

NATURAL RESOURCES EVALUATION

Florida Department of Transportation

District Five

Truck Parking Central Florida Corridor

Eastbound Volusia County Site

Volusia County, Florida

Financial Management Number: 446445-2

Date: December 2023

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 May 26, 2022, and executed by the Federal Highway Administration and FDOT.

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## EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting the *Truck and Freight Site Analysis Project Development and Environment (PD&E) Study* to identify, evaluate, and recommend viable candidate truck and freight parking sites along or near the Interstate 4 (I-4) corridor within Osceola, Orange, Seminole, and Volusia Counties that are viable for private and public operator use. The study limits extend from Osceola County north to Volusia County encompassing a 75-mile-long project study area and spanning approximately one mile from I-4 within the four counties. In heavily industrialized areas, the initial study area was expanded to approximately three to five miles from the I-4 corridor. An initial screening of the study area was conducted to identify alternatives that met the purpose and need for the project. The initial alternatives were further screened to identify viable alternatives that minimize environmental and community impacts while addressing the purpose and need for the project.

This Natural Resources Evaluation (NRE) has been prepared as part of the PD&E Study to assess Volusia County Site 1A, located along I-4 Eastbound approximately 4.50 miles southwest of the I-95 interchange, to identify potential impacts to natural resources within the site. The purpose of this NRE is to document protected species and habitat and identify the location of wetlands and surface waters in order to determine potential impacts to these resources, provide rationale to support species effect determinations, identify avoidance and minimization measures, and quantify mitigation necessary for the Preferred Alternative. This NRE has been prepared in accordance with the Wetlands and Other Surface Waters, Essential Fish Habitat, and Protected Species and Habitat chapters of the FDOT's PD&E Manual and the current Natural Resources Evaluation Outline and Guidance.

The Preferred Alternative, Volusia County Site 1A, is located within the US Fish and Wildlife Service (USFWS) Consultation Area (CA) of the Everglade snail kite and Florida scrub-jay. The existing habitats in the study area may also support other federally-protected species, as well as many state-protected species. Effect determinations were based on the results of general wildlife and species-specific surveys, data collection, and USFWS' effect determination keys. Table ES-1 identifies protected species evaluated in this document, their regulatory status, and the effect determination under the Preferred Alternative Volusia County Site 1A.

**Table ES-1: Proposed Effect Determinations for Protected Species**

Scientific Name	Common Name	Status	Effect Determination
<b>Birds</b>			
<i>Aphelocoma coerulescens</i>	Florida scrub jay	FT	NO EFFECT
<i>Athene cunicularia floridana</i>	Burrowing owl	ST	NEA
<i>Egretta caerulea</i>	Little blue heron	ST	NAEA
<i>Egretta tricolor</i>	Tricolored heron	ST	NAEA
<i>Falco sparverius Paulus</i>	Southeastern American kestrel	ST	NAEA
<i>Grus canadensis pratensis</i>	Florida sandhill crane	ST	NAEA
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA/ MBTA	--
<i>Laterallus jamaicensis</i>	Eastern black rail	FT	NO EFFECT
<i>Mycteria americana</i>	Wood stork	FE	MANLAA
<i>Platalea ajaja</i>	Roseate spoonbill	ST	NEA
<i>Rostrhamus sociabilis plumbeus</i>	Everglade snail kite	FE	NO EFFECT
<b>Mammals</b>			
<i>Perimyotis subflavus</i>	Tricolored bat	C	--
<i>Ursus americanus floridanus</i>	Florida black bear	M	--
<b>Reptiles</b>			
<i>Drymarchon corais couperi</i>	Eastern indigo snake	FT	MANLAA
<i>Gopherus polyphemus</i>	Gopher tortoise	ST	NAEA
<i>Pituophis melanoleucus mugitis</i>	Florida pine snake	ST	NAEA
<b>Plants</b>			
<i>Calopogon multiflorus</i>	Many-flowered grass-pink	ST	NEA
<i>Carex chapmannii</i>	Chapman's sedge	ST	NEA
<i>Centrosema Arenicola</i>	Sand butterfly pea	SE	NEA
<i>Conradina grandiflora</i>	Large-flowered rosemary	ST	NEA
<i>Deeringothamnus rugelii</i>	Rugel's pawpaw	FE	MANLAA
<i>Illicium parviflorum</i>	Star anise	SE	NEA
<i>Lechea cernua</i>	Nodding pinweed	ST	NEA
<i>Matelea floridana</i>	Florida spiny-pod	SE	NEA
<i>Nemastylis floridana</i>	Celestial lily	SE	NEA
<i>Nolina atopocarpa</i>	Florida beargrass	ST	NEA
<i>Pteroglossaspis ecristata</i>	Giant orchid	ST	NEA
<i>Pycnanthemum floridanum</i>	Florida mountain mint	ST	NEA
<i>Sacoila lanceolata var. lanceolata</i>	Leafless beaked orchid	ST	NAEA
<i>Salix floridana</i>	Florida willow	SE	NEA
<i>Sarracenia minor</i>	Hooded pitcher plant	ST	NAEA
<b>MANLAA</b> = May Affect, Not Likely to Adversely Affect <b>NAEA</b> = No Adverse Effect Anticipated <b>NEA</b> = No Effect Anticipated <b>FE</b> = Federally Endangered <b>FT</b> = Federally Threatened <b>SE</b> = State Endangered <b>ST</b> = State Threatened <b>M</b> = Managed <b>C</b> = Candidate <b>BGEPA</b> = Bald and Golden Eagle Protection Act <b>MBTA</b> = Migratory Bird Treaty Act			

Wetlands and other surface waters with potential to be affected by the proposed project were identified within the study area. A wetland assessment was performed for wetlands and other surface waters in accordance with the Uniform Mitigation Assessment Method (UMAM), pursuant to Chapter 62-345, Florida Administrative Code (F.A.C.), to determine the functional value provided by the wetlands and other surface waters and determine the amount of mitigation required to offset adverse impacts. Direct impacts to jurisdictional wetlands associated with the Preferred Alternative and preferred pond sites are approximately 28.05 acres. Secondary impacts to adjacent wetlands are approximately 6.88 acres. Surface water impacts are approximately 0.31 acres. The total project impacts result in a functional loss of 22.755 units for state and federal jurisdictional wetlands. Mitigation for unavoidable wetland impacts will be provided to satisfy all mitigation requirements of Part IV, Chapter 373 Florida Statutes (F.S.), and United States Code (U.S.C.) 1344.

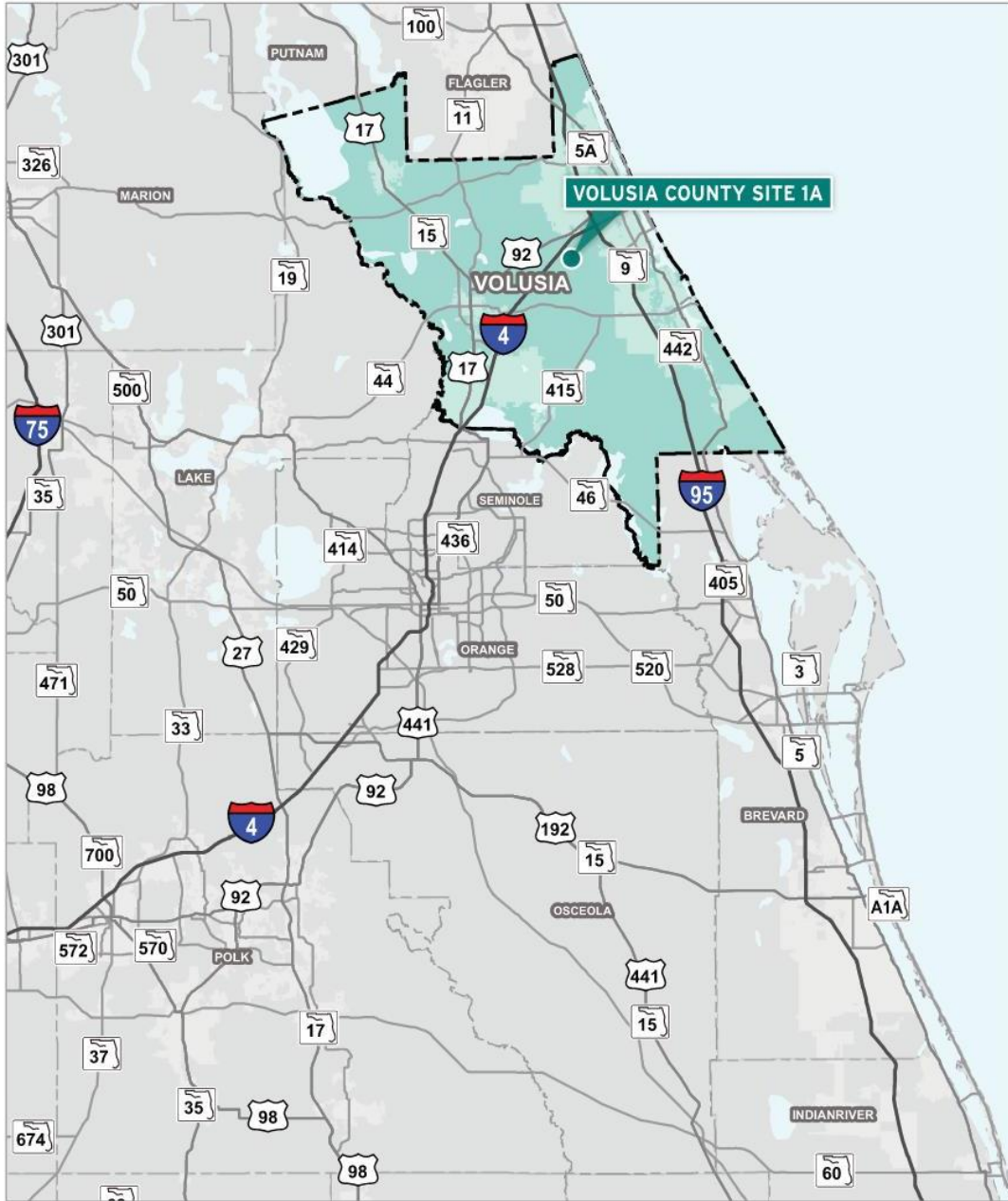
In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), Section 7 of the Endangered Species Act (ESA), and the Essential Fish Habitat (EFH) chapter of the FDOT's PD&E Manual, the proposed project was evaluated for potential EFH. No EFH is located within or adjacent to the project area. Therefore, an EFH Assessment is not required. The proposed project will have no involvement with EFH resources.

## **SECTION 1 – PROJECT OVERVIEW**

The FDOT is conducting the *Truck and Freight Alternative Site Analysis PD&E Study* to identify, evaluate, and recommend truck and freight parking sites along or near the I-4 corridor within Osceola, Orange, Seminole, and Volusia Counties that are viable for private and public operator use for rest stops. In 2018, FDOT conducted a state-wide truck parking study to assess existing truck parking and future demand. The study found the I-4 corridor is the most critical corridor for truck parking needs in the state, specifically between the Osceola/Polk County Line and I-95. Based on the 2018 study, the existing average demand for the I-4 corridor within FDOT District 5 was 481 designated truck parking spaces (combined public and private) for rest stops. However, there are currently 36 truck-only parking spaces (combined public and private) for rest stops along the I-4 corridor within the study area.

The goal of the PD&E Study was to identify at least one truck parking facility within each county to serve regional freight demand in Central Florida and balance the parking available throughout the I-4 corridor. An initial screening of the study area was conducted to identify alternatives that met the purpose and need for the project. The initial alternatives were further screened to identify viable alternatives that minimize environmental and community impacts. As a result of the engineering and environmental analyses completed during the PD&E Study and the comprehensive public engagement plan, five preferred sites are being advanced for project development and are programmed for the final Design phase. These five preferred sites provide a total of approximately 987 truck parking spaces to accommodate existing and future needs. This NRE addresses one of the five preferred sites, located along I-4 Eastbound in Volusia County. A regional map showing the location of the Eastbound Volusia County preferred site (designated Volusia County Site 1A) is provided in **Figure 1**.

Figure 1: Regional Location Map



**FDOT** **Figure 1**  
**Recommended Truck**  
**Parking Site Location Map**  
Volusia County Site 1A

A preliminary conceptual site plan, **Figure 2**, for Volusia County Site 1A was developed to establish site boundaries. The study area for the site included the proposed Right-of-Way (ROW), I-4 access ramps, and land for wildlife conservation. The preferred site is located adjacent to I-4. The preliminary site concepts include parking layouts, site access, proposed sidewalks, stormwater management, restroom facilities, and landscaping/greenspace areas.

### 1.1 – Project Description

Volusia County Site 1A (**Figure 3**) is located along I-4 Eastbound approximately 4.5 miles west of the I-95 interchange (approximate Milepost (MP) 23.112). The preferred site, located at a former Volusia County rest area, will supply 275 truck parking spaces and restroom facilities. Eight-foot sidewalks will be provided around the preferred site to allow pedestrians to safely walk from their individual truck parking spot to the restroom facilities.

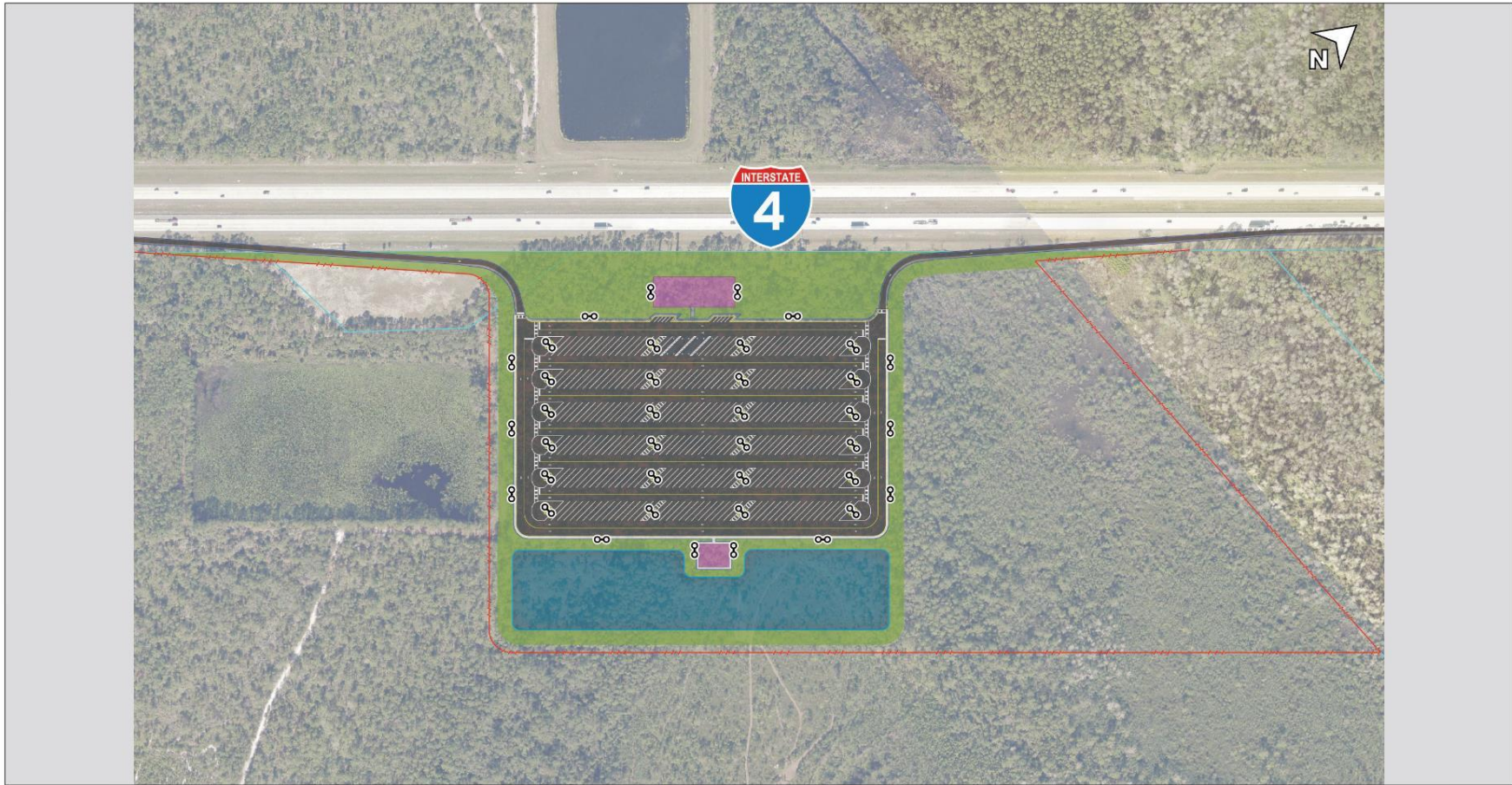
The preferred site is anticipated to require 73.3 acres of ROW, impacting three parcels both publicly owned by the City of Port Orange. Wildlife fencing and wildlife sensitive lighting will be provided around the preferred site due to the proximity of the existing wildlife crossing at MP 22.583. An on-ramp and off-ramp will be provided on I-4 Eastbound for direct access to and from Volusia County Site 1A. No local road access will be provided to the sites.

