ENVIRONMENTAL REPORT

DRAFT

GRAHAM SWAMP TRAIL
From South of SR 100 to the Lehigh Trail

Local Agency Program Agreement
FINANCIAL PROJECT NUMBER: 438635-1-38-01

FLAGLER COUNTY

PREPARED FOR:

FLAGLER COUNTY
1769 E. Moody Blvd., Bldg 2
Bunnell, FL 32110

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OCTOBER 2019

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1.0 Introduction

Flagler County and Florida Department of Transportation (FDOT), District Five, executed a Local Agency Program (LAP) Agreement on December 3, 2018 for Design of the Graham Swamp Multi-use Trail and SR 100 overpass from south of SR 100 to Lehigh Trail. Flagler County is proposing the multi-use trail and overpass to add to their existing trail network. The proposed multi-use trail and overpass is approximately 1.6 miles long (see **Figure 1-1**, Project Location Map). The project is located in Sections 39 and 40 of Township 12 South and Range 31 East.

The existing SR 100 (Moody Blvd.) roadway includes four (4) 12-foot travel lanes, a 40-foot median, 8-foot inside shoulders, and a 10-foot wide outside shoulder (5-foot paved) with roadside ditches and swales (see **Figure 1-2**, Existing SR 100 Typical Section). The existing SR 100 right-of-way (ROW) width varies, with a minimum width of 200-foot. Additionally, not shown on the typical section is an existing 8-foot sidewalk along the north side of SR 100.

The proposed Graham Swamp Trail will connect to the existing Lehigh Trail and allow recreational trail users to travel south through Graham Swamp to south of SR 100. Additionally, a sidewalk is proposed along the south side of SR 100 to connect the trail to an existing sidewalk along Old Kings Road. The location of this project's trail endpoint, south of SR 100, will be compatible with a potential future connection to Flagler County's proposed Bulow Trail.

The proposed project will consist of a new 12-foot wide paved trail, with 2-foot unpaved shoulders on either side (see **Figure 1-3**, Proposed Graham Swamp Trail Typical Section). A meandering trail alignment was designed to avoid wetlands and large old growth trees to the greatest extent practicable. In areas where the trail crosses a wetland, an elevated boardwalk is proposed to minimize impacts to wetlands, hydrology and water quality.

A multi-use trail overpass is proposed over SR 100, with American with Disabilities Act (ADA) compliant ramps on both the north and south sides. On the south side of SR 100, a new 8-foot wide concrete sidewalk will be constructed to connect with the bridge ramp and enable people to continue west connecting to an existing sidewalk along the east side of Old Kings Road (see **Figure 1-4**, Proposed SR 100 Sidewalk Typical Section).

These improvements will require regrading of existing drainage ditches and swales along with shifting cross drains of the existing stormwater management facility (SMF) which has a collection system within the SR 100 ROW and connects to treatment ponds adjacent to SR 100. Existing drainage flow patterns and treatment will be maintained by regrading ditches and swales in addition to maintaining inlets and culvert connections to treatment ponds.

For the purposes of this report the project study area is broken up between the proposed trail and proposed sidewalk. For the trail it is defined as the proposed right-of-way (ROW) and for the proposed sidewalk it is defined as the limits of construction (LOC) encompassed by a 25-foot buffer.

Figure 1-1 Project Location Map

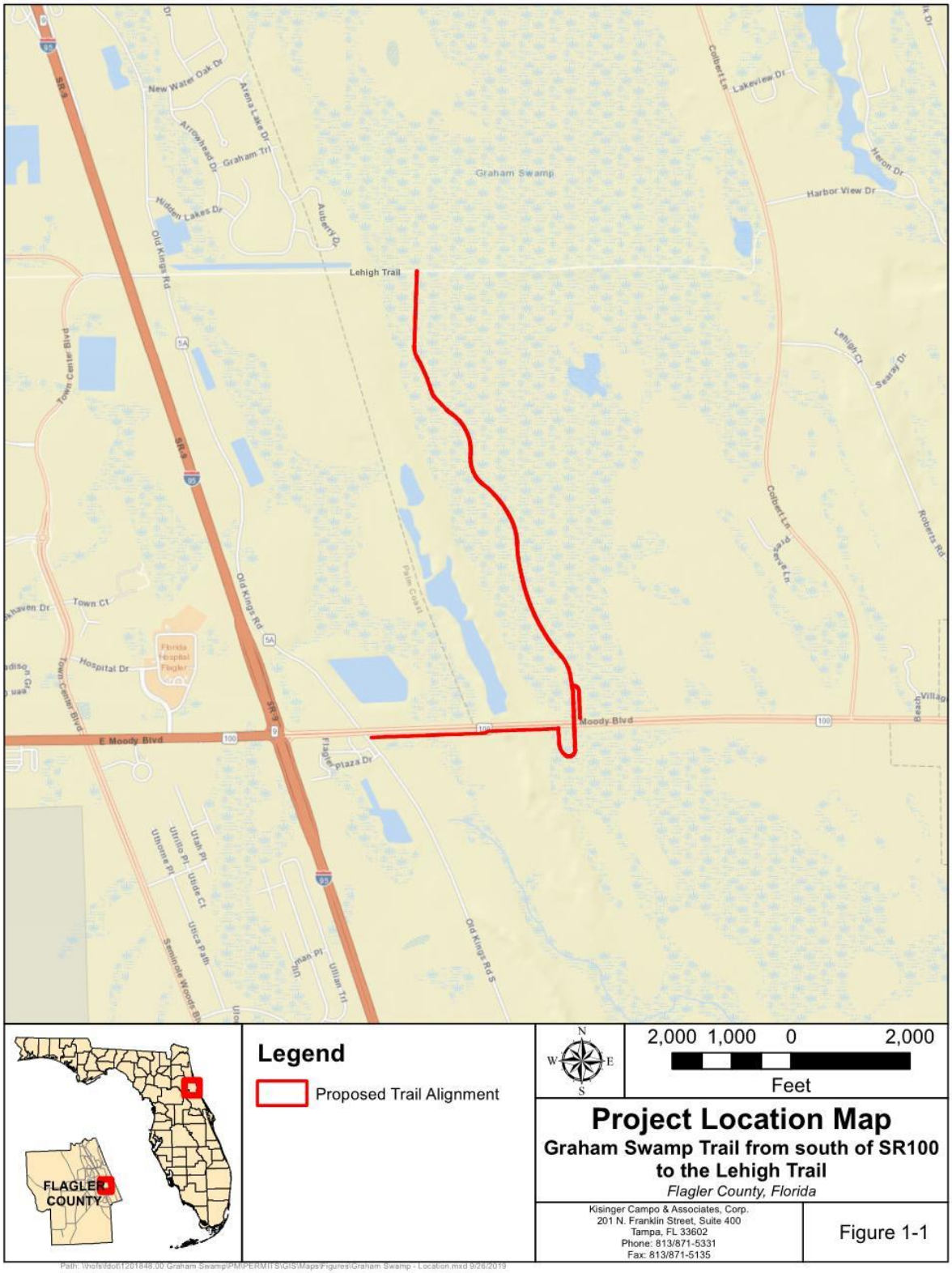


Figure 1-2 Existing SR 100 Typical Section

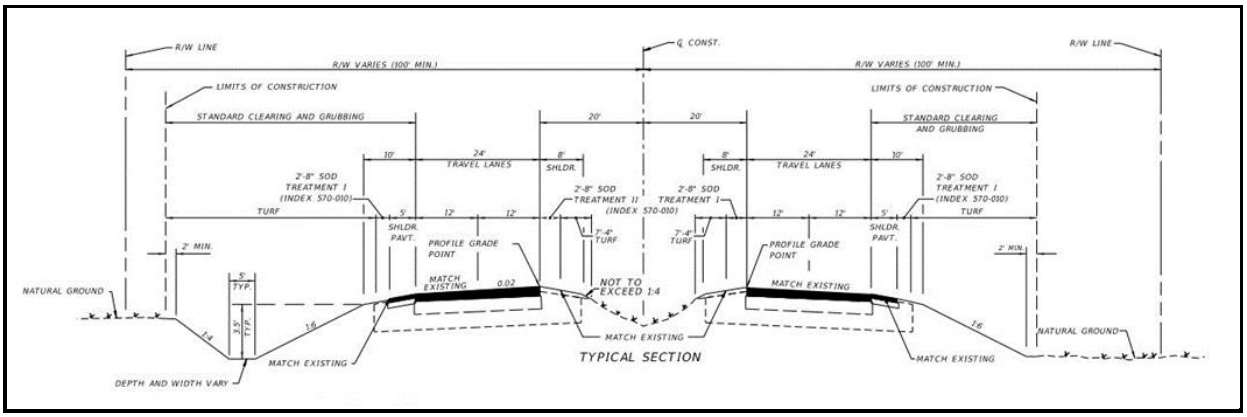


Figure 1-3 Proposed Graham Swamp Trail Typical Section

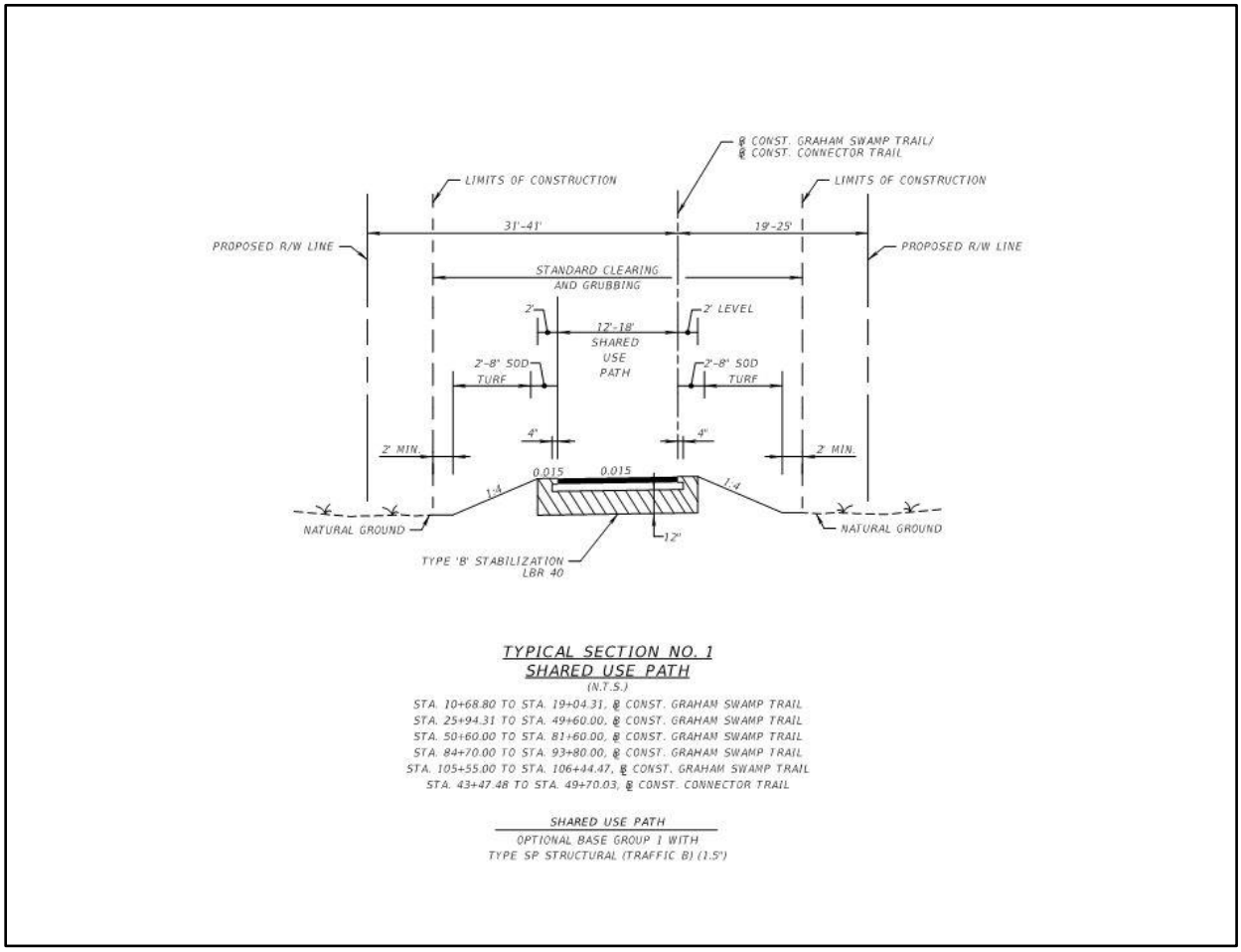
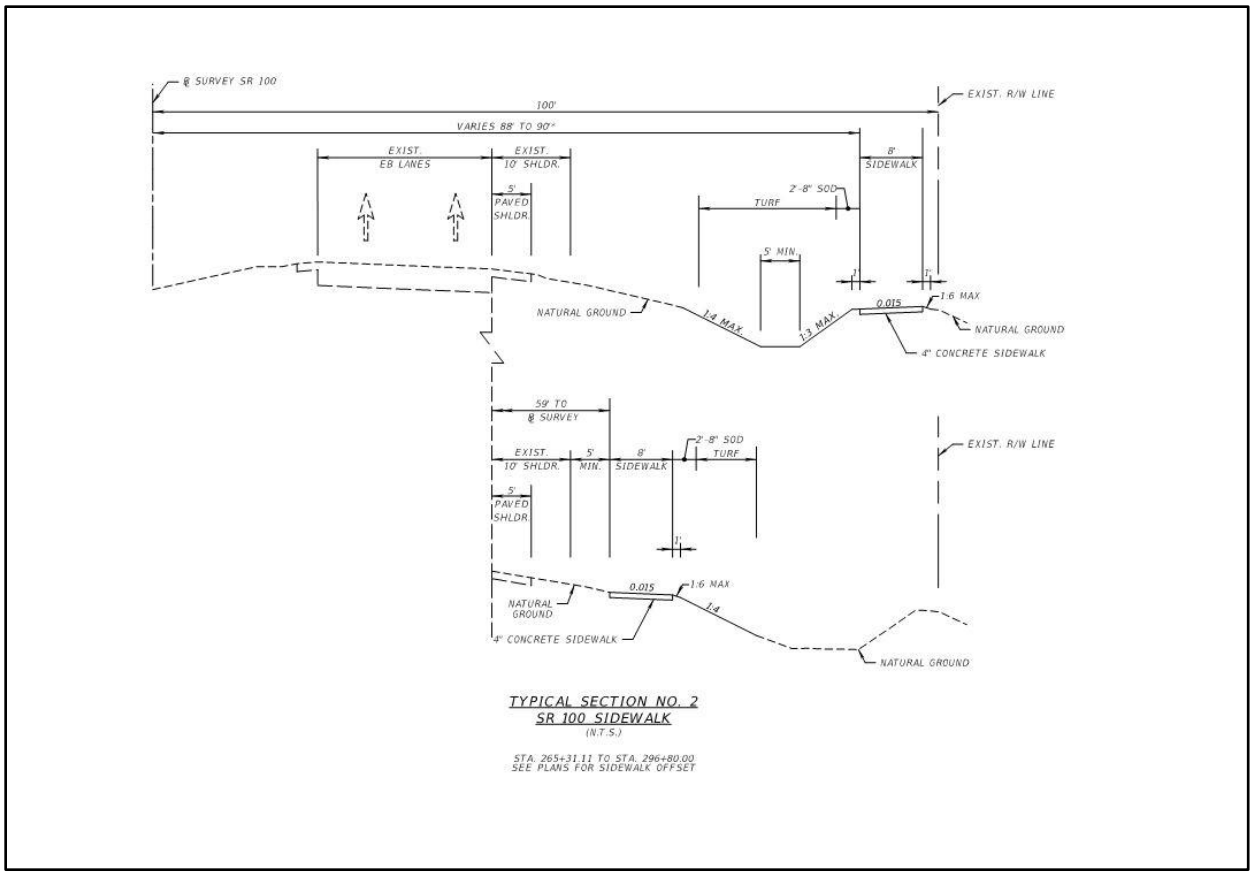


Figure 1-4 Proposed SR 100 Sidewalk Typical Section



2.0 Existing Conditions

To determine the approximate locations and boundaries of existing upland and wetland communities within the project study area, available site-specific data was collected and reviewed. The information reviewed included:

- Infra-red and true color aerial imagery of the project area, (scale 1”=200’), Flagler County 2015;
- U.S Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS), *Soil Survey of Flagler County, Florida*, 1997;
- USDA, NRCS, *Web Soil Survey*, 2018;
- U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory, Wetlands Online Mapper (May 2019);
- Florida Department of Transportation, *Florida Land Use, Cover, and Forms Classification System* (FLUCFCS) Handbook, 3rd ed., January 1999;
- U.S. Geological Survey (USGS), Topographic Quadrangle maps, 7.5 minute series, Flagler Beach West, Florida, 2018;
- St. John’s River Water Management District (SJRWMD), FLUCFCS mapping, 2014; and
- USFWS, *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et. al. 1979).

Prior to field reviews, the approximate boundaries of upland and wetland communities within the project study area were mapped on true color aerial photographs.

In February, April, and May 2019, environmental scientists familiar with Florida natural communities conducted field reviews of the project study area. The purpose of the reviews was to verify and/or refine preliminary habitat boundaries and classification codes established through in-office literature reviews and aerial photo interpretation. All upland, wetland, and other surface water habitat types within the project study area were classified using FLUCFCS (FDOT 1999). Additionally, wetlands, surface waters and other surface water habitats were classified using the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

During field investigations, wetland and surface water habitats within the project study area were visually inspected and photographed. Exotic plant infestations, altered hydrologic conditions, shifts in historical plant communities, and any other disturbances were noted. Attention was given to identifying wildlife and/or signs of wildlife utilization at each wetland and their adjacent upland habitats. Each wetland was assigned a unique identification code based on the wetland type; these codes identify whether each site is a wetland (WL) or surface water (SW). Each of these community types, as well as soils within the project study area, are described below.

2.1 SOILS

Based on the NRCS *Web Soil Survey* (2018) six (6) soil types are mapped within the project study area (see **Appendix A**, Soils Map). According to this data (NRCS 2018) two (2) of the soil types are classified as hydric, two (2) soil types are classified as non-hydric, one (1) soil type, Tuscawilla fine sand, is classified as both hydric and non-hydric and one (1) soil type is unranked for hydric soils.

Table 2-1 provides the soil types mapped within the project study area, their corresponding NRCS soil map unit symbol, name, hydric soil classification, and acreage within the project study area.

Table 2-1 Soil Types within the Project Study Area

Map Unit Symbol	Soil Name	Hydric	Acreage within Project Study Area
7	Favoretta, Chobee, and Winder Soils, Frequently Flooded	Y	2.15
11	Myakka Fine Sand	N*	0.77
12	Placid, Basinger, and St. Johns Soils, Depressional	Y	2.49
15	Pomello Fine Sand, 0 to 5 percent slopes	N	0.68
30	Pits	Unranked	0.74
37	Tuscawilla Fine Sand	Y & N	12.57
		Total	**19.40**

*May have hydric soil inclusions

Listed below are the soil types found within the project study area and general descriptions of their characteristics.

(7) Favoretta, Chobee, and Winder soils, frequently flooded – is a very poorly drained, frequently flooded soil found in flood plains, stream terraces and in depressions. The water table is within six (6) inches of the surface. This soil type is listed as hydric by the NRCS *Web Soil Survey*.

(11) Myakka fine sand – is a poorly drained soil found in flatwoods. The depth to water table is about six (6) to 18 inches. This soil type is not listed as hydric by the NRCS *Web Soil Survey*. However, this soil type may contain up to 10% hydric inclusions.

(12) Placid, Basinger, and St. Johns soils, depressional – is a very poorly drained, frequently ponded soil found in flood plains, stream terraces and in depressions. The water table ranges from the surface to a depth of 12 inches. This soil type is listed as hydric by the NRCS *Web Soil Survey*.

(15) Pomello fine sand, 0 to 5 percent slopes – is a moderately well drained soil found in sand pine scrub and mesic uplands. The depth to water table is about 24 to 42 inches. This soil type is not listed as hydric by the NRCS *Web Soil Survey*.

(30) Pits – is a soil that is the result of sand and/or gravel excavations. The water table is usually at the surface. This soil type is a result of human disturbance and is unranked, according to the NRCS *Web Soil Survey*.

(37) Tuscawilla fine sand, non-hydric – is a poorly drained soil found in flats and hardwoods hammocks on the lower Coastal Plain. The depth to water table is about 12 to 18 inches. This soil type is not listed as hydric by the NRCS *Web Soil Survey*.

(37) Tuscawilla fine sand, hydric – is a poorly drained soil found in flats and hammocks on the lower Coastal Plain. The depth to water table is about six (6) to 12 inches. This soil type is listed as hydric by the NRCS *Web Soil Survey*.

2.2 LAND USE

Existing land uses and natural habitats within the project study area were classified using FLUCFCS (FDOT 1999). Wetlands and surface waters were also classified using the USFWS Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al. 1979). Within the project study area, unpaved portions of the existing roadway ROW consist of maintained areas dominated by bahiagrass (*Paspalum notatum*) and weedy ruderal vegetation. The natural areas abutting the existing SR 100 ROW, near the proposed sidewalk, are composed of mixed hardwood conifer forest fringes and mixed wetland hardwood communities that have been impacted, to varying degrees, by construction of the existing roadway. Land use within the undeveloped portion that extends north from SR 100 to Lehigh Trail includes areas of natural habitats dominated by mixed wetland hardwoods and hardwood conifer mixed upland forests. A total of five (5) upland land uses and habitats and three (3) wetland habitat types were found within the project study area. A map depicting these existing land uses and habitats is provided in **Appendix B** Land Use Map.

2.2.1 UPLAND AND WETLAND COMMUNITIES

The land use and habitat classifications found within the project study area include roads and highways, surface water collection basins, reservoirs, mixed wetland hardwoods, streams and waterways, nonforested uplands and upland hardwood-conifer mixed forests. **Table 2-2** lists the upland and wetland land use and habitat types as well as their FLUCFCS/USFWS classification and acreage within the project study area. Descriptions of each upland and wetland land use and habitat classification are provided below.

2.2.1.1 Upland Land Uses

FLUCFCS: 310 (Herbaceous Upland Nonforested – Dry Prairie)

This classification is defined as dry prairies and grasslands found on non-hydric soil. Generally, they are treeless with a variety of grasses, sedges, and rushes. Small shrubs can be present. Within the project study area this land use is a relatively small area directly south of SR 100, approximately 1500 feet east of Old Kings Road.

FLUCFCS 434 (Hardwood-Conifer Mixed)

Hardwood-conifer mixed communities are forested uplands in which neither hardwoods nor conifers achieve 66-percent dominance of the crown canopy composition. This habitat is the dominant upland habitat found within the project study area. Vegetation in this classification is predominantly comprised of water oak (*Quercus nigra*), slash pine (*Pinus elliotii*), cabbage palm (*Sabal palmetto*), southern magnolia (*Magnolia grandiflora*), red cedar (*Juniperus virginiana*), saw palmetto (*Serona repens*), bristly greenbrier (*Smilax tamnoides*), and yaupon holly (*Ilex vomitoria*).

FLUCFCS: 740 (Disturbed Land)

This classification includes barren land that has been anthropogenically disturbed and comprises a small area along SR 100 within the project study area.

FLUCFCS: 814 (Roads and Highways)

This classification includes transportation facilities which are used for the movement of people and goods. Within the project study area, this classification consists of SR 100, a divided four lane roadway. Vegetation within the existing ROW consists of predominantly of bahiagrass and weedy ruderal vegetation.

FLUCFCS: 837 (Surface Water Collection Basins)

This classification includes features created for the temporary collection of surface water, and comprises a small water containment area on the south of SR 100, within the project study area.

2.2.1.2 Wetland and Surface Water Land Uses

FLUCFCS	**510**	**(Streams and Waterways)**
USFWS:	**PEM1Fx**	**(Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated)**
	PEM1Ax	**(Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated)**

This category consists of rivers, creeks, canals and other linear water bodies such as roadside ditches. Within the project study area, this classification consists of a roadside ditches along the south side of SR 100. Vegetation found within these systems is comprised of pennywort (*Hyrdocotyle* spp.), bahiagrass, alligator weed (*Alternanthera philoxeroides*), mermaid weed (*Proserpinaca* spp.), carpet grass (*Axonopus* spp.), broadleaf arrowhead (*Sagittaria latifolia*), and Peruvian primrose willow (*Ludwigia peruviana*).

FLUCFCS 530 (Reservoirs)
USFWS: PEM2Hx (Palustrine, Emergent, Nonpersistent, Permanently Flooded, Excavated)
PSS1Fx (Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Semipermanently Flooded, Excavated)

Reservoirs are artificial impoundments of water used for irrigation and flood control. The project study area contains one (1) reservoir, along the south side of SR 100. The interior of the reservoir is comprised of open water. Vegetation established on the edges of the reservoir consists of wax myrtle (*Morella cerifera*), Carolina willow (*Salix caroliniana*), cabbage palm, pennywort and lizard's tail (*Saururus cernuus*).

Table 2-2 Land Use within the Project Study Area

Habitat Type	FLUCFCS Code[1]	USFWS Classification[2]	Acreage within Project Study Area
Herbaceous upland nonforested	310	N/A	0.49
Upland mixed coniferous/hardwood	434	N/A	11.59
Disturbed Land	740	N/A	0.38
Roads and highways	814	N/A	2.62
Surface Water Collection Basins	837	N/A	0.02
Total Upland Land Use			**15.10**
Streams and waterways	510	PEM1Fx, PEM1Ax	0.93
Reservoirs - pits, retention ponds, dams	530	PEM2Hx, PSS1Fx	0.32
Mixed wetland hardwoods	617	PFO1/3E, PFO1/3H	3.05
Total Wetland and Surface Water Land Use			**4.30**
Total Land Use			**19.40**

[1] FDOT, 1999
[2] Cowardin et al. 1979
PEM1Ax: Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated
PEM1Fx: Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated
PEM1Hx: Palustrine, Emergent, Persistent, Permanently Flooded, Excavated
PEM2Hx: Palustrine, Emergent, Nonpersistent, Permanently Flooded, Excavated
PFO1/3E: Palustrine, Forested, Broad-Leaved Deciduous/Evergreen, Seasonally Flooded/Saturated
PFO1/3H: Palustrine, Forested, Broad-Leaved Deciduous/Evergreen, Permanently Flooded
PSS1Fx: Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Semipermanently Flooded, Excavated

FLUCFCS	**617**	**(Mixed Wetland Hardwoods)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)**
	PFO1/3H	**(Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Permanently Flooded)**

Mixed wetland hardwoods consist of wetland communities dominated by hardwoods, including hammocks, bottomlands and floodplains. Within the study area, vegetation within these systems is comprised of cabbage palm, water oak, sweetgum (*Liquidambar styraciflua*), dahoon holly (*Ilex cassine*), and laurel oak (*Quercus laurifolia*). Herbaceous species consists of lizard's tail, beaked panicum (*Panicum anceps*), switch cane (*Arundinaria gigantea*), shiny woodoats (*Chasmanthium nitidum*), royal fern (*Osmunda regalis*), and cinnamon fern (*Osmundastrum cinnamomeum*).

2.3 LAND USE IMPACTS

Within the project study area, land uses consist of roads and highways, streams and waterways, reservoirs, mixed wetland hardwoods, herbaceous uplands and upland mixed forests. Land uses adjacent to the project study area generally include large tracts of undeveloped public and private lands with natural habitats dominated by mixed wetland hardwoods, upland mixed forests and residential developments.

The natural areas within and adjacent to the project study area will not change significantly as a result of the project's construction, as detailed in the following sections. Impacts will be minimal within the project study area and to the majority of adjacent natural areas due to large tracks of land continuing to be protected by existing conservation easements. **Table 2-3** shows anticipated land use changes within the project study area, by habitat type, resulting from construction of the proposed project.

Table 2-3 Proposed Changes to Land Use within the Project Study Area

Habitat Type	FLUCFCS Code	Existing Land Use (acres)	Proposed Land Use (acres)	Land Use Change (acres)
Recreational	180	0.00	3.09	+3.09
Herbaceous Upland Nonforested - Dry Prairie	310	0.49	0.40	-0.09
Upland Mixed Coniferous/Hardwood	434	11.59	8.53	-3.06
Streams and Waterways	510	0.93	0.90	-0.03
Reservoirs - pits, retention ponds, dams	530	0.32	0.32	0.00
Mixed wetland hardwoods	617	3.05	2.80	-0.25
Disturbed Land	740	0.38	0.38	0.00
Roads and highways	814	2.62	2.96	+0.34
Surface Water Collection Bains	837	0.02	0.02	0.00
	Total	**19.40**	**19.40**	**0.00**

3.0 Wetlands and Surface Waters

Environmental scientists conducted field reviews of the project study area in February, April, and May 2019. The purpose of these field reviews was to delineate the limits of and gather pertinent information about existing wetlands and surface waters within the project study area. The wetland and surface water boundaries were delineated in accordance with Corps of Engineers Wetland Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (USACE 2010), and Chapter 62-340 Florida Administrative Code, Delineation of the Landward Extent of Wetlands and Surface Waters.

Field reviews identified a total of 13 individual wetlands and six (6) surface waters within the project study area. These habitat types include natural wetlands (WL) as well as man-made ditches and reservoirs, designated as surface waters (SW). A majority of the wetlands found along SR 100 ROW have been disturbed along the edge of the roadway and/or fragmented with varying degrees of hydrologic alteration and impacts to natural vegetation. There are no wetlands or surface waters designated as Outstanding Florida Waterways within the project study area.

Table 3-1 lists the acreage of each wetland and surface water within the project study area, as well as the soil type, FLUCFCS, and USFWS classification. **Appendix C** provides graphics which show the location of each wetland and surface water and **Appendix D** provides photographs of each wetland and surface water. **Sections 3.1** and **3.2** provide descriptions of each individual wetland and surface water, including its wetland habitat type, FLUCFCS and USFWS classifications, and dominant vegetation.

3.1 WETLANDS

Wetlands WL 1a and WL 1b

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3H**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Permanently Flooded)**
	PFO1/3E	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 1a and WL 1b are forested wetlands located north of SR 100 and south of the existing Lehigh Trail. These wetlands extend off site to the east and west and are hydrologically connected to wetlands north and south of the project study area. Vegetation within these wetlands includes a mix of sweetgum, cabbage palm, American hornbeam (*Carpinus caroliniana*) and laurel oak. The herbaceous component consists of lizard's tail, shiny woodoats and beaked panicum.

Table 3-1 Wetlands and Surface Waters within the Project Study Area

ID	FLUCFCS Classification	USFWS Classification	Habitat Description	Soil Type	Jurisdictional	Acreage within Project Study Area
WL 1a	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.11
WL 1b	617	PFO1/3H	Mixed Wetland Hardwood	Favoretta, Chobee, and Widner Soils, Frequently Flooded*	Yes	0.33
WL 1c	617	PFO1/3H	Mixed Wetland Hardwood	Favoretta, Chobee, and Widner Soils, Frequently Flooded*	Yes	1.45
WL 2	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.03
WL 2a	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.02
WL 2b	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.06
WL 3	617	PFO1/3E	Mixed Wetland Hardwood	Placid, Basinger, and St. Johns Soils, Depressional*	Yes	0.26
WL 4	617	PFO1/3E	Mixed Wetland Hardwood	Placid, Basinger, and St. Johns Soils, Depressional*	Yes	0.23
WL 5	617	PFO1/3E	Mixed Wetland Hardwood	Placid, Basinger, and St. Johns Soils, Depressional*	Yes	0.02
WL 6	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.01
WL 11	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.52
WL 12	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.01

ID	FLUCFCS Classification	USFWS Classification	Habitat Description	Soil Type	Jurisdictional	Acreage within Project Study Area
WL 13	617	PFO1/3E	Mixed Wetland Hardwood	Tuscawilla Fine Sand*	Yes	0.00
					Subtotal for Wetlands	**3.05**
SW 1	510	PEM1Fx	Streams and Waterways	Tuscawilla Fine Sand*	No	0.10
SW 2	510	PEM1Ax	Streams and Waterways	Tuscawilla Fine Sand*	No	0.12
SW 3	510	PEM1Ax	Streams and Waterways	Pits / Placid, Basinger, and St. Johns Soils, Depressional* / Myakka fine sand	No	0.05
SW 3a	510	PEM1Ax	Streams and Waterways	Pits / Placid, Basinger, and St. Johns Soils, Depressional* / Myakka fine sand	No	0.01
SW 4	510	PEM1Fx	Streams and Waterways	Placid, Basinger, and St. Johns Soils, Depressional* / Myakka fine sand	No	0.65
SW 5	530	PEM2Hx, PSS1Fx	Reservoirs	Tuscawilla Fine Sand*	No	0.32
					Subtotal for Surface Waters	**1.25**
					Total	**4.30**

Legend:
WL = Wetland
SW = Surface Water
* Designated hydric soil

Wetland WL 1c
FLUCFCS: 617 (Mixed Wetland Hardwood)
USFWS: PFO1/3H (Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Permanently Flooded)

WL 1c is a forested wetland located immediately south of Lehigh Trail. This wetland extends off site to the east and west and is hydrologically connected to wetlands north and south of the project study area. Vegetation within this wetland includes a mix of sweetgum, laurel oak, wax myrtle, American elm (*Ulmus americana*), switch cane (*Arundinaria gigantea*) and cabbage palm. The herbaceous component consists of beaksedge (*Rhynchospora* spp.) and beaked panicum.

Wetlands WL 2, WL 2a and WL 2b

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 2, WL 2a and WL 2b are forested wetlands located south of SR 100. WL 2a and WL 2b are smaller isolated wetlands adjacent to WL 2. WL 2 extends off site to the south, east and west and is hydrologically connected to wetlands south of the project study area. Vegetation within these wetlands includes a mix of sweetgum, American hornbeam, cabbage palm and dahoon holly. The herbaceous component consists of beaked panicum, shiny woodoats, switch cane and lizard's tail.

Wetland WL 3

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 3 is a forested wetland located south of SR 100, immediately east of Old Kings Road. This wetland extends off site to the south. Vegetation within this wetland includes a mix of sweetgum, bald cypress (*Taxodium distichum*), slash pine, cabbage palm and dahoon holly. The herbaceous component consists of royal fern and lizard's tail.

Wetlands WL 4 and WL 5

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 4 and WL 5 are forested wetlands located south of SR 100. These wetlands extend off site to the south. Vegetation within these wetlands includes a mix of sweetgum, cabbage palm, laurel oak, Carolina willow and American hornbeam. The herbaceous component of WL 4 consists of royal fern and cinnamon fern. There is minimal herbaceous cover within WL 5 due to water flowing through a culvert under SR 100.

Wetland WL 6

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 6 is a forested wetland located north of SR 100 and south of the existing Lehigh Trail. This wetland extends off site to the east and is hydrologically connected to wetlands north and south of the project study area. Vegetation within this wetland includes a mix of cabbage palm, American hornbeam and water oak. The herbaceous component consists of beaksedge and shiny woodoats.

Wetlands WL 11 and WL 12

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 11 and WL 12 are forested wetlands located north of SR 100 and south of the existing Lehigh Trail. WL 11 continues off site to the east and west, and WL 12 extends off to the east. These wetlands are hydrologically connected to wetlands north and south of the project study area. Vegetation within these wetlands includes a mix of cabbage palm, American hornbeam, water oak and sweetgum. The herbaceous component consists of beaked panicum and shiny woodoats.

Wetland WL 13

FLUCFCS:	**617**	**(Mixed Wetland Hardwood)**
USFWS:	**PFO1/3E**	**(Palustrine, Forested, Broad-leaved Deciduous, Broad-leaved Evergreen, Seasonally Flooded/Saturated)**

WL 13 is a forested wetland located immediately north of SR 100 and south of the existing Lehigh Trail. This wetland extends off to the east. Vegetation within this wetland includes a mix of cabbage palm, southern magnolia (*Magnolia grandiflora*) and pignut hickory (*Carya glabra*). The herbaceous component consists of beaked panicum and shiny woodoats.

3.2 SURFACE WATERS

This section provides descriptions of the six (6) surface waters identified within the project study area. Surface waters within the project study area include man-made ditches and reservoirs, constructed in hydric and non-hydric soils that were created to convey stormwater runoff offsite for flood control.

Surface Waters SW 1, SW 2, SW 3, SW 3a and SW 4

FLUCFCS:	**510**	**(Streams and Waterways)**
USFWS:	**PEM1Fx**	**(Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated)**
	PEM1Ax	**(Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated)**

SW 1, SW 2, SW 3, SW 3a, and SW 4 are man-made drainage ditches that run parallel to the south side of SR 100. Vegetation within these ditches is regularly mowed and includes coinwort, pennywort, pony foot (*Dichondra caroliniensis*), bahiagrass, alligator weed, mermaid weed, carpet grass, broadleaf arrowhead, lizard's tail and beaksedge.

Surface Water 5

FLUCFCS:	**530**	**(Reservoirs)**
USFWS:	**PEM2Hx**	**(Palustrine, Emergent, Nonpersistent, Permanently Flooded, Excavated)**
	PSS1Fx	**(Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Semipermanently Flooded, Excavated)**

Surface Water 5 (SW 5) is a man-made stormwater pond south of SR 100, and west of WL 2. Vegetation around the edge of the pond is dominated by wax myrtle, Carolina willow, sabal palm, pennywort and lizard's tail.

3.3 WETLAND AND SURFACE WATER IMPACTS

Construction of the proposed project will include the installation of impervious material for the trail, a concrete bridge over SR 100, concrete boardwalk over wetlands and additional habitat alterations associated with construction of stormwater management facilities (i.e. swales and ditches). Due to engineering constraints and wetlands bisecting the trail alignment, unavoidable impacts to wetlands and surface waters will result from dredge and fill activities necessary for construction of the trail and the associated stormwater swales and ditches.

3.3.1 AVOIDANCE AND MINIMIZATION

The proposed project was designed to avoid and minimize construction in wetlands where practicable. Prior to finalizing the trail alignment, environmental scientists familiar with natural communities of Florida conducted a desktop analysis and on-site field reviews to determine the extent of wetlands, surface waters, and large tree species within the proposed trail alignment. A meandering trail alignment was designed around the identified wetlands and large trees, which were avoided to the greatest extent practicable. Where wetlands could not be avoided, an optimized trail design utilizing an elevated boardwalk will be constructed to minimize impacts to hydrology and water quality.

3.3.2 DIRECT WETLAND AND SURFACE WATER IMPACTS

The Uniform Mitigation Assessment Methodology (UMAM) per Chapter 62-345, Florida Administrative Code (FAC), is a state-approved method developed by the Florida Department of Environmental Protection (FDEP) and the water management districts to determine the amount of mitigation needed to offset adverse impacts to wetlands.

A UMAM assessment was performed for each of the wetlands within the project's proposed footprint. A UMAM assessment for impacts to surface waters located within the project's proposed ROW was not performed for surface waters used for stormwater retention since some areas are upland cut and all surface waters will be regraded to ensure no permanent loss of function. To derive the estimated lost value of functions as a result of construction of the proposed project, UMAM was used to calculate the total functional loss (FL) for impacts to the wetlands. Compliance is not required by SJRWMD for regulated activities in wetlands that are less than 0.5 acre in size, isolated, and do not provide significant habitat to protected species per SJRWMD regulations. However, per USACE regulations, mitigation for impacts to all jurisdictional wetlands

is required. One wetland met this criterion, WL 2a, and was removed from the SJRWMD application, but kept in the USACE application. Additionally, when direct (permanent) impacts for a wetland resulted in the remaining wetland area of less than 0.5 acres, the total wetland area was considered as a direct impact. **Appendix E** provides an impact and functional loss summary table and the UMAM data sheets for each wetland within the limits of construction.

Within the project area, 0.25 acres of wetlands and 0.88 acres of non-jurisdictional surface waters will be permanently impacted as a result of construction of the proposed project. Based on the impact acreages and UMAM scores, direct impacts to 0.25 acres of forested wetland habitat result in 0.19 FL units (**Table 3-2**). Of the 0.19 FL units, 0.02 FL units are from WL 2a and do not require mitigation per SJRWMD requirements. In addition, construction of the elevated boardwalks will result in the permanent shading of 0.48 acres of forested wetland, resulting in 0.04 FL units (**Table 3-2**).

3.3.3 SECONDARY WETLAND IMPACTS

When a portion of a wetland is directly impacted by new construction, the SJRWMD requires an analysis of secondary impacts to the remaining portion of the wetland to account for reduced functions. Specifically, if a 25-foot upland buffer between wetland impacts and additional wetland areas is not feasible, SJRWMD guidance requires a secondary impact assessment of remaining wetland areas beyond that of the direct impact. Secondary impacts were assessed for each wetland with direct impacts within the project area. The proposed trail construction and associated stormwater management system for this project will result in 2.53 acres of secondary wetland impacts to forested wetland habitat (**Table 3-2**). These secondary impacts were assessed in relation to location and landscape support, water environment, and vegetative community structure through UMAM analysis. Secondary impacts to 2.53 acres of forested wetland habitat result in 0.07 FL units (**Table 3-2**).

Clearing of the ROW and construction of the trail and bridge will result in temporary impacts to wetlands within the project area. Temporary impacts will affect an additional 1.10 acres of wetland habitat. Temporary impact of 1.10 acres of wetlands will result in the loss of 0.05 FL units. Once the initial tree and vegetation clearing is done to allow construction of the trail and bridge, the areas will be allowed to naturally revegetate.

Based on the proposed trail alignment and ROW, the proposed project is anticipated to result in a total of 4.36 acres of forested wetland impacts (direct, shading, secondary, temporary). The corresponding FL for all impacts (direct, shading, secondary, temporary) is anticipated to be 0.35 FL units (**Table 3-2**). A total of 0.88 acres of surface waters will be impacted from the proposed project but will be regraded to maintain capacity.

Appendix F provides a map showing the location of the proposed wetland impacts that will occur as a result of project construction. **Appendix G** provides the plan set and wetland delineation drawings for both direct (permanent) and secondary impacts to wetland and surface waters within the project limits. **Table 3-2** summarizes the total impacts and functional loss, by wetland type, resulting from the project.

Table 3-2 Impacts and Functional Loss by Habitat Type for the Proposed Project

Habitat Type	FLUCFCS Code	USFWS Classification	Impact Type	Impact Acres	Functional Loss
Freshwater Wetlands - Forested					
Mixed Wetland Hardwood	617	PFO1/3E, PFO1/3H	Permanent	0.25	0.19
Mixed Wetland Hardwood	617	PFO1/3E, PFO1/3H	Shading	0.48	0.04
Mixed Wetland Hardwood	617	PFO1/3E, PFO1/3H	Secondary	2.53	0.07
Mixed Wetland Hardwood	617	PFO1/3E, PFO1/3H	Temporary	1.10	0.05
			Total Wetland	**4.36**	**0.35**
Other Surface Waters - Herbaceous					
Streams and Waterways	510	PEM1Fx, PEM1Ax	Permanent	0.88	N/A
			Total Other Surface Waters	**0.88**	**N/A**
			Total	**5.24**	**0.35**

*0.02 FL units do not require mitigation for SJRWMD but do require mitigation for USACE
PFO1/3E: Palustrine, Forested, Broad-Leaved Deciduous, Broad-Leaved Evergreen, Seasonally Flooded/Saturated
PFO1/3H: Palustrine, Forested, Broad-Leaved Deciduous, Broad-Leaved Evergreen, Permanently Flooded
PEM1Ax: Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated
PEM1Fx: Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated

3.4 WETLAND MITIGATION

The proposed project includes the construction of a multi-use trail connecting the existing Lehigh Trail to SR 100 in the Halifax River Drainage Basin (SJRWMD Basin 17). The project has been designed to avoid and minimize wetland impacts where practicable. Flagler County proposes to mitigate all wetland impacts through the purchase of forested wetland mitigation credits from Lake Swamp Mitigation Bank (LSMB) located within SJRWMD Basin 17 and within LSMB service area which covers the project area. The proposed project impacts a total of 3.65 acres of forested wetlands and results in the loss of 0.35 FL units (0.33 FL units per SJRWMD requirements and 0.35 FL units per USACE requirements). Flagler County proposes acquiring the required state and federal UMAM credits from LSMB to offset wetland impacts. In addition, Flagler County proposes to acquire an additional 0.35 dual UMAM credits from LSMB to offset the FL impacts within the FDOT conservation easement.

4.0 Protected Species

4.1 OBJECTIVES

Listed species are afforded special protective status by federal and state agencies. This special protection is federally administered by the United States Department of the Interior, United States Fish & Wildlife Service (USFWS) pursuant to the Endangered Species Act of 1973 (as amended). The USFWS administers the federal list of animal species (50 CFR 17) and plant species (50 CFR 23). Federal protection of marine species is the responsibility of the National Oceanic and Atmospheric Administration - National Marine Fisheries Service (NOAA-NMFS).

The State of Florida affords special protection to animal species designated as State designated Threatened or State Species of Special Concern, pursuant to Chapter 68A-27, Florida Administrative Code (F.A.C.), which is administered by the Florida Fish and Wildlife Conservation Commission (FWC). In November 2010, a revision to the FWC threatened species rules changed the designation of federal-listed species that occur in Florida to federal-designated endangered or federal-designated threatened species. Those species that are only state listed are now designated as state-designated threatened or state species of special concern. Additionally, in 2018, FWC made revisions to Florida's Imperiled Species Management Plan which resulted in rule changes to add State listed species, change State species from Species of Special Concern to Threatened and to delisted State species.

The State of Florida also protects and regulates plant species designated as endangered, threatened or commercially exploited as identified on the Regulated Plant Index (5B-40.0055, F.A.C.), which is administered by the Florida Department of Agriculture and Consumer Services (DOACS), Division of Plant Industry, pursuant to Chapter 5B-40, F.A.C.

An assessment of the habitats found within the project study area was undertaken to determine the presence or potential for occurrence of federal or state listed and protected species.

4.2 METHODOLOGY

4.2.1 PRELIMINARY DATA COLLECTION

In order to determine federal and state listed and protected plant and animal species that have potential to occur within the project study area, available site-specific data was collected and evaluated. In addition, field reviews of the project corridor were conducted in February, April and May 2019 to assess the potential for occurrence of protected species and to identify any critical habitat that might be located within or adjacent to the project ROW and project study area.

The literature and databases reviewed as part of this evaluation included:

- U.S. Fish and Wildlife Service (USFWS), Endangered and Threatened Wildlife and Plants, 50 CFR 17.11 and 17.12, September 2010;

- Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service, Florida's Federally Listed Plant Species website (http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Florida-Statewide-Endangered-and-Threatened-Plant-Conservation-Program/Florida-s-Federally-Listed-Plant-Species);

- Florida Fish and Wildlife Conservation Commission (FWC), Florida's Endangered and Threatened Species List, December 2018;

- FWC, Gopher Tortoise Submission Map website (https://myfwc.com/wildlifehabitats/wildlife/gopher-tortoise/submission-map/);

- FWC, Eagle Nest Locator website (http://myfwc.maps.arcgis.com/apps/webappviewer/index.html?id=253604118279431984e8bc3ebf1cc8e9);

- FWC, Wading Bird Colonies website (http://ocean.floridamarine.org/TRGIS/Description_Layers_Terrestrial.htm);

- USFWS, Critical Habitat Portal website (http://criticalhabitat.fws.gov/crithab/);

- The Cornell Lab of Ornithology eBird website (https://ebird.org/map);

- Florida Natural Areas Inventory (FNAI) Biodiversity Matrix Standard Data Report and FNAI Element Occurrence Report;

- FNAI Biodiversity Matrix Map Server (http://www.fnai.org/biointro.cfm); and

- USFWS, Wood Stork Nesting Colony website (http://www.fws.gov/northflorida/WoodStorks/wood-storks.htm).

The FWC wading bird colony database was searched for active wading bird colonies within one (1) mile of the project study area. According to this FWC database, there are no active wading bird colonies within one (1) mile of the project study area.

The eBird website was reviewed for observations of protected bird species within one (1) mile of the project study area. All eBird data are reviewed for quality and accuracy and are verified prior to being incorporated into the dataset; however, only data points with associated global positioning system (GPS) locations were considered confirmed documented sightings within one (1) mile of the project study area. Several sightings of the little blue heron, tricolored heron, sandhill crane, bald eagle, wood stork, and osprey were identified within one (1) mile of the project boundary.

The FWC Wildlife Observations database and FNAI's Biodiversity Matrix Map server were searched for documented occurrences of listed species observed within one (1) mile of the project

study area. Additionally, an FNAI Element Occurrence Report for the project area was obtained from FNAI. **Appendix H** includes a map that shows the locations of listed species documented within one (1) mile of the project study area and the FNAI Element Occurrence Report.

4.3 PROTECTED SPECIES POTENTIAL FOR OCCURRENCE IN THE PROJECT STUDY AREA

Using information collected during literature reviews and database searches, a list of protected species with the potential to occur within the project study area and their preferred habitats was compiled. Based upon the information collected, as well as site specific field reviews conducted in February, April, and May 2019, 24 federal and state listed protected plant and animal species were identified as having the potential to occur within the project study area. **Table 4-1** presents the list of these protected species, their state or federal protection status, preferred habitat, and a ranking of potential for occurrence within the project study area. The potential of occurrence for each species is designated as None, Low, Moderate, or High based on USFWS consultation areas, the habitat requirements for each species, the presence of suitable habitat within the project study area and documented occurrence of the species within one (1) mile of the project study area. A *None* ranking indicates no habitat for the protected species. A *Low* ranking indicates that preferred habitat for the species was found within the project study area, but the species has not been documented within one (1) mile of the project study area. A *Moderate* ranking indicates that suitable habitat exists and the species has been documented within one (1) mile of the project study area. A *High* ranking indicates that suitable habitat exists and the species was observed during field reviews.

Table 4-1 Protected Species Potential for Occurrence in the Project Study Area

Species	Designated Status			Habitat Preference	Potential for Occurrence On-Site
	USFWS	FWC	FDACS		
PLANTS					
Many-flowered grass-pink (*Calopogon multiflorus*)	-	-	T	Dry to moist flatwoods with longleaf pine, wiregrass and saw palmetto	None
Sand butterfly pea (*Centrosema arenicola*)	-	-	E	sandhill, scrubby flatwoods, dry upland woods	None
Sand-dune Spurge (*Chamaesyce cumulicola*)	-	-	E	coastal scrub and stabilized dunes	None
Large flowered rosemary (*Conradina grandiflora*)	-	-	T	Coastal scrub and dunes	None
Pine Pinweed (*Lechea divaricata*)	-	-	E	Scrub and scrubby flatwoods	None
Nodding pineweed (*Lechea cernua*)	-	-	T	Shrublands and dunes	None
Pondspice (*Litsea aestivalis*)	-	-	E	Edges of baygalls, flatwood ponds and cypress domes	Low
Florida spiny-pod (*Matelea floridana*)	-	-	E	Upland hardwood forests	Low

Species	Designated Status			Habitat Preference	Potential for Occurrence On-Site
	USFWS	FWC	FDACS		
Celestial lily (*Nemastylis floridana*)	-	-	E	wet flatwoods, wet prairies, marshes, and cabbage palm hammock edges	Low
Florida Beargrass (*Nolina atopocarpa*)	-	-	T	Scrub, sandhill	None
Giant orchid (*Pteroglossaspis ecristata*)	-	-	T	scrub, sandhill, pine flatwoods	None
ANIMALS					
American alligator (*Alligator mississippiensis*)	T (S/A)	-	-	wetland habitats including streams, ponds, lakes, freshwater marshes and ditches	Moderate
Florida scrub-jay (*Aphelocoma coerulescens*)	T	-	-	fire dominate, low growing, oak scrub	None
Red knot (*Calidris canutus rufa*)	T	-	-	coastal beaches, sand flats and areas of sparse vegetation along marshes, spoil islands and rivers	None
Eastern indigo snake (*Drymarchon corais couperi*)	T	-	-	scrub, sandhill, mangrove swamp, wet prairies	Low
Little blue heron (*Egretta caerulea*)	-	T	-	freshwater marshes, mangrove swamps, shallow lakes, wet prairies, cypress and hardwood swamps	Moderate
Tricolored heron (*Egretta tricolor*)	-	T	-	permanently and seasonally flooded wetlands, mangrove swamps and ditches	Moderate
Gopher tortoise (*Gopherus polyphemus*)	-	T	-	dry upland habitats including sandhills, scrub, dry pine flatwoods, old fields, pastures, roadsides	Moderate
Florida sandhill crane (*Grus canadensis pratensis*)	-	T	-	prairies, freshwater marshes and pasture lands	Moderate
Bald eagle (*Haliaeetus leucocephalus*)	(1)	(2)	-	areas close to coastal areas, bays, rivers, lakes and large open water bodies	High
Wood stork (*Mycteria americana*)	T	-	-	fresh/saltwater marshes, tidal flats, wet prairies, flooded pastures and ditches, hardwood and cypress swamps	High
Osprey (*Pandion haliaetus*)	(3)	-	-	Coastal areas, lakes, rivers and swamps, nests on trees and manmade structures	Moderate
Florida pine snake (*Pituophis melanoleucus mugitus*)	-	T	-	sandhill, sand pine scrub, scrubby flatwoods	None
Florida black bear (*Ursus americanus floridanus*)		(4)	-	Pine flatwoods, mixed forests, scrub oaks and swamps	Moderate

Notes:

E = endangered, T = threatened, S/A = similarity of appearance

[1] While not listed under the ESA, the Bald Eagle is federally protected under the Bald and Golden Eagle Protection Act.

[2] While not listed under Chapter 68A-27 FAC, the Bald Eagle is state protected under the FWC Bald Eagle Management Plan (2008) and 68A-16.002, FAC.

[3] The Osprey is federally protected by the U.S. Migratory Bird Treaty Act (16 USC 703-702).

[4] The Florida black bear is no longer state-listed; however, this species is managed in Florida by the FWC's Florida Black Bear Conservation rule (68A-4.009, F.A.C.).

Descriptions of the 24 federal or state listed protected species with a potential for occurrence within the project study area are provided in the following subsections.

4.3.1 FEDERAL SPECIES

4.3.1.1 Animals

American alligator (*Alligator mississippiensis*)

This large, rounded-snout crocodilian is listed as ***threatened due to similarity of appearance*** to the American crocodile (*Crocodylus acutus*) by the **USFWS.** Alligators thrive in a wide variety of wetland habitats including streams, ponds, lakes, freshwater marshes, swamps and even ditches of adequate size and depth. Habitat is present within the project study area, however, most of the area is comprised of dense vegetation and not optimal habitat for the American alligator. No alligators were observed during field reviews but one (1) has been documented in the large canal by local residents north of Lehigh High Trail, within one (1) mile of the project study area. As a result, the potential for occurrence of the American alligator within the project study area has been determined to be ***moderate***.

Florida scrub-jay (*Aphelocoma coerulescens*)

The Florida scrub-jay is similar to the common blue jay in size and shape, with a pale blue crestless head, nape, wings, and tail. It is listed as ***threatened*** by the **USFWS.** Optimal scrub-jay habitat consists of low growing, scattered scrub species with patches of bare sandy soil such as those found in sand pine scrub and scrubby flatwoods habitats that are occasionally burned. In areas where these types of habitats are unavailable, Florida scrub-jays may be found in less optimal habitats such as pine flatwoods with scattered oaks. The project falls within the USFWS consultation area for the Florida scrub-jay (*Aphelocoma coerulescens*), and according to the USFWS 1992-93 survey, scrub-jay habitat is found adjacent to the project study area. However, this area is overgrown with dense vegetation and is no longer suitable scrub-jay habitat and there have been no documented occurrences of the scrub-jay within one (1) mile of the project study area. Additionally, there were no observations of the species made during field reviews. As a result, the potential for occurrence for the species within the project study area has been determined to be ***none***.

Red knot (*Calidris canutus rufa*)

The red knot is a medium sized shorebird listed as ***threatened*** by the **USFWS** and is found in Florida during the winter season. Similar in appearance to other shorebirds, in winter the red knot has olive-yellow legs, a gray head, wings, and rump, and its chest and underside are white. They are found in coastal mudflats, tidal zones, and open sandy beaches. The red knot feeds on polychaete worms, small crabs, and mollusks. No red knots were observed during field surveys and there have been no documented occurrences within one (1) mile of the project study area. In

addition, no suitable habitat is present within the project study area. As a result, the potential for occurrence of the Red knot within the project study area has been determined to be ***none***.

Eastern indigo snake (*Drymarchon corais couperi*)

This large, glossy black snake is listed as ***threatened*** by the **USFWS**. The indigo snake can be found in a variety of habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, as well as human-altered habitats. It may also utilize gopher tortoise burrows for shelter to escape hot or cold ambient temperatures within its range. No eastern indigo snakes were observed during the field surveys and there have been no documented occurrences within one (1) mile of the project study area; however, habitat used by this species is available throughout the project study area. As a result, the potential for occurrence of the Eastern indigo snake within the project study area has been determined to be ***low***.

Wood stork (*Mycteria americana*)

This large, white, wading bird is listed as ***threatened*** by the **USFWS**. The wood stork is opportunistic and utilizes various habitat types, including forested wetlands, freshwater marshes, swamps, lagoons, ponds, tidal creeks, flooded pastures and ditches. Water that is relatively calm, uncluttered by dense thickets of aquatic vegetation, and with a permanent or seasonal water depth between 2 and 15 inches is considered suitable foraging habitat for this species. Foraging habitat for the wood stork is present within the project study area. The USFWS wood stork colony website was searched for active wood stork colonies located within 13-miles of the project study area. This 13-mile distance corresponds to the core foraging area (CFA) established by the USFWS for the wood stork in the North Florida region. According to the USFWS wood stork colony website, there are no active wood stork nesting colonies within 13 miles of the project study area.

One wood stork was observed during field surveys of the project study area and three (3) have been documented within one (1) mile of the project study area, according to eBird data (**Appendix H**). Based on this information, the potential for occurrence of the wood stork within the project area has been determined to be ***high.***

4.3.2 STATE SPECIES

4.3.2.1 Plants

Many-flowered pink-grass (*Calopogon multiflorus*)

This perennial herb, which produces pink fragrant flowers crowded at the top of a dark reddish-brown leafless stalk is listed as ***threatened*** by the **FDACS**. Many-flowered pink-grass is a member of the orchid family (*Orchidaceae*) and is found in dry to moist flatwoods, primarily fire maintained habitat with longleaf pine, wiregrass and saw palmetto. There is no suitable habitat for this species within the project study area, and no sightings have been documented within one (1) mile of the project study area and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none.***

Sand butterfly pea (*Centrosema arenicola*)

This perennial vine, which forms purplish blue petals and form a flattened pod fruit, is listed as ***endangered*** by the **FDACS**. Sand butterfly pea is a member of the pea family (*Fabaceae*) endemic to central Florida and is found in sandhill, scrubby flatwoods and dry upland woods. There is no habitat for this species within the project study area, however, there have been no documented sightings of sand butterfly pea within one (1) mile of the project study area and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

Large flowered rosemary (*Conradina grandiflora*)

This perennial shrub, which grows to 1 meter (m) tall has opposite, linear, needle-like leaves and the flowers are small and violet with dark spots. This species is listed as ***threatened*** by the **FDACS**. The large flowered rosemary is a member of the mint family (*Lamiaceae*) and prefers deep sandy soils typical of coastal dunes. There is no habitat for this species within the project study area and there have been no documented sightings within one (1) mile of the project study area. It was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

Sand-dune spurge (*Euphorbia cumulicola*)

This perennial herb, which has opposite leaves and stems that extend over sandy soils, is listed as ***endangered*** by the **FDACS**. Sand-dune spurge is a member of the spurge family (*Euphorbiaceae*) and is found on coastal scrub and stabilized dunes. There is no habitat for this species within the project study area, there have been no documented sightings of sand-dune spurge within one (1) mile of the project study area and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

Nodding pinweed (*Lechea cernua*)

This shrub-like perennial herb is listed as ***threatened*** by the **FDACS.** Nodding pinweed is a member of the rockrose family (*Cistaceae*) and is found in shrublands from central to south Florida. It generally inhabits open sandy areas and Florida rosemary scrub habitat. There is no habitat for this species within the project study area and it has not been documented within one (1) mile of the area. It was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none.***

Pine pinweed (*Lechea divaricata*)

This perennial herb, which forms purple or green petals, is listed as ***endangered*** by the **FDACS**. Pine pinweed is a member of the rockrose family (*Cistaceae*) and is found in sandy soils of scrub and scrubby flatwoods. There is no habitat for this species within the project study area, it has not been documented within one (1) mile of the project study area, and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

Pondspice (*Litsea aestivalis*)

This perennial shrub with alternate leaves, zig-zagging branches, and small yellow flowers made up of six (6) sepals and no petals, is listed as ***endangered*** by the **FDACS**. A member of the Laurel family (*Lauraceae*), Pondspice is found on margins of swamps, ponds, woodlands, and baygalls. Pondspice is an obligate wetland species and requires high soil moisture. There is habitat for this species within the project area, however, it has not been documented within one (1) mile of the project study area, and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***low.***

Celestial lily (*Nemastylis floridana*)

This perennial herb, which forms dark blue petals that open for a few hours in late afternoon is listed as ***endangered*** by the **FDACS**. Celestial lily is a member of the grass family (*Poaceae*) and is found in moist soils of wet flatwoods, swamp and marsh borders, cabbage palm hammocks, and slash pine-saw palmetto habitats. There is habitat for this species within the project study area, however, there have been no documented sightings of celestial lily within one (1) mile of the project study area and it was not observed during field reviews, but it has been documented in Flagler county. As a result, the potential for occurrence of this species has been determined to be ***low***.

