harm to the snake, the activities must halt until such time that a representative of the USFWS returns the call (within one day) with further guidance as to when activities may resume.

**IF YOU SEE A <u>DEAD</u> EASTERN INDIGO SNAKE ON THE SITE:**

- Cease clearing activities and immediately notify supervisor or the applicant's designated agent, **and** the appropriate USFWS office, with the location information and condition of the snake.
- Take photographs of the snake, if possible, for identification and documentation purposes.
- Thoroughly soak the dead snake in water and then freeze the specimen. The appropriate wildlife agency will retrieve the dead snake.

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

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

## PRE-CONSTRUCTION ACTIVITIES

1. The applicant or designated agent will post educational posters in the construction office and throughout the construction site, including any access roads. The posters must be clearly visible to all construction staff. A sample poster is attached.

2. Prior to the onset of construction activities, the applicant/designated agent will conduct a meeting with all construction staff (annually for multi-year projects) to discuss identification of the snake, its protected status, what to do if a snake is observed within the project area, and applicable penalties that may be imposed if state and/or federal regulations are violated. An educational brochure including color photographs of the snake will be given to each staff member in attendance and additional copies will be provided to the construction superintendent to make available in the onsite construction office (a final brochure for Plan compliance, to be printed double-sided on 8.5" x 11" paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC websites.

3. Construction staff will be informed that in the event that an eastern indigo snake (live or dead) is observed on the project site during construction activities, all such activities are to cease until the established procedures are implemented according to the Plan, which includes notification of the appropriate USFWS Field Office. The contact information for the USFWS is provided on the referenced posters and brochures.

## DURING CONSTRUCTION ACTIVITIES

1. During initial site clearing activities, an onsite observer may be utilized to determine whether habitat conditions suggest a reasonable probability of an eastern indigo snake sighting (example: discovery of snake sheds, tracks, lots of refugia and cavities present in the area of clearing activities, and presence of gopher tortoises and burrows).

2. If an eastern indigo snake is discovered during gopher tortoise relocation activities (i.e. burrow excavation), the USFWS shall be contacted within one business day to obtain further guidance which may result in further project consultation.

3. Periodically during construction activities, the applicant's designated agent should visit the project area to observe the condition of the posters and Plan materials, and replace them as needed. Construction personnel should be reminded of the instructions (above) as to what is expected if any eastern indigo snakes are seen.

## POST CONSTRUCTION ACTIVITIES

Whether or not eastern indigo snakes are observed during construction activities, a monitoring report should be submitted to the appropriate USFWS Field Office within 60 days of project completion. The report can be sent electronically to the appropriate USFWS e-mail address listed on page one of this Plan.

# Appendix B- Sand Skink Coordination

**From:** Chasez, Heather
**To:** Grubert, Heather; Lyon, Casey
**Cc:** Rob Myers
**Subject:** FW: [EXTERNAL] I-75 at $9th Street Interchange Sand Skink Survey Consultation Request
**Date:** Tuesday, February 5, 2019 1:59:46 PM
**Attachments:** 435209-1 USFWS Sand Skink Consultation Letter.pdf
Supporting Information.zip

---

Hello,

Please see Zakia's response below. I have also attached the information provided to her for your reference.

Cheers,

*Heather Chasez*
Environmental Specialist IV
Project Compliance Coordinator
FDOT District Five
719 S. Woodland Blvd.
DeLand, FL 32720
Phone: (386) 943-5393

---

**From:** Williams, Zakia [mailto:zakia_williams@fws.gov]
**Sent:** Tuesday, February 05, 2019 2:54 PM
**To:** Chasez, Heather <Heather.Chasez@dot.state.fl.us>
**Subject:** Re: [EXTERNAL] I-75 at $9th Street Interchange Sand Skink Survey Consultation Request



Heather,

After review of the information that was provided and other available resources, the Service has determined that a sand skink survey will not be necessary. Please let me know if you have any further questions.

Thank you,
Zakia

On Tue, Jan 29, 2019 at 10:57 AM Chasez, Heather <Heather.Chasez@dot.state.fl.us> wrote:

> Hello Zakia,
>
> Please find attached the request for sand skink survey consultation. After performing field reviews and researching the area, we do not believe that surveys are necessary. I have attached a write-up

regarding the project area and supporting information for your review and concurrence. If you would like to set up a field review, please let me know so I can expedite that process. As sand skink survey season is soon to begin and we need to has some lead time to prepare if you find that surveys would be necessary, I ask that you please expedite this review request.

