NATURAL RESOURCES EVALUATION REPORT

Florida Department of Transportation

District Four

I-95 (S.R. 9) PD&E Study

Limits of Project: From Miami-Dade County Line to North of Griffin Road

Broward County, Florida

Financial Management Number: 439170-1-22-02

ETDM Number: 14500

Date: March 2026

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), District 4, is conducting a Project Development and Environment (PD&E) Study that proposes to improve traffic operations at the existing interchanges, cross streets, and managed lanes, address existing and future traffic demand, and enhance safety along the corridor from the Miami-Dade/Broward County Line to north of Griffin Road in Broward County, Florida. The total project length is approximately 6.6 miles. Improvements to the bicycle and pedestrian accommodations along the cross streets will be considered as part of the project. The study was conducted to meet the requirements of the National Environmental Policy Act (NEPA) and other related federal and state laws, rules, and regulations.

This Natural Resources Evaluation (NRE) is being prepared as part of this PD&E Study. This report reviews the possible impacts to wetland systems, Essential Fish Habitat (EFH), and federally and state-protected species. The identification of measures to avoid, minimize, and mitigate any potential impacts is also discussed. A summary of the analysis of potential project impacts for the proposed project is presented below.

PROTECTED SPECIES AND HABITATS

Based on evaluation of collected data and field reviews, the federal and state listed species discussed in **Table ES1** and **Table ES2** were observed or were determined to have the potential to occur within or adjacent to the project area. An effect determination was made for each of these federal and state listed species based on an analysis of the potential impacts of the proposed project on each species.

TABLE ES1: FEDERALLY LISTED SPECIES IMPACT DETERMINATIONS

Project Effect Determination	Federally Listed Species
No Effect	**BIRDS**
	Everglade snail kite (*Rostrhamus sociabilis plumbeus*)
	REPTILES
	American crocodile (*Crocodylus acutus*)
May Affect, Not Likely to Adversely Affect	**MAMMALS**
	West Indian manatee (*Trichechus manatus latirostris*)
	Florida bonneted bat (*Eumops floridanus*)
	REPTILES
	Eastern indigo snake (*Drymarchon corais couperi*)

TABLE ES2: STATE LISTED SPECIES IMPACT DETERMINATIONS

Project Effect Determination	State Listed Species
No Effect Anticipated	**BIRDS**
	Least tern (*Sternula antillarum*)
No Adverse Effect Anticipated	**REPTILES**
	Gopher tortoise (*Gopherus polyphemus*)
	BIRDS
	Florida burrowing owl (*Athene cunicularia floridana*)
	Wood stork (*Mycteria americana*)

WETLANDS AND SURFACE WATERS

Wetlands have very little coverage in the study area, while surface waters in the study area are limited to roadside drainage canals and stormwater ponds. Roadside swales and stormwater ponds are located within or adjacent to the I-95 right-of-way (ROW) as part of the existing surface water management system. Three canals (Hollywood/C-10 Canal, C-10 Spur Canal, and Dania Cut-Off Canal) are located within the proposed improvements.

No impacts to jurisdictional wetlands are anticipated. The proposed project is anticipated to impact 1.28 acres other surface waters (OSWs), including 0.15 acres of impacts to roadside swales, 0.91 acres of impacts to stormwater ponds, and 0.21 acres of impacts to named canals.

ESSENTIAL FISH HABITAT

Impacts to EFH from the project include 0.03 acres to the unconsolidated bottom substrate of the Dania Cut-Off Canal. These impacts are from the proposed widening of the roadway and bridge over the Dania Cut-Off Canal, increasing the bridge span by approximately 12 feet from the existing northbound deck, resulting in additional coverage of open surface waters and associated in-water work. An EFH assessment is included as part of this NRE. With avoidance and minimization measures, best management practices (BMPs), adverse effects to EFH are expected to be "**minimal**".

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District 4, is conducting a Project Development and Environment (PD&E) Study that proposes to improve traffic operations at the existing interchanges and cross streets and enhance the managed lanes along I-95 (State Road (S.R. 9)) from the Miami-Dade/Broward County Line to north of Griffin Road in Broward County, Florida. The project includes interchange, ingress, and egress improvements at the intersections of Sheridan Street, Stirling Road, and Griffin Road, including the construction braided ramps, additional turn lanes and bike lanes, and expansion of storage lengths on existing turn lanes. The total project length is approximately 6.5 miles. A project location map is shown in **Figure 1**.

I-95 is the primary north-south interstate facility that links numerous major cities along the Atlantic coast and is one of the most important transportation systems in southeast Florida. I-95 is part of the FDOT Strategic Intermodal System (SIS), the National Highway Freight Network, and is a designated evacuation route according to the Florida Division of Emergency Management and Broward County. The limited access facility connects major employment centers and residential areas within the South Florida tri-county area. In Broward County, I-95 is one of the several major expressways such as I-595, I-75, and Florida's Turnpike.

The Natural Resources Evaluation (NRE) evaluates the possible impacts to wetlands and surface waters, federal and state protected species and designated Critical Habitat (CH), and Essential Fish Habitat (EFH) relative to the proposed roadway improvements. The identification of measures to avoid, minimize and mitigate for potential impacts is also discussed.

1.1 PROJECT DESCRIPTION

The project proposes to improve traffic operations at the existing interchanges and cross streets and enhance the access to the managed lanes along I-95 (S.R. 9) from the Miami-Dade/Broward County Line to north of Griffin Road. This project is within the City of Hollywood, City of Dania Beach, Town of Pembroke Park, and City of Hallandale Beach. The existing interchanges and cross streets that will be evaluated include Griffin Road (S.R. 818), Stirling Road (S.R. 848), and Sheridan Street (S.R. 822). Improvements to the bicycle and pedestrian accommodations along the cross streets will be considered as part of the project.

The project was evaluated through FDOT's Efficient Transportation Decision Making (ETDM) process as Project #14500. The Environmental Technical Advisory Team (ETAT) evaluated the project's effects on various natural, physical, and social resources. Comments were received from the U.S. Environmental Protection Agency (EPA), U.S. Army Corps of Engineers (USACE), U.S. Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), Florida Department of Environmental Protection (FDEP), Florida Fish and Wildlife Conservation Commission (FWC), and South Florida Water Management District (SFWMD). All comments will be addressed through the submission of this NRE document as well as applicable permits.

FIGURE 1: PROJECT LOCATION MAP

1.2 PURPOSE AND NEED

The purpose of the study is to improve traffic operations at the existing interchanges, cross streets, managed lanes, address existing and future traffic demand, and enhance safety along S.R. 9/I-95 from Miami-Dade/Broward County Line to north of Griffin Road in Broward County, Florida. The project will also address social demands, economic development, and modal interrelationships.

Project Status

The project is listed in the FDOT Strategic Intermodal System Adopted 5-Year Plan (Fiscal Year 2021/2022 to Fiscal Year 2025/2026) with programmed funds for the PD&E study and Preliminary Engineering. The FDOT Strategic Intermodal System (SIS) Approved 2nd 5-Year Plan (Fiscal Year 2026/2027 to Fiscal Year 2030/2031) indicates funding for the right of way phase. Construction phase funds were not found in either document or the SIS 2029-2045 Long Range Cost Feasible Plan. The Broward Metropolitan Planning Organization's (MPOs) 2045 Long Range Transportation Plan (LRTP), which is named the 2045 Metropolitan Transportation Plan, references the project Financial Management Number; however, the limits are not consistent with the FDOT Work Program. Although the project is referenced in the Broward MPO LRTP, it does not appear to be in the cost feasible list of the plan. During the PD&E phase and prior to Location and Design Concept Acceptance (LDCA), these planning documents will need to be updated to satisfy planning consistency requirements.

Traffic Demand (primary)

The year 2021 Annual Average Daily Traffic (AADT) along the S.R. 9/I-95 project limits ranged between 198,500 vehicles and 256,000 vehicles. This is slightly lower than pre-COVID conditions which had a 2019 AADT between 213,000 vehicles and 267,000 vehicles. Based on the traffic projections prepared for the project, the traffic demand is projected to continue increasing at a rate of 0.5% per year. The projected 2050 AADT was estimated between 248,000 vehicles and 333,400 vehicles. The proposed improvements include addressing existing and future traffic demand.

Operational Deficiencies (primary)

The S.R. 9/I-95 project interchanges, ramp terminals, and cross streets within the project limits are over-saturated. Traffic analysis was conducted for each interchange as part of the FDOT District 4 Interchange Concept Development Report from 2016. According to the study, the following locations are operating at Level of Service (LOS) E or worse during existing conditions (year 2012/2013):

- S.R. 848/Stirling Road: I-95 Northbound ramp terminal intersection
- S.R. 822/Sheridan Street: I-95 Northbound ramp terminal intersection

The future analysis, which projected traffic demand to the year 2040, describes the following locations that are expected to operate at LOS E or worse:

- S.R. 818/Griffin Road: All I-95 ramp terminal intersections
- S.R. 848/Stirling Road: I-95 Northbound ramp terminal intersection
- S.R. 822/Sheridan Street: All I-95 ramp terminal intersections
- I-95 southbound freeway segments within the project limits: Eight segments
- I-95 northbound freeway segments within the project limits: Four segments

Safety (primary)

A historical crash evaluation of the S.R. 9/I-95 project limits revealed a total of 4,764 crashes observed over a five-year period between 2016 and 2020. Approximately 0.5% of these crashes were fatal and 38.5% were coded with injuries. This is higher than the Districtwide statistics for the period from 2015 to 2019 which shows approximately 0.4% fatal crashes and 28.9% involving injuries. The predominant crash types along the project corridor consisted of rear ends at 52.4% following by sideswipes at 20.8% and crashes coded as other at 20.8%. The lane departure crash types such as those involving barriers comprised of 11.5% of the crashes. The rear end crash types are higher than the Districtwide statistic of 33.4%. Higher rear end crash types may be correlated to congestion.

The Broward MPOs 2045 LRTP depicts the S.R. 9/I-95 project limits as a top corridor for future safety studies due to its high severity index per mile of over 200. The results are similar for the interchange cross streets at S.R. 822/Sheridan Street, S.R. 848/Stirling Road, and S.R. 818/Griffin Road. The severity index is a measure that looks at total crashes and crash severity and uses a weighted average (higher score for incapacitating and fatal crashes) to develop an index that ranks locations in terms of their importance for future safety analysis and improvements. The 2021 Florida Strategic Highway Safety Plan (FSHSP) has identified lane departure crashes as an emphasis area which is a high crash type along the project corridor. Pedestrians and bicyclists and intersections are another emphasis area which applies to the interchange areas. The project includes operational improvements at the interchanges which are expected to alleviate crash patterns that are correlated to congestion. Improvements at the cross streets are anticipated to enhance bicycle and pedestrian accommodations which may also alleviate crash patterns related to those modes.

S.R. 9/I-95 and the project interchanges are designated evacuation routes according to the Florida Division of Emergency Management and Broward County. The project is expected to improve travel time during evacuation events and emergency situations.

Social Demands and Economic Development (secondary)

S.R. 9/I-95, which is part of the Florida SIS, supports the regional social and economic development activity in South Florida. The facility connects the major employment and population centers in the between Broward County, Miami-Dade County, and Palm Beach County. According to the Broward MPO 2045 LRTP, the County's population is projected to grow 27% between the

years 2015 and 2045. Similarly, employment is projected to increase 25% in that same time period. Urban infill and redevelopment are common in the region and in the vicinity of the project limits. The proposed improvements will enhance connectivity to nearby employment areas, schools, and recreational facilities.

Modal Interrelationships (secondary)

S.R. 9/I-95 is part of the SIS which is a high priority network of transportation facilities important to the state's economy and mobility. The corridor is a primary highway in the National Highway Freight Network. The truck factor varies but is approximately 9% within the S.R. 9/I-95 project limits. The limited access corridor also services several premium express transit routes for Broward County Transit and Miami-Dade County Department of Transportation and Public Works Metrobus system. All of the project interchange areas include sidewalks on both sides of the arterials passing underneath the S.R. 9/I-95 bridges. Generally, there is a lack of dedicated bicycle facilities. The Broward MPO Complete Streets Master Plan (dated 2019) confirms the gaps in the existing bicycle network along the project interchange cross streets. This master plan proposes a bicycle facility project along S.R. 818/Griffin Road and complete streets projects along S.R. 848/Stirling Road and S.R. 822/Sheridan Street.

The proposed improvements will address operational deficiencies at the interchanges and improve access to the managed lanes system which is expected to improve traffic flow along the S.R. 9/I-95 corridor benefiting all users including freight and premium express bus transit. Improvements at the interchange ramp terminals and arterial cross streets are expected to benefit multiple mode such as vehicles, freight, transit, bicyclists and pedestrians.

1.3 EXISTING FACILITY AND PROPOSED IMPROVEMENTS

1.3.1 EXISTING FACILITY

S.R.9/I-95, within the project limits, is functionally classified as an Urban Principal Arterial Interstate and has a posted speed limit of 65 miles per hour. This segment consists of eight general use lanes (four in each direction) and the managed lanes vary between four (two in each direction) and two lanes (one in each direction). There is a total of six existing interchanges within the project limits; however, only three interchanges in the northern section are proposed for improvements as part of this project. All three of these interchanges have a diamond configuration. The cross streets at the interchanges are all six lane divided facilities with varying functional classifications. S.R. 818/Griffin Road is classified as an Urban Principal Arterial Other. S.R. 848/Stirling Road is classified an Urban Minor Arterial. S.R. 822/Sheridan Street is classified as an Urban Principal Arterial Other to the west of the S.R. 9/I-95 interchange, and to the east it is classified as an Urban Minor Arterial.

The existing I-95 mainline roadway section varies slightly. It consists primarily of four 11-foot-wide express lanes (two in each direction) and eight 11-foot to 12-foot-wide general use lanes (four in each direction) with 12-foot-wide auxiliary lanes at select locations. A three-foot wide buffer area with pavement markings and express lane markers separates the general use lanes from

the express lanes with five-foot to 12-foot wide inside shoulders, 12-foot-wide outside shoulders, and a 2.5-foot-wide center barrier wall. One express lane exists in each direction between Miami-Dade County and Hallandale Beach Boulevard in Broward County.

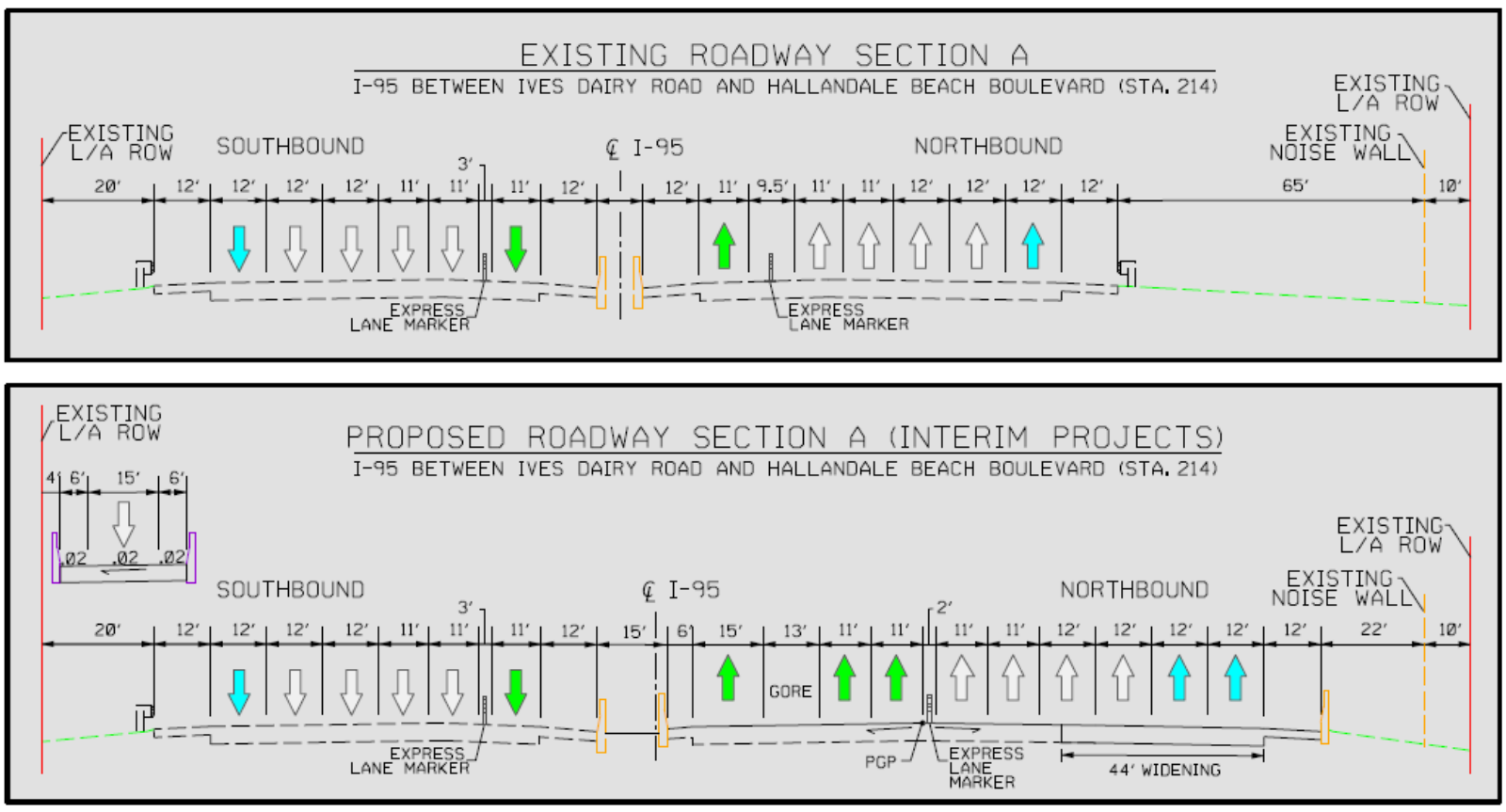
1.3.2 PREFERRED ALTERNATIVE DETAILS

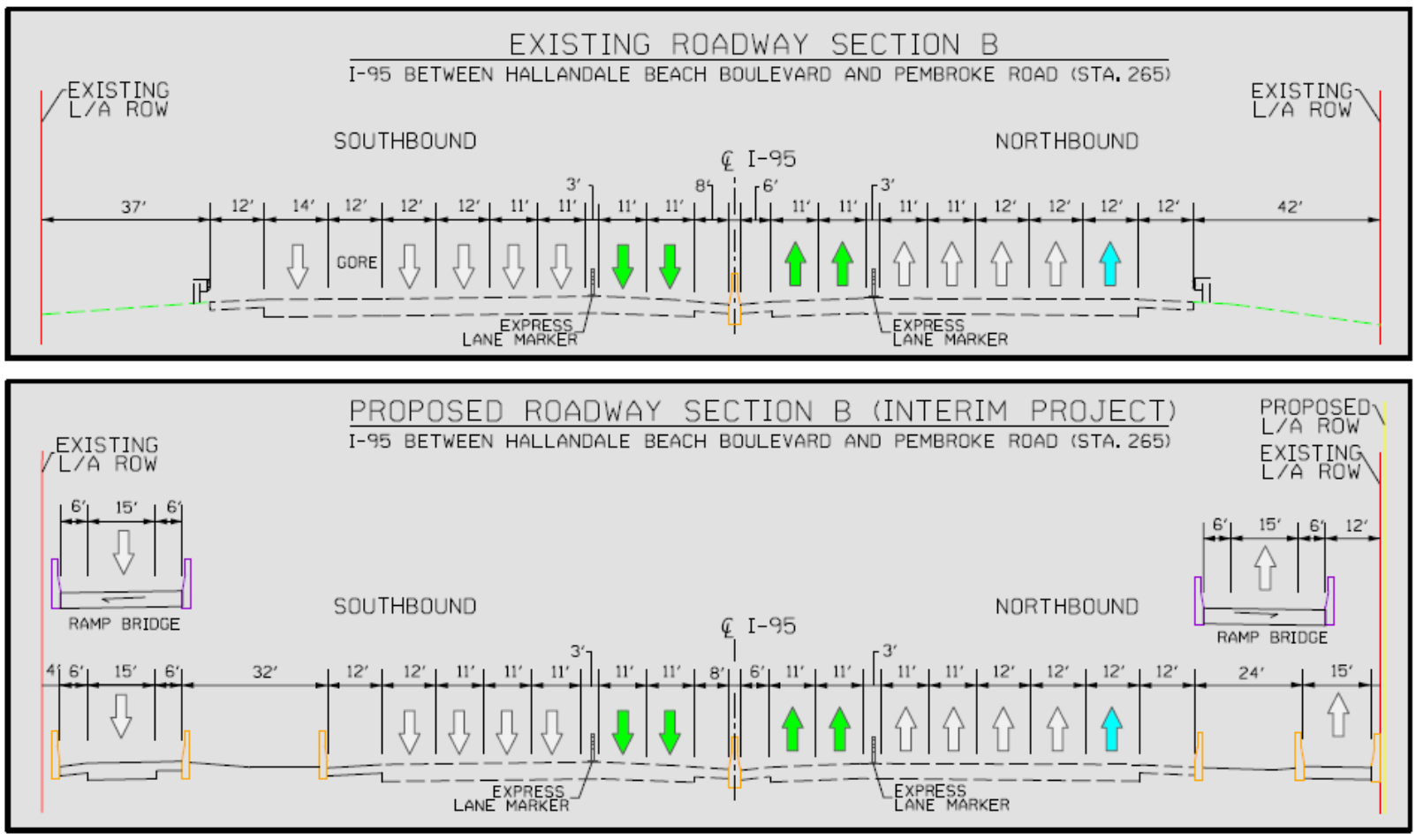
The Preferred Alternative includes improvements at the I-95 interchanges at Sheridan Street, Stirling Road, and Griffin Road, as well as intersection improvements at Griffin Road. In addition, improvements to I-95 are proposed, consisting of auxiliary lanes and express lane access points, including elevated braided ramps over the I-95 mainline from Ives Dairy Road to north of Griffin Road. The proposed typical sections of the Preferred Alternative are shown in **Figure 2**.

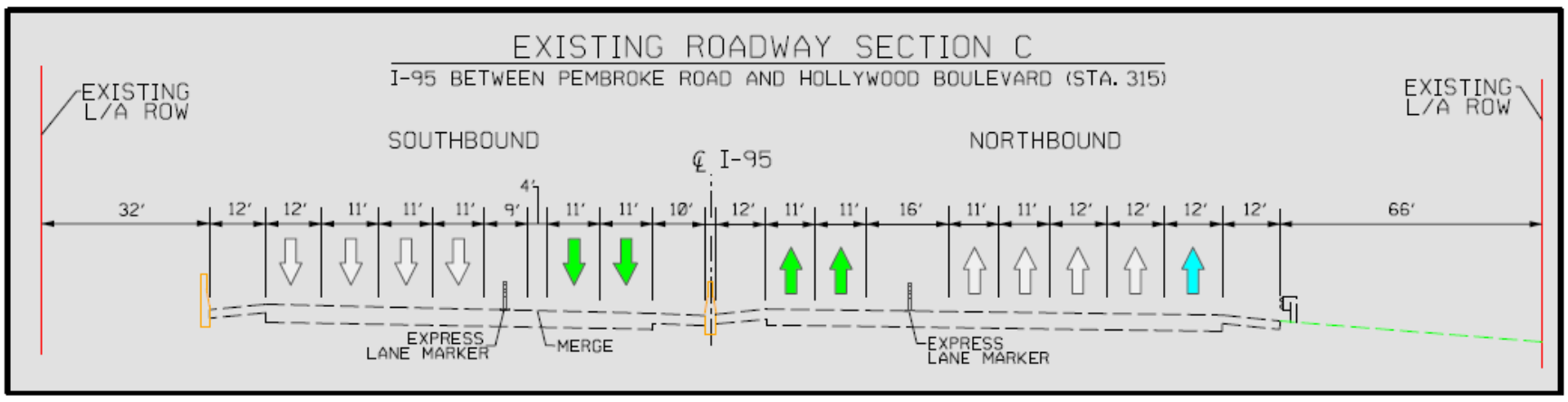
1.3.3 STORMWATER MANAGEMENT FACILITIES

New stormwater management facilities will be required for this project. The project is divided into ten drainage basins, each with specific sub-basin areas and stormwater requirements. This PD&E effort focuses on Systems 9 through 13, which experience the greatest impacts from the proposed corridor improvements, while Basins 1 through 5 are addressed under a separate PD&E. Proposed off-site stormwater management facilities were evaluated through the PD&E Study Pond Siting Report using a comparative matrix of various alternatives per site. All recommendations are preliminary and based on initial calculations, engineering judgement, and available data; stormwater management sizes and configurations may be refined during final design as additional information on seasonal high water table (SHWT), soils, and hydrologic conditions becomes available. The locations of the preferred ponds and swales are shown in **Figure 3**.

FIGURE 2: TYPICAL SECTIONS




EXISTING ROADWAY SECTION B
I-95 BETWEEN HALLANDALE BEACH BOULEVARD AND PEMBROKE ROAD (STA. 265)
EXISTING L/A ROW
EXISTING L/A ROW
SOUTHBOUND
NORTHBOUND
℄ I-95
37′ 12′ 14′ 12′ 12′ 12′ 12′ 11′ 11′ 3′ 11′ 11′ 8′ 6′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 12′ 42′
GORE
EXPRESS LANE MARKER
EXPRESS LANE MARKER
PROPOSED ROADWAY SECTION B (INTERIM PROJECT)
I-95 BETWEEN HALLANDALE BEACH BOULEVARD AND PEMBROKE ROAD (STA. 265)
EXISTING L/A ROW
PROPOSED L/A ROW
EXISTING L/A ROW
6′ 15′ 6′
RAMP BRIDGE
6′ 15′ 6′ 12′
RAMP BRIDGE
SOUTHBOUND
NORTHBOUND
℄ I-95
4′ 6′ 15′ 6′ 32′ 12′ 12′ 11′ 11′ 11′ 3′ 11′ 11′ 8′ 6′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 12′ 24′ 15′
EXPRESS LANE MARKER
EXPRESS LANE MARKER
PROPOSED ROADWAY SECTION B
I-95 BETWEEN HALLANDALE BEACH BOULEVARD AND PEMBROKE ROAD (STA. 265)
EXISTING L/A ROW
PROPOSED L/A ROW
EXISTING L/A ROW
10′ 12′ 12′ 10′
RAMP BRIDGE
17′ WIDENING
6′ 15′ 6′ 12′
RAMP BRIDGE
SOUTHBOUND
NORTHBOUND
℄ I-95
4′ 6′ 15′ 6′ 32′ 12′ 12′ 11′ 11′ 11′ 3′ 11′ 11′ 8′ 12′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 12′ 18′ 15′
EXPRESS LANE MARKER
EXPRESS LANE MARKER
6′ WIDENING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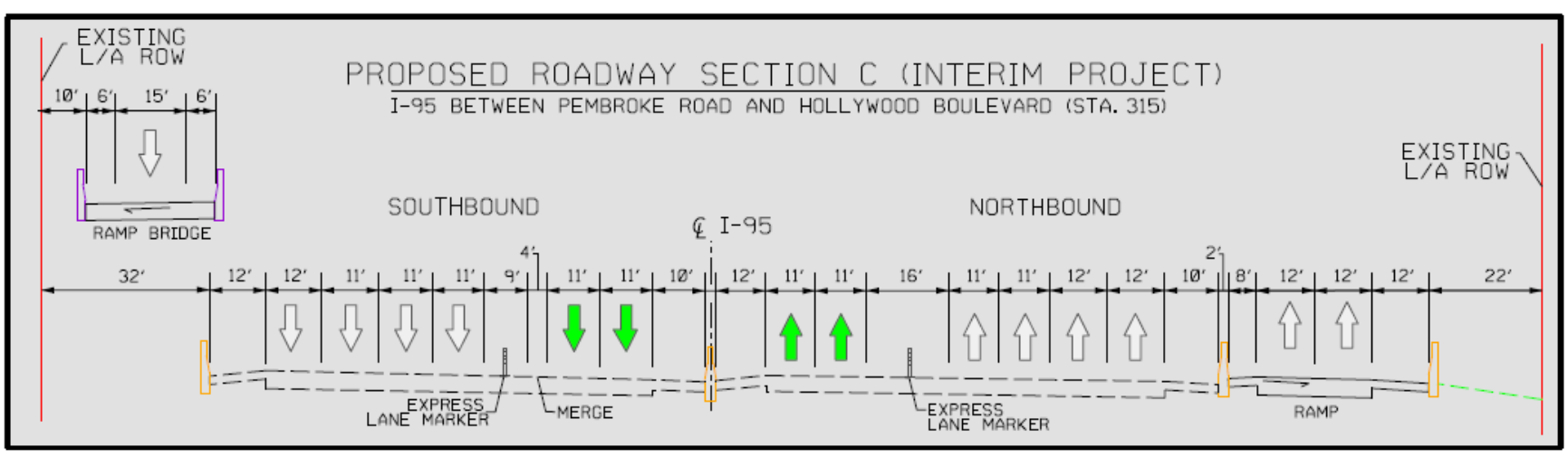
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
32′ 12′ 12′ 11′ 11′ 11′ 9′ 4′ 11′ 11′ 10′ 12′ 11′ 11′ 16′ 11′ 11′ 12′ 12′ 12′ 12′ 66′
EXPRESS LANE MARKER
MERGE
EXPRESS LANE MARKER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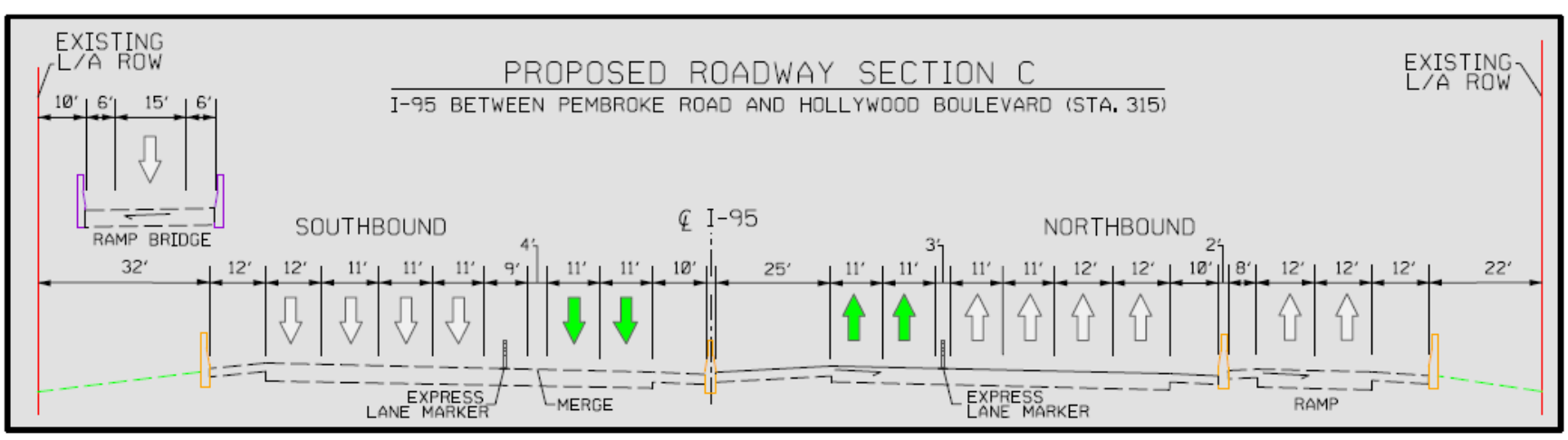
PROPOSED ROADWAY SECTION C (INTERIM PROJECT)
I-95 BETWEEN PEMBROKE ROAD AND HOLLYWOOD BOULEVARD (STA. 315)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
32′ 12′ 12′ 11′ 11′ 11′ 9′ 4′ 11′ 11′ 10′ 12′ 11′ 11′ 16′ 11′ 11′ 12′ 12′ 10′ 2′ 8′ 12′ 12′ 12′ 22′
EXPRESS LANE MARKER
MERGE
EXPRESS LANE MARKER
RAMP