Florida beargrass (*Nolina atopocarpa*)

This perennial herb, which forms greenish-white petals, is listed as ***threatened*** by the **FDACS**. Florida beargrass is a member of the agave family (*Agavaceae*) and is found in dry soils of scrub, scrubby flatwoods, and sandhills. There is no habitat for this species within the project study area, there have been no documented sightings of Florida beargrass within one (1) mile of the project study area and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

Florida spiny-pod (*Matelea floridana*)

This perennial vine, which forms clusters of flowers ranging from green-yellow to deep maroon, is listed as ***endangered*** by the **FDACS.** A member of the Milkweed family (*Asclepiadaceae*), Florida spiny-pod is found mixed hardwood forests ranging from very moist hammocks to dry upland forests. There is habitat for this species within the project area, however, it has not been documented within one (1) mile of the project study area, and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***low***.

Giant orchid (*Pteroglossaspis ecristata*)

This perennial herb, which produces a flowering stalk one to five foot tall with yellow-green petals is listed as ***threatened*** by the **FDACS**. Giant orchid is a member of the orchid family (*Orchidaceae*) and is found in sandhill, scrub and pine flatwoods. There is no habitat for this species within the project study area, there have been no documented sightings of giant orchid within one (1) mile of the project study area and it was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

4.3.2.2 Animals

Little blue heron (*Egretta caerulea*)

This small to medium-sized wading bird is listed as ***threatened*** by the **FWC**. The little blue heron prefers freshwater, brackish, and saltwater habitats such as fresh and saltwater mudflats and marshes, coastal beaches, mangrove swamps, cypress swamps, streams and lakes. While suitable foraging habitat occurs within the project study area, no little blue herons were identified during field reviews. However, according to eBird data, two (2) have been documented within one (1) mile of the project study area along SR 100 (**Appendix H**). As a result, the potential for occurrence of the little blue heron has been determined to be ***moderate.***

Tricolored heron (*Egretta tricolor*)

This medium-sized, two-toned, wading bird is listed as ***threatened*** by the **FWC**. The tricolored heron prefers both fresh- and saltwater habitats such as marshes and mudflats, brackish marshes, coastal beaches, mangrove swamps, and ditches. There is suitable habitat for this species within wetlands and surface waters of the project study area, and according to eBird data there is a confirmed documented sighting of the tricolored heron just over one (1) mile from the project study area (**Appendix H**); however, none were observed during field reviews. As a result, the potential for occurrence of the tricolored heron within the project study area has been determined to be ***moderate.***

Gopher tortoise (*Gopherus polyphemus*)

This medium-sized land tortoise is listed as ***threatened*** by the **FWC**. The gopher tortoise prefers areas of well-drained loose soils that support adequate low-growing herbs and grasses for food. Tortoises are most often found in xeric oak, sandhills, dry pine flatwoods, scrub habitats, as well as old fields, pastures and roadsides. There is no preffered habitat for this species within the project study area and no burrows were identified during field reviews; however, one (1) potentially active burrow has been documented within one (1) mile of the project study area, along Lehigh Trail. In addition, according to the NRCS web soil survey (USDA 2019), none of the soils identified within the project study area are suitable for gopher tortoises. Based on this information, the potential for occurrence of the gopher tortoise has been determined to be ***moderate.***

Florida sandhill crane (*Grus canadensis pratensis*)

This tall, long-necked and long-legged bird with a red crest is listed as a ***threatened*** by the **FWC**. The Florida sandhill crane prefers shallow freshwater marshes, pastures and open woods habitats for foraging. Nests can be found on the ground in freshwater ponds and marshes. Foraging habitat is present within the SR 100 ROW and Old Kings Road ROW and there is nesting habitat within one (1) mile of the project study area. In addition, according to eBird data sandhill cranes have been documented within one (1) mile of the project study area. However, no nests or cranes were observed during field reviews. As a result, the potential for occurrence of the Florida sandhill crane has been determined to be ***moderate***.

Florida pine snake (*Pituophis melanoleucus mugitus*)

This large snake with tan or rusty colored skin and brown blotches is listed as ***threatened*** by the **FWC**. The Florida pine snake prefers open-canopied xeric habitats with dry sandy soils, and can be found in sandhills, pastures, sand pine scrub, longleaf pine and turkey oak forests. The pine snake is also known to utilize tunnel systems of pocket gophers and burrows of gopher tortoises. No suitable habitat for the Florida pine snake exists within the project study area, there have been no documented occurrences within one (1) mile of the project study area and the species was not observed during field reviews. As a result, the potential for occurrence of this species has been determined to be ***none***.

4.3.3 OTHER PROTECTED SPECIES

Bald eagle (*Haliaeetus leucocephalus*)

The bald eagle is a large raptor with a distinctive white head and yellow bill. This species has been de-listed by the **USFWS**. However, it is still federally protected under the Bald and Golden Eagle Protection Act of 1940 (BGEPA) in accordance with 16 United States Code 668 and the Migratory Bird Treaty Act of 1918. In addition, the bald eagle is protected under 68A-16.002, FAC and a Species Action Plan for the Bald Eagle (FWC 2017) which replaced the bald eagle management plan (FWC 2008).

The bald eagle tends to utilize riparian habitats associated with coastal areas, lake shorelines and riverbanks. Nesting habitat generally consists of mature canopy trees on habitat edges with unobstructed views of the surrounding area. Nests within Florida are closely monitored by the FWC, and the FWC Center for Biostatistics and Modeling maintains a website of known bald eagle nest locations, which was last updated with data from the 2017-2018 nesting season. According to the FWC bald eagle nest database, the closest nest, FL007, is located approximately 1.5 miles from the project study area. There is minimal suitable habitat within the project study area and there are no active bald eagle nests within one (1) mile of the project study area. However, one (1) bald eagle was observed flying over WL 1c during field surveys and several have been documented within one (1) mile of the project study area, according to eBird data (**Appendix H**). As a result, the potential for occurrence of this species has been determined to be ***high.***

Osprey (*Pandion haliaetus*)

The osprey is not listed by the **FWC** or the **USFWS**, but is federally protected by the Migratory Bird Treaty Act (16 U.S.C. 703-712) and state protected by Chapter 68A-16 of the F.A.C. The osprey tends to utilize riparian habitat associated with coastal areas, lake shorelines, and river banks. Nests are generally located near water bodies that provide a dependable food source. During field reviews in 2019, no ospreys were observed; however, according to eBird data, seven (7) have been documented within one (1) mile of the project study area. Due to documented sightings within one (1) mile and suitable habitat present, the potential for occurrence of this species within the project study area has been determined to be ***moderate***.

Florida black bear (*Ursus americanus floridanus*)

The Florida black bear is a large mammal with glossy black hair and a brown muzzle. This species has been de-listed by the **FWC**. However, it is managed under FWC's Florida Black Bear

Management Plan (FWC 2012) and protected under 68A-4.009, FAC. The plan creates Bear Management Units based on seven (7) geographically distinct bear subpopulations in Florida. The project study area is located within the Common Bear Range of the Central Bear Management Unit population. The Florida black bear is a forest habitat generalist with seasonal preference for wherever food is most available. There is suitable habitat for the Florida black bear within the project study area; additionally the FWC telemetry, mortality and nuisance data indicates two (2) Florida black bear nuisance calls and two (2) road kill bears occurrences are within one (1) mile of the project study area. Due to their common occurrence around the area, large ranges, and suitable habitat presence, the potential for occurrence of this species within the project study area has been determined to be ***moderate.***

4.4 PROTECTED SPECIES EFFECT DETERMINATIONS

Proposed impacts to wildlife habitat have been minimized through the utilization of the optimized trail and sidewalk alignment. While the proposed project has taken all practicable measures to avoid and minimize impacts to potentially occurring protected species and their habitats, unavoidable impacts may occur as a result of project construction. A determination of the anticipated project "effect" on protected species was made based on their probability of occurrence within the project study area, the proposed changes to their habitat quality, quantity, and availability as a result of project construction, and how each species is expected to respond to anticipated habitat changes. Listed below are the "effect" determinations for each species.

4.4.1 FEDERAL SPECIES

4.4.1.1 Animals

American alligator

The American alligator was designated as having a moderate potential for occurrence based on habitat quality and one (1) documented sighting within one (1) mile of the project study area. This species is highly mobile and there is available preferred habitat outside of the project study area. In addition, any wetland impacts will be mitigated for to ensure no net loss of wetland functions, including wildlife habitat. Based on the above information, it is anticipated that the project "**may affect, but is not likely to adversely affect**" the American alligator.

Florida scrub-jay

The potential for occurrence of the Florida scrub-jay within the project study area was designated as none based on the lack of suitable habitat, lack of documented occurrences within one (1) mile of the project study area, and no observations during field reviews. Because no suitable habitat was found within or directly adjacent to the project study area, a survey for Florida Scrub-jays was not conducted. The Florida scrub-jay prefers habitat with low growing trees, scrub oaks, and minimal pine cover, none of which is present within the project area. Based on this information, it has been determined that the project will have "**no effect**" on the Florida scrub-jay.

Eastern indigo snake

The Eastern indigo snake was given a low potential for occurrence based on the presence of suitable habitat but no documented occurrences within one (1) mile of the project study area. However, it is reasonable to expect that these species could utilize suitable habitat within the project study area. The primary concern for impacts to this species is habitat destruction, modification, and fragmentation. To avoid adverse impacts to this species, Flagler County is committed to utilizing the current *Standard Protection Measures for the Eastern Indigo Snake* (USFWS 2013) during construction of the project (**Appendix I**). Based on the Eastern Indigo Snake Programmatic Effect Determination Key (USFWS revised 2013) resulting in A>B>C>D>E>NLAA it has been determined that the project "**may affect, but is not likely to adversely affect**" the Eastern indigo snake.

Wood stork

The wood stork was designated as having a high potential for occurrence based on the presence of suitable foraging habitat within the project study area, wood stork documentations within one (1) mile of the project area, and an observation during field reviews. However, the project area is outside of the 13-mile CFA of documented nesting colonies. The primary concern for this species is loss of suitable foraging habitat, especially within the CFA of a wood stork colony. Wetland impacts resulting from construction of this project will be mitigated for to prevent a net loss of wetland functions and values. Based on the assessment of the project utilizing the Effect Determination Key for the Wood Stork in Central and North Peninsular Florida (USFWS 2008) resulting in A>B>C>D>NLAA, it has been determined that the project "**may affect, but is not likely to adversely affect**" the wood stork.

4.4.2 STATE SPECIES

4.4.2.1 Plants

Of the 11 state protected plant species identified as having the potential to occur within the project area, eight (8) species, the many-flowered pink-grass, sand butterfly pea, large flowered rosemary, sand-dune spurge, nodding pinweed, pine pinweed, Florida beargrass and giant orchid were determined to have a potential for occurrence of none based on the lack of suitable habitat present and no documented sighting within one (1) mile of the project study area. Due to the lack suitable habitat in or near the project study area, it has been determined that the project will have **"no effect"** on these species.

Pondspice

Pondspice was given a low potential of occurrence because it was not observed during field reviews, nor has it been documented within one (1) mile of the project area, despite the presence of suitable habitat. Because of the lack of documented occurrences and minimal suitable habitat within the action area it has been determined that the project will have **"no effect"** on pondspice.

Celestial lily

The celestial lily was given a low potential for occurrence based on the minimal presence of habitat, no documented occurrences within one (1) mile of the project study area, and no

observations during the 2019 field reviews. Due to this lack of documented occurrence and minimal suitable habitat it has been determined that the project will have "**no effect**" on the lily.

Florida spiny-pod

Florida spiny-pod was given a low potential of occurrence based on the lack of documented sightings within one (1) mile of the action area, and it was not observed during field reviews. However, suitable habitat for this species exists throughout the project site. Due to no known presence being detected within the project area, nor within one (1) mile of the project area, it has been determined that the project will have **"no effect"** on Florida spiny-pod.

4.4.2.2 Animals

Tricolored heron and Little blue heron

The tricolored heron and little blue heron were designated as having moderate potential for occurrence based on the presence of suitable habitat and documented sightings within one (1) mile of the project study area. Although none were observed directly within the project study area during field reviews, it is reasonable to expect that these species could utilize habitat within the project study area. The primary concern for impacts to these wading bird species is the loss of foraging and nesting habitat. Wetland impacts resulting from construction of this project will be mitigated to prevent a net loss of wetland functions and values. With the implementation of these measures, it has been determined that the project will have "**no adverse effect anticipated**" on the tricolored heron and little blue heron.

Gopher tortoise

This gopher tortoise was given a low potential for occurrence based on the documentation of one (1) burrow within one (1) mile of the project study are but lack of suitable habitat and observations within the project study area. To avoid adverse impacts to the gopher tortoise, Flagler County will require the construction contractor to resurvey for gopher tortoises within the project area and staging locations within 90 days prior to construction. If gopher tortoises are found within the project area, Flagler County will coordinate with the FWC to secure permits needed to relocate the gopher tortoises prior to construction. As a result, it has been determined that the project will have "**no adverse effect anticipated**" on the gopher tortoise.

Florida sandhill crane

The Florida sandhill crane was given a moderate potential for occurrence based upon the presence of suitable foraging habitat within the project study area and documented occurrences within one (1) mile of the project study area. There is also suitable nesting habitat for the sandhill crane within one (1) mile of the project study area; however, none were observed within the project study area during field reviews. Based on the minimal habitat present within the study area, it has been determined that the project will have "**no adverse effect anticipated**" on the Florida sandhill crane.

4.4.3 OTHER PROTECTED SPECIES

Bald eagle

The bald eagle was given a high potential of occurrence based on field observations of a bald eagle and sightings within one (1) mile of the project study area. It is reasonable to expect that this species could utilize suitable habitat within the project study area for nesting or foraging. However, according to the FWC Bald Eagle Nest Locator there are no active bald eagle nests within one (1) mile of project study area. In addition, the proposed project will not impact foraging habitat. Since there are no active nests within one (1) mile of the project study area, and foraging habitat will not be impacted, it has been determined that the project will have "**no effect**" on the bald eagle.

Osprey

The osprey was given a moderate potential for occurrence based on documented occurrences within one (1) mile of the project study area and the presence of suitable habitat. However, none were identified within the project area during field reviews. While minimal nesting habitat exists within the project area, potential suitable foraging habitat exists. As a result, it has been determined that the project will have "**no adverse effect anticipated**" on the osprey.

Florida Black Bear

The Florida black bear was given a moderate potential for occurrence because they have large ranges, have been documented within one (1) mile of project study area, and suitable habitat is present within the project study area. However, no evidence (tracks, scat, visual observations) of the Florida black bear was observed during field reviews. It is reasonable to assume that black bears may travel throughout the forested areas of the project. Black bears are highly mobile and able to move out of the project area easily. While the construction of the trail may preclude them from a small portion of the habitat, this is transient in nature, and the proposed project will not result in a barrier to wildlife movement. As a result, it has been determined that the project will have "**no adverse effect anticipated**" on the Florida black bear.

4.4 CRITICAL HABITAT

The project study area was evaluated for the occurrence of Critical Habitat as defined by the Endangered Species Act of 1973, as amended, and 50 CFR part 424. The USFWS is the authority, as a federal agency, to protect from destruction or adverse modification of the biological or physical constituent elements essential to the conservation of listed species. Critical Habitat is defined as the specific areas within the geographical area occupied by a species on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection. Review of the USFWS database identified no Critical Habitat within the project study area. Based on this information the project will have **"no effect"** on critical habitat.

4.5 ESSENTIAL FISH HABITAT

The wetland and surface water habitats located within the Graham Swamp project area are not designated as Essential Fish Habitat (EFH) for species managed under the Magnuson-Stevens Fishery Conservation and Management Act (ACT) (16 USC 1801 et seq. Public Law 104-208). Therefore, an EFH assessment was not conducted to for the proposed project and it was determined that the proposed project will have **"no effect"** on EFH.

5.0 Other Environmental Considerations

5.1 HISTORICAL RESOURCES

5.1.1 CULTURAL RESOURCE ASSESSMENT SURVEY

A Cultural Resources Assessment Survey (CRAS) was completed for the project study area to evaluate the area within and adjacent to the proposed project. The CRAS was completed by qualified historians and archaeologists to identify and assess historic resources. Additionally, the project's CRAS was reviewed by the Department of Historic Resources, State Historic Preservation Officer (SHPO). The SHPO provided concurrence that the project will not affect cultural resources within and adjacent to the project study area (see **Appendix J**, Agency Correspondence).

5.2 LAND MANAGEMENT

The proposed trail will provide many opportunities for Flagler County residents and visitors to explore Florida's natural communities and will provide healthy activities for individuals, groups and families such as hiking, biking, and nature viewing. In addition to providing recreational opportunities, the proposed property will be managed to protect and enhance native flora, fauna, and natural communities currently present. The existing Lehigh Trail is managed pursuant to Section 253.034(5), F.S. due to being State Land subleased (Number 4321-01) to Flagler County from the FDEP Office of Greenways and Trails, which requires a conservation land management plan be developed by Flagler County for the proposed trail property. The proposed Graham Swamp Trail is not located on State Lands; however, Flagler County proposes to manage the proposed trail similar to the Lehigh Trail to achieve short term and long term management goals. Short and long term goals include the following:

- Public access and recreational opportunities
- Hydrological preservation by maintaining culverts
- Exotic and invasive species maintenance and control
- Capital facilities and infrastructure

An excerpt from the neighboring Lehigh Trail Management Plan is provided in **Appendix K** as an example of goals and how management of the proposed trail will be modeled.

5.3 EXISTING CONSERVATION EASEMENTS

The proposed project traverses two (2) parcels under conservation easements. The northern parcels' primary owner is Flagler County while the southern parcels' primary owner is FDOT per Flagler County Property Appraiser website (**Figure 5-1 Conservation Easement Map**).

Flagler County's June 11, 2014 conservation easement Part III.4. allows for the construction of new recreational trails and boardwalks and allows for modifications or amendments to the easement. Additionally, the management plan includes the construction of ancillary ditches, culverts and crossings, provided there is no detrimental alteration of hydrology. However, FDOT's May 1, 1997 conservation easement prohibits construction of new structures, including trails,

excavation of soil, and the removal of trees, shrubs or other vegetation, and does not address modifications or amendments. **Appendix L** provides the conservation easements for both parcels. As part of the proposed project, new structures, soil excavation and tree removal will be required in FDOT's conservation easement, and an amendment to the conservation easement is needed.

While disturbance and construction will occur within FDOT's conservation easement, the overall project footprint is minimal within the 261-acre parcel. The project footprint within FDOT's conservation easement is approximately 2.56 acres, leaving 258.44 acres undisturbed. The amendment to the FDOT easement will mirror Flagler County's easement and allow for the construction of recreational trails as long as there will not be detrimental impacts to hydrology. To further protect the land and minimize impacts, Flagler County Parks and Recreation will manage the property as described in **Section 5.2**. This will ensure the preservation of natural communities present. In addition, the trail will overall be a benefit to the surrounding community and will create additional outdoor recreational opportunities for both visitors and residents.

Because of the unavoidable impacts to wetlands and uplands within a conservation easement to construct the Graham Swamp Trail, Flagler County proposes to mitigate for twice the amount of the project's wetland FL due to impacts in the area.

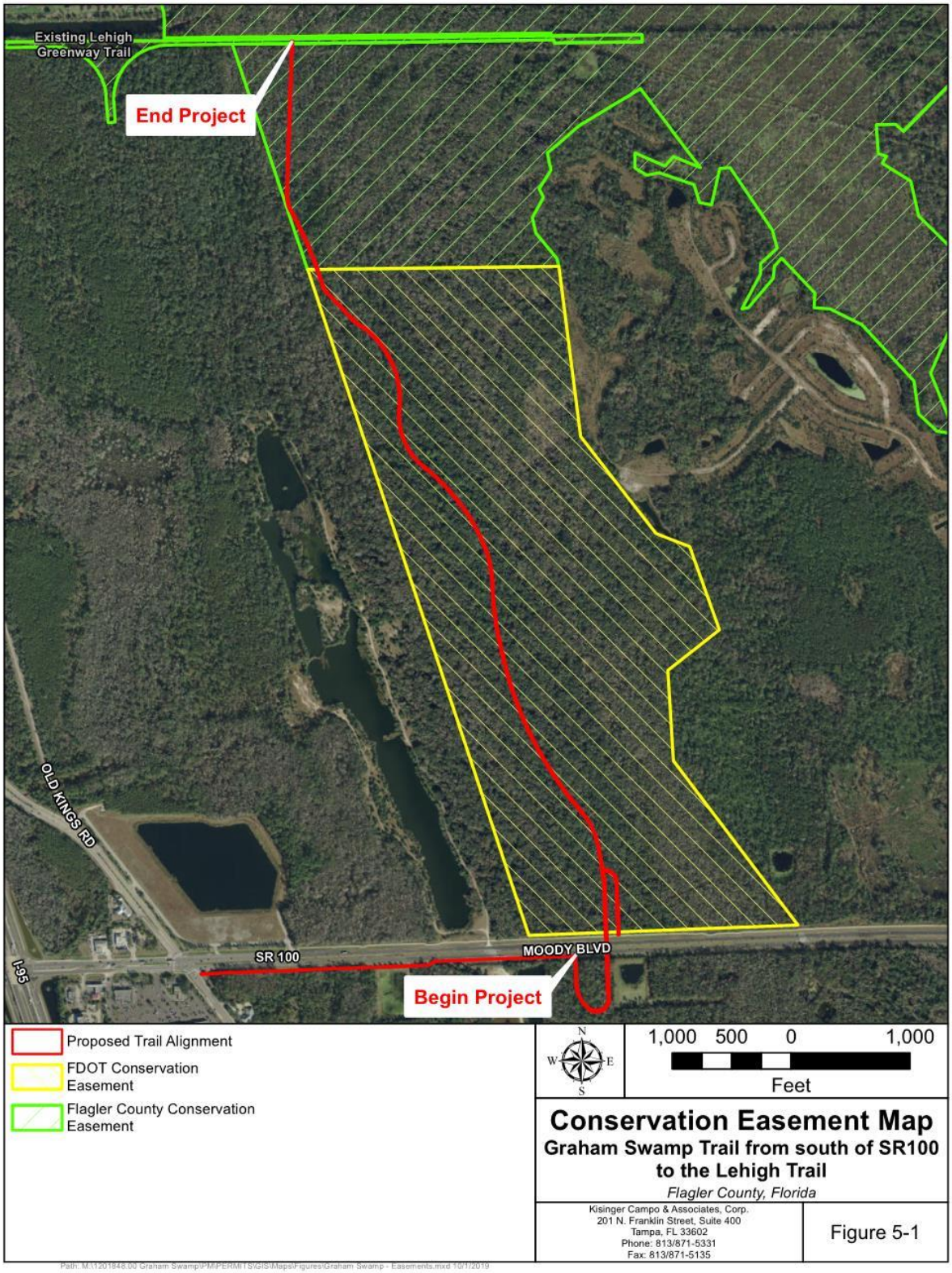
5.4 AGENCY COORDINATION

5.4.1 ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

A pre-application meeting was held with a SJRWMD engineer and environmental scientist, Flagler County, FDOT Permit Coordinator, and Flagler County's consultant engineer and environmental scientists to discuss the preliminary trail plans and potential permit requirements. Meeting minutes are provided in **Appendix M.**

In addition, informal wetland line reviews were conducted in August and September 2019 with the SJRWMD staff to review and agree to wetland lines delineated within the project study area. It was agreed that there would be no impact from the proposed project to areas that extended greater than 25-foot outside of the proposed ROW. As a result, the SJRWMD did not review wetland points or verify the extent of wetlands outside of the proposed trail ROW. Any points or lines not reviewed were removed and wetlands boundaries were left open to convey that there is a possibility that they extend off-site.

Figure 5-1 Conservation Easements in the Project Study Area



6.0 Conclusion

6.1 WETLANDS

The proposed project was evaluated for impacts to wetlands in accordance with EO 11990. Flagler County has undertaken all actions to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. Nonetheless, it has been determined that there is no practicable alternative to construction impacts occurring in wetlands. Any unavoidable impacts to wetlands will be mitigated to achieve no net loss of wetland function. Based on the type and location of proposed impacts and mitigation, the proposed project will have no significant short-term or long-term adverse impacts to wetlands within the Halifax River Drainage Basin.

Impacts to 4.36 acres of forested wetlands (0.25 direct, 0.48 shading, 2.53 secondary, 1.10 temporary) and 0.88 acres of surface waters (0.88 direct) for a total of 5.24 acres of impacts, are anticipated as a result of the proposed project. Surface waters (roadside ditches) will be regraded to ensure no loss in capacity. All wetland impacts will be mitigated by the purchase of wetland mitigation bank credits from LSMB, an approved mitigation bank, pursuant to Section 373.4137, F.S. to satisfy all mitigation requirements of Part IV Chapter 373, F.S. and 33 U.S.C. 1344. Compensatory mitigation for this project will be completed through the purchase of 0.70 forested wetland credits, 0.35 from wetland impacts and 0.35 for impacts in conservation easements, from LSMB, within the Halifax River Drainage Basin (SJRWMD Basin 17).

6.2 PROTECTED SPECIES

Table 6-1, Table 6-2, and **Table 6-3** summarize the effect determination that has been made for each federal, state and other protected species based upon their probability ranking and the commitments made to offset any potential impacts to each species.

Table 6-1 Federal Protected Species Effect Determinations

Project Effect Determination	Federal Protected Species
"May affect, but is not likely to adversely affect"	American alligator (*Alligator mississippiensis*) Eastern indigo snake (*Drymarchon couperi*) Wood stork (*Mycteria americana*)
"No effect"	Florida scrub-jay (*Aphelocoma coerulescens*) Red knot (*Calidris canutus rufa*)

Table 6-2 State Protected Species Effect Determinations

Project Effect Determination	State Protected Species
"No adverse effect anticipated"	Little blue heron (*Egretta caerulea*) Tricolored heron (*Egretta tricolor*) Gopher tortoise (*Gopherus polyphemus*) Florida sandhill crane (*Grus canadensis pratensis*)
"No effect"	Many-flowered grass-pink (*Calopogon multiflorus*) Sand butterfly pea (*Centrosema arenicola*) Sand-dune Spurge (*Chamaesyce cumulicola*) Large flowered rosemary (*Conradina grandiflora*) Nodding pineweed (*Lechea cernua*) Pine Pinweed (*Lechea divaricata*) Pondspice (*Litsea aestivalis*) Florida spiny-pod (*Metelea floridana*) Celestial Lilly (*Nemastylis floridana*) Florida beargrass (*Nolina atopocarpa*) Florida pine snake (*Pituophis melanoleucus mugitus*) Giant orchid (*Pteroglossaspis ecristata*)

Table 6-3 Other Protected Species Effect Determinations

Project Effect Determination	State Protected Species
"No adverse effect anticipated"	Osprey (*Pandion haliaetus*) Florida black bear (*Ursus americanus floridanus*)
"No effect"	Bald eagle (*Haliaeetus leucocephalus*)

6.2.1 CRITICAL HABITAT & ESSENTIAL FISH HABITAT EFFECTS

There is no designated Critical Habitat for any federally-listed species within the project study area. Also, there is no EFH within the project area study area. Therefore, it has been determined that the proposed action will have "**no effect**" on designated Critical Habitat and Essential Fish Habitat.

6.3 COMMITMENTS

In order to avoid adverse impacts to federal- or state- listed protected species that may potentially occur within the project area, Flagler County will implement the following measure:

- The USFWS' Standard Protection Measures for the Eastern Indigo Snake will be adhered to during construction of the project (see **Appendix I**).
- Flagler County will require the construction contractor to resurvey for gopher tortoises within the project area and staging locations within 90 days prior to construction. If gopher tortoises are found within the project area, Flagler County will coordinate with the FWC to secure permits needed to relocate the gopher tortoises prior to construction.

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APPENDICES

APPENDIX A

Soils Map

Proposed Trail

7: FAVORETTA, CHOBEE, AND WINDER SOILS, FREQUENTLY FLOODED

9: EAUGALLIE FINE SAND

11: MYAKKA FINE SAND

12: PLACID, BASINGER, AND ST. JOHNS SOILS, DEPRESSIONAL

13: IMMOKALEE FINE SAND

15: POMELLO FINE SAND, 0 TO 5 PERCENT SLOPES

20: ORSINO FINE SAND, 0 TO 5 PERCENT SLOPES

27: CASSIA FINE SAND

29: UDARENTS, MODERATELY WET

30: PITS

37: TUSCAWILLA FINE SAND

99: WATER

N W E S

500 250 0 500

Feet

Soils Map

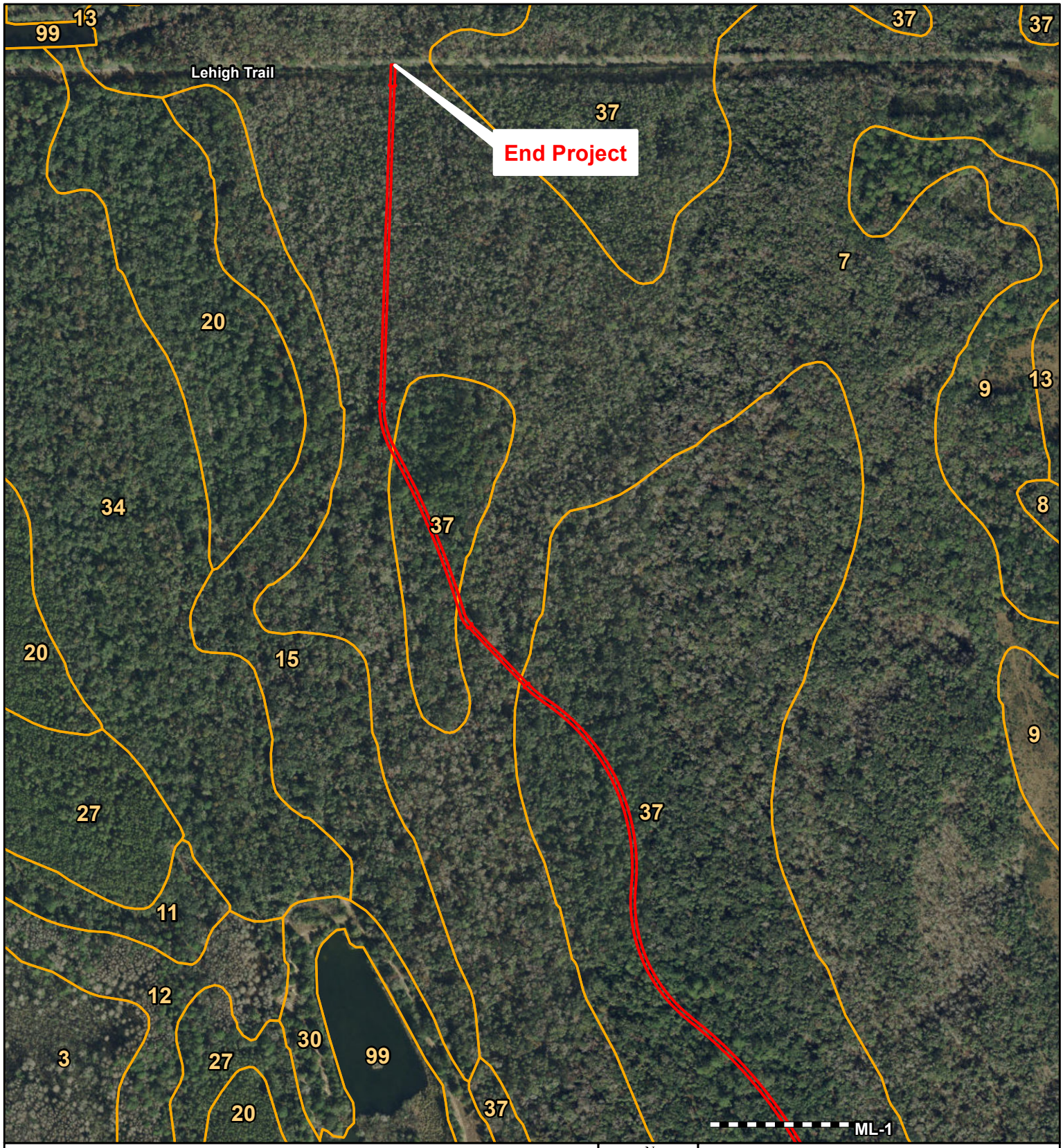
Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

Appendix A

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Soils.mxd 10/9/2019



Proposed Trail

3: SAMSULA AND HONTOON SOILS, DEPRESSIONAL

7: FAVORETTA, CHOBEE, AND WINDER SOILS, FREQUENTLY FLOODED

8: HICORIA, RIVIERA, AND GATOR SOILS, DEPRESSIONAL

9: EAUGALLIE FINE SAND

11: MYAKKA FINE SAND

12: PLACID, BASINGER, AND ST. JOHNS SOILS, DEPRESSIONAL

13: IMMOKALEE FINE SAND

15: POMELLO FINE SAND, 0 TO 5 PERCENT SLOPES

20: ORSINO FINE SAND, 0 TO 5 PERCENT SLOPES

27: CASSIA FINE SAND

29: UDARENTS, MODERATELY WET

30: PITS

34: COCOA-BULOW COMPLEX, 0 TO 5 PERCENT SLOPES

37: TUSCAWILLA FINE SAND

99: WATER

N W E S

500 250 0 500

Feet

Soils Map

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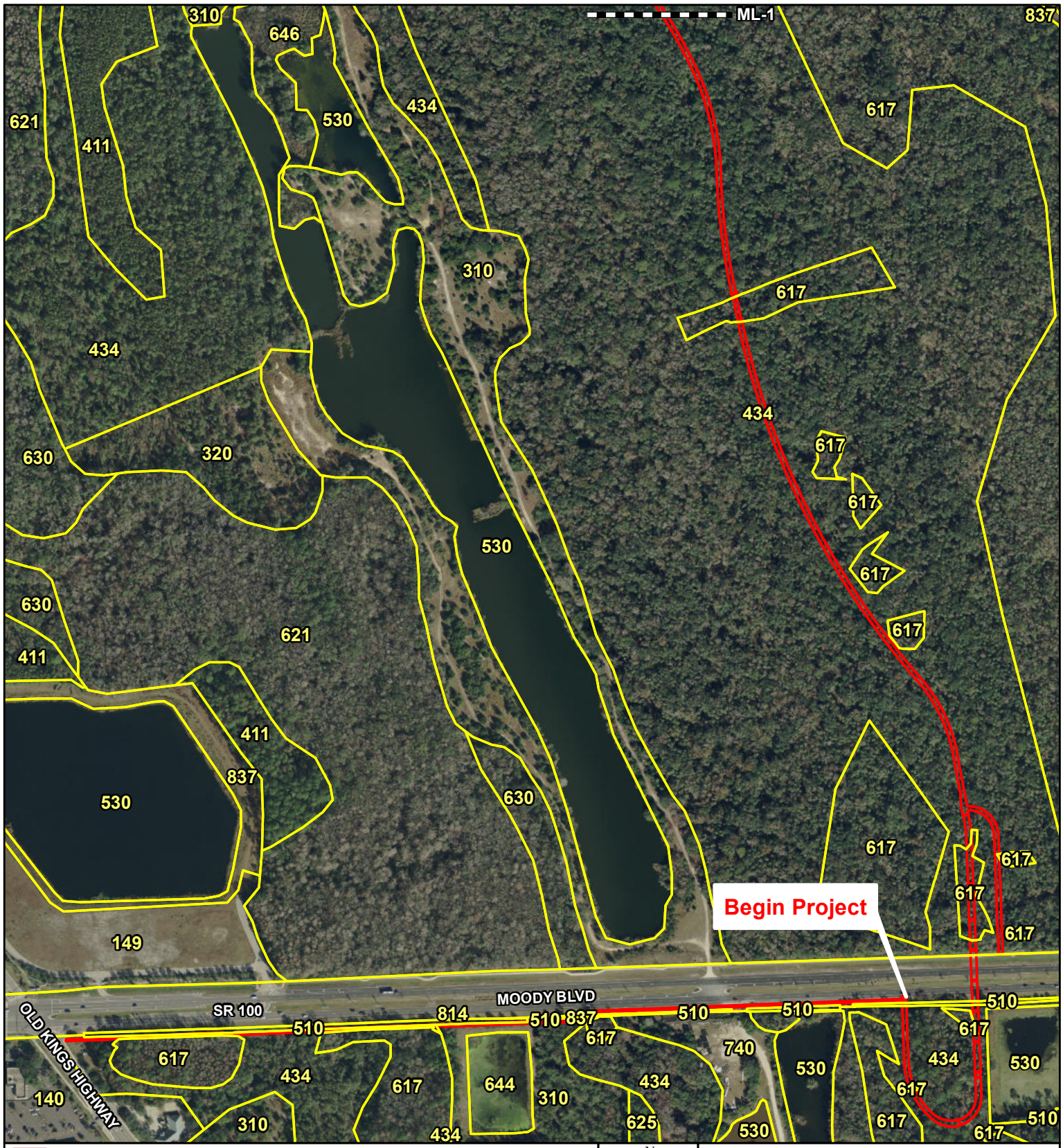
Appendix A

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Soils.mxd 10/9/2019

APPENDIX B

Land Use Map



Proposed Trail

140: Commercial and services

149: Commercial & services under construction

310: Herbaceous upland nonforested

320: Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)

411: Pine flatwoods

434: Upland mixed coniferous/hardwood

510: Streams and waterways

530: Reservoirs - pits, retention ponds, dams

617: Mixed wetland hardwoods

621: Cypress

625: Hydric pine flatwoods

630: Wetland forested mixed

644: Emergent aquatic vegetation

646: Mixed scrub-shrub wetland

740: Disturbed land

814: Roads and highways

837: Surface water collection basins

N W E S

500 250 0 500

Feet

Land Use Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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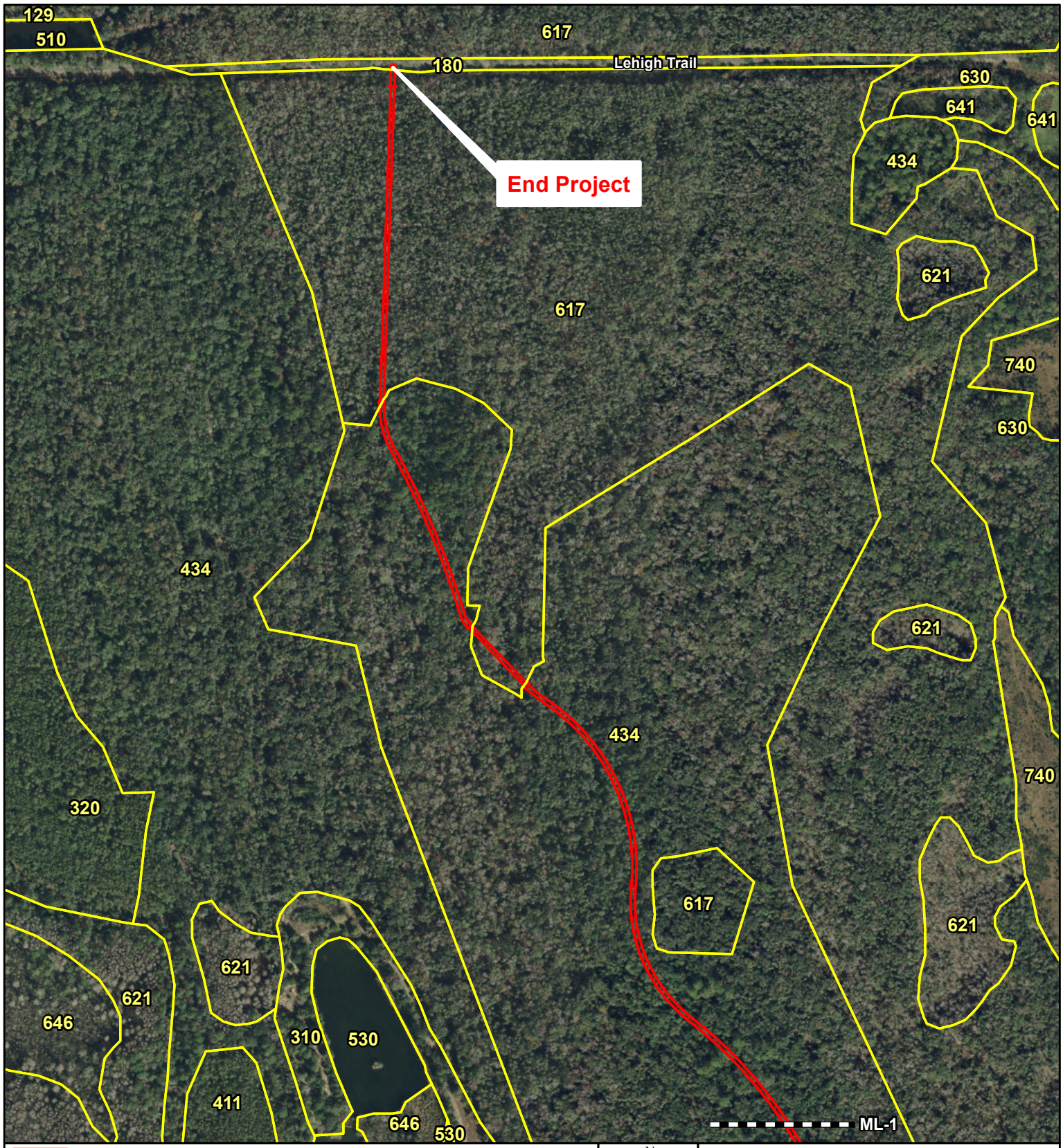
Appendix B



Proposed Trail

129: Medium density under construction

310: Herbaceous upland nonforested

320: Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)

411: Pine flatwoods

434: Upland mixed coniferous/hardwood

510: Streams and waterways

530: Reservoirs - pits, retention ponds, dams

617: Mixed wetland hardwoods

621: Cypress

630: Wetland forested mixed

641: Freshwater marshes

646: Mixed scrub-shrub wetland

740: Disturbed land

N W E S

500 250 0 500

Feet

Land Use Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

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APPENDIX C

Wetland and Surface Water Location Map

Proposed Trail Alignment

Wetland

Surface Water

N
W E
S

300 150 0 300

Feet

Wetlands Location Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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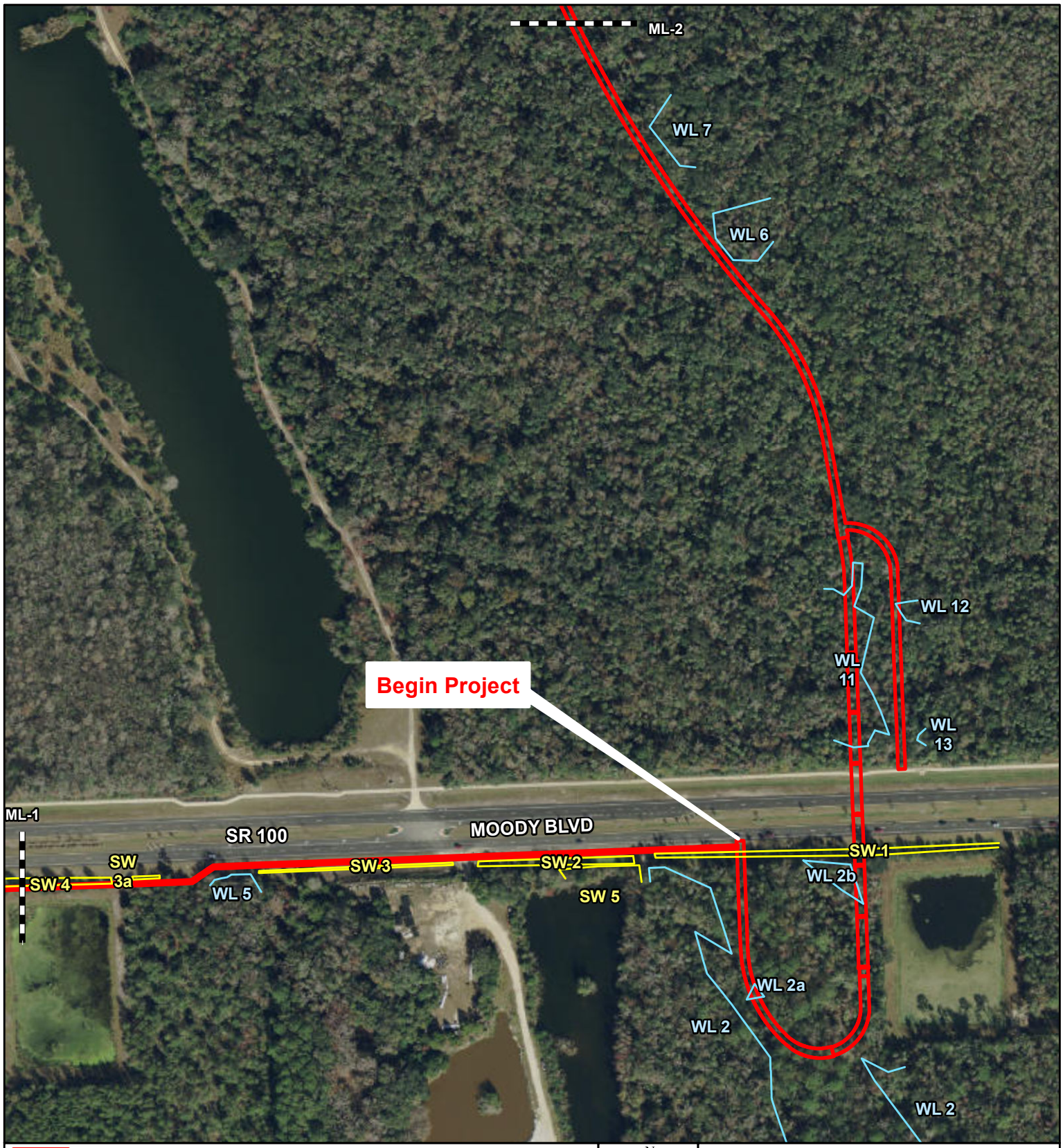
Appendix C

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands.mxd 10/9/2019



Proposed Trail Alignment

Wetland

Surface Water

N W E S

300 150 0 300

Feet

Wetlands Location Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

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Proposed Trail Alignment

Wetland

Surface Water

N
W E
S

300 150 0 300

Feet

Wetlands Location Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

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Proposed Trail Alignment

Wetland

Surface Water

N
W E
S

300 150 0 300

Feet

Wetlands Location Map

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Proposed Trail Alignment

Wetland

Surface Water

N
W
E
S

300 150 0 300

Feet

Wetlands Location Map

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Appendix C

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APPENDIX D

Wetland and Surface Water Photographs

Wetland and Surface Water Photographs

Wetland 1a
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland 1b
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3H (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Permanently Flooded)

Wetland and Surface Water Photographs

Wetland 1c
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3H (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Permanently Flooded)

Wetland 2
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland and Surface Water Photographs

Wetland 2a
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland 2b
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland and Surface Water Photographs

Wetland 3
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland 4
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland and Surface Water Photographs

Wetland 5
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland 6
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland and Surface Water Photographs

Wetland 11
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland 12
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Wetland and Surface Water Photographs

Wetland 13
FLUCFCS: 617 (Mixed Wetland Hardwoods)
USFWS: PFO1/3E (Palustrine, Forested, Broad-leaved Deciduous/Broad-leaved Evergreen, Seasonally Flooded-Saturated)

Surface Water 1
FLUCFCS: 510 (Streams and Waterways)
USFWS: PEM1Fx (Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated)

Wetland and Surface Water Photographs

Surface Water 2
FLUCFCS: 510 (Streams and Waterways)
USFWS: PEM1Ax (Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated)

Surface Water 3 /3a
FLUCFCS: 510 (Streams and Waterways)
USFWS: PEM1Ax (Palustrine, Emergent, Persistent, Temporarily Flooded, Excavated)

Wetland and Surface Water Photographs

Surface Water 4
FLUCFCS: 510 (Streams and Waterways)
USFWS: PEM1Fx (Palustrine, Emergent, Persistent, Semipermanently Flooded, Excavated)

Surface Water 5
FLUCFCS: 530 (Reservoirs)
USFWS: PEM2Hx (Palustrine, Emergent, Nonpersistent, Permanently Flooded, Excavated) / PSS1Fx (Palustrine, Scrub-Shrub, Broad-leaved Deciduous, Semipermanently Flooded)

Appendix E

UMAM Datasheets and Summary Table

ID	Wetland Type		INDIVIDUAL WETLAND UMAM ASSESSMENT						Delta	Impact Type	Impact Acres	Functional Loss
			Location and Landscape Support		Water Environment		Community Structure					
	FLUCFCS	USFWS Class	Current	With	Current	With	Current	With				
Wetland												
WL 1a	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	0.01	< 0.01
WL 1a	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**6**	-0.07	Shading	0.03	< 0.01
WL1a	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Secondary	0.14	< 0.01
WL 1a	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Temporary	0.04	< 0.01
WL 1b	617	PFO1/3H	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	< 0.01	< 0.01
WL 1b	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**6**	-0.07	Shading	0.09	0.01
WL 1b	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Secondary	0.41	0.01
WL 1b	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Temporary	0.13	< 0.01
WL 1c	617	PFO1/3H	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	0.08	0.06
WL 1c	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**6**	-0.07	Shading	0.36	0.03
WL 1c	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Secondary	1.75	0.05
WL 1c	617	PFO1/3H	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Temporary	0.54	0.02
WL 2a*	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	0.02	0.02*
WL 2b	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**6**	-0.07	Temporary	0.02	< 0.01
WL 3	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	< 0.01	< 0.01
WL 4	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	< 0.01	< 0.01
WL 11	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	0.14	0.11
WL 11	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Secondary	0.21	0.01
WL 11	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**6**	-0.07	Temporary	0.37	0.03
WL 12	617	PFO1/3E	**7**	**0**	**8**	**0**	**8**	**0**	-0.77	Permanent	< 0.01	< 0.01
WL 12	617	PFO1/3E	**7**	**7**	**8**	**8**	**8**	**7**	-0.03	Secondary	0.02	< 0.01
										Total - Permanent Impacts	0.25	0.19
										Total - Secondary Impacts	2.53	0.07
										Total - Shading Impacts	0.48	0.04
										Total - Temporary Impacts	1.10	0.05
										Total	4.36	0.35*

* The 0.02 FL from WL 2a does not require mitigation per SJRWMD requirements because the wetland is < 0.5 acres in size and is completely impacted by the proposed project, but requires mitigation per USACE requirements. Total FL is 0.33 for SJRWMD and 0.35 for USACE.

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.01 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum and American hornbeam. The herbaceous component consists predominantly of beaked panicum, shiny woodoats and lizards tail.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hogs, songbirds, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good and natural condition. Native vegetation appears healthy. Hyrdoperiods appear appropriate. Minimal effects from surrounding area culverts and ponds however these areas redirect stormwater and restrict natural flow to larger system of Graham Swamp.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Community structure and land management practices are optimal.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X 0.01 ac = <0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.14 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

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Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hogs, songbirds, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Secondary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in this portion of the wetland may see minimal increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. However, management of trail similar to Lehigh trail should minimize presence of exotic nuisance species, as is currently present along wetland areas of Lehigh Trail. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.14 ac= <0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.03 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum and American hornbeam. The herbaceous component consists predominantly of beaked panicum, shiny woodoats and lizards tail.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hogs, songbirds, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Shading Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased due impervious surfaces expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	6	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.77	0.70

Delta = [with-current]
-0.07

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

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

For impact assessment areas
FL = delta x acres = 0.07 X 0.03 ac= <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.04 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum and American hornbeam. The herbaceous component consists predominantly of beaked panicum, shiny woodoats and lizards tail.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hogs, songbirds, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1a
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Temporary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces expected since turbidity screens will be used and trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.04 ac= <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	< 0.01

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and american hornbeam . The herbaceous component consists predominantly of lizards tail, shiny woodoats, and beaked panicum .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), state listed wading birds: little blue heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, hogs, southeastern five lined skink, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good and natural condition. Native vegetation appears healthy. Hyrdoperiods appear appropriate. Minimal effects from surrounding area culverts and ponds however these areas redirect stormwater and restrict natural flow to larger system of Graham Swamp.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Community structure and land management practices are optimal.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X < 0.01 ac = <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.41

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and american hornbeam . The herbaceous component consists predominantly of lizards tail, shiny woodoats, and beaked panicum .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), state listed wading birds: little blue heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, hogs, southeastern five lined skink, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Secondary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in this portion of the wetland may see minimal increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. However, management of trail similar to Lehigh trail should minimize presence of exotic nuisance species, as is currently present along wetland areas of Lehigh Trail. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.41 ac= 0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.09

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and american hornbeam . The herbaceous component consists predominantly of lizards tail, shiny woodoats, and beaked panicum .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), state listed wading birds: little blue heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, hogs, southeastern five lined skink, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Shading Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased due impervious surfaces expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	6	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.77	0.70

Delta = [with-current]
-0.07

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

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

For impact assessment areas
FL = delta x acres = 0.07 X 0.09 ac= 0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.13

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and american hornbeam . The herbaceous component consists predominantly of lizards tail, shiny woodoats, and beaked panicum .

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), state listed wading birds: little blue heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, hogs, southeastern five lined skink, hawks

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Temporary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces expected since turbidity screens will be used and trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.13 ac= <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.08 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and hickory . The herbaceous component consists predominantly of lizards tail, beaked panicum, switch cane, and cinnamon fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), State listed wading birds: little blue heron (T) foraging use.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, red shouldered hawk, bald eagle flying over WL 1c.

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good and natural condition. Native vegetation appears healthy. Hyrdoperiods appear appropriate. Minimal effects from surrounding area culverts and ponds, however these areas redirect stormwater and restrict natural flow to larger system of Graham Swamp.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Community structure and land management practices are optimal.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X 0.08 ac = 0.06

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	1.75 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and hickory . The herbaceous component consists predominantly of lizards tail, beaked panicum, switch cane, and cinnamon fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), State listed wading birds: little blue heron (T) foraging use.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, red shouldered hawk, and bald eagle flying over WL 1c.

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Secondary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in this portion of the wetland may see minimal increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. However, management of trail similar to Lehigh trail should minimize presence of exotic nuisance species, as is currently present along wetland areas of Lehigh Trail. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 1.75 ac= 0.05

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.36 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and hickory . The herbaceous component consists predominantly of lizards tail, beaked panicum, switch cane, and cinnamon fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), State listed wading birds: little blue heron (T) foraging use.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, red shouldered hawk, and bald eagle flying over WL 1c.

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Shading Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased due impervious surfaces expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	6	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	current or w/o pres	with
	0.77	0.70

Delta = [with-current]
-0.07

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

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

For impact assessment areas
FL = delta x acres = 0.07 X 0.36 ac= 0.03

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3H	Impact	0.54 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabbage palm, sweetgum, laurel oak, and hickory . The herbaceous component consists predominantly of lizards tail, beaked panicum, switch cane, and cinnamen fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, food chain support, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern Indigo Snake	Eastern Indigo Snake (T), State listed wading birds: little blue heron (T) foraging use.

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

frogs, red shouldered hawk, and bald eagle flying over WL 1c.

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	5/2/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 1c
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Temporary Impact	Martin Horwitz and Megan Rasmussen	5/2/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife. With impact: locaion and lanscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces expected since turbididty screens will be used and trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in wetland under boardwalk may be altered in some areas due to trees not being able to grow under the boardwalk. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.54 ac= 0.02

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 2a

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.02 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is a small isolated wetland directly adjacent to WL 2, surrounded by undeveloped natural areas, and is bordered by S.R. 100 to the north and upland forests to the south. To the east and west are are borrow pits and manmade reservoirs.

Assessment area description

The AA is a mixed wetland hardwood. Common species include sweetgum, American hornbeam, cabbage palm and dahoon holly. The herbaceous component consists predominantly of shiny woodoats and switch cane.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is not part of a previously permitted mitigation system

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Borrow pit/rock storage area on property to west of wetland is active with trucks entering/exiting.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/13/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 2a
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	9/13/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good and natural condition. Possible past alteration of hydrology from the construction of SR 100 and the adjacent reservoirs, reducing groundwater and surface water flow to AA, implicated by lack of crayfish burrow observations (observed in similiar wetlands north of SR 100).
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Community structure is optimal. This area is not actively managed.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X 0.02 ac = 0.02

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 2b

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.02 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is a small isolated wetland north of WL 2, surrounded by undeveloped natural areas, and is bordered by S.R. 100 to the north and upland forests to the south. To the east and west are are borrow pits and manmade reservoirs.

Assessment area description

The AA is a mixed wetland hardwood. Common species include sweetgum, American hornbeam, cabbage palm and dahoon holly. The herbaceous component consists predominantly of shiny woodoats and switch cane.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is not part of a previously permitted mitigation system

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

None

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/13/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 2b
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Temporary Impact	Martin Horwitz and Megan Rasmussen	9/13/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	7	The AA is direclty bordered by SR 100 to the north. In the vicinity there are borrow pits and reservoirs, and roads, highways, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Area land uses have minimal adverse impacts on wildlife. With Impact: Location and landscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	8	8	Water environment overall appears to be in relatively good and natural condition due to runnoff from adjcent upland areas. Possible past alteration of hydrology from the construction of SR 100 and the adjacent reservoirs, reducing groundwater and surface water flow to AA, implicated by lack of crayfish burrow observations (observed in similiar wetlands north of SR 100) but maintains wetland hydrologic function. With impact: hyrdology will be maintained due to trail bridge over small portion of wetland. Stormwater runoff from bridge will be directed to end of bridge so it will not directly discharge into wetland.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	6	The system contains mostly native species. With Impact: Community structure in this portion of the wetland may see an increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. This area will be cleared for the construction of the bridge, altering community strucutre. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.70

Delta = [with-current]
-0.07

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

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

For impact assessment areas
FL = delta x acres = 0.07 X 0.02 ac= <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 3

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	< 0.01 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Mixed wetland hardwood community hydrologically connected to Graham Swamp and hydrologically connected to Bulow Creek.

Assessment area description

The assessment area is a mixed wetland hardwood directly south of SR 100, near the Old Kings Rd Intersection. Common species include cabbage palmetto and sweetgum. The herbaceous component consists predominantly of cinnamen fern and royal fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp	This area is not unique.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is not part of a previously permitted mitigation system

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

anole, crow

Additional relevant factors:

Edge of wetland was historically distrubed with widening of SR 100 from 2 to 4 lanes.

Assessment conducted by:	Assessment date(s):
Martin Horwitz	4/19/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 3
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz	4/19/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by SR 100, a cypress dominated system farther offsite, and commerical and residential areas. Wildlife access is limited by adjacent land uses including Old Kings Rd., commercial development and I-95.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good condition. Hyrdoperiods appear appropriate. Native vegetation is in good condition even with adjacent ditch along SR 100.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Good structural diversity present. Land management and adjacent land uses are adequate.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X <0.01 ac = < 0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 4

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	< 0.01 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

Mixed wetland hardwood community hydrologically connected to Graham Swamp and hydrologically connected to Bulow Creek.