Please let me know if you have any questions.

Thank you,

*Heather Chasez*
Environmental Specialist IV
Project Compliance Coordinator
FDOT District Five
719 S. Woodland Blvd.
DeLand, FL 32720
Phone: (386) 943-5393

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*Zakia Williams*

*Fish and Wildlife Biologist*

*US Fish and Wildlife Service*

*7915 Baymeadows Way Ste. 200*

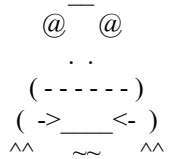
*Jacksonville, FL 32256*

*(o) 904-731-3119*

*(c)904-200-2678*

*(F) 904-731-3045*

>>>>>>>>>>>>>>>>>>



FDOT

*Florida Department of Transportation*

RON DESANTIS
GOVERNOR

719 S. Woodland Boulevard
DeLand, Florida 32720-6834

KEVIN J. THIBAULT
SECRETARY

January 29, 2019

Zakia Williams
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
7915 Baymeadows Way, Ste. 200
Jacksonville, FL 32256

Re: Interchange at I-75 and NW 49th Street FM# 435209-1; Sand Skink Survey Consultation

Dear Zakia,

FDOT District 5 is currently conducting a PD&E Study of a new interchange at I-75 and NW 49th street in Marion County (see Project Location Map). Within the study limits there are several areas that meet the U.S. Fish and Wildlife Service (USFWS) three factor criteria for potential sand skink distribution (county, soils, and elevation). The attached Sand Skink Potential Habitat Map depicts the locations within the project study area that meet the three factor criteria. However, due to the current condition and history of this area, we are requesting consultation on whether surveys would be necessary. Please refer to the below descriptions and the attached Area Reference Map, field review photos, and historic aerials of each area within the study area that meets the three factor criteria for sand skink distribution within the project area.

Area 1

Area 1 occurs wholly within the Baldwin Angus Ranch, which is an active cattle ranch and agricultural facility. The ranch was established in 1947 and has consistently been under site manipulation (as can be seen from historical photographs. Alan Baldwin, who is part owner of the property, informed us that they grow rye in these fields during the winter and hay in the summer. Currently, the site is sowed with rye grass and is being irrigated (see photos). Additionally, these parcels have been plowed/disked at least several times each decade for the past 30 years. Due to the current and long history of agricultural practices, FDOT believes that no habitat to support the sand skink remains.

Area 2

This area is the Magnum Materials Mine, which is currently an active mine site. The activities at the mine site can be seen from aerials as far back as the 1960's. The northwest corner of the site

is both an active mine area and where spoil has been stockpiled over decades. The terrain and soils have been completely altered. The soils are currently moist and compacted with some interspersion of rocks. Due to the mining practices and heavy site manipulation, FDOT believes that no habitat to support the sand skink remains.

Area 3

This area has a history of agricultural use and most recently clearing and grading to support a large industrial complex. Due to the past uses and current heavy site manipulation, FDOT believes that no habitat to support the sand skink remains.

Area 4

This area was a conversation van storage site during the 1990's. An interview with the former vice president of the company revealed that between this parcel (and the parcel across NW 44th Ave) was used to store up to 18,000 vehicles at a time. The ground within this area consists of cogon grass and other ruderal grasses interspersed with rock within the top layers. The soils are compacted and are no longer swimmable. Due to the past use and site manipulation, FDOT believes that no habitat to support the sand skink remains.

Area 5

This site has a history of agricultural use and site manipulation. The soils are compacted and no longer swimmable. The ground is thick with vegetation (primarily bahiagrass) and roots and there are no open patches. Due to the past use and site manipulation, FDOT believes that no habitat to support the sand skink species remains.

Area 6

This site has a history of agricultural use and site manipulation. The soils are compacted and no longer swimmable. The ground is thick with ruderal vegetation and roots and there are no open patches. Due to the past use and site manipulation, FDOT believes that no habitat to support the sand skink remains.

Area 7

This area has a history of agricultural use and now is heavily vegetated with both herbaceous and woody species ruderal vegetation including blackberry and saltbush. The soils are heavily rooted and there are no open areas of ground. Due to the past use and the current condition of the site, FDOT believes that this area is not appropriate habitat to support the sand skink.

Area 8

This area has a history of agricultural use and has since been developed as a flea market. The soils have been manipulated and are currently compacted and no longer swimmable. The ground

vegetation is thick and maintained, with no open areas. Due to the past and current use, as well as the compaction of the soil, FDOT believes there is no habitat to support the sand skink.