EXISTING L/A ROW
10′ 6′ 15′ 6′
RAMP BRIDGE
PROPOSED ROADWAY SECTION C
I-95 BETWEEN PEMBROKE ROAD AND HOLLYWOOD BOULEVARD (STA. 315)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
32′ 12′ 12′ 11′ 11′ 11′ 9′ 4′ 11′ 11′ 10′ 25′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 10′ 2′ 8′ 12′ 12′ 12′ 22′
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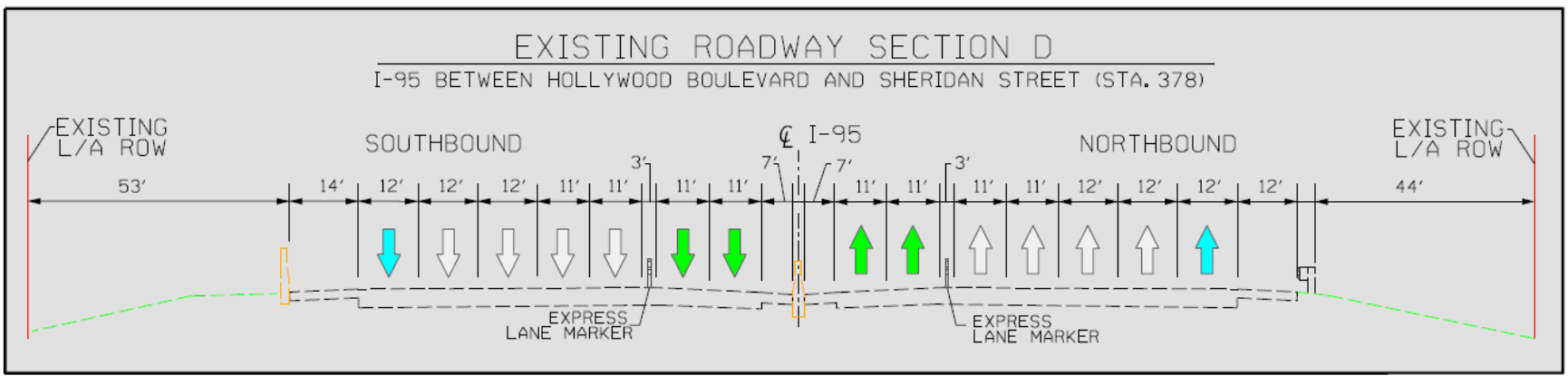
MERGE
EXPRESS LANE MARKER
RAMP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I-95 BETWEEN HOLLYWOOD BOULEVARD AND SHERIDAN STREET (STA. 378)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
53′ 14′ 12′ 12′ 12′ 11′ 11′ 3′ 11′ 11′ 7′ 7′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 12′ 44′
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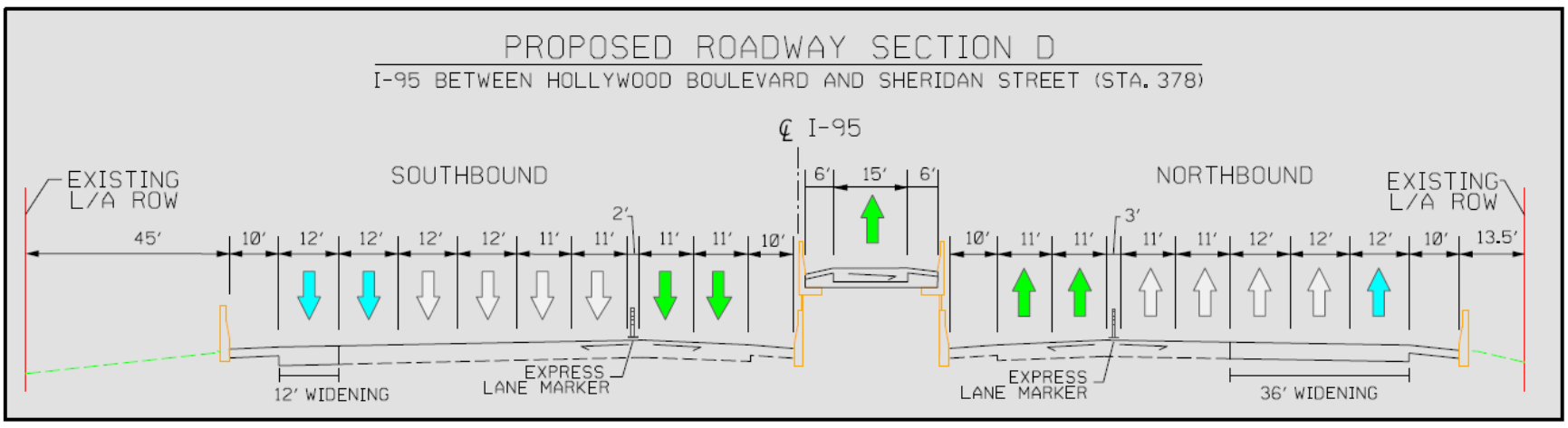
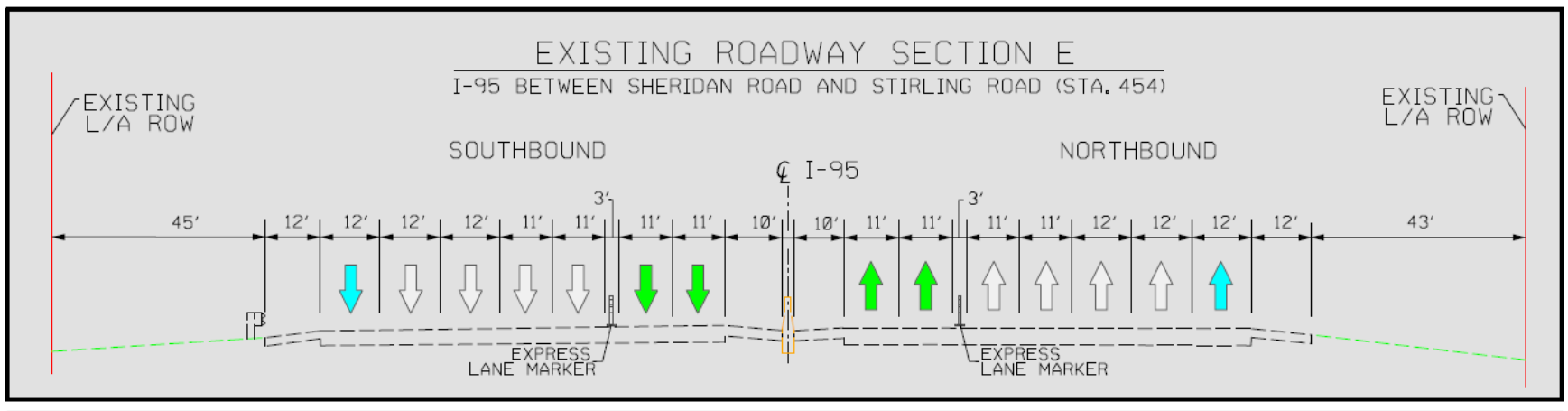
EXPRESS LANE MARKER


PROPOSED ROADWAY SECTION D
I-95 BETWEEN HOLLYWOOD BOULEVARD AND SHERIDAN STREET (STA. 378)
℄ I-95
EXISTING L/A ROW
SOUTHBOUND
6′ 15′ 6′
NORTHBOUND
EXISTING L/A ROW
45′ 10′ 12′ 12′ 12′ 12′ 11′ 11′ 2′ 11′ 11′ 10′ 10′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 10′ 13.5′
12′ WIDENING
EXPRESS LANE MARKER
EXPRESS LANE MARKER
36′ WIDENING


EXISTING ROADWAY SECTION E
I-95 BETWEEN SHERIDAN ROAD AND STIRLING ROAD (STA. 454)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
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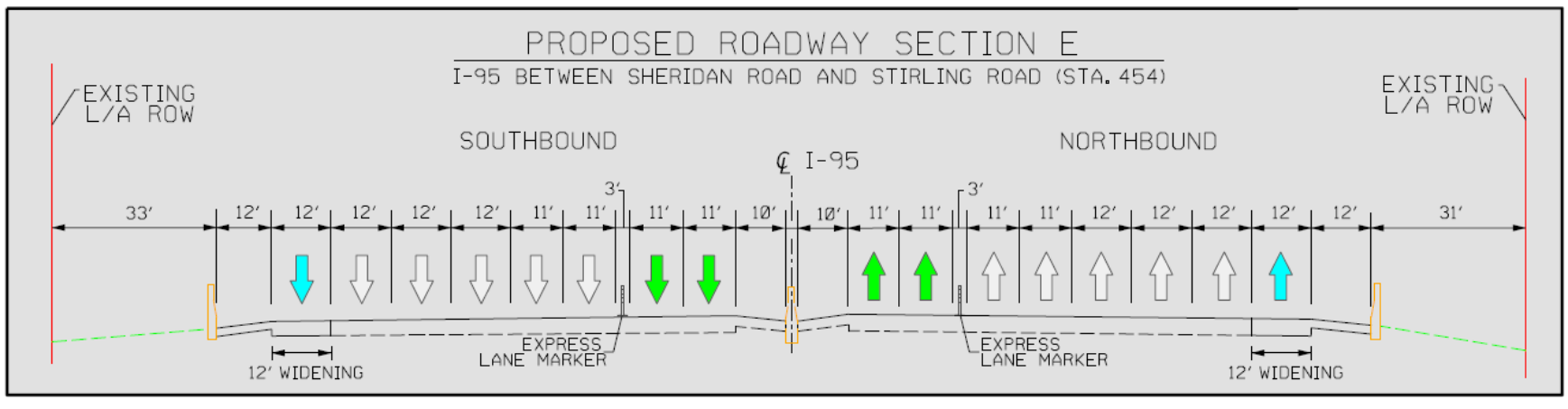
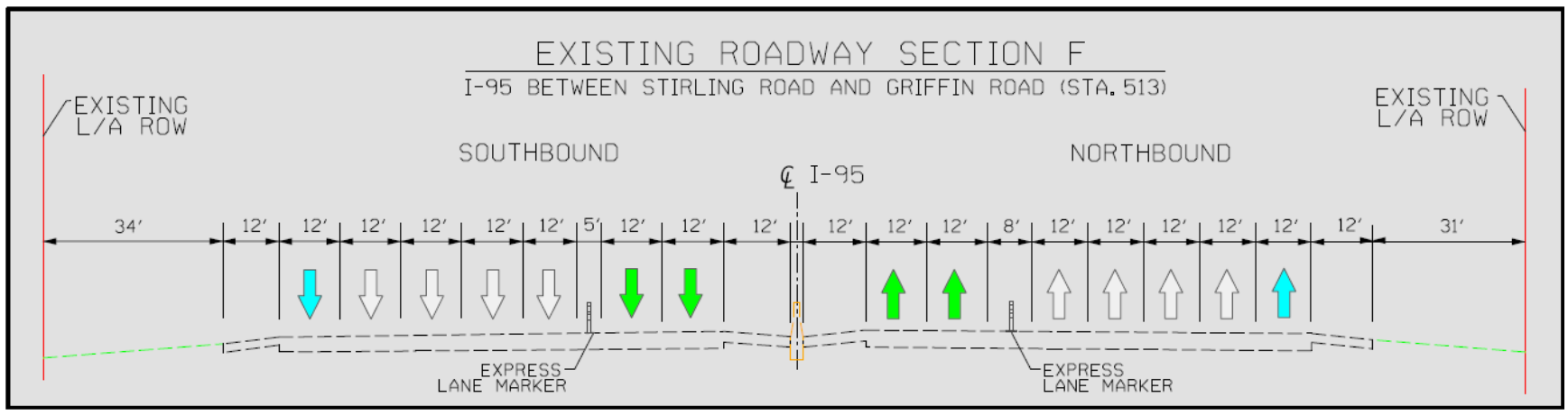
EXPRESS LANE MARKER


PROPOSED ROADWAY SECTION E
I-95 BETWEEN SHERIDAN ROAD AND STIRLING ROAD (STA. 454)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
33′ 12′ 12′ 12′ 12′ 12′ 11′ 11′ 3′ 11′ 11′ 10′ 10′ 11′ 11′ 3′ 11′ 11′ 12′ 12′ 12′ 12′ 12′ 31′
12′ WIDENING
EXPRESS LANE MARKER
EXPRESS LANE MARKER
12′ WIDENING


EXISTING ROADWAY SECTION F
I-95 BETWEEN STIRLING ROAD AND GRIFFIN ROAD (STA. 513)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
34′ 12′ 12′ 12′ 12′ 12′ 12′ 5′ 12′ 12′ 12′ 12′ 12′ 12′ 8′ 12′ 12′ 12′ 12′ 12′ 12′ 31′
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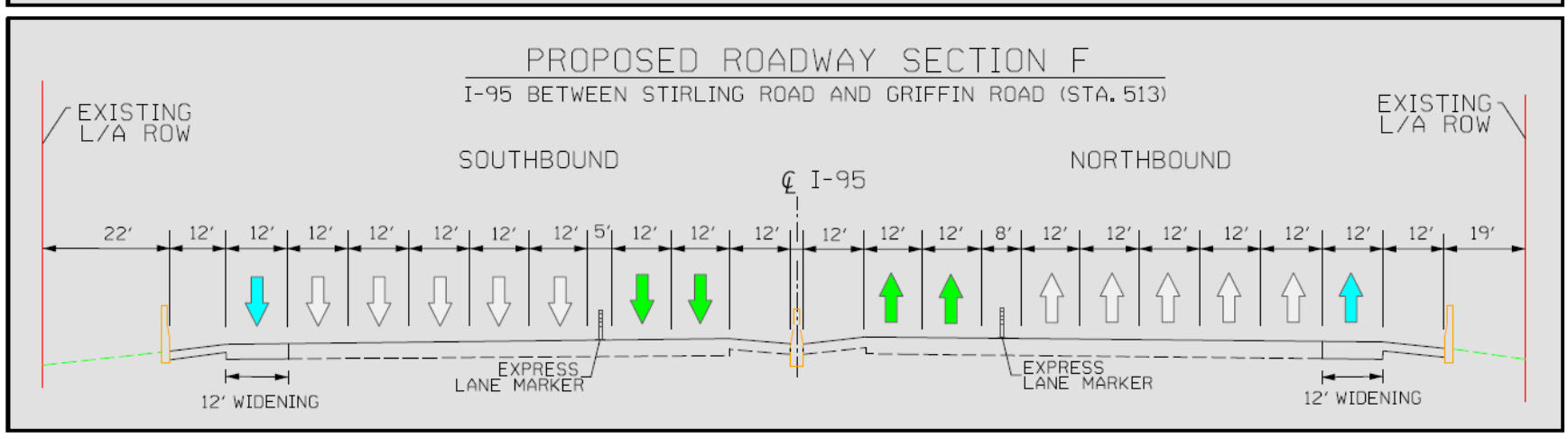
EXPRESS LANE MARKER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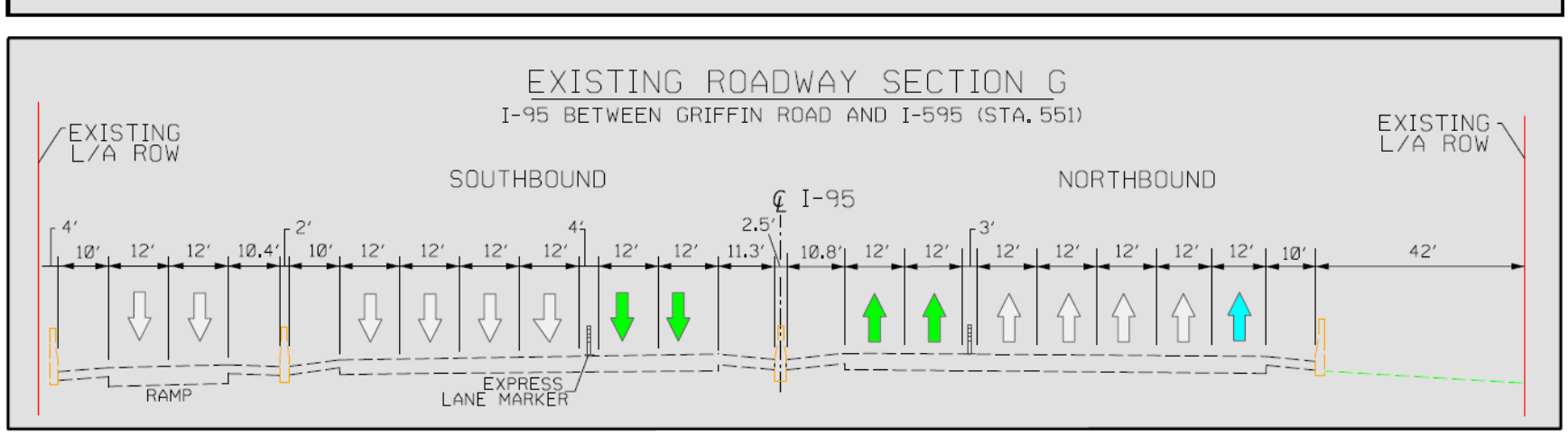
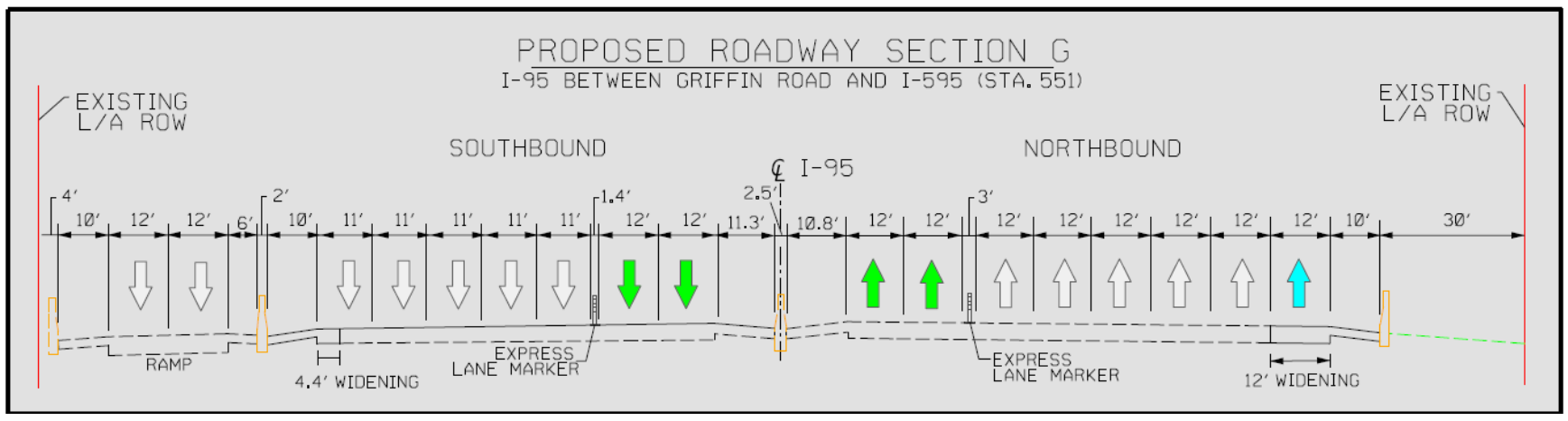
I-95 BETWEEN STIRLING ROAD AND GRIFFIN ROAD (STA. 513)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
22′ 12′ 12′ 12′ 12′ 12′ 12′ 12′ 5′ 12′ 12′ 12′ 12′ 12′ 12′ 8′ 12′ 12′ 12′ 12′ 12′ 12′ 12′ 19′
12′ WIDENING
EXPRESS LANE MARKER
EXPRESS LANE MARKER
12′ WIDENING


EXISTING ROADWAY SECTION G
I-95 BETWEEN GRIFFIN ROAD AND I-595 (STA. 551)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
4′ 10′ 12′ 12′ 10.4′ 2′ 10′ 12′ 12′ 12′ 12′ 4′ 12′ 12′ 11.3′ 2.5′ 10.8′ 12′ 12′ 3′ 12′ 12′ 12′ 12′ 12′ 10′ 42′
RAMP
EXPRESS LANE MARKER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I-95 BETWEEN GRIFFIN ROAD AND I-595 (STA. 551)
EXISTING L/A ROW
SOUTHBOUND
℄ I-95
NORTHBOUND
EXISTING L/A ROW
4′ 10′ 12′ 12′ 6′ 2′ 10′ 11′ 11′ 11′ 11′ 11′ 1.4′ 12′ 12′ 11.3′ 2.5′ 10.8′ 12′ 12′ 3′ 12′ 12′ 12′ 12′ 12′ 12′ 10′ 30′
RAMP
4.4′ WIDENING
EXPRESS LANE MARKER
EXPRESS LANE MARKER
12′ WIDENING

FIGURE 3: PROPOSED STORMWATER MANAGEMENT FACILITIES

Figure 3: Proposed Stormwater Management Facilities

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 225 450 US Feet


Pond 13A-1
Swale 13A-2
GRIFFIN RD
Griffin East Pond
Swale 12 NW
SW 48th St
DANIA BEACH
The Club at Emerald Hills
Hollywood Hills Elementary School
HOLLYWO
PEMBROKE PARK
WEST PARK
HALLANDALE BEACH
Legend
Project Limits
Proposed Stormwater Management Facilities
Proposed Ponds
Proposed Swales
SHEET 3 of 3
FDOT
Figure 3: Proposed Stormwater Management Facilities
FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL
Image Source: ESRI
Image Date: 2024
0 185 370
US Feet

2.0 EXISTING CONDITIONS

This project is in southern Broward County within the City of Hollywood, City of Dania Beach, Town of Pembroke Park, and City of Hallandale Beach. The corridor begins at the Broward/Miami-Dade County Line and continues north along I-95 to north of Griffin Road at the Dania Cut-Off Canal. At the three interchanges, the approximate street improvement limits are: Griffin Road from Anglers Avenue to Old Griffin Road intersection; Stirling Road from Southwest 20th Way to South Compass Way; and Sheridan Street from west of North 29th Avenue to the C-10 Canal.

2.1 EXISTING ENVIRONMENTAL CONDITIONS

This section presents a description of existing conditions within the project study area, including soils and land use/land cover types within both upland and wetland communities. It also includes information on existing conservation lands and easements, as well as special designations such as Outstanding Florida Waters (OFW) and Aquatic Preserves (AP). For this report, the study area is defined as a footprint extending 500 feet in all directions from the existing right-of-way (ROW).

2.2 METHODOLOGY

In order to assess the approximate locations and boundaries of existing soils, land use and cover, and conservation areas within the project area, the following site-specific data was collected and reviewed:

- Aerial photographs: ESRI (2024);
- Florida Association of Environmental Soil Scientists, Hydric Soils of Florida Handbook, 4th ed., (Hurt et al. 2007);
- FDOT
    - ETDM Summary Report November 2022;
    - Environmental Screening Tool (EST);
- Florida Fish and Wildlife Conservation Commission (FWC). Cooperative Land Cover, Version 3.8. Dec. 2024;
- SFWMD Florida Land Use Cover and Forms Classification System (FLUCFCS) Geographic Information System (GIS) Database (SFWMD 2023);
- U.S. Department of Agriculture (USDA), NRCS, Soil Survey of Broward County, Florida, 2023;
- Florida Natural Areas Inventory (FNAI), Florida Managed Areas, 2025; and
- U.S. Geological Survey (USGS) topographical maps

2.3 RESULTS

2.3.1 SOILS

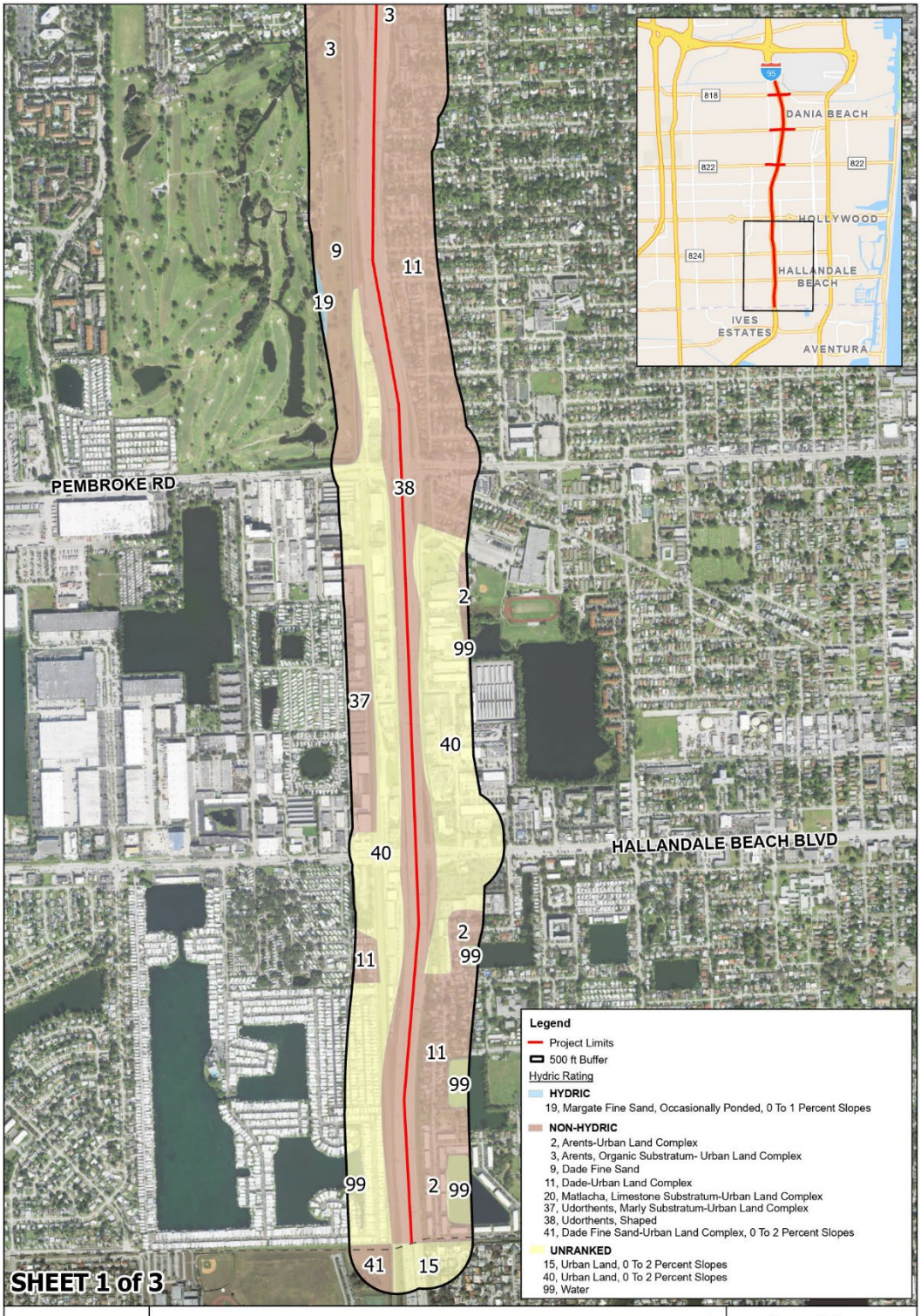
The soil types that occur within the study area were determined using the NRCS GIS soil layer. **Table 1** provides a summary of these soil types, including the hydric designation, hydrologic

group, area, and percent of the study area. Three of the 14 soils listed in **Table 1** are classified as hydric. These soils are mainly characterized as poorly to very poorly drained muck or sandy soils. Most of the areas within and adjacent to the project corridor have been disturbed by residential and infrastructure development and may not currently exhibit historic soil conditions. A map of the 2024 NRCS soils within the project study area is provided in **Figure 4**.

TABLE 1: NRCS SOIL TYPES WITHIN STUDY AREA

Soil Number	Soil Type	Hydric Soils	Total Area (Acres)	Percent of Study Area (%)
2	Arents-Urban Land Complex	No	98.11	7.62%
3	Arents, Organic Substratum-Urban Land Complex	No	172.15	13.38%
4	Basinger Fine Sand, 0 To 2 Percent Slopes	Yes	4.93	0.38%
9	Dade Fine Sand	No	201.47	15.66%
11	Dade-Urban Land Complex	No	117.45	9.13%
19	Margate Fine Sand, Occasionally Ponded, 0 To 1 Percent Slopes	Yes	26.30	2.04%
20	Matlacha, Limestone Substratum-Urban Land Complex	No	35.48	2.76%
21	Okeelanta Muck, Drained, Frequently Ponded, 0 To 1 Percent Slopes	Yes	45.55	3.54%
37	Udorthents, Marly Substratum-Urban Land Complex	No	16.80	1.31%
38	Udorthents, Shaped	No	215.31	16.73%
39	Udorthents-Urban Land Complex	No	15.79	1.23%
40	Urban Land, 0 To 2 Percent Slopes	Unranked	286.34	22.25%
99	Water	Unranked	46.81	3.64%
41	Dade Fine Sand-Urban Land Complex, 0 To 2 Percent Slopes	No	4.19	0.33%
		Total Hydric	**76.78**	**5.97%**
		Total Non-Hydric	**876.75**	**68.14%**
		Total Unranked	**333.16**	**25.89%**
		Total	**1,286.68**	**100.00%**

FIGURE 4: NRCS SOIL TYPES



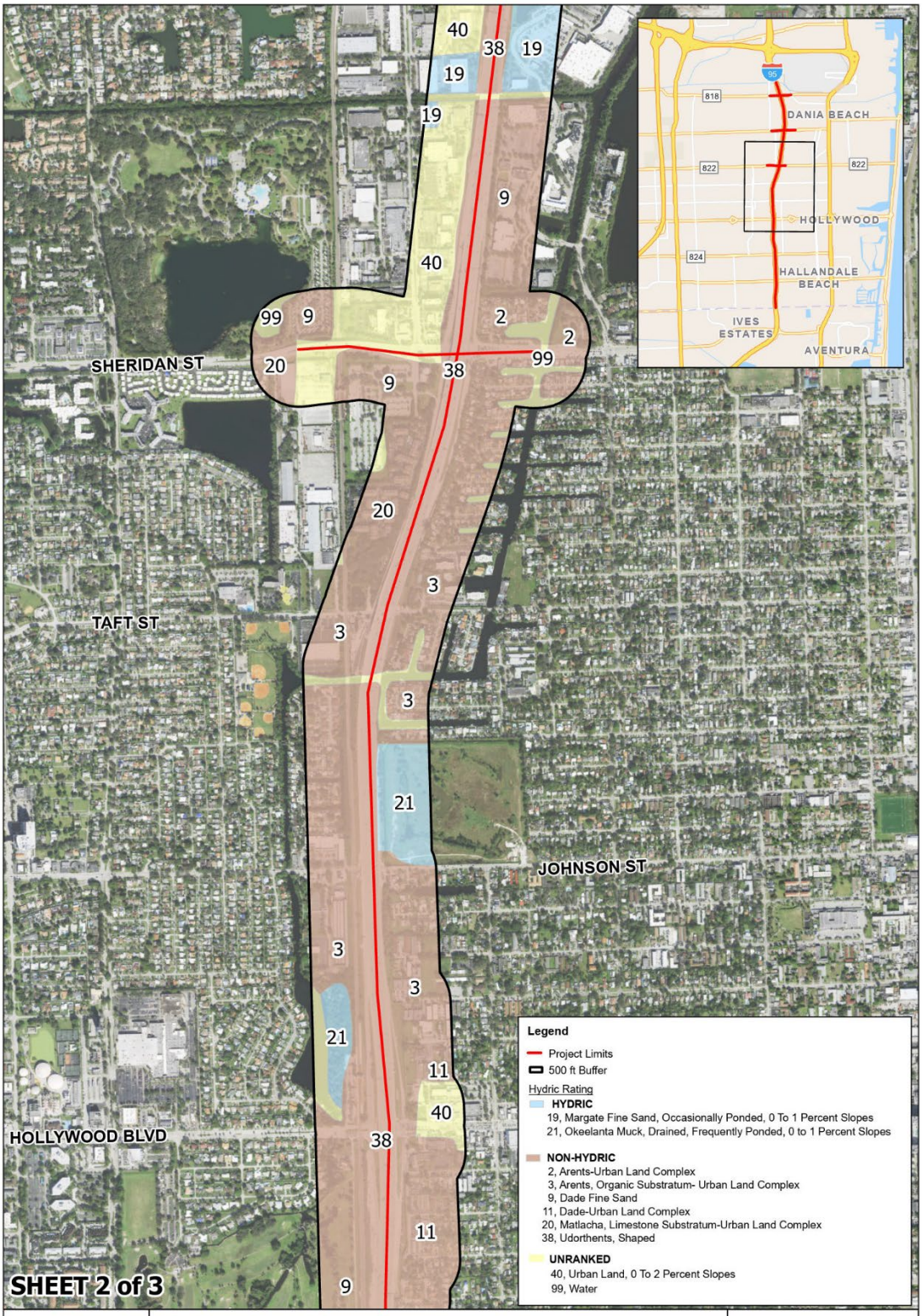


Figure 4: NRCS Soil Types

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

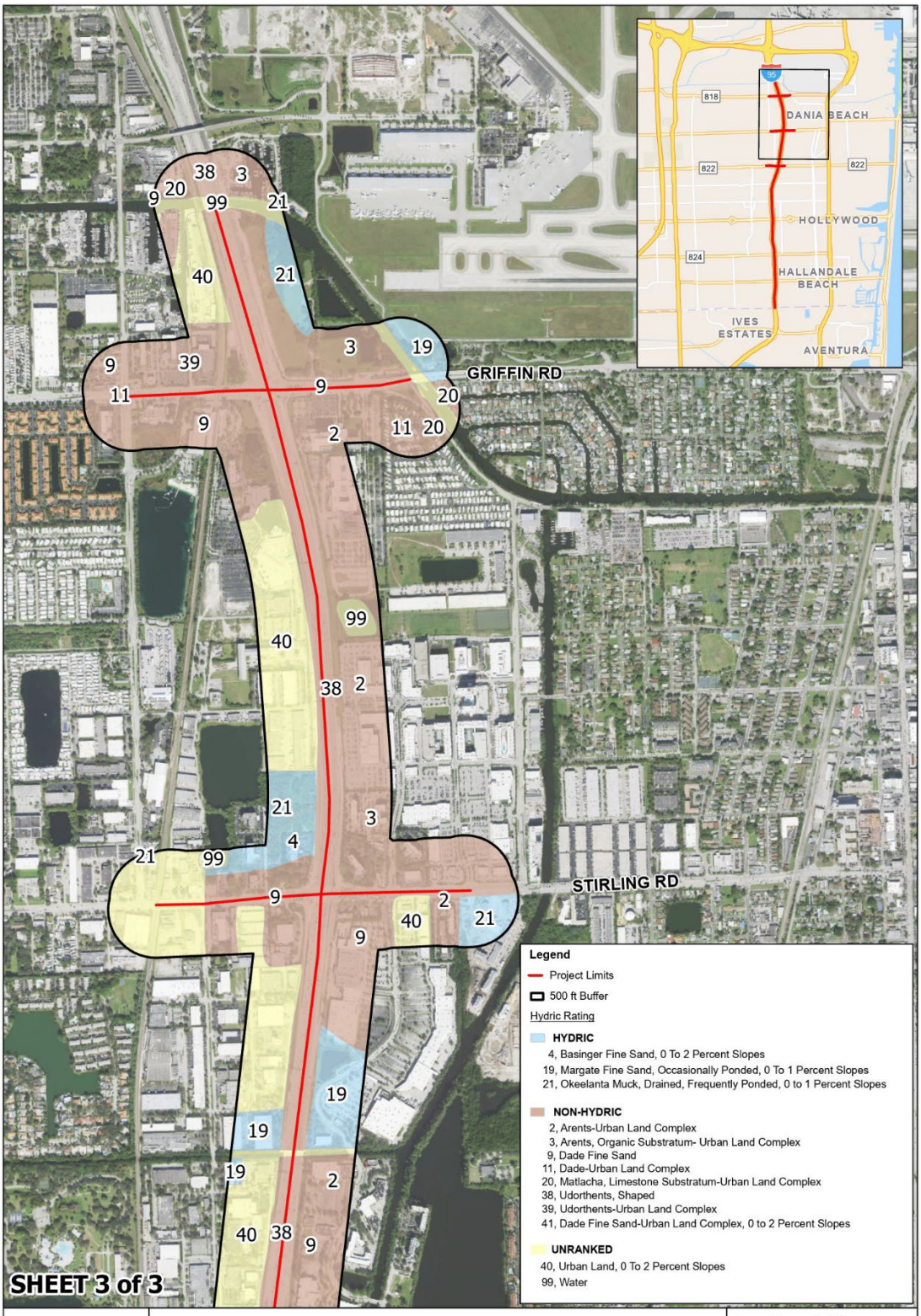


Figure 4: NRCS Soil Types

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

2.3.2 LAND USE AND COVER

Existing land use within the study area was identified using the FLUCFCS GIS layer from the SFWMD. Existing land uses and land cover were determined within the project corridor, as shown in **Figure 5**. **Table 2** summarizes the existing land use acreages in the project area by FLUCFCS code.

Land use along the I-95 corridor is predominantly urban and developed. The corridor is characterized by a mix of medium- to high-density residential neighborhoods, commercial, industrial areas, and institutional uses. Several major roadways intersect I-95 in this segment with associated clusters of commercial and service-oriented development.