The preferred Volusia County Site 1A will include one wet detention stormwater pond (approximately 7.15 acres) located along the southeast parcel line. The proposed ROW for the site includes a proposed conservation area outside the limits of construction and surrounding the fenced truck parking area to provide an enhanced natural buffer. The conservation area (31 acres) is east of the truck parking area and will remain as existing (undeveloped) with no site clearing. A conservation easement over the conservation area will be coordinated in the Design and ROW phases for the project.



**Figure 2: Preliminary Conceptual Site Plan**

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**LEGEND**

- Pond
- Restroom Facility
- Sidewalk
- Lighting
- Property Lines
- Proposed Right-of-Way

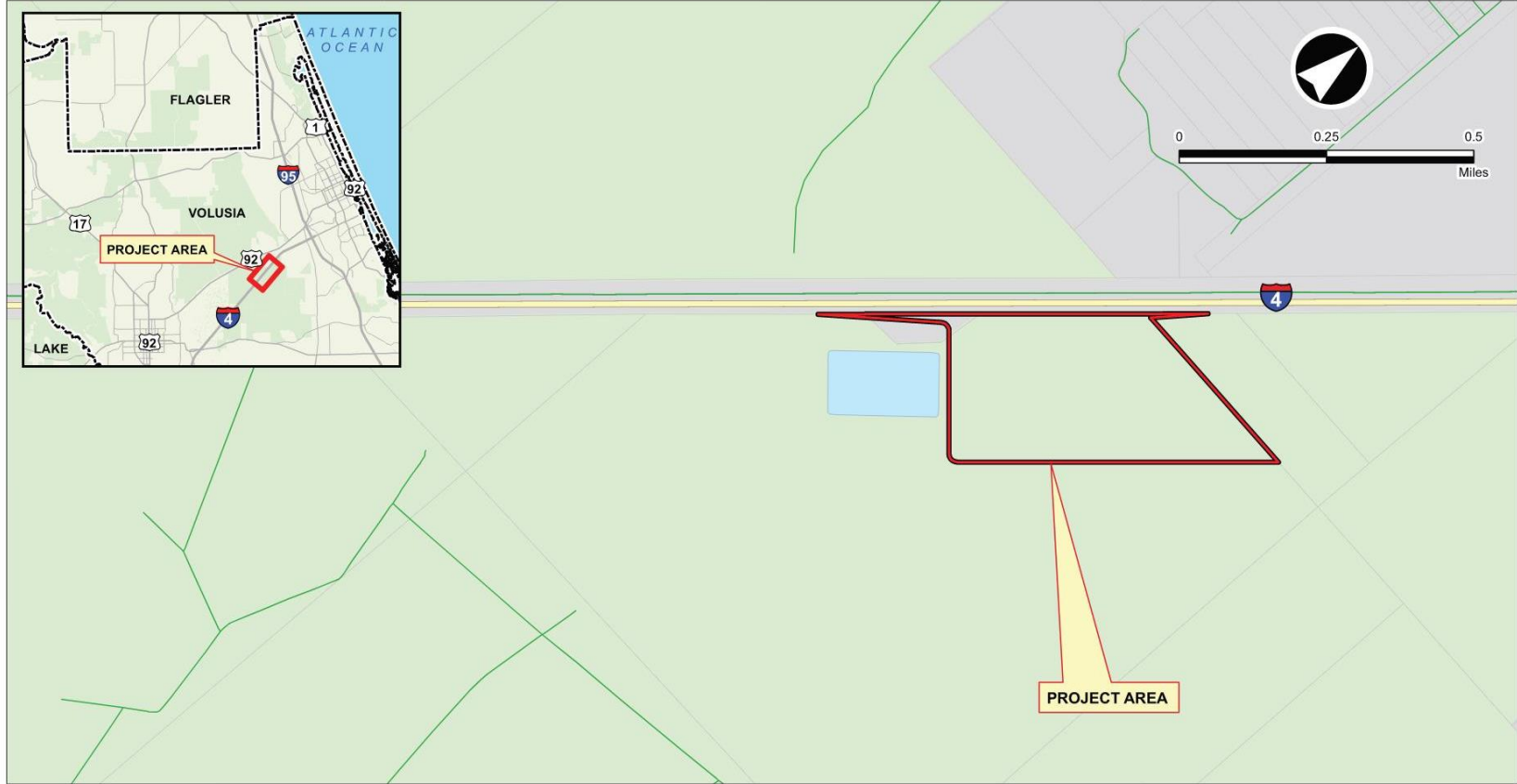


**Figure 2**

**Preliminary Conceptual Site Plan  
Volusia County Site 1A  
I-4 Direct Access, 4.5 miles west of I-95**

Figure 3: Project Location Map

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- LEGEND**
- Site Boundary
  - Streets
  - Parcels
  - Public Lands
  - Waterbodies

**FDOT** **Figure 3**  
Project Location Map  
Volusia County Site 1A  
I-4 Direct Access, 4.5 miles west of I-95

## 1.2 – Purpose and Need

The purpose of this project is to provide needed truck parking facilities to serve regional freight parking demand within or near the I-4 corridor. The Preferred Alternative to serve freight demand for I-4 Eastbound in Volusia County is designated Volusia County Site 1A.

The need for the project is to address existing truck parking deficiencies and accommodate future truck parking demand to better serve freight mobility and improve safety. There are no truck or freight parking facilities maintained exclusively for public parking or non-retail public use in Volusia County along the I-4 corridor. Volusia County Site 1A will provide needed truck parking capacity of 275 designated truck-only public spaces to serve the existing and future parking demand.

The parking demand is a function of both freight mobility and federal regulations governing hours of service for commercial vehicle operators. These regulations involve mandated maximum hours of service, maximum consecutive hours and days, and require regular minimum 30-minute breaks after eight cumulative hours. Without the appropriate freight parking facilities, drivers may be forced to spend unnecessary time searching for available parking, or they may be required to park in unsafe and/or improper locations.

The trucking industry is indispensable to the American economy and the quality of life for our communities and consumers that depend on delivered goods. Apart from many other roles and responsibilities, truck drivers are responsible for delivering raw materials to manufacturing facilities and finished products to retail and commercial sites. Businesses both big and small depend on truck drivers to safely transport their items across the nation, while maintaining efficient delivery times. According to Trucker Path survey (2018), 48% of truck drivers spend over an hour searching for a place to park. This equates to a \$5.1B loss in revenue annually, including wasted fuel, wages lost, maintenance, and associated crashes.

The nationwide shortage of truck parking capacity continues to be a critical transportation industry focus. According to data published by the American Trucking Association (ATA) in 2022, there are about 3.5 million truck drivers nationwide and approximately 313,000 truck parking spaces; for every 11 drivers, there is one truck parking space. Truck parking needs have been ranked as a top critical issue in the trucking industry and are a national safety concern. In the most recent (2019) Jason's Law Truck Parking Survey and Comparative Assessment, FHWA noted that truck parking concerns are nationwide but most critical along key freight corridors and in metropolitan areas. Additionally, nationwide survey results showed that shortages exist at all times of day, week, and year, but mostly overnight and weekdays. In September 2022, FHWA hosted the National Coalition on Truck Parking to provide an update on studies and initiatives to advance safe truck parking. The Federal Highway Administration (FHWA) 2022 Truck Parking Development Handbook lists the primary safety concerns arising from a lack of available designated truck parking spaces include tired truck drivers continuing to drive because of difficulty finding a place to park for rest and truck drivers choosing to park at unsafe locations, such as on the shoulder of the road, exit ramps, or vacant lots. The FHWA 2022 Truck Development Handbook states both of these scenarios endanger the truck driver and create hazards for drivers on the highway.

The University of Florida Bureau of Economic and Business Research (BEBR) reports a 35.1% population growth in Florida from 2000-2020 and continued growth is expected. In 2018, FDOT



conducted a statewide truck parking study to assess existing truck parking and future demand. The study found the I-4 corridor is the most critical corridor for truck parking needs in the state, specifically between the Osceola/Polk County Line and I-95, which is the focus of the *Truck and Freight Alternative Site Analysis PD&E Study*.

Concurrently, the FDOT District Five Truck Parking Study (2019) determined the average freight parking demand (2016 existing condition) along I-4 within the study area in Osceola, Orange, Seminole, and Volusia Counties was 481 designated truck parking spaces (combined public and private rest stops). In 2023, a review was conducted to identify available public and private truck parking facilities within the study area, including a five-mile radius from the I-4 corridor and excluding Florida's Turnpike service plazas that serve Turnpike freight demand. There are currently only 36 designated truck-only parking spaces (combined public and private) along the I-4 corridor within the study area inclusive of the Longwood Truck Parking Facility on I-4 Eastbound in Seminole County, the I-4 Westbound Rest Area in Seminole County and a private retail location with designated truck parking. There is a need for 445 additional truck parking spaces to serve existing demand within the study area.

As the number of people and the amount of goods continue to increase in Florida, freight traffic continues to be an essential part of our state's growth and economy. Based on the 2019 study, the average demand for truck parking spaces is anticipated to grow to 750 spaces by 2025 and 883 parking spaces by 2040 for the I-4 corridor within Osceola, Orange, Seminole and Volusia Counties. The projected demand is anticipated to intensify as the development of more distribution facilities like the Amazon Fulfillment Center in Volusia County, the Northport Industrial Park in Seminole County, the Infinity Park in Orange County, and JELD-WEN in Osceola County continue to be developed to better serve the region's population. The Volusia County Site 1A is needed to serve both the existing and projected truck parking demand in Volusia County and regionally within the I-4 study corridor.

### 1.3 – Alternatives Consideration

As part of the *Truck and Freight Alternative Site Analysis PD&E Study*, more than 77,000 parcels were examined for their potential viability as a freight parking site for trucks traveling along I-4 within Osceola, Orange, Seminole, and Volusia Counties. The methodology for identifying, analyzing, and refining potential sites is described in the Preliminary Engineering Report (PER), in the project file.

Based on the methodology described in the PER, two potential sites in Volusia County were identified for further review, analysis, and refinement. An alternatives analysis was conducted for the two Volusia County sites and the No-Action Alternative. Volusia County Site 1A was identified as the preferred site to serve I-4 Eastbound. The other Volusia County site was also identified as a preferred site, to serve I-4 Westbound. A detailed description of the alternatives and the results of the alternatives analysis are documented in the PER, in the project file. Volusia County Site 1A is the Preferred Alternative for the proposed truck parking site in Volusia County for I-4 Eastbound.

### 1.4 – Existing Environmental Conditions

Prior to the field survey, a desktop analysis was conducted to identify the existing site conditions. The land uses, soils, and other natural features were identified to determine what resources occur

or have the potential to occur within the study area. This information included land use maps provided by the St. Johns River Water Management District (SJRWMD). The land use descriptions are based on the Florida Land Use, Cover and Forms Classification System (FLUCFCS). Other information included but was not limited to:

- U.S. Geographic Survey (USGS) Topographic Maps (<https://viewer.nationalmap.gov/launch/>)
- Natural Resources Conservation Service (NRCS) Soil Maps (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>)
- Florida Natural Areas Inventory (FNAI) Cooperative Land Cover Maps (<https://www.fnai.org/services/coop-land-cover>)

#### 1.4.1 Vegetative Communities and Land Use

The vegetative communities and land uses in the Volusia County Site 1A were first characterized by the SJRWMD's online resources and later modified by ecologists to reflect their field observations. The existing FLUCFCS types observed within the site are displayed in **Figure 4**. **Table 1** provides a detailed list of the land use within the Site 1A project area. Photographs of representative vegetative communities are provided in **Appendix A**.

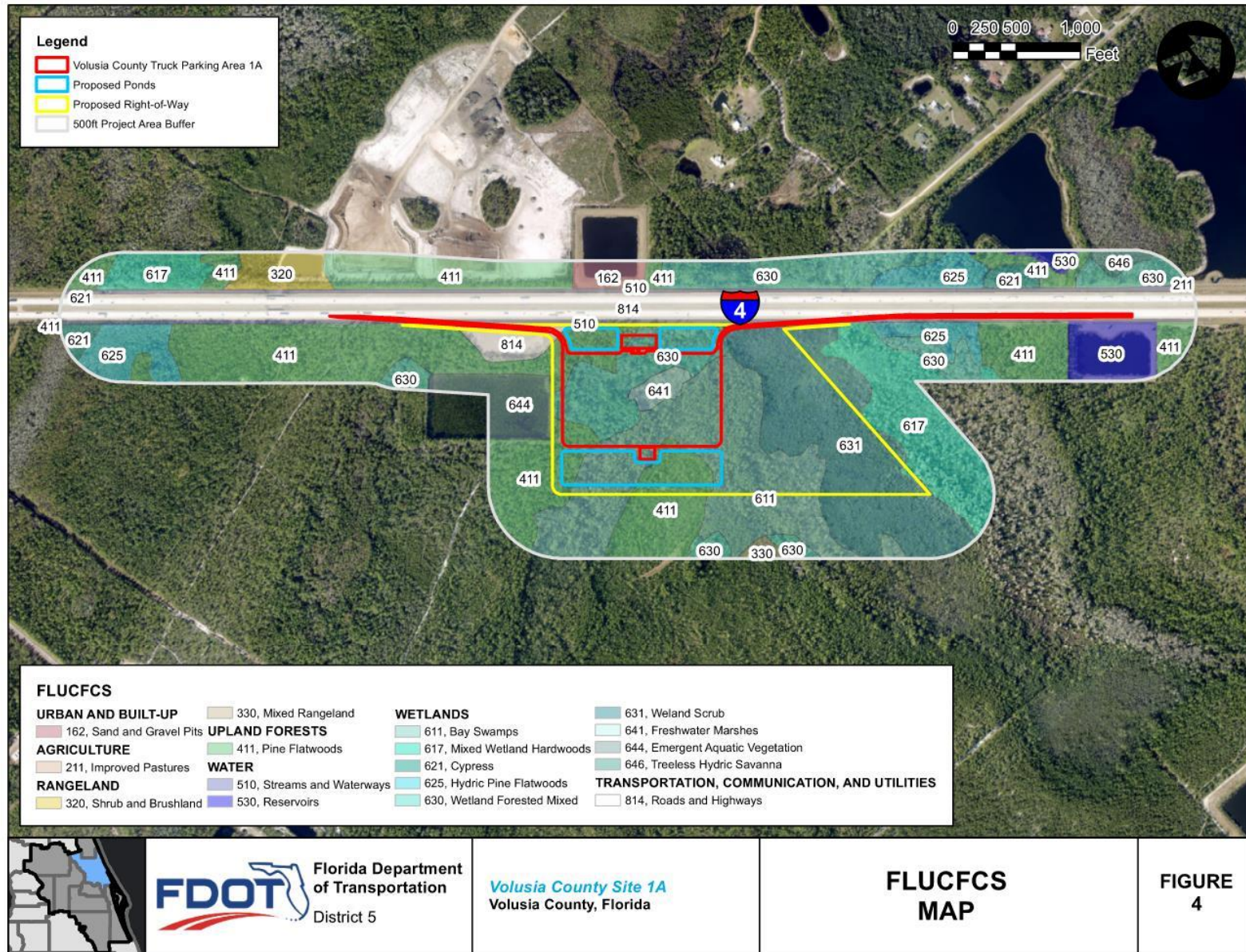
The project is located within a large area of public lands designated the Port Orange City Forest (POCF)/Port Orange Wellfield Property. The POCF involves multiple tracts comprising approximately 9,000 acres and is bifurcated by I-4, bounded by US 92 to the north, and is west of SR 414/Tomoka Farms Road in central Volusia County. The portion of POCF east of I-4, surrounding Volusia County Site 1A, is approximately 8,000 acres and is owned by the City of Port Orange. The POCF is a public multiple-use land holding that serves various land uses including water production wells, a solar panel field, reclaimed water systems, private hunting areas (leased-based), mitigation, and conservation areas. The POCF is restricted to the general public and there are no designated public recreation areas. A portion of POCF approximately 3500 feet south of the truck parking site is designated the Port Orange Mitigation Bank and is a SJRWMD managed conservation area. Longleaf Pine Preserve is another managed conservation area with public recreational land uses and is approximately 12,000 acres located south of the Port Orange Mitigation Bank and north of SR 44.

Volusia County Site 1A is located within a portion of the POCF that is outside of any regulatory conservation easements. **Figure 5** displays the regional conservation lands and easements. The truck parking site abuts the existing I-4 limited access ROW and is within an area that has been previously disturbed. Previous land uses within Volusia County Site 1A include a former I-4 rest area and a borrow pit. The area outside of the managed conservation easements, but within the Volusia County Site 1A limits, is currently privately-leased to a hunt club.

An existing wildlife crossing adjacent to the site provides mobility for wildlife through the I-4 corridor.

Topography in the region is relatively flat, with most of the land around 40 feet in elevation. The topographic map depicts that large portions of the area consist of natural lands (**Figure 6**), including expansive wetland habitats.