Assessment area description

The assessment area is a mixed wetland hardwood directly south of SR 100. Common species include cabbage palmetto and sweetgum. The herbaceous component consists predominantly of cinnamen fern and royal fern.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp	This area is not unique.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is not part of a previously permitted mitigation system

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

anole, crow

Additional relevant factors:

Assessment conducted by:	Assessment date(s):
Martin Horwitz	4/19/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 4
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz	4/19/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 0	The AA is direclty surrounded by SR 100, a cypress wetland, and commerical and residential areas. Wildlife access is limited by adjacent land uses. Habitat availability outside of the AA in the regional landscape is optimal for most species, but not all, with the potential to occur in the area.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 0	Water environment overall appears to be in relatively good condition. Native vegetation appears to be healthy, hydroperiod appears to be normal.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 0	The system contains mostly native species. Structural diveristy to support nesting and foraging habitat is present. Land management and surrounding land uses less than optimal but adequate.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X < 0.01 ac = < 0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.14 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment area (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes, Interstate 95, and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabage palm, water oak, sweetgum, and American hornbean. The herbaceous component consists predominantly of beaked panicm and shiny woodoats.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hog, anole, crayfish chimneys, songbirds

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/18/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	9/18/2019

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

	w/o pres or current	with	
.500(6)(a) Location and Landscape Support	7	0	The AA direclty abuts SR 100 to the south and is surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits & reservoirs, roads & highways (I-95), residential development & proposed development, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Surrounding area land uses have minimal adverse impacts on wildlife.
.500(6)(b)Water Environment (n/a for uplands)	8	0	Water environment overall appears to be in relatively good and natural condition. Roadside drainage ditches collect surface water runoff from SR 100 before entering the system.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	8	0	The system contains mostly native species. Community strucutre and land management practices are generally optimal, however the AA is verly close to a major roadway.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X 0.14 ac = 0.11

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.21 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment ares (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. . The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabage palm, water oak, sweetgum, and American hornbean. The herbaceous component consists predominantly of beaked panicm and shiny woodoats.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hog, anole, crayfish chimneys, songbirds

Additional relevant factors:

Lehigh Trail to north, SR 100 to south, borrow pits & development to west, and I-95 to west.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/18/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Secondary Impact	Martin Horwitz and Megan Rasmussen	9/18/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 7	The AA direclty abuts SR 100 to the south and is surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits and reservoirs, and roads, highways, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Area land uses have some adverse impacts on wildlife. With Impact: Location and landscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near most of the AA except for the south side near SR 100. With impact: hyrdology will not be altered due to the construction of the bridge over most of the wetland and culverts along the trail. No anticipated impact to water quality from increased impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 7	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in this portion of the wetland may see minimal increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. However, management of trail similar to Lehigh trail should minimize presence of exotic nuisance species, as is currently present along wetland areas of Lehigh Trail. Water levels will not be altered so vegetation zonation should remain the same.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

For impact assessment areas
FL = delta x acres = 0.03 X 0.21 ac= 0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.37 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment ares (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. . The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabage palm, water oak, sweetgum, and American hornbean. The herbaceous component consists predominantly of beaked panicm and shiny woodoats.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

hog, anole, crayfish chimneys, songbirds

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/18/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 11
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Temporary Impact	Martin Horwitz and Megan Rasmussen	9/18/2019

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

.500(6)(a) Location and Landscape Support	w/o pres or current: 7	with: 7	The AA direclty abuts SR 100 to the south and is surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits and reservoirs, and roads, highways, and trails. Habitat availability outside of the project area is optimal for most, but not all, species with the potential to occur in the area. Area land uses have some adverse impacts on wildlife. With Impact: Location and landscape support will remain in current condition.
.500(6)(b)Water Environment (n/a for uplands)	w/o pres or current: 8	with: 8	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA except for southern area near SR 100. With impact: hyrdology will not be altered due to the construction of bridge over the wetland and culverts along the trail. No anticipated impact to water quality from increased the impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	w/o pres or current: 8	with: 6	The system contains mostly native species that provide optimal structural diversity and adequate nesting and foraging habitat. Land management practices are optimal. With Impact: Community structure in this portion of the wetland may see an increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. This area will be cleared to allow for the construction of the bridge, altering community structure. Water levels will not be altered so vegetation zonation should remain the same as well.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.70

Delta = [with-current]
-0.07

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

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

For impact assessment areas
FL = delta x acres = 0.07 X 0.37 ac= 0.03

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 12

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	< 0.01 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment ares (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabage palm, water oak, sweetgum, and American hornbean. The herbaceous component consists predominantly of beaked panicm and shiny woodoats.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

anole, crayfish chimneys

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/18/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 12
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Permanent / Direct Impact	Martin Horwitz and Megan Rasmussen	9/18/2019

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

.500(6)(a) Location and Landscape Support	The AA is direclty surrounded by Graham Swamp Conservation Area, an undeveloped protected natural area, to the north and SR 100 to the south. In the vicinity there are borrow pits and reservoirs, and roads, highways, and trails. Wildlife access is limited by adjacent land uses. Habitat availability outside of the AA is optimal for most, but not all, species with the potential to occur in the area.	w/o pres or current: 7 / with: 0
.500(6)(b)Water Environment (n/a for uplands)	Water environment overall appears to be in relatively good and natural condition. Native vegetation appears healthy. Hyrdoperiods appear appropriate. Minimal effects from surrounding area culverts and ponds, however these areas redirect stormwater and restrict natural flow to larger system of Graham Swamp.	w/o pres or current: 8 / with: 0
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	The system contains mostly native species that appear to be healthy and provide optimal strucutal diversity for nesting and foraging habitat. Land management practices are optimal.	w/o pres or current: 8 / with: 0

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0

Delta = [with-current]
-0.77

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

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

For impact assessment areas
FL = delta x acres = 0.77 X < 0.01 ac = < 0.01

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

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 12

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
617	PFO1/3E	Impact	0.02 acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
Halifax River/17	Class III	NA

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

The assessment ares (AA) is a mixed wetland hardwood community hydrologically connected to Graham Swamp and Bulow Creek. The AA is surrounded by undeveloped natural areas of Graham Swamp, and is bordered by Lehigh trail to the north and S.R. 100 to the south. To the east and west are minor residential complexes and the Flagler county airport.

Assessment area description

The AA is a mixed wetland hardwood. Common species include cabage palm, water oak, sweetgum, and American hornbean. The herbaceous component consists predominantly of beaked panicm and shiny woodoats.

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
Lehigh Trail, Bulow Creek and Graham Swamp Conservation area	This area is a unique coastal hardwood hammock and floodplain swamp.

Functions	Mitigation for previous permit/other historic use
Wildlife habitat, water quality enhancement, flood attenuation	This system is part of mitigation from a previously permitted roadway project which placed the area under a conservation easement.

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
Wading birds, hawks, owls, songbirds, woodpeckers, raccoon, opossum, water snakes, frogs, anoles, deer, squirrels, hogs, southeastern five lined skink, bald eagle, broad-headed skink, Eastern indigo snake, wood stork, Florida black bear	Eastern Indigo Snake (T), Wood stork (T); state listed wading birds: little blue heron (T), tricolored heron (T)

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

anole, crayfish chimneys

Additional relevant factors:

The assessment area is located between Lehigh Trail and S.R. 100, south of the Graham Swamp Conservation Area. Residential property is located north of Lehigh Trail and properties east and west of the project area are for sale or have potential for development.

Assessment conducted by:	Assessment date(s):
Martin Horwitz and Megan Rasmussen	9/18/2019

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

Site/Project Name	Application Number	Assessment Area Name or Number
Graham Swamp Trail from South of SR 100 to Lehigh Trail		WL 12
Impact or Mitigation	**Assessment conducted by:**	**Assessment date:**
Secondary Impact	Martin Horwitz and Megan Rasmussen	9/18/2019

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

.500(6)(a) Location and Landscape Support	The AA is direclty surrounded by Graham Swamp, an undeveloped natural area. In the vicinity there are borrow pits and reservoirs, roads, highways, and residential areas. Wildlife access is limited by adjacent land uses. With Impact: Location and landscape support will remain in current condition.	w/o pres or current: 7 / with: 7
.500(6)(b)Water Environment (n/a for uplands)	Water environment overall appears to be in relatively good and natural condition. There is no impervious surface near the AA. With impact: hyrdology will not be altered due to the construction of boardwalks over the wetland and culverts along the trail. No anticipated impact to water quality from increased the impervious surfaces is expected since trail use will be limited to bicycle and pedestrians along with the construction of water collection features.	w/o pres or current: 8 / with: 8
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community	The system contains mostly native species, community structure and land management practices are oprtimal. With Impact: Community structure in this portion of the wetland may see minimal increase in exotic/nuisance species due to construction disturbance and edge effect of trail clearing. However, management of trail similar to Lehigh trail should minimize presence of exotic nuisance species, as is currently present along wetland areas of Lehigh Trail. Water levels will not be altered so vegetation zonation should remain the same.	w/o pres or current: 8 / with: 7

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.77	0.73

Delta = [with-current]
-0.03

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

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

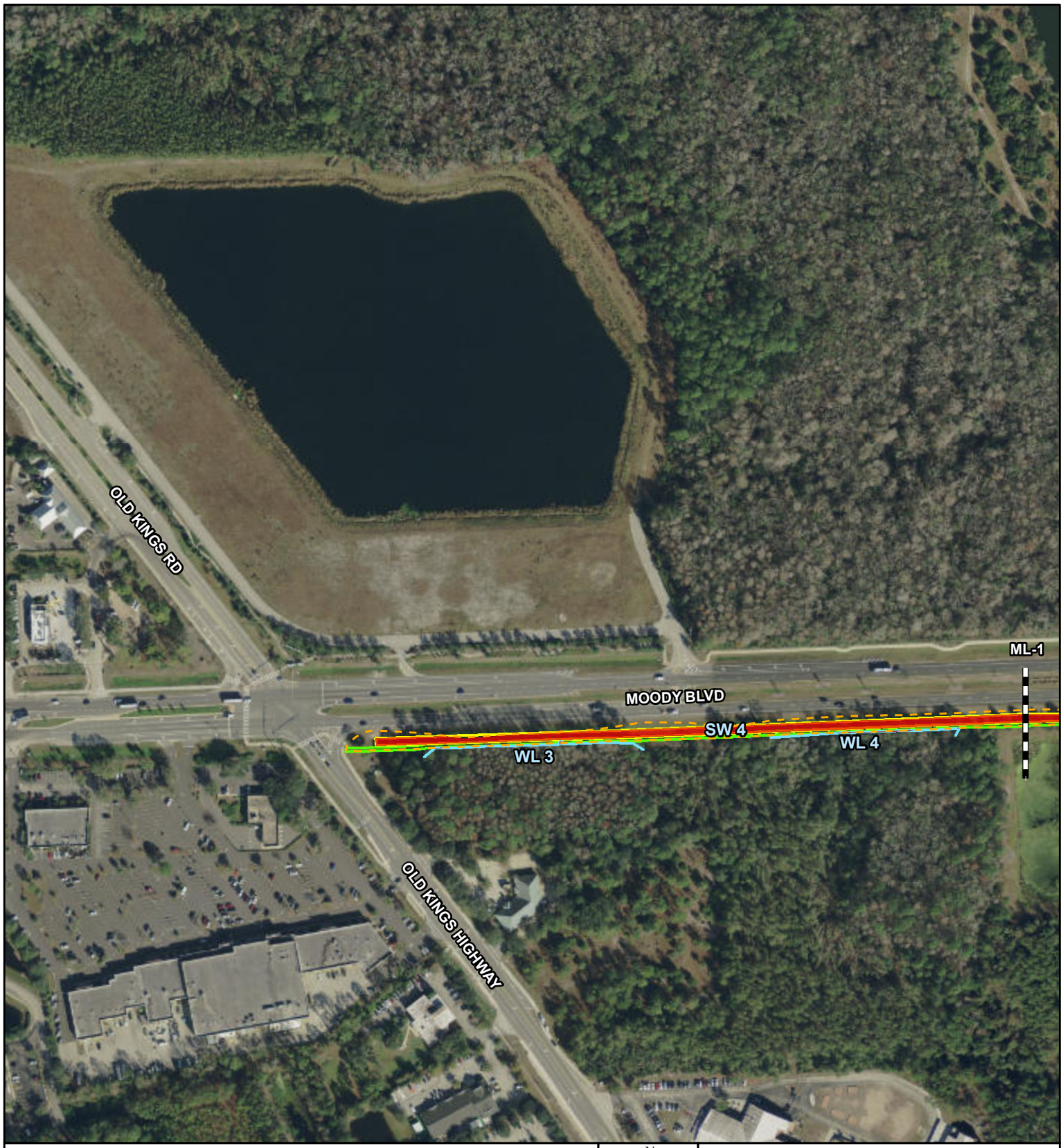
For impact assessment areas
FL = delta x acres = 0.03 X 0.02 ac= <0.01

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

Form 62-345.900(2), F.A.C. [effective date 02-04-2004]

Appendix F

Wetland and Surface Water Impact Map



Legend

- Proposed Trail
- Limits of Construction
- Surface Water
- Wetland

Impact Type

- Direct
- Shading
- Temporary
- Secondary

N W E S

300 150 0 300

Feet

Wetlands Impact Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

Kisinger Campo & Associates, Corp.
201 N. Franklin Street, Suite 400
Tampa, FL 33602
Phone: 813/871-5331
Fax: 813/871-5135

Appendix F

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands Impacts.mxd 10/9/2019

Legend

- Proposed Trail
- Limits of Construction
- Surface Water
- Wetland

Impact Type

- Direct
- Shading
- Temporary
- Secondary

N W E S

300 150 0 300

Feet

Wetlands Impact Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands Impacts.mxd 10/9/2019

Legend

- Proposed Trail
- Limits of Construction
- Surface Water
- Wetland

Impact Type

- Direct
- Shading
- Temporary
- Secondary

N
W E
S

300 150 0 300

Feet

Wetlands Impact Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands Impacts.mxd 10/9/2019

Legend

- Proposed Trail
- Limits of Construction
- Surface Water
- Wetland

Impact Type

- Direct
- Shading
- Temporary
- Secondary

N
W E
S

300 150 0 300

Feet

Wetlands Impact Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

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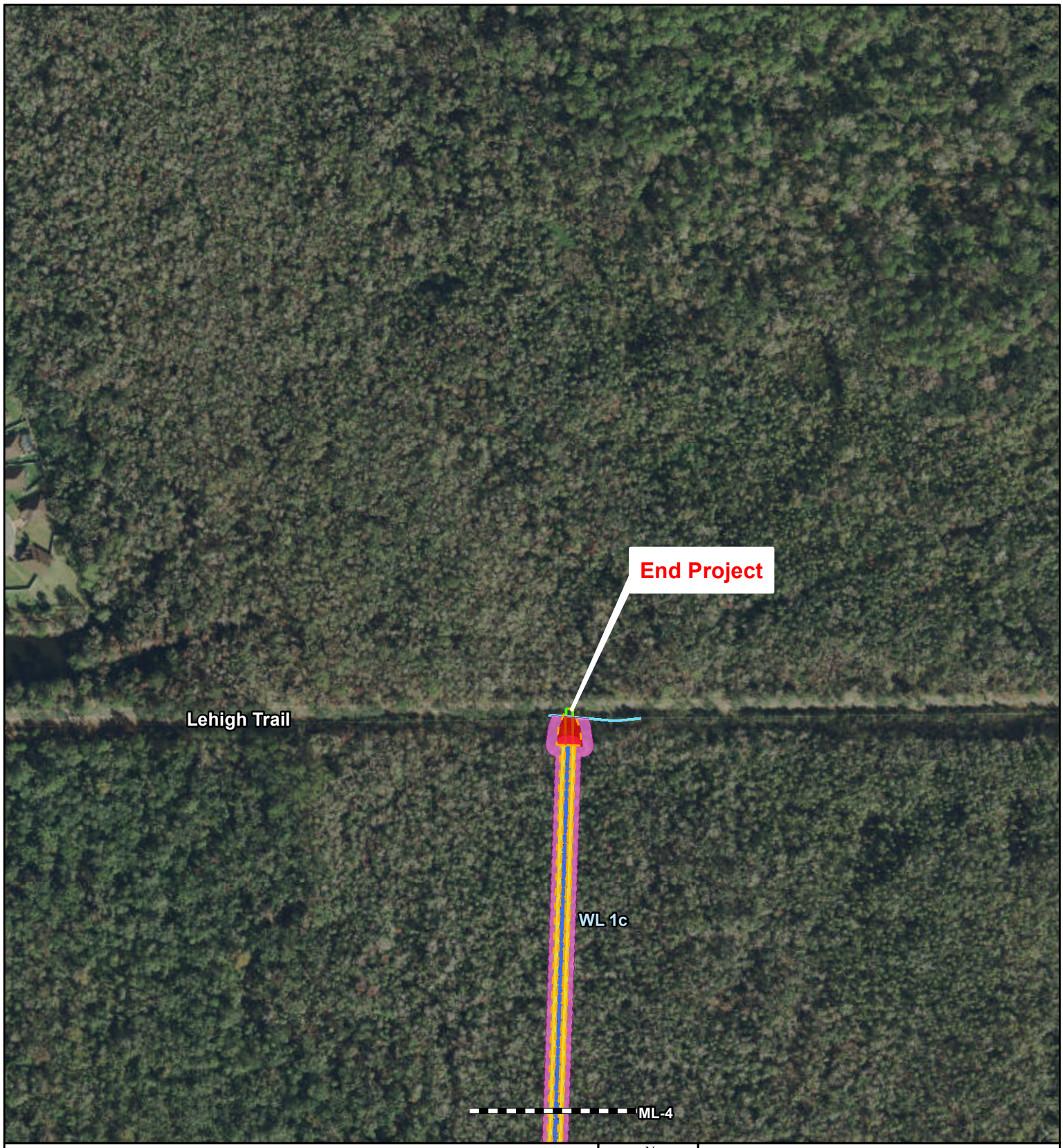
Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands Impacts.mxd 10/9/2019



Legend

- Proposed Trail
- Limits of Construction
- Surface Water
- Wetland

Impact Type

- Direct
- Shading
- Temporary
- Secondary

N W E S

300 150 0 300

Feet

Wetlands Impact Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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Fax: 813/871-5135

Appendix F

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Wetlands Impacts.mxd 10/9/2019

Appendix G

Plan Set and Wetland Delineation Drawing

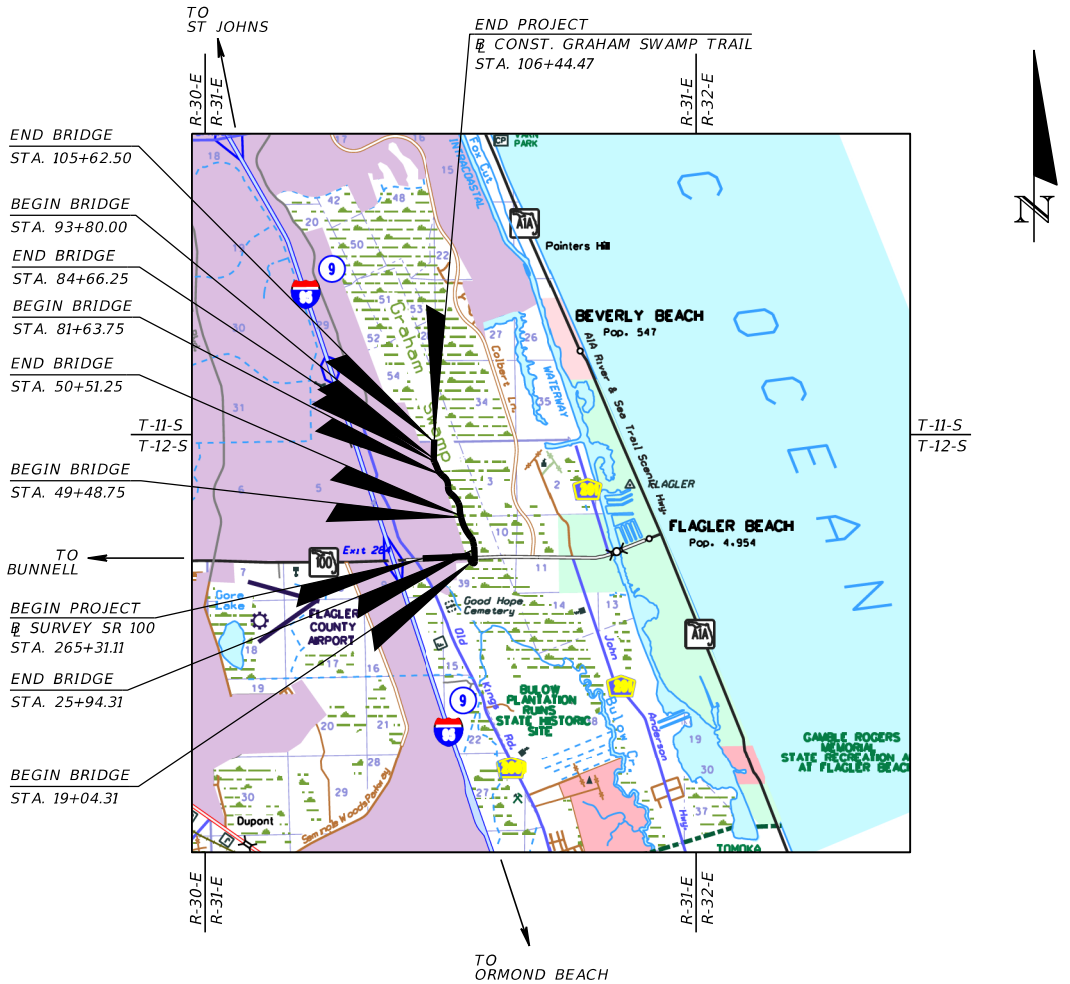
PROJECT LOCATION MAP

FLAGLER COUNTY RSQ NO. 18-031Q

FINANCIAL PROJECT ID 438635-1-38-01

FLAGLER COUNTY (73020)

GRAHAM SWAMP TRAIL
FROM SOUTH OF SR 100 TO
THE LEHIGH TRAIL



NOTE: ALL STATIONS ARE BASED OFF THE
℄ CONST. GRAHAM SWAMP TRAIL UNLESS OTHERWISE NOTED.

DRAWN BY: MH 09-19	FLAGLER COUNTY, FLORIDA DEPARTMENT OF PUBLIC WORKS		GRAHAM SWAMP TRAIL FROM SOUTH OF SR 100 TO THE LEHIGH TRAIL	SHEET NO.
CHECKED BY: MH 09-19	RSQ NO.	COUNTY	FINANCIAL PROJECT ID	
DESIGNED BY: MH 09-19	18-031Q	FLAGLER	438635-1-38-01	1
CHECKED BY: MH 09-19				
$DATE$	$TIME$	$FILE$		

GENERAL NOTES

1. FLAGLER COUNTY DEPARTMENT OF PUBLIC WORKS PROPOSES TO CONSTRUCT A MULTI-USE TRAIL AND SIDEWALK. THE PROJECT IS LOCATED IN FLAGLER COUNTY, FLORIDA. THE IMPROVEMENTS WILL RESULT IN WETLAND AND SURFACE WATER IMPACTS.

2. TYPES OF EQUIPMENT INVOLVED IN THE CONSTRUCTION WILL INCLUDE: CRANES, EXCAVATOR, GRADE ALL, DUMP TRUCKS, AND FRONT END LOADER. THE EQUIPMENT WILL BE TRUCKED OR SELF PROPELLED TO THE SITE.

3. TURBIDITY CURTAINS, SILT FENCES, SYNTHETIC BALES OR SOME COMBINATION OF THESE ITEMS WILL BE USED AS DIRECTED BY THE PROJECT ENGINEER TO MAINTAIN STATE WATER QUALITY STANDARDS.

4. ANY UNSUITABLE MATERIAL EXCAVATED DURING THE INSTALLATION OF THE FILL MATERIAL WILL BE DISPOSED OF AND CONTAINED IN UPLAND SITES PROVIDED BY THE CONTRACTOR.

5. TRAFFIC WILL BE MAINTAINED ON SR 100 (MOODY BLVD.) & OLD KINGS RD. DURING CONSTRUCTION.

6. FILL MATERIAL SHALL BE COMPRISED OF CLEAN, SUITABLE BORROW MATERIAL.

7. DURING THE CONSTRUCTION OF THE DRAINAGE IMPROVEMENTS, THE CONTRACTOR, AS DIRECTED BY THE PROJECT ENGINEER, SHALL BE REQUIRED TO MAINTAIN WATER FLOW AND ACCOMMODATE RAINFALL EVENTS.

8. WETLAND LINES WERE REVIEWED AND APPROVED BY SJRWMD ONLY FOR AREAS WITHIN AND DIRECTLY ADJACENT TO LIMITS OF CONSTRUCTION.

9. DIRECT IMPACTS PROPOSED BY THIS PROJECT:

	AREA (Ac.)
WETLAND IMPACTS	0.25
SURFACE WATER IMPACTS	0.88

TOTAL IMPERVIOUS SURFACE COVER (ISC) 3.70 AC
TOTAL CUBIC YARDS OF FILL 989.59 CY

TOTAL SURFACE WATER & WETLAND IMPACTS						
SURFACE WATER & WETLAND	FILL	EXCAVATION	TOTAL DIRECT IMPACTS	SHADING	SECONDARY IMPACTS	TEMPORARY IMPACTS
WL 1a	0.01	--	0.01	0.03	0.14	0.04
WL 1b	<0.01	--	<0.01	0.09	0.41	0.13
WL 1c	0.08	--	0.08	0.36	1.75	0.54
WL 2a	0.02	--	0.02	--	--	--
WL 2b	--	--	--	--	--	0.02
WL 3	<0.01	--	<0.01	--	--	--
WL 4	<0.01	--	<0.01	--	--	--
WL 11	0.14	--	0.14	--	0.21	0.37
WL 12	<0.01	--	<0.01	--	0.02	--
SW 1	0.075	--	0.075	--	--	--
SW 2	0.115	--	0.115	--	--	--
SW 3	0.045	--	0.045	--	--	--
SW 3a	0.008	--	0.008	--	--	--
SW 4	0.637	--	0.637	--	--	--

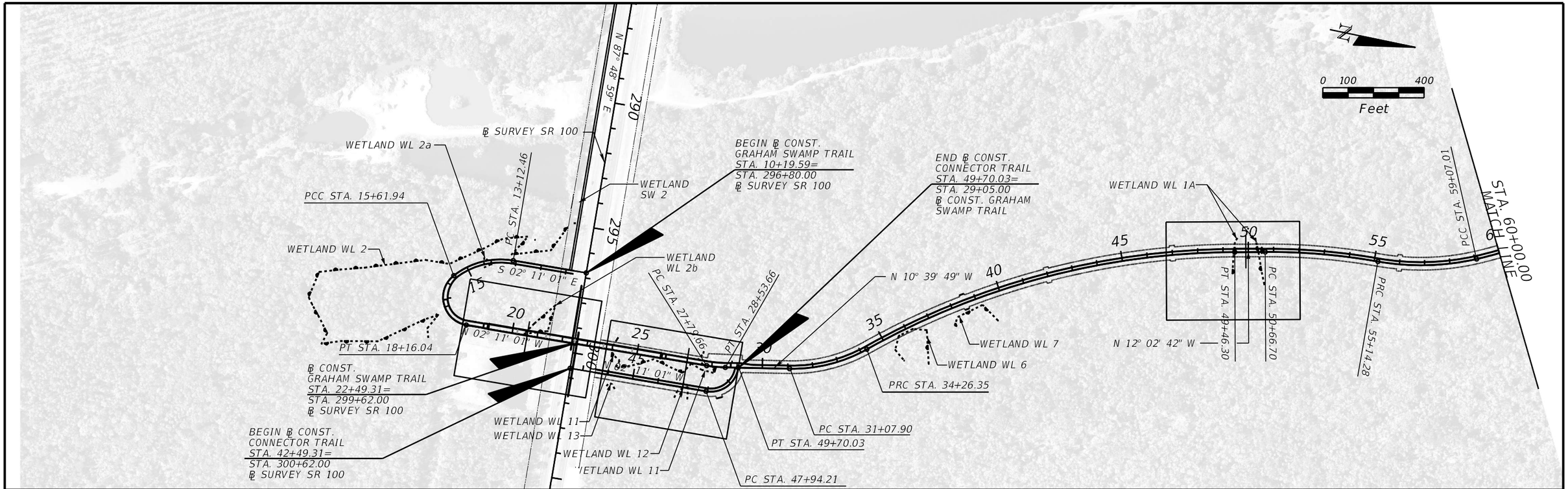
Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

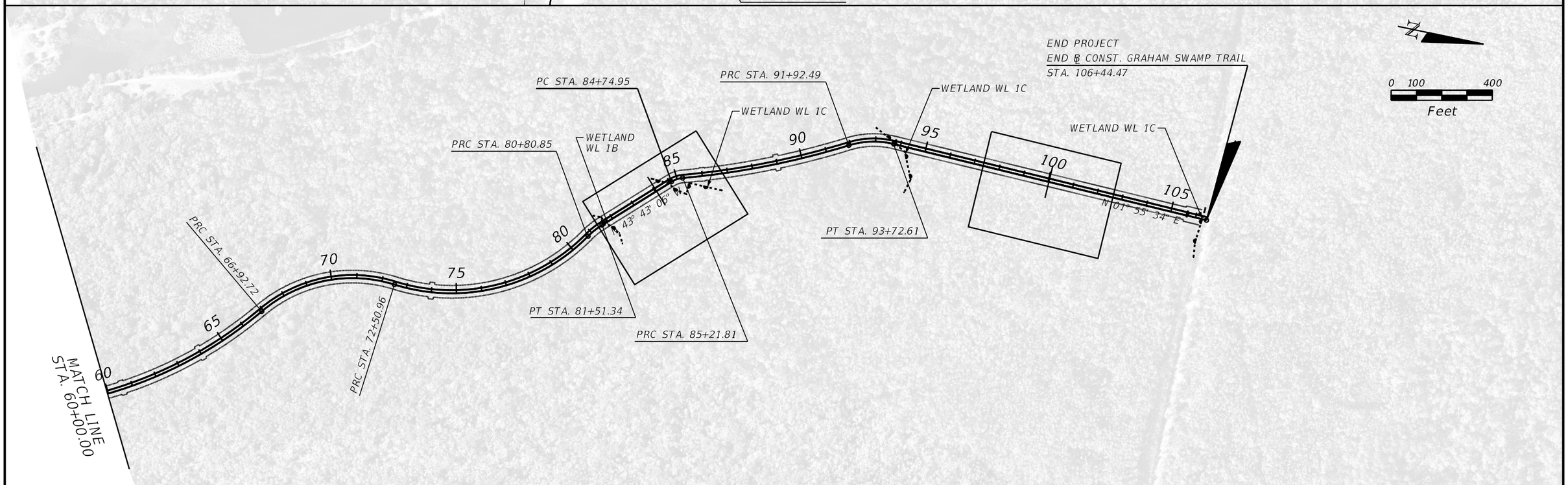
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

GRAHAM SWAMP TRAIL
FROM SOUTH OF
SR 100 TO THE LEHIGH TRAIL

SHEET NO.
3





REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

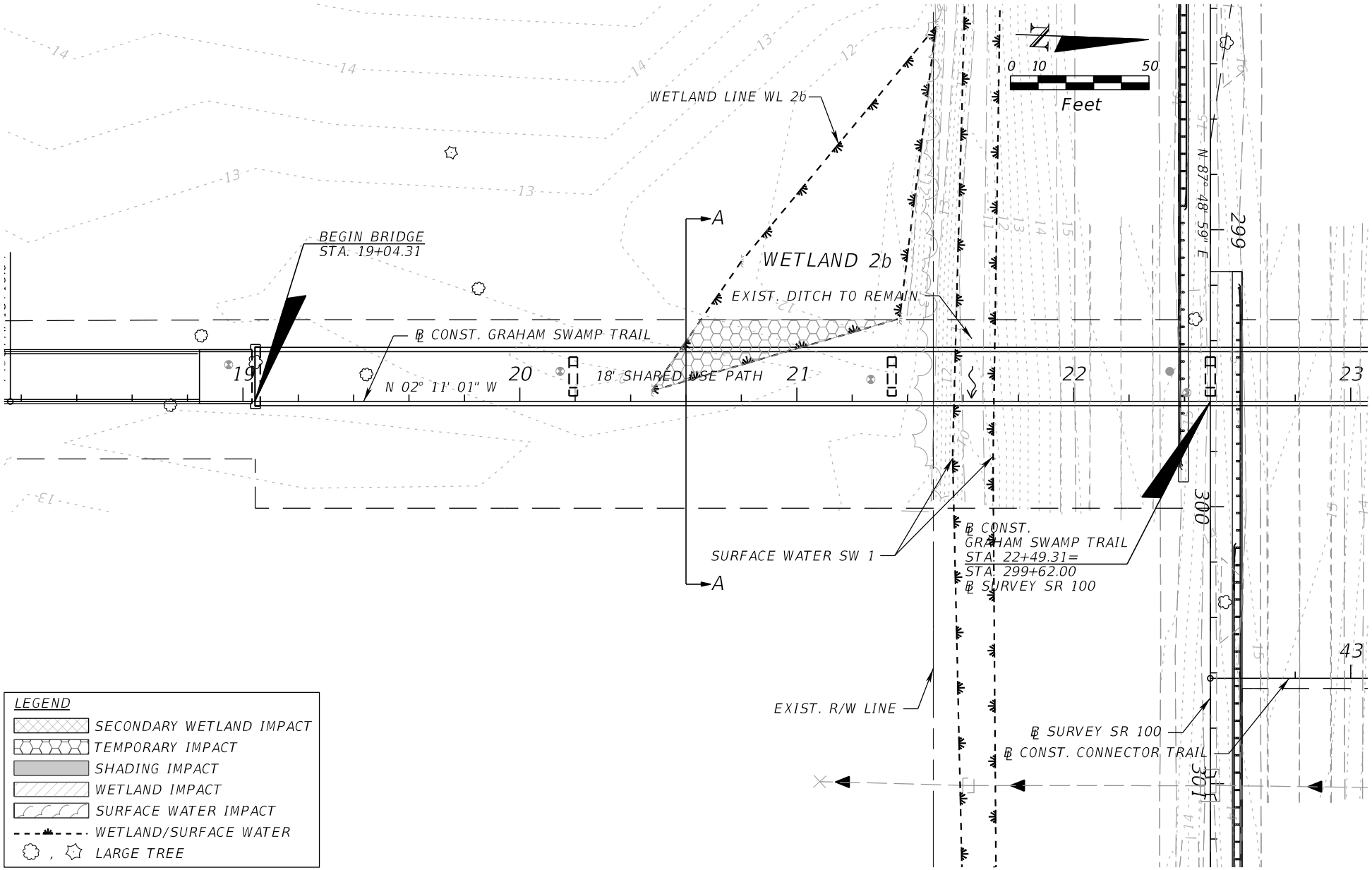
Kisinger Campo & Associates Corp.
201 N. Franklin St., Suite 400
Tampa, FL 33602
Florida Certificate of Authorization No. 02317
Engineer of Record: KEVIN TASILLO, P.E.
P.E. No.: 71411

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-58-01

PROJECT LAYOUT

SHEET NO.
4



Kisinger Campo & Associates Corp.
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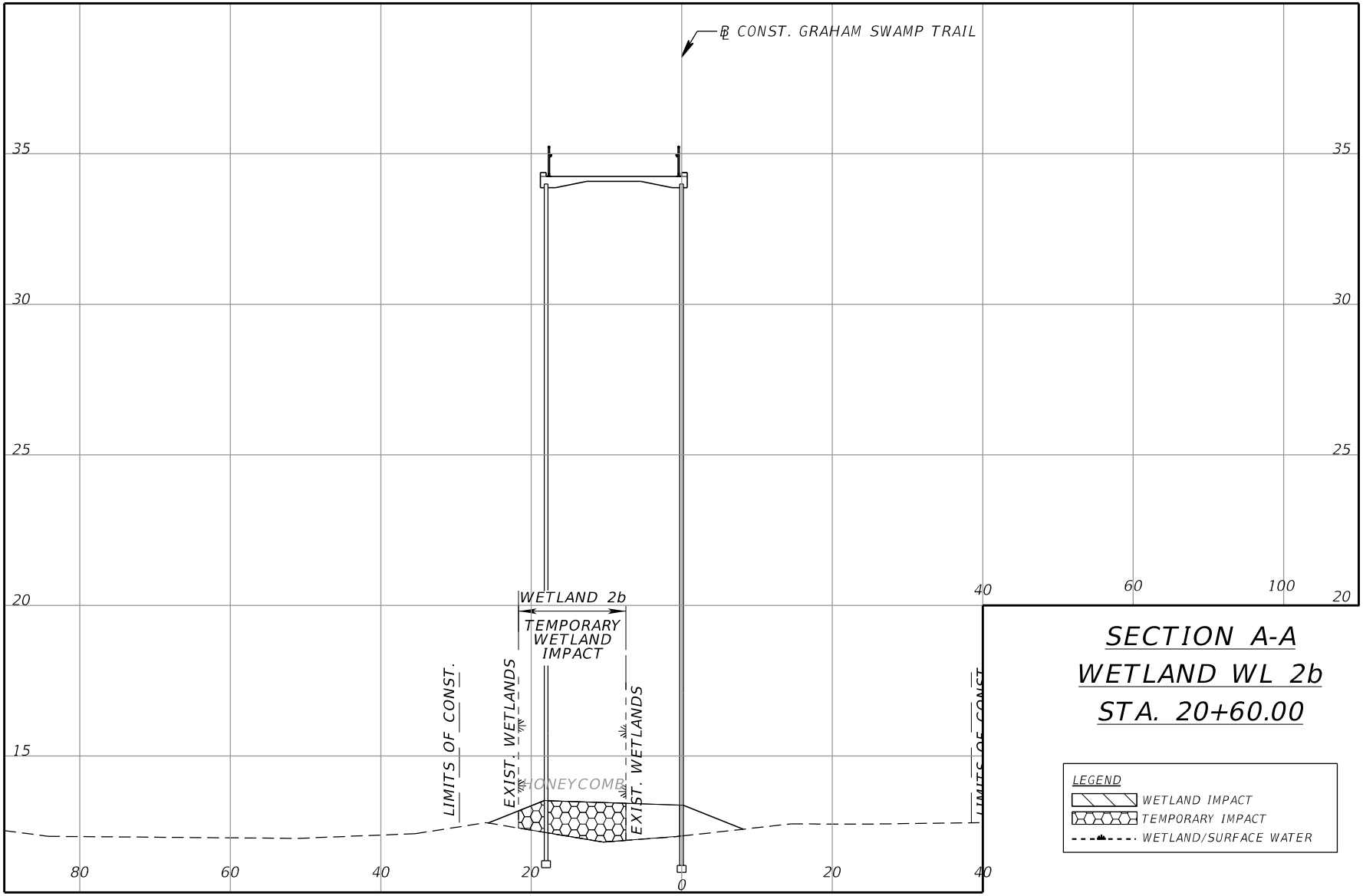
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

GRAHAM SWAMP TRAIL FROM SOUTH OF SR 100 TO THE LEHIGH TRAIL

SHEET NO. 5



SCALE: 1"=20' HORIZ.
1"=5' VERT.

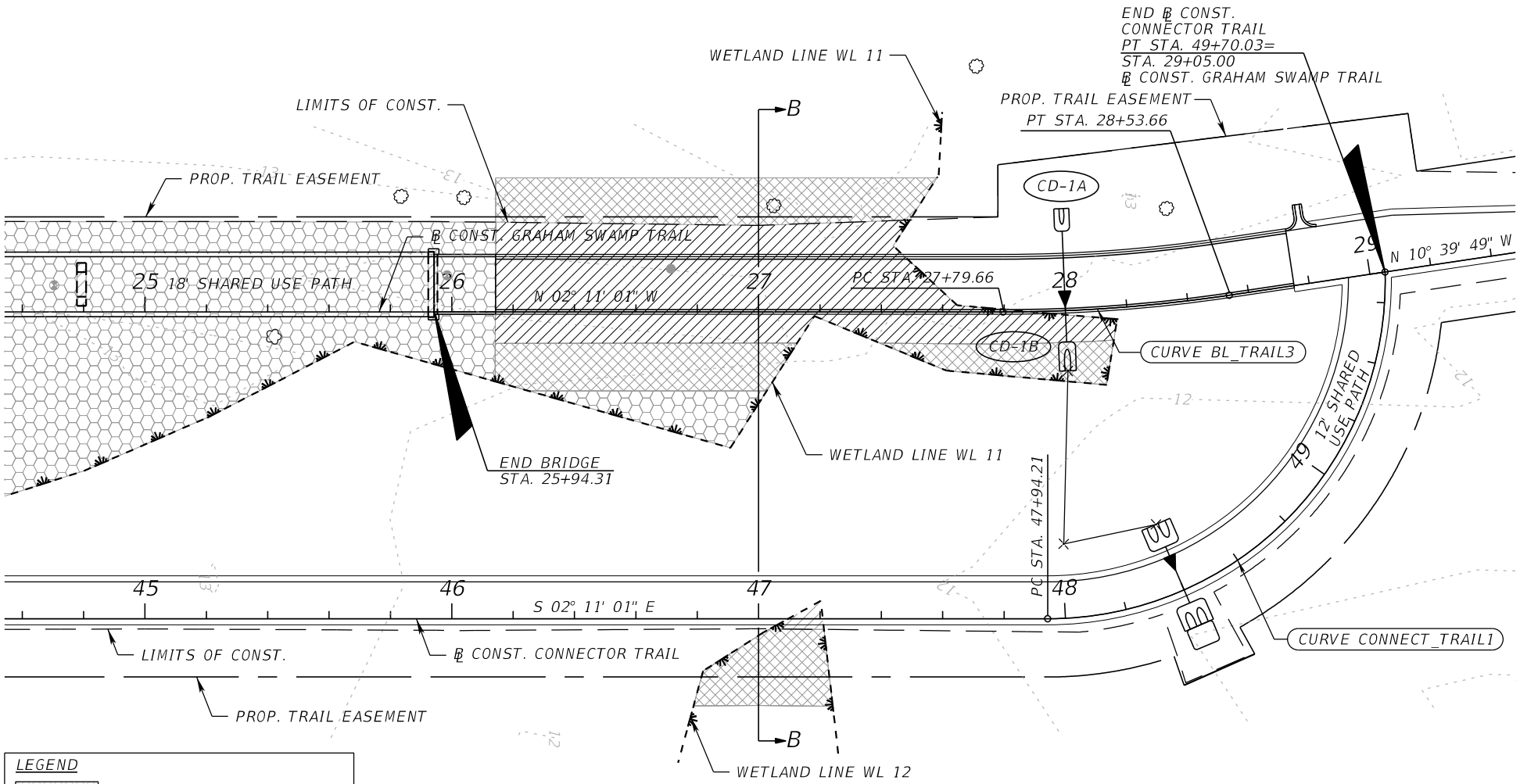
Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

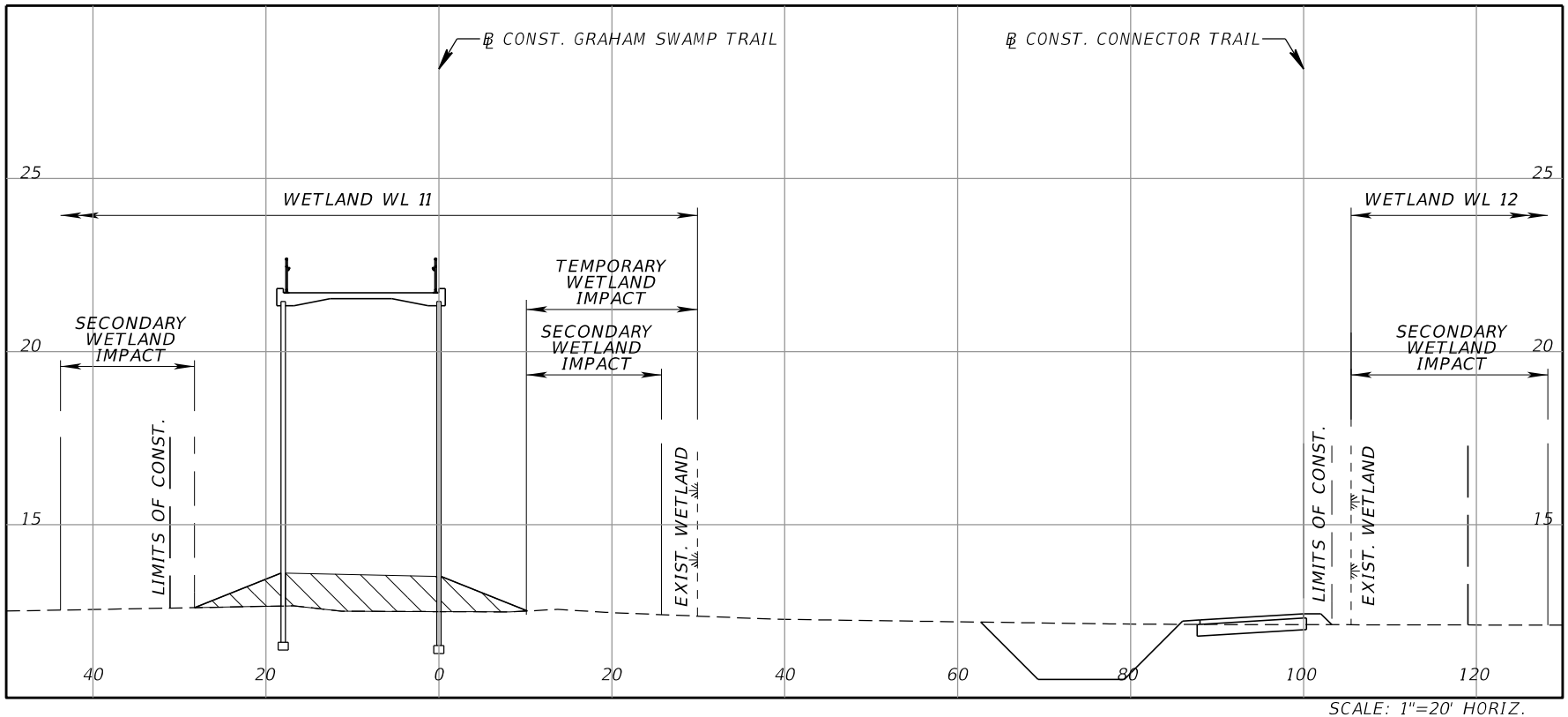
RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

WETLAND IMPACT CROSS SECTION

SHEET NO. 6



Kisinger Campo & Associates Corp. 111 N. Magnolia Ave., Suite 1050 Orlando, FL 32801 Florida Certificate of Authorization No. 02317 Engineer of Record: Kevin W. Tasillo P.E. No.: 71411	FLAGLER COUNTY, FLORIDA DEPARTMENT OF PUBLIC WORKS			GRAHAM SWAMP TRAIL FROM SOUTH OF SR 100 TO THE LEHIGH TRAIL	SHEET NO.
	RSQ NO.	COUNTY	FINANCIAL PROJECT ID		
	18-031Q	FLAGLER	438635-1-38-01		7



SCALE: 1"=20' HORIZ.
1"=5' VERT.

LEGEND

WETLAND IMPACT

WETLAND/SURFACE WATER

SECTION B-B
WETLANDS WL 11 & WL 12
STA. 27+00.00

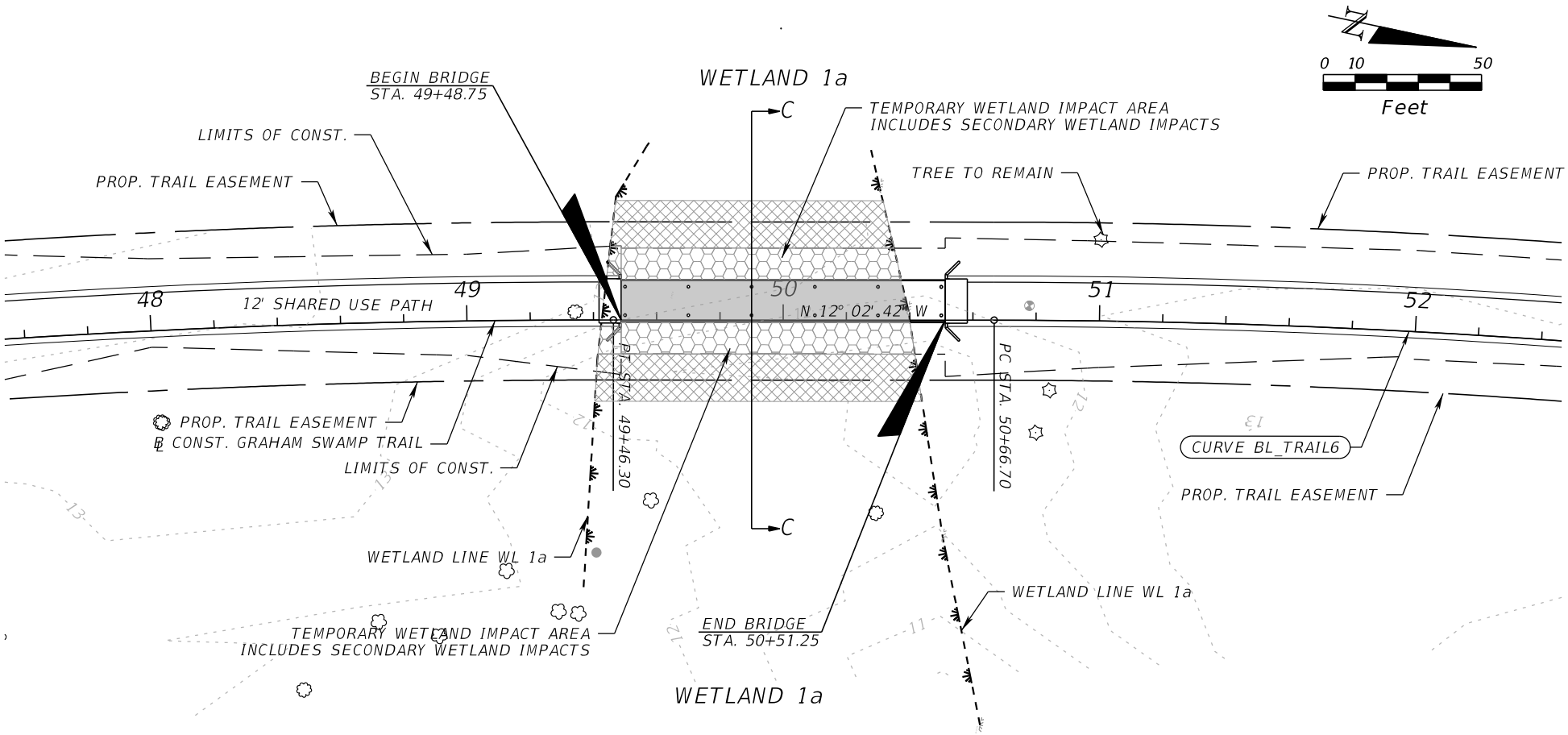
Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

WETLAND IMPACT CROSS SECTION

SHEET NO. 8



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

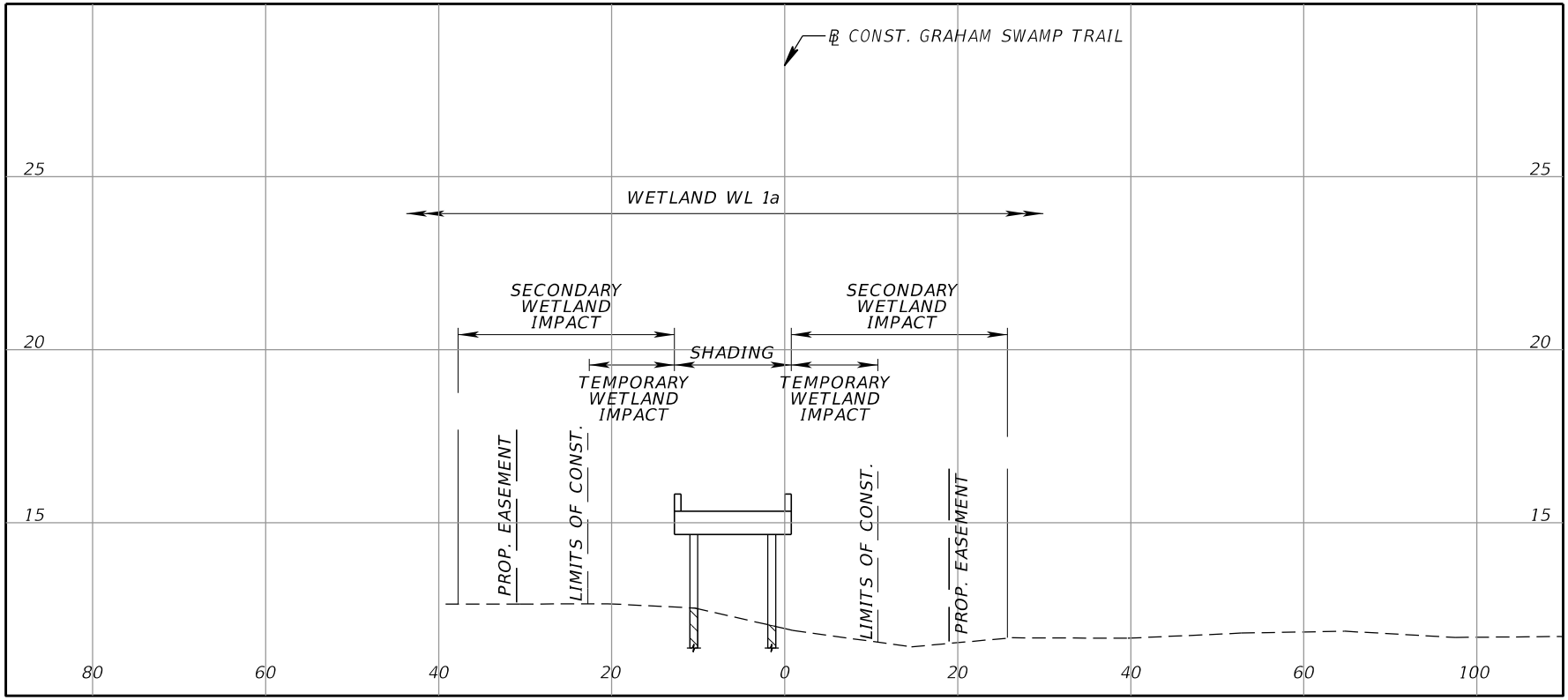
Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

GRAHAM SWAMP TRAIL FROM SOUTH OF SR 100 TO THE LEHIGH TRAIL

SHEET NO. 9



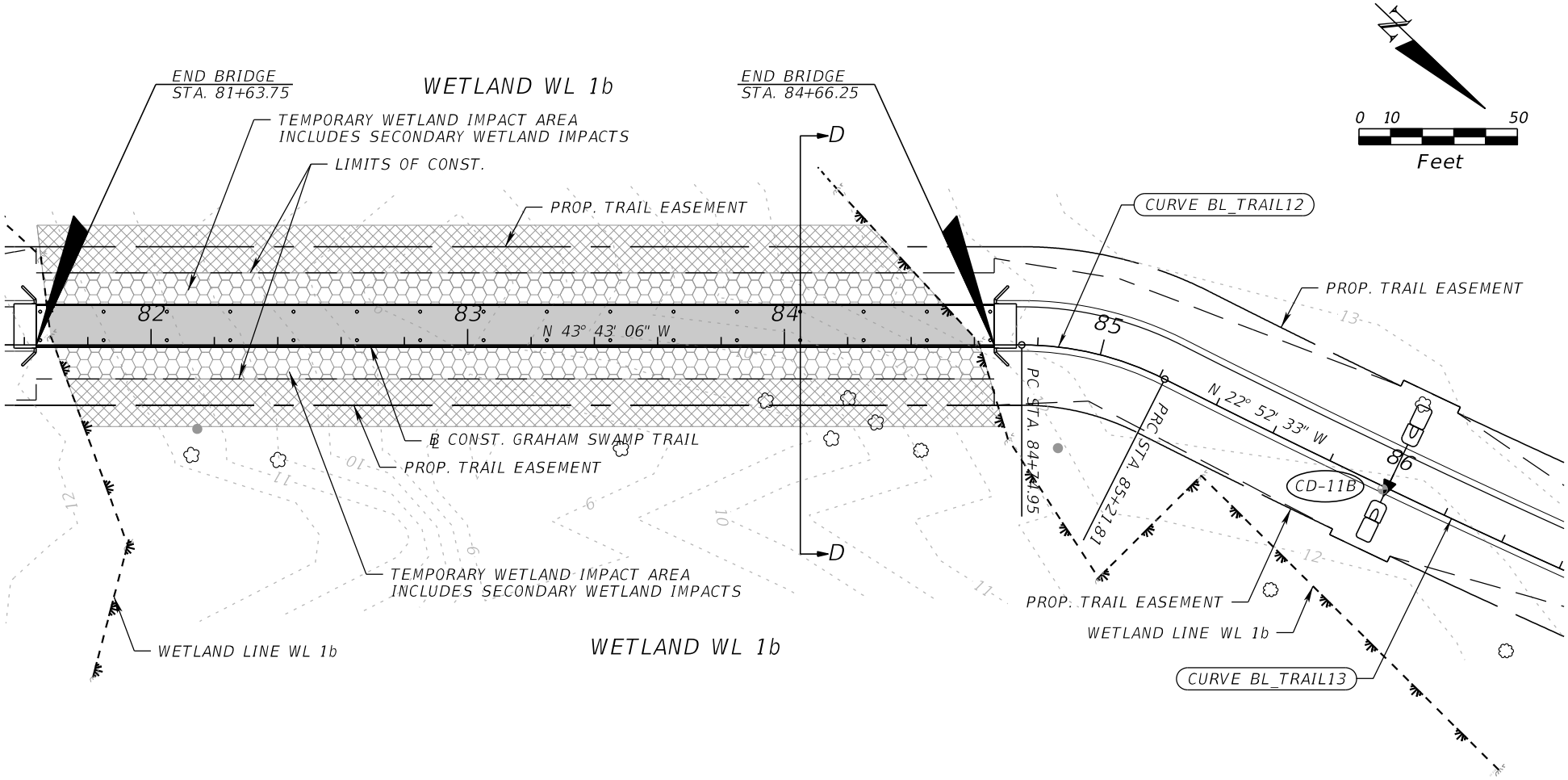
LEGEND

WETLAND IMPACT

WETLAND/SURFACE WATER

SECTION C-C
WETLAND WL 1a
STA. 49+90.00

Kisinger Campo & Associates Corp. 111 N. Magnolia Ave., Suite 1050 Orlando, FL 32801 Florida Certificate of Authorization No. 02317 Engineer of Record: Kevin W. Tasillo P.E. No.: 71411	FLAGLER COUNTY, FLORIDA DEPARTMENT OF PUBLIC WORKS			WETLAND IMPACT CROSS SECTION	SHEET NO.
	RSQ NO.	COUNTY	FINANCIAL PROJECT ID		
	18-031Q	FLAGLER	438635-1-38-01		10



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

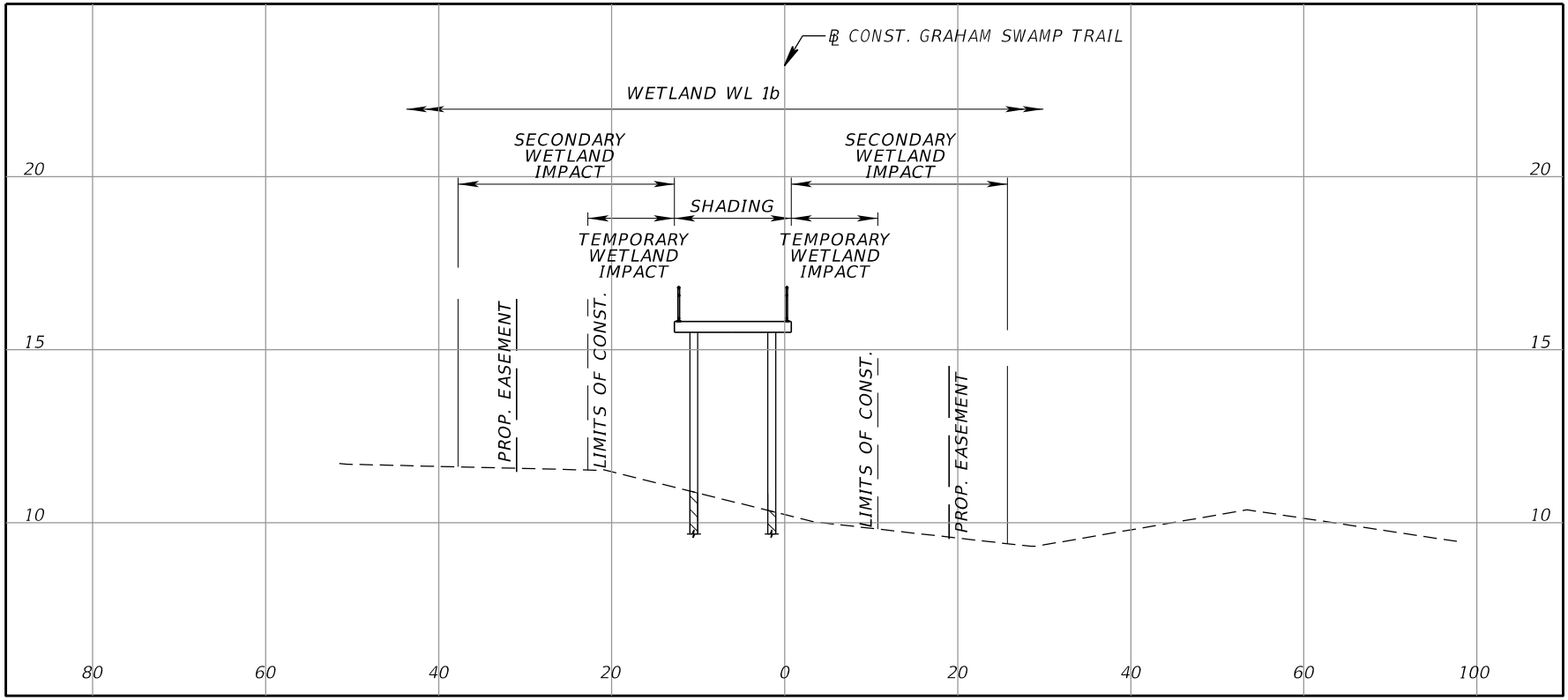
Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

GRAHAM SWAMP TRAIL FROM SOUTH OF SR 100 TO THE LEHIGH TRAIL

SHEET NO. 11



SCALE: 1"=20' HORIZ.
1"=5' VERT.