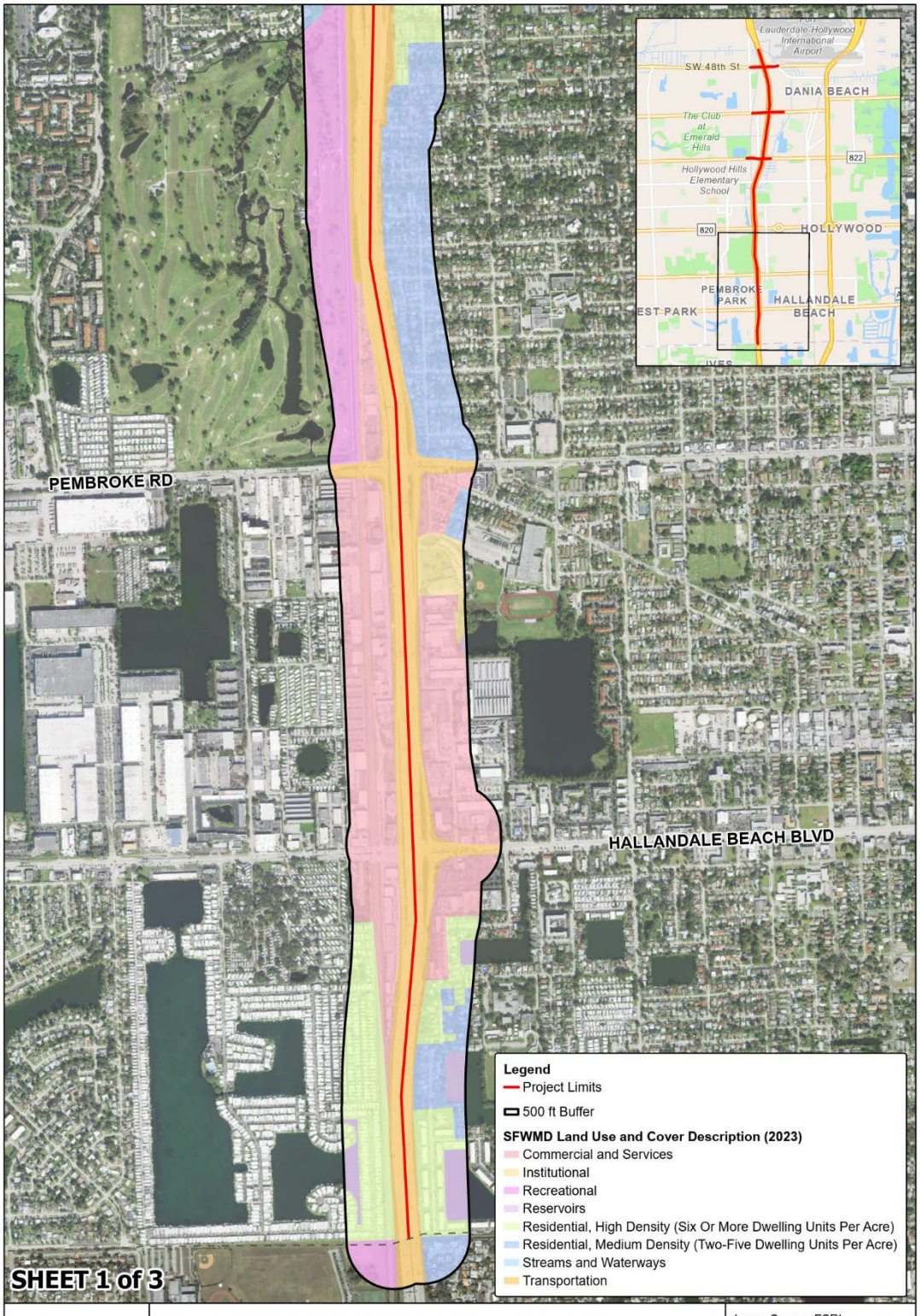
2.3.3 SPECIAL DESIGNATIONS AND CONSERVATION AREAS

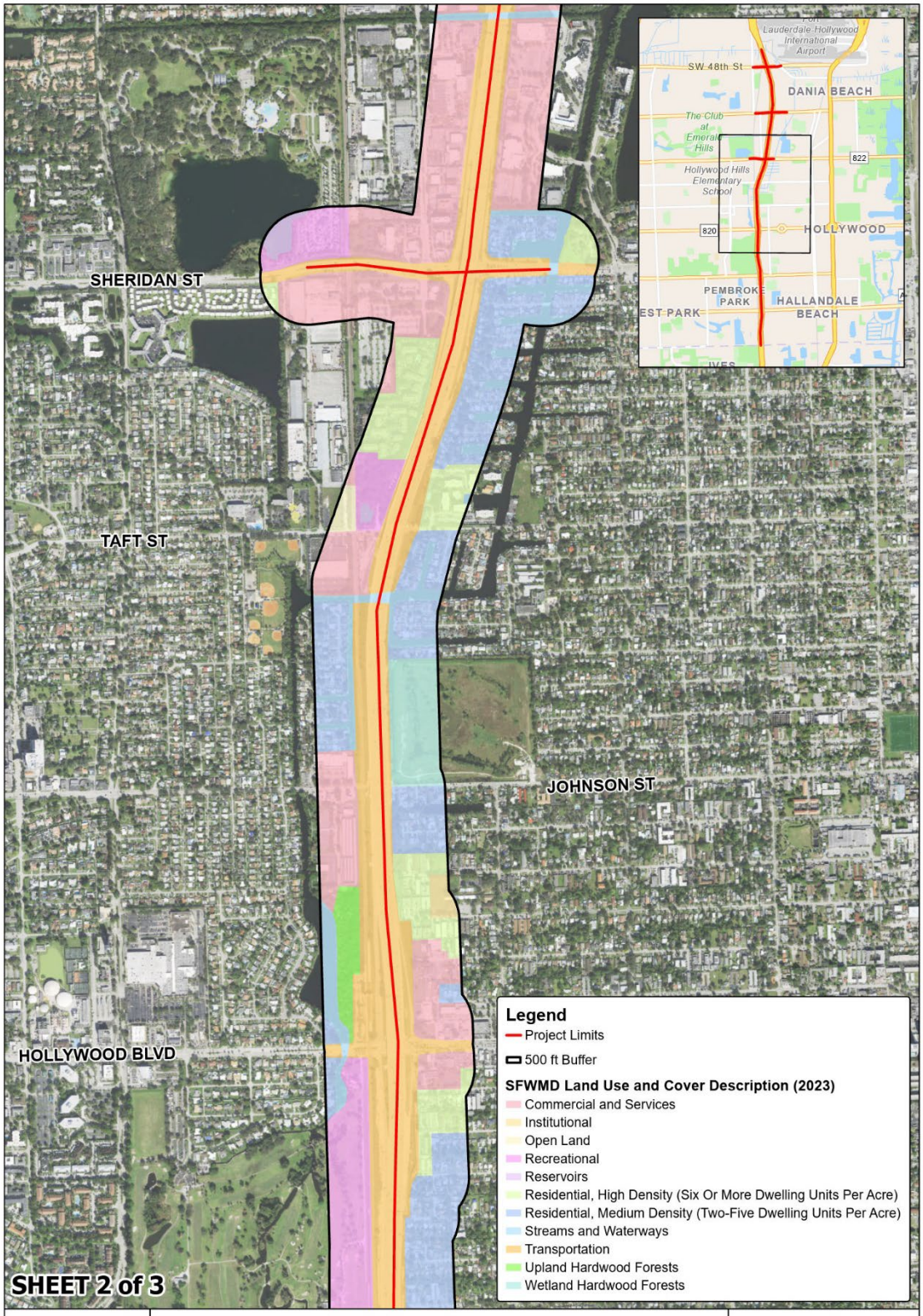
The study area does not intersect any state or federal conservation lands, Florida Forever Priority Lands, Aquatic Preserves (APs), Outstanding Florida Waters (OFWs), or Wild and Scenic Rivers.

2.3.4 WETLANDS AND SURFACE WATERS

Wetlands have very little coverage in the study area while surface waters in the study area are limited to roadside drainage canals and stormwater ponds. Roadside swales are located within or adjacent to the I-95 ROW as part of the existing surface water management system. Multiple stormwater ponds are also within 500 feet of the project area. These areas include drainage ponds along the I-95 corridor and within the three project interchanges. Three canals (Hollywood/C-10 Canal, C-10 Spur Canal, and Dania Cut-Off Canal) are located within or adjacent to the proposed improvements. Wetlands and surface waters are discussed in greater detail in **Section 4.0**.

FIGURE 5: FLUCFCS EXISTING LAND USE




SHERIDAN ST
TAFT ST
JOHNSON ST
HOLLYWOOD BLVD
SHEET 2 of 3
Lauderdale Hollywood International Airport
SW 48th St
DANIA BEACH
The Club at Emerald Hills
Hollywood Hills Elementary School
822
820
HOLLYWOOD
PEMBROKE PARK
HALLANDALE BEACH
Legend
Project Limits
500 ft Buffer
SFWMD Land Use and Cover Description (2023)
Commercial and Services
Institutional
Open Land
Recreational
Reservoirs
Residential, High Density (Six Or More Dwelling Units Per Acre)
Residential, Medium Density (Two-Five Dwelling Units Per Acre)
Streams and Waterways
Transportation
Upland Hardwood Forests
Wetland Hardwood Forests
FDOT
Figure 5: FLUCFCS Existing Land Use
FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL
Image Source: ESRI
Image Date: 2024
0 500 1,000
US Feet

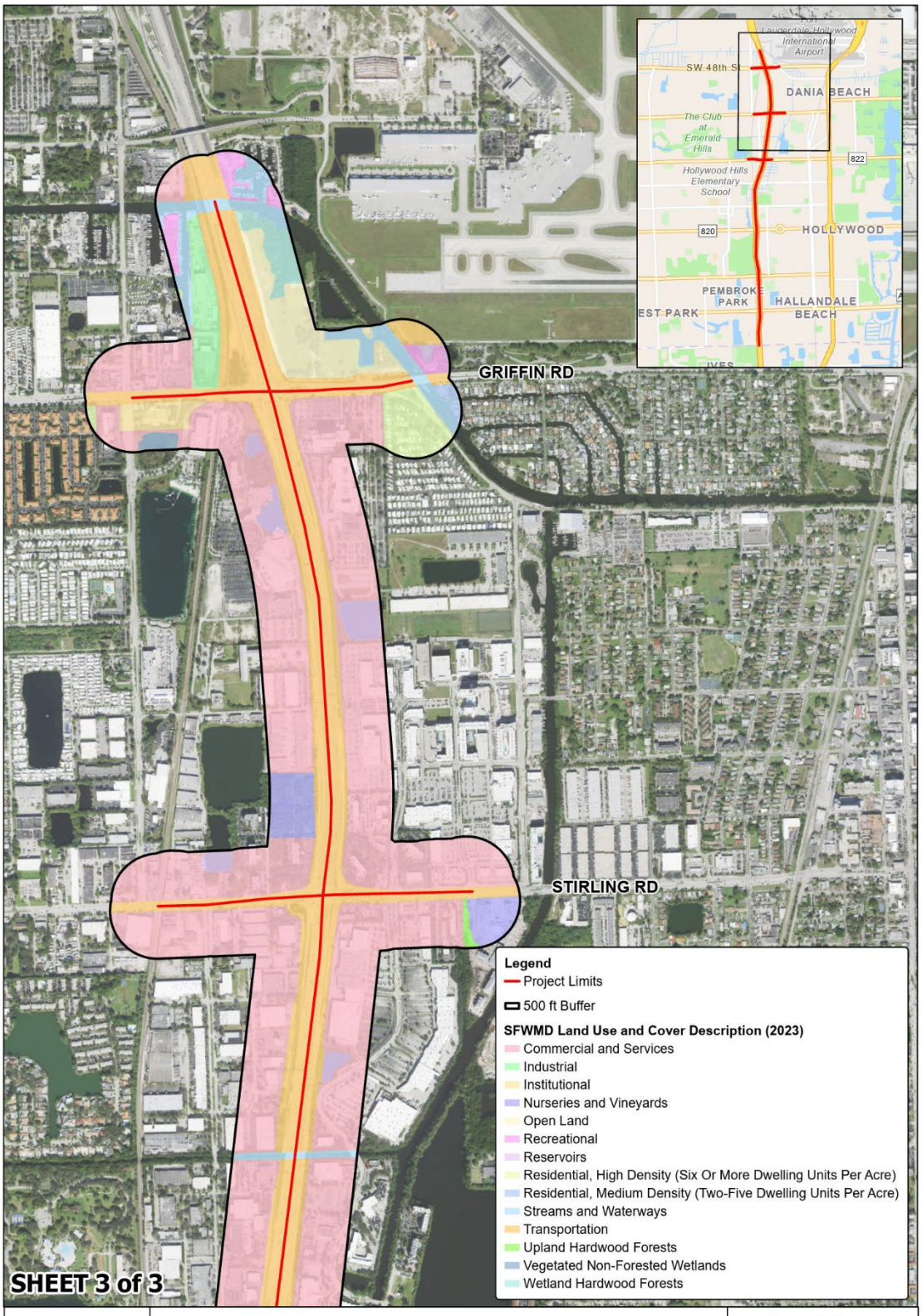


Figure 5: FLUCFCS Existing Land Use

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 500 1,000 US Feet

TABLE 2: EXISTING FLUCFCS LEVEL 2 WITHIN STUDY AREA

FLUCFCS Code	FLUCFCS Description	Acreage	Percent of Study Area
1000: Urban And Built-Up	1200 - Residential, Medium Density (Two-Five Dwelling Units Per Acre)	135.39	10.52%
	1300 - Residential, High Density (Six or More Dwelling Units Per Acre)	102.62	7.98%
	1400 - Commercial And Services	478.44	37.18%
	1500 - Industrial	9.76	0.76%
	1700 - Institutional	15.58	1.21%
	1800 - Recreational	72.83	5.66%
	1900 - Open Land	21.80	1.70%
	Total	**836.46**	**65.01%**
2000: Agriculture	2400 - Nurseries and Vineyards	12.48	0.97%
	Total	**12.48**	**0.97%**
4000: Upland Forests	4200 - Upland Hardwood Forests	8.19	0.64%
	Total	**8.19**	**0.64%**
5000: Water	5100 - Streams and Waterways	45.19	3.51%
	5300 - Reservoirs	23.55	1.83%
	Total	**68.74**	**5.34%**
6000: Wetlands	6100 - Wetland Hardwood Forests	21.85	1.70%
	6400 - Vegetated Non-Forested Wetlands	1.61	0.13%
	Total	**23.46**	**1.82%**
8000: Transportation, Communication, and Utilities	8100 - Transportation	337.37	26.22%
	Total	**337.37**	**26.22%**
	Overall Total	**1,286.70**	**100.00%**

3.0 PROTECTED SPECIES AND HABITAT

The project was evaluated for impacts to wildlife and habitat resources, including protected species, in accordance with 50 Code of Federal Regulations (CFR) Part 402 of the Endangered Species Act (ESA) of 1973, as amended, Florida Department of Agriculture and Consumer Services (FDACS) Regulations 581.185 Florida Statutes and Chapter 5B-40 of the Florida Administrative Code (F.A.C.), and the FDOT PD&E Manual. Wildlife and plant species are protected under the ESA, the Migratory Bird Treaty Act (MBTA), and the State of Florida, pursuant to Florida Statute 379.411.

3.1 METHODOLOGY

Literature reviews, agency database searches, and field reviews of potential habitat areas were conducted to identify state and federally protected species occurring or potentially occurring within the project area. The USDA NRCS Web Soil Survey, recent aerial imagery (2024), and SFWMD land use/land cover mapping were reviewed to determine habitat types occurring within and adjacent to the project study area. The project was screened through the USFWS Information for Planning and Consultation (IPaC) website (Project Code: 2025-0139325). The USFWS IPaC Species Report is included in **Appendix A**.

Information sources and databases include the following:

- Audubon Florida – EagleWatch public nest application (2025 nesting data);
- Hansen, B.F., & Wunderlin, R.P. (2003). Guide to the vascular plants of Florida (2nd ed.). University Press of Florida;
- Florida Legislature – Florida Statutes. Title XXVIII: Natural Resources; Conservation, Reclamation, and Use, Chapter 373: Water Resources;
- FNAI – Biodiversity Matrix Report (**Appendix B**);
- FDACS – Notes on Florida's Endangered and Threatened Plants;
- FDOT
    - ETDM Summary Report (November 8, 2022);
    - Environmental Screening Tool (EST);
    - Tricolored Bat Avoidance and Minimization Measures (December 12, 2024);
- FWC
    - Bald eagle (*Haliaeetus leucocephalus*) nest locator (2017-2025) nesting season data;
    - Wading bird rookeries locator (1999);
    - Bald Eagle Management Plan;
    - Florida's Official Endangered and Threatened Species List (Updated February 2025);
- USDA NRCS – Broward County soil surveys (2023);
- USFWS
    - IPaC Project Code: 2025-0139325 – Species List (**Appendix A**)
    - Species Profiles;
    - CH for threatened and endangered species;

    - Consultation Areas (CAs) for federally listed species;
    - Central and Southern Florida project Manatee Accessibility Map (2006);
- USACE
    - Effect Determination Keys for: the Eastern indigo snake, West Indian manatee, Florida bonneted bat;

Figure 6 depicts field observations as well as historic species occurrences from database searches. Project scientists conducted general species surveys on January 9–10, February 7, and December 13 and 19, 2024. Field teams consisted of ecologists with a minimum of bachelor's degrees in biological science, and several years of field experience in Florida ecosystems. Appropriate habitat within 500 feet of the project area was visually scanned for evidence of listed species as well as general wildlife. All natural areas were considered as appropriate protected species habitat. All occurrences of protected species in the study area were recorded and observation locations were depicted on project aerials. These occurrence records could include observations of the actual species, or signs of their presence including tracks, burrows, dens, scat, nests, or calls.

3.2 RESULTS

A review of USFWS, FWC, and FNAI data indicates 19 protected wildlife species are known to occur in Broward County. Of those species, the Eastern black rail (*Laterallus jamiacensis jamaicensis*), Florida panther (*Puma concolor coryi*), and Southeastern beach mouse (*Peromyscus polionotus niveiventris*) were determined to have no probability of occurrence due to a lack of suitable habitat within the project study area. Therefore, the proposed project will have no effect on these species and are not discussed further in this report.

All federally and state listed plant species evaluated have no probability of occurrence due to a lack of suitable habitat within the project study area. Therefore, the proposed project will have "no effect" or "no effect anticipated" on these species and are not discussed further in this report. FDOT will notify FDACS if any listed plant species are observed during future surveys.

The project is within the CA for the Everglade snail kite (*Rostrhamus sociabilis plumbeus*), American crocodile (*Crocodylus acutus*), and the Florida bonneted bat (*Eumops floridanus*). The tricolored bat (*Perimyotis subflavus*) and the monarch butterfly (*Danaus plexippus*) are not listed at this time; however, both are proposed for federal listing and are therefore evaluated in this NRE.

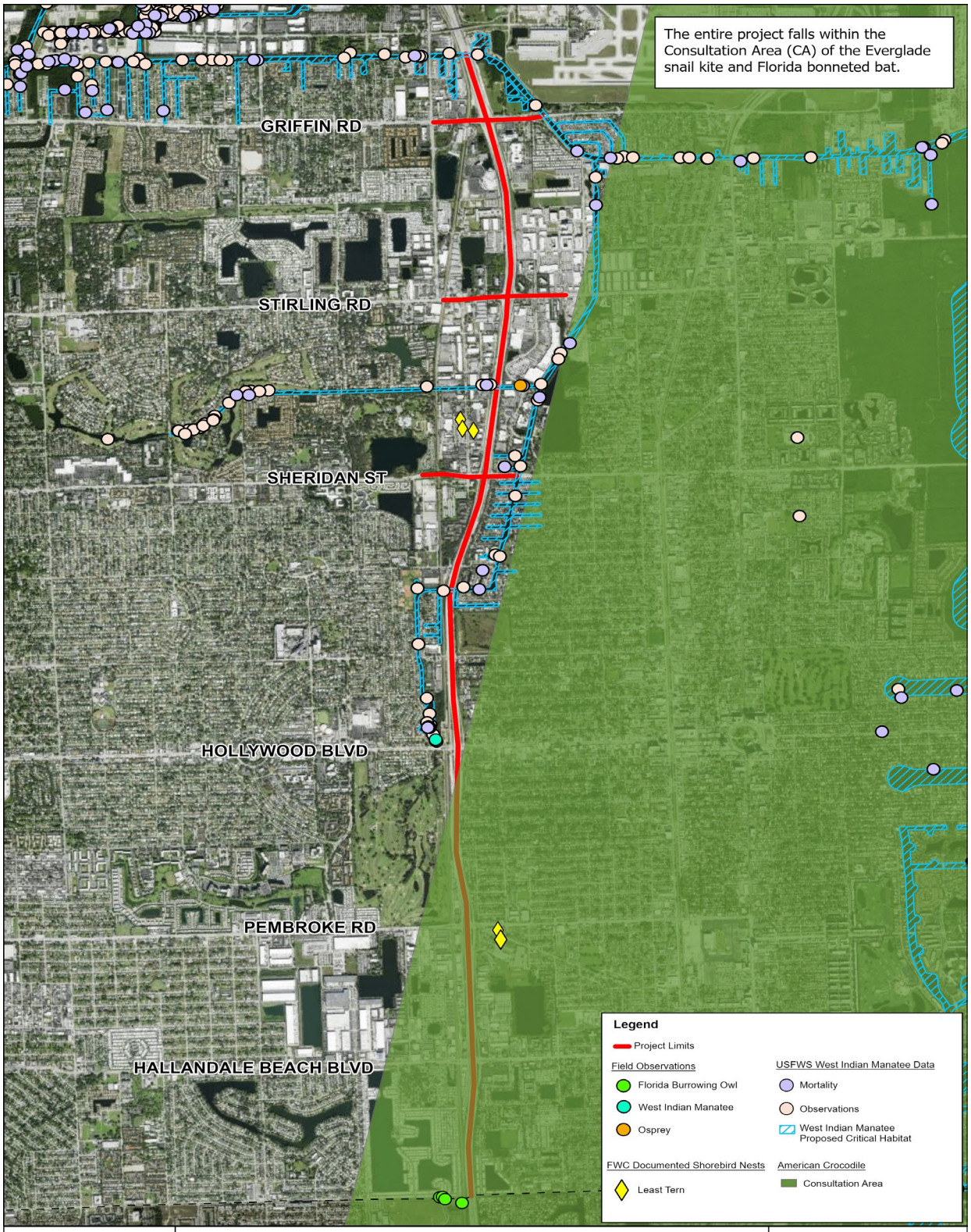


Figure 6: Protected Species

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 1,500 3,000 US Feet

Each potentially occurring species was assigned a likelihood of occurrence of "no", "low", "moderate", or "high" based on the types of habitats found along the project corridor. Definitions of probability of species presence are provided below.

Probability of Species Presence

No – The species has been documented in Broward or the bio-region, but due to complete absence of suitable habitat and lack of observations within one mile of the project, could not be naturally present within the project corridor.

Low – The species is known to occur in Broward or the bio-region, but preferred habitat is limited along the project corridor and no documented observations are within one mile of the project.

Moderate – The species is known to occur in Broward or the bio-region, suitable habitat is represented along the project corridor, and the species has been documented within one mile of the project or is expected to occasionally occur within the project corridor given suitable habitat.

High – The species is known to occur in Broward or the bio-region, suitable habitat is represented along the project corridor, and the species has recently been documented within the project corridor.

Table 4 lists the federal and state wildlife species known to occur within Broward that could potentially occur near the project study area based on potential availability of suitable habitat and known ranges.

TABLE 3: POTENTIALLY OCCURRING AND OBSERVED LISTED WILDLIFE SPECIES

Species	Common Name	FWC	USFWS	Suitable Habitat	Probability of Occurrence
REPTILES					
Crocodylus acutus	American crocodile	-	T	Coastal and brackish environments	Low
Drymarchon corais couperi	Eastern indigo snake	-	T	Hydric hammock, palustrine, sandhill scrub, upland pine forest, mangrove swamp	Low
Gopherus polyphemus	Gopher tortoise	T	-	Sandhill, scrub, xeric hammock, ruderal, dry prairie, pine flatwood	Low
BIRDS					
Haliaeetus leucocephalus	Bald eagle	-	NL[1]	Estuarine, lacustrine, riverine, tidal marsh, tall trees or structures for nesting	Low
Rostrhamus sociabilis plumbeus	Everglade snail kite	-	E	Lowland freshwater marshes and littoral shelves of lakes	Low
Athene cunicularia floridana	Florida burrowing owl	T	-	Native prairies and cleared areas with short groundcover	Moderate
Egretta caerulea	Little blue heron	T	-	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Moderate
Egretta rufescens	Reddish egret	T	-	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Low
Egretta tricolor	Tricolored heron	T	-	Estuarine, lacustrine, riverine, tidal marsh, tidal swamp	Moderate
Sternula antillarum	Least tern	T	-	Open sandy or gravelly beaches and banks. Flat gravel-covered rooftops.	Moderate
Pandion haliaetus	Osprey	-	NL[1]	Open water; areas of cypress, mangrove, pine and swamp hardwoods for nesting	High
Mycteria americana	Wood stork	T[2]	-	Estuarine tidal swamps/marshes, lacustrine, seepage stream, ditches, ruderal	High
MAMMALS					
Eumops floridanus	Florida bonneted bat	-	E	Cavities in natural and manmade structures	Low
Perimyotis subflavus	Tri-colored bat	-	P	Cavities in structures, trees, and land formations	Low
Trichechus manatus	West Indian manatee	-	T	Coastal waters, bays, rivers	High
INVERTEBRATES					
Danaus plexippus	Monarch butterfly	-	P	Diversity of blooming nectar plants, specifically milkweed	Low

*T = Threatened, E = Endangered, NL = Not Listed

USFWS Notations:

[1] The bald eagle and osprey are not listed but are afforded federal protection through the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).

[2] The wood stork was recently delisted from the ESA on March 12, 2026 and is therefore no longer federally listed.

P = The tricolored bat and monarch butterfly are proposed species for federal listing.

FWC Notations:

In accordance with Florida Administrative Code (F.A.C.) Title 68A-27.0012, Procedures for Listing and Removing Species from Florida's Endangered and Threatened Species List, federally endangered or threatened species under the Endangered Species Act (ESA) will be listed by the FWC by their federal designation.

3.3 FEDERALLY LISTED SPECIES

3.3.1 BIRDS

Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*)

The Everglade snail kite is listed as endangered and can be found in shallow freshwater marshes and shallow grassy shorelines of lakes. Although the project area is within the CA for the species, no suitable habitat exists within or adjacent to the project area. Additionally, there are no documented occurrences of the Everglade snail kite within one mile of the project and no observations were made during field reviews. Therefore, this project is anticipated to have "no effect" on the Everglade snail kite.

3.3.2 MAMMALS

West Indian Manatee (*Trichechus manatus*)

The West Indian manatee, listed as threatened and protected under the Marine Mammal Protection Act (MMPA), inhabits both marine and freshwater habitats and seeks warm-water refuges during the winter months. Although the project area is not located within its designated CA, it lies within a FWC slow-speed protection zone, including the Dania Cut-Off Canal and the Hollywood/C-10 Canal. USFWS-proposed CH for the species is present within the Dania Cut-Off Canal and overlaps portions of the proposed project footprint. During a field review, three manatees (**Appendix C**) were observed within the Hollywood/C-10 Canal within the project study area (**Figure 6**).

No impacts to potential foraging habitat (e.g. seagrasses) are anticipated. Potential impacts include temporary in-water noise during construction, the presence of construction vessels, and temporary obstruction of portions of the waterways. FDOT will follow the Standard Manatee Conditions for In-Water Work (**Appendix D**). Using the USACE Manatee Effect Determination Key (**Appendix E**, Steps A>B>C>G>N>O>P), the determination of effect for the West Indian manatee is "may affect, not likely to adversely affect" and no further consultation with USFWS is necessary. Because there will be no net loss in suitable habitat, the project is not anticipated to adversely affect the proposed CH for this species. FDOT will coordinate with the USFWS as necessary upon finalization of the West Indian manatee CH if the project falls within the designated area.

Florida Bonneted Bat (*Eumops floridanus*)

The Florida bonneted bat is listed as endangered and inhabits forests, wetlands, open water areas, and both natural and manmade structures in southern Florida. The project is within the CA for the species. During field surveys, visual inspections of potential roosting trees, cavities, and the existing bridge were conducted, and no sightings or evidence of bats were observed. Based on a review of available resources, there are no documented occurrences of the Florida bonneted bat within one mile of the project; however, due to the presence of potential roosting habitat, the probability of occurrence is considered low. Based on the USFWS Consultation Key for the Florida

Bonneted Bat – Revised (2024) (1a>2a>3c>4a>5b>6a>8a "*MANLAA*") (**Appendix F**), the determination of effect is "may affect, not likely to adversely affect with BMPs D1-D7."

Tricolored Bat (*Perimyotis subflavus*)

The tricolored bat was proposed for federal listing by USFWS as endangered on September 13, 2022, but is currently not a federally listed species. There is no CA for this species at this time. This species hibernates in caves during the winter and roosts in tree foliage, palm fronds, and man-made structures during the summer. During field surveys, visual inspections of potential roosting trees, cavities, and the existing bridge were conducted, and no sightings or evidence of bats were observed.

FDOT consulted with the USFWS on December 3, 2024, to discuss procedures that will be followed for FDOT projects in the preparation for potential ESA listing for the tricolored bat. Based on the Tricolored Bat Consultation Guidance (2025), the project will have "no effect" on the tricolored bat and no further action is required at this time. If the listing status of the tricolored bat is elevated by USFWS to threatened or endangered and the Preferred Alternative is located within the CA, FDOT will coordinate with the USFWS as necessary during the design and permitting phase of the project to determine the appropriate survey methodology.

3.3.3 REPTILES

American Crocodile (*Crocodylus acutus*)

The American crocodile is listed as a threatened species under the ESA. The species typically inhabits mangrove swamps and low-energy, mangrove-lined bays, creeks, canals, and inland swamps, with its current distribution limited to South Florida. The CA for the American crocodile overlaps the project limits; however, only minimal areas of low-quality potential habitat are present within the project footprint. The majority of the project corridor is located within the highly urbanized and built-out I-95 corridor and consists predominantly of developed uplands, transportation infrastructure, and engineered drainage features.

The canals within the project area may provide limited, low-quality foraging habitat for the American crocodile; however, these canals and adjacent areas do not provide suitable nesting habitat due to hardened and modified shorelines, lack of appropriate nesting substrate, limited upland interface, and frequent human disturbance. Although a crocodile warning sign was observed during the field review along the Hollywood/C-10 Canal adjacent to the Hollywood Tri-Rail Station on Hollywood Boulevard (**Appendix C**), no individuals or suitable nesting habitat were observed during field reviews, and there are no documented occurrences within one mile of the project limits. Based on the highly developed nature of the project corridor, the limited availability and quality of habitat, and the absence of documented occurrences, the project will have "no effect" on the American crocodile.

Eastern Indigo Snake (*Drymarchon corais couperi*)

The Eastern indigo snake is listed as threatened and may inhabit a variety of natural areas including forested and herbaceous uplands and wetlands. It may also utilize gopher tortoise burrows for shelter to escape hot or cold ambient temperatures within its range. Based on FWC's Rare Snake Sightings data, no observations were documented within one mile of the project study area. Habitat within and adjacent to the corridor is highly developed and dominated by residential and commercial environments, providing little to no suitable conditions for the species. No Eastern indigo snakes or gopher tortoise burrows were observed during project field reviews. The FDOT will implement the USFWS Standard Protection Measures for the Eastern Indigo Snake (**Appendix G**). Using the USACE Effect Determination Key for the Eastern Indigo Snake (**Appendix H)**, Steps A>B>C>D>E), the determination of effect is "may affect, not likely to adversely affect" the Eastern indigo snake.

3.3.4 INVERTEBRATES

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly was proposed for listing under the ESA by USFWS on December 12, 2024. Within North America, the monarch butterfly is a highly migratory species which typically winters in Mexico. This species requires a diversity of blooming nectar resources, but of particular importance is milkweed (*Asclepias spp*.). Milkweed is a microhabitat requirement for this species to both deposit eggs and as a larval nutrition source. Milkweed was not observed during field reviews, but it is possible that it can sporadically exist in adjacent parks or open land uses when maintenance activities such as mowing are infrequent. As this species is currently proposed for listing, consultation is not required at this time. If the listing status of the monarch butterfly is elevated by USFWS to threatened or endangered and the proposed project is located within the CA, FDOT will coordinate with the USFWS as necessary during the design and permitting phase of the project to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the monarch butterfly.

3.4 STATE LISTED SPECIES

3.4.1 REPTILES

Gopher Tortoise (*Gopherus polyphemus*)

The gopher tortoise is listed as threatened and its burrows provide habitat for many commensal species. Gopher tortoises are commonly found in areas containing xeric, well-drained soils including sandhills, xeric pine-oak hammocks, scrub-shrub habitats, pine flatwoods, coastal dunes, pastures, orange groves, and disturbed sites. A desktop review using FWC's data indicated that there are no gopher sightings within one mile of the project area. No burrows were observed during preliminary field surveys of appropriate habitat. 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. Gopher tortoises will be addressed in accordance with FWC Gopher Tortoise Permitting Guidelines. The project will have "no adverse effect anticipated" on the gopher tortoise.

3.4.2 BIRDS

Florida Burrowing Owl (*Athene cunicularia floridana*)

The Florida burrowing owl is listed as threatened and occurs in localized areas throughout peninsular Florida. The species inhabits open prairies in Florida that have very little understory vegetation and good visibility. These areas include golf courses, airports, pastures, agriculture fields, and vacant lots. The species utilizes existing subterranean burrows created by other species (including gopher tortoises, opossums, and armadillos).

A field review conducted on December 13, 2024 identified four burrows (**Figure 6**) just outside the study area within Ives Estates Park (**Appendix C**). Surveys for the Florida burrowing owl will be conducted during the design phase. If it is determined individuals or nest areas are found and could be impacted by the project, FDOT will coordinate with FWC to determine appropriate avoidance and minimization measures to apply during construction. If burrowing owls are found, coordination with the FWC will establish avoidance, minimization, and permitting options. As a result of these measures, the project will have "no adverse effect anticipated" on the Florida burrowing owl.

Least Tern (*Sternula antillarum*)

The least tern is listed as threatened and occurs along coastal Florida, with occasional use of sandy inland areas. The species breeds on sandy or gravelly beaches and banks and is also known to nest on graveled-covered building roofs. Nesting in the region generally occurs from April through September.

A desktop review of FWC data identified a cluster of three documented least tern nests, the closest located approximately 330 feet west of I-95. During multiple field visits conducted to assess listed species, no least terns or nesting activity was observed within the project footprint. The project footprint does not contain suitable nesting habitat due to the absence of open sandy areas. Although the project area includes flat gravel-roofed buildings and least terns have been historically documented in the vicinity by FWC, the proposed project would not impact rooftop nesting habitat. Therefore, the project will have "no effect anticipated" on the least tern.