Figure 4: FLUCFCS Map





**Figure 5: Regional Conservation Lands and Easements Map**

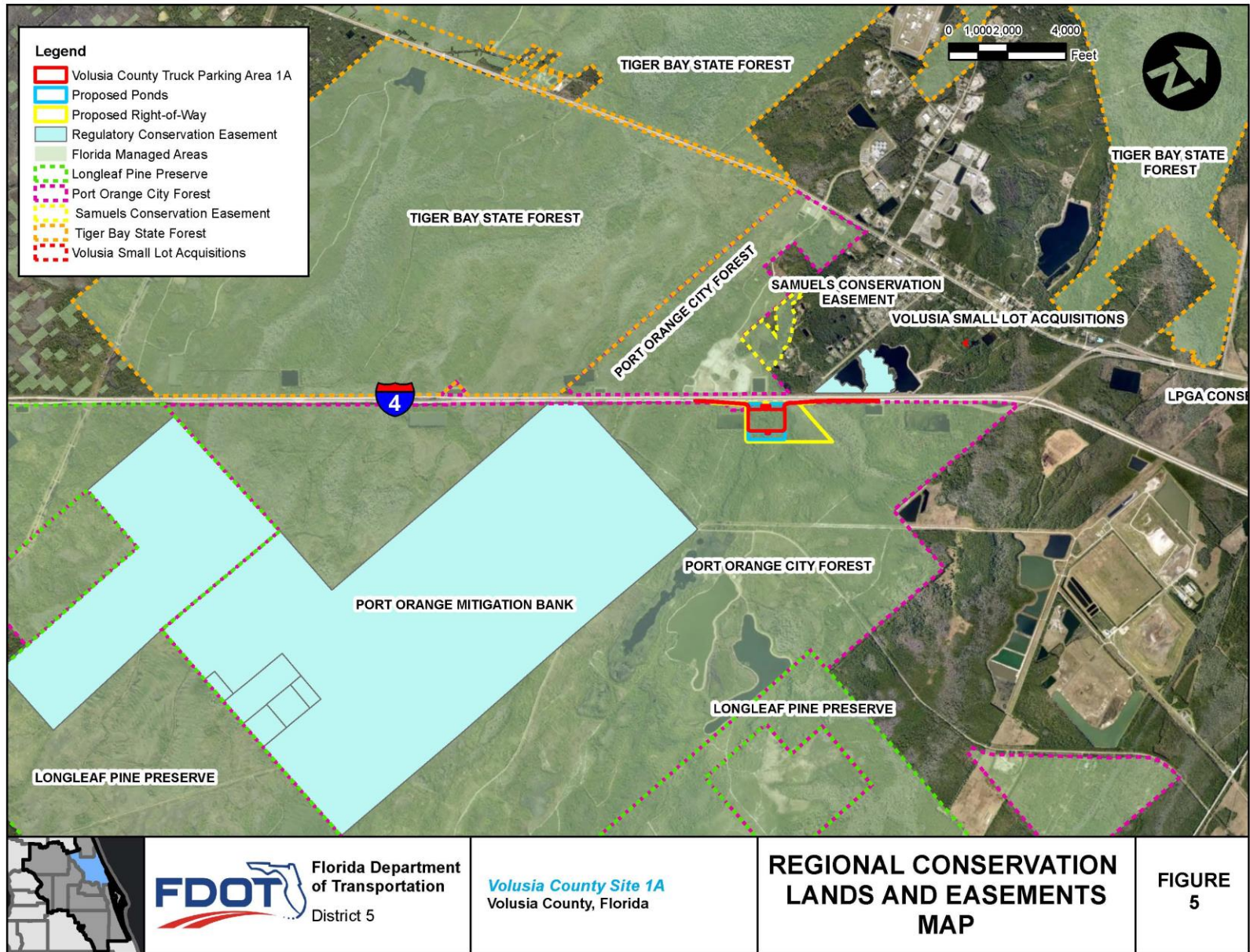
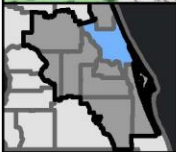
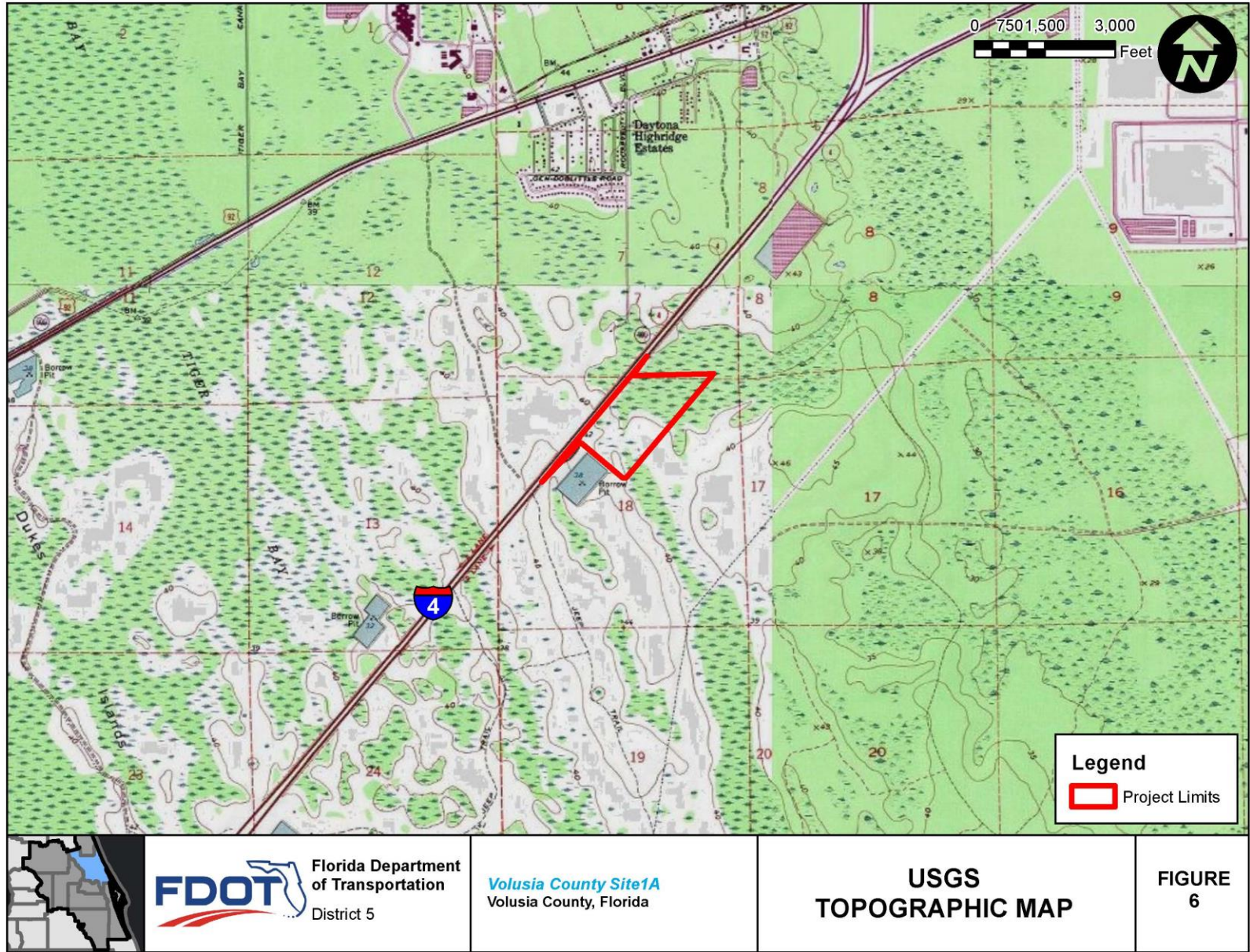




Figure 6: USGS Topographic Map



Florida Department of Transportation  
District 5

Volusia County Site 1A  
Volusia County, Florida

USGS  
TOPOGRAPHIC MAP

FIGURE  
6

**Table 1: Land Use within Volusia County Site 1A Project Area**

FLUCFCS CODE	FLUCFCS DESCRIPTION	APPROXIMATE AREA (ac)
411	Pine Flatwoods	13
510	Streams and Waterways	< 1
611	Bay Swamps	24
617	Mixed Wetland Hardwoods	< 1
630	Wetland Forested Mixed	13
631	Wetland Scrub	21
641	Freshwater Marshes	2
814	Roads and Highways	4

Upland Forests (FLUCFCS 400)

Upland forests consist of upland areas which support a tree canopy closure of ten percent or more and includes both xeric and mesic forest communities. Upland forests are located sporadically throughout the project site and include Pine Flatwoods (FLUCFCS 411). The canopy consists of slash pine (*Pinus elliottii*), longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), and scattered loblolly bay (*Gordonia lasianthus*). Observed understory and groundcover species include saw palmetto (*Serenoa repens*), American beautyberry (*Callicarpa americana*), bracken fern (*Pteridium aquilinum*), ragweed (*Ambrosia artemisiifolia*), and dog fennel (*Eupatorium capillifolium*). These upland forests provide valuable habitat for listed and common wildlife species, including connectivity to expansive undeveloped habitats which are important to wildlife movement within the corridor.

Water (FLUCFCS 500)

Water consists of areas within the land mass of the United States that are predominantly or persistently water covered. This includes lakes, streams, waterways, and canals. Water occurring within the project area consists of permitted retention swales associated with the construction of I-4 (FLUCFCS 510). These areas provide sub-optimal foraging habitat for wading birds.

Wetlands (FLUCFCS 600)

Wetlands are areas where the water table is at, near, or above the land surface for a significant portion of most years. This category includes forested and non-forested wetlands. Wetlands occurring within the project area include Bay Swamps (FLUCFCS 611), Mixed Wetland Hardwoods (FLUCFCS 617), Wetland Forested Mixed (FLUCFCS 630), Wetland Scrub (631), and Freshwater Marshes (641). The forested wetlands within the project area have a canopy consisting of loblolly bay, longleaf pine, blackgum (*Nyssa sylvatica*), bald cypress (*Taxodium distichum*), pond cypress (*Taxodium ascendens*), red maple (*Acer rubrum*), and cabbage palm. Understory and groundcover species include wax myrtle (*Morella cerifera*), saltbush (*Baccharis halimifolia*), Carolina willow (*Salix caroliniana*), primrose willow (*Ludwigia mexicana*), elderberry (*Sambucus canadensis*), Virginia chain fern (*Woodwardia virginica*), maidencane (*Panicum hemitomom*), chalky bluestem (*Andropogon virginicus*), St. John's Wort (*Hypericum* spp.), frog's bit (*Limnobium spongia*), marsh mermaidweed (*Proserpinaca palustris*), bogbutton (*Lachnocaulon anceps*), giant whitetop starrush (*Rhynchospora latifolia*), yellow-eyed grass (*Xyris* spp.), meadowbeauty

(*Rhexia* spp.), and rose gentian (*Sabatia* spp.). The Freshwater Marsh vegetative community is dominated by maidencane. These wetlands provide valuable habitat for listed species and common wildlife species, including connectivity to large tracks of undeveloped land which are important to wildlife movement within the corridor.

Transportation, Communication, and Utilities (FLUCFCS 800) Transportation facilities are used for the movement of people and goods and are major influences on land. Communications includes airwave communications, radar, and television antennas with associated structures. Utilities usually include power-generating facilities and water treatment plants. Transportation lands within the project area consist of Roads and Highways (FLUCFCS 814). These areas generally contain little vegetation; however, the ROW may provide some foraging habitat for listed species and common wildlife.

### 1.4.2 Soils

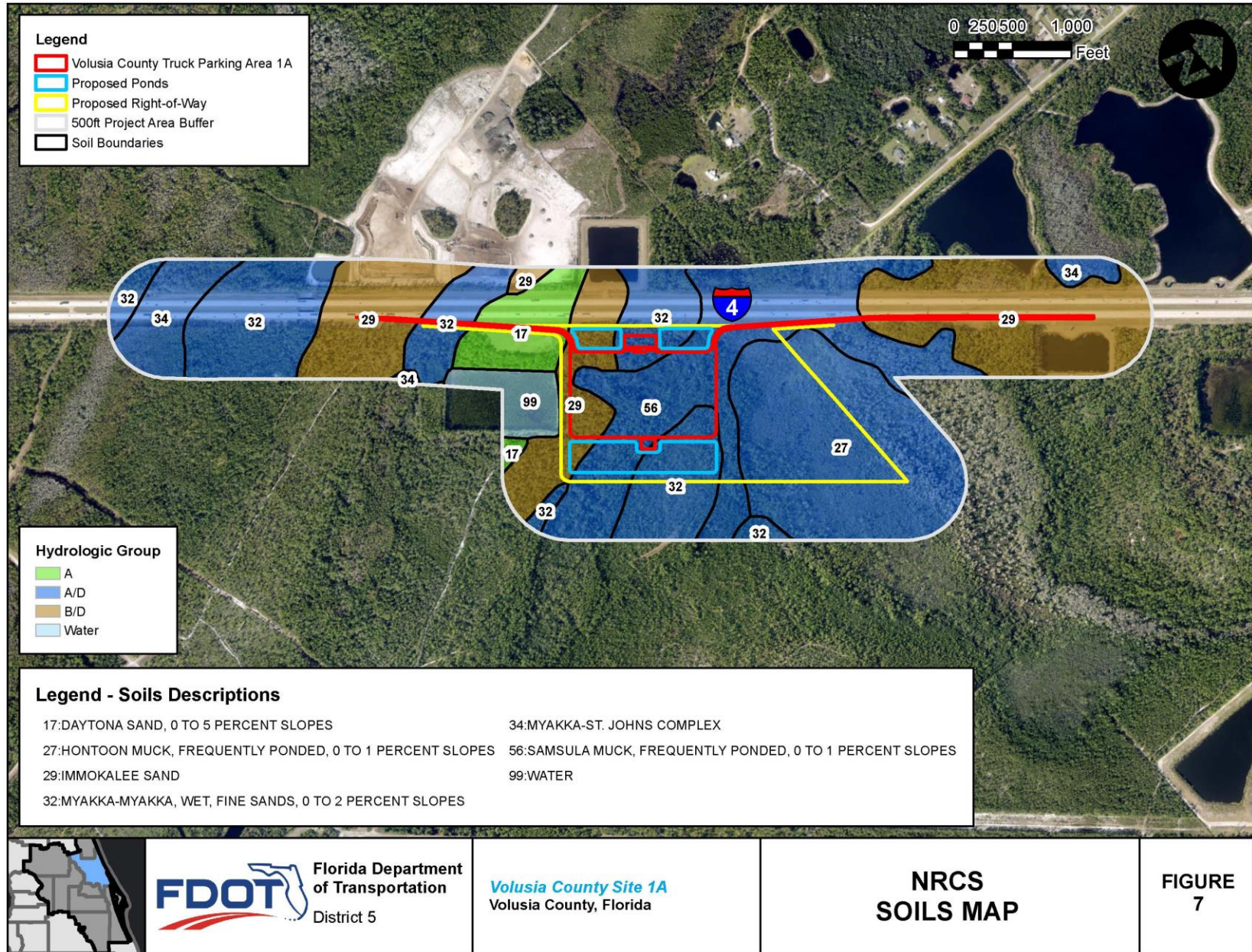
The NRCS Soil Survey of Volusia County, Florida (1980) and Geographic Information System (GIS) data provided by NRCS were reviewed to determine the soil types and characteristics within the Volusia County Site 1A. There are six soil types within the proposed parking facility area (**Figure 7**), including five hydric soil types that can support wetlands. The soils encountered within the project limits belong to Hydrologic Soil Group (HSG) A and A/D. For soils assigned a dual HSG, the first letter applies to the drained condition and the second to the undrained condition. HSG A consists of deep, well to excessively well-drained sand or gravel soils. HSG B consists of moderately well drained soils that have moderately fine to moderately coarse texture. HSG D consists of soils with permanently high-water tables and often indicative of wetlands or depressions. The soil types present within the project ROW are summarized in **Table 2**.