LEGEND

WETLAND IMPACT

WETLAND/SURFACE WATER

SECTION D-D
WETLAND WL 1b
STA. 84+05.00

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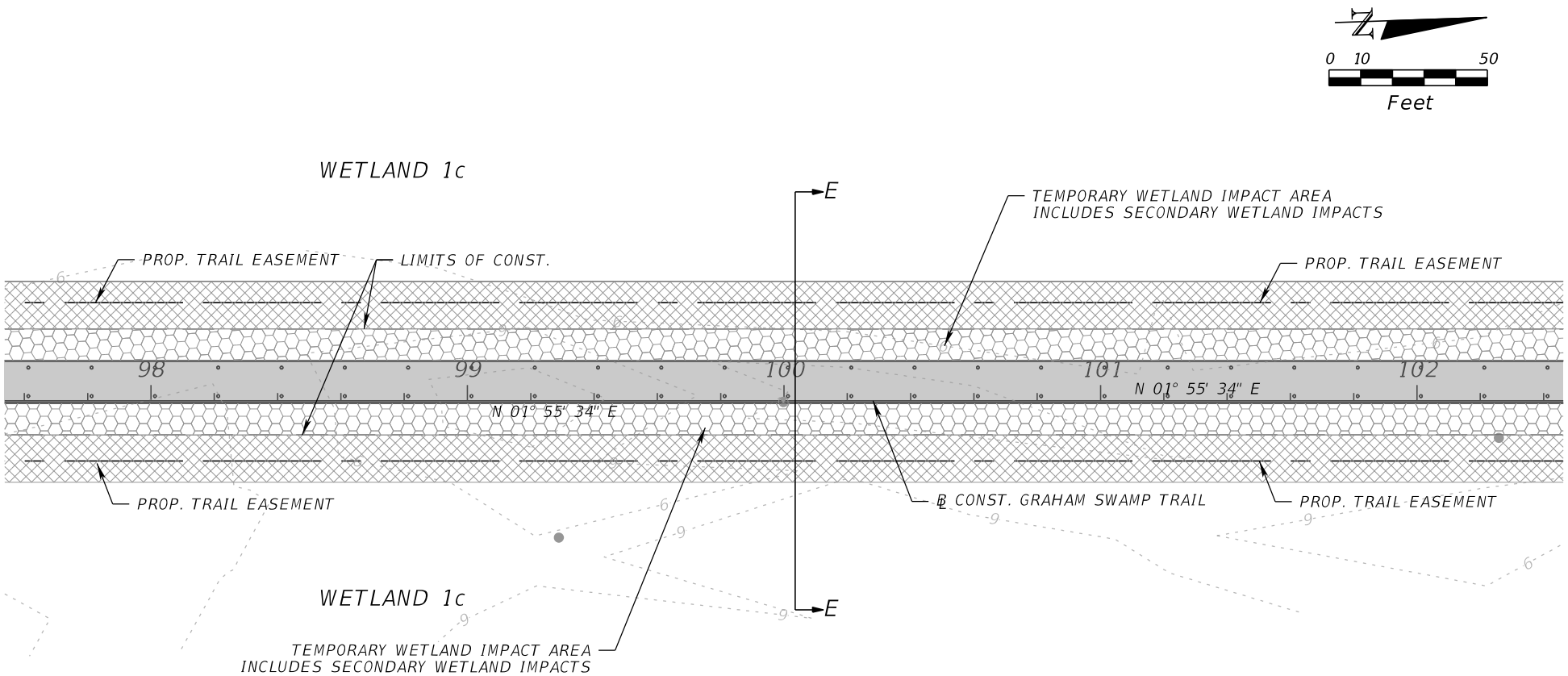
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

WETLAND IMPACT CROSS SECTION

SHEET NO. 12



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

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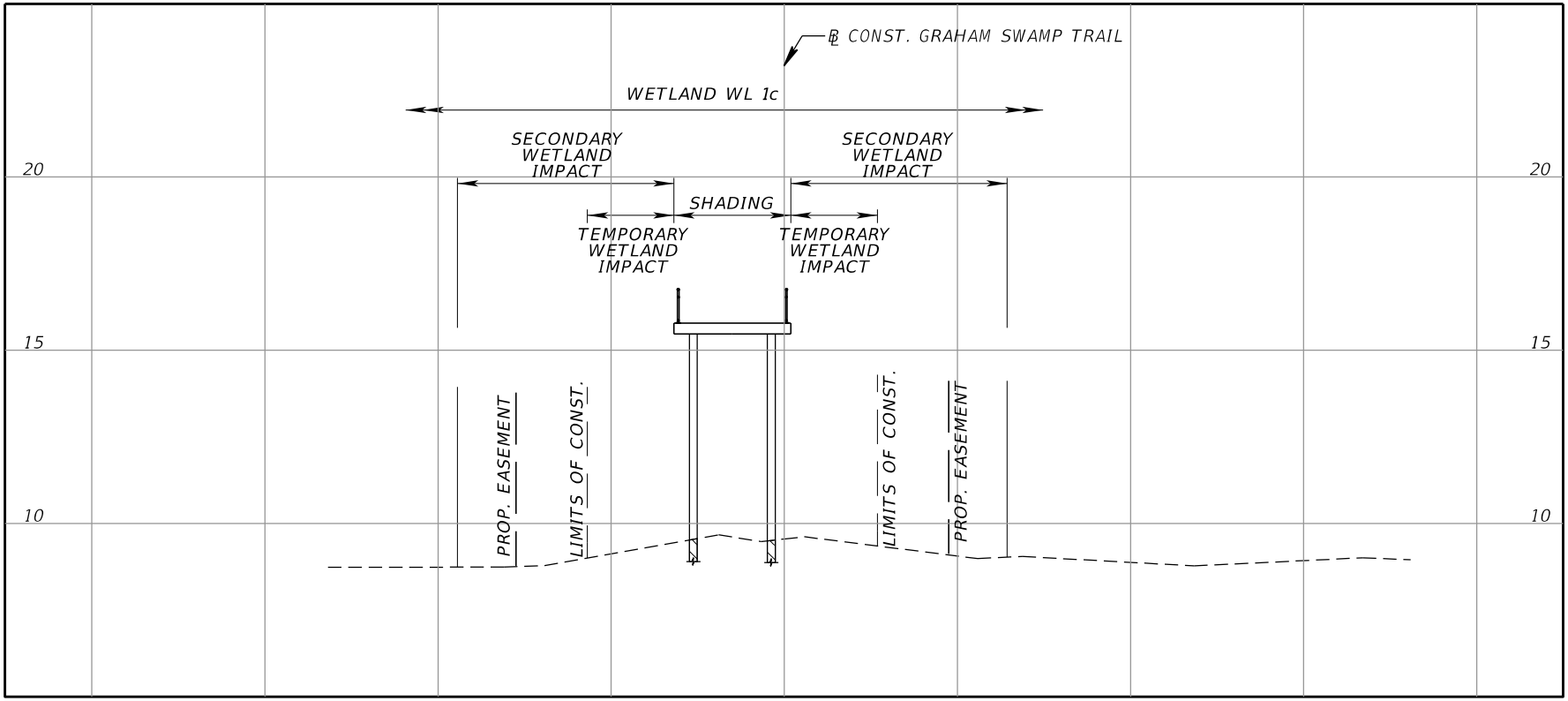
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

GRAHAM SWAMP TRAIL
FROM SOUTH OF
SR 100 TO THE LEHIGH TRAIL

SHEET NO.
13



SCALE: 1"=20' HORIZ.
1"=5' VERT.

SECTION E-E
WETLAND WL 1c
STA. 100+03.54

LEGEND

WETLAND IMPACT

WETLAND/SURFACE WATER

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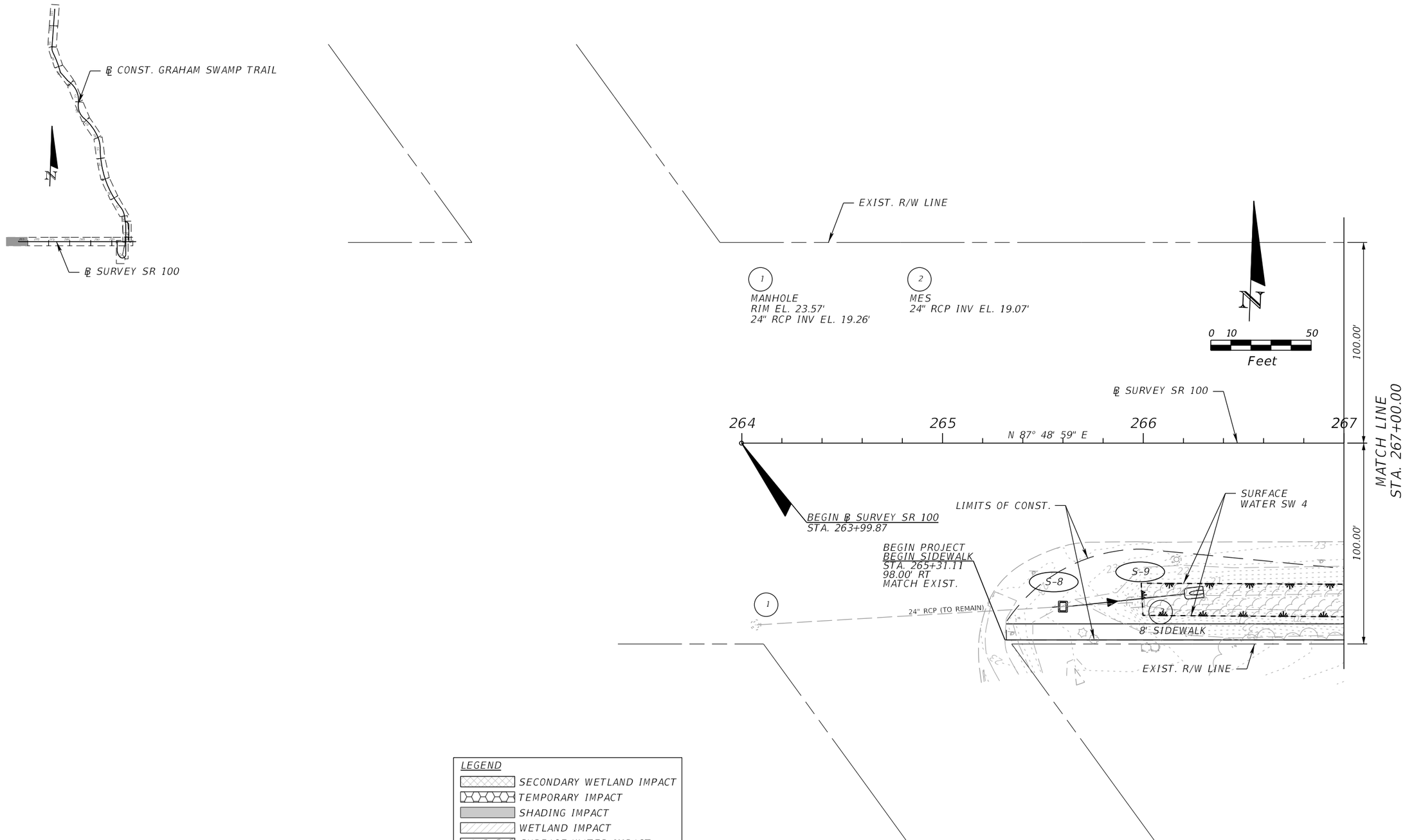
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

RSQ NO.	COUNTY	FINANCIAL PROJECT ID
18-031Q	FLAGLER	438635-1-38-01

WETLAND IMPACT CROSS SECTION

SHEET NO. 14



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

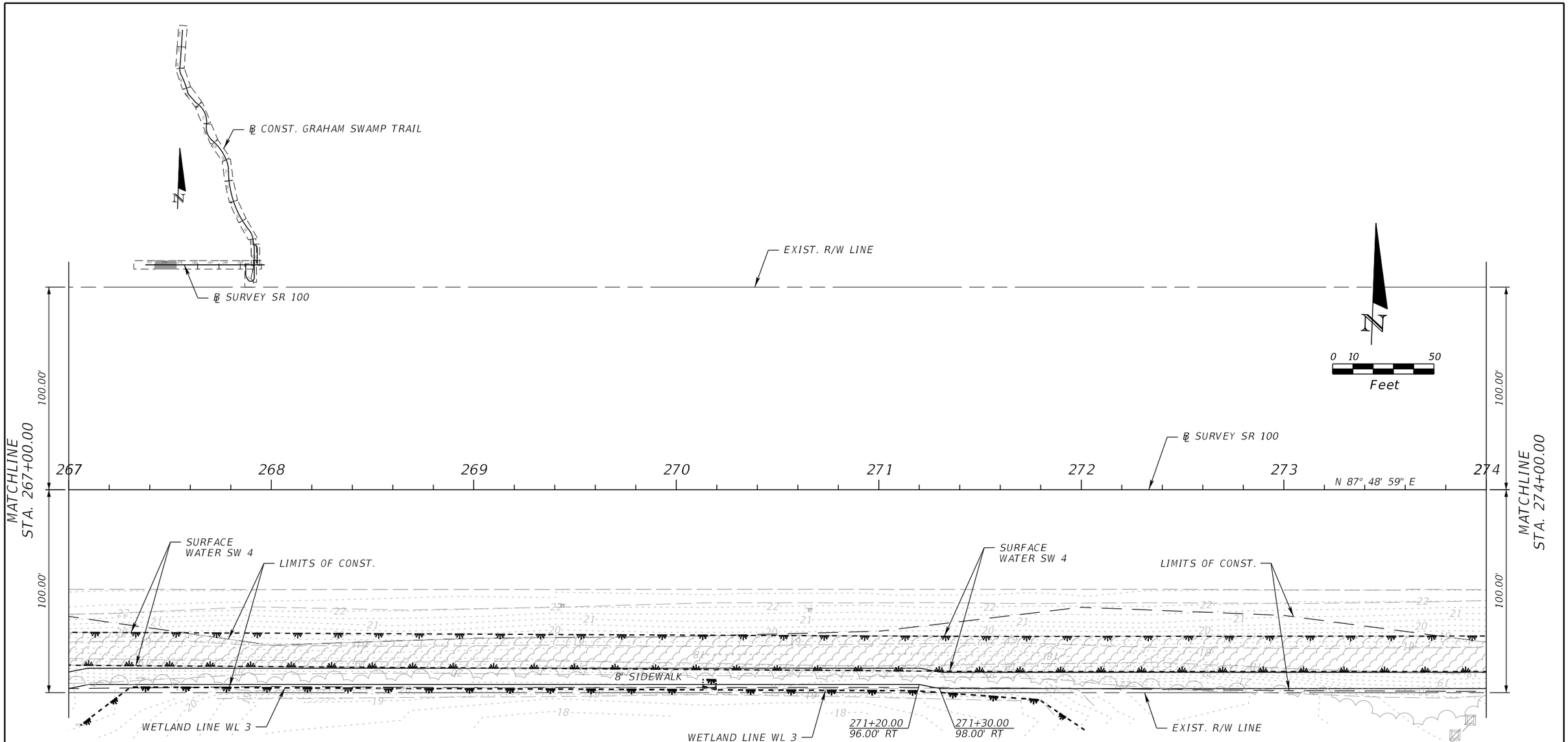
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (1)
SR 100

SHEET NO.
15

mharriman 10/9/2019 5:01:43 PM M:\1201848.00 Graham Swamp\Design\permits\plprem01.dgn



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (2)
SR 100

SHEET NO.
16

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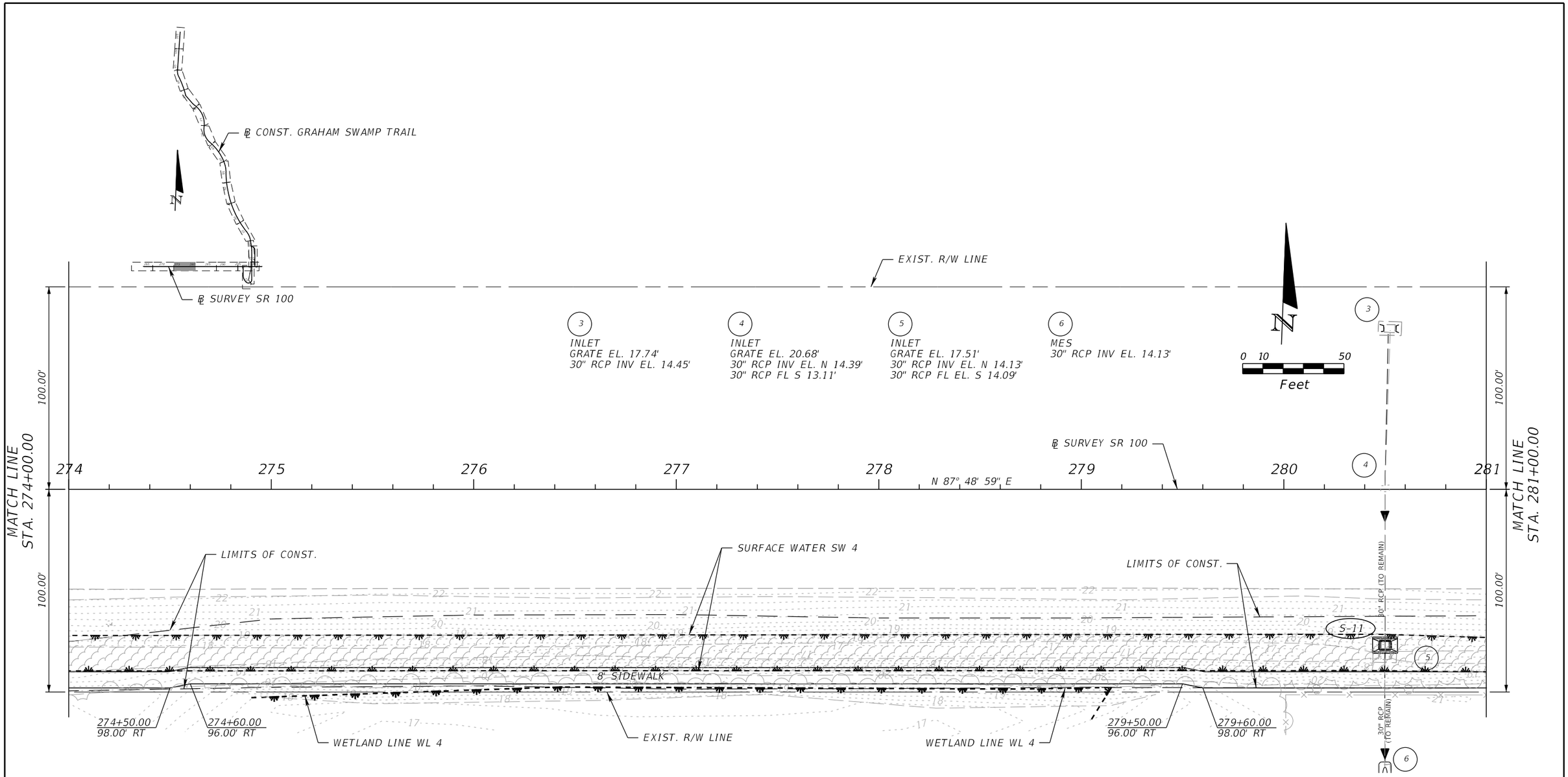

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (3)
SR 100

SHEET NO.
17

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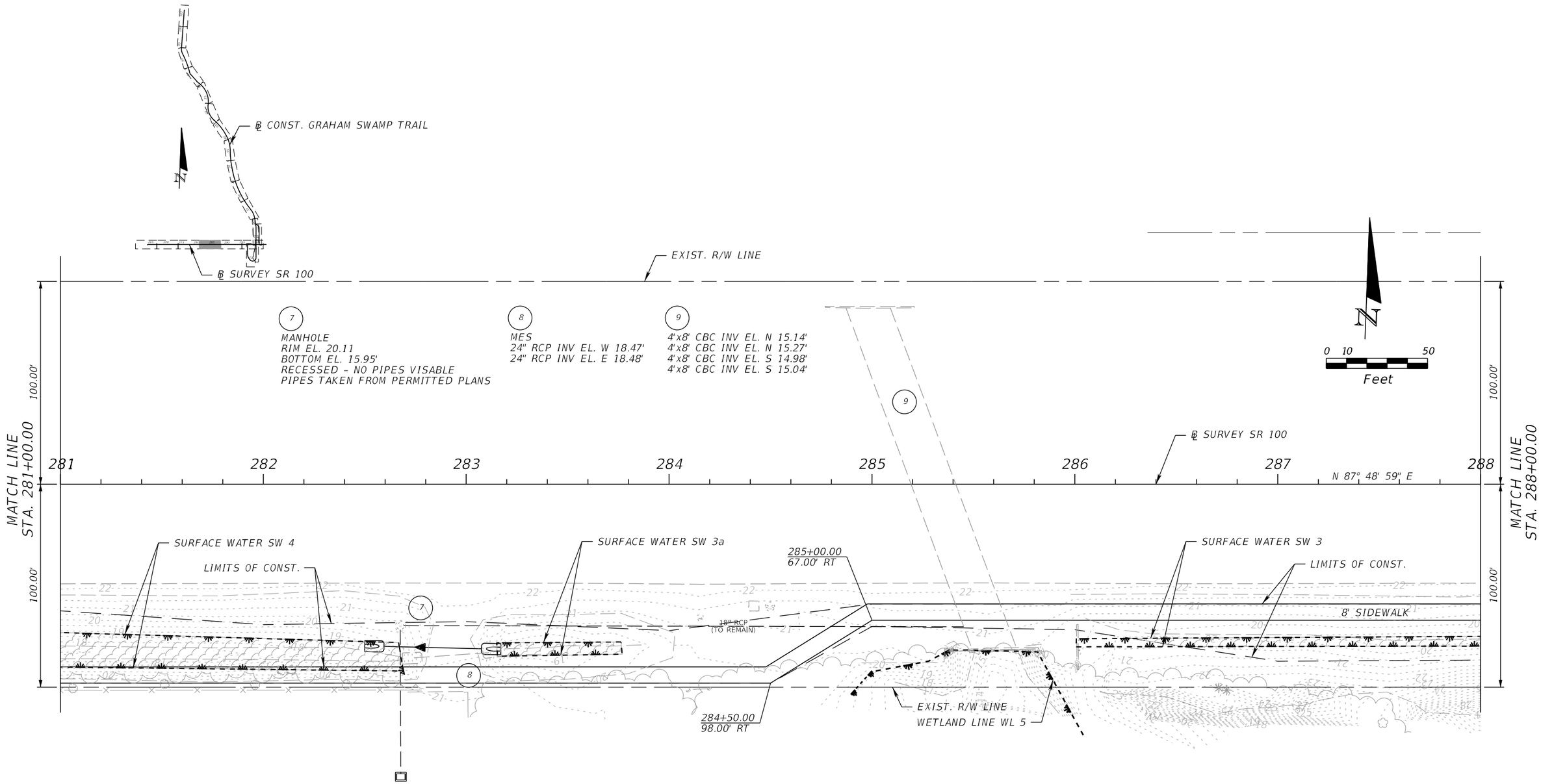

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (4)
SR 100

SHEET NO.
18

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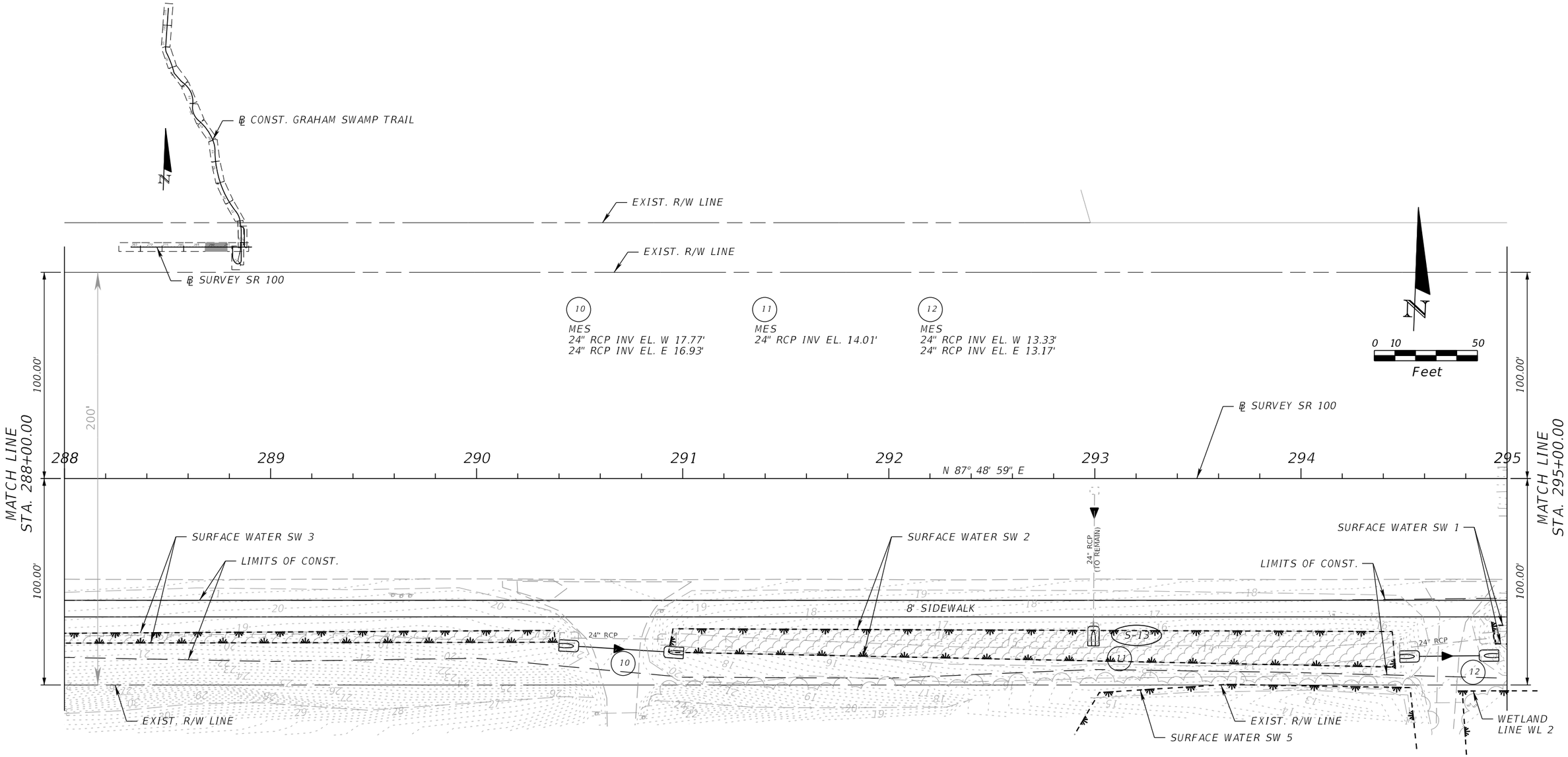

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- , LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

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18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (5)
SR 100

SHEET NO.
19

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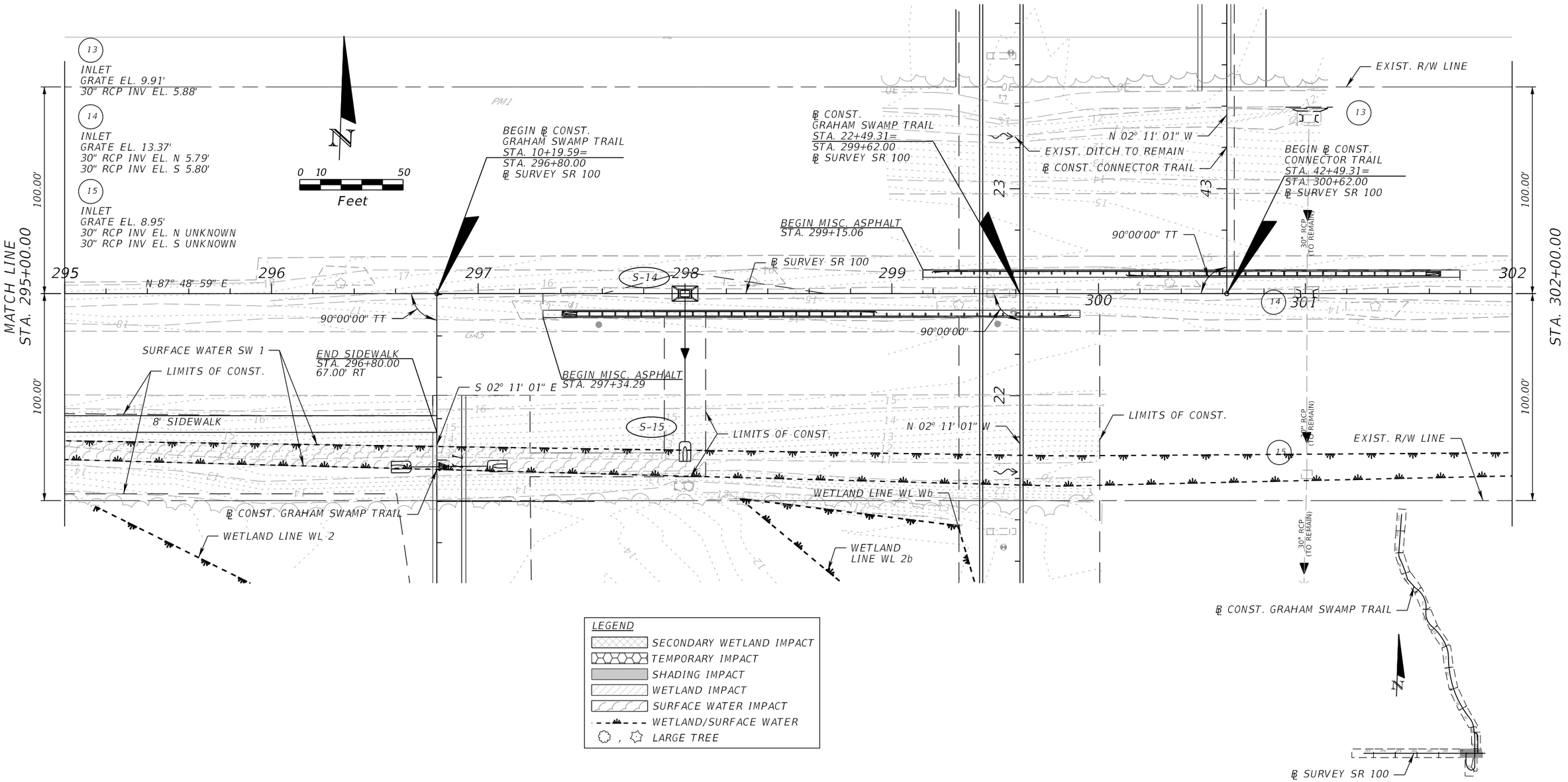

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (6)
SR 100

SHEET NO.
20

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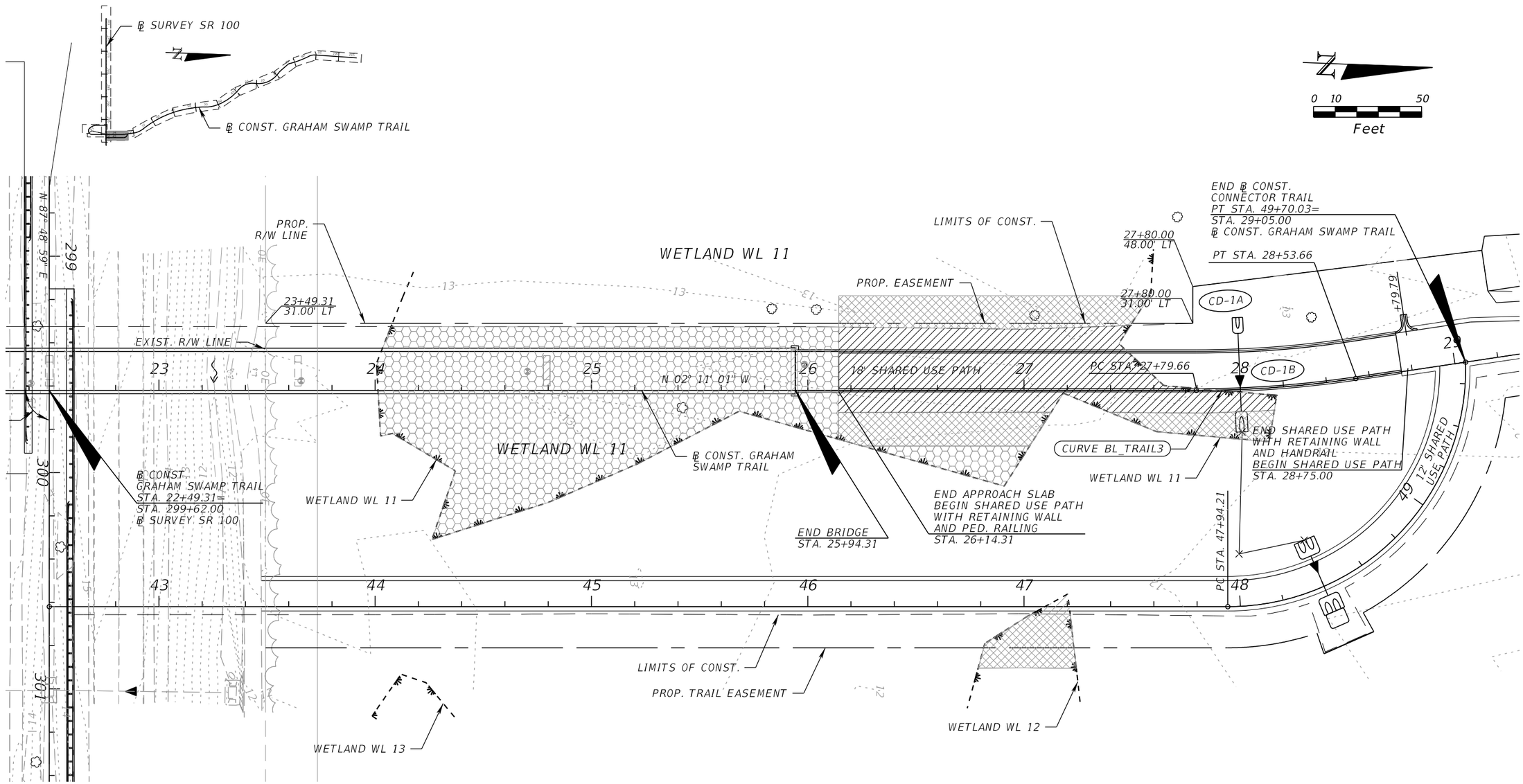

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (7)
GRAHAM SWAMP TRAIL

SHEET NO. 21

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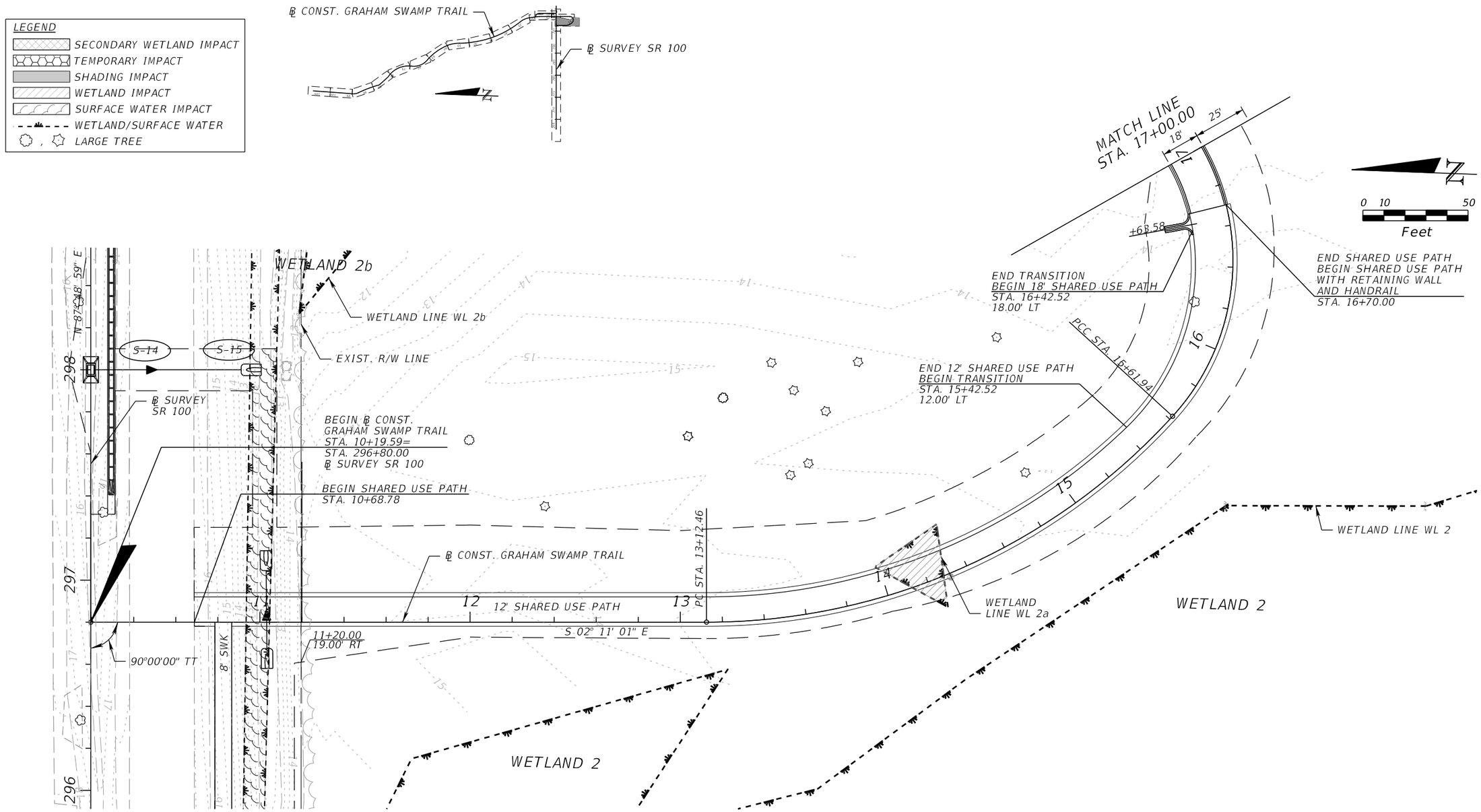

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (8)
GRAHAM SWAMP TRAIL

SHEET NO.
22

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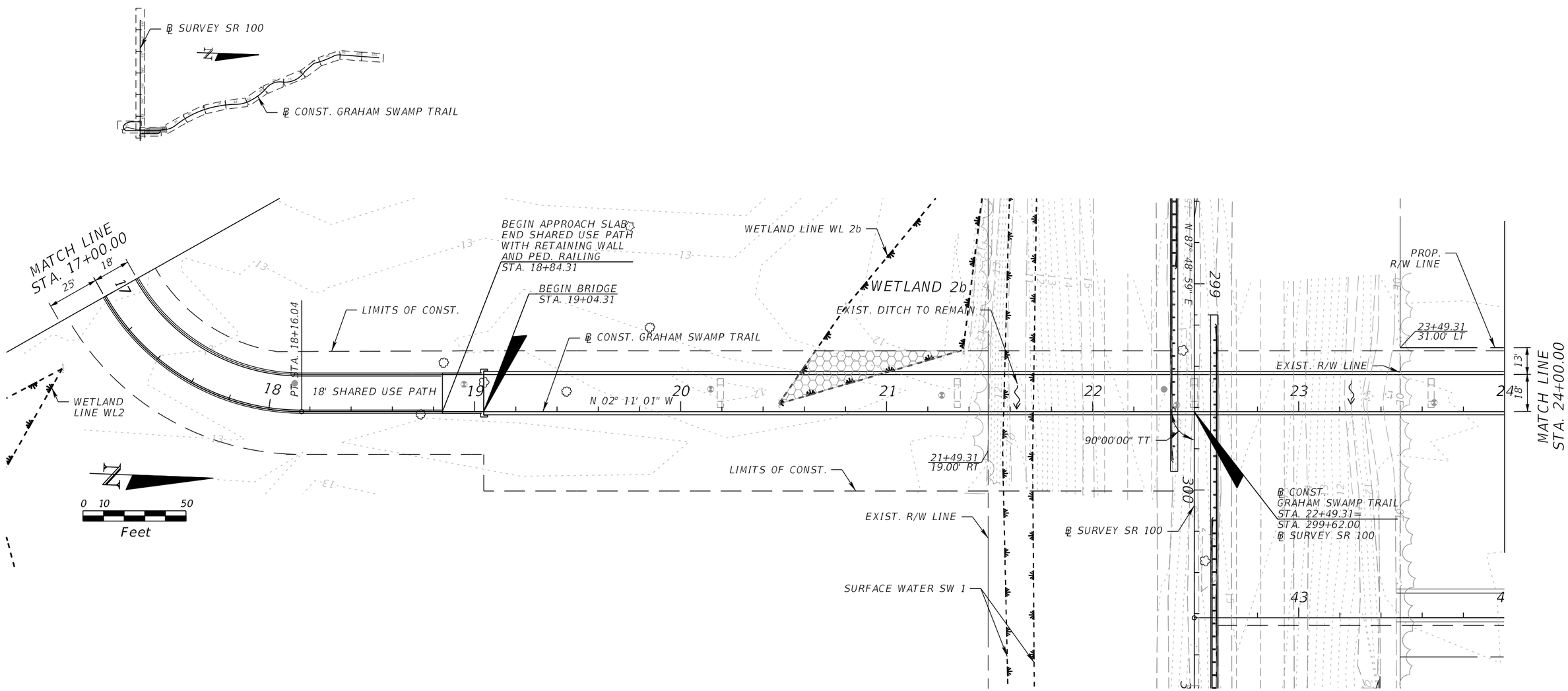

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
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Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (9)
GRAHAM SWAMP TRAIL

SHEET NO.
23

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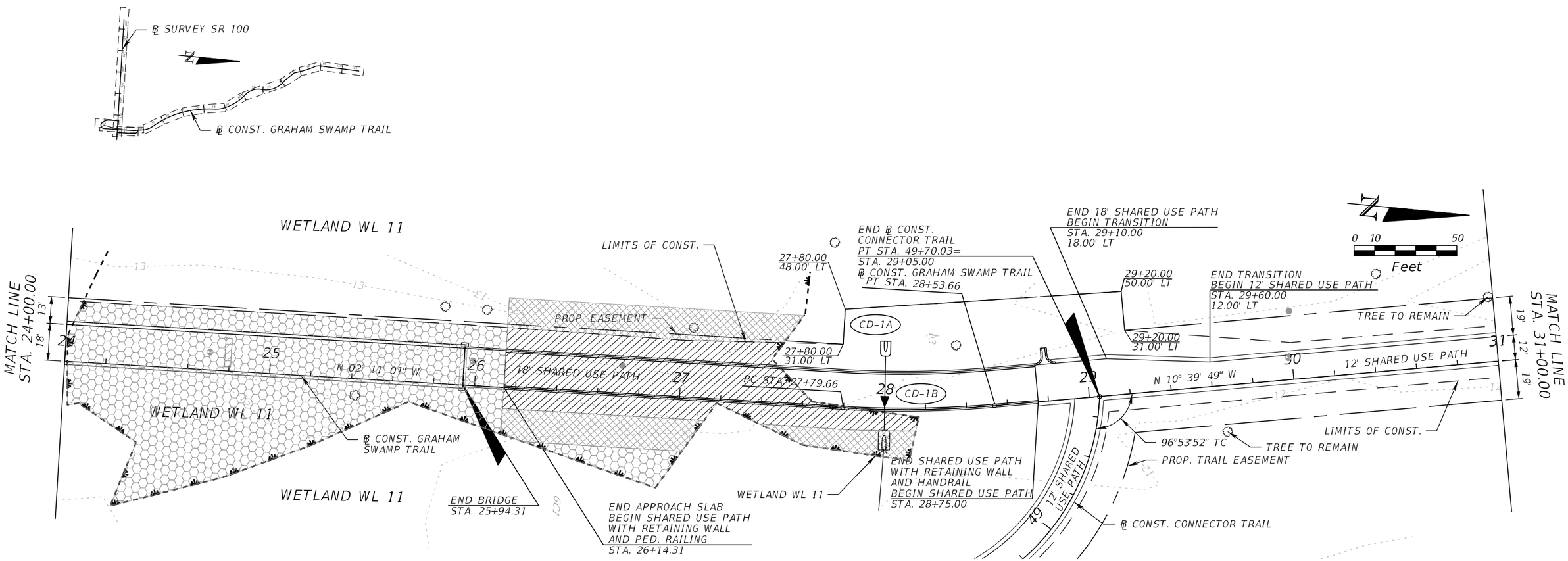

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (10)
GRAHAM SWAMP TRAIL

SHEET NO. 24

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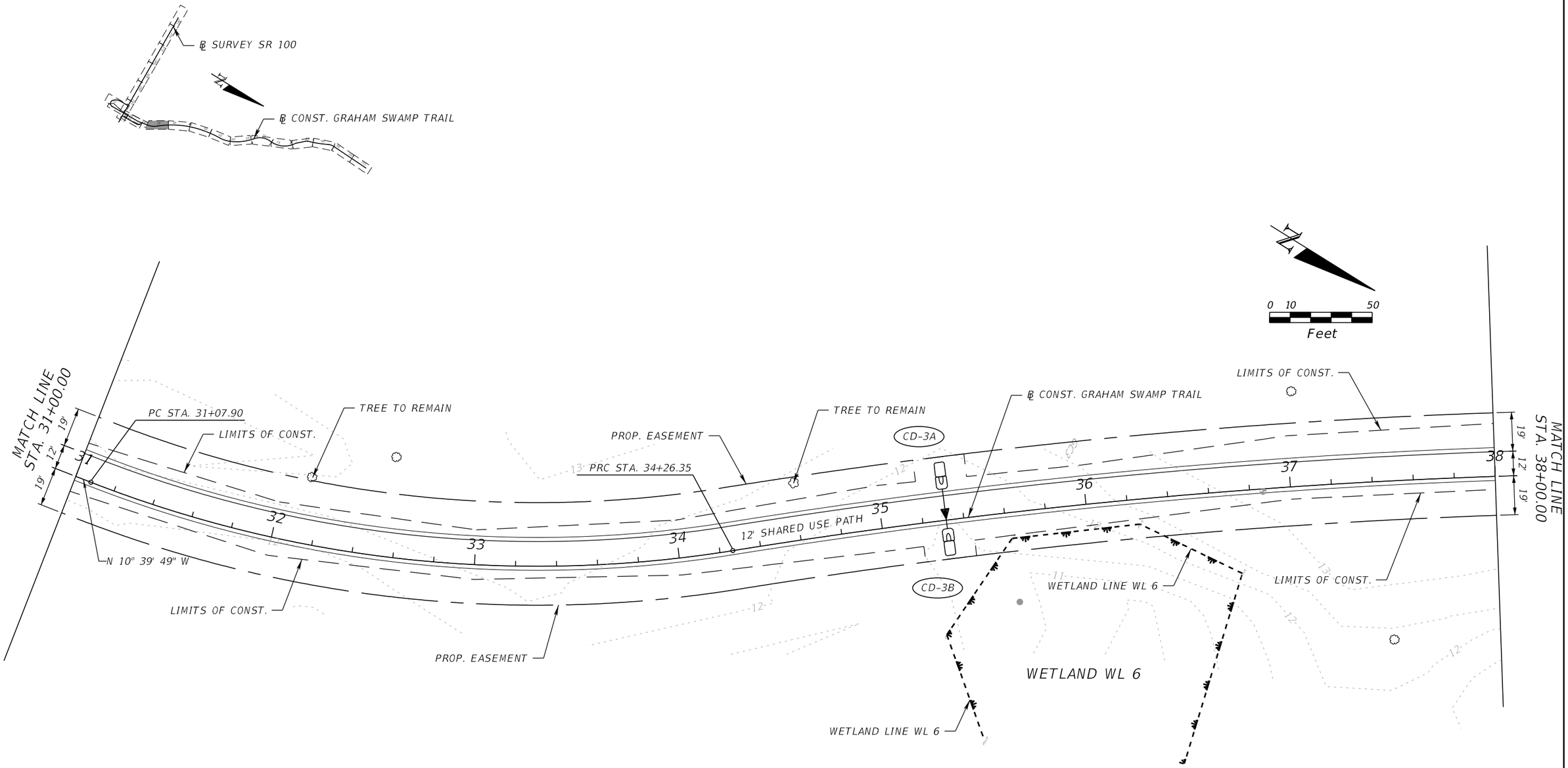

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- , LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (11)
GRAHAM SWAMP TRAIL

SHEET NO.
25

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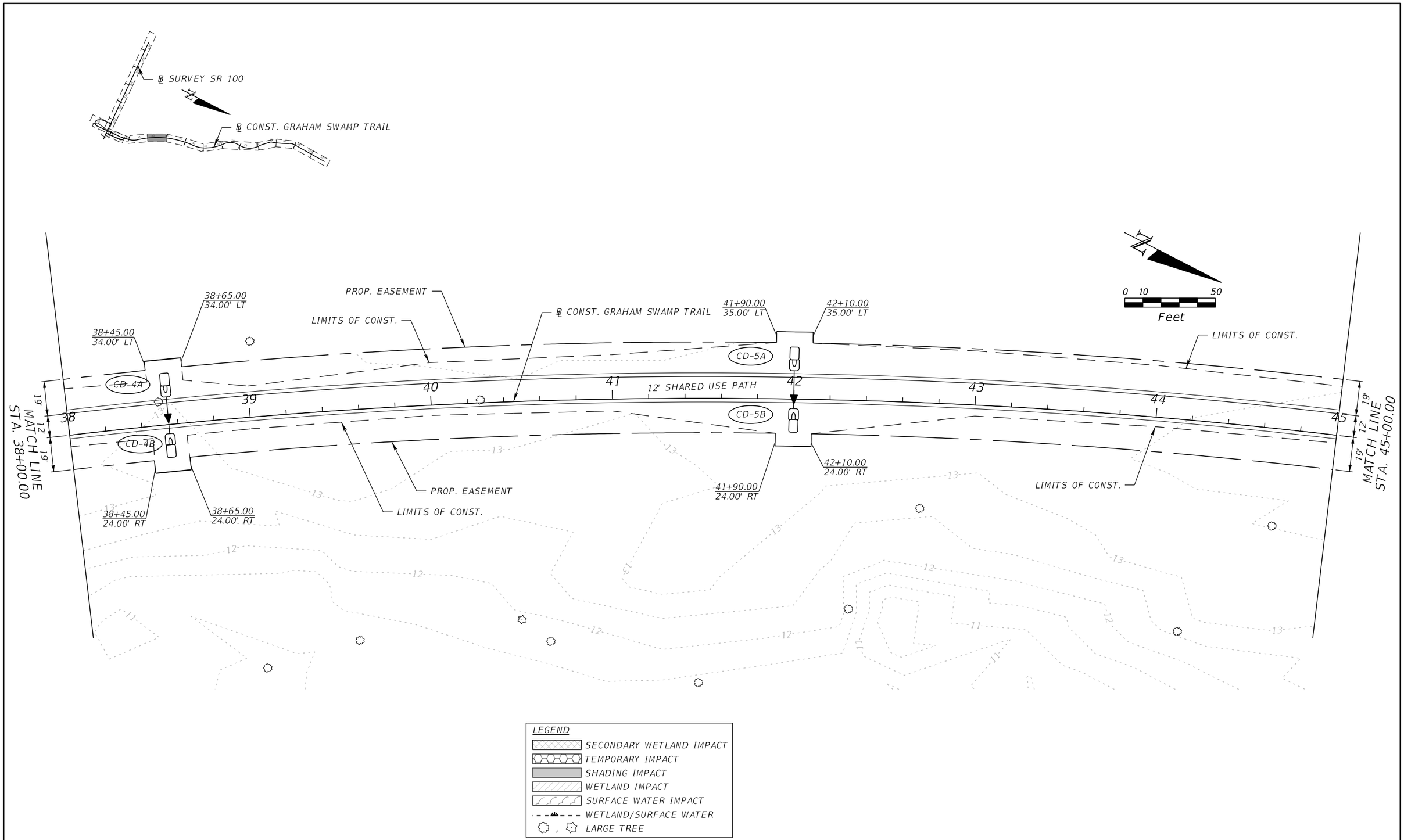

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (12)
GRAHAM SWAMP TRAIL

SHEET NO.
26

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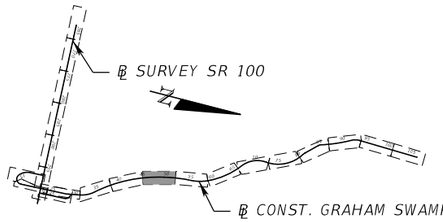

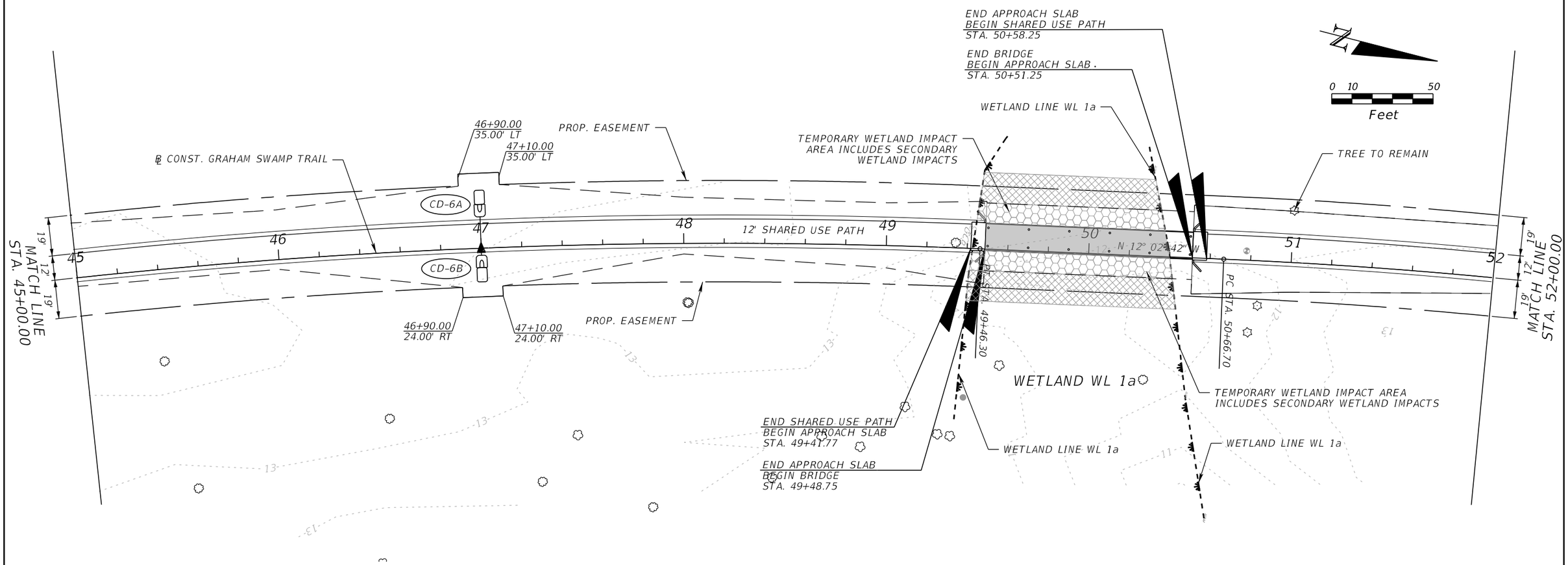

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (13)
GRAHAM SWAMP TRAIL

SHEET NO.
27

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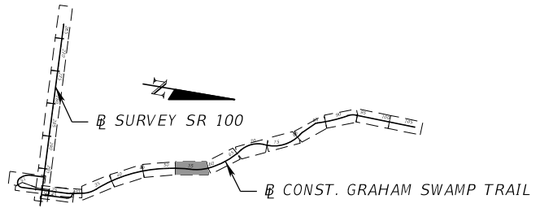

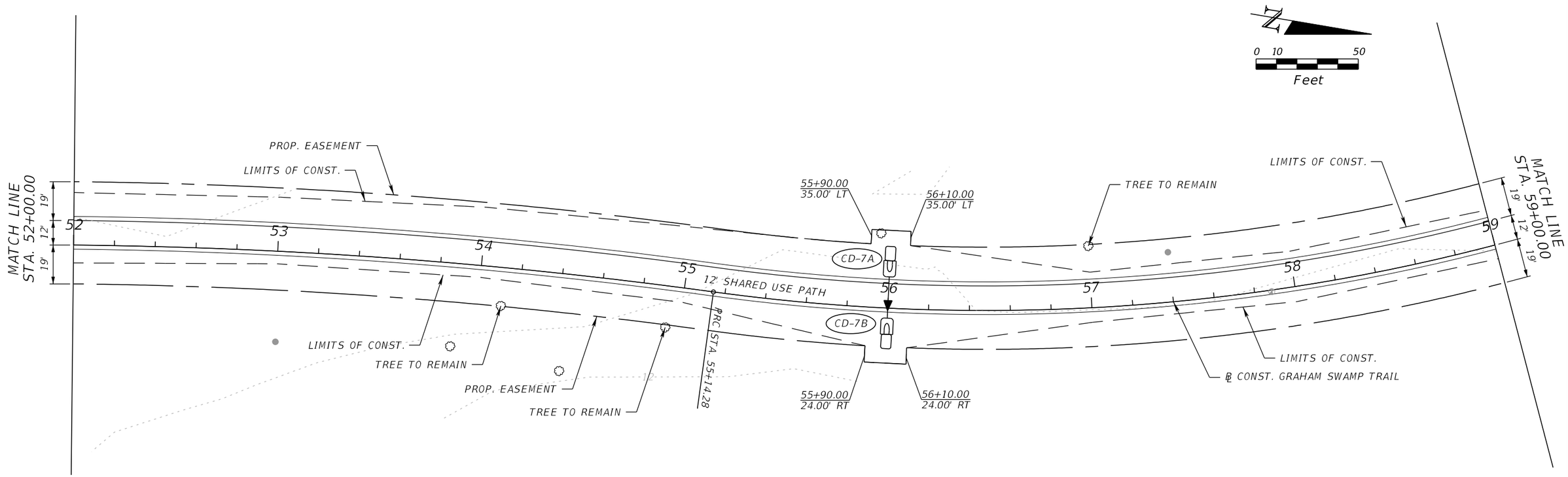

LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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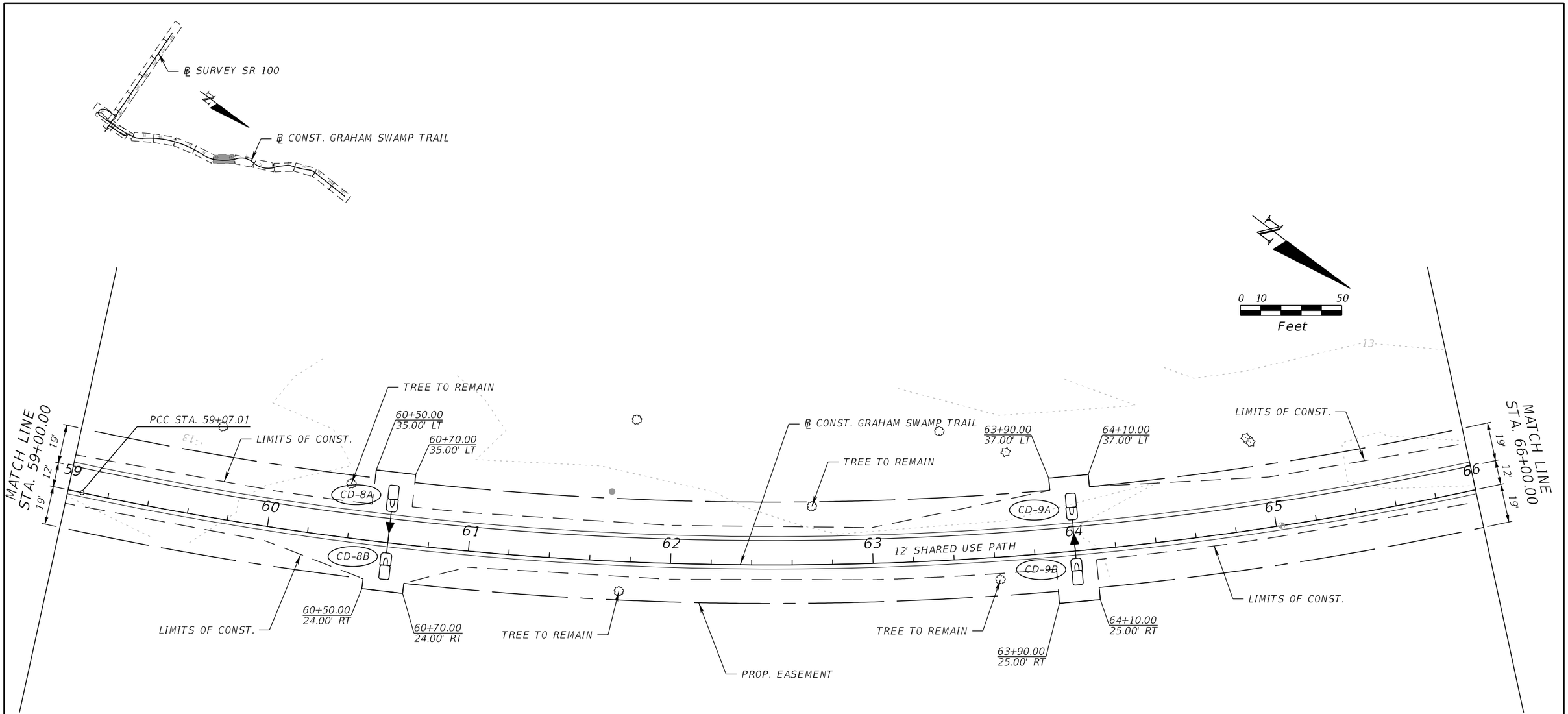
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (14)
GRAHAM SWAMP TRAIL