Wading Birds - Little Blue Heron (*Egretta caerulea*), Tricolored Heron (*Egretta tricolor*), Reddish Egret (*Egretta rufescens*), Roseate Spoonbill (*Platalea ajaja*)

Wading birds such as the little blue heron and tricolored heron are listed threatened and are afforded some levels of federal protection by the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712). The reddish egret and roseate spoonbill are also known as part of the commonly listed wading birds; however, they are not known to occur in Broward or Miami-Dade counties. The closest wading bird rookery is approximately 1.6-mile south as recorded in 1999. These species utilize shallow herbaceous or shrub-dominated wetlands for both nesting and foraging habitat. The project does not propose impacts to wetlands or surface waters that provide foraging habitat for wading birds. Therefore, it is anticipated that the project will have "no adverse effect anticipated" on state protected wading birds.

Wood Stork (*Mycteria americana*)

The USFWS has removed the Southeast U.S. distinct population segment of the wood stork from the Federal List of Endangered and Threatened Wildlife, effective March 12, 2026. Federal agencies (including FDOT under NEPA assignment) will no longer be required to consult with the USFWS under section 7 of the Act for the wood stork. The wood stork is now a state listed threatened species, occurring on Florida's Endangered and Threatened Species List with state protections through the FWC who regulate and manage these species (68A-27, F.A.C.). Also, the species remains protected under the MBTA.

Wood storks often utilize a variety of freshwater and brackish wetland habitats for foraging and typically nest colonially in medium to tall trees located within wetlands or on islands. Wood storks were observed during general wildlife surveys adjacent to the project limits at a stormwater pond within Oakwood Plaza and at the Orangebrook Golf & Country Club (**Figure 6**). During the design phase, surveys will be conducted to identify active nest locations, and permits will be obtained if construction will unavoidably impact nests. Coordination with FWC will occur as needed. With these measures in place, the project will have "no effect anticipated" on the wood stork.

3.5 PROTECTED NON-LISTED WILDLIFE SPECIES

Bald Eagle (*Haliaeetus leucocephalus*)

This species receives federal protection under the MBTA and BGEPA. Bald eagle nesting territories are clustered around lakes, rivers, and coastal systems throughout Florida. The project study area contains stormwater ponds that provide low-quality habitat for bald eagles. A desktop review using the FWC's data and Audubon EagleWatch 2025 nesting data indicates that the closest documented nest (BO004) to the project is approximately three miles north of the project limits with an occupied status. There have been no documented occurrences of bald eagles within one mile of the project, and no individuals or nests were observed during project field surveys. Surveys to update nest locations will be conducted during the design phase, and permits will be obtained if construction may impact nests. Coordination with USFWS and FWC will occur as needed. Therefore, the project will have "no effect anticipated" on the bald eagle.

Osprey (*Pandion haliaetus*)

The osprey is federally protected under the MBTA and forage on fish in open fresh and saltwater habitats, including coasts, lakes, rivers, and swamps. Ospreys often utilize manmade structures such as utility poles and cell towers as nesting sites for protection and open visibility over foraging areas. The study area contains stormwater ponds that provide low-quality habitat for ospreys. One osprey was observed during the December 19, 2024 field review flying over the C-10 Spur Canal. A review of available records indicates that there are no documented occurrences of ospreys or known nesting sites within one mile of the project. During the design phase, surveys will be conducted to identify active nest locations, and permits will be obtained if construction will

unavoidably impact nests. Coordination with USFWS and FWC will occur as needed. With these measures in place, the project will have "no effect anticipated" on the osprey.

Non-Listed Bat Species

All bat species are protected in Florida per Chapter 68A of the F.A.C. The following bat species are known to occur in the region; the Brazilian free-tail (*Tadarida brasiliensis*), evening (*Nycticeius humeralis*), big brown (*Eptesicus fuscus*), northern yellow (*Dasypterus intermedius*), and Rafinesque's big-eared (*Corynorhinus rafinesquii*). Bats utilize structures such as bridges and tree cavities for roosting habitat. A survey was conducted within the project area to identify potential bat presence, and no evidence of bats was found. If future surveys conducted during the final design phase identify roosting bats in mature trees or the I-95 (S.R. 9) overpass, FDOT will coordinate with FWC to prepare a bat exclusion plan. The determination of effect is "no adverse effect anticipated" to bat species.

4.0 WETLAND EVALUATION

4.1 WETLANDS AND OTHER SURFACE WATERS

In accordance with the FDOT PD&E Manual, Executive Order 11990, Protection of Wetlands, as well as applicable federal and state regulatory requirements (Section 404 of the Clean Water Act and Chapter 373, Florida Statute, respectively), a wetland and surface water evaluation was conducted for the project. The objectives of this evaluation were to identify existing wetlands and surface waters, evaluate potential impacts to them, and to assess the function and value of wetlands potentially impacted by the project.

4.2 METHODOLOGY

The extent and types of wetlands and surface waters in the project study limits were documented in accordance with EO 11990 Protection of Wetlands, U.S. DOT Order 5660.1A, FHWA Technical Advisory T6640.8A, and the FDOT PD&E Manual. Wetlands were identified through the review of GIS data and field verification. The following sources were reviewed prior to conducting the field review:

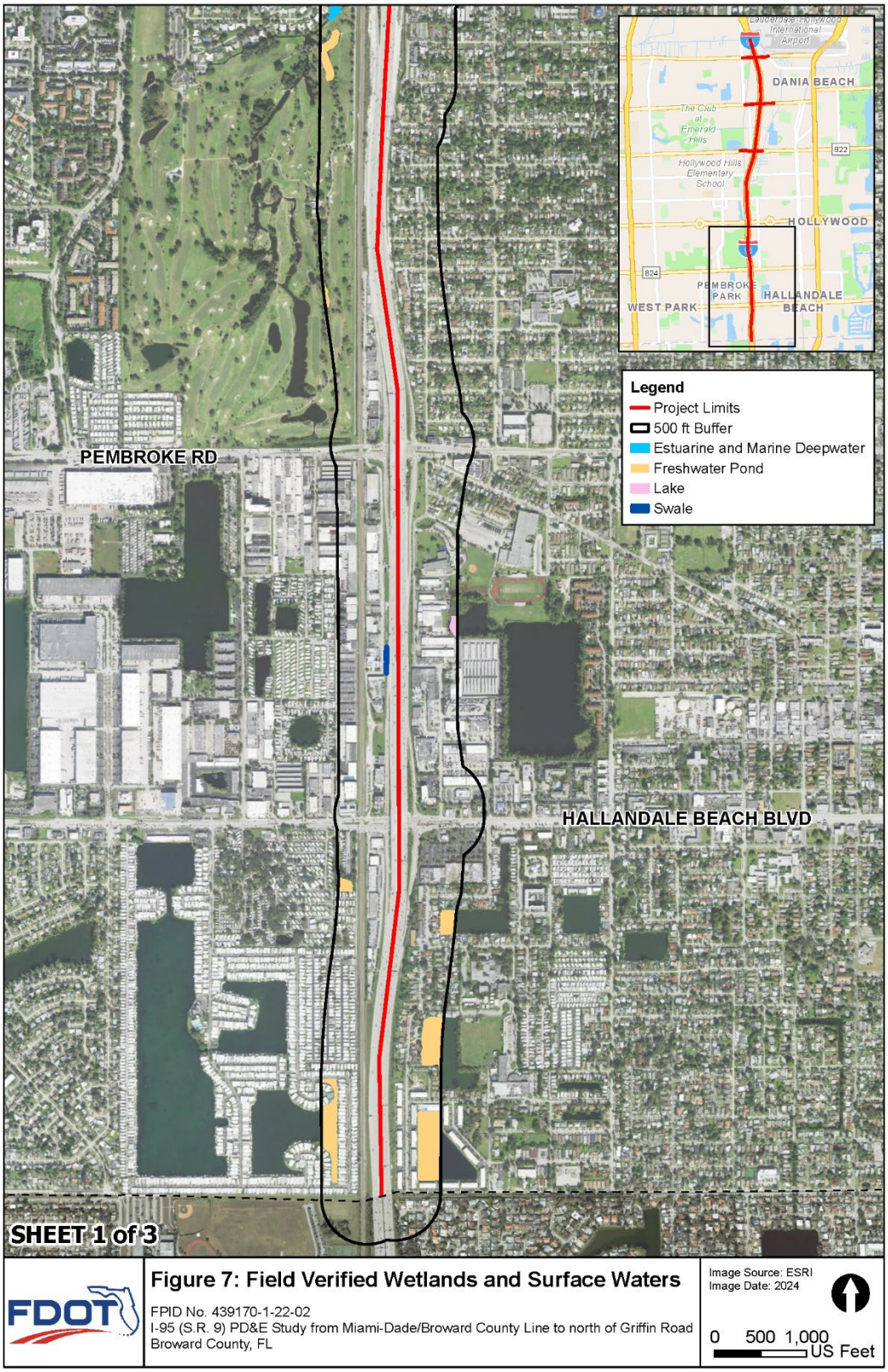
- ETDM #14500 Summary Report (November 2022);
- Recent aerial imagery (2024);
- USFWS National Wetland Inventory (NWI) Maps;
- Land use and land cover maps (SFWMD 2023); and
- NRCS Soils Survey of Broward County, Florida (2024).

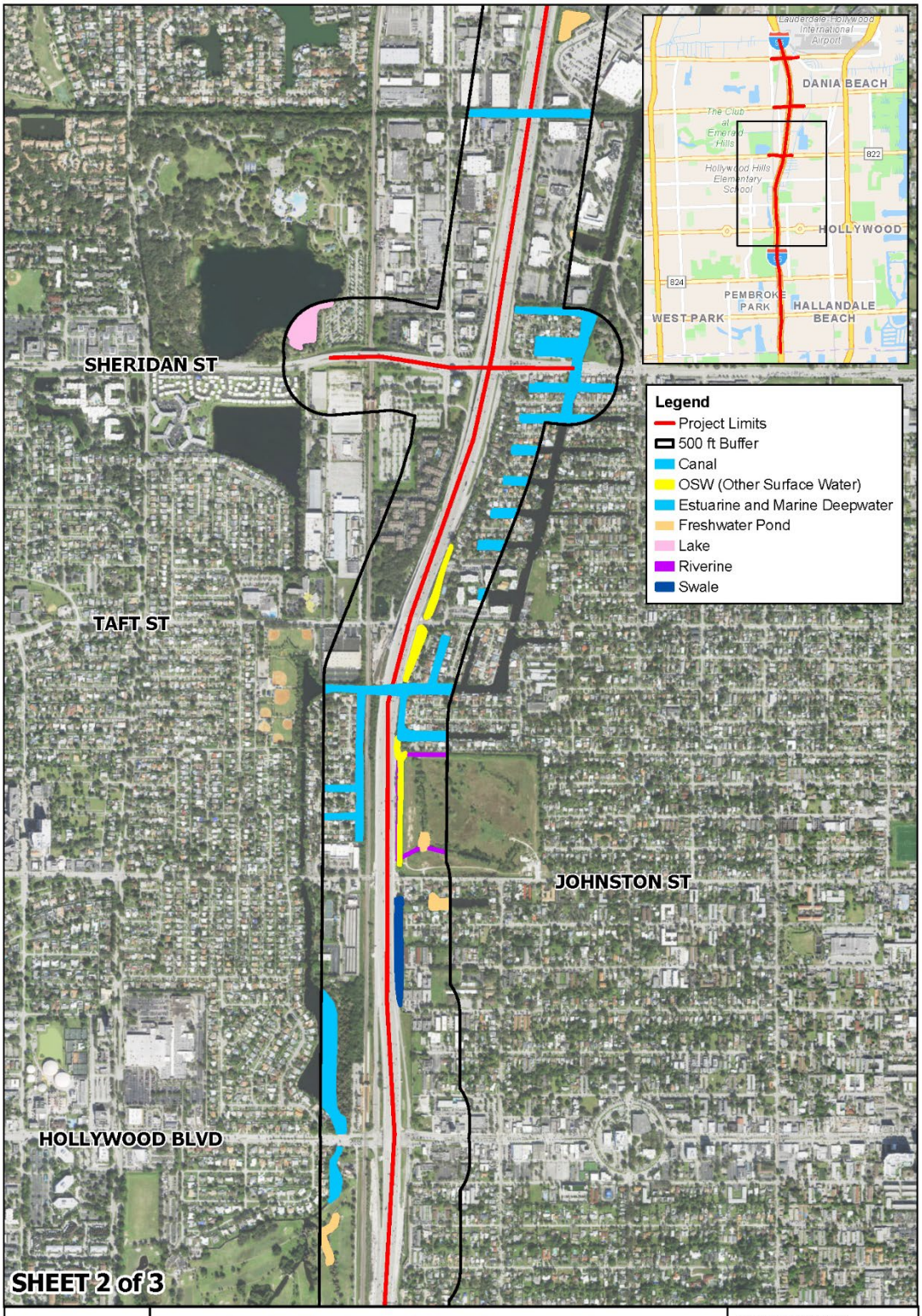
Subsequent to the review of all available materials, field assessments were conducted on January 9–10, February 7, and December 13 and 19, 2024 to identify the presence of wetland vegetation, evidence of hydrology, and hydric soil indicators. During field reviews of the study area, environmental scientists aerially-delineated the approximate boundaries of existing wetland, surface water, and other surface water communities. Each system within the study area was classified using FLUCFCS (SFWMD 2024) and the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al. 1979). Approximate boundaries were identified in accordance with the Florida statewide unified wetland delineation methodology as adopted by the FDEP and the Water Management Districts (WMDs) per Chapter 62-340 of the F.A.C. and described in The Florida Wetlands Delineation Manual, the USACE 1987 Corps of Engineers Wetland Delineation Manual (Y-87-1) and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coast Plain Region (Version 2.0) (ERDC/EL TR-10-20). Formal wetland boundaries were not determined as part of this study and will be completed during the design and permitting phase of this project.

4.3 WETLAND AND SURFACE WATERS

Figure 7 depicts the location of field-verified wetland and surface water features within the project area. Within the project footprint, two estuarine and marine wetlands are present east of I-95, adjacent to the Dania Cut-Off Canal and within Airport Greenbelt Park along Griffin Road. A freshwater emergent wetland is present south of Griffin Road, adjacent to the Fort Lauderdale Airport Tri-Rail Station. OSWs including roadside swales and stormwater ponds are located within or adjacent to the I-95 ROW as part of the existing surface water management system. Three canals (Hollywood/C-10 Canal, C-10 Spur Canal, and Dania Cut-Off Canal) are located within the proposed improvements. Numerous artificial ponds associated with residential communities and golf courses occur adjacent to the project limits.

FIGURE 7: FIELD VERIFIED WETLANDS AND SURFACE WATERS




SHERIDAN ST
TAFT ST
JOHNSTON ST
HOLLYWOOD BLVD
SHEET 2 of 3
DANIA BEACH
HOLLYWOOD
PEMBROKE PARK
WEST PARK
HALLANDALE BEACH
822
824
Legend
Project Limits
500 ft Buffer
Canal
OSW (Other Surface Water)
Estuarine and Marine Deepwater
Freshwater Pond
Lake
Riverine
Swale
FDOT
Figure 7: Field Verified Wetlands and Surface Waters
FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL
Image Source: ESRI
Image Date: 2024
0 500 1,000
US Feet

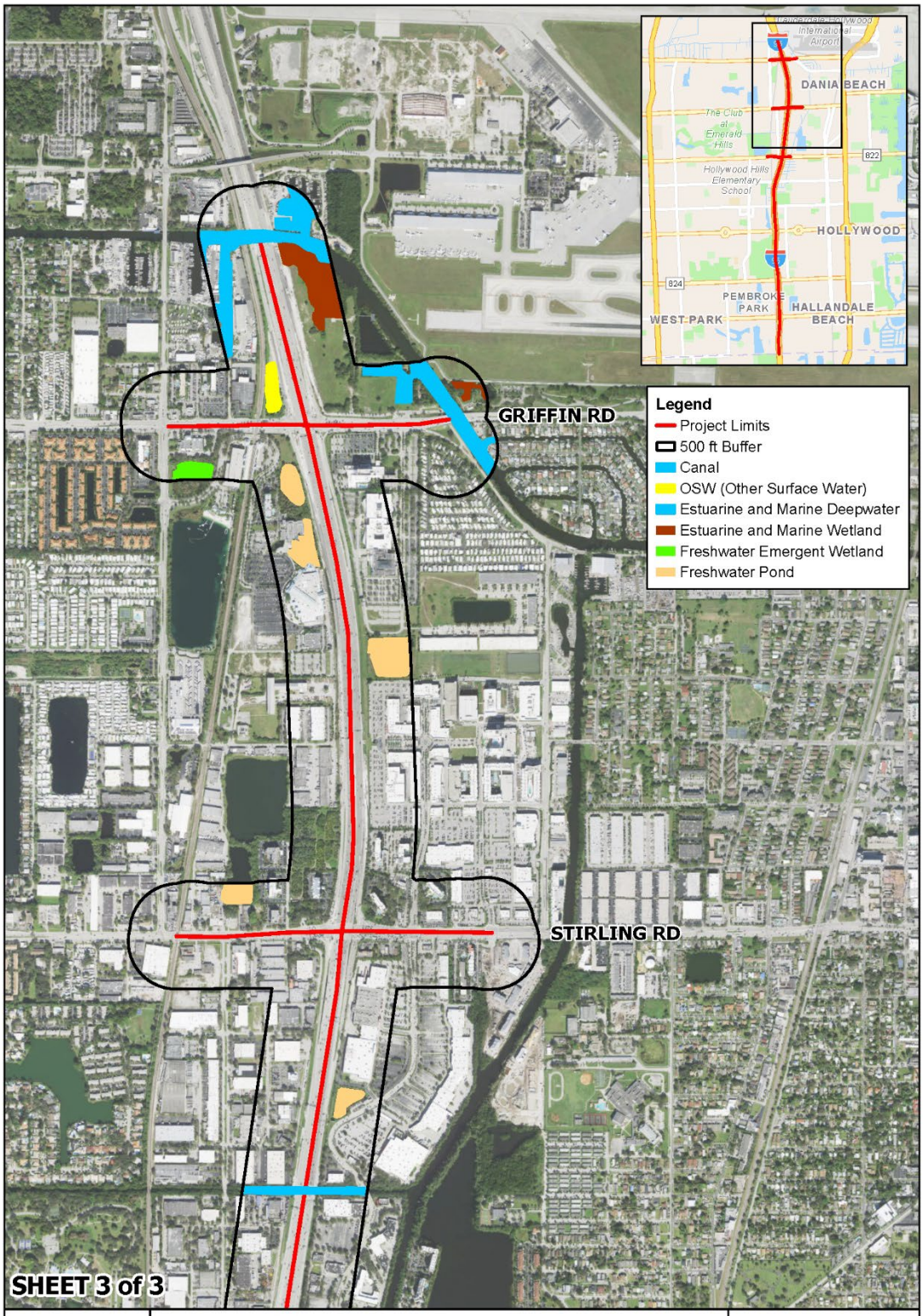


Figure 7: Field Verified Wetlands and Surface Waters

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 500 1,000 US Feet

4.3.1 WETLAND AND SURFACE WATER IMPACTS

No wetland impacts are anticipated. Impacts are limited to OSWs including roadside swales, stormwater ponds and conveyance features, and minor impacts are anticipated to the Dania Cut-Off Canal, C-10 Spur Canal, and Hollywood/C-10 Canal. **Figure 8** provides the locations of all impacts to OSWs and named canals. Descriptions of all impacted OSWs and named canals are provided below.

Swale-1 – Swale-1 is a 0.11-acre wet stormwater swale, located adjacent to I-95 on the west, between Pembroke Road and Hallandale Beach Boulevard. Observed vegetation included cattail (*Typha spp*.) This area appeared to be regularly maintained at the time of the field visit, with fresh cut grass at the edges of the swale. Swale-1 is anticipated to be completely impacted, encompassing approximately 0.11 acres.

Swale-2 – Swale-2 is a 1.27-acre wet stormwater swale, located adjacent to I-95 on the east, between Johnson Street and Hollywood Boulevard. The swale is dominated by bald cypress with herbaceous vegetation and invasives consisting of mainly American evergreen (*Syngonium podophyllum*), Britton's wild petunia (*Ruellia caerulea*), pothos vine (*Epipremnum pinnatum*), Brazillian pepper (*Schinus terebinthifolia*). A drainage culvert discharges to this swale, and four drainage structures were identified along the base of the slope. The area did not appear to be regularly maintained at the time of the field visit, with overgrown grasses at the edge of the swale. It is anticipated that approximately 0.05 acres of Swale-2 will be impacted.

OSW-1 – OSW-1 is a 4.00-acre wet ditch located within the City-owned vacant parcel (Sunset Golf course property). The ditch was observed to be heavily vegetated with cattails, Brazilian pepper, and surrounding overgrown grasses. No hydrologic connection between the ditch and the residential canal to the north was observed during the field review. It is anticipated that approximately 0.12 acres of OSW-1 will be impacted.

OSW-2 – OSW-2 is a stormwater pond adjacent to I-95 on the east, south of Taft Street. Multiple culverts surround and discharge to this drainage feature. The system comprises approximately 0.66 acres within the 500-foot project buffer and is dominated by open water with no littoral vegetation. It is anticipated that approximately 0.36 acres of OSW-2 will be impacted.

OSW-3 – OSW-3 is a stormwater pond adjacent to I-95 on the east, north of Taft Street. Multiple culverts surround and discharge to this drainage feature. The system comprises approximately 0.47 acres within the 500-foot project buffer and is dominated by open water with no littoral vegetation. It is anticipated that approximately 0.35 acres of OSW-3 will be impacted.

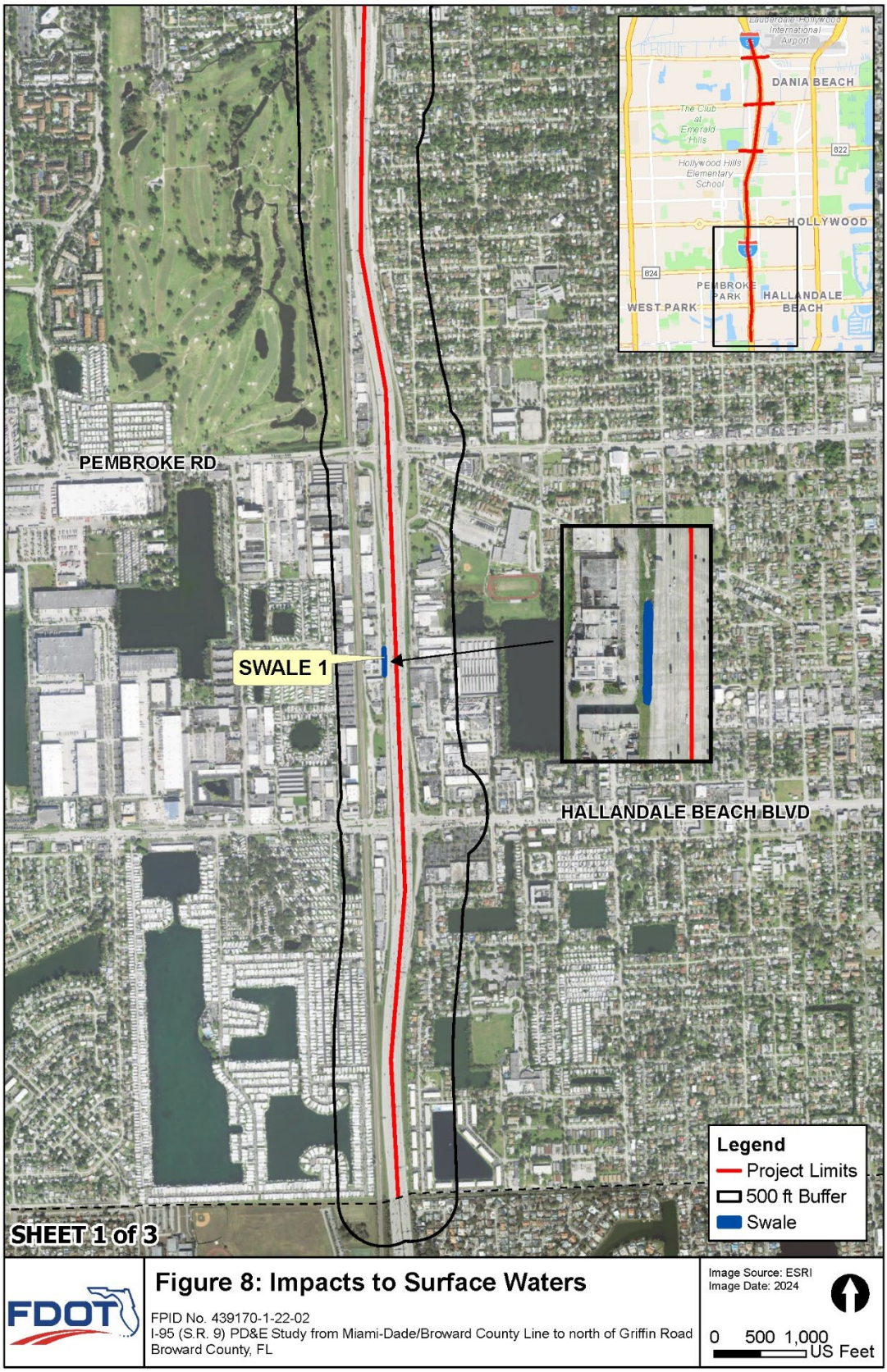
OSW-4 – OSW-4 is a stormwater pond adjacent to I-95 on the west, north of Griffin Road. Multiple culverts surround and discharge to this drainage feature. The system comprises approximately 1.12 acres within the 500-foot project buffer and is dominated by open water with no littoral vegetation. It is anticipated that approximately 0.08 acres of OSW-4 will be impacted.

Hollywood/C-10 Canal – The Hollywood/C-10 Canal is a drainage canal located within the project study area and maintained for regional stormwater conveyance. The canal is characterized by open surface water with stabilized banks. Mangrove fringe communities are present intermittently along portions of the canal, particularly near the water's edge, but are not within the footprint of the project and are not anticipated to be impacted. It is anticipated that approximately 0.13 acres of the Hollywood/C-10 Canal will be impacted.

C-10 Spur Canal – The C-10 Spur Canal is a drainage canal that connects to the C-10 Canal and functions as a stormwater conveyance system within the project study area. The canal consists of open water with maintained banks. Red and white mangrove fringe communities were observed along portions of the canal but are not within the project footprint and are not anticipated to be impacted. It is anticipated that approximately 0.05 acres of the C-10 Spur Canal will be impacted.

Dania Cut-Off Canal – The Dania Cut-Off Canal is a major regional canal within the project study area that provides stormwater conveyance and hydrological connectivity to downstream waters. The canal is characterized by open surface water and stabilized banks with mangrove fringe communities present along portions of the shoreline; however, impacts to mangrove vegetation are not anticipated. It is anticipated that approximately 0.03 acres of the Dania Cut-Off Canal will be impacted.

FIGURE 8: IMPACTS TO SURFACE WATERS



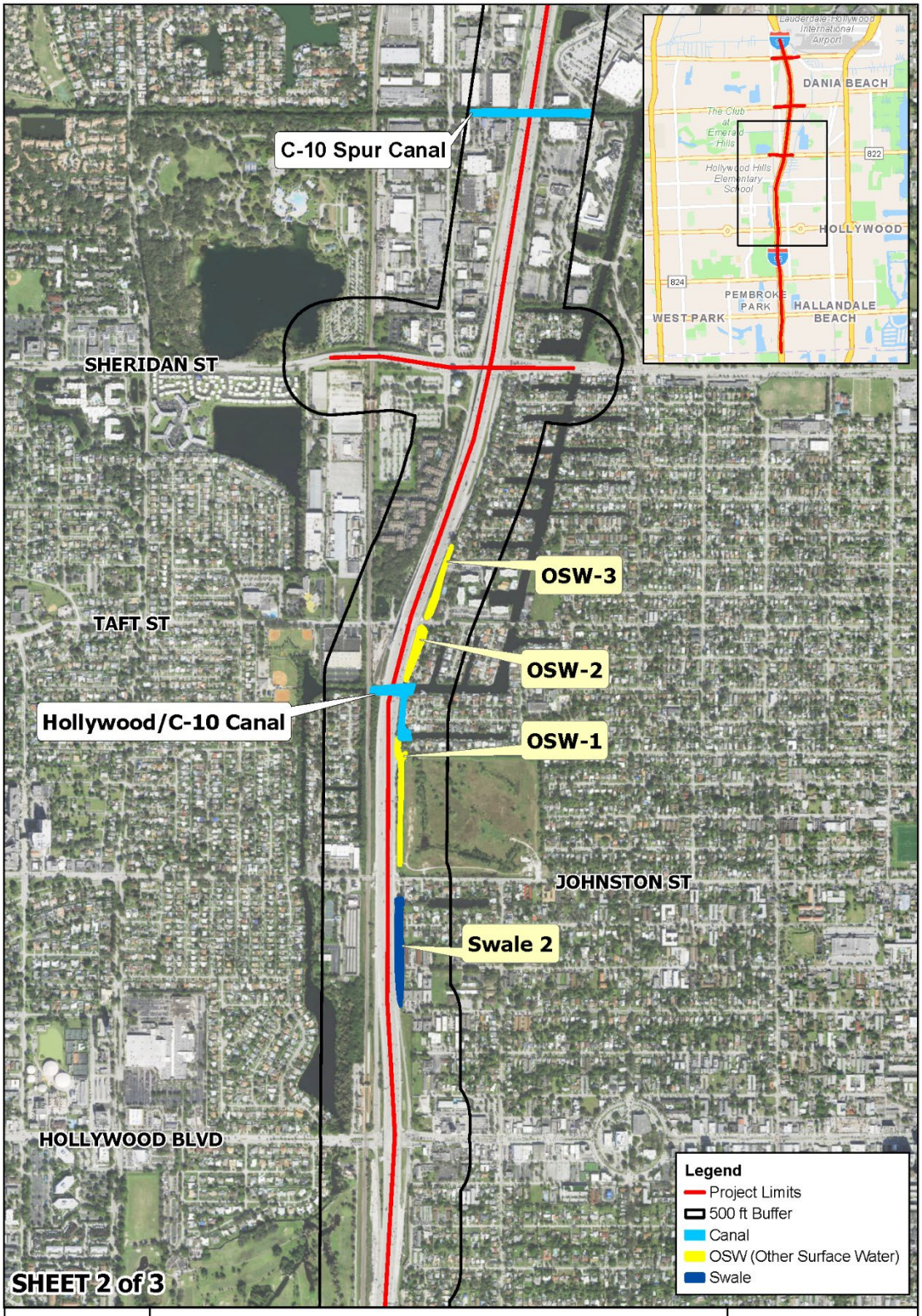


Figure 8: Impacts to Surface Waters

FPID No. 439170-1-22-02
I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 500 1,000 US Feet

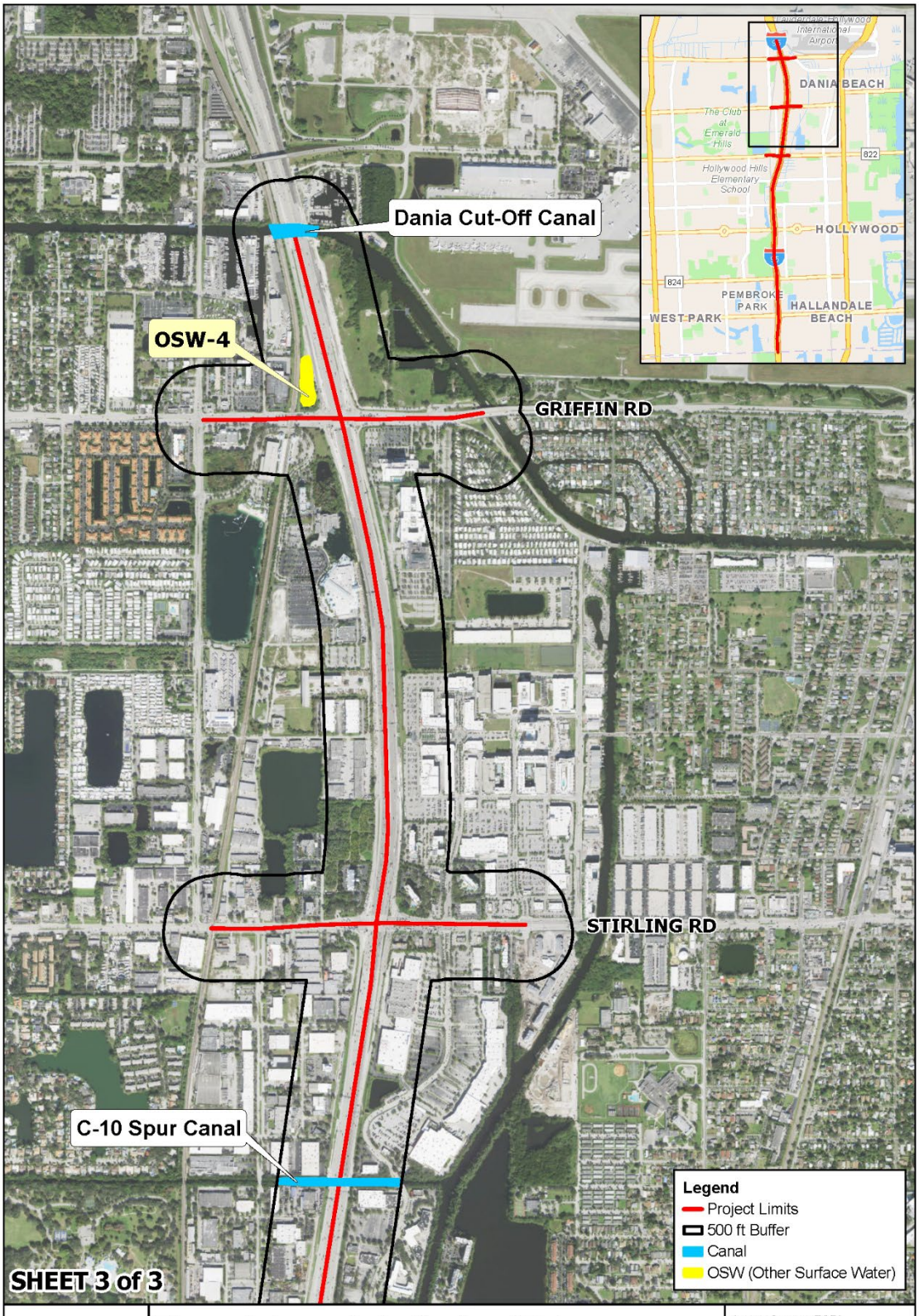


Figure 8: Impacts to Surface Waters

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I-95 (S.R. 9) PD&E Study from Miami-Dade/Broward County Line to north of Griffin Road
Broward County, FL

Image Source: ESRI
Image Date: 2024

0 500 1,000 US Feet

Table 4 shows the anticipated impacts to surface waters. The proposed project is anticipated to impact 1.28 acres of OSWs, including 0.15 acres of impacts to roadside swales, 0.91 acres of impacts to stormwater ponds, and 0.21 acres of impacts to named canals.