**Table 2: Soil Types within Volusia County Site 1A**

MAP UNIT SYMBOL	NRCS SOIL NAME	DRAINAGE CLASS	DEPTH TO WATER TABLE	HYDROLOGIC SOIL GROUP
17	Daytona Sand, 0 to 5 percent slopes	Moderately Well Drained	42-60 inches	A
27	Hontoon Muck, frequently ponded, 0 to 1 percent slopes	Very Poorly Drained	About 0 inches	A/D
29	Immokalee Sand	Poorly Drained	6-18 inches	B/D
32	Myakka-Myakka, Wet, Fine Sands, 0 to 2 percent slopes	Poorly Drained	6-18 inches	A/D
34	Myakka-St. Johns Complex	Very Poorly Drained	0 inches	A/D
56	Samsula Muck, frequently ponded, 0 to 1 percent slopes	Very Poorly Drained	0 inches	A/D



Figure 7: NRCS Soils Map





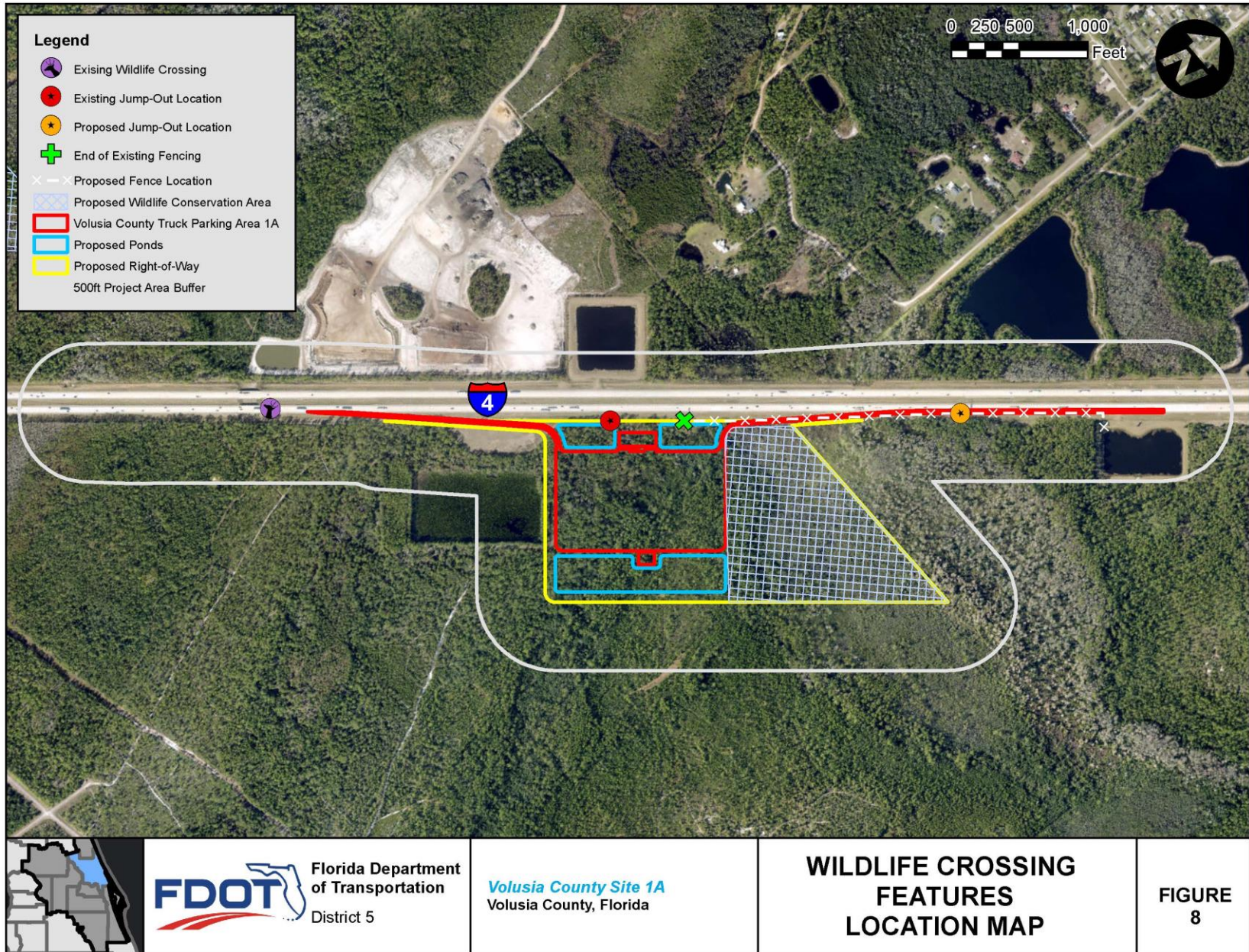
### 1.4.3 Natural Features

No other significant natural features were identified within the limits of the project including special aquatic sites, sanctuaries, refuges, Wild and Scenic Rivers, Aquatic Preserves, and Outstanding Florida Waters; nor does the project provide designated Critical Habitat or Essential Fish Habitat to federally protected or managed species.

### 1.4.4 Wildlife Crossing

This portion of I-4 was historically prone to wildlife-vehicle collisions, particularly with black bears. No fewer than 23 black bears were struck and killed by vehicles along this segment between 1994 and 2006. To mitigate future impacts, FDOT designed, permitted (SJRWMD Permit No. 64105-5), and constructed two large (> 100 ft wide) wildlife crossing structures and a pair of 25-foot ledges under the Tomoka River bridge. These crossing structures are large enough to accommodate bears and other large mammals. Ten (10) miles of existing wildlife fencing preclude wildlife from entering the road corridor. A permit modification (SJRWMD Permit No. 64105-12) further improved wildlife mobility by adding six dry culvert crossings, jump-outs, and four-foot high "herp" mesh to the wildlife fencing. A large crossing, a jump-out, and fencing occur in the Volusia County Site 1A project area. **Figure 8** provides the location of the existing wildlife crossing features.

Figure 8: Wildlife Crossing Features Map





## SECTION 2 – PROTECTED SPECIES AND HABITAT

Ecologists conducted a desktop analysis and a field review to determine whether protected species occur or have the potential to occur within the Volusia County Site 1A study area. This analysis was performed consistent with the Protected Species and Habitat chapter of the PD&E Manual. The term protected species refers to those species that are protected by law, regulation, or rule. Specifically, the term protected species refers to those species listed under the ESA of 1973, as amended; those species listed under Florida’s Endangered and Threatened Species List, Chapter 68A-27, F.A.C.; or those species listed under the Preservation of Native Flora of Florida, Chapter 5B-40, FAC. All federally listed species under the ESA of 1973 are also considered to be state listed species.

### 2.1 – Data Collection and Field Survey Methodology

The study methodology included GIS analyses, agency database searches, general field reviews, and species-specific surveys of the site. The following lists the data sources utilized for review:

- FNAI Biodiversity Matrix Map Server (<https://www.fnai.org/biodiversity-matrix-intro>)
- USFWS National Wetlands Inventory (NWI) Maps (<https://www.fws.gov/wetlands/data/mapper.html>)
- USFWS CA and Critical Habitat Maps (<https://crithab.fws.gov/>)
- USFWS Wood Stork Nesting Colonies and CFA Maps
- NMFS EFH Maps (<https://www.habitat.noaa.gov/protection/efh/habitatmapper.html>)
- USFWS Environmental Conservation Online System (ECOS) (<https://ecos.fws.gov/ecp/>)
- USFWS Information for Planning and Consultation (IPac) (<https://ipac.ecosphere.fws.gov/>)
- Florida Fish and Wildlife Conservation Commission (FWC) Scrub-Jay Observation Maps (<http://myfwc.com/research/gis/>)
- FWC Bald Eagle Nesting Territory Maps (<https://publictemp.myfwc.com/FWRI/EagleNests/nestlocator.aspx>)
- Audubon Florida EagleWatch Nest Website (<https://cbop.audubon.org/conservation/about-eaglewatch-program>)
- FWC Wildlife Occurrence Maps (<http://geodata.myfwc.com/datasets>)
- FWC Species Action Plans (<http://myfwc.com/wildlifehabitats/imperiled/species-action-plans/>)

Ecologists familiar with Florida’s protected species and natural habitats conducted field reviews in June 2022 and April and May 2023. The general field surveys were performed utilizing pedestrian transects conducted during daylight hours to document the presence or evidence of protected species utilizing the site. The ecologists also documented habitat types and predominant plant species, including general wetland limits, during the field review. Species specific surveys for Rugel’s pawpaw and general listed plant surveys were conducted in April and

May 2023 utilizing pedestrian transects. Protected species occurrences and habitat are shown in **Figure 9**. Photographs of the Volusia County Site 1A are included in **Appendix A**.

A total of 31 protected species have the potential to occur in the project area, according to the information obtained during the desktop analysis. These include the 11 bird, two (2) mammal, three (3) reptile, and 15 plant species listed in **Table 3**. Ecologists determined each species' potential occurrence in the study area based on its habitat preference and distribution, existing site conditions, historical data, and field survey results. The likelihood of occurrence was rated as no, low, moderate, high, or observed. Definitions for likelihood of occurrence are provided below:

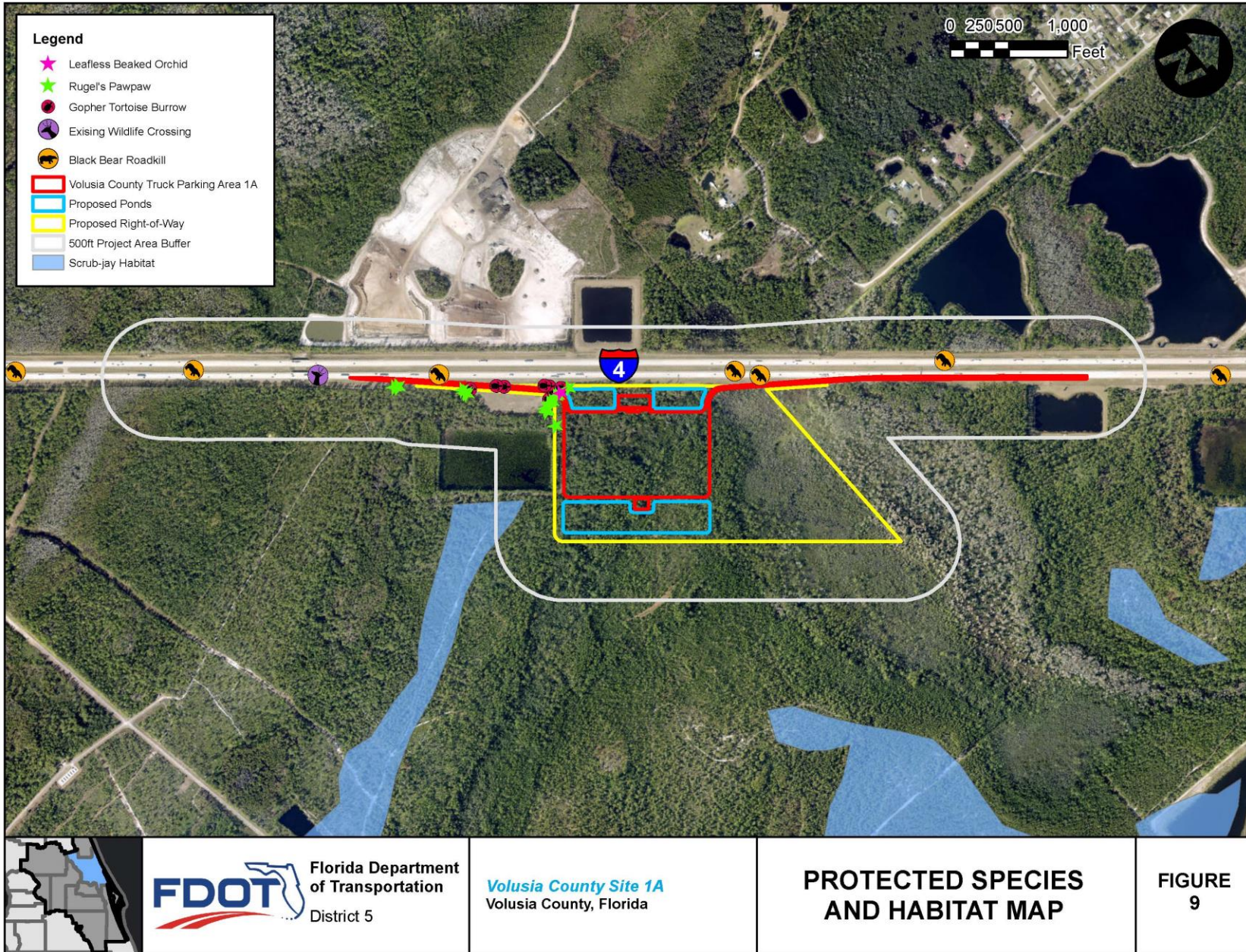
- No – Species with a no likelihood of occurrence are those species that are known to occur in Volusia County but have specialized habitat requirements that do not occur in the project area.
- Low – Species with a low likelihood of occurrence are those species that are known to occur in Volusia County, limited suitable habitat occurs within the project site, but there are no known adjacent populations, limited dispersal abilities, and the species has not been observed or documented within the site.
- Moderate – Species with a moderate likelihood of occurrence are those species that are known to occur in Volusia County, for which suitable habitat occurs within the project site, but there are no positive indications to verify presence, and the species has not been observed in or documented within the site
- High – Species with a high likelihood of occurrence are those species that are known to occur in Volusia County, are suspected in the project area based on the existence of suitable habitat within the project site, are known to occur adjacent to the site, or have been previously documented in the project vicinity.
- Observed – the species has been observed during this evaluation.

**Table 3: Protected Species with Potential to Occur in the Volusia County Site 1A Study Area**

Scientific Name	Common Name	USFWS	FWC	FDACS	Potential Occurrence
<b>Birds</b>					
<i>Aphelocoma coerulescens</i>	Florida scrub jay	T	T		No
<i>Athene cunicularia floridana</i>	Burrowing owl		T		Low
<i>Egretta caerulea</i>	Little blue heron		T		Low
<i>Egretta tricolor</i>	Tricolored heron		T		Low
<i>Falco sparverius Paulus</i>	Southeastern American kestrel		T		Moderate
<i>Grus canadensis pratensis</i>	Florida sandhill crane		T		Low
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA/ MBTA	M		Moderate
<i>Laterallus jamaicensis</i>	Eastern black rail	T	T		Low
<i>Mycteria americana</i>	Wood stork	T	T		Low
<i>Platalea ajaja</i>	Roseate spoonbill		T		No
<i>Rostrhamus sociabilis plumbeus</i>	Everglade snail kite	E	E		No
<b>Mammals</b>					
<i>Perimyotis subflavus</i>	Tricolored bat	C			High
<i>Ursus americanus floridanus</i>	Florida black bear		M		High
<b>Reptiles</b>					
<i>Drymarchon corais couperi</i>	Eastern indigo snake	T	T		Moderate
<i>Gopherus polyphemus</i>	Gopher tortoise		T		Observed
<i>Pituophis melanoleucus mugitis</i>	Florida pine snake		T		Moderate
<b>Plants</b>					
<i>Calopogon multiflorus</i>	Many-flowered grass-pink			T	Low
<i>Carex chapmannii</i>	Chapman's sedge			T	Low
<i>Centrosema Arenicola</i>	Sand butterfly pea			E	Low
<i>Conradina grandiflora</i>	Large-flowered rosemary			T	Low
<i>Deeringothamnus rugelii</i>	Rugel's pawpaw	E		E	Observed
<i>Illicium parviflorum</i>	Star anise			E	Low
<i>Lechea cernua</i>	Nodding pinweed			T	Low
<i>Matelea floridana</i>	Florida spiny-pod			E	Low
<i>Nemastylis floridana</i>	Celestial lily			E	Low
<i>Nolina atopocarpa</i>	Florida beargrass			T	Low
<i>Pteroglossaspis ecristata</i>	Giant orchid			T	Low
<i>Pycnanthemum floridanum</i>	Florida mountain mint			T	Low
<i>Sacoila lanceolata</i> var. <i>lanceolata</i>	Leafless beaked orchid			T	Observed
<i>Salix floridana</i>	Florida willow			E	Low
<i>Sarracenia minor</i>	Hooded pitcher plant			T	Low
<b>E</b> = Endangered <b>T</b> = Threatened <b>C</b> = Candidate <b>M</b> = Managed <b>T/S</b> = Threatened due to Similarity of Appearance <b>BGEPA</b> = Bald and Golden Eagle Protection Act <b>MBTA</b> = Migratory Bird Treaty Act <b>FDACS</b> = Florida Department of Agriculture and Consumer Services <b>FWC</b> = Florida Fish and Wildlife Conservation Commission <b>USFWS</b> = United States Fish and Wildlife Service					



Figure 9: Protected Species and Habitat





## 2.2 – Federally Listed Species

The Volusia County Site 1A was evaluated for listed species and suitable habitat, USFWS consultation areas (CA), and nesting sites. The project site is located within the USFWS CA for the Everglade snail kite and Florida scrub-jay. According to USFWS's IPaC resource list, the site is within the range and may also support other federally-protected and ESA candidate species including the wood stork, eastern black rail, eastern indigo snake, tricolored bat (a candidate species), and Rugel's pawpaw. The project area does not contain USFWS designated critical habitat for any species. The project will therefore not result in the destruction or adverse modification of critical habitat.

### 2.2.1 Eastern Black Rail

The eastern black rail is listed by the USFWS as threatened due to habitat loss, destruction, and modification; sea level rise and tidal flooding, and incompatible land management. They are wetland-dependent birds and are primarily associated with herbaceous, persistent emergent plant cover. They require dense overhead perennial herbaceous cover with underlying moist to saturated soils with or adjacent to very shallow water.

No suitable habitat was observed for the eastern black rail during the field survey. The wetlands on the site do not consist of the marsh habitat required for this species. No individuals were observed during the survey, nor have been historically documented within the area according to FNAI. Due to the lack of suitable habitat, the proposed project will have "**no effect**" on the eastern black rail.

### 2.2.2 Eastern Indigo Snake

The Eastern indigo snake is listed by the USFWS as threatened due to over-collecting for the pet trade as well as habitat loss and fragmentation and is widely distributed throughout central and south Florida. They occur in a broad range of habitats, from scrub and sandhill to wet prairies and mangrove swamps. Indigo snakes are most closely associated with habitats occupied by gopher tortoises, whose burrows provide refugia from cold or desiccating conditions, and they generally require large tracks of land to survive.