SHEET NO.
28



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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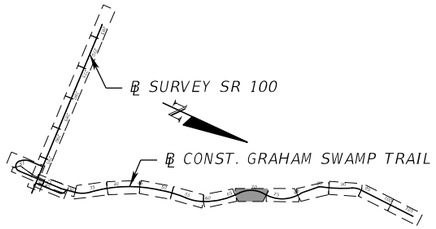
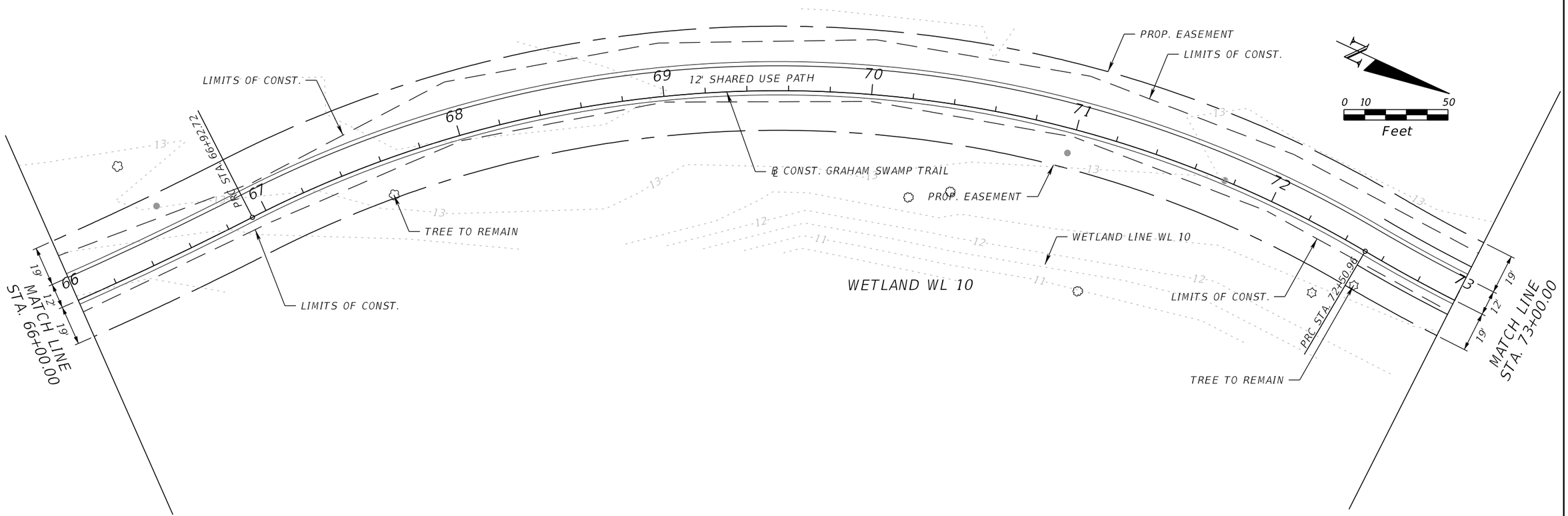
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (15)
GRAHAM SWAMP TRAIL

SHEET NO.
29





LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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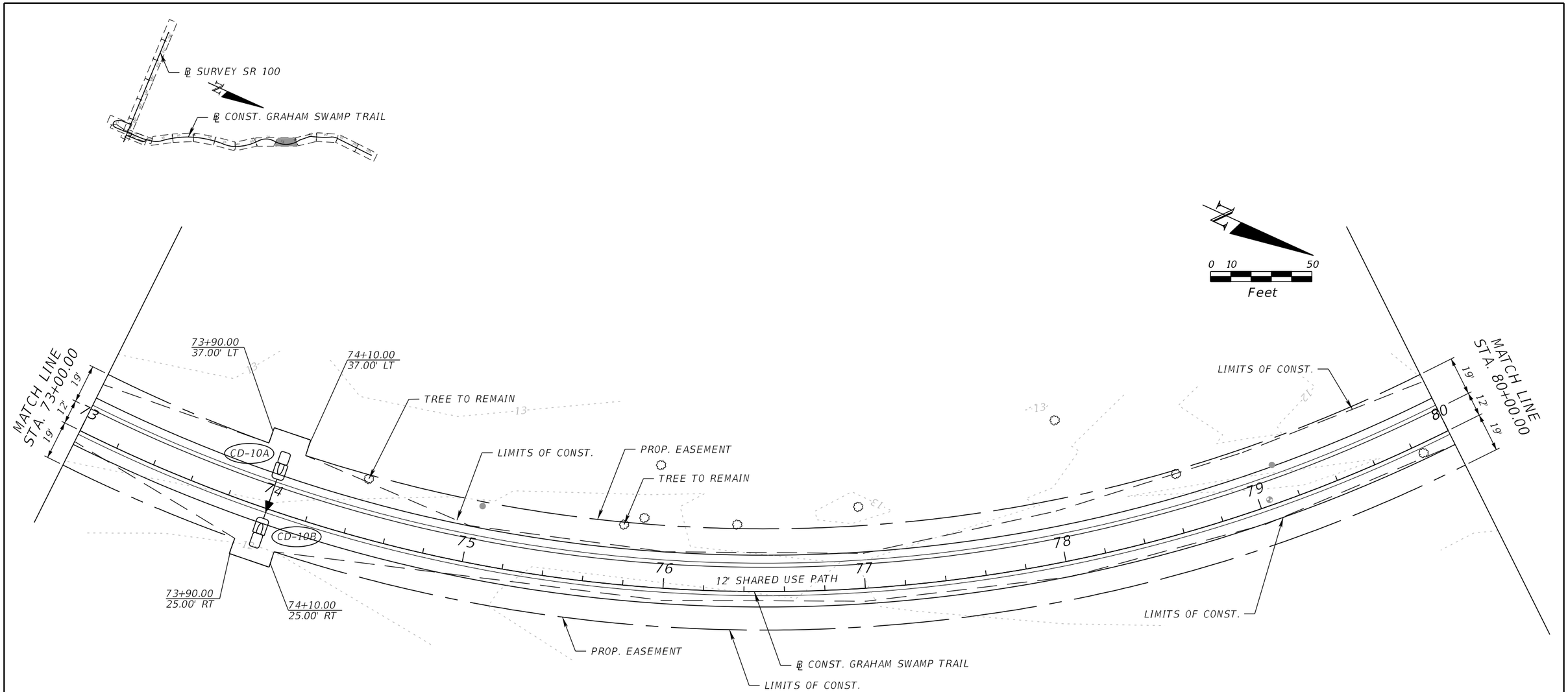
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (16)
GRAHAM SWAMP TRAIL

SHEET NO.
30

mharriman 10/9/2019 5:02:02 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM16.dgn



LEGEND

- SECONDARY WETLAND IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

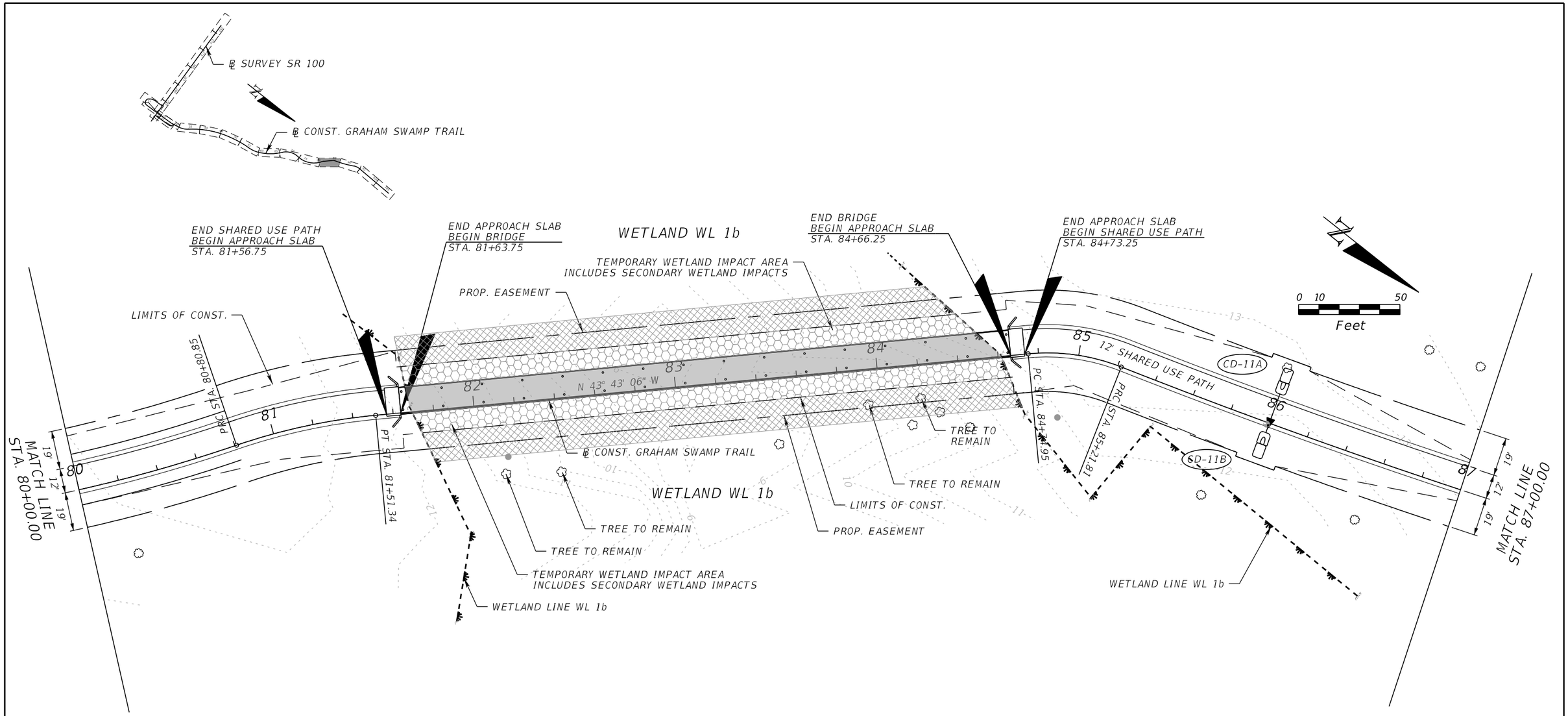
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (17)
GRAHAM SWAMP TRAIL

SHEET NO.
31

mharriman 10/9/2019 5:02:03 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM17.dgn



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

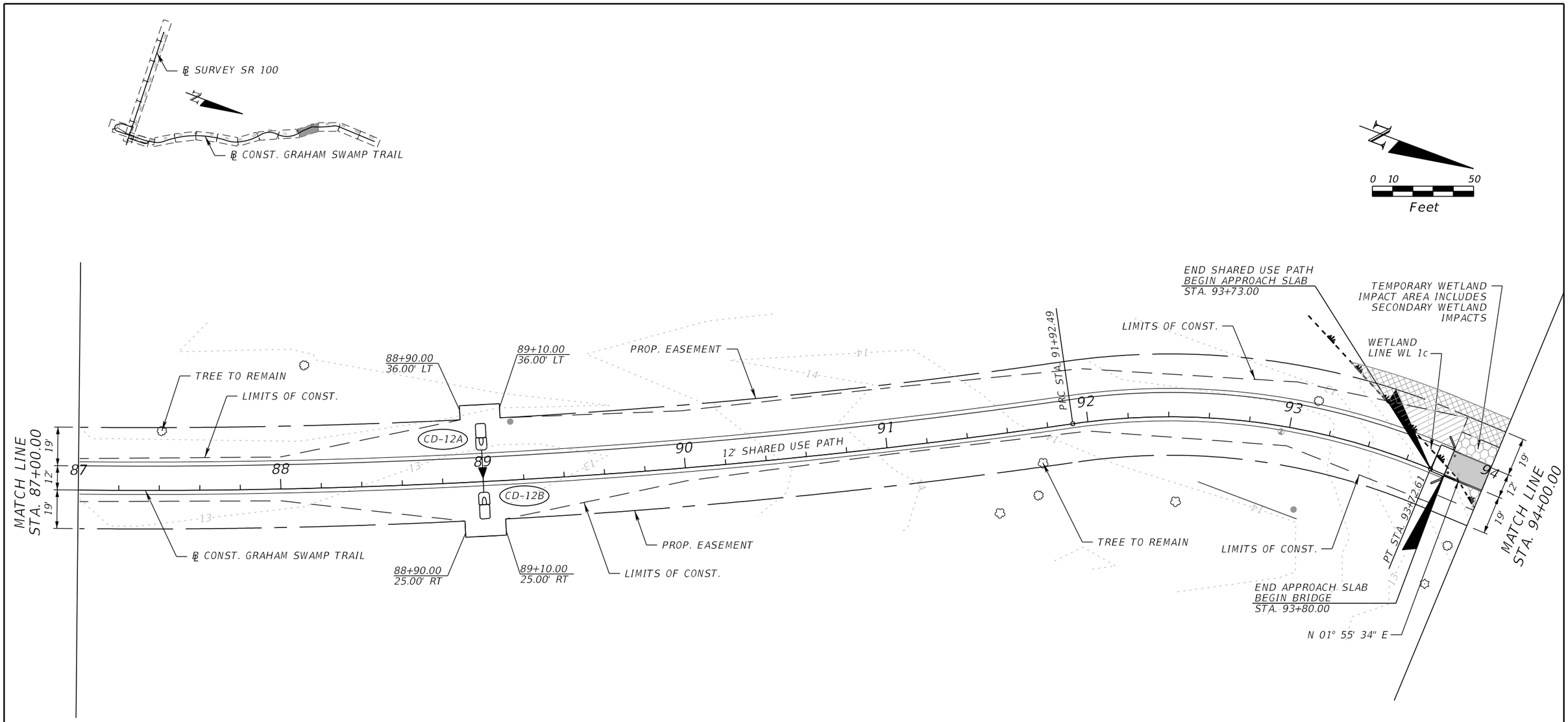
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSQ NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (18)
GRAHAM SWAMP TRAIL

SHEET NO.
32

mharriman 10/9/2019 5:02:04 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM18.dgn



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

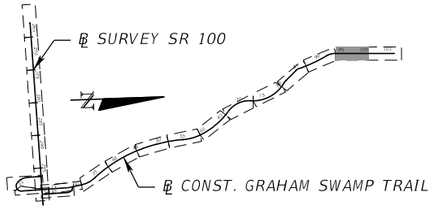
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

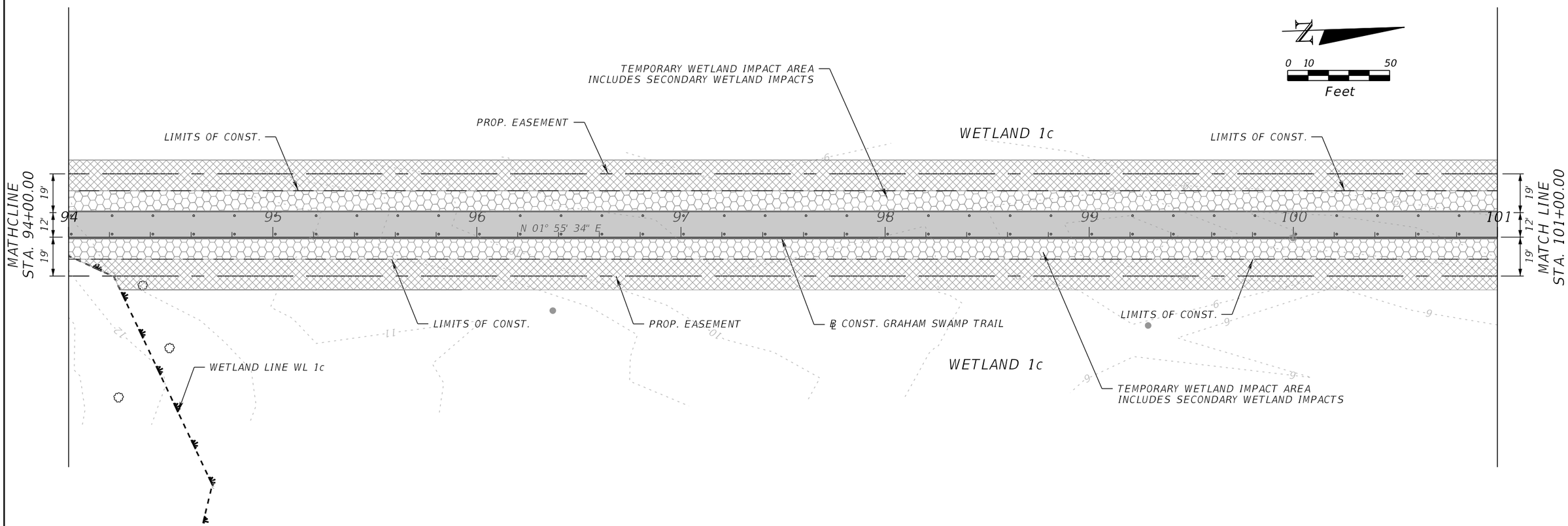
FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (19)
GRAHAM SWAMP TRAIL

SHEET NO.
33

mharriman 10/9/2019 5:02:05 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM19.dgn





LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

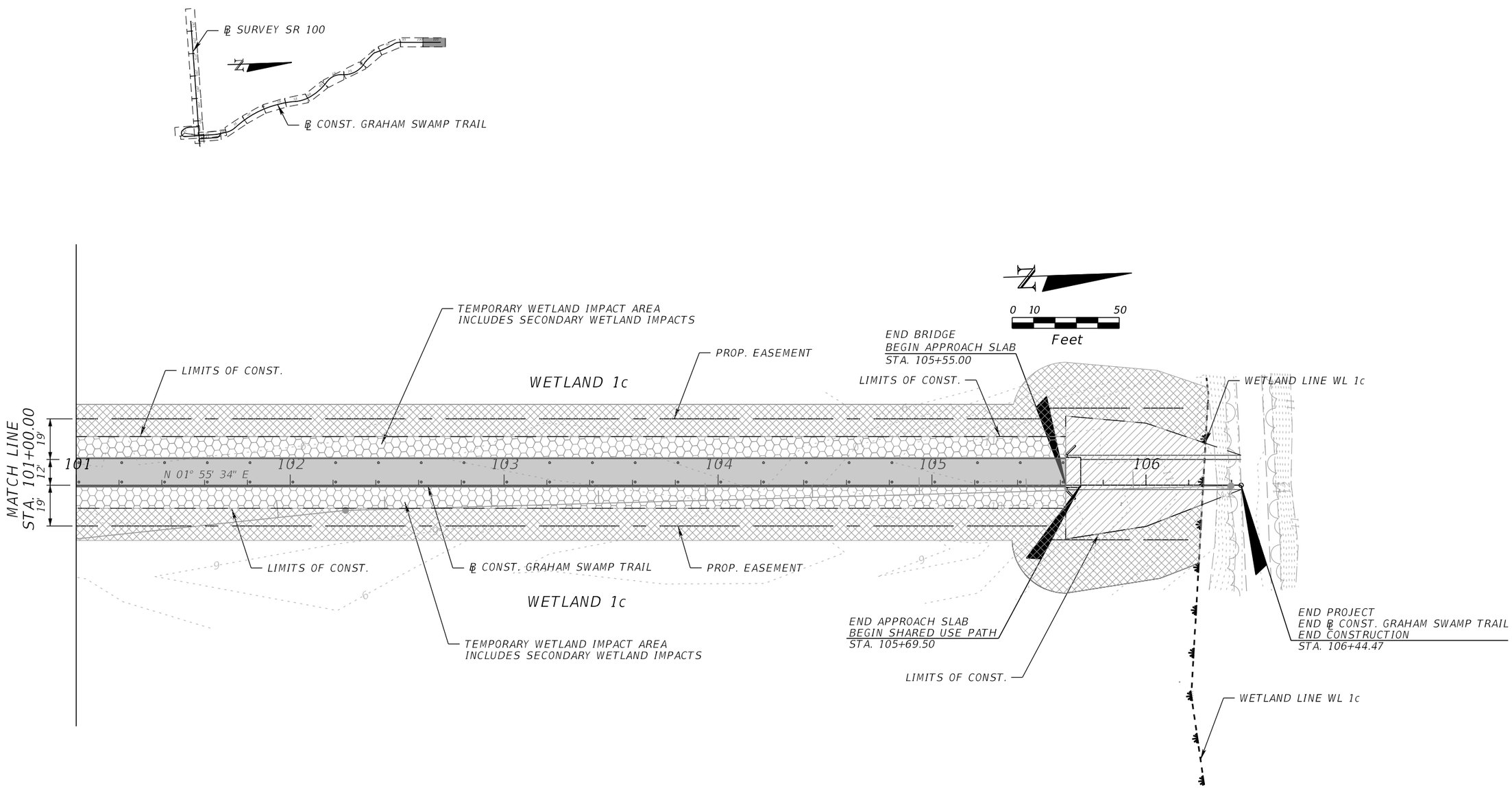
FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

WETLAND/SURFACE WATER (20)
GRAHAM SWAMP TRAIL

SHEET NO.
34

mharriman 10/9/2019 5:02:06 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM20.dgn



LEGEND

- SECONDARY WETLAND IMPACT
- TEMPORARY IMPACT
- SHADING IMPACT
- WETLAND IMPACT
- SURFACE WATER IMPACT
- WETLAND/SURFACE WATER
- LARGE TREE

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Kisinger Campo & Associates Corp.
111 N. Magnolia Ave., Suite 1050
Orlando, FL 32801
Florida Certificate of Authorization No. 02317
Engineer of Record: Kevin W. Tasillo
P.E. No.: 71411

FLAGLER COUNTY, FLORIDA
DEPARTMENT OF PUBLIC WORKS

FLAGLER COUNTY RSO NO.	FINANCIAL PROJECT ID
18-031Q	438635-1-58-01

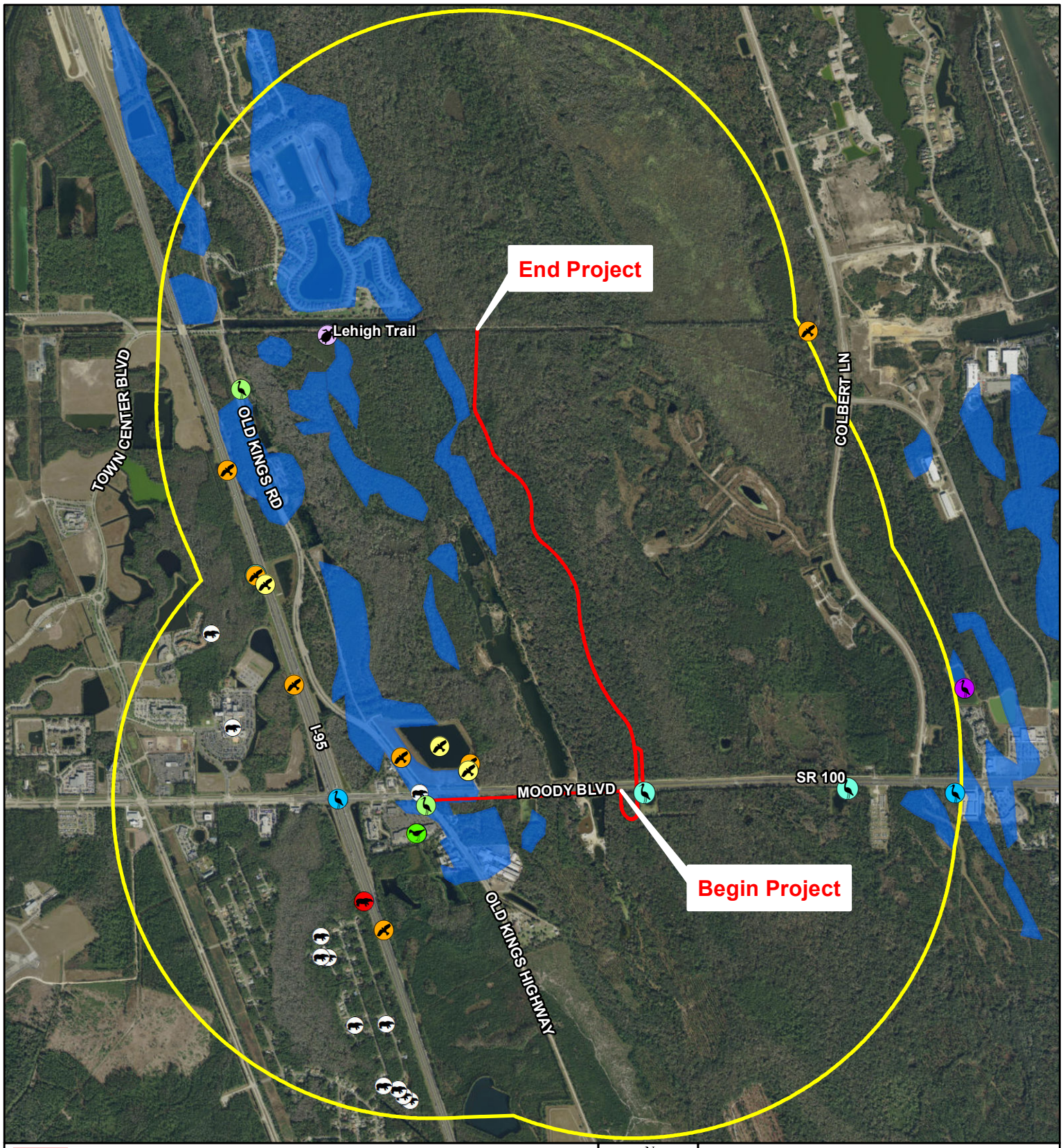
WETLAND/SURFACE WATER (21)
GRAHAM SWAMP TRAIL

SHEET NO.
35

mharriman 10/9/2019 5:02:08 PM M:\1201848.00 Graham Swamp\Design\permits\PLPREM21.dgn

Appendix H

Protected Species Map and FNAI Element Occurrence Report



Proposed Trail

1 Mile Project Buffer

Species

- Bald Eagle
- Gopher Tortoise
- Little Blue Heron
- Osprey
- Florida Sandhill Crane
- Tricolored Heron
- Wood Stork
- Florida Black Bear Calls
- Florida Black Bear Roadkill
- Least Tern
- Florida Scrub Jay Statewide Habitat 1992-1993

N W E S

2,200 1,100 0 2,200

Feet

Protected Species Map

Graham Swamp Trail from south of SR100 to the Lehigh Trail

Flagler County, Florida

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

Appenidx H

Path: M:\1201848.00 Graham Swamp\PM\PERMITS\GIS\Maps\Figures\Graham Swamp - Species.mxd 10/9/2019

FLORIDA
Natural Areas
INVENTORY

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

March 6, 2019

Martin Horwitz
Kisinger, Campo & Associates
135 W. Central Blvd., Suite 300
Orange, FL 32801

Dear Mr. Horwitz,

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

Project: Graham Swamp Trail and Pedestrian Bridge

Date Received: 02/28/19

Location: Flagler County

Element Occurrences

A search of our maps and database indicates that we currently have several element occurrences mapped in the vicinity of the study area (see enclosed map and element occurrence table). Please be advised that a lack of element occurrences in the FNAI database is not a sufficient indication of the absence of rare or endangered species on a site.

The element occurrences data layer includes occurrences of rare species and natural communities. The map legend indicates that some element occurrences occur in the general vicinity of the label point. This may be due to lack of precision of the source data, or an element that occurs over an extended area (such as a wide ranging species or large natural community). For animals and plants, element occurrences generally refer to more than a casual sighting; they usually indicate a viable population of the species. Note that some element occurrences represent historically documented observations which may no longer be extant. Extirpated element occurrences will be marked with an 'X' following the occurrence label on the enclosed map.

Likely and Potential Rare Species

In addition to documented occurrences, other rare species and natural communities may be identified on or near the site based on habitat models and species range models (see enclosed Biodiversity Matrix Report). These species should be taken into consideration in field surveys, land management, and impact avoidance and mitigation.

FNAI habitat models indicate areas, which based on land cover type, offer suitable habitat for one or more rare species that is known to occur in the vicinity. Habitat models have been developed for approximately 300 of the rarest species tracked by the Inventory, including all federally listed species.

FNAI species range models indicate areas that are within the known or predicted range of a species, based on climate variables, soils, vegetation, and/or slope. Species range models have been developed for approximately 340 species, including all federally listed species.

The FNAI Biodiversity Matrix Geodatabase compiles Documented, Likely, and Potential species and natural communities for each square mile Matrix Unit statewide.

Florida Resources
and Environmental
Analysis Center

Institute of Science
and Public Affairs

The Florida State University

Managed Areas
Portions of the site appear to be located within the Graham Swamp Conservation Area, managed by Flagler County and located within Lehigh Greenway managed by Flagler County.

The Managed Areas data layer shows public and privately managed conservation lands throughout the state. Federal, state, local, and privately managed conservation lands are included.

The Inventory always recommends that professionals familiar with Florida's flora and fauna conduct a site-specific survey to determine the current presence or absence of rare, threatened, or endangered species.

Please visit www.fnai.org/trackinglist.cfm for county or statewide element occurrence distributions and links to more element information.

The database maintained by the Florida Natural Areas Inventory is the single most comprehensive source of information available on the locations of rare species and other significant ecological resources. However, the data are not always based on comprehensive or site-specific field surveys. Therefore this information should not be regarded as a final statement on the biological resources of the site being considered, nor should it be substituted for on-site surveys. Inventory data are designed for the purposes of conservation planning and scientific research, and are not intended for use as the primary criteria for regulatory decisions.

Information provided by this database may not be published without prior written notification to the Florida Natural Areas Inventory, and the Inventory must be credited as an information source in these publications. FNAI data may not be resold for profit.

Thank you for your use of FNAI services. An invoice will be mailed separately. If I can be of further assistance, please contact me at (850) 224-8207 or at kbrinegar@fnai.fsu.edu.

Sincerely,

Kerri Brinegar

Kerri Brinegar
GIS / Data Services

Encl

Graham Swamp Trail & Pedestrian Bridge

Site boundaries are approximate.

Flagler County

1018 Thomasville Road
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FLORIDA Natural Areas INVENTORY

Element Occurrences

- Animals
- Plants
- Communities
- Other
- Data Sensitive
- Point Indicates General Vicinity of Element
- U.S. Fish & Wildlife Service Scrub Jay Survey 1992-96

Conservation Lands

- Federal
- State
- Local
- Private
- State Aquatic Preserves

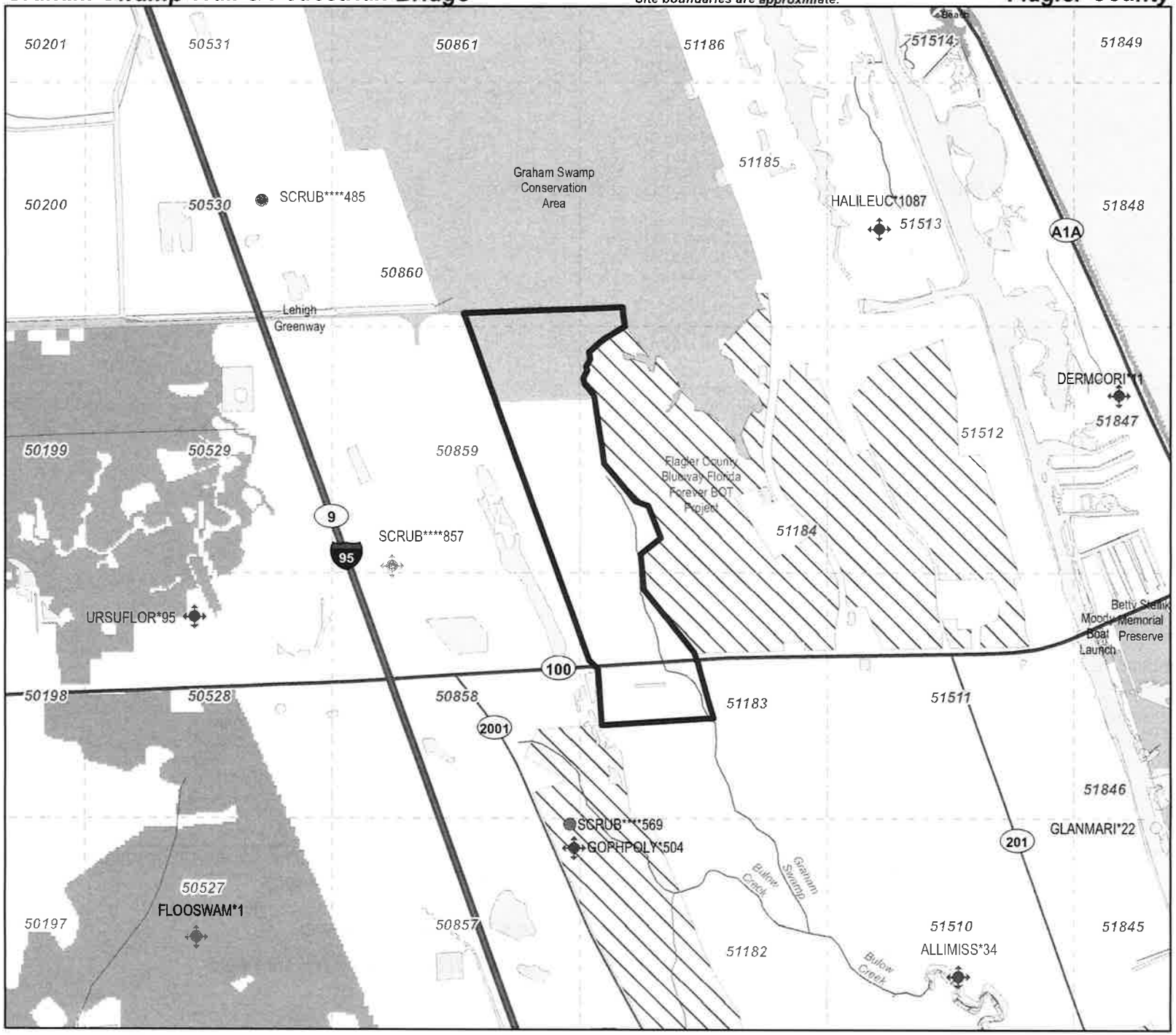
Land Acquisition Projects

- Florida Forever Board of Trustees Projects

- FNAI Rare Species Habitat
- FNAI Biodiversity Matrix Square Mile Units

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

NOTE
Map should not be interpreted without accompanying documents.



Map produced by KAB
3/6/2019

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FLORIDA Natural Areas INVENTORY

FNAI ELEMENT OCCURRENCE REPORT on or near

Graham Swamp Trail & Pedestrian Bridge

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
ALLIMISS*34	*Alligator mississippiensis*	American Alligator	G5	S4	SAT	FT(S/A)	2007	1983: IN TIDAL CREEK (PNDDUT01FLUS).	2007: occasionally observed (U02DRP01FLUS). 1983: INFREQUENTLY OBSERVED (PNDDUT01FLUS).
FLOOSWAM*1	Floodplain swamp		G4	S4	N	N	2004	CYPRESS/CABBAGE PALM SWAMP.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1981-01-26) (U05FNA02FLUS). CYPRESS/CABBAGE PALM SWAMP W/ BIG (SLASH?) PINES & RED MAPLES GROWING ON OLD CYPRESS STUMPS. SOME 4' DBH HOLLOW CYPRESS.
GOPHPOLY*504	*Gopherus polyphemus*	Gopher Tortoise	G3	S3	C	ST	1984-03-13	OLD DUNE LINE, OVERSTORY IS SAND PINE. UNDERSTORY IS TYPICAL WITH OAKS AND L. FERRUGINEA. SERENOA REPENS NOT VERY DENSE. A FEW ROSEMARY. AMERICAN OLIVE WAS OBSERVED. A SIGNIFICANT ECOLOGICAL FEATURE. WHITE SAND.	No EO data given
HALILEUC*1087	*Haliaeetus leucocephalus*	Bald Eagle	G5	S3	N	N	2003	2005-07-12: Source does not provide a description.	Nest status: Active, 2003, 2002, 2001, 2000; Unknown status or not assessed, 1999;(U03FWC01FLUS)
SCRUB****485	Scrub		G2	S2	N	N	1984-01-13	SAND PINES OF MIXED SIZE AND AGES. EXTENSIVE LICHEN MATS. SHRUBS IN UNDERSTORY NOT VERY DENSE (U88CHR01). SCRUB BEING CONVERTED TO A HOUSING DEVELOPMENT (F84STO03).	No EO data given
SCRUB****569	Scrub		G2	S2	N	N	1984-03-13	OLD DUNE LINE, OVERSTORY IS SAND PINE. UNDERSTORY IS TYPICAL WITH OAKS AND L. FERRUGINEA. SERENOA REPENS NOT VERY DENSE. A FEW ROSEMARY. AMERICAN OLIVE WAS OBSERVED. A SIGNIFICANT ECOLOGICAL FEATURE. WHITE SAND.	No EO data given

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FNAI ELEMENT OCCURRENCE REPORT on or near

Graham Swamp Trail & Pedestrian Bridge

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
SCRUB****857	Scrub		G2	S2	N	N	2004	THIS SCRUB OCCURS TO THE EAST AND WEST OF OLD KINGS ROAD AND BEGINS ALMOST IMMEDIATELY NORTH OF HIGHWAY 100 INTERSECTION. IT IS OLD GROWTH SAND PINE IN SOME PLACES WITH SOME YOUNGER PINE ON SITES BURNED MORE RECENTLY (PINES 10-30 CM DBH). WIND THROWN SAND PINE WERE COMMON IN THE OLDER SECTIONS OF THE STAND. GENERALLY THE UNDERSTORY WAS VERY DENSE. IN SOME PLACES SERENOA REPENS DOMINATED THE UNDERSTORY; OTHERWISE OAKS AND PALMETTO WERE MOST COMMON. ZAMIA PUMILA WAS SCATTERED IN THE STAND.	2004: Update to last obs date was based on interpretation of aerial photography (previous value was 1984-03-13) (U05FNA02FLUS).

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FLORIDA Natural Areas INVENTORY

FNAI ELEMENT OCCURRENCE REPORT on or near

Graham Swamp Trail & Pedestrian Bridge

Map Label	Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing	Observation Date	Description	EO Comments
URSUFLOR*95	*Ursus americanus floridanus*	Florida Black Bear	G5T4	S4	N	N	2016	Large area of pine plantation, mesic and wet flatwoods, and dome and basin swamps; Largely private commercial timberland, nurseries, and small neighborhoods; public lands are dominated by pine plantation but also have flatwoods interspersed with dome swamps and patches of scrub; Large area of sand pine and oak scrub, mesic flatwoods, sandhill, depression marshes and hardwood swamps, pine plantation; regular harvesting of sand pine (U05SIM01FLUS).	2002: 1,025-1,539 bears estimated in the primary ranges in the Ocala-St. John's region. Part of a larger population that includes Okefenokee Swamp National Wildlife Refuge in Georgia (U05SIM01FLUS). 2014: 1,198 bears estimated in the Ocala-St. John's region and 495 estimated in the Osceola region (A16HUM01FLUS). 2016: polygons created to show where bears are considered 'Abundant' and 'Common' (U16FWC01FLUS) Primary is the FWC-designated core area that represents breeding range and contains documented evidence of reproduction or female bears within available habitat, and Secondary is the FWC-designated area where bears occur within available habitat but outside primary bear range (evidence of bears without documented evidence of reproduction) (U12FWC02FLUS, U05SIM01FLUS). These boundaries are based on decades of bear observations, roadkill distribution, nuisance bear locations, and bear research projects. For detailed location data contact the FWC.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Matrix Unit ID: 50858					
Likely					
Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N
Potential					
Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Asplenium x heteroresiliens	Morzenti's spleenwort	G2	S1	N	N
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chamaesyce cumulicola	sand-dune spurge	G2	S2	N	E
Conradina grandiflora	large-flowered rosemary	G3	S3	N	T
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Floodplain swamp		G4	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3	N	N
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Litsea aestivalis	pondspice	G3?	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Matrix Unit ID: 50859					
Likely					
Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N
Potential					
Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Asplenium x heteroresiliens	Morzenti's spleenwort	G2	S1	N	N
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chamaesyce cumulicola	sand-dune spurge	G2	S2	N	E
Conradina grandiflora	large-flowered rosemary	G3	S3	N	T
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Floodplain swamp		G4	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	nodding pinweed	G3	S3	N	T

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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Tallahassee, FL 32303
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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Lechea divaricata	pine pinweed	G2	S2	N	E
Litsea aestivalis	pondspice	G3?	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Matrix Unit ID: 50860					
Likely					
Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N
Potential					
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Asplenium x heteroresiliens	Morzenti's spleenwort	G2	S1	N	N
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chamaesyce cumulicola	sand-dune spurge	G2	S2	N	E
Conradina grandiflora	large-flowered rosemary	G3	S3	N	T
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Floodplain swamp		G4	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Litsea aestivalis	pondspice	G3?	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Nolina atopocarpa	Florida beargrass	G3	S3	N	T
Pteroglossaspis ecristata	giant orchid	G2G3	S2	N	T
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N
Matrix Unit ID: 51183					
Likely					
Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N
Potential					
Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)
Asplenium x heteroresiliens	Morzenti's spleenwort	G2	S1	N	N
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Conradina grandiflora	large-flowered rosemary	G3	S3	N	T
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

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FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Floodplain swamp		G4	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Heterodon simus	Southern Hognose Snake	G2	S2	N	N
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Litsea aestivalis	pondspice	G3?	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 51184

Likely

Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N

Potential

Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)
Aphelocoma coerulescens	Florida Scrub-Jay	G2	S2	T	FT
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Chamaesyce cumulicola	sand-dune spurge	G2	S2	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Floodplain swamp		G4	S4	N	N
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lechea cernua	nodding pinweed	G3	S3	N	T
Lechea divaricata	pine pinweed	G2	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N

Matrix Unit ID: 51185

Likely

Mesic flatwoods		G4	S4	N	N
Scrub		G2	S2	N	N

Potential

Asplenium x heteroresiliens	Morzenti's spleenwort	G2	S1	N	N
Calopogon multiflorus	many-flowered grass-pink	G2G3	S2S3	N	T
Centrosema arenicola	sand butterfly pea	G2Q	S2	N	E
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	G3G4	S2	N	N
Drymarchon couperi	Eastern Indigo Snake	G3Q	S3	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST
Lechea cernua	nodding pinweed	G3	S3	N	T
Litsea aestivalis	pondspice	G3?	S2	N	E
Matelea floridana	Florida spiny-pod	G2	S2	N	E
Nemastylis floridana	celestial lily	G2	S2	N	E

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

1018 Thomasville Road
Suite 200-C
Tallahassee, FL 32303
(850) 224-8207
(850) 681-9364 Fax

FLORIDA Natural Areas INVENTORY

Florida Natural Areas Inventory

Biodiversity Matrix Report

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Listing
Neofiber alleni	Round-tailed Muskrat	G3	S3	N	N
Ursus americanus floridanus	Florida Black Bear	G5T2	S2	N	N

Definitions: *Documented - Rare species and natural communities documented on or near this site.*
Documented-Historic - Rare species and natural communities documented, but not observed/reported within the last twenty years.
Likely - Rare species and natural communities likely to occur on this site based on suitable habitat and/or known occurrences in the vicinity.
Potential - This site lies within the known or predicted range of the species listed.

Elements and Element Occurrences

An **element** is any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave, or other ecological feature.

An **element occurrence (EO)** is an area of land and/or water in which a species or natural community is, or was, present. An EO should have practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location.

Element Ranking and Legal Status

Using a ranking system developed by NatureServe and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks for each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element Occurrences (EOs), estimated abundance (number of individuals for species; area for natural communities), geographic range, estimated number of adequately protected EOs, relative threat of destruction, and ecological fragility.

FNAI GLOBAL ELEMENT RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
G4 = Apparently secure globally (may be rare in parts of range).
G5 = Demonstrably secure globally.
GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).
GX = Believed to be extinct throughout range.
GXC = Extirpated from the wild but still known from captivity or cultivation.
G#? = Tentative rank (e.g., G2?).
G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).
G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).
G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).
G#T#Q = Same as above, but validity as subspecies or variety is questioned.
GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).
GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
GNR = Element not yet ranked (temporary).
GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
S4 = Apparently secure in Florida (may be rare in parts of range).
S5 = Demonstrably secure in Florida.
SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).
SX = Believed to be extirpated throughout Florida.
SU = Unrankable; due to a lack of information no rank or range can be assigned.
SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).
SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.
E = Endangered: species in danger of extinction throughout all or a significant portion of its range.
E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas
E, PDL = Species currently listed endangered but has been proposed for delisting.
E, PT = Species currently listed endangered but has been proposed for listing as threatened.
E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.
T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.
PE = Species proposed for listing as endangered
PS = Partial status: some but not all of the species' infraspecific taxa have federal
PT = Species proposed for listing as threatened
SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.
SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service
FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service
FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service
FXN = Federal listed as an experimental population in Florida
FT(S/A) = Federal Threatened due to similarity of appearance
ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.
SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)
N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: http://www.doacs.state.fl.us/pi/.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.
T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.
N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability
A? = Possibly excellent estimated viability
AB = Excellent or good estimated viability
AC = Excellent, good, or fair estimated viability
B = Good estimated viability
B? = Possibly good estimated viability
BC = Good or fair estimated viability
BD = Good, fair, or poor estimated viability
C = Fair estimated viability
C? = Possibly fair estimated viability
CD = Fair or poor estimated viability
D = Poor estimated viability
D? = Possibly poor estimated viability
E = Verified extant (viability not assessed)
F = Failed to find
H = Historical
NR = Not ranked, a placeholder when an EO is not (yet) ranked.
U = Unrankable
X = Extirpated

*For additional detail on the above ranks see: http://www.natureserve.org/explorer/eorankguide.htm

FNAI also uses the following EO ranks:

H? = Possibly historical
F? = Possibly failed to find
X? = Possibly extirpated

The following offers further explanation of the H and X ranks as they are used by FNAI:

The rank of H is used when there is a lack of recent field information verifying the continued existence of an EO, such as (a) when an EO is based only on historical collections data; or (b) when an EO was ranked A, B, C, D, or E at one time and is later, without field survey work, considered to be possibly extirpated due to general habitat loss or degradation of the environment in the area. This definition of the H rank is dependent on an interpretation of what constitutes "recent" field information. Generally, if there is no known survey of an EO within the last 20 to 40 years, it should be assigned an H rank. While these time frames represent suggested maximum limits, the actual time period for historical EOs may vary according to the biology of the element and the specific landscape context of each occurrence (including anthropogenic alteration of the environment). Thus, an H rank may be assigned to an EO before the maximum time frames have lapsed. Occurrences that have not been surveyed for periods exceeding these time frames should not be ranked A, B, C, or D. The higher maximum limit for plants and communities (i.e., ranging from 20 to 40 years) is based upon the assumption that occurrences of these elements generally have the potential to persist at a given location for longer periods of time. This greater potential is a reflection of plant biology and community dynamics. However, landscape factors must also be considered. Thus, areas with more anthropogenic impacts on the environment (e.g., development) will be at the lower end of the range, and less-impacted areas will be at the higher end.

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

APPENDIX I

Standard Protection Measures for the Eastern Indigo Snake

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

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

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

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

POSTER INFORMATION

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

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

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

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

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

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

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

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

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

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

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

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

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

PRE-CONSTRUCTION ACTIVITIES

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

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

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

DURING CONSTRUCTION ACTIVITIES

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

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

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

POST CONSTRUCTION ACTIVITIES

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

APPENDIX J

Agency Correspondence

Florida Department of Transportation

RON DESANTIS
GOVERNOR

719 S. Woodland Blvd.
DeLand, FL 32720

KEVIN J. THIBAULT, P.E.
SECRETARY

June 13, 2019

Timothy A. Parsons, Ph.D.,
Director and State Historic Preservation Officer
Florida Division of Historical Resources
Florida Department of State
R.A. Gray Building
500 South Bronough Street
Tallahassee, Florida 32399-0250

RECEIVED
BUREAU OF
HISTORIC PRESERVATION
2019 JUN 17 P 2:33

Attn: Dr. Adrianne Daggett, Transportation Compliance Review Program

RE: Cultural Resource Assessment Survey
Graham Swamp Trail and Pedestrian Bridge over State Road 100
Flagler County, Florida
Financial Management No.: 438635-1-38-01

Dear Dr. Parsons,

Enclosed please find one copy of the report titled *Cultural Resource Assessment Survey of the Graham Swamp Trail and Pedestrian Bridge over State Road 100, Flagler County, Florida.* This report presents the findings of a cultural resource assessment survey (CRAS) conducted in support of the proposed Graham Swamp Trail in Flagler County, Florida. This is a Local Agency Program (LAP) project being conducted by Flagler County using federal funds administered by the Florida Department of Transportation (FDOT), District 5. Flagler County is proposing to construct a 12-foot-wide asphalt paved trail, with 2-foot-wide unpaved shoulders, and/or elevated boardwalk. New sidewalk will connect to existing sidewalk on the east side of Old Kings Road, continuing for approximately 3,115 feet (949.5 meters). An enclosed pedestrian bridge is proposed over State Road (SR) 100 (Moody Boulevard). The proposed trail then travels north through Graham Swamp for approximately 1.6 miles (2.6 kilometers), terminating approximately 0.82 miles (1.32 kilometers) east of the Lehigh Trail/Old Kings Road intersection. Trail construction will occur on land owned by Flagler County and the FDOT, as well as sidewalk construction within the SR 100 right-of-way.

The project Area of Potential Effect (APE) was defined as the proposed trail corridor in addition to a 100-foot (30.5-meter) buffer from the edge of the proposed trail footprint. The APE along SR 100 where new sidewalk is proposed was extended to the back or side property lines of parcels adjacent to proposed new sidewalk, or a distance of no more than 100 meters (330 feet) from the right-of-way line. As the final project design is in development, the trail corridor captured all potential locations of the trail footprint and ramps to the pedestrian bridge. The

archaeological survey was conducted within the trail corridor. The architectural history survey was conducted within the entire APE.

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 FDOT pursuant to 23 U.S.C. §327 and a Memorandum of Understanding (MOU) dated December 14, 2016, and executed by the Federal Highway Administration (FHWA) and FDOT.

This CRAS was conducted in accordance with the requirements set forth in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, found in 36 CFR Part 800 (Protection of Historic Properties). The study also complies with Chapter 267 of the Florida Statutes and Rule Chapter 1A-46, Florida Administrative Code and Section 267.12, Florida Statutes, Chapter 1A-32. All work was performed in accordance with Part 2, Chapter 8 of FDOT's PD&E Manual (revised January 2019), FDOT's Cultural Resource Handbook, and the standards stipulated in the Florida Division of Historical Resources' (FDHR) *Cultural Resource Management Standards & Operations Manual, Module Three: Guidelines for Use by Historic Preservation Professionals*. The Principal Investigator for this project meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (48 FR 44716-42). This study also complies with Public Law 113-287 (Title 54 U.S.C.), which incorporates the provisions of the NHPA of 1966, as amended, and the Archeological and Historic Preservation Act of 1979, as amended.

The archaeological survey included visual reconnaissance and systematic subsurface examination within the proposed Graham Swamp Trail Corridor. The survey resulted in the excavation of 39 shovel tests. One shovel test, recorded as Archaeological Occurrence 1 (AO 1), produced one coarse-grained coastal plain chert flake. Delineating shovel tests excavated at 12.5- and 25-meter intervals produced no additional artifacts. Archaeological occurrences are categorically ineligible for the National Register of Historic Places (NRHP).

Five additional pre-plotted shovel tests were not excavated ("no dig") due to subsurface disturbance or inundated wetland. The archaeological APE generally contains poorly drained soils within the swamp marshland and intensive subsurface disturbances along SR 100 resulting from the construction of the roadway, buried utilities, drainage features, and retention ponds. Due to the presence of poorly drained soils within the swamp, the high level of disturbance encountered within the SR 100 right-of-way, and the lack of cultural significance for AO 1, no further archaeological work is recommended within the proposed Graham Swamp Trail corridor.

No architectural resources were identified within the Graham Swamp Trail APE. No further architectural work is recommended.

Based on the results of this study, it is the opinion of the District that the proposed undertaking will have no effect on NRHP-listed or -eligible historic properties. No further work is recommended.

I respectfully request your concurrence with the findings of the enclosed report.

If you have any questions or need further assistance, please contact Catherine Owen, District Cultural Resource Coordinator, at (386) 943-5383 or me at (386) 943-5411.

Sincerely,

for William G. Walsh
Environmental Manager
FDOT, District Five

The Florida State Historic Preservation Officer:

✓ concurs/ ___ does not concur with the findings and recommendations contained in this cover letter and the enclosed memo.

___ requires additional information in order to provide an opinion on the potential effects of the proposed projects on historic resources.

/s/ Deputy SHPO _____ 7/12/2019
For: Timothy A. Parsons, Ph.D. **Date**
Director, Division of Historical Resources
& State Historic Preservation Officer

2019-3449
DHR No.

APPENDIX K

Example Conservation Land Management Plan

Lehigh Greenway Rail-Trail

Management Plan Submitted and
Managed By: FLAGLER COUNTY
via sublease agreement with the
Division of Recreation and Parks, Office of Greenways and Trails

Lease #4321-01

Management Plan Submitted to the Division of State Lands for Review on September 23, 2011

FLAGLER COUNTY
FLORIDA

Management Plan Compliance Checklist - Natural Resource Lands	
Requirements	**Page Numbers**
18-2.021 Acquisition and Restoration Council.	
1. Executive Summary	XI
Management Plans. Plans submitted to the division for ARC review under the requirements of Section 253.034 F.S. should be in a form and manner prescribed by rule by the board and in accordance with the provisions of S. 259.032 and should contain where applicable to the management of resources the following:	
2. The common name of the property.	XI, 3
3. A map showing the location and boundaries of the property plus any structures or improvements to the property.	Maps 1.1 and 1.3
4. The legal description and acreage of the property.	XI, Appendix A
5. The degree of title interest held by the Board, including reservations and encumbrances such as leases.	XI, 18, Appendix A
6. The land acquisition program, if any, under which the property was acquired.	XI, 3
7. The designated single use or multiple use management for the property, including other managing agencies.	XI, 12
8. Proximity of property to other significant State/local/federal land or water resources.	4, 21 and Map 1.2
9. A statement as to whether the property is within an Aquatic Preserve or a designated Area of Critical State Concern or an area under study for such designation. If yes, make sure appropriate managing agencies are notified of the plan.	4
10. The location and description of known and reasonably identifiable renewable and non-renewable resources of the property including, but not limited to, the following:	
A. Brief description of soil types, using U. S. D. A. maps when available;	7, Appendix C
B. Archaeological and historical resources*;	9, Appendix F
C. Water resources including the water quality classification for each water body and the identification of any such water body that is designated as an Outstanding Florida Waters;	8, Map 1.6
D. Fish and wildlife and their habitat;	8,9 and Appendix E
E. State and federally listed endangered or threatened species and their habitat;	9, Appendices D and E
F. Beaches and dunes;	8
G. Swamps, marshes and other wetlands;	4
H. Mineral resources, such as oil, gas and phosphate;	8
I. Unique natural features, such as coral reefs, natural springs, caverns, large sinkholes, virgin timber stands, scenic vistas, and natural rivers and streams; and	10
J. Outstanding native landscapes containing relatively unaltered flora, fauna, and geological conditions.	10

11. A description of actions the agency plans, to locate and identify unknown resources such as surveys of unknown archeological and historical resources.	27
12. The identification of resources on the property that are listed in the Florida Natural Areas Inventory. Include letter from FNAI or consultant, where appropriate.	9, Appendix D
13. A description of past uses, including any unauthorized uses of the property.	10
14. A detailed description of existing and planned use(s) of the property.	10
15. A description of alternative or multiple uses of the property considered by the managing agency and an explanation of why such uses were not adopted.	12
16. A detailed assessment of the impact of planned uses on the renewable and non-renewable resources of the property and a detailed description of the specific actions that will be taken to protect, enhance and conserve these resources and to mitigate damage caused by such uses.	12
17. A description of management needs and problems for the property.	XII, 14
18. Identification of adjacent land uses that conflict with the planned use of the property, if any.	11
19. A description of legislative or executive directives that constrain the use of such property.	22
20. A finding regarding whether each planned use complies with the State Lands Management Plan adopted by the Trustees on March 17, 1981, and incorporated herein by reference, particularly whether such uses represent "balanced public utilization", specific agency statutory authority, and other legislative or executive constraints.	12, 22
21. An assessment as to whether the property, or any portion, should be declared surplus.	XII, 20, Map 2
22. Identification of other parcels of land within or immediately adjacent to the property that should be purchased because they are essential to management of the property. Clearly defined map of parcels can be used.	21
23. A description of the management responsibilities of each agency and how such responsibilities will be coordinated, including a provision that requires that the managing agency consult with the Division of Historical Resources before taking actions that may adversely affect archaeological or historic resources.	21, 24
24. A statement concerning the extent of public involvement and local government participation in the development of the plan, if any, including a summary of comments and concerns expressed.	12, Appendix H
Additional Requirements—Per Trustees.	
25. Letter of Compliance of the management plan with the Local Government Comprehensive Plan. Letter from local government saying that the plan is in compliance with local government's comprehensive plan.	Exhibit H
253.034 State-Owned Lands; Uses. Each entity managing conservation lands shall submit to the Division of State Lands a land management plan at least every 10 years in a form and manner prescribed by rule by the Board.	
26. All management plans, whether for single-use or multiple-use properties, shall specifically describe how the managing entity plans to identify, locate, protect and preserve, or otherwise use fragile nonrenewable resources, such as archaeological and historic sites, as well as other fragile resources, including endangered plant and animal species.	13
27. The management plan shall provide for the conservation of soil and water resources and for the control and prevention of soil erosion.	24
28. Land management plans submitted by an entity shall include reference to appropriate statutory authority for such use or uses and shall conform to the appropriate polices and guidelines of the state land management plan.	22

29. All land management plans for parcels larger than 1,000 acres shall contain an analysis of the multiple-use potential of the parcel, which analysis shall include the potential of the parcel to generate revenues to enhance the management of the parcel.	NA
30. Additionally, the land management plan shall contain an analysis of the potential use of private managers to facilitate the restoration or management of these lands.	29
31. A physical description of the land.	7
32. A desired outcome.	1, 13
33. A quantitative data description of the land which includes an inventory of forest and other natural resources; exotic and invasive plants; hydrological features; infrastructure, including recreational facilities; and other significant land, cultural, or historical features.	14
34. A detailed description of each short-term and long-term land management goal, the associated measurable objectives, and the related activities that are to be performed to meet the land management objectives. Each land management objective must be addressed by the land management plan, and where practicable, no land management objective shall be performed to the detriment of the other land management activities.	14
35. A schedule of land management activities which contains short-term and long-term land management goals and the related measurable objectives and activities. The schedule shall include for each activity a timeline for completion, quantitative measures, and detailed expense and manpower budgets. The schedule shall provide a management tool that facilitates development of performance measures.	14
36. A summary budget for the scheduled land management activities of the land management plan. For state lands containing or anticipated to contain imperiled species habitat, the summary budget shall include any fees anticipated from public or private entities for projects to offset adverse impacts to imperiled species or such habitats, which fees shall be used solely to restore, manage, enhance, repopulate, or acquire imperiled species habitat. The summary budget shall be prepared in such a manner that it facilitates computing an aggregate of land management costs for all state-managed lands using the categories described in s. 259.037(3).	Appendix J
37. Each management plan shall describe both short-term and long-term management goals, and include measurable objectives to achieve those goals. Short-term and long-term management goals shall include measurable objectives for the following, as appropriate	✓
(A) Habitat restoration and improvement;	14
(B) Public access and recreational opportunities;	14
(C) Hydrological preservation and restoration;	16
(D) Sustainable forest management;	16
(E) Exotic and invasive species maintenance and control;	16
(F) Capital facilities and infrastructure;	17
(G) Cultural and historical resources;	18
(H) Imperiled species habitat maintenance, enhancement, restoration, or population restoration	18
253.036 Forest Management.	
38. For all land management plans for parcels larger than 1,000 acres, the lead agency shall prepare the analysis, which shall contain a component or section prepared by a qualified professional forester which assesses the feasibility of managing timber resources on the parcel for resource conservation and revenue generation purposes through a stewardship ethic that embraces sustainable forest management practices if the lead management agency determines that the timber resource management is not in conflict with the primary management objectives of the parcel.	NA
259.032 Conservation And Recreation Lands Trust Fund; Purpose.	