TABLE 4: PROPOSED WETLAND AND SURFACE WATER IMPACTS

ID	FLUCFCS Code	Size (Acres)	Impacts (Acres)
Swale-1	5100	0.11	0.11
Swale-2	5100	1.27	0.05
OSW-1	5100	4.00	0.12
OSW-2	5100	0.66	0.36
OSW-3	5100	0.47	0.35
OSW-4	5100	1.12	0.08
Hollywood/C-10 Canal	5100	N/A	0.13
C-10 Spur Canal	5100	N/A	0.05
Dania Cut-Off Canal	5100	N/A	0.03
		Total Impacts	**1.28**

4.3.2 INDIRECT IMPACTS

No impacts to wetlands are proposed. Additionally, in accordance with State criteria, water quality will be treated prior to discharge to receiving waters. Therefore, indirect impacts are not anticipated as a result of this project.

4.3.3 AVOIDANCE AND MINIMIZATION

At this stage in the project, attempts to avoid and minimize impacts have not yet been fully examined. The proposed roadway improvements' stormwater management facilities for the project will meet FDOT drainage criteria, SFWMD permit criteria, and use BMPs in accordance with the current FDOT's Standard Specifications for Road and Bridge Construction. As the project advances through subsequent phases, avoidance and minimization of wetland impacts will continue to be considered to the maximum extent possible.

4.3.4 WETLAND IMPACT MITIGATION

Impacts to wetlands are not anticipated. Therefore, a Uniform Mitigation Assessment Method (UMAM) evaluation was not prepared. Impacts to surface waters do not require a functional assessment and mitigation is not anticipated for this project.

5.0 ESSENTIAL FISH HABITAT

In accordance with the FDOT PD&E Manual and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1996 (50 CFR Section 600.920), as amended through January 12, 2007, and as administered by the NOAA NMFS, the proposed project was evaluated for EFH impacts. EFH is defined in the MSA as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The regional FMC that has jurisdiction over South Florida where this project is located, is the South Atlantic Fishery Management Council (SAFMC).

The objective of this EFH Assessment is to describe how the proposed project may affect EFH within the study area and to describe how the proposed widening may affect EFH within the Dania Cut-Off Canal. As noted in the ETDM #14500 Summary Report, mangroves and estuarine shrub/scrub wetlands occur at several locations within the project area that may be indirectly affected by the project including where the project footprint overlaps with the Dania Cut-Off Canal in two places (I-95 and Griffin Road), as well as the estuarine C-10 Spur Canal.

The SAFMC has designated mangroves as EFH and HAPC. To prevent pollutants coming off the bridge from reaching nearby estuarine habitats utilized by marine fishery resources, it was recommended in the ETDM #14500 Summary Report for a Stormwater Management Plan for containment/treatment of surface and stormwater runoff form impervious surfaces to be prepared.

5.1 METHODOLOGY

In order to determine EFH that has potential to occur within the study area, available site-specific data was collected and evaluated. The project area has been reviewed to assess the potential occurrence of the highly migratory species during any stage of their life cycle.

Prior to a field review, scientists performed a GIS database and literature review to identify protected species, wetlands, and EFH documented within and adjacent to the study area. Referenced materials include the following data sources:

- USFWS NWI maps;
- ETDM #14500 Summary Report (2022);
- SFWMD Seagrass Cover maps (2022);
- FWC Statewide Seagrass GIS data layer (2024); and
- NOAA EFH mapper (accessed 2025).

Environmental scientists familiar with Florida coastal communities conducted field reviews of the project area on January 9–10, February 7, and December 13 and 19, 2024. During field reviews of the project study area, environmental scientists aerially-delineated the approximate boundaries of existing wetland, surface water, and other surface water communities. The limits of these identified EFH resources were compared to the footprint of the proposed project to determine the potential for impacts to EFH from the project.

5.2 EFH INVOLVEMENT

Habitat Areas of Particular Concern

The SAFMC is responsible for the designation of HAPCs. HAPCs are subsets of EFH that are designated based on ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress and development, or rarity of the habitat type. There are no species-specific HAPCs designated within the study area. However, in the 1998 Generic Amendment, the SAFMC identified the following general HAPC for the snapper-grouper Fishery Management Plan (FMP):

> "Medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic Sargassum; Hoyt Hills for wreckfish; the Oculina Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs)."

The field reviews identified mangroves occurring along the margins of the Dania Cut-Off Canal. These mangrove habitats meet the criteria for the HAPCs under the snapper-grouper FMP.

5.2.1 DESCRIPTION OF THE PROPOSED ACTION

Construction activities with the potential to impact EFH are limited to the widening of the existing bridge over the Dania Cut-Off Canal. The proposed project includes widening the bridge by approximately 13.09 feet along the east edge of the southbound deck and 24.93 feet along the east edge of the northbound deck.

5.2.2 MANAGED SPECIES

Based on desktop analysis and field review, there are two potential FMPs for the Dania Cut-Off Canal. The FMPs include the Snapper-Grouper FMP and Spiny Lobster FMP. The Snapper-Grouper complex includes 55 species of fish. The mangroves within the project study area provide EFH for the spiny lobster and Snapper-Grouper FMPs.

5.3 ANALYSIS OF EFFECTS ON EFH

The bridge span over the Dania Cut-Off Canal will increase by approximately 12 feet from the existing northbound deck resulting in additional coverage of open surface waters. Potential EFH within the project study area includes mangrove wetlands (estuarine scrub-shrub) and unconsolidated bottom substrate (rocky bottom) within the Dania Cut-Off Canal. Impacts to EFH associated with the proposed project are described in the subsections below.

5.3.1 EFH IMPACTS

The proposed project is anticipated to result in approximately 0.03 acres of impacts to unconsolidated bottom habitat within the Dania Cut-Off Canal. Impact estimates were calculated based on the full limits of construction and will be refined as additional project-specific design information becomes available. Because the bridge construction method has not yet been determined, potential temporary construction-related impacts cannot be quantified at this time. Temporary displacement of individuals within these federally managed species may occur during construction; however, species are expected to return following construction, as pre-construction habitat conditions will remain largely unchanged and no long-term impacts to EFH are anticipated.

5.3.2 AVOIDANCE, MINIMIZATION MEASURES, AND POTENTIAL MITIGATION

At this stage in the project, attempts to avoid and minimize impacts to EFH have not yet been fully examined. A Stormwater Management Plan addressing containment and treatment of surface and stormwater runoff from impervious surfaces will be prepared in later phases of the project. Additionally, impacts to water quality and estuarine/marine habitats from construction activities will be minimized through adherence to FDOT's Standard Specifications for Road and Bridge Construction and the implementation of BMPs designed to protect EFH resources. Mitigation requirements for EFH impacts, if necessary, will be determined through consultation with the NMFS during project design.

5.4 EFH DETERMINATION

EFH within the project footprint is anticipated to return to pre-disturbance conditions following completion of construction. All applicable state and federal permitting requirements will be addressed in later phases. Based on the environmental review of the current design of the proposed project, it is anticipated that this project will have **Minimal** impacts to EFH, and no adverse effects to spiny lobster, or any of the 55 snapper-grouper species managed by the SAFMC are expected.

6.0 AGENCY COORDINATION

The project was reviewed through the FDOT's ETDM process where members of the ETDM ETAT provide input and comments; the ETDM Screening Summary Report #14500 (published November 2022) is incorporated by reference. ETAT comments were reviewed and addressed as necessary.

7.0 PERMITTING AND REVIEW AGENCIES

Both the USACE and the SFWMD regulate impacts to wetlands and surface waters within the study area. Impacts to waters of the United States will require authorization under Section 404 of the Clean Water Act from the USACE. The SFWMD requires an Environmental Resource Permit (ERP) for projects that modify or create surface water management systems or result in impacts to wetlands or other waters of the state. A Bridge Permit is required from the USCG for construction of a new bridge or modification of an existing bridge over navigable waters. In addition, the FDEP, under delegated authority from the USEPA, administers the National Pollutant Discharge Elimination System (NPDES) program. It is anticipated that the following permits will be required for this project:

Permit	Issuing Agency
Section 404 Dredge and Fill Permit	USACE
Bridge Permit	USCG
Environmental Resource Permit (ERP)	SFWMD
National Pollutant Discharge Elimination System (NPDES)	FDEP

8.0 CONCLUSIONS

8.1 PROTECTED SPECIES AND HABITAT

Based on evaluation of collected data and field reviews in accordance with Section 7 of the ESA of 1973, as amended, and Chapters 5B-40 and 68A-27 of the F.A.C. and in accordance with Protected Species and Habitat chapter of the FDOT PD&E Manual, the federally and state listed species discussed in **Table 7** and **Table 8** were observed or were determined to have the potential to occur within or adjacent to the project study area. An effect determination was made for each of these federally and state listed species based on an analysis of the potential impacts of the proposed project on each species.

TABLE 5: FEDERALLY LISTED SPECIES IMPACT DETERMINATIONS

Project Effect Determination	Federally Listed Species
No Effect	**BIRDS**
	Everglade snail kite (*Rostrhamus sociabilis plumbeus*)
	REPTILES
	American crocodile (*Crocodylus acutus*)
May Affect, Not Likely to Adversely Affect	**MAMMALS**
	West Indian manatee (*Trichechus manatus latirostris*)
	Florida bonneted bat (*Eumops floridanus*)
	REPTILES
	Eastern indigo snake (*Drymarchon corais couperi*)

TABLE 6: STATE LISTED SPECIES IMPACT DETERMINATIONS

Project Effect Determination	State Listed Species
No Adverse Effect Anticipated	**REPTILES**
	Gopher tortoise (*Gopherus polyphemus*)
	BIRDS
	Florida burrowing owl (*Athene cunicularia floridana*)
	Wood stork (*Mycteria americana*)
No Effect Anticipated	**BIRDS**
	Least tern (*Sternula antillarum*)

8.2 WETLANDS AND SURFACE WATERS

The proposed project is anticipated to impact 0.15 acres of roadside swales, 0.91 acres of stormwater ponds, and 0.21 acres of named canals (0.13 acres of the Hollywood/C-10 Canal; 0.05 acres of the C-10 Spur Canal; and 0.03 acres of the Dania Cut-Off Canal). No impacts to jurisdictional wetlands are anticipated.

8.3 ESSENTIAL FISH HABITAT

EFH within the project area is limited to the Dania Cut-Off Canal. The project would result in approximately 0.03 acres of impacts to unconsolidated bottom substrate associated with roadway widening and bridge modifications over the canal. With avoidance and minimization measures, best management practices (BMPs), adverse effects to EFH are expected to be "**minimal**".

8.4 IMPLEMENTATION MEASURES

Based on the field and literature reviews outlines in this report, federally and state protected species have the potential to occur within the project area. In order to ensure that the proposed project will not adversely impact state and federally protected species or habitat, the following measures will be taken during design and construction:

1. Surveys to update locations of active bald eagle, osprey, wading bird nest sites will be conducted during the design phase, and permits will be acquired if there will be unavoidable impacts during construction. Coordination with USFWS and FWC will take place as necessary.

8.5 COMMITMENTS

To minimize project impacts on protected species to the greatest extent practicable, the following project commitments will be adhered to:

1. As per the Florida bonneted bat consultation key, BMPs are required and will be implemented.
2. The most recent version of USFWS' Standard Protection Measures for the Eastern Indigo Snake will be implemented during construction.
3. The USFWS and FWC Standard Manatee Construction Conditions for In-Water Work will be utilized during construction.
4. If the listing status of the monarch butterfly is elevated by USFWS to threatened or endangered and the proposed project is located within the consultation area, FDOT will coordinate with the USFWS as necessary during the design and permitting phase of the project to determine the appropriate survey methodology and to address USFWS regulations regarding the protection of the monarch butterfly.
5. FDOT will coordinate with the USFWS as necessary upon finalization of the West Indian manatee critical habitat if the proposed project falls within the designated area.
6. If the listing status of the tricolored bat is elevated by USFWS to threatened or endangered and the proposed project is located within the consultation area, FDOT will coordinate with the USFWS as necessary during the design and permitting phase of the project to determine the appropriate survey methodology.

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Appendix A
IPaC Species List Project Code: 2025-0139325

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
Phone: (352) 448-9151 Fax: (772) 562-4288
Email Address: fw4flesregs@fws.gov
https://www.fws.gov/office/florida-ecological-services

In Reply Refer To: 08/21/2025 18:55:46 UTC
Project Code: 2025-0139325
Project Name: I-95 (SR 9) PD&E Study

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. **Please include your Project Code, listed at the top of this letter, in all subsequent correspondence regarding this project.** Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Marine Mammals

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Florida Ecological Services Field Office
777 37th St
Suite D-101
Vero Beach, FL 32960-3559
(352) 448-9151

PROJECT SUMMARY

Project Code: 2025-0139325
Project Name: I-95 (SR 9) PD&E Study
Project Type: Road/Hwy - Maintenance/Modification
Project Description: The project proposes to improve traffic operations at the existing interchanges and cross streets and enhance the access to the managed lanes along I-95 (SR 9) from the Miami-Dade/Broward County Line to north of Griffin Road. The I-95 project corridor is approximately 6.6 miles in Broward County, Florida. This project is within the City of Hollywood, City of Dania Beach, Town of Pembroke Park, and City of Hallandale Beach. The existing interchanges and cross streets that will be evaluated include Griffin Road (SR 818), Stirling Road (SR 848), and Sheridan Street (SR 822). Improvements to the bicycle and pedestrian accommodation along the cross streets will be considered as part of the project.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@26.02093815,-80.16707654321621,14z

Counties: Broward and Miami-Dade counties, Florida

ENDANGERED SPECIES ACT SPECIES

There is a total of 14 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Florida Bonneted Bat *Eumops floridanus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8630	Endangered
Florida Panther *Puma (=Felis) concolor coryi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1763 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KAO4INECDRAYDMRFEYLS5RZWV4/documents/generated/7123.pdf	Endangered
Puma (=mountain Lion) *Puma (=Felis) concolor (all subsp. except coryi)* Population: FL No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6049	Similarity of Appearance (Threatened)
Southeastern Beach Mouse *Peromyscus polionotus niveiventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3951	Threatened
West Indian Manatee *Trichechus manatus* There is **final** critical habitat for this species. Your location overlaps the critical habitat. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/4469 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KAO4INECDRAYDMRFEYLS5RZWV4/documents/generated/7281.pdf	Threatened

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened
Everglade Snail Kite *Rostrhamus sociabilis plumbeus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7713	Endangered
Wood Stork *Mycteria americana* Population: AL, FL, GA, MS, NC, SC No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8477 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KAO4INECDRAYDMRFEYLS5RZWV4/documents/generated/6954.pdf	Threatened

REPTILES

NAME	STATUS
American Alligator *Alligator mississippiensis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/776	Similarity of Appearance (Threatened)
American Crocodile *Crocodylus acutus* Population: U.S.A. (FL) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6604	Threatened
Eastern Indigo Snake *Drymarchon couperi* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/646	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

FLOWERING PLANTS

NAME	STATUS
Beach Jacquemontia *Jacquemontia reclinata* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1277	Endangered
Tiny Polygala *Polygala smallii* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/996	Endangered

CRITICAL HABITATS

You should contact the local field office to determine whether critical habitat for the following species should be considered:

NAME	STATUS
West Indian Manatee *Trichechus manatus* https://ecos.fws.gov/ecp/species/4469#crithab	Final

MARINE MAMMALS

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

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1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NAME

West Indian Manatee *Trichechus manatus*
Species profile: https://ecos.fws.gov/ecp/species/4469

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Nicole Harrison
Address:	3230 W Commercial Blvd
Address Line 2:	STE 450
City:	Fort Lauderdale
State:	FL
Zip:	33324
Email	nharrison@scalarinc.net
Phone:	9784274321

Appendix B
FNAI Biodiversity Matrix

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

Florida Natural Areas Inventory

Biodiversity Matrix Query Results

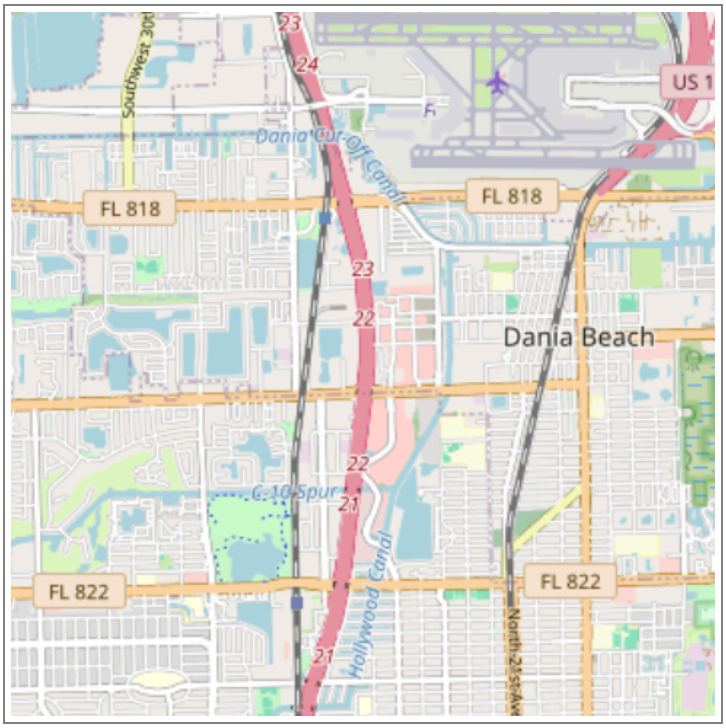
UNOFFICIAL REPORT

Created 5/23/2025

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 8 Matrix Units: 68493 , 68494 , 68495 , 68496 , 68634 , 68635 , 68636 , 68637



Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 68493
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68494
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68495
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

2 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	T	FT
Rockland hammock	G2	S2	N	N

Matrix Unit ID: 68496

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

2 **Likely** Elements Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Mycteria americana Wood Stork	G4	S2	T	FT
Rockland hammock	G2	S2	N	N

Matrix Unit ID: 68634

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68635

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

1 **Likely** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Rockland hammock	G2	S2	N	N

Matrix Unit ID: 68636

1 **Documented** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	ST

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68637

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit IDs: 68493 , 68494 , 68495 , 68496 , 68634 , 68635 , 68636 , 68637

22 **Potential** Elements Common to Any of the 8 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	ST
Chamaesyce porteriana Porter's broad-leaved spurge	G2	S2	N	E
Conradina grandiflora large-flowered rosemary	G3	S3	N	T
Ctenogobius stigmaturus Spottail Goby	G2	S2	N	N
Drymarchon couperi Eastern Indigo Snake	G3	S2?	T	FT
Elytraria caroliniensis var. angustifolia narrow-leaved Carolina scalystem	G4T2	S2	N	N
Eumops floridanus Florida bonneted bat	G1	S1	E	FE
Glandularia maritima coastal vervain	G3	S3	N	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Jacquemontia curtissii pineland jacquemontia	G2	S2	N	T
Lechea cernua nodding pinweed	G3	S3	N	T
Lithobates capito Gopher Frog	G2G3	S3	N	N
Nemastylis floridana celestial lily	G2	S2	N	E
Phyllophaga elongata Elongate June Beetle	G3	S3	N	N
Polygala smallii tiny polygala	G1	S1	E	E
Roystonea regia Florida royal palm	G2G3	S2	N	E
Sceloporus woodi Florida Scrub Lizard	G2G3	S2S3	N	N
Swietenia mahagoni West Indies mahogany	G3G4	S3	N	T
Tantilla oolitica Rim Rock Crowned Snake	G1G2	S1S2	N	ST
Trichechus manatus latirostris Florida Manatee	G2G3T2	S2S3	T	N
Trichomanes punctatum ssp. floridanum Florida filmy fern	G4G5T1	S1	E	E
Zephyranthes simpsonii redmargin zephyrlily	G2G3	S2S3	N	T

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Florida Natural Areas Inventory

Biodiversity Matrix Query Results

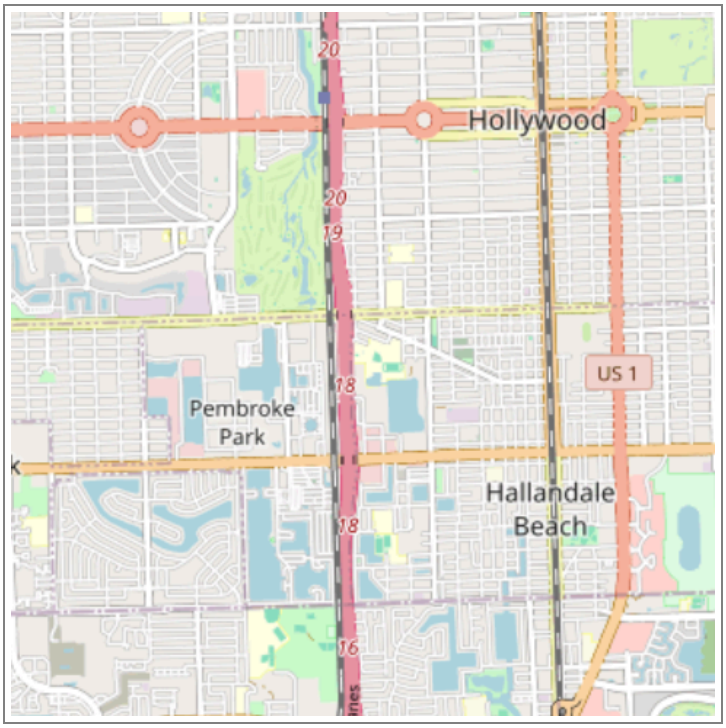
UNOFFICIAL REPORT

Created 5/23/2025

(Contact the FNAI Data Services Coordinator at 850.224.8207 or kbrinegar@fnai.fsu.edu for information on an official Standard Data Report)

NOTE: The Biodiversity Matrix includes only rare species and natural communities tracked by FNAI.

Report for 8 Matrix Units: 68489 , 68490 , 68491 , 68492 , 68630 , 68631 , 68632 , 68633



Descriptions

DOCUMENTED - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit.

DOCUMENTED-HISTORIC - There is a documented occurrence in the FNAI database of the species or community within this Matrix Unit; however the occurrence has not been observed/reported within the last twenty years.

LIKELY - The species or community is *known* to occur in this vicinity, and is considered likely within this Matrix Unit because:

1. documented occurrence overlaps this and adjacent Matrix Units, but the documentation isn't precise enough to indicate which of those Units the species or community is actually located in; *or*
2. there is a documented occurrence in the vicinity and there is suitable habitat for that species or community within this Matrix Unit.

POTENTIAL - This Matrix Unit lies within the known or predicted range of the species or community based on expert knowledge and environmental variables such as climate, soils, topography, and landcover.

Matrix Unit ID: 68489

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

1 **Likely** Element Found

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Rockland hammock	G2	S2	N	N

Matrix Unit ID: 68490

0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68491
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68492
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68630
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68631
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68632
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit ID: 68633
0 **Documented** Elements Found

0 **Documented-Historic** Elements Found

0 **Likely** Elements Found

Matrix Unit IDs: 68489 , 68490 , 68491 , 68492 , 68630 , 68631 , 68632 , 68633
22 **Potential** Elements Common to Any of the 8 Matrix Units

Scientific and Common Names	Global Rank	State Rank	Federal Status	State Listing
Aphrissa statira Statira	G5	S2S3	N	N
Athene cunicularia floridana Florida Burrowing Owl	G4T3	S3	N	ST
Bolbocerosoma hamatum Bicolored Burrowing Scarab Beetle	G3G4	S3	N	N
Chamaesyce porteriana Porter's broad-leaved spurge	G2	S2	N	E
Conradina grandiflora large-flowered rosemary	G3	S3	N	T
Elytraria caroliniensis var. angustifolia narrow-leaved Carolina scalystem	G4T2	S2	N	N
Eumops floridanus Florida bonneted bat	G1	S1	E	FE

Glandularia maritima coastal vervain	G3	S3	N	E
Gopherus polyphemus Gopher Tortoise	G3	S3	C	ST
Jacquemontia curtissii pineland jacquemontia	G2	S2	N	T
Lechea cernua nodding pinweed	G3	S3	N	T
Polygala smallii tiny polygala	G1	S1	E	E
Prosthechea cochleata clamshell orchid	G4G5	S2	N	E
Pteroglossaspis ecristata giant orchid	G2G3	S2	N	T
Roystonea regia Florida royal palm	G2G3	S2	N	E
Sachsia polycephala Bahama sachsia	G2	S2	N	T
Setophaga discolor paludicola Florida Prairie Warbler	G5T3	S3	N	N
Swietenia mahagoni West Indies mahogany	G3G4	S3	N	T
Tantilla oolitica Rim Rock Crowned Snake	G1G2	S1S2	N	ST
Trichechus manatus latirostris Florida Manatee	G2G3T2	S2S3	T	N
Trichomanes punctatum ssp. floridanum Florida filmy fern	G4G5T1	S1	E	E
Zephyranthes simpsonii redmargin zephyrlily	G2G3	S2S3	N	T

Unofficial Report

These results are considered unofficial. FNAI offers a Standard Data Request option for those needing certifiable data.

Appendix C
Photo Page

View facing north of an active Florida burrowing owl burrow within Ives Dairy Estates Park.

View facing east of a mixed community of native and non-native trees within Ives Dairy Estates Park.

View facing east of a stormwater ditch containing native and non-native vegetation in front of Best Western Plus on Hallandale Boulevard.

View facing south of a freshwater pond with non-native Brazilian Pepper on County Club Lane, south of Hallandale Beach Boulevard.

View facing west of a sign for the American crocodile at Lions Park next to the Hollywood Tri-Rail Station.

View facing west of the Hollywood/C-10 Canal at Lions Park next to the Hollywood Tri-Rail Station. Wading bird species can be seen foraging along the littoral shelf.

View facing north of non-native Australian pines at Lions Park next to the Hollywood Tri-Rail Station.

View facing south of the Hollywood/C-10 Canal from the bridge at Lions Park.

View facing south of a white mangrove from the bridge at Lions Park along the Hollywood/C-10 Canal.

View facing northeast of the Sunset Golf Course parcel along Johnson Street. The area is overgrown with mixed native and nonnative vegetation.

View facing north of oak trees within the Charles F. Vollman Park outside of the Park East community.

View facing east of a mixed community of red and white mangroves along the Hollywood/C-10 Spur Canal.

View facing west of a mixed community of red and white mangroves along the Hollywood/C-10 Spur Canal.

View facing northeast of the freshwater pond within the Oakwood Plaza. Wood storks and white ibis can be seen foraging along the littoral shelf.

View facing southeast of the freshwater pond south of the Design Center of the Americas. Vegetation includes a mixture of native and nonnative species.

View facing north of the Dania Cut-Off Canal as seen from Old Griffin Road.

View facing north of the Dania Cut-Off Canal as seen from Old Griffin Road.

View facing south of the estuarine system south of Fort Lauderdale/Hollywood Airport. The pond contains a mixed mangrove community of red and white mangroves.

View facing west of the red mangrove prop roots of the estuarine system south of Fort Lauderdale/Hollywood Airport. The pond contains a mixed mangrove community of red and white mangroves.

View facing northwest of the Dania Cut-Off Canal.

View facing north of the freshwater pond between Bass Pro Shops and the International Game Fish Association. A single white mangrove is visible alongside other artificially maintained native and nonnative vegetation.

View facing south of three manatees observed in the Hollywood Canal/C-10 Canal; observed from Lions Park next to the Tri-Rail Station on Hollywood Boulevard.

Appendix D
Standard Manatee Conditions for In-Water Work

STANDARD MANATEE CONDITIONS FOR IN-WATER WORK

2011

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at ImperiledSpecies@myFWC.com.

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½ " by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm. Questions concerning these signs can be forwarded to the email address listed above.

CAUTION: MANATEE HABITAT

All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:

Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

Appendix E
USACE Effect Determination Key for the Manatee

THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, AND THE STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE MANATEE IN FLORIDA
April 2013

Purpose and background of the key

The purpose of this document is to provide guidance to improve the review of permit applications by U.S. Army Corps of Engineers' (Corps) Project Managers in the Regulatory Division regarding the potential effects of proposed projects on the endangered West Indian manatee (*Trichechus manatus*) in Florida, and by the Florida Department of Environmental Protection or its authorized designee or Water Management District, for evaluating projects under the State Programmatic General Permit (SPGP) or any other Programmatic General Permits that the Corps may issue for administration by the above agencies. Such guidance is contained in the following dichotomous key. The key applies to permit applications for in-water activities such as, but not limited to: (1) dredging [new or maintenance dredging of not more than 50,000 cubic yards], placement of fill material for shoreline stabilization, and construction/placement of other in-water structures as well as (2) construction of docks, marinas, boat ramps and associated trailer parking spaces, boat slips, dry storage or any other watercraft access structures or facilities.

At a certain step in the key, the user is referred to graphics depicting important manatee areas or areas with inadequate protection. The maps can be downloaded from the Corps' web page at http://www.saj.usace.army.mil/Missions/Regulatory/SourceBook.aspx. We intend to utilize the most recent depiction of these areas, so should these areas be modified by statute, rule, ordinance and/or other legal mandate or authorization, we will modify the graphical depictions accordingly. These areas may be shaded or otherwise differentiated for identification on the maps.

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

Scope of the key

This key should only be used in the review of permit applications for effect determinations on manatees and should not be used for other listed species or for other aquatic resources such as Essential Fish Habitat (EFH). Corps Project Managers should ensure that consideration of the project's effects on any other listed species and/or on EFH is performed independently. This key may be used to evaluate applications for all types of State of Florida (State Programmatic General Permits, noticed general permits, standard general permits, submerged lands leases, conceptual and individual permits) and Department of the Army (standard permits, letters of permission, nationwide permits, and regional general permits) permits and authorizations. The final effect determination will be based on the project location and description; the potential effects to manatees, manatee habitat, and/or manatee critical habitat; and any measures (such as project components, standard construction precautions, or special conditions included in the authorization) to avoid or minimize effects to manatees or manatee critical habitat. 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 shall refer to the Manatee Programmatic Biological Opinion, dated March 21, 2011, for guidance on eliminating or minimizing potential adverse effects resulting from the proposed project. If unable to resolve the adverse effects, the Corps may refer the applicant to the U.S. Fish and Wildlife Service (Service) for further assistance in attempting to revise the proposed project to a “may affect, not likely to adversely affect” level. The Service will coordinate with the Florida Fish and Wildlife Conservation Commission (FWC) and the counties, as appropriate. Projects that provide new access for watercraft and key to “may affect, not likely to adversely affect” may or may not need to be reviewed individually by the Service.

MANATEE KEY
Florida[1]
April 2013

The key is not designed to be used by the Corps' Regulatory Division for making their effect determinations for dredging projects greater than 50,000 cubic yards, the Corps' Planning Division in making their effect determinations for civil works projects or by the Corps' Regulatory Division for making their effect determinations for projects of the same relative scope as civil works projects. These types of activities must be evaluated by the Corps independently of the key.

A. Project is not located in waters accessible to manatees and does not directly or indirectly affect manatees (see Glossary).....*No effect*

Project is located in waters accessible to manatees **or** directly or indirectly affects manatees ..... B

B. Project consists of one or more of the following activities, all of which are *May affect*:

1. blasting or other detonation activity for channel deepening and/or widening, geotechnical surveys or exploration, bridge removal, movies, military shows, special events, etc.;

2. installation of structures which could restrict or act as a barrier to manatees;

3. new or changes to existing warm or fresh water discharges from industrial sites, power plants, or natural springs or artesian wells (but only if the new or proposed change in discharge requires a Corps permit to accomplish the work);

4. installation of new culverts and/or maintenance or modification of existing culverts (where the culverts are 8 inches to 8 feet in diameter, ungrated and in waters accessible, or potentially accessible, to manatees)[2];

5. mechanical dredging from a floating platform, barge or structure[3] that restricts manatee access to less than half the width of the waterway;

6. creation of new slips or change in use of existing slips, even those located in a county with a State-approved Manatee Protection Plan (MPP) in place and the number of slips is less than the MPP threshold, to accommodate docking for repeat use vessels, (*e.g.*, water taxis, tour boats, gambling boats, etc; or slips or structures that are not civil works projects, but are frequently used to moor large vessels (>100') for shipping and/or freight purposes; does not include slips used for docking at boat sales or repair facilities or loading/unloading at dry stack storage facilities and boat ramps); [Note: For projects within Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County, the reviewer should proceed to Couplet C.]

7. any type of in-water activity in a Warm Water Aggregation Area (WWAA) or No Entry Area (see Glossary and accompanying Maps[4]); [Note: For residential docking facilities in a Warm Water Aggregation Area that is not a Federal manatee sanctuary or No Entry Area, the reviewer should proceed to couplet C.]

8. creation or expansion of canals, basins or other artificial shoreline and/or the connection of such features to navigable waters of the U.S.; [Note: For projects proposing a single residential dock, the reviewer should proceed to couplet C; otherwise, project is a *May Affect*.]

9. installation of temporary structures (docks, buoys, etc.) utilized for special events such as boat races, boat shows, military shows, etc., but only when consultation with the U.S. Coast Guard and FWS has not occurred; [Note: See programmatic consultation with the U.S. Coast Guard on manatees dated May 10, 2010.].

Project is other than the activities listed above C

C. Project is located in an Important Manatee Area (IMA) (see Glossary and accompanying Maps[4]) ..... D

Project is not located in an Important Manatee Area (IMA) (see Glossary and accompanying Maps[4]) ..... G

D. Project includes dredging of less than 50,000 cubic yards ..... E

Project does not include dredging ..... G

E. Project is for dredging a residential dock facility or is a land-based dredging operation ..... N

Project not as above ..... F

F. Project proponent **does not elect** to follow all dredging protocols described on the maps for the respective IMA in which the project is proposed ..... *May affect*

Project proponent **elects** to follow all dredging protocols described on the maps for the respective IMA in which the project is proposed ..... G

G. Project provides new[5] access for watercraft, *e.g.*, docks or piers, marinas, boat ramps and associated trailer parking spaces, new dredging, boat lifts, pilings, floats, floating docks, floating vessel platforms, boat slips, dry storage, mooring buoys, or other watercraft access (residential boat lifts, pilings, floating docks, and floating vessel platforms installed in existing slips are not considered new access) or improvements allowing increased watercraft usage ..... H

Project does not provide new[5] access for watercraft, *e.g.*, bulkheads, seawalls, riprap, maintenance dredging, boardwalks and/or the maintenance (repair or rehabilitation) of currently serviceable watercraft access structures provided all of the following are met: (1) the number of slips is not increased; (2) the number of existing slips is not in question; and (3) the improvements do not allow increased watercraft usage ..... N

H. Project is located in the Braden River Area of Inadequate Protection (Manatee County) (see Glossary and accompanying AIP Map[4])
..... *May affect*

Project is not located in the Braden River Area of Inadequate Protection (Manatee County) (see Glossary and accompanying AIP Map[4]) I

I. Project is for a multi-slip facility (see Glossary) ..... J

Project is for a residential dock facility or is for dredging (see Glossary) ..... N

J. Project is located in a county that currently has a State-approved MPP in place (BREVARD, BROWARD, CITRUS, CLAY, COLLIER, DUVAL, INDIAN RIVER, LEE, MARTIN, MIAMI-DADE, PALM BEACH, ST. LUCIE, SARASOTA, VOLUSIA) or shares contiguous waters with a county having a State-approved MPP in place (LAKE, MARION, SEMINOLE)[6] ..... K

Project is located in a county not required to have a State-approved MPP L

K. Project has been developed or modified to be consistent with the county's State-approved MPP **and** has been verified by a FWC review (or FWS review if project is exempt from State permitting) **or** the number of slips is below the MPP threshold ..... N

Project has not been reviewed by the FWC or FWS **or** has been reviewed by the FWC or FWS **and** determined that the project is not consistent with the county's State-approved MPP ..... *May affect*

L. Project is located in one of the following counties: CHARLOTTE, DESOTO[7], FLAGLER, GLADES, HENDRY, HILLSBOROUGH, LEVY, MANATEE, MONROE[7], PASCO[7], PINELLAS ..... M

Project is located in one of the following counties: BAY, DIXIE, ESCAMBIA, FRANKLIN, GILCHRIST, GULF, HERNANDO, JEFFERSON, LAFAYETTE, MONROE (south of Craig Key), NASSAU, OKALOOSA, OKEECHOBEE, PUTNAM, SANTA ROSA, ST. JOHNS, SUWANNEE, TAYLOR, WAKULLA, WALTON ..... N

M. The number of slips does not exceed the residential dock density threshold (see Glossary) ..... N

The number of slips exceeds the residential dock density threshold (see Glossary) ..... *May affect*

N. Project impacts to submerged aquatic vegetation[8], emergent vegetation or mangrove will have beneficial, insignificant, discountable[9] or no effects on the manatee[10] ..... O

Project impacts to submerged aquatic vegetation[8], emergent vegetation or mangrove may adversely affect the manatee[10] ..... *May affect*

O. Project proponent **elects** to follow standard manatee conditions for in-water work[11] and requirements, as appropriate for the proposed activity, prescribed on the maps[4] ..... P

Project proponent **does not elect** to follow standard manatee conditions for in-water work[11] and appropriate requirements prescribed on the maps[4] ..... *May affect*

P. If project is for a new or expanding[5] multi-slip facility and is located in a county with a State-approved MPP in place **or** in Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Putnam, St. Johns, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

If project is for a new or expanding[5] multi-slip facility and is located in Charlotte, Desoto, Flagler, Glades, Hendry, Hillsborough, Levy, Manatee, Monroe (north of Craig Key), Pasco, or Pinellas County, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations.

If project is for repair or rehabilitation of a multi-slip facility and is located in an Important Manatee Area, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations. If project is for repair or rehabilitation of a multi-slip facility and: (1) is not located in an Important Manatee Area; (2) the number of slips is not increased; (3) the number of existing slips is not in question; and (4) the improvements to the existing watercraft access structures do not allow increased watercraft usage, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

If project is a residential dock facility, shoreline stabilization, or dredging, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary. Note: For residential dock facilities located in a Warm Water Aggregation Area or in a No Entry area, seasonal restrictions may apply. See footnote 4 below for maps showing restrictions.

If project is other than repair or rehabilitation of a multi-slip facility, a new[5] multi-slip facility, residential dock facility, shoreline stabilization, or dredging, and does not provide new[5] access for watercraft or

improve an existing access to allow increased watercraft usage, the determination of "*May affect, not likely to adversely affect*" is appropriate[12] and no further consultation with the Service is necessary.

[1] On the St. Mary's River, this key is only applicable to those areas that are within the geographical limits of the State of Florida.

[2] All culverts 8 inches to 8 feet in diameter must be grated to prevent manatee entrapment. To effectively prevent manatee access, grates must be permanently fixed, spaced a maximum of 8 inches apart (may be less for culverts smaller than 16 inches in diameter) and may be installed diagonally, horizontally or vertically. For new culverts, grates must be attached prior to installation of the culverts. Culverts less than 8 inches or greater than 8 feet in diameter are exempt from this requirement. If new culverts and/or the maintenance or modification of existing culverts are grated as described above, the determination of "*May affect, not likely to adversely affect*" is appropriate[11] and no further consultation with the Service is necessary.

[3] If the project proponent agrees to follow the standard manatee conditions for in-water work as well as any special conditions appropriate for the proposed activity, further consultation with the Service is necessary for "*May affect, not likely to adversely affect*" determinations. These special conditions may include, but are not limited to, the use of dedicated observers (see Glossary for definition of dedicated observers), dredging during specific months (warm weather months vs cold weather months), dredging during daylight hours only, adjusting the number of dredging days, does not preclude or discourage manatee egress/ingress with turbidity curtains or other barriers that span the width of the waterway, etc.

[4] Areas of Inadequate Protection (AIPs), Important Manatee Areas (IMAs), Warm Water Aggregation Areas (WWAAs) and No Entry Areas are identified on these maps and defined in the Glossary for the purposes of this key. These maps can be viewed on the Corps' web page. If projects are located in a No Entry Area, special permits may be required from FWC in order to access these areas (please refer to Chapter 68C-22 F.A.C. for boundaries; maps are also available at FWC's web page).

[5] New access for watercraft is the addition or improvement of structures such as, but not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, pilings, floats, floating docks, floating vessel platforms, (maintenance dredging, residential boat lifts, pilings, floating docks, and floating vessel platforms installed in existing slips are not considered new access), boat slips, dry storage, mooring buoys, new dredging, etc., that facilitates the addition of watercraft to, and/or increases watercraft usage in, waters accessible to manatees. The repair or rehabilitation of any type of currently serviceable watercraft access structure is not considered new access provided all of the following are met: (1) the number of slips is not increased; (2) the number of existing slips is not in question; and (3) the improvements to the existing watercraft access structures do not result in increased watercraft usage.

[6] Projects proposed within the St. Johns River portion of Lake, Marion, and Seminole counties and contiguous with Volusia County shall be evaluated using the Volusia County MPP.

[7] For projects proposed within the following areas: the Peace River in DeSoto County; all areas north of Craig Key in Monroe County, and the Anclote and Pithlachascotee Rivers in Pasco County, proceed to Couplet M. For all other locations in DeSoto, Monroe (south of Craig Key) and Pasco Counties, proceed to couplet N.

[8] Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would not adversely affect the manatee or its critical habitat, proceed to couplet O.

Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would adversely affect the manatee or its critical habitat, the applicant can elect to avoid/minimize impacts to that vegetation. In that instance, where impacts are unavoidable and the applicant elects to abide by or employ construction techniques that exceed the criteria in the following documents, the reviewer should conclude that the impacts to SAV, marsh or mangroves would not adversely affect the manatee or its critical habitat and proceed to couplet O.

- "Construction Guidelines in Florida for Minor Piling-Supported Structures Constructed in or over Submerged Aquatic Vegetation (SAV), Marsh or Mangrove Habitat," prepared jointly by the U.S. Army Corps of Engineers and the National Marine Fisheries Service (August 2001) [refer to the Corps' web page], and

- "Key for Construction Conditions for Docks or Other Minor Structures Constructed in or over Johnson's seagrass (*Halophila johnsonii*)," prepared jointly by the National Marine Fisheries Service and U.S. Army Corps of Engineers (October 2002), for those projects within the known range of Johnson's seagrass occurrence (Sebastian Inlet to central Biscayne Bay in the lagoon systems on the east coast of Florida) [refer to the Corps' web page],

Where the presence of the referenced vegetation is confirmed within the area affected by docks and other piling-supported minor structures and the reviewer has concluded that the impacts to SAV, marsh or mangroves would adversely affect the manatee or its critical habitat, and the applicant does not elect to follow the above Guidelines, the Corps will need to request formal consultation on the manatee with the Service as *May affect*.

For activities other than docks and other piling-supported minor structures proposed in SAV, marsh, or mangroves (*e.g.*, new dredging, placement of riprap, bulkheads, etc.), if the reviewer determines the impacts to the SAV, marsh or mangroves will not adversely affect the manatee or its critical habitat, proceed to couplet O, otherwise the Corps will need to request formal consultation on the manatee with the Service as *May affect*.

[9] See Glossary, under "is not likely to adversely affect."

[10] Federal reviewers, when making your effects determination, consider effects to manatee designated critical habitat pursuant to section 7(a)(2) of the Endangered Species Act. State reviewers, when making your effects determination, consider effects to manatee habitat within the entire State of Florida, pursuant to Chapter 370.12(2)(b) Florida Statutes.

[11] See the Corps' web page for manatee construction conditions. At this time, manatee construction precautions c and f are not required in the following Florida counties: Bay, Escambia, Franklin, Gilchrist, Gulf, Jefferson, Lafayette, Okaloosa, Santa Rosa, Suwannee, and Walton.

[12] By letter dated April 25, 2013, the Corps received the Service's concurrence with "*May affect, not likely to adversely affect*" determinations made pursuant to this key for the following activities: (1) selected non-watercraft access projects; (2) watercraft-access projects that are residential dock facilities, excluding those located in the Braden River AIP; (3) launching facilities solely for kayaks and canoes, and (4) new or expanding multi-slip facilities located in Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Santa Rosa, Suwannee, Taylor, Wakulla or Walton County.

Additionally, in the same letter dated April 25, 2013, the Corps received the Service's concurrence for "*May affect, not likely to adversely affect*" determinations specifically made pursuant to Couplet G of the key for the repair or rehabilitation of currently serviceable multi-slip watercraft access structures provided all of the following are met: (1) the project is not located in an IMA, (2) the number of slips is not increased; (3) the number of existing slips is not in question; and (4) the improvements to the existing watercraft access structures do not allow increased watercraft usage. Upon receipt of such a programmatic concurrence, no further consultation with the Service for these projects is required.

GLOSSARY

Areas of inadequate protection (AIP) – Areas within counties as shown on the maps where the Service has determined that measures intended to protect manatees from the reasonable certainty of watercraft-related take are inadequate. Inadequate protection may be the result of the absence of manatee or other watercraft speed zones, insufficiency of existing speed zones, deficient speed zone signage, or the absence or insufficiency of speed zone enforcement.

Boat slip – A space on land or in or over the water, other than on residential land, that is intended and/or actively used to hold a stationary watercraft or its trailer, and for which intention and/or use is confirmed by legal authorization or other documentary evidence. Examples of boat slips include, but are not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, floats, floating docks, pilings, boat davits, dry storage, etc.

Critical habitat – For listed species, this consists of: (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (ESA), on which are found those physical or biological features (constituent elements) (a) essential to the conservation of the species and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the ESA, upon a determination by the Secretary that such areas are essential for the conservation of the species. Designated critical habitats are described in 50 CFR 17 and 50 CFR 226.

Currently serviceable – Currently, serviceable means usable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects – The direct or immediate effects of the project on the species or its habitat.

Dredging – For the purposes of this key, the term dredging refers to all in-water work associated with dredging operations, including mobilization and demobilization activities that occur in water or require vessels.

Emergent vegetation – Rooted emergent vascular macrophytes such as, but not limited to, cordgrass (*Spartina alterniflora and S. patens*), needle rush (J*uncus roemerianus*), swamp sawgrass (*Cladium mariscoides*), saltwort (*Batis maritima*), saltgrass (*Distichlis spicata*), and glasswort (*Salicornia virginica*) found in coastal salt marsh-related habitats (tidal marsh, salt marsh, brackish marsh, coastal marsh, coastal wetlands, tidal wetlands).

Formal consultation – A process between the Services and a Federal agency or applicant that: (1) determines whether a proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat; (2) begins with a Federal agency's written request and submittal of a complete initiation package; and (3) concludes with the issuance of a biological opinion and incidental take statement by either of the Services. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed

action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR 402.02, 50 CFR 402.14]

Important manatee areas (IMA) – Areas within certain counties where increased densities of manatees occur due to the proximity of warm water discharges, freshwater discharges, natural springs and other habitat features that are attractive to manatees. These areas are heavily utilized for feeding, transiting, mating, calving, nursing or resting as indicated by aerial survey data, mortality data and telemetry data. Some of these areas may be federally-designated sanctuaries or state-designated "seasonal no entry" zones. Maps depicting important manatee areas and any accompanying text may contain a reference to these areas and their special requirements. Projects proposed within these areas must address their special requirements.

Indirect effects – Those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. Examples of indirect effects include, but are not limited to, changes in water flow, water temperature, water quality (*e.g.*, salinity, pH, turbidity, nutrients, chemistry), prop dredging of seagrasses, and manatee watercraft injury and mortality. Indirect effects also include watercraft access developments in waters not currently accessible to manatees, but watercraft access can, is, or may be planned to waters accessible to manatees by the addition of a boat lift or the removal of a dike or plug.

Informal consultation – A process that includes all discussions and correspondence between the Services and a Federal agency or designated non-Federal representative, prior to formal consultation, to determine whether a proposed Federal action may affect listed species or critical habitat. This process allows the Federal agency to utilize the Services' expertise to evaluate the agency's assessment of potential effects or to suggest possible modifications to the proposed action which could avoid potentially adverse effects. If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Services concur, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat). [50 CFR 402.02, 50 CFR 402.13]

In-water activity – Any type of activity used to construct/repair/replace any type of in-water structure or fill; the act of dredging.

In-water structures – **watercraft access structures** – Docks or piers, marinas, boat ramps, boat slips, boat lifts, floats, floating docks, pilings (depending on use), boat davits, etc.

In-water structures – **other than watercraft access structures** – Bulkheads, seawalls, riprap, groins, boardwalks, pilings (depending on use), etc.

Is likely to adversely affect – The appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (see definition of "is not likely to adversely affect"). An "is likely to adversely affect" determination requires the initiation of formal consultation under section 7 of the ESA.

Is not likely to adversely affect – The appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. **Discountable effects** are those extremely unlikely to occur. **Insignificant effects** relate to the size of the impact and should never reach the scale where take occurs. **Beneficial effects** are contemporaneous positive effects without any adverse effects to the species. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.

Manatee Protection Plan (MPP) – A manatee protection plan (MPP) is a comprehensive planning document that addresses the long-term protection of the Florida manatee through law enforcement, education, boat facility siting, and habitat protection initiatives. Although MPPs are primarily developed by the counties, the plans are the product of extensive coordination and cooperation between the local governments, the FWC, the Service, and other interested parties.

Manatee Protection Plan thresholds – The smallest size of a multi-slip facility addressed under the purview of a Manatee Protection Plan (MPP). For most MPPs, this threshold is five slips or more. For Brevard, Clay, Citrus, and Volusia County MPPs, this threshold is three slips or more.

Mangroves – Rooted emergent trees along a shoreline that, for the purposes of this key, include red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*) and white mangrove (*Laguncularia racemosa*).

May affect – The appropriate conclusion when a proposed action may pose <u>any</u> effects on listed species or designated critical habitat. When the Federal agency proposing the action determines that a "may affect" situation exists, then they must either request the Services to initiate formal consultation or seek written concurrence from the Services that the action "is not likely to adversely affect" listed species. For the purpose of this key, all "may affect" determinations equate to "likely to adversely affect" and Corps Project Managers should request the Service to initiate formal consultation on the manatee or designated critical habitat. **No effect** – the appropriate conclusion when the action agency determines its proposed action will not affect a listed species or designated critical habitat.

Multi-slip facility – Multi-slip facilities include commercial marinas, private multi-family docks, boat ramps and associated trailer parking spaces, dry storage facilities and any other similar structures or activities that provide access to the water for multiple (five slips or more, except in Brevard, Clay, Citrus, and Volusia counties where it is three slips or more) watercraft. In some instances, the Corps and the Service may elect to review multiple residential dock facilities as a multi-slip facility.

New access for watercraft – New dredging and the addition, expansion or improvement of structures such as, but not limited to, docks or piers, marinas, boat ramps and associated trailer parking spaces, boat lifts, pilings, floats, floating docks, floating vessel platforms, (residential boat lifts, pilings, floats, and floating vessel platforms installed in existing slips are not considered new access), boat slips, dry storage, mooring buoys, etc., that facilitates the addition of watercraft to, and/or increases watercraft usage in, waters accessible to manatees.

Observers – During dredging and other in-water operations within manatee accessible waters, the standard manatee construction conditions require all on-site project personnel to watch for manatees to ensure that those standard manatee construction conditions are met. Within important manatee areas (IMA) and under special circumstances, heightened observation is needed. **Dedicated Observers** are those having some prior experience in manatee observation, are dedicated only for this task, and must be someone other than the dredge and equipment operators/mechanics. **Approved Observers** are dedicated observers who also must be approved by the Service (if Federal permits are involved) and the FWC (if state permits are involved), prior to work commencement. Approved observers typically have significant and often project-specific observational experience. Documentation on prior experience must be submitted to these agencies for approval and must be submitted a minimum of 30 days prior to work commencement. When dedicated or approved observers are required, observers must be on site during all in-water activities, and be equipped with polarized sunglasses to aid in manatee observation. For prolonged in-water operations, multiple observers may be needed to perform observation in shifts to reduce fatigue (recommended shift length is no longer than six hours). Additional information concerning observer approval can be found at FWC's web page.

Residential boat lift – A boat lift installed on a residential dock facility.

Residential dock density ratio threshold – The residential dock density ratio threshold is used in the evaluation of multi-slip projects in some counties without a State-approved Manatee Protection Plan and is consistent with 1 boat slip per 100 linear feet of shoreline (1:100) owned by the applicant.

Residential dock facility – A residential dock facility means a private residential dock which is used for private, recreational or leisure purposes for single-family or multi-family residences designed to moor no more than four vessels (except in Brevard, Clay, Citrus, and Volusia counties which allow only two vessels). This also includes normal appurtenances such as residential boat lifts, boat shelters with open sides, stairways, walkways, mooring pilings, dolphins, etc. In some instances, the Corps and the Service may elect to review multiple residential dock facilities as a multi-slip facility.

Submerged aquatic vegetation (SAV) – Rooted, submerged, aquatic plants such as, but not limited to, shoal grass (*Halodule wrightii*), paddle grass (*Halophila decipiens*), star grass (*Halophila engelmanni*), Johnson's seagrass (*Halophila johnsonii*), sago pondweed (*Potamogeton pectinatus*), clasping-leaved pondweed (*Potamogeton perfoliatus*), widgeon grass (*Ruppia maritima*), manatee grass (*Syringodium filiforme*), turtle grass (*Thalassia testudinum*), tapegrass (*Vallisneria americana*), and horned pondweed (*Zannichellia palustris*).

Warm Water Aggregation Areas (WWAAs) and **No Entry Areas** – Areas within certain counties where increased densities of manatees occur due to the proximity of artificial or natural warm water discharges or springs and are considered necessary for survival. Some of these areas may be federally-designated manatee sanctuaries or state-designated seasonal "no entry" manatee protection zones. Projects proposed within these areas may require consultation in order to offset expected adverse impacts. In addition, special permits may be required from the FWC in order to access these areas.

Watercraft access structures – Docks or piers, marinas, boat ramps and associated trailer parking spaces, boat slips, boat lifts, floats, floating docks, pilings, boat davits, dry storage, etc.

Waters accessible to manatees – Although most waters of the State of Florida are accessible to the manatee, there are some areas such as landlocked lakes that are not. There are also some weirs, salinity control structures and locks that may preclude manatees from accessing water bodies. If there is any question about accessibility, contact the Service or the FWC.

Appendix F
Florida Bonneted Bat Consultation Key

U.S. Fish and Wildlife Service
Florida Ecological Services Field Office

FLORIDA BONNETED BAT CONSULTATION GUIDELINES

2024 REVISION

The U.S. Fish and Wildlife Service's Florida Ecological Services Field Office (Service) developed the Florida Bonneted Bat Consultation Guidelines (Guidelines) to assist in avoiding and minimizing potential negative effects to roosting and foraging habitat and assessing effects to the Florida bonneted bat (*Eumops floridanus;* FBB) from proposed projects. The Consultation Keys within the Guidelines assist applicants in evaluating their proposed projects and identifying the appropriate consultation paths under sections 7 and 10 of the Endangered Species Act of 1973 (Act), as amended (87 Stat. 884; 16 U.S.C. 1531 *et seq.*). The Florida Bonneted Bat Consultation Guidelines and associated Consultation Keys are designed to streamline and expedite consultations; however, use of the Consultation Keys are voluntary and may not be appropriate for some projects.

These Guidelines are a revision of the 2019 Guidelines. The Consultation Area, Consultation Key, Survey Methods, and Best Management Practices (BMPs) were revised based upon the best available scientific information. These Guidelines also include a Key for the Critical Habitat for the Florida bonneted bat. As more information is obtained, these Guidelines will be revised as appropriate. If you have comments or suggestions on any section of these Guidelines, please email FBBguidelines@fws.gov. Comments will be reviewed and incorporated into future revisions.

These Guidelines do not apply to projects involving the renovation of an existing artificial structure (*e.g.*, building, house) within the urban environment with or without additional ground disturbing activities (please contact the Service for additional guidance). For communication tower projects, please confer with additional and supplemental guidance (USFWS Comm Tower Guidance, 2020 Florida Comm Tower Clearance).

Without other, project-specific guidance provided by the Service, the Guidelines and Determination Keys must be followed explicitly. If they are not followed properly, your project may not be in compliance with the Act. If you have question regarding the Guidelines, including application of the Keys for your specific project, BMPs, designing surveys, definitions, or other questions, contact the Florida Bonneted Bat Recovery Lead (Sandra_Sneckenberger@fws.gov; 772-925-5510).

HOW TO COMPLETE PROJECT REVIEWS WITHIN THE FLORIDA BONNETED BAT'S RANGE

1. Refer to "Guidance for Completing Project Reviews Under the Endangered Species Act" for steps that must be completed before using the Keys below.
2. Use both FBB Consultation Key and FBB CH Consultation Key (below) and follow all instructions and steps in keys and appendices. If additional information is needed or you want personal assistance regarding application of the Consultation Keys, survey design, or BMPs, please contact the Florida Bonneted Bat Recovery Lead.
3. Include detailed information on how required BMPs are incorporated into your project designs. If all required BMPs cannot be incorporated into project, further consultation with the Service is required.
4. Again, refer to "Guidance for Completing Project Reviews Under the Endangered Species Act" for information on submitting your project for review. If additional information is needed or you want assistance regarding the consultation process, please contact FW4FLESRegs@fws.gov.

FLORIDA BONNETED BAT CONSULTATION KEY

1a. Action area is wholly or partially within the FBB consultation area (Figure 1) ……**Go to 2**
1b. Action area does not overlap with any of the FBB consultation area (Figure 1)....**No Effect**

2a. Action area contains potential FBB foraging or roosting habitat……**Go to 3**
2b. Action area does not contain potential FBB foraging or roosting habitat……..……**No Effect**

3a. Project entirely consists of land management, conservation, or restoration activities, such as prescribed fire, forestry practices, and invasive species removal, and the activities and effects to the FBB are addressed under a current Biological Opinion (BO) ……..…… **Follow all applicable avoidance and minimization measures included in the BO.** *No additional consultation is required.*
3b. Project entirely consists of land management, conservation, or restoration activities, such as prescribed fire, forestry practices, and invasive species removal, but does not have a current BO that addresses these activities or their effects to the FBB .....**MANLAA with required BMPs**
3c. The project's purpose is not solely intended for conservation/restoration or land management actions……..……..**Go to 4**

4a. Project proponents choose to assume presence of FBB based on potential foraging habitat and/or suitable roosting habitat, historical or recent detection records (e.g., FBB capture, telemetry data, acoustic records), and/or the project location is within the FBB assumed presence polygon (Figure 1) ……..…….....……**Go to 5**
4b. Project proponents choose to not assume presence of FBB.....**Go to 9**

5a. One or more potential FBB roost trees are present within the action area (foraging and roosting habitat exists on site), but trees are too numerous within the action area to properly inventory/visually survey……..…… ……...**LAA**
Further consultation with the Service is required.
5b. One or more potential FBB roost trees are present within the action area (foraging and roosting habitat exists on site) and all trees on site can be properly inventoried/visually surveyed……**Conduct Roost Structure Inventory/Survey,** then **Go to 6**
5c. No potential FBB roosting habitat is present within the action area (foraging habitat only is present on the site)…….……**Go to 7**

6a. Survey results do not show active FBB roosting is likely…….……..……**Go to 8**
6b. Survey results show active FBB roosting is likely ……...……..**LAA**
Further consultation with the Service is required.

7a. Project impact area is less than 25 acres (10 hectares) of FBB foraging habitat and outside of Miami-Dade County…….……..**MANLAA with required BMPs**
7b. Project impact area is 25 acres (10 hectares) or greater of FBB foraging habitat or project is within Miami-Dade County……..…… **LAA**
Further consultation with the Service is required.

8a. Project impact area is less than 25 acres (10 hectares) of FBB roosting habitat and foraging habitat and outside of Miami-Dade County……...……..**MANLAA with required BMPs**
8b. Project impact area is 25 acres (10 hectares) or greater of FBB roosting habitat and foraging habitat or project is within Miami-Dade County……..…… **LAA**
Further consultation with the Service is required.

9a. Project impact area is less than or equal to 5 acres (2 hectares), trees are few enough that they can be visually surveyed/inventoried individually, and project is located outside of Miami-Dade County……..……**Conduct Roost Structure Inventory/Survey,** then **Go to 10**
9b. Project impact area is more than 5 acres (2 hectares), or trees are too numerous to properly survey individually, or the project is located in Miami-Dade County …..…… ……**Conduct Acoustic Survey,** then **Go to 11**

10a. Results do not show active FBB roosting is likely…….**MANLAA with required BMPs**
10b. Results show active FBB roosting is likely…….……... **LAA**
Further consultation with the Service is required.

11a. Survey results yield no detection of FBB acoustic activity …….. ……..**MANLAA with required BMPs**
11b. Survey results indicate FBB acoustic activity……..…**Go to 12**

12a. Project impact area is less than 25 acres (10 hectares) of FBB foraging habitat or roosting habitat and outside of Miami-Dade County……..…..**MANLAA with required BMPs**
12b. Project impact area is 25 acres (10 hectares) or greater of FBB foraging habitat or roosting habitat or project is within Miami-Dade County……..…… **LAA**
Further consultation with the Service is required.

FLORIDA BONNETED BAT CRITICAL HABITAT CONSULTATION KEY

1a. Action area does not overlap with or have indirect effects on any designated FBB critical habitat (Figure 1)……..….**No Effect (to CH)**
1b. Action area is wholly or partially within designated FBB critical habitat (Figure 1) OR may have indirect effects on designated critical habitat……**Go to 2**
Indirect effects on critical habitat adjacent or near the project area may include, for example, changes in hydrology, or reduced ability to perform prescribed fire or other land management activities.

2a. Project entirely consists of land management, conservation, or restoration activities, such as prescribed fire, forestry practices, and invasive species removal, and the activities and effects to the FBB CH are addressed under a current BO..... **Follow all the Reasonable and Prudent Measures, Terms and Conditions, and Monitoring and Reporting Requirements included in the current BO.** *No additional consultation is required.*
2b. Project entirely consists of land management, conservation, or restoration activities, such as prescribed fire, forestry practices, and invasive species removal, and the activities, but the effects to the FBB CH are not addressed under a current BO.....**MANLAA (CH) with required BMPs**
2c. The project's purpose is not solely intended for conservation/restoration or land management actions……... **Go to 3**

3a. The action area overlaps with less than 0.01% of the CH unit ……..…….**MANLAA (CH) with required BMPs**
3b. The action area overlaps with more than 0.01% of the CH unit …..…. ***Further consultation with the Service is required.*** *Formal consultation may or may not be required. The Service will determine if adverse effects or adverse modification thresholds have been reached based on the function and context of the unit or subunit in which the action occurs.*

Unit	Total Acreage	0.01%
1	175,735	17.5
2	28,046	2.8
3	134,677	13.5
4	12,995	1.3
5	48,865	4.9
6	714,085	71.4
7	16,604	1.7
8	25,337	2.5
9	4,281	~ 0.5

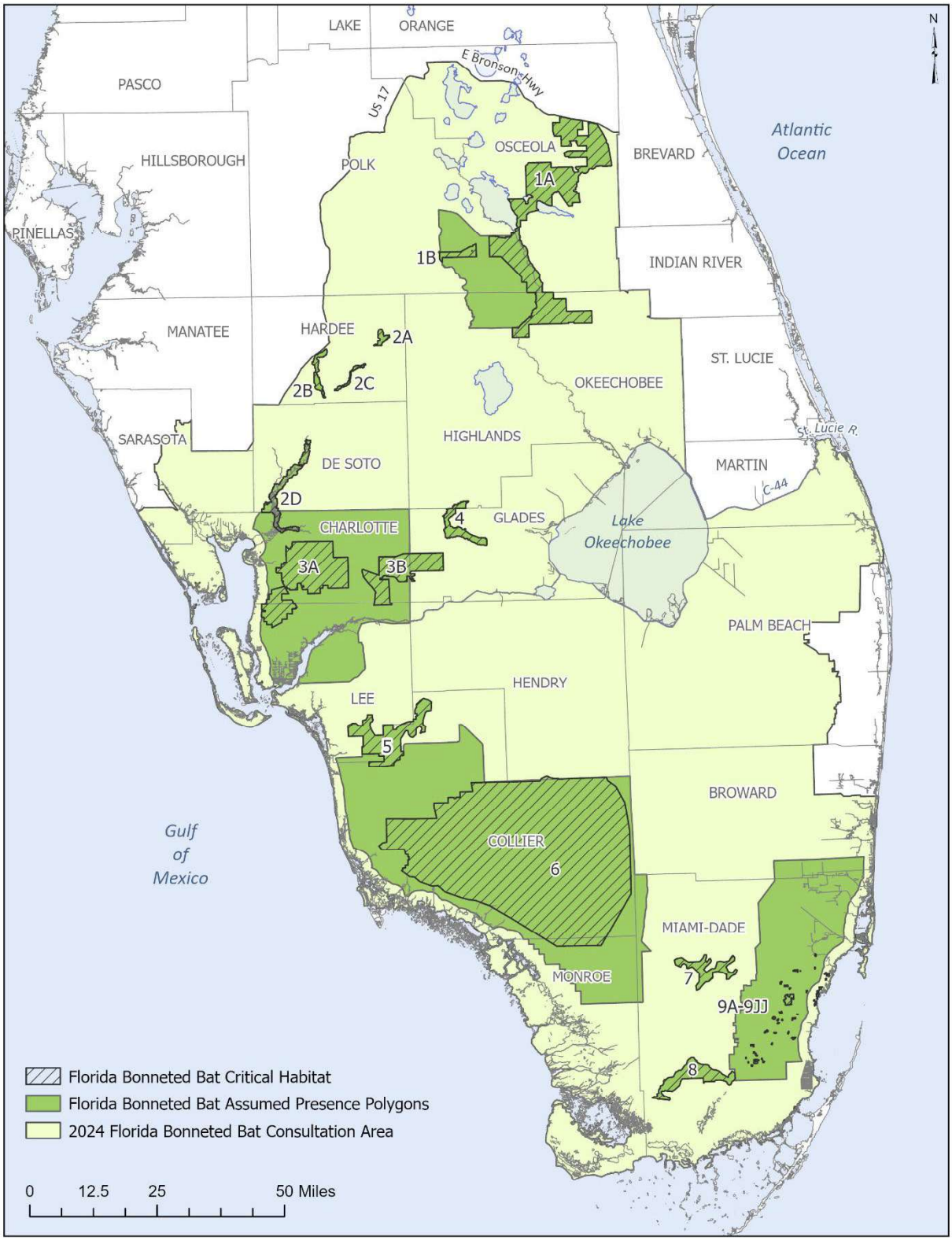


Figure 1. Florida Bonneted Bat Consultation Area, Critical Habitat Units, and Assumed Presence Polygons.

Appendix A*: Florida Bonneted Bat Potential Roost Structure Inventory/Survey Methods*

Purpose: The purpose of this survey is to: (1) identify potential Florida bonneted bat (FBB) roost structures within the project area; (2) qualitatively and quantitatively assess potential project impacts to FBBs and their habitat; 3) determine if FBB are likely to be actively roosting within suitable trees or artificial structures within the project area; (4) locate active roost(s) so loss or disturbance can be minimized; and, (5) avoid the take of individuals by informing the incorporation of conservation measures and best management practices into the project design. In many cases, changes in project designs or activities can avoid and minimize take.

If the applicant is unable to follow or does not want to follow the Florida Bonneted Bat Roost Structure Inventory/Survey Methods as recommended according to the Consultation Key, the Corps (or other Action Agency) will not be able to use these Guidelines and will need to provide a biologically supported rationale using the best available information for their determination in their request for consultation.

General Description: This survey effort is a multi-step process including a tree inventory of the project area, visual inspection of tree surfaces (as well as consideration of artificial structures or buildings on site), peeping and emergence counts for all cavities, hollows, areas of loose bark, and any other suspicious areas. Methods are dependent upon composition and configuration of project site and in most cases should be discussed with the Florida Bonneted Bat Recovery Lead.

General Survey Expectations:

- Approach is intended for project areas where the number and configuration of trees allow for all trees to be properly and thoroughly inventoried and individually inspected.

- Efforts should focus on assessing potential roosting structures within the project site that will be lost or modified (i.e., areas that will not be conserved), or are located on the property within 250 feet (ft) (76 meters [m]) of areas that will not be conserved. This will help avoid or minimize the loss of an active roost and individuals.

- Artificial structures and buildings on site with heights 15 ft (4.6 m) or greater should also be considered and surveyed.

- Use of provided data sheets below are preferred. If you create your own, please do not omit any information as it may not be accepted. Data requested for submission follows the data structure of the North American Bat Monitoring Program USGS Partner Portal (Loeb et al. 2015: https://www.nabatmonitoring.org/resources).

GENERAL INVENTORY OF TREES AND STRUCTURES:

- All trees over 20 ft (6 m) tall should be inventoried; tree snags and artificial structures over 10 ft (3 m) tall should be inventoried. In areas with more dense growth, line

transects can be run through roosting habitat closely enough so that all trees and snags are easily inspected.

- Tree species, height, and diameter at breast height (DBH) of each tree (over 20 ft [6 m] in height) and snags (over 10 ft [3 m] in height) on the site should be listed (see General Roost Structure Inventory Data Sheet Example). Artificial structures 10 ft (3 m) in height or greater that may mimic natural roosting conditions (e.g., bat houses, utility poles, buildings over one story high with chimneys, gaps in soffits, gaps along gutters, or other structural gaps or crevices), situated in natural or semi-natural habitats should also be listed.
- Using binoculars, trees and snags (and artificial structures) must be visually inspected for evidence of its potential use as a roost/shelter, including, but not limited to openings 1 inch (in) (2.5 centimeter [cm]) in diameter or greater.
- The presence of any cavities, hollows, decay, or loose bark should be noted, including the height of the cavity or deformity. Photographs should be taken of any trees, snags, or artificial structures with cavities or other deformities where bats may emerge or find shelter.
- If no potential roost trees, snags or structures have been identified, these data do not need to be submitted into NABat.

DATA COLLECTION FOR POTENTIAL ROOST TREES AND STRUCTURES:

- For potential roost trees and snags, and artificial structures identified in the inventory, the following information is required for NABat data submission and must be collected for every structure regardless of presence of bats in the structure. A single roost structure may have one or more roosting features (see Roost Structure Inventory Data Sheet Example for definitions):

    - GRTS Cell ID
    - Location Name
    - Latitude Decimal Degrees
    - Longitude Decimal Degrees
    - Observer
    - Exit Identifier(s)
    - Roost Location Method
    - Broad Habitat Type
    - Dominant plant species
    - Roost Type
    - Roosting Location
    - Aspect of Exit
    - Vegetation Obstruction
    - Emergence Point Height
    - Emergence Opening Width
    - Emergence Opening Height
    - Structure Height

- Structure Width
- Building Occupancy (only required if Roost Type was a building feature)
- Building Type (only required if Roost Type was a building feature)
- Tree Species (only required if Roost Type was a tree feature)
- Tree Decay (only required if Roost Type was a tree feature)
- Diameter Breast Height (only required if Roost Type was a tree feature)
- Guano Amount
- Survey Event Comments

- If no potential roost trees, snags, or structures are found in the project area or within 250 ft (76 m), survey data will still need to be submitted. Note that an area without roosting habitat, may be used for foraging. As such, if no roost structures are found, there may be a need to conduct a follow-up acoustic survey if it remains necessary to determine presence/absence of FBB.

VISUAL INSPECTION OF POTENTIAL ROOST TREES AND STRUCTURES VIA TREE-TOP CAMERAS:

- Contact the FBB Recovery Lead if active Red-cockaded Woodpecker (RCW) trees are expected within the survey area.

- Roost features on every identified potential roost structure should be visually inspected using a video probe (i.e., tree-top camera or "peeper") to assess the internal contents, when possible.

- The visual inspection survey is only considered to be a valid roost survey on its own if the entire internal contents of all roosting features identified in the area of impact can be observed. However, visual inspection with a tree-top camera alone is most often not acceptable due to the potential for roosts to be too high for cameras to reach, too small for cameras to fit, or shaped in a way that contents are out of view (Braun de Torrez et al. 2016). If any roosting features are out of reach or otherwise do not allow for a full inspection, it is required to follow up with emergence surveys.

- Note other present wildlife or other pertinent information about the structure (e.g., carcasses or skeletons present, nesting materials found, etc.). If any bat species or listed species is present, contact the FBB Recovery Lead as soon as possible. If FBBs (or other bat species) are found in any features of a roost structure during the visual inspection survey, the following additional information must be collected (see Roost Structure Inventory Data Sheet Example for definitions):

  - Seasonal Use
  - Maternity Stage (only required if Seasonal Use was identified as maternity)
  - Species
  - Estimate Min

- Estimate Max
- Count Confidence
- Pups Observed
- Pup Count
- Pup Comments
- Survey Event Comments

- When a visual inspection survey is conducted and no bats are found in any reachable (or all) roosting features, in the Survey Event Comments, include that no bats are present.

- Please note that if it is not possible to identify the species of the bats in the roost, further surveys (e.g., emergence, acoustic surveys) may be necessary for species identification.

VISUAL INSPECTION OF POTENTIAL ROOST TREES AND STRUCTURES VIA EMERGENCE SURVEYS:

- Multiple observers should be stationed at potential roosts for emergence surveys. On a minimum of two nights of suitable weather, surveyors should be quietly stationed 30 minutes before sunset, so they are ready to look and listen for emerging bats from sunset to 1½ hours after sunset. When conducting emergence surveys, it is best to orient observers so that the roost is silhouetted in the remaining daylight; facing west can help maximize the ability to notice movement of animals out of a roost structure. The use of an acoustic detector with an emergence survey can greatly increase confidence in species identification. While this can be done with a passive recording device, it may be beneficial to utilize a live spectrogram device.

- Emergence surveys can be conducted any time of year as long as weather conditions meet the criteria. Although not required at this time, it has been demonstrated that conducting surveys on warm nights late in the spring can help maximize detection probabilities (Ober et al. 2016; Bailey et al. 2017). If any of the following weather conditions exist at a roost structure during an emergence survey, note the time and duration of such conditions, and repeat the emergence survey effort for that night, when necessary:

    - temperatures fall below 60°F (15.5°C);
    - precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the survey period; or
    - sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale) for 30 minutes or more during the survey period (Service 2024).

- At a minimum, nightly weather conditions for survey sites should be checked using the nearest NOAA National Weather Service station and summarized in the survey reports (for the survey nights submitted).

- Note other present wildlife or other pertinent information about the structure (e.g., woodpeckers visiting structure, disturbances around structure, etc.). If Florida bonneted bats (or other bat species) are observed entering or exiting a roost structure during the emergence survey, the following additional information must be collected (see Emergence Survey Data Sheet Example for definitions):

    - Roost Exit Points
    - Seasonal Use
    - Maternity Stage
    - Species
    - Identification Method
    - Count Species In
    - Count Species Out
    - Estimate Min
    - Estimate Max
    - Count Confidence
    - Observation Method
    - Distance from Roost
    - Reason Survey Ended
    - Starting/Ending Temperature
    - Starting/Ending Relative Humidity
    - Starting/Ending Cloud Cover
    - Starting/Ending Wind Speed
    - Starting/Ending Weather Event
    - Survey Event Comments

- When an emergence survey is conducted for a potential roost structure and no bats are observed at all, in the Survey Event Comments, include that no bats are present.

FINAL REPORTING:

- Much like the acoustic data submission process, the process of submitting FBB regulatory roost inventories and surveys to the Service incorporates the North American Bat Monitoring Program Partner Portal platform. Final reporting entails completed submission of the survey into the NABat Partner Portal, as well as communication with the FBB Recovery Lead. Additional guidance and resources on how to correctly complete this process are available at https://www.nabatmonitoring.org/fbb.

- The report shall also be provided to the Corps project manager assigned to the project for which the survey was conducted, and to the Service along with the project submittal via FW4FLESRegs@fws.gov. Please use a subject line for the emails: “Submittal (or Final FBB report) for [insert Project Name] FWS Project Code [insert Project Code number]" so that it can be distributed to the appropriate biologist(s).

- Reporting requirements:
  - Summary of the project site
    - Project area acreage
    - Habitat types/land cover
    - Location (county, city, etc.), coordinates (decimal degrees latitude/ longitude), site location and detailed maps
    - Project description, purpose, designs

  - Summary of the methods used
    - Devices used (make, model, serial number, firmware version)
    - Methods used for tree inventory
    - Methods used for surveying for roost occupancy survey
    - General set-up description for surveys (e.g., distances between transects, equipment to elevate video probes, position and orientation to roost structure, etc.)
    - Photo of each/all potential roost trees and structures and its roost feature(s) (more detailed photos of each roost feature when possible)

  - Summary of survey results
    - Inventory table/data sheets
    - Effects determination and explanation
    - BMPs to be incorporated
    - Include weather conditions for the days of emergence surveys

- Negative surveys are valid for 1 year after completion of the survey.

If you have comments, or suggestions on this survey protocols, please email your comments to FBBguidelines@fws.gov. These comments will be reviewed and incorporated into future revisions.

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EXAMPLE DATA SHEET FOR **GENERAL ROOST STRUCTURE INVENTORY**

Document all trees over 20 ft (6 m), all snags over 10 ft (3 m), and all artificial structures over 10 ft (3 m) that are present on the project site. Using binoculars, visually inspect all structures for evidence of its potential use as a roost/shelter. Take photos when possible.

Date(s):	
Project:	
Site & GRTS ID:	
Observer(s):	

TREES AND SNAGS

Structure ID	Status (Live/Dead)	Height (m)	Species	Roosting Features? (Y/N)	Photo(s) Taken? (Y/N)	Notes

ARTIFICIAL STRUCTURES

Structure ID		Height (m)	Structure Type	Roosting Features? (Y/N)	Photos Taken? (Y/N)	Notes

Data Field Definitions (General Roost Structure Inventory)

Date(s): When the survey was conducted.

Project: Descriptive and unique project titles and project numbers.

Site: Specific site of survey for listed project.

GRTS ID: GRTS ID number of the NABat grid cell where the survey was conducted.

Observer(s): First and last names of observers involved in survey. Include company name if relevant.

TREES AND SNAGS

Structure ID: This can be as simple as consecutively identifying trees and snags as "T1, T2, T3, …" and "S1, S2, S3, …".

Status: Select either "Live" or "Dead" for trees or snags, respectively.

Height (m): Estimate or measure of the height of the tree or snag in meters. Leave blank if unknown.

Species: Scientific name of the tree or snag (if identifiable – if no species ID possible for a snag, identify as pine or hardwood if possible).

Roosting Features? (Y/N): Are there any roosting features present on the tree or snag? Select Yes or No.

Photo(s) Taken? (Y/N): Were any photos taken? Select Yes or No.

Notes: Any additional notes about the tree or snag.

ARTIFICIAL STRUCTURES

Structure ID: This can be as simple as consecutively identifying artificial structures as "A1, A2, A3, …".

Height (m): Estimate or measure of the height of the structure in meters.

Structure Types: Artificial roost, bridge, building, utility pole, other (include description in Notes).

Roosting Features? (Y/N): Are there any roosting features present on the tree or snag? Select Yes or No.

Photo(s) Taken? (Y/N): Were any photos taken? Select Yes or No.

Notes: Any additional notes about the structure.

EXAMPLE DATA SHEET FOR **ROOST STRUCTURE SURVEY**

For potential roost trees, snags, and artificial structures identified as having features that could be used for roosts, the following information is required for every structure regardless of presence of bats in the structure. A single roost structure may have one or more roosting features.

Date:	
Project:	
Site & GRTS ID:	
Observer(s):	

POTENTIAL ROOST STRUCTURES AND FEATURES					
Structure ID					
Latitude					
Longitude					
Exit Identifier(s)					
Broad Habitat					
Dominant Plant Species					
Roost Type					
Roosting Location					
Exit Aspect(s)					
Vegetation Obstruction					
Emergence Point(s) Height (m)					
Emergence Opening(s) Width (cm)					
Emergence Opening(s) Height (cm)					
Building Occupancy					
Building Type					
Tree Species					
Tree Decay					
DBH					
Guano Amount					
Survey Event Comments					

Data Field Definitions (Roost Structure Survey)

Date(s): When the survey was conducted.

Project: Descriptive and unique project titles and project numbers.

Site: Specific site of survey for listed project.

GRTS ID: GRTS ID number of the NABat grid cell where the survey was conducted.

Observer(s): First and last names of observers involved in survey. Include company name if relevant.

Structure ID: Provide a unique name for every roost structure surveyed within a project. Match ID with inventory.

Latitude/Longitude: Latitudinal and longitudinal coordinates in WGS84 decimal degrees.

Exit Identifier(s): Unique identifier for each notable exit/entry on the structure. Can be as simple as "C1, C2, ..." for cavities, etc.

Broad Habitat Type: Broad habitat type surrounding roost. Select from the following options: agriculture | barren land | forest-conifer | forest-deciduous | forested wetland | grassland | shrubland | urban | water | wetland

Dominant plant species: List the top 1 to 3 dominant plant species surrounding the roost structure.

Roost Type: The type of roost structure from which bats are emerging. Select from the following options: artificial roost bark mimic | artificial roost bat box | artificial roost bat bunker | artificial roost bat condo | artificial roost other | artificial roost unknown | bridge cavity | bridge crevice | bridge expansion joints | bridge other | bridge under bridge | bridge unknown | building attic | building basement | building chimney | building deck | building eaves | building interior | building other | building porch | building roof | building shingles | building under siding | building unknown | other artificial structure dam | other artificial structure utility pole | rock feature other | rock feature rocky outcrop | rock feature talus slope | rock feature unknown | tree basal hollow | tree branch | tree cavity | tree crevice | tree downed woody debris | tree exfoliating bark | tree foliage | tree on trunk | tree other | tree roots | tree unknown

Roosting Location: Provide a brief description about the exit/entries identified on the roost structure, focusing on the ones used by bats if observed. Limit description to 250 characters or less.

Exit Aspect(s): The cardinal direction the exit(s)/entry(ies) face. Select from the following options: east | multiple | north | northeast | northwest | south | southeast | southwest | unknown | west

Vegetation Obstruction: Is vegetation obstructing the roost exit? State either TRUE or FALSE.

Emergence Point Height: Height of the exit point(s) from the ground (m).

Emergence Opening Width/Height: Width/height of the exit point(s) (cm).

Emergence Opening Height If the "Exit Identifier" field was left blank, leave blank.

Building Occupancy: Leave blank if Roost Type was not a building feature. Building occupied by humans? State TRUE or FALSE.

Building Type: Leave blank if Roost Type was not a building feature. Select from the following options: barn | cabin | commercial building | house | shed | silo

Tree Species: Leave blank if Roost Type was not a tree feature. State the scientific name of the tree species if identifiable.

Tree Decay: Leave blank if Roost Type was not a tree feature. Indicate the decay stage of the tree. Select from the following options: NA | other | stage 1: live | stage 2: declining | stage 3: dead | stage 4: loose bark | stage 5: clean | stage 6: broken | stage 7: decomposed | stage 8: down material | stage 9: stump

DBH: Leave blank if Roost Type was not a tree feature. Diameter of the tree at breast height in centimeters.

Guano Amount: Guano seen in or around the roost structure. Select from the following options: abundant | large mounds | none | scattered

Survey Event Comments: Additional notes about the roost structure.

EXAMPLE DATA SHEET FOR **EMERGENCE SURVEYS**

Date:		Start/End Temperature (C):	
Project:		Start/End Relative Humidity (%):	
Site & GRTS ID:		Start/End Cloud Cover (%):	
Observer(s):		Start/End Wind Speed (km/h):	
		Start/End Weather Event:	

POTENTIAL ROOST STRUCTURES AND FEATURES					
Structure ID					
Latitude					
Longitude					
Exit Identifier(s)					
# Roost Exits					
Seasonal Use					
Maternity Stage					
Species					
Identification Method					
Count In					
Count Out					
Estimate Min					
Estimate Max					
Count Confidence					
Observation Method					
Distance from Roost (m)					
Reason Survey Ended					
Survey Event Comments					

Data Field Definitions (Emergence Surveys)

Date(s): When the survey was conducted.

Project: Descriptive and unique project titles and project numbers.

Site: Specific site of survey for listed project.

GRTS ID: GRTS ID number of the NABat grid cell where the survey was conducted.

Observer(s): First and last names of observers involved in survey. Include company name if relevant.

Starting/Ending Temperature: Temperature in Celsius at the start and end of the emergence survey.

Starting/Ending Relative Humidity: Relative humidity percentage at the start and end of the emergence survey.

Starting/Ending Cloud Cover: Cloud cover percentage at the start and end of the emergence survey.

Starting/Ending Wind Speed: Wind speed (kilometer per hour [km/h]) at the start and end of the emergence survey.

Starting/Ending Weather Event: Select from the following options for starting and ending weather event: Fair | Partly Cloudy | Mostly Cloudy | Cloudy | Fair / Windy | Mostly Cloudy / Windy | Haze | Fog | Light Rain | Rain | Heavy Rain | Thunder in the Vicinity | Thunder | T-Storm | Heavy T-Storm

Structure ID: Unique structure ID. Match ID with inventory data sheets.

Latitude/Longitude: Latitudinal and longitudinal coordinates in WGS84 decimal degrees.

Roost Exits: The number of exits from which bats emerged.

Seasonal Use: Seasonal use of the roost. Select from the following options: fall roost | hibernacula | maternity | multi-season | spring roost | summer roost | unknown | winter roost

Maternity Stage (only required if Seasonal Use indicated as maternity): Leave blank if Seasonal Use was not identified as maternity. State whether the roost is pre-volant or post-volant.

Species: List the bat species identified. Use one column per species.

Identification Method: Method used to identify each species. Select either acoustics or visual.

Count Species In: Number of bats observed entering the roost.

Count Species Out: Number of bats observed exiting the roost.

Estimate Min: Lowest estimate of the number of bats in the roost.

Estimate Max: Highest estimate of the number of bats in the roost.

Count Confidence: Select from the following options: high (66 - 100%) | low (0 - 33%) | medium (33 - 66%)

Observation Method: Select from the following options: cavity inspection scope | night vision camera | night vision device | night vision device and bat detector | other | thermal camera and bat detector | thermal device | thermal device

Distance from Roost (m): Distance of observer from the roost (m).

Reason Survey Ended: Select from the following options: 15 min after last bat | bats finished emerging | low visibility | unknown

Survey Event Comments: Additional notes about the emergence survey.

Appendix B*: Florida Bonneted Bat Acoustic Survey Methods*

Purpose: The purpose of this survey is to: (1) determine if Florida bonneted bats (FBBs) are likely to be present within the project area; (2) determine if Florida bonneted bat activity patterns suggest the possibility of active roosting within the project area, (3) qualitatively and quantitatively assess potential project impacts to Florida bonneted bats and their habitat, (4) avoid or minimize the take of individuals by informing the incorporation of conservation measures and best management practices into the project design. In many cases, changes in project designs or activities can avoid and minimize take.

General Description: When properly conducted, acoustic surveys are the most effective way to determine presence and assess habitat use. This survey is a robust acoustic effort designed to detect Florida bonneted bats on a site, when present. Methods are dependent upon composition and configuration of project site and in many cases should be designed collaboratively with the Florida Bonneted Bat Recovery Lead. In some cases, further surveys (e.g., emergence surveys or tree inventories) may be helpful or desirable to properly evaluate project effects or determine how best to avoid and minimize impacts.

General Survey Expectations:

- This approach is intended for larger project sites where potential FBB roost trees are too numerous to properly inventory/visually survey within the project area.

- For sites containing roosting habitat, acoustic surveys should primarily focus on assessing roosting habitat within the project site that will be lost or modified (i.e., areas that will not be conserved), and locations on the property within 250 feet (76 meters) of areas that will not be conserved. This will help avoid or minimize the loss of an active roost and individuals. Secondarily, since part of the purpose is to determine if Florida bonneted bats are present/using the site, acoustic devices should also be placed near open water and wetlands to maximize chances of detection and aid in assessing foraging habitat that may be lost.

- Use of provided data sheets below are preferred. If you create your own, please do not omit any information as it may not be accepted.

- Acoustic surveys should be performed by those who are trained and experienced in setting up, operating, and maintaining acoustic equipment; and retrieving, saving, analyzing, and interpreting data. Surveyors should have completed one or more of the available bat acoustic courses/workshops or be able to show similar on-the-job or academic experience (Service 2024). New surveyors may request "practice projects" where they collect, analyze, interpret, and submit up to two projects for feedback from the FBB Recovery Lead.

- Due to the variation in the quality of recordings, the influence of clutter, the changing performances of software packages over time, and other factors, manual verification is recommended (Loeb et al. 2015). Files that are identified to species from automatic identification programs must be visually reviewed and manually verified by experienced personnel.

HABITAT ASSESSMENT:

- Start with a general assessment of habitat in the project area to identify areas with roosting habitat characteristics.
    - At minimum, conduct a general habitat assessment that records broad habitat types, dominant plant species, presence of potential FBB roosting habitat.

    - Examples of areas to target during acoustic surveys include but are not limited to (if there are any questions about this consult with the FBB Species Recovery Lead):
        - a cluster of pine trees
        - a section of cypress swamp/dome
        - an area with snags
        - a water feature (e.g., canal, pond, lake)

- For sites that do not contain ANY roosting habitat but do contain foraging habitat, acoustic efforts should focus on assessing foraging habitat within the project site that will be lost or modified (i.e., areas that will not be conserved).

ACOUSTIC SURVEY DESIGN:

- The number of acoustic survey sites and nights needed for the assessment is dependent upon the overall acreage of suitable habitat (foraging or roosting) proposed to be impacted by the action.

- For non-linear projects, a minimum of 9 valid detector nights per 20 acres of suitable habitat is required. For example, for a 145-acre project, 8 detectors should be deployed for a minimum of 9 valid nights (145÷20=7.25; round up to 8). Do not multiply out to get total detector nights and then modify the number of detector sites or nights. Surveys should be planned with the intention of surveying for 9 consecutive valid nights. Contact the FBB Recovery Lead if it will take over 14 days to attain 9 valid nights.

- For non-linear projects, when surveying for both FBB and tricolored bats (TCB) a minimum of 14 valid detector nights per 20 acres of suitable habitat are acceptable for both species. When surveying for both FBB and TCB, TCB surveys are only valid if conducted March 1 to October 15. Surveys should be planned with the intention of surveying for 14 consecutive valid nights. Contact the FBB Recovery Lead if it will take over 21 days to attain 14 valid nights.

- For linear projects (e.g., roadways, transmission lines), a minimum of 9 detector nights per 0.6 mi (1 km) is required. When surveying for both FBB and TCB, TCB surveys are only valid if conducted March 1 to October 15. Surveys should be planned with the intention of surveying for 9 consecutive valid nights. Contact the FBB Recovery Lead if it will take over 14 days to attain 9 valid nights.

- Detectors should be placed to survey all suitable habitat. There is a 300 m minimum distance between deployed detectors.

- Please contact the FBB Recovery Lead if there is interest in diverting from these protocols (such as setting up detectors less than 300 m apart) or if there is concern about not being able to attain the minimum consecutive nights under valid weather conditions.

- *For any site, and in particular for sites > 250 acres, please feel free to contact the FBB Recovery Lead to assist in designing an appropriate approach.* Site acreage, site location (e.g., coordinates, project boundary, .kmz files), and a description of what is planned for the site is helpful information to include in correspondence.

ACOUSTIC EQUIPMENT DEPLOYMENT:

- The following acoustic detectors have been used for FBB acoustic surveys. (The Service does not endorse specific products or equipment.) Make sure the devices to be used in the field survey are updated with the most recent firmware version before deployment in the field. If interested in using a detector not listed below, please consult the FBB Recovery Lead.
    - Wildlife Acoustics:

SM2 Bat +	SM2 Bat 192
SM3 Bat	SM4 Bat FS
SM Mini Bat	

    - Binary Acoustic:

AR125	AR125FG
AR180	Acrobat
IFR IV	IFR V

    - Pettersson:

D1000X	D240X
D500X	M500

    - Titley:

Anabat Swift	Anabat Walkabout

- Microphones can be directional or omnidirectional, but make sure positioning is optimal. If using something other than a standard microphone for the device being used, ensure compatibility and functionality prior to deployment (this may even include a test deployment so recording ability can be assessed).

- It is important no matter what device you are using that you verify its functionality before every deployment. Some companies selling detectors also sell calibration devices to assess the sensitivity of the mics/devices. Devices should be calibrated while paired with the same mics they are going to be deployed in the field with. It is also required that surveyors verify functionality as soon as possible after device pick-up.

- Acoustic device program settings:
  - Full spectrum recording
  - Gain: 12 decibels (dB)
  - 16k High Filter: Off
  - Sample Rate: 256 kilohertz (kHz)
  - Minimum Duration: 1.5 milliseconds (ms)
  - Maximum Duration: 50 ms
  - Minimum Trigger Frequency: 8 kHz
  - Trigger Level: 12 dB
  - Trigger Window: 2 seconds (s)
  - Maximum Length: 15 s
  - Compression: None
  - Recorder schedule should be set to record from 30 minutes prior to sunset to 30 minutes after sunrise for multiple nights.

- Acoustic devices must be calibrated and properly placed for deployment. Microphones must be elevated to a minimum of 3 m (10 ft), situated in an area clear of vegetation 2 m in all directions, and fully free of vegetative or other clutter from ground to sky. When possible, elevating devices/device microphones higher than the minimum height requirement can improve call quality and reduce the number of noise files being recorded. Please note that it is not acceptable to attach acoustic devices to trees or other standing structures to elevate them – they should have a standalone set-up that gives them sufficient omnidirectional air space. Microphones should be directed away from surrounding vegetation, electrical wires and transmission lines, echo-producing surfaces, and external noises. Directional microphones should be aimed to sample the majority of the flight path/zone in an upward direction. Omnidirectional microphones should be deployed on a pole in the center of the flight path/zone and oriented horizontally (a slight angle might help prevent pooling on the microphone surface and therefore reduce long-term water damage). For monitoring possible roost sites, microphones should be directed to maximize likelihood of detection.

- Acoustic surveys can be conducted any time of year as long as weather conditions meet the criteria. Although not required at this time, it has been demonstrated that conducting surveys on warm nights late in the spring can help maximize detection probabilities (Ober et al. 2016; Bailey et al. 2017). If any of the following weather conditions exist at a roost structure during acoustic sampling, note the time and duration of such conditions, and repeat the acoustic sampling effort for that night, when necesssary:
    - temperatures fall below 60°F (15.5°C) during the first 5 hours of the survey period;
    - precipitation, including rain and/or fog, that exceeds 30 minutes or continues intermittently during the first 5 hours of the survey period; or
    - sustained wind speeds greater than 9 miles/hour (4 meters/second; 3 on Beaufort scale) for 30 minutes or more during the first 5 hours of the survey period (Service 2024).

- At a minimum, nightly weather conditions for survey sites should be checked using the nearest NOAA National Weather Service station and summarized in the survey reports (for the survey nights submitted).

- The following metadata is required for data submission and must be collected for every detector deployment (see Acoustic Detector Deployment Example Data Sheet for definitions):
    - GRTS Cell ID
    - Location Name
    - Latitude Decimal Degrees
    - Longitude Decimal Degrees
    - Survey Start Time/End Time
    - Detector Model
    - Detector Serial Number
    - Microphone Model
    - Microphone Orientation
    - Microphone Height
    - Distance to Nearest Clutter (meters)
    - Clutter Type
    - Broad Habitat Type
    - Land Unit Code
    - Contact

ACOUSTIC ANALYSIS:

- The process of analyzing and submitting FBB regulatory survey data to the Service incorporates the North American Bat Monitoring Program Partner Portal platform. Additional guidance and resources on how to correctly complete this process are available at https://www.nabatmonitoring.org/fbb.

INTERPRETATION OF RESULTS:

- DO:
  - Include all FBB call types when considering potential roosting activity. Any type or number of calls is considered presence. Any call near sunrise or sunset can indicate potential roosting.

- DO NOT:
  - Interpret few FBB calls as low or no FBB activity. These methods are designed to detect presence. Discussions of level of activity or density are not appropriate.
  - Interpret a lack of echolocation recordings near sunset or sunrise as an indication that roosting nearby is unlikely. This needs to be assessed using multiple methods.

- If results of acoustic surveys show active Florida bonneted bat roosting is likely (6b or 10b), follow-up methods such as emergence surveys, visual inspection of the roosting structures, or follow-up acoustic surveys may be recommended to avoid or minimize impacts. Please contact the FBB Recovery Lead if you have any questions regarding the definitions or using the key.

FINAL REPORTING:

- Final reporting entails completed submission of the survey into the NABat Partner Portal, as well as communication with the FBB Recovery Lead.

- If there are any questions about data submission requirements, refer to the resources available at https://www.nabatmonitoring.org/fbb.

- The report shall also be provided to the Corps project manager assigned to the project for which the survey was conducted, and to the Service along with the project submittal via FW4FLESRegs@fws.gov. Please use a subject line for the emails: "Submittal (or Final FBB report) for [insert Project Name] FWS Project Code [insert Project Code number]" so that it can be distributed to the appropriate biologist(s).

- Reporting requirements:
  - Summary of the project site
    - Project area acreage
    - Habitat types/land cover
    - Location (county, city, etc.), coordinates (decimal degrees latitude/longitude), site location and detailed maps
    - Project description, purpose, designs

  - Summary of the methods used
    - Devices used (make, model, serial number of detector, firmware version)
    - Calibration method/device used (both before and after device deployment)
    - Automated identification software and version

- General set-up description including height of mic, etc. (see required metadata fields in section above and in data sheet)
- Photo of each final detector set-up, as well as 4 cardinal direction photos

o Summary of survey results
- Summary table of number of calls per species per detector deployment
- Inventory table of EUMFLO recording files, recording timestamp, detector ID, and local sunrise/sunset times
- Representative spectrograms of recordings that were automatically identified by software as EUMFLO but manually vetted and rejected as Florida bonneted bat recordings (these are often Noise files, TADBRA calls, or the social calls of other bat species)
- Effects determination and explanation
- BMPs to be incorporated
- Include weather conditions for the days being included in the final survey and analysis

- Negative surveys are valid for 1 year after completion of the survey. A back-up of all acoustic data collected (raw acoustic files, spreadsheets, metadata, environmental reports, weather sheets, etc.) for each project must be maintained for a minimum of 1 year post project submission.

If you have comments, or suggestions on this survey protocols, please email your comments to FBBguidelines@fws.gov. These comments will be reviewed and incorporated in future revisions.

Literature Cited - Appendix B

Bailey, A.M., H.K. Ober, A.R. Sovie, and R.A. McCleery. 2017. Impact of land use and climate on the distribution of the endangered Florida bonneted bat. Journal of Mammalogy. 98:1586-1593.

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U.S. Fish and Wildlife Service. 2024. Range-wide Indiana bat and Northern long-eared bat survey guidelines. https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

EXAMPLE DATA SHEET FOR **ACOUSTIC DETECTOR DEPLOYMENTS**

Date(s):	
Project:	
Site & GRTS ID:	
Name(s):	

ACOUSTIC DETECTOR DEPLOYMENTS					
Location Name					
Latitude					
Longitude					
Survey Start TIme					
Survey End TIme					
Detector Type					
Detector Serial Number					
Microphone Model					
Microphone Orientation					
Microphone Height					
Distance Nearest Clutter (m)					
Clutter Type					
Broad Habitat Type					
Land Unit Code					
Contact Information					
Deployment Comments					

Data Field Definitions (Acoustic Detector Deployment)

Date(s): When the survey was conducted.

Project: Descriptive and unique project titles and project numbers.

Site: Specific site of survey for listed project.

GRTS ID: GRTS ID number of the NABat grid cell where the survey was conducted.

Name(s): First and last names of observers involved in survey. Include company name if relevant.

Location Name: An official or unofficial name name of the site. Provide a unique name for every acoustic detector deployment location within a project.

Latitude/Longitude: Latitudinal and longitudinal coordinates in WGS84 decimal degrees.

Survey Start/End Time: These reference the beginning and ending detector activation time. If a detector starts recording late, then start time should be listed as the date and time from the first file recorded. If a detector stops recording early, the end time should be listed as the date and time of the last file recorded. Note such incidents in the "Unusual Occurrences" metadata field. Adjust times as necessary for each detector/deployment (i.e., do not just use the same full survey time for all batches unless detectors were all active for that full time).

Detector Type: Select from the following options: BINARY ACOUSTIC AR125 | BINARY ACOUSTIC AR125-FG | BINARY ACOUSTIC AR180 | BINARY ACOUSTIC AcroBat | BINARY ACOUSTIC iFR-IV | BINARY ACOUSTIC iFR-V | PETTERSSON D1000x | PETTERSSON D240x | PETTERSSON D500x | PETTERSSON M500 | TITLEY AnaBat Express | TITLEY AnaBat SD1 | TITLEY AnaBat SD2 | TITLEY AnaBat Swift | TITLEY AnaBat Walkabout | WILDLIFE ACOUSTICS EM-Touch | WILDLIFE ACOUSTICS EM-Touch2 | WILDLIFE ACOUSTICS EM-TouchPRO | WILDLIFE ACOUSTICS EM3/EM3+ | WILDLIFE ACOUSTICS SM MICRO | WILDLIFE ACOUSTICS SM2 | WILDLIFE ACOUSTICS SM2Bat+ | WILDLIFE ACOUSTICS SM2Bat-192 | WILDLIFE ACOUSTICS SM3Bat | WILDLIFE ACOUSTICS SM4BAT | WILDLIFE ACOUSTICS SM4BAT-FS | WILDLIFE ACOUSTICS SM4BAT-ZC | WILDLIFE ACOUSTICS SMMINI-BAT | WILDLIFE ACOUSTICS SMZC

Detector Serial Number: Serial number of the detector/recording device.

Microphone Model: Leave blank if not applicable (i.e., no external microphone attachment). Select from the following options: Pettersson D500x | Pettersson M500 | TITLEY AnaBat Swift | Wildlife Acoustics SM3-U1 | Wildlife Acoustics SMM-U1 | Wildlife Acoustics SMM-U2 | Wildlife Acoustics SMX-U1 | Wildlife Acoustics SMX-US | Wildlife Acoustics SMX-UT | generic Directional | generic Internal | generic Omni-directional

Microphone Orientation: Direction in which the microphone was oriented. Select from the following options: e | n | ne | nw | s | se | sw | w | vert

Microphone Height: Height of the microphone above the ground (m).

Distance to Nearest Clutter (meters): Distance (m) between microphone and nearest clutter (for example: vegetation, buildings, or other structure).

Clutter Type: Select from the following options: Building | Other | Rock | Vegetation | Water

Broad Habitat Type: Broad habitat type surrounding device. Select from the following options: agriculture | barren land | forest-conifer | forest-deciduous | forested wetland | grassland | shrubland | urban | water | wetland

Land Unit Code: The first 4 letters of the county where the survey was conducted.

Contact information: person/entity that deployed and is responsible for the acoustic detector.

Deployment Comments: Additional notes about acoustic deployment.

Appendix C: Best Management Practices for Land Management Activities, Development Activities, and Actions within Critical Habitat

These BMPs consist of actions intended to avoid, minimize, or offset impacts to Florida bonneted bats. BMPs required to reach a "may affect, but is not likely to adversely affect" (MANLAA) determination are listed below. If the applicant is unable or does not want to incorporate the required BMPs into the project, this Consultation Key cannot be followed and further coordination and consultation with the Service is required. In these cases, formal consultation may not be required, but further evaluation of the project and discussions with the Service are needed.

Best Management Practices for Land Management Activities
The BMPs **LM1 through LM6** are required for MANLAA projects keying out to **3b** in the FBB Consultation Key (see note), no further consultation is required:

LM1. Conduct tree removal in areas with known or suspected roosting activity from November 15 to April 15. From April 16 to November 14, visual, peeping, and emergence surveys must be done prior to removal of trees 7.4 in (19 cm) dbh or greater with cavities (or snag height) at 15 ft or higher.

LM2. When feasible, roost surveys are recommended year round prior to removal of trees 7.4 inch (19 cm) dbh or greater with cavities (or snag height) at 15 ft or higher, especially for slash and longleaf pine, royal palm, and cypress.

LM3. Conduct prescribed burns in areas of known or suspected roosting activity from November 15 to April 15.

LM4. Protect known and suspected roost trees by raking and/or manually clearing vegetation around the base (150-ft (46 m) buffer) of identified trees prior to prescribed burning.

LM5. In areas of suitable FBB roosting habitat, plan to conduct only low intensity prescribed burns.

LM6. Avoid conducting frequent or sustained loud land management activities (generally above 80 decibels, such as chainsaw or heavy equipment) within 100 ft (15 m) of known or suspected roosts during the FBB breeding season (April 15 to November 15).

LM7. When possible, protect trees or snags 7.4 in (19 cm) dbh or greater with cavities (or snag height) at 15 ft or higher. These efforts may consist of avoiding removal of trees with these characteristics, raking and/or manually clearing vegetation around the base of known or potential roost trees to remove fuel prior to prescribed burning.

LM8. Forestry practices: Follow/Establish forest management efforts to maintain tree species and size class diversity to ensure long-term supply of FBB potential roost sites. Preserve large snags in open canopy when possible.

For land management activities or restoration projects that are not addressed in a current BO and cannot incorporate the BMPs above, contact the Service (Florida Bonneted Bat Recovery Lead or the Service's Environmental Review project manager) for further guidance. Note: Many land management activities are not expected to follow these BMPs (and key out to a MANLAA), nor would it be beneficial for the FBB and many other species if all management actions followed all BMPs. However, the Service is required to evaluate the need to provide take coverage for those projects that may result in take of individuals. For example, these projects could include management actions in areas with potential roosts trees during peak pup season or where fire is likely to result in significant loss of potential roost trees.

Best Management Practices for Development, Construction, and Other Similar Activities

Use the table below to determine which BMPs are required for projects keying out to a MANLAA **with required BMPs (7a, 8a, 10a, 11a, or 12a)** in the FBB Consultation Key. Information on how each BMP is each incorporated into the project must be submitted with the project for review. In cases of multiple home or multiple (future) ownership developments, how these measures will be maintained and enforced in perpetuity must also be addressed (e.g., through deed restrictions, Homeowner or Property Owner Associations (HOA/POA), Community Development Districts (CDD), planned communications to new owners and leases). If a BMP is not relevant to the project (for example, D2, if no water or water features are present or planned), please explain why is does not apply to the project.

Project keys out to:	**Required BMPs**
7a	D1 through D7; see specifics regarding D1 (20%) and D6 ($4,875 per acre)
8a or 12a	D1 through D9; see specifics regarding D1 (25%) and D6 ($7,387 per acre)
10a	D1 through D9; see specifics regarding D1 (20%) and D6 ($7,387 per acre)
11a	D4 and D8; incorporation of additional BMPs is encouraged

D1. Retain or restore a portion of the parcel in native contiguous vegetation. In most cases, habitat types similar to the habitat type impacted should be retained or restored. (For example, if upland habitat is impacted, then upland habitat with native vegetation should be retained.) Projects keying out to **7a** or **10a** must retain or restore a minimum of 20% of the project impact area acreage. Projects keying out to **8a** or **12a** must retain or restore a minimum of 25% of the project impact area acreage.

D2. Buffer all bodies of water and water features by a minimum of 50 feet (15.2 m) within which there are no impacts to substrate or vegetation. In cases where artificial water bodies (i.e., stormwater ponds) are created, edges should be enhanced with native plantings (typically herbaceous wetland vegetation).

D3. Maintain natural light conditions. Avoid and minimize the use of artificial lighting and avoid permanent night-time lighting. Where lighting is necessary to meet minimum life safety requirements it must be designed to meet each of these recommendations:

- Utilize fully-shielded fixtures to restrict the amount of upward-directed light. Light sources must be downward directed and shielded so that the luminaire emits no more than

10% of its vertical output above 80 degrees from nadir. Examples of appropriate fixtures can be found in FWC Sea Turtle Lighting Guidelines.

- Use the "Backlight, Uplight, Glare" (BUG) system developed by the Illuminating Engineering Society to avoid glare, excessive lighting and light trespass. The "uplight" rating should be zero, and "backlight" and "glare" ratings should be as close to zero as possible. Fixtures on edges of developed areas should have zero backlight ratings.
- Avoid broad spectrum and excessive short wavelength artificial light below 560 nanometers. Lights with less than 3000 Kelvin (K) color temperature must be used, while color temperatures of 2700 K or less are ideal. Lights with the lowest lumens possible should be used.
- Utilize shielding, louvers and baffles, dimming and other appropriate lighting controls to direct and minimize lighting when not in use.
- Implement partial-night lighting schemes to reduce the amount of artificial light used throughout the night. Motion-sensor lighting is also highly encouraged.
- Lighting must not illuminate any retained or restored vegetated areas.
- Prevent indoor artificial lighting reaching the outdoor environment. Use fixed window screens, blinds or tinting on fixed windows and skylights to contain artificial light inside buildings.

D4. Avoid engineering designs that encourage bats from using roofs, buildings, or structures. For example, minimize and seal any gaps, cracks, holes in roofing, siding, soffits during construction.

D5. Avoid widespread use/application of pesticides and insecticides (e.g., mosquito control, agricultural pest control). Chemicals should not be used or applied within and adjacent to areas where Florida bonneted bats are known or expected to forage or roost.

D6. Use the Florida Bonneted Bat Conservation Fund to offset impacts to roosting and foraging habitat.

Donate a recommended minimum of $7,387 per acre (based on 2023 agricultural land values (USDA 2023)) of foraging or roosting habitat impacted (projects keying out to **8a, 10a, or 12a**), and $4,875 per acre for projects keying out to **7a**. Donations are not required for temporary impacts to foraging habitat.

D7. Retain trees and snags that could provide current or future roosting habitat. This includes native potential roost trees or live royal palm, cypress, longleaf or slash pine trees of various sizes or dead or dying native trees with cavities, hollows, crevices, and loose bark. At minimum, 50% of the number of trees of these species (i.e., royal palm, cypress, longleaf or slash pine) present or 50% of the acreage of trees of these species present must be retained.

D8. Conduct roost surveys of potential roost trees prior to removal; necessary removals should occur November 15 to April 15. If potential roost trees or structures need to be removed, trees, snags, and structures need to be visually surveyed within 30 days prior to removal. Any cavities must be peeped with a "treetop" camera, and any cavities that cannot be reached or fully viewed by camera should be surveyed at emergence. If evidence of use by any bat species is observed, discontinue tree removal efforts in that area and coordinate with the Service on how to proceed. Tree, snag, or structure removals should not occur from April 15 to August 15; ideally removal should occur November 15 to April 15.

D9. When using heavy equipment, establish a minimum 150 foot (46 m) buffer around retained known or potential roosts.

Again, if the applicant is unable or does not want to incorporate the required BMPs into the project, this Consultation Key cannot be followed and further coordination and consultation with the Service is required. Formal consultation may not be required, but further evaluation of the project and discussions with the Service are needed.

Best Management Practices for Land Management Activities within FBB CH

BMPs **LM5**, **LM7**, and **LM8** are required for MANLAA projects keying out to **2b** in the FBB CH Consultation Key. No further consultation is required.

Best Management Practices for development related impacts within FBB CH

BMPs **D1 through D3, D5, D6, and D7** are required for MANLAA projects keying out to **3a** in the FBB CH Consultation Key, and information on how they are incorporated into the project must be submitted with the project for review.

Literature Cited - Appendix C

United States Department of Agriculture (USDA). 2023. Land Values 2023 Summary (August 2023). Released August 4, 2023, by the National Agricultural Statistics Service (NASS), Agricultural Statistics Board. Washington, D.C.

Appendix D: Definitions

DEFINITIONS

Action area: All areas affected directly or indirectly by the project/action, and not merely the immediate area involved in the action. The action area may include areas where, for example, effects of increased noise, artificial lighting, changes in hydrology or water quality, or increased traffic occur.

Active Florida bonneted bat roosting*:* The appropriate conclusion if **ANY** of the following occurs: (a) FBB calls are recorded within 1½ hours after sunset or 1½ hours before sunrise; (b) emergence and/or social calls are recorded; (c) human observers see (or hear) FBBs flying from or to potential roosts just after sunset (e.g., within 1½ hour of) or just before sunrise; (d) human observers see and identify FBBs within a natural roost or artificial roost; and/or (e) other bat sign (e.g., guano, staining, etc.) is found that is identified to be FBB through additional follow-up.

Best Management Practices (BMPs): Avoidance and minimization measures designed to be incorporated into the project's design such that take is not expected to occur as a result of the proposed project (i.e., not result in harassment, harm, injury, or death), after which a MANLAA determination may be possible. These recommendations for actions to conserve roosting and foraging habitat are implemented before, during, and after proposed development, land use changes, and land management activities. BMPs may also be used to offset impacts of a project with a LAA determination.

Florida bonneted bat acoustic activity*:* The appropriate conclusion if a valid acoustic survey yields at least one call file with FBB identified manually or via auto-ID with appropriate regional or species suite selected, with manual vetting from a reputable acoustic reviewer agrees that the auto-ID is correct.

Florida bonneted bat assumed presence polygons: The polygons indicate areas where repeated acoustic surveys have yielded detections of FBB. Project proponents may choose to assume presence of FBB if the project is within one of the polygons. Presence of FBB can also be assumed, if desired, based on potential foraging habitat and/or suitable roosting habitat, or other detection records (e.g., FBB capture, telemetry data).

Florida Bonneted Bat Consultation Area: The Florida Bonneted Bat Consultation Area (Figure 1) represents the general range of the species. The Consultation Area represents the area within which consideration should be given to potential effects to Florida bonneted bats from proposed projects or actions. Coordination and consultation with the Service helps to determine whether proposed actions and activities may affect listed species. This Consultation Area defines the area where proposed actions and activities may affect the Florida bonneted bat.

Florida bonneted bat foraging habitat*:* This species forages in a variety of habitats including open fresh water, permanent or seasonal freshwater wetlands, wetland and upland forests,

wetland and upland shrub, and agricultural lands. In urban and residential areas, drinking water, prey base, and suitable foraging conditions (*i.e.,* open habitat structure) can be found in relatively small patches of natural or semi-natural habitat. A project area existing within the consultation area lacking potential foraging habitat (2b) would be unlikely, therefore, please consider contacting the Service to discuss this determination if it appears to apply to your project.

Florida bonneted bat roosting habitat*:* This species roosts in live or dead trees and tree snags. Trees of any species 34 ft (10.4 m) or taller, snags 28 ft (8.5 m) or taller, with dbh 7.4 in (19 cm) or greater are potential FBB roosting habitat. Artificial structures 15 ft (4.5 m) in height and greater that may mimic natural roosting conditions (*e.g.,* bat houses, utility poles, buildings over one story high), situated in natural or semi-natural habitats should also be considered potential FBB roosting habitat. Such buildings with chimneys, gaps in soffits, gaps along gutters, or other structural gaps or crevices (outward entrance approximately 1 inch (2.5 centimeters) in size or greater can be potential roosting habitat. Bridges and culverts 15 ft and higher are also expected to provide roosting habitat, based upon the species' morphology and behavior (Keeley and Tuttle 1999).

LAA/LAA CH*:* May Affect, and is Likely to Adversely Affect. The appropriate conclusion if any adverse effect to listed species (/on designated critical habitat units) may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial (see definition of "is not likely to adversely affect"). In the event the overall effect of the proposed action is beneficial to the listed species (/on designated critical habitat units), but also is likely to cause some adverse effects, then the proposed action is "likely to adversely affect" the listed species (/on designated critical habitat units). If incidental take is anticipated to occur as a result of the proposed action, an "is likely to adversely affect" determination should be made. An "is likely to adversely affect" determination requires the initiation of formal section 7 consultation.

In some scenarios, applicants may be able to design projects that would not result in LAA. For example, if appropriate avoidance measures (e.g., BMPs) could be incorporated into the project's design such that take is not expected to occur as a result of the proposed project (i.e., not result in harassment leading to harm, harm, injury, or death), then a MANLAA determination may be possible. When take cannot be avoided, Applicants and Action Agencies are encouraged to incorporate compensation to offset adverse effects. The Service can assist the Applicant in identifying appropriate compensation (e.g., conservation on site, conservation off-site, contributions to the Service's FBB conservation fund).

MANLAA/ MANLAA CH*:* May Affect, but is Not Likely to Adversely Affect. The appropriate conclusion when effects on listed species (/on designated critical habitat units) are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species (/on designated critical habitat units). Insignificant effects relate to the size of the impact and should never reach the scale where take occurs in a MANLAA. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur. To use these

Guidelines and Consultation Key applicants must incorporate the required BMPs to reach a MANLAA determination.

Detailed information regarding how required BMPs are incorporated into your project designs must be included in your project submittal. If all required BMPs cannot be incorporated into project, further coordination and consultation with the Service is required.

No Effect/No Effect to CH: The appropriate conclusion when the action agency determines its proposed action will not affect listed species or designated critical habitat. The FESFO defines No Effect as projects with no impacts, positive or negative, to federally-listed species or designated critical habitat from the proposed action. This determination is usually not appropriate if suitable habitat, designated critical habitat, or species are present in the action area.

Potential roost tree: Trees of any species 34 ft (10.4 m) or taller, snags 28 ft (8.5 m) or taller, with dbh 7.4 in (19 cm) dbh or greater are potential FBB roost trees.

Project impact area*:* This is the area within the project area where any temporary or permanent impacts to foraging or roosting habitat are planned or will occur.

Take: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. **Harm** is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. **Harass** is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering.

Appendix G

USFWS Standard Protection Measures for the Eastern Indigo Snake

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

U.S. Fish and Wildlife Service

May 2024

The Standard Protection Measures for the Eastern Indigo Snake (Plan) below has been developed by the U.S. Fish and Wildlife Service (USFWS) in Florida and Georgia for use by project proponents and their construction personnel help minimize adverse impacts to eastern indigo snakes. However, implementation of this Plan does not replace any state of federal consultation or regulatory requirements. At least 30 days prior to any land disturbance activities, the project proponent shall notify the appropriate USFWS Field Office (see Field Office contact information) via e-mail that the Plan will be implemented as described below.

As long as the signatory of the e-mail certifies compliance with the below Plan (including use of the approved poster and pamphlet (USFWS Eastern Indigo Snake Conservation webpage), no further written confirmation or approval from the USFWS is needed regarding use of this Plan as a component of the project.

If the project proponent 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. The project proponent 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.

STANDARD PROTECTION MEASURES

BEFORE AND DURING CONSTRUCTION ACTIVITIES:

- All Project personnel shall be notified about the potential presence and appearance of the federally protected eastern indigo snake (*Drymarchon couperi*).
- All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting the species, in knowing violation of the Endangered Species Act of 1973.
- The project proponent or designated agent will post educational posters in the construction office and throughout the construction site. The posters must be clearly visible to all construction staff and shall be posted in a conspicuous location in the

Project field office until such time that Project construction has been completed and time charges have stopped.

- Prior to the onset of construction activities, the project proponent or 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 pamphlet 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. Photos of eastern indigo snakes may be accessed on USFWS, Florida Fish and Wildlife Conservation Commission and/or Georgia Department of Natural Resources websites.
- Each day, prior to the commencement of maintenance or construction activities, the Contractor shall perform a thorough inspection for the species of all worksite equipment.
- If an eastern indigo snake (alive, dead or skin shed) 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 Office. The contact information for the USFWS is provided below and on the referenced posters and pamphlets.
- During initial site clearing activities, an onsite observer is recommended 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).
- Periodically during construction activities, the project area should be visited 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.
- For erosion control use biodegradable, 100% natural fiber, net-free rolled erosion control blankets to avoid wildlife entanglement.

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 (See USFWS Field Office Contact Information).

USFWS FIELD OFFICE CONTACT INFORMATION

Georgia Field Office: Phone: (706) 613-9493, email: gaes_assistance@fws.gov
Florida Field Office: Phone: (352) 448-9151, email: fw4flesregs@fws.gov

POSTER & PAMPHLET INFORMATION

Posters with the following information shall be placed at strategic locations on the construction site and along any proposed access roads (final posters for Plan compliance are available on our website in English and Spanish and should be printed on 11 x 17in or larger paper and laminated (USFWS Eastern Indigo Snake Conservation webpage). Pamphlets are also available on our webpage and should be printed on 8.5 x 11in paper and folded, and available and distributed to staff working on the site.

POSTER CONTENT (ENGLISH):

ATTENTION

Federally-Threatened Eastern Indigo Snakes may be present on this site!

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

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

• Stop land disturbing activities and allow the snake time to move away from the site without interference. Do NOT attempt to touch or handle the snake.

• Take photographs of the snake, if possible, for identification and documentation purposes.

• Immediately notify supervisor/agent, and a U.S. Fish and Wildlife Service (USFWS) Ecological Services Field Office, with the location information and condition of the snake.

• If the snake is located near clearing or construction activities that will cause harm to the snake, the activities must pause until a representative of the USFWS returns the call (within one day) with further guidance.

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

• Stop land disturbing activities and immediately notify supervisor/applicant, and a USFWS Ecological Services Field 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.

DESCRIPTION: The eastern indigo snake is one of the largest non-venomous snakes in North America, reaching up to 8 ft long. Named for the glossy, blue-black scales above and slate blue below, they often have orange to reddish color (cream color in some cases)

in the throat area. They are not typically aggressive.

SIMILAR SPECIES: The black racer resembles the eastern indigo snake. However, black racers have a white or cream chin, and thinner bodies.

LIFE HISTORY: Eastern indigo snakes live in a variety of terrestrial habitat types. Although they prefer uplands, they also use wetlands and agricultural areas. They will shelter inside gopher tortoise burrows, other animal burrows, stumps, roots, and debris piles. Females may lay from 4 to 12 white eggs as early as April through June, with young hatching in late July through October.

PROTECTED STATUS: The eastern indigo snake is protected by the USFWS, Florida Fish and Wildlife Conservation Commission, and Georgia Department of Natural Resources. Any attempt to kill, harm, harass, pursue, hunt, shoot, wound, trap, capture, collect, or engage eastern indigo snakes is prohibited by the U.S. Endangered Species Act. Penalties include a maximum fine of $25,000 for civil violations and up to $50,000 and/or imprisonment for criminal offenses. Only authorized individuals with a permit (or an Incidental Take Statement associated with a USFWS Biological Opinion) may handle an eastern indigo snake.

Please contact your nearest USFWS Ecological Services Field Office if a live or dead eastern indigo snake is encountered:

Florida Office: (352) 448-9151

Georgia Office: (706) 613-9493

POSTER CONTENT (SPANISH):

ATENCIÓN

¡Especie amenazada, la culebra Índigo del Este, puede ocupar el área!

Matar, herir o hostigar culebras Índigo del Este es estrictamente prohibido bajo la Ley Federal.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE O UNA CULEBRA NEGRA VIVA EN EL ÁREA:

• Pare excavación y permite el movimiento de la culebra fuera del área sin interferir. NO atentes tocar o recoger la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Notifique supervisor/agente, y la Oficina de Campo de Servicios Ecológicos del Servicio Federal de Pesca y Vida Silvestre (USFWS) apropiada con información acerca del sitio y condición de la culebra.

• Si la culebra está cerca de un área de construcción que le pueda causar daño, las actividades deben parar hasta un representante del USFWS regrese la llamada (dentro de un día) con más orientación.

SI VES UNA CULEBRA ÍNDIGO DEL ESTE MUERTA EN EL ÁREA:

• Pare excavación. Notifique supervisor/aplicante, y la Oficina de Campo de Servicios Ecológicos apropiada con información acerca del sitio y condición de la culebra.

• Fotografié la culebra si es posible para identificación y documentación.

• Emerge completamente la culebra en agua y congele la especie hasta que personal apropiado de la agencia de vida silvestre la recoja.

DESCRIPCIÓN. La culebra Índigo del Este es una de las serpientes sin veneno más grande en Norte América, alcanzando hasta 8 pies de largo. Su nombre proviene del color azul-negro brilloso de sus escamas, pero pueden tener un color anaranjado-rojizo (color crema en algunos casos) en su mandíbula inferior. No tienden a ser agresivas.

SERPIENTES PARECIDAS. La corredora negra, que es de color negro sólido, es la única otra serpiente que se asemeja a la Índigo del Este. La corredora negra se diferencia por una mandíbula inferior color blanca o crema y un cuerpo más delgado.

HÁBITATS Y ECOLOGÍA. La culebra Índigo del Este vive en una variedad de hábitats, incluyendo tierras secas, humedales, y áreas de agricultura. Ellas buscan refugio en agujeros o huecos de tierra, en especial madrigueras de tortugas de tierra. Las hembras ponen 4 hasta 12 huevos blancos entre abril y junio, y la cría emergen entre julio y octubre.

PROTECCIÓN LEGAL. La culebra Índigo del Este es clasificada como especie amenazada por el USFWS, la Comisión de Conservación de Pesca y Vida Silvestre de Florida y el Departamento de Recursos Naturales de Georgia. Intento de matar, hostigar, herir, lastimar, perseguir, cazar, disparar, capturar, colectar o conducta parecida hacia las culebras Índigo del Este es prohibido por la Ley Federal de Especies en Peligro de Extinción. Penalidades incluyen un máximo de $25,000 por violaciones civiles y $50,000 y/o encarcelamiento por actos criminales. Solos individuales autorizados con un permiso o Determinación de toma incidental (Incidental Take Statement) asociado con una Opinión Biológico del USFWS pueden recoger una Índigo del Este.

Por favor de contactar tu Oficina de Campo de Servicios Ecológicos más cercana si encuentras una culebra Índigo del Este viva o muerta:

Oficina de Florida: (352) 448-9151

Oficina de Georgia: (706) 613-9493

Appendix H
USACE Effect Determination Key for the Eastern Indigo Snake

United States Department of the Interior

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

August 1, 2017

Donnie Kinard
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Subject: Consultation Key for the Eastern Indigo Snake – Revised

Dear Mr. Kinard:

This letter revises and replaces the January 25, 2010, and August 13, 2013, letters to the U.S. Army Corps of Engineers (Corps) regarding the use of the eastern indigo snake programmatic effect determination key (Key) for projects occurring within the South Florida Ecological Service's Office (SFESO) jurisdiction. This revision supersedes all prior versions of the Key in the SFESO area. The purpose of this revision is to clarify portions of the previous keys based on questions we have been asked, specifically related to habitat and refugia used by eastern indigo snakes (*Drymarchon corais couperi*), in the southern portion of their range and within the jurisdiction of the SFESO. This Key is provided pursuant to the Service's authorities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*). This Key revision has been assigned Service Consultation Code: 41420-2009-I-0467-R001.

The purpose of this Key is to assist the Corps (or other Federal action agency) in making appropriate effects determinations for the eastern indigo snake under section 7 of the Act, and streamline informal consultation with the SFESO for the eastern indigo snake when the proposed action can be walked through the Key. The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

This Key uses project size and home ranges of eastern indigo snakes as the basis for making determinations of "may affect, but is not likely to adversely affect" (NLAA) and "may affect, and is likely to adversely affect" (may affect). Suitable habitat for the eastern indigo snake consists of a mosaic of habitats types, most of which occur throughout South Florida. Information on home ranges for individuals is not available in specific habitats in South Florida. Therefore, the SFESO uses the information from a 26-year study conducted by Layne and Steiner (1996) at Archbold Biological Station, Lake Placid, Florida, as the best available

information. Layne and Steiner (1996) determined the average home range size for a female eastern indigo snake was 46 acres and 184 acres for a male.

Projects that would remove/destroy less than 25 acres of eastern indigo snake habitat are expected to result in the loss of a portion of an eastern indigo snakes home range that would not impair the ability of the individual to feed, breed, and shelter. Therefore, the Service finds that take would not be reasonably certain to occur due to habitat loss. However, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take. Consequently, projects less than 25 acres that include the Service's *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013 or most current version) and a commitment to excavate underground refugia as part of the proposed action would be expected to avoid take and thus, may affect, but are not likely to adversely affect the species.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

Projects that would remove 25 acres or more of eastern indigo snake habitat could remove more than half of a female eastern indigo snakes home range. This loss of habitat within a home range would be expected to significantly impair the ability of that individual to feed, breed, and shelter. Therefore, the Service finds take through habitat loss would be reasonably certain to occur and formal consultation is appropriate. Furthermore, these projects have the potential to injure or kill an eastern indigo snake if the individual is crushed by equipment during site preparation or other project aspects. The Service's *Standard Protection Measures* for the *Eastern Indigo Snake* (Service 2013 or most current version) and the excavation of underground refugia (where a snake could be buried, trapped and/or injured), when implemented, are designed to avoid these forms of take.

Eastern indigo snakes use a variety of habitat and are difficult to detect. Therefore, site specific information on the land use, observations of eastern indigo snakes within the vicinity, as well as other factors, as appropriate, will all be considered by the Service when making a final recommendation on the appropriate effects determination and whether it is appropriate to conclude consultation with the Corps (or other Federal action agency) formally or informally for projects that will impact 25 acres or more of habitat. Accordingly, when the use of the Key results in a determination of "may affect," the Corps (or other Federal action agency) is advised that consultation may be concluded informally or formally, depending on the project specific effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps (or other Federal action agency) desires to proceed with a consultation request prior to receiving

additional technical assistance from the Service, we recommend the agency documents the biological rationale for their determination and proceed with a request accordingly.

If the use of the Key results in a determination of "no effect," no further consultation is necessary with the SFESO. If the use of the Key results in a determination of "NLAA," the SFESO concurs with this determination based on the rationale provide above, and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake. For "no effect" or "NLAA" determinations, the Service recommends that the Corps (or other Federal action agency) documents the pathway used to reach your no effect or NLAA determination in the project record and proceed with other species analysis as warranted.

Eastern Indigo Snake Programmatic Effect Determination Key
Revised July 2017
South Florida Ecological Service Office

Scope of the Key

This Key should be used only in the review of permit applications for effects determinations for the eastern indigo snake (*Drymarchon corais couperi*) within the South Florida Ecological Service's Office (SFESO) area (Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, and St. Lucie Counties). There is no designated critical habitat for the eastern indigo snake.

This Key is subject to revision as the Corps (or other Federal action agency) and Service deem necessary and in particular whenever there is new information on eastern indigo snake biology and effects of proposed projects.

The Key is a tool available to the Corps (or other Federal action agency) for the purposes of expediting section 7 consultations. There is no requirement to use the Key. There will be cases when the use of the Key is not appropriate. These include, but are not limited to: where project specific information is outside of the scope of the Key or instances where there is new biological information about the species. In these cases, we recommend the Corps (or other Federal action agency) initiates traditional consultation pursuant to section 7 of the Act, and identify that consultation is being requested outside of the Key.

Habitat

Habitat use varies seasonally between upland and wetland areas, especially in the more northern parts of the species' range. In southern parts of their range eastern indigo snakes are habitat generalists which use most available habitat types. Movements between habitat types in northern areas of their range may relate to the need for thermal refugia (protection from cold and/or heat).

In northern areas of their range eastern indigo snakes prefer an interspersion of tortoise-inhabited sandhills and wetlands (Landers and Speake 1980). In these northern regions eastern indigo

snakes most often use forested areas rich with gopher tortoise burrows, hollowed root channels, hollow logs, or the burrows of rodents, armadillos, or land crabs as thermal refugia during cooler seasons (Lawler 1977; Moler 1985a; Layne and Steiner 1996). The eastern indigo snake in the northern region is typically classified as a longleaf pine savanna specialist because here, in the northern four-fifths of its range, the eastern indigo snake is typically only found in vicinity of xeric longleaf pine–turkey oak sandhills inhabited by the gopher tortoise (Means 2006).

In the milder climates of central and southern Florida, comprising the remaining one fifth of its range, thermal refugia such as those provided by gopher tortoise burrows may not be as critical to survival of indigo snakes. Consequently, eastern indigo snakes in these regions use a more diverse assemblage of habitats such as pine flatwoods, scrubby flatwoods, floodplain edges, sand ridges, dry glades, tropical hammocks, edges of freshwater marshes, muckland fields, coastal dunes, and xeric sandhill communities; with highest population concentrations of eastern indigo snakes occurring in the sandhill and pineland regions of northern and central Florida (Service 1999). Eastern indigo snakes have also been found on agricultural lands with close proximity to wetlands (Zeigler 2006).

In south Florida, agricultural sites (*e.g.*, sugar cane fields and citrus groves) are occupied by eastern indigo snakes. The use of sugarcane fields by eastern indigo snakes was first documented by Layne and Steiner in 1996. In these areas there is typically an abundance of wetland and upland ecotones (due to the presence of many ditches and canals), which support a diverse prey base for foraging. In fact, some speculate agricultural areas may actually have a higher density of eastern indigo snakes than natural communities due to the increased availability of prey. Gopher tortoise burrows are absent at these locations but there is an abundance of both natural and artificial refugia. Enge and Endries (2009) reporting on the status of the eastern indigo snake included sugarcane fields and citrus groves in a Global Information Systems (GIS)-base map of potential eastern indigo snake habitat. Numerous sightings of eastern indigo snakes within sugarcane fields have been reported within south Florida (Florida Fish and Wildlife Conservation Commission Indigo Snake Database [Enge 2017]). A recent study associated with the Comprehensive Everglades Restoration Plan (CERP) (A-1 FEB Project formerly A-1 Reservoir; Service code: 41420-2006-F-0477) documented eastern indigo snakes within sugarcane fields. The snakes used artificial habitats such as piles of limerock, construction debris, and pump stations. Recent studies also associated with the CERP at the C-44 Project (Service code: 41420-2009-FA-0314), and C-43 Project (Service code: 41420-2007-F-0589) documented eastern indigo snakes within citrus groves. The snakes used artificial habitats such as boards, sheets of tin, construction debris, pipes, drain pipes in abandoned buildings and septic tanks.

In extreme south Florida (*i.e.*, the Everglades and Florida Keys), eastern indigo snakes also utilize tropical hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats. Though eastern indigo snakes have been found in all available habitats of south Florida it is thought they prefer hammocks and pine forests since most observations occur there and use of these areas is disproportionate compared to the relatively small total area of these habitats (Steiner *et al.* 1983).

Even though thermal stress may not be a limiting factor throughout the year in south Florida, eastern indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigo snakes use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma guanhumi*) burrows in coastal areas (Layne and Steiner 1996; Wilson and Porras 1983). 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.

Minimization Measures

The Service developed protection measures for the eastern indigo snake "Standard Protection Measures for the Eastern Indigo Snake" (Service 2013) located at: https://www.fws.gov/verobeach/ReptilesPDFs/20130812_EIS%20Standard%20Protection%20Measures_final.pdf . These protections measures (or the most updated version) are considered a minimization measure for projects proposed within eastern indigo snake habitat.

Determinations

If the use of this Key results in a determination of "**no effect**," no further consultation is necessary with the SFESO.

If the use of this Key results in a determination of "**NLAA**," the SFESO concurs with this determination and no further consultation is necessary for the effects of the proposed action on the eastern indigo snake.

For no effect or NLAA determinations, the Corps (or other Federal action agency) should make a note in the project file indicating the pathway used to reach your no effect or NLAA determination.

If a proposed project would impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, the subsequent Key should not be used. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range.

If the use of this Key results in a determination of "**may affect**," consultation may be concluded informally or formally depending on project effects to eastern indigo snakes. Technical assistance from the Service can assist you in making a determination prior to submitting a request for consultation. In circumstances where the Corps desires to proceed with a consultation request prior to receiving additional technical assistance from the Service, we recommend the Corps document the biological rationale for their determination and proceed with a request accordingly.

A. Project is not located in open water or salt marsh.....go to B

Project is located solely in open water or salt marsh.....**no effect**

B. Permit will be conditioned for use of the Service's most current guidance for Standard Protection Measures For The Eastern Indigo Snake (currently 2013) during site preparation and project construction.....go to C

Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested.....**may affect**

C. The project will impact less than 25 acres of eastern indigo snake habitat (*e.g.*, sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....go to D

The project will impact 25 acres or more of eastern indigo snake habitat (*e.g.*, sandhill, scrub, pine flatwoods, pine rocklands, scrubby flatwoods, high pine, dry prairie, coastal prairie, mangrove swamps, tropical hardwood hammocks, hydric hammocks, edges of freshwater marshes, agricultural fields [including sugar cane fields and active, inactive, or abandoned citrus groves], and coastal dunes).....**may affect**

D. The project has no known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and/or injured during project activities.....**NLAA**

The project has known holes, cavities, active or inactive gopher tortoise burrows, or other underground refugia where a snake could be buried, trapped and /or injured.....go to E

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be excavated prior to site manipulation in the vicinity of the burrow[1]. If an eastern indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an eastern indigo snake, no work will commence until the snake has vacated the vicinity of proposed work.....**NLAA**[2]

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

End Key

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[1] If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a Florida Fish and Wildlife Conservation Commission Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise.

[2] Please note, if the proposed project will impact less than 25 acres of vegetated eastern indigo snake habitat (not urban/ human-altered) completely surrounded by urban development, and an eastern indigo snake has been observed on site, NLAA is not the appropriate conclusion. The Service recommends formal consultation for this situation because of the expected increased value of the vegetated habitat within the individual's home range

Working with the Fish and Wildlife Foundation of Florida, the Service has established a fund to support conservation and recovery for the eastern indigo snake. Any project that has the potential to affect the eastern indigo snake and/or its habitat is encouraged to make a voluntary contribution to this fund. If you would like additional information about how to make a contribution and how these monies are used to support eastern indigo snake recovery please contact Ashleigh Blackford, Connie Cassler, or José Rivera at 772-562-3559.

This revised Key is effective immediately upon receipt by the Corps. Should circumstances change or new information become available regarding the eastern indigo snake and/or implementation of the Key, the determinations herein may be reconsidered and this Key further revised or amended.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. If you have any questions or comments regarding this Key, please contact the SFESO at 772-562-3909.

Sincerely,

Roxanna Hinzman
Field Supervisor
South Florida Ecological Services

Cc:
Corps, Jacksonville, Florida (Dale Beter, Muriel Blaisdell, Ingrid Gilbert, Angela Ryan, Irene Sadowski, Victoria White, Alisa Zarbo)
Service, Athens, Georgia (Michelle Elmore)
Service, Jacksonville, Florida (Annie Dziergowski)
Service, Panama City, Florida (Sean Blomquist)

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