Suitable habitat for the indigo snake was observed within the project site. No indigo snakes were observed during the field reviews. Gopher tortoise burrows were observed within and adjacent to the project footprint. To address any potential effects to the Eastern indigo snake, all potentially occupied gopher tortoise burrows within the limits of construction will be excavated and the *Standard Protection Measures for the Indigo Snake (Appendix B)* will be implemented during construction activities. According to the *Eastern Indigo Snake Effect Determination Key (Appendix C)*, the proposed project will result in the following sequential determination: A>B>C>D>E = "**may affect, but is not likely to adversely affect**" the Eastern indigo snake.

### 2.2.3 Everglade Snail Kite

The portion of the study area is located in the USFWS Everglade snail kite CA. The Everglade snail kite is classified as endangered due to a "very small population and an increasingly limited amount of fresh marsh with sufficient water to ensure an adequate supply of snails". The USFWS has designated critical habitat for snail kites, which consists mostly of marshes near south Florida. The Everglade snail kite is a non-migratory subspecies only found in Florida, particularly near

large watersheds (e.g., Everglades, Lake Okeechobee) and the shallow vegetated edges of lakes that support apple snail, the primary component of the snail kite's diet.

The project site lacks waterbodies suitable for snails and snail kites. According to FNAI, no individuals have been historically documented in the project vicinity. No suitable habitat and no individuals were observed during the field survey; therefore, the proposed project will have "**no effect**" on the Everglade snail kite.

#### 2.2.4 Florida Scrub-jay

The entire project is located within the USFWS Florida scrub-jay CA. The scrub-jay is classified as threatened due to habitat loss, degradation, and fragmentation. They are restricted to xeric scrub habitats with optimal habitat consisting of fire-dominated, low-growing oak scrub found on well-drained sandy soils.

The project site is densely forested, including forested wetland systems and does not contain the xeric scrub habitats required by the scrub-jay. According to the Florida Scrub-Jay Statewide Map, 1992-1993, the nearest scrub-jays were documented more than 6 miles east of the project limits in Port Orange. However, no scrub-jay occurrences have been documented in the project area according to FNAI. No scrub-jays or suitable habitat was observed during the field survey; therefore, the proposed project will have "**no effect**" on the Florida scrub-jay.

#### 2.2.5 Tricolored Bat

The tricolored bat is a proposed candidate species for federal listing. It is Florida's smallest bat and distinguished by its unique tricolored fur and pink forearms that contrast their black wings. This wide-ranging species is found throughout the central and eastern United States, and portions of Canada, Mexico, and Central America. Typically hibernating in caves and mines during the winter, tricolored bats in the southern U.S. have an increased utilization of culverts as hibernacula, with shorter hibernation durations and increased winter activity. The tricolored bat is mostly associated with forested habitats and requires habitat suitable for roosting, foraging, and commuting between winter and summer habitats. Roosting singly or in small groups, the tricolored bat prefers to roost in caves, tree foliage, tree cavities, Spanish moss, and man-made structures such as buildings and culverts. They form summer colonies in forested habitats, utilizing cavities, bark, and foliage. The maternity season in Florida is May - June. They forage most commonly over watercourses and along forest edges.

Suitable roosting and foraging habitat was observed throughout the proposed project area. Additionally, the surrounding area provides habitat and an undisturbed corridor for commuting between habitats. While the proposed project will impact suitable roosting and foraging habitat through the removal of approximately 35 acres of forested habitat, the vast majority of suitable habitat will remain, including the proposed protected wildlife conservation area. Therefore, no adverse impacts are anticipated. FDOT will continue consultation with the USFWS regarding the tricolored bat listing status and potential impacts to this species during the design and permitting phase. If the listing status of the tri-colored bat is elevated by USFWS to threatened or endangered and the proposed site is located within the consultation area, FDOT commits to re-initiating consultation with the USFWS to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the tri-colored bat.



### 2.2.6 Wood Stork

The wood stork is listed by the USFWS as threatened due to the reduction in food base attributed to the loss of suitable foraging habitat (SFH). Wood storks are associated with freshwater and estuarine wetlands that are used for nesting, roosting, and foraging. Nesting typically occurs in medium to tall trees that occur in stands located in swamps or islands surrounded by open water. Preferred foraging habitat includes wetlands with a mosaic of submerged and/or emergent aquatic vegetation and shallow open-water areas. Particularly attractive feeding sites are depressions in marshes or swamps where fish become concentrated during periods of receding water levels.

According to the USFWS's North Florida Ecological Service Office, suitable foraging habitat within 15 miles of a wood stork nesting colony is considered to be wood stork CFAs. The proposed project is not located within the CFA of a known colony. The project will result in minimal impacts of approximately 0.31 acres to SFH consisting of roadside ditches. According to the *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida (Appendix D)*, the proposed project will result in the following sequential determination: A>B>C = "**may affect, but is not likely to adversely affect**" the wood stork.

### 2.2.7 Rugel's Pawpaw

Rugel's pawpaw has been listed as endangered since 1986, in large part due to clearing of its habitats. This plant is part of the custard apple family and occurs only in Volusia County, including the Port Orange City Forest and Tiger Bay State Forest near the project area. It responds well to disturbance, flowering and producing fruit in response to fire and thrives in flatwoods converted to cattle pasture with bahiagrass.

Due to suitable habitat within the project area, a species specific survey was conducted for the Rugel's pawpaw. The survey was conducted in April and May of 2023 during the flowering season. Ecologists marked the boundaries of suitable habitat and identified survey blocks in the field. Pedestrian surveys were conducted via transects spaced approximately five to ten meters apart, depending on the groundcover. The survey blocks and transect map are included in **Appendix E**. Two survey events were conducted in each block. The first event occurred in April, while the second event occurred in May. Ecologists observed Rugel's pawpaw within the project footprint during the survey events. 17 individual plants were identified as a result of the survey. FDOT will survey for Rugel's pawpaw and relocate any individuals found within the project footprint prior to construction. Preliminary coordination has occurred with 2 potential relocation sites: Lake Monroe Conservation Area and D Ranch Preserve. Therefore, the proposed project "**may affect, but is not likely to adversely affect**" the Rugel's pawpaw.

## 2.3 – State Listed Species

The FWC maintains the list of animals designated as federally endangered, federally threatened, or state threatened. While the USFWS has primary responsibility for federally endangered or threatened species in Florida, the FWC works as a cooperating agency to help conserve these species and other imperiled species found in the state. Some listed and non-listed species are considered 'managed species' because of the well-developed programs that address their species' conservation, management, or recovery. The FWC has developed a comprehensive management plan and species action plans for state-listed species.

### 2.3.1 Florida Burrowing Owl

The FWC listed the Florida burrowing owl as threatened due to loss of native habitat, dependence on altered habitat, and lack of regulatory protections. The burrowing owl is a non-migratory resident of Florida and maintains home ranges and territories while nesting. Burrowing owls inhabit upland areas that are sparsely vegetated. Natural habitats include dry prairie and sandhill, but they will make use of ruderal areas such as pastures, airports, parks, and road rights-of-way because much of their native habitat has been altered or converted to other uses.

Suitable habitat was not observed within the project site and no burrowing owls were observed during the field surveys. Burrowing owls dig their own burrows but are known to utilize gopher tortoise burrows and armadillo burrows as well. Gopher tortoise burrows were observed within the existing ROW and previous rest area site within the project limits. While this portion of the site remains non-forested, it does not provide the sufficient foraging habitat required to support burrowing owls. Based on this information, there is **"no effect anticipated"** for the burrowing owl from the proposed project.

### 2.3.2 Florida Pine Snake

The Florida pine snake is listed by the FWC as threatened due to habitat loss, fragmentation, and degradation to upland habitats from development and fire suppression. They inhabit areas that feature well-drained sandy soils with a moderate to open canopy. Preferred habitats include sandhill and former sandhill, including old fields and pastures, sand pine scrub, and scrubby flatwoods. The pine snake often coexists with gopher tortoises and pocket gophers, spending the majority of its time underground.

No pine snakes were observed during the field surveys. Suitable habitat was observed within the site. Current FWC guidelines for the relocation of the Florida pine snake state that any incidentally captured pine snake should be released on-site or allowed to escape unharmed if habitat will remain post-development. Based on this information and existing conservation measures during gopher tortoise relation efforts, **"no adverse effect is anticipated"** for the Florida pine snake resulting from the proposed project.

### 2.3.3 Florida Sandhill Crane

The FWC listed the Florida sandhill crane as threatened due to the loss and degradation to nesting and foraging habitat from development and hydrologic alteration to their potential nesting habitat. It is widely distributed throughout most of peninsular Florida. Sandhill cranes rely on shallow marshes for roosting and nesting and open upland and wetland habitats for foraging.

No sandhill cranes were observed during the field survey. Suitable foraging habitat is mostly lacking in the project area due to dense forested vegetation; however, no nesting habitat or activity was observed in the area. Due to the lack of suitable habitat, **"no adverse effect is anticipated"** for the Florida sandhill crane resulting from the proposed project.

### 2.3.4 Gopher Tortoise

The gopher tortoise is listed as threatened by the FWC. They occur in the southeastern Coastal Plain from Louisiana to South Carolina; the largest portion of the total population is located in Florida. Gopher tortoises require well-drained, sandy soils for burrowing and nest construction, with a generally open canopy and an abundance of herbaceous groundcover, particularly

broadleaf grasses, wiregrass (*Aristida stricta*), legumes, and fruits for foraging. Gopher tortoises can be found in most types of upland communities, including disturbed areas and pastures.

Suitable gopher tortoise habitat was observed within the project site. Multiple gopher tortoises and gopher tortoise burrows were observed during the field surveys; however, species-specific surveys for tortoises were not performed. A 100% gopher tortoise survey will be conducted in the project area within 90 days of construction. A relocation permit from FWC will be required if tortoises are present within 25 feet of any permanent or temporary construction area. Based on the information provided above, **"no adverse effect is anticipated"** for the gopher tortoise.

### 2.3.5 Southeastern American Kestrel

The Southeastern American kestrel is listed by the FWC as threatened due to habitat loss, degradation, and fragmentation, as well as lack of regulatory protection. Preferred habitat consists of fire-maintained sandhill and open pine savannah. They utilize open pine habitats, woodland edges, prairies, pastures, and other agricultural lands. The Southeastern American kestrel is a secondary cavity nester, typically nesting in tall trees or utility poles.

No kestrels or nesting cavities were observed during the field review but pockets of suitable foraging and perching habitat exist in the project area. Due to the lack of snags and dead trees, it is unlikely that kestrels are utilizing the project site for nesting. Due to the lack of open canopy and suitable nesting habitat, **"no adverse effect is anticipated"** for the Southeastern American kestrel resulting from the proposed project.

### 2.3.6 Imperiled Wading Birds

Three wading birds have the potential to occur in the project area. These species are the little blue heron, roseate spoonbill, and tricolored heron. These species are listed by the FWC as threatened due to habitat loss and degradation of habitat, particularly from hydrologic alterations to their essential foraging areas. These species are widely distributed throughout peninsular Florida. Wading birds depend on healthy wetlands and vegetated areas suitable for resting and breeding which are near foraging areas. They forage in freshwater, brackish water, and saltwater habitats. They tend to nest in multi-species colonies of a variety of woody vegetation types including cypress, willow, maple, black mangrove, and cabbage palm.

Suitable nesting habitat for wading birds was observed within or adjacent to the site, mostly in large slough systems. Foraging habitat was lacking. No nesting activity was observed within the project area at the time, and there was no evidence that nesting occurs within 330 feet of the project site. According to the FWC Wading Bird Rookery Data, the nearest rookery is more than 8 miles west of the project area, near Lake Daugharty. Impacts to wetlands will be mitigated and provide long-term protection for aquatic and upland habitats used by wading birds. Based on the information provided, **"no effect is anticipated"** for the roseate spoonbill and **"no adverse effect is anticipated"** for other state-listed wading birds resulting from the proposed project.

### 2.3.7 State Listed Plant Species

Through regulation by the Florida Department of Agriculture and Consumer Services (FDACS) Division of Plant Industry, Florida protects plant species native to the state that are endangered, threatened, or commercially exploited. The Florida Regulated Plant Index includes all plants listed as endangered, threatened, or commercially exploited as defined in Chapter 5B-40.0055, F.A.C.

According to the FNAI and FDACS, 14 state protected plant species have the potential to occur in the project area (**Table 3**). However, the FNAI database listed no Elemental Occurrences of protected plants within the study area. Many of these plant species occur in open sandy habitats maintained by periodic fire, such as high pine, turkey oak barrens, sandhill, and xeric scrub. These habits do not occur within the project footprint. Other state listed species prefer mesic and wetland habitats, including hydric pine flatwoods and wet prairies, which occur on the site.

A general plant survey was conducted in conjunction with the Rugel's pawpaw survey. The survey was conducted in April and May of 2023. Pedestrian transects were utilized to cover the project site in addition to the pawpaw survey transects. One state protected plant species, the leafless beaked orchid, was observed during the plant survey. The leafless beaked orchid is a perennial ground orchid with pubescent coral to brick red flowers. No leaves are present during blooming, which occurs from March through early July. Suitable habitat consists of open, dry to moist habitats, including poorly drained pinelands, pastures, roadside ditches, and open woods in sandy soils. **Figure 9** shows the location of the one observation. FDOT will coordinate with the FDACS to facilitate the relocation of rare and protected plants within the project footprint, including the leafless beaked orchid. Based on the information provided and the relocation efforts, **"no adverse effect is anticipated"** for the leafless beaked orchid and **"no effect is anticipated"** for other state listed plant species resulting from the proposed project.

## 2.4 – Other Protected Species

### 2.4.1 Bald Eagle

The bald eagle was removed from the ESA in 2007 and Florida's Endangered and Threatened Species list in 2008; however, it remains protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles tend to nest in the tops of very tall trees that provide unobstructed lines of sight to nearby habitats, particularly lakes and other open waters. Because eagles are piscivorous (fish-eating) raptors, nearly all eagles' nests occur within 1.8 miles of water.

According to the FWC's Eagle Nest locator and the Audubon Florida EagleWatch Nest website, a bald eagle nest (VO095) occurs nearly 1 mile from the proposed truck parking facility. The proposed project will have no impact on the bald eagle since the proposed activities are well outside the 660-foot eagle nest protection buffer.

### 2.4.2 Florida Black Bear

The Florida black bear was removed from Florida's Endangered and Threatened Species list in 2012; however, it remains protected under Chapter 68A-4.009 F.A.C., the Florida Black Bear Conservation Plan. The project area is within the abundant range of the Central Bear Management Unit.

The black bear requires large amounts of space for its home range and a variety of forested habitats, including flatwoods, swamps, scrub oak ridges, bayheads, and hammocks for denning and feeding. Self-sustaining populations of bears are generally found on large tracks of contiguous forests with understories of berry-producing shrubs or trees. According to the most current FWC telemetry data, bears occur in the vicinity of the project area and currently use existing wildlife crossings (underpasses) to migrate under I-4. The Florida black bear may be impacted by the proposed project. Garbage, food, and other debris within the project work area during

construction will be removed daily or stored in bear proof containers to prevent these items from attracting bears.

### 2.4.3 Wildlife Crossing Alterations and Proposed Conservation Area

The existing wildlife crossing features within the Volusia County Site 1A project area include a large wildlife crossing, a jump-out, and exclusionary fencing. The existing jump-out located within the truck parking limits will be relocated eastward along the existing FDOT ROW. The limits of the exclusionary fencing will be extended to accommodate the new jump-out location. **Figure 8** provides the location of the existing and proposed wildlife crossing features.

A wildlife conservation area is being proposed to maintain wildlife movement through the existing crossing and provide adequate natural buffers around truck parking areas to reduce potential impacts from noise, vibration, and light. Therefore, the project is unlikely to alter migration patterns for bears and other wildlife that have acclimated to the crossing structures. The wildlife conservation area will be placed under a conservation easement. The dimensions of the conservation area located outside the limits of construction but within the proposed ROW will be coordinated further with regulatory agencies during the design and ROW phases.

Alterations to permitted wildlife crossing structures may require mitigation. The extent of that mitigation remains unknown but could include modifications to existing permits and commitment to replace the functionality of the impacted crossing structures in a new location. Additional coordination with the SJRWMD and other regulatory agencies may be necessary.

## SECTION 3 – WETLANDS AND SURFACE WATERS

Ecologists performed a wetland evaluation of the Volusia County Site 1A project area. The wetland evaluation relied on literature reviews and field surveys to identify the location, approximate extent, and functional value of wetlands in the study area; the potential direct, indirect, or cumulative effects of the project’s actions to those wetlands; and available mitigation options to satisfy permit requirements from regulatory agencies. This wetland evaluation was performed in accordance with the Presidential Executive Order (EO) 11990 (“Protection of Wetlands”); U.S. Department of Transportation Order 5560.1A (“Preservation of Nation’s Wetlands”); and the Wetlands and Other Surface Waters chapter of the FDOT’s PD&E Manual.