(10)(a) State, regional or local governmental agencies or private entities designated to manage lands under this section shall develop and adopt, with the approval of the Board of Trustees, an individual management plan for each project designed to conserve and protect such lands and their associated natural resources. Private sector involvement in management plan development may be used to expedite the planning process.	
39. Individual management plans required by s. 253.034(5), for parcels over 160 acres, shall be developed with input from an advisory group - Management plan should list advisory group members and affiliations.	12, Appendix I
40. The advisory group shall conduct at least one public hearing in each county in which the parcel or project is located. Managing agency should provide DSL/OES with documentation showing date and location of public hearing.	Appendix I
41. Notice of such public hearing shall be posted on the parcel or project designated for management, advertised in a paper of general circulation, and announced at a scheduled meeting of the local governing body before the actual public hearing. Managing agency should provide DSL/OES with copy of notice.	Appendix I
42. The management prospectus required pursuant to 259.032 (9) (d) shall be available to the public for a period of 30 days prior to the public hearing.	✓
43. Summary of Advisory Group Meeting should be provided to DSL/OES.	Appendix I
44. Individual management plans shall conform to the appropriate policies and guidelines of the state land management plan and shall include, but not be limited to:	✓
A. A statement of the purpose for which the lands were acquired, the projected use or uses as defined in s. 253.034, and the statutory authority for such use or uses.	1, 13, 22
B. Key management activities necessary to achieve the desired outcomes, including, but not limited to, providing public access, preserving and protecting natural resources, protecting cultural and historical resources, restoring habitat, protecting threatened and endangered species, controlling the spread of nonnative plants and animals, performing prescribed fire activities, and other appropriate resource management activities.	24
C. A specific description of how the managing agency plans to identify, locate, protect, and preserve, or otherwise use fragile, nonrenewable natural and cultural resources.	14
D. A priority schedule for conducting management activities, based on the purposes for which the lands were acquired. The schedule must include a goal, an objective, and a time frame for completion.	14, 19, 29
E. A cost estimate for conducting priority management activities, to include recommendations for cost-effective methods of accomplishing those activities. Using categories as adopted pursuant to 259.037, F.S., is suggested. These are: (1) Resource Management; (2) Administration; (3) Support; (4) Capital Improvements; (5) Visitor Services/Recreation; and (6) Law Enforcement.	Appendix J
F. A cost estimate for conducting other management activities which would enhance the natural resource value or public recreation value for which the lands were acquired. The cost estimate shall include recommendations for cost-effective methods of accomplishing those activities. Using categories as adopted pursuant to 259.037, F.S., is suggested. These are: (1) Resource Management; (2) Administration; (3) Support; (4) Capital Improvements; (5) Visitor Services/Recreation; and (6) Law Enforcement.(Example #10) Include approximate monetary cost and cost effective methods. Can be placed in the appendix.	Appendix J
45. A determination of the public uses and public access that would be consistent with the purposes for which the lands were acquired.	30
259.036 Management Review Teams.	

46. The managing agency shall consider the findings and recommendations of the land management review team in finalizing the required 10-year update of its management plan. Can be addressed in the body of the plan or addressed in an appendix. If not in agreement, the managing agency should reply in a statement in the appendix.	33
Other Requirements.	
47. This checklist table at front of plan (pursuant to request of ARC and consensus agreement of managing agencies.)	I
48. Accomplishments (implementation) from last plan (format variable by agency)	33
49. FNAI-based natural community maps (may differ from FNAI in some cases)	Map 1.7
50. Fire management plans (either by inclusion or reference)(259.032)	25
51. A statement regarding incompatible uses [ref. Ch. 253.034 (9)]	30
52. Cultural resources, including maps of all sites except Native American sites*	9, Appendix F
53. Arthropod control plan	27
Office of Greenways and Trails Requirements.	
Potential Ecological or Recreational Linkages to other Public Lands–planning and management opportunities that exist for integrating the property into the regional greenways and trails system.	Map 1.4
Description of the how entity will defend title for the state owned land.	18
One page Overview of the Plan	1
Climate	7
Table of Contents	VII
***While maps of Native American sites should not be included in the body of the management plan, the DSL urges each managing agency to provide such information to the Division of Historical Resources for inclusion in their proprietary database. This information should be available for access to new managers to assist them in developing, implementing and coordinating their management activities.**	

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I. INTRODUCTION

A. Project Location

The Lehigh Greenway Rail-Trail, commonly known as the Lehigh Trail (Trail), is located in Flagler County, Florida. The Trail is west of Flagler Beach and north of Bunnell and connects to the future downtown of Palm Coast. The Trail is comprised of 6.8 miles of abandoned railroad corridor, of which 5.8 miles are owned by the Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees). The St. Johns River Water Management District owns the remaining easternmost mile of the Trail. The lands are managed as one cohesive property and this Management Plan reflects the entire Trail (Map 1.1).

The Trail traverses the following Sections, Townships and Ranges: 11S30E34, 11S30E35, 11S30E36, 11S31E31, 11S31E32, 11S31E34, 12S30E01, 12S30E02, 12S30E03, 12S31E03, 12S31E04, 12S31E05, 12S31E06, 12S31E40.

Paralleling Royal Palms Parkway for most of its length, the Trail is located just north of Bunnell and State Road 100 (Map 1.2). Throughout most of the distance (5.5 miles), the Trail also parallels a waterway, known as Lehigh Canal or Royal Palms Waterway. The close union of the Trail and Canal extends from U.S. Highway 1 (U.S. 1) eastward, crossing (at-grade) Belle Terre Parkway, passing under Interstate 95 near exit 285, crossing Old Kings Road (at-grade) just south of the junction of Town Center Boulevard and Old Kings Road (OKR). About a quarter mile east of OKR, the Canal empties into the Graham Swamp Conservation Area. The Trail continues through the Graham Swamp Conservation Area and terminates at Colbert Lane, just west of the old Lehigh Portland Cement Company. The Trail also parallels a Florida Power and Light maintenance road and utility line for much of its length. The Trail forms the northernmost boundary of the Palm Coast Town Center, a Palm Coast Holdings, Inc. mixed-use development. There are minimally improved trailheads (Map 1.3) at U.S. 1 and at both the eastern and western sides of Belle Terre Parkway. Access is also provided at OKR. On the eastern terminus of the Trail, at Colbert Lane, construction of a trailhead is underway. The legal description is provided in Appendix A.

B. Land Acquisition History

In 1998, the Flagler County Planning Department submitted a Preservation 2000 Land Acquisition Proposal to the Florida Department of Environmental Protection, Office of Greenways and Trails (OGT) Land Acquisition Program. The Florida Greenways and Trails Council (FGTC), as described by Section 260.0142, Florida Statutes (F.S.), approved acquisition of the project. The Florida Department of Environmental Protection's Division of State Lands (DSL) negotiated acquisition of the property. On May 9, 2000, an Option Agreement to acquire the property was approved by the Trustees. The 194.95-acre parcel was purchased fee simple from Palm Coast Holdings, Inc. for $286,508, through OGT Land Acquisition Program utilizing Preservation 2000 Funds on December 29, 2000 (Appendix A).

On March 19, 2001, Lease Agreement #4321 was executed between the Trustees (Lessor) and OGT (Lessee). On February 19, 2002, Sublease Agreement #4321-01 was executed between OGT (Sublessor) and Flagler County (Subleasee). The Lease and Sublease Agreements expire on March 18, 2051. Flagler County is responsible for the operation and maintenance of the property. The County will work with OGT and other federal, state and local partners to assure that management activities are in compliance with the approved Management Plan (Plan) and applicable laws.

Since the acquisition of the Trail occurred, 1.86 total acres were declared surplus as part of a Land Exchange relating to a road widening project (Map 2). Today, the parcel is 193.09 total acres (Appendix A).

C. Nearby Public Lands and Designated Water Resources

Water Resources are depicted on Map 1.6. The property boundary does not cross over any Outstanding Florida Waters (Appendix B), classified pursuant to Chapter 62-302, Florida Administrative Code (F.A.C.). The property is not located in an Aquatic Preserve as designated under Florida Aquatic Preserve Act of 1975 (Section 258.35, F.S.). The property is not within an Area of Critical State Concern classified pursuant to Section 380.05, F.S.

Much of the Trail parallels the Lehigh Canal/Royal Palms Waterway, which is managed by the City of Palm Coast. The Trail is also intersected at two points by 50 to 70-foot-wide north-south canals. The Eisenhower Waterway is located closest to U.S. 1 while the Easthampton Waterway is located east of the Eisenhower Waterway.

Approximately at the point where Lehigh Canal discharges its flow northerly into Graham Swamp, the Trail exists along a high ridge and crosses over the Graham Swamp Conservation Area (Map 1.2). Comprised of 3,084 acres, Graham Swamp is owned by the St. Johns River Water Management District (SJRWMD) and is managed by Flagler County. Graham Swamp is one of the last remaining major coastal hardwood swamp ecosystems in Florida. The historic headwaters of Bulow Creek originate in the large freshwater basin swamp of Graham Swamp. Graham Swamp, though heavily impaired by the creation of ditches and dikes in the past, serves an important function in retaining and filtering stormwater runoff from residential developments lying to the west and north. A 1000-foot-long bridge exists where the Trail enters the wetlands of the Graham Swamp Conservation Area (Map 1.2). These wetlands are generally high quality, forested type that supports a variety of wildlife. Recreational activities at the Conservation Area include mountain biking, hiking, fishing and nature observation. Graham Swamp is one of the last remaining major coastal hardwood swamp ecosystems in Florida and will provide opportunity to educate users about the value of a unique coastal ecosystem, surrounded by a region under extreme development pressure.

Throughout the lease area are stormwater facilities such as weirs and canals. These facilities are owned and operated by the City of Palm Coast and are generally compatible with the recreations purpose of the property. Access for operation and maintenance of these facilities requires continued coordination Flagler County, OGT, and the City of Palm Coast.

The eastern terminus of the Trail connects to the Colbert Lane Bike Path. The eastern terminus is approximately one-mile from the Florida Circumnavigational Saltwater Paddling Trail and is less than two miles from the Flagler County A1A Bike Path. The Ralph Carter is less than 0.5

miles from the western portion of the Trail. A trail connecting these two facilities is currently being designed.

D. Regional Significance

On November 1, 1993, Flagler County established a coastal greenway program centered along the Intracoastal Waterway. The coastal greenway project protects various aquatic preserves and conservation areas along the entire length of the Flagler County coastal area. The County received the 1994, Florida Greenways Award from 1000 Friends of Florida for the visionary system. One of the goals of the Coastal Greenway is to link separate greenway features to each other through acquisition, easements or regulatory means. The Lehigh Trail is the key route from Western Flagler County toward the coastal greenway and the resources along the State Scenic Highway A1A, Flagler County and the East Coast Greenway.

The major components of the Florida Statewide Greenways and Trails Program are established by a legislatively adopted plan. The foundation for the plan's development consisted of various legislative actions and efforts that occurred throughout the more than 20 years prior to its adoption in 1999. As part of the Florida Greenways and Trails Program, recreational connections (opportunity areas) have been identified throughout the state. These opportunity areas have been mapped and prioritized and form the basis for developing and evaluating acquisition projects and setting the statewide vision for a connected trails system. The property is within a High Priority Multi-Use Corridor on the Recreational Prioritization Maps.

The City of Palm Coast, incorporated in 1999, immediately adopted as one of its primary goals the acquisition of sensitive lands and the construction of sidewalks and trails to link those lands. In 2008, the City adopted an updated Pedestrian/Bicycle Master Plan (City Trail Plan), which was incorporated into the Recreation and Parks Master Plan. The City Trail Plan provides a comprehensive program and prioritizes the expansion of the existing sidewalk/bicycle system and the proposed future system. The City Trail Plan is designed to create a safe and convenient non-motorized transportation system that will connect residential areas to schools, recreational facilities and businesses within the City.

The City Trail Plan identifies existing facilities and proposed projects on major roadways in the City, in addition to trail segments that are mainly used for recreational purposes such as the St. Joe Walkway, the Lehigh Trail and the Pine Lakes Multi-Purpose Path. Flagler County's Lehigh Trail plays an important role in the City Trail Plan providing one of the primary backbones linking neighborhoods and ensuring connectivity of the City's proposed trail system. Safety of pedestrians, cyclists and others utilizing the trails is a key issue for the City of Palm Coast. The City Trail Plan focuses on enhancements that ensure citizens utilizing the Lehigh Trail, as well as other City connecting trails, can do so in a safe and secure environment. These safety and security enhancements utilize Best Practices Design Standards.

In Flagler County, the developing regional trail system allows visitors to view Florida's natural environment and to traverse agricultural areas and rural towns. The infrastructure of greenways and trails serves to connect Flagler County to the statewide system of greenways and trails. As part of the regional trails system, the Lehigh Trail provides recreational opportunities and transportation choices, as well as eco-tourism opportunities for residents and visitors. In 2010, the U.S. Census estimated the population of Flagler County as 95,696; previously in 2000, the U.S. Census estimated the population of Flagler County as 49,832. Throughout the period

between 1990 and 2000, the U.S. Census found that the Flagler County population increased 73.6 percent. As growth continues in the region, it is important to offer a connected system of trails for transportation.

The western terminus of the Trail, at U.S. 1, connects to the "Heritage Crossroads: Miles of History Heritage Highway." Designated through the Florida Department of Transportation's Scenic Highway program, this 92-mile, partially braided loop route, endows the traveler with a unique agricultural and river-to-sea experience. The historic communities of Espanola, Bunnell and Flagler Beach are tied to Florida's early transportation. The Heritage Highway includes Old Dixie Highway, built in 1914. Old Dixie Highway, also known as the Old Brick Road, is the longest continuous section (nine miles) of the original brick road in the Southeastern United States. Travelers along the Heritage Highway may also tour the Old Kings Road, the oldest commercial road in Florida, which was built by British Engineers around 1776. The Heritage Crossroads: Mile of History corridor is composed of the following roadways: Old Kings Road (19 miles), U.S. 1 (19 miles), CR 205 (5 miles), Old Brick Road (9 miles), CR 205 (4 miles), SR 100 (13 miles), SR 11 (15 miles) and John Anderson Highway (5 miles).

The western terminus is immediately north of the City of Bunnell. Creating a linkage for pedestrians, cyclists and inline skaters to downtown Bunnell is a key goal of the Flagler County trails system. Making downtown accessible and attractive to people utilizing multimodal transportation improves small town preservation and prosperity. Plans are in place to connect the Lehigh Trail to the sidewalk system of Bunnell. Construction is expected to begin in 2012 on a sidewalk along the east side of U.S. 1 from Bunnell to the Trail. A lighted crossing currently exists, enabling Trail users to cross U.S. 1 from the western terminus of the Trail to link with possible future connections. Due to the proximity of Interstate 95 (I-95), Bunnell's downtown shops and restaurants are struggling to compete with big box retailers. However, optimism abounds as the City of Bunnell has labeled itself the "Crossroads of Flagler County" due to the fact that three state roads and a railway system meet at this location. Bunnell offers personalized customer service, an encouraging business environment, small town friendliness and unique shopping venues. The Trail also connects to the future center of Palm Coast. As Palm Coast grows, the Trail will become an integral part of the Town Center activities.

The Trail is less than two miles from the Flagler County A1A Bike Path and is connected by trail systems linking Colbert Lane and Belle Terre Parkway. Connecting St. Johns and Volusia counties, the Flagler County A1A Bicycle and Pedestrian Path is designated as a section of the East Coast Greenway (ECG). The ECG "spine" route that connects Calais, Maine to Key West, Florida is over 3,000 miles. In Florida, the ECG is comprised of both a "spine" route of over 719 miles and an "alternate" route that consists of over 86 miles. Today, the ECG is a combination of roads, sidewalks, multiple use trails and river ferries. Once fully developed, the ECG will be a continuous non-motorized, multiple use trail network. Flagler County's A1A Bicycle and Pedestrian Path is 19 miles long, making it the longest completed segment of the 260-mile, St. Johns River-to-the-Sea Loop. This developing Loop, traverses through Palatka, St. Augustine, Flagler Beach, Daytona Beach, New Smyrna Beach, Titusville and back north through DeBary and Deltona to Palatka.

E. Purpose and Scope of Plan

This document represents the ten year update to the original land management plan that was adopted in 2002. Serving as the basic policy statement for policy direction, this Management

Plan (Plan) replaces the 2002 Plan in its entirety. This Plan outlines the setting, resource management and operational constraints of the property. The location, land acquisition history, nearby public lands and designated water resources and regional significance are discussed in Section I. Section II provides an overview of the existing resources on the property while Section III outlines public use of the property. Section IV outlines the management strategies, as well as the goals and objectives for the general management of the property, including policies, the purpose and intended use of the Trail and overall guiding principles and actions.

II. NATURAL, CULTURAL AND HISTORICAL RESOURCES

This section describes the natural, cultural and historical resources of the property. Given the property is an abandoned rail bed, which varies in width and is comprised of compacted soil and ballast usually flanked by parallel drainage swales and canals, the natural resources within the corridor itself are limited. Culturally, the corridor represents a chapter in history.

A. Climate

According to the National Climatic Data Center (NCDC), Flagler County has a subtropical climate with an average temperature of 69°F. June, July and August are the warmest months with July being the hottest (92 high, 74 low). December, January and February are the coldest with January being the coolest (68 high, 46 low). There is an average of 136 annual rain days. The average rainfall is 52 inches per year. April is typically the driest month (2.56 inches) and June is typically the wettest month (6.53 inches).

B. Area Physiography

Topography and Geomorphology

Flagler County is located in the northeastern part of peninsular Florida and includes an area of approximately 507 square miles. The Eastern Valley is the largest geomorphic feature of Flagler County. It covers the western two-thirds of the county. This valley is approximately 20 miles wide and contains most of the low wetlands of Flagler County. Four narrow, linear geomorphic provinces are in the eastern third of the County. They run parallel to the coastline. The Trail is located in the Eastern Valley to Atlantic Coastal Ridge. The Atlantic Coastal Ridge is a product of Holocene shoreline sedimentation (Natural Resource Conservation Service).

As previously mentioned, the Trail was formerly a railroad grade and is generally flat. At times the Trail is raised on an artificial berm or cuts into localized rises. Elevation of the property ranges from a high of approximately 30 feet above sea level near the western terminus to a low of approximately 10 feet above sea level near the eastern terminus.

Geology

The United States Geological Society identifies the geologic feature under the Trail as undifferentiated sediments on the Geologic Map of the State of Florida.

Soils

The soils along the Lehigh Trail are highly disturbed due to the construction of the railroad bed. The United States Department of Agriculture, Natural Resources Conservation Service (USDA, NRCS) was consulted in the development of this Management Plan (Appendix C).

The following soil types are along the corridor:

Favoretta, Chobee and Winder soils, frequently flooded; Myakka fine sand; Placid, Basinger and St. Johns soils, depressional; Immokalee fine sand; Pomello fine sand, 0-5 percent slopes; Valkaria fine sand; Orsino fine sand, 0-5 percent slopes; Smyrna fine sand; Cocoa-Bulow complex, 0-5 percent slopes; Tuscawilla fine sand.

Water Resources, Hydrology, Water Management

According to the Florida Geological Survey, the hydro geologic system of Flagler County generally consists of three aquifer systems; the Surficial Aquifer System, the Intermediate Aquifer System and the Floridian Aquifer System. The Floridian Aquifer System underlies Flagler County at a depth ranging from 80 to 190 feet. This aquifer consists mainly of Eocene limestone and dolomite from the Avon Park Formation and the Ocala Group. The Floridian Aquifer is the major source of water for public uses, irrigation and industry. The Floridian Aquifer is recharged by the overlying Surficial and Intermediate Aquifers. Ranging in thickness from five to 80 feet, the Intermediate Aquifer is primarily within the sediments of the Hawthorne Group. The sediments consist of variable amounts of sand and shell fragments and some silt and clay. The Intermediate Aquifer System is primarily recharged by rainfall and is the primary source for domestic uses. The Surficial Aquifer is a relatively thin water table composed of undifferentiated sand and clay, Terrace deposits and admixtures. The Surficial Aquifer is rarely used for potable water supplies.

Along the entire length of the Trail, ditches divert surface water, primarily rainfall, towards canals (Map 1.6). The principle canal controlling drainage is the Royal Palms Parkway Canal. This Canal is dammed approximately one third of the way between Old Kings Road and Belle Terre Parkway. West of the dam, the Canal is open with vegetated banks. East of the dam, the banks are made of concrete. There are two drainage pipes that run under the railroad grade, exiting on the northern side of the property from the power line easement, into Royal Palms Parkway Canal. Stormwater runoff enters the property from Interstate 95, Old Kings Road, Belle Terre Parkway and the power line easement.

C. Natural Communities

The natural communities of the Trail include pinewood, hardwood hammock, forest hardwood swamp and mixed hardwood/pine forest. Map 1.7 illustrates the composition of the cooperative landcover. The pinewoods have a relatively open overstory and an extensive shrub stratum. As the area is allowed to reseed, other hardwoods are expected to expand. Low lying areas, such as the area on the fringe of the Royal Palms Waterway and the ditch to the south of the Trail, in the westernmost section, contain wetland type vegetation such as ferns and other aquatic plants. Along the eastern portion of the property, that traverses the Graham Swamp Conservation Area, there is hardwood swamp. The majority of the plants within the eastern portion are native. No beach or dune habitat occurs within the property boundary.

D. Forest Resources

There are approximately 15 acres of planted pine west of Belle Terre Parkway (Map 3).

E. Mineral Resources

There are no known minerals of commercial importance within the property boundary.

F. Native Species

A formal survey of native species has not occurred. Non-rare wildlife that can be seen along the Trail include: white-tailed deer (Odocoileus virginianus), eastern grey squirrels (Sciurus carolinensis), raccoons (Procyon lotor), spiders, snakes, wading birds and song birds.

G. Listed Species

As with many rail-trails, the State Threatened gopher tortoise (Gopherus polyphemus) has been seen on the property. Both the Florida Natural Areas Inventory (FNAI) and the Florida Fish and Wildlife Conservation Commission (FFWCC) were contacted to review their data in relation to this property. Both FNAI and FFWCC provided information about the vicinity but neither entity, nor management, had conducted a site specific survey on the property. The FNAI data layer indicates several element occurrences of the Florida scrub-jay (Aphelocoma coerulescens) within the vicinity, and for potential populations on or very near the Trail. However, Florida scrub-jay have not been witnessed or reported to management. Appendix D contains comprehensive information known to FNAI. The FFWCC database indicates that there are no records of listed species occurrences or critical habitats within the project area (Appendix E). As noted by both FNAI and FFWCC, nearby lands include the Graham Swamp Conservation Area (GSCA). According to FFWCC, the GSCA is considered a Strategic Habitat Conservation Area (SHCA). The SHCA has the potential to support several rare or threatened species including the swallow-tailed kite (Elanoides forficatus) and Cooper's hawk (Accipiter cooperii).

H. Invasive/Exotic/Non-Native Species

Invasive/exotic species are those plants or animals which are not native to Florida, but were introduced as a result of human related activities. They have fewer natural enemies and may have a higher survival rate than do native species. They may also harbor diseases or parasites that significantly impact nonresistant native species. Thus, the policy is to remove exotic species.

Flagler County monitors the Trail for exotic plants with particular emphasis on exotic pest plants that occur within the Graham Swamp Conservation Area including Caesar weed (Urena lobata), Chinese tallow tree (Sapium sebiferum) and Brazilian pepper (Schinus terebinthifolius). The eastern terminus of the Trail traverses a section of willow (Salix spp.); the exact reason for the dense stand is unknown. Willow is not invasive but rather successionally aggressive.

Due to proximity of commercial and residential areas, occasional sightings of feral cats (Felis domesticus) or stray dogs have been observed. Wild hogs (Sus scrofa), whose foraging activities are ecologically destructive and incompatible with human activities, are known to occur in the Graham Swamp Conservation Area. Other exotic species known to exist in this area includes the nine-banded armadillos (Dasypus novemcinctus).

Exotic herpetofauna, believed to exist in the area, includes the brown anole (Anolis sagreii). Knowledge of the invertebrates, including insects, arachnids and arthropods is limited and no formal surveys have ever been undertaken.

I. Archaeological, Cultural and Historical Resources

Due to the former land use as a railroad, there is a low probability of significant, undisturbed sites being located within the property boundary. The Florida Division of Historical Resources (DHR) was contacted during development of this Plan. They reviewed the Florida Master Site File (FMSF) and provided a list and a map of recorded resources within and in the vicinity of the

project boundary (Appendix F). The FMSF review disclosed that there are no previously recorded archaeological sites or standing structures. The paved Trail crosses one known resource group, which is Old Kings Road (FL00186). Old Kings Road is the oldest commercial road in Florida built by British Engineers around 1776.

J. Scenic Resources and Unique Natural Features

No coral reefs, natural springs, caverns, large sinkholes, virgin timber stands or natural rivers or streams are known to exist within the property boundary. The most scenic area of the Trail is approximately at the point where Lehigh Canal discharges its flow northerly into Graham Swamp. Here, the Trail exists along a high pine ridge and enters into a mixed hardwood forest. Graham Swamp is one of the last remaining major coastal hardwood swamp ecosystems in Florida and provides educational opportunities regarding the value of a unique coastal ecosystem in the midst of regional development pressures.

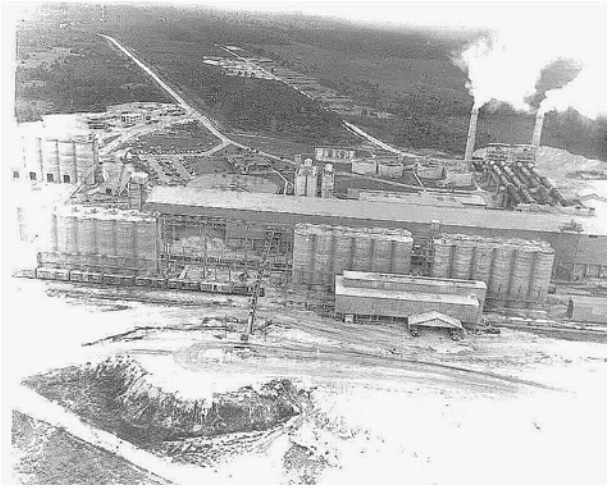
K. Outstanding Native Landscapes

No outstanding native landscapes containing relatively unaltered flora, fauna or geological conditions are known to exist within the property boundary. As previously described, the historic rail corridor enters the mixed hardwood forest of Graham Swamp.

III. USE OF THE PROPERTY AND PUBLIC INPUT

A. Past and Current Use of the Property

During the Florida building boom, Lehigh Portland Cement Company built a cement plant at Flagler Beach. Construction of the plant cost $20 million, and opened for production in 1952. The Lehigh Railroad spur was built to transport the finished product to market and to bring supplies to the plant. One hundred and fifty railroad cars of cement left the plant each day at the height of production. The eastern terminus of the Trail begins in what was the switchyard for the cement plant. Historically, the switchyard was busy enough for the Florida East Coast Railroad to maintain a switch engine on the premises. Very little of the plant still exists. A barge canal connects the plant to the Intracoastal Waterway and was used to supply fuel oil to the plant. North of the plant was the quarry where coquina rock was mined. Coquina was dug from as deep as fifty feet and sand separated from the rock was used to fill the excavations. The coquina was ground with gypsum and additives and made into slurry. The slurry was then pumped into kilns and burned at 2,700 degrees. The material formed was carried to finish mills and ground into cement, which was stored in silos. Some of the cement was bagged on site and some was shipped in bulk form. The plant operated 24 hours a day for several years. Due to economics and labor disputes, the plant and railroad closed in 1965.



Though the project area was located on a railroad right-of-way, it was not officially owned or operated by the Florida East Coast Railway Company. When the plant closed, International Telephone & Telegraph Community Development Corporation (ITTCDC), the developer of Palm Coast, purchased the spur property. The old rail spur has many sidings, switches and multiple tracks where the Lehigh Portland Cement Company brought the gondola freight cars to its cement plant on the east side of Colbert Lane. Near its eastern end, the old rail spur single line switched into five separate parallel trail tracks, establishing a broad base for which is now a parking area for Trail visitors. In 1996, Palm Coast Holdings Inc. purchased the corridor. This corporation agreed to the sale of the property to the State of Florida Department of Environmental Protection, Office of Greenways and Trails (OGT).

After the property was acquired, OGT provided Flagler County with $50,000 as a "starter kit" for development of the property. The Florida Department of Transportation (FDOT) provided $1,515,945 for the design and construction of the Trail. The construction of the Trail began in 2007. Today, the property is developed with a 12-foot-wide paved, non-motorized, multiple use trail for pedestrians, cyclists and inline skaters. There are road crossing improvements at Old Kings Road, Town Center Boulevard and Belle Terre Parkway. There is also a 1000-foot-long/10-foot-wide bridge, mile markers, five kiosks, rest benches, trash receptacle and doggie bag dispensers. On the eastern terminus of the Trail, at Colbert Lane, construction of a trailhead is underway. Funding for the Colbert Lane Trailhead is being provided by the FDOT. There are minimally improved trailheads at U.S. 1, Old Kings Road (OKR) and both the eastern and western sides of Belle Terre Parkway.

The property is managed to provide public recreation and alternative transportation opportunities consistent with the protection of natural resources. Access for individuals with disabilities is an integral part of the Trail. The Trail offers recreational, non-motorized, alternative transportation benefits for area residents, as well as statewide, national and international opportunities for visitors. The Trail currently serves as a distinct and homogenous natural experience that traverses through suburban, a transitioning urban (Town Center) and a natural area (Graham Swamp), while retaining its distinct character as a natural oasis from the built environment.

B. Existing and Future Land Use Surrounding the Property

The use of the property is consistent with the City of Palm Coast 2035 Comprehensive Plan and the Flagler County Comprehensive Plan (Appendix H). Adjacent, existing and future land use along the Trail includes: Mixed Use, Residential, Institutional, DRI-Urban Core, Conservation and Agriculture/Timberlands (Map 4). A Florida Power and Light substation is located on the adjacent property to the south of the Trail approximately ¼ mile west of Town Center Boulevard. Extending through urban and rural terrain, Trail visitors are provided with an opportunity to safely move between various land uses.

The Trail and future trail connections enhances aspects of the community by providing economic development and revitalization to small towns traversed by the project. OGT notes the importance of including bicycle/pedestrian/equestrian facilities within the design plans of future development and supports connectivity to the existing Trail. Specifically, dedicated shared use paths/trails provide the optimum setting for the safe and efficient use of non-motorized modes of transportation through master planned residential communities and commercial centers. Trails are in high demand among homebuyers. Nationwide, proximity to trails is the number one amenity that prospective homebuyers seek in a community when buying a home (National Association of Homebuilders, 2008). Large scale development projects continue to represent one of the most promising opportunities for public/private partnerships aimed at furthering Florida's expansion of an interconnected statewide system of trails.

C. Use of the Property – Single Use/Recreation

The property is managed by Flagler County as a single use property to provide public recreation and alternative transportation opportunities consistent with the protection of natural resources. The existing and planned uses of the property are consistent with the purpose of the acquisition. The design of the Trail allows for balanced public utilization. Management may establish operating conditions needed for the safe operation of the facilities.

Additional uses of the property for mining, silviculture, range management or other consumptive purposes, where not prohibited by legal restrictions, are evaluated on a case by case basis for compatibility. Chapters 62S-3 and 18-2, F.A.C., prevent accepting revenue for use of properties except for campground and boat ramps. Management is not proposing either of these uses. Proposals for concessions will be employed on a case by case basis and have the potential to enhance the property. Management will use strategies to protect and enhance the natural communities and features. Complete restoration of the property to a more natural condition is not being proposed because of the width of the corridor and existing paved trail.

D. Impact Assessment of Planned Use of the Property

All future facilities (Map 1.5) will be designed and constructed using best management practices to avoid impacts to renewable or nonrenewable resources and to mitigate those which cannot be avoided. All federal, state and local permit and regulatory requirements are met by the final design of these projects. After construction, staff will monitor the facilities.

E. Public Involvement

Public involvement is critical to ensuring that residents embrace the Trail and that the Trail is an integral part of the communities it traverses. Conceptualization of the Trail began at a November 15, 1994 meeting of the Flagler County Bicycle/Pedestrian Program Advisory Committee. A Rails-to-Trails Advisory Committee was formed to provide public input on the Trail. Subsequent meetings, of both of these groups, were held from 1997 to 2002. Community involvement for the adoption of the original Management Plan began on November 15, 2001

with the Lehigh Rails to Trails Committee, which dissolved in May 2007. Since adoption of the original Plan, the Trail has gained in popularity with trail enthusiasts and is valued by its nearby communities and governmental entities. Flagler County maintains ongoing communications with all interested citizens, visitors and local, state and federal partners within the geographic area to facilitate the needs of trail users, partner agencies, governments, organized groups and citizens. On June 6, 2011, the Flagler County Board of County Commissioners passed a Resolution establishing the Flagler County Lehigh Trail Management Plan Update Advisory Committee in accordance with Section 259.032(10)(b), F.S. and Chapter 253.034(5), F.S., which requires parcels greater than 160 acres to be developed with input from an advisory group.

Appendix I provides information related to the public's involvement in this Plan. Recommendations from the Advisory Group were incorporated into the Plan. Although citizens did not attend the advertised public meeting the Plan was also discussed at the regularly scheduled County Commission meeting. Overwhelming support was provided verbally during the open comment period. The lack of attendance at the Public Meeting solidifies the public's support of the Trail and management strategies.

IV. MANAGEMENT ISSUES, GOALS AND OBJECTIVES

Central to the management of the Trail is the Flagler County Board of County Commissioners' belief in the importance of planning and developing programs to promote healthy communities. Also essential to the management is the mission of the Florida Department of Environmental Protection's Office of Greenways and Trails (OGT), which administers the land acquisition program through which the Trail was acquired. Management responsibilities are designated in the sublease between OGT and Flagler County. The desired outcome and overall goal of the management of the Trail is to provide access to a growing recreational trails network. The trails network serves to connect people and communities and to enhance economic development.

When Senate Bill 542 became law in 2008, its primary purpose was to standardize and quantify planning for conservation land management across all managing agencies to the greatest extent possible, thereby making efforts to measure performance and aggregate data far more efficient. Codified within Section 253.034(5), F.S., the new law requires all conservation land management plans to include eight common overarching goal categories, with each goal category being further segmented into a series of measureable/quantifiable objectives. An interagency working group developed a standard set of 32 objectives with broad applicability to most every management unit within the State's inventory of conservation lands. Objectives are typically identified as either short-term (two years) or long-term (ten years). Together, these common goals and "core" objectives are to be included in every management plan; even if particular goals/objectives are simply identified as "Not Applicable" for certain management units. Over the course of the ten-year planning horizon, objectives are accomplished through a series of customized activities also delineated in each management plan.

Some of the common goals and core objectives are not applicable to the Lehigh Trail, but all are addressed in this section. Management goals and objectives will be measured through a comparison of target values versus the actual accomplishments every two years in the Biennial Land Management Operational Report to the Land Management Uniform Accounting Council (LMUAC).

A. Goals, Objectives and Measures

Pursuant to Section 253.034(5)(b), F.S., each management plan shall describe both short term and long term management goals and include measurable objectives to achieve those goals. The goals and objectives are described below. Also included are specific activities necessary to accomplish each objective.

The statutory requirements of Section 253.034(5)(c) 4, F.S., calls for a summarization of the budget to be provided using the Goals, Objectives and Activities categories. The statutory requirement of Section 253.034(5)(c) 5, F.S., requires that a budget be provided based on the LMUAC categories for land management activities (Appendix J).

Habitat Restoration and Improvement

- ***Goal 1: Improve natural communities and natural habitat.***
  - Objective 1.1 (Core) – Prescribe burn 0 acres per year. [2012-2022] (Not applicable to this property due to property configuration and significant urban/suburban interface with surrounding private lands.)
  - Objective 1.2 (Core) – Maintain 0 acres per year within the target fire return interval. [2011-2022] (Not applicable to this property due to property configuration and significant urban/suburban interface with surrounding private lands.)
  - Objective 1.3 – Conduct baseline study of property to determine acreage requiring habitat/natural community improvement or restoration. [2012]
    - Activity 1.3.1 – Delineate protection zones and target areas. [2012]
  - Objective 1.4 (Core) – Conduct habitat/natural community improvement on ____acres (as determined by baseline study in Objective 1.3). [2011-2022]
    - Activity 1.4.1 – Remove overgrown understory vegetation and/or undesirable successional species where necessary. [2014-2021]
    - Activity 1.4.2 – Coordinate with adjacent landowners to enhance natural communities. [2012-2022]
  - Objective 1.5 (Core) – Conduct habitat/natural community restoration on _____acres (as determined by baseline study in Objective 1.3). [2015-2022]
    - Activity 1.5.1 – Revegetate with native tree species and groundcover species. [2015-2022]
    - Activity 1.5.2 – Monitor the progress of restoration efforts to evaluate project success and determine additional management activities needed. [2016-2022]
  - Objective 1.6 (Core) – Conduct timber harvest for the purpose of habitat restoration on 15 acres. [2016-2018]
    - Activity 1.6.1 – Conduct selective thinning in accordance with recommendations from Division of Forestry or other appropriate entity. [2016-2018]
    - Activity 1.6.2 – Follow selective thinning with a second selective thinning of basal area to reduce the stand density. [2018-2022]

Public Access and Recreational Opportunities

- ***Goal 2: Improve Public Access and Recreational Opportunities and improve marketing programs that promote the agency's mission, promote healthy lifestyles and increase their appreciation for Florida's natural and cultural resources.***

- Objective 2.1 (Core) –Maintain a Level of Service (LOS*) score of B or higher for the trail. [2011-2022] (Note: An LOS score of B or better for a 12-foot-wide paved trail is defined by Federal Highway Administration (FHWA) as no more than 164 trail users crossing a given point (travelling in one direction) during a given hour. Any usage rate above this figure is likely to increase conflicts between trail users during passings to such an extent as to degrade user enjoyment and safety. If such a threshold is reached, trail managers may need to consider widening the trail or segregating the various types of trail users, e.g. cyclists, inline skaters, pedestrians).

  **Level-of-Service (LOS)* is a scoring system that ranks a given roadway's ability to handle current traffic volume (usage). If a roadway's current traffic volume exceeds its carrying capacity, traffic flow may be impeded and unsafe, and that roadway's LOS score will be low. Conversely, if a roadway's carrying capacity is greater than the roadway's current usage (thereby allowing traffic to flow freely and safely) the LOS score for that roadway will be high. LOS scores are typically awarded on an ordinal "letter grade" scale of A through F, with A representing the highest/best LOS score possible.

  In July 2006, the Federal Highway Administration (FHWA) released a report on how to calculate LOS for "shared use paths" (i.e. trails). The centerpiece of the report was a spreadsheet calculation tool that can determine the LOS for a given trail based on basic input data from the trail manager.

  According to FHWA, a trail's carrying capacity (and thus LOS) is primarily a function of trail <u>width</u> and user type (e.g. cyclist, inline skater, pedestrian). Trail user conflicts typically occur during passing (opposite direction meetings <u>and</u> same direction over-takings) – situations largely influenced by trail width. Length is not a factor in determining trail carrying capacity.

  Using the FHWA trail LOS calculation tool, a standard 12-foot-wide paved multiple use trail, with an hourly one-way trail user volume of 55-164, (passing a single, precise point on the trail) will receive an LOS score of B. User volume below 55 receives an LOS score of A, while user volume above 164 receives a C or lower.

  The OGT defines trail carrying capacity as "the trail user volume which will allow a trail to retain an LOS score of B or better." Consequently, OGT considers all 12-foot-wide trails to have a one-way hourly carrying capacity of 164 (or a daily two-way carrying capacity of 3,936 [164 x 2 (two-way traffic) x 12 (daily number of hours of operation)].
  - Activity 2.1.1 – Establish visitation monitoring system. [2015]
  - Activity 2.1.2 – Monitor visitation levels. [2016-2022]
  - Activity 2.1.3 – Identify adjacent parcels for Trail expansion. [2012-2022]
- Objective 2.2 (Core) – Continue to provide five interpretive/education programs. [2012-2022] (Note: Interpretive/education efforts on this facility is fulfilled through trailhead/trailside signage and brochures.)
  - Activity 2.2.1 – Continue to provide updated and improved trail signage, maps, brochures and posted information at all kiosks. [2012-2022]

- Objective 2.3 (Core) – Develop eight new interpretive/education programs. [2012-2022] (Note: Interpretive/education efforts on this trail is fulfilled through trailhead/trailside signage and brochures. A new kiosk will be constructed if there is a request for a land exchange/surplus).
    - Activity 2.3.1 – Provide eight new kiosks/signs. [2012-2022]

Hydrological Preservation and Restoration

- ***Goal 3: Protect water quality and quantity.***

    - Objective 3.1 (Core) – Conduct a hydrological site assessment to identify potential restoration needs. [2012-2012]
    - Objective 3.2 (Core) – The total number of acres requiring hydrological restoration will serve as the reference data, this number is determined by the site assessment in Objective 3.1. The total number of acres requiring restoration to natural hydrologic condition is _____.
        - Activity 3.2.1 – Annually report the total number of acres with hydrological restoration underway.
        - Activity 3.2.2 – Annually report the total number of acres with hydrological restoration complete.
        - Activity 3.2.3 – Continue to protect surrounding wetlands with vegetative buffers.
        - Activity 3.2.4 – Maintain culverts and bridges along the Trail.
        - Activity 3.2.5 – Cooperate with other agencies to monitor water quantity and quality.

Sustainable Forest Management

- ***Goal 4: Manage timber resources to reduce fire danger and improve habitat.***

    - Objective 4.1 (Core) – Prepare and implement a silviculture management plan including reforestation, thinning/harvesting, prescribed burning, restoration and timber stand improvement activities and goals. [2012-2014]
    - Objective 4.2 (Core) – Develop a Forest Inventory. [2012]
        - Activity 4.2.1 – Complete a GIS inventory every three to five years. [2015-2022]
        - Activity 4.2.2 – Maintain _____acres of forest inventoried annually. [2012-2021] (Note: Over time, there will be an overall reduction of timber densities as restoration progresses to a more natural community.)

Exotic and Invasive Species Maintenance and Control

- ***Goal 5: Control exotic and invasive plants and animals.***

    - Objective 5.1 – Conduct a baseline study to determine the presence, location and density of exotic and invasive plants. [2012-2014]
    - Objective 5.2 (Core) – Annually treat _____acres of EPPC Category I and Category II invasive exotic plant species (as determined by the baseline study in Objective 5.1). [2012-2022]

        - Activity 5.2.1 – Maintain the annual number of acres treated per year. [2012-2022]
    - Objective 5.3 – Conduct a baseline study to determine the total number of individual exotic animal species. [2012]
    - Objective 5.4 (Core) – Implement control measures on _____exotic and nuisance animal species. [2012-2022] (Note: As determined by the baseline study and reported sightings.)
        - Activity 5.4.1 – Maintain the annual number of exotic and nuisance animal species and control methods implemented. [2012-2022]

<u>Capital Facilities and Infrastructure</u>

- ***Goal 6: Maintain the property as a seamless, paved, multiple use trail corridor while protecting the resources.***

    - Objective 6.1 (Core) – Maintain four existing facilities, 0 miles of existing roads and 6.8 miles of existing paved trail on the property. [2012-2022] (Note: A trailhead with amenities such as bathrooms, parking area and kiosks will be treated as one facility. Several trailheads will be treated as several facilities.) [2012-2022]
        - Activity 6.1.1 – Monitor and maintain all facilities for visitor impacts (i.e., vandalism). [2012-2022]
        - Activity 6.1.2 – Monitor and maintain all facilities for environmental impacts (i.e., mowing and patching the Trail due to the impacts from age, tree roots and erosion). [2012-2022]
    - Objective 6.2 (Core) – Construct nine new facilities, 0 mile of new road, and 0 miles of new trail. [2012-2019]
        - Activity 6.2.1 – Construct the Colbert Lane Trailhead with a restroom. [underway] (Note: Land owned by the Water Management District.)
        - Activity 6.2.2 – Coordinate with the City of Palm Coast on their design and construction of a stabilized parking area/trailhead adjacent to Old Kings Road. [2012]
        - Activity 6.2.3 – Design and construct three non-motorized canoe/kayak launches. [2013, 2016, 2019]
        - Activity 6.2.4 - Plan and design a walkway and adjacent recreated section of historical railroad bed and track. [2012] (Note: To be constructed when funds are identified).
        - Activity 6.2.5 – Design and construct three fishing platforms/observation decks. [2017-2022] (Note: design and funding has not occurred).
    - Objective 6.3 (Core) – Improve or repair six existing facilities, 0 miles of existing roads and 0 miles of existing trail. [2012-2022]
        - Activity 6.3.1 – Improve the existing Trailhead at U.S. 1. [2013-2015] (Note: Improvements will include a restroom).
        - Activity 6.3.2– Coordinate with the City of Palm Coast on their improvements to the existing Trailhead at Belle Terre Parkway. [2012] (Note: This land is owned by the City).
        - Activity 6.3.3 – Design and construct four arched Trail entrances. [2013-2017]

Cultural and Historical Resources

- ***Goal 7: To document and maintain the cultural and historic resources on the property.***

  - Objective 7.1 (Core) – Ensure all known sites are recorded with the Division of Historical Resources (DHR), Florida Master Site File (FMSF). There is one recorded site (FL00186). Should additional sites be found, they will be recorded. [2012-2022]
  - Objective 7.2 (Core) – Ensure all sites are monitored and send updates to the FMSF as needed. There is one known site (FL00186). [2012-2022]
  - Objective 7.3 (Core) – Ensure that all sites are in good condition. [2012-2022] (Note: Describing the present condition, rather than comparing ideal condition; "good" describes a condition of structural stability, where no obvious deterioration other than normal has occurred; "fair" describes a discernible decline between inspections and is cause for concern; "poor" describes an unstable condition and suggests immediate action is needed.) The known site (FL00186) is a linear resource, Old Kings Road, which is paved at the point of the Trail crossing. (Note: The City of Palm Coast is requesting to exchange .171 acres of City land for .161 acres of the Trail to widen Old Kings Road from two lanes to four lanes, elaborated on in "Potential Surplus Lands"). If this portion of Trail is deemed surplus, recorded sites may be reduced to 0.

Imperiled Species

- ***Goal 8: Ensure that habitats for imperiled species are protected.***

  - Objective 8.1 (Core) – Develop a baseline imperiled species occurrence inventory list. [2012-2014]
  - Objective 8.2 (Core) – Develop monitoring protocols for _____ imperiled species. [2012-2014] (Note: A minimum of one monitoring protocol will be developed for each imperiled species listed.)
    - Activity 8.2.1 – Map occurrences of imperiled species. [2012, 2017]
  - Objective 8.3 (Core) – Implement monitoring protocols for _____imperiled species (as determined by the baseline list in Objective 8.1). [2012-2022]

B. Management Authority

The Trail is managed by Flagler County via sublease #4321-01 (Appendix A). Flagler County is responsible for the operation and maintenance of the Trail. The County will work with OGT and other federal, state and local partners to assure that management of the Trail is in compliance with the approved Management Plan.

C. Defending Title

The sublease compels the County to defend the Trustees' property against any potential liens or encumbrances. At the time of the acquisition, multiple encumbrances were known to the Trustees. None of these encumbrances, noted in the Deed (Appendix A), were deemed as an impediment to the establishment and use of the property as a recreational trail. Encumbrances since the acquisition have been reviewed by the FDEP's Division of State Lands (DSL), the Acquisition and Restoration Council and approved by the Trustees.

Although the Trail boundary is identified through signage and protected from encroachment by use of vegetation and natural barriers, some neighbors have created minor, unauthorized trail

connections, consisting of dirt paths from adjacent private lands to access the Trail. It is understandable that a Trail neighbor would want access from their yard rather than driving to a trailhead; however, management will conduct neighbor outreach and education to reduce unauthorized use. If encroachment problems arise in the future, a letter will be sent to the violator to resolve the encroachment problem. If the encroachment problem is not resolved by the violator, the County Code Enforcement will be notified to initiate enforcement, which may include issuing fines to the violator. In an effort to further control encroachment problems along the Trail, the City of Palm Coast will coordinate with Flagler County, OGT and the Division of State Lands to propose and design neighborhood access points along the Trail.

Any future easement requests will be coordinated through DSL. Any application to use state land which would result in significant adverse impact to state land or associated resources shall not be approved unless the applicant demonstrates there is no other alternative and proposes compensation or mitigation acceptable to the Board of Trustees pursuant to paragraph 18-2.020, Florida Administrative Code (F.A.C.). Any requested use of state land which has been acquired for a specific purpose, such as conservation and recreation lands, shall be consistent with the original specified purpose for acquiring such land pursuant to paragraph 18-2.018(2)(c), F.A.C. Applicants applying for an easement across state land which is managed for the conservation and protection of natural resources, shall be required to provide net positive benefit as defined in subsection 18-2.017(38), F.A.C., if the proposed easement is approved. If granted, these easements will have conditions to protect the safety and quality of the Trail's recreational experience. Efforts to consolidate driveways and to minimize the number of crossings will be made wherever possible.

D. Role of the Office of Greenways and Trails (OGT)

OGT is Flagler County's liaison to the State. Management will provide OGT all proposed construction plans and all third party agreements for easements, concession agreements or other actions affecting land owned by the Trustees.

E. Development

As previously discussed, the paved 6.8-mile, 12-foot-wide Trail is fully developed and includes a 1000-foot-long, 10-foot-wide bridge that may be used by emergency vehicles. Management envisions additional improvements to the property. Future development may include maintenance/repair of the Trail and construction other trail amenities. Additional trail amenities could include, but are not limited to, bicycle racks, directional and interpretive signage (environmental and historical), concessions, restrooms, drinking water and picnic areas. With the intention of creating a homogenous experience, as well as branding identity for the Trail, management has pursued standardization of Trail amenities throughout the entire length of the Trail. The specifications for previously installed amenities (Appendix G) will be followed when replacing existing or installing new amenities (Map 1.5).

On the eastern terminus of the Trail, at Colbert Lane, construction of trailhead improvements are underway. This Colbert Lane Trailhead is being developed on property owned by the St. Johns River Water Management District. The parking area is designed for 30 vehicles and will feature paved spaces and a public restroom served by City of Palm Coast water and sewer.

The City of Palm Coast is currently pursuing an agreement with Florida Power and Light (FPL) to improve the parking area and recreational amenities available at the southeast corner of the

Lehigh Trail and Belle Terre Parkway intersection. This property is currently owned by the City and encumbered by an FPL easement. A similar opportunity is available at the southeast corner of the Trail and Belle Terre Parkway. Flagler County may pursue a similar authorization east of U.S. 1 and south of the Trail's property boundary. Management will coordinate with the City of Palm Coast on their design and construction of a stabilized parking area/trailhead adjacent to Old Kings Road (OKR).

Management plans to design and construct four arched trail entrances. Management will install a permanent sign at a major access point crediting OGT for acquiring the property utilizing Preservation 2000 funding. It is likely the County logo, other partner logos and the name of the property will be incorporated into this sign. Management plans to design and construct a walkway and recreated section of historical railroad bed and track. This will provide an opportunity to educate visitors about the historical importance of the railroad in the area. In addition to the recreated section of railroad, management will install educational kiosks.

As the areas the Trail traverses experience growth and development, additional safety measures could also be implemented. Safety enhancements could include, but are not limited to, vehicle barricades, vegetative buffers, signage and traffic control devices such as signalized or grade separated crossings.

Fishing and non-motorized boating in the canals is an authorized use. Management plans to design and construct four cantilevered fishing/observation platforms and three non-motorized canoe/kayak launches. Providing these developments will enhance safety of Trail users and of those using the waterways, as well as, protecting sensitive vegetation along the canal.

F. Potential Surplus Lands

The City of Palm Coast is requesting the exchange .171 acres of City land for .161 acres of the Trail to accommodate a road widening project. This request is based on the City's plans to widen OKR, a significant north-south arterial road, from two lanes to four lanes. The OKR construction project will occur with the concurrent widening of the Town Center Boulevard (TCB) extension. TCB is an east-west arterial road which will also be widened from two to four lanes. The planned intersection of OKR and TCB extension road is within close physical proximity of the current intersection of OKR and TCB. Due to the close proximity of these intersections along OKR, the City reasons that it is appropriate to realign TCB slightly to the south as it approaches OKR so that both TCB and the TCB extension intersect OKR at one four-way intersection. Creating one four-way intersection will avoid an undesirable roadway design where two three-way intersections are within only a couple hundred feet of one another along OKR.

Because the Trail runs parallel and adjacent to TCB along TCB's southern side, it is impossible to realign TCB to the south without impacting the Trail. The City proposes the land exchange in order to allow for shifting both the Trail and TCB slightly to the south as it approaches OKR from the west. As stated above, this will allow for TCB and the TCB extension to meet at OKR directly opposite from one another, thus creating one four-way intersection. East of OKR, the Trail runs parallel to the planned TCB extension road on the north side of the road. This means that the shifting of TCB to the south will cause the Trail segments east and west of OKR to be misaligned. Consequently, Trail users will need to cross both OKR and the TCB extension road when transitioning from the Trail segment west of OKR to the Trail segment east of OKR.

City staff stated that they did not anticipate the current TCB realignment during the initial considerations of the Trail crossings and alignment. However, as development has progressed in this area, the City realized that safety issues would arise for both vehicular traffic and Trail users should TCB and TCB extension road intersect with OKR at two three-way intersections within close proximity to one another and with the Trail crossing positioned between them. Therefore, as a Development Order condition, the property owner of a proposed development to the southeast of the subject exchange was required to realign the road and provide for the protection of the Trail. Realignment will substantially improve the safety of the proposed intersection and protect the integrity of the Trail for the future. According to the City, the decision to realign TCB is not only crucial to ensure the safety of pedestrians using the Trail, but it ensures a smooth uninterrupted flow of traffic, minimizing accidents.

Flagler County provided a letter of no objection to the City of Palm Coast's (City) proposal. On July 29, 2009, an Exchange Agreement was executed (valid through May 26, 2010) for 0.161 acres of state-owned land for 0.171 acres of land owned by the City. The Exchange Agreement was extended for one year (valid through May 27, 2011). Due to uncertainty with the development of the Development of Regional Impact (DRI), on March 8, 2011 the City requested a two-year extension for the Exchange Agreement. On May 13, 2011, OGT responded that the best course of action is to allow the current Exchange Agreement to expire. The City may then apply for an easement when the construction timeline becomes clear. The Florida Department of Environmental Protection (FDEP) intends to approve easement. The City subsequently concurs with FDEP recommendation. FDEP's Bureau of Public Land Administration (BPLA) indicated that they will close their file for this Exchange Agreement.

G. Prospective Land Acquisitions

In addition to the land exchange discussed above, Flagler County would like to pursue the acquisition of property owned by Florida Power and Light, for the development of a trailhead with amenities. This parcel is east of U.S. 1 and south of the Trail's property boundary. Acquisition of these parcels would further the management Goals and Objectives of the Trail.

West of US1 the Trail lands currently owned by Neoga Lakes LLC and Florida Power and Light provide an opportunity to extend the Trail west towards Palatka. Efforts will also be made in the future to create a linkage with the Trail and the A1A Bicycle and Pedestrian Path to the east.

H. Partnerships and Regional Coordination

As outlined in Section I, the Trail is regionally significant. The County is coordinating with multiple partners to facilitate a connected system of greenways and trails. Other agencies, such as the Florida Fish and Wildlife Conservation Commission, St. Johns River Water Management District, the Florida Division of Forestry and Florida State Parks have assisted with enforcement of trespassing and issues, and have expressed a willingness to assist with random patrols. The State of Florida's participation and contribution provides for ongoing opportunities and open dialogue to improve recreation and conservation. An essential part of comprehensive planning is integrating common mission objectives where appropriate.

The City of Palm Coast is committed to continue coordination with Flagler County and the Florida Department of Environmental Protection to improve pedestrian/bicycle connections to the Lehigh Trail. Specifically, the City will coordinate on the following future connections:

- The extension of the Graham Swamp Trail from its current terminus at the Graham Swamp Trailhead south to the Lehigh Trail;
- The Rymfire Multiple Use Path from its current terminus at Rymfire School south across Royal Palms Parkway to the Lehigh Trail;
- The Town Center Development of Regional Impact (DRI) plans to extend its trail network to connect to the Lehigh Trail.

I. Compliance with State and Local Government Requirements

This Plan is submitted for review to the Florida Board of Trustees of the Internal Improvement Trust Fund (Trustees) through the FDEP, Division of State Lands (DSL). It is intended to comply with terms of Sublease #4631-01 (Appendix A) between Flagler County and the FDEP's Office of Greenways and Trails, Chapters 253, 259 and 260, F.S., and Chapters 62S-1, 18-2 and 18-23, F.A.C. The format and content of this Plan are in accordance with the Acquisition and Restoration Council (ARC) recommendations for management plans and the model plans provided by the staff of DSL. Furthermore, each planned use of the Trail will comply with the State Lands Management Plan, Guidelines and Activities. Flagler County will consider the findings and recommendations of the Land Management review team when updating this Plan. As mandated by Section 259.032(11)(d), F.S., the managing agency will use the proceeds of any timber sales to pay for management activities. Pursuant to Chapter 267, F.S., ground disturbing activities will be coordinated with the Division of Historic Resources (DHR). Gopher tortoises are a threatened wildlife species and are protected by state law, Chapter 68A-27, F.A.C. Gopher tortoises will be relocated before any land clearing or development takes place and all permit requirements will be satisfied. As mandated by Section 259.037, F.S., the Trail is included in the Annual Report to the Land Management Uniform Accounting Council (LMUAC). The State Comprehensive Outdoor Recreation Plan (SCORP) guides the development of a diverse, balanced, statewide outdoor recreation system toward meeting current and future needs. It provides the framework for a statewide comprehensive outdoor recreation planning and implementation process. Trails and greenways are fundamental components of Florida's outdoor recreation and transportation systems. This Plan complies with SCORP by providing "resource based" outdoor recreation and by enhancing an environmentally degraded area to a more functional condition, through exotic species control and maintenance.

There are no legislative or executive directives that constrain the use of the property. All development and resource alteration encompassed in this Plan are subject to the granting of appropriate permits, easements, licenses and other required legal instruments. Approval of this Plan does not constitute an exemption from complying with the rules and regulations of the appropriate local, state or federal agencies. Flagler County will continue to work with OGT and other federal, state and local partners to assure that management activities are in compliance with this document and applicable laws.

There is a special warranty deed issued to Palm Coast Holdings stating the land use of the property will be governed by the Palm Coast Comprehensive Land Use Plan. This Plan is in compliance and consistent with the goals and policies of Flagler County's Comprehensive Plan (Appendix H) and the Palm Coast 2035 Comprehensive Plan. Flagler County supports the implementation of seamless and safe multimodal facilities and services in the transportation

network by coordinating across agencies and integrating planned transit, pedestrian and bicycle facilities with roadway widening projects, intersection improvements and resurfacing projects. Multimodal facilities and services will improve transportation choices, provide for underserved populations, reduce congestion and reduce per capita greenhouse gas emissions. Facilities may include marked crosswalks, intersection improvements to enhance pedestrian safety, wider sidewalks, multiple use trails, bicycle lanes and secure bicycle parking. The community (of Palm Coast) also identified cultural arts, community appearance at gateways and along major corridors, the preservation of open space and the linkage of community areas and destinations with a greenway and trail system, as community priorities to preserve the visual character and natural resources of the City.

Chapter Two of the 2035 Comprehensive Plan includes the Transportation Element which sets the policy direction by establishing standards and thresholds regarding levels of service, transportation concurrency, street classification, future street improvements, access management, interconnectivity, street maintenance and safety. The Transportation Element also includes provisions designed to ensure that an adequate transportation system of streets, sidewalks and bicycle paths will be provided throughout the planning period to help reduce dependence on automobile transportation. Other planning tools are recommended such as a dynamic traffic model, transportation projects in the Five Year Capital Improvement Plan, a Long Range Transportation Plan and traffic and corridor studies, along with intergovernmental coordination to maximize transportation planning and minimize costs. Among the most important needs identified for the future are the provision of additional east-west connections, identification of rights-of-way needed to accomplish transportation system expansion and the requirements for bicycle lanes and sidewalks or pedestrian paths to develop multimodal system that offers mobility choices.

Flagler County's Recreation and Open Space Element states that open space is another key component of a community's recreation system. Open space is undeveloped land that is used for passive recreation and/or conservation uses. There are three classifications for open space: 1) utilitarian open space, 2) environmentally sensitive open space, 3) greenways/corridors. Utilitarian open space provides resource based and user oriented recreation. Federal, state and regional parks, forests, historic sites, beaches and all areas that protect the site's natural resources or aesthetic beauty are considered utilitarian open space. Environmentally sensitive open space is defined as lands not suitable for development due to their ecological value. They are limited to recreational activities that will preserve the land. Included in this classification are wetlands with high functional value, lakes, creeks, floodplains and prime water recharge areas. Greenways are defined as linear open spaces located along a natural corridor, which can be anything from a riverfront to a scenic road. Greenways are used to connect open spaces, conservation areas and parks. Trails are described as linear corridors, including any adjacent support parcels on land or water providing public access for recreation or authorized alternative modes of transportation.

Greenways and trails have many benefits and are extremely popular across the nation and in Florida. Greenways provide connectivity and aide in environmental protection. Studies show benefits include increased property values for adjacent properties, protection of ecological corridors to help support wildlife and protect watersheds, enhanced quality of life through increased alternative transportation opportunities, increased access to cultural and historical resources and increased public health benefits through recreational use. By linking the County's

system of parks and natural resources, the effectiveness of the park system is increased and quality of life is improved for all residents.

Chapter Four of the 2035 Comprehensive Plan includes the Public Recreation and Open Space Element Goals, Objectives and Policies which call for active and passive parks, recreation and open space opportunities for all residents and visitors to maintain a healthy populace in a balanced community that addresses physical and social needs. The provision of art, culture and educational opportunities are addressed as part of the public recreation system to satisfy the creative and intellectual needs of all. The interconnectivity theme, addressed in Chapter Two, is continued in Chapter Four. The theme addresses the linkage of residential, institutional and nonresidential land uses and venues with greenways and trails throughout the City and with other similar facilities adjacent to the City. Proposed short-, mid- and long-range recreation improvements have been incorporated into the City's Five Year Capital Improvement Plan.

J. Resource Management and Protection

Soil Management

A Phase I and limited Phase II Environmental Site Assessment of the corridor revealed potential arsenic contamination at a few locations along the abandoned railroad bed. The small quantities found are most likely the result of the deterioration of the creosote treated crossties. The crossties were handled in an approved manner and the source of contamination was removed or safely contained on site. The due diligence process to address the contamination within the existing section included encapsulating the soils with the 12-foot-wide paved trail. This "cap" reduces the possibility of any remaining arsenic becoming airborne or leaching away into groundwater. The paved Trail itself provides a barrier to any contact between humans and the remaining arsenic.

Management activities follow generally accepted best management practices to prevent soil erosion and to conserve soil and water resources on site. Prior to future construction projects, erosion and sedimentation control features will be installed to prevent sediments from exiting the project limits. These measures will include, but are not limited to, silt fences and/or hay bales along all unaffected areas. The controls will be monitored and remain in place until permanent vegetative cover is established.

Hydrology/Water Management

Water management is overseen by the St. Johns River Water Management District. Future construction projects will meet all federal, state and local permit and regulatory requirements. Along the entire length of the Trail, ditches divert surface water, primarily rainfall, towards canals. To avoid disturbances to the wetlands, the Trail is located on the railroad berm. On the eastern portion of the Trail, near Graham Swamp, a 1,000-foot bridge was installed where the railroad berm crosses these water features to avoid hydrological impacts to the swamp ecosystem. Management will continue to work with partners to conserve the waters of the Upper St. Johns River Basin.

Natural Communities Management

The natural communities along the corridor include pinewood, hardwood hammock and forest, hardwood swamp and mixed hardwood/pine forest. As the area is allowed to reseed, other hardwoods are expected to expand. Due to the impacts of the railroad, any natural communities within the Trail boundary are limited and ecological restoration of natural communities is not a key management priority. Although the configuration of the property does not lend itself to

prescribed burning, all management will be conducted to preserve and protect the natural and nonrenewable resources on the property. The selective thinning of the 15-acre planted pine will likely benefit the Florida scrub-jay population. Partnerships exist for community organizations to plant and maintain native plants/trees along the corridor. Improvement of the natural areas on this property will be achieved through elimination and long term minimization of exotic vegetation and detrimental activities occurring along the corridor such as motorized vehicle use and dumping. Educational opportunities, regarding the value of a unique coastal ecosystem in the midst of regional development pressures, also exist.

Forest Resources Management
Overall, the property does not lend itself to timber harvesting. However, management is planning to harvest approximately 15 acres of timber (Map 3) for the purpose of decreasing the risk of wildfire and for habitat restoration. This selective thinning of the planted pine community will occur to improve ecosystem health and reduce potential fire fuel load.

Fire Management
Due to the linear configuration of the corridor and paved trail along the centerline, Flagler County is not implementing a prescribed burn program. As previously mentioned, management is planning to harvest timber (Map 3) to reduce the chance of wildfire. Flagler County does not have fire suppression equipment on this property. The local Municipal Fire Department will handle fire suppression. All calls for emergency assistance are routed through the County 911 system. The 911 operator will decide the best resource to call upon for a given emergency. If there is a fire, staff will clear visitors from the area.

Mineral Resources Management
There are no known minerals of commercial importance within the property boundary.

Native Species Management
In many cases, these native species will benefit most from proper management of their natural communities. To the extent possible, habitat requirements will be maintained and managed to ensure that native species survive and are sustainable. Native species will benefit from the selective thinning of the 15 acres of planted pine. If trees and shrubs are planted for shading, screening or beautification purposes, non-invasive or native species will be planted.

Disturbance to wildlife is an unavoidable consequence of any public use program, regardless of the activity involved. Visitor education will result in minimal disturbance to wildlife and increased understanding and appreciation of the species. Management is not aware of any past, present, or future planned public use that would result in a significant negative impact to native or listed species.

Listed Species Management
Due to the linear configuration and historical use of the corridor, many of the natural communities and land management measures such as prescribed burning are difficult to implement to properly benefit species. The portion of the property that traverses the Graham Swamp Conservation Area, which is noted by FFWCC as Strategic Habitat Conservation Area, is better situated to deliver conservation to achieve specific biological outcomes. In this area, cooperatives provide the ability to achieve resource management decisions and address habitat fragmentation, genetic isolation, spread of invasive species and water scarcity.

To the extent possible, habitat requirements for native species will be maintained and managed to ensure that native species survive and are sustainable; this linear corridor can facilitate ecological connectivity to larger tracts of land, providing connectivity for a larger breeding population to remain viable. Flagler County works with land management partners to help improve the status of species that are listed as Endangered or Threatened. Listed plant and wildlife species will be protected during any future development plans.

As previously discussed, gopher tortoises, protected by state law, have been seen on the property. Gopher tortoises will be relocated before any land clearing or development takes place and all permit requirements will be satisfied. Due to the trail alignment on the historic railroad berm, the property does not lend itself to being a recipient location/mitigation area.

Further plant and animal studies may be conducted along the Trail to verify the presence of additional designated species. Volunteer opportunities exist for studies including monitoring population trends, mapping and documentation of designated species. Any newly identified listed species found will be reported to partnering agencies, such as FNAI and FFWCC. Educational opportunities exist to inform visitors about listed species. Flagler Audubon participates in the Audubon's annual Christmas Bird Count and this count includes the Trail area. Information on Flagler's birds within the lease area may be obtained from Flagler Audubon.

Invasive/Exotic/Non-Native Species Management

If Flagler County identifies exotic plants along the Trail an appropriate solution will be administered. Overall, land adjacent to the Graham Swamp Conservation Area is the top priority for controlling and the successful elimination of invasive/exotic/non-native animal and plant species. According to the Florida Exotic Pest Plant Council, Category I plants (those that are altering and displacing native plant communities) will require constant vigilance to prevent their spreading to other areas of the trail corridor. Improvement of the natural areas along the Trail will be achieved through elimination and long term minimization of exotic vegetation. Controlling exotics before maturation and fruit/seed development is critical. Invasive plants commonly spread along the corridor are removed through both mechanical and chemical means to prevent further disbursement. Herbicide treatments and hand planting are employed to control and eradicate the invasive/exotic species. Where possible, volunteers trained in exotic identification and removal will be enlisted to help control the spread of invasive species. Any replacement plantings will consist of species that are native to the area. Successful elimination of exotic plant species within the trail corridor will partly depend upon control of exotic plants on adjacent lands. Partnerships with adjacent private and public landowners should be pursued, particularly in the case of highly invasive plant species. Long-term herbicide use for exotic plant control could result in a slight decrease in water quality in areas prone to exotic plant infestation. However, it is beneficial because of the reduction and elimination of invasive and exotic plant infestations. The proposed exotic plant control activities are not expected to have significant adverse cumulative impacts. These activities could involve mechanical removal, application of approved herbicides, and release of biological control agents and/or a combination of the above mechanisms. Herbicides used for exotic plant control target specific plants or infestations, are approved for use in natural areas to control exotic plants, and generally do not have long-lasting residual effects to the environment as their chemical nature provides for relatively quick breakdown upon application. Further, use of herbicides is inherently limited based on label rates and approved application practices on natural areas in the State of Florida.

Flagler County maintains a special use authorization with a wildlife professional for the removal of feral hogs from the adjacent Graham Swamp Conservation Area. Management also works with law enforcement and local authorities to assist in the removal of feral animals. The active management to control invasive species, to a greater extent than at present, will benefit rare, threatened and endangered species.

Archaeological, Historical and Cultural Resource Management
The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. As part of responsible management required by state and federal laws, land managers and those involved in the decision making process should be aware of the types of archaeological, cultural and historical resources in their stewardship and should be knowledgeable of the best management practices for these sites. The advice of historical and archaeological experts is required in this effort. Approval from the Florida Department of State, DHR must be obtained before taking any actions, such as development or site improvements, that could affect or disturb the cultural resources on state lands. Actions that require permits or approval from DHR include development, site excavations or surveys, disturbances of sites or structures, disturbances of the substrate and any other actions that may affect the integrity of cultural resources. Pursuant to Chapter 267, F.S., ground disturbing activities will be coordinated with DHR. Management will follow the "Management Procedures for Archaeological and Historical Sites and Properties on State Owned or Controlled Lands" and adhere to the "Guidelines for Ground Disturbing Activities" (Appendix F). No extensive survey efforts are planned. If any archaeological or historic sites are identified, the resource shall be assessed in consultation with DHR. The determination of whether future improvements, which would be located at previously disturbed areas, have the potential to affect cultural resources is an ongoing process that would occur during the planning stages of every project. The policy is to preserve cultural, historical, and archaeological resources and avoid any adverse effects wherever possible or mitigate unavoidable impacts.

As previously described, the only known resource is FL00186/Old Kings Road (OKR), which is paved at the point of the Trail crossing. The City of Palm Coast is widening OKR to four lanes, along with the constructing the Town Center Boulevard Extension. The Florida Department of Transportation states that the 2008 traffic count for OKR is approximately 5,600 vehicles per day and is projected to be 18,000 by year 2015. As previously described, the FDEP's Division of State Lands and the Acquisition and Restoration Council (ARC) have reviewed a surplus request from the City of Palm Coast for a portion of the Trail as it crosses this resource.

Scenic Resources Management
The preservation of the scenic resources are one of the reasons people revisit the Trail. The preservation of the resources will be ensured.

K. Arthropod Plan/Mosquito Control

Mosquito control is regulated by Federal, State and Local laws. These laws determine exactly when and how mosquito populations are controlled.

The East Flagler Mosquito Control Service District (District) was created by the Flagler County Board of Commissioners in July 1952. To accomplish the suppression of mosquito species that may cause illness or significant discomfort, they identify important species and link their numbers to an abundance threshold. Specific mosquito species are now targeted rather than

mosquitoes in general. Wetland mosquito projects are more sophisticated, more specific, and receive significant review from regulatory agencies. Control products are short lived, easily degraded; a few are mosquito specific. Nuisance populations below the threshold are tolerated. These thresholds may not apply when mosquito-linked illnesses are circulating and the vector of that illness is present. The District utilizes spraying trucks and flyover spraying. The Trail is within multiple truck zones and spraying is conducted on a rotating basis. Whether it is aerial or ground applications, spraying may be postponed because of relatively high winds or precipitation.

Surveillance

Mosquito control begins with daily population tracking. Trapping, biting counts and service requests all provide information upon which control decisions are based. Surveillance provides important data regarding species composition, abundance, gauges control efforts and provides a historical perspective. Surveillance initiates the control decision, but considerations such as weather, public exposure, environmental sensitivity and timing determine whether or not controls are applied.

Controlling biting mosquitoes (Adulticiding)

This control method is undertaken as a final recourse. The goal is a reduction in mosquito abundance. Atomized insecticides are released in residential areas to provide temporary relief. Most products are synthetic pyrethroids or organophosphates, with short residuals. All are approved for mosquito control by the Environmental Protection Agency and the Florida Department of Agriculture and Consumer Services.

Controlling immature mosquitoes (Larviciding)

This form of control targets immature mosquitoes developing in their aquatic nursery. The advantage is the elimination of entire “broods” and adults never emerge. Control products include a bacterium, Bacillus thuringiensis var israelensis, (Bti) and growth regulators that arrest normal mosquito development. As a group, the larvicides tend to be more mosquito specific.

Source reduction

This form of control modifies aquatic mosquito nursery sites making them unsuitable for mosquito development. Source reduction tasks range from the disposal of waste products which hold water (tires, containers) to the development of mosquito management plans that address wetlands, both natural and created.

Mosquito related illnesses

The district monitors the circulation of mosquito related illnesses using sentinel birds. Particular attention is paid to Eastern Equine Encephalitis (EEE), St. Louis Encephalitis (SLE) and West Nile Virus (WNV).

License requirements

In accordance with Chapter 5E-13.040, F.A.C., all persons who apply or supervise the application of a pesticide intended to control arthropods on the property, other than personal residential or agricultural property must be licensed to do so or work under the supervision of a licensed applicator. The license is issued by the Mosquito Control Section in the Bureau of Entomology and Pest Control (BEPC).

L. Management Priorities

Management Activities

Management activities include: ensuring the safety of all patrons; ensuring the protection of the resources and the environment; providing equal access for patrons; ensuring the character of the resource is maintained; providing a clean enjoyable experience; providing maps and brochures; strengthening partnerships and working to extend the greenways and trails system.

Operational Activities

Flagler County works to ensure compliance with this Plan; volunteers and inmate labor may assist in general maintenance. Current maintenance includes mowing and removal of litter. The Trail is open to the public everyday from dawn until dusk. The hours of operation may be adjusted, as needed, to accommodate safety and management needs.

Operating Funds

Operating Funds for the Trail come from the General Revenue Fund each fiscal year.

Safety/Security Management

Throughout the country, well maintained properties with high use, statistically leads to fewer security issues. Flagler County maintains a presence on the Trail and works with local and state law enforcement to provide safety and security. The County shall identify potential hazards to public health within the project area, and will take appropriate measures to minimize risk to the public. Educational training opportunities for staff will enhance staff safety when conducting daily activities. Future development may provide a secured location for equipment storage and maintenance facilities.

Potential to Contract with Private Vendors

Public/private partnerships are natural in trail development. Private individuals and companies have an opportunity to capitalize on the visitors that use the Trail and the provision of goods and services is only limited by the creativity and drive of local business owners. The County will seek ways to contract with private vendors to provide services that are better handled in a market economy; however, these services would never be allowed to weaken safety considerations. Pursuant to paragraph 18-2.018(2)(i), F.A.C., equitable compensation shall be required when the use of uplands will generate income or revenue for a private user. Contractual opportunities exist for activities including trash removal, site clean-up, facilities maintenance and exotic species control.

Citizen Support Organization

The Trail does not have a site specific Citizen Support Organization (CSO). Should the opportunity arise, a CSO may be incorporated as a not-for-profit entity to support the Trail. Pursuant to Section 258.015, F.S., CSOs are authorized to raise funds, seek and receive grants, accept gifts, bequests of money and tangible or real property on behalf of the public land that they represent. Should fund raising in the form of charitable raffles occur, the raffles will be regulated by Section 849.0935, F.S.

In addition to monetary support, CSOs assist by increasing community awareness and involvement in the land and its programs. Pursuant to Section 20.2551(4), F.S., “all records of the citizen support organization constitute public records for the purposes of chapter 119, F.S.” Accordingly, the Trail manager should attend CSO meetings. If the manager is unable to attend, another staff member may represent the Trail at the meetings. From time to time, other staff

may be asked by the Manager to assist with CSO projects, such as coordinating or organizing a specific event. Staff may not serve as director on a CSO board. It is important to note that although staff cannot serve as a CSO board member or officer, he or she may become a member of the CSO. Family members and relatives of a staff person may serve on a CSO board as a member or an officer.

State Designation
The Trail is not currently designated through the Florida Greenways and Trails Designation Program. Management will pursue State Designation.

National Designation
The Trail is not designated through the National Recreation Trails (NRT) program. Management may pursue National Designation.

M. Public Access and Use

The Trail provides many opportunities for visitors to recreate and learn through Florida's outdoor environment. The recreational opportunities provide for the greater public good since the uses minimally impact the environment (the paved trail is located on the existing spoils created by the cleared and filled railroad berm). The Trail provides healthy outdoor activities for individuals, groups and families. The Trail is open to the public from dawn to dusk, year round, seven days a week. The core hours may be adjusted, as needed, to accommodate for safety and management needs.

Access/Parking
Due to the linear configuration of the property, there are many access points from neighborhoods and the towns near the corridor.

There are minimally improved trailheads (Map 1.4) at U.S. 1 and at Belle Terre Parkway. Access is also provided at OKR. On the eastern terminus of the Trail, at Colbert Lane, construction of trailhead improvements are underway. This Colbert Lane Trailhead is being developed on property owned by the St. Johns River Water Management District. The parking area is designed for 30 vehicles and will feature paved spaces and a public restroom served by City of Palm Coast water and sewer.

Transportation Alternatives
An overall goal of the Trail is to expand healthy, non-motorized, transportation alternatives while connecting people and communities to enhance economic development. The Trail provides residents and visitors with alternatives to using the traditional road network for their active transportation needs. Offering commuters viable, multimodal alternatives to highway travel is vital to reducing traffic. Trail users must be mindful of road crossings and obey posted signage.

Walking/Hiking/Jogging
Walking and hiking are a prevalent use of the Trail, especially in the urbanized areas. Seniors and parents with small children are especially attracted to the Trail for daily walking exercise and social encounters. Joggers may prefer the asphalt surface to concrete sidewalks due to its consistency and slightly more giving surface.

Bicycling
There are two major groups of bicyclists, weekend riders and long distance riders. Bicyclists seeking recreation and daily exercise are able to use the smooth, paved surface. Long distance bicyclists have the opportunity to cycle on the developing regional network of trails. Cyclists should always use caution, as users have various skills. Pursuant to Section 316.2065, F.S., helmets are required for cyclists under the age of 16, including children who are riding in a trailer or semi-trailer attached to a bicycle; all other users are encouraged to wear helmets. Cyclists and inline skaters yield to other users.

Skating
The property provides a 12-foot-wide, smooth, continuous surface that is utilized for inline skating. The International Inline Skating Association is in favor of mandatory helmet laws for inline skaters under the age of 18.

Equestrian Use
The Trail does not have equestrian facilities.

Camping
The property does not include camping and campfires.

Boating/Paddling
Non-motorized boats are allowed in the adjacent Lehigh Canal. There are not currently any boat launches on the property. During this 10-year planning horizon, management plans to construct three, non-motorized boat launches.

Fishing
Fishing is allowed from non-motorized boats in the adjacent Lehigh Canal. Management plans to construct cantilevered fishing platforms.

Hunting
Hunting is strictly prohibited within the property boundary. Chapter 68A-4.007, F.A.C., excludes recreation areas from territory open for hunting and Chapter 68A-4.008, F.A.C., makes it unlawful to take wildlife on, upon or from any federal, state or county road right-of-way. Public education on hunting seasons, safety precautions and adjacent land uses is an ongoing part of management outreach to the public.

Picnicking
Benches exist along the Trail. Future improvements to Trailhead may include picnic pavilions.

Interpretive Opportunities
Kiosks include interpretive components; interpretive components serve to educate and instill an appreciation for the history of the area and the natural environment. Additional interpretive components are dependent on accurate research, volunteer support and funding. With the intention of creating a homogenous experience, as well as branding identity for the Trail, Flagler County has pursued standardization of Trail amenities. The specifications, including those for kiosks, are provided in Appendix G. Potential amenity locations are identified on Map 1.4 and Map 1.5.

Geocaches
Geocaching is an outdoor activity in which the participants use a Global Positioning System (GPS) receiver to hide and seek locations. A geocacher can place a geocache, pinpoint its location using GPS technology and then share the geocaches existence and location online. Anyone with a GPS unit can then hunt the geocache. Geocaching can be enjoyed by an individual, a family or a group. Geocaching has been viewed as a means of promoting tourism and a way to promote resources.

Geocaching is growing in popularity in Flagler County and both the County and City of Palm Coast support geocaching on public lands. The locations of caches can be found on many internet sites such as geocaching.com.

Flagler County has the authority to approve, decline or place restrictions on caches. Placement of the cache will be reviewed on a case-by-case basis. Management will encourage the use of Tread Lightly!, Inc.'s website, at www.treadlightly.org, which includes "Tips for Responsible Geocaching." While seeking geocaches, people will be encouraged to collect and properly dispose of litter. Should an entity or individual decide to hold a geocaching event, it will be considered a Special Event and special event guidelines should be followed.

The following are general guidelines for requesting placement of a geocache:

- The cache should be placed in close proximity to an existing trail/trailhead;
- The party responsible for the cache (owner) should live in the vicinity of the cache, to facilitate frequent maintenance. It is an owner's responsibility to maintain the cache;
- Avoid sensitive areas, such as archaeological and ecological resources, wetlands, steep slopes, etc.;
- The cache must be placed above ground. Digging or ground disturbing activities is not allowed;
- The cache owner will be encouraged to list the cache on the Official Global GPS Cache Hunt Site, www.Geocache.com.

Visitor/Educational/Cultural Centers
Except in the form of kiosks, Interpretive/Educational programs are not offered on the property. Management will work with local experts to enhance educational opportunities, such as kiosks that instill in visitors an understanding and appreciation for Florida's natural and cultural resources and their proper care and use. Flagler County may work with the Legacy Environmental Education Program, a program established by Flagler County and the Flagler County School Board, to develop educational programs.

Pet Policies
Pets are allowed, but must be kept on a maximum eight-foot leash. Owners must pick up excrement and dispose of it in proper waste facilities. Kiosks educate the public about pet policies. Domestic animals that are noisy, vicious, dangerous, disturbing or act threatening to persons or other animals are considered nuisances and will not be permitted.

Managing Multiple Uses
Signage such as stop signs, speed limits and rules exist along the Trail. All signs and traffic control devices are consistent with federal, state and/or local regulations. Safe and courteous multiple use recreation can be accomplished through education and positive staff presence.

Special Events
Flagler County may implement special event guidelines for individuals or organizations planning events on county managed properties. Staff work with event coordinators to ensure the goals and objectives of the event are compatible with the designated use of the Trail and that security and safety requirements are being met. The public events include bicycle rides, runs or walks and may be part of a community festival.

Emergency Operations
In the event of a disaster, management shall clear the Trail of visitors. Staff will post closures. After completion of visitor's evacuation, personnel shall take appropriate action to ensure the protection of government property. All equipment and vehicles not removed from the Trail should be locked and secured. All calls for emergency assistance are routed through the County 911 system. The 911 operator will decide the best resource to call upon for a given emergency.

N. Accomplishments from Implementation

Florida's residents, visitors and wildlife have been given the gift of open space through programs such as Florida's premier land conservation program, Florida Forever. The acquisitions are helping to preserve Florida's culture, history, water supplies, wildlife habitat and environmentally sensitive lands while promoting tourism. Accomplishments since the property was acquired and the adoption of the initial management plan are numerous. Today, approximately 6.8-miles of the paved Trail are available to the public. Mile markers are located along the Trail as are rest benches. Improvements to the Colbert Lane Trailhead are underway and management is working to identify funding to improve the additional trailheads. Flagler County has worked with many partners to expand and inform the public of the regional opportunities. Today, the Trail enhances aspects of the community. The Trail connects communities and implements the vision of statewide connected system of trails. The Trail provides for safe and efficient use of non-motorized modes of transportation choices, as well as outstanding eco- and heritage tourism opportunities for residents and visitors. These accomplishments played a role in Florida's having received American Trails' inaugural award of "Best Trails State" in the nation.

O. Land Management Review

An interagency State Land Management Review Team (LMR) has not toured the property or conducted a Land Management Review. Management will consider the findings and recommendations of the land management review team in finalizing the next required 10-year update to the Lehigh Greenway Rail-Trail Management Plan.

APPENDIX L

Conservation Easement Documentation

Flagler County
Conservation Easement

Instrument No: 2014019001 6/24/2014 1:25 PM BK: 2010 PG: 696 PAGES: 30
RECORDED IN THE OFFICIAL RECORDS OF Gail Wadsworth, Clerk of the Circuit Court & Comptroller Flagler, FL

PREPARED BY AND RETURN TO:
William Abrams, Esq.
St. Johns River Water Management District
4049 Reid Street / Highway 100 West
Palatka, FL 32177

Property Appraisers Parcel Nos: 48-11-31-0000-01010-0040; 07-11-31-7081-00001-0003; 42-11-31-0000-01010-0010; 17-11-31-0000-01020-0000; 18-11-31-0000-02010-0020; 19-11-31-0000-01010-0010; 20-11-31-0000-01010-0000; 50-11-31-0000-01010-0000; 53-11-31-0000-01010-0000; 51-11-31-0000-01020-0000; 52-11-31-0000-01010-0020; 29-11-31-0000-01010-0020; 22-11-31-0000-02020-0050; 27-11-31-0000-01010-0020; 28-11-31-0000-03000-0000; 34-11-31-0000-01010-0020; 33-11-31-0000-01010-0010; 54-11-31-0000-01010-0010; 40-12-31-0000-01010-0020; 03-12-31-0000-01010-0020; 03-12-31-0000-01010-0040; 40-12-31-0000-01010-0000; 39-12-31-0000-01010-0100; 21-11-31-0000-01010-0020.

This document constitutes a conveyance from a state agency or instrumentality to an agency of the state and is not subject to documentary stamp tax pursuant to 12B-4.014(10), F.A.C.

FOCRD

PERPETUAL CONSERVATION EASEMENT

THIS INDENTURE, made and entered into this 11th day of June, 2014, by and between **Flagler County, Florida, a political subdivision of the State of Florida,** whose mailing address is 1769 East Moody Blvd., Building #2. Suite 301, Bunnell, Florida 32110 (hereinafter referred to as the "Grantor") and the **ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373 of the Florida Statutes**, whose address is Post Office Box 1429, Palatka, Florida 32178-1429 (hereinafter referred to as the "Grantee").

W I T N E S S E T H:

WHEREAS, the Grantor is the owner in fee simple of certain real property lying and being situated in Flagler County, Florida, more specifically described in Exhibit "A," attached hereto and incorporated herein by reference (hereinafter referred to as the "Property"); and,

WHEREAS, the Property was donated to Grantor by Grantee pursuant to the Grantee's 2012 Lands Assessment Implementation Plan adopted by Grantee's Governing Board in December 2012; and

WHEREAS, the Grantor and the Grantee mutually recognize the natural, scenic and special character of the Property and have the common purpose of conserving the natural value and character of the Property by conveyance to the Grantee of a Perpetual Conservation Easement (hereinafter referred to as the "Easement") on, over and across the Property, which shall conserve the ecological and hydrological integrity of the Property, conserve and protect the animal and plant populations on the Property, and prohibit certain further development activity on the Property.

NOW, THEREFORE, the Grantor, in consideration of TEN AND NO/100 DOLLARS ($10.00) and other good and valuable consideration in hand paid by the Grantee to the Grantor, the receipt and sufficiency of which is hereby acknowledged, hereby voluntarily grants and conveys to the Grantee and its successors and assigns forever this Easement pursuant to Section 704.06, Florida Statutes, on, over, upon, and across the Property of the nature, character, and extent hereinafter set forth.

I. PURPOSE OF THE EASEMENT.

The purpose of this Easement is to foster, preserve and protect, in perpetuity, the ecological, biological and hydrological integrity of the Property, including the Property's natural features, water resource benefits, cultural attributes, wildlife and plant life features, and recreational values, and to prevent any development or other use of the Property that interferes with the accomplishment of these purposes.

II. PROHIBITIONS AND RESTRICTIONS ON USE.

Any activity on or use of the Property inconsistent with the purpose of this Easement is prohibited. Without limiting the generality of the foregoing, the following activities and uses are expressly prohibited; provided, however, that uses expressly authorized under Section III and/or a Management Plan approved by the Grantee, as described in Section VII below ("Management Plan"), are not prohibited:

1. Uses. Except as may be expressly allowed under Section III herein, no commercial, residential, agricultural or industrial activity shall be undertaken or allowed on the Property, nor shall any right of passage across or upon the Property be allowed or granted if that right of passage is used in conjunction with said activities.

2. Roads. Except as may be expressly allowed under Section III herein, no additional roads or paving of existing roads is allowed.

3. Waters. No topographical or hydrological modifications or activities detrimental to water quality or quantity shall be allowed, except that Grantor may maintain the existing culvert on the Property, as identified in the Easement Documentation Report described in Section VI below ("Easement Documentation Report"). Grantor may, subject to applicable permitting requirements, install wells for the activities allowed under this Easement and undertake activities to enhance or restore natural communities on the Property, as provided for in Section III below. However, there shall be no commercial water wells on the Property.

4. Drainage and Wildlife. There shall be no activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation.

5. **Revenues Produced from the Property.** Revenues produced from any use of the Property must be dedicated to the program for management or restoration of the Property.

6. **Construction and Fences.** Except as may be expressly allowed under this Easement, there shall not be any construction of or the placing of buildings, mobile homes, utilities, infrastructure, roads or other structures on, under, or above the ground. The construction and maintenance of fences permitted under this Easement shall not substantially impede the movement of wildlife ("Wildlife Friendly") upon, onto, or across the Property.

7. **Dumping.** There shall be no dumping or placing of trash, solid or liquid waste (including sludge material and biowaste), or hazardous materials, wastes or substances, toxic waste or substances, pollutants or contaminants, or unsightly or offensive materials, including but not limited to those as defined by the Federal Solid Waste Disposal Act ("SWDA"), the Federal Clean Air Act ("CAA"), the Federal Clean Water Act ("CWA"), the Federal Resource Conservation and Recovery Act of 1976 ("RCRA"), the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), the Federal Superfund Amendments and Reauthorization Act of 1986 ("SARA"), the Federal Emergency Planning and Community Right-To-Know Act ("EPCRA"), the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Toxic Substances Control Act ("TSCA"), Chapters 161, 253, 373, 376, and 403, Florida Statutes, and the rules and regulations of the (i) United States Environmental Protection Agency, (ii) the Florida Department of Environmental Protection, and (iii) the St. Johns River Water Management District, now or at any time hereafter in effect, or any Florida Statute defining hazardous materials, wastes or substances, toxic wastes or substances, pollutants or contaminants (hereinafter collectively referred to as "Contaminants") on the Property. This prohibition shall not be construed to include customary lawful accumulation of agricultural waste generated as a result of allowed activities under Section III nor prohibit the use and lawful application of chemicals, pesticides, herbicides or fertilizers, dirt, soil, rock, shell and other materials in accordance with the activities allowed under this Easement.

8. **Concentrated Animal Feeding Operations.** There shall be no concentrated animal feeding areas for bovine, swine, poultry or other animals on the Property.

9. **Invasive Exotic Species.** Grantor shall not plant, nor take any action to intentionally encourage the spread of, Invasive Exotic Species on the Property, and shall use best efforts to control the spread of any Invasive Exotic Species on the Property. Invasive Exotic Species shall mean those invasive exotic plants described in Category I or Category II of the Florida Exotic Pest Plant Council's (or its successor's) list of Invasive Species, as it is periodically updated.

10. **Pesticides, Herbicides and Fertilizer.** Pesticides, herbicides, and fertilizer must be applied in accordance with manufacturer's label instructions, and such use shall be included in the Management Plan described in Section VII below. All such applications shall further be subject to any applicable permitting requirements, and shall be in accordance with Best Management Practices ("BMPs"), described in Section V below.

11. **Mining, Excavation, Filling and Dredging.** Except as otherwise allowed under Section III of this Easement, there shall be no mining, drilling, excavation, filling or dredging on the Property. Under no circumstance shall there be any exploration for or extraction of oil or gas (including all petroleum or hydrocarbons), sand, loam, peat, gravel, phosphate, rock, soil, or other surface or subsurface material for commercial purposes. Grantor is not precluded from selling soil that is removed from the Property in the accomplishment of an authorized restoration or enhancement activity provided for under Section III herein, provided said sale is a component of the approved activity and the proceeds of said sale are dedicated to the management or restoration of the Property.

12. **Commercial Signs or Billboards.** Except for signs identifying the Property or the allowed activities thereon, or regulatory signs such as "No Hunting" and "No Trespassing", there shall be no commercial signs or billboards, temporary or permanent, constructed, placed or maintained upon the Property.

13. **Conversion of Natural Areas and Wetlands**. Except as authorized in Section III, areas identified in the Easement Documentation Report as Natural Areas and Wetlands shall not be converted to other land uses or more improved uses.

14. **Historical, Archaeological and Cultural Resources**. There shall be no acts or uses of the Property inconsistent with the "Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties, 2013", as may be revised from time to time. As of the date of this Easement, three areas on the Property are reported in the Florida Division of Historical Resources Master Site File.

15. **Sale and Subdivision.** There shall be no direct or indirect subdivision of the Property. Also, Grantor shall not transfer or convey title to the Property without the prior written consent of Grantee, pursuant to Section III.2.

III. RIGHTS RESERVED TO GRANTOR.

Grantor reserves unto itself, its successors and assigns, all rights accruing from its ownership of the Property that are not inconsistent with the purposes of this Easement. Grantor's reserved rights include the right to engage in or permit or invite others to engage in all uses of the Property that: (a) are not expressly prohibited herein; (b) are expressly provided for in the

Management Plan, and (c) follow Best Management Practices, as described in Section V.16 herein ("BMPs"), and (d) include the following reserved rights:

1. **Fee Simple Title.** Grantor has, and shall be deemed hereby to have retained, the underlying fee simple title absolute in the Property. Further Grantor retains and reserves all rights of, in, and to the Property not expressly prohibited to Grantor in this Easement or expressly conveyed to Grantee in this Easement.

2. **Sale or Lease of Property.** Grantor shall have the right to sell or lease the Property provided that prior written consent is received from Grantee, which consent shall not be unreasonably withheld. Grantor shall provide to Grantee within 10 days of any sale or conveyance of any interest in the Property a copy of the fully executed and recorded instrument of conveyance.

3. **Roads, Trails and Firebreaks.** Grantor may maintain the existing trail roads and trails on the Property, as identified in the Easement Documentation Report. Grantor may construct unpaved roads to access structures and facilities and construct trails, as set forth in the Management Plan. When siting such new access roads and trails, Grantor agrees to use a practicable direct route that does not otherwise violate the terms of this Easement. Road and trail construction may include ancillary ditches, culverts and crossings, provided there is no detrimental alteration of hydrology. Typical construction and maintenance activities may include disking, plowing, grading, excavating and the application of clay, gravel, shell or other like material. Grantor may maintain existing fire lines and breaks, as well as plow new fire lines and breaks as reasonably required for fire prevention and/or control. All such construction and maintenance shall be subject to any applicable permitting requirements, shall be included within the Management Plan, and shall be in accordance with the applicable Best Management Practices ("BMP's" as described in Section V.16 herein).

4. **Structures, Recreational Trails, Boardwalks and Surfaces.**

   a. **Structures, Facilities, Wells and Cell Tower**. Grantor reserves the right to repair and replace in their existing size and location the structures and associated facilities located on the Property, at the time of closing, and to pave the existing Old Kings Road Parking area identified in the Easement Documentation Report (meeting stormwater standards in effect at the time) and add a restroom facility no greater than 1,000 square feet.

   In addition, Grantor is allowed to construct new improvements including, but not limited to, restrooms, shelters, pavilions, observations towers, or other improvements as provided for in the Management Plan, subject to the following: (i) the total maximum square feet of all new and existing rooftop structures shall not be more than 11,000 square feet, or as may otherwise be provided for in the Management Plan, whichever is greater; (ii) said rooftop structures must be compatible with resource-based public recreational uses; and (iii) said rooftop structures may only be located in Uplands and/or Disturbed Areas, as identified in

the Easement Documentation Report or as otherwise identified through field verification and approved by Grantee.

Grantor may construct single-track mountain bike trails and related amenities within the Disturbed Area, as identified in the Easement Documentation Report.

Subject to applicable permitting requirements, Grantor is allowed to construct new recreational trails and boardwalks within the Uplands and the Disturbed Area. New trails and boardwalks may also be constructed outside the Uplands and/or Disturbed Area if approved as an amendment to the Management Plan. The new trails shall include, but not be limited to the Palm Coast Trail – Proposed Phase II Trail Extension running from the Old Kings Trailhead south to the Lehigh Trail, as shown in the Easement Documentation Report.

Grantor may, subject to applicable permitting requirements, install wells for the structures and activities allowed under this Easement. Grantor also reserves the right to construct, or cause to be constructed, one cell tower and associated access road, on the Property, in the area generally depicted in the Easement Documentation Report, subject to all applicable permitting requirements. The tower site may be fenced to a height of six (6) feet with barbed wire at its top in order to deter unlawful entry.

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b. Impervious Surfaces. The areas identified in Section III above are the only new areas of impervious surface that may be improved in the future except as otherwise authorized in the Management Plan or specifically approved by the Grantee.

5. Silviculture.

a. Uplands. Grantor shall have the right to conduct silviculture operations and harvest timber on the Property only in the Uplands identified in the Easement Documentation Report, or as otherwise identified through field verification and approved by Grantee, provided BMPs are followed, plantings are in native or indigenous vegetation that is appropriate for the habitat, bedding is prohibited, and operations and harvest plans are described in the Management Plan.

b. Wetlands. Wetlands are those areas depicted as Wetlands in the Easement Documentation Report ("Wetlands"). In emergency situations that pose an imminent threat to the resource and/or public safety, Grantee is authorized to preemptively cut trees and vegetation in the Wetlands, such as in defensive measure for wildfires. Grantor must provide Grantee at least three days advance notice before preemptively cutting trees or vegetation in the Wetlands in defensive measure against infestation or disease. Subject to applicable permitting requirements, wetland road crossings associated with timber extractions are authorized, provided BMPs are followed.

c. Disaster Harvesting. Salvage harvesting following natural disasters, including but not limited to insect infestations, floods, drought, storms, plant disease, or wildfires, shall be allowed in all areas of the Property in accordance with applicable BMPs. Following such natural disasters, all site preparation and re-establishment activities will be conducted according to BMPs. However, Grantor is not required to re-establish areas following natural disasters.

6. Resource-based Recreation and Non-native or Nuisance Animals. Grantor reserves the right for itself and the public to use the Property for resource-based recreational activities, including, but not limited to, fishing, horseback riding, camping, hiking, bicycling, boating, and birding, to the extent possible considering the environmental sensitivity of the Property, and (i) said activities are in compliance with section 373.1391, Florida Statutes, (ii) said activities are included in the Management Plan, (iii) maintenance and construction of single-track type mountain bike trails as defined by the International Mountain Bicycling Association (IMBA) are located only within the Disturbed Area identified in the Easement Documentation Report (also identified in the *2010 Graham Swamp Conservation Area Land Management Plan* as the "Spoil Area"); and (iv) said activities do not interfere with the accomplishment of the purposes of this Easement. Grantor reserves the right to control nuisance or non-native animals. All of the foregoing activities shall be conducted in compliance with applicable federal, state and local laws.

7. Access. Grantor retains the right to control and limit all access to the Property subject to the Grantee's right of access as herein granted.

8. Restoration and Enhancement. Grantor shall retain the right to engage in activities on the Property designed to enhance or restore the natural communities on the Property, provided Grantee is notified in writing prior to the commencement of such activities, and provided such activities are properly permitted by the appropriate authority and are described in the Management Plan.

9. Quiet Use and Enjoyment. Grantor retains all rights and use of the Property not otherwise prohibited by the express terms of this Easement, including all rights of possession and of quiet use and enjoyment.

IV. GRANTEE'S AFFIRMATIVE RIGHTS.

Subject to the rights and interests of Grantor herein reserved, Grantor gives, grants and conveys the following affirmative rights to Grantee:

1. Grantee shall have visual and physical access to the Property for the purposes of:

a. inspection, monitoring, and enforcement of the terms and conditions of this Easement, including, but not limited to, the prohibitions and restrictions on use set forth in Section II, *supra.*; and

b. scientific investigation and to monitor water resources on the Property, including the right to install wells and monitoring equipment.

Grantee shall furnish Grantor with reasonable advance notice of any physical access to or inspection of the Property.

2. As provided in Section V below, Grantee shall have the right to enforce, by proceedings at law or in equity, compliance with this Easement, including, but not limited to, the right to require restoration by Grantor of the Property to the pre-violation condition.

3. Grantor acknowledges and agrees that all development rights that are now or hereafter allocated to, implied, reserved, or inherent in the Property, except as may be specifically reserved to the Grantor in this Easement, are hereby irrevocably transferred to the Grantee. Neither the Property nor any portion thereof may be included as part of the gross area of other property not subject to this Easement for the purposes of determining density, lot coverage, or open space requirements, under otherwise applicable laws, regulations or ordinances controlling land use and building density. No development rights that have been transferred by this Easement shall be transferred to any other land pursuant to a transferable development rights scheme or cluster development arrangement or otherwise. Nor shall any development rights or density credits be transferred onto the Property from other property.

V. GENERAL PROVISIONS.

1. Grantee's Remedies. In the event that Grantee becomes aware of a violation of the terms of this Easement, Grantee shall give notice to Grantor in accordance with the Notice provisions of this Section ("Notice of Violation"). Failure by Grantor to initiate curative action within fifteen (15) days of receipt of the Notice of Violation and to discontinue, abate, or cure the violation within thirty (30) days after receipt of the Notice of Violation, or a longer period of time if provided for in the Notice of Violation, shall entitle Grantee to bring an action at law or in equity before a court of competent jurisdiction to: (i) enforce the terms of this Easement; (ii) require the restoration of the Property to the condition that existed prior to such activity; (iii) recover liquidated damages in lieu of restoration of harvested sod or timber in the event Grantor harvests or causes to be harvested sod or timber in violation of this Easement, Grantor stipulates to liquidated damages for such violation in an amount equal to four hundred percent (400%) of the then fair market value of the harvested sod or timber; provided, however, nothing herein shall be construed to alter or waive Grantee's right to seek restoration of any portions of the Property altered in violation of this Easement; (iv) enjoin such noncompliance by a temporary or permanent injunction in a court of competent jurisdiction; (v) seek a mandatory injunction in a court of competent jurisdiction to compel Grantor to take such corrective action as required to remedy the violation; (vi) recover any damages arising from noncompliance with this Easement; and/or (vii) invoke its fee reverter rights, as provided for in the deed of

conveyance from Grantee to Grantor, recorded immediately preceding this Easement in the Official Records of Flagler County, Florida, whereby Grantee has the option of requiring Grantor to return to Grantee all right, title and interest in the Property if the terms of the Easement are violated by Grantor. Damages arising from noncompliance with this Easement, when recovered, may be applied by Grantee, in its sole discretion, to corrective action on the Property.

a. If Grantee, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the conservation values of the Property, Grantee may pursue its remedies under this paragraph without prior notice to Grantor or without waiting for the period for cure to expire; provided, however, that Grantee shall provide notice to Grantor of the violation and Grantee's actions to prevent or mitigate said damage at the earliest feasible time.

b. Grantee does not waive or forfeit the right to take such action as may be necessary to ensure compliance with this Easement by any prior failure to act and Grantor hereby waives any defense of laches with respect to any delay by Grantee in acting to enforce any restriction or exercise any rights under this Easement.

c. Nothing herein shall be construed to entitle Grantee to institute any enforcement proceedings against Grantor for any changes to the Property or plant or animal life thereon due to causes beyond Grantor's control, such as, without limitation, changes caused by fire, flood, storm, earthquake, major plant or animal disease, acts of God, or the unauthorized wrongful acts of third persons. In the event of violations of this Easement caused by wrongful acts of unauthorized persons, if Grantee requests, Grantor agrees to assign such right of action to Grantee, to join in any suit and/or to appoint Grantee as attorney-in-fact of Grantor for the purposes of pursuing an action against such third person.

2. **Recordation.** Grantee shall record this Easement in the Official Records of Flagler County, Florida, and provide the Grantor with a copy of the Easement with recording information affixed thereto within thirty (30) days of the date hereof. Grantee may re-record this Easement at any time Grantee may so require to preserve its rights. Grantee shall pay all recording costs necessary to record this Easement in the public records.

3. **Taxes and Assessments.** Grantor agrees to pay when due any real estate taxes or other assessments levied on the Property. Upon request of Grantee, Grantor shall furnish to Grantee timely proof of such payment. In the event that Grantor fails to pay any tax or assessment on the Property when due, Grantee, subject to the notice and cure provision of this Easement and in Grantee's absolute discretion, may pay such tax or assessment. Notwithstanding the foregoing provisions, Grantor shall have the right to contest in good faith by all appropriate proceedings the amount, applicability or validity of any such taxes or

assessments, and in connection with and during the pendency of such contest, the Grantor my refrain from paying such taxes or assessments.

4. **Transfers by Grantor**. Grantor agrees that Grantee's written approval is necessary prior to the transfer of any fee simple interest in the Property. Grantor agrees to notify Grantee of the names and addresses of any party to whom any interest in the Property is to be transferred at least sixty (60) days prior to the date of such transfer, and to incorporate by specific reference to this Easement's Public Records recording information the terms of this Easement in any deed or other legal instrument by which Grantor transfers any interest in the Property, including, without limitation, a leasehold or other possessory interest. The failure of Grantor to perform any act required by this subsection shall not impair the validity of this Easement or limit its enforceability in any way.

5. **Modification.** The terms and conditions of this Easement may be modified only by mutual agreement, in writing, between the Grantor and the Grantee, or their respective successors or assigns and shall be recorded in the Public Records of Flagler County, Florida.

6. **Attorneys' Fees and Costs.** In any dispute between Grantor and Grantee arising out of this Easement which results in the filing of a lawsuit, each party in such action shall bear its own attorney fees and costs (including fees and costs of appeal) incurred by such party in regard to this dispute.

7. **Successors and Assigns.** The terms "Grantor" and "Grantee" as used herein shall include, without limitation, the successors and assigns of Grantor and Grantee. The covenants, terms, conditions and restrictions of this Easement shall be binding upon and inure to the benefit of such Grantor and Grantee and shall continue as a servitude running in perpetuity with the Property.

8. **Notices.** Any notice, demand, consent, or communication that either party is required to give to the other hereunder shall be in writing and either served personally by hand-delivery, next-day courier delivery, or by registered or certified mail, postage prepaid, addressed as follows:

To the Grantor:	Flagler County Attn: Flagler County Administrator 1769 E. Moody Boulevard, Bldg 2, Suite 301 Bunnell, FL 32110
With a copy to:	Flagler County Attn: Flagler County Attorney 1769 E. Moody Boulevard, Bldg 2, Suite 303 Bunnell, FL 32110

To the Grantee: St. Johns River Water Management District
Bureau Chief, Bureau of Real Estate Services
4049 Reid Street
Palatka, Florida 32177
Telephone: (386) 329-4335 Fax: (386) 329-4103

or to such other address as any of the above parties shall from time to time designate by written notice, delivered pursuant to the terms of this paragraph. All such notices delivered hereunder shall be effective upon delivery or within five (5) days from the date of mailing if sent by registered or certified mail.

9. **Good Faith Covenant**. Each party hereto agrees that it shall act in good faith and deal fairly with the other party in performing its obligations and enforcing its rights as set forth in this Easement. Each party affirmatively commits to fulfill its obligations under this Easement honestly and with diligence and integrity. Each party further agrees to avoid impairing the other's performance, and each shall cooperate with the other party to fulfill its obligations timely and efficiently.

10. **Mediation.** From time to time, the terms and conditions of this Easement will require Grantor and Grantee to reach agreement on certain plans and courses of action described and contemplated herein. Grantor and Grantee agree to attempt to reach agreement on such plans and courses of action in good faith. In the event that, after a reasonable effort, Grantor and Grantee fail to reach agreement on a plan or course of action required to be undertaken pursuant to this Easement, then in that event, Grantor and Grantee may submit such issue to mediation. Mediation shall be held at a time and place mutually agreeable to Grantor and Grantee provided, however, in no event shall the mediation be scheduled later than ninety (90) days after notice provided by one party to the other requesting mediation on the issue in dispute. The mediation shall be held before a mediator who is mutually acceptable to both Grantor and Grantee and having expertise in the subject matter in dispute. This mediation provision is intended to apply to good faith disputes regarding mutual decisions to be reached by Grantor and Grantee under the terms and conditions of this Easement. In no event shall this mediation provision supplant or impede election of the remedies set forth in Paragraph V.1. herein.

11. **Construction of Document**. As used herein "shall" is always mandatory. This Easement was jointly prepared by the parties upon the review and advice of their respective legal counsel. It is the intent of the parties that, in construing the intent of the parties hereto, there shall be no presumption in favor of either party by virtue of which party is primarily responsible for drafting this Easement.

12. **Sovereign Immunity and Regulatory Authority.** Nothing in this Easement shall be construed to constitute a waiver of the Grantor or Grantee's sovereign immunity over and above the waiver of sovereign immunity set forth in

section 768.28, Florida Statutes, or waiver of any other statutory or common law immunity, including the recreational use immunity of the Grantee set forth in section 373.1395, Florida Statutes. Nothing herein shall be construed to restrict or abrogate the lawful regulatory jurisdiction or authority of Grantor or Grantee, or relieve Grantor from the responsibility of obtaining all necessary permits or other regulatory authorizations from Grantee or other governmental agencies asserting jurisdiction over Grantor's activities.

13. **Condemnation.** If the Property, or any portion thereof, is condemned under the power of eminent domain, or determined necessary for public utility purposes, Grantee and Grantor shall be entitled to compensation in accordance with applicable law to the extent and in the proportion that the rights of each party are affected by any such act of condemnation.

14. **Environmental Warranty and Indemnification.** Grantor shall not take any action to cause the Property to fail to be in compliance with applicable Environmental Laws. Moreover, subject to the limits of liability provided by Section 768.28, Florida Statutes, Grantor hereby indemnifies and agrees to save, defend and hold harmless, to the extent allowed by law, Grantee from and against any and all liabilities, claims, demands, losses, expenses, damages, fines, fees, penalties, suits, proceedings, actions, costs and other liabilities (whether legal or equitable in nature including, without limitations, attorney's fees and costs) claimed or asserted by or on behalf of any person or governmental authority arising from or connected with the release or threatened release by Grantor of any Hazardous Materials on, at, beneath, or from the Property, or arising from or connected with a violation by Grantor (or Grantor's agents, employees, invitees or guests) of Environmental Laws. Provided, however, in the event that Grantee is named or joined as a party in a suit or proceeding alleging a violation of Environmental Laws (or a violation by Grantor's agents, employees, invitees or guests), Grantee shall give Grantor timely notice of such suit or proceeding. Upon receipt of such notice, Grantor shall tender a defense of Grantee in such action or proceeding. Grantee shall have the right to reasonably approve Grantor's selection of counsel for such defense. So long as Grantor tenders and maintains such defense on behalf of Grantee, the indemnity provisions of this Paragraph shall not extend to attorney's fees and costs incurred or paid by Grantee in defense of such suit or proceeding if such fees and costs are independent of the defense tendered by Grantor.

The term "Environmental Law" shall mean all federal, state and local laws including statutes, regulations, ordinances, codes, rules and other governmental restrictions and requirements regulating or imposing standards of conduct (including common law) concerning air, water, solid waste, hazardous materials, worker and community right to know, hazard communication, noise, radioactive materials, resource protection, subdivision, inland wetlands and water courses, health protection and similar environmental health, safety, building and land use as may now or at any time hereafter be in effect, including, but not limited to, as

amended, the Federal Solid Waste Disposal Act ("SWDA"), the Federal Clean Air Act ("CAA"), the Federal Clean Water Act ("CWA"), the Federal Resource Conservation and Recovery Act of 1976 ("RCRA"), the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), the Federal Superfund Amendments and Reauthorization Act of 1986 ("SARA"), the Federal Emergency Planning and Community Right-To-Know Act ("EPCRA"), the Federal Insecticide, Fungicide and Rodenticide Act ("FIFRA"), the Toxic Substances Control Act ("TSCA"), Chapters 161, 253, 373, 376, and 403, Florida Statutes, and the rules and regulations of the (i) United States Environmental Protection Agency, (ii) the Florida Department of Environmental Protection, and (iii) the St. Johns River Water Management District, now or at any time hereafter in effect.

The term "Hazardous Materials" shall mean any petroleum, petroleum products, fuel oil, waste oils, explosives, reactive materials, ignitable materials, corrosive materials, hazardous wastes, hazardous substances, extremely hazardous substances, toxic substances, toxic chemicals, radioactive materials, infectious materials, and any other element, compound, mixture, solution, or substance which may pose a present or potential hazard to human health or the environment. The term "Hazardous Materials" shall not include pesticides, herbicides, and fertilizer applied in accordance with (i) label instructions, (ii) any applicable permitting process, and (iii) any applicable BMPs.

15. **General Indemnification.** To the extent allowed by law, Grantor shall indemnify and hold harmless the Grantee, its employees, agents and assigns for any and all liabilities, claims, demands, losses, damages, fines, fees, penalties, suits, proceedings, actions and costs of actions, sanctions asserted by or on behalf of any person or governmental authority, and other liabilities (whether legal or equitable in nature and including, without limitation, court costs and reasonable attorney's fees and attorney's fees on appeal) to which Grantee may be subject or incur relating to the Property, which may arise from Grantor's or its agent's contractor's, or invitee's negligent acts or omissions or Grantor's breach of any representation, warranty, covenant, or agreements contained in this Easement, or violations by Grantor or its agents, contractors, or invitees of any federal, state or local laws, including all Environmental Laws, all subject to the limits of liability provided by Florida Statute 768.28.

16. **Best Management Practices.** As used in this Easement, the term "Best Management Practices" ("BMPs") shall be deemed to be those Best Management Practices that are or may be established for permissible uses of the Property by the Florida Department of Agriculture and Consumer Services ("DACS"), University of Florida Institute of Food and Agricultural Sciences ("IFAS"), Natural Resources Conservation Service ("NRCS"), the local soil and water conservation district, or in the absence of the foregoing, those BMPs then utilized as the prevailing practices for such use.

VI. EASEMENT DOCUMENTATION REPORT. Grantor and Grantee acknowledge and agree that an Easement Documentation Report (the "Report") of the Property was prepared prior to closing and attached hereto as Exhibit "B". Grantor and Grantee acknowledge and agree that the Report is based upon the best available data, but the limits depicted have not been fully verified. In the event a controversy arises with respect to the nature and extent of the physical, ecological or biological condition of the Property, the parties may utilize the Report and any other relevant documents, surveys, photographs, field inspections, or other information to assist in the resolution of the controversy. The Report shall serve, however, as the principal base line for the biological, ecological, and physical condition of the Property on the date of this Easement.

VII. MANAGEMENT PLAN AND ANNUAL REPORT.

1. Management Plan. Grantor and Grantee acknowledge that a Management Plan for the Property was prepared by Grantee prior to the donation of the Property to Grantor (the *2010 Graham Swamp Conservation Area Land Management Plan*) and that Grantor shall manage the Property in accordance with said Plan until such time as said Plan is revised by Grantor. The Management Plan, and any revision thereto, shall describe Grantor's uses, operations and improvements upon the Property as reserved or allowed to Grantor by this Easement. The Management Plan shall set forth Grantor's plans for silvicultural operations; public recreation (including appropriate limitation on the number of persons and vehicles utilizing the Property); use of pesticides, herbicides and fertilizers; wildlife management; construction, including, but not limited to, structures, roads and trails; restoration plans; and other land use activities upon the Property. The Management Plan shall specify that these activities are to be conducted upon the Property in accordance with the applicable BMPs and this Easement.

The Management Plan shall be subject to revision by amendment submitted by Grantor to Grantee's Bureau Chief, Bureau of Real Estate Services, pursuant to Paragraph V.8. herein. Proposed amendments shall be submitted for Grantee's review and approval no more frequently than semi-annually, but no less frequently than every ten (10) years. Grantee shall have up to sixty (60) days to review the Management Plan amendment and submit comments to Grantor or approve the amended Plan. If Grantee does not respond to Grantor within sixty days, the amendment shall be deemed to have been approved by Grantee. The Management Plan and each amendment shall be consistent with the purposes and provisions of this Easement.

2. Annual Report. Each year, on or before the anniversary date of the date of recording of this Easement, or such other date that is mutually agreed upon in writing by Grantor and Grantee, Grantor shall prepare and furnish to Grantee an annual report that includes: (i) a statement documenting Grantor's compliance with the Management Plan and the Easement for the preceding year; (ii) Grantor's activities upon and use of the Property during the preceding year; and (iii) Grantor's proposed activities upon and use of the Property during the current/upcoming year.

VIII. <u>DUTY OF CARE.</u> Grantor and Grantee recognize and acknowledge the natural, scenic, aesthetic, ecological and hydrological character of the Property and have the common purpose and intent of the conservation and preservation of the Property in perpetuity. Accordingly, Grantor hereby acknowledges a continuing duty of care to Grantee imposed by this Easement upon Grantor to carry out the intent and purpose of this Easement with regard to Grantor's ownership and occupancy of the Property.

FCC RD

(Signatures on following pages)

IN WITNESS WHEREOF, the parties hereto have duly executed this Easement, to become effective as of the day and year first above written.

Signed, sealed and delivered in our presence as witnesses:

Print name: ANDREW MOSS

Print name: RHEA COSGROVE

GRANTOR:
FLAGLER COUNTY BOARD OF COUNTY COMMISSIONERS

By:
George Hanns
Chairman, Flagler County Commission

Attest:
Print name: LISA FUNICELLO
Title: DEPUTY CLERK

FCC REC

STATE OF FLORIDA
COUNTY OF Flagler

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 10th day of June, 2014 by George Hanns, on behalf of Flagler County, Florida, who is personally known to me or who provided N/A as identification and who did not take an oath.

VICKIE M. HUNTER
COMMISSION DATE #EE104037
EXPIRATION DATE: JUNE 27, 2015

NOTARY PUBLIC, State of Florida
My Commission Expires: June 27, 2015
My Commission No.: # EE 104037

Signed, sealed and delivered in our presence as witnesses:

Lu Anne Wilson

Print Name: Lu Anne Wilson

Kathy F. Breed

Print Name: Kathy F. Breed

GRANTEE:
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes

By:
Name: Hans G. Tanzler III
Title: Executive Director

Attest:
Name: William H. Congdon
Title: General Counsel

FCC RD

For use and reliance only by St. Johns River Water Management District, Legal Form and Content Approved:

By:
William Abrams, Esq.

STATE OF FLORIDA
COUNTY OF Putnam

I HEREBY CERTIFY that the foregoing instrument was acknowledged before me this 11th day of June, 2014, by Hans G. Tanzler III, as Executive Director of the St. Johns River Water Management District, on behalf of the District, who is personally known to me.

SHARON G. CARLIN
MY COMMISSION # EE 212781
EXPIRES: October 29, 2016
Bonded Thru Notary Public Underwriters

NOTARY PUBLIC, State of Florida
My Commission Expires: 10/29/2016
My Commission No.: EE212781
Sharon G. Carlin

CE Form-Local Gov't Transactions
Last Revised 2/3/2014

The following Legal Description prepared by Clyde W. Roesch, Palm Coast Engineering and Design Services, Inc. 5 Hargrove Grade, Palm Coast, Florida.
Date; November 21, 1995.

Graham Swamp, SJRWMD purchase.

DESCRIPTION:

A parcel of land lying within Government Sections 17, 18, 19, 20, 21, 22, 27, 28, 29, 33, 34, 42, 50, 51, 52, 53 and 54, Township 11 South, Range 31 East, Government Sections 3 and 40, Township 12 South, Range 31 East, Flagler County, Florida, being more particularly described as follows;

A POINT OF REFERENCE being the southwest corner of Government Section 22, Township 11 South, Range 31 East, thence North 88°53'11" East along the South line of Section 22 a distance of 429.08 feet to the POINT OF BEGINNING of this description, thence departing said Section Line South 16°42'45" East a distance of 269.25 feet, thence South 52°45'41" West a distance of 121.63 feet, thence South 60°38'42" East a distance of 233.55 feet, thence North 57°33'16" East a distance of 458.03 feet, thence North 87°43'12" East a distance of 210.59 feet, thence South 19°42'53" West a distance of 40.68 feet thence South 75°30'00" East a distance of 44.12 feet to a point on the westerly right-of-way line of a 15' strip of land for pedestrian/bicycle path use recorded in Official Records Book 474, Pages 820 through 823, thence along said westerly right-of-way line the following courses South 10°05'32" West a distance of 926.81 feet to a point of curvature, concave Northeasterly, thence Southerly a distance of 1887.48 feet along the arc of said curve to the left having a central angle of 68°39'48", a radius of 1575.00 feet, a chord bearing of South 24°14'22" East and a chord distance of 1776.54 feet to a point of tangency, thence South 58°34'16" East a distance of 560.63 feet to a point of curvature, concave Southwesterly, thence Southeasterly a distance of 1700.10 feet along the arc of said curve to the right having a central angle of 40°10'06", a radius of 2425.00 feet, a chord bearing of South 38°29'13" East and a chord distance of 1665.49 feet to a point of tangency, thence South 18°24'09" East a distance of 5460.63 feet to a point of curvature, concave Westerly, thence Southerly a distance of 1507.36 feet along the arc of said curve to the right having a central angle of 11°29'11", a radius of 7519.00 feet, a chord bearing of South 11°58'36" East and a chord distance of 1504.84 feet to the point of intersection with a non-tangent line, thence departing said proposed roadway South 83°46'14" West a distance of 8.55 feet, thence South 83°27'24" West a distance of 211.82 feet, thence South 44°29'22" West a distance of 990.73 feet, thence South 29°15'12" West a distance of 219.88 feet, thence South 57°42'47" East a distance of 283.53 feet, thence South 12°43'31" East a distance of 300.18 feet, thence South 45°29'28" East a distance of 718.28 feet, thence South 19°06'24" East a distance of 261.31 feet, thence South 44°03'30" West a distance of 145.36 feet, thence North 62°22'17" West a distance of 122.87 feet, thence South 39°18'36" West a distance of 208.66 feet, thence South 23°18'47" West a distance of 392.96 feet, thence South 22°15'50" East a distance of 554.13 feet, thence North 79°37'07" West a distance of 158.10 feet, thence North 47°30'38" West a distance of 210.90 feet, thence North 08°02'07" West a distance of 278.13 feet, thence North 42°31'19" West a distance of 644.26 feet, thence North 63°57'47" West a distance of 302.89 feet, thence North 85°53'27" West a distance of 132.53 feet, thence North 03°36'14" East a distance of 123.70 feet, thence North 43°33'24" West a distance of 406.24 feet, thence South 43°05'57" West a distance of 91.04 feet, thence South 04°15'25" West a distance of 104.75 feet, thence South 40°22'25" West a distance of 324.10 feet, thence South 80°06'11" West a distance of 55.25 feet, thence North 27°50'43" East a distance of 332.95 feet, thence North a distance of 85.47 feet, thence North 47°33'46" East a distance of 191.77 feet, thence North 15°15'48" West a distance of 155.15 feet, thence North 34°00'46" West a distance of 636.31 feet, thence South 85°20'40" West a distance of 87.82 feet, thence South 12°52'08" West a distance of 314.39 feet, thence North 77°50'07" West a distance of 101.47 feet, thence North 17°19'15" West a distance of 156.79 feet, thence North 71°16'17" West a distance of 309.76 feet, thence South 78°29'33" West a distance of 105.55 feet,

thence North 58°58'10" West a distance of 118.93 feet, thence North 00°58'16" East a distance of 127.06 feet, thence South 66°13'11" East a distance of 277.69 feet, thence North 39°57'04" East a distance of 104.92 feet, thence South 67°50'42" East a distance of 245.71 feet, thence North 37°03'07" West a distance of 803.78 feet, thence North 00°44'11" West a distance of 475.68 feet, thence South 89°15'49" West along the northerly line of the Lehigh Railroad right-of-way a distance of 3998.99 feet, thence departing said railroad right-of-way North 00°44'11" West a distance of 208.86 feet, thence North 17°41'36" West a distance of 3508.19 feet, thence South 89°10'12" West a distance of 833.01 feet, thence North 15°20'03" West a distance of 1688.94 feet, thence North 13°36'24" West a distance of 2525.96 feet, thence North 42°21'02" West a distance of 1094.08 feet, thence North 20°26'43" West a distance of 2138.13 feet, thence North 69°03'13" East a distance of 664.65 feet, thence North 20°17'51" West a distance of 142.01 feet, thence South 69°03'13" West a distance of 901.75 feet, thence North 11°45'24" West a distance of 3.26 feet, thence North 01°54'07" East a distance of 64.87 feet, thence North 12°43'33" West a distance of 47.49 feet, thence North 12°11'06" West a distance of 33.61 feet, thence North 22°25'29" West a distance of 45.85 feet, thence North 25°31'12" West a distance of 52.05 feet, thence North 78°14'10" East a distance of 50.37 feet, thence North 13°55'38" West a distance of 84.62 feet, thence South 79°42'21" West a distance of 36.14 feet, thence North 00°34'43" West a distance of 43.70 feet, thence South 89°25'17" West a distance of 35.00 feet, thence South 89°24'49" West a distance of 191.43 feet, thence North 08°42'57" East a distance of 238.76 feet, thence North 19°25'15" West a distance of 1583.14 feet, thence North 24°33'06" West a distance of 289.90 feet, thence North 32°26'09" West a distance of 430.26 feet, thence North 16°26'05" West a distance of 553.11 feet, thence North 24°10'56" West a distance of 802.64 feet, thence North 35°30'33" West a distance of 127.19 feet, thence South 71°49'42" West a distance of 35.00 feet, thence North 18°10'18" West a distance of 155.00 feet, thence South 71°49'42" West a distance of 167.00 feet, thence South 18°10'18" East a distance of 155.00 feet, thence South 71°49'42" West a distance of 1252.18 feet to a point on the easterly right-of-way line of Old Kings Road (66'R/W) said point being on a curve, concave Southwesterly, thence along said easterly right-of-way line the following courses Northwesterly a distance of 461.70 feet along the Arc of said curve to the left having a central angle of 18°03'08", a radius of 1465.39 feet, a chord bearing of North 40°09'23" West and a chord distance of 459.79 feet to a point of reverse curvature, concave Northeasterly, thence Northwesterly a distance of 532.87 feet along the arc of said curve to the right having a central angle of 21°49'02", a radius of 1399.40 feet, a chord bearing of North 38°16'26" West and a chord distance of 529.65 feet to a point of tangency, thence North 27°21'55" West a distance of 756.86 feet to a point of curvature, concave Southwesterly, thence Northwesterly a distance of 615.83 feet along the arc of said curve to the left having a central angle of 22°29'44", a radius of 1568.52 feet, a chord bearing of North 38°36'47" West and a chord distance of 611.88 feet to the point of intersection with a non-tangent line, thence North 89°11'03" East along the North line of Government Section 19 a distance of 25.75 feet to a point on a non-tangent curve, concave Southwesterly, thence Northwesterly along Old Kings Road a distance of 76.39 feet along the Arc of said curve to the left having a central angle of 02°45'38", a radius of 1585.52 feet, a chord bearing of North 50°32'17" West and a chord distance of 76.39 feet to a point of tangency, thence North 51°55'06" West a distance of 420.35 feet, thence departing Old Kings Road North 38°04'53" East a distance of 60.00 feet, thence South 51°55'06" East a distance of 30.00 feet, thence North 41°00'49" East along the southerly boundary of the Plat Bernard Meadows Section-81, Map Book 23, Pages 23 through 40 a distance of 165.15 feet to a point of curvature, concave Southerly, thence Northeasterly a distance of 1483.23 feet along the arc of said curve to the right having a central angle of 67°59'11", a radius of 1250.00 feet, a chord bearing of North 75°00'25" East and a chord distance of 1397.73 feet to a point of tangency, thence South 71°00'00" East a distance of 900.00 feet to a point of curvature, concave Northerly, thence Easterly a distance of 1358.74 feet along the arc of said curve to the left having a central angle of 45°00'00", a radius of 1730.00 feet, a chord bearing of North 86°30'00" East and a chord distance of 1324.08 feet to a point of tangency, thence North 64°00'00" East a distance of 1701.10 feet to a point on the East Line of Section 42,

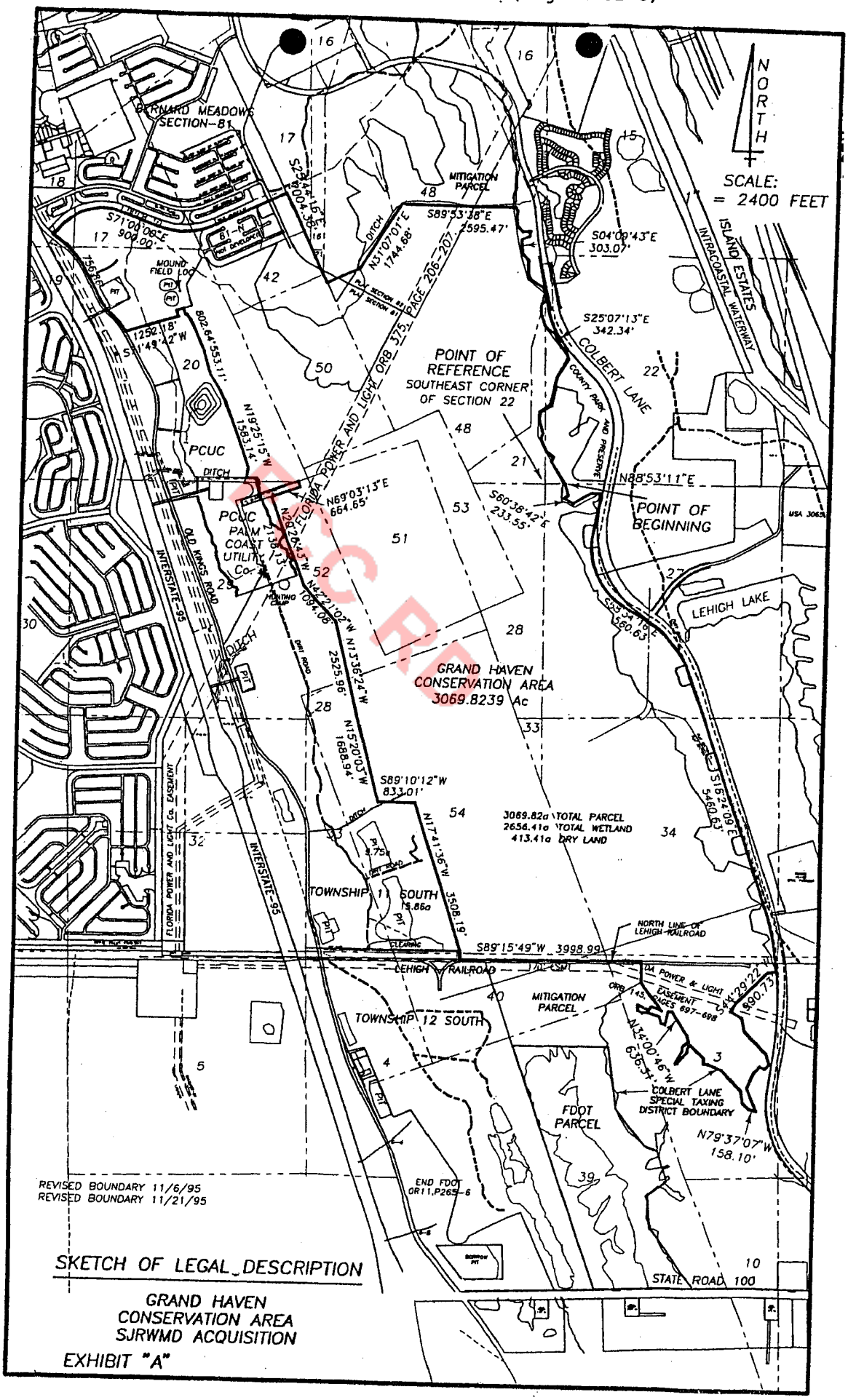
thence South 25°44'16" East along the East Line of Section 42 a distance of 2004.38 feet, thence South 25°18'43" East along the East Line of Section 50 a distance of 208.36 feet, thence departing Section 50 North 64°41'17" East a distance of 800.00 feet, thence North 31°07'01" East a distance of 1744.68 feet, thence South 89°53'38" East a distance of 2595.47 feet, thence South 23°57'25" East a distance of 94.80 feet, thence South 08°51'56" West a distance of 109.87 feet, thence South 03°23'14" East a distance of 208.02 feet, thence South 42°13'34" East a distance of 171.72 feet, thence North 87°40'06" East a distance of 165.10 feet, thence South 11°11'25" West a distance of 105.42 feet, thence South 62°15'40" West a distance of 181.91 feet, thence South 04°09'43" East a distance of 303.07 feet, thence South 39°18'17" East a distance of 208.34 feet, thence South 02°34'48" East a distance of 361.11 feet, thence South 36°40'38" East a distance of 142.77 feet, thence South 60°10'04" East a distance of 256.86 feet, thence South 31°32'40" East a distance of 131.73 feet to a point on the westerly right-of-way line of Colbert Lane Extension (215'R/W), thence South 12°18'31" East a distance of 172.40 feet, thence departing said right-of-way line South 02°09'53" East a distance of 2.98 feet, thence South 87°50'07" West a distance of 12.10 feet, thence South 04°21'31" West a distance of 28.04 feet, thence South 46°25'34" West a distance of 120.95 feet, thence South 03°36'47" West a distance of 203.48 feet, thence South 17°41'49" East a distance of 316.38 feet, thence South 35°09'38" East a distance of 115.05 feet, thence South 59°53'36" East a distance of 170.46 feet, thence South 25°07'13" East a distance of 342.34 feet, thence South 50°31'18" East a distance of 141.21 feet, thence South 20°13'12" East a distance of 195.14 feet, thence South 31°32'58" West a distance of 441.60 feet, thence South 15°13'26" West a distance of 258.73 feet, thence South 75°24'27" East a distance of 35.24 feet, thence South 12°01'18" West a distance of 450.50 feet, thence South 58°00'31" West a distance of 264.79 feet, thence South 12°26'08" West a distance of 169.77 feet, thence South 14°14'22" East a distance of 341.84 feet, thence South 16°18'06" West a distance of 127.31 feet, thence South 21°41'22" East a distance of 328.77 feet, thence South 50°13'05" East a distance of 204.61 feet, thence South 33°13'43" West a distance of 104.34 feet, thence South 31°50'57" East a distance of 595.97 feet, thence South 16°42'45" East a distance of 4.14 feet to the POINT OF BEGINNING.

Subject to existing easements to Florida Power and Light Co. recorded in Official Records Book 145, Pages 697 and 698 and Book 375, Pages 206 and 207, of the Public Records of Flagler County, Florida.

The above description is accompanied by an attached drawing titled "SKETCH OF LEGAL DESCRIPTION".

Bearings refer to the Transverse Mercator Grid System of the East Zone of Florida and locally referenced to the South line of the Southwest Quarter (1/4) of Government Section 22, Township 11 South, Range 31 East, being North 88°53'11" East.

EXHIBIT "A" (Page 4 of 6)



The following Legal Description prepared by Clyde W. Roesch, Palm Coast Engineering and Design Services, Inc. 5 Hargrove Grade, Palm Coast, Florida.
Date; August 1, 1995.

Mitigation parcel for Colbert Lane extension.

DESCRIPTION:

A parcel of land lying within Government Sections 3, 39 and 40, Township 12 South, Range 31 East, Flagler County, Florida, being more particularly described as follows:

A POINT OF REFERENCE being the Southwest corner of Government Section 3, Township 12 South, Range 31 East, thence North 20°42'49" West along the West line of Section 3 a distance of 4478.80 feet to the POINT OF BEGINNING of this description, thence South 58°52'20" West a distance of 58.15 feet, thence South 49°01'16" West a distance of 347.81 feet, thence South 11°33'59" East a distance of 145.51 feet, thence South 32°19'01" West a distance of 185.55 feet, thence South 26°09'35" East a distance of 79.41 feet, thence South 28°37'27" West a distance of 194.88 feet, thence South 12°48'41" East a distance of 131.57 feet, thence South 39°58'25" East a distance of 279.70 feet, thence South 11°49'24" East a distance of 69.15 feet to a point being the northeast corner of a 261.00 acre parcel of land to be sold to the Florida Department of Transportation, thence South 89°15'49" West along the North line of said parcel a distance of 2114.30 feet, thence North 20°54'58" West a distance of 2024.75 feet to a point on the South line of the Lehigh Railroad right-of-way line (60'R/W), thence North 89°15'49" East along said railroad right-of-way a distance of 3519.14 feet, thence departing said railroad right-of-way South 00°44'11" East a distance of 415.68 feet, thence South 58°52'20" West a distance of 548.52 feet to the POINT OF BEGINNING.

The above description is accompanied by an attached drawing titled "SKETCH OF LEGAL DESCRIPTION".

Parcel containing 115.0002 acres more or less.

Bearings refer to the Transverse Mercator Grid System of the East Zone of Florida and locally referenced to the West line of Government Section 3, Township 12 South, Range 31 East, being North 20°42'49" West.

EXHIBIT "A" (Page 6 of 6)

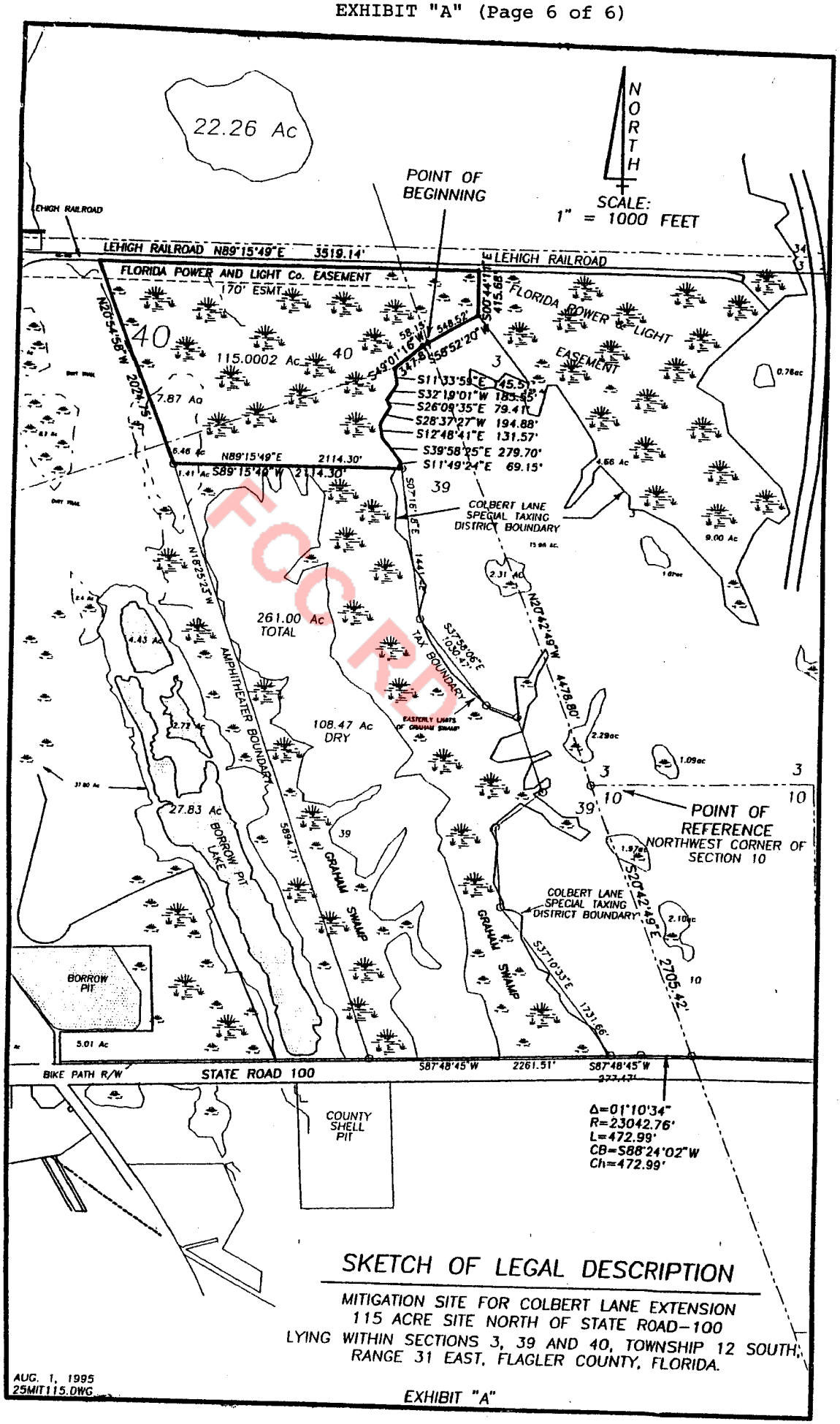


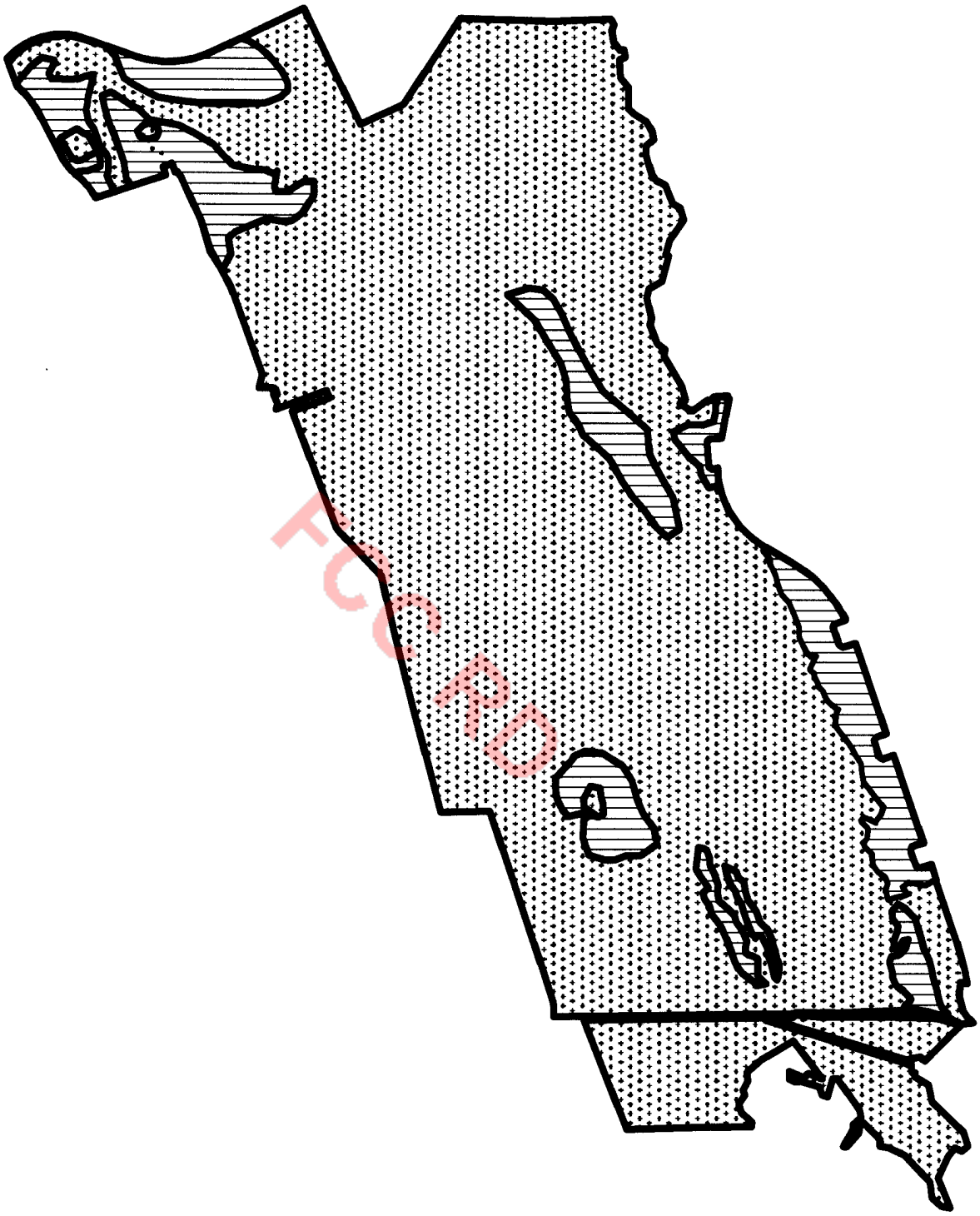
EXHIBIT "B"

EASEMENT DOCUMENTATION REPORT

The Easement Documentation Report consists of the following six maps:

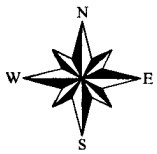
- Map 1 - Uplands and Wetlands
- Map 2 - Natural Communities and Disturbed Area
- Map 3 - Trails and Structures
- Map 4 - Trails and Structures – Inset Map North
- Map 5 - Trails and Structures – Inset Map South
- Map 6 - Photo Points

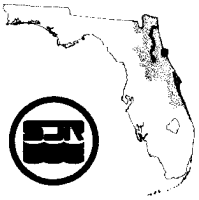
FCC RD



Graham Swamp C. A.

Flagler County, Florida





0 1,400 2,800 Feet

1 = 31000

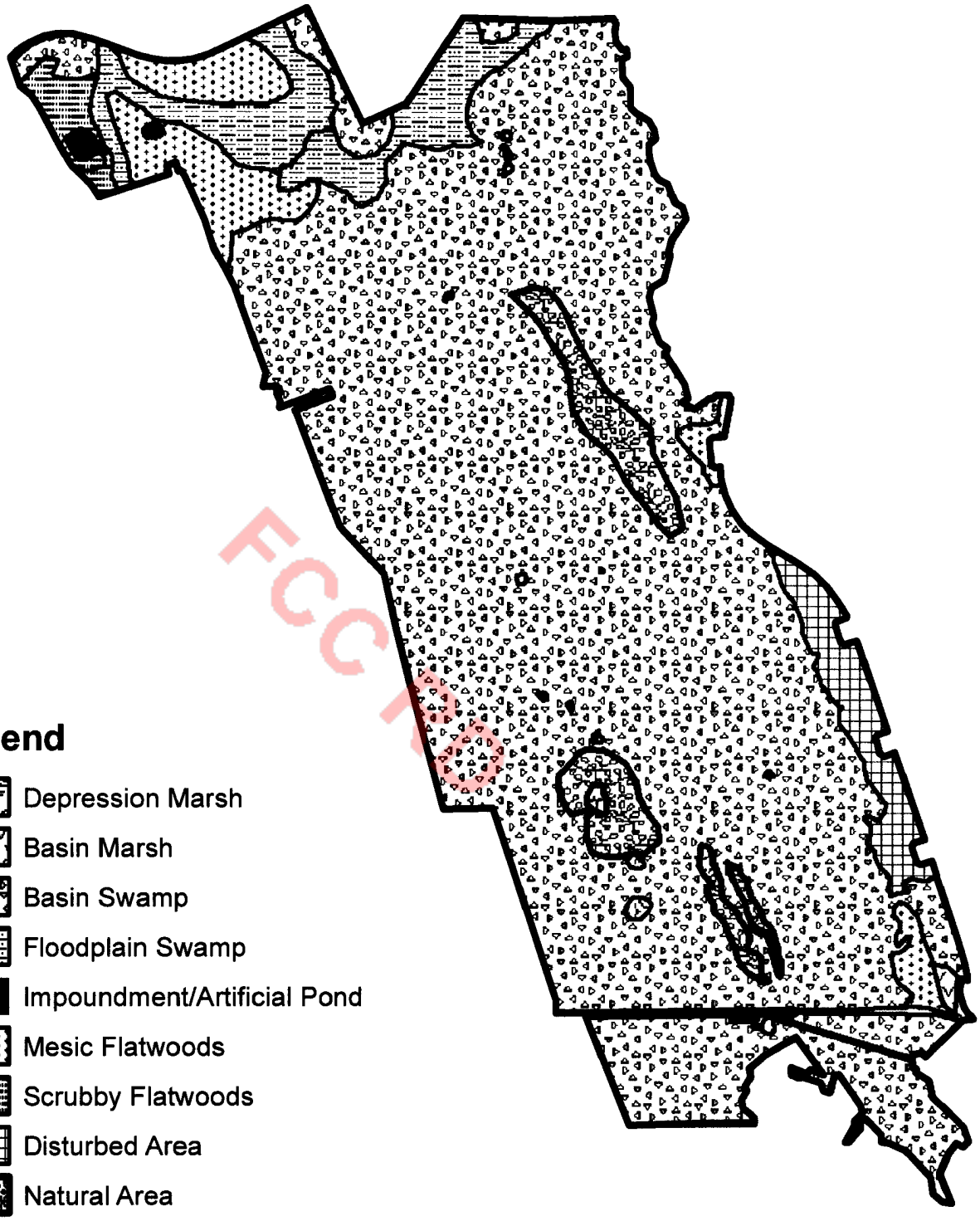
Exhibit B - Map 1

Uplands / Wetlands

Uplands

Wetlands

The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.



Legend

- Depression Marsh
- Basin Marsh
- Basin Swamp
- Floodplain Swamp
- Impoundment/Artificial Pond
- Mesic Flatwoods
- Scrubby Flatwoods
- Disturbed Area
- Natural Area

Graham Swamp C. A.

Flagler County, Florida

N W E S

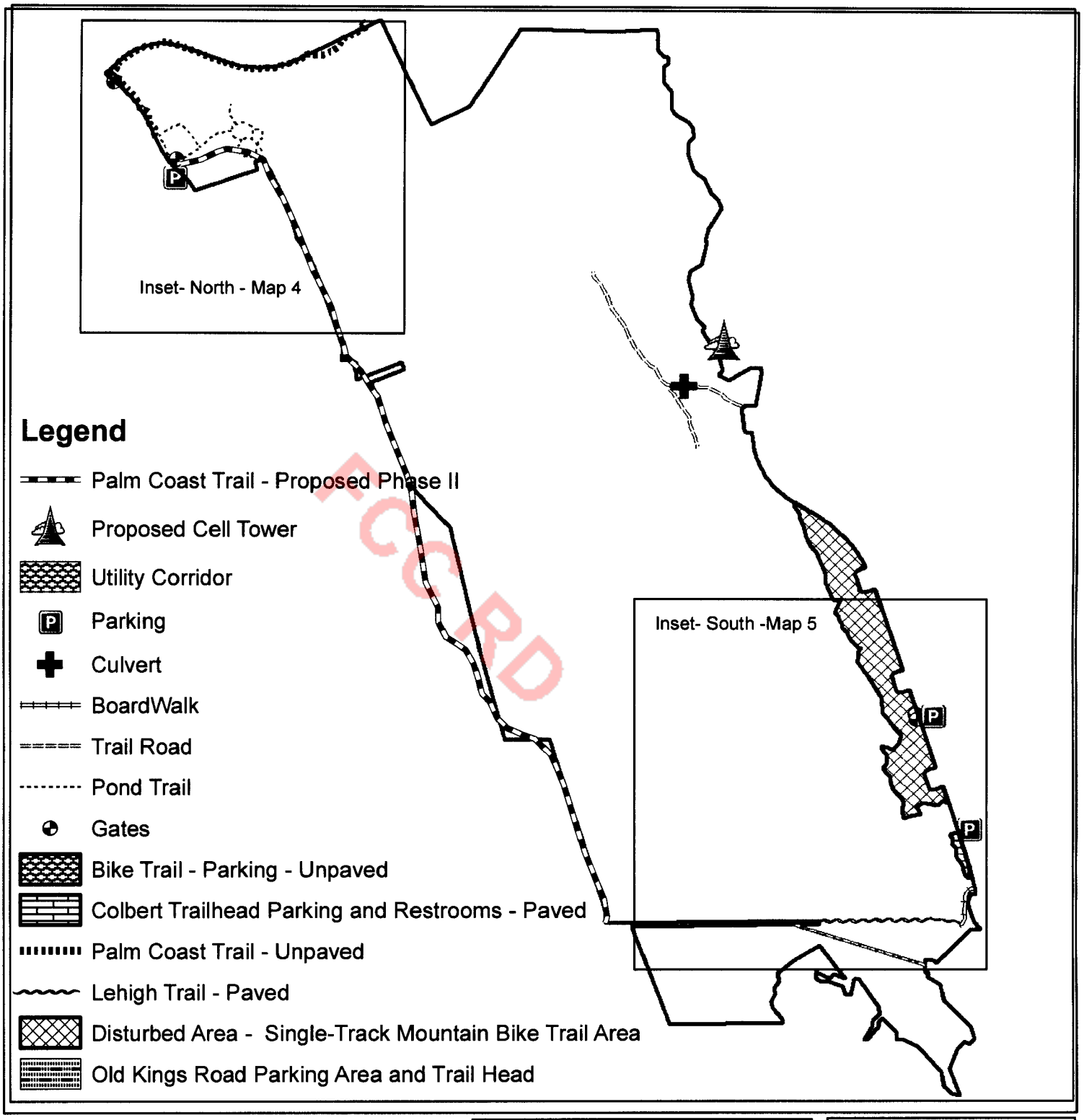
0 1,400 2,800 Feet

1 = 31000

Exhibit B - Map 2

Natural Communities and Disturbed Area

The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.



Graham Swamp C. A.
Flagler County, Florida

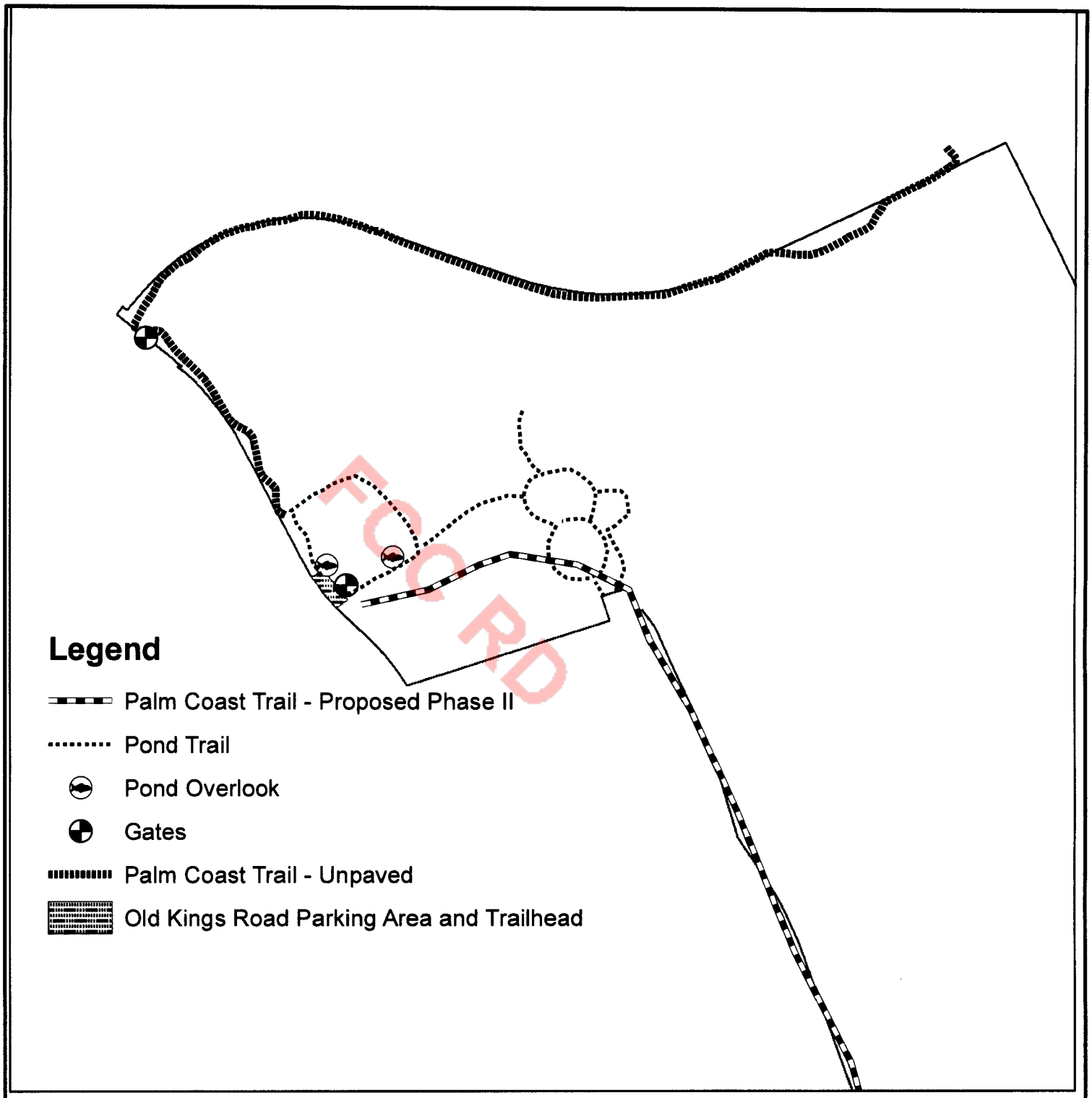
N W E S

0 1,350 2,700 Feet

1 = 30000

Exhibit B - Map 3
Trails and Structures

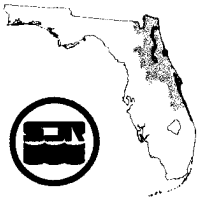
The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.



FOC RD

Graham Swamp C. A.

Flagler County, Florida



N W E S

0 450 900 Feet

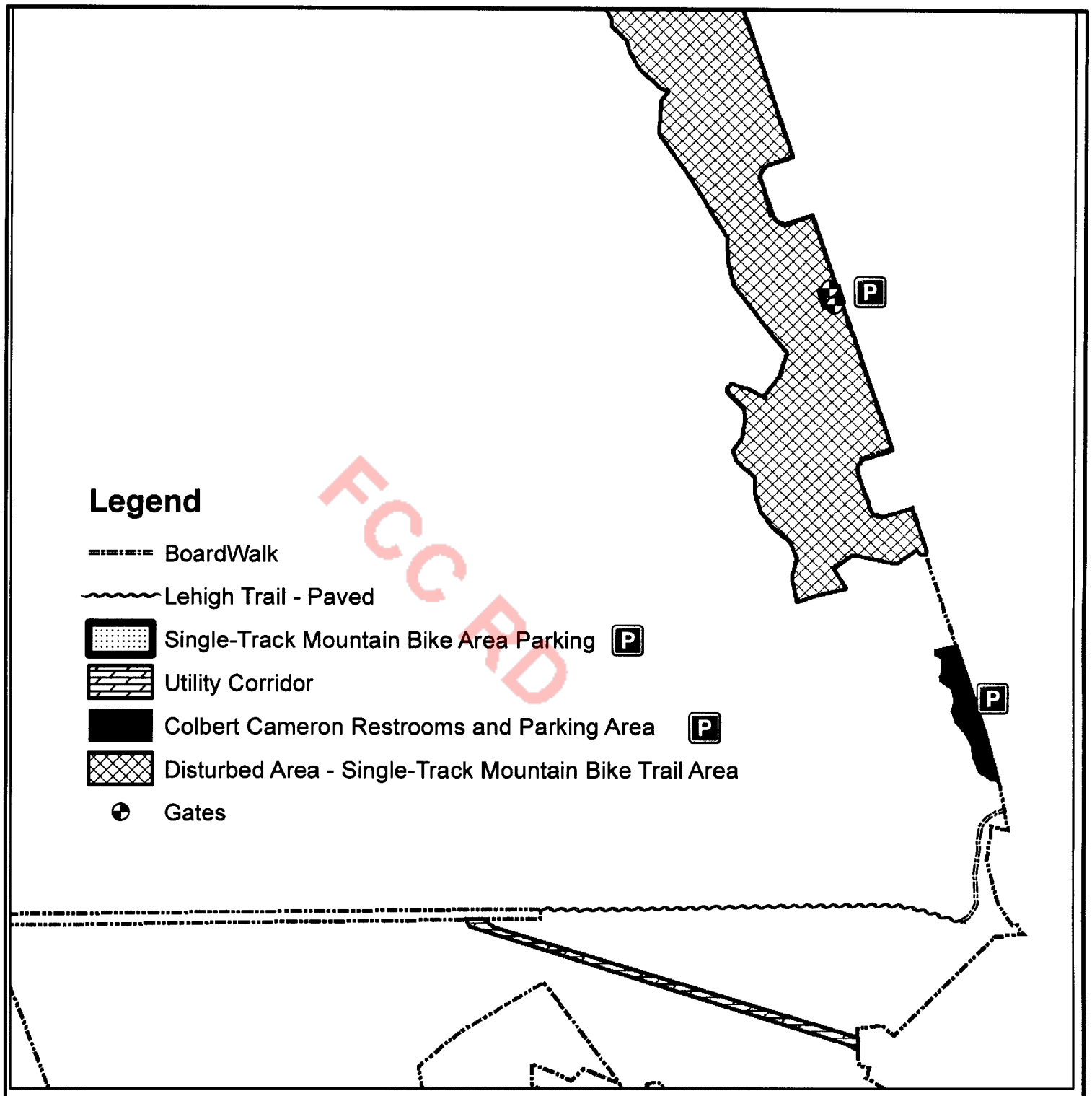
1 = 9381

Exhibit B - Map 4

Trails and Structures

North

The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.



FCC RD

Graham Swamp C. A.

Flagler County, Florida

N
W E
S

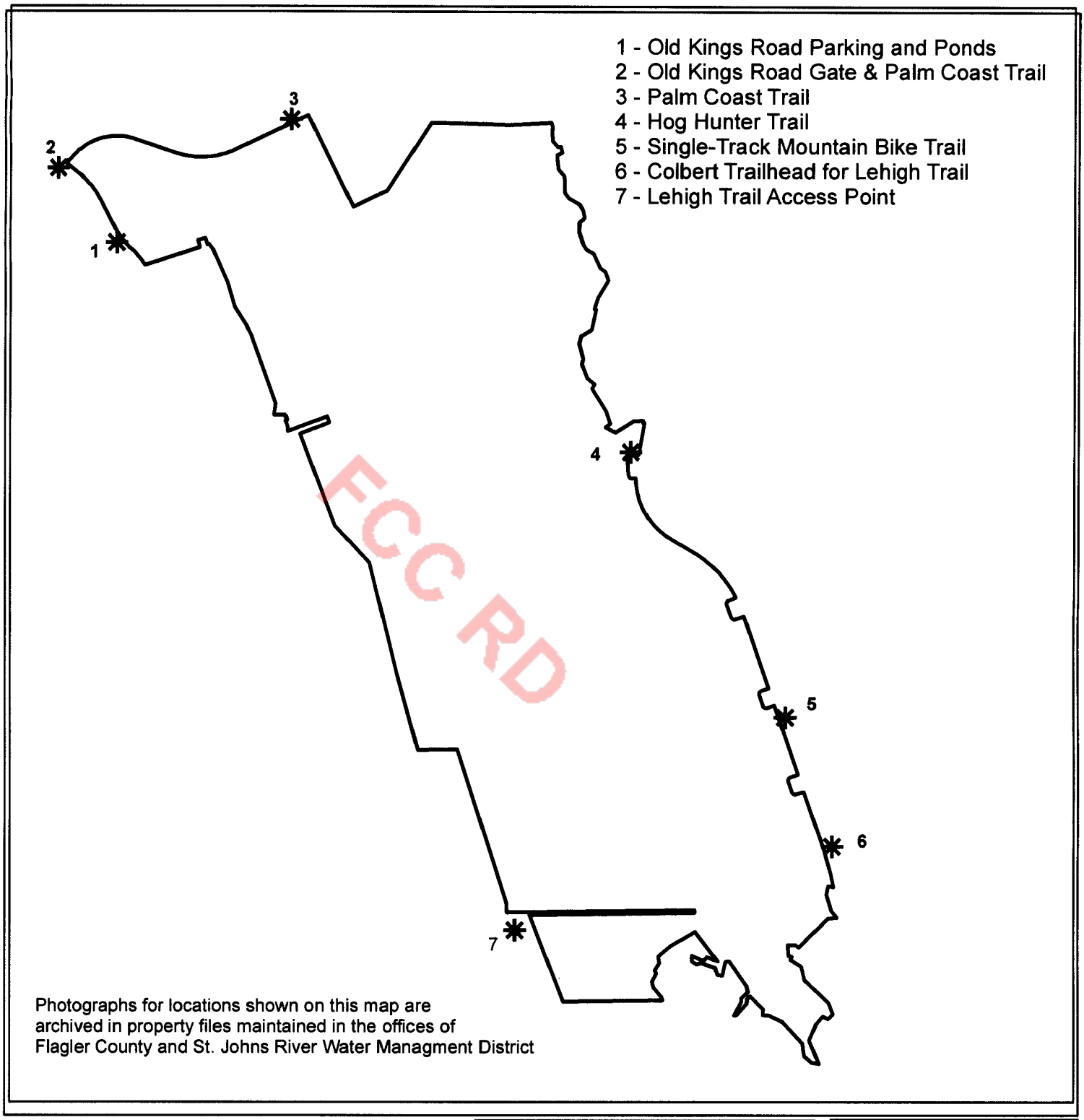
0 485 970 Feet

1 = 10000

Exhibit B - Map 5

Trails and Structures South

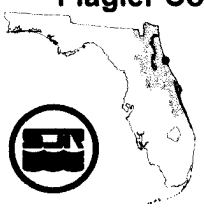
The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.



Photographs for locations shown on this map are archived in property files maintained in the offices of Flagler County and St. Johns River Water Managment District

Graham Swamp C. A.

Flagler County, Florida



N W E S

0 1,550 3,100 Feet

1 = 34000

Exhibit B - Map 6

Photo Points

Legend

✱ PhotoPoints

The St. Johns River Water Management District prepares and uses this Information for its own purposes and this information may not be suitable for other purposes. This information is provided as is. Further documentation of this data can be obtained by contacting: St. Johns River Water Management District, Geographic Information Systems,Program Management, P.O.Box 1429, 4049 Reid Street Palatka, Florida 32178-1429 Tel: (386) 329-4176.

Florida Department of Transportaion Conservation Easement

PLEASE RETURN TO
FL DEPT OF TRANSPORTATION
R/W RECORDS MGMT-MS1-551
719 S. WOODLAND BOULEVARD
DELAND, FL 32720-6800
ATTN: C. COWART

ISYD CRBSBY 970089887 Date: 05/21/1997
FLAGLER County
By: M. Stewart D.C. Time: 14:46:4
OFF REC 0583 PAGE 0587

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is made this 1st day of May, 1997 by the State of Florida, Department of Transportation, having an address at 719 S. Woodland Boulevard, DeLand, Florida 32720 ("Grantor"), in favor of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, a public body existing under Chapter 373, Florida Statutes, having a mailing address at P.o. Box 1429, Palatka, Florida 32078-1429 ("Grantee").

W I T N E S S E T H

WHEREAS, Grantor owns in certain real property in Flagler County, Florida, more particularly described in Exhibit "A" attached hereto and incorporated by this reference (the "Property"); and

WHEREAS, the Property possesses environmental value of great importance to the Grantor and to the people of Flagler County, Florida; and

WHEREAS, Grantor intends, as the Property owner, to convey to Grantee the right to preserve and protect the environmental value of the Property in perpetuity; and

WHEREAS, Grantee agrees, by accepting this Grant, to honor Grantor's intentions stated herein, and to preserve and protect in perpetuity the environmental value of the Property for the benefit of this generation and the generations to come;

NOW, THEREFORE, in consideration of the above and Army Corps of Engineers Permit #1994-01201 and the mutual covenants, terms, conditions and restrictions contained herein, and pursuant to the provisions of 704.06, Florida Statutes, Grantor hereby voluntarily

FCCRD

73020-2515 P.105

grants and conveys to Grantee a conservation easement in perpetuity over the Property of the nature and character and to the extent hereinafter set forth (the "Easement").

1. Rights of Grantee. The following rights are conveyed to Grantee by this Easement:

(a) To prevent any activity on or use of the Property that is inconsistent with the provisions of this Easement, and to require the restoration of areas or features of the Property that may be damaged by any such inconsistent activity or use.

(b) To enter upon an inspect the Property in a reasonable manner and at reasonable times to determine if the Grantor or its successors and assigns are complying with the covenants and prohibitions contained in this Conservation Easement; and

(c) To proceed at law or in equity to enforce the provisions of this Conservation Easement and the covenants set forth herein, and to prevent the occurrence of any of the prohibited activities hereinafter set forth.

2. Prohibited Uses. The following activities and uses are prohibited:

(a) Construction or placing of buildings, roads, signs, billboards or other advertising, utilities or other structures on or above the ground;

(b) Dumping or placing of soil or other substance or material as landfill or dumping or placing of trash, waste or unsightly or offensive materials;

(c) Removal or destruction of trees, shrubs, or other vegetation;

FCC RD

(d) Excavation, dredging or removal of loam, peat, gravel, soil, rock or other material substances in such a manner as to affect the surface;

(e) Surface use, except for purposes that permit the land or water area to remain predominately in its natural condition;

(f) Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation; and

(g) Acts or uses detrimental to such retention of land or water areas.

(h) Acts or uses detrimental to the preservation of the structural integrity or physical appearance of sites or properties of historical, architectural, or archaeological, or cultural significance.

FCCRD

3. Reserved Rights. Grantor reserves unto itself, and its successors and assigns, all rights accruing from its ownership of the Property, including the right to engage in or permit or invite others to engage in all uses of the Property that are not expressly prohibited herein. Grantor further reserves the right to perform all activities allowed by St.Johns River Management District Permit # 12-035-0029GM and 4-035-0045GM.

4. Grantee's Discretion. Grantee may enforce the terms of this Easement at its discretion, but if Grantor breaches any term of this Easement and Grantee does not exercise its rights under this Easement, Grantee's forbearance shall not be construed to be a waiver by Grantee of such term, or of any subsequent breach of

the same, or any other term of this Easement, or of any of the Grantees's rights under this Easement, except as to the specific instance in which the forbearance occurred. No delay or omission by Grantee in the exercise of any right or remedy upon any breach by Grantor shall impair such right or remedy or be construed as a waiver, except to the extent that the Grantor has acted in reliance thereon with knowledge of Grantee. Grantee shall not be obligated to Grantor, or to any other person or entity, to enforce the provisions of this Easement. No person or entity shall have the right to require Grantee to enforce the provisions of this Easement.

5. Grantee's Liability. Neither Grantor, nor any person or entity claiming by or through Grantor, shall hold Grantee liable for any damage or injury to person or personal property which may occur on the property to the Property unless and to the extent that the same is caused by Grantee's acts or omissions.

7. Acts Beyond Grantor's Control. Nothing contained in this Easement shall be construed to entitle Grantee to bring any action against Grantor for any injury to or change in the Property resulting from natural causes beyond Grantor's control, including, without limitation, fire, flood, storm and earth movement, or from any action taken by Grantor under emergency conditions to prevent, abate or mitigate significant injury to the Property or to persons resulting from such causes.

8. Assignment. This Easement is transferable, but Grantee may assign its rights and obligations under this Easement only to an organization that is a qualified organization at the time of

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transfer under Section 170(h) of the Internal Revenue Code of 1954, as amended (or any successor provision then applicable), and the applicable regulations promulgated thereunder, and authorized to acquire and hold environmental easements under the statutes of the State of Florida (or any successor provision then applicable). As a condition of such transfer, Grantee shall require that the provisions of this Grant continue to be carried out.

9. Recordation. Grantor shall record this instrument in timely fashion in the Official Records of Flagler County, Florida. Grantor shall pay all recording costs and taxes necessary to record this Easement in the public records except to the extent that Grantor is exempt or immune therefrom.

10. Successors. The covenants, terms, conditions and restrictions of this Easement shall be binding and their respective personal representatives, heirs, successors and assigns and shall continue as a servitude running in perpetuity with the Property.

IN WITNESS WHEREOF, Grantor has set its hand on the day and year first above written.

Signed, sealed and delivered in our presence as witnesses:

George S Lovett

George S. Lovett

STEPHEN P. HOMAN

STATE OF FLORIDA,
DEPARTMENT OF TRANSPORTATION

By: Nancy M Houston
Name:

District Secretary
District Five

ATTEST:

By: Nancy J. Lindsey

FCCRD

STATE OF FLORIDA

COUNTY OF Volusia

OFF REC 0583 PAGE 0592

The foregoing instrument was acknowledged before me this 1st day of May, 1997, by NANCY M. HOUSTON, as District Secretary of District Five of the State of Florida, Department of Transportation. Said person is (personally known to me) or produced _____ as identification.

Nancy J. Landry

Name:
Title or rank:
Serial Number:

Nancy J. Landry
Notary Public, State of Florida
Commission No. CC 445853
My Commission Expires 05/29/99
1-800-3-NOTARY - Fla. Notary Service & Bonding Co.

F:\GROUPS\LEGAL\WPDOC\LS\FILES\EASEMENT.001

FCC RD

EXHIBIT "A"

PARCEL NO. 105 SECTION 73020-2515

MITIGATION AREA

A parcel of land lying North of State Road No. 100 in FR's Pellicier Grant Section 39, Township 12 South, Range 31 East, Flagler County, Florida, being more particularly described as follows:

Commence at the the Northwest corner of Government Lot 1 of Section 10, Township 12 South, Range 31 East; thence South 20°51'53" East along the common line of said Sections 10 and 39 a distance of 2705.62 feet to a point on the Northerly right of way line of a 24-foot bike path right of way per Official Records Book 251, Page 547, Public Records of Flagler County, Florida (said Northerly bike path right of way line being 24 feet Northerly of, concentric and parallel with the Northerly right of way line of said State Road No. 100); said point being on curve concave Southerly, having a radius of 23042.31 feet, a central angle of 01°10'34" and a chord bearing of South 88°23'49" West; thence Westerly along the arc of said curve and along said bike path right of way line 473.03 feet to the point of tangency; thence South 87°48'32" West continuing along said bike path right of way line 277.43 feet for the POINT OF BEGINNING of this description; thence continue South 87°48'32" West along said bike path right of way line 2261.51 feet; thence departing said bike path right of way line run North 18°25'36" West 5894.71 feet; thence North 89°15'36" East 2114.34 feet; thence South 07°16'31" East 1441.57 feet; thence South 37°58'19" East 1030.37 feet; thence South 68°55'16" East 304.88 feet; thence South 19°41'29" East 744.45 feet; thence South 52°05'02" West 552.55 feet; thence South 03°30'00" East 762.72 feet; thence South 37°10'46" East 1731.66 feet to the POINT OF BEGINNING.

Containing 260.997 acres more or less.

This Legal Description Prepared Under The Direction Of:
Jose Louis Reinoso, II, P.L.S. #5160
Department of Transportation
719 S. Woodland Blvd.
DeLand, Florida 32720

APPENDIX M

SJRWMD Pre-Application Meeting Minutes

KCA | KISINGER CAMPO & ASSOCIATES

MEETING NOTES

Project Name

Graham Swamp Trail from South of SR 100 to Lehigh Trail

Project Number

FPID: 438635-1-38-01
LAP Contract No. G1417
KCA: 001-201848.00

Date/Time

11 July 2019 at 1:00 pm

Location

St. John's River Water Management District HQ, 4049 Reid St, Palatka, FL 32177

Purpose of Meeting

SJRWMD Pre-application meeting.

Participants

From KCA: Megan Rasmussen, Martin Horwitz, Simon Hagedoorn, Tara Spieler
From Flagler County: Faith Alkhatib, Amy Stroger
From FDOT: Casey Lyon, by phone
From SJRWMD: Cameron Allen, Chou Fang

1. Meeting began with Introductions and Project Overview.
2. Most of the multi-use trail and the sidewalk are exempt activities that do not require treatment or a permit per 62-330.051(10) F.A.C.
    a. A permit is required where there will be unavoidable wetland impacts and so meet permit conditions for trail impacting wetlands. Likely an Individual Permit and Board approval will be required.
        i. Applicant will be Flagler County and FDOT.
        ii. Sidewalk has wetland impacts in preliminary design. To avoid WL 3 completely we will shift the sidewalk and regrade the stormwater ditch. No secondary impacts for sidewalk.
        iii. The multi-use trail cannot avoid wetlands in Graham Swamp. The wetland impacts have been avoided and minimized by conducting preliminary field work and then looking in more detail at the corridor. Also large trees have been surveyed and avoided. Wetlands will be bridged so impacts are limited to approximately 12' x 12' piles and shading (deck elevated 4 to 5 ft.).
    b. The northern parcel waterbody is considered impaired, need to demonstrate a net improvement.
        i. A mitigating system is needed to remove additional nutrient loading such as a shallow swale and best management practices.

3. The floodplain is impacted from the pilings of the boardwalk, the boardwalk itself will be elevated above the floodplain.
    a. Compensation required only in the 10-year floodplain.
        i. If <5 sq. miles then no compensating storage needed.
    b. Piling impacts will be de minimus and not require any floodplain mitigation.
4. The southern FDOT parcel and northern Flagler County parcel are under a conservation easement (CE) that is deeded to the SJRWMD. There is no language in the FDOT CE about constructing a trail, but there is for the Flagler County parcel.
    a. An amendment to the CE is required to allow for the construction of a trail. There is a request form that Cameron can find and send out. The language should be similar to the other CE.
        i. An accompanying management plan is required. This should lay out why you need the amendment and what activities will occur.
    b. The SJRWMD will review the request for amendment and process, make a recommendation to the board, and the board will make the final decision.
    c. There is a possibility we will need to assess and address any loss of mitigation from this project within the CE.
        i. Releasing the property to the County will most likely require that this loss of mitigation be addressed and offset.
        ii. A preliminary review of the previous impacts and mitigation to equate to current criteria, UMAM, has been conducted. KCA believes there is excess mitigation within both CEs, which could be used to offset project impacts. These numbers would need to be verified and approved by FDOT and SJRWMD.
            1. Excess mitigation within the FDOT CE belongs to FDOT. If needed, Flagler county will need to coordinate with FDOT to see if a transfer or use of mitigation credit is possible.
        iii. Multiple mitigation bank service areas cover the project and credits are available to purchase.
5. Right-of-Way (ROW) discussion:
    a. FDOT ROW along SR 100 will require Flagler Co. to obtain public purpose lease.
    b. Coordination to occur between SJRWMD, the County, and FDOT to work out right of way and property ownership issues for CEs.
    c. The County will own and maintain the Graham Swamp recreation trail.
    d. Lehigh Trail has existing State Lands Lease to FDEP-Office of Greenways and Trails and a sublease to Flagler County via Lease No. 004321

i. A temporary construction easement will be needed – SJRWMD to process with application.

6. Environmental discussion

   a. No protected species impacts

   b. CRAS conducted and reviewed by SHPO. (Concurrence received 7/12/19)

   c. Coordination to occur between Cameron and Martin to schedule a field review of the wetland lines within the next few weeks.

<u>Action Items</u>

- Shift sidewalk and regrade ditch to avoid impacting WL 3 completely.
- Send final 30% plans to SJRWMD for preliminary review.
- Design swales alongside trail to offset any new nutrient loading to the system.
- Schedule and conduct field review of wetland lines with KCA and SJRWMD.
- Complete CE amendment request and accompanying management plan and submit to SJRWMD for review.
- Finalize total wetland impacts, verify with SJRWMD any excess mitigation available.
- Application submittal ~ 8/23/2019