Area 9

The I-75 right-of-way soil also has been heavily manipulated and compacted. Wide ditching with dense herbaceous vegetation can be noted along that length of the project and routine maintenance activities are performed for this area. FDOT believes there is no habitat remaining to support this species.

Due to the history of the area, roadways, and land features, there does not seem to be any habitat that could support this species and there are no adjacent habitats that could provide a source population. In addition, our records show no known documentation of the species in, or near, the project area.

Based on the information outlined above, we feel that there is no potential for this species to occur within the project area. FDOT is requesting your review of the information provided and concurrence with our determination that surveys do not need to be performed. If you would like to perform a field review, please let me know and we would be happy to expedite a visit of any areas for which you have concern. Survey season is quickly approaching and we would like to be prepared if you feel there are any areas that would need to be surveyed.

Please let me know if you have any questions or comments.

Sincerely,

Heather Chasez
FDOT D5
Environmental Specialist IV
386-943-5393

# Appendix C- Wood Stork Effect Determination Key

**THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, U. S. FISH AND WILDLIFE SERVICE, JACKSONVILLE ECOLOGICAL SERVICES FIELD OFFICE AND STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE WOOD STORK IN CENTRAL AND NORTH PENINSULAR FLORIDA**
**September 2008**

## Purpose and Background

The purpose of this document is to provide a tool to improve the timing and consistency of review of Federal and State permit applications and Federal civil works projects, for potential effects of these projects on the endangered wood stork (*Mycteria americana*) within the Jacksonville Ecological Services Field Office (JAFL) geographic area of responsibility (GAR see below). The key is designed primarily for Corps Project Managers in the Regulatory and Planning Divisions and the Florida Department of Environmental Protection or its authorized designee, or Water Management Districts. The tool consists of the following dichotomous key and reference material. The key is intended to be used to evaluate permit applications and Corps' civil works projects for impacts potentially affecting wood storks or their wetland habitats. At certain steps in the key, the user is referred to graphics depicting known wood stork nesting colonies and their core foraging areas (CFA), footnotes, and other support documents. The graphics and supporting documents may be downloaded from the Corps' web page at http://www.saj.usace.army.mil/permit or at the JAFL web site at http://www.fws.gov/northflorida/WoodStorks. We intend to utilize the most recent information for both the graphics and supporting information; so should this information be updated, we will modify it accordingly. **Note: This information is provided as an aid to project review and analysis, and is not intended to substitute for a comprehensive biological assessment of potential project impacts. Such assessments are site-specific and usually generated by the project applicant or, in the case of civil works projects, by the Corps or project co-sponsor.**

**Explanatory footnotes provided in the key must be closely followed whenever encountered.**

## Scope of the key

This key should only be used in the review of permit applications for effects determinations on wood storks within the JAFL GAR, and not for other listed species. Counties within the JAFL GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

The final effect determination will be based on project location and description, the potential effects to wood storks, and any measures (for example project components, special permit conditions) that avoid or minimize direct, indirect, and/or cumulative

impacts to wood storks and/or suitable wood stork foraging habitat. Projects that key to a "no effect" determination do not require additional consultation or coordination with the JAFL. Projects that key to "NLAA" also do not need further consultation; however, the JAFL staff will assist the Corps if requested, to answer questions regarding the appropriateness of mitigation options. Projects that key to a "may affect" determination equate to "likely to adversely affect" situations, and those projects should not be processed under the SPGP or any other programmatic general permit. For all "may affect" determinations, Corps Project Managers should request the JAFL to initiate formal consultation on the Wood stork.

## Summary of General Wood Stork Nesting and Foraging Habitat Information

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991; Rodgers et al. 1996). Successful breeding sites are those that have limited human disturbance and low exposure to land based predators. Nesting sites protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

In addition to limited human disturbance and land-based predation, successful nesting depends on the availability of suitable foraging habitat. Such habitat generally results from a combination of average or above-average rainfall during the summer rainy season, and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes that tends to maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging opportunities, a variety of wetland habitats exhibiting short and long hydroperiods should be present. In terms of wood stork foraging, the Service (1999) describes a short hydroperiod as one where a wetland fluctuates between wet and dry in 1 to 5-month cycles, and a long hydroperiod where the wet period is greater than five consecutive months. Wood storks during the wet season generally feed in the shallow water of short-hydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry down (though usually retaining some surface water throughout the dry season).

Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Good foraging conditions are characterized by water that is relatively calm, open, and having water depths between 5 and 15 inches (5 and 38 cm). Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydrologic

regimes ranging from dry to wet. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow, open-water areas provide sites for concentration of the prey during daily or seasonal low water periods.

## WOOD STORK KEY

**Although designed primarily for use by Corps Project Managers in the Regulatory and Planning Divisions, and State Regulatory agencies or their designees, project permit applicants and co-sponsors of civil works projects may find this key and its supporting documents useful in identifying potential project impacts to wood storks, and planning how best to avoid, minimize, or compensate for any identified adverse effects.**

A. Project within 2,500 feet of an active colony site[1]……*May affect*

Project more than 2,500 feet from a colony site……go to B

B. Project does not affect suitable foraging habitat[2] (SFH)……*no effect*

Project impacts SFH[2]……go to C

C. Project impacts to SFH are less than or equal to 0.5 acre[3]…….....*NLAA*[4]

Project impacts to SFH are greater than or equal to 0.5 acre..……..go to D

D. Project impacts to SFH not within a Core Foraging Area[5] (see attached map) of a colony site, and no wood storks have been documented foraging on site…….....NLAA[4]

Project impacts to SFH are within the CFA of a colony site, or wood storks have been documented foraging on a project site outside the CFA ……..….go to E

E. Project provides SFH compensation within the Service Area of a Service-approved wetland mitigation bank or wood stork conservation bank preferably within the CFA, or consists of SFH compensation within the CFA consisting of enhancement, restoration or creation in a project phased approach that provides an amount of habitat and foraging function equivalent to that of impacted SFH (see *Wood Stork Foraging Habitat Assessment Procedure*[6] for guidance), is not contrary to the Service's *Habitat Management Guidelines For The Wood Stork In The Southeast Region* and in accordance with the CWA section 404(b)(1) guidelines……*NLAA*[4]

Project does not satisfy these elements.……....……...*May affect*

[1] An active nesting site is defined as a site currently supporting breeding pairs of wood storks, or has supported breeding wood storks at least once during the preceding 10-year period.

[2] Suitable foraging habitat (SFH) is described as any area containing patches of relatively open (< 25% aquatic vegetation), calm water, and having a permanent or seasonal water depth between 2 and 15 inches (5 to 38 cm). 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 and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. See above *Summary of General Wood Stork Nesting and Foraging Habitat Information*.

[3] On an individual basis, projects that impact less than 0.5 acre of SFH generally will not have a measurable effect on wood storks, although we request the Corps to require mitigation for these losses when appropriate. Wood Storks are a wide ranging species, and individually, habitat change from impacts to less than 0.5 acre of SFH is 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.

[4] Upon Corps receipt of a general concurrence issued by the JAFL through the Programmatic Concurrence on this key, "NLAA" determinations for projects made pursuant to this key require no further consultation with the JAFL.

[5] The U.S. Fish and Wildlife Service (Service) has identified core foraging area (CFA) around all known wood stork nesting colonies that is important for reproductive success. In Central Florida, CFAs include suitable foraging habitat (SFH) within a 15-mile radius of the nest colony; CFAs in North Florida include SFH within a 13-mile radius of a colony. The referenced map provides locations of known colonies and their CFAs throughout Florida documented as active within the last 10 years. The Service believes loss of suitable foraging wetlands within these CFAs may reduce foraging opportunities for the wood stork.

[6]This draft document, *Wood Stork Foraging Habitat Assessment Procedure*, by Passarella and Associates, Incorporated, may serve as further guidance in ascertaining wetland foraging value to wood storks and compensating for impacts to wood stork foraging habitat.

## 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 that were determined "may affect, not likely to adversely affect." It is requested that information on date, Corps identification number, project acreage, project wetland acreage, and latitude and longitude in decimal degrees be sent to the Service quarterly.

## Literature Cited

Kahl, M.P., Jr. 1964. Food ecology of the wood stork (*Mycteria americana*) in Florida. Ecological Monographs 34:97-117.

Ogden, J.C. 1991. Nesting by wood storks in natural, altered, and artificial wetlands in central and northern Florida. Colonial Waterbirds 14:39-45.

Rodgers, J.A. Jr., A.S. Wenner, and S.T. Schwikert. 1987. Population dynamics of wood storks in northern and central Florida, USA. Colonial Waterbirds 10:151-156.

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U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Fish and Wildlife Service; Atlanta, Georgia. Available from: http://verobeach.fws.gov/Programs/Recovery/vbms5.html.