### 3.1 – Data Collection and Methodology

The wetland evaluation included GIS analysis, agency database search, and a field survey. This information included SJRWMD land use maps and regulatory GIS data. Other information included but was not limited to:

- FDOT FLUCFCS Manual
- USFWS National Wetlands Inventory Maps (<https://www.fws.gov/wetlands/data/mapper.html>)
- USGS Topographic Maps (<https://viewer.nationalmap.gov/launch/>)
- NRCS Soil Maps (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>)
- FNAI Cooperative Land Cover Maps (<https://www.fnai.org/services/coop-land-cover>)

Ecologists familiar with Florida’s natural plant communities conducted field surveys on June 16 and 23, 2022, to identify wetland vegetation, wetland hydrology, and hydrologic indicators to determine the presence of wetlands and other surface waters as part of the wetland evaluation. A formal wetland delineation to determine jurisdictional boundaries was not performed; however, the general limits of wetlands and other surface waters were identified in the field using the criteria established in Rule 62-340, F.A.C, and the US Army Corps of Engineers (USACE) Wetland Delineation Manual and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region. Additionally, wetland boundaries were identified by existing environmental permits associated with the site. Wetlands and surface waters were classified per the FLUCFCS and the Classification of Wetlands and Deepwater Habitats of the United States [National Wetlands Inventory (NWI)]. The Uniform Mitigation Assessment Method (UMAM) was utilized, per Chapter 62-345, F.A.C, for the functional assessment of wetlands within the site.

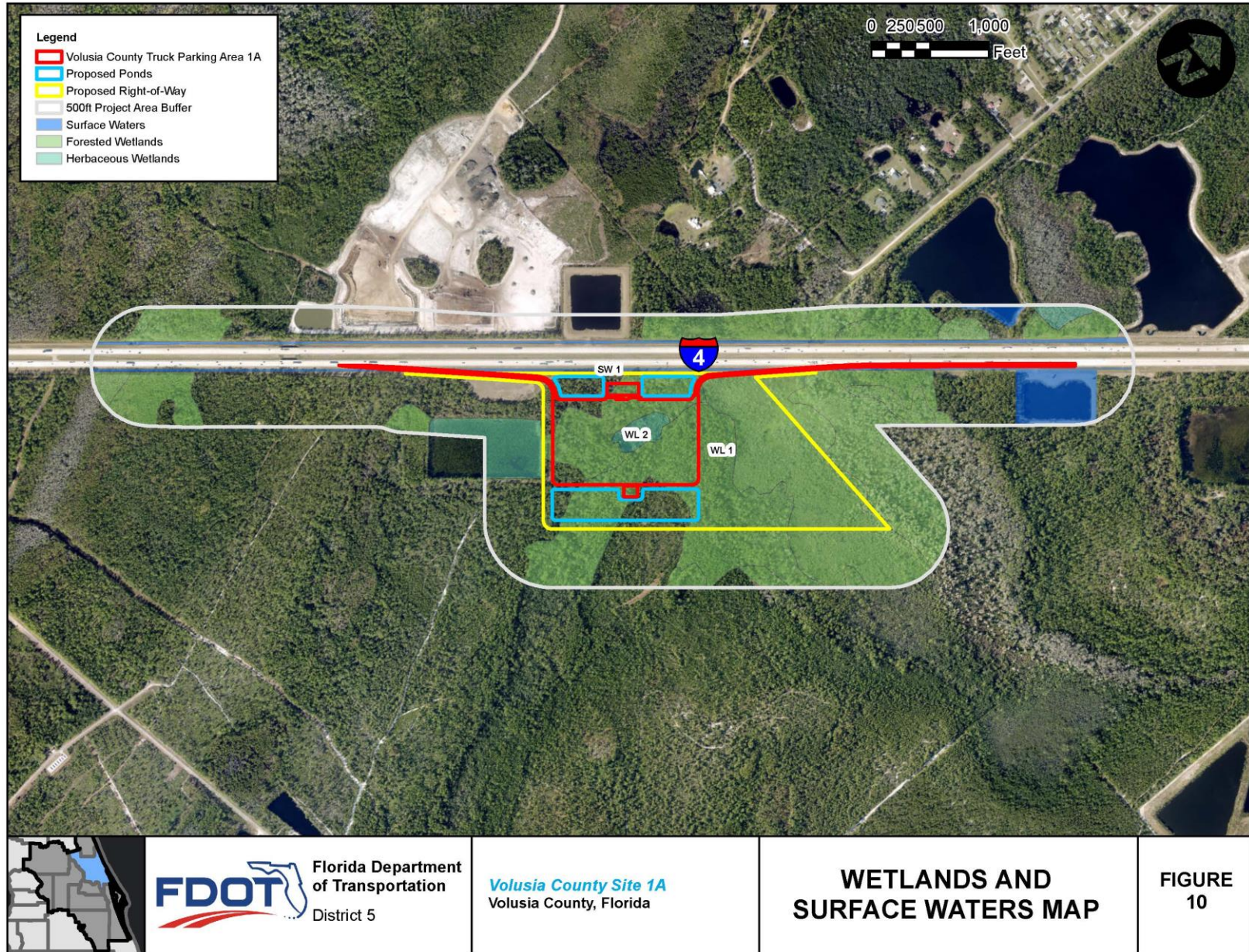
### 3.2 – Wetlands and Surface Waters

Ecologists identified two wetlands and one surface water within or adjacent to the project limits of the proposed project site. The following section includes a brief description of each wetland. **Figure 10** depicts the locations of the wetlands within the site. The proposed wildlife conservation area (**Figure 8**) will not incur impacts to wetlands. These wetlands will be protected under a conservation easement as part of the proposed wildlife conservation area. **Table 4** provides details identifying each wetland, including the wetland number, FLUCFCS classification,

and NWI classification. FLUCFCS classifications are based on the results of the data analysis and field reviews of the study area. NWI classifications were not altered and are based on the listed classification of the nearest NWI wetland system as applicable.



Figure 10: Wetlands and Surface Waters Map





**Table 4: Wetlands and Surface Waters in the Study Area**

Wetland Number	FLUCFCS Classification	USFWS NWI Classification	Description
WL 1	611/617/630/631	PFO1/3Cd / PSS1Fd	Bay Swamps/Mixed Wetland Hardwoods/Wetland Forested Mixed/Wetland Scrub
WL 2	641	PSS1Fd	Freshwater Marshes
SW 1	510	N/A	Streams and Waterways (Roadside Ditch)

### 3.2.1 Wetland 1

FLUCFCS: 611, Bay Swamps  
 FLUCFCS: 617, Mixed Wetland Hardwoods  
 FLUCFCS: 630, Wetland Forested Mixed  
 FLUCFCS: 631, Wetland Scrub  
 NWI: PFO1/3Cd, PSS1Fd

Wetland 1 (WL 1) is located throughout the Volusia County Site 1A project area and is comprised of both freshwater forested systems. The canopy cover includes a diverse mix of loblolly bay, slash pine, longleaf pine, bald cypress, black gum, red maple, and cabbage palm. The subcanopy layer consists of wax myrtle, saltbush, gallberry, highbush blueberry (*Vaccinium corymbosum*), buttonbush, saw palmetto, elderberry, and Brazilian pepper. The groundcover includes Virginia chain fern, cinnamon fern, gopher apple, maidencane, St. John’s wort, tarflower, netted pawpaw, meadowbeauty, and grapevine.

### 3.2.2 Wetland 2

FLUCFCS: 641 Freshwater Marshes  
 NWI: PSS1Fd

Wetland 2 (WL 2) is located toward the center of the project area. This wetland is an herbaceous wetland system and is located within WL 1, surrounded by forested wetlands. WL 1 and WL 2 are contiguous. WL 2 is dominated by maidencane with other observed vegetation including pickerelweed, yellow-eyed grass, cinnamon fern, blackberry, and St. John’s wort.

### 3.2.3 Surface Water 1

FLUCFCS: 510, Streams and Waterways  
 NWI: Not mapped

Surface Water 1 (SW 1) is a permitted retention swale constructed as part of the stormwater management system for I-4. This swale transports and retains water from the roadway before being conveyed to adjacent wetlands. SW 1 is located along the I-4 ROW near the proposed project site.

### 3.3 – Wetland and Surface Water Impacts

Data collected during the literature review, previous permit history, and field survey were used to evaluate the potential adverse direct and secondary impacts of the project to wetlands and the potential cumulative impacts to those wetlands and surface waters in the project limits. The Truck and Freight Alternative Site Analysis PD&E Study also considered practicable measures to avoid or minimize impacts to wetlands during site selection. The unavoidable adverse impacts will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and United States Code (U.S.C.) §1344. **Table 5** details the proposed wetland and surface water impacts.

**Table 5: Proposed Wetland and Surface Water Impacts**

Wetland ID	FLUCFCS	Wetland Descriptions	Direct Impact (ac.)	Secondary Impact (ac)	Total Impact (ac.)
WL 1	611/617/ 630/631	Bay Swamps/Mixed Wetland Hardwoods/Wetland Forested Mixed/Wetland Scrub	25.89	6.88	32.77
WL 2	641	Freshwater Marshes	2.16	0	2.16
SW 1	510	Streams and Waterways	0.31	0	0.31
<b>Total Wetland and Surface Water Impacts</b>					<b>35.24</b>

#### 3.3.1 Direct Impacts

The proposed project will result in approximately 28.05 acres of direct impacts to wetlands and 0.31 acres of direct impacts to surface waters. Final direct impacts will be determined during permitting and assessed accordingly.

#### 3.3.2 Secondary Impacts

Secondary impacts were assessed at a distance of 100 feet beyond any direct wetland impacts. Wildlife fencing will be installed around the project site, reducing the effects of secondary impacts. Natural buffers are proposed around the fenced area to maintain wildlife connectivity surrounding the site. Additionally, lighting provided for the truck parking areas will be directed inward with shields to minimize light pollution into adjacent natural areas. The proposed project will result in approximately 6.88 acres of secondary impacts to wetlands. Final secondary impacts will be determined during permitting and assessed accordingly.

#### 3.3.3 Cumulative Impacts

Cumulative impacts can result from incremental but collectively significant impacts within the basin over time. In order to provide reasonable assurances that the project will not cause unacceptable cumulative impacts, mitigation for adverse impacts will be provided within the same drainage basin pursuant to Section 373.4137, F.S. Four mitigation banks occur within the same drainage basin as the proposed impacts: Farnton, Lake Swamp, Port Orange, and Tiger Bay. Forested and herbaceous freshwater credits are available through these banks.

### 3.3.4 Avoidance and Minimization

FDOT conducted this PD&E Study to identify potential truck parking locations throughout District Five. The initial screening identified thousands of candidate locations. Additional inspection, screening, and stakeholder coordination reduced the list to seven (7) viable sites. The avoidance and minimization of adverse impacts were considered during site selection of Volusia County Site 1A and will continue to be evaluated during the design and permitting phases of the project. The site was developed to avoid sensitive conservation lands within the Port Orange Mitigation Bank and Longleaf Pine Preserve. The project will be designed to avoid and minimize wetland and protected species habitat impacts to the greatest extent practicable.

### 3.3.5 Wetland Assessment

Two wetlands with the potential to be affected by the proposed project was identified within Volusia County Site 1A. The wetland assessment was conducted in accordance with the UMAM, as described in Chapter 62-345, F.A.C. The UMAM is the state-wide methodology for determining the functional value provided by wetlands and other surface waters and the amount of mitigation required to offset adverse impacts to those areas for regulatory permits. The results of the preliminary UMAM assessment are provided in **Table 6**. UMAM worksheets can be found in **Appendix F**. These values may be refined during the design and permitting phases of the project.

**Table 6: Proposed Functional Loss**

Wetland ID	FLUCFCS	Wetland Type	Impact Type	Impact Area (ac.)	UMAM Delta	Functional Loss
WL 1	611/617/630/631	Forested	Direct	25.89	.80	20.712
			Secondary	6.88	.07	0.459
WL 2	641	Herbaceous	Direct	2.16	.73	1.584
<b>Total Impacts</b>				<b>34.93</b>		<b>22.755</b>

### 3.3.6 Wetlands Finding

The Preferred Alternative was evaluated for impacts to wetlands in accordance with Executive Order (EO) 11990 and USDOT Order 5560.1A. Due to the constraints of the proposed site, it has been determined that no practicable alternative to the proposed construction in wetlands exists. Any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function, therefore the proposed project will have no significant short-term or long-term adverse impacts to wetlands. Based upon the above considerations, it is determined that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

### 3.3.7 Conceptual Mitigation

As proposed, the project will directly impact 28.05 acres of jurisdictional wetlands resulting in an estimated functional loss of 22.755 UMAM units. Wetland impacts that will result from the construction of this project will be mitigated pursuant to Section 373.4137, F.S., to satisfy all mitigation requirements of Part IV of Chapter 373, F.S., and U.S.C. §1344. Mitigation banks within



the same basin as the project include Farmton, Lake Swamp, Port Orange, and Tiger Bay. These banks have available freshwater credits.

## **SECTION 4 – ESSENTIAL FISH HABITAT**

The NMFS is the regulatory agency responsible for the nation’s living marine resources and their habitats, including EFH. This authority is designated by the MSFCMA, as amended. The MSFCMA defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity” (16 U.S.C. § 1802(10)).

In accordance with the MSFCMA, Section 7 of the ESA, and the FDOT’s PD&E Manual, the proposed project was evaluated for potential EFH. No EFH is located within or adjacent to the project area. Therefore, there will be no involvement with EFH resources and an EFH assessment is not required.

## **SECTION 5 – PROJECT PERMITTING**

### **5.1 – Permit History**

According to the Florida’s Water Permitting Portal database, the SJRWMD has issued two permits for I-4 improvements adjacent to the Volusia County Site 1A area. In addition, the SJRWMD issued a permit (151246-2) for the City of Daytona Beach West Borrow Pits, which are located immediately east of the proposed Westbound facility. The proposed project may require permit modifications to these existing permits, including associated permits from the USACE and/or Florida Department of Environmental Protection (FDEP).

### **5.2 – Anticipated Permits**

FDOT construction and maintenance activities are regulated by numerous environmental laws and regulations administered by state and federal agencies. These agencies have established environmental programs to conserve, protect, manage, and control the air, land, water, and natural resources of the state or U.S. The following is a list of anticipated permits needed from the state and federal agencies for the proposed project.

#### **5.2.1 State 404 Individual Permit**

Section 404 of the Clean Water Act (CWA) established a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Responsibility for Section 404 is typically handled by the USACE. However, the State of Florida was granted authority on December 22, 2020 (85 FR 83553), to operate the Section 404 Program for work in most non-tidal waters in the state. The State 404 Program is administered by the FDEP. All waters of the United States with potential to be impacted by the proposed project are not retained by the USACE and are therefore assumed by FDEP. Due to the proposed 28.05 acres of direct wetland impacts, the project is anticipated to require a State 404 Individual Permit for the proposed work.

#### **5.2.2 National Pollutant Discharge Elimination System Permit**

As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The Environmental Protection Agency (EPA) delegated its authority to implement the NPDES program to the FDEP. Based on potential impacts to at least one acre of land and the stormwater runoff will discharge to waters of the state, it is anticipated that an

NDPES General Construction Permit (GCP) will be required for the proposed project. The contractor will be responsible for obtaining the NPDES permit.

### 5.2.3 Individual Environmental Resource Permit

Section 373, F.S., and Chapter 62-330, F.A.C., outline the rules and regulations and establish thresholds for when an environmental permit is required from the state. The Environmental Resource Permit (ERP) program is jointly administered by FDEP and the five water management districts in the state. The project is located within the jurisdiction of the SJRWMD. Due to the proposed 28.05 acres of direct wetland impacts and the potential need for stormwater management, the proposed project is anticipated to require an Individual ERP. The ERP is considered to be the Water Quality Certification under Section 401 of the CWA and is required for the 404 permit above.

### 5.2.4 Gopher Tortoise Relocation Permit

Gopher tortoises and their burrows are protected by Chapter 68A-27.003, F.A.C. A gopher tortoise relocation permit must be obtained from FWC before disturbing burrows and construction activities within 25 feet of a gopher tortoise burrow. The number of gopher tortoise burrows located within 25 feet of the project footprint will determine the type of gopher tortoise relocation permit that is needed. A 100% gopher tortoise survey should be completed during the design of the project to finalize the type of permit needed. Surveys, permitting, excavation, and relocation must be performed by an FWC Authorized Gopher Tortoise Agent.

## SECTION 6 – CONCLUSION

This PD&E Study has been conducted to assess potential concept sites for truck and freight parking along the I-4 corridor in FDOT District Five. Based on the environmental assessment conducted on Volusia County Site 1A, the proposed project will not result in adverse impacts to listed species, though further species-specific surveys will be required to confirm. **Table 7** identifies the species that were evaluated in this document, including project effect determinations.

No EFH is located within or adjacent to the project area. Therefore, no involvement with EFH resources is anticipated.

The project proposes adverse direct impacts to approximately 28.05 acres and secondary impacts to approximately 6.88 acres of wetlands, resulting in estimated 22.755 functional loss units. During the design and permitting phase, final impacts will be calculated along with the appropriate mitigation to satisfy the requirements of 33 U.S.C. § 1344 and Part IV of Chapter 373, F.S.

**Table 7: Proposed Effect Determinations for Protected Species**

Scientific Name	Common Name	Status	Effect Determination
<b>Birds</b>			
<i>Aphelocoma coerulescens</i>	Florida scrub jay	FT	NO EFFECT
<i>Athene cunicularia floridana</i>	Burrowing owl	ST	NEA
<i>Egretta caerulea</i>	Little blue heron	ST	NAEA
<i>Egretta tricolor</i>	Tricolored heron	ST	NAEA
<i>Falco sparverius Paulus</i>	Southeastern American kestrel	ST	NAEA
<i>Grus canadensis pratensis</i>	Florida sandhill crane	ST	NAEA
<i>Haliaeetus leucocephalus</i>	Bald eagle	BGEPA/ MBTA	--
<i>Laterallus jamaicensis</i>	Eastern black rail	FT	NO EFFECT
<i>Mycteria americana</i>	Wood stork	FE	MANLAA
<i>Platalea ajaja</i>	Roseate spoonbill	ST	NEA
<i>Rostrhamus sociabilis plumbeus</i>	Everglade snail kite	FE	NO EFFECT
<b>Mammals</b>			
<i>Perimyotis subflavus</i>	Tricolored bat	C	--
<i>Ursus americanus floridanus</i>	Florida black bear	M	--
<b>Reptiles</b>			
<i>Drymarchon corais couperi</i>	Eastern indigo snake	FT	MANLAA
<i>Gopherus polyphemus</i>	Gopher tortoise	ST	MANLAA
<i>Pituophis melanoleucus mugitis</i>	Florida pine snake	ST	NAEA
<b>Plants</b>			
<i>Calopogon multiflorus</i>	Many-flowered grass-pink	ST	NEA
<i>Carex chapmannii</i>	Chapman's sedge	ST	NEA
<i>Centrosema Arenicola</i>	Sand butterfly pea	SE	NEA
<i>Conradina grandiflora</i>	Large-flowered rosemary	ST	NEA
<i>Deeringothamnus rugelii</i>	Rugel's pawpaw	FE	MANLAA
<i>Illicium parviflorum</i>	Star anise	SE	NEA
<i>Lechea cernua</i>	Nodding pinweed	ST	NEA
<i>Matelea floridana</i>	Florida spiny-pod	SE	NEA
<i>Nemastylis floridana</i>	Celestial lily	SE	NEA
<i>Nolina atopocarpa</i>	Florida beargrass	ST	NEA
<i>Pteroglossaspis ecristata</i>	Giant orchid	ST	NEA
<i>Pycnanthemum floridanum</i>	Florida mountain mint	ST	NEA
<i>Sacoila lanceolata var. lanceolata</i>	Leafless beaked Orchid	ST	NAEA
<i>Salix floridana</i>	Florida willow	SE	NEA
<i>Sarracenia minor</i>	Hooded pitcher plant	ST	NAEA
<b>MANLAA</b> = May Affect, Not Likely to Adversely Affect <b>NAEA</b> = No Adverse Effect Anticipated <b>NEA</b> = No Effect Anticipated <b>FE</b> = Federally Endangered <b>FT</b> = Federally Threatened <b>SE</b> = State Endangered <b>ST</b> = State Threatened <b>M</b> = Managed <b>C</b> = Candidate <b>BGEPA</b> = Bald and Golden Eagle Protection Act <b>MBTA</b> = Migratory Bird Treaty Act			



## 6.1 – Implementation Measures

To ensure the project will not adversely affect protected species or contribute to water quality degradation, the following measures will be implemented.

- Surveys for gopher tortoise burrows, as well as commensal species, will be conducted during the design phase and permits to relocate tortoises and commensals as appropriate will be obtained from the FWC.
- Provide compensatory mitigation for wetland impacts resulting from the project design and construction per 373.4137, F.S. and 33 U.S.C. § 1344.

## 6.2 – Commitments

- The most recent version of the *USFWS Standard Protection Measures for the Eastern Indigo Snake* will be utilized during construction.
- Lighting provided for the truck parking areas will be directed inward with shields to minimize light pollution into adjacent natural areas.
- ROW needs will include a wildlife conservation area, as shown in the concept plans as the remaining area outside of the limits of construction but within the proposed ROW, to provide an enhanced natural buffer. This area will be placed under a conservation easement. The dimensions of the conservation area located outside the fenced truck parking will be coordinated further with regulatory agencies during the Design and ROW phases.
- FDOT will require contractors to remove garbage daily from the construction site or use bear proof containers for securing of food and other debris from the project work area to prevent these items from becoming an attractant for the Florida black bear (*Ursus americanus floridanus*). Any interaction with nuisance bears will be reported to the FWC Wildlife Alert hotline 888-404-FWCC (3922).
- The existing wildlife jump-out within the limits of the proposed truck parking site will be relocated approximately 2,500 feet northeast, along the existing FDOT ROW, from the tie in from the proposed eastbound on ramp. Additionally, the exclusionary fencing will be extended to accommodate the new jump-out location.
- A survey for listed plant species, Rugel's pawpaw, and leafless beaked orchid will be performed during the design phase and coordination with FDACS and USFWS will occur if impacts to the species are anticipated.
- If the listing status of the tri-colored bat is elevated by USFWS to Threatened or Endangered and the Preferred Alternative is located within the consultation area, FDOT commits to re-initiating consultation with the USFWS to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the tri-colored bat.

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**PHOTOGRAPHS**



*Photo 1: Representative habitat and plant community within WL 1*



*Photo 2: Representative habitat within the proposed pond site*





*Photo 3: Upland habitat within Site 1A*



*Photo 4: Eastbound I-4 right-of-way*





*Photo 5: Wildlife jump-out located adjacent to Site 1A*



*Photo 6: Wildlife crossing below I-4 located between Site 1A (eastbound) and Site 1 B (westbound)*





*Photo 7 and 8: Rugel's pawpaw observed within Site 1A*



*Photo 9 and 10: Rugel's pawpaw observed within Site 1A*





*Photo 11: Leafless beaked orchid observed within Site 1A*



*Photo 12: Coral snake observed eating a scarlet kingsnake within Site 1A*



**EASTERN INDIGO SNAKE STANDARD PROTECTION MEASURES**

# STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE U.S. Fish and Wildlife Service

March 23, 2021

The eastern indigo snake protection/education plan (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida and Georgia for use by applicants and their construction personnel. At least **30 days prior** to any clearing/land alteration activities, the applicant shall notify the appropriate USFWS Field Office via e-mail that the Plan will be implemented as described below (North Florida Field Office: [jaxregs@fws.gov](mailto:jaxregs@fws.gov); South Florida Field Office: [verobeach@fws.gov](mailto:verobeach@fws.gov); Panama City Field Office: [panamacity@fws.gov](mailto:panamacity@fws.gov); Georgia Field Office: [gaes\\_assistance@fws.gov](mailto:gaes_assistance@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 17in 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 and Georgia. Although they have a preference for uplands, they also utilize some wetlands and agricultural areas and often move seasonally between upland and lowland habitats, particularly in the northern portions of its range (North Florida and Georgia). 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. Reliance on xeric sandhill habitats throughout the northern portion of the range in northern Florida and Georgia is due to the dependence on gopher tortoise burrows for shelter during winter. Breeding occurs during October through February. 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 is defined by the USFWS as an attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage in any such conduct. Penalties include a maximum fine of \$25,000 for civil violations and up to \$50,000 and/or imprisonment for criminal offenses, if convicted.

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

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

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

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

- Cease clearing activities and immediately notify supervisor or the applicants 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**

**Georgia Field Office: (706) 613-9493**

## **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 11in paper and then properly folded, is attached). Photos of eastern indigo snakes may be accessed on USFWS and/or FWC or GADNR 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 applicants 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.

**EASTERN INDIGO SNAKE EFFECT DETERMINATION KEY**



# 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<sup>2</sup>..... ”may affect”


**On Page 5**

The following replaces footnote #3:

“<sup>3</sup>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](mailto: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 20<sup>th</sup> 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

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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 guanhumii*) 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<sup>1</sup>. 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<sup>2</sup> ..... "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<sup>2</sup>..... "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<sup>3</sup>. 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<sup>2</sup> ..... "may affect"

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<sup>1</sup>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.

<sup>2</sup>Consultation may be concluded informally or formally depending on project impacts.

<sup>3</sup> 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](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.

**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<sup>1</sup>.....*May affect*

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

B. Project does not affect suitable foraging habitat<sup>2</sup> (SFH).....*no effect*

Project impacts SFH<sup>2</sup>.....go to C

C. Project impacts to SFH are less than or equal to 0.5 acre<sup>3</sup>.....*NLAA*<sup>4</sup>

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<sup>5</sup> (see attached map) of a colony site, and no wood storks have been documented foraging on site.....*NLAA*<sup>4</sup>

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*<sup>6</sup> 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*<sup>4</sup>

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

<sup>1</sup> 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.

<sup>2</sup> 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*.

<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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.

<sup>6</sup>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**

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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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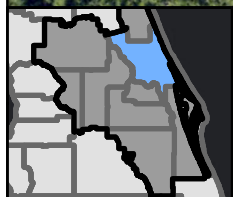
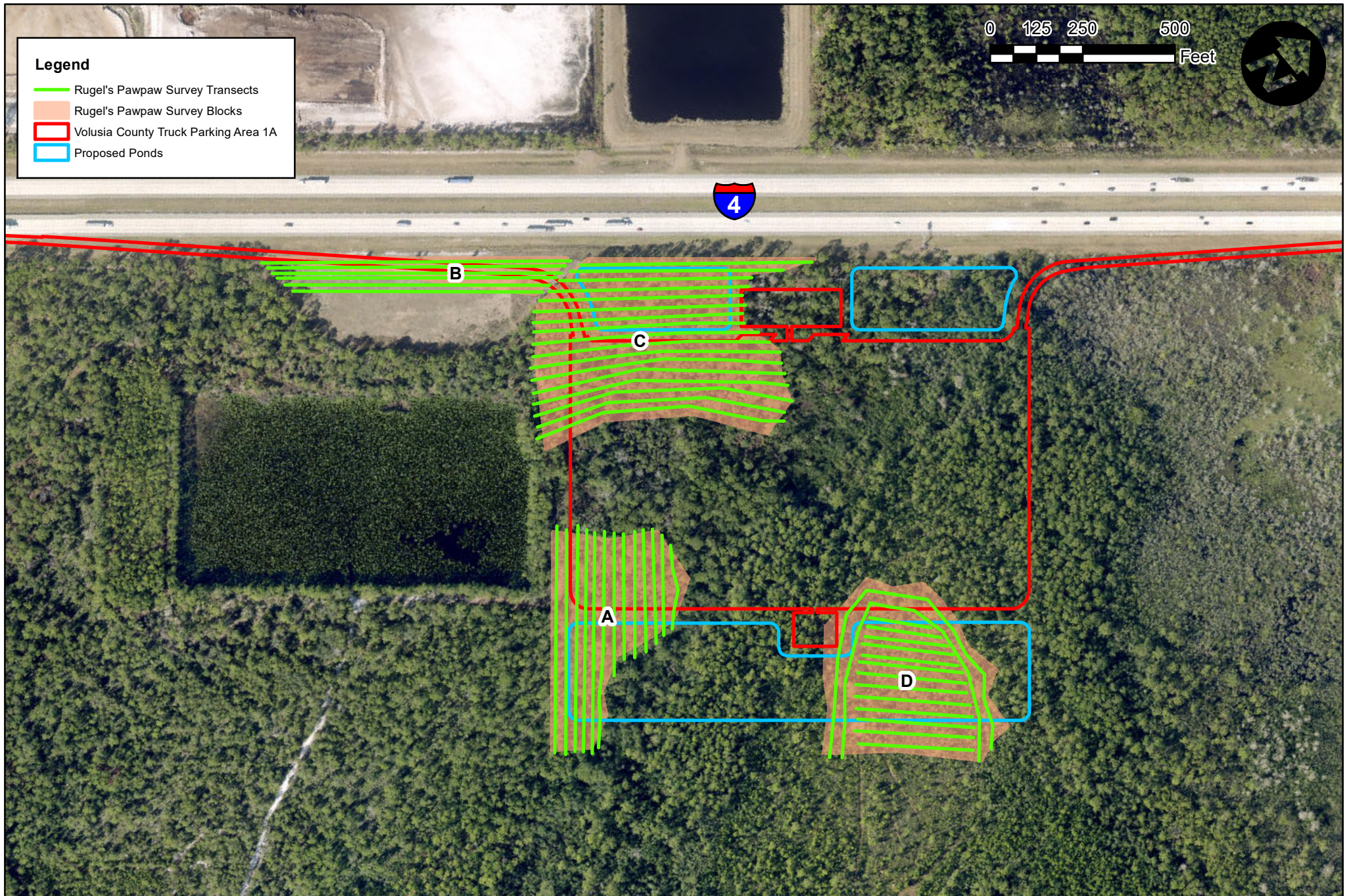


**RUGEL'S PAWPAW SURVEY MAP**



**Legend**

- Rugel's Pawpaw Survey Transects
- Rugel's Pawpaw Survey Blocks
- Volusia County Truck Parking Area 1A
- Proposed Ponds



**FDOT** Florida Department of Transportation  
District 5

**Truck and Freight Alternative Site Analysis PD&E Study**  
*Volusia County Site 1A*  
 Volusia County, Florida  
 Financial Project ID: 447724-1

**RUGEL'S PAWPAW SURVEY MAP**

Appendix E



**UMAM FORMS**

**Uniform Mitigation Assessment Method Summary**

<b>Site/Project Name:</b> Truck Park Site - Volusia Site 1A	<b>Application Number:</b>	<b>Date:</b> November 14, 2023
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**Impact Summary**

Assessment Area	Impact Type	Location and Landscape Support		Water Environment		Community Structure		Impact Delta	Acres	Functional Loss
		Current	w/Impact	Current	w/Impact	Current	w/Impact			
1 WL 1	Direct Impact	8	0	8	0	8	0	0.80	25.89	20.712
2 WL 2	Direct Impact	8	0	7	0	7	0	0.73	2.16	1.584
3 WL 1	Secondary Impact	8	7	8	8	8	7	0.07	6.88	0.459
5 -	-	-	-	-	-	-	-	-	-	-
6 -	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>									<b>34.93</b>	<b>22.755</b>

**Mitigation Summary**

Assessment Area	Mitigation Type	Location and Landscape Support		Water Environment		Community Structure		Mitigation Delta	Time Lag	Risk	PAF	RFG	Acres	Functional Gain
		w/o Mit	w/Mit	w/o Mit	w/Mit	w/o Mit	w/Mit							
1 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 -	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>												<b>0.00</b>	<b>0.000</b>	

<b>TOTALS</b>					
Impacts	Acres	Mitigation - Upland	Acres	Mitigation - Wetland	Acres
		Restoration	0.00	Creation	0.00
Direct Impacts	28.05	Enhancement	0.00	Restoration	0.00
Secondary Impacts	6.88	Preservation	0.00	Enhancement	0.00
<b>Total Impacts</b>	<b>34.93</b>	<b>Total Upland Mitigation</b>	<b>0.00</b>	<b>Total Wetland Mitigation</b>	<b>0.00</b>

<b>Total Functional Loss</b>	<b>22.755</b>
<b>Total Functional Gain</b>	<b>0.000</b>
<b>Mitigation Deficit</b>	<b>-22.755</b>



**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Truck Park Site - Volusia Site 1A</b>		Application Number		Assessment Area Name or Number <b>WL 1</b>	
FLUCCs code <b>611/617/630/631</b>		Further classification (optional) <b>Bay Swamps/Mixed Wetland Hardwoods/Wetland Forested Mixed/Wetland</b>		Impact Type <b>Direct Impact</b>	
Basin/Watershed Name/Number <b>Halifax River - 17</b>		Affected Waterbody (Class) <b>Class III</b>		Assessment Area Size <b>25.89 Acres</b>	
Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) <b>N/A</b>					
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>WL 1 is a large system that connects off-site through a network of wetlands and uplands to the South Tomoka Wildlife Management Area and the Port Orange Mitigation Bank. WL 1 is surrounded by undeveloped land consisting of upland and wetland systems.</b>					
Assessment area description  <b>WL 1 is located throughout the site, on the eastbound side of I-4. The forested part of this system contains a canopy of predominately pond cypress, longleaf pine, slash pine, loblolly bay, blackgum, red maple, and cabbage palm. Subcanopy consists of wax myrtle, rusty lyonia, gallberry, highbush blueberry, buttonbush, Carolina willow, salt bush, elderberry, tarflower, brazilian pepper, and immature cabbage palm. Understory includes cinnamon fern, maidencane, St Johns wort, frog's bit, sedges, bog buttons, chalky bluestem, netted pawpaw, meadowbeauty, Virginia chain fern, and saw palmetto. These wetlands are relatively undisturbed and are located within a mosaic of uplands and larger wetland systems that connect off site.</b>					
Significant Nearby Features <b>South Tomoka Wildlife Management Area, Port Orange Mitigation Bank, Port Orange wellfields, I-4</b>			Uniqueness (considering the relative rarity in relation to the regional landscape.) <b>Semi-unique within the region</b>		
Functions <b>provide refuge and cover for wildlife; natural water storage</b>			Mitigation for previous permit/other historic use <b>N/A</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found ) <b>Herpetiles (tree frogs, snakes, toads, turtles, alligators), Birds (owls, woodpeckers, songbirds, turkeys, eagles, wading birds), Mammals (mice, raccoon, otter, deer, bobcat, bats, fox squirrel, black bear)</b>			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) <b>Eastern indigo snake - T (state), T (fed), wading birds - T (state), bald eagle (BGEMA), Tricolored bat - C (fed), Black bear - M (state)</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  <b>Northern cardinal, black vulture, white-tailed deer, eastern cottontail, raccoon, green anole</b>					
Additional relevant factors:					
Assessment conducted by: <b>A. Burke</b>			Assessment date(s): <b>06/02/23</b>		

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name: <b>Truck Park Site - Volusia Site 1A</b>	Application Number: -	Assessment Area Name or Number: <b>WL 1</b>
Impact or Mitigation: <b>Impact</b>	Assessment Conducted by: <b>A. Burke</b>	Assessment Date: <b>06/02/23</b>

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

Enter Notes below (do NOT score each subcategory individually)

.500(6)(a) Location and Landscape Support		a. Quality and quantity of <b>habitat support</b> outside of AA. b. <b>Invasive plant species</b> in proximity to AA. c. <b>Wildlife access</b> to and from AA (proximity and barriers). d. <b>Downstream benefits</b> provided to fish and wildlife. e. Adverse impacts to wildlife in AA from <b>land uses</b> outside of AA. f. <b>Hydrologic impediments and flow restrictions</b> . g. <b>Dependency</b> of downstream habitats on quantity or quality of discharges. h. Protection of wetland functions provided by uplands ( <b>upland AAs</b> only). Additional Notes: System is high quality. I-4 directly adjacent, but has wildlife crossing and wildlife fencing. AA connects to state WMA and mitigation bank. City wellfields to the south.	high - wildlife crossings under I-4 add connectivity minimal - some closest to ROW large tracts of land adjacent to AA. I-4 wildlife crossing adjacent to AA high minimal - some disturbance from I-4, hunting activities to the south large existing borrow pits, wellfields high N/A
<b>Current</b>	<b>With Impact</b>		
8	0		

.500(6)(b) Water Environment (n/a for uplands)		a. Appropriateness of <b>water levels and flows</b> . b. Reliability of <b>water level indicators</b> . c. Appropriateness of <b>soil moisture</b> . d. <b>Soil erosion</b> or <b>depositional patterns, flow rates/points of discharge</b> . e. <b>Fire history</b> (frequency/severity). f. <b>Appropriate vegetative and/or benthic zonation</b> . g. <b>Hydrologic stress</b> on vegetation. h. <b>Use by animals</b> with hydrologic requirements. i. <b>Plant community composition</b> associated with water quality (i.e., plants tolerant of poor WQ). j. <b>Water quality of standing water by observation</b> (i.e., discoloration, turbidity). k. <b>Water quality data</b> for the type of community. l. <b>Water depth, wave energy, currents, and light penetration</b> . Additional Notes: system has connectivity to wetlands inside and outside of AA. Some cypress and blackgum treefall observed, but wetland community and plants are in good condition. Some hydrologic alterations adjacent, and some soil subsidence was observed within the AA.	Mostly appropriate Reliable Appropriate for season some soil subsidence observed not currently managed for fire Vegetation all appropriate for community type some treefall (cypress/blackgum) high usage anticipated high quality, some FAC species encroachment n/a n/a n/a
<b>Current</b>	<b>With Impact</b>		
8	0		

.500(6)(c) Community Structure		I. Appropriate/desirable species II. Invasive/exotic plant species III. Regeneration/recruitment IV. Age, size distribution. V. Snags, dens, cavity, etc. VI. Plants' condition. VII. Land management practices. VIII. Topographic features (refugia, channels, hummocks). IX. Submerged vegetation (only score if present). X. Upland assessment area Additional Notes: some minor invasive species observed in ROW but do not appear to be dominant. Some hydrologic stress on vegetation.	high minor, limited to adjacent to ROW high excellent age/size distribution some snags mostly healthy (some treefall in cypress/blackgum) possibly cleared in past for logging, hunt camp activities appropriate n/a n/a
<b>Current</b>	<b>With Impact</b>		
8	0		

<b>Raw Score</b> = Sum of above scores/30 (if uplands, divide by 20)	
<b>Current</b>	<b>With Impact</b>
0.8	0

<b>Impact Acres</b> =	25.89
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<b>Functional Loss (FL)</b> [For Impact Assessment Areas]:	
<b>FL</b> = ID x Impact Acres =	20.712

<b>Impact Delta (ID)</b>	
Current - w/Impact	0.8

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

Additional Notes:

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Truck Park Site - Volusia Site 1B</b>		Application Number		Assessment Area Name or Number <b>WL 2</b>	
FLUCCs code <b>641</b>		Further classification (optional) <b>Freshwater Marsh</b>		Impact Type <b>Direct Impact</b>	
Assessment Area Size <b>2.16 Acres</b>		Basin/Watershed Name/Number <b>Halifax River - 17</b>		Affected Waterbody (Class) <b>Class III</b>	
		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) <b>N/A</b>			
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands					
<p><b>WL 2 is a small herbaceous system within a larger system (WL 1) that connects off-site through a network of wetlands and uplands to the South Tomoka Wildlife Management Area and the Port Orange Mitigation Bank. WL 2 is surrounded by undeveloped land consisting of upland and wetland systems.</b></p>					
Assessment area description					
<p><b>WL 2 is located within the forested system of WL 1. This area consists of dominant maidencane, but areas of pickerelweed, yellow-eyed grass, cinnamon fern, blackberry, and St Johns wort also occur. These wetlands are relatively undisturbed and are located within a mosaic of uplands and larger wetland systems that connect off site.</b></p>					
Significant Nearby Features			Uniqueness (considering the relative rarity in relation to the regional landscape.)		
<b>South Tomoka Wildlife Management Area, Port Orange Mitigation Bank, Port Orange wellfields, I-4</b>			<b>Semi-unique within the region</b>		
Functions			Mitigation for previous permit/other historic use		
<b>provide food source for wildlife; natural water storage</b>			<b>N/A</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)		
<b>Herpetiles (frogs, snakes, toads, turtles, alligators), Birds (wading birds), Mammals (mice, raccoon, deer, bobcat, bats, fox squirrel, black bear)</b>			<b>Eastern indigo snake - T (state), T (fed), wading birds - T (state), bald eagle (BGEMA), Tricolored bat - C (fed), Black bear - M (state)</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):					
<b>raccoon, green anole</b>					
Additional relevant factors:					
Assessment conducted by:			Assessment date(s):		
<b>A. Burke</b>			<b>06/02/23</b>		

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name: <b>Truck Park Site - Volusia Site 1B</b>	Application Number: -	Assessment Area Name or Number: <b>WL 2</b>
Impact or Mitigation: <b>Impact</b>	Assessment Conducted by: <b>A. Burke</b>	Assessment Date: <b>06/02/23</b>

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

Enter Notes below (do NOT score each subcategory individually)

.500(6)(a) Location and Landscape Support		a. Quality and quantity of <b>habitat support</b> outside of AA.	high - wildlife crossings under I-4 add connectivity
		b. <b>Invasive plant species</b> in proximity to AA.	minimal
		c. <b>Wildlife access</b> to and from AA (proximity and barriers).	large tracts of land adjacent to AA. I-4 wildlife crossing adjacent to AA
		d. <b>Downstream benefits</b> provided to fish and wildlife.	high
		e. Adverse impacts to wildlife in AA from <b>land uses</b> outside of AA.	minimal - some disturbance from I-4, hunting activities to the south
		f. <b>Hydrologic impediments and flow restrictions.</b>	large existing borrow pits, wellfields
<b>Current</b>	<b>With Impact</b>	g. <b>Dependency</b> of downstream habitats on quantity or quality of discharges.	high
		h. Protection of wetland functions provided by uplands ( <b>upland</b> AAs only).	N/A
<b>8</b>	<b>0</b>	Additional AA is located within forested WL 1. Notes:	

.500(6)(b) Water Environment (n/a for uplands)		a. Appropriateness of <b>water levels and flows.</b>	Semi-appropriate for season
		b. Reliability of <b>water level indicators.</b>	Reliable
		c. Appropriateness of <b>soil moisture.</b>	Semi-appropriate for season
		d. <b>Soil erosion or depositional patterns, flow rates/points of discharge.</b>	n/a
		e. <b>Fire history</b> (frequency/severity).	not currently managed for fire
		f. <b>Appropriate vegetative and/or benthic zonation.</b>	Vegetation all appropriate for community type
		g. <b>Hydrologic stress</b> on vegetation.	some treefall adj. and dead herbaceous veg
		h. <b>Use by animals</b> with hydrologic requirements.	high usage anticipated
		i. <b>Plant community composition</b> associated with water quality (i.e., plants tolerant of poor WQ).	high quality composition of community
		j. <b>Water quality of standing water by observation</b> (i.e., discoloration, turbidity).	n/a
<b>Current</b>	<b>With Impact</b>	k. <b>Water quality data</b> for the type of community.	n/a
		l. <b>Water depth, wave energy, currents, and light penetration.</b>	n/a
<b>7</b>	<b>0</b>	Additional system has connectivity to wetlands inside and outside of AA. Some hydrologic stress indicated. System appears to hold standing water during most of the year. Notes:	

.500(6)(c) Community Structure		I. Appropriate/desirable species	high
		II. Invasive/exotic plant species	minor
		III. Regeneration/recruitment	high
		IV. Age, size distribution.	excellent age/size distribution
		V. Snags, dens, cavity, etc.	n/a
		VI. Plants' condition.	mostly healthy
		VII. Land management practices.	n/a
		VIII. Topographic features (refugia, channels, hummocks).	appropriate
		IX. Submerged vegetation (only score if present).	n/a
<b>Current</b>	<b>With Impact</b>	X. Upland assessment area	n/a
		Additional Notes:	
<b>7</b>	<b>0</b>		

<b>Raw Score</b> = Sum of above scores/30 (if uplands, divide by 20)	
<b>Current</b>	<b>With Impact</b>
0.7333333	0

<b>Impact Acres</b> =	2.16
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<b>Functional Loss (FL)</b> [For Impact Assessment Areas]:	
<b>FL</b> = ID x Impact Acres =	1.584

<b>Impact Delta (ID)</b>	
Current - w/Impact	0.73333333

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

Additional Notes:



**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)**

Site/Project Name <b>Truck Park Site - Volusia Site 1A</b>		Application Number	Assessment Area Name or Number <b>WL 1</b>	
FLUCCs code <b>617/621/625/630/646</b>	Further classification (optional) <small>Mixed wetland hardwoods/Cypress/Myrtle Pine Savanna</small> <b>Flatwoods/Wetland Forested Mixed/Treeless Hydric</b>		Impact Type <b>Secondary Impact</b>	Assessment Area Size <b>6.88 Acres</b>
Basin/Watershed Name/Number <b>Halifax River - 17</b>	Affected Waterbody (Class) <b>Class III</b>	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) <b>N/A</b>		
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands  <b>WL 1 is a large system that connects off-site through a network of wetlands and uplands to the South Tomoka Wildlife Management Area and the Port Orange Mitigation Bank. WL 1 is surrounded by undeveloped land consisting of upland and wetland systems.</b>				
Assessment area description  <b>WL 1 is located throughout the site, on the eastbound side of I-4. The forested part of this system contains a canopy of predominately pond cypress, longleaf pine, slash pine, loblolly bay, blackgum, red maple, and cabbage palm. Subcanopy consists of wax myrtle, rusty lyonia, gallberry, highbush blueberry, buttonbush, carolina willow, salt bush, elderberry, tarflower, brazilian pepper, and immature cabbage palm. Understory includes cinnamon fern, maidencane, St Johns wort, frog's bit, sedges, bog buttons, chalky bluestem, netted pawpaw, meadowbeauty, Virginia chain fern, and saw palmetto. These wetlands are relatively undisturbed and are located within a mosaic of uplands and larger wetland systems that connect off site.</b>				
Significant Nearby Features <b>South Tomoka Wildlife Management Area, Port Orange Mitigation Bank, Port Orange wellfields, I-4</b>		Uniqueness (considering the relative rarity in relation to the regional landscape.) <b>Semi-unique within the region</b>		
Functions <b>provide food source for wildlife; natural water storage</b>		Mitigation for previous permit/other historic use <b>N/A</b>		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found )  <b>Herpetiles (tree frogs, snakes, toads, turtles, alligators), Birds (owls, woodpeckers, songbirds, turkeys, eagles, wading birds), Mammals (mice, raccoon, otter, deer, bobcat, bats, fox squirrel, black bear)</b>		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)  <b>Eastern indigo snake - T (state), T (fed), wading birds - T (state), bald eagle (BGEMA), Tricolored bat - C (fed), Black bear - M (state)</b>		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):  <b>Northern cardinal, black vulture, white-tailed deer, eastern cottontail, raccoon, green anole</b>				
Additional relevant factors:				
Assessment conducted by: <b>A. Burke</b>		Assessment date(s): <b>06/02/23</b>		

**UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT**  
**Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)**

Site/Project Name: <b>Truck Park Site - Volusia Site 1A</b>	Application Number: -	Assessment Area Name or Number: <b>WL 1</b>
Impact or Mitigation: <b>Impact</b>	Assessment Conducted by: <b>A. Burke</b>	Assessment Date: <b>06/02/23</b>

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

Enter Notes below (do NOT score each subcategory individually)

.500(6)(a) Location and Landscape Support		a. Quality and quantity of <b>habitat support</b> outside of AA.	high - wildlife crossings under I-4 add connectivity
		b. <b>Invasive plant species</b> in proximity to AA.	minimal - some closest to ROW
		c. <b>Wildlife access</b> to and from AA (proximity and barriers).	large tracts of land adjacent to AA. I-4 wildlife crossing adjacent to AA
		d. <b>Downstream benefits</b> provided to fish and wildlife.	high
		e. Adverse impacts to wildlife in AA from <b>land uses</b> outside of AA.	minimal - some disturbance from I-4, hunting activities to the south
		f. <b>Hydrologic impediments and flow restrictions.</b>	large existing borrow pits, wellfields
<b>Current</b>	<b>With Impact</b>	g. <b>Dependency</b> of downstream habitats on quantity or quality of discharges.	high
		h. Protection of wetland functions provided by uplands ( <b>upland</b> AAs only).	N/A
<b>8</b>	<b>7</b>	Additional Notes: System is high quality. I-4 is to the north, but has wildlife crossing and wildlife fencing. AA connects to state WMA and mitigation bank. City wellfields to the south.	

.500(6)(b) Water Environment (n/a for uplands)		a. Appropriateness of <b>water levels and flows.</b>	Mostly appropriate
		b. Reliability of <b>water level indicators.</b>	Reliable
		c. Appropriateness of <b>soil moisture.</b>	Appropriate for season
		d. <b>Soil erosion or depositional patterns, flow rates/points of discharge.</b>	some soil subsidence observed
		e. <b>Fire history</b> (frequency/severity).	not currently managed for fire
		f. <b>Appropriate vegetative and/or benthic zonation.</b>	Vegetation all appropriate for community type
		g. <b>Hydrologic stress</b> on vegetation.	some treefall (cypress/blackgum)
		h. <b>Use by animals</b> with hydrologic requirements.	high usage anticipated
		i. <b>Plant community composition</b> associated with water quality (i.e., plants tolerant of poor WQ).	high quality, some FAC species encroachment
		j. <b>Water quality of standing water by observation</b> (i.e., discoloration, turbidity).	n/a
<b>Current</b>	<b>With Impact</b>	k. <b>Water quality data</b> for the type of community.	n/a
		l. <b>Water depth, wave energy, currents, and light penetration.</b>	n/a
<b>8</b>	<b>8</b>	Additional Notes: system has connectivity to wetlands inside and outside of AA. Some cypress treefall observed, but wetland community and plants are in excellent condition. Some hydrologic alterations adjacent, but does not seem to be having a strong effect on the AA.	

.500(6)(c) Community Structure		I. Appropriate/desirable species	high
		II. Invasive/exotic plant species	minor, limited to adjacent to ROW
		III. Regeneration/recruitment	high
		IV. Age, size distribution.	excellent age/size distribution
		V. Snags, dens, cavity, etc.	some snags
		VI. Plants' condition.	mostly healthy (some treefall in cypress/blackgum)
		VII. Land management practices.	possibly cleared in past for logging, hunt camp activities
		VIII. Topographic features (refugia, channels, hummocks).	appropriate
		IX. Submerged vegetation (only score if present).	n/a
<b>Current</b>	<b>With Impact</b>	X. Upland assessment area	n/a
		Additional Notes: Secondary impact area is further from edge effect of I-4	
<b>8</b>	<b>7</b>	Notes:	

<b>Raw Score</b> = Sum of above scores/30 (if uplands, divide by 20)	
<b>Current</b>	<b>With Impact</b>
0.8	0.733333333

<b>Impact Acres</b> =	6.88
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<b>Functional Loss (FL)</b> [For Impact Assessment Areas]:	
<b>FL</b> = ID x Impact Acres =	0.459

<b>Impact Delta (ID)</b>	
Current - w/Impact	0.066666667

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigation bank.

Additional Notes: