

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
TECHNICAL REPORT COVERSHEET

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ENVIRONMENTAL
MANAGEMENT
08/22

DRAFT POND SITING REPORT

Florida Department of Transportation

District One

S.R. 70 PD&E Study

Limits of Project: C.R. 721 S to C.R. 599/128th Avenue


Okeechobee and Highlands Counties, Florida

Financial Management Number: 450334-1-22-01

ETDM Number: 14491

Date: November 2025

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.



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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) Study along State Road (SR) 70 from County Road (CR) 721 South to CR 599/128th Avenue in Highlands County and Okeechobee Counties, Florida. The study is approximately 8.6-miles long and the project proposes the widening of the two-lane facility to a four-lane, divided facility and the inclusion of multimodal improvements. The Preferred Alternative is a four-lane divided road with 12-foot wide travel lanes, paved shoulders and turn lanes, and multi-modal improvements (i.e. shared use path) along the corridor. Additional right-of-way (ROW) is needed to accommodate the proposed improvements. Design and posted speeds of 65 mph are proposed. This is a federally funded project. In addition, all project alternatives for the SR 70 improvements will involve the replacement of the SR 70 over Kissimmee River Bridge.

This Pond Siting Report (PSR) has been completed to support the PD&E Study prepared for the future improvements of SR 70. This report documents the proposed pond site locations for meeting applicable stormwater management criteria associated with the proposed roadway improvement concepts. Potential ponds have been sized and located along the project limits for this PD&E study. The analysis estimates ROW needs using a volumetric approach, which accounts for water quality treatment and attenuation. The estimated ROW areas for the ponds were based on pond sizes determined from preliminary data and calculations, utilizing reasonable engineering judgement and assumptions. Pond sizes and configurations may change during final design as more detailed information on seasonal high ground water elevations, property boundaries, ROW, and wetlands becomes available. **Table ES1** summarizes the preferred pond in each basin. The pond site evaluation matrix is provided in **Table ES2**.

Table ES1 – Preferred Pond Alternatives

Basin	Preferred Pond
1	1A
2	2C (linear treatment ditch)
3	3B
4	4B
5	5C
6	6C
7	7A
8	8A

Table ES2 - Pond Site Evaluation Matrix

Factors	Basin 1			Basin 2			Basin 3			Basin 4		
	Pond 1A	Pond 1B	Pond 1C	Pond 2A	Pond 2B	Pond 2C (Dry Linear)	Pond 3A	Pond 3B	Pond 3C	Pond 4A	Pond 4B	Pond 4C
Pond Location (station)	420+00	420+00	410+00	450+00	450+00	450+00	470+00	460+00	460+00	525+00	547+00	527+00
Side (LT/RT)	RT	LT	LT	LT	RT	LT	LT	RT	RT	LT	RT	RT
Pond Size (ac)	5.7	5.9	5.7	5.4	3.6	1.7	8.1	7.8	7.9	7.4	7.4	7.6
Total Parcel Required (yes/no)	No	No	No	No	No	No	No	No	No	No	No	No
Treatment Volume Provided (ac-ft)	3.3	3.3	3.3	2.2	2.2	1.4	4.9	4.9	4.9	4.6	4.6	4.6
New Easement Required (yes/no)	No	No	No	Yes	No	No	Yes	No	No	Yes	No	No
Possibility of Utility Impacts (yes/no)	No	No	No	Yes	No	No	Yes	No	No	Yes	No	No
FEMA Flood Zone (ac)	0.1	0.0	1.4	5.4	3.6	1.7	8.1	7.8	7.9	7.4	7.4	7.6
Wetland Impacts (ac)	0.36	0.19	1.41	1.40	0.73	0.00	0.04	0.00	0.00	0.01	0.39	0.00
Species Rating	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Low	High
Contamination Risk	None	None	None	None	None	None	None	None	None	None	None	None
Archeological Impacts	Mod-High	Mod-High	Mod-High	Low	Low	Low	Mod-High	Mod-High	Mod-High	Low	Low-Mod	Mod-High
Historic Site Impacts	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Current Land Use Zoning	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Estimated ROW Cost (\$)	\$ 260,000	\$ 266,489	\$ 260,000	\$ 320,621	\$ 235,414	\$ 145,000	\$ 298,654	\$ 290,000	\$ 292,885	\$ 393,328	\$ 393,328	\$ 402,201
Estimated Construction Cost (\$)	\$ 356,217	\$ 343,692	\$ 289,996	\$ 493,427	\$ 155,573	\$ 51,142	\$ 622,298	\$ 412,403	\$ 235,524	\$ 434,541	\$ 391,442	\$ 362,451
Wetland Mitigation Cost (\$)	\$ 27,864	\$ 14,706	\$ 109,134	\$ 108,360	\$ 56,502	\$ -	\$ 3,096	\$ -	\$ -	\$ 774	\$ 30,186	\$ -
Total Cost (\$)	\$ 644,081	\$ 624,886	\$ 659,130	\$ 922,409	\$ 447,489	\$ 196,142	\$ 924,048	\$ 702,403	\$ 528,408	\$ 828,643	\$ 814,956	\$ 764,652
Recommendation/Ranking	1	2	3	3	2	1	3	1	2	3	1	3
Factors	Basin 5			Basin 6			Basin 7			Basin 8		
	Pond 5A	Pond 5B	Pond 5C	Pond 6A	Pond 6B	Pond 6C	Pond 7A	Pond 7B	Pond 7C	Pond 8A	Pond 8B	Pond 8C
Pond Location (station)	625+00	625+00	635+00	641+00	650+00	644+00	745+00	752+00	755+00	805+00	791+00	800+00
Side (LT/RT)	LT	RT	RT	LT	RT	RT	LT	RT	RT	LT	RT	RT
Pond Size (ac)	8.5	8.0	8.6	7.0	7.4	6.9	10.2	9.9	9.5	11.9	9.6	10.4
Total Parcel Required (yes/no)	No	No	No	No	Yes	No	No	No	No	No	No	No
Treatment Volume Provided (ac-ft)	3.3	3.3	3.3	6.2	6.2	6.2	7.8	7.8	7.8	6.2	6.2	6.2
New Easement Required (yes/no)	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	Yes
Possibility of Utility Impacts (yes/no)	Yes	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes
FEMA Flood Zone (ac)	8.5	8.0	8.6	7.0	7.4	6.9	10.2	9.9	9.48	11.9	9.6	10.4
Wetland Impacts (ac)	0.00	2.63	0.17	0.30	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Species Rating	Medium	Medium	Low	High	Low	Low	Medium	Low	Low	Medium	Medium	Medium
Contamination Risk	None	Low	Low	None	None	Low	None	None	None	0.25	0.03	None
Archeological Impacts	Low	Low-Mod	Low-Mod	Low-High	Low-Mod	Low-Mod	Mod-High	Low-Mod	Mod-High	Low-Mod	Low-Mod	Low-High
Historic Site Impacts	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Current Land Use Zoning	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Estimated ROW Cost (\$)	\$ 451,820	\$ 429,066	\$ 456,371	\$ 413,506	\$ 433,421	\$ 408,528	\$ 486,283	\$ 473,892	\$ 457,371	\$ 595,000	\$ 492,563	\$ 528,193
Estimated Construction Cost (\$)	\$ 452,825	\$ 291,149	\$ 323,533	\$ 491,307	\$ 429,498	\$ 627,610	\$ 623,173	\$ 468,431	\$ 517,121	\$ 524,144	\$ 464,490	\$ 754,711
Wetland Mitigation Cost (\$)	\$ -	\$ 203,562	\$ 13,158	\$ 23,220	\$ -	\$ 20,898	\$ -	\$ -	\$ -	\$ 19,350	\$ 2,322	\$ -
Total Cost (\$)	\$ 904,646	\$ 923,777	\$ 793,062	\$ 928,033	\$ 862,919	\$ 1,057,036	\$ 1,109,456	\$ 942,323	\$ 974,492	\$ 1,138,494	\$ 959,375	\$ 1,282,905
Recommendation/Ranking	3	2	1	3	2	1	1	3	2	1	2	3

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I. PROJECT INTRODUCTION

The Florida Department of Transportation (FDOT) District One is conducting a Project Development and Environment (PD&E) Study for the SR 70 corridor to evaluate traffic safety improvements. The study corridor extends from CR 721 South to CR 599/128th Avenue. SR 70 is a two-lane undivided rural principal arterial with a context classification of C2 – Rural. SR 70 is part of Florida's Strategic Intermodal System (SIS) highway network and designated state hurricane evacuation route network. As part of the National Highway System, SR 70 is critical in the transportation network as it facilitates local and regional traffic and the movement of goods/freight.

This Pond Siting Report (PSR) has been completed to support the PD&E Study prepared for the future improvements of SR 70. This report documents the proposed pond site locations for meeting applicable stormwater management criteria associated with the proposed roadway concepts.

1.1 PROJECT LOCATION AND DATUM

This project is within Highlands and Okeechobee Counties, Florida, in Sections 26 & 25 in Township 37S and Range 32E, in Sections 26, 27, 28, 29 and 30 in Township 37S and Range 33E, in Sections 24 & 25 in Township 37S and Range 33E, and in Sections 18 & 19 in Township 37S and Range 34E. A Project Location Map is provided in **Figure 1** and U.S. Geological Survey (USGS) Topographic Map Quadrangles are shown in **Appendix A**. The vertical datum for the proposed improvements refers to the North American Vertical Datum (NAVD), 1988 and is expressed in feet. The latitude/longitude of the datum shift point was taken as the approximate centroid of the project limits (see **Appendix B**). This project is based on the NAVD '88 Datum that is approximately 1.198 feet below the equivalent NGVD '29 elevation (i.e., $100.00 \text{ NGVD '29} = 98.802 \text{ NAVD '88}$).

1.2 PURPOSE

The purpose of this Pond Siting Report is to evaluate the proposed pond site location for meeting applicable stormwater management criteria. The goal is to minimize cultural, environmental and right-of-way (ROW) impacts. The proposed ponds were analyzed and evaluated based on the best available information, considering, but not limited to the following factors:

- Environmental impacts which include wetlands, upland habitat, and protected species involvement
- Cultural resources
- Hazardous materials contamination
- Economic factors, including construction costs and estimated land costs
- Hydrologic factors such as soil types and seasonal high groundwater table (SHWT) elevations
- Stormwater conveyance and hydraulic parameters
- Utility impacts



Figure 1: Project Location Map

- ROW

1.3 PROJECT PURPOSE & NEED

The purpose of the project is to address traffic safety conditions on SR 70 from CR 721 S to CR 599/128th Avenue in Highlands and Okeechobee Counties. Other goals of the project are to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area. The need for the project is based on safety, area wide network/system linkage, and transportation demand. By addressing safety, emergency evacuation, traffic safety conditions, and incident response times will improve. Area wide network/system linkage will aid in maintaining important east-west connectivity within the regional transportation network and transportation demand will accommodate freight activity.

1.4 EXISTING FACILITY AND PROPOSED IMPROVEMENTS

1.4.1 EXISTING FACILITY

The existing SR 70 corridor from CR 721 S to CR599/128 Ave. has a functional classification by FDOT as a Rural Principal Arterials – Other, per the Straight-Line Diagrams (SLD), see **Appendix C**. The corridor consists of a rural two-lane roadway with two typical sections 1) 10-foot travel lanes with four-foot paved shoulders and open drainage ditches on either side in Highlands County; 2) 12-foot lanes with four-foot paved shoulders and open drainage ditches on either side in Okeechobee County. There are two existing bridges within the project limits. The Slough Ditch (C-41A) Canal Bridge carries SR 70 over the C-41A Canal and the Kissimmee River Bridge carries the corridor over the Kissimmee River (C-38) Canal. No bike lanes, sidewalks, or multi-use trails exist within the corridor.

1.4.2 PROPOSED IMPROVEMENTS

The Preferred Alternative has a rural typical section with an open roadway drainage system (ditches) for the four-lane construction. The typical section includes: two 12-foot travel lanes in each direction; a 40-foot median with 8-foot inside shoulders of which 4-feet are paved; 12-foot outside shoulders of which 5-feet are paved; and a 12-foot shared use path on the south side of SR 70 adjacent to the eastbound travel lanes. The average width needed for the roadway ROW is 260 feet but varies throughout the alignment from 210 feet to 290 feet. The proposed ROW need is mainly on the south side of SR 70; however, in a couple of locations ROW is needed on the north side of SR 70. The target, design and posted speed are 65 mph. The Kissimmee River bridge will be replaced with two new bridges, and a second bridge will be added to the Slough Ditch (C-41A Canal) roadway crossing. A new stormwater management system will be constructed.

II. DATA COLLECTION

2.1 RAINFALL DATA

Rainfall data was taken from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Rainfall Data (See **Appendix D**) and are as follows (**Table 1**):

Table 1 – Rainfall Data

Source	Return Period (years)	Duration (hours)	Rainfall (inches)
NOAA Atlas 14	25	72	8.5
NOAA Atlas 14	100	72	10.9

2.2 TERRAIN DATA

A Digital Elevation Model (DEM) is a representation of the topographic surface of the Earth excluding trees, buildings, and other surface objects. DEMs are created from a variety of sources, but primarily from topographic maps. DEM's were sourced from the USGS "The National Map" application and converted to .tiff files with units of feet and compiled into one single DEM for the purpose of this project.

2.3 PERMIT RESEARCH

The South Florida Water Management District (SFWMD) ePermitting websites were used to identify applicable existing permits adjacent to the corridor. **Table 2** presents a summary of the permits.

Table 2 - Environmental Resource Permits

Application No.	Permit No.	Project Name
120412-17	28-00011-S	Butt Pasture Project
000712-7	22-00297-P	Brighton North Farm
120223-8	28-00146-S	Ft. Basinger Grove S-11 and S-18 Pump Station Mod
X000011675	28-00023-S	Lykes Brothers Inc.
940128-9	28-00146-S	Boat Ramp Nursey (98 Nursey) – Fort Basinger Grove
030310-16	28-00119-S-02	Miami Tropical Sod Farm
901115-2	28-00336-S	State Road 70 Butler Grove
080714-9	28-00119-S-03	Perry Smith P C-06 Modification
970717-5	28-00119-S	Arrow B Ranch
X000013651	28-00096-S	B & E Ranch & Grove Drenik Division
060414-18	47-00703-P	Kissimmee Oaks
10188-A	47-00215-S	DIRR Farms
12068-B-1	47-00058-S	Riveroak Acres
X000011984	47-00021-S	Newcomber, C E Ranch

2.4 OTHER RESOURCES

The following resources were also utilized to complete this report:

- FDOT Drainage Manual
- FDOT Drainage Design Guide
- SFWMD ERP Applicant's Handbook II
- PD&E Manual Part 2 Chapters 11 & 13, 2023
- SFWMD ePermitting Portal
- Natural Resources Conservation Service (NRCS) Web Soil Survey
- USGS Quadrangle Maps (Childs, Brighton)
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM)

III. DESIGN CRITERIA

The design of stormwater management facilities for this project is regulated by the rules and regulations set forth by SFWMD and the FDOT. The requirements of each agency are discussed in the following sections. Minutes from the pre-application meeting held with the SFWMD are included in **Appendix E**.

3.1 SFWMD DESIGN CRITERIA

3.1.1 WATER QUANTITY

SFWMD water quantity criteria require the stormwater management facilities to provide attenuation for the 25-year /72-hour storm event.

3.1.2 WATER QUALITY

For wet detention facilities, the SFWMD requires treatment for roadway widening projects of:

- 2.5 inches of runoff over the new impervious.
- Maximum discharge of 0.5 inch of the detention volume in 24 hours.

For dry retention facilities, the SFWMD requires treatment for roadway widening projects of:

- 1.25 inch of runoff over the new impervious.
- Retention volume to be recovered within 72 hours.

3.1.3 OUTSTANDING FLORIDA WATER

The project does not discharge to an Outstanding Florida Water (OFW) and will not require 50% additional water quality treatment volume above the stated SFWMD volume.

3.1.4 POLLUTANT LOADING ANALYSIS

The new stormwater rule, passed by the 2023-2024 legislative session with an effective date of June 28, 2024, has a grandfather clause for all projects with a complete PD&E prior to July 2026. Since the project discharges surface runoff to impaired Florida Waterbody Identification Numbers (WBIDs) and lies within an established Statewide Basin Management Action Plan (BMAP) for total phosphorus, pollutant loading calculations will be required during the design phase. The BMAP, Lake Okeechobee Basin Management Action Plan, does not have any target reduction levels for the project area and therefore, a net reduction in total phosphorus will be shown through the use of adopted Best Management Practices (BMPs).

3.2 FDOT DESIGN CRITERIA

The stormwater management ponds shall be designed to the criteria of the FDOT including:

- Water Quantity (open basins) - Stormwater management systems are designed such that the post development peak rate of discharge from each pond basin does not exceed the predevelopment peak rate of discharge for the basin.
- Water Quality (wet detention) - Stormwater management systems are designed to accommodate 2.5 inches of runoff from the impervious area or one inch over the basin area, whichever is greater. Stormwater management systems are designed so that the outfall structures shall bleed down a maximum design discharge of one-half inch of the detention volume in 24 hours.
- Water Quality (dry retention) – Stormwater management systems are designed to accommodate 1.25 inches of runoff from the impervious area or 0.5 inch over the basin area, whichever is greater. Treatment volume is recovered within 72 hours following the storm event.
- Stormwater Pond Layout – Maintenance berms are designed at least 15-feet wide with a 1:8 or flatter slope. The inside edge of the maintenance berm has a minimum radius of 30 feet and is a minimum of one foot above the maximum design stage elevation for the pond (freeboard).

IV. EXISTING CONDITIONS

4.1 EXISTING DRAINAGE PATTERNS

The project drains to two maintained canals owned by SFWMD, the C-38 and the C-41A. The approximate range in elevation within the vicinity of the project can range from 10.50-59.9 feet based on the DEM data collected. The project study limits fall within the Florida WBID 3198 (nutrients), 3202 (nutrients), 3206 (dissolved oxygen), and 3209 (un-impaired). The Florida Department of Environmental Protection (FDEP) statewide comprehensive verified list of impaired waters was reviewed to confirm the status of these WBID's. There are no Total Maximum Daily Loads (TMDLs), however, there is BMAP for total phosphorous. Runoff is split along the centerline of the road and sheet flows directly into adjacent ditches that are interconnected by side drains that ultimately outfall into the SFWMD canals mentioned previously. There are no formal water quality treatment facilities within SR 70 ROW. Existing drainage basin maps are provided in **Appendix F**.

4.2 LAND USE

The existing land use is predominately barren land with some row crops and sod farms. Little to no developed land exists throughout the project corridor. There is a limited amount of residential land within the project boundary. A graphical summary is provided in **Appendix G**.

4.3 SOIL DATA

Soils report and spatial data was sourced from the USDA Web Soil Survey application. A general description of the soil data can be found in **Appendix H**.

4.4 FLOODPLAINS

This project is located within FEMA FIRMs 12055C0580C, 12055C0585C, 12055C0605C in Highlands County and 12093C0455C in Okeechobee County (see **Appendix I**). These FIRMs were used to identify potential floodplain and floodway encroachments. The entire project limits are within FEMA flood zone A. There are no regulated floodways. Floodplain impacts are quantified and are documented in the project's Location Hydraulic Report (LHR).

4.5 CROSS DRAINS

There are a total of five cross drains within the project, two of which are bridges. A summary of cross drains is shown below in **Table 3**. Cross drain evaluation is provided in the project's LHR.

Table 3 - Cross Drain Table

Cross Drain	Mile Post		Cross Drain		Barrels	Length
Number	From	To	Diameter	Diameter		
			(in)	(FT)		(FT)
CD-1	29.253	29.253	24	2	1	56
CD-2	33.606	33.606	60	5	2	65
CD-3	36.258	36.258	15	1.25	1	72
-	30.118	30.158	Bridge	Slough Ditch Bridge		211.2
-	0.000	0.080	Bridge	Kissimmee River Bridge		422.4

4.6 ENVIRONMENTAL

The proposed pond site locations are associated with a range of environmental and ecological impacts. Several of the stormwater pond areas contain wetlands, surface waters, and other water features such as roadside ditches. While some of these wetlands are relatively high-quality freshwater marshes, they are generally isolated from larger natural ecosystems due to surrounding agricultural land uses. In addition to these isolated wetlands, there are others that maintain hydrological connections to the Kissimmee River (C-38) and the Slough Ditch (C-41A) Canals, making them more ecologically significant.

These areas also present potential habitat for several listed and protected species. Species that may be present include, but are not limited to, the Florida bonneted bat (*Eumops floridanus*), Eastern indigo snake (*Drymarchon couperi*), wood stork (*Mycteria americana*), crested caracara (*Caracara plancus audubonii*), bald eagle (*Haliaeetus leucocephalus*), and gopher tortoise (*Gopherus polyphemus*).

For a comprehensive assessment of threatened and endangered species, as well as wetland conditions related to the pond site alternatives, refer to **Appendix J** for the Threatened and Endangered Species (T&E) and Wetlands Assessment for Pond Siting Report.

4.7 CULTURAL RESOURCES

A cultural resource assessment probability analysis study was prepared to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the proposed pond sites associated with drainage improvements as a result of alignment improvements to SR 70. Known or potentially significant cultural resources are defined as those sites that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places (NRHP). All work was conducted in compliance with the provisions of the

National Historic Preservation Act (NHPA) of 1966 (Public Law 89-665), as amended, and the implementing regulations 36 Code of Federal Regulations (CFR) 800, as well as with the provisions contained in the revised Chapter 267, Florida Statutes (FS). The results of this study can be found in **Appendix K**.

4.8 CONTAMINATION

A Level 1 Contamination Screening Evaluation Report (CSER) was prepared using the FDOT PD&E Manual and standard contamination screening evaluation practices such as: reviewing regulatory agency records, site reconnaissance, and literature review within the limits of the project. Based on the guidance provided in the PD&E Manual, the search distance buffer for this project was generally maintained within 500 feet of the centerline of the project limits for petroleum, drycleaners, and non-petroleum sites. Sites were included in the evaluation if the parcel boundary fell within the search limits, even if the identified contamination of concern was located outside of the applicable search buffer.

A total of (9) nine potentially contaminated sites were identified and reviewed for potential impacts to the project. Of these, three (3) was ranked “Medium”, three (3) were ranked “Low”, and three (3) were ranked "No" for potential contamination concerns. See **Appendix L** for the locations of these sites, their respective rankings, site names, descriptions, and risk ratings.

For those sites with a risk rating of “Medium”, the Project Manager (PM) and District Contamination Impact Coordinator (DCIC) will coordinate to determine if Level II testing and/or Level III support will be warranted. This may include determining if the FDEP/FDOT Memorandum of Understanding (MOU) applies to any sites, conducting Level II activities or recommending Level III or remedial activities, notes on the plans, design modifications and/or special provisions prior to or during construction.

V. STORMWATER MANAGEMENT

The following section describes the pre-development conditions and the proposed post-development stormwater management alternatives.

5.1 PRE-DEVELOPMENT

The existing drainage patterns along SR 70 consist of roadway runoff sheet flowing to roadside swales and then ultimately conveyed to the SFWMD Slough Ditch (C-41A) and C-38 Canals. There are six (6) existing drainage basins along the SR 70 corridor. Existing drainage basin maps are provided in **Appendix F**. They are as follows:

5.1.1 BASIN 1

Basin 1 begins at station 400+00.00 and continues to station 456+50.00 (midway on C-41A Canal bridge). The roadway runoff is collected and conveyed east in roadside swales to the C-41A Canal. The roadside swales also collect offsite runoff from the north which is then conveyed to the C-41A Canal. There are no stormwater management facilities in Basin 1.

5.1.2 BASIN 2

Basin 2 begins at station 456+50.00 (midway on the C-41A Canal bridge) and continues to station 510+00.00.

The roadway runoff is collected and conveyed in roadside swales west to the C-41A Canal. The roadside swales also collect offsite runoff from the north which is then conveyed to C-41A Canal. There are no stormwater management facilities in Basin 2.

5.1.3 BASIN 3

Basin 3 begins at station 510+00.00 and continues to station 641+00.00. The roadway runoff is collected and conveyed east in roadside swales to a roadside ditch along Fulmar Terrace which outfalls to the C-41A Canal and a 60-inch crossdrain located at station 641+00.00. This crossdrain conveys SR 70 runoff and offsite runoff south via a small drainage ditch to the C-41A Canal. The roadside swales also collect offsite runoff from the north which is then conveyed to the mentioned crossdrain. There are no stormwater management facilities in Basin 3.

5.1.4 BASIN 4

Basin 4 begins at station 641+00.00 and continues to station 693+00.00. The roadway runoff is collected and conveyed west in roadside swales to a 60-inch crossdrain located at station 641+00.00. This crossdrain conveys SR 70 runoff and offsite runoff south via a small drainage ditch to the C-41A Canal. The roadside

swales also collect offsite runoff from the north which is then conveyed to the mentioned crossdrain. There are no stormwater management facilities in Basin 4.

5.1.5 BASIN 5

Basin 5 begins at station 693+00.00 and continues to station 785+34.75 (midway on the C-38 Canal bridge). The roadway runoff is collected and conveyed east in roadside swales to the C-38 Canal. The roadside swales also collect offsite runoff from the north which is then conveyed to C-38 Canal. There are no stormwater management facilities in Basin 5.

5.1.6 BASIN 6

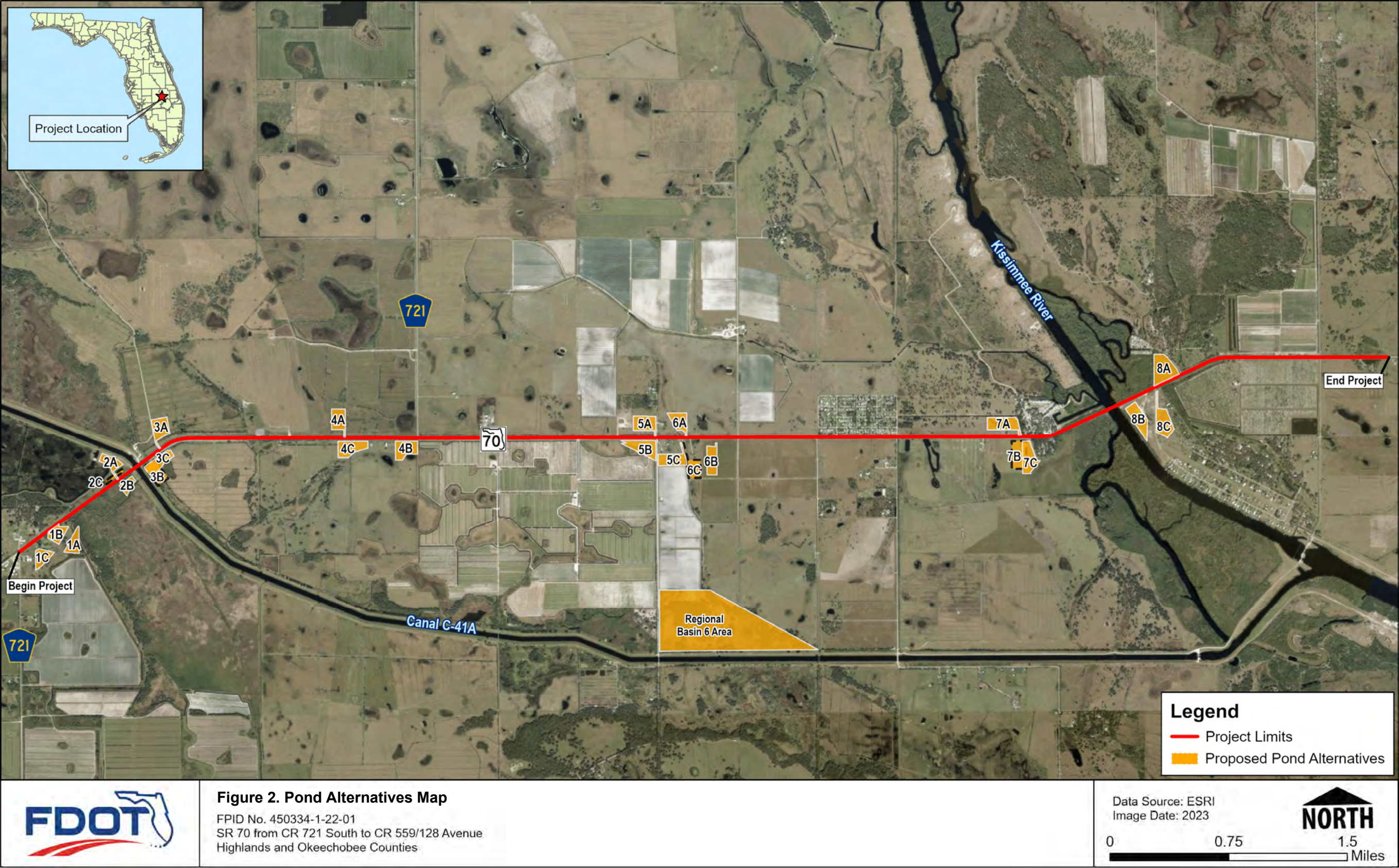
Basin 6 begins at station 785+34.75 (midway on the C-38 Canal bridge) and continues to station 882+50.00. The roadway runoff is collected and conveyed west in roadside swales to the C-38 Canal. The roadside swales also collect offsite runoff from the north which is then conveyed to the C-38 Canal. There are no stormwater management facilities in Basin 6.

5.2 POST-DEVELOPMENT

Impacts to adjacent properties and the existing drainage conditions were heavily considered when selecting the preferred roadway alternative typical section. The Preferred Alternative has a rural typical section with an open roadway drainage system (ditches) for the four-lane construction. The typical section includes: two 12-foot travel lanes in each direction; a 40-foot median with 8-foot inside shoulders of which 4-feet are paved; 12-foot outside shoulders of which 5-feet are paved; and a 12-foot shared use path on the south side of SR 70 adjacent to the eastbound travel lanes. Typical sections are provided in **Appendix M**. The proposed stormwater management ponds are sized to accommodate the proposed typical section.

The existing drainage patterns will be maintained in the post-development condition. The pre-development Basins 1 and 3 will be divided into two (2) post-development basins due to its length. The ultimate outfall location due to the division of Basins 1 and 3 and the total basin outfall discharge will not be changed. The roadway runoff will be collected in roadside swales and conveyed to the appropriate stormwater management ponds. The proposed stormwater ponds will outfall to the proposed bypass ditch. The proposed bypass ditch will convey the stormwater pond discharge as well as any offsite runoff to the C-41A and C-38 Canals.

Three (3) pond alternatives were analyzed for each basin and are shown in **Figure 2** and in **Appendix N**. They are sized using a volumetric approach to satisfy the project's water quality and quantity requirements. Potential pond site locations were evaluated on but not limited to:



- Aerial photographs
- Existing ground elevation is based on Light Detection and Ranging (LiDAR) data
- Field visits
- ROW information from Highlands and Okeechobee County Property Appraisers
- Existing SFWMD permits
- Construction / Maintenance / Accessibility
- SHWT estimates provided by the project's geotechnical evaluation
- Wetlands
- Endangered species
- Cultural effects
- Utility impacts
- Contamination

The Preferred Alternative, Alternative 1, is shown in the drainage maps. There are eight (8) post-development drainage basins along the SR 70 corridor. Post-development drainage basin maps are provided in **Appendix F**. They are as follows:

5.2.1 BASIN 1

Basin 1 begins at station 400+00.00 and continues to station 430+00.00. The roadway runoff is collected and conveyed in roadside swales to a proposed stormwater management facility that outfalls to an existing ditch that outfalls to the C-41A Canal. The preferred pond alternative for Basin 1 is Pond 1A.

5.2.2 BASIN 2

Basin 2 begins at station 430+00.00 and continues to station 456+50.00 (midway on the C-41A Canal bridge). The roadway runoff is collected and conveyed west in roadside swales to a proposed stormwater management facility (dry linear treatment ditch) that outfalls to the C-41A Canal. The preferred pond alternative for Basin 2 is Pond 2C (linear ditch).

5.2.3 BASIN 3

Basin 3 begins at station 456+50.00 (midway on the C-41A Canal bridge) and continues to station 510+00.00. The roadway runoff is collected and conveyed west in roadside swales to a proposed stormwater management pond that outfalls to a proposed bypass ditch that outfalls to the C-41A Canal. The preferred pond alternative for Basin 3 is Pond 3B.

5.2.4 BASIN 4

Basin 4 begins at 510+00.00 and continues to station 569+00.00. The roadway runoff is collected and conveyed west in roadside swales to a proposed stormwater management pond that outfalls to a proposed bypass ditch that outfalls to a 60-inch crossdrain located at station 641+00.00. This crossdrain conveys SR 70 runoff and offsite runoff south via a small drainage ditch to the C-41A Canal. The preferred pond alternative for Basin 4 is Pond 4B.

5.2.5 BASIN 5

Basin 5 begins at 569+00.00 and continues to station 641+00.00. The roadway runoff from the westbound lanes is collected and conveyed east in roadside swales to a proposed stormwater management pond that outfalls to a drainage ditch along Fulmar Terrace that outfalls to the C-41A Canal. Runoff from the westbound lanes will be collected and conveyed to Basin 6's stormwater management facility. The preferred pond alternative for Basin 5 is Pond 5C.

5.2.6 BASIN 6

Basin 6 begins at 641+00.00 and continues to station 693+00.00. The basin also includes the runoff from the westbound lanes of Basin 5. The roadway runoff is collected and conveyed in roadside swales to a proposed stormwater management pond that outfalls to a proposed bypass ditch that outfalls to a 60-inch crossdrain located at station 641+00.00. This crossdrain conveys SR 70 runoff and offsite runoff south via a small drainage ditch to the C-41A Canal. The preferred pond alternative for Basin 6 is Pond 6C.

5.2.7 BASIN 7

Basin 7 begins at station 693+00.00 and continues to station 785+34.75 (midway on the C-38 Canal bridge). The roadway runoff is collected and conveyed east in roadside swales to a proposed stormwater management pond that outfalls to a proposed bypass ditch that outfalls to the C-38 Canal. The preferred pond alternative for Basin 7 is Pond 7A.

5.2.8 BASIN 8

Basin 8 begins at station 785+34.75 (midway on the C-38 Canal bridge) and continues to station 882+50.00. The roadway runoff is collected and conveyed west in roadside swales to a proposed stormwater management pond that outfalls to a proposed bypass ditch that outfalls to the C-38 Canal. The preferred pond alternative for Basin 8 is Pond 8A.

5.2.9 REGIONAL POND ALTERNATIVE

A regional approach was evaluated for Basin 6. Parcels of land owned by Perry Smith Family, LTD, located south of SR 70, have a stormwater management system permitted through Permit 28-00119-S. In 2008 the

original permit was modified to modify the existing outfall structure PC-06. The outfall structure is located at the southern end of the outfall canal that drains approximately 1352 acres of land. This canal crosses SR 70 at Station 640+40 and travels south to the C-41A Canal. A berm was constructed along the southern edge of the property adjacent to the C-41A Canal creating a natural storage area that facilitated the preservation of existing wetlands and forested and herbaceous uplands. Based on topographical data provided in the permitted construction plans, the available treatment volume storage at the control elevation is 138 ac-ft. The required treatment volume for the 1352 acres is 56 ac-ft. An excess of 82 ac-ft is available for use for Basin 6's water quality and water quantity needs. The addition of 10.2 acres of impervious pavement in Basin 6 would have negligible effects on the discharge volume/rate of a 1352 acres basin. The existing land would not require any grading and therefore, would be no disturbance to the existing wetlands and uplands. See **Appendix O** for existing permit information and stage storage and modeling calculations.

5.3 PROPOSED POND PARAMETERS

Refer to **Table 4** for all basin parameters for each basin's proposed stormwater management pond. The calculations for stormwater ponds can be found in **Appendix P**.

Table 4 – Proposed Pond Parameters

Basin	Total Treatment Volume Required (ac-ft)	Total Attenuation Volume Required (ac-ft)	Total Volume Required (ac-ft)	Total Volume Provided (ac-ft)
1	1.21	1.58	2.79	3.27
2	0.47	0.88	1.36	1.39
3	1.10	2.41	3.51	4.89
4	1.39	2.14	3.53	4.58
5	1.82	1.35	3.17	3.25
6	2.12	4.00	6.12	6.18
7	3.04	4.68	7.72	7.84
8	2.18	3.54	5.72	6.23

VI. SUMMARY OF RESULTS

6.1 PREFERRED POND ALTERNATIVES

Potential ponds have been sized and located along the project limits for this PD&E study. The analysis estimates ROW needs using a volumetric approach, which accounts for water quality treatment and attenuation. The estimated ROW areas for the ponds were based on pond sizes determined from preliminary data and calculations, utilizing reasonable engineering judgement and assumptions. Pond sizes and configurations may change during final design as more detailed information on seasonal high ground water elevations, property boundaries, ROW, and wetlands becomes available. **Table 5** summarizes the preferred pond in each basin. The pond site evaluation matrix is provided in **Table 6**.

Table 5 – Preferred Pond Alternative

Basin	Preferred Pond
1	1A
2	2C (linear treatment ditch)
3	3B
4	4B
5	5C
6	6C
7	7A
8	8A

Table 6 - Pond Site Evaluation Matrix

Factors	Basin 1			Basin 2			Basin 3			Basin 4		
	Pond 1A	Pond 1B	Pond 1C	Pond 2A	Pond 2B	Pond 2C (Dry Linear)	Pond 3A	Pond 3B	Pond 3C	Pond 4A	Pond 4B	Pond 4C
Pond Location (station)	420+00	420+00	410+00	450+00	450+00	450+00	470+00	460+00	460+00	525+00	547+00	527+00
Side (LT/RT)	RT	LT	LT	LT	RT	LT	LT	RT	RT	LT	RT	RT
Pond Size (ac)	5.7	5.9	5.7	5.4	3.6	1.7	8.1	7.8	7.9	7.4	7.4	7.6
Total Parcel Required (yes/no)	No	No	No	No	No	No	No	No	No	No	No	No
Treatment Volume Provided (ac-ft)	3.3	3.3	3.3	2.2	2.2	1.4	4.9	4.9	4.9	4.6	4.6	4.6
New Easement Required (yes/no)	No	No	No	Yes	No	No	Yes	No	No	Yes	No	No
Possibility of Utility Impacts (yes/no)	No	No	No	Yes	No	No	Yes	No	No	Yes	No	No
FEMA Flood Zone (ac)	0.1	0.0	1.4	5.4	3.6	1.7	8.1	7.8	7.9	7.4	7.4	7.6
Wetland Impacts (ac)	0.36	0.19	1.41	1.40	0.73	0.00	0.04	0.00	0.00	0.01	0.39	0.00
Species Rating	Medium	Medium	Medium	Medium	Medium	Medium	Low	Low	Low	Medium	Low	High
Contamination Risk	None	None	None	None	None	None	None	None	None	None	None	None
Archeological Impacts	Mod-High	Mod-High	Mod-High	Low	Low	Low	Mod-High	Mod-High	Mod-High	Low	Low-Mod	Mod-High
Historic Site Impacts	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Current Land Use Zoning	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Estimated ROW Cost (\$)	\$ 260,000	\$ 266,489	\$ 260,000	\$ 320,621	\$ 235,414	\$ 145,000	\$ 298,654	\$ 290,000	\$ 292,885	\$ 393,328	\$ 393,328	\$ 402,201
Estimated Construction Cost (\$)	\$ 356,217	\$ 343,692	\$ 289,996	\$ 493,427	\$ 155,573	\$ 51,142	\$ 622,298	\$ 412,403	\$ 235,524	\$ 434,541	\$ 391,442	\$ 362,451
Wetland Mitigation Cost (\$)	\$ 27,864	\$ 14,706	\$ 109,134	\$ 108,360	\$ 56,502	\$ -	\$ 3,096	\$ -	\$ -	\$ 774	\$ 30,186	\$ -
Total Cost (\$)	\$ 644,081	\$ 624,886	\$ 659,130	\$ 922,409	\$ 447,489	\$ 196,142	\$ 924,048	\$ 702,403	\$ 528,408	\$ 828,643	\$ 814,956	\$ 764,652
Recommendation/Ranking	1	2	3	3	2	1	3	1	2	3	1	3
Factors	Basin 5			Basin 6			Basin 7			Basin 8		
	Pond 5A	Pond 5B	Pond 5C	Pond 6A	Pond 6B	Pond 6C	Pond 7A	Pond 7B	Pond 7C	Pond 8A	Pond 8B	Pond 8C
Pond Location (station)	625+00	625+00	635+00	641+00	650+00	644+00	745+00	752+00	755+00	805+00	791+00	800+00
Side (LT/RT)	LT	RT	RT	LT	RT	RT	LT	RT	RT	LT	RT	RT
Pond Size (ac)	8.5	8.0	8.6	7.0	7.4	6.9	10.2	9.9	9.5	11.9	9.6	10.4
Total Parcel Required (yes/no)	No	No	No	No	Yes	No	No	No	No	No	No	No
Treatment Volume Provided (ac-ft)	3.3	3.3	3.3	6.2	6.2	6.2	7.8	7.8	7.8	6.2	6.2	6.2
New Easement Required (yes/no)	Yes	No	Yes	Yes	No	Yes	Yes	No	No	No	No	Yes
Possibility of Utility Impacts (yes/no)	Yes	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes
FEMA Flood Zone (ac)	8.5	8.0	8.6	7.0	7.4	6.9	10.2	9.9	9.48	11.9	9.6	10.4
Wetland Impacts (ac)	0.00	2.63	0.17	0.30	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Species Rating	Medium	Medium	Low	High	Low	Low	Medium	Low	Low	Medium	Medium	Medium
Contamination Risk	None	Low	Low	None	None	Low	None	None	None	0.25	0.03	None
Archeological Impacts	Low	Low-Mod	Low-Mod	Low-High	Low-Mod	Low-Mod	Mod-High	Low-Mod	Mod-High	Low-Mod	Low-Mod	Low-High
Historic Site Impacts	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Current Land Use Zoning	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture	Agriculture
Estimated ROW Cost (\$)	\$ 451,820	\$ 429,066	\$ 456,371	\$ 413,506	\$ 433,421	\$ 408,528	\$ 486,283	\$ 473,892	\$ 457,371	\$ 595,000	\$ 492,563	\$ 528,193
Estimated Construction Cost (\$)	\$ 452,825	\$ 291,149	\$ 323,533	\$ 491,307	\$ 429,498	\$ 627,610	\$ 623,173	\$ 468,431	\$ 517,121	\$ 524,144	\$ 464,490	\$ 754,711
Wetland Mitigation Cost (\$)	\$ -	\$ 203,562	\$ 13,158	\$ 23,220	\$ -	\$ 20,898	\$ -	\$ -	\$ -	\$ 19,350	\$ 2,322	\$ -
Total Cost (\$)	\$ 904,646	\$ 923,777	\$ 793,062	\$ 928,033	\$ 862,919	\$ 1,057,036	\$ 1,109,456	\$ 942,323	\$ 974,492	\$ 1,138,494	\$ 959,375	\$ 1,282,905
Recommendation/Ranking	3	2	1	3	2	1	1	3	2	1	2	3

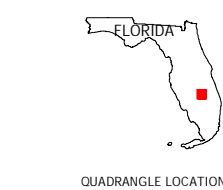
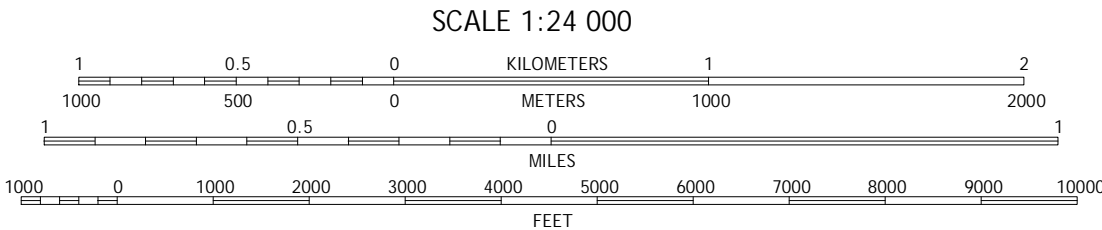
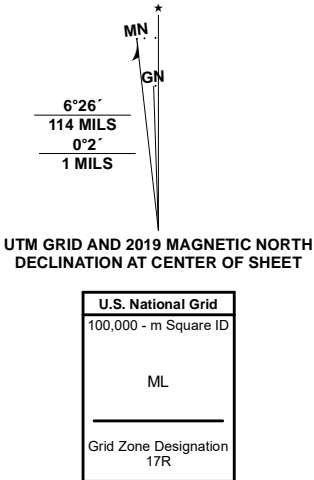
Appendix A

USGS Topography Map



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 17R
This map is not a legal document. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery	NAIP	November	2019
Roads	U.S. Census Bureau	2016	
Names	GNIS	1979	2019
Hydrography	National Hydrography Dataset	2003	2019
Contours	National Elevation Dataset	2010	2016
Boundaries	Multiple sources	2016	2019
Public Land Survey System	BLM	2020	
Wetlands	FWS National Wetlands Inventory	2010	



1	2	3
4	5	6
7	8	9

ADJOINING QUADRANGLES

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route



Appendix B

National Geodetic Survey Coordinate Conversion

NGS Coordinate Conversion and Transformation Tool (NCAT)

Search

Single Point Conversion

Multipoint Conversion

Web services

Downloads

Tutorial & FAQs

About NCAT

Convert/Transform from:

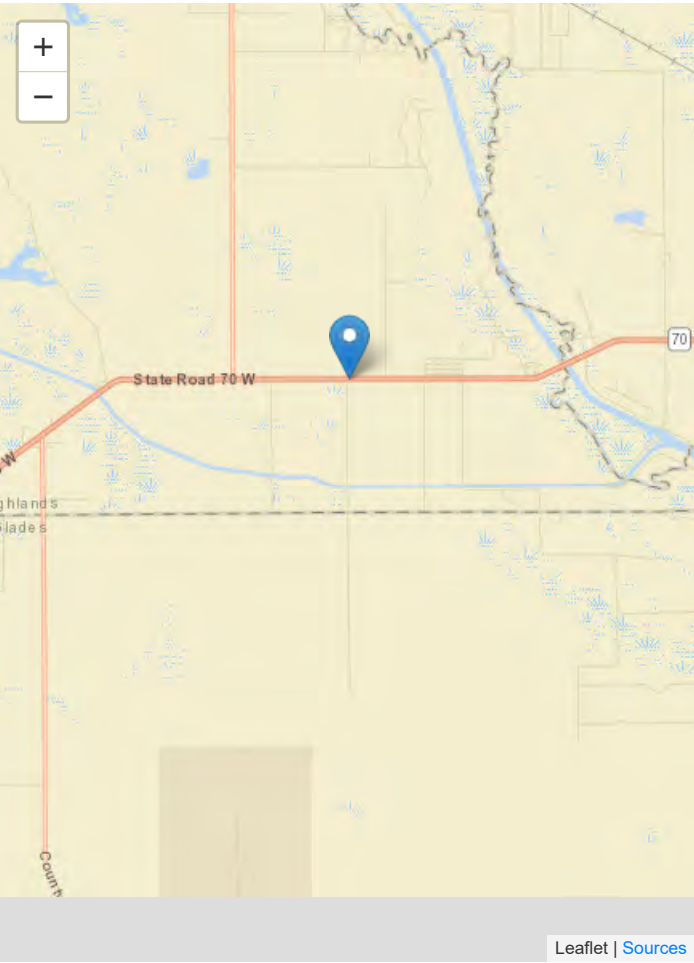
- ☐ Horizontal
- ☒ Horizontal+height
- ☐ XYZ

Select the type of horizontal coordinate:

- ☒ Geodetic lat-long
- ☐ SPC
- ☐ UTM
- ☐ USNG

Select a height

- ☐ Ellipsoidal
- ☒ Orthometric



Enter lat-lon in decimal degrees

Lat

Lon

or degrees-minutes-seconds

Lat

N

▼

Lon

W

▼

or drag map marker to a location of interest

Input reference frame
(historically called 'horizontal datum')

NAD83(2011)

▼

Output reference frame
(historically called 'horizontal datum')

NAD83(2011)

▼

Don't see a reference frame in the list?
Click [here](#) to learn more.

Orthometric Height

Units of height

US Survey Feet

▼

Input geopotential datum
(historically called 'vertical datum')

NGVD29

▼

Output geopotential datum
(historically called 'vertical datum')

NAVD88

▼

SPC zone

Auto Pick (default zo

▼

Submit

Click blue bar(s) to expand/collapse

Transformed Coordinate

Input Coordinate		Output Coordinate		Total Change + Uncertainty	
Latitude	N27° 14' 09.63739" N271409.63739 27.2360103861	Latitude	N27° 14' 09.63739" N271409.63739 27.2360103861	Latitude	0.00000" ±0.000000" (0.000 m ±0.0000 m)*
Longitude	E278° 58' 15.68481" W0810144.31519 -81.0289764404	Longitude	E278° 58' 15.68481" W0810144.31519 -81.0289764404	Longitude	0.00000" ±0.000000" (0.000 m ±0.0000 m)*
Ellipsoid	Not given	Ellipsoid	Not given	Ellipsoid	Not given
Height (usft)		Height (usft)		Orthometric Height	-1.198 usft ±0.010 usft
Orthometric	0.000	Orthometric	-1.198		
Height (usft)		Height (usft)			
Reference Frame	NAD83(2011)	Reference Frame	NAD83(2011)		
Geopotential	NGVD29	Geopotential	NAVD88		
Datum		Datum			

* Approximate value to aid interpretation and not an actual distance. See [TM NOS NGS 82](#) for more details.

Converted Coordinate

Customize Export

Appendix C

Straight Line Diagram

5 YR INV		SLD REV	BMP	EMP	INV	SLD REV	FLORIDA DEPARTMENT OF TRANSPORTATION STRAIGHT LINE DIAGRAM OF ROAD INVENTORY	SECTION STATUS	INT. or US ROUTE NO.	STATE ROAD NO.	COUNTY	DISTRICT	ROADWAY ID	SHEET NO:
DATE	07/11/2019	08/13/2019	0.000	36.334		1/12/22(F241)		02		SR 70	HIGHLANDS	01	09060000	6 OF 7
BY	FTE	FTE												


ROADWAY FEATURES	LANE WIDTHS ARE AVERAGED	29.000	OUTSIDE CITY & URBAN 1+SR-70 1+SR 70										
ROADWAY	28/FC-2												
COMPOSITION													
HORIZONTAL ALIGNMENT	CURVE DATA NOT FIELD VERIFIED												
STRUCTURE DESCRIPTION													
DISTRICT USE													
SIS	CORRIDOR												
FUN CLASS	RURAL PRIN ART OTHER												

ROADWAY FEATURES	31.000		31.968		32.0		33.0	
	OUTSIDE CITY & URBAN 1-≤SR-70 1-SR 70							
LANE WIDTHS ARE AVERAGED	52.0' - 12.0'L+11.0'R 1 - 12.0'L + 1 - 11.0'R RDWY 12.0 PVD MED 2 - 4.0' PVD SHLD1 5.0' LWN SHLD2 - LT 4.0' LWN SHLD2 - RT		31.385 36.0' - 20.0' 2 - 10.0' RDWY 2 - 4.0' PVD SHLD1 2 - 4.0' LWN SHLD2		31.968 44.0' - 20.0' 2 - 10.0' RDWY 2 - 4.0' PVD SHLD1 12.0' LWN SHLD2 - LT 4.0' LWN SHLD2 - RT		33.0 48.0' - 20.0' 2 - 10.0' RDWY 2 - 4.0' PVD SHLD1 12.0' LWN SHLD2 - LT 8.0' LWN SHLD2 - RT	
	28/FC-2		28/FC-2					
COMPOSITION	28/FC-2							
HORIZONTAL ALIGNMENT								
STRUCTURE DESCRIPTION								
DISTRICT USE								
SIS	CORRIDOR							
FUN CLASS	RURAL PRIN ART OTHER							


Version: 1.4.2.27 05/12/2022

Appendix D

Rainfall Data



NOAA Atlas 14, Volume 9, Version 2
Location name: Okeechobee, Florida, USA*
Latitude: 27.2365°, Longitude: -81.029°
Elevation: 32 ft**
* source: ESRI Maps
** source: USGS



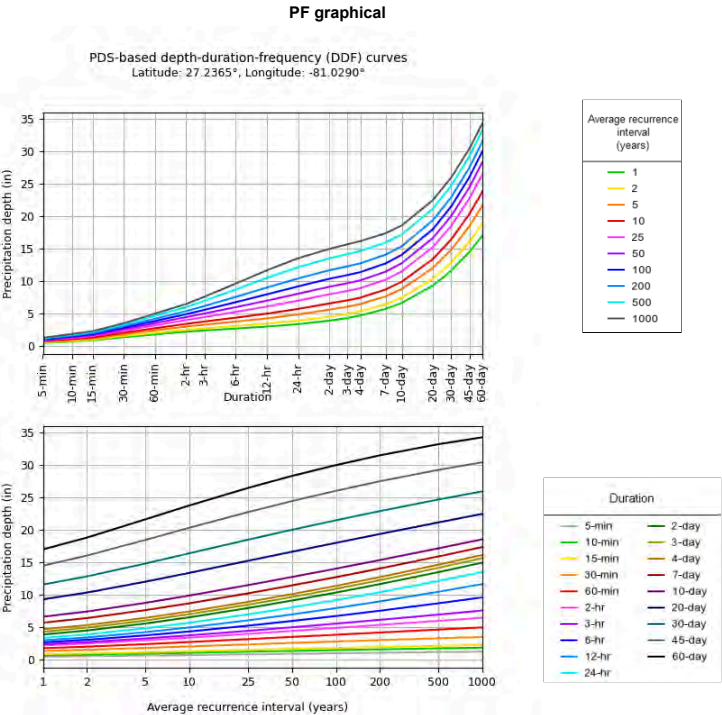
POINT PRECIPITATION FREQUENCY ESTIMATES
Sandra Perica, Deborah Martin, Sandra Pavlovic, Ishant Roy, Michael St. Laurent, Carl Trypaluk, Dale Urrut, Michael Yelis, Geoffrey Bonin
NOAA, National Weather Service, Silver Spring, Maryland
[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

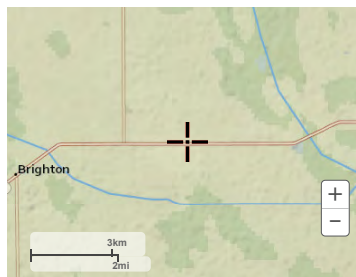
PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.507 (0.408-0.634)	0.572 (0.460-0.716)	0.675 (0.541-0.848)	0.759 (0.605-0.958)	0.871 (0.671-1.13)	0.954 (0.720-1.26)	1.04 (0.757-1.41)	1.12 (0.784-1.57)	1.22 (0.825-1.78)	1.30 (0.856-1.93)
10-min	0.742 (0.598-0.928)	0.837 (0.673-1.05)	0.988 (0.793-1.24)	1.11 (0.886-1.40)	1.28 (0.982-1.66)	1.40 (1.05-1.85)	1.52 (1.11-2.07)	1.64 (1.15-2.30)	1.79 (1.21-2.60)	1.90 (1.25-2.83)
15-min	0.905 (0.729-1.13)	1.02 (0.821-1.28)	1.20 (0.967-1.51)	1.36 (1.08-1.71)	1.56 (1.20-2.02)	1.70 (1.29-2.26)	1.85 (1.35-2.52)	1.99 (1.40-2.81)	2.18 (1.47-3.17)	2.31 (1.53-3.45)
30-min	1.39 (1.12-1.74)	1.57 (1.26-1.97)	1.86 (1.49-2.33)	2.09 (1.66-2.63)	2.39 (1.89-3.47)	2.62 (2.08-3.88)	2.84 (2.15-4.31)	3.06 (2.28-4.86)	3.34 (2.34-5.28)	3.54 (2.34-5.28)
60-min	1.81 (1.46-2.27)	2.05 (1.65-2.57)	2.44 (1.96-3.07)	2.77 (2.21-3.49)	3.21 (2.48-4.19)	3.55 (2.68-4.71)	3.89 (2.84-5.32)	4.23 (2.97-5.97)	4.68 (3.17-6.83)	5.02 (3.32-7.48)
2-hr	2.24 (1.81-2.78)	2.54 (2.05-3.15)	3.03 (2.45-3.78)	3.44 (2.77-4.32)	4.02 (3.13-5.23)	4.47 (3.40-5.92)	4.93 (3.63-6.71)	5.40 (3.82-7.58)	6.02 (4.10-8.74)	6.50 (4.32-9.62)
3-hr	2.42 (1.97-2.99)	2.75 (2.24-3.41)	3.32 (2.69-4.12)	3.80 (3.06-4.74)	4.48 (3.51-5.82)	5.03 (3.85-6.64)	5.59 (4.14-7.61)	6.18 (4.40-8.68)	6.98 (4.79-10.1)	7.61 (5.08-11.2)
6-hr	2.72 (2.22-3.34)	3.11 (2.54-3.82)	3.79 (3.09-4.67)	4.39 (3.56-5.44)	5.28 (4.17-6.85)	6.00 (4.63-7.91)	6.77 (5.05-9.18)	7.58 (5.44-10.6)	8.72 (6.03-12.6)	9.63 (6.47-14.1)
12-hr	3.02 (2.49-3.69)	3.48 (2.86-4.24)	4.28 (3.51-5.24)	5.01 (4.09-6.17)	6.10 (4.86-7.89)	7.01 (5.45-9.20)	7.97 (6.00-10.8)	9.02 (6.52-12.6)	10.5 (7.31-15.1)	11.7 (7.90-17.0)
24-hr	3.40 (2.82-4.11)	3.93 (3.26-4.76)	4.88 (4.03-5.93)	5.73 (4.71-7.01)	7.01 (5.62-9.01)	8.07 (6.32-10.5)	9.20 (6.97-12.4)	10.4 (7.58-14.4)	12.1 (8.51-17.4)	13.5 (9.21-19.6)
2-day	3.92 (3.27-4.71)	4.54 (3.78-5.46)	5.62 (4.67-6.78)	6.57 (5.43-7.98)	7.98 (6.44-10.2)	9.14 (7.20-11.8)	10.4 (7.90-13.8)	11.7 (8.55-16.0)	13.5 (9.52-19.2)	15.0 (10.3-21.5)
3-day	4.34 (3.64-5.20)	4.98 (4.16-5.96)	6.07 (5.07-7.30)	7.05 (5.85-8.52)	8.50 (6.88-10.8)	9.69 (7.65-12.5)	10.9 (8.37-14.5)	12.3 (9.03-16.8)	14.2 (10.0-20.0)	15.7 (10.8-22.4)
4-day	4.73 (3.97-5.64)	5.36 (4.50-6.41)	6.48 (5.42-7.76)	7.47 (6.22-9.00)	8.93 (7.25-11.3)	10.1 (8.03-13.0)	11.4 (8.74-15.0)	12.8 (9.40-17.4)	14.7 (10.4-20.6)	16.2 (11.2-23.1)
7-day	5.74 (4.85-6.80)	6.45 (5.44-7.66)	7.67 (6.45-9.13)	8.72 (7.30-10.4)	10.2 (8.34-12.8)	11.5 (9.12-14.6)	12.7 (9.81-16.7)	14.1 (10.4-19.0)	15.9 (11.4-22.2)	17.4 (12.1-24.7)
10-day	6.66 (5.64-7.87)	7.46 (6.31-8.82)	8.79 (7.42-10.4)	9.92 (8.32-11.8)	11.5 (9.38-14.3)	12.8 (10.2-16.1)	14.0 (10.8-18.3)	15.4 (11.4-20.7)	17.2 (12.3-23.8)	18.6 (12.9-26.3)
20-day	9.34 (7.97-11.0)	10.4 (8.84-12.2)	12.0 (10.2-14.2)	13.4 (11.3-15.9)	15.2 (12.5-18.6)	16.6 (13.3-20.7)	18.0 (14.0-23.1)	19.4 (14.4-25.7)	21.2 (15.2-29.1)	22.5 (15.8-31.6)
30-day	11.6 (9.94-13.6)	12.9 (11.0-15.0)	14.8 (12.7-17.4)	16.4 (13.9-19.4)	18.5 (15.1-22.4)	20.0 (16.1-24.8)	21.5 (16.7-27.4)	22.9 (17.1-30.2)	24.7 (17.8-33.7)	25.9 (18.3-36.3)
45-day	14.5 (12.5-16.9)	16.1 (13.8-18.7)	18.5 (15.8-21.6)	20.3 (17.3-23.9)	22.7 (18.7-27.4)	24.4 (19.7-30.0)	26.0 (20.3-32.9)	27.5 (20.6-36.0)	29.2 (21.1-39.6)	30.4 (21.5-42.4)
60-day	17.0 (14.7-19.7)	18.8 (16.2-21.9)	21.6 (18.6-25.2)	23.8 (20.3-27.6)	26.5 (21.7-31.7)	28.3 (22.8-34.6)	30.0 (23.4-37.8)	31.5 (23.6-41.0)	33.2 (24.9-44.8)	34.3 (24.3-47.6)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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Questions?: HDSC.Questions@noaa.gov
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Appendix E

Correspondence

Meeting Minutes

Project:	FPID No. 450334-1-22-01 SR 70 PD&E Study from CR 721 South to CR 599/128th Avenue		
Subject:	Second Pond Siting Coordination Meeting		
Date and time:	May 6, 2025, 10:30 AM		
Meeting place:	TEAMS Meeting	Minutes by:	Scalar Consulting Group Inc.
Present:	David Bennett – Scalar Consulting Group, Inc. Aniruddha Gotmare – Scalar Consulting Group, Inc. Daphne Spanos – Scalar Consulting Group, Inc. Brent Setchell – FDOT D1 Kathern Cothorn – FDOT D1 Brooke Feagle - Atkins Joe Lauk – PGA		

This meeting served as a follow-up to the initial pond siting meeting held on April 8, 2025. The session began with Mr. Bennett providing a project overview and status update, focusing on the PD&E study for the proposed widening of SR 70 from CR 721 South to CR 599/128th Avenue. He then reviewed each basin individually, presenting the pond site alternatives as outlined in the project's Pond Siting Report (PSR), including revisions made following the April 8th meeting. The following is a summary of the discussion, organized by basin:

- Basin 1 – The basin was initially proposed with a single pond alternative. At the April 8th meeting, it was recommended that additional pond alternatives be evaluated. In response, two additional pond sites—Pond 1B and Pond 1C—were identified and presented. During the discussion, concerns were raised about potential impacts to the existing canal system. It was noted that the roadway footprint also affects the canal system. A "cost to cure" approach will be applied to address the impacts associated with Pond 1A, which are not anticipated to result in adverse effects. No additional concerns were raised, and consensus was reached on the proposed pond sites for Basin 1.
- Basin 2 - The basin was initially proposed with two pond alternatives. At the April 8th meeting, it was recommended to evaluate an additional pond alternative and consider a regional approach, given the proximity of the Brighton Water Quality Project (still under investigation). In response, a third option—Pond 2C—was identified and presented. Additionally, Pond 2A was relocated to avoid the FGT easement and expanded to utilize the full extent of the available open space. During subsequent discussions, it was suggested that Pond 2C be removed from consideration and that a linear pond option be explored along the northern side of SR 70. No further concerns were raised, and consensus was reached on moving forward with the revised pond configurations and the linear pond concept for Basin 2.

- Basin 3 - The basin was initially proposed with two pond alternatives. At the April 8th meeting, a recommendation was made to evaluate an additional pond option. In response, a third alternative was introduced, along with the relocation of Pond 3A to avoid the FGT easement and Pond 3B to reduce wetland impacts. Concerns were raised about potential impacts to future canal maintenance access due to Ponds 3B and 3C. No further issues were identified, and consensus was reached to proceed with the revised pond configurations, with the caveat that potential impacts to canal maintenance access due to Ponds 3B and 3C being evaluated and addressed as needed.
- Basin 4 – Comments from the April 8th meeting focused on relocating ponds closer to the right-of-way (ROW) to reduce ingress/egress easement costs and avoid wetland impacts. In response, Pond 4A was shifted closer to the ROW adjacent to the FGT easement. Pond 4B was moved to the southern end of the parcel to avoid wetlands and maximize usable space. Pond 4C was resized and relocated adjacent to the ROW. During subsequent discussions, it was suggested that Pond 4B be relocated to the northeast corner of the parcel and that the gap between Pond 4C and the parcel boundary be eliminated. No additional concerns were raised, and consensus was reached to proceed with the revised pond configurations for Basin 4.
- Basin 5 - Comments from the April 8th meeting focused on relocating ponds closer to the right-of-way (ROW) to minimize ingress/egress easement costs and avoid wetland impacts. In response, Pond 5A was relocated adjacent to the FGT easement. Pond 5B was shifted adjacent to the ROW and reshaped to reasonably avoid wetlands in the northeast portion of the parcel. Pond 5C was also relocated adjacent to the ROW and modified to avoid the existing canal. During discussions, concerns were raised regarding potential impacts from Pond 5B on the existing canal system. It was noted that a "cost-to-cure" approach will be implemented to address these impacts, which are not expected to result in any adverse effects. Additionally, it was suggested that Pond 5C be shifted to the eastern parcel boundary to incorporate the existing canal. No further concerns were identified, and consensus was reached to proceed with the revised pond configurations for Basin 5.
- Basin 6 – Comments from the April 8th meeting focused on relocating ponds closer to the right-of-way (ROW) and optimizing use of the existing parcels. In response, Pond 6A remained in its original location due to the presence of a protected species habitat within the parcel. Ponds 6B and 6C were relocated adjacent to the ROW to improve site efficiency. During discussions, it was suggested that Pond 6A still be considered for relocation closer to the ROW, with appropriate consideration given to the identified habitat during site evaluation. Additionally, it was recommended that Pond 6C be shifted westward, adjacent to the canal. A further suggestion was made to evaluate a linear pond option within the remnant space along the northern side of SR 70 in lieu of Pond 6B. No additional concerns were raised, and consensus was reached to proceed with the revised pond configurations for Basin 6.
- Basin 7 - Comments from the April 8th meeting focused on relocating ponds closer to the right-of-way (ROW) and repositioning Pond 7B to the south side of SR 70, opposite Pond 7A. In response, Pond 7A was relocated adjacent to the ROW and positioned near the FGT easement. Ponds 7B and 7C were shifted westward to other parcels and placed adjacent to the ROW. During discussions, it was suggested that Pond 7B be adjusted eastward, aligning it with the existing

parcel boundary. No additional concerns were raised, and consensus was reached to proceed with the revised pond configurations for Basin 7.

- Basin 8 - Comments from the April 8th meeting focused on relocating Pond 8A to the western portion of the parcel and Pond 8B to the South Florida Water Management District (SFWMD) parcel adjacent to the Kissimmee River. As a result, Pond 8A was moved to the western parcel boundary, and Pond 8B was shifted west to the SFWMD parcel adjacent to the river. During discussions, it was recommended that further evaluation of Pond 8B considering its proximity to the river boundary, potential impacts on maintenance access, and the need for ingress/egress provisions. Additionally, the possibility of shifting the pond to the eastern portion of the parcel should be explored. No further concerns were raised, and consensus was reached to proceed with the revised pond configurations for Basin 8.

Listed below is a summary of the suggested enhancements for the pond alternatives:

Basin	Enhancements
1	<ul style="list-style-type: none">• None
2	<ul style="list-style-type: none">• Eliminate Pond 2C• Evaluate linear option on northern side of SR 70.
3	<ul style="list-style-type: none">• Evaluate Impacts on canal maintenance access due to Ponds 3B and 3C
4	<ul style="list-style-type: none">• Pond 4B be relocated to the northeast corner of the parcel• Gap between Pond 4C and the parcel boundary be eliminated
5	<ul style="list-style-type: none">• Pond 5C be shifted to the eastern parcel boundary to incorporate the existing canal
6	<ul style="list-style-type: none">• Pond 6A be relocated closer to the ROW• Pond 6C be shifted westward, adjacent to the canal• Evaluate a linear pond option within the remnant space along the northern side of SR 70 in lieu of Pond 6B
7	<ul style="list-style-type: none">• Pond 7B be adjusted eastward, aligning it with the existing parcel boundary
8	<ul style="list-style-type: none">• Further evaluation of Pond 8B considering its proximity to the river boundary, potential impacts on maintenance access, and the need for ingress/egress provisions.• Evaluate the relocation of Pond 8B to the eastern portion of the parcel

Meeting Minutes

Project:	FPID No. 450334-1-22-01 SR 70 PD&E Study from CR 721 South to CR 599/128 th Avenue	
Subject:	Pre-Application Meeting w/SFWMD	
Date and time:	February 26, 2025, 10:30 AM	
Meeting place:	TEAMS Meeting	Minutes by: Scalar Consulting Group Inc.
Present:	David Bennett – Scalar Consulting Group, Inc. Dara Jarvis – Scalar Consulting Group, Inc. Carolyn McCreedy – SFWMD Barbara Conmy – SFWMD Jeffrey Slowman – SFWMD Elizabeth Vequilla – SFWMD Shari Tellman – SFWMD Mark Vicciardo – SFWMD Richard Walker – SFWMD Nicole Monies – FDOT D1 Brent Setchell – FDOT D1 Ryan Molloy – FDOT D1 Michael Vaughn – FDOT D1 Jonathan Turner – FDOT CO	

The meeting began with the Consultant presenting an overview of the project which is a PD&E study to widen SR 70 including a new bridge over the Kissimmee River, followed by a series of questions directed to the SFWMD. Below are the questions posed, along with the corresponding answers provided by SFWMD.

- 1) What specific water quality and quantity criteria will be applicable to this project?
 - a. SFWMD noted the application must demonstrate that there are no adverse impacts on the C-41A and Kissimmee River. If discharging directly to the rivers, we are required to meet the historic volumetric discharge formula.
 - b. After a brief discussion it was noted that FDOT will not be required to provide the additional 50% treatment of the presumptive criteria and instead nutrient loading calculations demonstrating net improvement will be provided.
 - c. Since the PDE will be completed before July 2026, the project will be grandfathered under the previous SFWMD criteria.
- 2) Does the SFWMD have any concerns with the potential pond sites?
 - a. Make sure to pull up existing permitting – please note that Brighton Valley is a water storage project.
 - b. Also, south of SR 70 (between CR 721 South and New Pine Ridge Road), Coco Sod has above ground infrastructure.
 - c. Also note that the project is in the Lake Okeechobee Watershed Area.
 - d. Pond locations should demonstrate minimization and avoidance to wetland impacts since some proposed ponds overlap existing wetlands. Provide an assessment to show that the ponds, even though they are adjacent, will not cause any impact to wetlands. FDOT noted a Pond Siting Report will be completed which will include avoidance and minimization of wetland impacts and analyze multiple alternatives of which a preferred alternative will be

selected from an array of engineering and environmental considerations. Additionally, the proposed ponds must be designed to meet SFWMD's Lake-Wetland separation criteria (aka gradient) criteria Section 3.12, AH Vol II.

- 3) Apart from the general requirement for "net improvement," are there any other specific guidelines or expectations related to the BMAP that the project must adhere to?
 - a. Pollutant loading calculations will be required to demonstrate a net improvement. WMD has no other concerns about pollutant loading calculations.
- 4) Will the South Florida Water Management District (SFWMD) have any concerns regarding the proposed new outfalls to canals C-38 and C-41A?
 - a. WMD ROW office will address any new outfall(s) and will require a SFWMD ROW permit. Section 408 for USACE is anticipated, but also Section 404 and potentially Section 10.
- 5) Are there any potential concerns from the SFWMD regarding modifications to the swales and ditches along the SR 70 corridor?
 - a. SFWMD noted the project cannot cause adverse offsite impacts to any existing swales, ditches or other drainage features.
- 6) Are there any issues or considerations related to this project that could impact the ongoing or planned Kissimmee River Restoration efforts?
 - a. The SFWMD staff on the call wasn't aware of anything, but suggested other SFWMD staff be consulted .
- 7) Is the SFWMD aware of a FEMA Community Rating System (CRS) currently in effect for either county, which could limit alterations to the 100-year floodplain—such as a floodway where even a 0.01-ft change would necessitate a CLOMR?
 - a. No regulated floodways within the project corridor, so it should not trigger a no-rise condition.

The following action item was developed during this progress meeting:

Item	Description and Action	Responsible
Pond Site Review	Set-up meeting with FDOT -1 Drainage to review pond site alternatives.	Consultant (Scheduled,3/31)

David Bennett

From: Kristin Caruso
Sent: Monday, July 28, 2025 3:05 PM
To: David Bennett
Subject: FW: FPID 450334-1: SR 70 PD&E Study from CR 721S to CR 599/128th Ave- Section 4(f) involvement with Kissimmee River Public Use Area

From: Cheek, Michael <mcheek@sfwmd.gov>
Sent: Thursday, July 18, 2024 9:22 AM
To: Turley, David <David.Turley@dot.state.fl.us>; Kristin Caruso <kcaruso@scalarinc.net>
Cc: Feagle, Brooke <Brooke.Feagle@atkinsrealis.com>; Aniruddha Gotmare <agotmare@scalarinc.net>; Michael J. Dorweiler <mdorweiler@scalarinc.net>; Chesser, Bruce <bchesser@sfwmd.gov>; Nolte, Justin <jnolte@sfwmd.gov>; Cotter, Daniel <dcotter@sfwmd.gov>
Subject: Re: FPID 450334-1: SR 70 PD&E Study from CR 721S to CR 599/128th Ave- Section 4(f) involvement with Kissimmee River Public Use Area

David,

Please see our initial comments below regarding use of South Florida Water Management District lands (Kissimmee River Public Use Area) for the FDOT project referenced below.

Sites 7B and 7C should not be considered as alternative site options as they are wetland areas and working in this area would adversely impact the public use area. We're not sure what quality/kind of fill is needed but there is much to be had on the C-38 spoil.

The Davis tract (Site 8A) is a critical staging area for the field station for materials used on our westerly canal system and has been identified as a post storm staging area. Another alternative could be using material that is in excess of District need along C41A (see image below)?



The borrow pit should not be constructed in the front northern portion of the Davis Tract as this is a major staging area for materials and post storm debris site. There could be consideration to utilize the southern portion as seen in the photo.



We are basing these comments on our interpretation of the drawings only and have not yet been involved in any meetings/discussions about the project to date with FDOT or the contractors, so please give me a call to discuss the issues in further detail, thank you,

Mike

Michael Cheek

Recreation Project Manager

Public Use & Wildlife Unit

Land Stewardship

South Florida Water Management District

3301 Gun Club Road

West Palm Beach, FL 33406

Off: 561-682-6616

Cell: 561-214-2674

mcheek@sfwmd.gov

[Recreation | South Florida Water Management District \(sfwmd.gov\)](#)

From: Kristin Caruso <kcaruso@scalarinc.net>

Sent: Wednesday, July 3, 2024 2:37 PM

To: Cheek, Michael <mcheek@sfwmd.gov>

Cc: Turley, David <David.Turley@dot.state.fl.us>; Feagle, Brooke <Brooke.Feagle@atkinsrealis.com>; Aniruddha Gotmare <agotmare@scalarinc.net>; Michael J. Dorweiler <mdorweiler@scalarinc.net>

Subject: FPID 450334-1: SR 70 PD&E Study from CR 721S to CR 599/128th Ave- Section 4(f) involvement with Kissimmee River Public Use Area

You don't often get email from kcaruso@scalarinc.net. [Learn why this is important](#)

[Please remember, this is an external email]

Michael-

Thanks for returning my call today about this project. Below is a link to the project website. There are exhibits showing the 2 alternatives that are currently under evaluation and were shown to the public in the public workshop in June. The FDOT is reviewing comments from the public and will then select a preferred alternative to complete engineering and environmental analysis.

[450334-1 SR 70 from CR 721 S to CR 599/128th Avenue \(swflroads.com\)](#)

I understand that the Kissimmee River Public Use Area is under the management jurisdiction of the SFWMD. As we discussed and you can see on the exhibits, both of the roadway alternatives involve small impacts to this property, along the southern side of the SR 70 roadway. The estimated impacts are shown on the evaluation matrix on the website. These impacts are associated with widening the road from 2-lane undivided to a 4-lane divided facility. Ultimately, once a preferred alternative is selected, FDOT will be sending you a letter to document the Section 4(f) involvement with the Kissimmee River Public Use Area since we have identified the property as a protected resource under 23 U.S.C. § 138 and 49 U.S.C. § 303 the federal, and to request your concurrence on the FDOT determination of the level of “use” of the property within the meaning of Section 4(f).

I copied the project team so they are aware that we spoke about the project and that your office is the right contact for the property. David Turley is the FDOT project manager, to whom you can send any comments or questions about the project alternatives.

Also, you had asked about the US 98 bridge over Kissimmee River project. That one has not yet started but will in the coming months. As discussed, that project is a bridge replacement with no capacity improvements. Patrick Bateman is the FDOT PM for that project and is your contact for any comments or questions.

Patrick.bateman@dot.state.fl.us

Thank you!

Kristin

Kristin A. Caruso, M.S.
Environmental Practice Lead, Senior Scientist

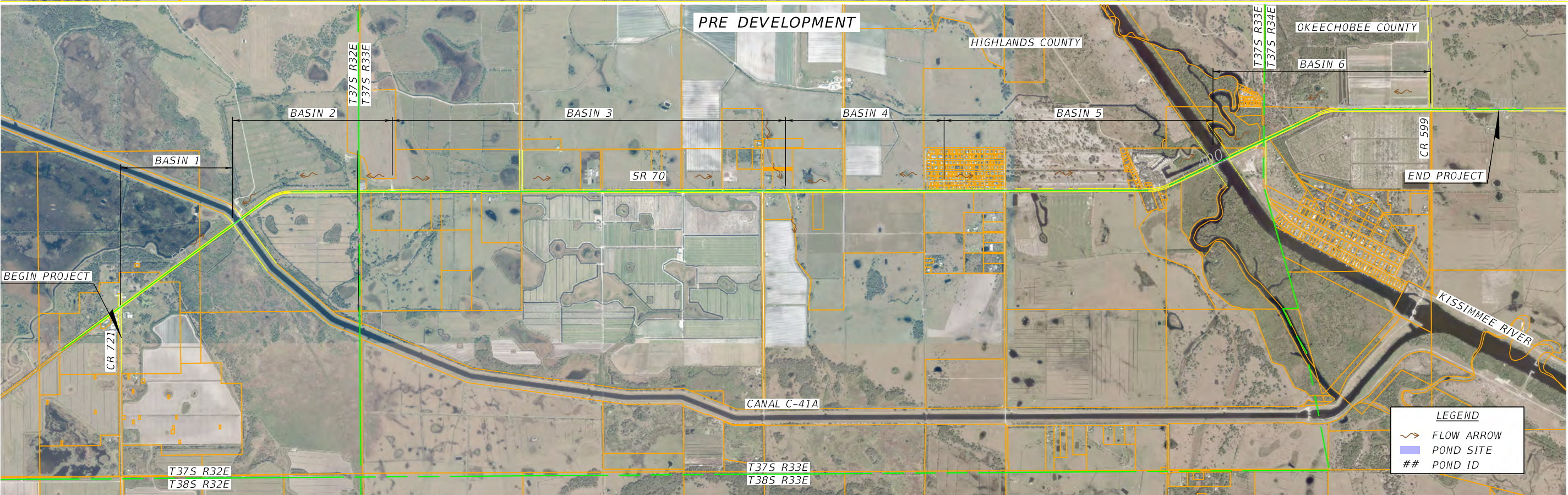
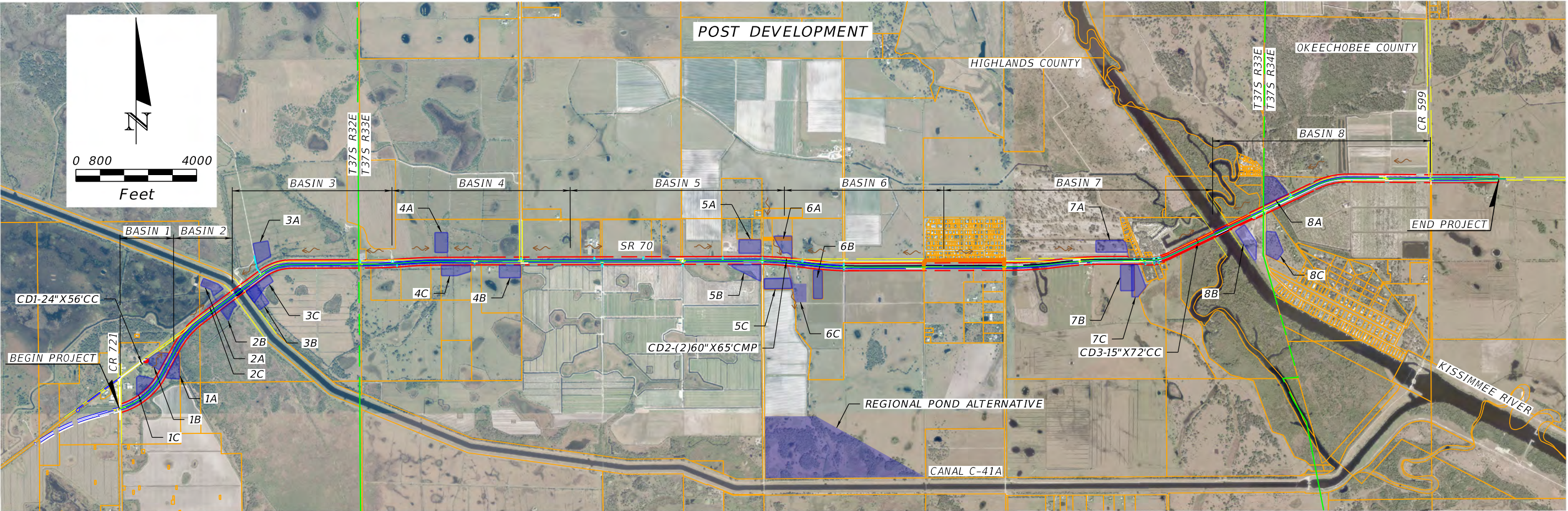


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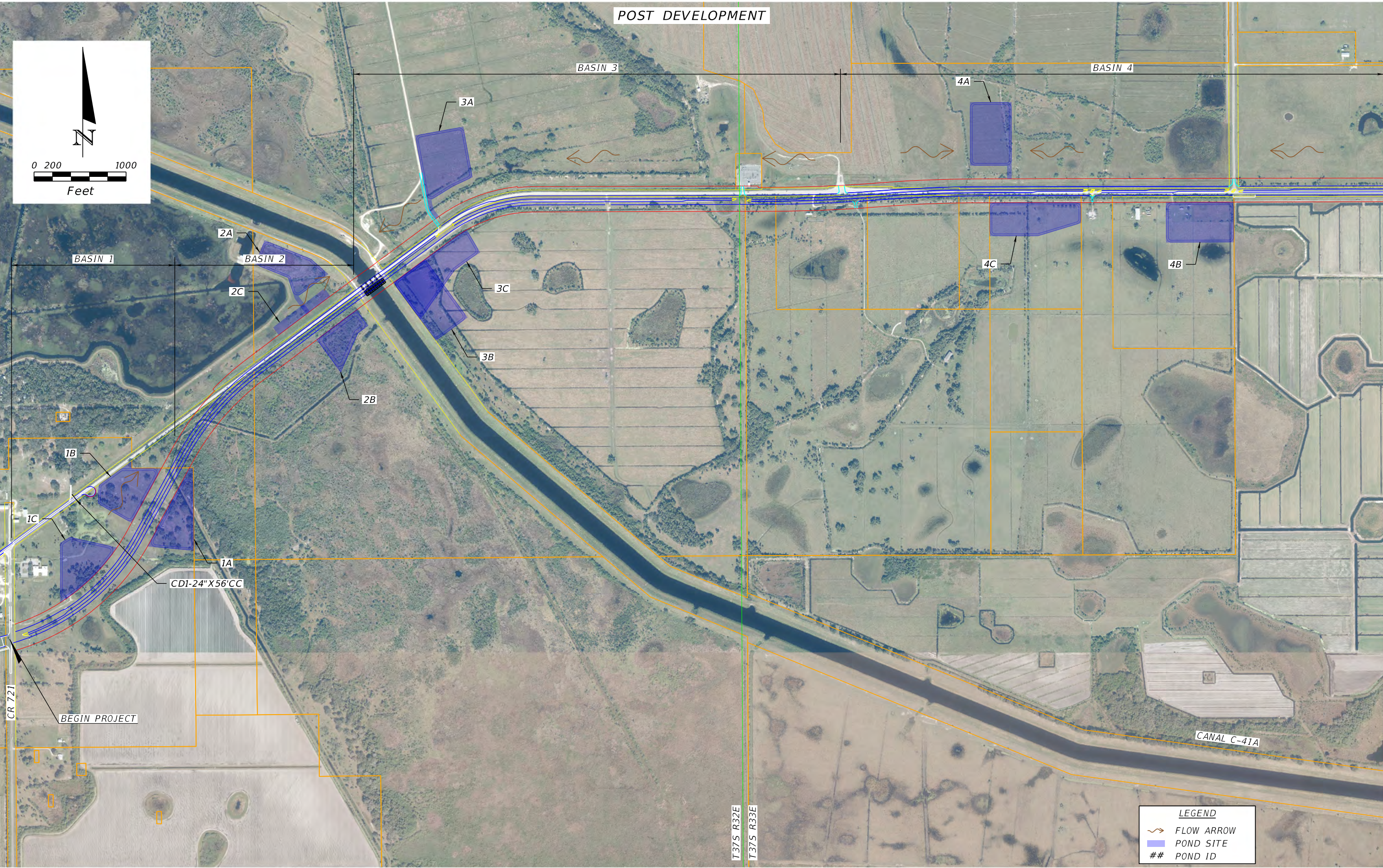
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Appendix F

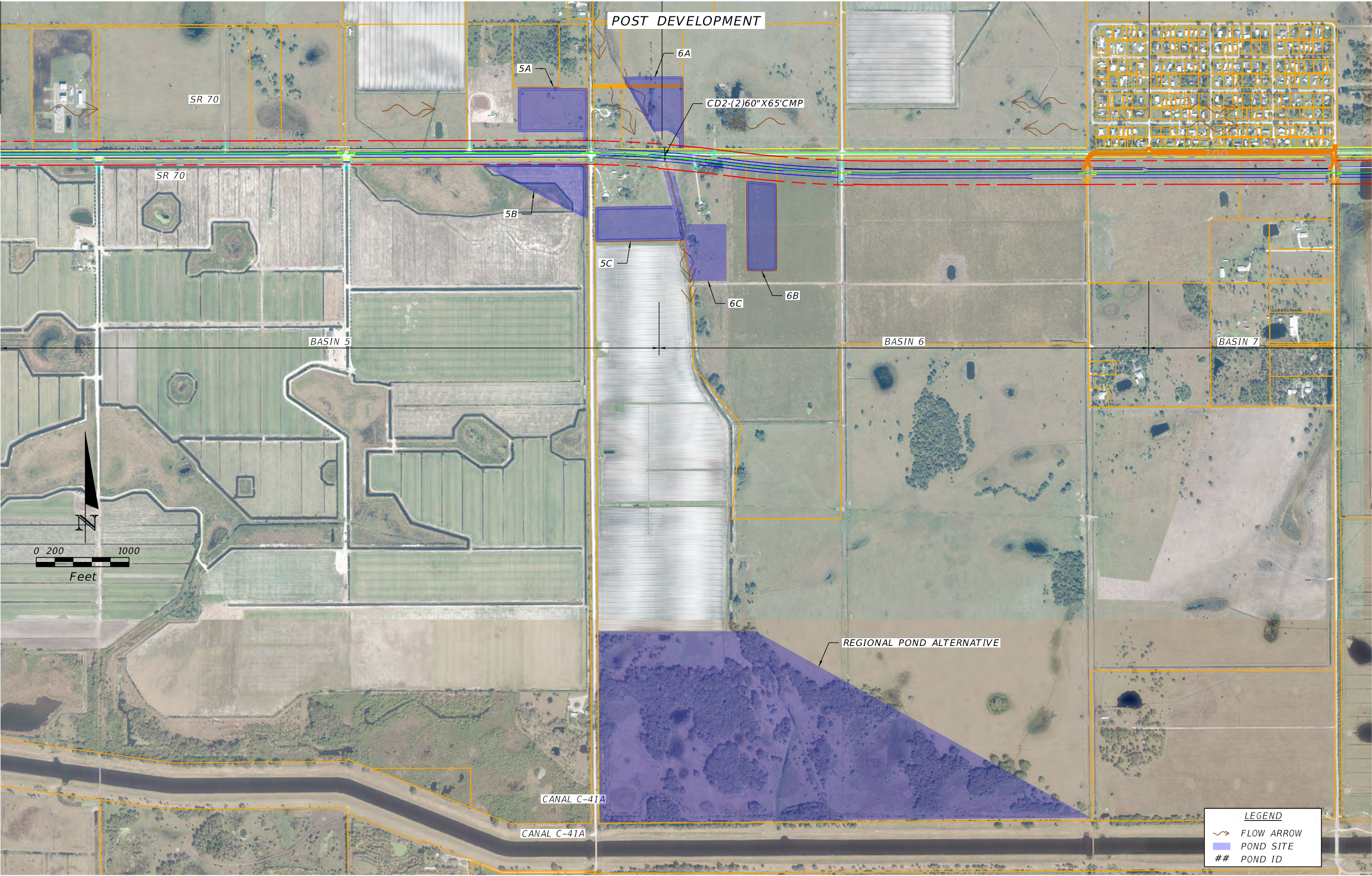
Drainage Maps



REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		DRAINAGE MAP	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	DAVID A. BENNETT LICENSE NUMBER: 54769 SCALAR CONSULTING GROUP INC. 2301 MAITLAND CENTER PKWY, SUITE 200 MAITLAND, FL 32751		ROAD NO.	COUNTY		
						SR 70	HIGHLANDS/ OKEECHOBEE	FINANCIAL PROJECT ID 450334-1-22-01	



REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			DRAINAGE MAP	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	DAVID BENNETT, P.E. LICENSE NUMBER: 54769 SCALAR CONSULTING GROUP, LLC 2301 MAITLAND CENTER PKWY, SUITE 200 MAITLAND, FL 32751	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

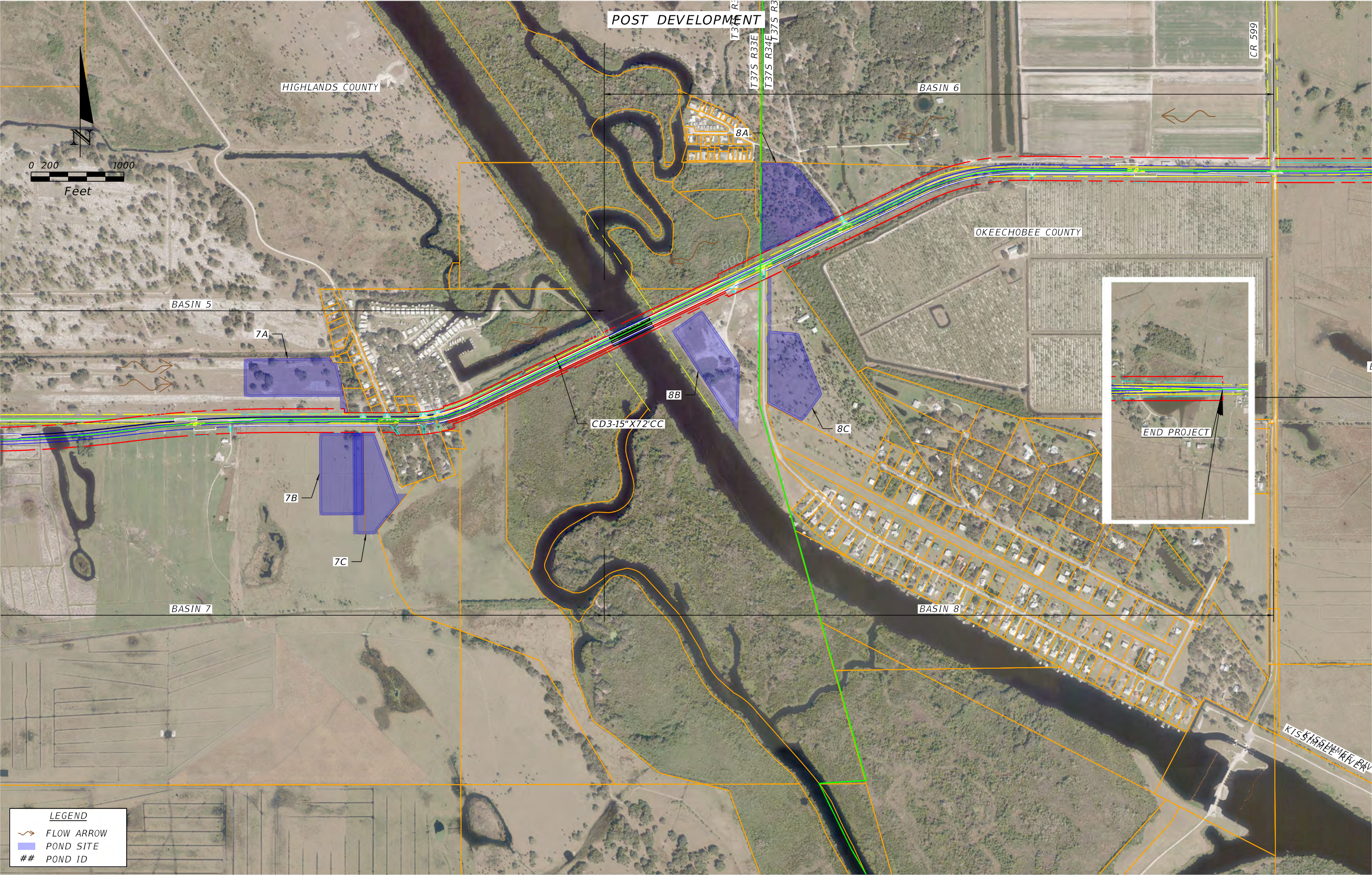


REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD	
DAVID BENNETT, P.E. LICENSE NUMBER: 54769 SCALAR CONSULTING GROUP, LLC 2301 MAITLAND CENTER PKWY, SUITE 200 MAITLAND, FL 32751	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01

DRAINAGE MAP	
SHEET NO.	



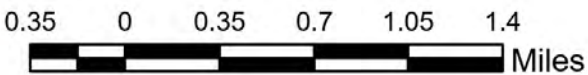
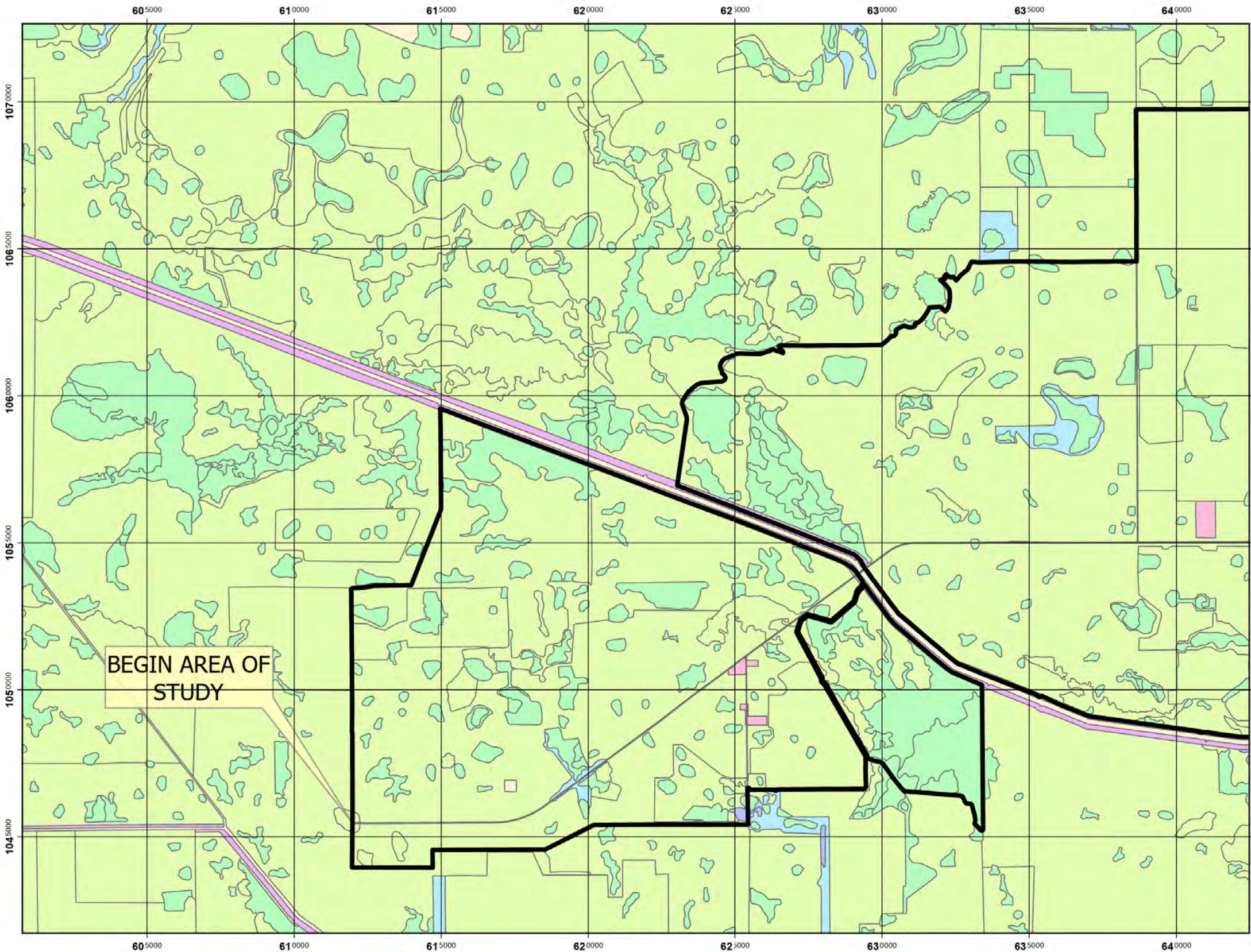
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					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

DRAINAGE MAP

Appendix G

Existing Land Use Data

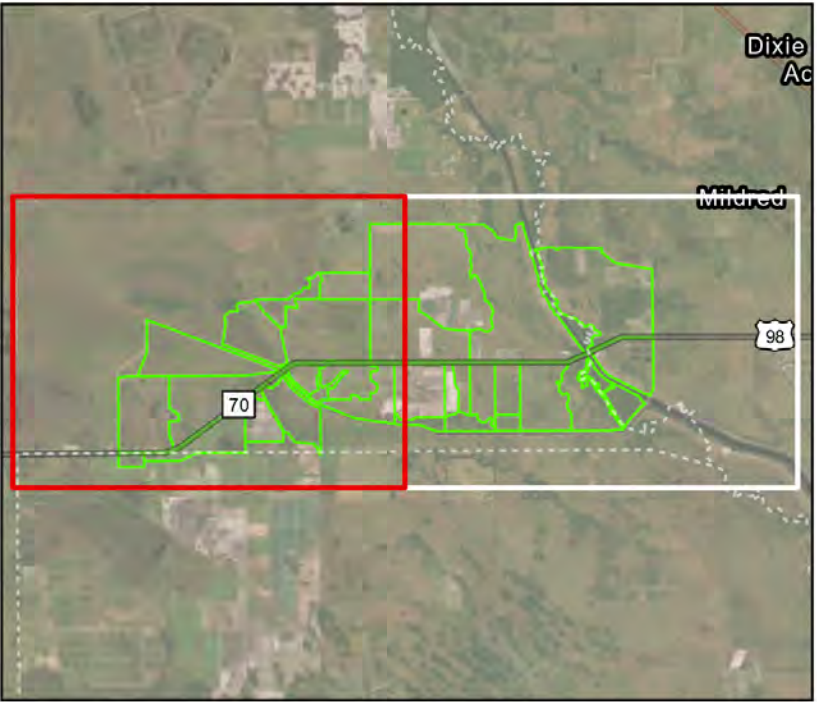
Existing Land Use Map



Legend

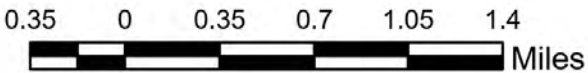
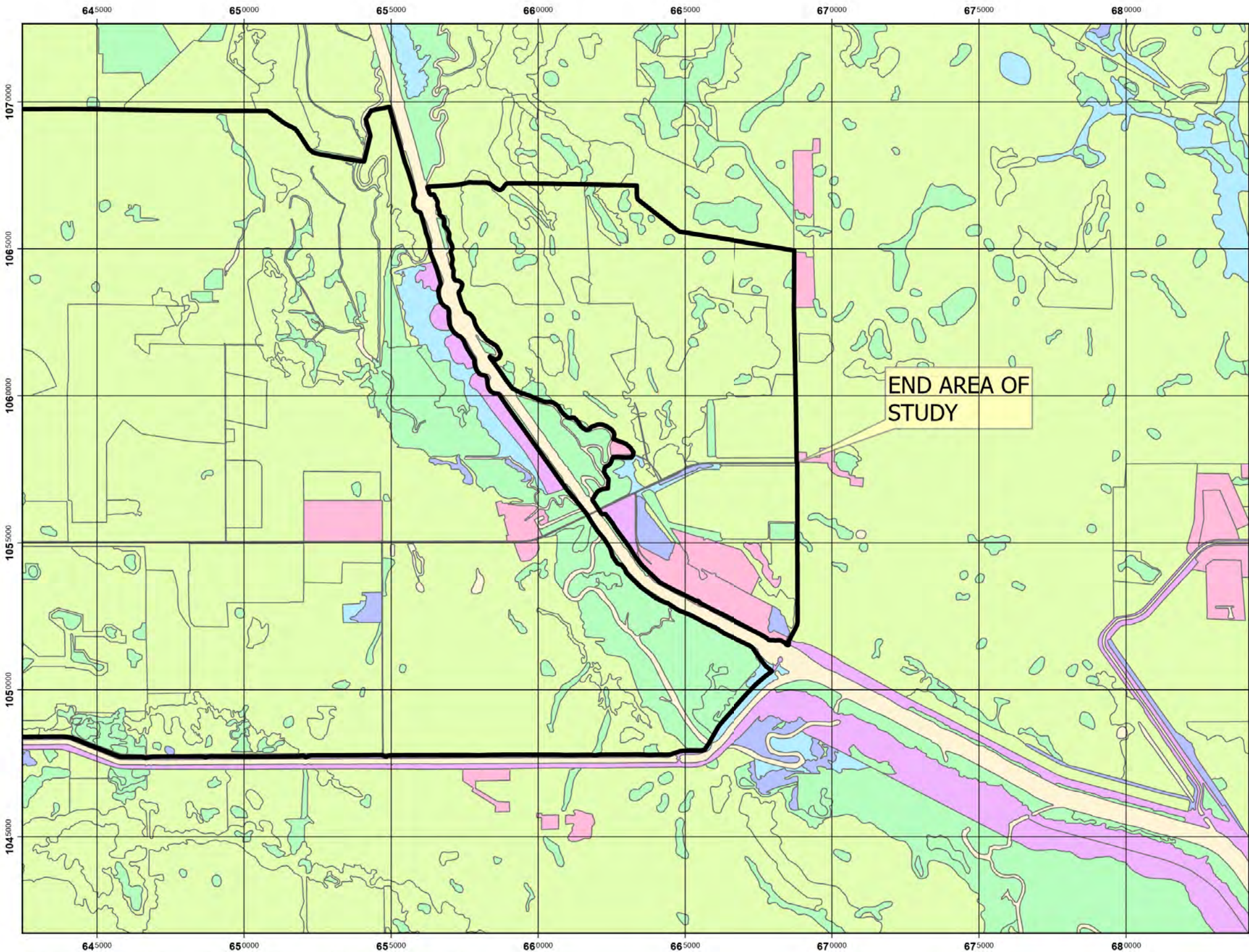
Name

- Agriculture
- Barren Land
- Rangeland
- Road
- Upland Forest
- Urban and Built-Up
- Water
- Wetlands



State of Florida, Maxar, Earthstar Geographics, University of South Florida, FDOT, Park/TerrTom, Garmin, SafeGraph, MFTI/NASA, USGS, EPA, NPS, USDA, USFWS

Existing Land Use Map

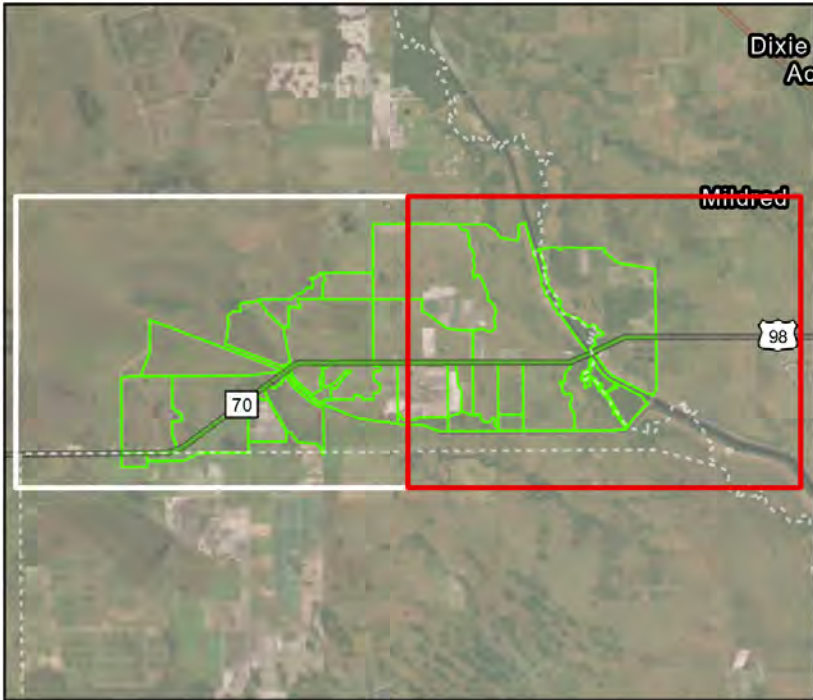


Legend

Name

- Agriculture
- Barren Land
- Rangeland
- Road
- Upland Forest
- Urban and Built-Up
- Water
- Wetlands

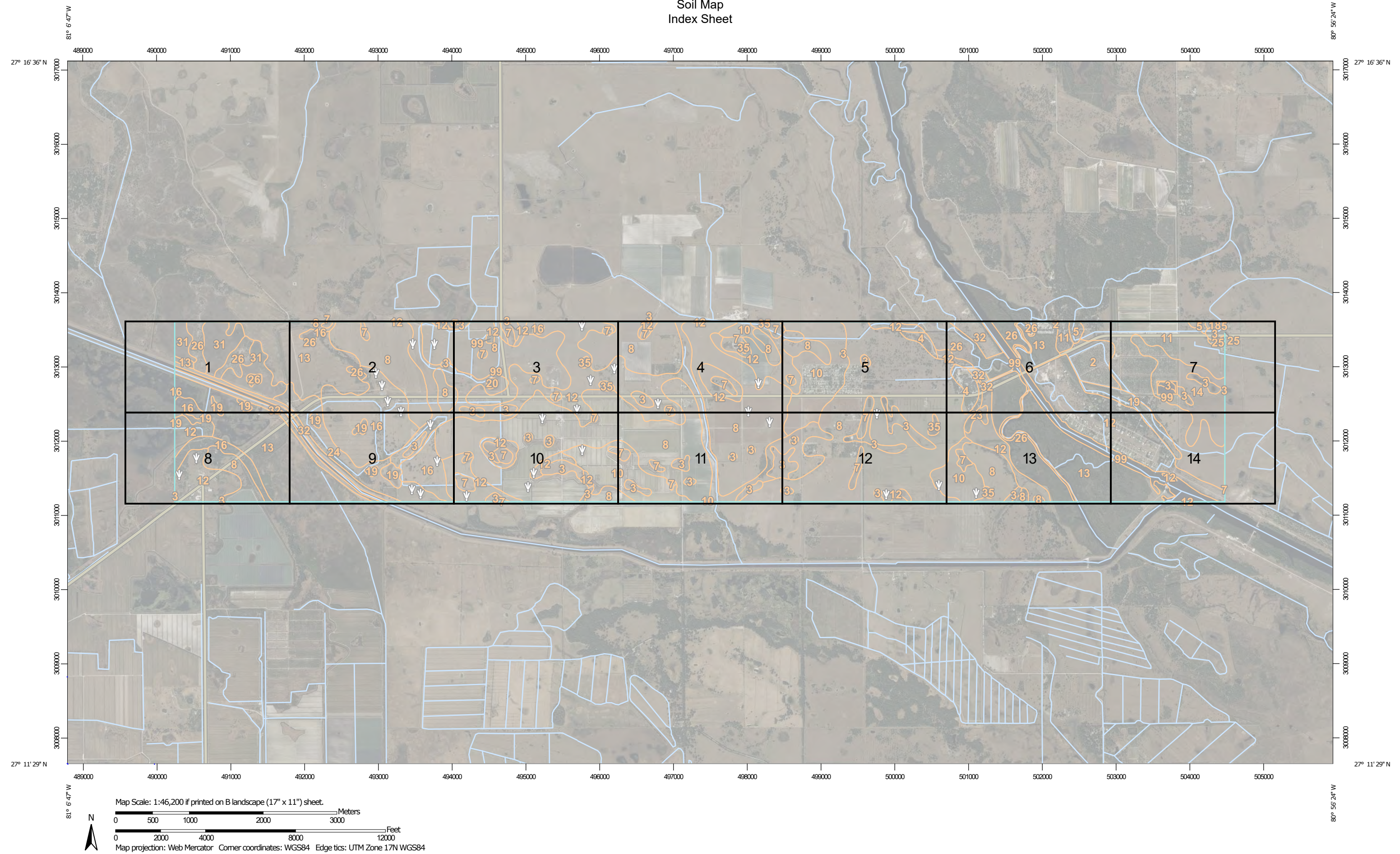
Earthstar Geographics, State of Florida, Earthstar Geographics, University of South Florida, FDEP, Eric TomTom, Garmin, SeaGraph, METI/NASA, USGS, BVA, MP5, USDA, USFWS



Appendix H

Soils Data

Custom Soil Resource Report
Soil Map
Index Sheet



Custom Soil Resource Report
Soil Map
Map sheet 1 of 14



Map Scale: 1:6,000 if printed on B landscape (17" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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Custom Soil Resource Report
Soil Map
Map sheet 2 of 14

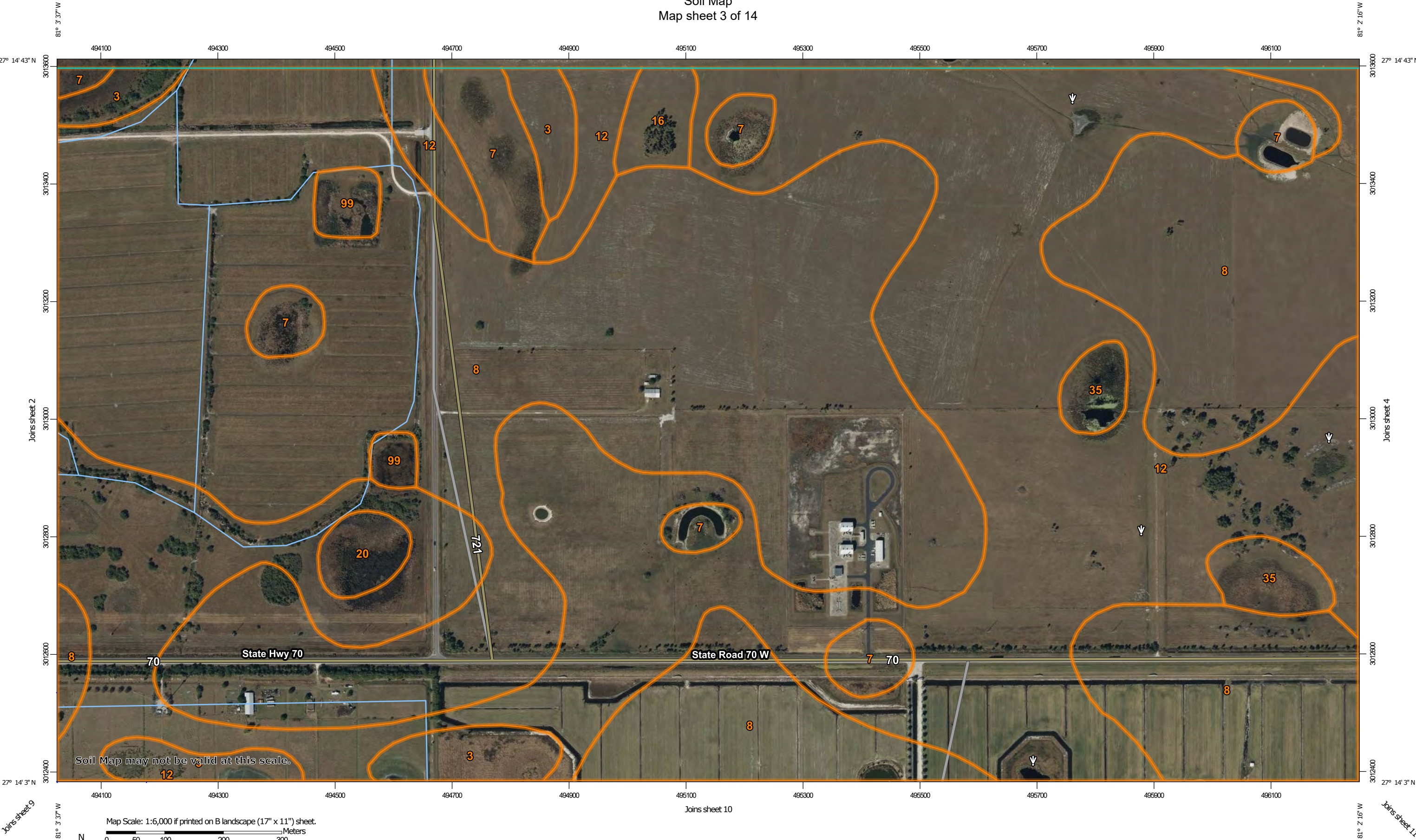


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Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

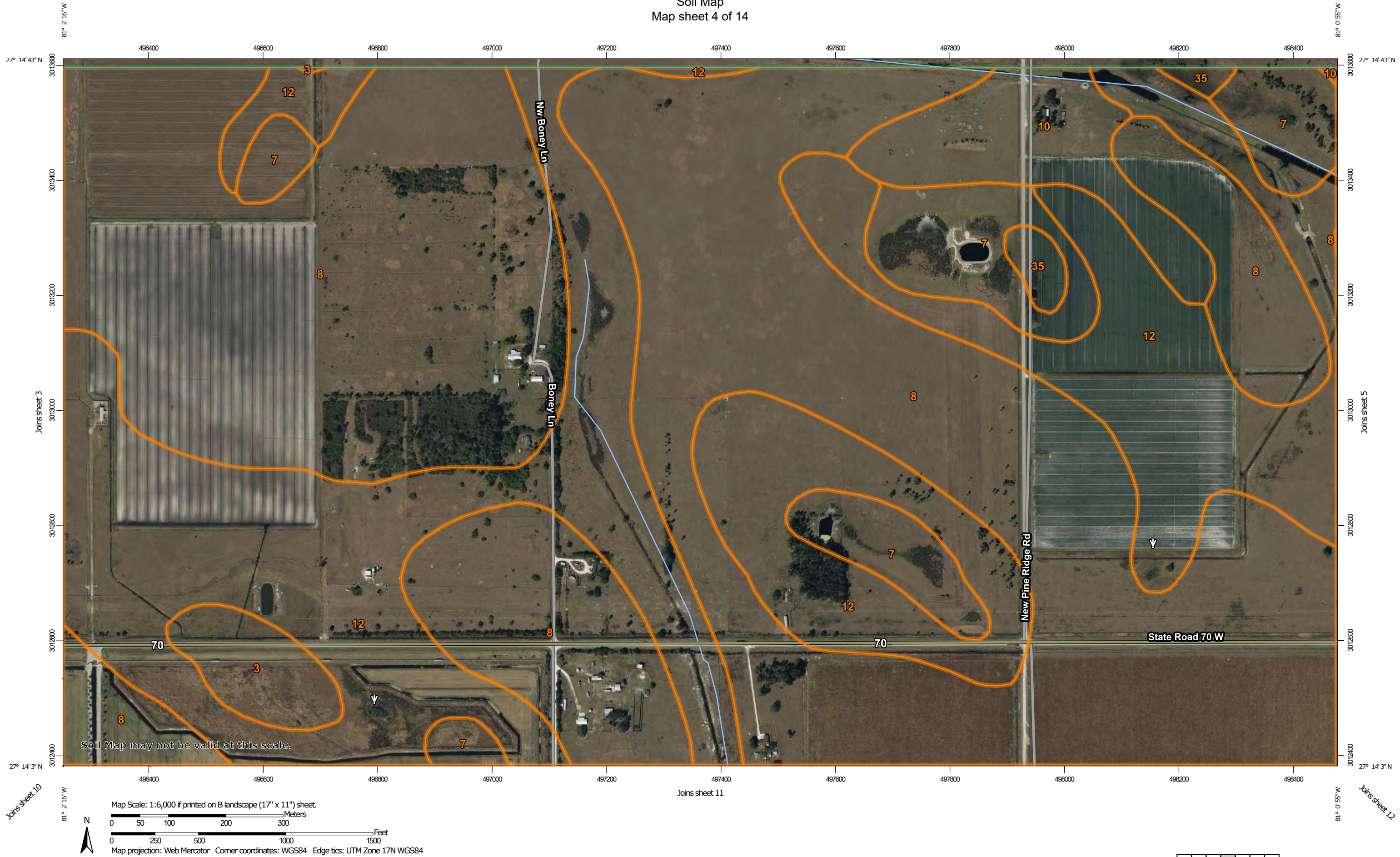
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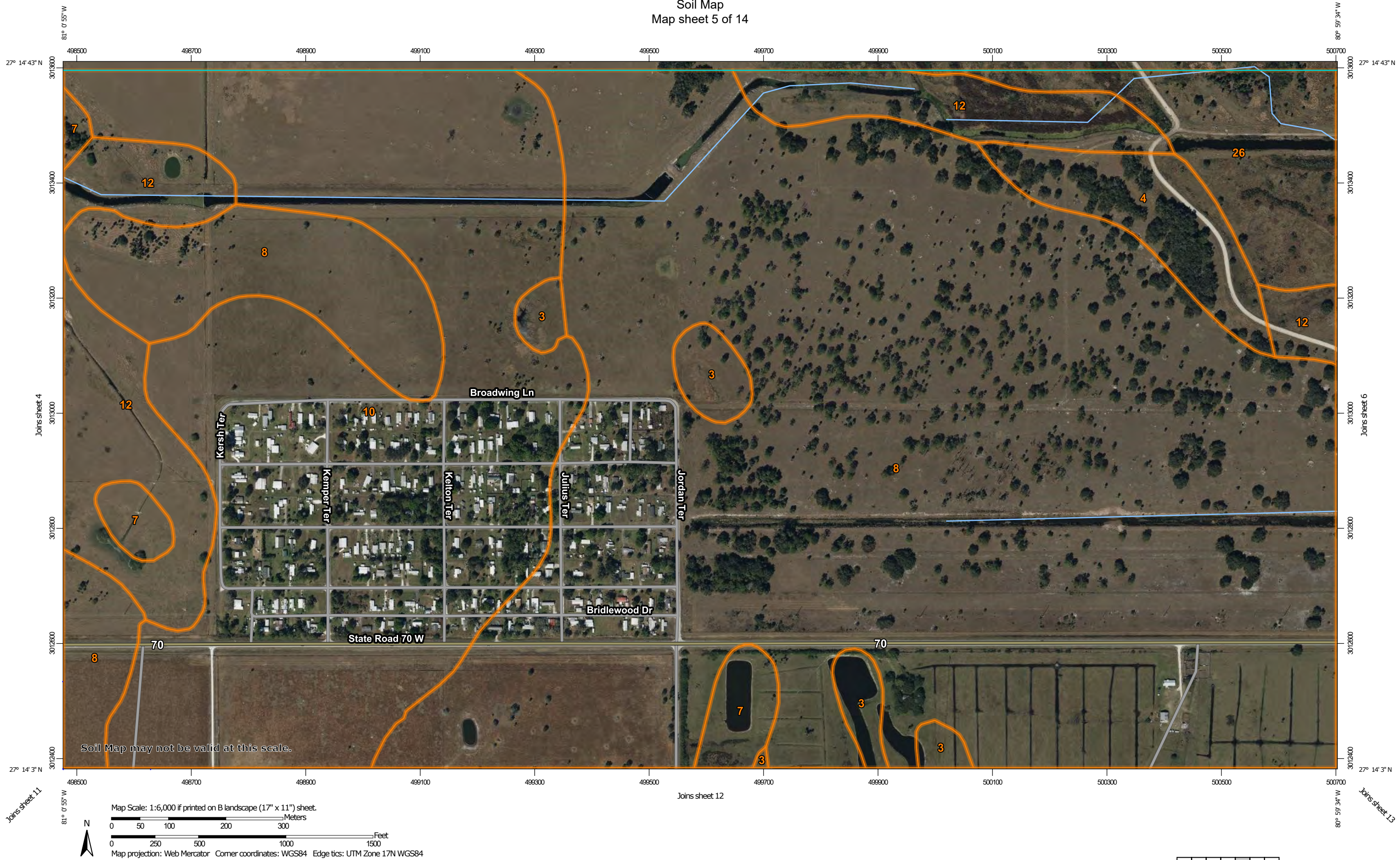
Custom Soil Resource Report
Soil Map
Map sheet 3 of 14



Custom Soil Resource Report
Soil Map
Map sheet 4 of 14



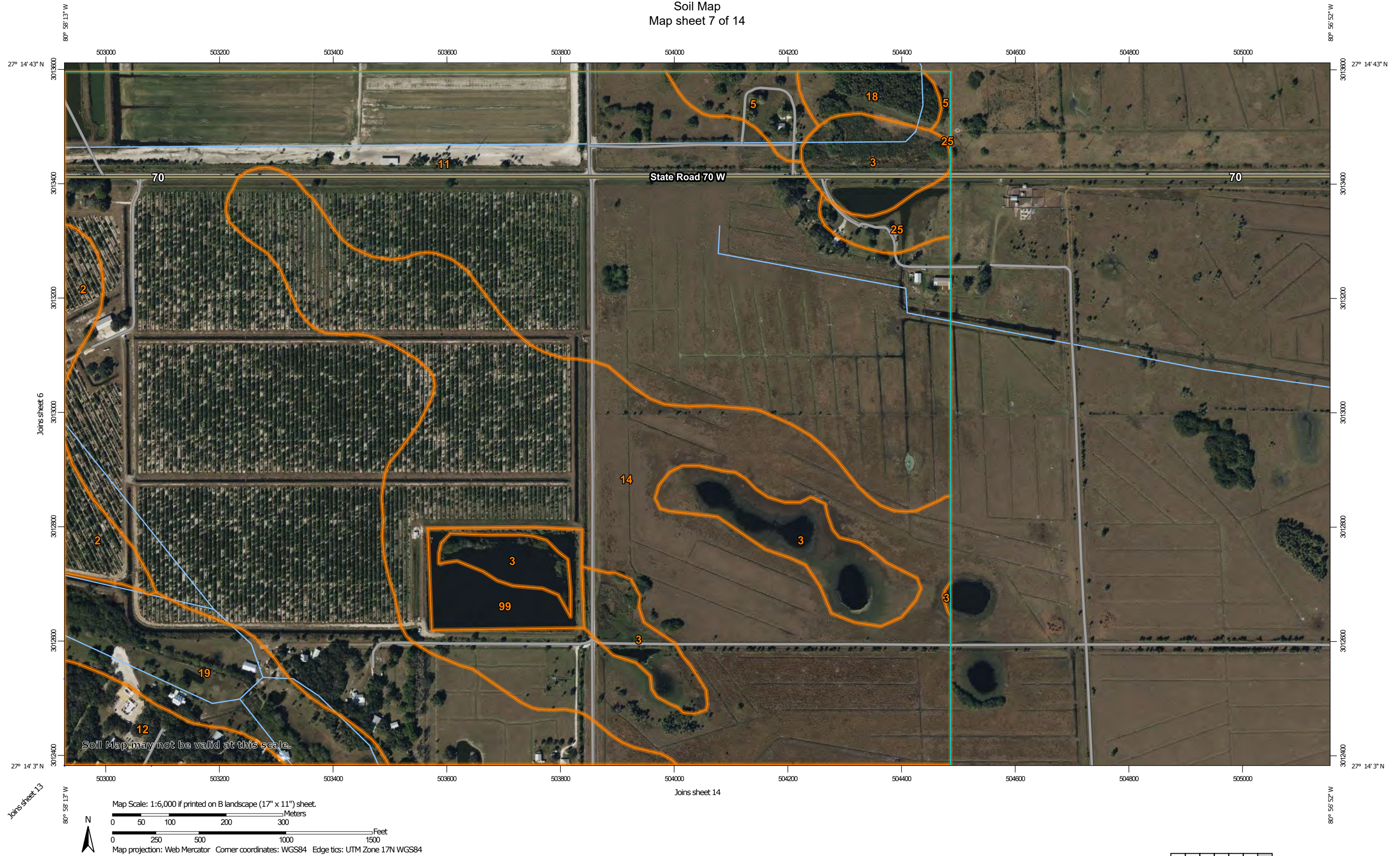
Custom Soil Resource Report
Soil Map
Map sheet 5 of 14



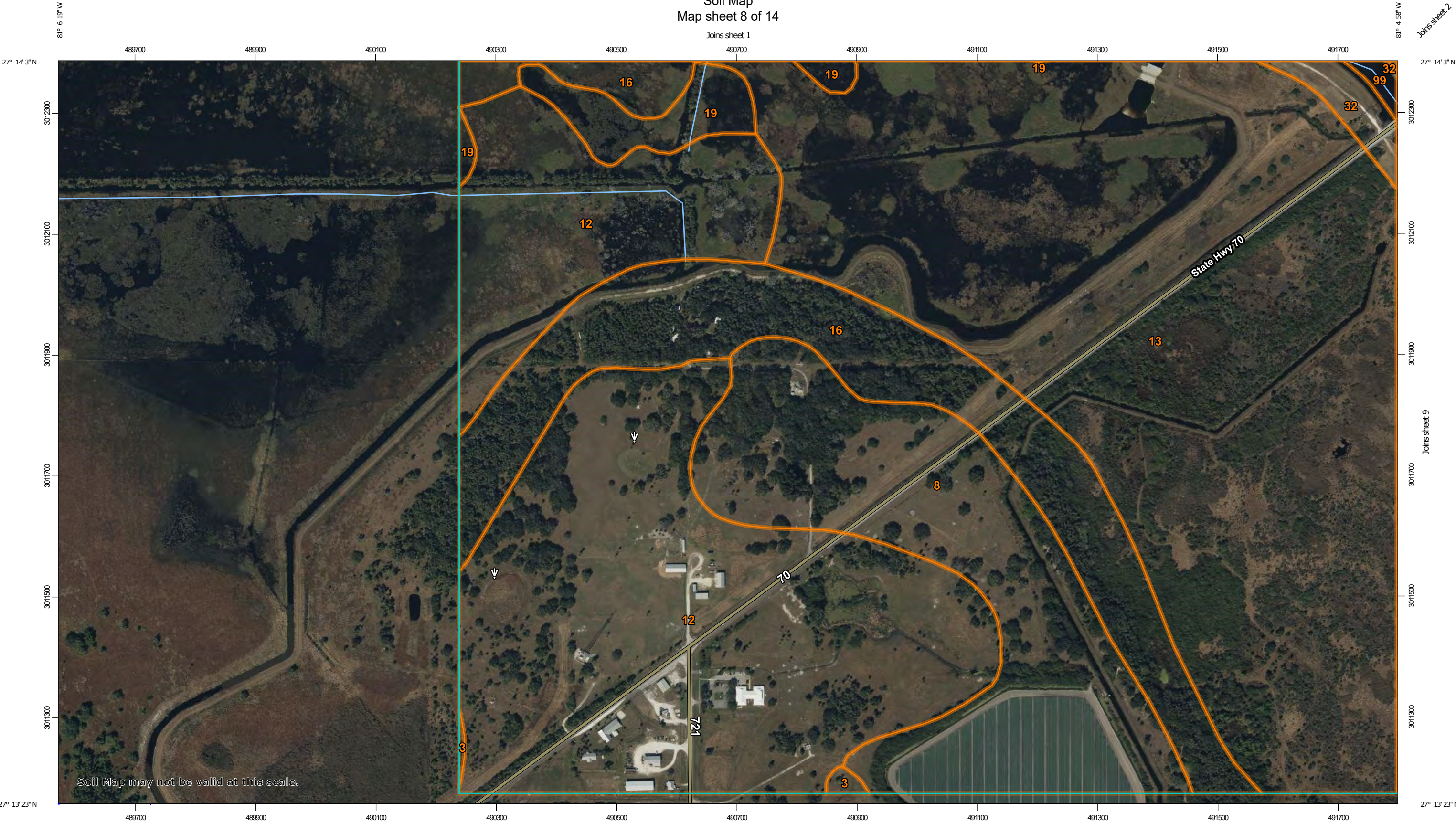
Map sheet 6 of 14



Custom Soil Resource Report
Soil Map
Map sheet 7 of 14



Custom Soil Resource Report
Soil Map
Map sheet 8 of 14



Map Scale: 1:6,000 if printed on B landscape (17" x 11") sheet.
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0 250 500 1000 1500 Feet
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8					

Map Sheet Location

Custom Soil Resource Report
Soil Map
Map sheet 9 of 14



Map Scale: 1:6,000 if printed on B landscape (17" x 11") sheet.

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0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

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Map Sheet Location

Custom Soil Resource Report
Soil Map
Map sheet 10 of 14



Custom Soil Resource Report
Soil Map
Map sheet 11 of 14



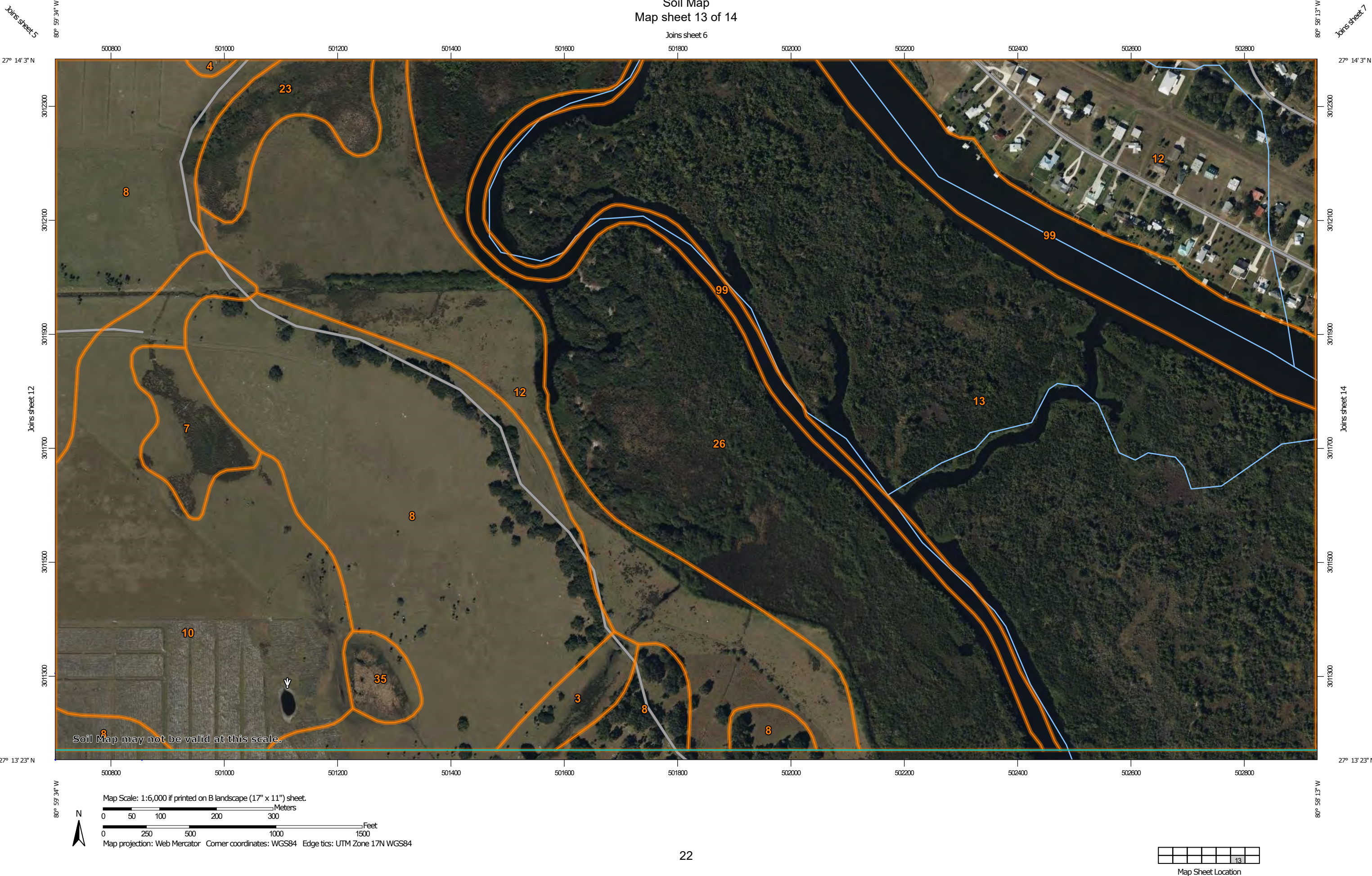
Custom Soil Resource Report
Soil Map
Map sheet 12 of 14



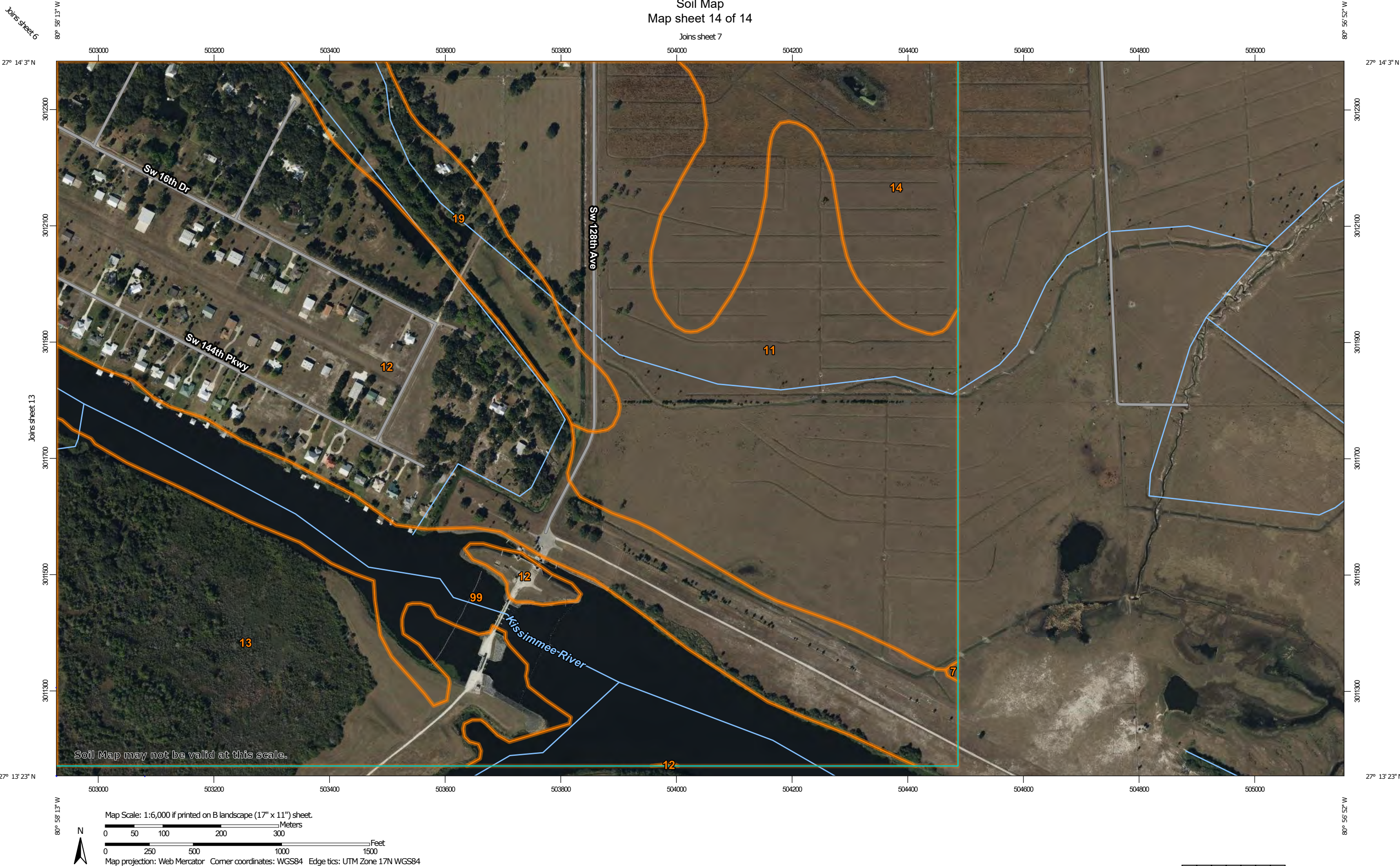
			12		

Map Sheet Location

Custom Soil Resource Report
Soil Map
Map sheet 13 of 14



Custom Soil Resource Report
Soil Map
Map sheet 14 of 14



Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Basinger fine sand, frequently ponded, 0 to 1 percent slopes	218.6	2.6%
4	Duette sand, 0 to 5 percent slopes	49.9	0.6%
7	Placid fine sand, frequently ponded, 0 to 1 percent slopes	156.1	1.8%
8	Immokalee sand, 0 to 2 percent slopes	2,969.1	34.7%
10	Myakka fine sand, 0 to 2 percent slopes	447.8	5.2%
12	Basinger fine sand, 0 to 2 percent slopes	1,109.4	13.0%
13	Felda fine sand, 0 to 2 percent slopes	632.2	7.4%
16	Valkaria fine sand, 0 to 2 percent slopes	425.6	5.0%
19	Hicoria mucky sand, depressional	47.9	0.6%
20	Samsula muck, frequently ponded, 0 to 1 percent slopes	4.4	0.1%
23	Gator muck, frequently ponded, 0 to 1 percent slopes	13.1	0.2%
24	Pineda sand, 0 to 2 percent slopes	147.2	1.7%
26	Tequesta muck, frequently ponded, 0 to 1 percent slopes	351.6	4.1%
31	Felda fine sand, frequently ponded, 0 to 1 percent slopes	154.5	1.8%
32	Arents, very steep	141.6	1.7%
35	Sanibel muck, frequently ponded, 0 to 1 percent slopes	23.6	0.3%
99	Water	92.0	1.1%
Subtotals for Soil Survey Area		6,984.7	81.7%
Totals for Area of Interest		8,550.4	100.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Basinger fine sand, 0 to 2 percent slopes	81.6	1.0%
3	Basinger and Placid soils, depressional	30.2	0.4%
5	Valkaria fine sand, 0 to 2 percent slopes	17.3	0.2%

Custom Soil Resource Report

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Floridana, Riviera, and Placid soils, depressional	0.1	0.0%
11	Immokalee fine sand, 0 to 2 percent slopes	416.6	4.9%
12	Udorthents, 2 to 35 percent slopes	325.2	3.8%
13	Manatee, Floridana, and Tequesta soils, frequently flooded	347.0	4.1%
14	Myakka fine sand, 0 to 2 percent slopes	167.7	2.0%
18	Parkwood fine sand	5.0	0.1%
19	Floridana, Placid, and Okeelanta soils, frequently flooded	56.5	0.7%
25	Wabasso fine sand, 0 to 2 percent slopes	4.3	0.0%
99	Water	109.7	1.3%
Subtotals for Soil Survey Area		1,561.0	18.3%
Totals for Area of Interest		8,550.4	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

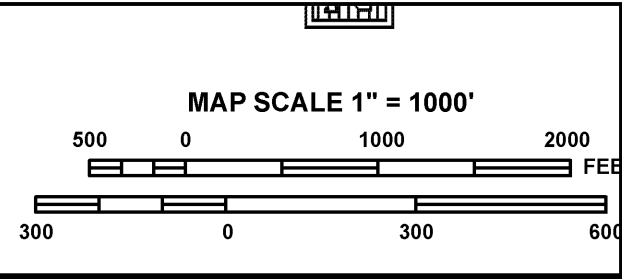
An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Appendix I

FEMA FIRM Maps



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

PANEL 0455C

FIRM
FLOOD INSURANCE RATE MAP


OKEECHOBEE COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 455 OF 650
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OKEECHOBEE COUNTY	120177	0455	C

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.




MAP NUMBER
12093C0455C
EFFECTIVE DATE
JULY 16, 2015

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

C-1





MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

300 0 300 600 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0580C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA


AND INCORPORATED AREAS

PANEL 580 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0580	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



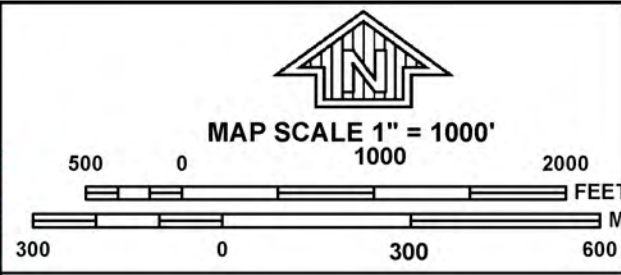
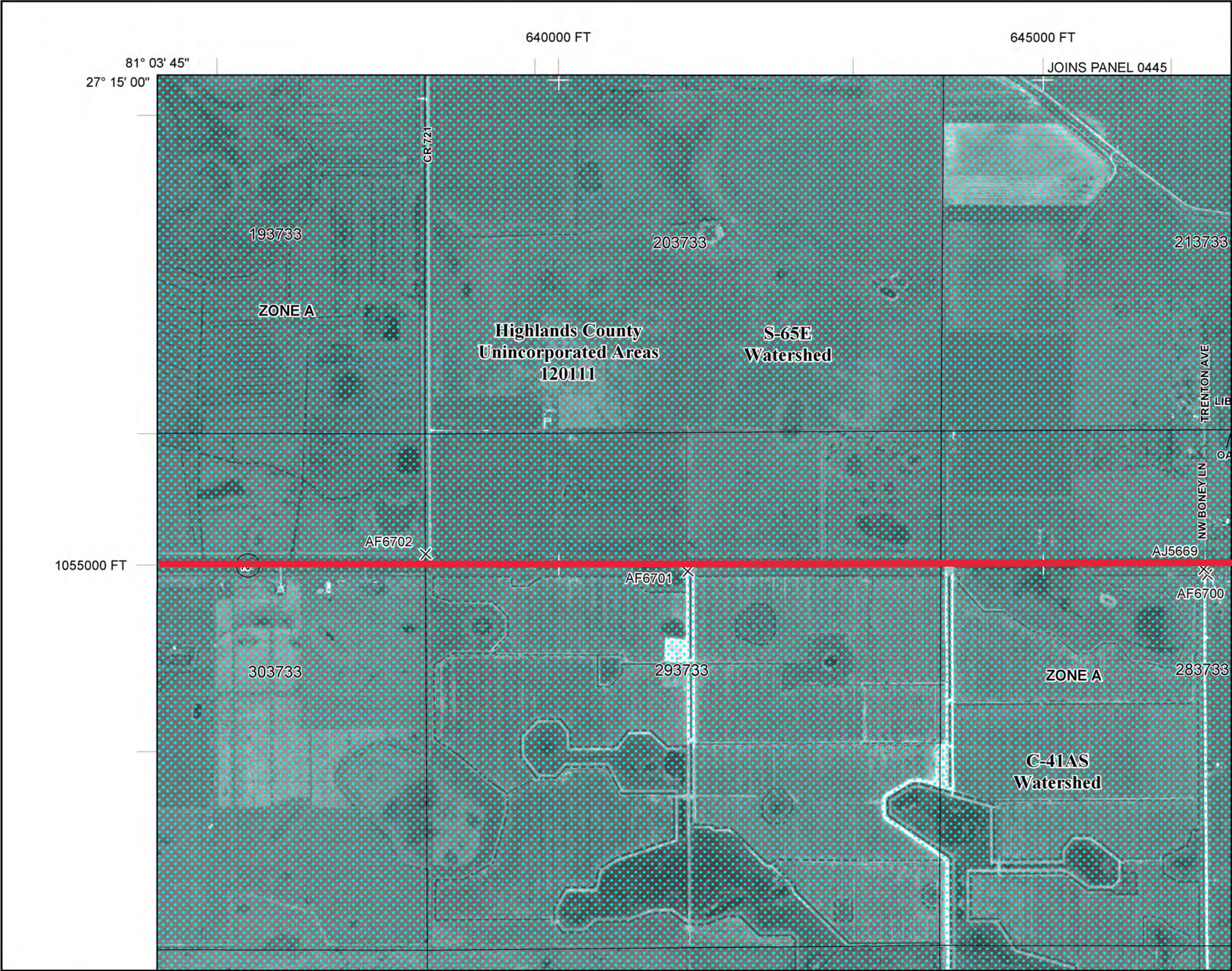
MAP NUMBER
12055C0580C

EFFECTIVE DATE
NOVEMBER 18, 2015

Federal Emergency Management Agency

JOINS PANEL 0585

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.



NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0585C

FIRM
FLOOD INSURANCE RATE MAP
HIGHLANDS COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 585 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

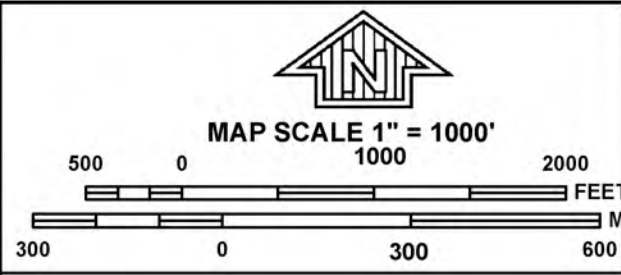
CONTAINS:


COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0585	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
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EFFECTIVE DATE
NOVEMBER 18, 2015
Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.





NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0585C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA

AND INCORPORATED AREAS


PANEL 585 OF 710

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0585	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER

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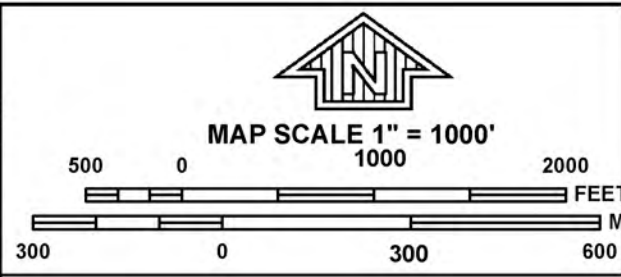
EFFECTIVE DATE

NOVEMBER 18, 2015

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

C-4



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0605C

FIRM

FLOOD INSURANCE RATE MAP

HIGHLANDS COUNTY, FLORIDA


AND INCORPORATED AREAS

PANEL 605 OF 710
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLANDS COUNTY	120111	0605	C

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

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EFFECTIVE DATE
NOVEMBER 18, 2015

Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

Appendix J

Threatened and Endangered Species (T&E) and Wetlands Assessment for Pond Siting

Date: July 31, 2025
To: David Bennett, PE, Scalar Consulting Group LLC (Scalar), Drainage Lead
From: Marybeth Van't Hul, (Scalar)
CC: Aniruddha Gotmare, PE, Scalar, Project Manager
Subject: Revised Threatened and Endangered Species (T&E) and Wetlands Assessment for Pond Siting
State Road (SR) 70 from County Road (CR) 721 South to CR 599/128th Avenue
FPID No. 450334-1-22-01
Highlands and Okeechobee Counties, Florida

INTRODUCTION

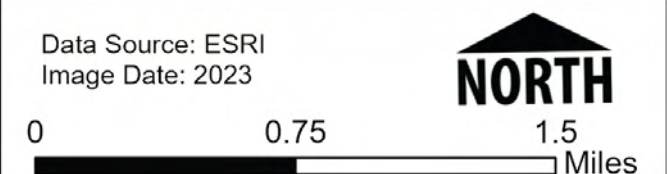
The Florida Department of Transportation (FDOT), District One (D1) is proposing to widen SR 70 from two to four lanes between CR 721 South and CR 599/128th Avenue to address the need for improved traffic safety conditions and to provide accommodation for increasing freight activity along the corridor. The total project length is approximately 8.6 miles (see **Figure 1**). The project is located east of US Highway 27 and falls within Sections 25 and 26 of Township 37 South, Range 32 East, Sections 25, 26, 27, 28, 29 and 30 of Township 37 South, Range 33 East and Sections 25 and 19 of Township 37 South, Range 34 East. The proposed roadwork consists of widening, drainage improvements and the implementation of a shared use path.

In October 2024, the Pond Siting Report (PSR) was sent to the Florida Department of Transportation for review. Since then, revisions to the pond alternatives have been made, including the addition of new ponds and alterations to the existing pond footprints. Two roadway alternatives are being developed for this project, each with slightly different alignments. Since a preferred alternative has not yet been selected, pond alternatives for each alignment are being evaluated. The pond alternatives for each alignment are very similar in location and size therefore they will be evaluated as one combined shape representative of both alignments. This memorandum (memo) supports the revised PSR by addressing the presence or potential presence of Federal and State T&E species and jurisdictional wetlands or surface waters within 24 pond alternatives and one regional pond site. We evaluated eight basins within the project area with three alternatives per basin. Additionally, a larger polygon located south of the project limits near Canal C-41A, Regional Basin 6 Area, is also being evaluated to serve as an alternative to the three ponds within Basin 6. This area would look the same in the post project condition and would serve as a “natural”



Figure 1. Project Location Map
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Data Source: ESRI
 Image Date: 2023



stormwater site requiring no land clearing, excavation, etc. Staff scientists completed a review of existing environmental conditions within the proposed pond sites to assess potential environmental impacts. Desktop research and GIS analysis were used to assess the environmental conditions present within the proposed pond footprints.

METHODOLOGY

An extensive desktop analysis was conducted to determine if any T&E, jurisdictional wetlands, or surface waters occurred within or adjacent to the proposed stormwater pond locations. **Figures 2, 3, and 4** depict existing land use, wetlands, and soils, respectively, and **Table 1** includes potential listed species that could occur within the project area. The primary GIS sources that were utilized included:

- 2023 ESRI Aerial;
- FDOT Environmental Screening Tool (EST);
- 2019 South Florida Water Management District (SFWMD) Land Use categorized according to Florida Land Use, Cover and Forms Classification System (FLUCFCS);
- 2023 United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Highlands and Okeechobee County soil surveys (FGDL SSURGO, 2021);
- 2013 Florida Natural Areas Inventory (FNAI- Biodiversity Matrix Report (<http://www.fnai.org/biointro.cfm>);
- FNAI- Standard Data Report (May 2023)
- 2024 United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data;
- Audubon Florida EagleWatch Public Nest App (2025 nesting data)
- FDACS – Notes on Florida’s Endangered and Threatened Plants;
- FDOT’s Efficient Transportation Decision Making (ETDM) Summary Report (June 1st, 2023);
- FWC
 - Species Profile
 - Wading bird rookeries locator (1999);
 - Florida scrub-jay habitat and observations (1992-1993);
 - Bald Eagle Management Plan;

- Florida's Official Endangered and Threatened Species List (Updated December 2022);
- Kissimmee River public use area;
- USFWS
 - Information for Planning and Consultation (IPaC) (IPaC: Getting Started - Draw on Map (fws.gov);
 - Species Profiles
 - CH for threatened and endangered species;
 - Wood stork active colonies (2010-2019) (USFWS, 2020);
 - South Florida wood stork (*Mycteria americana*) CFA (18.6-mile radius);
 - Central and Southern Florida project Manatee Accessibility Map (2006); and
 - CAs for federally listed species.

Land use classifications as identified in GIS were field verified in accordance to FLUCFCS. Site review findings were recorded to characterize vegetative communities present, document the presence of wetland and surface waters within the sites, and evaluate the potential of each site to support T&E species.

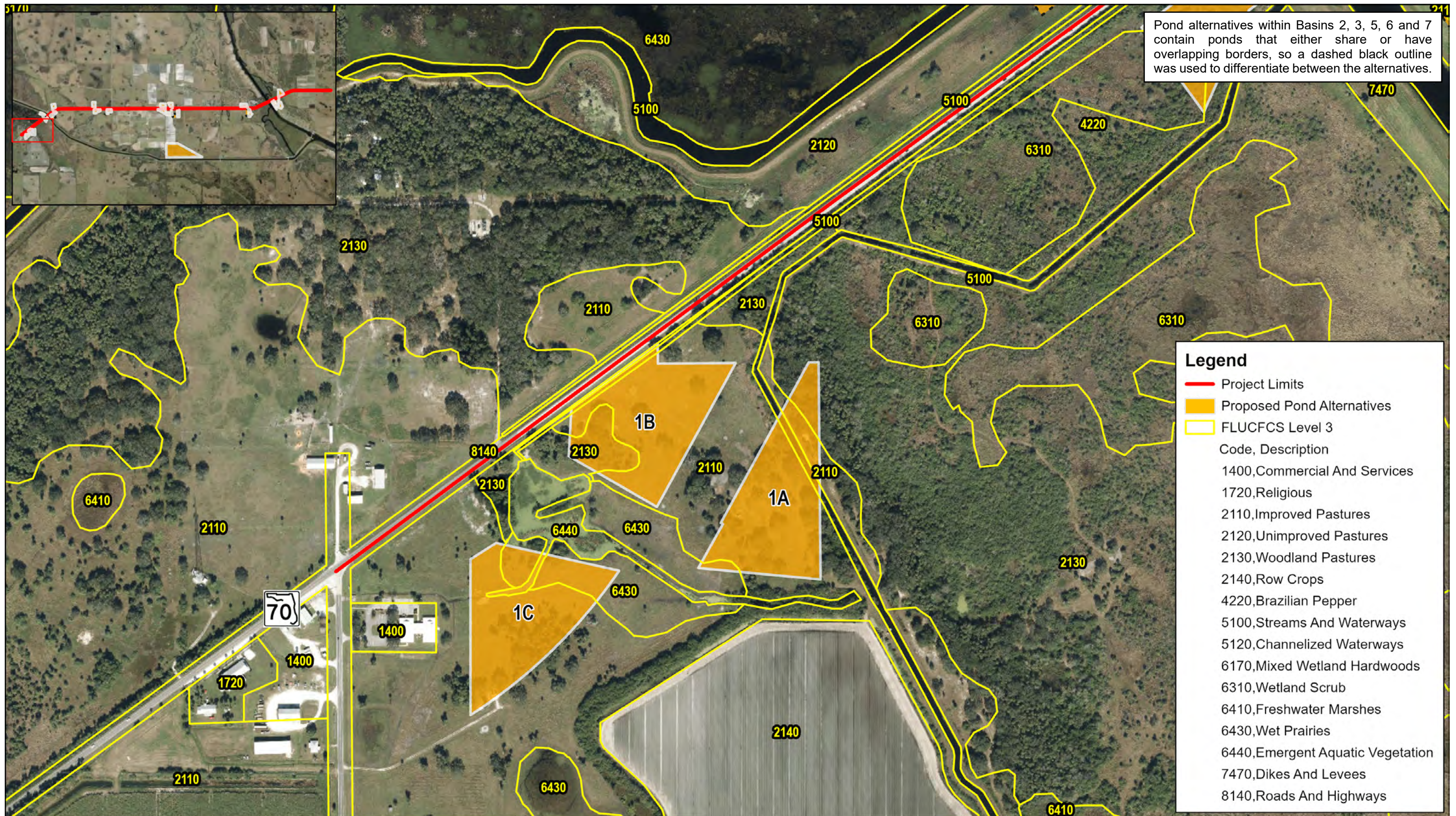


Figure 2. FLUCFCS Map

Sheet 1 of 6

FPID No. 450334-1-22-01

SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023



0 450 900
Feet

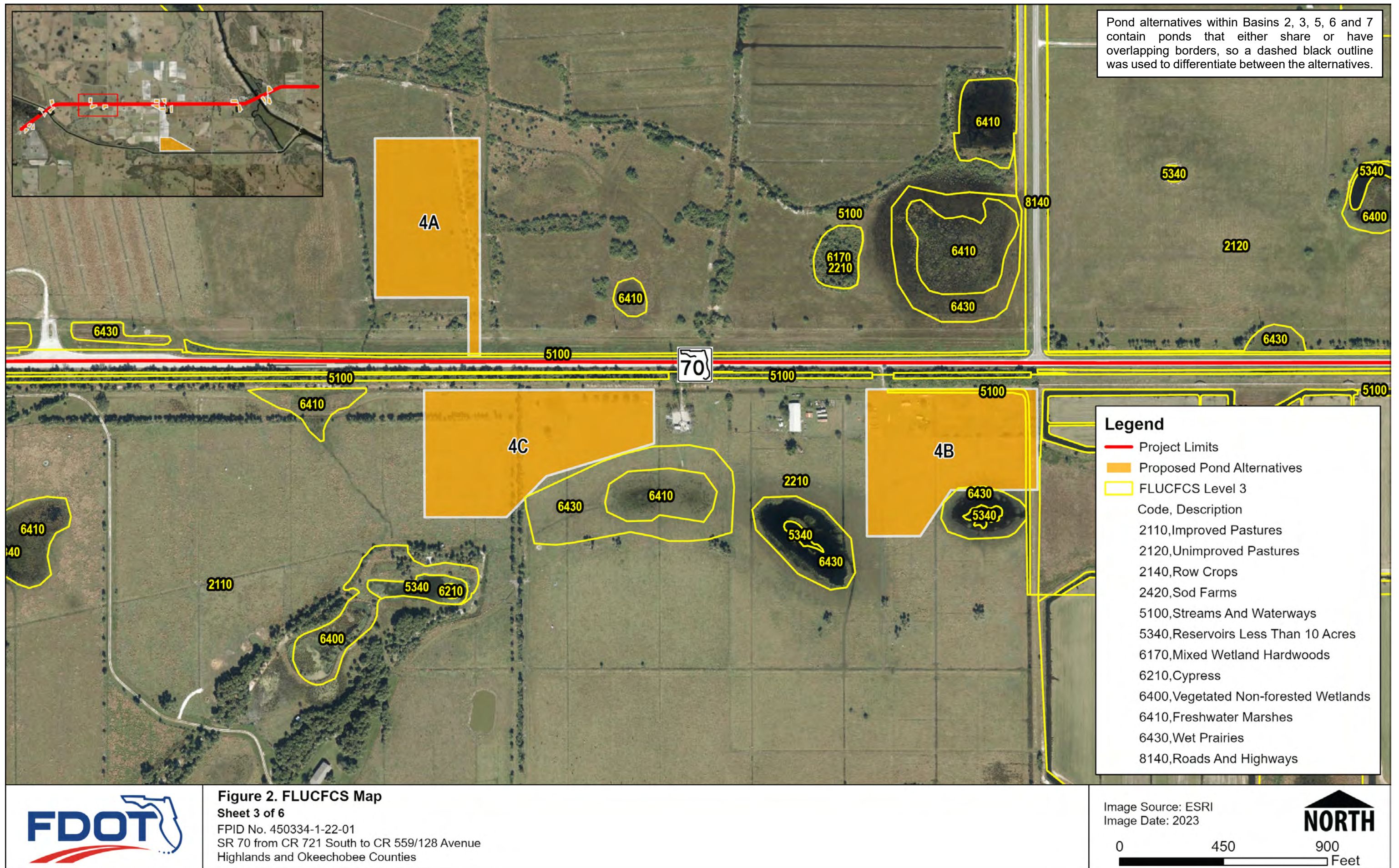


Figure 2. FLUCFCS Map
Sheet 2 of 6
FPID No. 450334-1-22-01
SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023

0 450 900
Feet





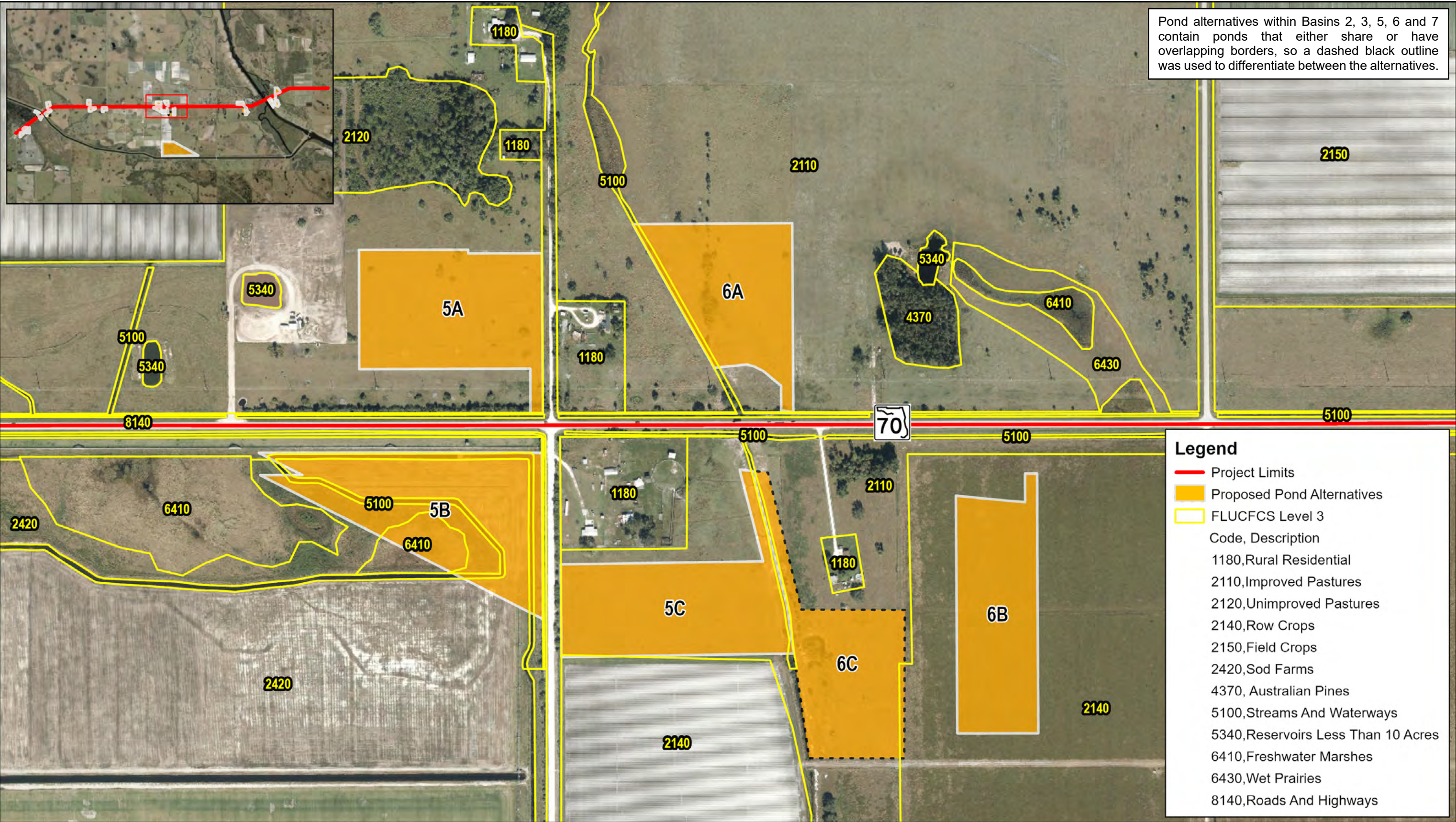
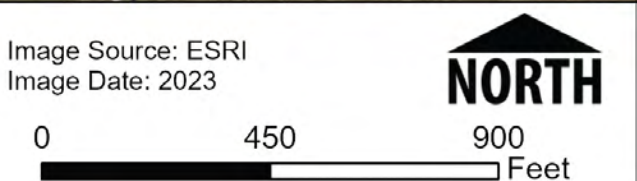


Figure 2. FLUCFCS Map
 Sheet 4 of 6
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023



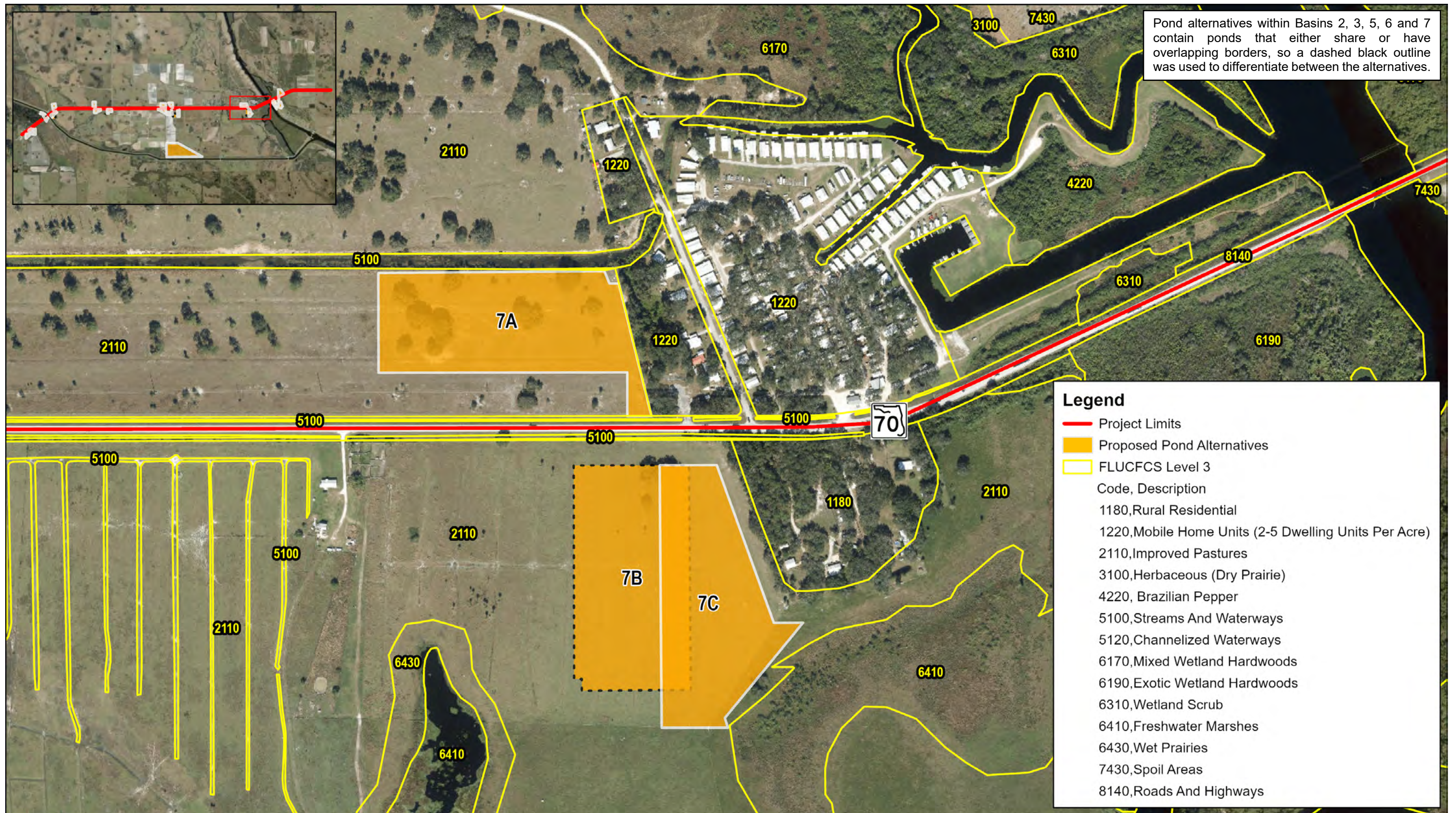


Figure 2. FLUCFCS Map

Sheet 5 of 6

FPID No. 450334-1-22-01

SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023



0 450 900
Feet

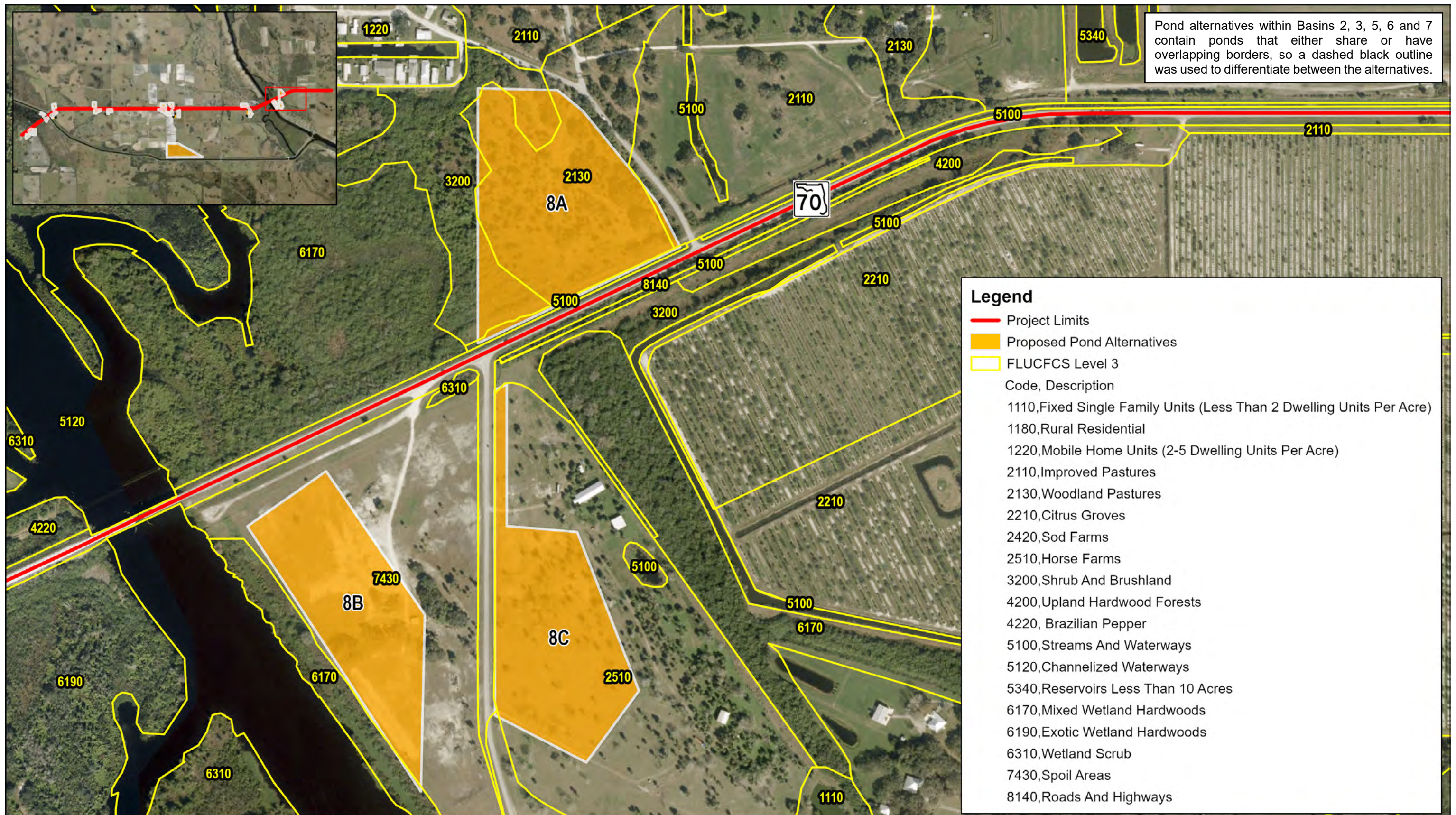


Figure 2. FLUCFCS Map

Sheet 6 of 6

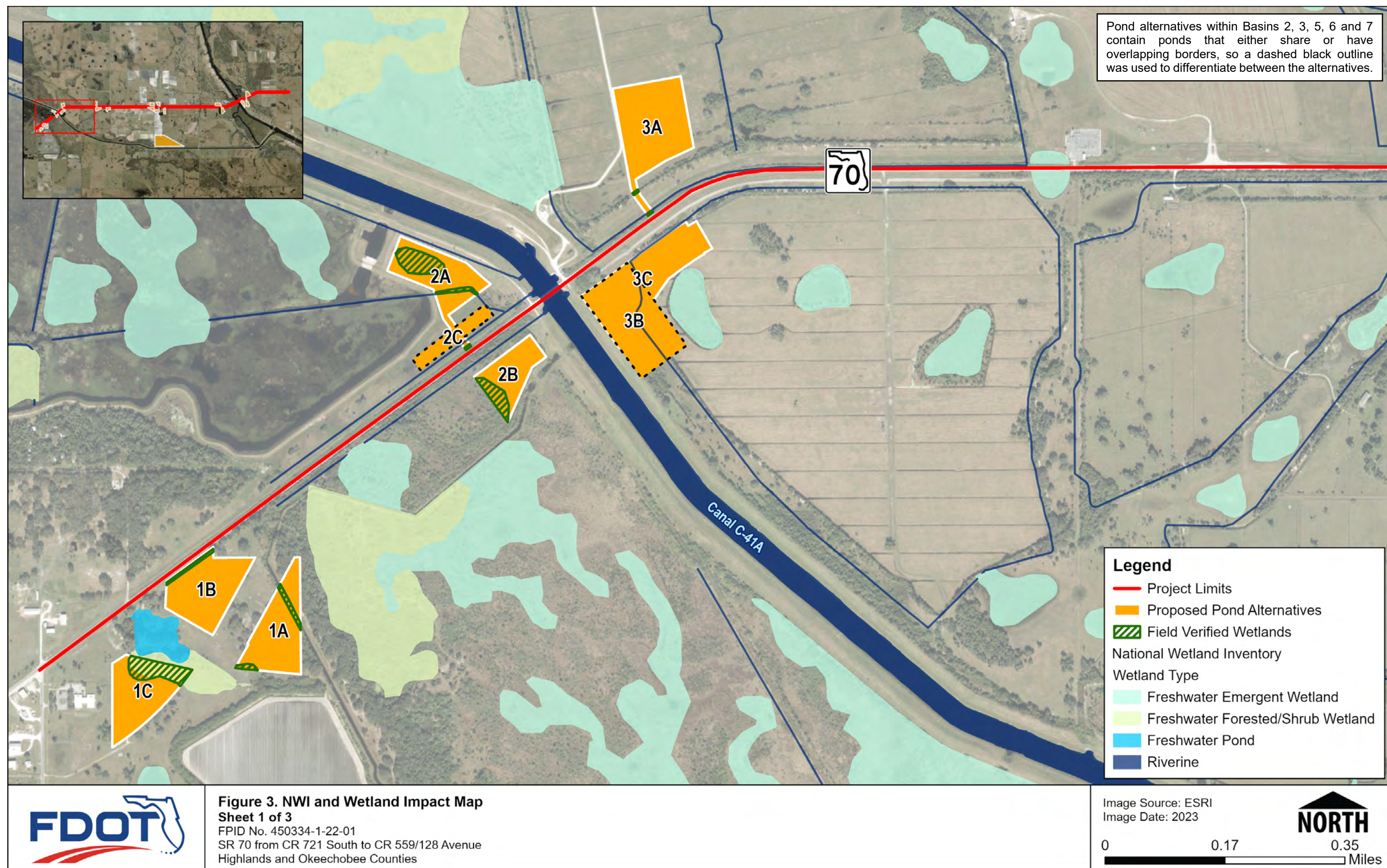
FPID No. 450334-1-22-01

SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023



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Feet



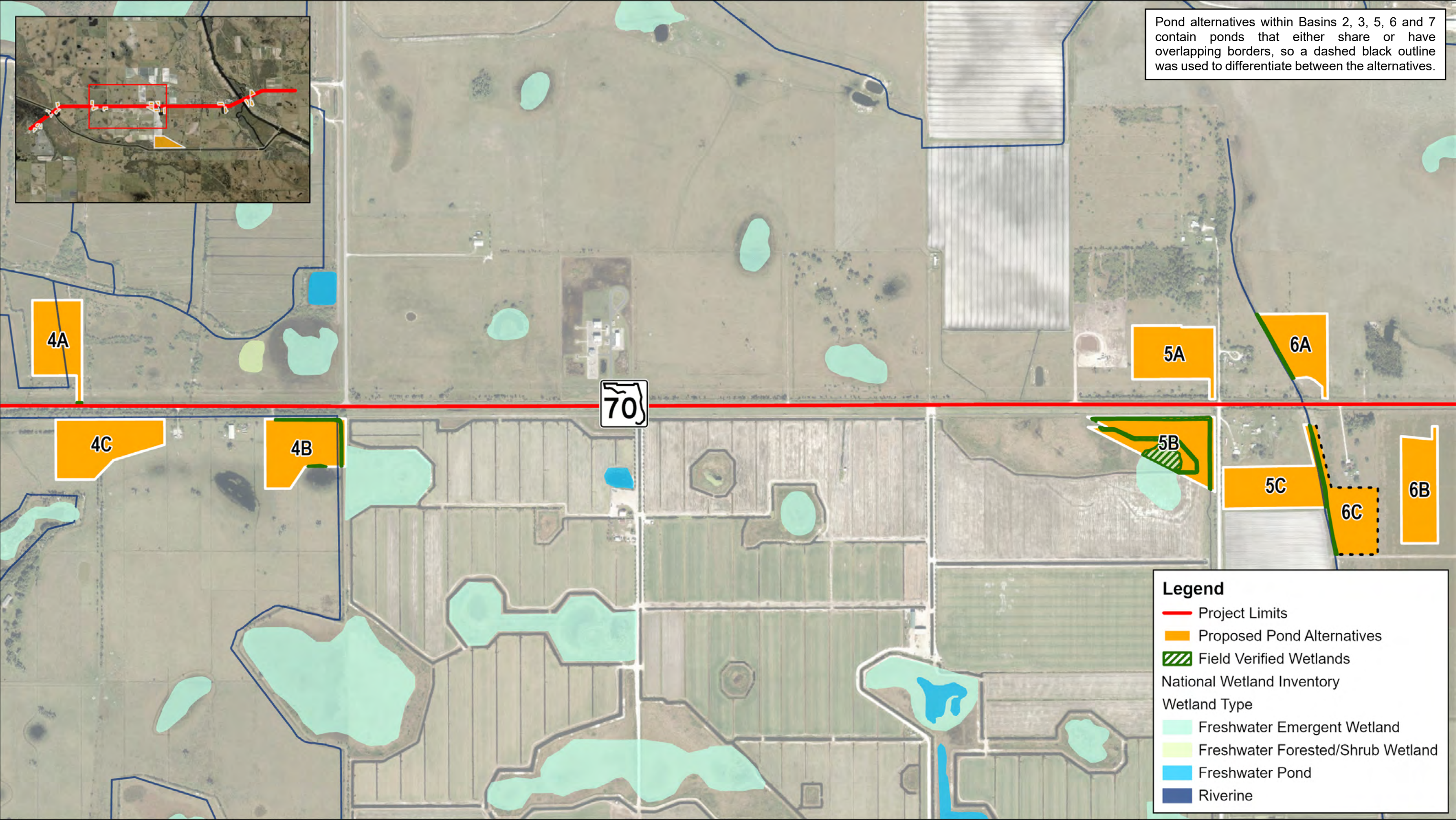
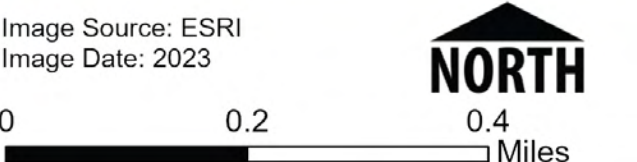


Figure 3. NWI and Wetland Impact Map
Sheet 2 of 3
FPID No. 450334-1-22-01
SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023



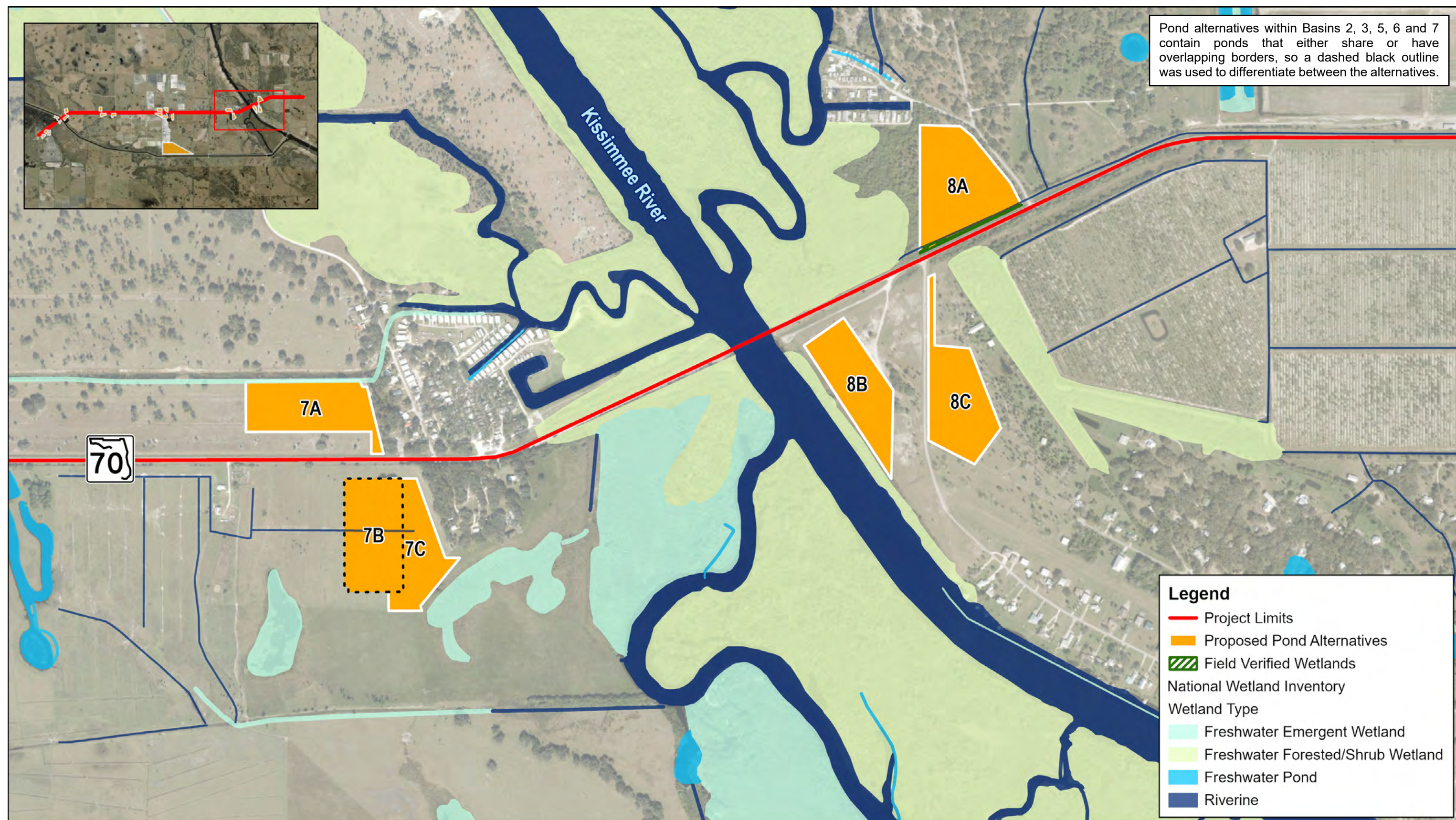


Figure 3. NWI and Wetland Impact Map
Sheet 3 of 3
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023

0 0.17 0.35
 Miles





Figure 4. Soils Map

FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023



0 0.75 1.5
 Miles

Table 1. Potential Federal and State Listed and Other Protected Species in Project Area

Scientific Name	Common Name	Status ¹ (State/Federal)	Preferred Habitat
<u>Reptiles</u>			
<i>Drymarchon corais couperi</i>	Eastern indigo snake	FT	Various natural habitats; linked to xeric habitats and gopher tortoise burrows
<i>Gopherus polyphemus</i>	Gopher tortoise	ST	Xeric habitats, such as sandhills
<i>Pituophis melanoleucus mugitus</i>	Florida pine snake	ST	Well-drained sandy soils with a moderate to open canopy
<u>Birds</u>			
<i>Laterallus jamaicensis</i>	Eastern black rail	FT	Brackish, salt, and freshwater wetlands
<i>Sternula antillarum</i>	Least tern	ST	Coastal beaches, estuaries, and bays, occasional use of rooftops
<i>Picoides borealis</i>	Red-cockaded woodpecker	FE	Mature pine forests containing living longleaf pine trees
<i>Mycteria americana</i>	Wood stork	FT	Freshwater and estuarine wetlands
<i>Grus canadensis pratensis</i>	Florida sandhill crane	ST	Basin marsh, depression marsh, dry prairies, marl prairie, pastures
<i>Apelocoma coerulescens</i>	Florida scrub-jay	FT	Relict dune ecosystems or scrub on well drained sandy soils; scrubby oaks
<i>Polyborus plancus audubonii</i>	Crested caracara	FT	Prairies with cabbage palms, wooded areas with saw palmetto, scrub oaks, pastures

<i>Falco sparverius paulus</i>	Southeastern American kestrel	ST	Open woodlands, sandhill, improved pastures and fire-maintained savannah pine, dependent on abandoned tree cavities
<i>Egretta caerulea</i>	Little blue heron	ST	Freshwater and estuarine wetlands
<i>Egretta tricolor</i>	Tricolored heron	ST	Freshwater and estuarine wetlands
<i>Haliaeetus leucocephalus</i>	Bald eagle	*	Estuarine, lacustrine, riverine, tidal marsh, tall trees or structures for nesting
<i>Pandion haliaetus</i>	Osprey	**	Estuarine, lacustrine, riverine, tidal marsh, tall trees or structures for nesting
<i>Rostrhamus sociabilis plumbeus</i>	Snail kite	FE	Lowland freshwater marshes and littoral shelves of lakes
<i>Ammodramus savannarum floridanus</i>	Florida grasshopper sparrow	FE	Large, treeless, relatively poorly drained grasslands with history of frequent fire
<u>Mammals</u>			
<i>Eumops floridanus</i>	Florida bonneted bat	FE	Cavities in natural and manmade structures
<i>Puma concolor coryi</i>	Florida panther	FE	Swamps, tropical hammocks, pine flatwoods, cabbage palm forests, sawgrass

			marshes, Brazilian pepper thickets
<i>Perimyotis subflavus</i>	Tricolored bat	P	Cavities in structures, trees, and land formations
<i>Ursus americanus floridanus</i>	Florida black bear	***	Flatwoods, swamps, scrub oak ridges, bayheads
<u>Invertebrates</u>			
<i>Danaus Plexippus</i>	Monarch butterfly	P	Diversity of blooming nectar plants, specifically milkweed
<u>Plants</u>			
<i>Calamintha ashei</i>	Ashe's savory	ST	Sandhills, sandy disturbed areas
<i>Nolina atopocarpa</i>	Florida Beargrass	ST	Wet flatwoods
<i>Nolina brittoniana</i>	Britton's beargrass	FE	Scrub, sandhill, scrubby flatwoods, xeric hammocks
<i>Calopogon multiflorus</i>	Many-flowered grass-pink	ST	Dry to moist flatwoods
<i>Centrosema arenicola</i>	Sand butterfly pea	SE	Sandhill, scrubby flatwoods, dry upland woods
<i>Coelorachis tuberculosa</i>	Piedmont jointgrass	ST	Depressional marshes, margins of sandhill upland lakes, ephemeral ponds
<i>Lechea cernua</i>	Nodding pinweed	ST	Scrub and Scrubby flatwoods
<i>Coleataenia abscissa</i>	Cutthroatgrass	SE	Wet flatwoods, prairies, seepage areas
<i>Linum carteri var. smallii</i>	Small's flax	SE	Pine rocklands, pine flatwoods, adjacent disturbed areas

<i>Nemastylis floridana</i>	Celestial lily	SE	Marshes, Prairies, cabbage palm hammock edge, wet flatwoods
<i>Platanthera integra</i>	Yellow fringeless orchid	SE	Seepage slopes, open wet prairies and wetland flatwoods, wet pine barren, peaty depressions
<i>Pteroglossaspis ecristata</i>	Giant orchid	ST	Sandhill, pine flatwoods, scrub
<i>Lilium catesbaei</i>	Pine lily	ST	Mesic flatwoods, dry prairies, wet prairie
<i>Polygonella basiramia</i>	Florida jointweed	SE	Sand pine scrub
<i>Tillandsia fasciculata</i>	Cardinal wild-pine	SE	Hammocks, flatwoods, swamps, the periphery of basin marshes and sloughs
<i>Tillandsia utriculata</i>	Giant wild-pine	SE	Pinelands, cypress swamps, dry and mesic hammocks
<p>Status¹: FT = Federally Threatened; FE = Federally Endangered SE = State Endangered; ST=State Threatened; P = Proposed for Federal Listing</p> <p>* The bald eagle is afforded federal protection through the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.</p> <p>** The osprey is no longer listed as a threatened, however it is still protected under the Migratory Bird Treaty Act.</p> <p>*** The Florida black bear is no longer listed as threatened, however it is still protected under the FWC Florida Black Bear Management Plan. This species has a significant vulnerability to habitat modification, environmental alteration, human disturbance, or human exploitation which, in the foreseeable future may result in becoming a threatened species unless appropriate protective/management techniques are initiated/maintained.</p>			

A rating system was formulated for the purpose of comparing each pond site that was reviewed. A rating of “No”, “Low”, “Medium” or “High” is provided to identify the potential for protected species involvement associated with the stormwater pond sites. The rating system was dependent

on (1) the current existing habitat; (2) its general condition for supporting protected wildlife; (3) if any T&E species were observed in the area; and (4) whether species mitigation is possible and reasonable to offset any impacts should that pond site be selected. Sites with no available habitat such as fully developed properties, were designated a rating of “No”. Sites with marginal habitat and no observed protected species were designated a rating of “Low”. Sites with moderate habitat and in which protected species could reasonably occur were designated with a rating of “Medium”. Sites with high quality habitat and in which protected species were observed or would be reasonably expected to occur were designated a rating of “High”. A high-level cost estimate is included for pond sites that impact listed species for which a cost would be applied for species conservation or mitigation.

Considering wetlands, ratings were based on the proportion of the pond’s footprint that is comprised of wetlands: a rating of “No” means 0 percent (%); a rating of “Low” is assigned for percentages between 1 and 24%; a “Medium” rating is for wetland composition between 25 and 49%; and a “High” rating is for assigned to any pond with wetland composition equal to or greater than 50%. To assist with an overall assessment of pond site cost, a wetland mitigation cost was estimated for each pond site. To calculate these costs, a representative delta score of 0.43 and wetland mitigation bank cost per dual (State and Federal) credit of \$180,000 was used for all wetland impacts. A summary of costs and ratings can be seen in **Table 2**, Pond Siting T&E and Wetlands Table.

Table 2. Pond Siting T&E and Wetlands Table

Pond Alternative	Mapped Land Use / FLUCFCS Code		Wetlands / Surface Waters			Potential Protected Species that would Utilize Habitat	Species Rating	Species Mitigation Cost**	Wetland Rating
	Type	Code	Wetland Impacts (acres)	% Coverage of Site	Wetland Mitigation Cost *				
Pond 1A 5.7 ac	Improved Pastures; Woodland Pastures; Streams and Waterways; Wet Prairies	2110; 2130; 5100; 6430	0.36	6	\$27,864	crested caracara, wading birds, and Florida sandhill crane	Medium	\$0	Low
Pond 1B 5.9 ac	Improved Pastures; Woodland Pastures; Streams and Waterways	2110; 2130; 5100	0.19	3	\$14,706	crested caracara, wading birds, and Florida sandhill crane	Medium	\$0	Low
Pond 1C 5.7 ac	Improved Pastures; Wet Prairies; Emergent Aquatic Vegetation	2110; 6430; 6440	1.41	25	\$109,134	crested caracara, wood stork, wading birds, and Florida sandhill crane	Medium	\$0	Medium
Pond 2A 5.5 ac	Unimproved Pastures; Streams and Waterways; Freshwater Marshes	2120; 5100; 6410	1.40	25	\$108,360	wood stork, crested caracara, wading birds and Florida sandhill crane	Medium	\$0	Medium
Pond 2B 3.6 ac	Brazilian Pepper; Wetland Scrub	4220; 6310	0.73	20	\$56,502	crested caracara	Medium	\$0	Low
Pond 2C 1.7 ac	Unimproved Pastures	2120	none	0	\$0	crested caracara and Florida sandhill crane	Medium	\$0	No
Pond 3A 8.2 ac	Improved Pastures; Streams and Waterways	2110; 5100	0.04	0.5	\$3,096	gopher tortoise and Eastern indigo snake	Low	\$0	Low
Pond 3B 7.8 ac	Improved Pastures; Dikes and Levees	2110; 7470	none	0	\$0	crested caracara and Florida sandhill crane	Low	\$0	No
Pond 3C 8.3 ac	Improved Pastures; Dikes and Levees	2110; 7470	none	0	\$0	crested caracara and Florida sandhill crane	Low	\$0	No
Pond 4A 7.5 ac	Improved Pastures; Streams and Waterways	2110; 5100	0.01	0.1	\$774	crested caracara, gopher tortoise, Eastern indigo snake and Florida pine snake	Medium	\$0	Low
Pond 4B 8.8 ac	Improved Pastures; Streams and Waterways; Wet Prairies	2110; 5100; 6430	0.39	4	\$30,186	crested caracara, wading birds, wood stork and Florida sandhill crane	Low	\$0	Low
Pond 4C 9.6 ac	Improved Pastures	2110	none	0	\$0	crested caracara, gopher tortoise and Eastern indigo snake	High	\$0	No
Pond 5A 8.6 ac	Improved Pastures	2110	none	0	\$0	crested caracara, bald eagle, kestrel, gopher tortoise, Eastern indigo snake and Florida sandhill crane	Medium	\$25,000	No
Pond 5B 10.2 ac	Improved Pastures; Sod Farms; Streams and Waterways; Freshwater Marshes	2110; 2420; 5100; 6410	2.63	26	\$203,562	crested caracara, wood stork, wading birds, and Florida sandhill crane	Medium	\$10,000	Medium
Pond 5C 8.6 ac	Improved Pastures; Streams and Waterways	2110; 5100	0.17	2	\$13,158	crested caracara, wood stork, wading birds, Florida sandhill crane, gopher tortoise and Eastern indigo snake	Low	\$0	Low
Pond 6A 7.0 ac	Improved Pastures; Streams and Waterways	2110; 5100	0.30	4	\$23,220	crested caracara, bald eagle, kestrel, and Florida sandhill crane	High	\$100,000	Low
Pond 6B 7.5 ac	Row Crops	2140	none	0	\$0	gopher tortoise and Eastern indigo snake	Low	\$0	No
Pond 6C 6.9 ac	Improved Pastures; Row Crops; Streams and Waterways	2110; 2140; 5100	0.27	4	\$20,898	crested caracara, wading birds, wood stork and Florida sandhill crane	Low	\$0	Low
Regional Basin 6 Area 164.28 ac	Improved Pastures; Unimproved Pastures; Woodland Pastures; Cabbage Palm; Freshwater Marshes; Wet Prairies	2110; 2120; 2130; 4280; 6410; 6430	none	0	\$0	crested caracara, wading birds, bald eagle, wood stork and Florida sandhill crane	No	\$0	No
Pond 7A 10.3 ac	Improved Pastures	2110	none	0	\$0	gopher tortoise, Eastern indigo snake and pine snake	Medium	\$25,000	No

Pond 7B 10.4 ac	Improved Pastures	2110	none	0	\$0	gopher tortoise and Eastern indigo snake	Low	\$0	No
Pond 7C 9.5 ac	Improved Pastures	2110	none	0	\$0	gopher tortoise and Eastern indigo snake	Low	\$0	No
Pond 8A 13.2 ac	Improved Pastures; Woodland Pastures; Shrub and Brushland; Streams and Waterways	2110; 2130; 3200; 5100	0.25	2	\$19,350	bald eagle, osprey, wading birds, Florida sandhill crane, gopher tortoise and Eastern indigo snake	Medium	\$0	Low
Pond 8B 9.6 ac	Mixed Wetland Hardwoods; Spoil Area	6170; 7430	0.03	0.3	\$2,322	crested caracara, wood stork, wading birds, and Florida sandhill crane gopher tortoise and Eastern indigo snake	Medium	\$0	Low
Pond 8C 10.4 ac	Horse Farms	2510	none	0	\$0	bald eagle, crested caracara, gopher tortoise and Eastern indigo snake	Medium	\$0	No
* = \$180,000 per credit was used to calculate estimated mitigation cost based on dual (state/federal) credit cost provided by Lake Istokpoga mitigation bank in July 2025. **=Species mitigation costs are approximate based on past FDOT projects involving caracara and tortoise relocation fees and permits.									

RESULTS

Habitat exists for some of the T&E species as most of the pond site locations are in undeveloped areas or in undeveloped portions of low-density development (see **Figure 2**). Three active caracara nests were identified within this project corridor during the 2023 survey season. Several pond sites are located within the 300-meter primary protection buffer, in which any conversion of habitat/land use requires mitigation. Additionally, proposed work that would impact a nest tree or be situated in very close proximity to a nest tree would require heightened mitigation need. Habitat conversion within the 1,500-meter secondary protection zone generally does not require mitigation. Proposed pond sites that contain wetlands or surface waters could support the wood stork and other wading birds. Impacts to wood stork suitable foraging habitat and wading bird foraging habitat will be mitigated through credit purchase from Lake Istokpoga mitigation bank. While this bank does not fall within any wood stork core foraging areas, it is currently the only fully permitted (state and federal) wetland mitigation bank available to the project. The project lies within the Thatcher Dispersal Pathways for the Florida panther and potential habitat is present, however, habitat mitigation was not required due to the footprint being located outside of the Panther Focal Areas and the lack of panther observations within two miles of the area in the last two years. The project footprint falls entirely within the consultation area for the Florida bonneted bat (*Eumops floridanus*) (FBB), however, an acoustic survey conducted in May 2024 determined that the FBB was not present within the project area. If any of the selected pond sites are found to contain potential roost trees (mature trees that are greater than 33 feet tall containing cavities, as per the 2019 guidelines) or artificial structures like buildings and utility poles that will require removal, roost surveys must be conducted within 30 days prior to removal. Additionally, some of the proposed pond locations were found to feature well-drained soils which the Eastern indigo snake (*Drymarchon corais couperi*) and gopher tortoise (*Gopherus polyphemus*) prefer. Listed and protected species found within the project area are depicted in **Figure 5**.

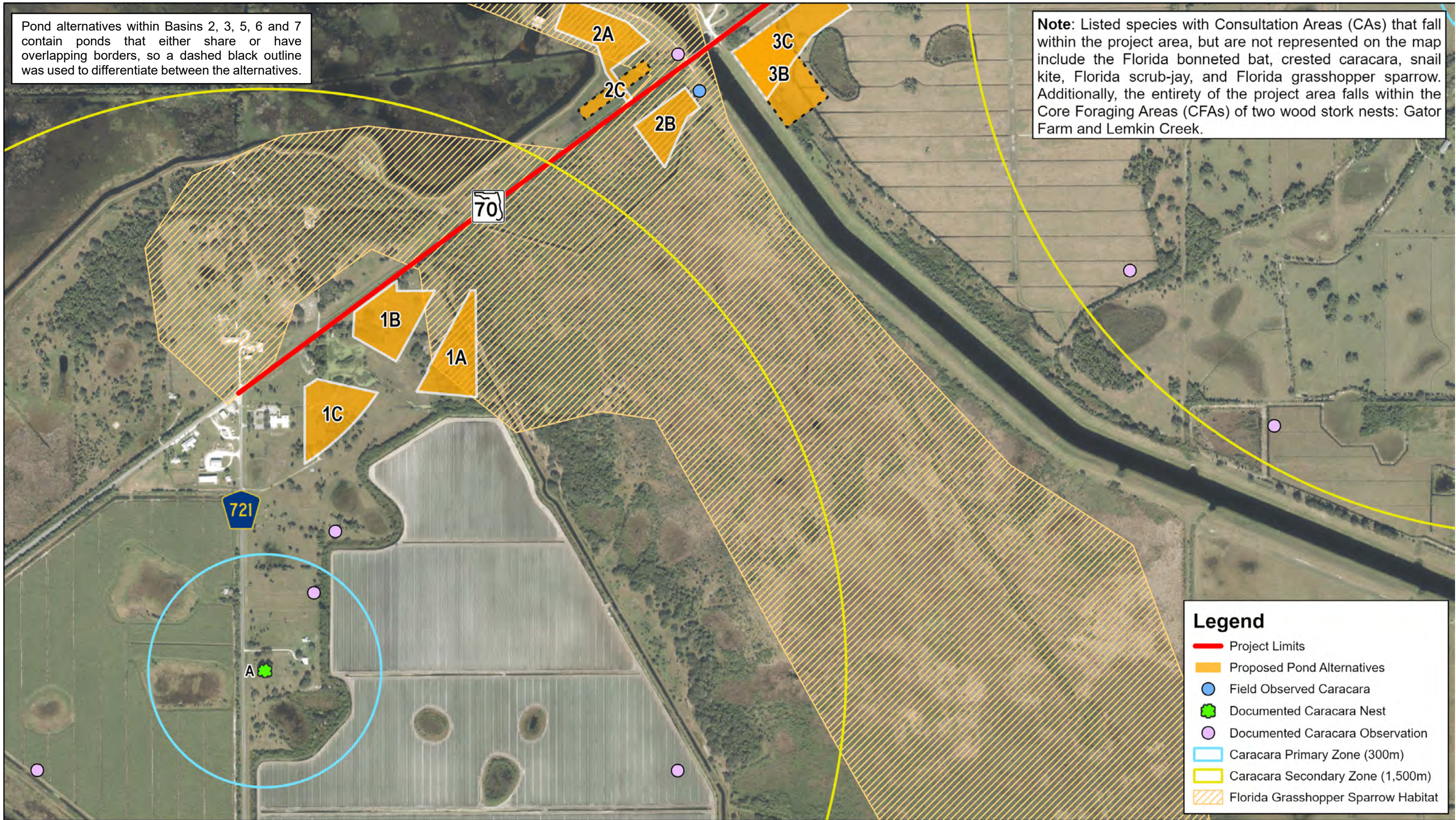


Figure 5. Listed and Protected Species Map
 Sheet 1 of 4
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023



0 0.2 0.4
 Miles

Pond alternatives within Basins 2, 3, 5, 6 and 7 contain ponds that either share or have overlapping borders, so a dashed black outline was used to differentiate between the alternatives.

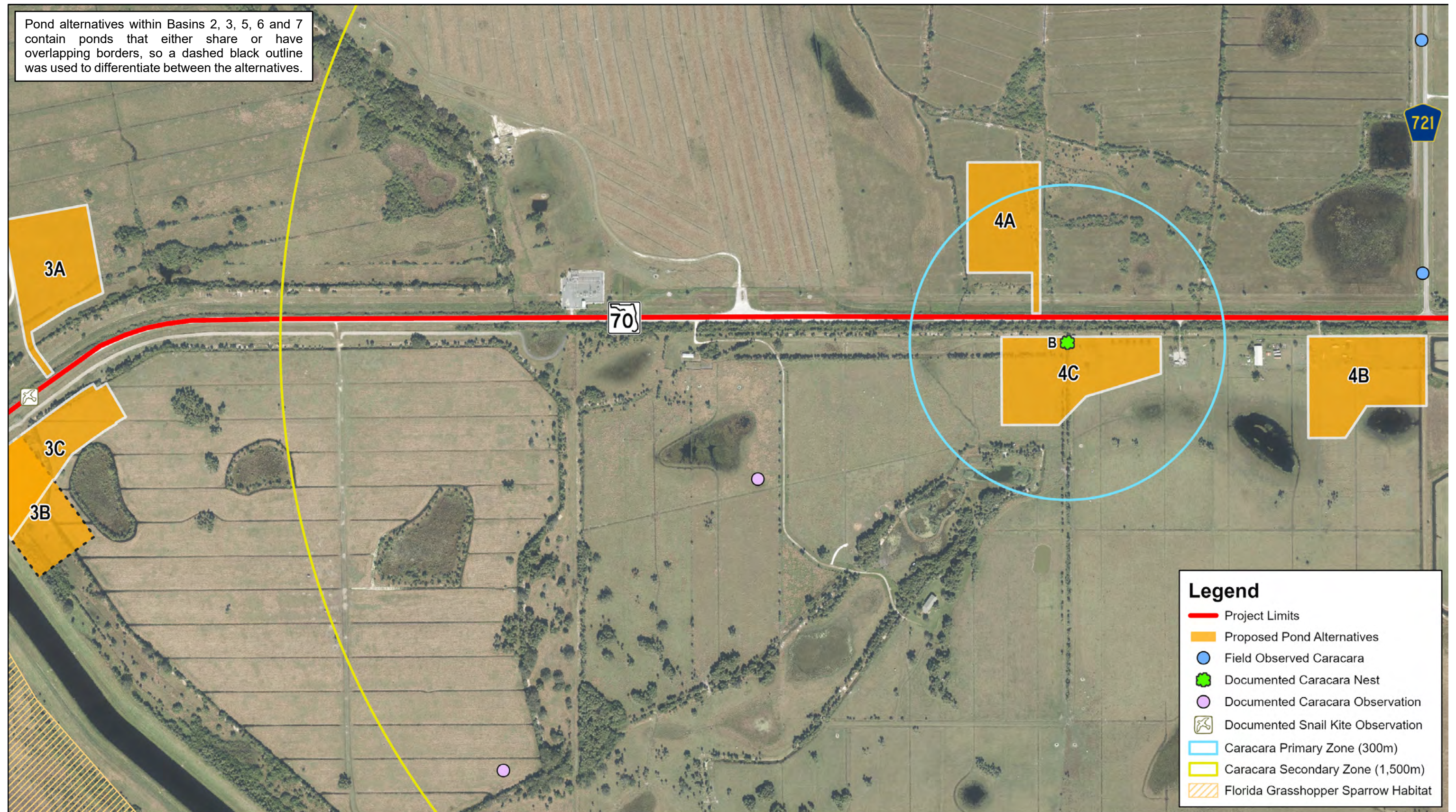


Figure 5. Listed and Protected Species Map
 Sheet 2 of 4
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023



0 0.15 0.3
 Miles

Pond alternatives within Basins 2, 3, 5, 6 and 7 contain ponds that either share or have overlapping borders, so a dashed black outline was used to differentiate between the alternatives.

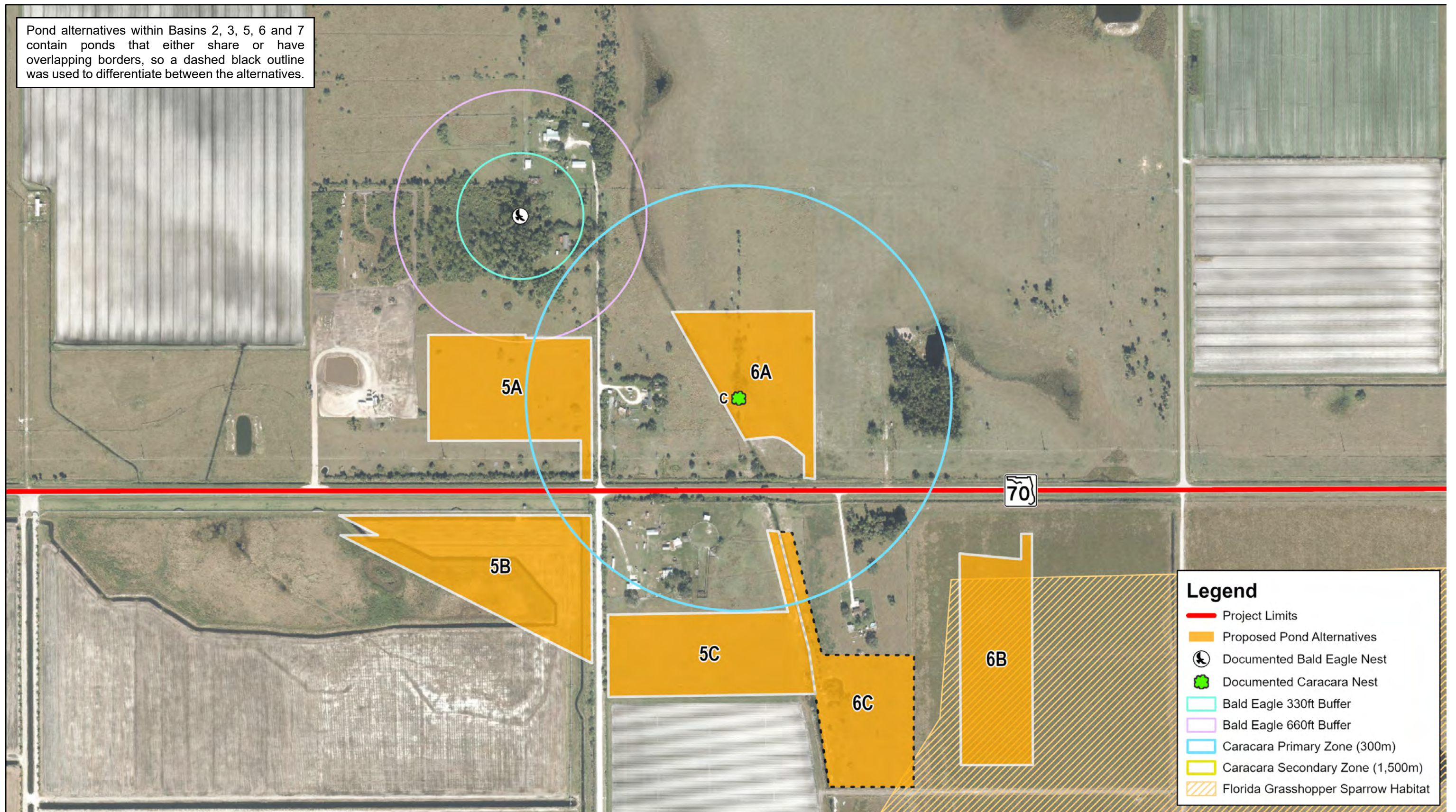


Figure 5. Listed and Protected Species Map
Sheet 3 of 4
FPID No. 450334-1-22-01
SR 70 from CR 721 South to CR 559/128 Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023

0 0.1 0.2
Miles



Pond alternatives within Basins 2, 3, 5, 6 and 7 contain ponds that either share or have overlapping borders, so a dashed black outline was used to differentiate between the alternatives.



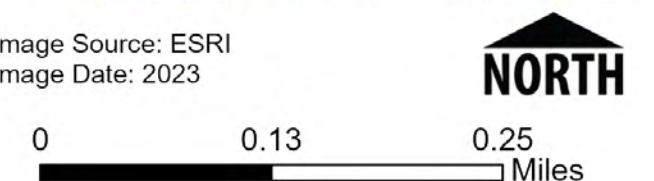
Legend

- Project Limits
- Proposed Pond Alternatives
- Field Observed Gopher Tortoise Burrow
- Field Observed Osprey Nest
- Documented Caracara Observation
- Florida Grasshopper Sparrow Habitat



Figure 5. Listed and Protected Species Map
 Sheet 4 of 4
 FPID No. 450334-1-22-01
 SR 70 from CR 721 South to CR 559/128 Avenue
 Highlands and Okeechobee Counties

Image Source: ESRI
 Image Date: 2023



Pond Descriptions

Pond 1A (5.7 acres; 6% wetland) is located south of SR 70 and east of CR 721S. Most of the pond site is composed of Improved Pastures (FLUCFCS 2110) with a few small areas coded as Woodland Pastures (FLUCFCS 2130) and Wet Prairies (FLUCFCS 6430) along the outer boundaries. Additionally, there is a drainage canal, coded as Streams and Waterways (FLUCFCS 5100) that runs through the eastern side of the pond. Desktop data collection and field reviews identified a small portion of the pond to contain an herbaceous wetland, and the pasture contained canopy cover. Since minimal wetlands were present, the site was given a wetland rating of “Low”. The site falls within Caracara Nest A’s secondary protection zone and provides moderate wildlife habitat for the caracara and other species; therefore, it was given the species rating of “Medium”. No burrows or any listed or protected species were observed within the pond footprint.

Pond 1B (5.9 acres; 3% wetland) is located east of CR 721S and directly south of SR 70 westbound right-of-way. It is composed of Improved Pastures, Wet Prairies and Streams and Waterways. Desktop data collection and field reviews identified a roadside ditch that runs through the northern boundary of the pond. Since minimal wetlands were present, the site was given a wetland rating of “Low”. The site falls within Caracara Nest A’s secondary protection zone and provides moderate wildlife habitat for other listed and protected species; therefore, it was given the species rating of “Medium”. No burrows or any listed or protected species were observed within the pond footprint.

Pond 1C (5.7 acres; 25% wetland) is located south of SR 70 and east of CR 721S, directly behind the Lykes Brothers building. It is composed of Improved Pastures, Wet Prairies and Emergent Aquatic Vegetation (FLUCFCS 6440). Desktop data collection and field reviews identified a quarter of the pond to contain herbaceous wetlands. Since wetlands were present, the site was given a wetland rating of “Medium”. The site falls within Caracara Nest A’s secondary protection zone and provides moderate foraging habitat; therefore, it was given the species rating of “Medium”. No burrows or any listed or protected species were observed within the pond footprint.

Pond 2A (5.5 acres; 25% wetland) is located north of SR 70, directly west of Canal C-41 A and overlaps Pond 2C. Most of the pond is mapped as Unimproved Pastures (FLUCFCS 2120), with a small portion of the pond mapped as Streams and Waterways due to a ditch that runs through the center of the pond. Additionally, a quarter of the pond is mapped as a Freshwater Marsh

(FLUCFCS 6410). No burrows or any listed or protected species were observed within the pond site, but a caracara was observed approximately 280 feet outside of the footprint and the wetland provides suitable foraging habitat. Due to the nearby observation and moderate wildlife habitat present, the site was given the species rating of “Medium”. Since the percentage of the pond classified as a wetland is greater than 24%, the site was given a wetland rating of “Medium”.

Pond 2B (3.6 acres; 20% wetland) is located south of SR 70, directly west of Canal C-41A, and is mapped mostly as Brazilian Pepper (FLUCFCS 4220), with a small portion to the west mapped as Wetland Scrub (FLUCFCS 6310). With less than 24% of the site being classified as a wetland, the site was given a wetland rating of “Low”. The site has limited wildlife habitat value due to the presence of the nuisance exotic species, Brazilian pepper and no burrows or species were observed within the pond footprint. However, a caracara was observed less than 100 feet from the outer boundary of the pond during a field survey in 2023 and therefore the site was given a species rating of “Medium”.

Pond 2C (1.7 acres; 0% wetland) is located north of SR 70, directly west of Canal C-41 A and overlaps Pond 2A. The entirety of the pond is mapped as Unimproved Pastures. No burrows or any listed or protected species were observed within the pond site, but a caracara was observed approximately 300 feet outside of the footprint. Due to the nearby observation and moderate wildlife habitat present for other listed and protected species, the site was given the species rating of “Medium”. No wetlands are present; therefore, the site was given a wetland rating of “No”.

Pond 3A (8.2 acres; 0.5% wetland) is located north of SR 70 and is mapped as almost entirely Improved Pastures with a very small portion coded as Streams and Waterways. The site is dominated by Bahia grass (*Paspalum notatum*) and is located on hydric soils. In 2018, a snail kite was observed less than 200 feet outside of the pond footprint however the pond itself does not contain any suitable habitat for the species. There is one ditch present within the pond site, however it is unlikely to provide suitable foraging habitat as it is heavily vegetated and not consistently inundated with water therefore the site was given the species rating of “Low”. Minimal wetlands are present; therefore, the site was given a wetland rating of “Low”.

Pond 3B (7.8 acres; 0% wetland) is located south of SR 70, directly east of Canal C-41A and overlaps Pond 3C. The pond is comprised mostly of Improved Pastures with a small portion of its western boundary classified as Dikes and Levees (FLUCFCS 7470). No wetlands are present

therefore the site was given a wetland rating of “No”. Minimal habitat for listed and protected species is present within the pond. Additionally, no listed species were observed or documented within or near the pond footprint therefore the site was given a species rating of “Low”.

Pond 3C (8.3 acres; 0% wetland) is located south of SR 70, directly east of Canal C-41A and overlaps Pond 3B. The pond is comprised mostly of Improved Pastures with a small portion of its western boundary classified as Dikes and Levees. The site was given a wetland rating of “No” as there are no wetlands present within the footprint. In 2018, a snail kite was observed less than 200 feet outside of the pond footprint however the pond itself does not contain any suitable habitat for the species. Since no other listed species were observed or documented within or near the pond footprint and the site does not provide a reasonable amount of suitable habitat, the site was given a species rating of “Low”.

Pond 4A (7.5 acres; 0.1% wetland) is located north of SR 70 and is mapped almost entirely as Improved Pastures with one small area mapped as Streams and Waterways due to a roadside ditch that runs through the outer edge of the pond. Minimal wetlands are present; therefore, the site was given a wetland rating of “Low”. The site is predominantly open land that is sparsely vegetated with shrubby trees and some sandy soils. No species observations were made within the pond site; however, majority of the pond falls within the primary zone of a documented caracara nest (2022) and wholly within the secondary zone; it was therefore given a species rating of “Medium”. No species mitigation costs are presumed for this pond site as the nearby caracara nest will be impacted by the roadway improvements regardless of this pond being selected.

Pond 4B (8.8 acres; 4% wetland) is located south of SR 70 and is mapped mostly as Improved Pastures (FLUCFCS 2110) with a small area to the south mapped as Wet Prairies and a portion of the northern and eastern limits mapped as Streams and Waterways. Minimal wetlands are present; therefore, the site was given a wetland rating of “Low”. The site is predominantly open land with a few shrubby trees. The wetland at the southern limit of the pond does provide suitable foraging habitat for wood storks, wading birds and Florida sandhill cranes therefore the site was given a species rating of “Low”.

Pond 4C (9.6 acres; 0% wetland) is located south of SR 70 and is mapped entirely as Improved Pastures. The site does not contain any wetlands and therefore it was given a wetland rating of “No”. No listed species were observed during field surveys, however, the open land within the site

and several strings of cabbage palms provides habitat for the caracara and other species. Additionally, a crested caracara nest was documented in 2022 in one of the cabbage palms at the edge of the pond site, placing the entire site within its primary protection zone but more importantly, resulting in the need to remove this nest tree. Due to the presence of a federally listed species within the pond, and a known habitat mitigation requirement for the taking of this nest tree, the site has been given a species rating of “High”. No species mitigation costs are presumed for this pond site as the nearby caracara nest will be impacted by the roadway improvements regardless of this pond being selected.

Pond 5A (8.6 acres; 0% wetland) is located northwest of the intersection at NW Boney Lane and SR 70 and is mapped as Improved Pastures. No wetlands are present; therefore, the site was given a wetland rating of “No”. The 660-foot secondary protection buffer, but not the 330-foot primary buffer, for nest HI015 intersects with the outer boundary of pond 5A, however, this nest was not observed during a recent field visit on May 4, 2024, and a local resident indicated it was no longer present. Additionally, the site falls partially within the primary protection zone of a documented caracara nest therefore, the site was given the species rating of “Medium”. Construction cannot occur within the primary protection zone during the bald eagle nesting season and only within the secondary protection zone if confirmed to not impact eagle nesting. If these construction precautions cannot be followed, an eagle take permit must be obtained from the USFWS.

Pond 5B (10.2 acres; 26% wetland) is located southwest of the intersection at Fulmar Terrace and SR 70 and is mapped as Sod Farms (FLUCFCS 2420), Improved Pastures, Streams and Waterways (FLUCFCS 5100) and Freshwater Marshes (FLUCFCS 6410). Over 24% of the pond site contains wetlands, therefore it was given a wetland rating of “Medium”. No species were observed during field reviews; however, the irrigation canal and wetland do provide some suitable foraging habitat for the wood stork, Florida sandhill crane and wading birds. Additionally, there is a documented crested caracara nest 950 feet from the pond footprint, resulting in a small portion of the northern segment of the pond to fall within its primary zone. Therefore, the site was given a species rating of “Medium”.

Pond 5C (8.6 acres; 2% wetland) is located southeast of the intersection at Fulmar Terrace and SR 70 and is mapped as Improved Pastures and Streams and Waterways). A ditch running along the eastern boundary of the pond provides some foraging habitat for the wood stork, Florida

sandhill crane and wading birds. Additionally, the pond site contains some sandy soil that could be suitable for the gopher tortoise however none were observed during field reviews. There is a documented caracara nest 630 feet from the pond footprint, placing the northern segment of the pond within its primary protection zone. This segment would contain a drainage easement and buried pipe which will not change the habitat type therefore, the site was given a species rating of “Low”. Minimal wetlands are present; therefore, the site was given a wetland rating of “Low”.

Pond 6A (7.0 acres; 4% wetland) is located north of SR 70 and is mapped as Improved Pastures and Streams and Waterways. Minimal wetlands are present; therefore, the site was given a wetland rating of “Low”. Most of the site is open land, however, a cluster of tall trees, consisting of cabbage palms and a few pine trees, is present within the site and provides moderate habitat for some listed and protected species. In 2022, a crested caracara nest was documented in one of the cabbage palms at the edge of the pond site, placing the entire site within its primary protection zone but more importantly, resulting in the need to remove this nest tree if the pond is selected. Due to the presence of a federally listed species within the pond, and a known habitat mitigation requirement for the taking of this nest tree, the site has been given a species rating of “High”.

Pond 6B (7.5 acres; 0% wetland) is located south of SR 70. It is mapped entirely as Row Crops (FLUCFCS 2140) and contains no wetlands, giving the site a wetland rating of “No”. The pond provides minimal habitat for listed or protected species and none were observed within the pond footprint or nearby during field surveys. Therefore, the site has been given a species rating of “Low”.

Pond 6C (6.9 acres; 4% wetland) is located south of SR 70, directly adjacent to Pond 5C. It is mapped as Improved Pastures, Row Crops and Streams and Waterways. Minimal wetlands are present, giving the site a wetland rating of “Low”. The pond provides minimal habitat for listed or protected species aside from some foraging habitat present within a ditch that runs along the western side of the pond and no listed species were observed within the pond footprint or nearby during field surveys. Additionally, there is a documented caracara nest 650 feet from the pond footprint, placing the northern segment of the pond within its primary protection zone. This segment would contain a drainage easement and buried pipe which will not change the habitat type therefore, the site was given a species rating of “Low”.

Regional Basin 6 Area (164.3 acres; 0% wetland) is located far south of SR 70, directly above Canal C-41A and is mapped as Improved and Unimproved Pastures, Woodland Pastures, Cabbage Palm (FLUCFCS 2130), Freshwater Marshes and Wet Prairies. This is a regional area that is also being evaluated to serve as an alternative to the three ponds within Basin 6. This site would serve as a “natural” stormwater site requiring no land clearing, excavation, etc. Since this area would look the same in the post-project condition and is not expected to cause any environmental impacts, it was given a wetland and species rating of “No”.

Pond 7A (10.3 acres; 0% wetland) is located at the northwest quadrant of the intersection of NW Riverside Road and SR 70, directly west of the Kissimmee River Fishing Resort, and is mapped as Improved Pastures (FLUCFCS 2110). None of the pond site was identified as wetland; therefore, the site was given a wetland rating of “No”. The pond is made up of non-hydric soils with sandy patches, providing moderate habitat for the Eastern indigo and pine snake and the gopher tortoise. During a recent field visit on October 24, 2023, three potentially occupied burrows and one occupied burrow were observed within the pond site. The site has suitable wildlife habitat for gopher tortoises and other commensal species, but these species could be relocated prior to construction; therefore, it was given the species rating of “Medium”. If this pond site is selected, FDOT will obtain a relocation permit from the Florida Fish and Wildlife Conservation Commission (FWC) for this project prior to construction and/or include exclusionary silt fencing where applicable.

Pond 7B (10.4 acres; 0% wetland) is south of SR 70 and directly west of the Kissimmee River. It is mapped entirely as Improved Pastures. No wetlands are present within the site therefore it has been given a wetland rating of “No”. Since no listed or protected species were observed during field surveys and minimal suitable habitat is present, the site has been given a species rating of “Low”.

Pond 7C (9.5 acres; 0% wetland) is south of SR 70 and overlaps Pond 7B. It is mapped as Improved Pastures and contains no wetlands; therefore the site was given a wetland rating of “No”. The site was given a species rating of “Low” since no listed or protected species were observed during field surveys and minimal suitable habitat is present.

Pond 8A (13.2 acres; 2% wetland) is located northwest of the intersection at NW 141st Avenue and SR 70. The site is mapped as Improved Pastures, Woodland Pastures, Shrub and Brushland

(FLUCFCS 3200) with a small portion mapped as Streams and Waterways (FLUCFCS 5100) due to a roadside ditch that runs through the southern limits of the site. While no listed or protected species were found within the pond site, a caracara was observed 280 feet outside of the project footprint. Additionally, the non-hydric soils, vegetation and wooded areas within the site provide moderate habitat for species including eagle, caracara and gopher tortoise and therefore the site was given a species rating of “Medium”. Due to only a small area of the pond being classified as a wetland or surface water, the pond was given a wetland rating of “Low”.

Pond 8B (9.6 acres; 0.3% wetland) is located south of SR 70, directly adjacent to the Kissimmee River and is mapped as Mixed Wetland Hardwoods and Spoil Area (FLUCFCS 6170 and 7430). Since the site features a very small mixed wetland hardwoods forest, it was giving it a wetland rating of “Low”. While no listed or protected species were found within the pond footprint, majority of the site is comprised of sandy soils, providing suitable habitat for potential species such as gopher tortoise and Florida pine snake. The site provides moderate habitat in which protected species could reasonably occur and was therefore given a species rating of “Medium.”

Pond 8C (10.4 acres; 0% wetland) is located southeast of the intersection at SW 144th Parkway and SR 70 and is mapped as Horse Farms (FLUCFCS 2510). No wetlands are present; therefore, the site was given a wetland rating of “No”. The site contains non-hydric soils with sandy patches and scattered cabbage palms, providing moderate habitat for both listed and protected species. While no listed or protected species were observed within the pond, it could support caracara, eagle, and gopher tortoise. Due to the presence of listed species being reasonably likely to occur within the site, it was given a species rating of “Medium”.

CONCLUSIONS AND RECOMMENDATIONS

Listed Species

Regional Basin 6 Area was documented as having a rating of “No” for listed and protected species involvement. Pond sites 3A, 3B, 3C, 4B, 5C, 6B, 6C, 7B and 7C were documented as having ratings of “Low”. Pond sites 1A, 1B, 1C, 2A, 2B, 2C, 4A, 5A, 5B, 8A, 8B and 8C were documented as “Medium”, and pond sites 4C, 6A and 7A had a rating of “High” due to the documented observance of a listed or protected species and/or species nest within the pond footprint. Almost all pond sites have potential to support the FBB, either with foraging or roosting habitat, but a species-specific survey conducted in May 2024 did not identify this species. Gopher tortoise

burrows were identified within Pond 7A and are likely to occur in non-hydric soils with low-lying vegetation. A 100% gopher tortoise burrow survey will be conducted within all appropriate habitat prior to construction, and burrows will be avoided or relocated as needed. A gopher tortoise relocation permit could be required for any unavoidable impacts. The Eastern Indigo Snake Standard Protection Measures will be followed during construction and a suitable habitat analysis for the wood stork will be provided to determine biomass lost from surface water impacts. The placement of stormwater ponds is not anticipated to adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats, since prior to construction species-specific surveys will be conducted to identify any burrows, nest, or roosting areas which would be protected through avoidance, relocation, or mitigation. The results of the analysis are summarized in Table 2, Pond Siting T&E and Wetlands Table.

Wetlands

The pond site alternatives that were documented as having a rating of “No” include Ponds: 2C, 3B, 3C, 4C, 5A, 6B and Regional Basin 6 Area. Ponds with ratings of “Low” include Ponds 1A, 1B, 2B, 3A, 4A, 4B, 5C, 6C, 8A and 8B. Pond sites 1C, 2A, 5B and 6A have a rating of “Medium”. No sites were given a wetland rating of “High”. All measures will be taken to avoid or minimize wetland and water quality impacts during the final pond site design, resulting in minimal net loss of wetland habitat that may be used for species foraging, breeding, nesting, or other biological processes. The results of the analysis are summarized in Table 2, Pond Siting T&E and Wetlands Table.

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Appendix K

Preliminary Cultural Resource Assessment Probability Analysis

**PRELIMINARY CULTURAL RESOURCE ASSESSMENT
PROBABILITY ANALYSIS**

PROPOSED POND SITES

**STATE ROAD (SR) 70
FROM COUNTY ROAD (CR) 721 SOUTH TO CR 599/128TH AVENUE
HIGHLANDS AND OKEECHOBEE COUNTY, FLORIDA**

**FPID No.: 450334-1-22-01
Federal Aid No.: D123-018-B**

Prepared for:

**Florida Department of Transportation
District One
801 North Broadway Avenue
Bartow, Florida 33830**

July 2025

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July 2025

1.0 INTRODUCTION

The Florida Department of Transportation (FDOT), District One is conducting a Project Development and Environment (PD&E) study to address traffic safety conditions on State Road (SR) 70 from County Road (CR) 721 South to CR 599/128th Avenue in Highlands and Okeechobee Counties, Florida. Other goals of the project are to maintain important east-west connectivity within the regional transportation network and accommodate freight activity within the area. This roadway project proposes the widening of a two-lane facility up to a four-lane divided facility and/or the inclusion of operational improvements along 8.6 miles of SR 70. Travel lane widths may be widened from 10 feet (ft) to 12 ft as part of the project. Multimodal facilities will also be considered along the project segment, where appropriate. This project was reviewed through the Environmental Screening Tool (EST) as part of the Efficient Transportation Decision Making (ETDM) Programming Screen Phase (ETDM #14491; FDOT 2023).

This preliminary pond analysis was conducted as part of the SR 70 Improvements. As part of the study, 24 pond sites, a regional pond, easements and/or pond outfall alternatives are being evaluated, herein collectively referred to as pond sites (**Figure 1**). Since the pond siting assessment is at the PD&E phase, some footprint buffers were added to cover potential small shifts in the sites through further design evaluation. The proposed pond sites are located in Highlands and Okeechobee Counties.

The purpose of this study was to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the proposed pond sites associated with drainage improvements as a result of alignment improvements to SR 70. Known or potentially significant cultural resources are defined as those sites that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places (NRHP). All work was conducted in compliance with the provisions of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665), as amended, and the implementing regulations *36 Code of Federal Regulations (CFR) 800*, as well as with the provisions contained in the revised Chapter 267, *Florida Statutes (FS)*.

The study methodology included a review of Florida Master Site File (FMSF) records, NRHP listings, relevant Cultural Resource Assessment Survey (CRAS) reports, the ETDM Project Report #14491 (FDOT 2023), the United States Department of Agriculture's (USDA) *Soil Survey of Highlands County, Florida* (USDA 1989) and *Soil Survey of Okeechobee County, Florida* (USDA 1971), as well as the United States Geological Survey (USGS) Brighton and Okeechobee NW quadrangle maps (USGS 1953a, b).

The preliminary study indicated that no previously recorded pre-Contact or historic period archaeological site is within any pond site but nine are located within one mile of the proposed ponds. Six of these sites (8HG00894; 8HG00896; 8HG00897; 8HG00898; 8HG01077; 8HG01287) are pre-Contact middens and/or habitations. Four of these sites (8HG00894; 8HG00896; 8HG00897; 8HG00898) are dated to the Late Archaic period with 8HG00894 and 8HG00897 also having a later Twentieth Century American component. Two terrestrial sites (8HG01078; 8HG01079) also date to Twentieth Century America. One site (8OB00008) is located in Okeechobee County and is a Belle Glade period mound. Only one site, 8HG01287, was determined eligible for listing in the NRHP by the State Historic Preservation Officer (SHPO); the other eight sites have either not been evaluated by the SHPO or were determined to have insufficient information to make a determination of eligibility. In addition, a review of the ETDM revealed that the project will have substantial effects on pre-Contact and historic period archaeological sites based on comments submitted by the Florida Department of State (FDOS). The FDOS commented that sites 8HG00894 and 8HG01077 have insufficient information to make a determination of NRHP-eligibility, however, they will likely be of interest to Native American tribes. As a result of the background research, many of the pond sites were determined

to have environmental features typically associated with pre-Contact site locations thus, the pond sites were determined to have a variable archaeological probability (low to high potential) for the discovery of new archaeological sites.

Historical background research, including a review of the FMSF and the NRHP digital databases as well as findings from the 2025 SR 70 CRAS, revealed three historic linear resources (8HG01725, 8HG01727, and 8HG01728) were previously recorded within the proposed pond sites. These linear resources are common examples of agricultural drainage systems found throughout Florida and were considered ineligible for listing in the NRHP as a finding in the 2025 CRAS. A review of relevant historic USGS quadrangle maps, historic aerial photographs, and the Highlands and Okeechobee County property appraisers' website data revealed the potential for three newly identified linear historic resource 45 years of age or older (constructed in 1979 or earlier) within the proposed pond sites (McIntyre 2025; Bandi 2025). These linear resources are associated with minor irrigation and field channels or branch or distributary canals which are common examples of drainage systems found throughout Florida.

As a result of the desktop analysis, it was determined that no pre-Contact period archaeological or historic sites are located within or adjacent to the proposed pond sites and easements. With regard to archaeological resources it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided as much of the area has undergone substantial disturbance due to agricultural activities, however, several have a moderate to higher potential for the discovery of a new site due to the proximity of potential tree islands within or adjacent to these locations, as well as the presence of historic trails that run through some of the pond sites. With regard to historic resources, it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the FDOT and Florida Division of Historical Resources (FDHR). Even if the selected pond sites are considered to have a low potential, they should be surveyed and judgmentally tested. Furthermore, due the presence of historic resources in relation to the proposed pond sites, a historical/architectural field survey is also recommended.

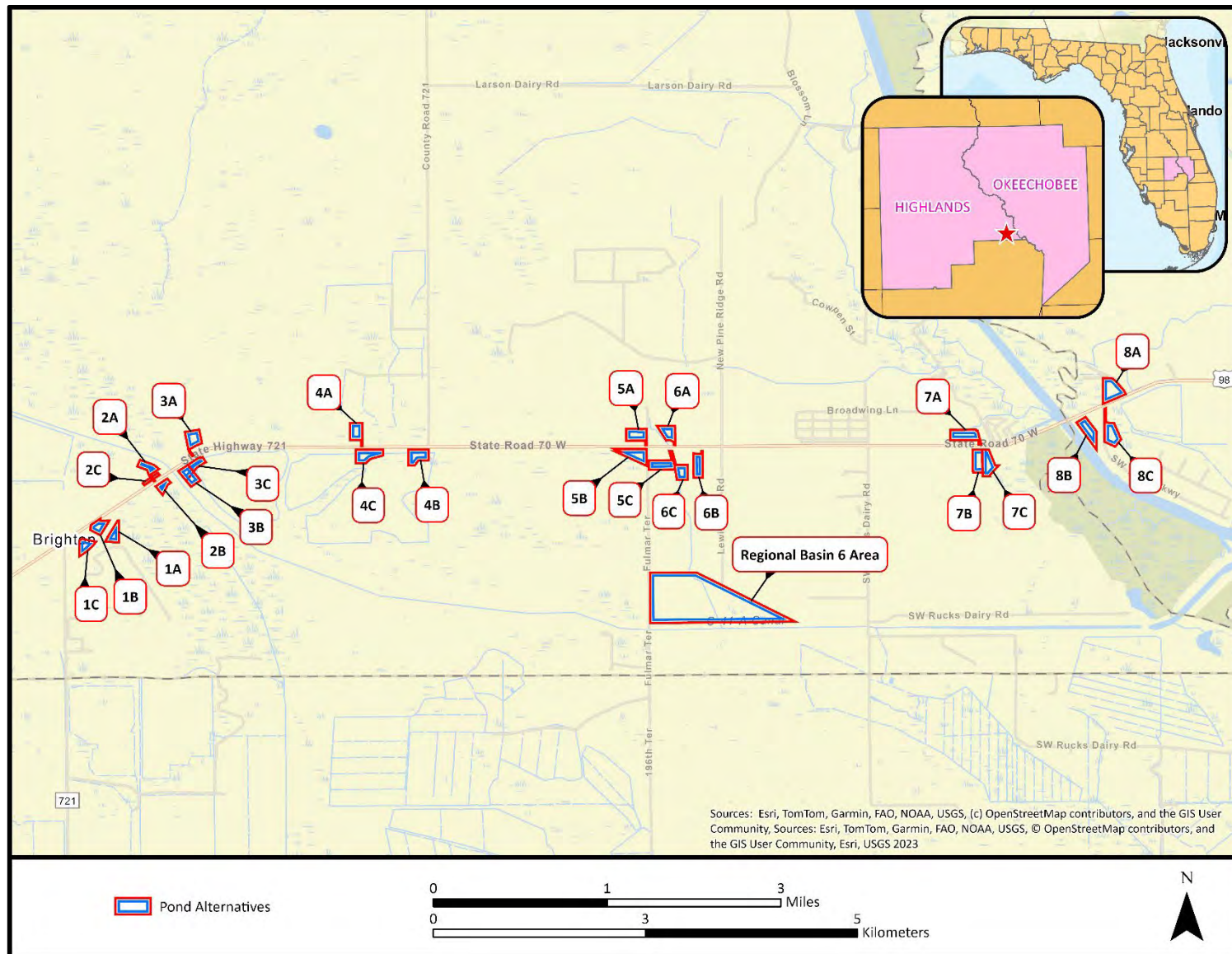


Figure 1. Location of the proposed pond sites.

2.0 DESCRIPTION OF KNOWN ARCHAEOLOGICAL AND HISTORIC SITES AND CULTURAL RESOURCES POTENTIAL

Archaeological Sites: A review of the FMSF digital database (September 2024) indicated that there are no previously recorded pre-Contact or historic period archaeological sites within any proposed pond site, easement, or pond outfall, but nine are located within one mile of the proposed sites (**Figure 2**). Most of these sites are black dirt middens that contained faunal material and pottery (sand tempered plain). Six of these sites (8HG00894; 8HG00896; 8HG00897; 8HG00898; 8HG01077; 8HG01287) are pre-Contact middens and/or habitations. Four of these sites (8HG00894; 8HG00896; 8HG00897; 8HG00898) are dated to the Late Archaic period with 8HG00894 and 8HG00897 also having a later Twentieth Century American component. Two terrestrial sites (8HG01078; 8HG01079) also date to Twentieth Century America. One site (8OB00008) is located in Okeechobee County and is a Belle Glade period mound; its recording was not associated with any survey. Sites 8HG00894, 8HG00896, 8HG00897, and 8HG00898 were recorded during a survey of the Brighton Sugarcane project parcel conducted by the Archaeological and Historic Conservancy in 1997 (Carr et al. 1997). Sites 8HG01077, 8HG01078, and 8HG01079 were recorded during a cultural resource evaluation for the development of a feedstock farming operation in 2011 (Bradley et al. 2011). Lastly, site 8HG01287 was recorded during a survey for the Brighton Valley Water Management Project conducted by Cardno in 2015 (Ambrosino 2015); this was the only site determined eligible for listing in the NRHP by the SHPO. The factors contributing to 8HG01287 site eligibility are unclear, however, the site was likely determined eligible due to the high volume of faunal remains collected, as well as evidence of modified materials thus contributing to research potential. The other eight sites have either not been evaluated by the SHPO or were deemed as having insufficient information to make a determination of eligibility. **Table 1** lists further details of each site. In addition, a review of the ETDM (#14491; FDOT 2023) revealed that the project will have substantial effects on pre-Contact and historic period archaeological sites based on comments submitted by the FDOS. The FDOS commented that sites 8HG00894 and 8HG01077 have insufficient information to make a determination of NRHP-eligibility, however, they will likely be of interest to Native American tribes. These sites are located adjacent to the SR 70 roadway and are not adjacent to any of the pond sites. Therefore, there is little concern with regard to impacts from pond site selection on these two sites, however these sites will be given additional consideration during the right-of-way (ROW) evaluation.

In addition to the surveys noted above, there have been several other surveys conducted in the area including a survey of the Florida Gas Transmission corridor from Station 27 in Hillsborough County to Arcadia, and then Arcadia to Station 29 in highlands County (Janus Research/R. Christopher Goodwin 2008); several other surveys were conducted for private developers (Carr et al. 1997; Bradley et al. 2011; Hunter and Schenker 2009a, 2009b), cell towers (Bowen et al. 2012), bridges (Janus Research 1996), Wetland Reserve Projects (Ambrosino 2015; Dale 2009; Dunn 2012), and utilities (Barse et al. 2009; Coughlin et al. 2010; Janus Research/R. Christopher Goodwin 2010; Mueller 2008). None of these surveys identified any archaeological sites within their boundaries.

Pond sites 1, 2A, and 2B were included in previous surveys and portions of the pond easements overlap the locations of pipeline and roadway surveys; however, either no shovel tests were placed in these areas or maps of shovel tests in these areas were not included in the reports. Therefore, no previous testing was incorporated for this assessment.

As archaeologists have long realized, pre-Contact period populations did not select their habitation sites and special activity areas in a random fashion. Rather, many environmental factors had a direct influence upon site location selection. Among these variables are soil types and drainage, distance to freshwater, relative topography, and proximity to food and other resources including stone and clay. Within the general area, it has been repeatedly demonstrated that archaeological sites are most often located near a permanent or semi-permanent source of potable water. In general, pre-Contact period

sites are found on better drained soils and at the better drained upland margins of wetland features such as swamps, sinkholes, lakes, and ponds. Also, site locations often occur where a diversity of natural habitats could be exploited expeditiously. The current soil data (USDA 1971, 1989) indicate that the soils within the proposed pond sites are all poorly or very poorly drained (**Figure 3**).

However, this model is not wholly applicable to pre-Contact southern Florida, where a flat landscape and extensive areas covered by slow-moving water are characteristic, while elevated, well-drained landscapes are in very limited supply. Instead, as research has shown, the key to site location in the project vicinity lies in an understanding of the environment prior to land modifications (canals, agricultural ditches, clear cutting, etc.), and the identification of landscape signatures (aerial photographs, historic maps, GIS imagery, LiDAR imagery, on-the-ground inspection, and others) that, in combination with elevation and soil data, can be used to identify site probability areas for archaeological survey. A survey strategy for use in southern Florida was prepared for the Army Corps of Engineers (ACOE): the Comprehensive Everglades Restoration Plan (CERP) model (Smith 2008).

As noted in the CERP, much of southern Florida, including land within the project area, have undergone multiple changes as the result of ditching, berm construction, clearing, agriculture, and the timber, citrus, and cattle industries. Thus, some of the original land features have been altered. Research in the vicinity of the proposed pond sites has proven that survey in such areas is most successful when it uses a research design that identifies the location of hammocks and tree islands that existed near ponds, sloughs, or other water sources. The tools used in the development of such a survey strategy include the historic aerial photograph from the 1940s to 1970s, supplemented by various maps (soil, vegetation, historic, etc.), as available. Through these methods, ACI was able to locate targets visible on historic aerials (ponds, tree islands, ridge formations, and the like). *The Preliminary Revision to the Existing South Florida Archaeological Context* (Janus Research 2008), prepared as a companion to the CERP survey strategy, noted that almost every tree island hammock in the interior of southern Florida had the potential to contain an archaeological site, and most sites were black dirt, accretionary middens (Janus Research 2008:9). The CERP model was utilized to evaluate the archaeological potential of the proposed pond sites, easements, and pond outfalls

Table 1. Previously recorded archaeological sites within one-half mile of the proposed ponds.

Site No.	Site Name	Site Type	Culture	SHPO Eval
8HG00894	Brighton Sugarcane #22	Pre-Contact midden(s); agriculture/farm structure	Late Archaic; Twentieth century American	No eval
8HG00896	Brighton Sugarcane #24	Pre-Contact midden(s); habitation	Late Archaic	No eval
8HG00897	Brighton Sugarcane #25	Pre-Contact midden(s); habitation	Late Archaic; Twentieth century American	No eval
8HG00898	Brighton Sugarcane #26	Pre-Contact midden(s); habitation	Late Archaic	No eval
8HG01077	Arced Landform Site	Pre-Contact habitation; subsurface features	Pre-Contact	Insufficient info
8HG01078	STA Historic #1	Land-terrestrial	Twentieth century American	Insufficient info
8HG01079	STA Historic #2	Land-terrestrial	Twentieth century American	Insufficient info
8HG01287	Bright Valley 05	Pre-Contact midden(s); habitation	Pre-Contact	Eligible
8OB00008	Meekins	Pre-Contact mound(s)	Belle Glade, 700 BCE-1700 CE	No eval

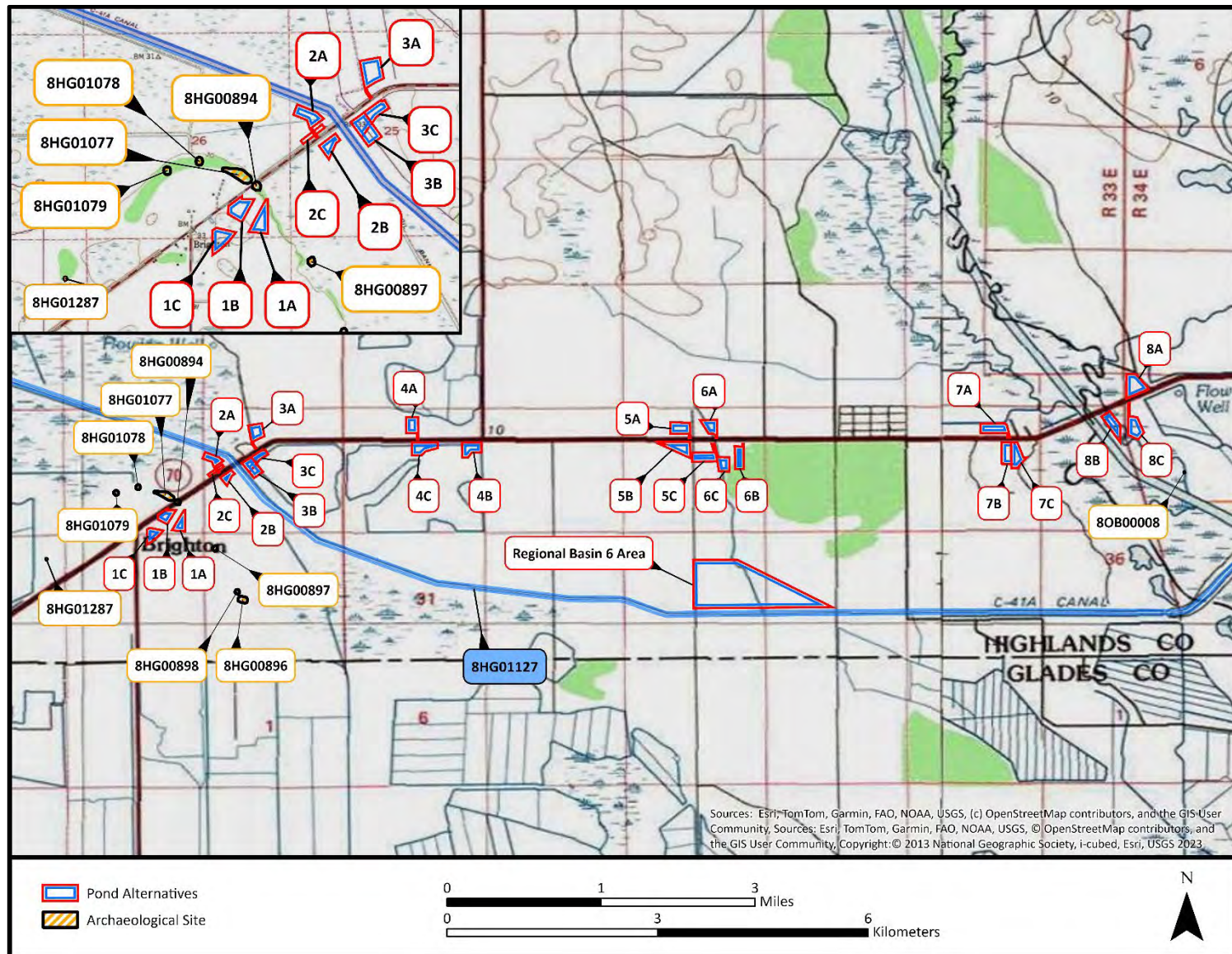


Figure 2. Environmental setting and previously recorded cultural resources within one mile of the proposed pond sites.

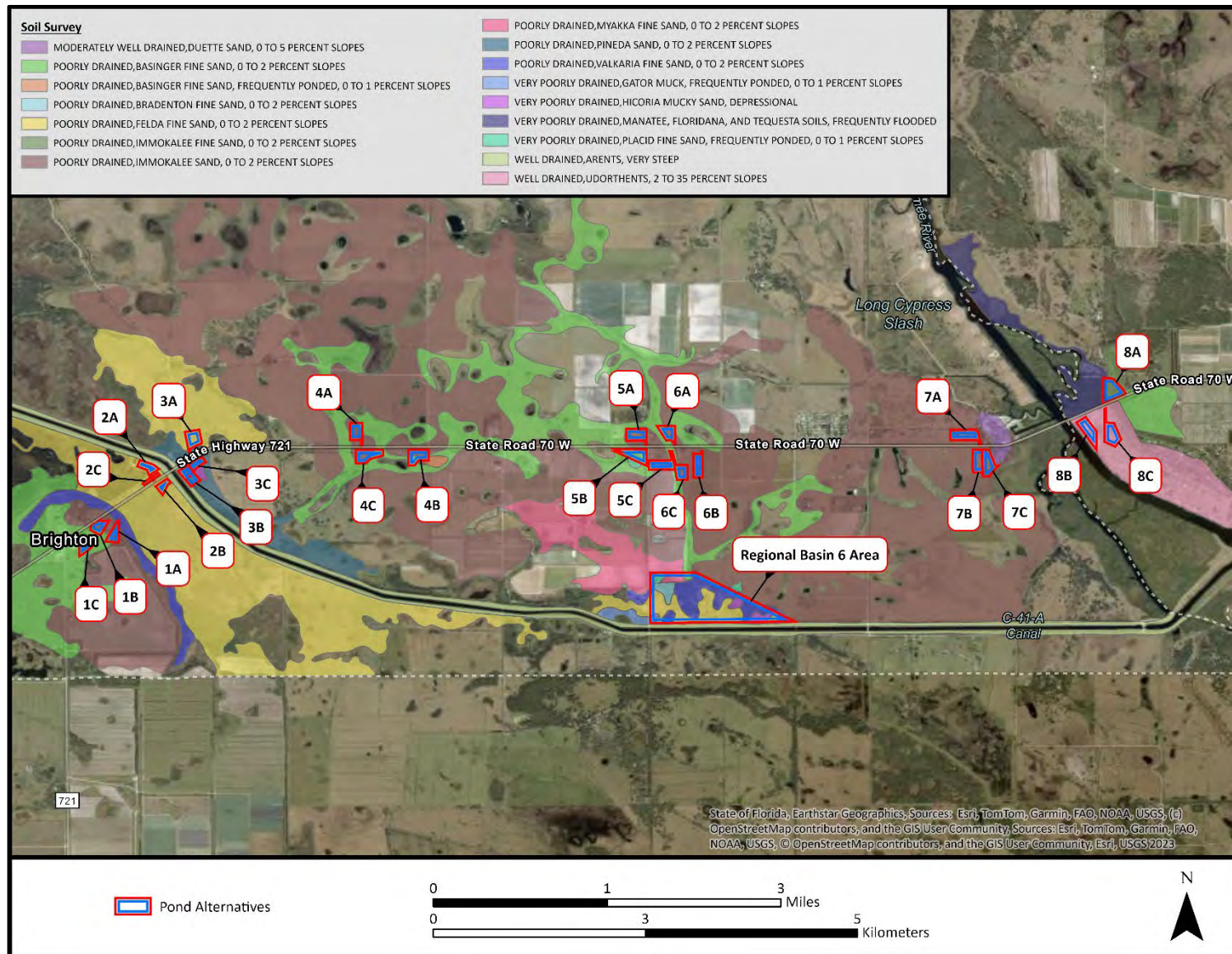


Figure 3. Soil types within the proposed pond sites (USDA 1989).

The pond sites fall within the subregion referred to as Okeechobee, which includes Lake Okeechobee and its basin (Smith 2008: 71-76). Within this subregion the pre-Contact sites would be situated on small areas of raised elevation. On these small patches of higher elevation, there are limestone depressions that collect water and have either a concentration of young cypress situated in the lowest area of the depression, or willow trees will surround the depression (Smith 2008: 72; Figure 49). Given the generally wet and seasonally inundated nature of the proposed pond sites, it was unlikely that pre-Contact year-round village sites would be found; rather sites would be small, short-term camp sites represented by middens, mounds, and/or artifact scatters.

In addition to the CERP Model, LiDAR maps were reviewed to determine the presence of possible tree islands that are proximate or within any of the proposed ponds, which are indicated by areas of higher elevation that may have been “erased” by land modifications. A review of the historic aerial photographs and LiDAR data identified two areas of higher potential within proposed pond sites 1C and 7A (**Figures 4-5**).

In keeping with the CERP model several historic maps were also reviewed including military maps and Plats, that not only show military activity but environmental features that have been altered through time that can affect the archaeological probability. As the Seminole were pushed into South Florida during the Seminole Wars, they followed many of the life ways of the previous Native inhabitants and they utilized these same areas of high ground near waterways for both short- and long-term camps. Many of these early camp sites were not recorded, however, the numerous forts of southern Florida were recorded. While notable, these forts rarely reached the size and permanency of forts such as Brooke, King, and Mellon to the north. Captain MacKay and Lieutenant Blake mapped the forts, depots, and trails of Florida in 1839 on a map titled *Map of the Seat of the War in Florida* (Mackay and Blake 1839). **Figure 6** shows that the project is near a trail located to the west (Colonel P. Smith’s Column [*sic*]) that leads up to Fort Basinger to the north. There are additional trails that meet at Fort Basinger and lead to the east of the Kissimmee River, with the closet forts being Fort Loyd and Fort Vane-Swearingen. Similarly, Lieut. J.C. Ives produced a *Military Map of The Peninsula of Florida South of Tampa Bay* in 1856 (Ives 1856), which shows these same routes to the east and west of the project as well as Forts Basinger, Loyd and Vane-Swearingen still present (**Figure 7**). The 1859 and 1870 Plats show the “Old Military Road” running from north to south between Ponds 5A and 5B and through Pond 5C, while Pond 1 is within Marvin’s Island (**Figure 8**). Some pond sites have historic ponds, such as Ponds 4A and 5&6 Combined, while ponds 8A through 8C are within the historic riverbank of the Kissimmee River; Ponds 7A through 7C are located adjacent the historic swamp area of this river. In 1930, Roy Nash published a map documenting the location of known permanent Seminole camps (Nash 1930); this maps shows three camps located to the southwest, just northwest of Lake Okeechobee, that belonged to Billie Osceola, Charlie Buster, and George Osceola (**Figure 9**). While none are located within the pond sites, it is known that these camps moved frequently and they utilized similar environments to their pre-Contact ancestors.

Thus overall, a review of the historic aerial photographs and maps suggests that several wetland ponds and waterways were located around the proposed ponds to the west of the Kissimmee River, with fewer ponds to the east (**Figures 10 and 11**). However, many of these wetland areas and the surrounding lands appear to have been developed for agricultural and residential uses by the 1970s, with fewer ponds visible and a canal running between two groups of ponds in the far west running from northwest to southeast. The slough between Ponds 2A and 2B to the west and Ponds 3A and 3B to the east was channelized by the 1940s and expanded by the 1970s affecting the surrounding drainage. In addition, the Kissimmee River in the east APE was channelized by 1974. Much of the lands in this area were being modified for agriculture by the 1970s and this trend as continued through today. **Figures 12 and 13** demonstrate the current land use, when compared with the land use in the previous aerals it is notable that some pond sites, and the areas of higher archaeological potential within them, have been impacted by agricultural activities, with some areas more heavily affected than others.

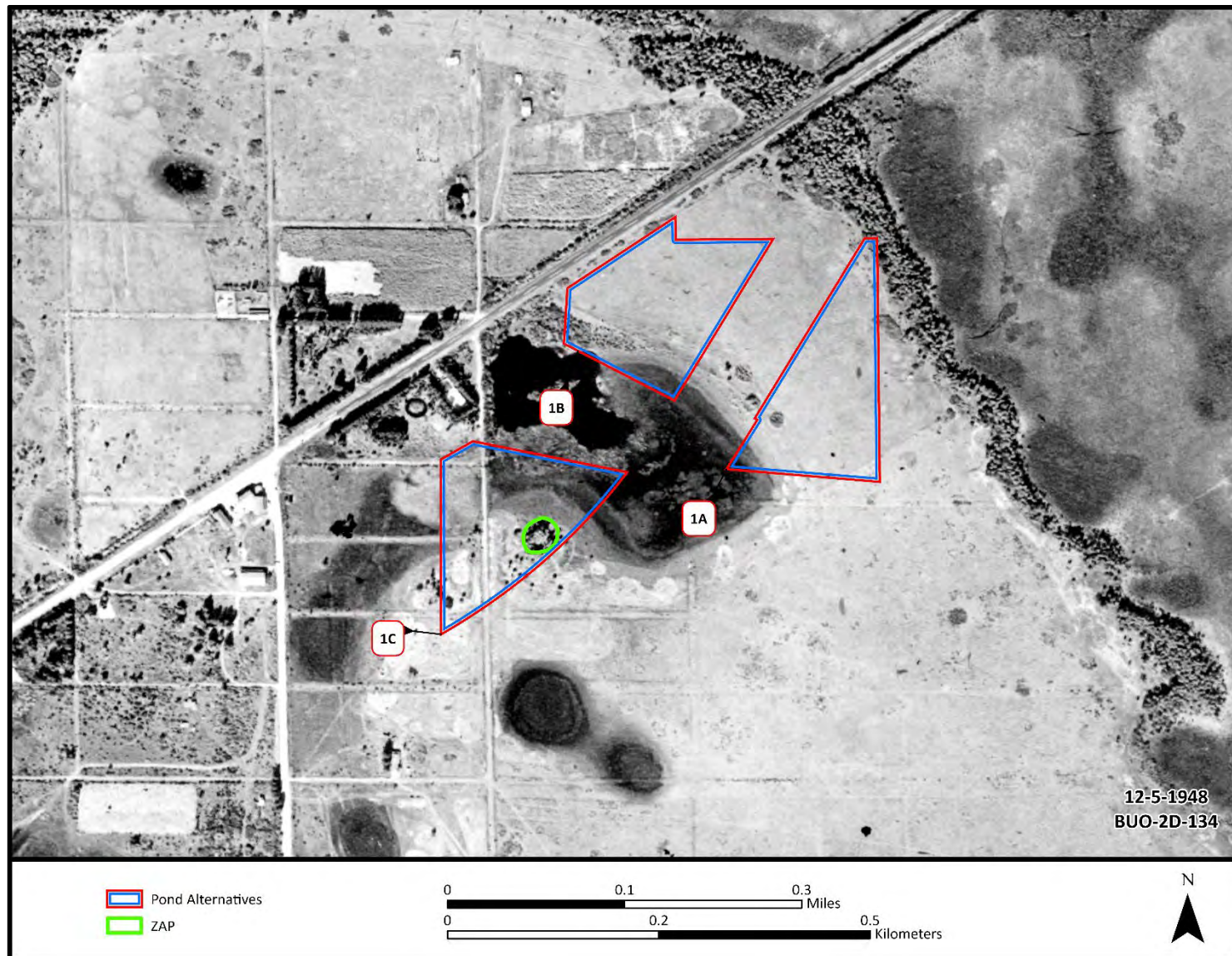


Figure 4. Location of higher potential areas based on historic aerials (zone of Archaeological Potential [ZAP]) and LiDAR analysis (USDA 1948).

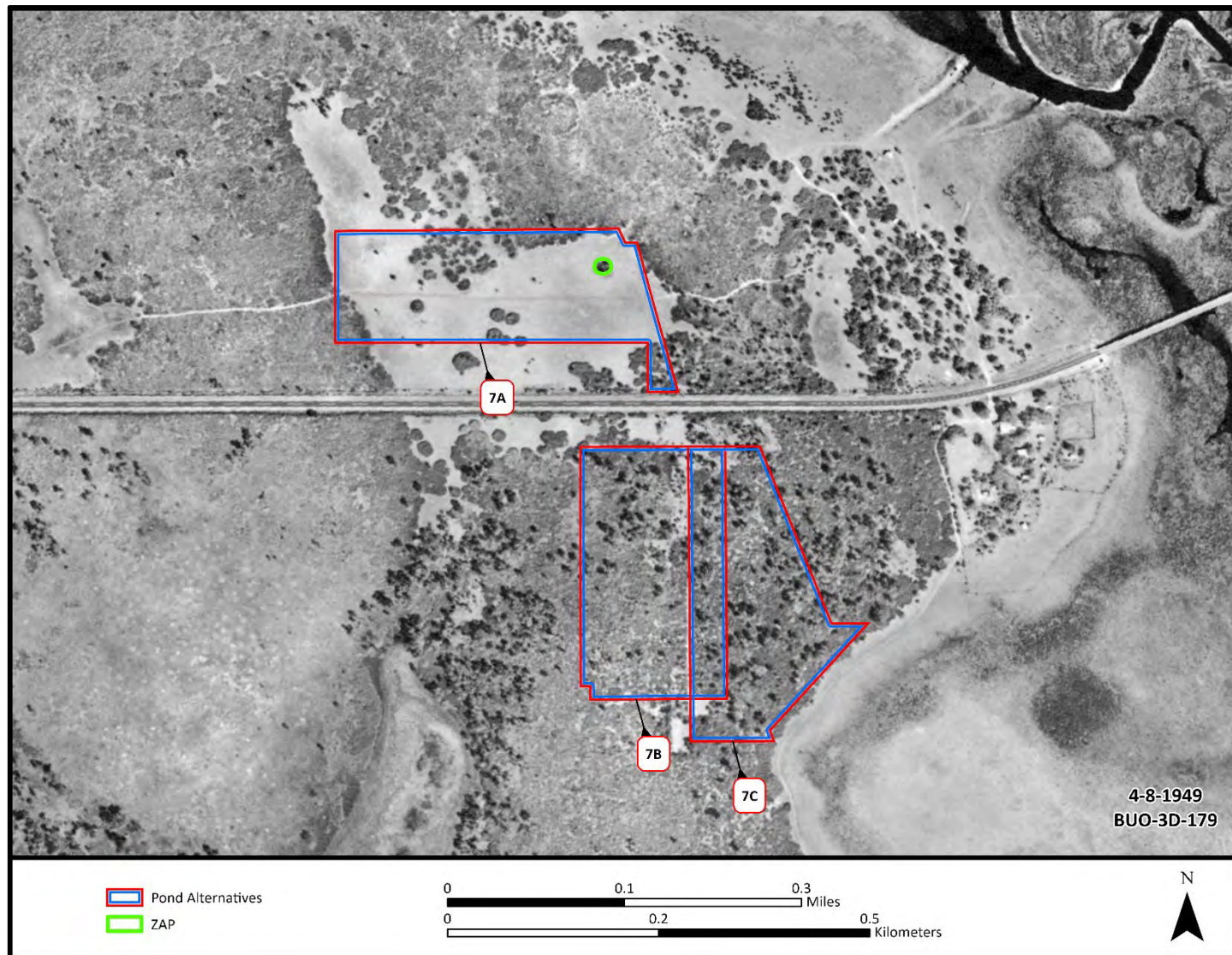


Figure 5. Location of higher potential areas based on historic aerials (ZAP) and LiDAR analysis (USDA 1949).



Figure 6. Map of the seat of War 1839.

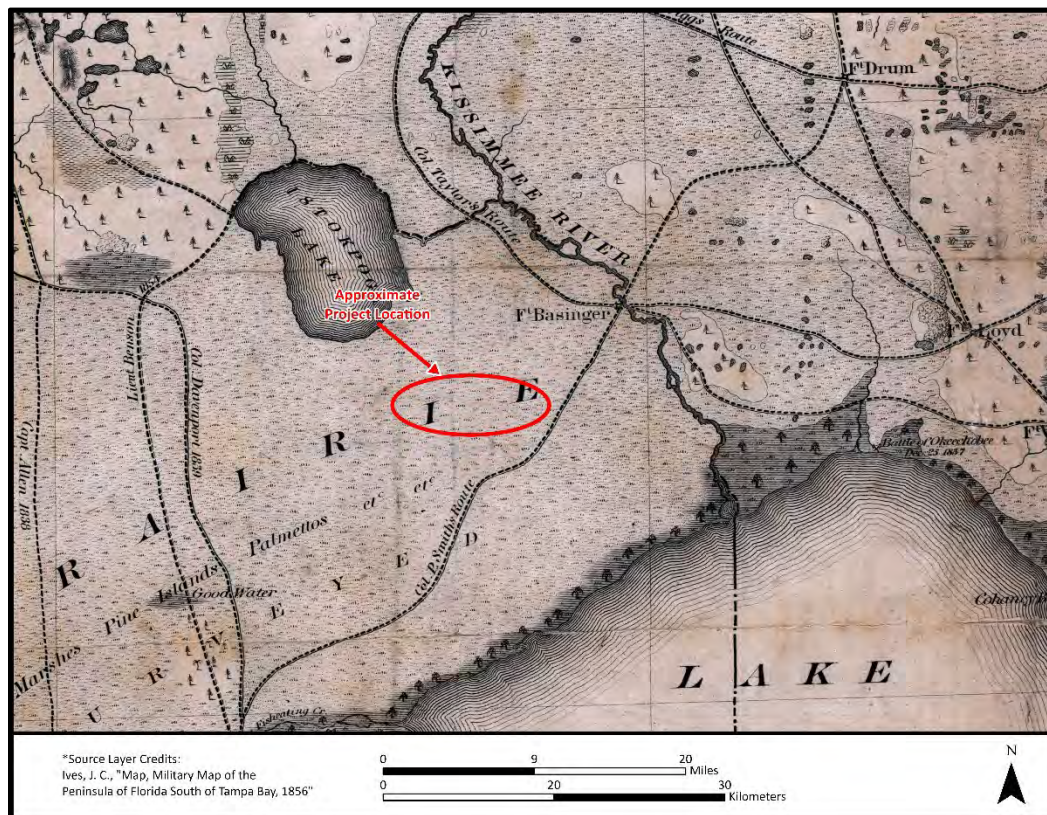


Figure 7. Ives' 1856 map of military forts and trails.

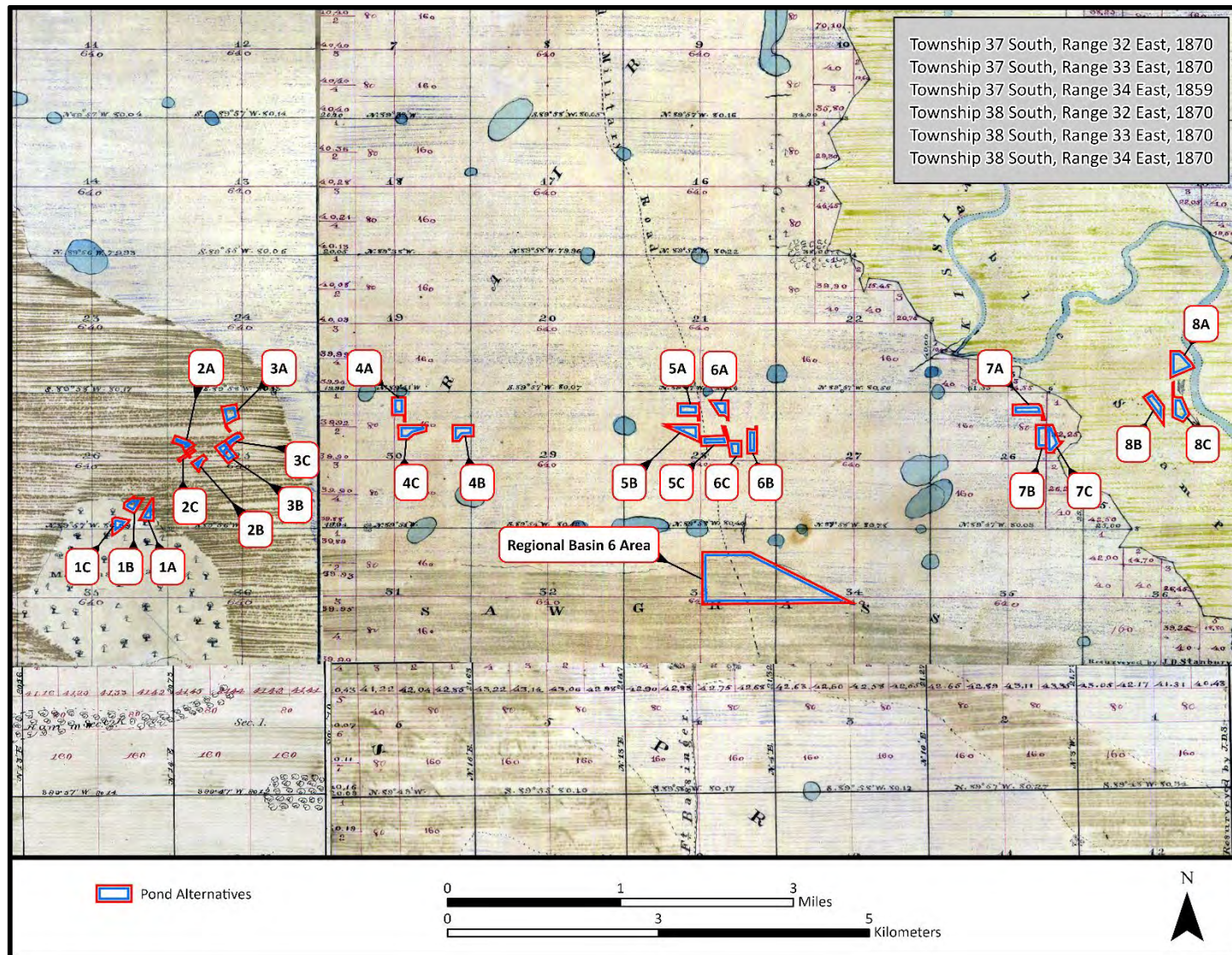


Figure 8. 1859/1870 Plat showing the proposed pond sites.

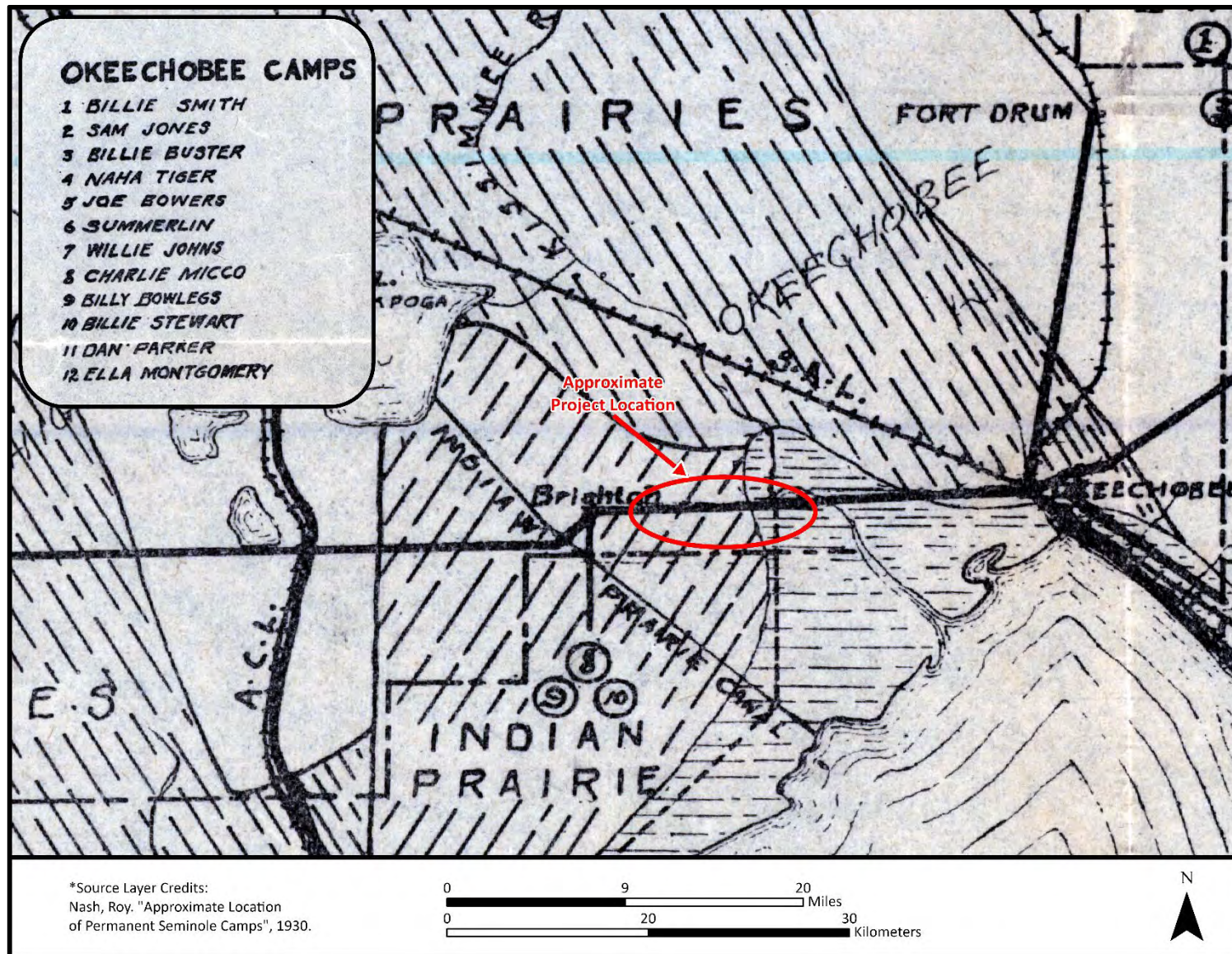


Figure 9. 1930 Map of the Approximate Location of Permanent Seminole Camps.

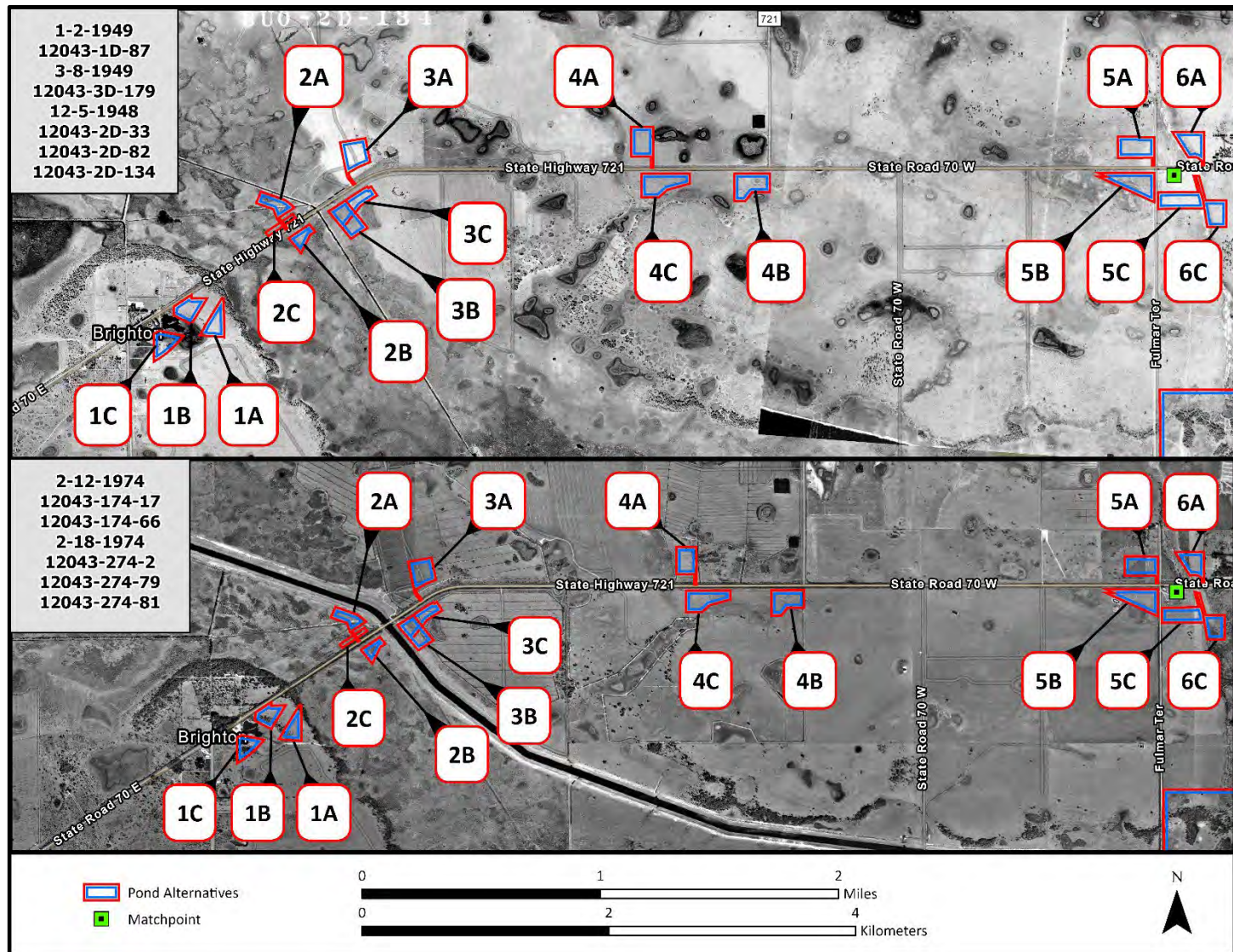


Figure 10. 1948, 1949, and 1974 aerial photographs. Note the wider range of wetland areas and ponds to the west of the APE, the expansive riverbank of the Kissimmee River present at this time and disturbance limited to roadway construction (FDOT 1948, 1949a, 1949b, 1974a, 1974b).

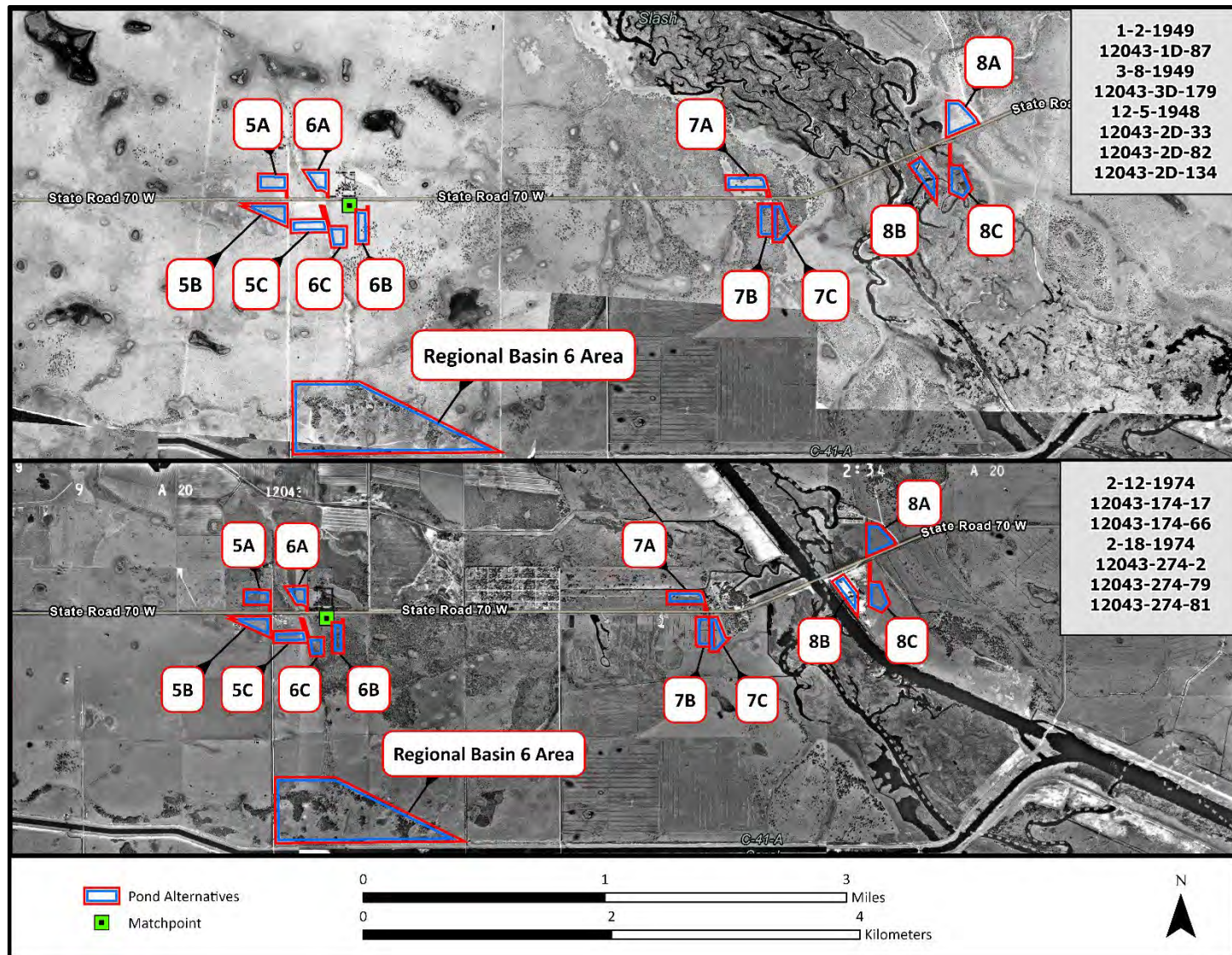


Figure 11. 1948, 1949, and 1974 aerial photographs. Note the extensive agricultural activity throughout and the construction of canals both in the west and east ends (Kissimmee River) of the APE (FDOT 1948, 1949a, 1949b, 1974a, 1974b).

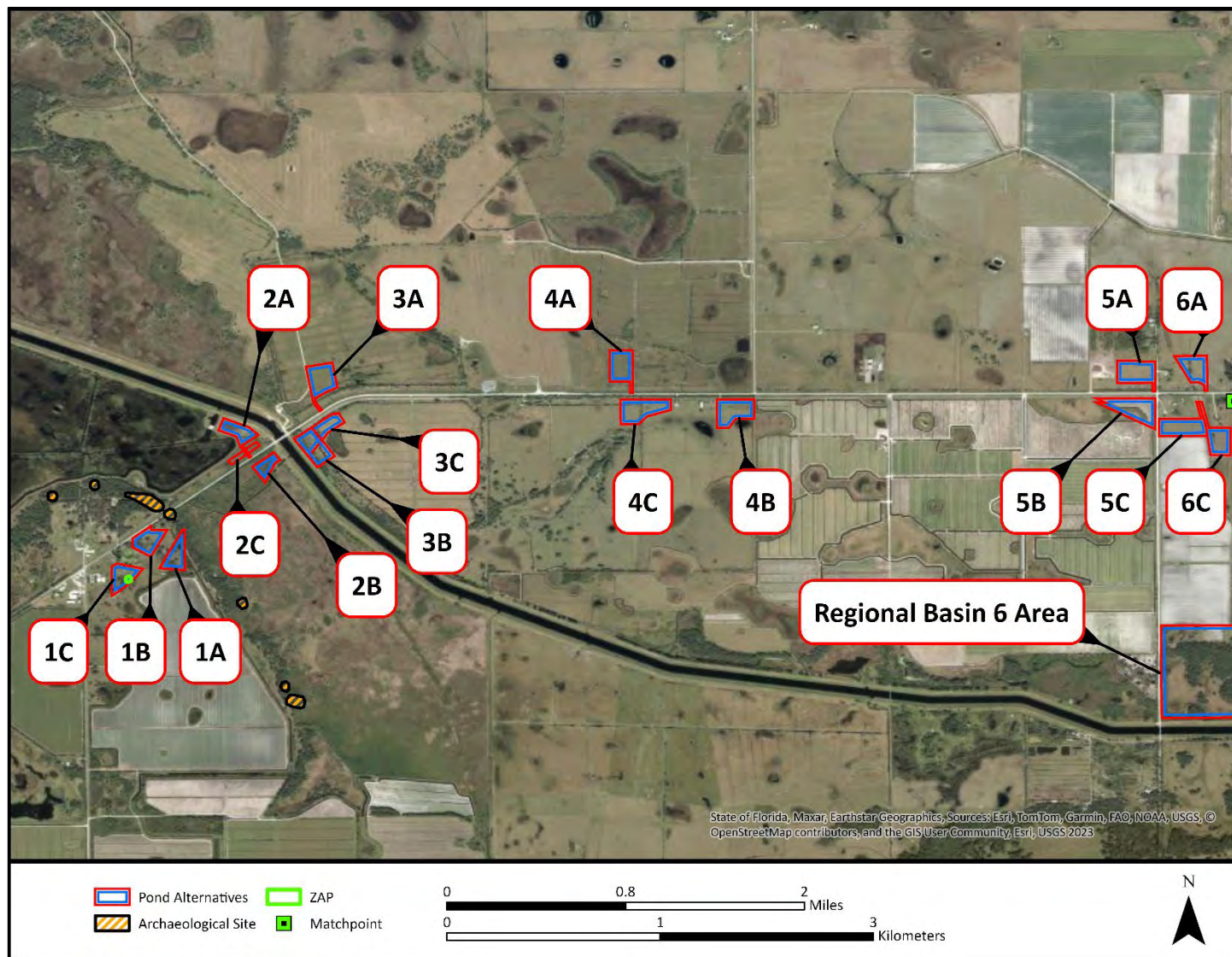


Figure 12. Present-day aerial view showing overlap of tree island potential and LiDAR analysis in the west.

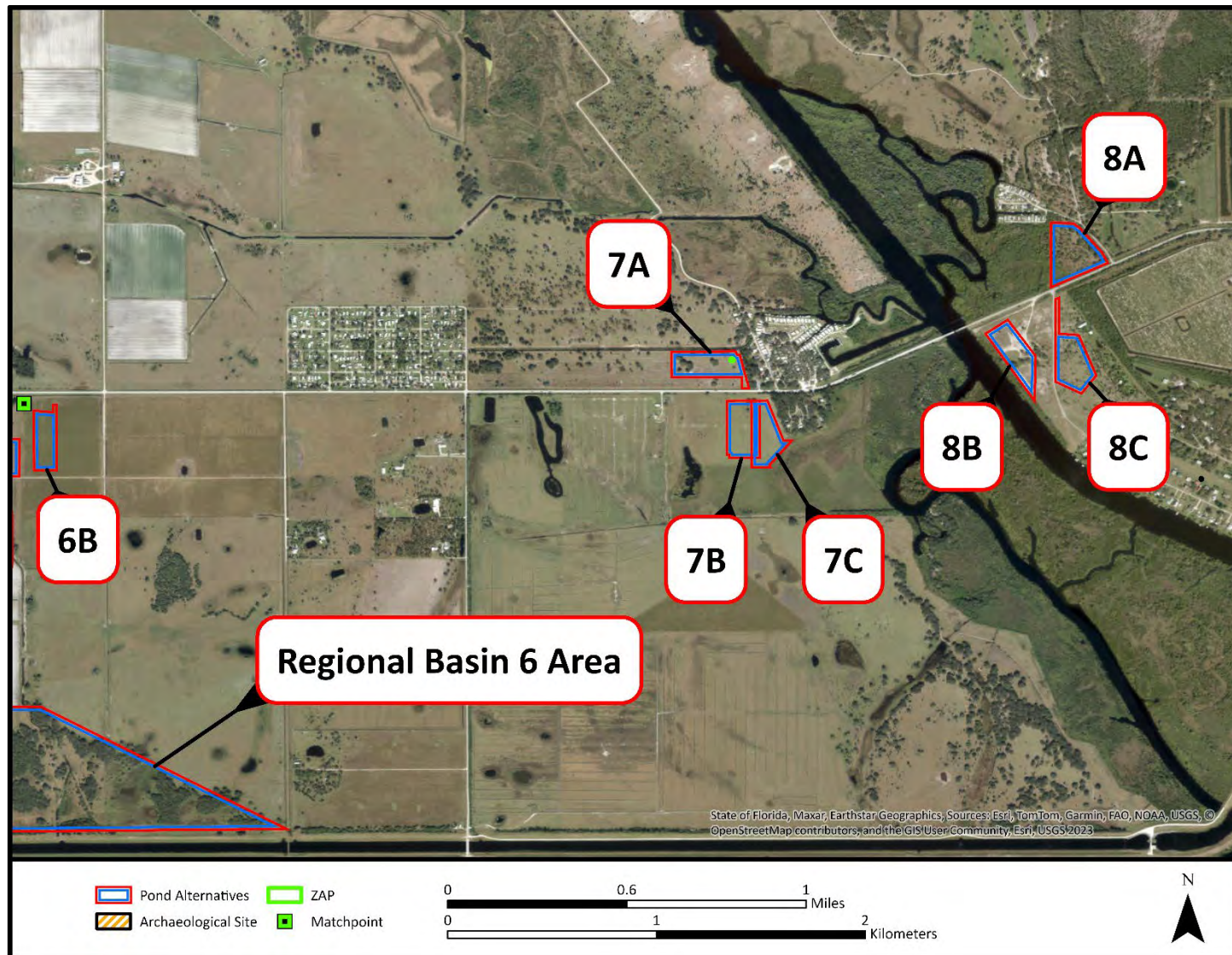


Figure 13. Present-day aerial view showing overlap of tree island potential and LiDAR analysis in the east.

In summary, this suggests that historically there was a moderate to high potential for the discovery of archaeological sites due to the historic presence of water which was vital for the location of settlements and camps. However, the disturbance caused by activities related to both residential and agricultural development may have displaced or destroyed evidence of these sites. Thus, based on this preliminary research, the proposed pond sites have a variable (low to high) archaeological potential, comments for each are detailed in **Table 2**.

Table 2. Archaeological potential of pond sites

Ponds (ac)	Previous sites within/adjacent?	ZAP*	Comments
1A (5.7 ac)	Pre-Contact: No Historic: No	Mod-High	In historic Marvin's Island hammock; adjacent wetland pond area; agricultural disturbance minimal
1B (5.9 ac)	Pre-Contact: No Historic: No	Mod-High	In historic Marvin's Island hammock; adjacent wetland pond area; agricultural disturbance minimal
1C (5.7 ac)	Pre-Contact: No Historic: No	Mod-High	In historic Marvin's Island hammock; possible tree island present; adjacent wetland pond area; agricultural disturbance minimal
2A (5.5 ac)	Pre-Contact: No Historic: No	Low	in historic wetland area; agricultural disturbance present; adjacent canal
2B (3.6 ac)	Pre-Contact: No Historic: No	Low	in historic wetland area; agricultural disturbance present; adjacent canal
2C (1.7 ac)	Pre-Contact: No Historic: No	Low	in historic wetland area; agricultural disturbance present; adjacent canal
3A (8.2 ac)	Pre-Contact: No Historic: No	Mod-High	on slight elevation; near historic wetland pond, possible tree island identified; roadway/agricultural disturbance heavy to moderate; adjacent canal
3B (7.8 ac)	Pre-Contact: No Historic: No	Mod - High	on slight elevation; historic wetland pond within; roadway/agricultural disturbance heavy to moderate; adjacent canal
3C (8.3 ac)	Pre-Contact: No Historic: No	Mod - High	on slight elevation; historic wetland pond within; roadway/agricultural disturbance heavy to moderate; adjacent canal; overlaps with Pond 3B
4A (7.5 ac)	Pre-Contact: No Historic: No	Low	agricultural disturbance present
4B (8.8 ac)	Pre-Contact: No Historic: No	Low - Moderate	within slight elevation; near historic wetland pond; within saw palmetto ridge; agricultural disturbance present
4C (9.6 ac)	Pre-Contact: No Historic: No	Mod-High	near historic wetland pond; possible tree islands present; agricultural disturbance moderate
5A (8.6)	Pre-Contact: No Historic: No	Low	roadway/trail disturbance nearby; near historic military road
5B (10.2 ac)	Pre-Contact: No Historic: No	Low-Moderate	roadway/trail disturbance nearby; saw palmetto ridge in surrounding wetland; near historic military road
5C (8.6 ac)	Pre-Contact: No Historic: No	Low-Moderate	on slight elevation; agricultural disturbance nearby; historic military road present
6A (7.0 ac)	Pre-Contact: No Historic: No	Low-High	on slight elevation; near historic wetland pond; historic farm field present; near historic military road
6B (7.5 ac)	Pre-Contact: No Historic: No	Low-Moderate	agricultural disturbance present; near historic wetland pond
6C (6.9 ac)	Pre-Contact: No Historic: No	Low-Moderate	Historic wetland/pond within; agricultural disturbance present
	Pre-Contact: No	Mod-High	

Ponds (ac)	Previous sites within/adjacent?	ZAP*	Comments
Regional Basin 6 Area (ac unk)	Historic: No		Agricultural disturbance minimal; historic military road present; historic canal present; roadway disturbance nearby; historic sawgrass wetland within
7A (10.3 ac)	Pre-Contact: No Historic: No	Mod - High	adjacent Kissimmee River on riverbank possible tree island within; heavy agricultural disturbance.
7B (10.4 ac)	Pre-Contact: No Historic: No	Low-Moderate	adjacent Kissimmee River on riverbank; near agricultural disturbance; historic wetland pond within
7C (9.5 ac)	Pre-Contact: No Historic: No	Mod-High	adjacent Kissimmee River on riverbank; historic wetland pond within, possible tree island site adjacent; moderate agricultural disturbance
8A (13.2 ac)	Pre-Contact: No Historic: No	Low-Moderate	adjacent Kissimmee River; roadway/trail disturbance nearby; flatwoods adjacent river; on elevation
8B (9.6 ac)	Pre-Contact: No Historic: No	Low-Moderate	adjacent Kissimmee River; agricultural disturbance present; flatwoods adjacent river; on elevation
8C (10.4 ac)	Pre-Contact: No Historic: No	Low-High	adjacent Kissimmee River; tree island nearby or present; within and adjacent cleared riverbank area; on elevation

*Zone of Archaeological Potential

Historic Resources: The segment of State Road 70 which runs through the project corridor was constructed during the 1920s. The roadway was originally part of State Road 8, an east-west route which connected with State Road 18 in the west and traversed east terminating in Fort Pierce. The roadway was reorganized and renamed State Road 70 in 1945. The built environment in which the proposed pond sites are located has historically been rural and sparsely populated with land being used for cattle ranches and vegetable and citrus farms. Various canals were constructed in the region from the 1940s through the 1960s for the purpose of flood prevention and control, protecting cities, small communities, and agricultural lands, due to the geography of the region and location near Lake Okeechobee. The Brighton Valley, which includes the former town of Brighton (which now features several buildings owned by the Lykes Brothers) and the nearby Brighton Reservation, was named after James Bright of the Curtiss-Bright Company which invested in the region during the Florida Land Boom and gave rise to the short-lived agricultural town of Brighton (Miami Herald 1925). Many other smaller canals and irrigation systems were constructed from the 1940s through the present by farmers and ranchers for agricultural purposes. The Kissimmee River Estates, Kissimmee River Fishing Resort, and the River Bluff RV Park manufactured home communities were established around the mid- to late-1960s (McIntyre 2025; Bandi 2025; USDA 1970). The River Oak Acres landing strip and community were constructed in the early 1980s (FDOT 1981). The area remains rural today and features various farms and ranches.

Background research of the FMSF and the NRHP digital databases indicated that no historic resources have been previously recorded within the proposed pond sites (**Figure 2**). However, three historic linear resources (8HG01725, 8HG01727, and 8HG01728) were previously recorded within the proposed pond sites during the 2025 SR 70 CRAS. These linear resources are common examples of agricultural drainage systems found throughout Florida and were considered ineligible for listing in the NRHP as a finding in the 2025 CRAS. Furthermore, seven historic resources (8HG01127, 8HG01722, 8HG01723, 8HG01726, 8HG01729, 8OB00504, 8HG01650/8OB00489) are located adjacent to the proposed pond sites. These resources were identified and recorded during the 2025 SR 70 CRAS and include six linear resources (8HG01127, 8HG01722, 8HG01723, 8HG01726, 8OB00504, 8HG01650/8OB00489) and one resource group (8HG01729). Of these, the Kissimmee River (C-38 Canal) (8HG01650/8OB00489) and the Slough Ditch Canal C-41 A (8HG01127) were considered eligible for listing in the NRHP as a finding in the 2025 CRAS. The CRAS is currently under review at the district and has not been

submitted to the SHPO. See **Table 3** for a summary of the historic resources located within and adjacent to the proposed pond sites and **Figure 14** for location of these resources.

Table 3. Historic resources in relation to the proposed pond sites.

Proposed Pond Site	Resource	Year Built	Within or Adjacent
1A	N/A	N/A	N/A
1B	Drainage Ditch (8HG01723)	ca. 1920	Adjacent
1C	N/A	N/A	N/A
2A	Drainage Ditch	ca. 1968-1974	Within
	Drainage Ditch (8HG01722)	ca. 1920	Adjacent
2B	Drainage Ditch (8HG01723)	ca. 1920	Adjacent
2C	Drainage Ditch (8HG01722)	ca. 1920	Adjacent
3A	Drainage Ditch (8HG01722)	ca. 1920	Adjacent
3B	Lykes Drainage System (South) (8HG01725)	ca. 1970	Within
	Drainage Ditch (8HG01723)	ca. 1920	Adjacent
3C	Lykes Drainage System (South) (8HG01725)	ca. 1970	Within
	Drainage Ditch (8HG01723)	ca. 1920	Adjacent
4A	Lykes Drainage System (North - No. 2) (8HG01726)	ca. 1970	Adjacent
4B	Unnamed Drainage System (8HG01727)	ca. 1970	Within
4C	Unnamed Drainage System (8HG01727)	ca. 1970	Adjacent
5A	Drainage Ditch (8HG01722)	ca. 1920	Adjacent
5B	Drainage Ditch (8HG01723)	ca. 1920	Adjacent
5C	Arrow B Ranch Canal (8HG01728)	ca. 1953	Within
	Building	ca. 1958	Adjacent
6A	Arrow B Ranch Canal (8HG01728)	ca. 1953	Within
	Drainage Ditch (8HG01722)	ca. 1920	Adjacent
6B	N/A	N/A	N/A
6C	Arrow B Ranch Canal (8HG01728)	ca. 1953	Within
Regional Basin 6 Area	Unrecorded portion of Arrow B Ranch Canal (8HG01728)	ca. 1953	Within
	Linear Resource (Drainage Canal)	ca. 1972	Within
	Slough Ditch Canal C-41 A (8HG01127)	ca. 1944	Adjacent
7A	Linear Resource (Drainage Canal)	ca. 1958-1962	Adjacent
	15601 SR 70 W / Kissimmee River Fishing Resort Resource Group (8HG01729)	ca. 1962	Adjacent
7B	Linear Resource (Field Channel System)	ca. 1962-1968	Within
7C	Linear Resource (Field Channel System)	ca. 1962-1968	Within
8A	SR 70 Drainage Canal – North (8OB00504)	ca. 1944	Adjacent
8B	Kissimmee River (C-38) (8HG01650/8OB00489)	ca. 1966	Adjacent
8C	N/A	N/A	N/A

Blue highlight denotes a resource that is considered eligible for listing in the NRHP.

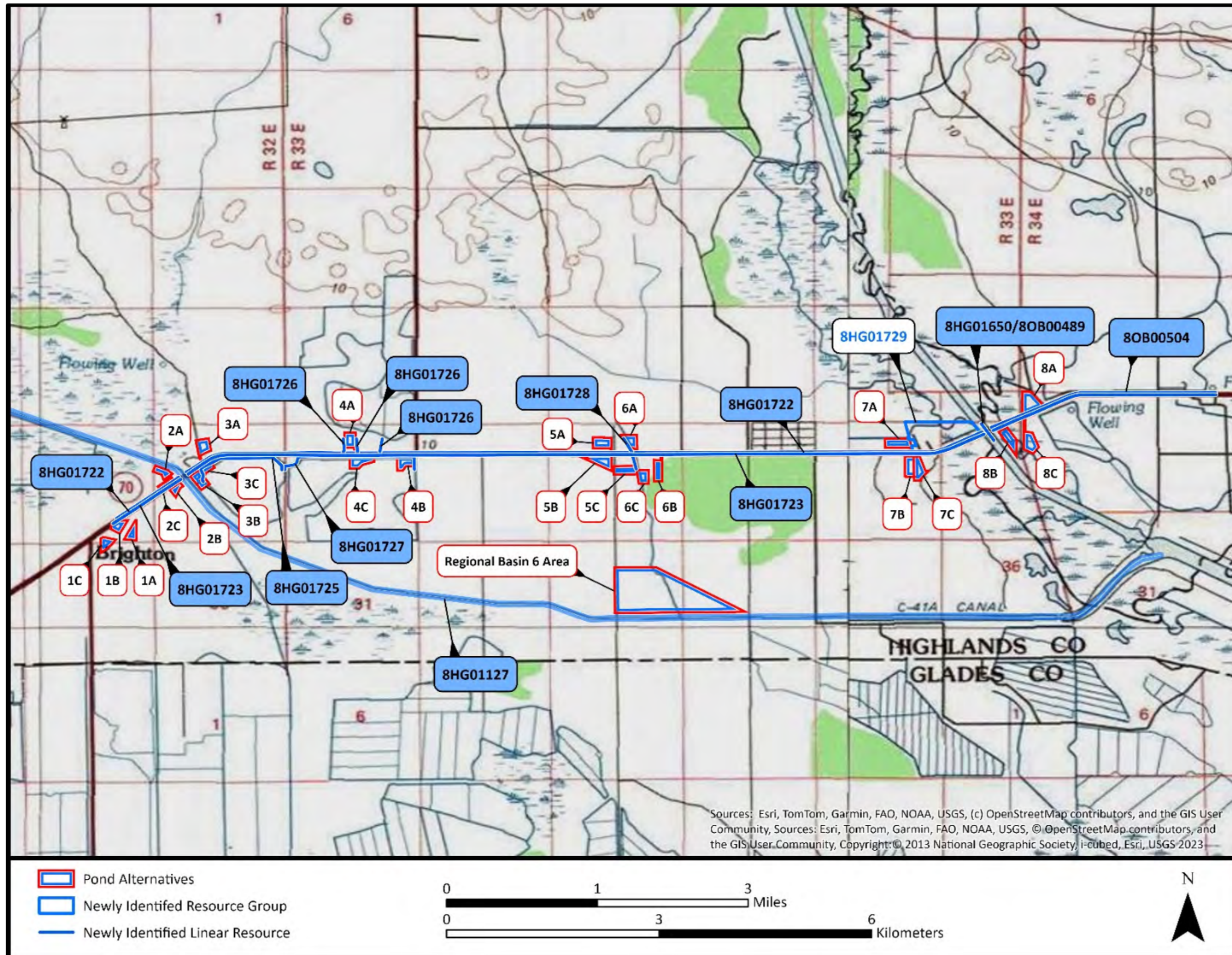


Figure 14. Historic resources identified and recorded during the 2025 SR CRAS.

In addition to the resources listed in **Table 3** and shown in **Figure 14**, a segment of Okeechobee Road (SR 70) (8HG01306/8OB00269) is located immediately adjacent to or in close proximity to the proposed pond sites. This linear resource was constructed in ca. 1920 and is a typical example of a State Road which runs east-west through Florida. The linear resource was first recorded during the *Cultural Resource Assessment Survey, State Road 70 from Berman Road to the St. Lucie County Line, Okeechobee County, Florida* conducted by ACI in 2007 (ACI 2007; Survey No. 14252). All previously recorded segments of the linear resource have been determined ineligible for listing in the NRHP by the SHPO. Furthermore, the linear resource was updated in the 2025 SR 70 CRAS and was considered ineligible for listing in the NRHP; however, there is insufficient information to evaluate the resource as a whole.

The Kissimmee River (C-38 Canal) (8HG01650/8OB00489) and the Slough Ditch Canal C-41 A (8HG01127), were updated during the *Cultural Resource Assessment Survey Project Development and Environment (PD&E) Study State Road (SR) 70 from County Road (CR) 721 South to CR 599/128th Avenue, Highlands and Okeechobee Counties, Florida* prepared by ACI in 2025. While the linear resources have not been evaluated by the SHPO, they were considered eligible for listing in the NRHP as a result of the 2025 CRAS. The linear resources are located immediately adjacent to the Regional Basin 6 area and pond site 8B. The segment of the Kissimmee River (C-38 Canal) was channelized in ca. 1966 and appears significant under Criterion A in the areas of Community Planning and Development and Conservation and Criterion C in the area of Engineering for its association with the ecological and developmental history of south and central Florida and the Herbert Hoover Dike. The Slough Ditch Canal C-41A (8HG01127) is a ca. 1940s canal which carries water from Lake Istokpoga to the Kissimmee River which empties into Lake Okeechobee. The Slough Ditch Canal (C-41A) (8HG01127) represents a later component of the Central and South Florida Flood Control (C&SF) Project to improve and modify the Lake Okeechobee and Lower Kissimmee River/Lake Istokpoga Basins. The canal was developed as part of an ongoing process of draining land for agricultural development south of Lake Istokpoga within the Lower Kissimmee River/Lake Istokpoga Basin. The resource is also associated with the development of the Kissimmee River Canal (C-38). The resource appears eligible for listing in the NRHP under Criterion A in the areas of Community Planning and Development and Agriculture.

The potential for newly identified historic resources was determined by examining the appropriate USGS quadrangle maps, historic aerial imagery, and property appraiser records (McIntyre 2025; Bandi 2025). Based on this preliminary research, there are approximately five newly identified historic resources, 45 years of age or older (constructed in 1979 or earlier), within and/or adjacent to the proposed pond sites (**Table 3**). These include four linear resources and one ca. 1958 building. The linear resources were constructed between ca. 1958 and ca. 1974 and are considered common examples of agricultural drainage systems found throughout Florida and are associated with minor irrigation and field channels or branch or distributary canals. Based on historic aerials and the Highlands County Property Appraiser, the building was constructed between 1958 and 1968 and is of the Masonry Vernacular style (USDA 1958, 1968; McIntyre 2025). Additionally, a review of the Veteran's Grave Registration, compiled in 1940-1941, indicated no cemeteries within or adjacent to the proposed pond sites and easements (Work Progress Administration 1941).

3.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the preliminary analysis, no proposed pond site should be avoided due to cultural resource issues. With regard to archaeological resources, it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided as much of the area has undergone substantial disturbance due to agricultural activities, however, some have a higher potential for the discovery of a new site due to the proximity of potential tree islands within or adjacent to these locations, as well as

the presence of historic trails that run through some of the pond sites. The historical background research revealed three historic linear resources (8HG01725, 8HG01727, and 8HG01728) were previously recorded within the proposed pond sites. These linear resources are common examples of agricultural drainage systems found throughout Florida and were considered ineligible for listing in the NRHP as a finding in the 2025 SR 70 CRAS. A review of relevant historic USGS quadrangle maps, historic aerial photographs, and the Highlands and Okeechobee County property appraisers' website data revealed the potential for three newly identified linear historic resource 45 years of age or older (constructed in 1979 or earlier) within the proposed pond sites (McIntyre 2025; Bandi 2025). These linear resources are associated with minor irrigation and field channels or branch or distributary canals which are common examples of drainage systems found throughout Florida. With regards to historic resources, it does not appear that any of the proposed ponds, easements, or pond outfalls should be avoided. Following the selection of preferred pond sites, systematic archaeological field survey is recommended in accordance with the guidelines and standards promulgated by the FDOT and FDHR. Even if the selected pond sites are considered to have a low potential, they should be surveyed and judgmentally tested. Furthermore, due the presence of historic resources in relation to the proposed pond sites, a historical/architectural field survey is also recommended.

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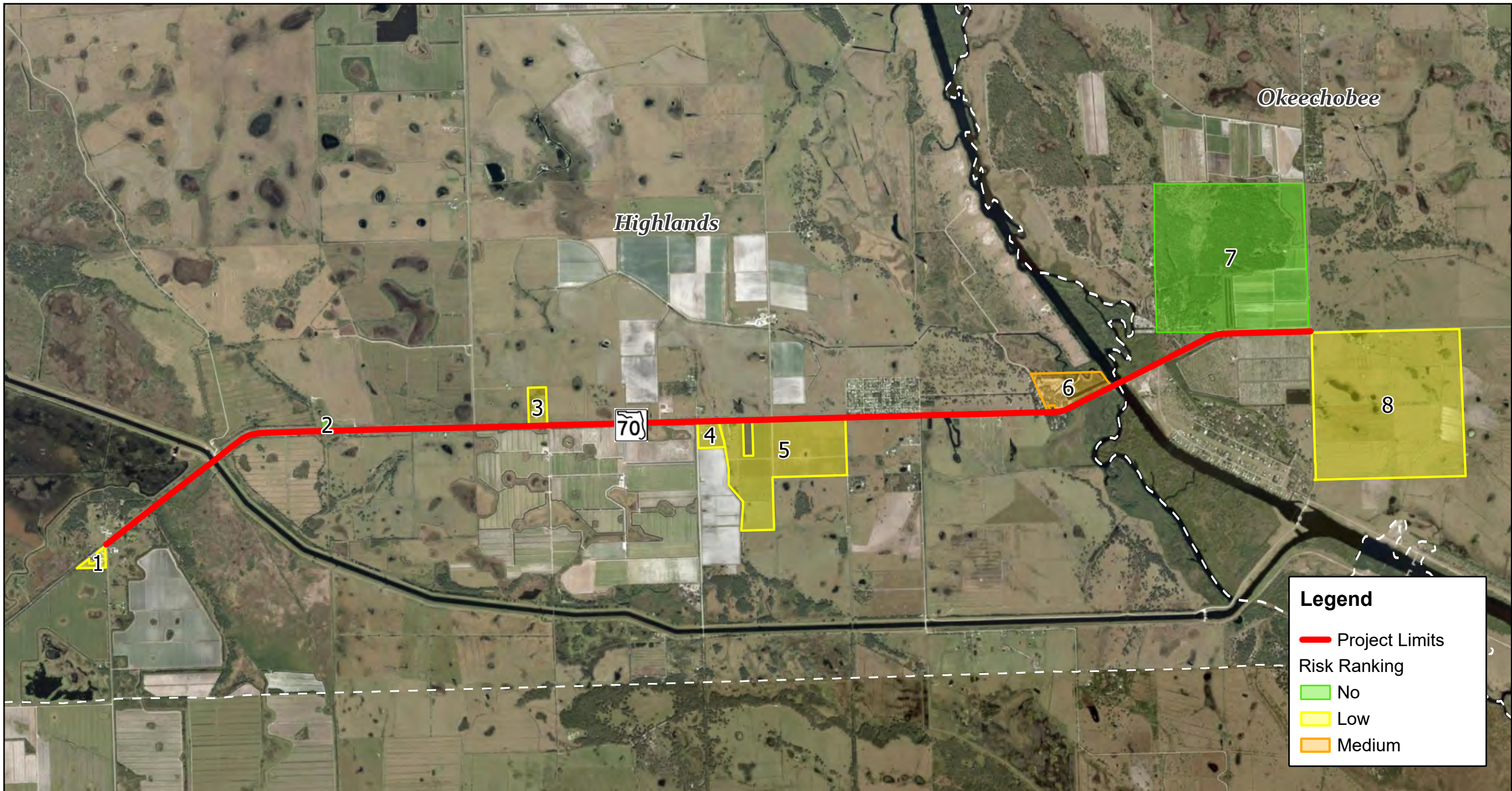
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Appendix L Contamination



Ranked Contamination Sites

FPID No. 450334-1-22-01
SR 70 from CR 721 to CR 599/128th Avenue
Highlands and Okeechobee Counties

Image Source: ESRI
Image Date: 2023/2024



0 0.75 1.5
Miles

POTENTIAL CONTAMINATION SITES

Facility Location Number	Facility Name	Facility Address / Location	Facility ID	Facility Type	Discharge / Report Date	Contamination	Distance to Nearest Pond Parcel (feet)	Distance to Location of Identified Concern (feet)	Remediation Status	Risk Rating
						Soil/GW				
1	Lykes Bros Inc – FL Ranch	Corner Hwy 721 & Hwy 70	8521052	AST	N/A	No	600	350	None	Low
2	Glades Electric Cooperative Ing Morris	20899 FL-70	FLR000090811	Electrical Transmission	N/A	No	2,275*	0	None	No
3	Florida Gas Transmission Company	20179 State Highway 70	550060	Gas Transmission	N/A	No	2,010*	0	None	Low
4	Arrow B Ranch	150 Fulmar Terrace	9602537	UST, AST, LAST	1996	Yes	0	410	SRCO in 2025	No
						Yes				
5	Circle G Ranch	7200 SW 196 th Terrace	8945232	AST	N/A	No	0	0	None	Low
6	Kissimmee River Fishing Resort	15601 Hwy 70	5280155, 8512513, ERP_310351, FLA014390	UST, LUST	1995, 2017	Yes	300	40	Currently undergoing cleanup activities for 2017 discharge	Medium
						Yes				
7	Gloria Farms Inc	Platts Bluff Road	8735273	UST	N/A	No	0	450	None	No
8	Rio Rancho Corp	12300 Hwy 70 W	8731938	AST, LAST	1993	Yes	4,780*	2,210*	No Action Required	Low
						No				

Note: (*) used to denote distance outside of applicable search buffer

-Distance to Nearest Pond Parcel is defined as the distance from the contaminated parcel boundary to the nearest pond parcel identified.

-Distance to Location of Identified Concern is defined as the distance from existing R/W to either the point assigned to the facility by the FDEP or the approximate location at which a potential source of contamination has been identified. If multiple facility IDs have been assigned by FDEP to a single parcel, the point nearest to the project area is used.

Data Derived from FDEP OCULUS database, FDEP Map Direct application, the Environmental Data Resources report, and field review results.

Acronyms:

AST – Aboveground Storage Tank

UST – Underground Storage Tank

LAST – Leaking Aboveground Storage Tank

LUST – Leaking Underground Storage Tank

SRCO – Site Rehabilitation Completion Order

Appendix M

Proposed Typical Sections

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

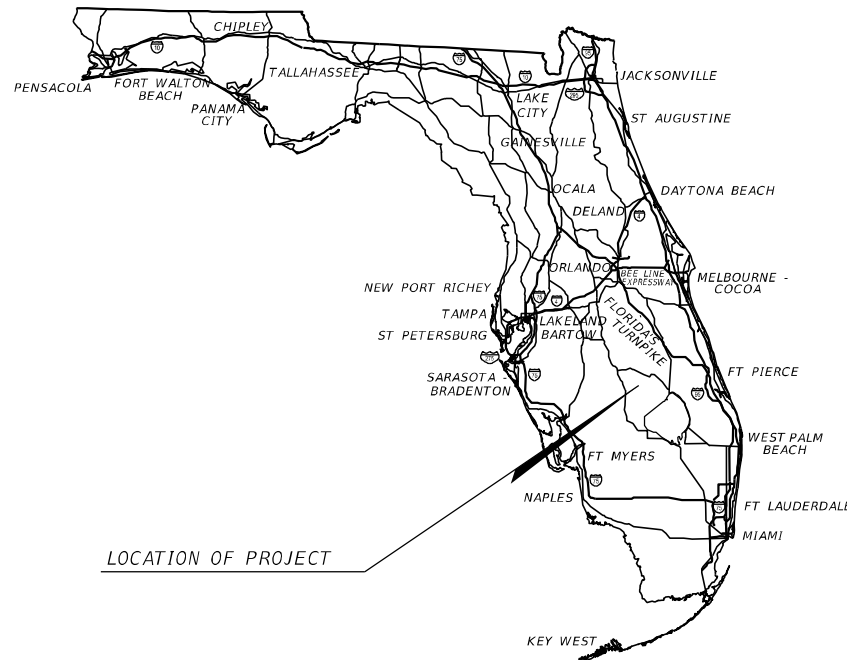
TYPICAL SECTION PACKAGE

FINANCIAL PROJECT ID 450334-1-22-01

HIGHLANDS COUNTY (09060)
OKEECHOBEE COUNTY (91070)

STATE ROAD NO. 70

ADD LANES AND RECONSTRUCT FROM CR 721 S TO CR 599/128 AVE



LOCATION OF PROJECT

FDOT DISTRICT DESIGN ENGINEER

FDOT DISTRICT TRAFFIC OPERATIONS
ENGINEER



Digitally signed
by Kevin Ingle
Date: 2025.09.29
09:10:30-04'00'

CONCURRING WITH:
TYPICAL SECTION ELEMENTS
TARGET SPEED
DESIGN & POSTED SPEEDS



Steven A Davis
Jr
2025.09.29
08:55:25 -04'00'

CONCURRING WITH:
TARGET SPEED
DESIGN & POSTED SPEEDS

FDOT DISTRICT INTERMODAL SYSTEMS
DEVELOPMENT MANAGER

FDOT DISTRICT STRUCTURES
DESIGN ENGINEER

Bessie
Reina

Digitally signed by: Bessie,
Reina
DN: CN = Bessie Reina C =
US O = FLORIDA
DEPARTMENT OF
TRANSPORTATION
Date: 2025.09.26 16:51:53
-04'00'

CONCURRING WITH:
CONTEXT CLASSIFICATION
TARGET SPEED

Mark L
Peronto

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Peronto
DN: CN = Mark L Peronto C =
US O = FLORIDA
DEPARTMENT OF
TRANSPORTATION
Date: 2025.09.24 09:49:05
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CONCURRING WITH:
TYPICAL SECTION ELEMENTS

FHWA TRANSPORTATION ENGINEER

LOCAL TRANSPORTATION ENGINEER

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

CONCURRING WITH:
TYPICAL SECTION ELEMENTS

PROJECT LOCATION URL: <https://tinyurl.com/4k3pfhpy>

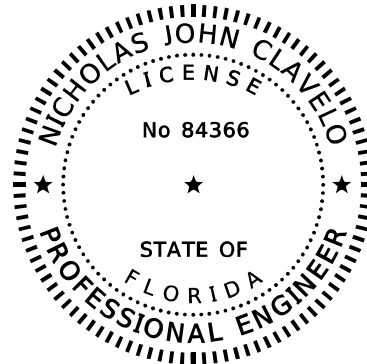
PROJECT LIMITS: BEGIN MP 29.187 - END MP 1.423
STATION EQUATION: MP 36.334 (09060000) = MP 0.000 (91070000)

EXCEPTIONS: NONE

BRIDGE LIMITS: BR#090053 MP 30.128 - MP 30.168
BR#910001 MP 0.000 - MP 0.080

RAILROAD CROSSING: NONE

APPROVED BY:



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY:

Nicholas J Clavelo 2025.09.17
10:12:51-04'00'

ON THE DATE ADJACENT TO THE SEAL

THE SIGNATURE MUST BE VERIFIED
ON ANY ELECTRONIC COPIES.

SCALAR CONSULTING GROUP, LLC.
5713 CORPORATE WAY, SUITE 200
WEST PALM BEACH, FL 33407
NICHOLAS JOHN CLAVELO, P.E. NO. 84366

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

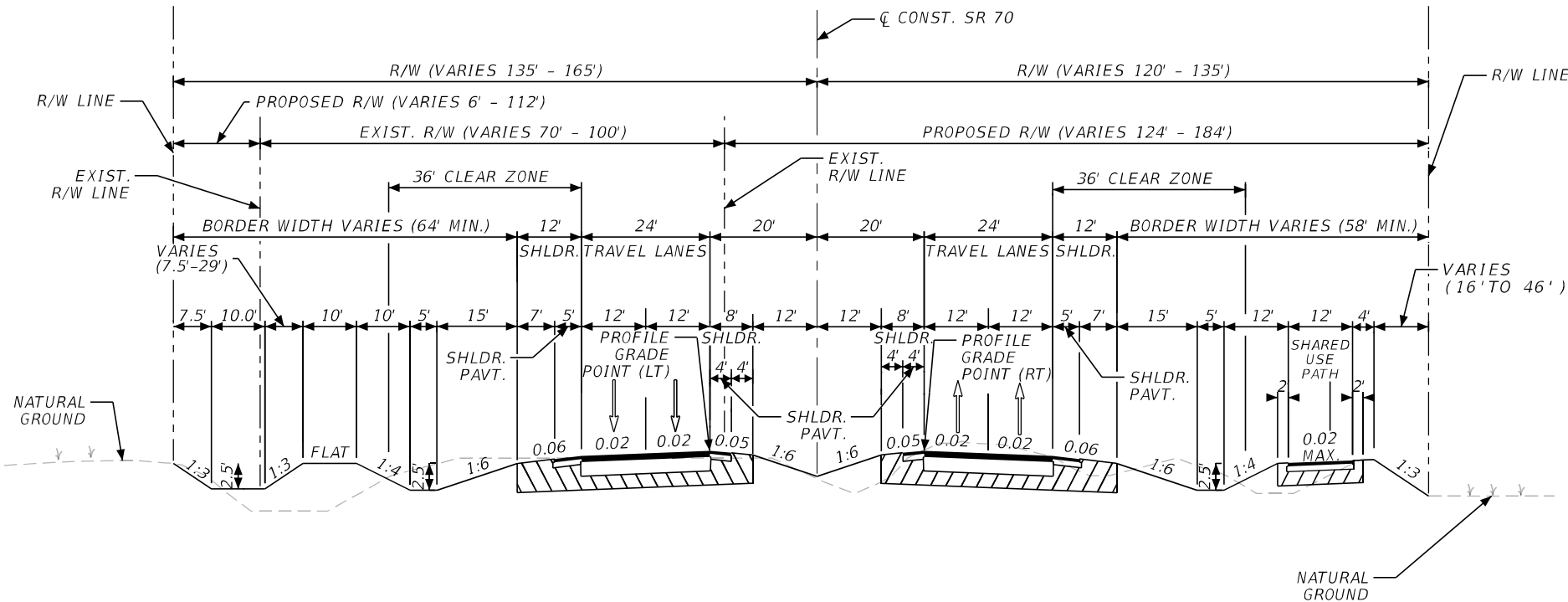
INDEX OF SHEETS

SHEET NO	SHEET DESCRIPTION
1	COVER SHEET
2	TYPICAL SECTION NO. 1
3	TYPICAL SECTION NO. 2
4	TYPICAL SECTION NO. 3
5	TYPICAL SECTION NO. 4
6	TYPICAL SECTION NO. 5

SHEET
NO.

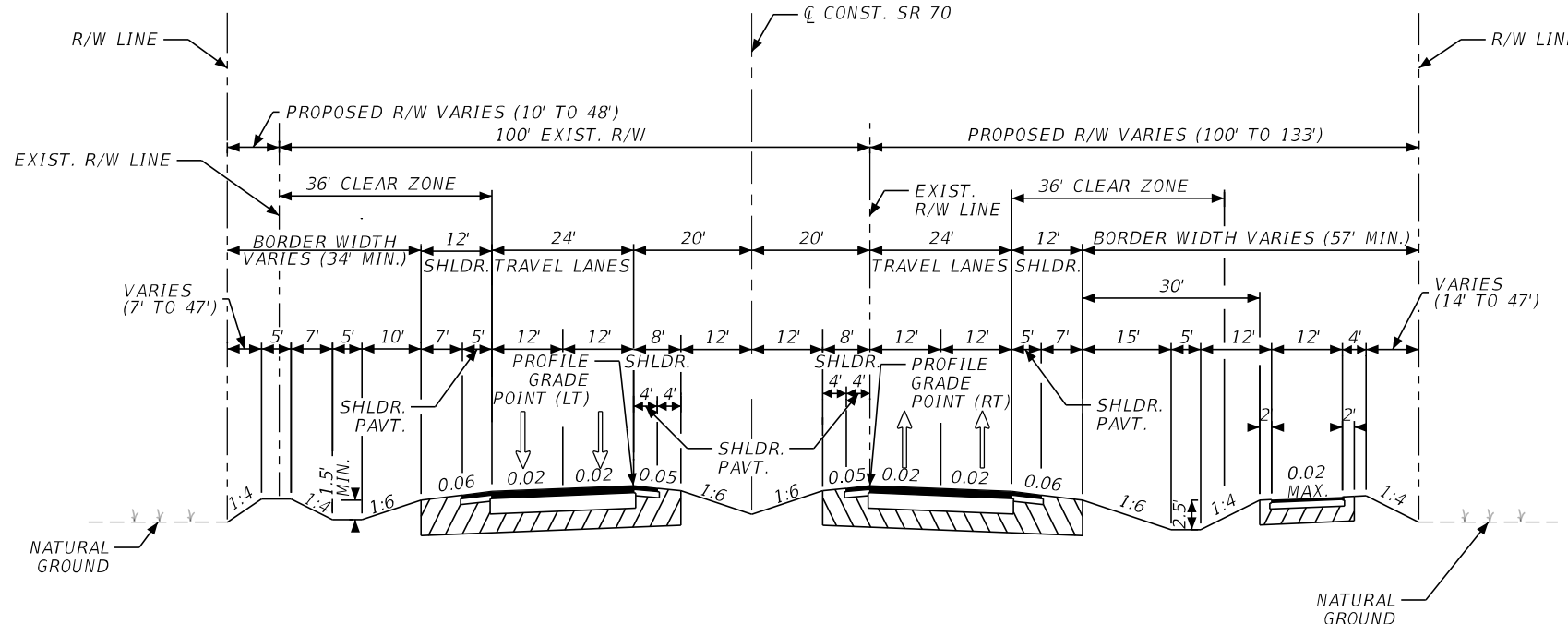
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9/17/2025 10:11:31 AM nclavelo P:\FL23010.00 SR 70 PD&E Study\450334\2201\roadway\TY\PRD02_Alt1.dgn

PROJECT CONTROLS		TYPICAL SECTION No. 1					
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<div>FUNCTIONAL CLASSIFICATION</div> <div><div><div><div></div><div>INTERSTATE</div></div><div><div></div><div>FREEWAY/EXPWY.</div></div><div><div></div><div>PRINCIPAL ARTERIAL</div></div><div><div></div><div>MINOR ARTERIAL</div></div></div><div><div><div></div><div>MAJOR COLLECTOR</div></div><div><div></div><div>MINOR COLLECTOR</div></div><div><div></div><div>LOCAL</div></div></div></div>							
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<div>POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:</div>		<div><div>TRAFFIC DATA</div><div>CURRENT YEAR = 2023 AADT = 7590 ESTIMATED OPENING YEAR = 2032 AADT = 8800 ESTIMATED DESIGN YEAR = 2052 AADT = 14500 K = 9.5% D = 58.0% T = 25% (24 HOUR) DESIGN HOUR T = 12.5% TARGET SPEED = 65 MPH DESIGN SPEED (PROPOSED) = 65 MPH POSTED SPEED (PROPOSED) = 65 MPH</div></div> <div><div>NOT TO SCALE</div><table><tr><th>FINANCIAL PROJECT ID</th><th>SHEET NO.</th></tr><tr><td>450334-1-22-01</td><td>2</td></tr></table></div>		FINANCIAL PROJECT ID	SHEET NO.	450334-1-22-01	2
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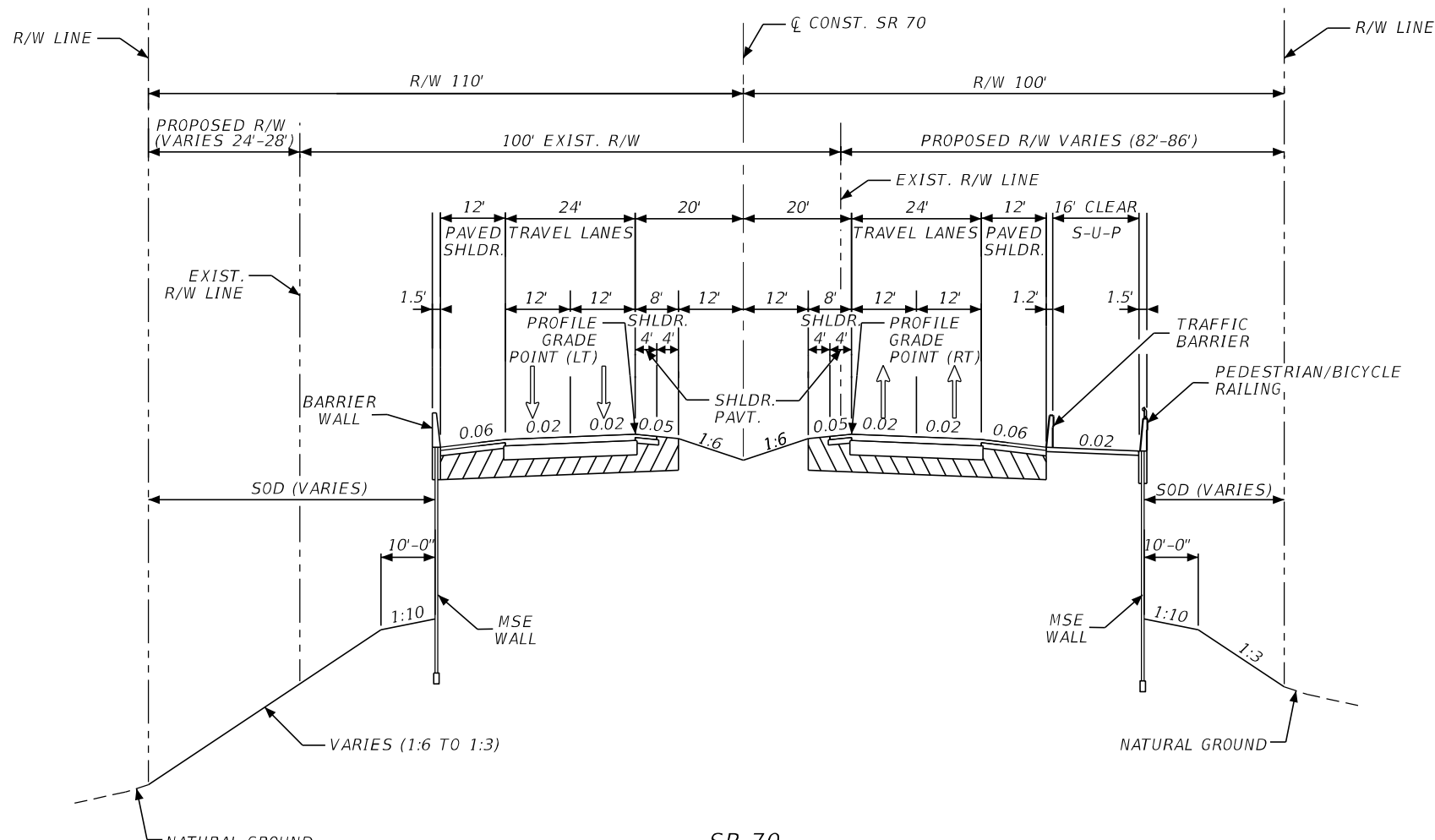
NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

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<div>PROJECT CONTROLS</div> <div>CONTEXT CLASSIFICATION</div> <div><div><div><div></div><div>C1 : NATURAL</div></div><div><div></div><div>C2 : RURAL</div></div><div><div></div><div>C2T : RURAL TOWN</div></div><div><div></div><div>C3R : SUBURBAN RES.</div></div><div><div></div><div>N/A : L.A. FACILITY</div></div></div><div><div><div></div><div>C3C : SUBURBAN COMM.</div></div><div><div></div><div>C4 : URBAN GENERAL</div></div><div><div></div><div>C5 : URBAN CENTER</div></div><div><div></div><div>C6 : URBAN CORE</div></div></div></div>	<div>TYPICAL SECTION No. 2</div> <div><div>SR 70 STA. 754+00.00 TO STA. 765+30.00</div></div>					
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<div>POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:</div> <div>BORDER WIDTH VARIATION</div>	<div>TRAFFIC DATA</div> <div>CURRENT YEAR = 2023 AADT = 7590 ESTIMATED OPENING YEAR = 2032 AADT = 8800 ESTIMATED DESIGN YEAR = 2052 AADT = 14500 K = 9.5% D = 58.0% T = 25% (24 HOUR) DESIGN HOUR T = 12.5% TARGET SPEED = 65 MPH DESIGN SPEED (PROPOSED) = 65 MPH POSTED SPEED (PROPOSED) = 65 MPH</div> <div>NOT TO SCALE</div> <table><tr><th>FINANCIAL PROJECT ID</th><th>SHEET NO.</th></tr><tr><td>450334-1-22-01</td><td>3</td></tr></table>		FINANCIAL PROJECT ID	SHEET NO.	450334-1-22-01	3
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450334-1-22-01	3					

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PROJECT CONTROLS		TYPICAL SECTION No. 3	
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		<div>NOT TO SCALE</div>	
		<div>FINANCIAL PROJECT ID</div>	<div>SHEET NO.</div>
		<div>450334-1-22-01</div>	<div>4</div>

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PROJECT CONTROLS

CONTEXT CLASSIFICATION

() C1 : NATURAL	() C3C : SUBURBAN COMM.
(X) C2 : RURAL	() C4 : URBAN GENERAL
() C2T : RURAL TOWN	() C5 : URBAN CENTER
() C3R : SUBURBAN RES.	() C6 : URBAN CORE
() N/A : L.A. FACILITY	

FUNCTIONAL CLASSIFICATION

() INTERSTATE	() MAJOR COLLECTOR
() FREEWAY/EXPWY.	() MINOR COLLECTOR
(X) PRINCIPAL ARTERIAL	() LOCAL
() MINOR ARTERIAL	

HIGHWAY SYSTEM

(X)	NATIONAL HIGHWAY SYSTEM
(X)	STRATEGIC INTERMODAL SYSTEM
(X)	STATE HIGHWAY SYSTEM
()	OFF-STATE HIGHWAY SYSTEM

ACCESS CLASSIFICATION

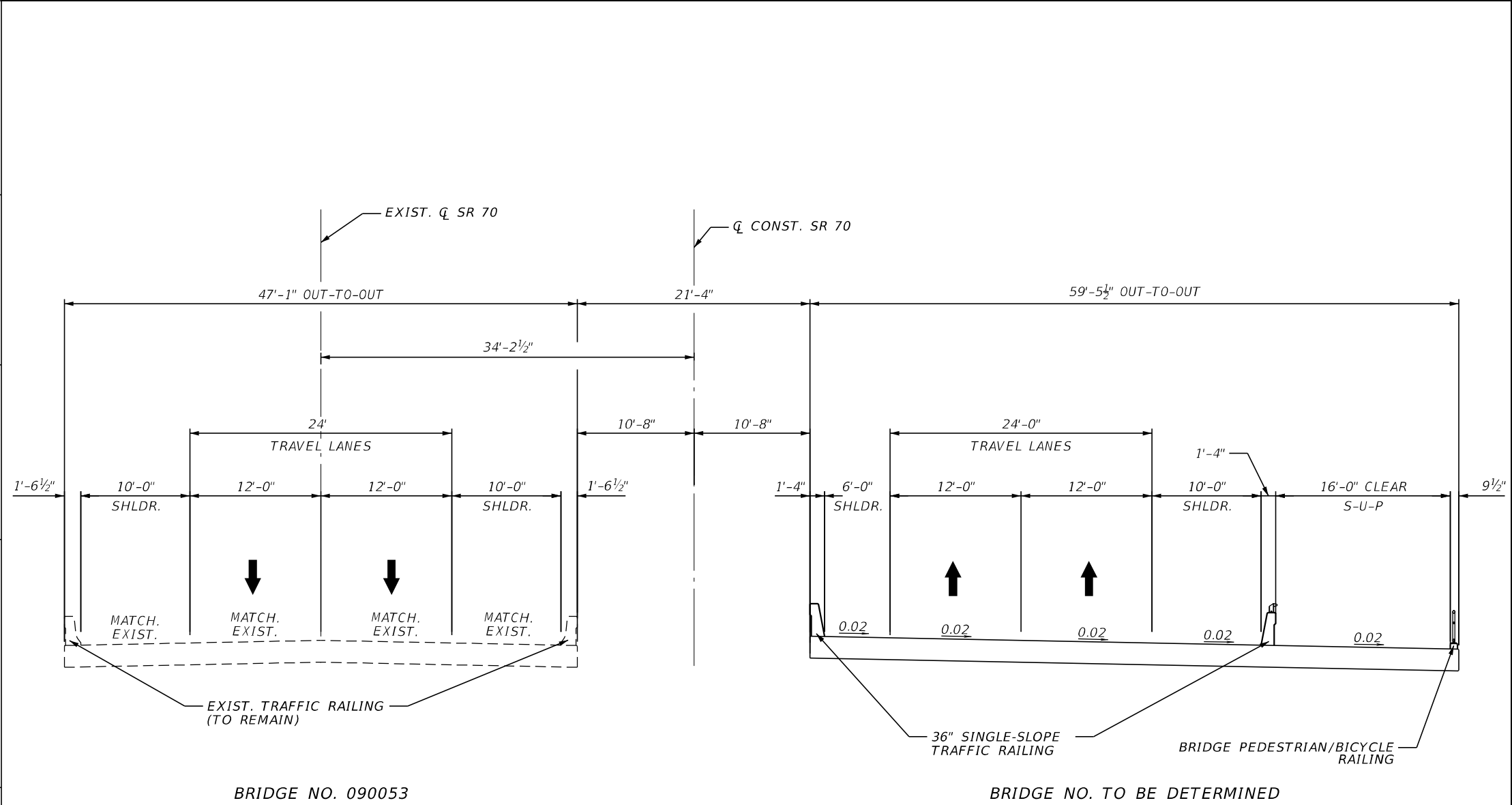
- () 1 - FREEWAY
- () 2 - RESTRICTIVE w/Service Roads
- (X) 3 - RESTRICTIVE w/660 ft. Connection Spacing
- () 4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing
- () 5 - RESTRICTIVE w/440 ft. Connection Spacing
- () 6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing
- () 7 - BOTH MEDIAN TYPES

<u>CRITERIA</u>	
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(X) NEW CONSTRUCTION / RECONSTRUCTION
() RESURFACING (LA FACILITIES)
() RRR (ARTERIALS & COLLECTORS)

POTENTIAL EXCEPTIONS AND VARIATIONS
RELATED TO TYPICAL SECTION:

TYPICAL SECTION No. 4

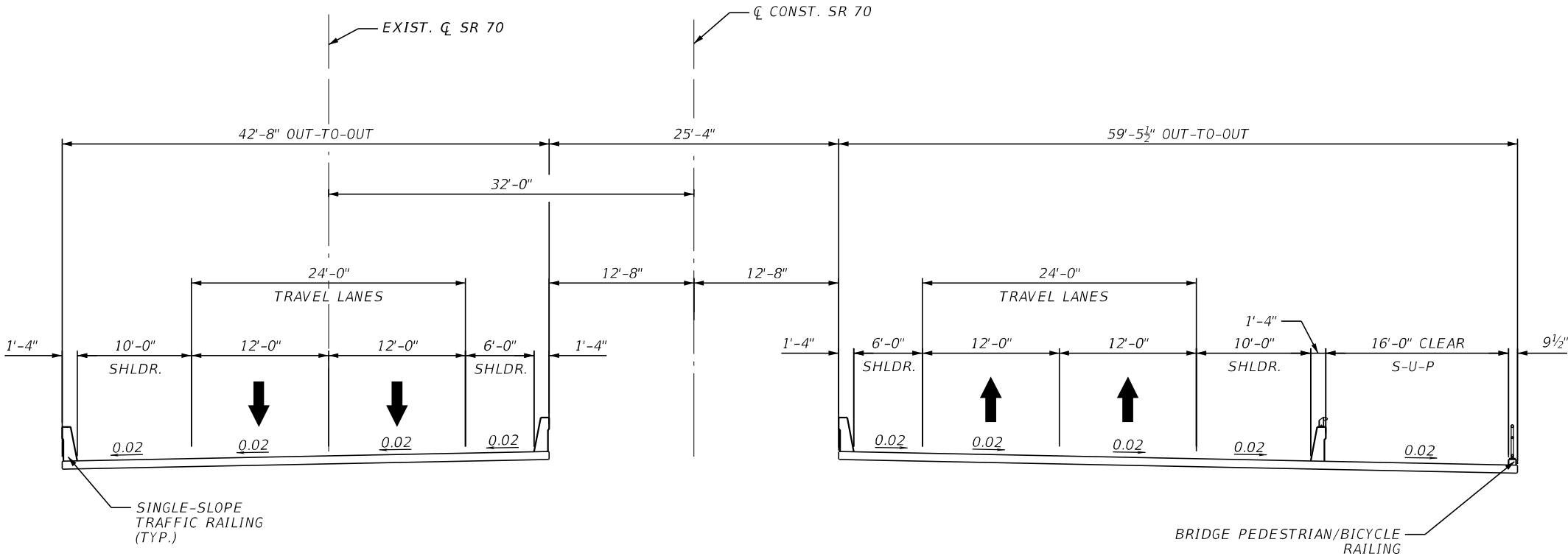


SR 70 OVER SLOUGH DITCH (C-41A CANAL)
MP 30.128 TO MP 30.168
STA. 455+37.39 TO STA. 457+47.39

<div> <div>TRAFFIC DATA</div> <div> CURRENT YEAR = 2023 AADT = 7590 ESTIMATED OPENING YEAR = 2032 AADT = 8800 ESTIMATED DESIGN YEAR = 2052 AADT = 14500 K = 9.5% D = 58.0% T = 25% (24 HOUR) DESIGN HOUR T = 12.5% TARGET SPEED = 65 MPH DESIGN SPEED (PROPOSED) = 65 MPH POSTED SPEED (PROPOSED) = 65 MPH </div> </div>		<div>NOT TO SCALE</div>		
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FINANCIAL PROJECT ID	SHEET NO.			

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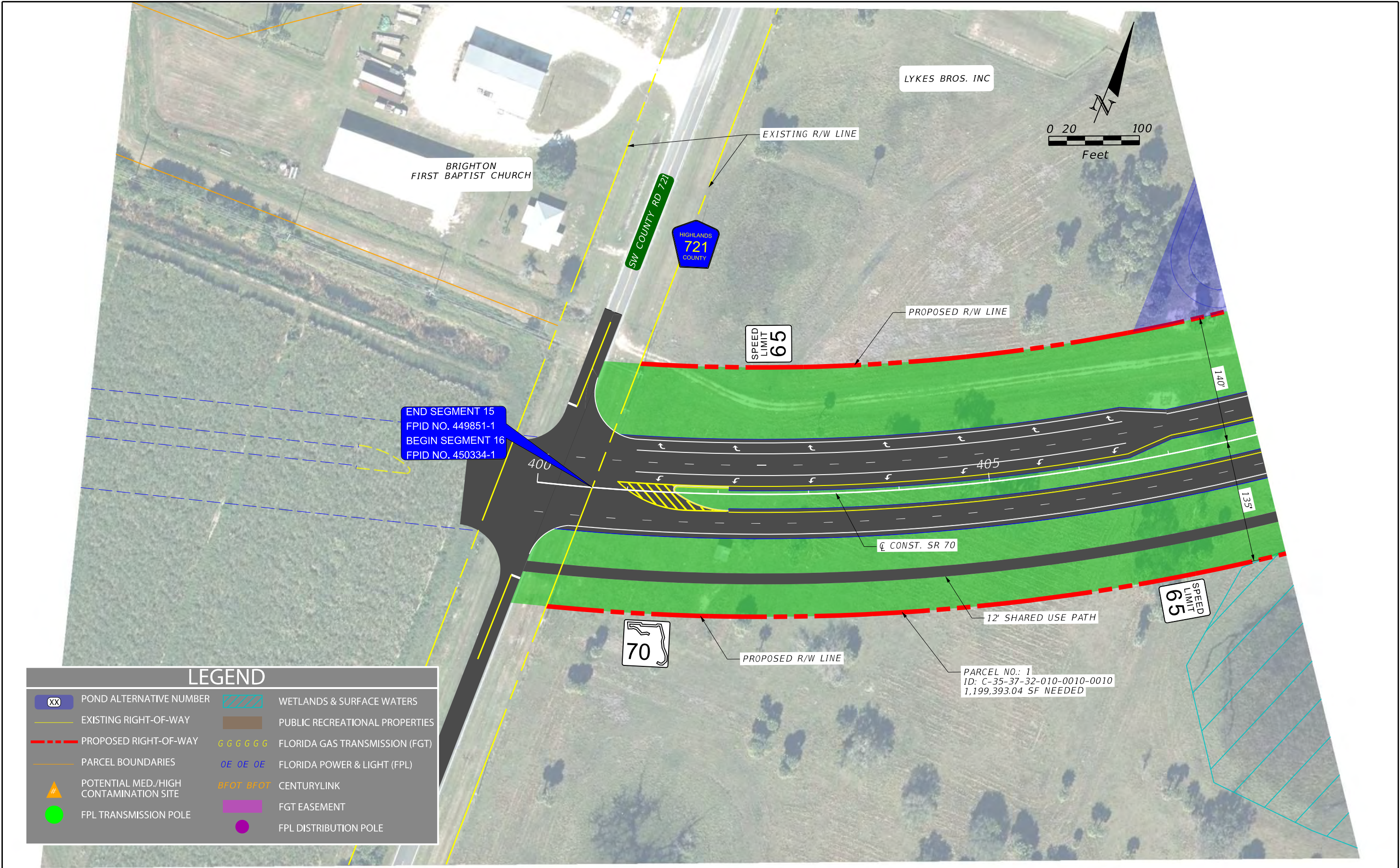
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<div>PROJECT CONTROLS</div> <div>CONTEXT CLASSIFICATION</div> <div><div><div><div></div><div>C1 : NATURAL</div></div><div><div></div><div>C3C : SUBURBAN COMM.</div></div></div><div><div><div></div><div>C2 : RURAL</div></div><div><div></div><div>C4 : URBAN GENERAL</div></div></div><div><div><div></div><div>C2T : RURAL TOWN</div></div><div><div></div><div>C5 : URBAN CENTER</div></div></div><div><div><div></div><div>C3R : SUBURBAN RES.</div></div><div><div></div><div>C6 : URBAN CORE</div></div></div><div><div><div></div><div>N/A : L.A. FACILITY</div></div></div></div> <div>FUNCTIONAL CLASSIFICATION</div> <div><div><div><div></div><div>INTERSTATE</div></div><div><div></div><div>MAJOR COLLECTOR</div></div></div><div><div><div></div><div>FREEWAY/EXPWY.</div></div><div><div></div><div>MINOR COLLECTOR</div></div></div><div><div><div></div><div>PRINCIPAL ARTERIAL</div></div><div><div></div><div>LOCAL</div></div></div><div><div><div></div><div>MINOR ARTERIAL</div></div></div></div> <div>HIGHWAY SYSTEM</div> <div><div><div><div></div><div>NATIONAL HIGHWAY SYSTEM</div></div><div><div></div><div>STRATEGIC INTERMODAL SYSTEM</div></div><div><div></div><div>STATE HIGHWAY SYSTEM</div></div><div><div></div><div>OFF-STATE HIGHWAY SYSTEM</div></div></div></div> <div>ACCESS CLASSIFICATION</div> <div><div><div><div></div><div>1 - FREEWAY</div></div><div><div></div><div>2 - RESTRICTIVE w/Service Roads</div></div></div><div><div><div></div><div>3 - RESTRICTIVE w/660 ft. Connection Spacing</div></div><div><div></div><div>4 - NON-RESTRICTIVE w/2640 ft. Signal Spacing</div></div></div><div><div><div></div><div>5 - RESTRICTIVE w/440 ft. Connection Spacing</div></div><div><div></div><div>6 - NON-RESTRICTIVE w/1320 ft. Signal Spacing</div></div></div><div><div><div></div><div>7 - BOTH MEDIAN TYPES</div></div></div></div> <div>CRITERIA</div> <div><div><div><div></div><div>NEW CONSTRUCTION / RECONSTRUCTION</div></div><div><div></div><div>RESURFACING (LA FACILITIES)</div></div><div><div></div><div>RRR (ARTERIALS & COLLECTORS)</div></div></div></div> <div><div>POTENTIAL EXCEPTIONS AND VARIATIONS RELATED TO TYPICAL SECTION:</div></div>	<div><div>TYPICAL SECTION No. 5</div><div></div><div>BRIDGE NO. TO BE DETERMINED</div><div>BRIDGE NO. TO BE DETERMINED</div><div>SR 70 OVER KISSIMMEE RIVER MP 0.000 TO MP 0.080 STA. 784+84.98 TO STA. 789+04.98</div><div>TRAFFIC DATA</div><div>CURRENT YEAR = 2023 AADT = 7590 ESTIMATED OPENING YEAR = 2032 AADT = 8800 ESTIMATED DESIGN YEAR = 2052 AADT = 14500 K = 9.5% D = 58.0% T = 25% (24 HOUR) DESIGN HOUR T = 12.5% TARGET SPEED = 65 MPH DESIGN SPEED (PROPOSED) = 65 MPH POSTED SPEED (PROPOSED) = 65 MPH</div><div>NOT TO SCALE</div><table><tr><th>FINANCIAL PROJECT ID</th><th>SHEET NO.</th></tr><tr><td>450334-1-22-01</td><td>6</td></tr></table></div>	FINANCIAL PROJECT ID	SHEET NO.	450334-1-22-01	6
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450334-1-22-01	6				

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Appendix N

Concept Plans



XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

FGT EASEMENT

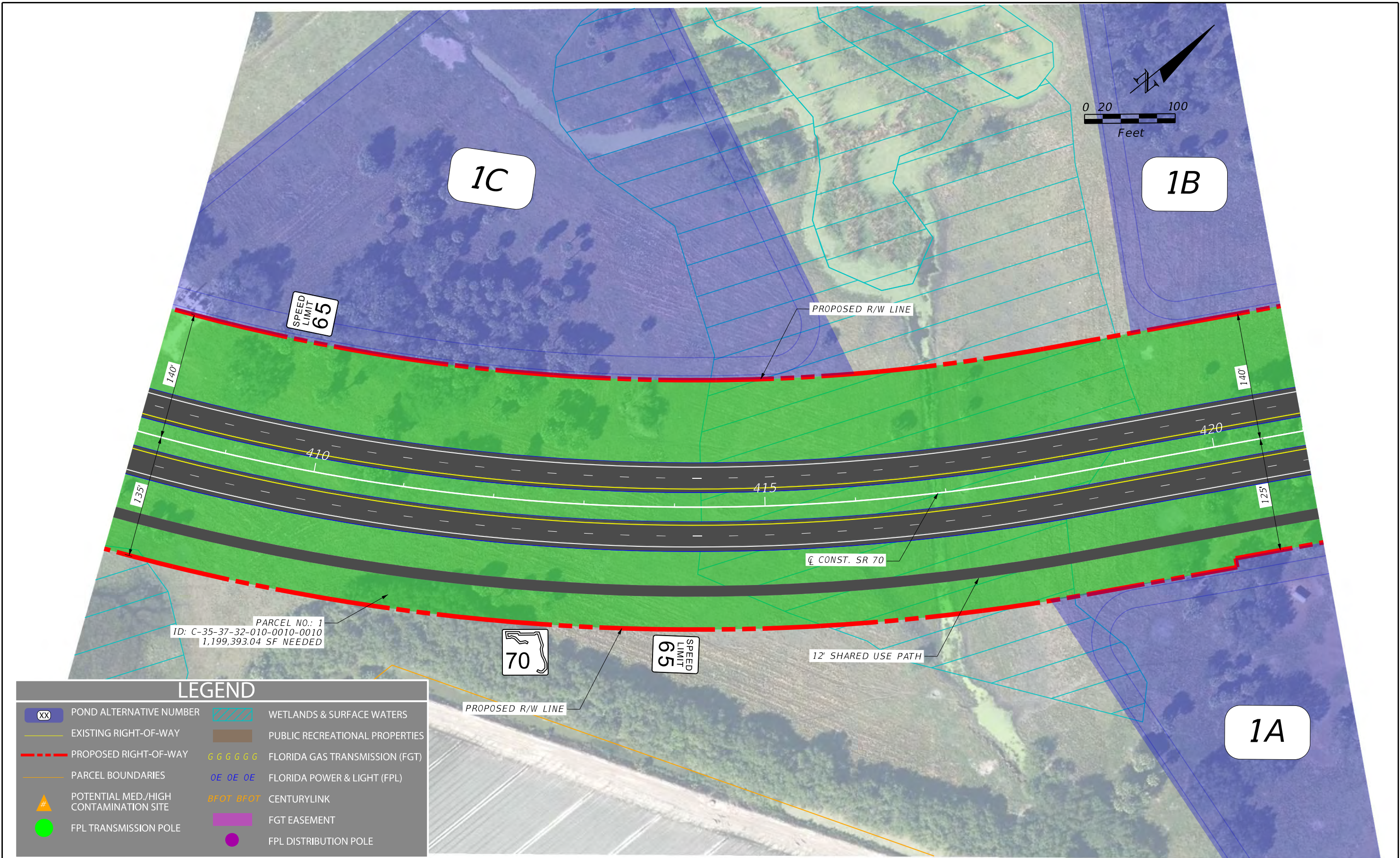
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FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 1
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

FGT

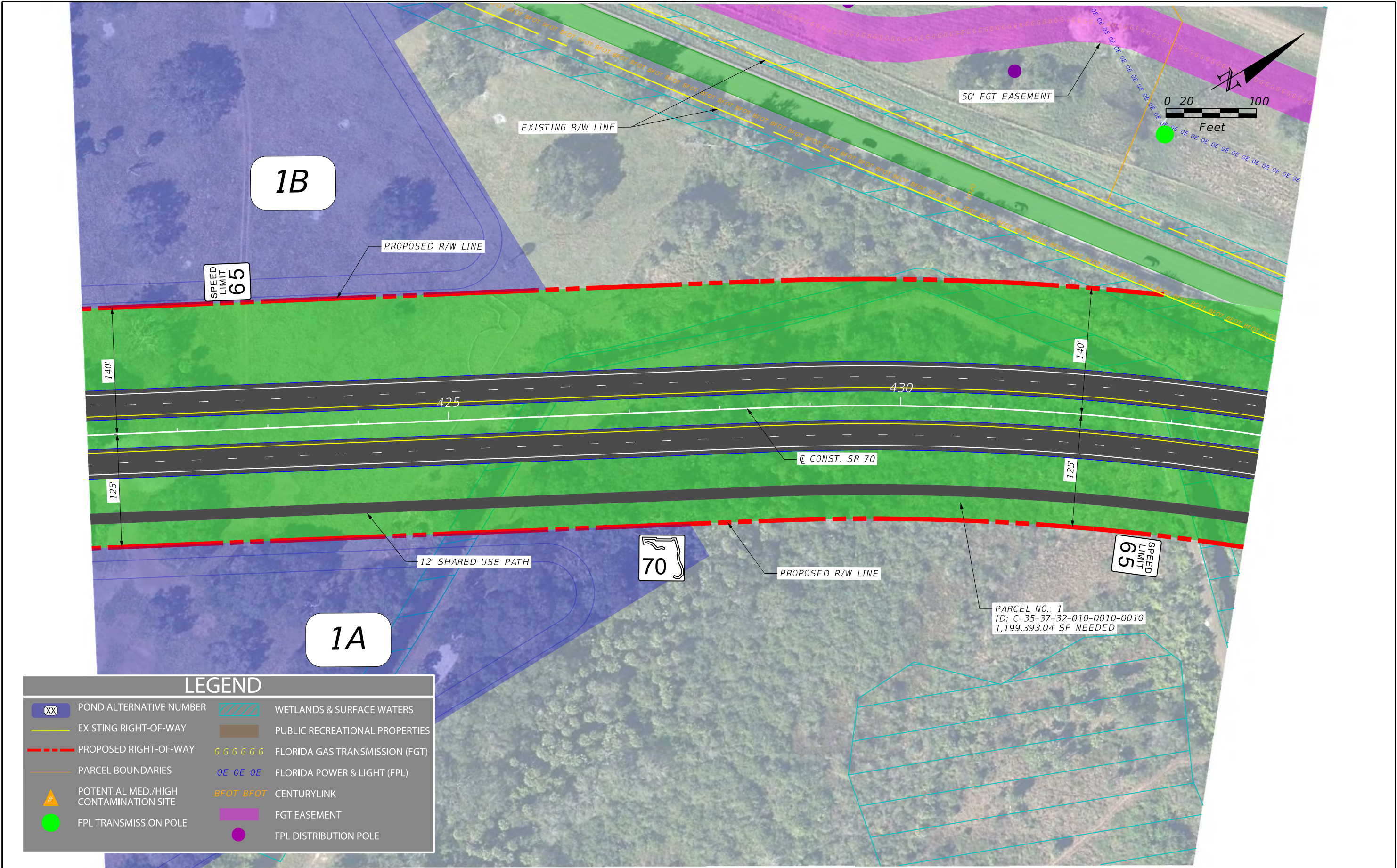
FPL

CENTURYLINK

FGT EASEMENT

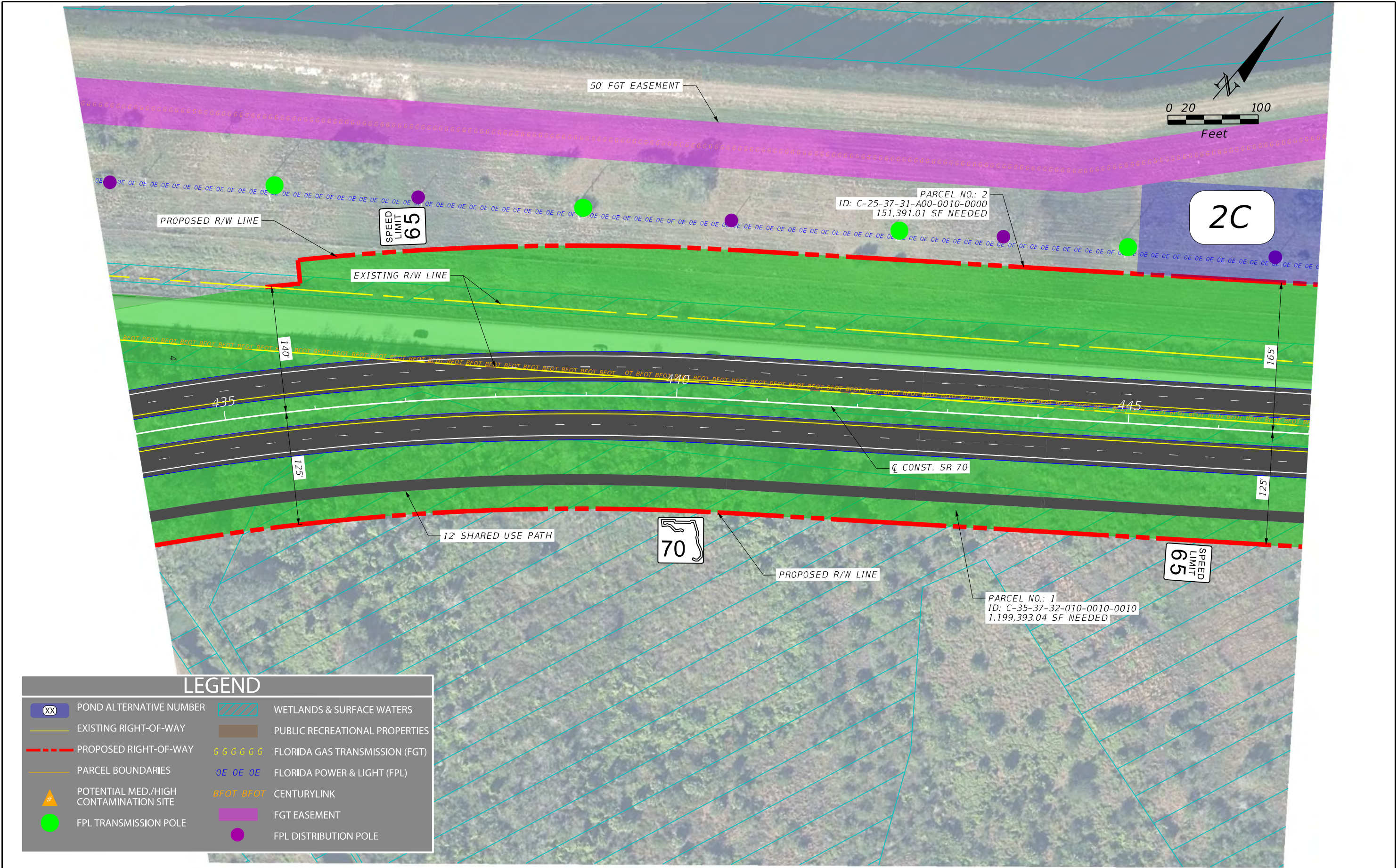
FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		ALTERNATIVE 1 CONCEPT PLAN	SHEET NO. 2
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY		
						SR 70	HIGHLANDS OKEECHOBEE	FINANCIAL PROJECT ID 450334-1-22-01	



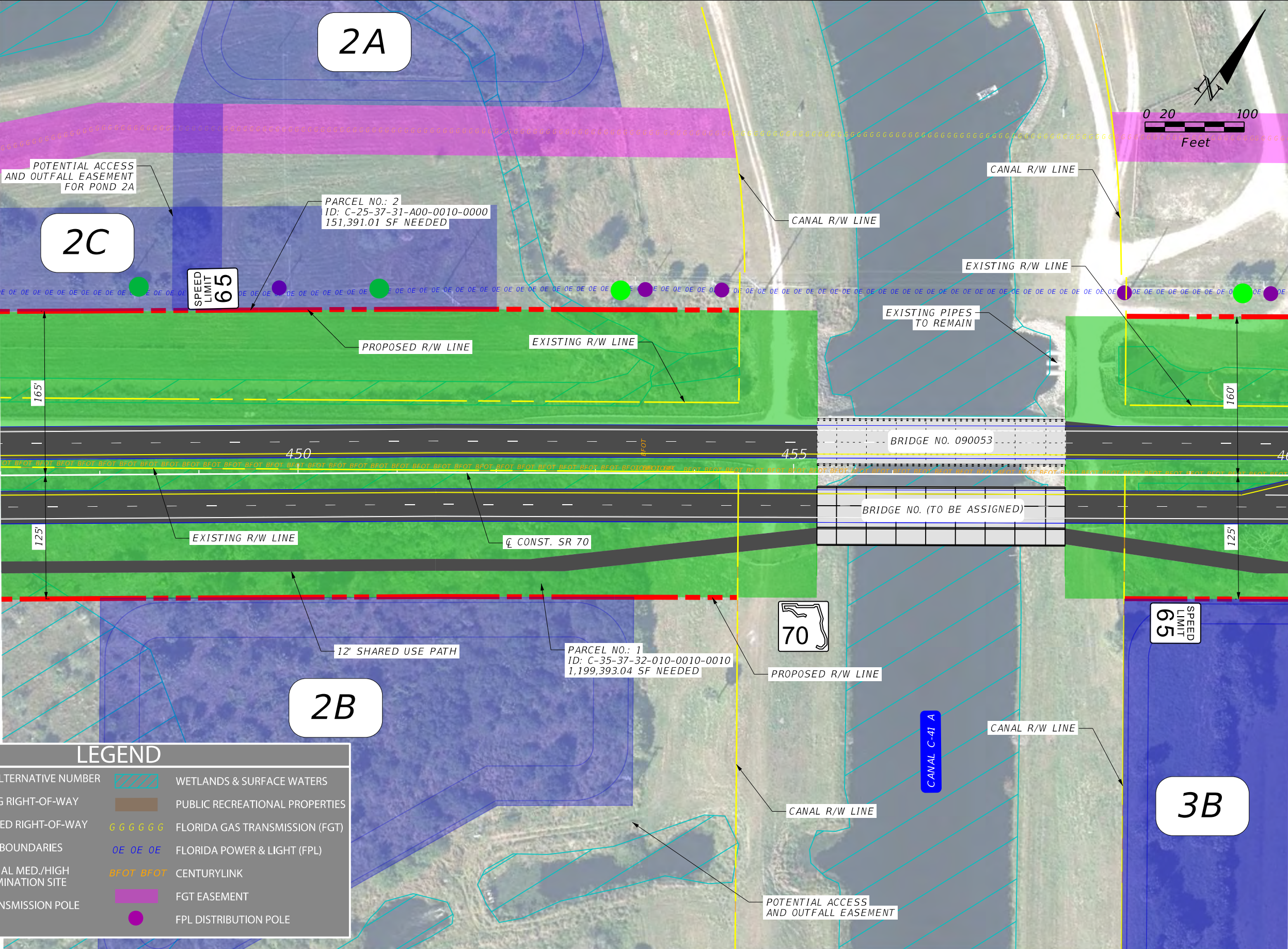
REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		3
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

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REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
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					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

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LEGEND

XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

FGT EASEMENT

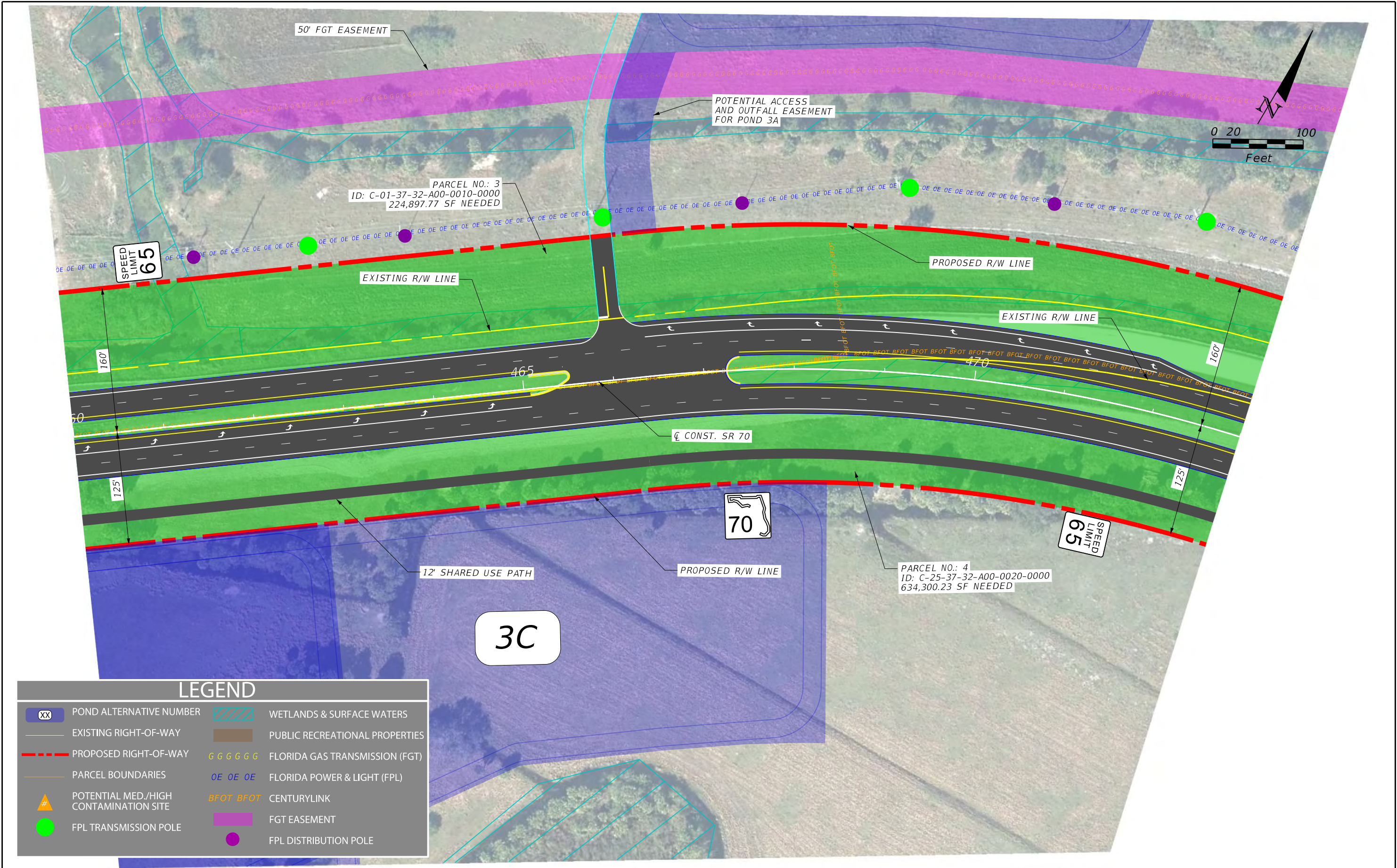
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FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 5
DATE	DESCRIPTION		DATE		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

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FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

FGT EASEMENT

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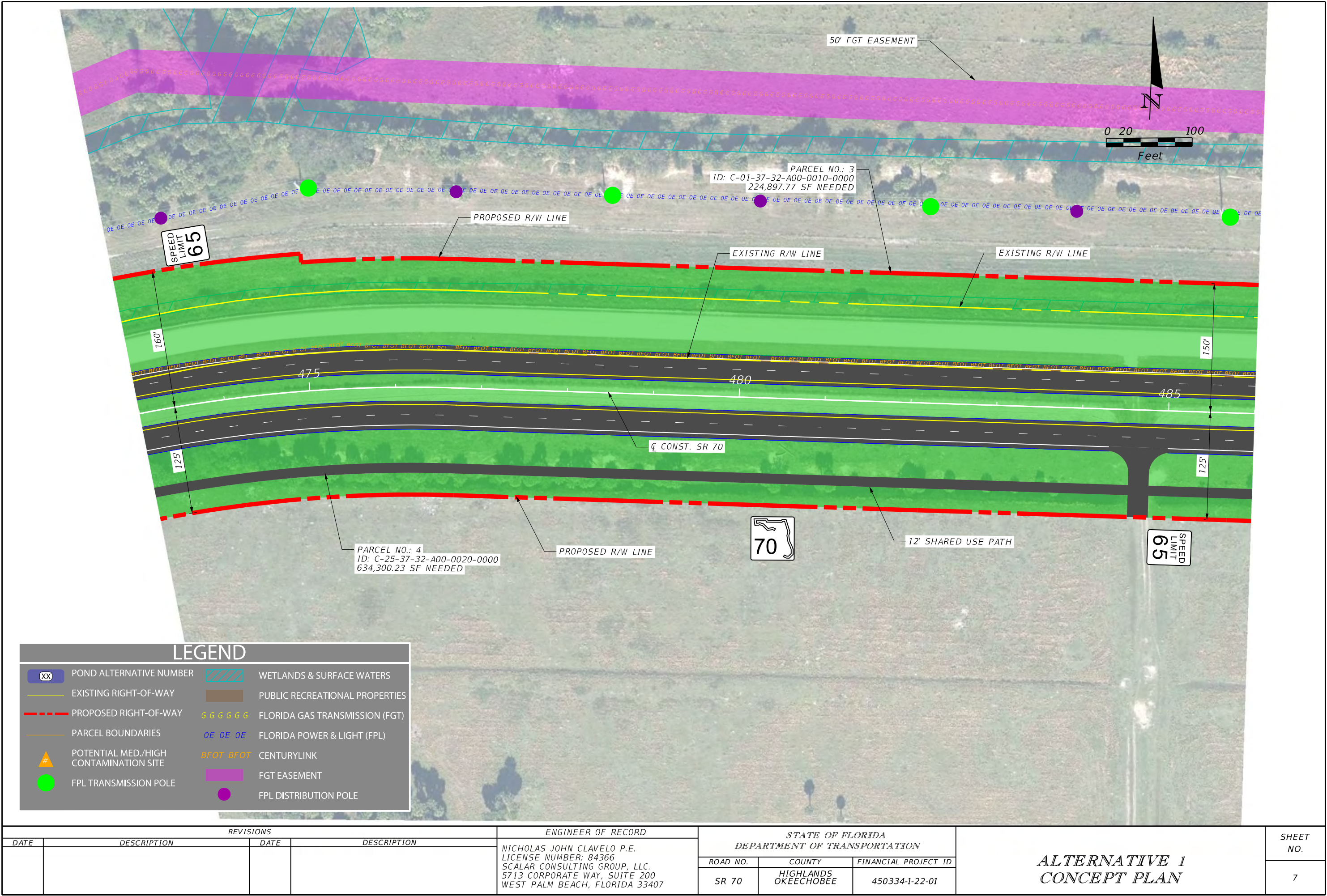
FPL DISTRIBUTION POLE

LEGEND

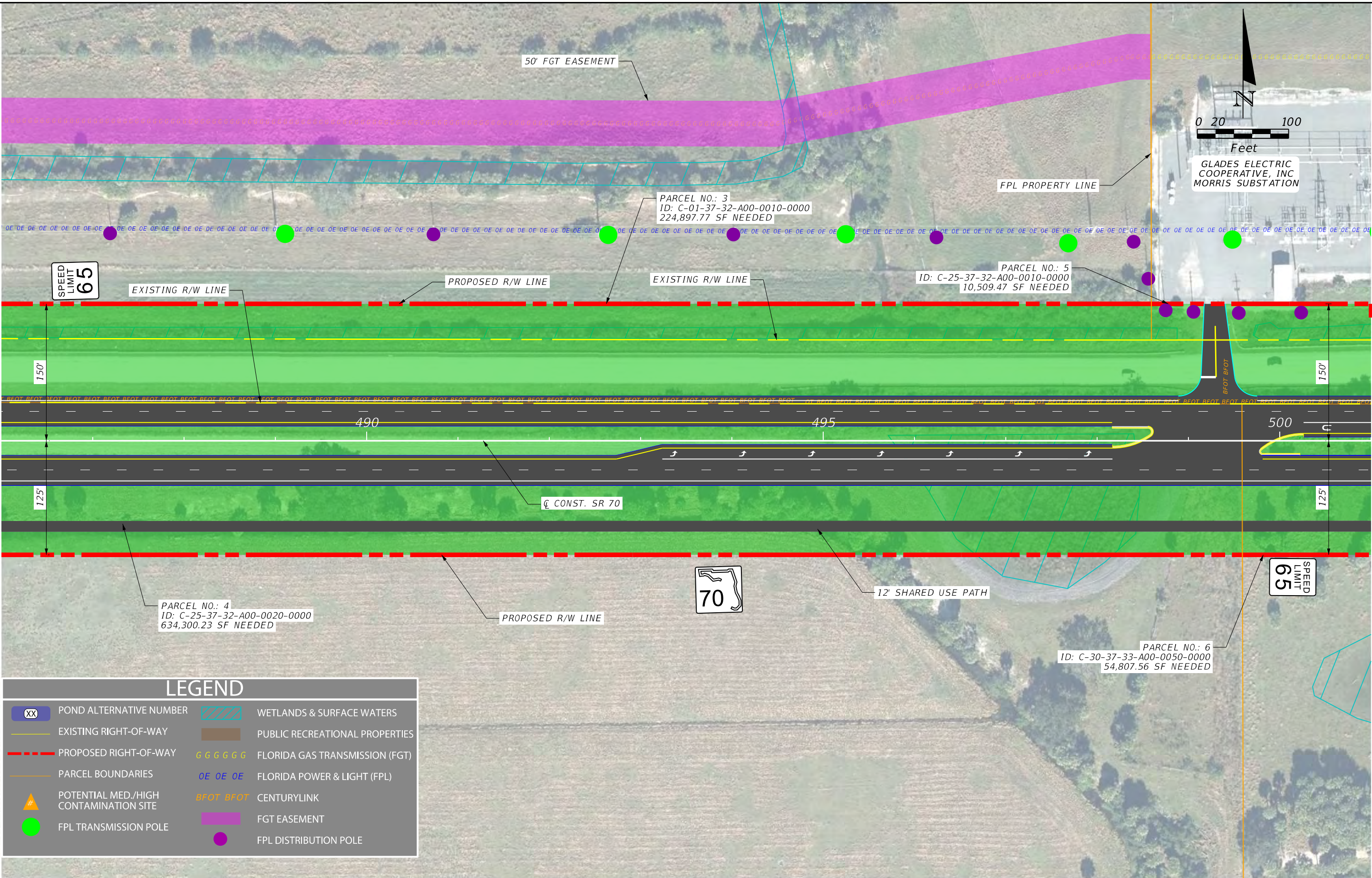
REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY	
						SR 70	HIGHLANDS OKEECHOBEE	
							FINANCIAL PROJECT ID 450334-1-22-01	6

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

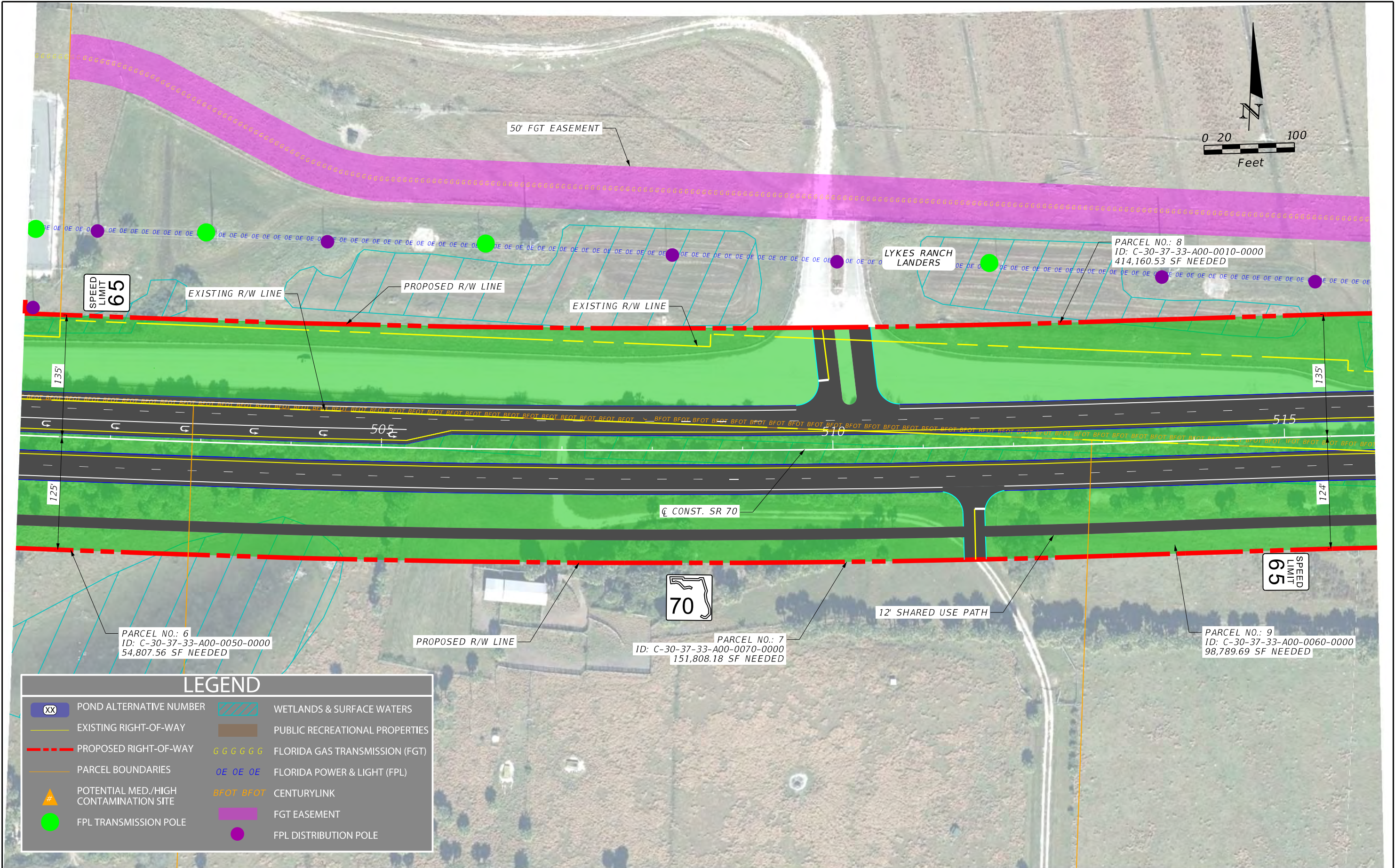


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REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		8
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



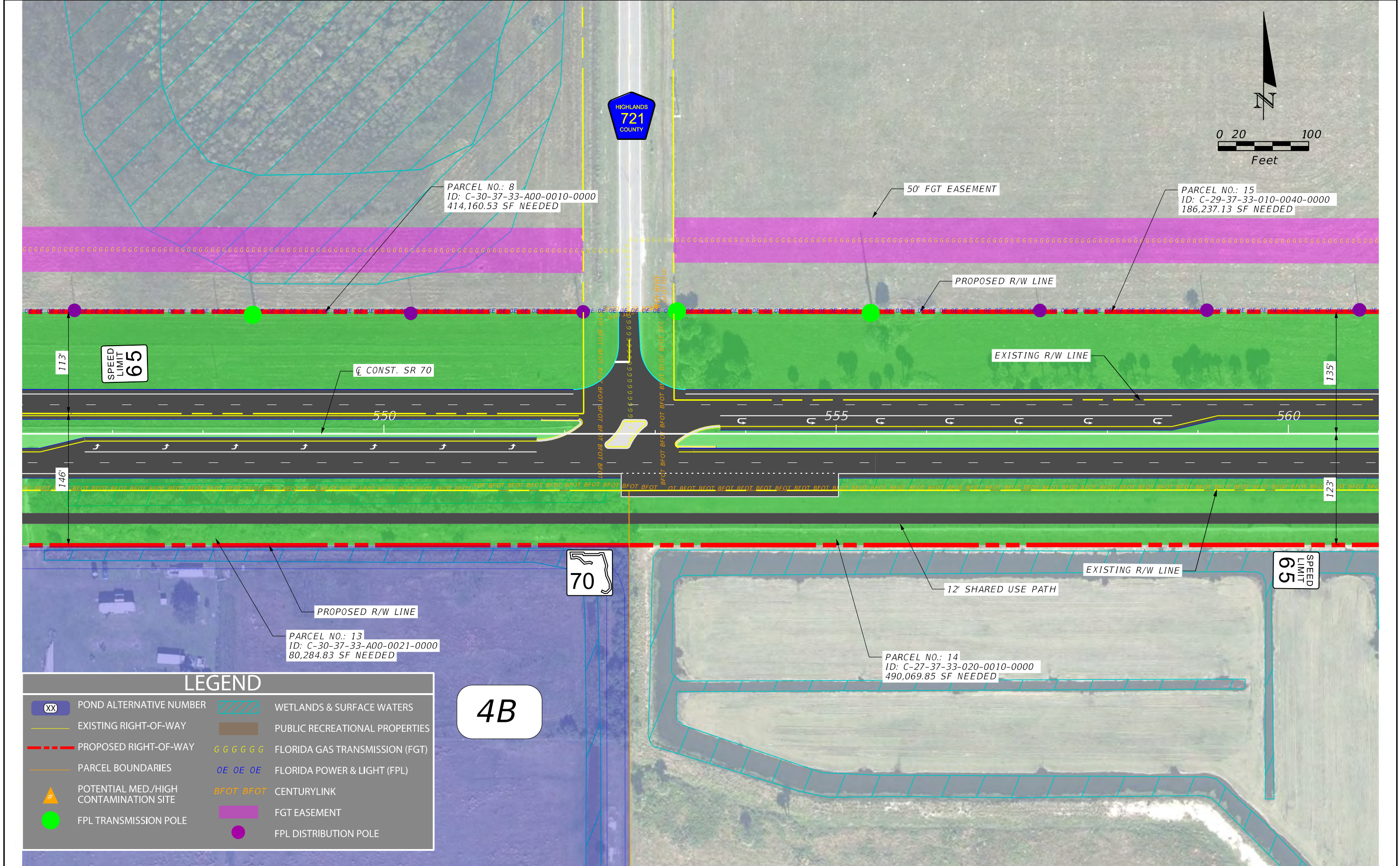
REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

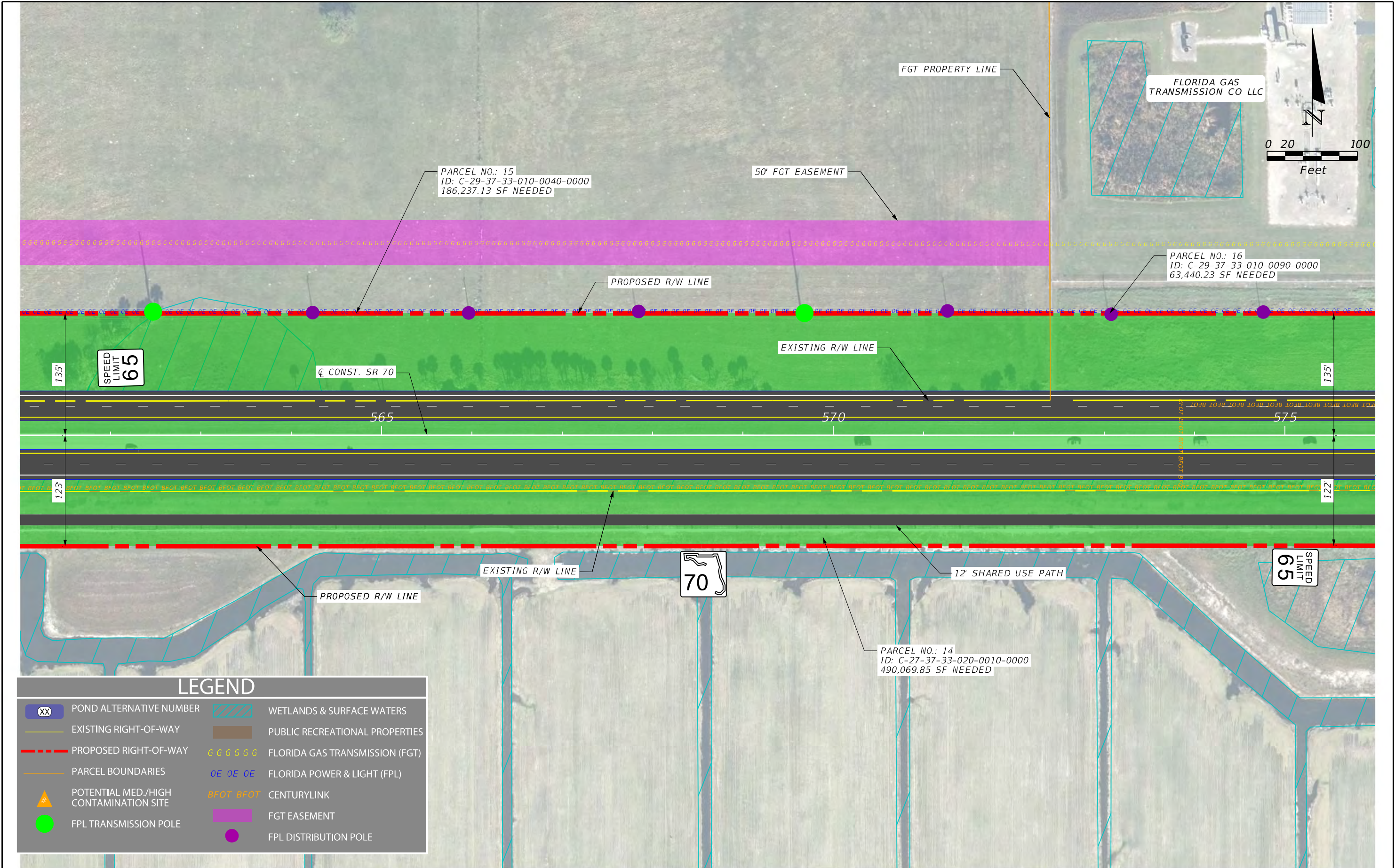


REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		11
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

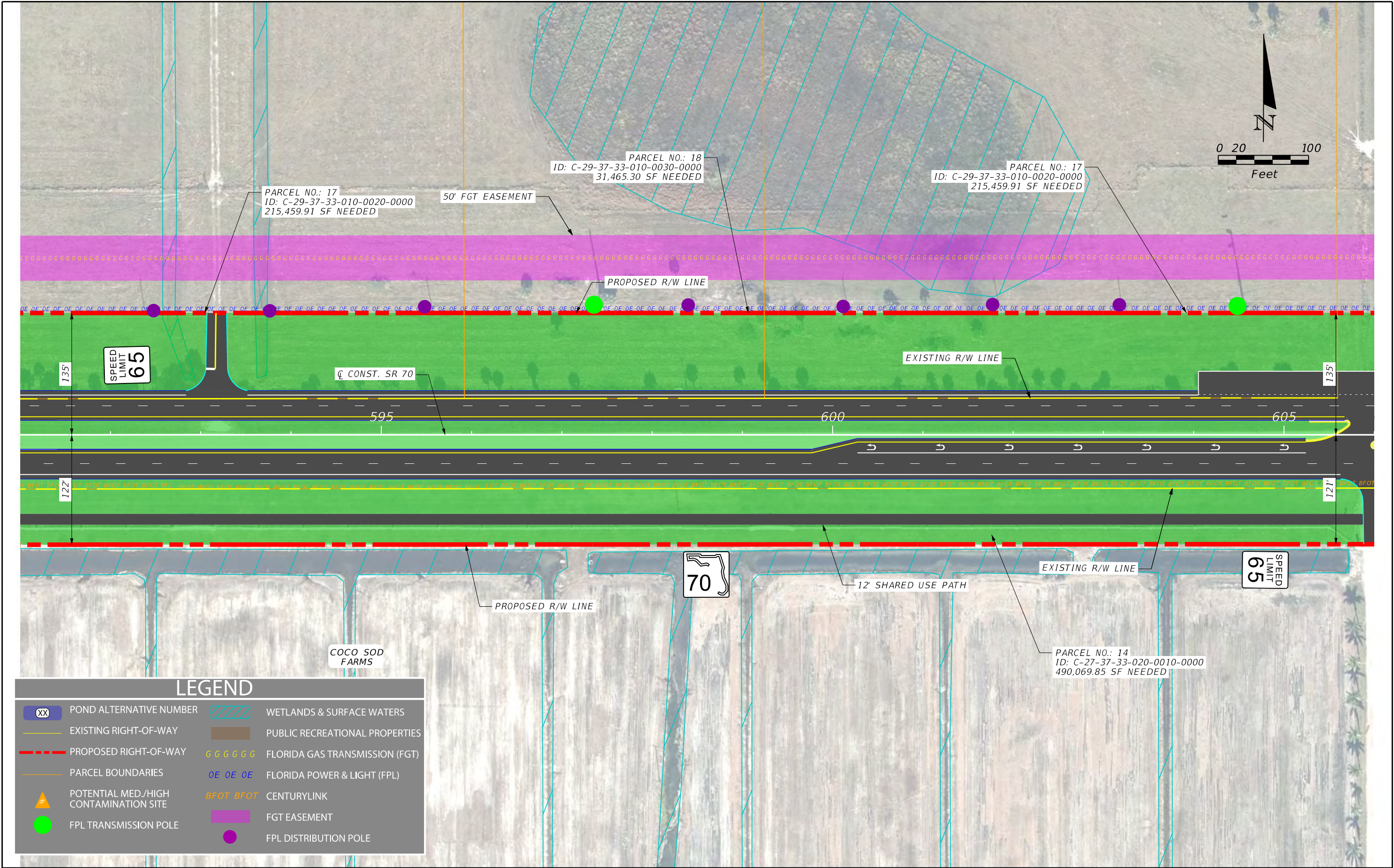


REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	
ALTERNATIVE 1 CONCEPT PLAN								12

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REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		13
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

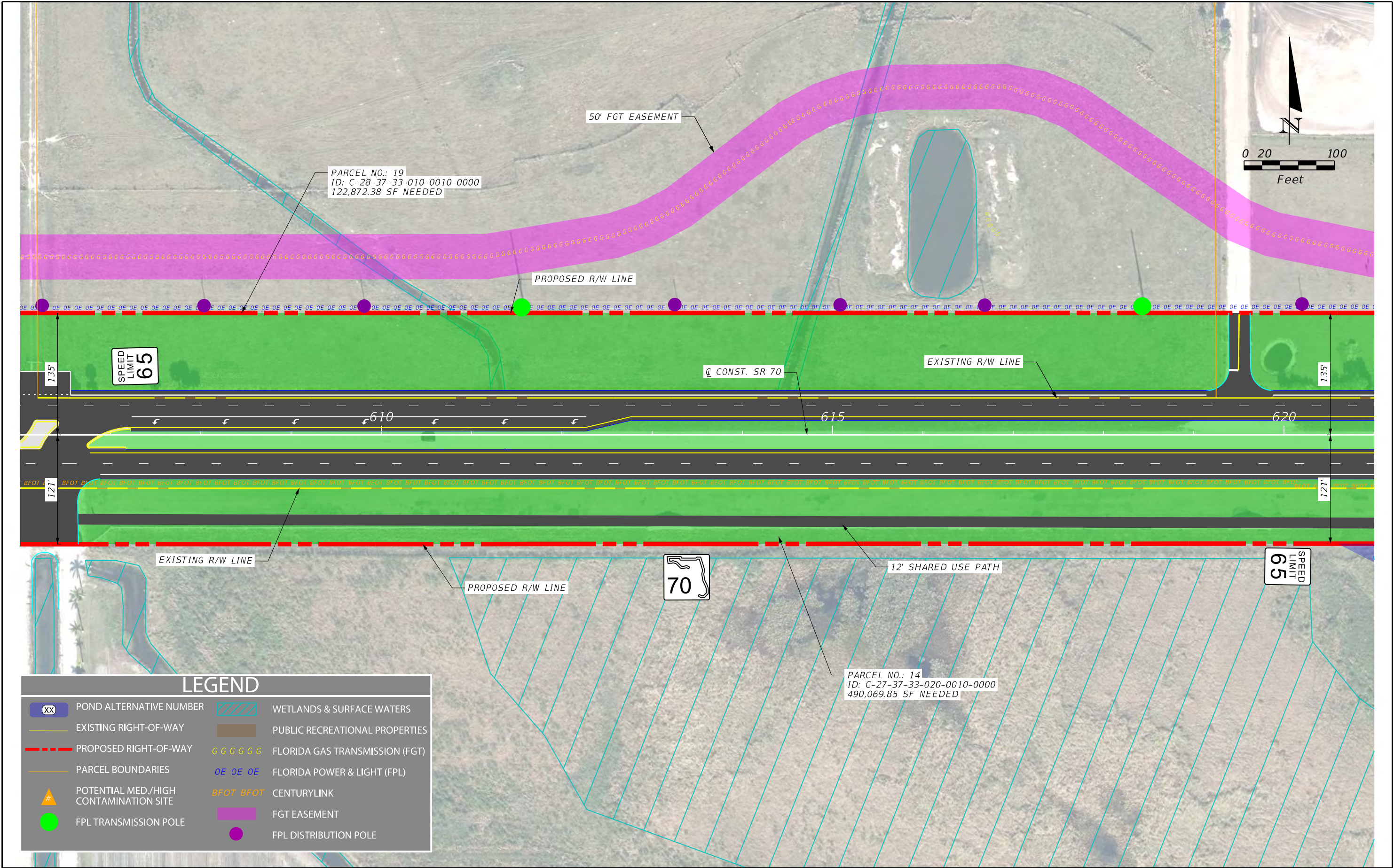


LEGEND			
XX	POND ALTERNATIVE NUMBER	WETLANDS & SURFACE WATERS	
EXISTING RIGHT-OF-WAY		PUBLIC RECREATIONAL PROPERTIES	
PROPOSED RIGHT-OF-WAY		FLORIDA GAS TRANSMISSION (FGT)	
PARCEL BOUNDARIES		FLORIDA POWER & LIGHT (FPL)	
POTENTIAL MED/HIGH CONTAMINATION SITE		CENTURYLINK	
FPL TRANSMISSION POLE		FGT EASEMENT	
		FPL DISTRIBUTION POLE	

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 15
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



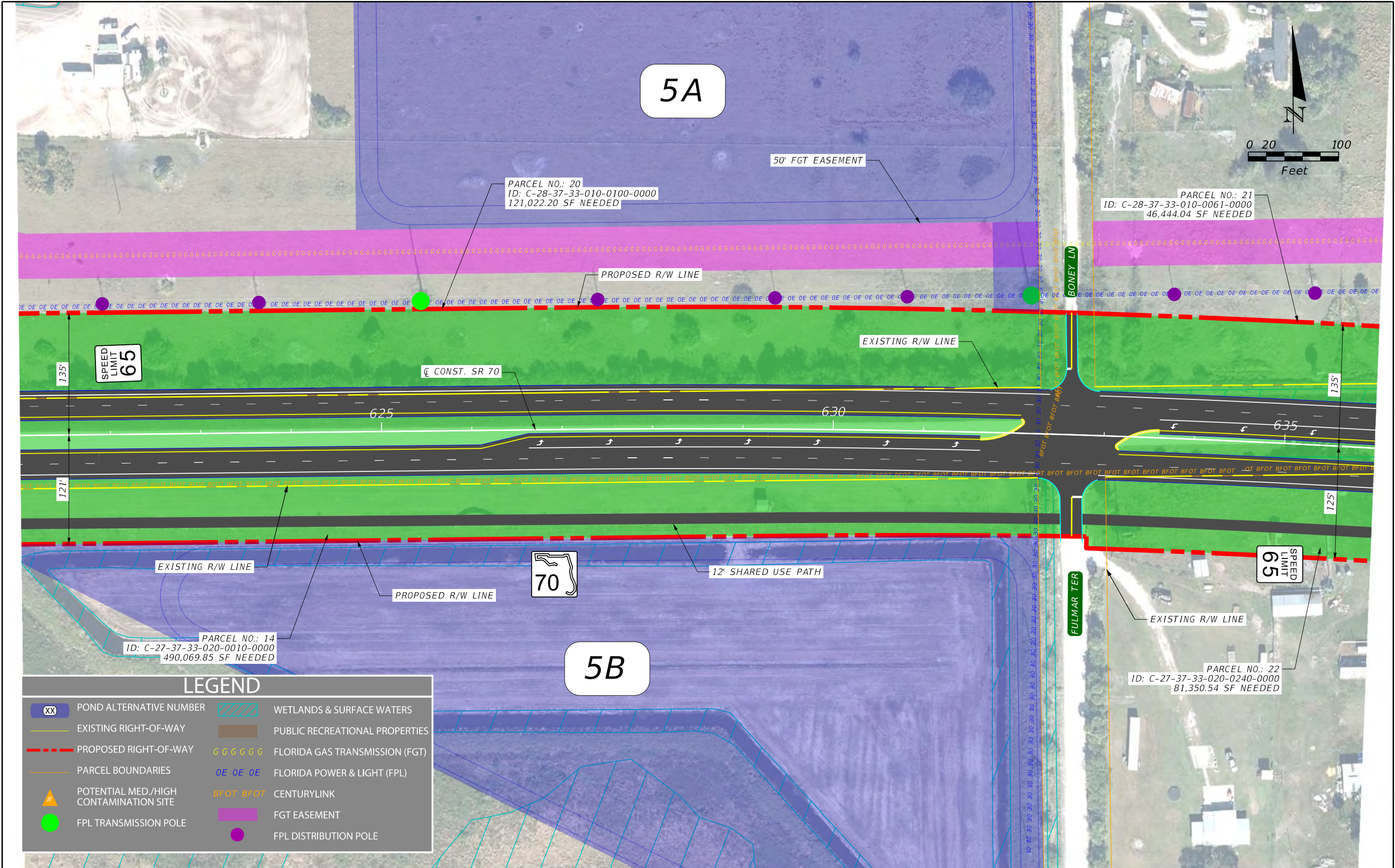
LEGEND

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| | POND ALTERNATIVE NUMBER | | WETLANDS & SURFACE WATERS |
| | EXISTING RIGHT-OF-WAY | | PUBLIC RECREATIONAL PROPERTIES |
| | PROPOSED RIGHT-OF-WAY | | FLORIDA GAS TRANSMISSION (FGT) |
| | PARCEL BOUNDARIES | | FLORIDA POWER & LIGHT (FPL) |
| | POTENTIAL MED./HIGH CONTAMINATION SITE | | CENTURYLINK |
| | FPL TRANSMISSION POLE | | FGT EASEMENT |
| | | | FPL DISTRIBUTION POLE |

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 16
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

NICHOLAS JOHN CLAVELLO P.E.
LICENSE NUMBER: 84366
SCALAR CONSULTING GROUP, LLC.
5713 CORPORATE WAY, SUITE 200
WEST PALM BEACH, FLORIDA 33407

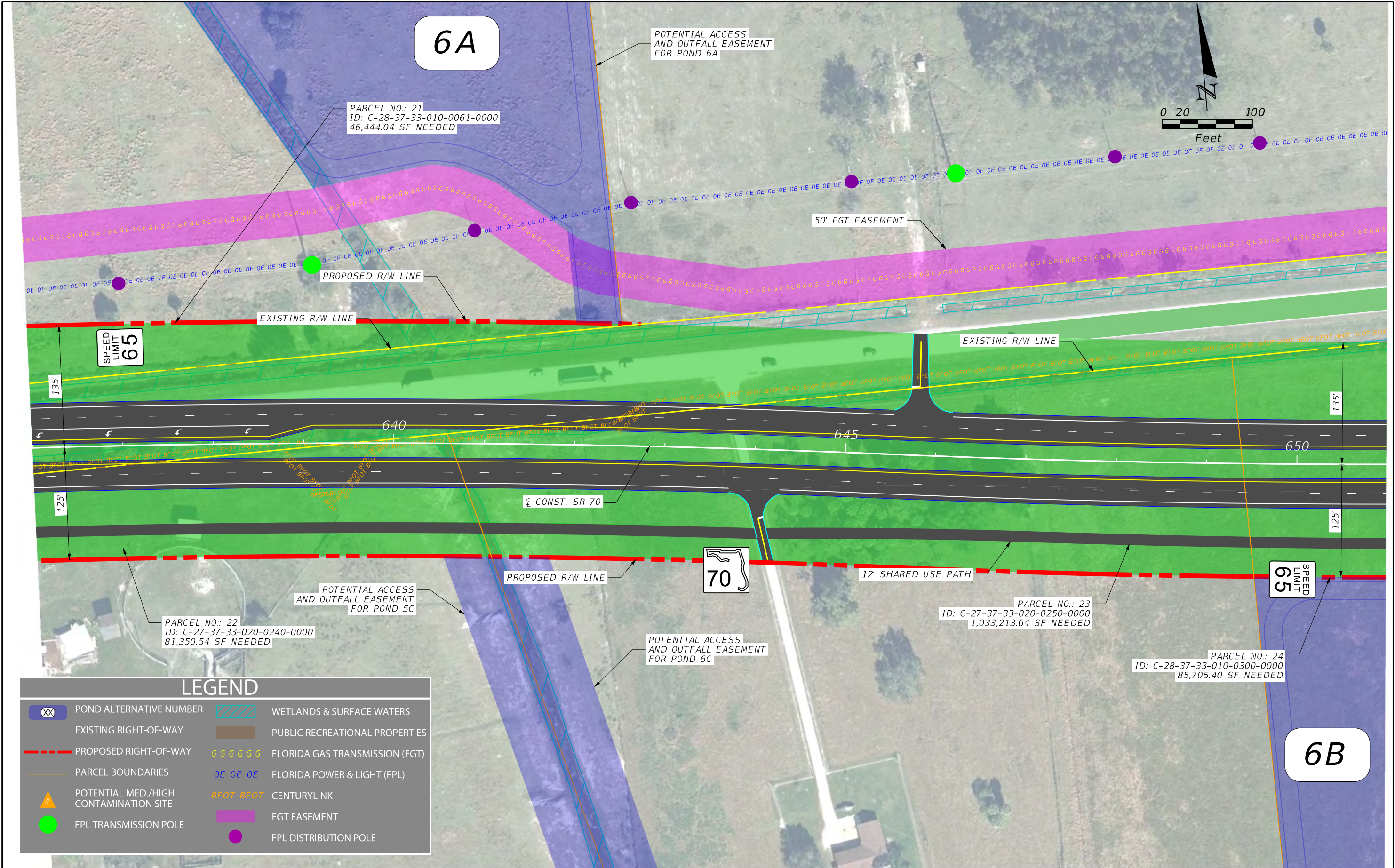
ALTERNATIVE 1
CONCEPT PLAN



REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

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XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

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FPL TRANSMISSION POLE

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WETLANDS & SURFACE WATERS

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PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

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FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

■

FGT EASEMENT

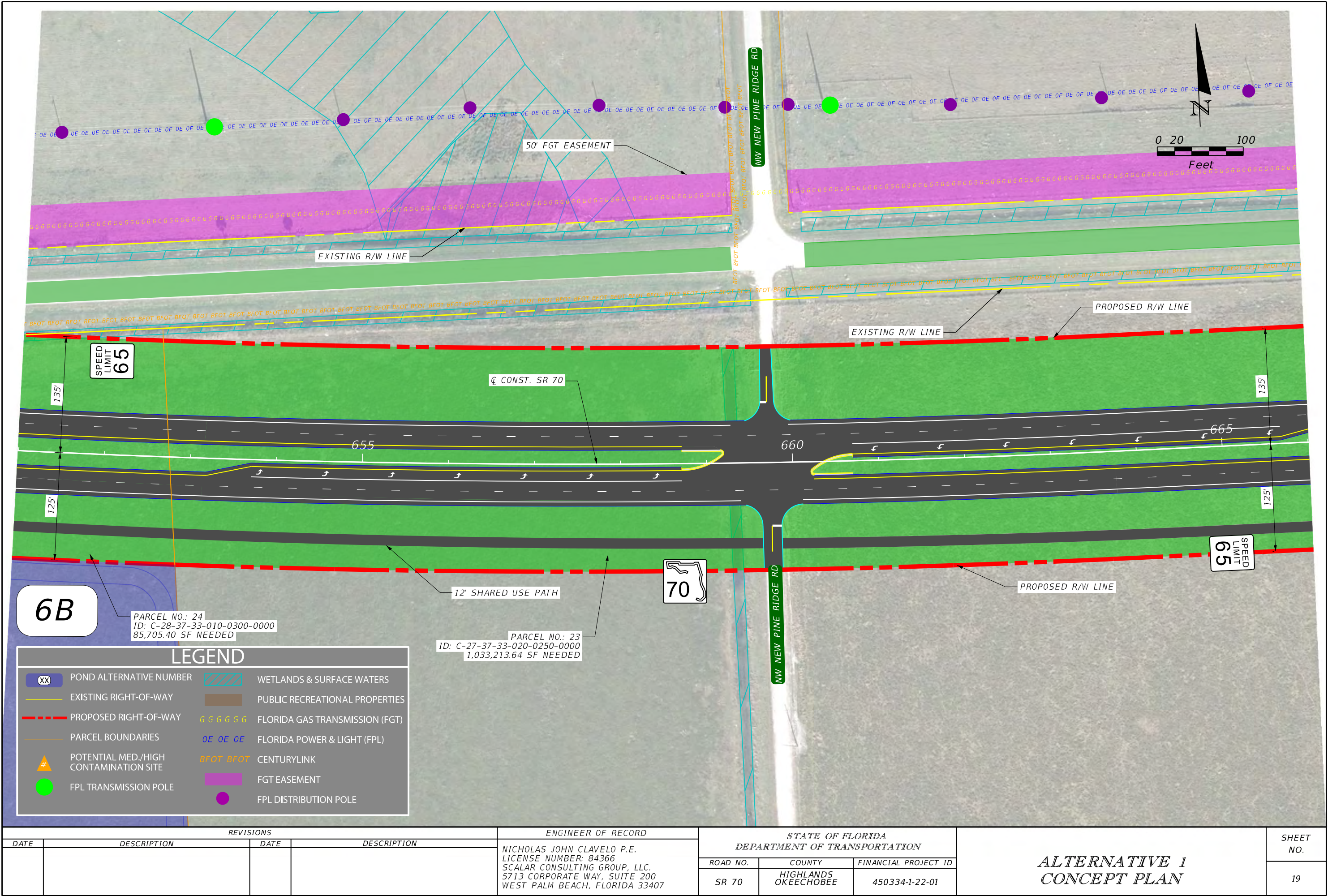
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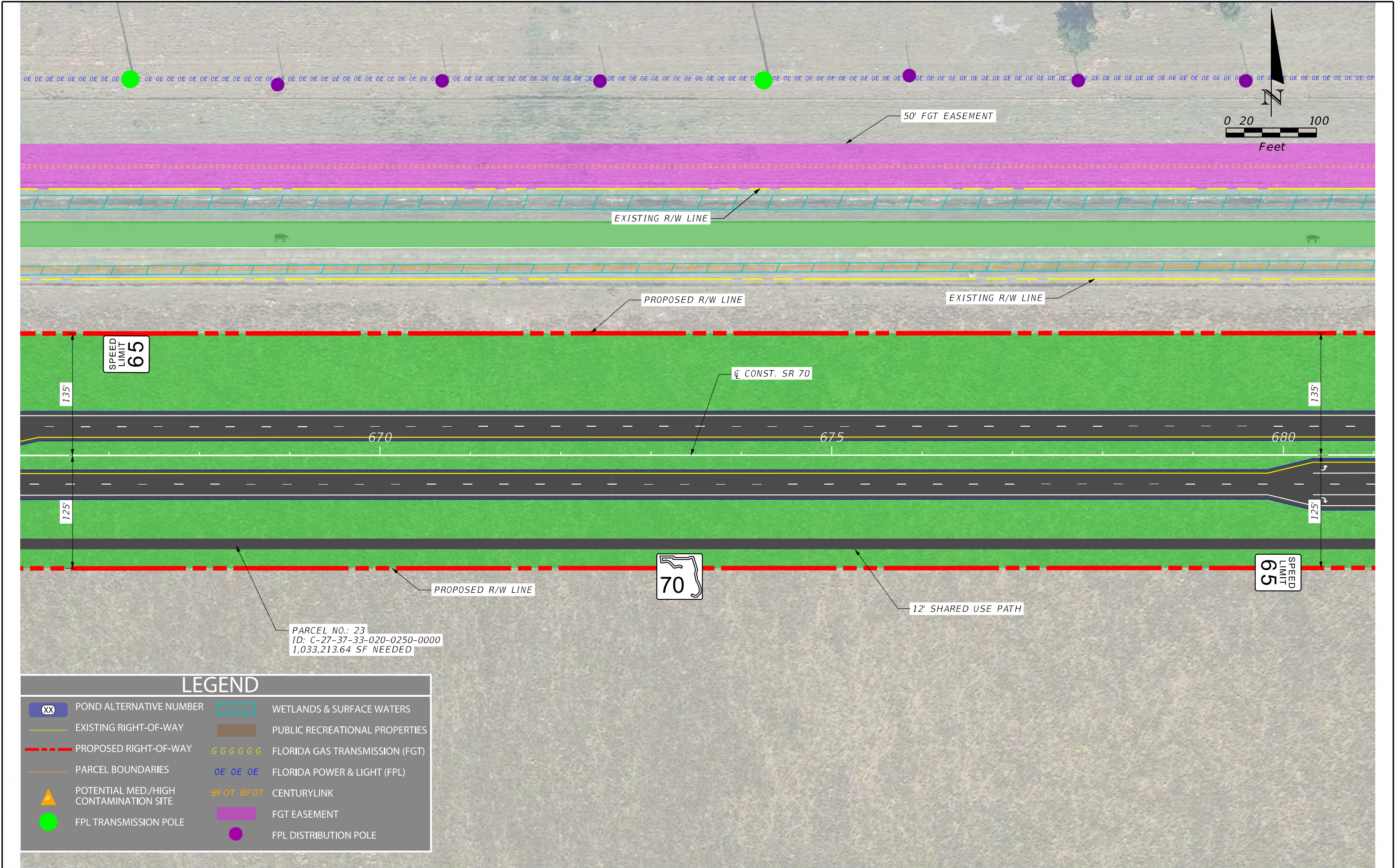
FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 18
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.





LEGEND

XX

POND ALTERNATIVE NUMBER

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EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

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PARCEL BOUNDARIES

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POTENTIAL MED./HIGH CONTAMINATION SITE

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FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

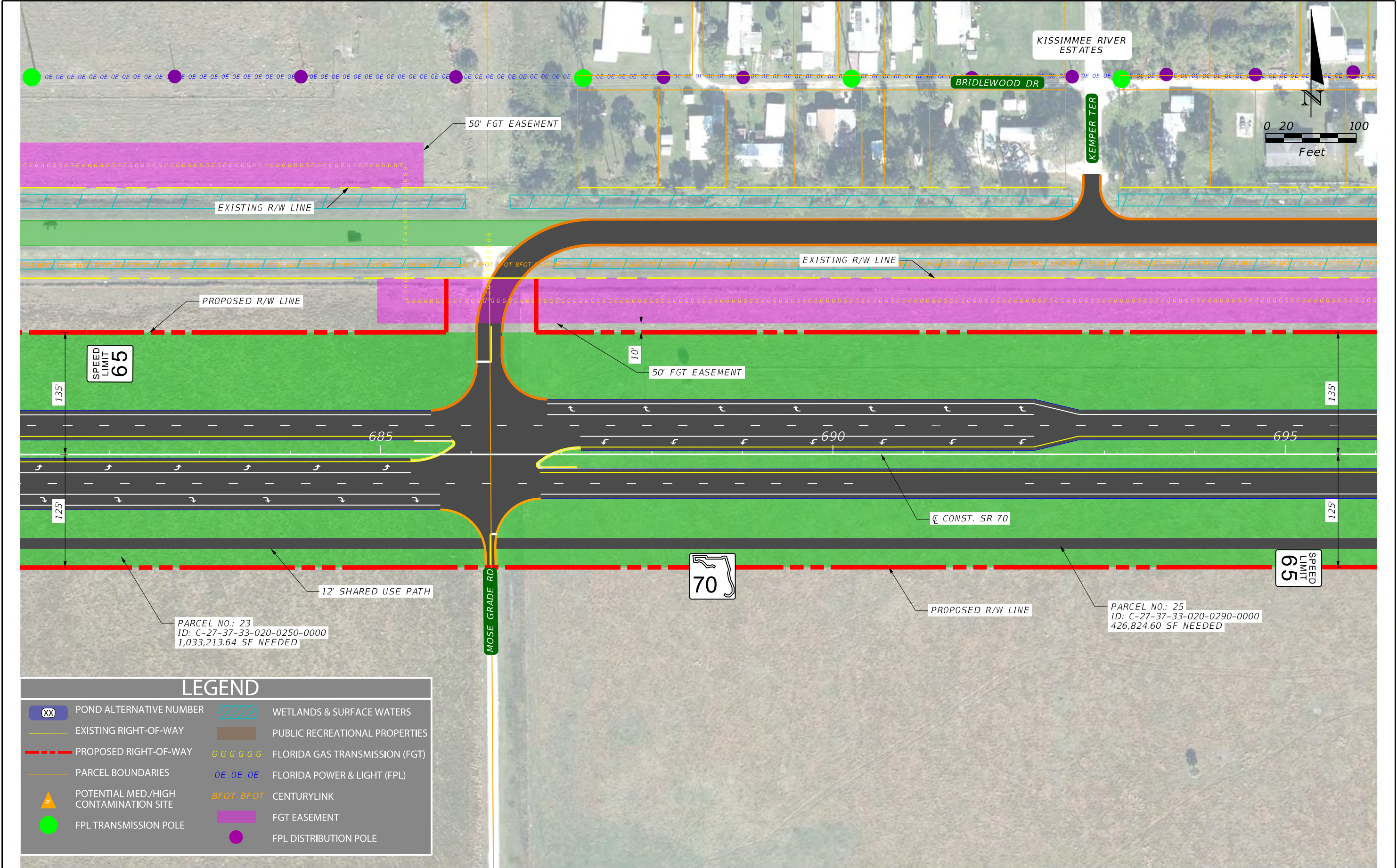
FGT EASEMENT

FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO. 20
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

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XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED/HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

|||||

WETLANDS & SURFACE WATERS

■

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

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FGT EASEMENT

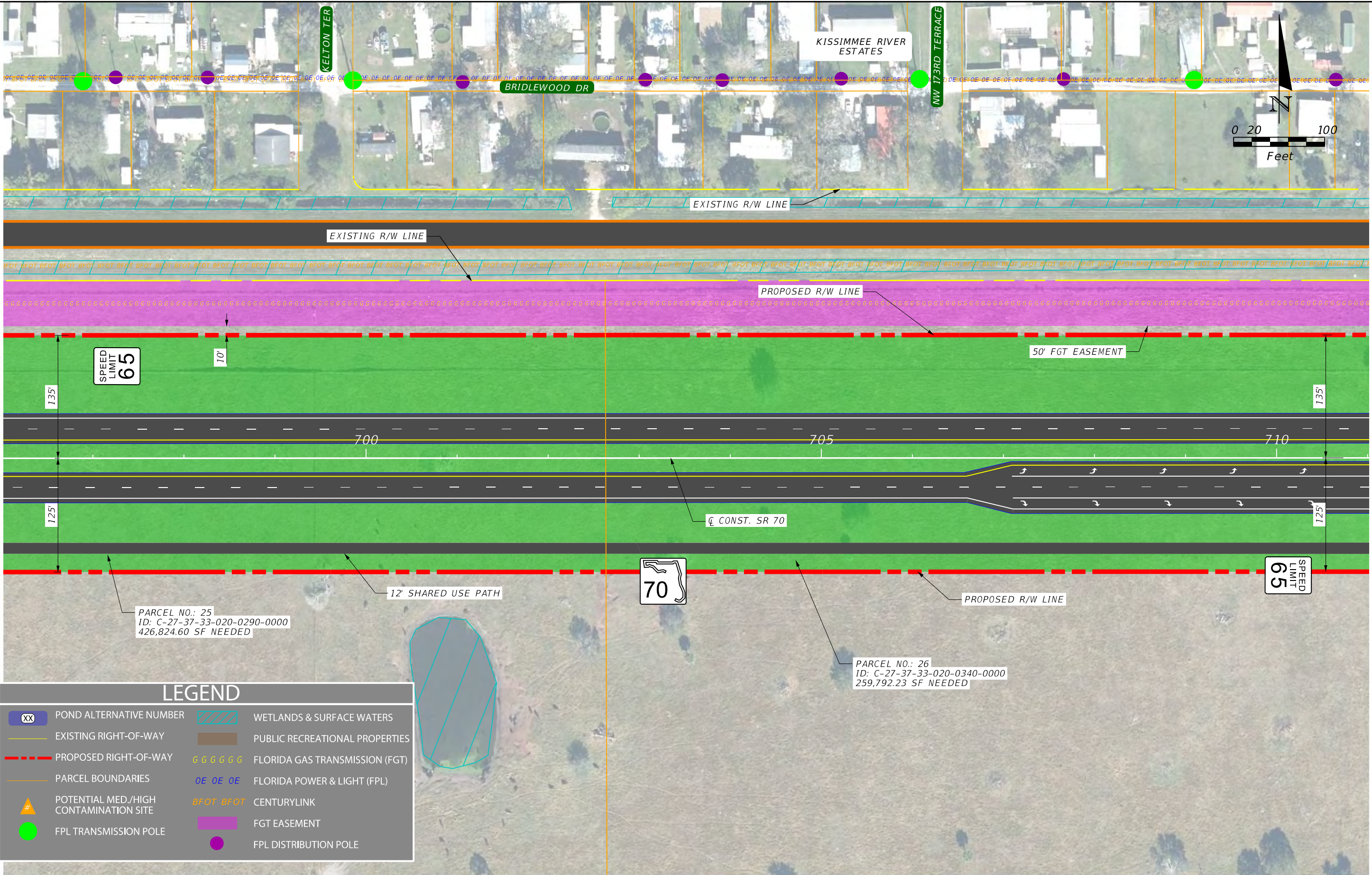
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FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	
ALTERNATIVE 1 CONCEPT PLAN								21

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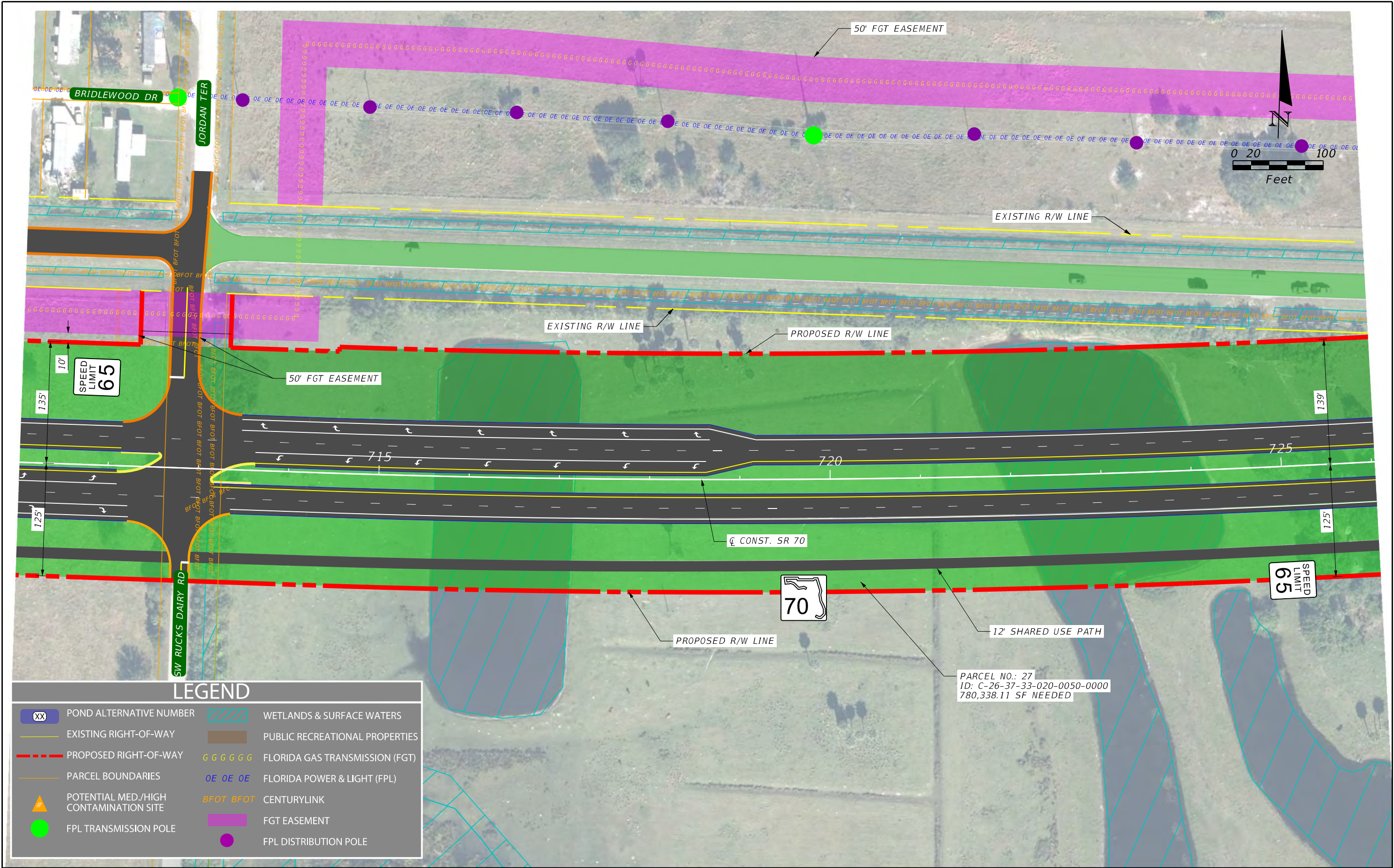
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REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

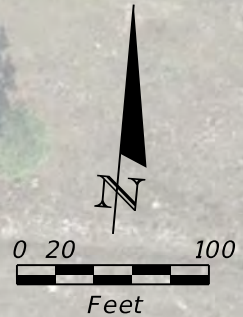
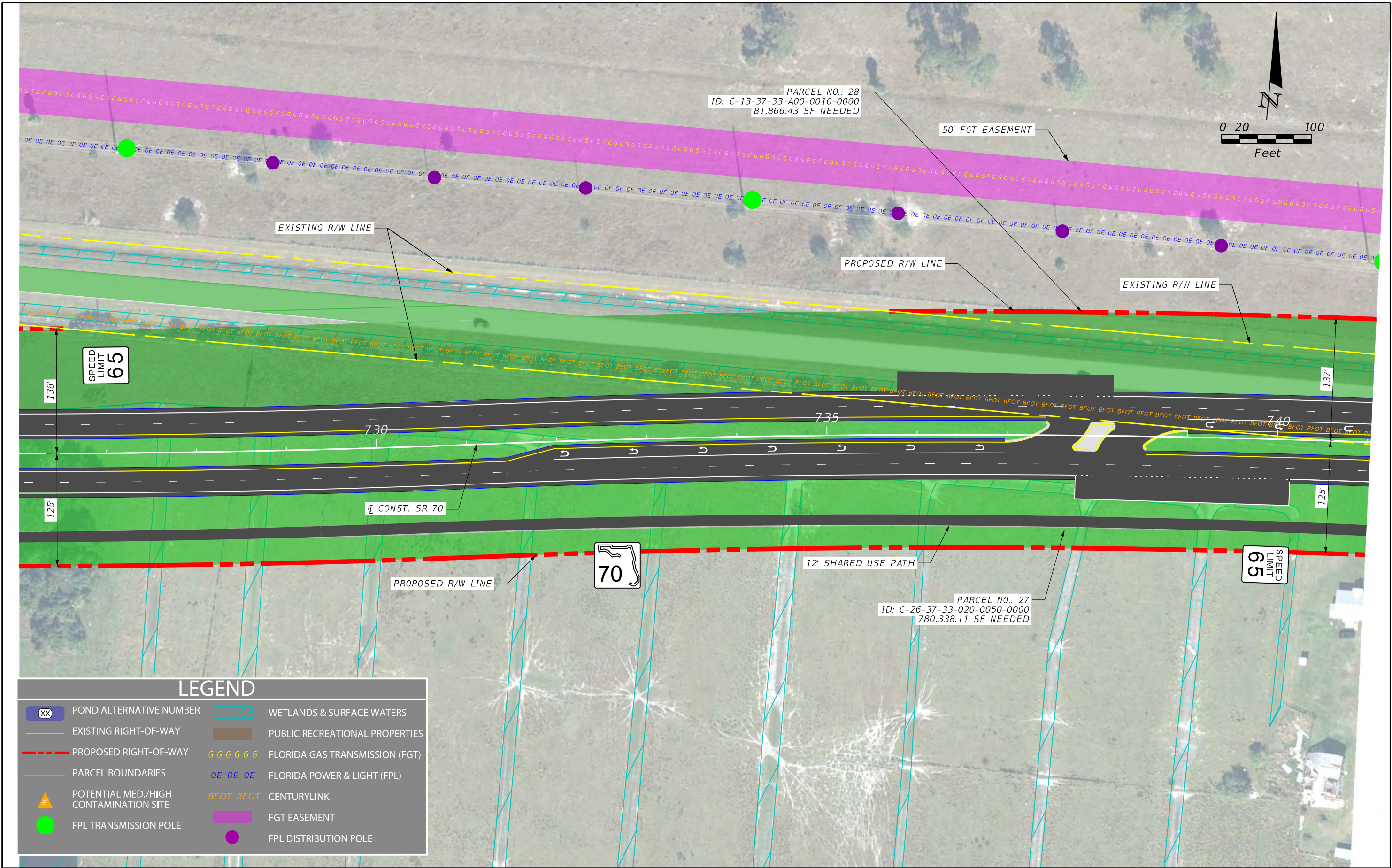
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LEGEND

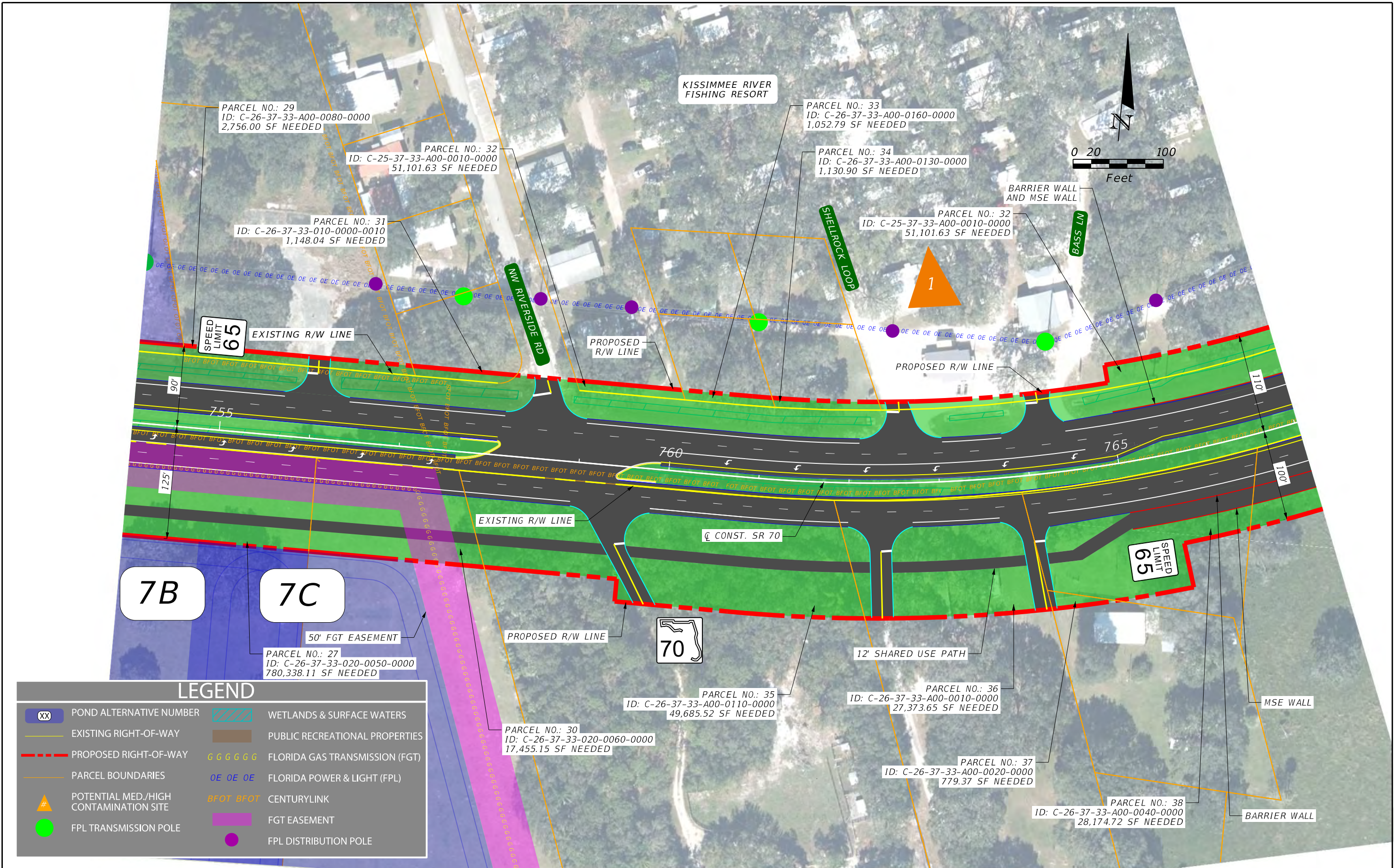
	POND ALTERNATIVE NUMBER		WETLANDS & SURFACE WATERS
	EXISTING RIGHT-OF-WAY		PUBLIC RECREATIONAL PROPERTIES
	PROPOSED RIGHT-OF-WAY		FLORIDA GAS TRANSMISSION (FGT)
	PARCEL BOUNDARIES		FLORIDA POWER & LIGHT (FPL)
	POTENTIAL MED./HIGH CONTAMINATION SITE		CENTURYLINK
	FPL TRANSMISSION POLE		FGT EASEMENT
			FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.	
DATE	DESCRIPTION		DATE	DESCRIPTION		ROAD NO.	COUNTY		FINANCIAL PROJECT ID	23
						SR 70	HIGHLANDS OKEECHOBEE		450334-1-22-01	
				NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407						



LEGEND			
	POND ALTERNATIVE NUMBER		WETLANDS & SURFACE WATERS
	EXISTING RIGHT-OF-WAY		PUBLIC RECREATIONAL PROPERTIES
	PROPOSED RIGHT-OF-WAY		FLORIDA GAS TRANSMISSION (FGT)
	PARCEL BOUNDARIES		FLORIDA POWER & LIGHT (FPL)
	POTENTIAL MED./HIGH CONTAMINATION SITE		CENTURYLINK
	FPL TRANSMISSION POLE		FGT EASEMENT
			FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		24
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		



XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

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FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

FGT

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CENTURYLINK

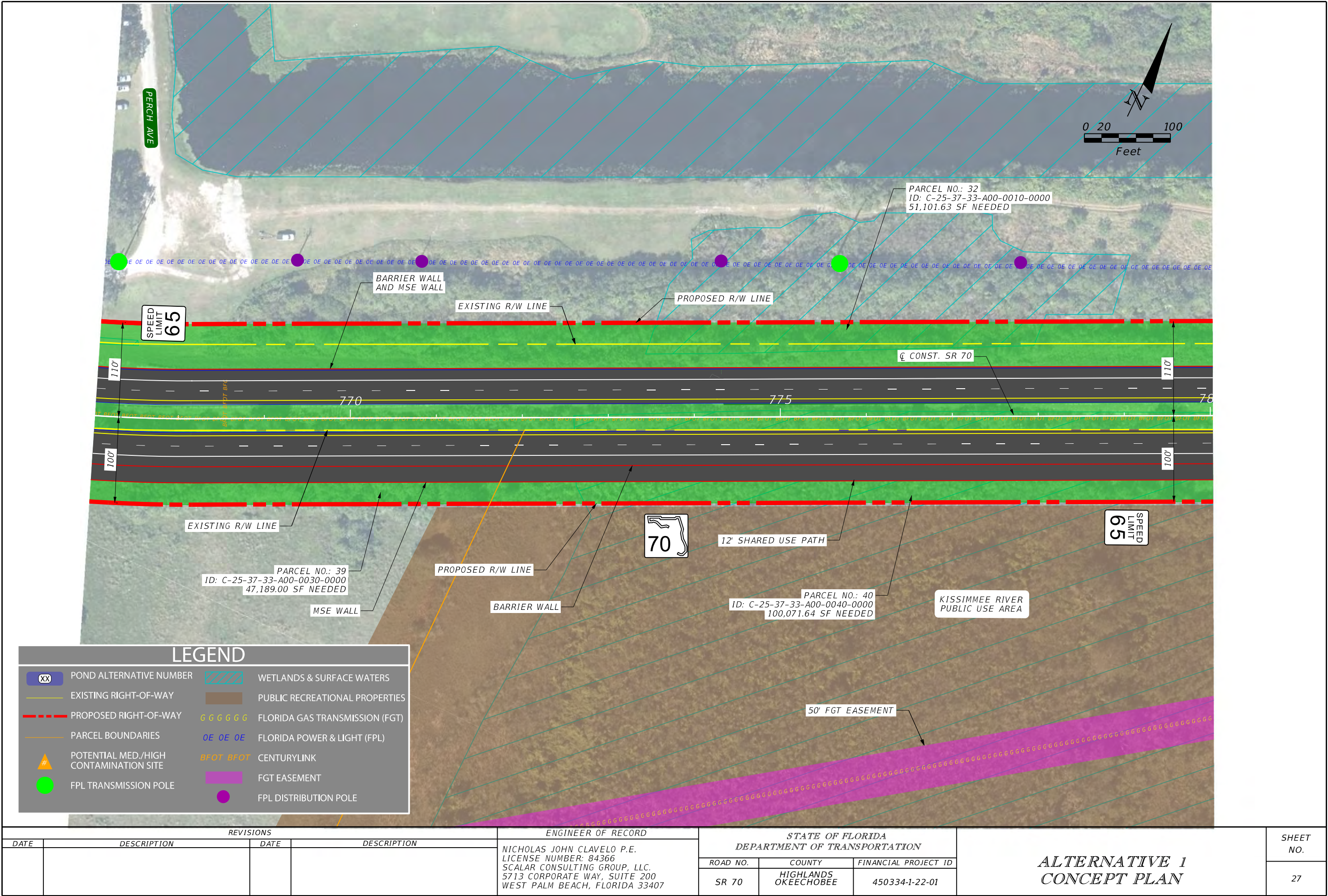
FGT EASEMENT

FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY	
						SR 70	HIGHLANDS OKEECHOBEE	
							FINANCIAL PROJECT ID 450334-1-22-01	26

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED/HIGH CONTAMINATION SITE

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FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

FGT

FPL

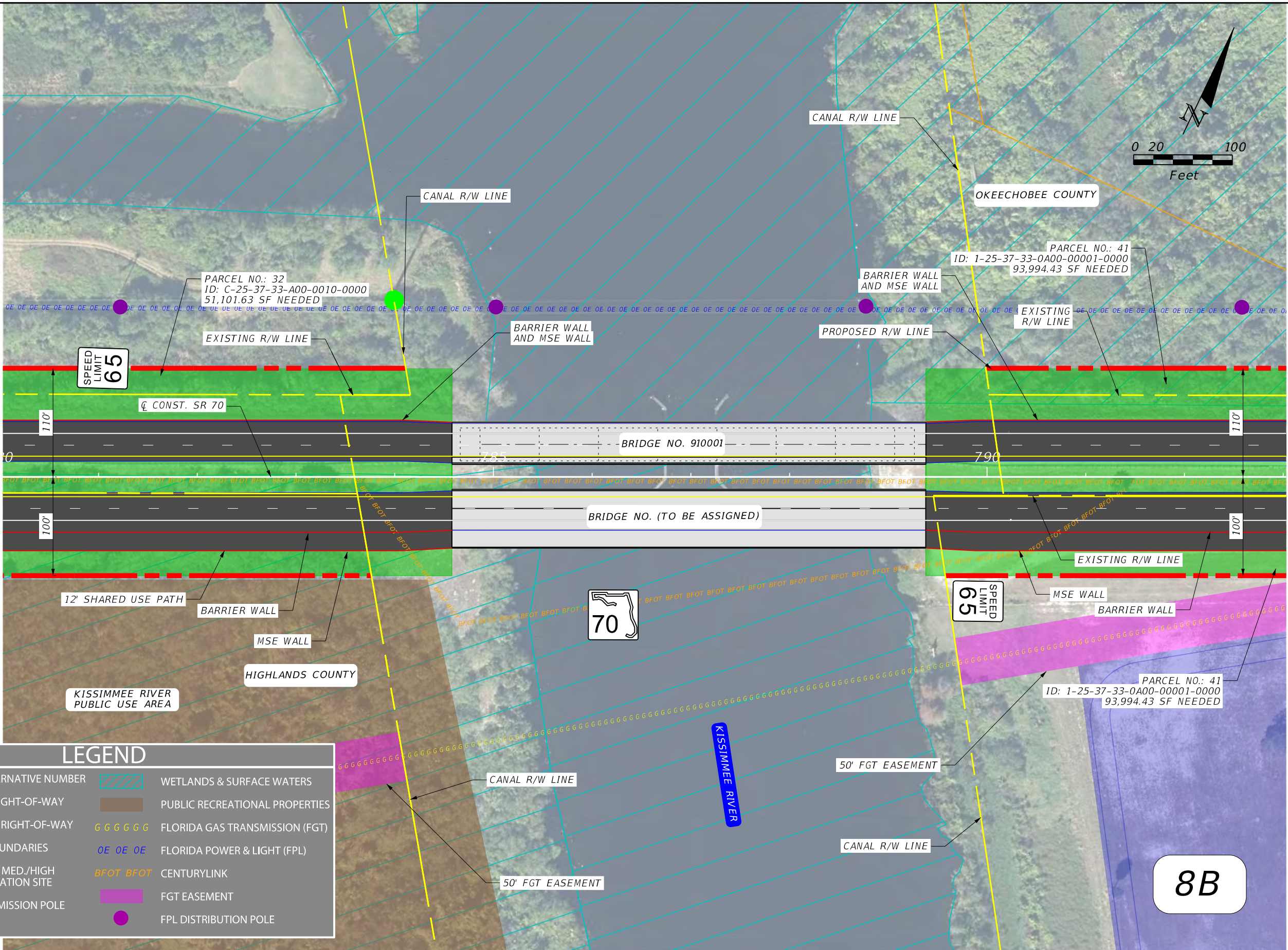
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FGT EASEMENT

FPL DISTRIBUTION POLE

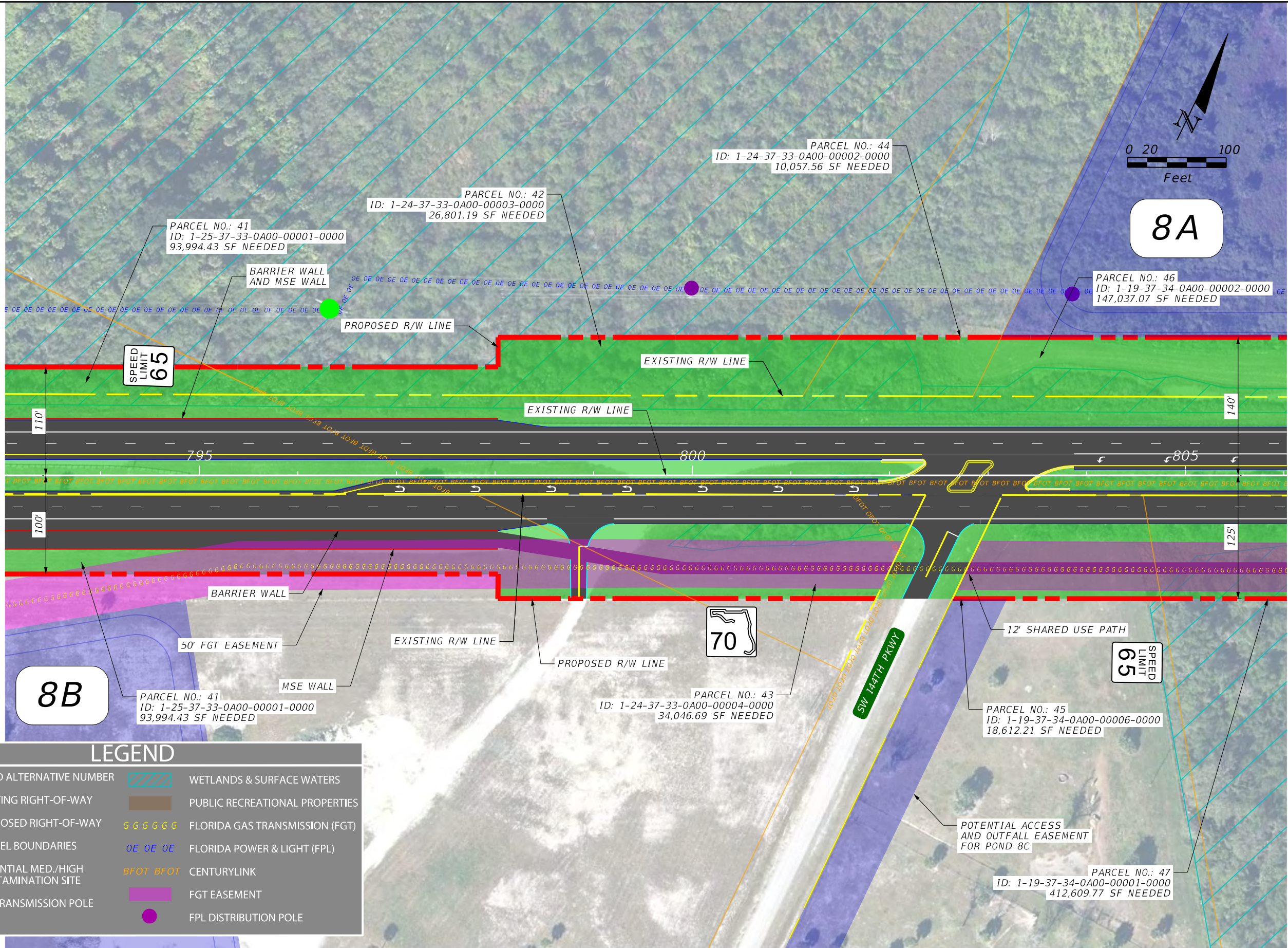
REVISIONS				ENGINEER OF RECORD	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407	ROAD NO.	COUNTY	FINANCIAL PROJECT ID		27
					SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



LEGEND			
	POND ALTERNATIVE NUMBER		WETLANDS & SURFACE WATERS
	EXISTING RIGHT-OF-WAY		PUBLIC RECREATIONAL PROPERTIES
	PROPOSED RIGHT-OF-WAY		FLORIDA GAS TRANSMISSION (FGT)
	PARCEL BOUNDARIES		FLORIDA POWER & LIGHT (FPL)
	POTENTIAL MED./HIGH CONTAMINATION SITE		CENTURYLINK
	FPL TRANSMISSION POLE		FGT EASEMENT
			FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		ALTERNATIVE 1 CONCEPT PLAN	SHEET NO. 28
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY		
						SR 70	HIGHLANDS OKEECHOBEE	FINANCIAL PROJECT ID 450334-1-22-01	



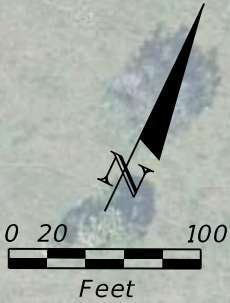
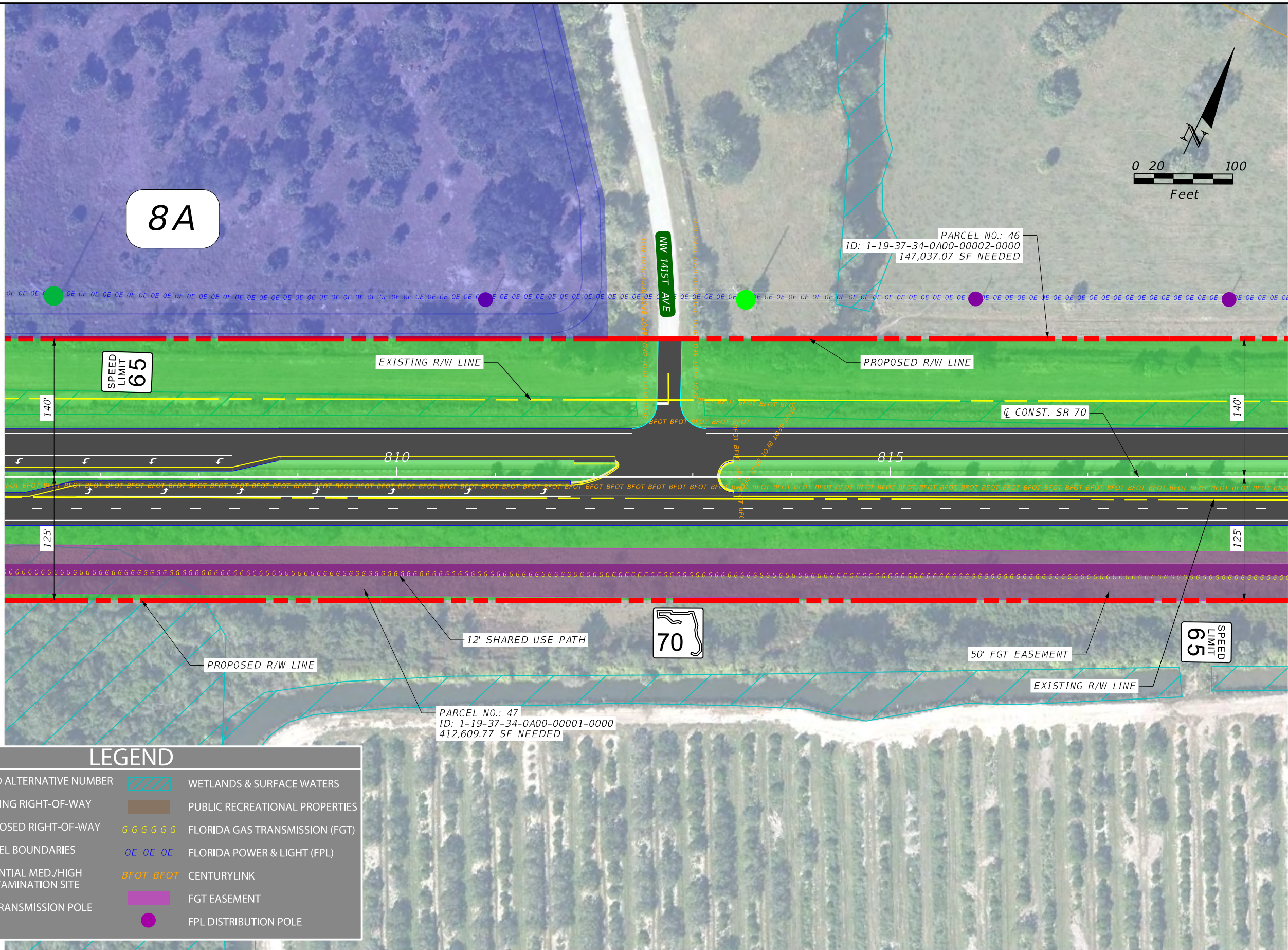
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LEGEND

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| POND ALTERNATIVE NUMBER | WETLANDS & SURFACE WATERS |
| EXISTING RIGHT-OF-WAY | PUBLIC RECREATIONAL PROPERTIES |
| PROPOSED RIGHT-OF-WAY | FLORIDA GAS TRANSMISSION (FGT) |
| PARCEL BOUNDARIES | FLORIDA POWER & LIGHT (FPL) |
| POTENTIAL MED./HIGH CONTAMINATION SITE | CENTURYLINK |
| FPL TRANSMISSION POLE | FGT EASEMENT |
| | FPL DISTRIBUTION POLE |

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		ALTERNATIVE 1 CONCEPT PLAN	SHEET NO. 29
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY		
						SR 70	HIGHLANDS OKEECHOBEE	FINANCIAL PROJECT ID 450334-1-22-01	



LEGEND

XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

GGGGGG

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BPOT BPOT

CENTURYLINK

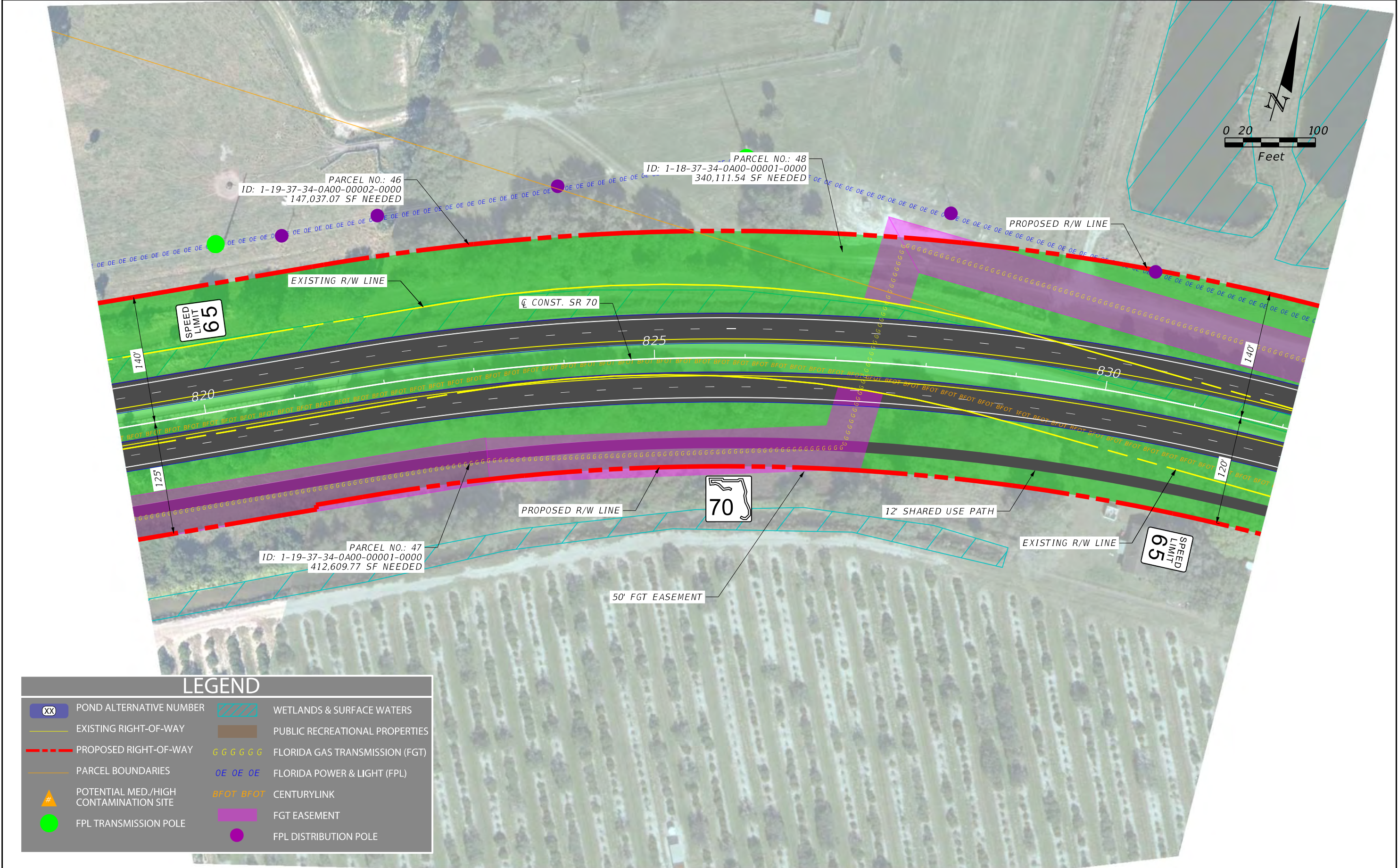
FGT EASEMENT

FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



LEGEND

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|--|--|--|--------------------------------|
| | POND ALTERNATIVE NUMBER | | WETLANDS & SURFACE WATERS |
| | EXISTING RIGHT-OF-WAY | | PUBLIC RECREATIONAL PROPERTIES |
| | PROPOSED RIGHT-OF-WAY | | FLORIDA GAS TRANSMISSION (FGT) |
| | PARCEL BOUNDARIES | | FLORIDA POWER & LIGHT (FPL) |
| | POTENTIAL MED./HIGH CONTAMINATION SITE | | CENTURYLINK |
| | FPL TRANSMISSION POLE | | FGT EASEMENT |
| | | | FPL DISTRIBUTION POLE |

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

ALTERNATIVE 1
CONCEPT PLAN



LEGEND

XX

POND ALTERNATIVE NUMBER

EXISTING RIGHT-OF-WAY

PROPOSED RIGHT-OF-WAY

PARCEL BOUNDARIES

#

POTENTIAL MED./HIGH CONTAMINATION SITE

●

FPL TRANSMISSION POLE

WETLANDS & SURFACE WATERS

PUBLIC RECREATIONAL PROPERTIES

G G G G G

FLORIDA GAS TRANSMISSION (FGT)

OE OE OE

FLORIDA POWER & LIGHT (FPL)

BFOT BFOT

CENTURYLINK

FGT EASEMENT

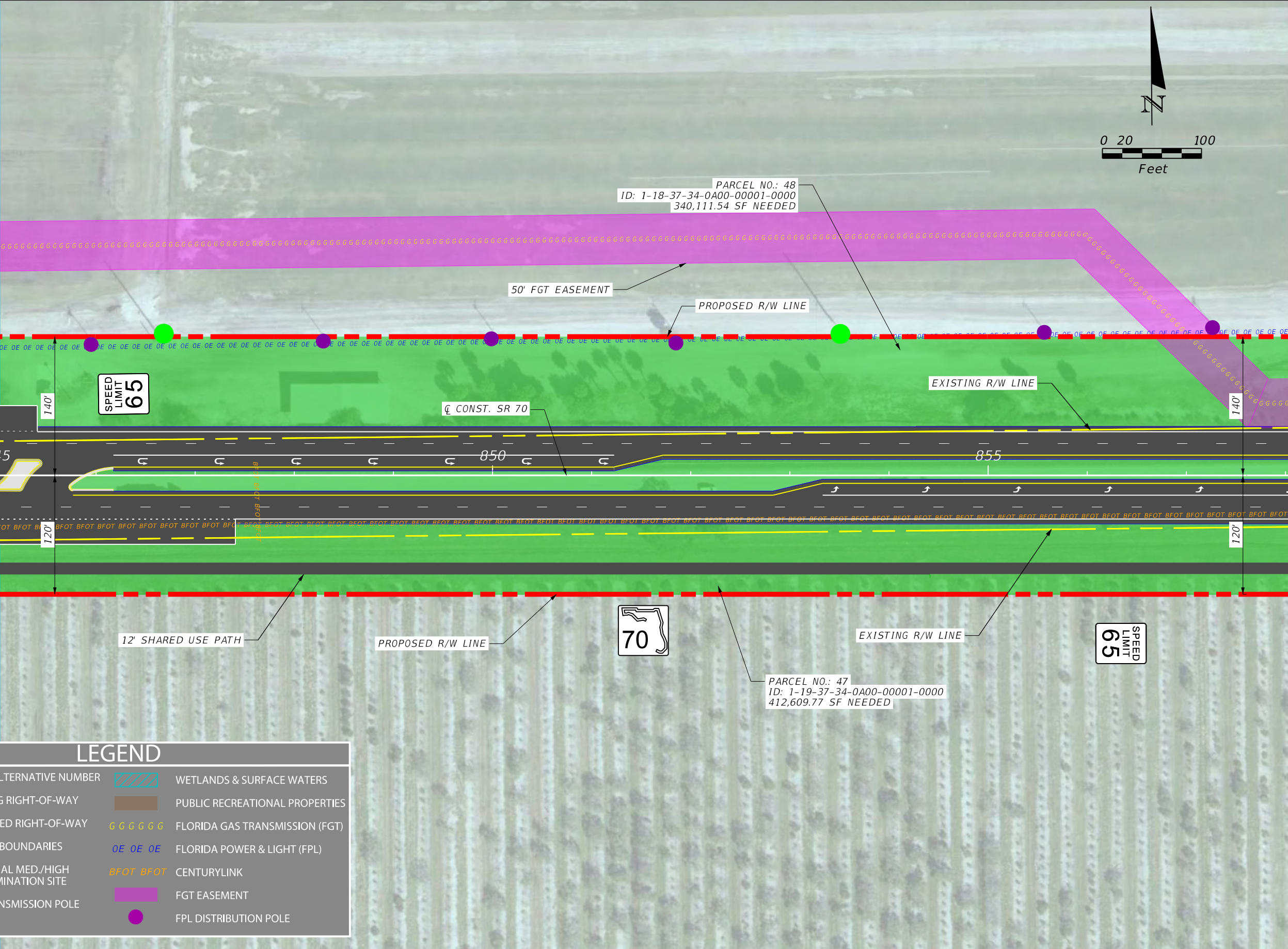
●

FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

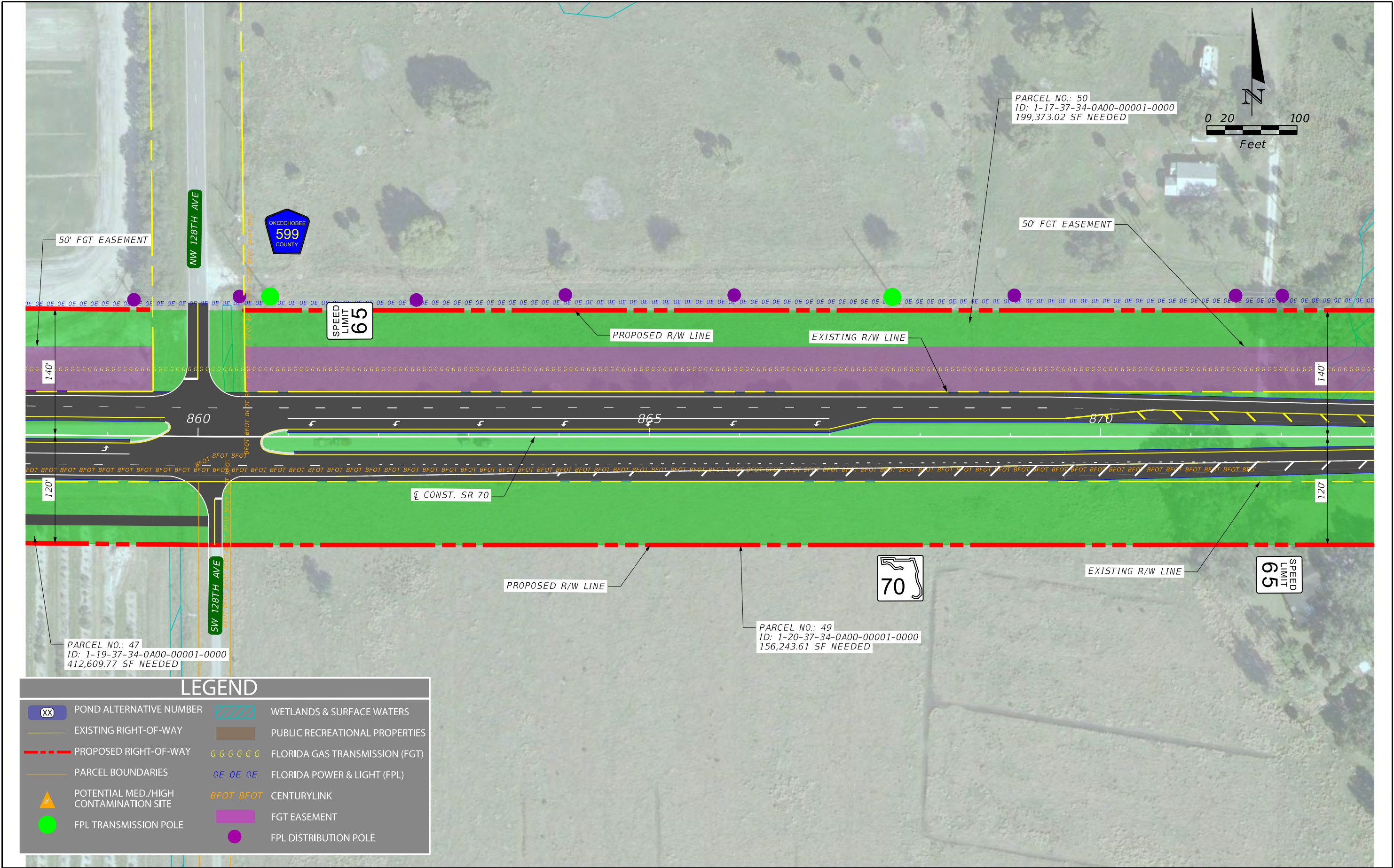
ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



LEGEND			
XX	POND ALTERNATIVE NUMBER	 	WETLANDS & SURFACE WATERS
---	EXISTING RIGHT-OF-WAY	---	PUBLIC RECREATIONAL PROPERTIES
- - -	PROPOSED RIGHT-OF-WAY	G G G G G	FLORIDA GAS TRANSMISSION (FGT)
---	PARCEL BOUNDARIES	OE OE OE	FLORIDA POWER & LIGHT (FPL)
#	POTENTIAL MED./HIGH CONTAMINATION SITE	BFOT BFOT	CENTURYLINK
●	FPL TRANSMISSION POLE	---	FGT EASEMENT
		●	FPL DISTRIBUTION POLE

REVISIONS				ENGINEER OF RECORD			STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			ALTERNATIVE 1 CONCEPT PLAN	SHEET NO. 33
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVELLO P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01		



REVISIONS				ENGINEER OF RECORD		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	NICHOLAS JOHN CLAVEL0 P.E. LICENSE NUMBER: 84366 SCALAR CONSULTING GROUP, LLC. 5713 CORPORATE WAY, SUITE 200 WEST PALM BEACH, FLORIDA 33407		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
						SR 70	HIGHLANDS OKEECHOBEE	450334-1-22-01	

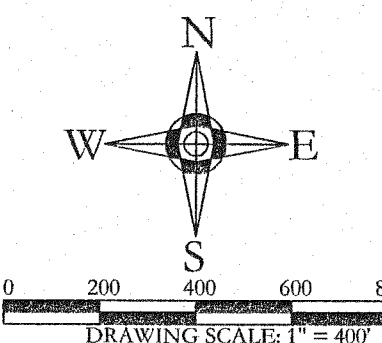
ALTERNATIVE 1
CONCEPT PLAN

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

Appendix O

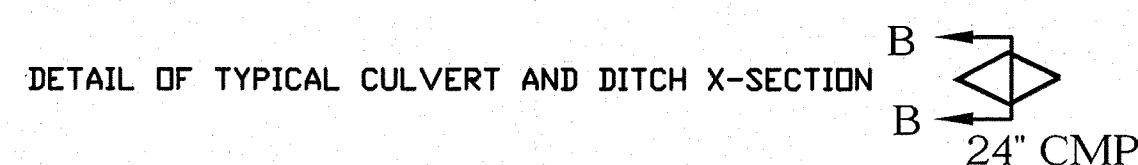
Regional Pond Data

Stage/Storage Water Quality Calculations



LEGEND

- PROPERTY BOUNDARY _____
- PROPOSED DITCH _____
- LEVEE _____
- EXISTING DITCH _____
- PROPOSED SWALE _____
- CONTOUR _____
- WELL ○
- IMPACTED WETLAND [hatched pattern]
- 25' WETLAND SETBACK [dashed line]
- WETLAND [stippled pattern]
- CONTROL STRUCTURE [rectangle with 'B' and arrows]
- FORESTED AREA [solid black]



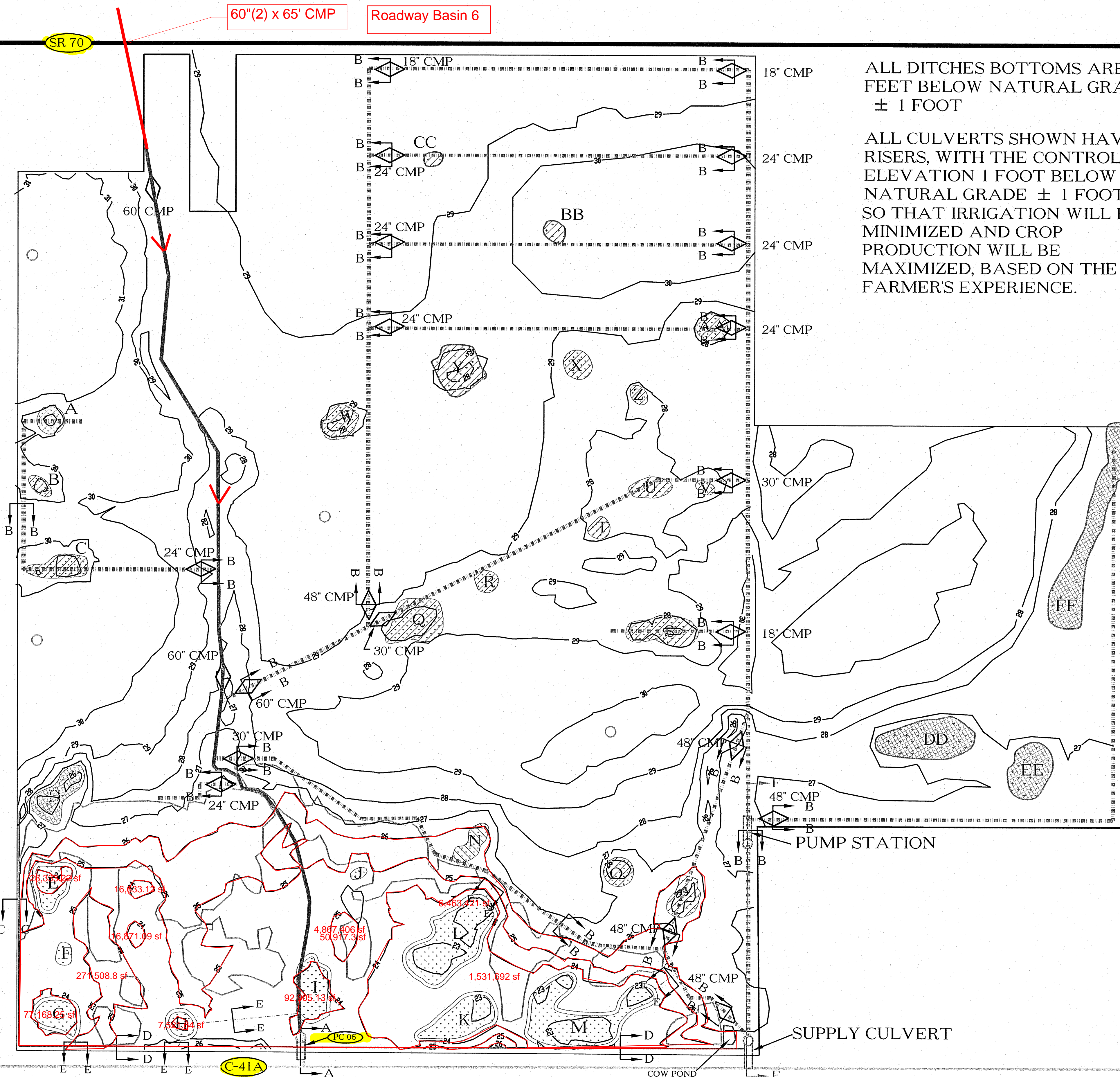
MODIFICATION PROJECT LIMITS

Elevation (ft)	Area (ac)	Storage (ac-ft)
24	41	0
25	113	77
25.5	131	138
26	148	207

Arrow B Basin Area(ac)	1352
Treatment Volume Required (ac-ft)	56.3
Treatment Volume Provided (ac-ft)	138.0

SR 70 Basin 6 Impervious Area(ac)	10.2
Treatment Volume Required (ac-ft)	2.1

Note: All proposed levees are to be finished graded and grassed. Eighty pounds per acre of Bahia seed should be sown in all places where the soil is not covered with grasses. See SCS' Best Management Practices #342,356,410 for critical area planting.



ALL DITCHES BOTTOMS ARE SIX FEET BELOW NATURAL GRADE ± 1 FOOT

ALL CULVERTS SHOWN HAVE RISERS, WITH THE CONTROL ELEVATION 1 FOOT BELOW NATURAL GRADE ± 1 FOOT SO THAT IRRIGATION WILL BE MINIMIZED AND CROP PRODUCTION WILL BE MAXIMIZED, BASED ON THE FARMER'S EXPERIENCE.

APPLICATION NUMBER

08 07 14 - 9

OKS

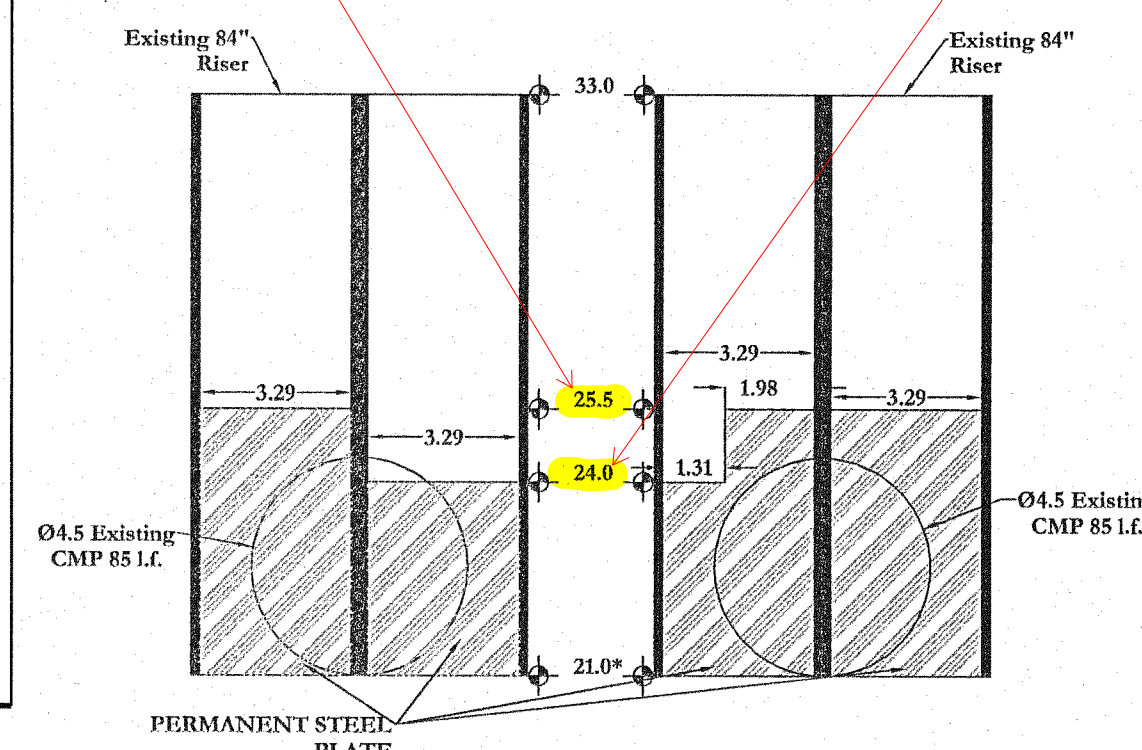
ORIGINAL SUBMITTAL

JUL 14 2008

OKS

weir elevation, 25.5'

control elevation, 24.0'



PROPOSED PC-06 STRUCTURE MODIFICATION
NTS

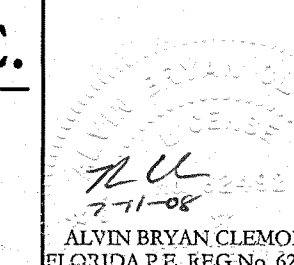
*ELEVATION ACCORDING TO KELLY PHILLIPS OF SFWMD PER CONVERSATION ON JULY 10, 2008 IS INDICATED IN ITEM No. 6 OF THE SPECIAL CONDITIONS IN ROW PERMIT No. 08-0403-1M.

PREPARED FOR:

PERRY SMITH FAMILY LIMITED PARTNERSHIP
P.O. BOX 742
OKEECHOBEE, FLORIDA 34973
PHONE: (863) 763-2391

CLEMONS ENGINEERING, INC.

12 E HIBISCUS STREET
LAKE PLACID, FLORIDA 33852
PHONE (863) 465-7058 FAX (863) 465-7058
E-MAIL: CLEMONSENGINEERING@YAHOO.COM



MASTRE DRAINAGE PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

DATE:	3 JULY 2008	DRAWN:	ABC	SEC/TWP/RNG:	27, 28, 33 & 34/37/33	SCALE:	1" = 400'	SHEET:	3
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ARROW B

AN AGRICULTURAL SITE

HIGHLANDS COUNTY, FLORIDA



GENERAL LOCATION MAP
NOT TO SCALE

SITE INFORMATION:

PARCEL ID No.	C-27-37-33-020-0180-0000
	C-27-37-33-020-AAAA-0000
	C-27-37-33-020-0250-0000
	C-28-37-33-010-0300-0000

ADDRESS 19400 SR 70 WEST

SEC/TWP/RNG 27/37S/33E
 28/37S/33E

ACREAGE OWNED 1027.30 AC

CONTACT INFORMATION:

ENGINEER: ALVIN BRYAN CLEMONS, P.E. 62492
CLEMONS ENGINEERING, INC.
12 EAST HIBISCUS STREET
LAKE PLACID, FLORIDA 33852
PHONE: (863) 465 - 7058
FAX: (863) 465 - 7058

OWNER: PERRY SMTH
PERRY SMTH FAMILY LIMITED PARTNERSHIP
P.O. BOX 742
OKEECHOBEE, FLORIDA 34973
PHONE: (863) 763 - 2391

PREPARED FOR:

PERRY SMITH FAMILY LIMITED PARTNERSHIP
P.O. BOX 742
OKEECHOBEE, FLORIDA 34973
PHONE: (863) 763 - 2391

PREPARED BY:

CLEMONS ENGINEERING, INC.
12 EAST HIBISCUS STREET
LAKE PLACID, FLORIDA 33852
PHONE: (863) 465 - 7058
FAX: (863) 465 - 7058
E-MAIL: CLEMONSENGINEERING@YAHOO.COM

INDEX OF SHEETS:

- 1 - COVER SHEET
- 2 - AERIAL
- 3 - MASTER DRAINAGE PLAN
- 4 - WETLAND MONITORING PLAN
- 5 - LAND USE PLAN



SPECIFIC LOCATION MAP
NOT TO SCALE

APPLICATION NUMBER

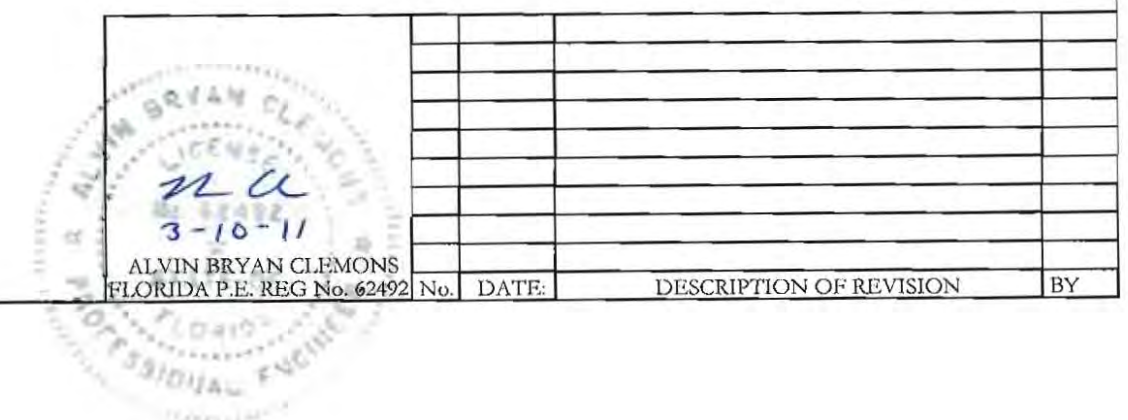
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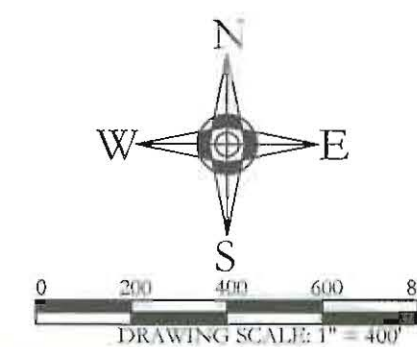
OKS

ORIGINAL SUBMITTAL

MAR 10 2011

OKS





LEGEND:

PROPERTY BOUNDARY - - - - -

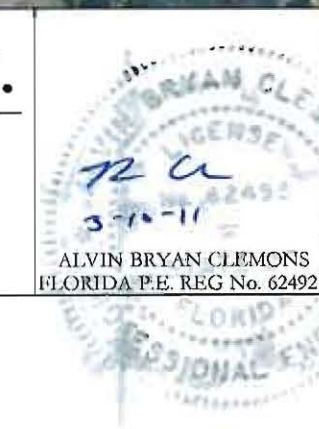
PREPARED FOR:

PERRY SMITH FAMILY LIMITED PARTENERSHIP
P.O. BOX 742
OKEECHOBEE, FLORIDA 34973
PHONE: (863) 763-2391

No.	DATE	DESCRIPTION OF REVISION	BY

CLEMONS ENGINEERING, INC.

12 E HIBISCUS STREET
LAKE PLACID, FLORIDA 33852
PHONE (863) 465-7058 FAX (863) 465-7058
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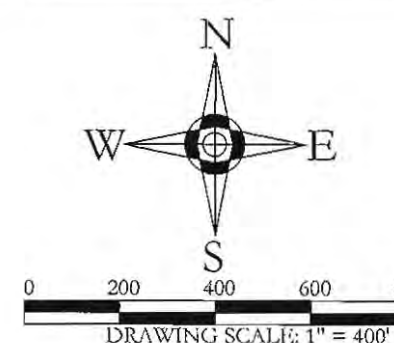
AERIAL
ARROW B
HIGHLANDS COUNTY, FLORIDA

DATE	DRAWN	SEC/TWP/RNG	SCALE	SHEET
3 JULY 2008	ABC	27, 28, 33 & 34/37/33	1" = 400'	2

ORIGINAL SUBMITTAL APPLICATION NUMBER

MAR 10 2011 110310-15

OKS OKS

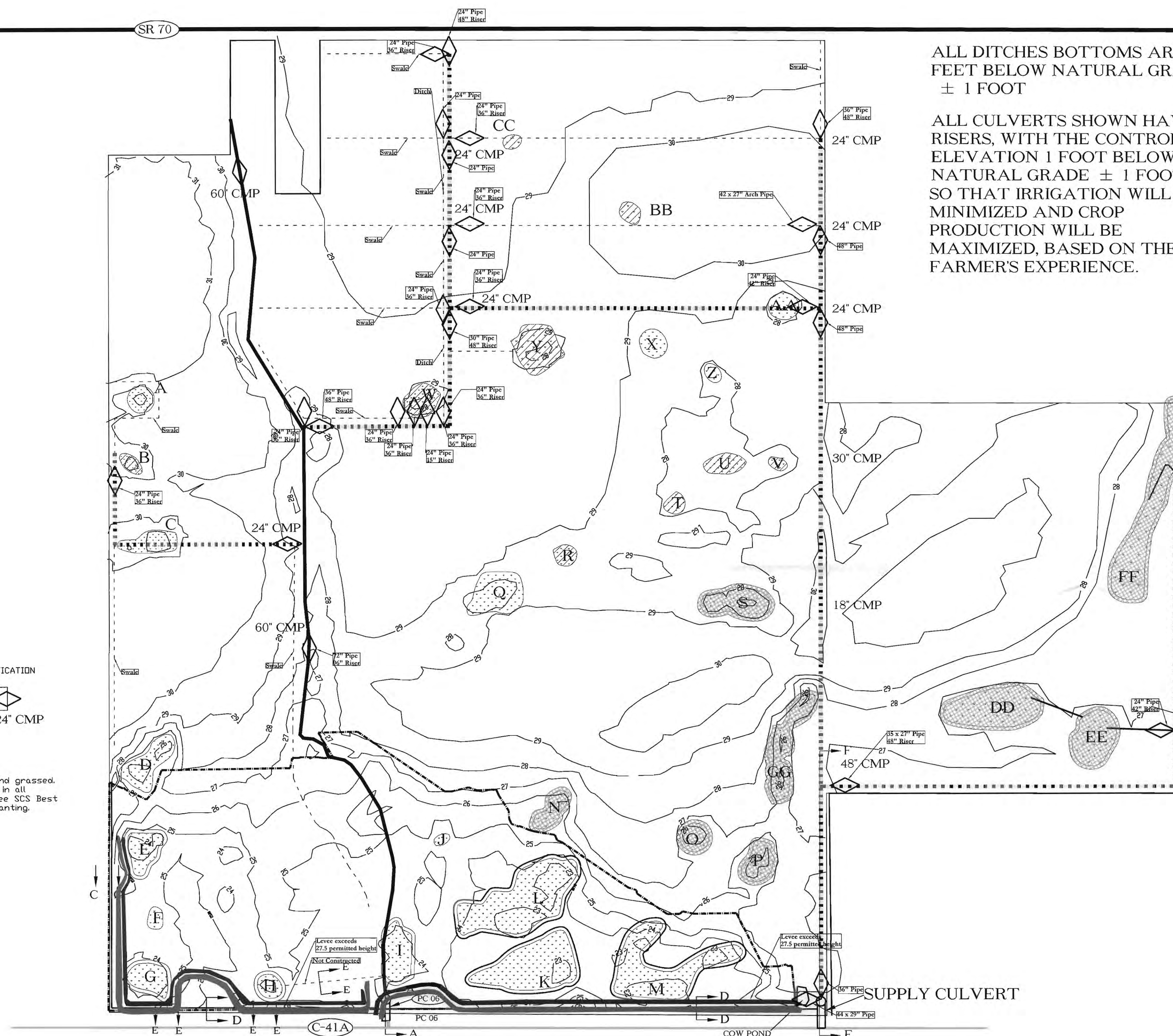


LEGEND

- PROPERTY BOUNDARY ———
- PROPOSED DITCH ———
- LEVEE ———
- EXISTING DITCH ———
- PROPOSED SWALE - - - - -
- CONTOUR 29' ———
- IMPACTED WETLAND (hatched pattern)
- 25' WETLAND SETBACK (dashed line)
- WETLAND (stippled pattern)
- CONTROL STRUCTURE (rectangle with cross)
- MITIGATION BOUNDARY - - - - -
- ENHANCED WETLAND (dotted pattern)
- PRESERVED FORESTED UPLANDS (cross-hatched pattern)
- PRESERVED HERBACEOUS UPLANDS (diagonal lines)
- PRESERVED WETLAND (horizontal lines)
- PHOTO STATION (circle with 'X')
- VEGETATION TRANSECT (line with 'X')
- STAFF GAUGE (vertical line with cross)
- LEVEE* (thick solid line)
- LEVEE BORROW* (thick dashed line)
- *AERIAL DELINEATION LOCATION NOT FOR AS-BUILT CERTIFICATION
- DETAIL OF TYPICAL CULVERT AND DITCH X-SECTION (diagram showing 24" CMP and 24" Pipe)
- MODIFICATION PROJECT LIMITS (hatched pattern)

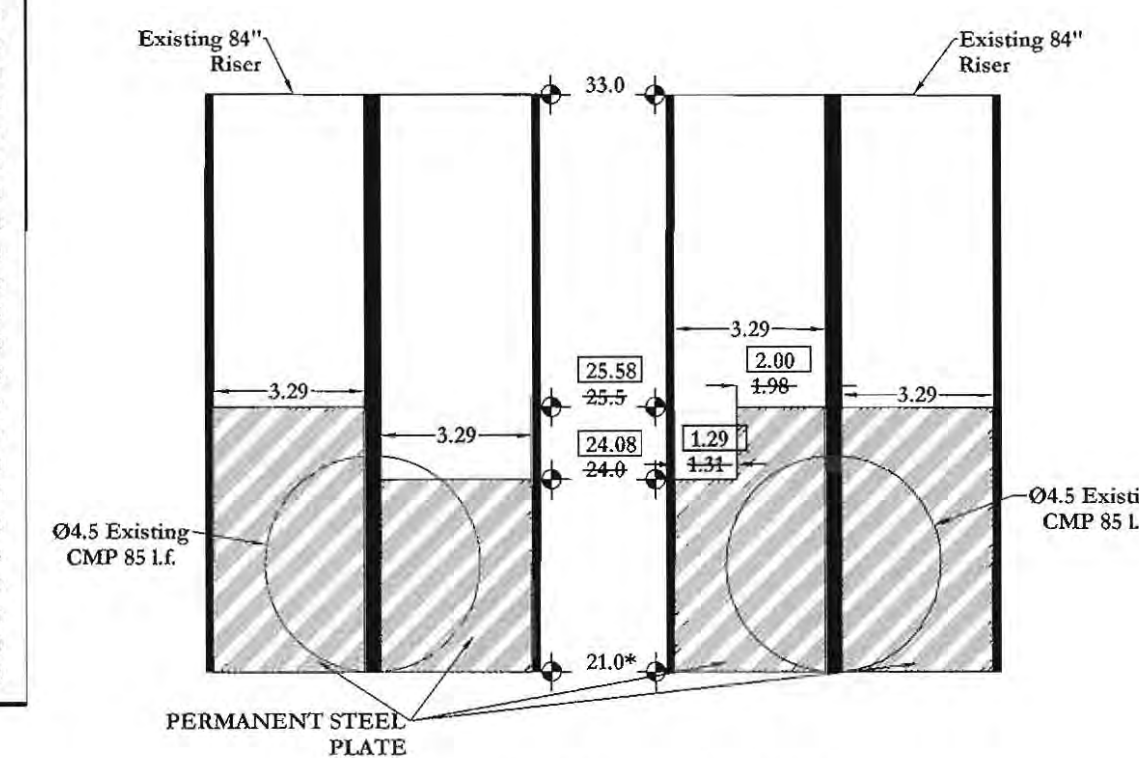
Note: All proposed levees are to be finished graded and grassed. Eighty pounds per acre of Bahia seed should be sown in all places where the soil is not covered with grasses. See SCS Best Management Practices #342,356,410 for critical area planting.

As-Built Information - ———



ALL DITCHES BOTTOMS ARE SIX FEET BELOW NATURAL GRADE \pm 1 FOOT

ALL CULVERTS SHOWN HAVE RISERS, WITH THE CONTROL ELEVATION 1 FOOT BELOW NATURAL GRADE \pm 1 FOOT SO THAT IRRIGATION WILL BE MINIMIZED AND CROP PRODUCTION WILL BE MAXIMIZED, BASED ON THE FARMER'S EXPERIENCE.



PROPOSED PC-06 STRUCTURE MODIFICATION NTS

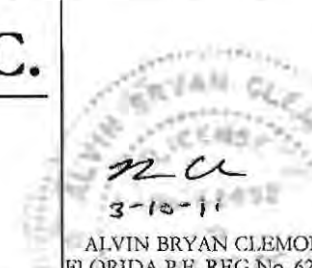
*ELEVATION ACCORDING TO KELLY PHILLIPS OF SFWMD PER CONVERSATION ON JULY 10, 2008 IS INDICATED IN ITEM No. 6 OF THE SPECIAL CONDITIONS IN ROW PERMIT No. 08-0403-1M.

PREPARED FOR:
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P.O. BOX 742
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PHONE (863) 465-7058 FAX (863) 465-7058
E-MAIL: CLEMONSENGINEERING@YAHOO.COM

No.	DATE	DESCRIPTION OF REVISION	BY
3	25 Feb	Permit Modification	ABC
2	2 Feb	As-built data	ABC
1	15 Oct	SFWMD RAI Responses	ABC



DATE:	3 JULY 2008	DRAWN:	ABC	SNC/TWP/RNG:	27, 28, 33 & 34/37/33	SCALE:	1" = 400'	SHEET:	3
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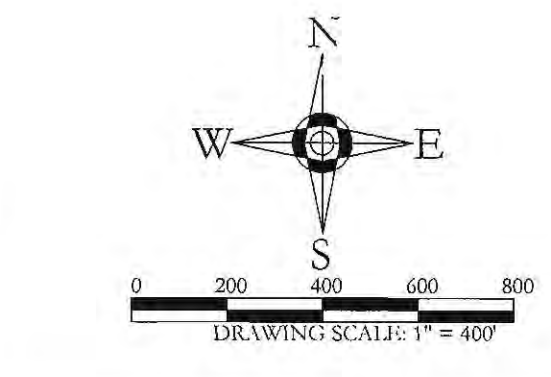
MASTER DRAINAGE PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

APPLICATION NUMBER ORIGINAL SUBMITTAL

110310-15

MAR 10 2009

OKS



LEGEND

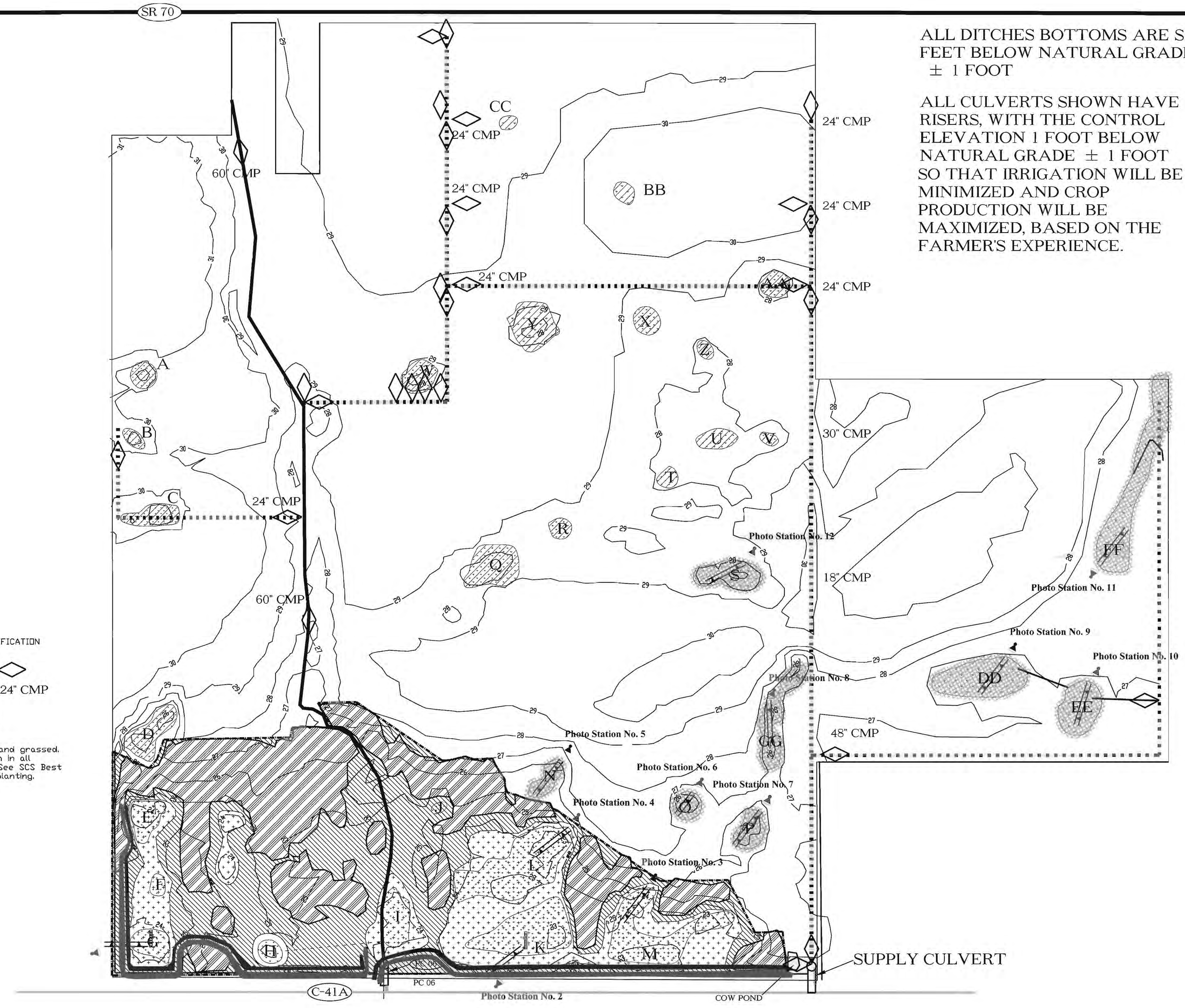
- PROPERTY BOUNDARY —————
- PROPOSED DITCH —————
- LEVEE —————
- EXISTING DITCH —————
- PROPOSED SWALE - - - - -
- CONTOUR 29' ————
- IMPACTED WETLAND (hatched pattern)
- 25' WETLAND SETBACK (dashed line)
- WETLAND (stippled pattern)
- CONTROL STRUCTURE (rectangle with circle)
- MITIGATION BOUNDARY - - - - -
- ENHANCED WETLAND (dotted pattern)
- PRESERVED FORESTED UPLANDS (diagonal lines)
- PRESERVED HERBACEOUS UPLANDS (cross-hatch pattern)
- PRESERVED WETLAND (horizontal lines)
- PHOTO STATION (arrow pointing to a point)
- VEGETATION TRANSECT (line with perpendicular ticks)
- STAFF GAUGE (vertical line with cross-ticks)
- LEVEE* (thick solid line)
- LEVEE BORROW* (thick dashed line)
- *AERIAL DELINEATION LOCATION NOT FOR AS-BUILT CERTIFICATION
- DETAIL OF TYPICAL CULVERT AND DITCH X-SECTION (diamond shape) 24" CMP
- MODIFICATION PROJECT LIMITS (hatched pattern)

Note: All proposed levees are to be finished graded and grassed. Eighty pounds per acre of Bahia seed should be sown in all places where the soil is not covered with grasses. See SCS Best Management Practices #342,356,410 for critical area planting.

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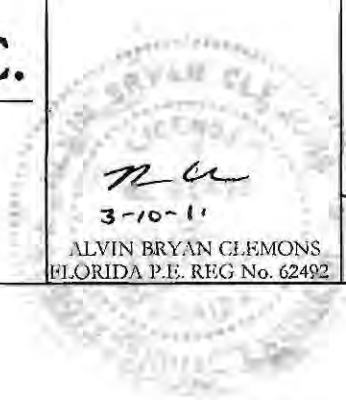


PREPARED FOR:
PERRY SMITH FAMILY LIMITED PARTENERSHIP
P.O. BOX 742
OKEECHOBEE, FLORIDA 34973
PHONE: (863) 763-2391

No.	DATE	DESCRIPTION OF REVISION	BY

CLEMONS ENGINEERING, INC.

12 E HIRSCUS STREET
LAKE PLACID, FLORIDA 33852
PHONE (863) 465-7058 FAX (863) 465-7058
E-MAIL: CLEMONSENGINEERING@YAHOO.COM



WETLAND MONITORING PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

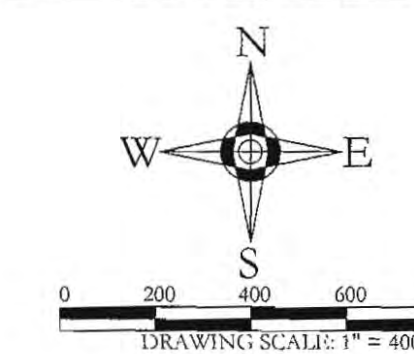
DATE	DRAWN	SEC/TWP/RNG	SCALE	SHEET
15 OCT 2008	ABC	27, 28, 33 & 34/37/33	1" = 400'	4

APPLICATION NUMBER 110310-15 ORIGINAL SUBMITTAL

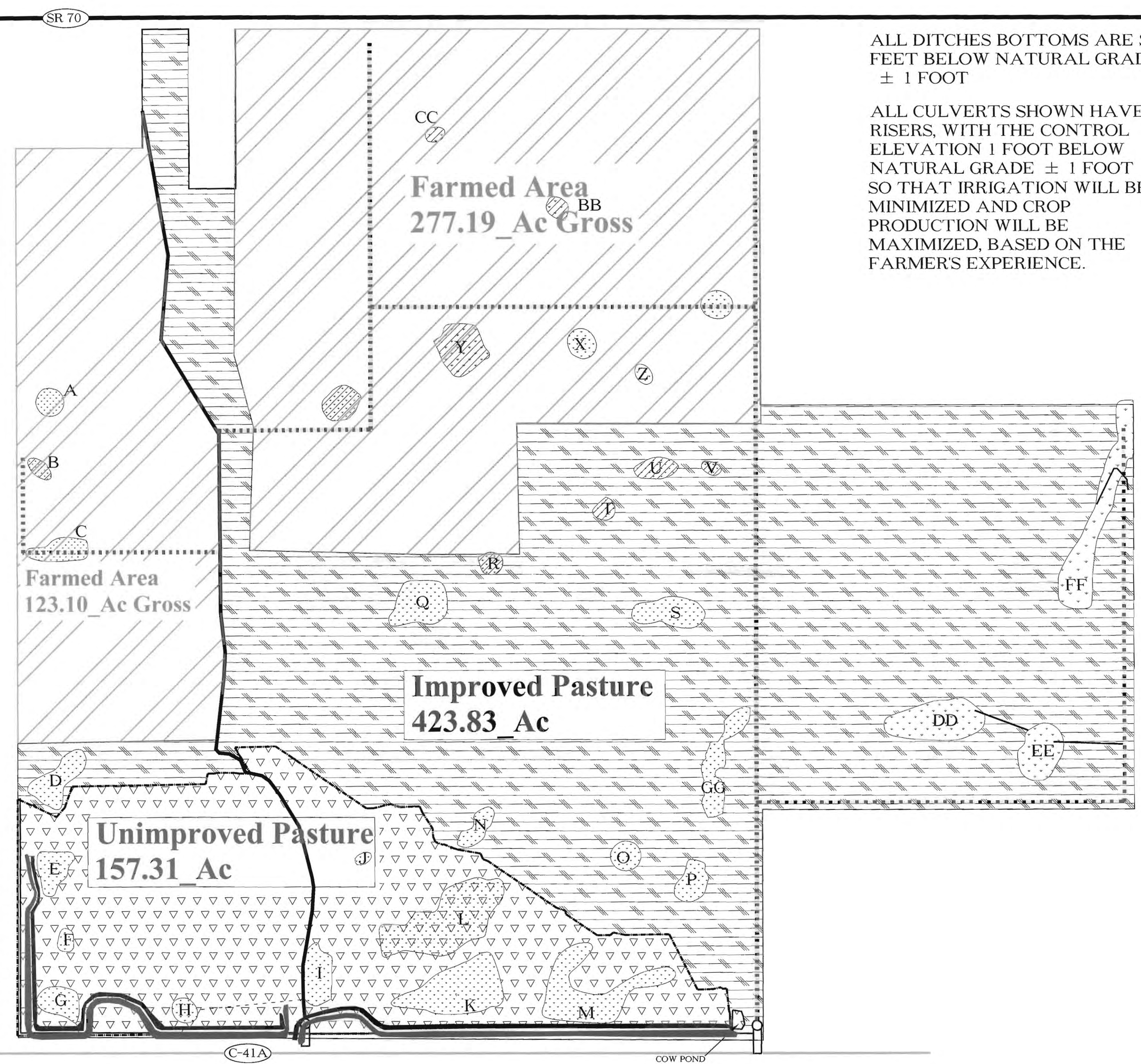
MAR 10 2011

OKS

OKS



LEGEND
WETLAND

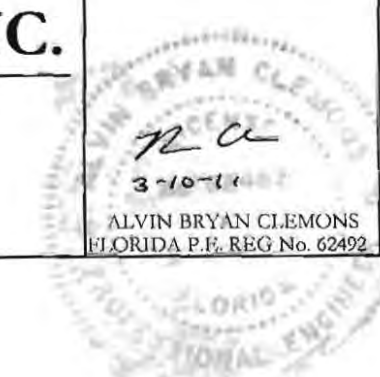


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PREPARED FOR:
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PHONE (863) 465-7058 FAX (863) 465-7058
E-MAIL: CLEMONSENGINEERING@YAHOO.COM



LAND USE PLAN ARROW B HIGHLANDS COUNTY, FLORIDA				
DATE:	DRAWN:	SEC/TWP/RNG:	SCALE:	SHEET:
24 FEBRUARY 2011	ABC	27, 28, 33 & 34/37/33	1" = 400'	5

APPLICATION NUMBER
110310-15

ORIGINAL SUBMITTAL

MAR 10 2011

OKS



ALL ISSUING AGENCIES Permit History

Permit No:28-00119-S-02

Project Description:COCO SOD FARMS

July 15, 2008

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
14-JUN-01	000922-17	ERP MOD INDIVIDUAL	CONSTRUCT/OPERATE	GENE B. AND PEGGY C. FULFORD	MIAMI TROPICAL SOD FARM
02-APR-03	030310-16	ERP LTRMD GENERAL	COMPLIANCE MOD NRM	GENE B & PEGGY C FULFORD	MIAMI TROPICAL SOD FARM
21-JUL-05	050602-18	SWM TRANS GENERAL	PERMIT TRANSFER	FERNANDO VERGARA	COCO SOD FARMS

Permit No:28-00119-S-03

Project Description:FRESP - SYFRETT RANCH LETTER MODIFICATION

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
14-MAR-02	010525-2	ERP MOD INDIVIDUAL	CONSTRUCT/OPERATE	PERRY SMITH FAMILY LIMITED PAR	PERRY SMITH & CHUCK SYFRETT
13-MAR-08	071228-13	SWM LTRMD GENERAL	COMPLIANCE LETTER MC	SYFRETT RANCH	FRESP - SYFRETT RANCH LETTER MODIFICATION

* Denotes application was not issued by SFWMD.
Issued by Miami-Dade County or Broward County.



ALL ISSUING AGENCIES

Permit History

Permit No:28-00119-Q

Project Description:HEART GROVES

July 15, 2008

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
16-JAN-92	911106-2-Q	LOK MOD INDIVIDUAL	WOD INDIVIDUAL	Mr. Richard P. Georges	HEART GROVES INC
09-DEC-93	931013-2-Q	LOK MOD INDIVIDUAL	WOD INDIVIDUAL	Heart Groves Inc	HEART GROVES

Permit No:28-00119-S

Project Description:ARROW B RANCH

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
08-SEP-77	25472	SWM NEW INDIVIDUAL	OPERATION	ESTATE OF GEORGE J BAYA	ARROW B RANCH
19-AUG-97	970717-5	SWM TRANS GENERAL	PERMIT TRANSFER	ARROW B RANCH MASTER ASSOCIATI	ARROW B RANCH
27-FEB-01	000922-18	ERP NEW GENERAL	INC. SITE ACT. EARLY WC	MR. GENE FULFORD	MIAMI TROPICAL SOD FARM

Permit No:28-00119-W

Project Description:ARROW B RANCH

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
08-SEP-77	25472-W1	WU NEW INDIVIDUAL	AGRICULTURAL IRRIGATI	ARROW B RANCH	ARROW RANCH
08-OCT-87	25472-W2	WU REN INDIVIDUAL	AGRICULTURAL IRRIGATI	ARROW B RANCH	ARROW RANCH
27-FEB-91	910213-9	WU REN INDIVIDUAL	BASIN EXTENSION	ARROW B RANCH	ARROW RANCH
15-JUL-93	930515-45	WU REN INDIVIDUAL	BASIN EXTENSION	ESTATE OF GEORGE J BAYA	ARROW RANCH
19-AUG-97	970717-6	WU TRANS INDIVIDUAL	PERMIT TRANSFER	ARROW B RANCH MASTER ASSOCIATI	ARROW B RANCH
18-MAY-01	001204-8	WU LTRMD INDIVIDUA	LETTER MOD	PERRY SMITH	ARROW B RANCH
28-JUN-01	010516-10	WU LTRMD INDIVIDUA	LETTER MOD	ARROW B RANCH MASTER ASSOCIATI	ARROW B RANCH
12-APR-06	060308-18	WU LTRMD INDIVIDUA	LETTER MOD	ARROW B RANCH MASTER ASSOCIATI	ARROW B RANCH
	080129-34	WU NEW INDIVIDUAL	IRRIGATION < 20 YRS	SYFRETT RANCH INC	SYFRETT RANCH-ARROW B

Permit No:28-00119-S-02

Project Description:COCO SOD FARMS

Issue Date	App#	APP. Description	Purpose	M/O Permittee	Project
------------	------	------------------	---------	---------------	---------

* Denotes application was not issued by SFWMD.
Issued by Miami-Dade County or Broward County.



**SOUTH FLORIDA WATER MANAGEMENT DISTRICT
SURFACE WATER MANAGEMENT
GENERAL PERMIT NO. 28-00119-S-03
DATE ISSUED: December 22, 2008**

Form #0942
08/95

PERMITTEE: PERRY SMITH FAMILY LIMITED PARTNERSHIP
P O BOX 742
OKEECHOBEE, FL 34973

PROJECT DESCRIPTION: Construction and operation of a surface water management system to serve a 97.41 acre project known as Perry Smith PC-06 Modification.

PROJECT LOCATION: HIGHLANDS COUNTY, SEC 27,28,33,34 TWP 37S RGE 33E

PERMIT DURATION: See Special Condition No:1. See attached Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Permit Application No. 080714-9, dated July 14, 2008. This action is taken pursuant to Rule 40E-1.606 and Chapter 40E-40, Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and a Surface Water Management General Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 Standard Limiting Conditions (See Pages : 2 - 3 of 5),
3. the attached 20 Special Conditions (See Pages : 4 - 5 of 5) and
4. the attached 3 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 22nd day of December, 2008, in accordance with Section 120.60(3), Florida Statutes.

BY: 

Gary J. Ritter
Service Center Director
Okeechobee Service Center

Certified mail number 7155 5474 4100 7795 3644

STANDARD LIMITING CONDITIONS

1. The permittee shall implement the work authorized in a manner so as to minimize any adverse impact of the works on fish, wildlife, natural environmental values, and water quality. The permittee shall institute necessary measures during the construction period, including full compaction of any fill material placed around newly installed structures, to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving waters.
2. Water quality data for the water discharged from the permittee's property or into surface waters of the State will be submitted to the District as required by Section 5.9, "Basis of Review for Surface Water Management Permit Applications within South Florida Water Management District". Parameters to be monitored may include those listed in Chapter 62-302, F.A.C.. If water quality data is required, the permittee shall provide data on volumes of water discharged, including total volume discharged during the days of sampling and total monthly discharges from the property or into surface waters of the State.
3. This permit shall not relieve the permittee of any obligation to obtain necessary federal, State, local or special district approvals.
4. The operation phase of this permit will not become effective until the District's acceptance of certification of the completed surface water management system. The permittee shall request transfer of the permit to the responsible operation entity accepted by the District, if different from the permittee. The transfer request can be submitted concurrently with the construction completion certification.
5. All road elevations shall be set in accordance with the criteria set forth in Section 6.5, "Basis of Review for Surface Water Management Permit Applications within South Florida Water Management District".
6. All building floor elevations shall be set in accordance with the criteria set forth in Section 6.4, "Basis of Review for Surface Water Management Permit Applications within South Florida Water Management District".
7. Off-site discharges during construction and development will be made only through the facilities authorized by this permit.
8. A permit transfer to the operation phase shall not occur until a responsible entity meeting the requirement in Section 9.0, "Basis of Review for Surface Water Management Permit Applications within South Florida Water Management District" has been established to operate and maintain the system. The entity must be provided with sufficient ownership or legal interest so that it has control over all water management facilities authorized herein.
9. The permit does not convey to the permittee any property rights or privileges other than those specified in the permit and Chapter 40E-4, F.A.C..
10. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, operation, maintenance or use of any facility authorized by the permit.
11. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.
12. Within 30 days of issuance of this permit, the permittee or authorized agent shall notify the District (via the supplied construction commencement notice or equivalent) of the actual or anticipated construction start date and the expected completion date.

STANDARD LIMITING CONDITIONS

13. When the duration of construction exceeds one year, the permittee or authorized agent shall submit construction status reports on an annual basis (via the supplied annual status report or equivalent) beginning one year after the initial commencement of construction.
14. Within 30 days after completion of construction of the surface water management system, the permittee or authorized agent shall file a written statement of completion and certification by a Florida registered professional engineer. These statements must specify the actual date of construction completion and must certify that all facilities have been constructed in substantial conformance with the plans and specifications approved by the District (via the supplied construction completion/certification or equivalent). The construction completion certification must include, at a minimum, existing elevations, locations and dimensions of the components of the water management facilities. Additionally, if deviations from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted.
15. Within 30 days of any sale, conveyance or other transfer of any of the land which is proposed for development under the authorization of this permit, the permittee shall notify the District of such transfer in writing via either Form 0483, Request for Permit Transfer; or Form 0920, Request for Transfer of Surface Water Management Construction Phase to Operation Phase (to be completed and submitted by the operating entity), in accordance with Sections 40E-1.6105 AND 40E-4.351, F.A.C..
16. A prorated share of surface water management retention/detention areas, sufficient to provide the required flood protection and water quality treatment, must be provided prior to occupancy of any building or residence.
17. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
18. It is the responsibility of the permittee to insure that adverse off-site water resource related impacts do not occur during construction.
19. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(4), F.A.C..

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on December 22, 2013.
2. Operation of the surface water management system shall be the responsibility of the permittee.
3. Discharge Facilities:

Structure No. 1A

1-3.2.9 ft wide x 1.5 ft high RECTANGULAR NOTCH with invert at elev. 24.0' NGVD.
1-sharp crested weir with a crest at elev. 25.5' NGVD.
Receiving body : C-41A Canal
Control elev : 24.0 feet NGVD.

Structure No. 1B

1-1.31 ft wide x 1.5 ft high RECTANGULAR NOTCH with invert at elev. 24.0' NGVD.
1-sharp crested weir with a crest at elev. 25.5' NGVD.
Receiving body : C-41A Canal
Control elev : 24.0 feet NGVD

Other structures remain as permitted under Application 010525-2.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
9. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
10. The permittee acknowledges, that pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.
11. Land use within the permitted facilities is agricultural. Any proposed change in land use may require modification of this permit and must be reported to the District for a determination of permit requirements.
12. Any proposed change in land use or crop type may require modification of this permit and must be reported to the District.
13. Silt fencing shall be installed at the limits of construction to protect all of the preserve areas from silt and sediment deposition during the construction of the project. A floating turbidity barrier shall be installed during the construction of the final discharge structure into the adjacent canal/water body. The silt fencing

SPECIAL CONDITIONS

and the turbidity barrier shall be installed in accordance with "Florida Land Development Manual" Chapter 6 "Stormwater and Erosion and Sediment Control Best Management Practices for Developing Areas" and Exhibit No. 2. The sediment controls shall be installed prior to the commencement of any clearing or construction and the installation must be inspected by the District's Environmental Resource Compliance staff. The silt fencing and turbidity barriers shall remain in place and be maintained in good functional condition until all adjacent construction activities have been completed and all fill slopes have been stabilized. Upon completion of the project and the stabilization of the fill, the permittee shall contact the District's Environmental Resource Compliance staff to inspect the site and approve the removal of the silt fencing and turbidity barriers.

14. A previously permitted mitigation plan for Perry Smith Family Limited Partnership Arrow B has been implemented in accordance with permit conditions. The plan included enhancement of 21.29 acres of existing herbaceous wetlands, restoration of 24.41 acres of drained herbaceous wetlands, preservation of 56.20 of live oak hammock forested uplands and preservation of 56.95 acres of slash pine-saw palmetto community uplands within the southern mitigation area. An additional 15.56 acres of herbaceous wetlands will be preserved within the dedicated pasture areas in exchange for release of the previously permitted northern mitigation area.
15. A monitoring program shall be implemented in accordance with Exhibit No. 3.1. The monitoring program shall extend for an additional three year period with annual reports submitted to District Environmental Resource Compliance staff.
16. A maintenance program shall be implemented in accordance with Exhibit No. 3.1 for the preserved/enhanced wetland and upland areas on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the mitigation areas are maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 5% of total cover between maintenance activities. In addition, the permittee shall manage the mitigation areas such that exotic/nuisance plant species do not dominate any one section of those areas.
17. An average 25 foot wide, minimum 15 foot, buffer of undisturbed upland vegetation shall be maintained between the proposed farming area and existing wetlands. Buffers shall be staked and roped and District environmental staff notified for inspection prior to clearing.
18. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.
19. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.
20. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 28-00119-S-03 unless otherwise specified herein.

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified pursuant to Rules 40E-4.331 and 40E-4.441, F.A.C., the duration of a surface water management permit issued under this chapter is as follows:

(a) Two years from the date of issuance for Conceptual Approval, unless within that period an application for a construction and operation permit is filed for any portion of the project. If an application for a construction and operation permit is filed, then the Conceptual Approval remains valid until final action is taken on the application. If the application is granted, then the Conceptual Approval is valid for an additional two years from the date of issuance of the construction and operation permit. Conceptual Approvals which have no applications for construction and operation filed for a period of two years will expire automatically.

(b) Five years from the date of issuance for a construction permit.

(c) Perpetual for an operation permit.

(2) The Governing Board shall issue permit extensions provided that a permittee files a written request with the District showing good cause. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(3) For a Conceptual Approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive amendment, the duration of the Conceptual Approval shall be two years from whichever one of the following occurs at the latest date:

(a) the effective date of the local government's comprehensive plan amendment,

(b) the effective date of the local government development order, or

(c) the date on which the district issues the Conceptual Approval, or

(d) the latest date of the resolution of any Chapter 120 or other legal appeals.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Modifications to construction permits issued pursuant to a formal permit application extend the duration of the permit for three years from the date of issuance of the modification. Construction permit modifications do not extend the duration of a Conceptual Approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416(1) F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4/20/94.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose to the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District's Governing Board takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: 26-DEC-2008

GENERAL SURFACE WATER MANAGEMENT STAFF REPORT

Project Name: Perry Smith P C-06 Modification

Permit No.: 28-00119-S-03

Application No.: 080714-9

Application Type: Surface Water Management (General Permit Modification)

Location: Highlands County, S27,28,33,34/T37S/R33E

Permittee : Perry Smith Family Limited Partnership

Operating Entity : Perry Smith Family Limited Partnership

Project Area: 97.41 acres

Project Land Use: Agricultural

Drainage Basin: C-41A

Receiving Body: C-41A (Brighton) Canal

Class: CLASS III

Special Drainage District: NA

Total Acres Wetland Onsite: 78.64

Total Acres Wetland Preserved Onsite: 61.26

Total Acres Impacted Onsite : 17.38

Total Acres Presv/Mit Compensation Onsite: 174.41

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit modification to a Surface Water Management Permit authorize construction and operation of a surface water management system to serve a 97.41-acre agricultural project known as Perry Smith PC-06 Modification. Staff recommends approval with conditions.

PROJECT EVALUATION:**PROJECT SITE DESCRIPTION:**

The site is located approximately 12 miles west of the City of Okeechobee and two miles west of the Kissimmee River. The property is along the south side of State Road 70, north of the C-41A Canal, east of SW 196 Terrace, and west of Rucks Dairy Road. Please see Exhibit 1 for the Site Location Map.

This site was previously permitted under Permit 28-00119-S-03, Application 010525-2.

PROJECT BACKGROUND:

On September 8, 1977, the District issued permit 28-00119-S for the operation of the existing surface water management system to serve 6470 acres of improved pasture known as Arrow B Ranch. The property included in this application, including Project Culvert PC-06, was covered by that permit. In August of 1997, the permit was transferred from the Estate of George J. Baya (Arrow B Ranch) to the Arrow B Master Association.

On March 14, 2002, the Governing Board of the South Florida Water Management District authorized the construction and operation of a surface water management system serving 1352 acres of agricultural land. The application included converting approximately 85 acres of improved pasture to row crops, the location of which would be rotated throughout the property. The remainder of the parcel was to remain as improved pasture and wetlands. The modification was issued as an Environmental Resource Permit modification of the old Surface Water Management Permit.

PROPOSED PROJECT:

Authorization is requested to modify the previously permitted surface water management system to utilize Project Culvert PC-06 as the outfall structure. Although the ranch and farm area cover 1023 acres, this application proposes modifications to 97.41 acres. The existing permit calls for the installation of a separate structure approximately 200 feet upstream of PC-06. The weir crest elevation and bleeder dimensions will remain as under the current permit. PC-06 consists of twin 54-inch culverts.

The previously permitted outfall structure (Structure 1 in Basin 1) had a 4.6 ft wide by 1.5 ft high rectangular notch bleeder set with an invert elevation of 24 ft NGVD. The structure also had a sharp crested weir at elevation 25.5 ft NGVD.

The proposed structure will consist of fixed plates on each of the two culverts that make up Project Culvert PC-06. Each will have a rectangular notched bleeder; one will be 3.29 feet wide and the other will be 1.31 ft wide (4.6 ft total). The invert of the bleeders will remain at 24 ft NGVD and the height of the bleeders will remain at 1.5 ft. Each plate will have a top elevation of 25.5 ft NGVD.

This application also requests modification of the previously permitted wetland mitigation north of Highway 70. The applicant no longer intends to impact all of the wetlands previously permitted to be impacted.

WATER QUANTITY :**Discharge Rate :**

This project falls within the C-41A basin which has an maximum allowable discharge of 35.4 cubic feet per second per square mile or 74.8 cubic feet per second (cfs) for 1352 acres. The applicant's engineer submitted calculations demonstrating that the revisions to the outfall structure will not result in an

increased discharge rate.

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. The proposed modification will provide water quality treatment, storage volume, and storm attenuation equivalent to that provided in the original design.

WETLANDS:

Wetland Impacts:

Twenty four wetlands were previously permitted to be impacted as a result of converting pasture land to row crops with the 2001 permit application (010525-2). This current modification request proposes to now preserve seven of the 24 wetlands (N, O, P, S, DD, EE and FF) in exchange for release of the previously permitted northern mitigation area. A site visit that was conducted on October 2, 2008 verified these seven wetlands, with the exception of FF, have not been adversely impacted by on-going cattle ranching activities during the preceding seven years. A drainage ditch was constructed through Wetland FF (2001 acreage 5.37 ac) which reduced the areal extent of the jurisdictional boundary by 2.77 acres. Therefore, 2.50 acres of this wetland will be preserved and 2.77 acres have been impacted.

Mitigation Proposal:

The applicant had originally proposed to impact seven wetlands (N, O, P, S, DD, EE and FF totaling 16.07 acres) as a result of converting existing pasture land to row crop fields. A mitigation area north of S.R. 70 and adjacent to the Kissimmee River was previously permitted to preserve 84.33 acres of floodplain wetlands as mitigation for impact to these wetlands. With this modification request, the applicant has asked for the northern mitigation area to be released in exchange for preservation of these seven wetlands plus a previously unidentified jurisdictional wetland area (Wetland GG 2.26 acres) for a total of 15.56 acres of wetland habitat previously permitted to be impacted.

The previously permitted 158.85 acre southern mitigation area will continue to provide mitigation for impacts to 14.85 acres of wetland habitat. Mitigation activities included enhancement of 21.29 acres of existing wetlands (E, F, G, H, I, J, K, L, and M), restoration of 24.41 acres of drained wetland habitat adjacent to these functioning systems, preservation of 56.20 acres of live oak hammock and preservation of 56.95 acres of shrub and cabbage palm community. Wetland hydroperiods have been restored and the upland preservation areas are providing valuable wildlife habitat.

The eight wetlands (N, O, P, S, DD, EE, FF and GG) that will now be preserved with this application are located within active improved pasture land utilized for cattle grazing. A 25 foot buffer of primarily forage grasses is shown on the plans. Wetland vegetation noted during a site visit on October 2, 2008 included pickerelweed, duck potato, smartweed, soft rush and maidencane.

Monitoring/Maintenance:

The applicant has submitted a revised Mitigation, Monitoring and Maintenance Plan which is attached as Exhibit 3.1 to the permit. Monitoring components include pedestrian transects, photographic documentation, hydrologic observations and staff gauge readings, and notation of wildlife usage. Since the Mitigation Area has been deemed successful, monitoring events will be conducted annually with submittal of summary reports being submitted annually.

A vegetative maintenance program has been on-going since 2003 for the enhanced/restored wetland

A vegetative maintenance program has been on-going since 2003 for the enhanced/restored wetland areas and upland preserve areas within the Mitigation Area. The seven additional preserved wetlands will be included in the maintenance program with issuance of this permit modification. Maintenance shall be conducted in perpetuity to ensure the preserved areas are maintained free from exotic vegetation and that nuisance vegetation does not constitute more than 5% of the total cover. Currently, the Mitigation Area and preserved wetlands do not have any exotic vegetation present and coverage by nuisance vegetation is within the permitted limitation.

The baseline monitoring report for the Mitigation Area was received on June 5, 2003, the first monitoring report was received on June 1, 2004 and the second monitoring report was received on September 11, 2008. The work schedule attached as Exhibit 3.2 has been revised to include three additional years of monitoring of the mitigation area and the seven preserved wetlands. A baseline monitoring event covering the seven additional wetlands will be conducted within two months of permit issuance.

Wetland Inventory :**CONSTRUCTION MOD -Additional Preserved**

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluc cs	Adj Delta	Functional Gain / Loss
DD	ON	641	Preservation	3.68								
EE	ON	641	Preservation	2.28								
FF	ON	641	Preservation	2.50								
GG	ON	641	Preservation	2.26								
N	ON	641	Preservation	.87								
O	ON	641	Preservation	.81								
P	ON	641	Preservation	1.15								
S	ON	641	Preservation	2.01								
Total:				15.56								

Wetland Inventory :**CONSTRUCTION MOD -Impacts Previously Permitted**

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluc cs	Adj Delta	Functional Gain / Loss
A	ON	643	Direct	.71							.000	.000
AA	ON	643	Direct	.81							.000	.000
B	ON	643	Direct	.38							.000	.000
BB	ON	643	Direct	.45							.000	.000
C	ON	643	Direct	1.28							.000	.000
CC	ON	643	Direct	.26							.000	.000
D	ON	643	Direct	1.84							.000	.000
FF	ON	641	Direct	2.77							.000	.000
Q	ON	641	Direct	2.44							.000	.000
R	ON	641	Direct	.49							.000	.000
T	ON	643	Direct	.42							.000	.000
U	ON	643	Direct	.83							.000	.000
V	ON	643	Direct	.23							.000	.000
W	ON	643	Direct	1.14							.000	.000
X	ON	643	Direct	.77							.000	.000
Y	ON	641	Direct	2.26							.000	.000
Z	ON	643	Direct	.30							.000	.000
Total:				17.38								.00

Wetland Inventory :**CONSTRUCTION MOD -Mitigation Previously Permitted**

CONSTRUCTION MOD -Mitigation Previously Permitted

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluc cs	Adj Delta	Functional Gain / Loss
E	ON	641	Enhancement	1.30								
F	ON	641	Enhancement	.36								
G	ON	641	Enhancement	1.24								
H	ON	641	Enhancement	.58								
I	ON	641	Enhancement	1.70								
J	ON	641	Enhancement	.17								
K	ON	641	Enhancement	4.70								
L	ON	641	Enhancement	6.34								
M	ON	641	Enhancement	4.90								
MITp	ON	427	Preservation	56.20						427		
MITp	ON	320	Preservation	56.95						320		
MITp	ON	641	Restoration/Creation	24.41						641		
Total:				158.85								

<u>Fluc cs Code</u>	<u>Description</u>
320	Shrub And Brushland
427	Live Oak
641	Freshwater Marshes
643	Wet Prairies

Wildlife Issues:

The mitigation area provides exceptional functional value to wildlife by virtue of preserving a variety of upland habitats interspersed by wet prairie, depression marsh and shrub wetland communities. Also the preserved wetlands located in the pastures are utilized by sandhill cranes, numerous wading birds, native Florida ducks and migratory species, crested caracara as well as other wetland-dependent wildlife such as frogs, toads and salamanders.

The project site contains preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the

operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

This project is covered by permit 28-00119-W. The applicant has indicated that dewatering is not required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation, unless the work qualifies for a No-Notice Short-Term Dewatering permit pursuant to Chapter 40E-20.302(3) or is exempt pursuant to Section 40E-2.051, FAC.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Not Applicable.

Waste Water System/Supplier:

Not applicable.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

The District has received correspondence from the Florida Department of State, Division of Historical Resources indicating that the agency has no objections to the issuance of this permit.

DCA/CZM Consistency Review:

The District has not received a finding of inconsistency from the Florida Department of Environmental Protection or other commenting agencies regarding the provisions of the federal Coastal Zone Management Plan.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

This application was submitted to comply with Consent Order No. SFWMD 2008 246 CO ERP.

STAFF REVIEW:

SURFACE WATER MANAGEMENT:



Kelly Cranford, P.E.

DATE: 12/22/08

NATURAL RESOURCE MANAGEMENT:



Melinda Parrott

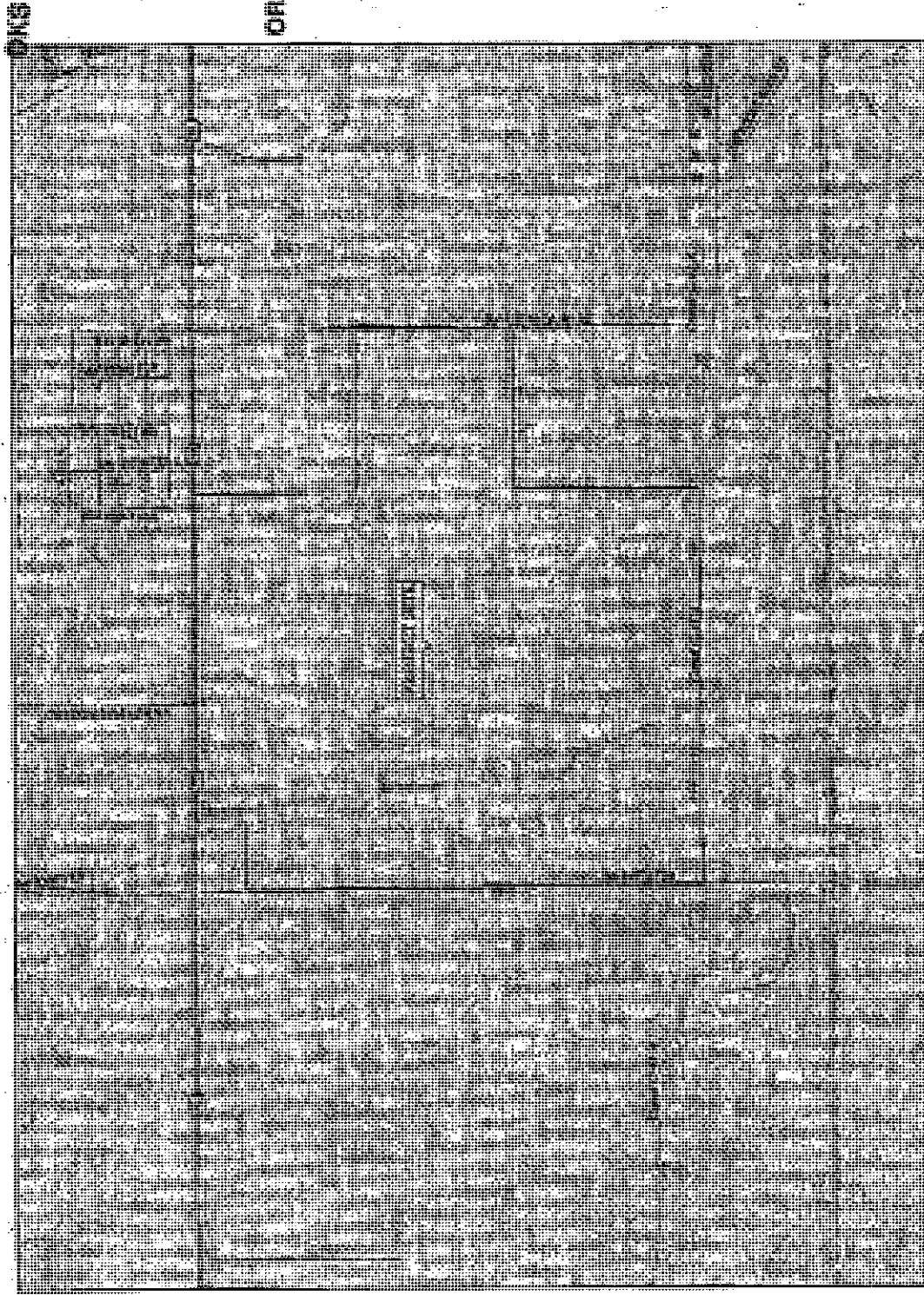
DATE: 12-22-08

ARROW B

S27,28,33,34/T37S/R33E

APPLICATION NUMBER

08 07 14 - 9



ORIGINAL SUBMITTAL

JUL 14 2008

OKS

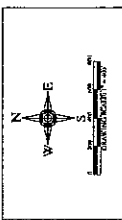
Application 080714-9

Exhibit 1

Page 1 of 1

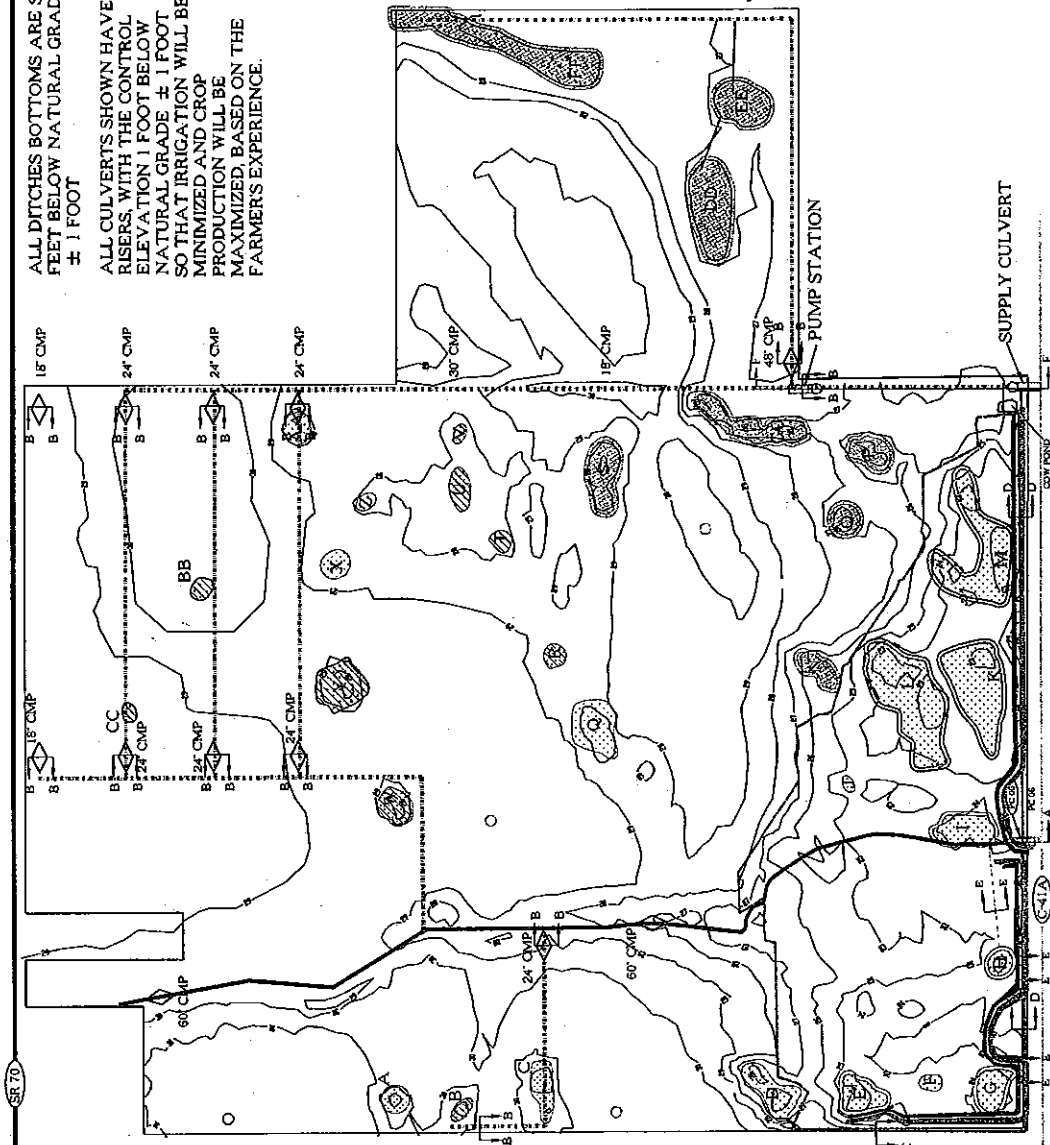
SPECIFIC LOCATION MAP

NOT TO SCALE



ALL DITCHES BOTTOMS ARE SIX FEET BELOW NATURAL GRADE ± 1 FOOT

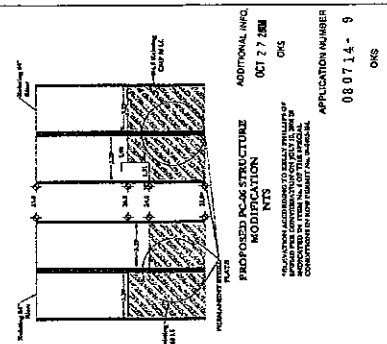
ALL CULVERTS SHOWN HAVE RISERS, WITH THE CONTROL ELEVATION 1 FOOT BELOW NATURAL GRADE ± 1 FOOT SO THAT IRRIGATION WILL BE MINIMIZED AND CROP PRODUCTION WILL BE MAXIMIZED, BASED ON THE FARMER'S EXPERIENCE.



LEGEND

- PROPERTY BOUNDARY
- PROPOSED DITCH
- EXISTING DITCH
- PROPOSED STAKE
- CONTIGUOUS
- WELL
- IMPACTED WETLAND
- 24' WETLAND SETBACK
- WETLAND
- CONTROL STRUCTURE
- MITIGATION BOUNDARY
- CHANGED WETLAND
- PRESERVED FORESTED UPLANDS
- PRESERVED HERBACEOUS UPLANDS
- PRESERVED WETLAND
- PHOTO STATION
- VEGETATION TRANSIT
- STAKE
- LEVEL
- LEVEL BENCHMARK
- WATER ELEVATION LOCATION NOT FOR AS-BUILT CERTIFICATION
- DETAIL OF TYPICAL CULVERT AND DITCH X-SECTION
- MITIGATION PROJECT LIMITS

Note: All proposed levees are to be proposed graded and grassed. Elevation shown per acre of bank area should be shown in all best management practices (BMPs) for critical area planning.



Application 080714-9
Exhibit 2
Page 1 of 2

PERKINS SMITH PARTNERSHIP
P.O. BOX 742
TALLAHASSEE, FLORIDA 32309
PHONE: (904) 793-2571

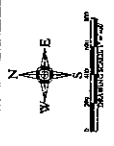
PERKINS SMITH PARTNERSHIP LIMITED PARTNERSHIP
P.O. BOX 742
TALLAHASSEE, FLORIDA 32309
PHONE: (904) 793-2571

CLEMONS ENGINEERING, INC.
1000 N. GULF BLVD., SUITE 100
TALLAHASSEE, FLORIDA 32309
PHONE: (904) 793-2571

MASTER DRAINAGE PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

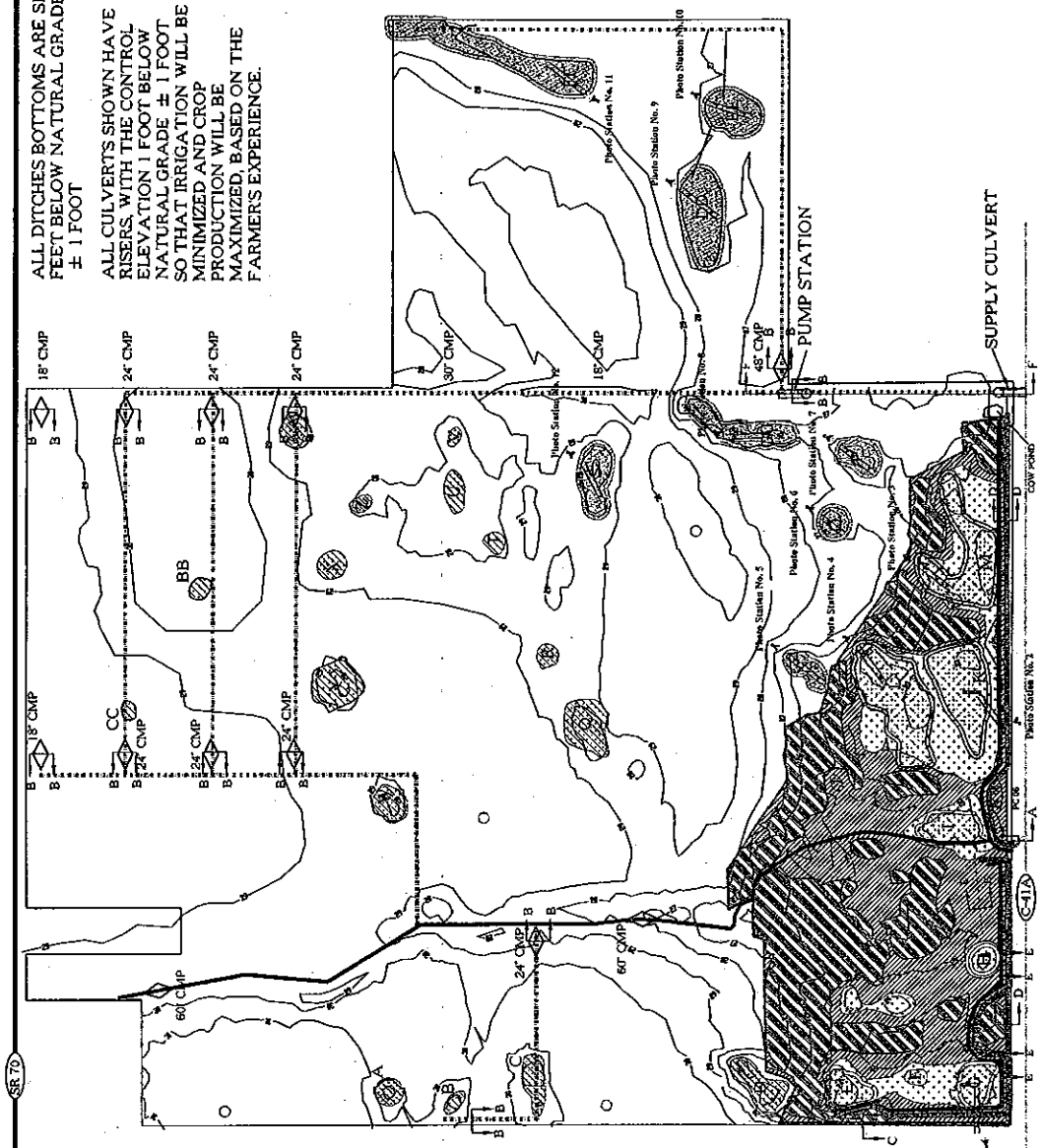
DATE: 08/07/14
SCALE: 1" = 40'

APP. NO. 080714-9
SHEET NO. 3



ALL DITCHES BOTTOMS ARE SIX FEET BELOW NATURAL GRADE \pm 1 FOOT

ALL CULVERTS SHOWN HAVE RISERS, WITH THE CONTROL ELEVATION 1 FOOT BELOW NATURAL GRADE \pm 1 FOOT SO THAT IRRIGATION WILL BE MINIMIZED AND CROP PRODUCTION WILL BE MAXIMIZED, BASED ON THE FARMER'S EXPERIENCE.



LEGEND

- PROPERTY BOUNDARY
 - PROPOSED DITCH - 10' DEPTH 10' WIDE
 - LEVY
 - CULVERT DITCH
 - PROPOSED SCALE
 - CONTROL
 - VOLL
 - IMPACTED WETLAND
 - 24' WETLAND SETBACK
 - WETLAND
 - CONTROL STRUCTURE
 - IRRIGATION BOUNDARY
 - CHANGED WETLAND
 - PRESERVED FORESTED UPLANDS
 - PRESERVED HOBBACKS UPLANDS
 - PRESERVED WETLAND
 - PHOTO STATION A
 - VEGETATION TRANSECT
 - STAFF GAUGE
 - LEVY
 - LEVY BORDERS
 - NATURAL ELEVATION LOCATION NOT FOR AS-BUILT CERTIFICATION
 - DETAIL OF TYPICAL CULVERT AND DITCH X-SECTION
 - IRRIGATION PROJECT LIMITS
- Note: All proposed levees are to be finished graded and grassed. Eighty percent (80%) of bank seed should be sown in the first year after construction. Management Practices 8412.26.10 for critical area planting.

APPLICATION NUMBER
080714-9

CMB

ADDITIONAL INFO:
OCT 27 2008

OCS

Application 080714-9
Exhibit 2
Page 2 of 2

CLEMONS ENGINEERING, INC.
317 W. BROADWAY STREET
SUITE 200
TALLAHASSEE, FLORIDA 32301
PHONE (904) 844-4444
FAX (904) 844-4444
WWW.CLEMONSENGINEERING.COM

PERRY SMITH FAMILY LIMITED PARTNERSHIP
P.O. BOX 74
TALLAHASSEE, FLORIDA 32307
PHONE (904) 751-0271

WETLAND MONITORING PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

DATE: 11-07-07
BY: J. B. JAMES
REV: 11-07-07

**PERRY SMITH FAMILY LIMITED
PARTNERSHIP**

HIGHLANDS COUNTY, FLORIDA

APPLICATION NUMBER

080714 - 9

OKS

REVISED WETLAND MONITORING PLAN

ADDITIONAL INFO.

OCT 27 2008

OKS

PREPARED BY:

CLEMONS ENGINEERING, INC.

12 EAST HIBISCUS STREET
LAKE PLACID, FLORIDA 33852

PHONE: (863) 465-7058

FAX: (863) 465-7058

CLEMONSENGINEERING@YAHOO.COM

Application No. 080714-9

EXHIBIT 3.1

Page 1 of 6

Project Description

The proposed project is for the construction of a surface water management system to serve a 1352-acre combination of pasture and row crop. The surface water management system will treat runoff from 1022 acres that are owned by the applicant and 330 acres from adjacent property. Wetland impacts will be mitigated for through enhancement and preservation.

The watershed has been changed in the past as a result of an extensive system of ditches and shallow swales. This system was used as a combination surface water drainage system and irrigation system. The primary affect of drainage activity on the wetland within the project area has been the reduction in aerial extent of hydrophytic vegetative cover and reduction in the levels and duration of seasonal flooding. Generally, the mapped perimeter of wetland within the project area is the point indicated by the radical transition from a cultivated pasture grass community of either bahia grass (*Paspalum notatum*) or pangola grass (*Digitaria decumbens*) to a community of typical, herbaceous hydrophytic species.

Wetland Table

Wetland identification, acreage and type are summarized below.

Wetland ID	Wetland Acreage	Impact Acreage	Normal Pool	Seasonal High	Description
A	0.71	0.71	28.0	30.0	Palustrine emergent
B	0.38	*0.38	28.5	29.0	Palustrine emergent
C	1.28	1.28	28.2	29.3	Palustrine emergent
D	1.84	1.84	26.0	26.7	Palustrine emergent
E	1.30	0	23.2	23.75	Palustrine emergent
F	0.36	0	22.9	23.4	Palustrine emergent
G	1.24	0	22.9	23.4	Palustrine emergent
H	0.58	0	23.2	23.6	Palustrine emergent
I	1.70	0	23.0	23.5	Palustrine emergent
J	0.17	0	24.0	24.5	Palustrine emergent
K	4.70	0	23.0	23.5	Palustrine emergent
L	6.34	0	23.0	23.5	Palustrine emergent
M	4.90	0	23.0	23.5	Palustrine emergent
N	0.87	0	25.0	25.5	Palustrine emergent
O	0.81	0	25.3	25.8	Palustrine emergent
P	1.15	0	25.0	25.5	Palustrine emergent
Q	2.44	2.44	27.5	28.0	Palustrine emergent
R	0.49	*0.49	28.0	28.5	Palustrine emergent
S	2.01	0	27.0	27.5	Palustrine emergent
T	0.42	*0.42	27.5	27.9	Palustrine emergent
U	0.83	0.83	27.5	27.8	Palustrine emergent
V	0.23	*0.23	27.5	27.8	Palustrine emergent
W	1.14	1.14	27.5	28.0	Palustrine emergent
X	0.77	0.77	28.0	28.3	Palustrine emergent
Y	2.26	2.26	28.3	28.5	Palustrine emergent
Z	0.30	*0.30	27.5	27.8	Palustrine emergent
AA	0.81	0.81	27.0	28.0	Palustrine emergent
BB	0.45	*0.45			Palustrine emergent
CC	0.26	*0.26			Palustrine emergent
DD	3.68	0			Palustrine emergent
EE	2.28	0			Palustrine emergent
FF	5.27	2.77			Palustrine emergent
GG	2.26	0			Palustrine emergent
TOTAL	54.23	17.38			Palustrine emergent

* Wetlands are less than 0.5 acres and isolated.

Threatened and Endangered Wildlife Species

A variety of plant and animal species of the United States are so reduced in numbers that they are threatened with extinction. The disappearance of any of these would be a biological, cultural, and in some instances, an economic loss. Their existence contributes to scientific knowledge and understanding, and their presence adds interest and variety to life. The preservation and protection of these species is encouraged.

Both the State of Florida and the U. S. Fish and Wildlife Service maintain lists of Endangered or Threatened Species that receive some protection under law. This protection varies according to the laws involved.

State law protects animals on the State of Florida's list. It is prohibited to take, harm, or harass these animals and their nest or den site. Habitat changes can also be detrimental to these species and should be avoided. Additional guidance can be obtained from the Florida Game and Fresh water Fish Commission. Plants on the State of Florida's list also receive protection. A permit from the Florida Department of Agriculture and Consumer Services may be required to sell or transfer these plants.

Species on the U. S. list are protected by specific prohibitions on the sale or movement of all such species and on the taking or harassing of any such animal species. Consultation with the U. S. Fish and -Wildlife Service should be made before taking any action that may be detrimental to these species.

The known range and habitat needs of the species listed on the attached sheet indicate they could possibly occur on the subject property. Species actually identified there have been checked. Information is also given on the Ecological Communities (see list below) in which these species might occur.

NFCS - North Florida Coastal Strand	SFCS - South Florida Coastal Strand
SS - Sand Scrub	LPTO - Longleaf Pine - Turkey Oak
MHP - Mixed Hardwood - Pine	SFF - South Florida Flatwoods
NFF - North Florida Flatwoods	CPF - Cabbage Palm Flatwoods
EGF - Everglades Flatwoods	WHH - Wetland Hardwood Hammock
UHH - Upland Hardwood Hammocks	SC - Scrub Cypress
TH - Tropical Hammocks	SM - Salt Marsh
CS - Cypress Swamps	BH - Bottomland Hardwoods
MS - Mangrove Swamps	SBBS - Shrub Bog - Bay Swamp
SH - Swamp Hardwoods	SGM - Sawgrass Marsh
PPB - Pitcher Plant Bog	SGM - Sawgrass Marsh
FWM - Freshwater Marsh	SL - Slough
WB - Water Bodies	RUD - Ruderal*
CTS - Cutthroat Seeps	TP - Tame Pasture
OTH - Other	

*Mixture of housing, pasture, crop fields, woodland and/or fallow.

ENDANGERED SPECIES ENVIRONMENTAL EVALUATION

Prepared for: **Perry Smith/Highlands County**

Date: **15 October 2008**

Some items to consider:

1. Can any practice planned cause direct physical harm to any of the species - See below

2. Will any practice detrimentally affect the habitat of any of the species (feeding areas, escape cover, nesting area, roosting area, nursery area, etc.?) - See below
3. Will any of the planned activities have a beneficial effect on any of the species - see below
4. If there would be an adverse effect, is there any other way to reach the landowner's objectives and still protect these species? (May require consultation with U. S. Fish and Wildlife Service, Florida Game and Fish Commission, or others.) - See below

This site contains managed pastureland that will be converted to row crops and restored wetland. There were no threatened or endangered species observed on site during the survey. Areas of pasture still exist around the site that will provide open habitat to those species that prefer open habitat, such as the **Caracara** and **Sandhill Crane**. Row crops will provide vegetative corridors to nearby fields and wetlands and provide protection to small birds and mammals, which the **Southeastern Kestrel** could utilize as a food source. All wetlands located within the proposed reservoir will be subject to hydrologic and vegetative enhancement and therefore provide an improved and more isolated habitat for wildlife usage.

Impacts

The wetland impacts are depicted on the attached drawings.

Mitigation Plan

This 1022-acre agricultural project will involve impacts to 17.38 acres of herbaceous wetlands. There will be 2.53 acres of impacts in wetlands that are less than 0.5 acres and isolated. Mitigation for 14.85 acres of wetland impacts will be accomplished through the preservation of 56.2 acres of forested uplands, and preservation of 56.95 acres of herbaceous uplands in the retention area in the South end of the project area and enhancement of 45.70 acres of palustrine wetlands in the retention area at the South end of the project.

There are 45.70 acres of existing wetlands within the retention area that have reduced quality that will be enhanced with a ratio of 6:1 for mitigation of 7.62 acres. Preservation of 56.20 acres of forested uplands at a ratio of 10:1, mitigating for 5.62 acres of wetlands and preservation of 56.96 acres of herbaceous uplands at a ratio of 30:1, mitigating for 1.90 acres of wetlands, will provide mitigation of a total of 15.14 acres, where 14.85 acres of mitigation are required. The retention area will be comprised of 158.86 acres of enhanced wetlands, and preserved uplands. The upland preserved area will be incorporated into the maintenance plan.

Maintenance Plan

A vegetative maintenance program shall be implemented for the enhanced wetlands and the preserved wetlands as well as the upland buffer zones on a regular basis to ensure the integrity and existing viability of the area as permitted. Maintenance shall be conducted in perpetuity to ensure that the area is maintained free from exotic vegetation (Brazilian Pepper, Melaleuca, and Australian Pine) and that other nuisance species shall constitute no more than 5% of the total cover. The following plan is proposed:

1. Maintenance activities will consist of manual, chemical, thermal and mechanical removal of nuisance and exotic species as necessary.
2. Maintenance events will occur annually on an as needed basis.
3. Nuisance and exotic species will not exceed 5 percent between maintenance events. During maintenance events nuisance and exotic species will be reduced to near zero. All exotic species as identified by the BPIC shall be controlled. Total coverage of exotic and nuisance species should constitute no more than 5% between maintenance activities.

Application No. 080714-9
EXHIBIT 3.1
Page 4 of 6

Monitoring Plan

The following plan is proposed to document the function of the mitigation area.

Photographic Documentation

Panoramic photographs will be taken from the photo stations shown on the submitted construction drawings. Each photo will be labeled with the direction to North, the photographic station number and the date taken.

Monitoring Frequency and Reports

Monitoring will be performed bi-annually the first year and annually the next four years.

The hydrology of the row crop/pasture and adjacent areas along with the hydroperiods of on-site wetlands and wetlands located adjacent to the project area will be established within two years.

Baseline Report	30 April 2002
First Annual Report	30 April 2003
Second Annual Report	30 April 2004
Third Annual Report	30 April 2005
Forth Annual Report	30 April 2006
Fifth Annual Report	30 April 2007
Sixth Annual Report	30 April 2008
Seventh Annual Report	30 April 2009
Eighth Annual Report	30 April 2010
Ninth Annual Report	30 April 2011

Hydrologic Data

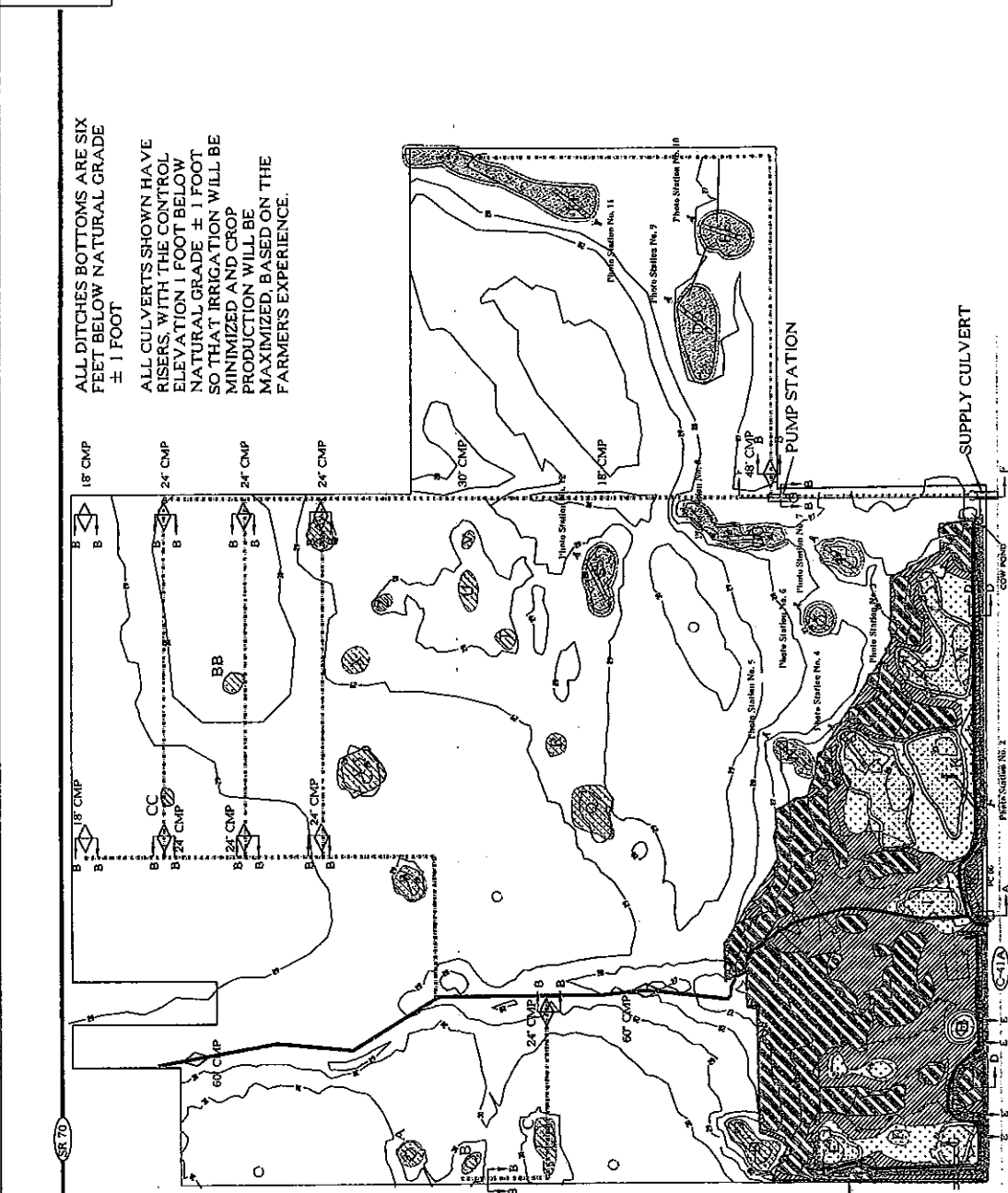
Two staff gages will be located within the enhanced wetland so the water level in the wetland can easily be documented. The water level will be recorded twice a month.

Vegetation Monitoring

The proposed monitoring plan will use linear pedestrian transects. The transects will traverse various topographic contours to include different zones of habitat that are proposed for development. Transects will be analyzed for vegetative percent cover as well as species composition. Each species will be categorized relative to National Wetlands Inventory designations (obligate, facultative wet, facultative, facultative upland, upland).

Post Construction Wetland Success Criteria

The success criteria for the mitigation area are hinged on the postulate that wetland vegetative composition serves as a surrogate for wetland functions. Therefore, once it has been demonstrated that the 45.70 acres of enhanced wetlands and the 13.30 acres of preserved wetlands consist of a predominance of wetland vegetation as defined in Chapter 62-340 FAC, success will have been met.



ALL CULVERTS SHOWN HAVE RISERS, WITH THE CONTROL ELEVATION 1 FOOT BELOW NATURAL GRADE \pm 1 FOOT SO THAT IRRIGATION WILL BE MINIMIZED AND CROP PRODUCTION WILL BE MAXIMIZED, BASED ON THE FARMER'S EXPERIENCE.

DATE 2 7 70

Application No. 080714-9
EXHIBIT 3.1
Page 6 of 6

PERRY SMITH FAMILY LIMITED PARTNERSHIP
P.O. BOX 742
OKECHONUE, FLORIDA 34073
PHONE: 813-761-2591

WETLAND MONITORING PLAN
ARROW B
HIGHLANDS COUNTY, FLORIDA

4
Application No. 0001149
EX-1017 3.1
Page 6 of 6

**South Florida Water Management District
Work Schedule Requirements**

Application No : 080714-9

Page 1 of 1

Mitigation Plan ID: ARROW B (P. SMITH)

Activity

Due Date

SUBMIT BASELINE MONITORING REPORT FOR 7 NEW PRESERVED WETLANDS

23-FEB-09

SUBMIT THIRD MONITORING REPORT

10-SEP-09

SUBMIT FOURTH MONITORING REPORT

10-SEP-10

SUBMIT FIFTH MONITORING REPORT

10-SEP-11

Exhibit No :

Application No. 080714-9

EXHIBIT 3.2

Page 1 of 1

STAFF REPORT DISTRIBUTION LIST

PERRY SMITH P C-06 MODIFICATION

Application No: 080714-9

Permit No: 28-00119-S-03

INTERNAL DISTRIBUTION

- X Kelly Cranford, P.E. - 6870
- X Stephanie Raymond - 6870
- X Hugo A. Carter, P.E. - 4220
- X Melinda Parrott - 4250
- X ERC Environmental - 6870
- X Okeechobee Service Center - 6870
- X Permit File

EXTERNAL DISTRIBUTION

- X Permittee - Perry Smith Family Limited Partnership
- X Engr Consultant - Clemons Engineering Inc

GOVERNMENT AGENCIES

- X Div of Recreation and Park - District 6 - FDEP
- X Florida Fish & Wildlife Conservation Commission -
Imperiled Species Mgmt Section
- X Highlands County Engineer
- X Highlands County Property Appraiser - Raymond
McIntyre

OTHER INTERESTED PARTIES

- X Audubon of Florida - Charles Lee
- X Save Our Creeks Attn: Becky Hendry

Project Name: Arrow_B Permitted

Reviewer: ABC

Project Number: 28-00119-S-03

Period Begin: Jan 01, 2000;0000 hr End: Jan 16, 2000;0000 hr Duration: 360 hr

Time Step: 0.2 hr, Iterations: 10

Basin 1: Basin 1

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 843.003 acres

Ground Storage: 2.5 inches

Time of Concentration: 5.6 hours

Initial Stage: 24 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
24.00	0.00
24.50	72.68
25.00	156.20
26.00	268.80
27.00	459.80
28.00	717.80

ORIGINAL SUBMITTAL

JUL 14 2008

OKS

APPLICATION NUMBER

08 07 14 - 9

OKS

Basin 2: Basin 2

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 179 acres

Ground Storage: 2.5 inches

Time of Concentration: 10.5 hours

Initial Stage: 25 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
25.00	0.00
30.00	150.00
32.00	350.00

Basin 3: Basin 3

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 330 acres

Ground Storage: 2.5 inches

Time of Concentration: 4.8 hours

Initial Stage: 25 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
25.00	0.00
30.00	150.00
32.00	352.00

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	23.50
1000.00	23.50

Structure: 1

From Basin: Basin 1

To Basin: Offsitet

Structure Type: Gravity

Weir: Sharp Crested, Crest Elev = 25.5 ft NGVD, Length = 15.71 ft

Bleeder: Rect, Invert Elev = 24 ft NGVD, Height = 1.5 ft, Width = 4.6 ft

Default Coefs: Weir Coef = 3.13, Orifice Coef = 0.6

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 80 ft

US Invert Elev = 20 ft NGVD, DS Invert Elev = 20 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	24.00	23.50
1.00	0.03	0.00	0.00	0.00	24.00	23.50
2.00	0.06	0.00	0.00	0.00	24.00	23.50
3.00	0.09	0.00	0.00	0.00	24.00	23.50
4.00	0.12	0.00	0.00	0.00	24.00	23.50
5.00	0.16	0.00	0.00	0.00	24.00	23.50
6.00	0.19	0.00	0.00	0.00	24.00	23.50
7.00	0.22	0.00	0.00	0.00	24.00	23.50
8.00	0.25	0.00	0.00	0.00	24.00	23.50
9.00	0.28	0.00	0.00	0.00	24.00	23.50
10.00	0.31	0.00	0.00	0.00	24.00	23.50
11.00	0.34	0.00	0.00	0.00	24.00	23.50
12.00	0.37	0.00	0.00	0.00	24.00	23.50
13.00	0.40	0.00	0.00	0.00	24.00	23.50
14.00	0.43	0.00	0.00	0.00	24.00	23.50
15.00	0.47	0.00	0.00	0.00	24.00	23.50
16.00	0.50	0.00	0.00	0.00	24.00	23.50
17.00	0.53	0.04	0.03	0.00	24.00	23.50
18.00	0.56	0.18	0.03	0.00	24.00	23.50
19.00	0.59	0.40	0.03	0.01	24.00	23.50
20.00	0.62	0.67	0.03	0.01	24.00	23.50
21.00	0.65	1.00	0.04	0.01	24.00	23.50
22.00	0.68	1.36	0.04	0.02	24.00	23.50
23.00	0.71	1.75	0.04	0.02	24.00	23.50
24.00	0.74	2.16	0.04	0.02	24.00	23.50
25.00	0.79	2.96	0.05	0.03	24.00	23.50
26.00	0.84	3.80	0.05	0.03	24.01	23.50
27.00	0.88	4.66	0.06	0.04	24.01	23.50
28.00	0.93	5.52	0.07	0.04	24.01	23.50
29.00	0.97	6.39	0.09	0.05	24.02	23.50
30.00	1.02	7.25	0.10	0.06	24.02	23.50
31.00	1.06	8.10	0.12	0.07	24.02	23.50
32.00	1.11	8.93	0.14	0.08	24.03	23.50
33.00	1.15	9.75	0.25	0.09	24.07	23.50
34.00	1.20	10.54	0.29	0.11	24.07	23.50
35.00	1.24	11.32	0.32	0.14	24.08	23.50
36.00	1.29	12.07	0.36	0.17	24.09	23.50
37.00	1.33	12.80	0.43	0.20	24.09	23.50
38.00	1.38	13.51	0.57	0.25	24.10	23.50
39.00	1.42	14.19	0.63	0.30	24.11	23.50
40.00	1.47	14.85	0.72	0.35	24.12	23.50
41.00	1.51	15.49	0.79	0.41	24.13	23.50
42.00	1.56	16.10	0.96	0.49	24.16	23.50
43.00	1.60	16.70	1.07	0.57	24.17	23.50
44.00	1.65	17.27	1.15	0.67	24.18	23.50
45.00	1.70	17.82	1.39	0.78	24.20	23.50
46.00	1.74	18.35	1.49	0.90	24.21	23.50
47.00	1.79	18.87	1.63	1.03	24.22	23.50
48.00	1.83	19.36	1.85	1.17	24.25	23.50
49.00	1.88	20.30	2.01	1.33	24.27	23.50
50.00	1.93	21.17	2.26	1.51	24.28	23.50
51.00	1.99	22.83	2.43	1.71	24.29	23.50
52.00	2.06	24.78	2.70	1.92	24.33	23.50
53.00	2.15	28.33	2.92	2.15	24.34	23.50
54.00	2.25	33.33	3.30	2.41	24.36	23.50
55.00	2.38	39.68	3.73	2.70	24.41	23.50
56.00	2.53	47.30	4.24	3.04	24.43	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
57.00	2.70	56.64	4.86	3.41	24.48	23.50
58.00	2.92	69.15	5.53	3.85	24.53	23.50
59.00	3.20	88.04	6.43	4.35	24.58	23.50
60.00	5.18	309.58	8.34	4.97	24.69	23.50
61.00	5.74	327.85	12.79	5.87	24.92	23.50
62.00	6.00	306.60	18.42	7.19	25.18	23.50
63.00	6.17	276.91	24.23	9.01	25.41	23.50
64.00	6.32	250.94	32.86	11.42	25.62	23.50
65.00	6.41	221.52	41.39	14.55	25.79	23.50
66.00	6.50	196.93	49.94	18.40	25.93	23.50
67.00	6.59	176.39	56.55	22.89	26.03	23.50
68.00	6.69	159.24	61.03	27.79	26.09	23.50
69.00	6.75	141.00	64.94	33.03	26.15	23.50
70.00	6.81	125.76	68.19	38.57	26.19	23.50
71.00	6.87	113.02	70.86	44.34	26.23	23.50
72.00	6.93	102.37	73.02	50.31	26.26	23.50
73.00	6.93	85.63	74.60	56.43	26.28	23.50
74.00	6.93	71.62	75.52	62.64	26.29	23.50
75.00	6.93	59.91	75.89	68.91	26.29	23.50
76.00	6.93	50.11	75.86	75.18	26.29	23.50
77.00	6.93	41.92	75.73	81.44	26.29	23.50
78.00	6.93	35.06	75.39	87.69	26.29	23.50
79.00	6.93	29.33	74.85	93.89	26.28	23.50
80.00	6.93	24.53	74.13	100.05	26.27	23.50
81.00	6.93	20.52	73.27	106.13	26.26	23.50
82.00	6.93	17.16	72.30	112.14	26.25	23.50
83.00	6.93	14.36	71.24	118.06	26.23	23.50
84.00	6.93	12.01	70.11	123.90	26.22	23.50
85.00	6.93	10.05	68.93	129.63	26.20	23.50
86.00	6.93	8.40	67.74	135.27	26.19	23.50
87.00	6.93	7.03	66.45	140.81	26.17	23.50
88.00	6.93	5.88	65.25	146.24	26.15	23.50
89.00	6.93	4.92	63.95	151.57	26.13	23.50
90.00	6.93	4.11	62.75	156.79	26.12	23.50
91.00	6.93	3.44	61.46	161.92	26.10	23.50
92.00	6.93	2.88	60.28	166.94	26.08	23.50
93.00	6.93	2.41	59.02	171.86	26.07	23.50
94.00	6.93	2.01	57.87	176.68	26.05	23.50
95.00	6.93	1.68	56.66	181.40	26.03	23.50
96.00	6.93	1.41	55.56	186.03	26.01	23.50
97.00	6.93	1.18	54.32	190.56	26.00	23.50
98.00	6.93	0.99	52.74	194.97	25.97	23.50
99.00	6.93	0.82	51.13	199.25	25.95	23.50
100.00	6.93	0.69	49.76	203.41	25.93	23.50
101.00	6.93	0.58	48.29	207.45	25.90	23.50
102.00	6.93	0.48	47.03	211.38	25.88	23.50
103.00	6.93	0.40	45.68	215.20	25.86	23.50
104.00	6.93	0.34	44.53	218.92	25.84	23.50
105.00	6.93	0.28	43.29	222.54	25.82	23.50
106.00	6.93	0.24	42.22	226.06	25.80	23.50
107.00	6.93	0.20	41.08	229.49	25.78	23.50
108.00	6.93	0.17	40.11	232.84	25.76	23.50
109.00	6.93	0.14	39.07	236.10	25.74	23.50
110.00	6.93	0.12	38.18	239.29	25.73	23.50
111.00	6.93	0.10	37.22	242.40	25.71	23.50
112.00	6.93	0.08	36.41	245.43	25.69	23.50
113.00	6.93	0.07	35.54	248.40	25.67	23.50
114.00	6.93	0.06	34.81	251.30	25.66	23.50
115.00	6.93	0.05	34.02	254.14	25.64	23.50
116.00	6.93	0.04	33.35	256.92	25.63	23.50
117.00	6.93	0.03	32.64	259.64	25.61	23.50
118.00	6.93	0.03	32.04	262.31	25.60	23.50
119.00	6.93	0.02	31.41	264.92	25.58	23.50
120.00	6.93	0.02	30.87	267.49	25.57	23.50
121.00	6.93	0.02	30.32	270.02	25.55	23.50
122.00	6.93	0.01	29.86	272.50	25.54	23.50
123.00	6.93	0.01	29.39	274.94	25.52	23.50
124.00	6.93	0.01	29.02	277.35	25.51	23.50
125.00	6.93	0.01	26.35	279.66	25.50	23.50
126.00	6.93	0.01	26.04	281.82	25.48	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
127.00	6.93	0.01	25.70	283.95	25.47	23.50
128.00	6.93	0.00	25.40	286.06	25.46	23.50
129.00	6.93	0.00	25.07	288.15	25.45	23.50
130.00	6.93	0.00	24.78	290.20	25.44	23.50
131.00	6.93	0.00	24.46	292.24	25.42	23.50
132.00	6.93	0.00	24.18	294.24	25.41	23.50
133.00	6.93	0.00	23.87	296.23	25.40	23.50
134.00	6.93	0.00	23.60	298.19	25.39	23.50
135.00	6.93	0.00	23.30	300.12	25.38	23.50
136.00	6.93	0.00	23.03	302.03	25.37	23.50
137.00	6.93	0.00	22.74	303.92	25.36	23.50
138.00	6.93	0.00	22.49	305.79	25.35	23.50
139.00	6.93	0.00	22.20	307.64	25.33	23.50
140.00	6.93	0.00	21.96	309.46	25.32	23.50
141.00	6.93	0.00	21.68	311.26	25.31	23.50
142.00	6.93	0.00	21.44	313.04	25.30	23.50
143.00	6.93	0.00	21.18	314.80	25.29	23.50
144.00	6.93	0.00	20.95	316.54	25.28	23.50
145.00	6.93	0.00	20.70	318.26	25.27	23.50
146.00	6.93	0.00	20.44	319.96	25.26	23.50
147.00	6.93	0.00	20.22	321.63	25.25	23.50
148.00	6.93	0.00	20.00	323.29	25.24	23.50
149.00	6.93	0.00	19.75	324.94	25.23	23.50
150.00	6.93	0.00	19.54	326.56	25.22	23.50
151.00	6.93	0.00	19.32	328.16	25.22	23.50
152.00	6.93	0.00	19.09	329.75	25.21	23.50
153.00	6.93	0.00	18.89	331.31	25.20	23.50
154.00	6.93	0.00	18.68	332.87	25.19	23.50
155.00	6.93	0.00	18.45	334.40	25.18	23.50
156.00	6.93	0.00	18.26	335.91	25.17	23.50
157.00	6.93	0.00	18.06	337.41	25.16	23.50
158.00	6.93	0.00	17.84	338.89	25.15	23.50
159.00	6.93	0.00	17.66	340.36	25.14	23.50
160.00	6.93	0.00	17.47	341.81	25.14	23.50
161.00	6.93	0.00	17.26	343.24	25.13	23.50
162.00	6.93	0.00	17.09	344.66	25.12	23.50
163.00	6.93	0.00	16.91	346.07	25.11	23.50
164.00	6.93	0.00	16.71	347.45	25.10	23.50
165.00	6.93	0.00	16.54	348.83	25.10	23.50
166.00	6.93	0.00	16.36	350.18	25.09	23.50
167.00	6.93	0.00	16.19	351.53	25.08	23.50
168.00	6.93	0.00	16.01	352.86	25.07	23.50
169.00	6.93	0.00	15.85	354.17	25.07	23.50
170.00	6.93	0.00	15.68	355.47	25.06	23.50
171.00	6.93	0.00	15.51	356.76	25.05	23.50
172.00	6.93	0.00	15.33	358.03	25.04	23.50
173.00	6.93	0.00	15.19	359.29	25.04	23.50
174.00	6.93	0.00	15.03	360.54	25.03	23.50
175.00	6.93	0.00	14.87	361.77	25.02	23.50
176.00	6.93	0.00	14.70	363.00	25.01	23.50
177.00	6.93	0.00	14.57	364.20	25.01	23.50
178.00	6.93	0.00	14.42	365.40	25.00	23.50
179.00	6.93	0.00	14.28	366.59	24.99	23.50
180.00	6.93	0.00	14.14	367.76	24.99	23.50
181.00	6.93	0.00	14.00	368.92	24.98	23.50
182.00	6.93	0.00	13.86	370.07	24.97	23.50
183.00	6.93	0.00	13.72	371.21	24.97	23.50
184.00	6.93	0.00	13.58	372.34	24.96	23.50
185.00	6.93	0.00	13.45	373.45	24.95	23.50
186.00	6.93	0.00	13.31	374.56	24.95	23.50
187.00	6.93	0.00	13.18	375.65	24.94	23.50
188.00	6.93	0.00	13.05	376.73	24.93	23.50
189.00	6.93	0.00	12.92	377.81	24.93	23.50
190.00	6.93	0.00	12.79	378.87	24.92	23.50
191.00	6.93	0.00	12.66	379.92	24.91	23.50
192.00	6.93	0.00	12.53	380.96	24.91	23.50
193.00	6.93	0.00	12.41	381.99	24.90	23.50
194.00	6.93	0.00	12.29	383.01	24.89	23.50
195.00	6.93	0.00	12.17	384.02	24.89	23.50
196.00	6.93	0.00	12.05	385.02	24.88	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
197.00	6.93	0.00	11.93	386.01	24.88	23.50
198.00	6.93	0.00	11.81	386.99	24.87	23.50
199.00	6.93	0.00	11.70	387.96	24.87	23.50
200.00	6.93	0.00	11.59	388.92	24.86	23.50
201.00	6.93	0.00	11.47	389.87	24.85	23.50
202.00	6.93	0.00	11.36	390.81	24.85	23.50
203.00	6.93	0.00	11.25	391.75	24.84	23.50
204.00	6.93	0.00	11.14	392.67	24.84	23.50
205.00	6.93	0.00	11.04	393.59	24.83	23.50
206.00	6.93	0.00	10.93	394.50	24.83	23.50
207.00	6.93	0.00	10.83	395.39	24.82	23.50
208.00	6.93	0.00	10.73	396.28	24.82	23.50
209.00	6.93	0.00	10.62	397.17	24.81	23.50
210.00	6.93	0.00	10.52	398.04	24.80	23.50
211.00	6.93	0.00	10.43	398.90	24.80	23.50
212.00	6.93	0.00	10.33	399.76	24.79	23.50
213.00	6.93	0.00	10.23	400.61	24.79	23.50
214.00	6.93	0.00	10.14	401.45	24.78	23.50
215.00	6.93	0.00	10.04	402.28	24.78	23.50
216.00	6.93	0.00	9.95	403.11	24.77	23.50
217.00	6.93	0.00	9.86	403.93	24.77	23.50
218.00	6.93	0.00	9.77	404.74	24.76	23.50
219.00	6.93	0.00	9.68	405.54	24.76	23.50
220.00	6.93	0.00	9.59	406.34	24.75	23.50
221.00	6.93	0.00	9.50	407.12	24.75	23.50
222.00	6.93	0.00	9.41	407.90	24.75	23.50
223.00	6.93	0.00	9.33	408.68	24.74	23.50
224.00	6.93	0.00	9.24	409.44	24.74	23.50
225.00	6.93	0.00	9.16	410.20	24.73	23.50
226.00	6.93	0.00	9.08	410.96	24.73	23.50
227.00	6.93	0.00	9.00	411.70	24.72	23.50
228.00	6.93	0.00	8.92	412.44	24.72	23.50
229.00	6.93	0.00	8.84	413.18	24.71	23.50
230.00	6.93	0.00	8.76	413.90	24.71	23.50
231.00	6.93	0.00	8.68	414.62	24.71	23.50
232.00	6.93	0.00	8.60	415.34	24.70	23.50
233.00	6.93	0.00	8.53	416.04	24.70	23.50
234.00	6.93	0.00	8.45	416.75	24.69	23.50
235.00	6.93	0.00	8.38	417.44	24.69	23.50
236.00	6.93	0.00	8.30	418.13	24.68	23.50
237.00	6.93	0.00	8.23	418.81	24.68	23.50
238.00	6.93	0.00	8.16	419.49	24.68	23.50
239.00	6.93	0.00	8.09	420.16	24.67	23.50
240.00	6.93	0.00	8.02	420.82	24.67	23.50
241.00	6.93	0.00	7.95	421.48	24.66	23.50
242.00	6.93	0.00	7.88	422.14	24.66	23.50
243.00	6.93	0.00	7.81	422.79	24.66	23.50
244.00	6.93	0.00	7.75	423.43	24.65	23.50
245.00	6.93	0.00	7.68	424.07	24.65	23.50
246.00	6.93	0.00	7.62	424.70	24.64	23.50
247.00	6.93	0.00	7.55	425.32	24.64	23.50
248.00	6.93	0.00	7.49	425.95	24.64	23.50
249.00	6.93	0.00	7.42	426.56	24.63	23.50
250.00	6.93	0.00	7.36	427.17	24.63	23.50
251.00	6.93	0.00	7.30	427.78	24.63	23.50
252.00	6.93	0.00	7.24	428.38	24.62	23.50
253.00	6.93	0.00	7.18	428.97	24.62	23.50
254.00	6.93	0.00	7.12	429.56	24.62	23.50
255.00	6.93	0.00	7.06	430.15	24.61	23.50
256.00	6.93	0.00	7.00	430.73	24.61	23.50
257.00	6.93	0.00	6.94	431.31	24.61	23.50
258.00	6.93	0.00	6.89	431.88	24.60	23.50
259.00	6.93	0.00	6.83	432.44	24.60	23.50
260.00	6.93	0.00	6.77	433.00	24.60	23.50
261.00	6.93	0.00	6.72	433.56	24.59	23.50
262.00	6.93	0.00	6.66	434.11	24.59	23.50
263.00	6.93	0.00	6.61	434.66	24.59	23.50
264.00	6.93	0.00	6.56	435.21	24.58	23.50
265.00	6.93	0.00	6.50	435.75	24.58	23.50
266.00	6.93	0.00	6.45	436.28	24.58	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
267.00	6.93	0.00	6.40	436.81	24.57	23.50
268.00	6.93	0.00	6.35	437.34	24.57	23.50
269.00	6.93	0.00	6.30	437.86	24.57	23.50
270.00	6.93	0.00	6.25	438.38	24.56	23.50
271.00	6.93	0.00	6.20	438.89	24.56	23.50
272.00	6.93	0.00	6.15	439.40	24.56	23.50
273.00	6.93	0.00	6.10	439.91	24.55	23.50
274.00	6.93	0.00	6.05	440.41	24.55	23.50
275.00	6.93	0.00	6.00	440.91	24.55	23.50
276.00	6.93	0.00	5.96	441.40	24.54	23.50
277.00	6.93	0.00	5.91	441.89	24.54	23.50
278.00	6.93	0.00	5.86	442.38	24.54	23.50
279.00	6.93	0.00	5.82	442.86	24.54	23.50
280.00	6.93	0.00	5.77	443.34	24.53	23.50
281.00	6.93	0.00	5.73	443.81	24.53	23.50
282.00	6.93	0.00	5.68	444.28	24.53	23.50
283.00	6.93	0.00	5.64	444.75	24.52	23.50
284.00	6.93	0.00	5.60	445.22	24.52	23.50
285.00	6.93	0.00	5.55	445.68	24.52	23.50
286.00	6.93	0.00	5.51	446.13	24.52	23.50
287.00	6.93	0.00	5.47	446.59	24.51	23.50
288.00	6.93	0.00	5.43	447.04	24.51	23.50
289.00	6.93	0.00	5.39	447.48	24.51	23.50
290.00	6.93	0.00	5.35	447.93	24.51	23.50
291.00	6.93	0.00	5.30	448.37	24.50	23.50
292.00	6.93	0.00	5.26	448.80	24.50	23.50
293.00	6.93	0.00	5.23	449.24	24.50	23.50
294.00	6.93	0.00	5.19	449.67	24.49	23.50
295.00	6.93	0.00	5.15	450.09	24.49	23.50
296.00	6.93	0.00	5.11	450.52	24.49	23.50
297.00	6.93	0.00	5.07	450.94	24.49	23.50
298.00	6.93	0.00	5.03	451.35	24.48	23.50
299.00	6.93	0.00	4.98	451.77	24.48	23.50
300.00	6.93	0.00	4.94	452.18	24.48	23.50
301.00	6.93	0.00	4.90	452.58	24.47	23.50
302.00	6.93	0.00	4.86	452.99	24.47	23.50
303.00	6.93	0.00	4.82	453.38	24.47	23.50
304.00	6.93	0.00	4.78	453.78	24.47	23.50
305.00	6.93	0.00	4.74	454.17	24.46	23.50
306.00	6.93	0.00	4.70	454.56	24.46	23.50
307.00	6.93	0.00	4.66	454.95	24.46	23.50
308.00	6.93	0.00	4.62	455.33	24.46	23.50
309.00	6.93	0.00	4.58	455.71	24.45	23.50
310.00	6.93	0.00	4.54	456.09	24.45	23.50
311.00	6.93	0.00	4.51	456.46	24.45	23.50
312.00	6.93	0.00	4.47	456.83	24.45	23.50
313.00	6.93	0.00	4.43	457.20	24.44	23.50
314.00	6.93	0.00	4.40	457.57	24.44	23.50
315.00	6.93	0.00	4.36	457.93	24.44	23.50
316.00	6.93	0.00	4.33	458.29	24.44	23.50
317.00	6.93	0.00	4.29	458.64	24.43	23.50
318.00	6.93	0.00	4.26	458.99	24.43	23.50
319.00	6.93	0.00	4.22	459.34	24.43	23.50
320.00	6.93	0.00	4.19	459.69	24.43	23.50
321.00	6.93	0.00	4.15	460.04	24.42	23.50
322.00	6.93	0.00	4.12	460.38	24.42	23.50
323.00	6.93	0.00	4.09	460.72	24.42	23.50
324.00	6.93	0.00	4.06	461.05	24.42	23.50
325.00	6.93	0.00	4.02	461.39	24.41	23.50
326.00	6.93	0.00	3.99	461.72	24.41	23.50
327.00	6.93	0.00	3.96	462.05	24.41	23.50
328.00	6.93	0.00	3.93	462.37	24.41	23.50
329.00	6.93	0.00	3.90	462.70	24.41	23.50
330.00	6.93	0.00	3.87	463.02	24.40	23.50
331.00	6.93	0.00	3.84	463.33	24.40	23.50
332.00	6.93	0.00	3.81	463.65	24.40	23.50
333.00	6.93	0.00	3.78	463.96	24.40	23.50
334.00	6.93	0.00	3.75	464.27	24.39	23.50
335.00	6.93	0.00	3.72	464.58	24.39	23.50
336.00	6.93	0.00	3.69	464.89	24.39	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
337.00	6.93	0.00	3.66	465.19	24.39	23.50
338.00	6.93	0.00	3.64	465.49	24.39	23.50
339.00	6.93	0.00	3.61	465.79	24.38	23.50
340.00	6.93	0.00	3.58	466.09	24.38	23.50
341.00	6.93	0.00	3.55	466.38	24.38	23.50
342.00	6.93	0.00	3.53	466.68	24.38	23.50
343.00	6.93	0.00	3.50	466.97	24.38	23.50
344.00	6.93	0.00	3.47	467.26	24.37	23.50
345.00	6.93	0.00	3.45	467.54	24.37	23.50
346.00	6.93	0.00	3.42	467.82	24.37	23.50
347.00	6.93	0.00	3.40	468.11	24.37	23.50
348.00	6.93	0.00	3.37	468.39	24.37	23.50
349.00	6.93	0.00	3.35	468.66	24.36	23.50
350.00	6.93	0.00	3.32	468.94	24.36	23.50
351.00	6.93	0.00	3.30	469.21	24.36	23.50
352.00	6.93	0.00	3.27	469.48	24.36	23.50
353.00	6.93	0.00	3.25	469.75	24.36	23.50
354.00	6.93	0.00	3.22	470.02	24.35	23.50
355.00	6.93	0.00	3.20	470.28	24.35	23.50
356.00	6.93	0.00	3.18	470.55	24.35	23.50
357.00	6.93	0.00	3.15	470.81	24.35	23.50
358.00	6.93	0.00	3.13	471.07	24.35	23.50
359.00	6.93	0.00	3.11	471.33	24.35	23.50
360.00	6.93	0.00	3.08	471.58	24.34	23.50

Structure: 2

From Basin: Basin 3

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 60 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.02	0.00	0.00	25.00	24.00
18.00	0.56	0.08	0.00	0.00	25.00	24.00
19.00	0.59	0.18	0.00	0.00	25.00	24.00
20.00	0.62	0.30	0.00	0.00	25.00	24.00
21.00	0.65	0.44	0.00	0.00	25.00	24.00
22.00	0.68	0.59	0.00	0.00	25.00	24.00
23.00	0.71	0.76	0.00	0.00	25.01	24.00
24.00	0.74	0.93	0.00	0.00	25.01	24.00
25.00	0.79	1.27	0.00	0.00	25.01	24.00
26.00	0.84	1.63	0.00	0.00	25.01	24.01
27.00	0.88	1.99	0.00	0.00	25.02	24.01
28.00	0.93	2.35	0.00	0.00	25.03	24.01
29.00	0.97	2.70	0.00	0.00	25.03	24.02

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
30.00	1.02	3.05	0.00	0.00	25.04	24.02
31.00	1.06	3.39	0.00	0.00	25.05	24.02
32.00	1.11	3.73	0.00	0.00	25.06	24.03
33.00	1.15	4.05	0.00	1.87	25.00	24.07
34.00	1.20	4.37	0.00	1.87	25.00	24.07
35.00	1.24	4.67	0.00	1.87	25.00	24.08
36.00	1.29	4.96	0.00	1.87	25.00	24.09
37.00	1.33	5.25	0.00	1.87	25.00	24.09
38.00	1.38	5.52	0.00	1.87	25.01	24.10
39.00	1.42	5.79	0.00	1.87	25.03	24.11
40.00	1.47	6.04	0.00	1.87	25.04	24.12
41.00	1.51	6.28	0.00	1.87	25.06	24.13
42.00	1.56	6.52	0.00	3.65	25.00	24.16
43.00	1.60	6.75	0.00	3.65	25.00	24.17
44.00	1.65	6.96	0.00	3.65	25.00	24.18
45.00	1.70	7.17	0.00	3.65	25.02	24.20
46.00	1.74	7.38	0.00	3.65	25.04	24.21
47.00	1.79	7.57	0.00	3.65	25.06	24.22
48.00	1.83	7.76	0.00	5.33	25.00	24.25
49.00	1.88	8.15	0.00	5.33	25.00	24.27
50.00	1.93	8.50	0.00	5.33	25.01	24.28
51.00	1.99	9.21	0.00	5.33	25.04	24.29
52.00	2.06	10.04	0.00	6.92	25.00	24.33
53.00	2.15	11.57	0.00	6.92	25.00	24.34
54.00	2.25	13.73	0.00	6.92	25.02	24.36
55.00	2.38	16.47	0.00	8.41	25.00	24.41
56.00	2.53	19.72	0.00	8.41	25.01	24.43
57.00	2.70	23.71	0.00	9.82	25.00	24.48
58.00	2.92	29.05	80.06	11.15	25.01	24.53
59.00	3.20	37.20	75.63	12.40	25.01	24.58
60.00	5.18	136.98	68.05	14.69	25.04	24.69
61.00	5.74	142.17	49.99	19.36	25.11	24.92
62.00	6.00	129.99	32.22	22.66	25.26	25.18
63.00	6.17	114.75	21.46	24.72	25.45	25.41
64.00	6.32	101.86	18.00	26.29	25.64	25.62
65.00	6.41	87.93	16.28	27.69	25.81	25.79
66.00	6.50	76.64	15.09	28.97	25.95	25.93
67.00	6.59	67.48	19.10	30.32	26.06	26.03
68.00	6.69	60.05	19.76	31.97	26.12	26.09
69.00	6.75	52.27	18.17	33.53	26.17	26.15
70.00	6.81	45.96	16.53	34.95	26.21	26.19
71.00	6.87	40.84	15.20	36.24	26.24	26.23
72.00	6.93	36.68	14.16	37.45	26.27	26.26
73.00	6.93	29.78	12.62	38.55	26.29	26.28
74.00	6.93	24.18	11.07	39.51	26.30	26.29
75.00	6.93	19.64	9.82	40.36	26.30	26.29
76.00	6.93	15.94	8.50	41.12	26.30	26.29
77.00	6.93	12.94	7.18	41.75	26.29	26.29
78.00	6.93	10.51	6.39	42.30	26.29	26.29
79.00	6.93	8.53	5.80	42.80	26.28	26.28
80.00	6.93	6.93	5.35	43.25	26.27	26.27
81.00	6.93	5.63	4.99	43.68	26.26	26.26
82.00	6.93	4.57	4.69	44.07	26.25	26.25
83.00	6.93	3.71	4.47	44.45	26.23	26.23
84.00	6.93	3.01	4.25	44.81	26.22	26.22
85.00	6.93	2.44	4.31	45.16	26.20	26.20
86.00	6.93	1.99	0.00	45.43	26.19	26.19
87.00	6.93	1.61	7.74	45.81	26.17	26.17
88.00	6.93	1.31	0.00	46.06	26.16	26.15
89.00	6.93	1.06	7.36	46.43	26.14	26.13
90.00	6.93	0.86	0.00	46.67	26.12	26.12
91.00	6.93	0.70	7.03	47.02	26.10	26.10
92.00	6.93	0.57	0.00	47.25	26.09	26.08
93.00	6.93	0.46	6.74	47.59	26.07	26.07
94.00	6.93	0.37	0.00	47.81	26.05	26.05
95.00	6.93	0.30	6.48	48.13	26.03	26.03
96.00	6.93	0.25	0.00	48.34	26.02	26.01
97.00	6.93	0.20	7.07	48.67	26.00	26.00
98.00	6.93	0.16	0.00	48.96	25.98	25.97
99.00	6.93	0.13	8.62	49.40	25.95	25.95

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
100.00	6.93	0.11	0.00	49.68	25.93	25.93
101.00	6.93	0.09	8.10	50.08	25.91	25.90
102.00	6.93	0.07	0.00	50.35	25.89	25.88
103.00	6.93	0.06	7.69	50.73	25.87	25.86
104.00	6.93	0.05	0.00	50.98	25.84	25.84
105.00	6.93	0.04	7.32	51.35	25.82	25.82
106.00	6.93	0.03	0.00	51.59	25.80	25.80
107.00	6.93	0.02	6.98	51.94	25.79	25.78
108.00	6.93	0.02	0.00	52.16	25.77	25.76
109.00	6.93	0.02	6.66	52.50	25.75	25.74
110.00	6.93	0.01	0.00	52.71	25.73	25.73
111.00	6.93	0.01	6.36	53.03	25.71	25.71
112.00	6.93	0.01	0.00	53.24	25.69	25.69
113.00	6.93	0.01	6.09	53.54	25.68	25.67
114.00	6.93	0.01	0.00	53.74	25.66	25.66
115.00	6.93	0.00	5.85	54.04	25.64	25.64
116.00	6.93	0.00	0.00	54.23	25.63	25.63
117.00	6.93	0.00	5.62	54.51	25.61	25.61
118.00	6.93	0.00	0.00	54.69	25.60	25.60
119.00	6.93	0.00	5.42	54.96	25.58	25.58
120.00	6.93	0.00	0.00	55.14	25.57	25.57
121.00	6.93	0.00	5.24	55.40	25.55	25.55
122.00	6.93	0.00	0.00	55.57	25.54	25.54
123.00	6.93	0.00	5.08	55.82	25.53	25.52
124.00	6.93	0.00	0.00	55.99	25.51	25.51
125.00	6.93	0.00	4.44	56.23	25.50	25.50
126.00	6.93	0.00	0.00	56.38	25.49	25.48
127.00	6.93	0.00	4.42	56.60	25.47	25.47
128.00	6.93	0.00	0.00	56.74	25.46	25.46
129.00	6.93	0.00	4.31	56.96	25.45	25.45
130.00	6.93	0.00	0.00	57.10	25.44	25.44
131.00	6.93	0.00	4.23	57.31	25.43	25.42
132.00	6.93	0.00	0.00	57.45	25.41	25.41
133.00	6.93	0.00	4.12	57.65	25.40	25.40
134.00	6.93	0.00	0.00	57.79	25.39	25.39
135.00	6.93	0.00	4.02	57.99	25.38	25.38
136.00	6.93	0.00	0.00	58.12	25.37	25.37
137.00	6.93	0.00	3.95	58.32	25.36	25.36
138.00	6.93	0.00	0.00	58.45	25.35	25.35
139.00	6.93	0.00	3.82	58.64	25.34	25.33
140.00	6.93	0.00	0.00	58.76	25.33	25.32
141.00	6.93	0.00	3.80	58.95	25.32	25.31
142.00	6.93	0.00	0.00	59.07	25.31	25.30
143.00	6.93	0.00	3.31	59.25	25.30	25.29
144.00	6.93	0.00	0.00	59.37	25.29	25.28
145.00	6.93	0.00	0.00	59.54	25.27	25.27
146.00	6.93	0.00	5.35	59.72	25.27	25.26
147.00	6.93	0.00	0.00	59.80	25.26	25.25
148.00	6.93	0.00	0.00	59.98	25.25	25.24
149.00	6.93	0.00	5.14	60.15	25.24	25.23
150.00	6.93	0.00	0.00	60.23	25.23	25.22
151.00	6.93	0.00	0.00	60.40	25.22	25.22
152.00	6.93	0.00	4.97	60.56	25.21	25.21
153.00	6.93	0.00	0.00	60.65	25.20	25.20
154.00	6.93	0.00	0.00	60.81	25.19	25.19
155.00	6.93	0.00	4.81	60.97	25.18	25.18
156.00	6.93	0.00	0.00	61.05	25.17	25.17
157.00	6.93	0.00	0.00	61.20	25.16	25.16
158.00	6.93	0.00	4.64	61.36	25.16	25.15
159.00	6.93	0.00	0.00	61.43	25.15	25.14
160.00	6.93	0.00	0.00	61.58	25.14	25.14
161.00	6.93	0.00	4.52	61.73	25.13	25.13
162.00	6.93	0.00	0.00	61.81	25.12	25.12
163.00	6.93	0.00	0.00	61.95	25.11	25.11
164.00	6.93	0.00	4.19	62.09	25.11	25.10
165.00	6.93	0.00	0.00	62.17	25.10	25.10
166.00	6.93	0.00	0.00	62.31	25.09	25.09
167.00	6.93	0.00	0.00	62.41	25.08	25.08
168.00	6.93	0.00	0.00	62.52	25.08	25.07
169.00	6.93	0.00	0.00	62.67	25.07	25.07

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
170.00	6.93	0.00	0.00	62.76	25.06	25.06
171.00	6.93	0.00	0.00	62.85	25.05	25.05
172.00	6.93	0.00	5.33	63.02	25.05	25.04
173.00	6.93	0.00	0.00	63.11	25.04	25.04
174.00	6.93	0.00	0.00	63.20	25.03	25.03
175.00	6.93	0.00	0.00	63.28	25.03	25.02
176.00	6.93	0.00	5.12	63.45	25.02	25.01
177.00	6.93	0.00	0.00	63.54	25.01	25.01
178.00	6.93	0.00	0.00	63.62	25.00	25.00
179.00	6.93	0.00	0.00	63.62	25.00	24.99
180.00	6.93	0.00	0.00	63.62	25.00	24.99
181.00	6.93	0.00	0.00	63.62	25.00	24.98
182.00	6.93	0.00	0.00	63.62	25.00	24.97
183.00	6.93	0.00	0.00	63.62	25.00	24.97
184.00	6.93	0.00	0.00	63.62	25.00	24.96
185.00	6.93	0.00	0.00	63.62	25.00	24.95
186.00	6.93	0.00	0.00	63.62	25.00	24.95
187.00	6.93	0.00	0.00	63.62	25.00	24.94
188.00	6.93	0.00	0.00	63.62	25.00	24.93
189.00	6.93	0.00	0.00	63.62	25.00	24.93
190.00	6.93	0.00	0.00	63.62	25.00	24.92
191.00	6.93	0.00	0.00	63.62	25.00	24.91
192.00	6.93	0.00	0.00	63.62	25.00	24.91
193.00	6.93	0.00	0.00	63.62	25.00	24.90
194.00	6.93	0.00	0.00	63.62	25.00	24.89
195.00	6.93	0.00	0.00	63.62	25.00	24.89
196.00	6.93	0.00	0.00	63.62	25.00	24.88
197.00	6.93	0.00	0.00	63.62	25.00	24.88
198.00	6.93	0.00	0.00	63.62	25.00	24.87
199.00	6.93	0.00	0.00	63.62	25.00	24.87
200.00	6.93	0.00	0.00	63.62	25.00	24.86
201.00	6.93	0.00	0.00	63.62	25.00	24.85
202.00	6.93	0.00	0.00	63.62	25.00	24.85
203.00	6.93	0.00	0.00	63.62	25.00	24.84
204.00	6.93	0.00	0.00	63.62	25.00	24.84
205.00	6.93	0.00	0.00	63.62	25.00	24.83
206.00	6.93	0.00	0.00	63.62	25.00	24.83
207.00	6.93	0.00	0.00	63.62	25.00	24.82
208.00	6.93	0.00	0.00	63.62	25.00	24.82
209.00	6.93	0.00	0.00	63.62	25.00	24.81
210.00	6.93	0.00	0.00	63.62	25.00	24.80
211.00	6.93	0.00	0.00	63.62	25.00	24.80
212.00	6.93	0.00	0.00	63.62	25.00	24.79
213.00	6.93	0.00	0.00	63.62	25.00	24.79
214.00	6.93	0.00	0.00	63.62	25.00	24.78
215.00	6.93	0.00	0.00	63.62	25.00	24.78
216.00	6.93	0.00	0.00	63.62	25.00	24.77
217.00	6.93	0.00	0.00	63.62	25.00	24.77
218.00	6.93	0.00	0.00	63.62	25.00	24.76
219.00	6.93	0.00	0.00	63.62	25.00	24.76
220.00	6.93	0.00	0.00	63.62	25.00	24.75
221.00	6.93	0.00	0.00	63.62	25.00	24.75
222.00	6.93	0.00	0.00	63.62	25.00	24.75
223.00	6.93	0.00	0.00	63.62	25.00	24.74
224.00	6.93	0.00	0.00	63.62	25.00	24.74
225.00	6.93	0.00	0.00	63.62	25.00	24.73
226.00	6.93	0.00	0.00	63.62	25.00	24.73
227.00	6.93	0.00	0.00	63.62	25.00	24.72
228.00	6.93	0.00	0.00	63.62	25.00	24.72
229.00	6.93	0.00	0.00	63.62	25.00	24.71
230.00	6.93	0.00	0.00	63.62	25.00	24.71
231.00	6.93	0.00	0.00	63.62	25.00	24.71
232.00	6.93	0.00	0.00	63.62	25.00	24.70
233.00	6.93	0.00	0.00	63.62	25.00	24.70
234.00	6.93	0.00	0.00	63.62	25.00	24.69
235.00	6.93	0.00	0.00	63.62	25.00	24.69
236.00	6.93	0.00	0.00	63.62	25.00	24.68
237.00	6.93	0.00	0.00	63.62	25.00	24.68
238.00	6.93	0.00	0.00	63.62	25.00	24.68
239.00	6.93	0.00	0.00	63.62	25.00	24.67

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
240.00	6.93	0.00	0.00	63.62	25.00	24.67
241.00	6.93	0.00	0.00	63.62	25.00	24.66
242.00	6.93	0.00	0.00	63.62	25.00	24.66
243.00	6.93	0.00	0.00	63.62	25.00	24.66
244.00	6.93	0.00	0.00	63.62	25.00	24.65
245.00	6.93	0.00	0.00	63.62	25.00	24.65
246.00	6.93	0.00	0.00	63.62	25.00	24.64
247.00	6.93	0.00	0.00	63.62	25.00	24.64
248.00	6.93	0.00	0.00	63.62	25.00	24.64
249.00	6.93	0.00	0.00	63.62	25.00	24.63
250.00	6.93	0.00	0.00	63.62	25.00	24.63
251.00	6.93	0.00	0.00	63.62	25.00	24.63
252.00	6.93	0.00	0.00	63.62	25.00	24.62
253.00	6.93	0.00	0.00	63.62	25.00	24.62
254.00	6.93	0.00	0.00	63.62	25.00	24.62
255.00	6.93	0.00	0.00	63.62	25.00	24.61
256.00	6.93	0.00	0.00	63.62	25.00	24.61
257.00	6.93	0.00	0.00	63.62	25.00	24.61
258.00	6.93	0.00	0.00	63.62	25.00	24.60
259.00	6.93	0.00	0.00	63.62	25.00	24.60
260.00	6.93	0.00	0.00	63.62	25.00	24.60
261.00	6.93	0.00	0.00	63.62	25.00	24.59
262.00	6.93	0.00	0.00	63.62	25.00	24.59
263.00	6.93	0.00	0.00	63.62	25.00	24.59
264.00	6.93	0.00	0.00	63.62	25.00	24.58
265.00	6.93	0.00	0.00	63.62	25.00	24.58
266.00	6.93	0.00	0.00	63.62	25.00	24.58
267.00	6.93	0.00	0.00	63.62	25.00	24.57
268.00	6.93	0.00	0.00	63.62	25.00	24.57
269.00	6.93	0.00	0.00	63.62	25.00	24.57
270.00	6.93	0.00	0.00	63.62	25.00	24.56
271.00	6.93	0.00	0.00	63.62	25.00	24.56
272.00	6.93	0.00	0.00	63.62	25.00	24.56
273.00	6.93	0.00	0.00	63.62	25.00	24.55
274.00	6.93	0.00	0.00	63.62	25.00	24.55
275.00	6.93	0.00	0.00	63.62	25.00	24.55
276.00	6.93	0.00	0.00	63.62	25.00	24.54
277.00	6.93	0.00	0.00	63.62	25.00	24.54
278.00	6.93	0.00	0.00	63.62	25.00	24.54
279.00	6.93	0.00	0.00	63.62	25.00	24.54
280.00	6.93	0.00	0.00	63.62	25.00	24.53
281.00	6.93	0.00	0.00	63.62	25.00	24.53
282.00	6.93	0.00	0.00	63.62	25.00	24.53
283.00	6.93	0.00	0.00	63.62	25.00	24.52
284.00	6.93	0.00	0.00	63.62	25.00	24.52
285.00	6.93	0.00	0.00	63.62	25.00	24.52
286.00	6.93	0.00	0.00	63.62	25.00	24.52
287.00	6.93	0.00	0.00	63.62	25.00	24.51
288.00	6.93	0.00	0.00	63.62	25.00	24.51
289.00	6.93	0.00	0.00	63.62	25.00	24.51
290.00	6.93	0.00	0.00	63.62	25.00	24.51
291.00	6.93	0.00	0.00	63.62	25.00	24.50
292.00	6.93	0.00	0.00	63.62	25.00	24.50
293.00	6.93	0.00	0.00	63.62	25.00	24.50
294.00	6.93	0.00	0.00	63.62	25.00	24.49
295.00	6.93	0.00	0.00	63.62	25.00	24.49
296.00	6.93	0.00	0.00	63.62	25.00	24.49
297.00	6.93	0.00	0.00	63.62	25.00	24.49
298.00	6.93	0.00	0.00	63.62	25.00	24.48
299.00	6.93	0.00	0.00	63.62	25.00	24.48
300.00	6.93	0.00	0.00	63.62	25.00	24.48
301.00	6.93	0.00	0.00	63.62	25.00	24.47
302.00	6.93	0.00	0.00	63.62	25.00	24.47
303.00	6.93	0.00	0.00	63.62	25.00	24.47
304.00	6.93	0.00	0.00	63.62	25.00	24.47
305.00	6.93	0.00	0.00	63.62	25.00	24.46
306.00	6.93	0.00	0.00	63.62	25.00	24.46
307.00	6.93	0.00	0.00	63.62	25.00	24.46
308.00	6.93	0.00	0.00	63.62	25.00	24.46
309.00	6.93	0.00	0.00	63.62	25.00	24.45

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
310.00	6.93	0.00	0.00	63.62	25.00	24.45
311.00	6.93	0.00	0.00	63.62	25.00	24.45
312.00	6.93	0.00	0.00	63.62	25.00	24.45
313.00	6.93	0.00	0.00	63.62	25.00	24.44
314.00	6.93	0.00	0.00	63.62	25.00	24.44
315.00	6.93	0.00	0.00	63.62	25.00	24.44
316.00	6.93	0.00	0.00	63.62	25.00	24.44
317.00	6.93	0.00	0.00	63.62	25.00	24.43
318.00	6.93	0.00	0.00	63.62	25.00	24.43
319.00	6.93	0.00	0.00	63.62	25.00	24.43
320.00	6.93	0.00	0.00	63.62	25.00	24.43
321.00	6.93	0.00	0.00	63.62	25.00	24.42
322.00	6.93	0.00	0.00	63.62	25.00	24.42
323.00	6.93	0.00	0.00	63.62	25.00	24.42
324.00	6.93	0.00	0.00	63.62	25.00	24.42
325.00	6.93	0.00	0.00	63.62	25.00	24.41
326.00	6.93	0.00	0.00	63.62	25.00	24.41
327.00	6.93	0.00	0.00	63.62	25.00	24.41
328.00	6.93	0.00	0.00	63.62	25.00	24.41
329.00	6.93	0.00	0.00	63.62	25.00	24.41
330.00	6.93	0.00	0.00	63.62	25.00	24.40
331.00	6.93	0.00	0.00	63.62	25.00	24.40
332.00	6.93	0.00	0.00	63.62	25.00	24.40
333.00	6.93	0.00	0.00	63.62	25.00	24.40
334.00	6.93	0.00	0.00	63.62	25.00	24.39
335.00	6.93	0.00	0.00	63.62	25.00	24.39
336.00	6.93	0.00	0.00	63.62	25.00	24.39
337.00	6.93	0.00	0.00	63.62	25.00	24.39
338.00	6.93	0.00	0.00	63.62	25.00	24.39
339.00	6.93	0.00	0.00	63.62	25.00	24.38
340.00	6.93	0.00	0.00	63.62	25.00	24.38
341.00	6.93	0.00	0.00	63.62	25.00	24.38
342.00	6.93	0.00	0.00	63.62	25.00	24.38
343.00	6.93	0.00	0.00	63.62	25.00	24.38
344.00	6.93	0.00	0.00	63.62	25.00	24.37
345.00	6.93	0.00	0.00	63.62	25.00	24.37
346.00	6.93	0.00	0.00	63.62	25.00	24.37
347.00	6.93	0.00	0.00	63.62	25.00	24.37
348.00	6.93	0.00	0.00	63.62	25.00	24.37
349.00	6.93	0.00	0.00	63.62	25.00	24.36
350.00	6.93	0.00	0.00	63.62	25.00	24.36
351.00	6.93	0.00	0.00	63.62	25.00	24.36
352.00	6.93	0.00	0.00	63.62	25.00	24.36
353.00	6.93	0.00	0.00	63.62	25.00	24.36
354.00	6.93	0.00	0.00	63.62	25.00	24.35
355.00	6.93	0.00	0.00	63.62	25.00	24.35
356.00	6.93	0.00	0.00	63.62	25.00	24.35
357.00	6.93	0.00	0.00	63.62	25.00	24.35
358.00	6.93	0.00	0.00	63.62	25.00	24.35
359.00	6.93	0.00	0.00	63.62	25.00	24.35
360.00	6.93	0.00	0.00	63.62	25.00	24.34

Structure: 3

From Basin: Basin 3

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 60 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Cumulative Instant Current Cumulative Head Water Tail Water

Time (hr)	Rainfall (in)	Runoff (cfs)	Discharge (cfs)	Discharge (acre-ft)	Stage (ft NGVD)	Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.02	0.00	0.00	25.00	24.00
18.00	0.56	0.08	0.00	0.00	25.00	24.00
19.00	0.59	0.18	0.00	0.00	25.00	24.00
20.00	0.62	0.30	0.00	0.00	25.00	24.00
21.00	0.65	0.44	0.00	0.00	25.00	24.00
22.00	0.68	0.59	0.00	0.00	25.00	24.00
23.00	0.71	0.76	0.00	0.00	25.01	24.00
24.00	0.74	0.93	0.00	0.00	25.01	24.00
25.00	0.79	1.27	0.00	0.00	25.01	24.00
26.00	0.84	1.63	0.00	0.00	25.01	24.01
27.00	0.88	1.99	0.00	0.00	25.02	24.01
28.00	0.93	2.35	0.00	0.00	25.03	24.01
29.00	0.97	2.70	0.00	0.00	25.03	24.02
30.00	1.02	3.05	0.00	0.00	25.04	24.02
31.00	1.06	3.39	0.00	0.00	25.05	24.02
32.00	1.11	3.73	0.00	0.00	25.06	24.03
33.00	1.15	4.05	0.00	1.87	25.00	24.07
34.00	1.20	4.37	0.00	1.87	25.00	24.07
35.00	1.24	4.67	0.00	1.87	25.00	24.08
36.00	1.29	4.96	0.00	1.87	25.00	24.09
37.00	1.33	5.25	0.00	1.87	25.00	24.09
38.00	1.38	5.52	0.00	1.87	25.01	24.10
39.00	1.42	5.79	0.00	1.87	25.03	24.11
40.00	1.47	6.04	0.00	1.87	25.04	24.12
41.00	1.51	6.28	0.00	1.87	25.06	24.13
42.00	1.56	6.52	0.00	3.65	25.00	24.16
43.00	1.60	6.75	0.00	3.65	25.00	24.17
44.00	1.65	6.96	0.00	3.65	25.00	24.18
45.00	1.70	7.17	0.00	3.65	25.02	24.20
46.00	1.74	7.38	0.00	3.65	25.04	24.21
47.00	1.79	7.57	0.00	3.65	25.06	24.22
48.00	1.83	7.76	0.00	5.33	25.00	24.25
49.00	1.88	8.15	0.00	5.33	25.00	24.27
50.00	1.93	8.50	0.00	5.33	25.01	24.28
51.00	1.99	9.21	0.00	5.33	25.04	24.29
52.00	2.06	10.04	0.00	6.92	25.00	24.33
53.00	2.15	11.57	0.00	6.92	25.00	24.34
54.00	2.25	13.73	0.00	6.92	25.02	24.36
55.00	2.38	16.47	0.00	8.41	25.00	24.41
56.00	2.53	19.72	0.00	8.41	25.01	24.43
57.00	2.70	23.71	0.00	9.82	25.00	24.48
58.00	2.92	29.05	80.06	11.15	25.01	24.53
59.00	3.20	37.20	75.63	12.40	25.01	24.58
60.00	5.18	136.98	68.05	14.69	25.04	24.69
61.00	5.74	142.17	49.99	19.36	25.11	24.92
62.00	6.00	129.99	32.22	22.66	25.26	25.18
63.00	6.17	114.75	21.46	24.72	25.45	25.41
64.00	6.32	101.86	18.00	26.29	25.64	25.62
65.00	6.41	87.93	16.28	27.69	25.81	25.79
66.00	6.50	76.64	15.09	28.97	25.95	25.93
67.00	6.59	67.48	19.10	30.32	26.06	26.03
68.00	6.69	60.05	19.76	31.97	26.12	26.09
69.00	6.75	52.27	18.17	33.53	26.17	26.15
70.00	6.81	45.96	16.53	34.95	26.21	26.19

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
71.00	6.87	40.84	15.20	36.24	26.24	26.23
72.00	6.93	36.68	14.16	37.45	26.27	26.26
73.00	6.93	29.78	12.62	38.55	26.29	26.28
74.00	6.93	24.18	11.07	39.51	26.30	26.29
75.00	6.93	19.64	9.82	40.36	26.30	26.29
76.00	6.93	15.94	8.50	41.12	26.30	26.29
77.00	6.93	12.94	7.18	41.75	26.29	26.29
78.00	6.93	10.51	6.39	42.30	26.29	26.29
79.00	6.93	8.53	5.80	42.80	26.28	26.28
80.00	6.93	6.93	5.35	43.25	26.27	26.27
81.00	6.93	5.63	4.99	43.68	26.26	26.26
82.00	6.93	4.57	4.69	44.07	26.25	26.25
83.00	6.93	3.71	4.47	44.45	26.23	26.23
84.00	6.93	3.01	4.25	44.81	26.22	26.22
85.00	6.93	2.44	4.31	45.16	26.20	26.20
86.00	6.93	1.99	0.00	45.43	26.19	26.19
87.00	6.93	1.61	7.74	45.81	26.17	26.17
88.00	6.93	1.31	0.00	46.06	26.16	26.15
89.00	6.93	1.06	7.36	46.43	26.14	26.13
90.00	6.93	0.86	0.00	46.67	26.12	26.12
91.00	6.93	0.70	7.03	47.02	26.10	26.10
92.00	6.93	0.57	0.00	47.25	26.09	26.08
93.00	6.93	0.46	6.74	47.59	26.07	26.07
94.00	6.93	0.37	0.00	47.81	26.05	26.05
95.00	6.93	0.30	6.48	48.13	26.03	26.03
96.00	6.93	0.25	0.00	48.34	26.02	26.01
97.00	6.93	0.20	7.07	48.67	26.00	26.00
98.00	6.93	0.16	0.00	48.96	25.98	25.97
99.00	6.93	0.13	8.62	49.40	25.95	25.95
100.00	6.93	0.11	0.00	49.68	25.93	25.93
101.00	6.93	0.09	8.10	50.08	25.91	25.90
102.00	6.93	0.07	0.00	50.35	25.89	25.88
103.00	6.93	0.06	7.69	50.73	25.87	25.86
104.00	6.93	0.05	0.00	50.98	25.84	25.84
105.00	6.93	0.04	7.32	51.35	25.82	25.82
106.00	6.93	0.03	0.00	51.59	25.80	25.80
107.00	6.93	0.02	6.98	51.94	25.79	25.78
108.00	6.93	0.02	0.00	52.16	25.77	25.76
109.00	6.93	0.02	6.66	52.50	25.75	25.74
110.00	6.93	0.01	0.00	52.71	25.73	25.73
111.00	6.93	0.01	6.36	53.03	25.71	25.71
112.00	6.93	0.01	0.00	53.24	25.69	25.69
113.00	6.93	0.01	6.09	53.54	25.68	25.67
114.00	6.93	0.01	0.00	53.74	25.66	25.66
115.00	6.93	0.00	5.85	54.04	25.64	25.64
116.00	6.93	0.00	0.00	54.23	25.63	25.63
117.00	6.93	0.00	5.62	54.51	25.61	25.61
118.00	6.93	0.00	0.00	54.69	25.60	25.60
119.00	6.93	0.00	5.42	54.96	25.58	25.58
120.00	6.93	0.00	0.00	55.14	25.57	25.57
121.00	6.93	0.00	5.24	55.40	25.55	25.55
122.00	6.93	0.00	0.00	55.57	25.54	25.54
123.00	6.93	0.00	5.08	55.82	25.53	25.52
124.00	6.93	0.00	0.00	55.99	25.51	25.51
125.00	6.93	0.00	4.44	56.23	25.50	25.50
126.00	6.93	0.00	0.00	56.38	25.49	25.48
127.00	6.93	0.00	4.42	56.60	25.47	25.47
128.00	6.93	0.00	0.00	56.74	25.46	25.46
129.00	6.93	0.00	4.31	56.96	25.45	25.45
130.00	6.93	0.00	0.00	57.10	25.44	25.44
131.00	6.93	0.00	4.23	57.31	25.43	25.42
132.00	6.93	0.00	0.00	57.45	25.41	25.41
133.00	6.93	0.00	4.12	57.65	25.40	25.40
134.00	6.93	0.00	0.00	57.79	25.39	25.39
135.00	6.93	0.00	4.02	57.99	25.38	25.38
136.00	6.93	0.00	0.00	58.12	25.37	25.37
137.00	6.93	0.00	3.95	58.32	25.36	25.36
138.00	6.93	0.00	0.00	58.45	25.35	25.35
139.00	6.93	0.00	3.82	58.64	25.34	25.33
140.00	6.93	0.00	0.00	58.76	25.33	25.32

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
141.00	6.93	0.00	3.80	58.95	25.32	25.31
142.00	6.93	0.00	0.00	59.07	25.31	25.30
143.00	6.93	0.00	3.31	59.25	25.30	25.29
144.00	6.93	0.00	0.00	59.37	25.29	25.28
145.00	6.93	0.00	0.00	59.54	25.27	25.27
146.00	6.93	0.00	5.35	59.72	25.27	25.26
147.00	6.93	0.00	0.00	59.80	25.26	25.25
148.00	6.93	0.00	0.00	59.98	25.25	25.24
149.00	6.93	0.00	5.14	60.15	25.24	25.23
150.00	6.93	0.00	0.00	60.23	25.23	25.22
151.00	6.93	0.00	0.00	60.40	25.22	25.22
152.00	6.93	0.00	4.97	60.56	25.21	25.21
153.00	6.93	0.00	0.00	60.65	25.20	25.20
154.00	6.93	0.00	0.00	60.81	25.19	25.19
155.00	6.93	0.00	4.81	60.97	25.18	25.18
156.00	6.93	0.00	0.00	61.05	25.17	25.17
157.00	6.93	0.00	0.00	61.20	25.16	25.16
158.00	6.93	0.00	4.64	61.36	25.16	25.15
159.00	6.93	0.00	0.00	61.43	25.15	25.14
160.00	6.93	0.00	0.00	61.58	25.14	25.14
161.00	6.93	0.00	4.52	61.73	25.13	25.13
162.00	6.93	0.00	0.00	61.81	25.12	25.12
163.00	6.93	0.00	0.00	61.95	25.11	25.11
164.00	6.93	0.00	4.19	62.09	25.11	25.10
165.00	6.93	0.00	0.00	62.17	25.10	25.10
166.00	6.93	0.00	0.00	62.31	25.09	25.09
167.00	6.93	0.00	0.00	62.41	25.08	25.08
168.00	6.93	0.00	0.00	62.52	25.08	25.07
169.00	6.93	0.00	0.00	62.67	25.07	25.07
170.00	6.93	0.00	0.00	62.76	25.06	25.06
171.00	6.93	0.00	0.00	62.85	25.05	25.05
172.00	6.93	0.00	5.33	63.02	25.05	25.04
173.00	6.93	0.00	0.00	63.11	25.04	25.04
174.00	6.93	0.00	0.00	63.20	25.03	25.03
175.00	6.93	0.00	0.00	63.28	25.03	25.02
176.00	6.93	0.00	5.12	63.45	25.02	25.01
177.00	6.93	0.00	0.00	63.54	25.01	25.01
178.00	6.93	0.00	0.00	63.62	25.00	25.00
179.00	6.93	0.00	0.00	63.62	25.00	24.99
180.00	6.93	0.00	0.00	63.62	25.00	24.99
181.00	6.93	0.00	0.00	63.62	25.00	24.98
182.00	6.93	0.00	0.00	63.62	25.00	24.97
183.00	6.93	0.00	0.00	63.62	25.00	24.97
184.00	6.93	0.00	0.00	63.62	25.00	24.96
185.00	6.93	0.00	0.00	63.62	25.00	24.95
186.00	6.93	0.00	0.00	63.62	25.00	24.95
187.00	6.93	0.00	0.00	63.62	25.00	24.94
188.00	6.93	0.00	0.00	63.62	25.00	24.93
189.00	6.93	0.00	0.00	63.62	25.00	24.93
190.00	6.93	0.00	0.00	63.62	25.00	24.92
191.00	6.93	0.00	0.00	63.62	25.00	24.91
192.00	6.93	0.00	0.00	63.62	25.00	24.91
193.00	6.93	0.00	0.00	63.62	25.00	24.90
194.00	6.93	0.00	0.00	63.62	25.00	24.89
195.00	6.93	0.00	0.00	63.62	25.00	24.89
196.00	6.93	0.00	0.00	63.62	25.00	24.88
197.00	6.93	0.00	0.00	63.62	25.00	24.88
198.00	6.93	0.00	0.00	63.62	25.00	24.87
199.00	6.93	0.00	0.00	63.62	25.00	24.87
200.00	6.93	0.00	0.00	63.62	25.00	24.86
201.00	6.93	0.00	0.00	63.62	25.00	24.85
202.00	6.93	0.00	0.00	63.62	25.00	24.85
203.00	6.93	0.00	0.00	63.62	25.00	24.84
204.00	6.93	0.00	0.00	63.62	25.00	24.84
205.00	6.93	0.00	0.00	63.62	25.00	24.83
206.00	6.93	0.00	0.00	63.62	25.00	24.83
207.00	6.93	0.00	0.00	63.62	25.00	24.82
208.00	6.93	0.00	0.00	63.62	25.00	24.82
209.00	6.93	0.00	0.00	63.62	25.00	24.81
210.00	6.93	0.00	0.00	63.62	25.00	24.80

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
211.00	6.93	0.00	0.00	63.62	25.00	24.80
212.00	6.93	0.00	0.00	63.62	25.00	24.79
213.00	6.93	0.00	0.00	63.62	25.00	24.79
214.00	6.93	0.00	0.00	63.62	25.00	24.78
215.00	6.93	0.00	0.00	63.62	25.00	24.78
216.00	6.93	0.00	0.00	63.62	25.00	24.77
217.00	6.93	0.00	0.00	63.62	25.00	24.77
218.00	6.93	0.00	0.00	63.62	25.00	24.76
219.00	6.93	0.00	0.00	63.62	25.00	24.76
220.00	6.93	0.00	0.00	63.62	25.00	24.75
221.00	6.93	0.00	0.00	63.62	25.00	24.75
222.00	6.93	0.00	0.00	63.62	25.00	24.75
223.00	6.93	0.00	0.00	63.62	25.00	24.74
224.00	6.93	0.00	0.00	63.62	25.00	24.74
225.00	6.93	0.00	0.00	63.62	25.00	24.73
226.00	6.93	0.00	0.00	63.62	25.00	24.73
227.00	6.93	0.00	0.00	63.62	25.00	24.72
228.00	6.93	0.00	0.00	63.62	25.00	24.72
229.00	6.93	0.00	0.00	63.62	25.00	24.71
230.00	6.93	0.00	0.00	63.62	25.00	24.71
231.00	6.93	0.00	0.00	63.62	25.00	24.71
232.00	6.93	0.00	0.00	63.62	25.00	24.70
233.00	6.93	0.00	0.00	63.62	25.00	24.70
234.00	6.93	0.00	0.00	63.62	25.00	24.69
235.00	6.93	0.00	0.00	63.62	25.00	24.69
236.00	6.93	0.00	0.00	63.62	25.00	24.68
237.00	6.93	0.00	0.00	63.62	25.00	24.68
238.00	6.93	0.00	0.00	63.62	25.00	24.68
239.00	6.93	0.00	0.00	63.62	25.00	24.67
240.00	6.93	0.00	0.00	63.62	25.00	24.67
241.00	6.93	0.00	0.00	63.62	25.00	24.66
242.00	6.93	0.00	0.00	63.62	25.00	24.66
243.00	6.93	0.00	0.00	63.62	25.00	24.66
244.00	6.93	0.00	0.00	63.62	25.00	24.65
245.00	6.93	0.00	0.00	63.62	25.00	24.65
246.00	6.93	0.00	0.00	63.62	25.00	24.64
247.00	6.93	0.00	0.00	63.62	25.00	24.64
248.00	6.93	0.00	0.00	63.62	25.00	24.64
249.00	6.93	0.00	0.00	63.62	25.00	24.63
250.00	6.93	0.00	0.00	63.62	25.00	24.63
251.00	6.93	0.00	0.00	63.62	25.00	24.63
252.00	6.93	0.00	0.00	63.62	25.00	24.62
253.00	6.93	0.00	0.00	63.62	25.00	24.62
254.00	6.93	0.00	0.00	63.62	25.00	24.62
255.00	6.93	0.00	0.00	63.62	25.00	24.61
256.00	6.93	0.00	0.00	63.62	25.00	24.61
257.00	6.93	0.00	0.00	63.62	25.00	24.61
258.00	6.93	0.00	0.00	63.62	25.00	24.60
259.00	6.93	0.00	0.00	63.62	25.00	24.60
260.00	6.93	0.00	0.00	63.62	25.00	24.60
261.00	6.93	0.00	0.00	63.62	25.00	24.59
262.00	6.93	0.00	0.00	63.62	25.00	24.59
263.00	6.93	0.00	0.00	63.62	25.00	24.59
264.00	6.93	0.00	0.00	63.62	25.00	24.58
265.00	6.93	0.00	0.00	63.62	25.00	24.58
266.00	6.93	0.00	0.00	63.62	25.00	24.58
267.00	6.93	0.00	0.00	63.62	25.00	24.57
268.00	6.93	0.00	0.00	63.62	25.00	24.57
269.00	6.93	0.00	0.00	63.62	25.00	24.57
270.00	6.93	0.00	0.00	63.62	25.00	24.56
271.00	6.93	0.00	0.00	63.62	25.00	24.56
272.00	6.93	0.00	0.00	63.62	25.00	24.56
273.00	6.93	0.00	0.00	63.62	25.00	24.55
274.00	6.93	0.00	0.00	63.62	25.00	24.55
275.00	6.93	0.00	0.00	63.62	25.00	24.55
276.00	6.93	0.00	0.00	63.62	25.00	24.54
277.00	6.93	0.00	0.00	63.62	25.00	24.54
278.00	6.93	0.00	0.00	63.62	25.00	24.54
279.00	6.93	0.00	0.00	63.62	25.00	24.54
280.00	6.93	0.00	0.00	63.62	25.00	24.53

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
281.00	6.93	0.00	0.00	63.62	25.00	24.53
282.00	6.93	0.00	0.00	63.62	25.00	24.53
283.00	6.93	0.00	0.00	63.62	25.00	24.52
284.00	6.93	0.00	0.00	63.62	25.00	24.52
285.00	6.93	0.00	0.00	63.62	25.00	24.52
286.00	6.93	0.00	0.00	63.62	25.00	24.52
287.00	6.93	0.00	0.00	63.62	25.00	24.51
288.00	6.93	0.00	0.00	63.62	25.00	24.51
289.00	6.93	0.00	0.00	63.62	25.00	24.51
290.00	6.93	0.00	0.00	63.62	25.00	24.51
291.00	6.93	0.00	0.00	63.62	25.00	24.50
292.00	6.93	0.00	0.00	63.62	25.00	24.50
293.00	6.93	0.00	0.00	63.62	25.00	24.50
294.00	6.93	0.00	0.00	63.62	25.00	24.49
295.00	6.93	0.00	0.00	63.62	25.00	24.49
296.00	6.93	0.00	0.00	63.62	25.00	24.49
297.00	6.93	0.00	0.00	63.62	25.00	24.49
298.00	6.93	0.00	0.00	63.62	25.00	24.48
299.00	6.93	0.00	0.00	63.62	25.00	24.48
300.00	6.93	0.00	0.00	63.62	25.00	24.48
301.00	6.93	0.00	0.00	63.62	25.00	24.47
302.00	6.93	0.00	0.00	63.62	25.00	24.47
303.00	6.93	0.00	0.00	63.62	25.00	24.47
304.00	6.93	0.00	0.00	63.62	25.00	24.47
305.00	6.93	0.00	0.00	63.62	25.00	24.46
306.00	6.93	0.00	0.00	63.62	25.00	24.46
307.00	6.93	0.00	0.00	63.62	25.00	24.46
308.00	6.93	0.00	0.00	63.62	25.00	24.46
309.00	6.93	0.00	0.00	63.62	25.00	24.45
310.00	6.93	0.00	0.00	63.62	25.00	24.45
311.00	6.93	0.00	0.00	63.62	25.00	24.45
312.00	6.93	0.00	0.00	63.62	25.00	24.45
313.00	6.93	0.00	0.00	63.62	25.00	24.44
314.00	6.93	0.00	0.00	63.62	25.00	24.44
315.00	6.93	0.00	0.00	63.62	25.00	24.44
316.00	6.93	0.00	0.00	63.62	25.00	24.44
317.00	6.93	0.00	0.00	63.62	25.00	24.43
318.00	6.93	0.00	0.00	63.62	25.00	24.43
319.00	6.93	0.00	0.00	63.62	25.00	24.43
320.00	6.93	0.00	0.00	63.62	25.00	24.43
321.00	6.93	0.00	0.00	63.62	25.00	24.42
322.00	6.93	0.00	0.00	63.62	25.00	24.42
323.00	6.93	0.00	0.00	63.62	25.00	24.42
324.00	6.93	0.00	0.00	63.62	25.00	24.42
325.00	6.93	0.00	0.00	63.62	25.00	24.41
326.00	6.93	0.00	0.00	63.62	25.00	24.41
327.00	6.93	0.00	0.00	63.62	25.00	24.41
328.00	6.93	0.00	0.00	63.62	25.00	24.41
329.00	6.93	0.00	0.00	63.62	25.00	24.41
330.00	6.93	0.00	0.00	63.62	25.00	24.40
331.00	6.93	0.00	0.00	63.62	25.00	24.40
332.00	6.93	0.00	0.00	63.62	25.00	24.40
333.00	6.93	0.00	0.00	63.62	25.00	24.40
334.00	6.93	0.00	0.00	63.62	25.00	24.39
335.00	6.93	0.00	0.00	63.62	25.00	24.39
336.00	6.93	0.00	0.00	63.62	25.00	24.39
337.00	6.93	0.00	0.00	63.62	25.00	24.39
338.00	6.93	0.00	0.00	63.62	25.00	24.39
339.00	6.93	0.00	0.00	63.62	25.00	24.38
340.00	6.93	0.00	0.00	63.62	25.00	24.38
341.00	6.93	0.00	0.00	63.62	25.00	24.38
342.00	6.93	0.00	0.00	63.62	25.00	24.38
343.00	6.93	0.00	0.00	63.62	25.00	24.38
344.00	6.93	0.00	0.00	63.62	25.00	24.37
345.00	6.93	0.00	0.00	63.62	25.00	24.37
346.00	6.93	0.00	0.00	63.62	25.00	24.37
347.00	6.93	0.00	0.00	63.62	25.00	24.37
348.00	6.93	0.00	0.00	63.62	25.00	24.37
349.00	6.93	0.00	0.00	63.62	25.00	24.36
350.00	6.93	0.00	0.00	63.62	25.00	24.36

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
351.00	6.93	0.00	0.00	63.62	25.00	24.36
352.00	6.93	0.00	0.00	63.62	25.00	24.36
353.00	6.93	0.00	0.00	63.62	25.00	24.36
354.00	6.93	0.00	0.00	63.62	25.00	24.35
355.00	6.93	0.00	0.00	63.62	25.00	24.35
356.00	6.93	0.00	0.00	63.62	25.00	24.35
357.00	6.93	0.00	0.00	63.62	25.00	24.35
358.00	6.93	0.00	0.00	63.62	25.00	24.35
359.00	6.93	0.00	0.00	63.62	25.00	24.35
360.00	6.93	0.00	0.00	63.62	25.00	24.34

Structure: 4

From Basin: Basin 2

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 4 ft, Manning's n = 0.024, Length = 40 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.00	0.00	0.00	25.00	24.00
18.00	0.56	0.02	0.00	0.00	25.00	24.00
19.00	0.59	0.05	0.00	0.00	25.00	24.00
20.00	0.62	0.08	0.00	0.00	25.00	24.00
21.00	0.65	0.13	0.00	0.00	25.00	24.00
22.00	0.68	0.18	0.00	0.00	25.00	24.00
23.00	0.71	0.23	0.00	0.00	25.00	24.00
24.00	0.74	0.29	0.00	0.00	25.00	24.00
25.00	0.79	0.40	0.00	0.00	25.00	24.00
26.00	0.84	0.52	0.00	0.00	25.00	24.01
27.00	0.88	0.65	0.00	0.00	25.01	24.01
28.00	0.93	0.78	0.00	0.00	25.01	24.01
29.00	0.97	0.92	0.00	0.00	25.01	24.02
30.00	1.02	1.06	0.00	0.00	25.01	24.02
31.00	1.06	1.20	0.00	0.00	25.02	24.02
32.00	1.11	1.35	0.00	0.00	25.02	24.03
33.00	1.15	1.50	0.00	1.22	25.00	24.07
34.00	1.20	1.64	0.00	1.22	25.00	24.07
35.00	1.24	1.79	0.00	1.22	25.00	24.08
36.00	1.29	1.93	0.00	1.22	25.00	24.09
37.00	1.33	2.08	0.00	1.22	25.00	24.09
38.00	1.38	2.22	0.00	1.22	25.01	24.10
39.00	1.42	2.36	0.00	1.22	25.01	24.11
40.00	1.47	2.49	0.00	2.39	25.00	24.12
41.00	1.51	2.63	0.00	2.39	25.00	24.13
42.00	1.56	2.76	0.00	2.39	25.00	24.16
43.00	1.60	2.89	0.00	2.39	25.01	24.17

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
44.00	1.65	3.02	0.00	2.39	25.01	24.18
45.00	1.70	3.14	0.00	3.50	25.00	24.20
46.00	1.74	3.26	0.00	3.50	25.00	24.21
47.00	1.79	3.38	0.00	3.50	25.00	24.22
48.00	1.83	3.50	0.00	3.50	25.01	24.25
49.00	1.88	3.66	0.00	4.58	25.00	24.27
50.00	1.93	3.82	0.00	4.58	25.00	24.28
51.00	1.99	4.08	0.00	4.58	25.01	24.29
52.00	2.06	4.38	62.09	5.60	25.00	24.33
53.00	2.15	4.88	0.00	5.60	25.00	24.34
54.00	2.25	5.57	0.00	5.60	25.01	24.36
55.00	2.38	6.45	0.00	6.59	25.00	24.41
56.00	2.53	7.53	0.00	6.59	25.01	24.43
57.00	2.70	8.86	0.00	7.52	25.01	24.48
58.00	2.92	10.62	0.00	8.40	25.00	24.53
59.00	3.20	13.20	0.00	9.24	25.01	24.58
60.00	5.18	39.42	42.08	11.46	25.00	24.69
61.00	5.74	44.01	24.45	14.08	25.03	24.92
62.00	6.00	43.84	0.00	14.75	25.12	25.18
63.00	6.17	42.27	0.00	14.75	25.24	25.41
64.00	6.32	40.71	0.00	14.75	25.35	25.62
65.00	6.41	38.38	0.00	14.75	25.46	25.79
66.00	6.50	36.27	0.00	14.75	25.57	25.93
67.00	6.59	34.35	0.00	14.75	25.66	26.03
68.00	6.69	32.61	0.00	14.75	25.76	26.09
69.00	6.75	30.57	0.00	14.75	25.84	26.15
70.00	6.81	28.71	0.00	14.75	25.92	26.19
71.00	6.87	27.03	0.00	14.75	26.00	26.23
72.00	6.93	25.50	0.00	14.75	26.07	26.26
73.00	6.93	23.18	0.00	14.75	26.14	26.28
74.00	6.93	21.07	0.00	14.75	26.20	26.29
75.00	6.93	19.16	0.00	14.75	26.26	26.29
76.00	6.93	17.42	7.68	14.95	26.30	26.29
77.00	6.93	15.84	12.69	15.88	26.32	26.29
78.00	6.93	14.40	14.43	17.03	26.32	26.29
79.00	6.93	13.09	15.17	18.26	26.32	26.28
80.00	6.93	11.90	15.42	19.53	26.31	26.27
81.00	6.93	10.82	15.39	20.80	26.30	26.26
82.00	6.93	9.84	15.17	22.07	26.29	26.25
83.00	6.93	8.94	14.84	23.30	26.27	26.23
84.00	6.93	8.13	14.44	24.51	26.25	26.22
85.00	6.93	7.39	13.99	25.68	26.24	26.20
86.00	6.93	6.72	13.44	26.81	26.22	26.19
87.00	6.93	6.11	13.10	27.91	26.20	26.17
88.00	6.93	5.55	12.44	28.96	26.18	26.15
89.00	6.93	5.05	12.11	29.97	26.16	26.13
90.00	6.93	4.59	11.46	30.94	26.14	26.12
91.00	6.93	4.17	11.17	31.87	26.12	26.10
92.00	6.93	3.80	10.55	32.76	26.10	26.08
93.00	6.93	3.45	10.31	33.62	26.08	26.07
94.00	6.93	3.14	9.72	34.45	26.07	26.05
95.00	6.93	2.85	9.53	35.24	26.05	26.03
96.00	6.93	2.59	8.98	36.00	26.03	26.01
97.00	6.93	2.36	9.19	36.74	26.01	26.00
98.00	6.93	2.14	10.04	37.56	25.99	25.97
99.00	6.93	1.95	10.59	38.42	25.97	25.95
100.00	6.93	1.77	10.03	39.27	25.94	25.93
101.00	6.93	1.61	10.12	40.10	25.92	25.90
102.00	6.93	1.46	9.41	40.90	25.90	25.88
103.00	6.93	1.33	9.47	41.68	25.88	25.86
104.00	6.93	1.21	8.75	42.43	25.86	25.84
105.00	6.93	1.10	8.85	43.16	25.83	25.82
106.00	6.93	1.00	8.15	43.85	25.81	25.80
107.00	6.93	0.91	8.29	44.53	25.79	25.78
108.00	6.93	0.83	7.61	45.19	25.77	25.76
109.00	6.93	0.75	7.79	45.82	25.75	25.74
110.00	6.93	0.68	7.12	46.43	25.74	25.73
111.00	6.93	0.62	7.34	47.03	25.72	25.71
112.00	6.93	0.56	6.69	47.61	25.70	25.69
113.00	6.93	0.51	6.95	48.17	25.68	25.67

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
114.00	6.93	0.47	6.31	48.72	25.67	25.66
115.00	6.93	0.42	6.59	49.25	25.65	25.64
116.00	6.93	0.39	5.97	49.77	25.63	25.63
117.00	6.93	0.35	6.28	50.27	25.62	25.61
118.00	6.93	0.32	5.67	50.76	25.60	25.60
119.00	6.93	0.29	6.01	51.25	25.59	25.58
120.00	6.93	0.26	5.41	51.72	25.57	25.57
121.00	6.93	0.24	5.77	52.18	25.56	25.55
122.00	6.93	0.22	5.18	52.63	25.54	25.54
123.00	6.93	0.20	5.57	53.08	25.53	25.52
124.00	6.93	0.18	4.98	53.51	25.51	25.51
125.00	6.93	0.16	5.20	53.94	25.50	25.50
126.00	6.93	0.15	4.45	54.33	25.49	25.48
127.00	6.93	0.14	4.87	54.71	25.48	25.47
128.00	6.93	0.12	4.28	55.09	25.46	25.46
129.00	6.93	0.11	4.74	55.47	25.45	25.45
130.00	6.93	0.10	4.15	55.83	25.44	25.44
131.00	6.93	0.09	4.62	56.19	25.43	25.42
132.00	6.93	0.08	4.03	56.55	25.42	25.41
133.00	6.93	0.08	4.50	56.90	25.40	25.40
134.00	6.93	0.07	3.91	57.25	25.39	25.39
135.00	6.93	0.06	4.39	57.59	25.38	25.38
136.00	6.93	0.06	3.80	57.93	25.37	25.37
137.00	6.93	0.05	4.29	58.26	25.36	25.36
138.00	6.93	0.05	3.69	58.59	25.35	25.35
139.00	6.93	0.04	4.19	58.92	25.34	25.33
140.00	6.93	0.04	3.59	59.24	25.33	25.32
141.00	6.93	0.04	4.10	59.56	25.32	25.31
142.00	6.93	0.03	3.49	59.87	25.31	25.30
143.00	6.93	0.03	3.97	60.18	25.30	25.29
144.00	6.93	0.03	3.43	60.48	25.29	25.28
145.00	6.93	0.02	3.24	60.79	25.28	25.27
146.00	6.93	0.02	3.98	61.09	25.27	25.26
147.00	6.93	0.02	3.48	61.38	25.26	25.25
148.00	6.93	0.02	3.14	61.67	25.25	25.24
149.00	6.93	0.02	3.95	61.96	25.24	25.23
150.00	6.93	0.02	3.25	62.24	25.23	25.22
151.00	6.93	0.01	3.05	62.52	25.22	25.22
152.00	6.93	0.01	3.84	62.80	25.21	25.21
153.00	6.93	0.01	3.12	63.07	25.20	25.20
154.00	6.93	0.01	2.94	63.34	25.19	25.19
155.00	6.93	0.01	3.74	63.62	25.18	25.18
156.00	6.93	0.01	3.01	63.87	25.17	25.17
157.00	6.93	0.01	2.82	64.14	25.16	25.16
158.00	6.93	0.01	3.63	64.40	25.16	25.15
159.00	6.93	0.01	2.91	64.65	25.15	25.14
160.00	6.93	0.01	2.71	64.91	25.14	25.14
161.00	6.93	0.01	3.54	65.16	25.13	25.13
162.00	6.93	0.00	2.81	65.40	25.12	25.12
163.00	6.93	0.00	2.59	65.65	25.11	25.11
164.00	6.93	0.00	3.42	65.90	25.11	25.10
165.00	6.93	0.00	2.70	66.13	25.10	25.10
166.00	6.93	0.00	2.48	66.37	25.09	25.09
167.00	6.93	0.00	2.50	66.60	25.08	25.08
168.00	6.93	0.00	2.59	66.83	25.08	25.07
169.00	6.93	0.00	2.37	67.06	25.07	25.07
170.00	6.93	0.00	2.46	67.29	25.06	25.06
171.00	6.93	0.00	2.65	67.51	25.05	25.05
172.00	6.93	0.00	3.40	67.74	25.04	25.04
173.00	6.93	0.00	2.24	67.96	25.04	25.04
174.00	6.93	0.00	2.35	68.17	25.03	25.03
175.00	6.93	0.00	2.54	68.38	25.02	25.02
176.00	6.93	0.00	3.29	68.61	25.02	25.01
177.00	6.93	0.00	2.11	68.81	25.01	25.01
178.00	6.93	0.00	2.29	69.02	25.00	25.00
179.00	6.93	0.00	0.00	69.06	25.00	24.99
180.00	6.93	0.00	0.00	69.06	25.00	24.99
181.00	6.93	0.00	0.00	69.06	25.00	24.98
182.00	6.93	0.00	0.00	69.06	25.00	24.97
183.00	6.93	0.00	0.00	69.06	25.00	24.97

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
184.00	6.93	0.00	0.00	69.06	25.00	24.96
185.00	6.93	0.00	0.00	69.06	25.00	24.95
186.00	6.93	0.00	0.00	69.06	25.00	24.95
187.00	6.93	0.00	0.00	69.06	25.00	24.94
188.00	6.93	0.00	0.00	69.06	25.00	24.93
189.00	6.93	0.00	0.00	69.06	25.00	24.93
190.00	6.93	0.00	0.00	69.06	25.00	24.92
191.00	6.93	0.00	0.00	69.06	25.00	24.91
192.00	6.93	0.00	0.00	69.06	25.00	24.91
193.00	6.93	0.00	0.00	69.06	25.00	24.90
194.00	6.93	0.00	0.00	69.06	25.00	24.89
195.00	6.93	0.00	0.00	69.06	25.00	24.89
196.00	6.93	0.00	0.00	69.06	25.00	24.88
197.00	6.93	0.00	0.00	69.06	25.00	24.88
198.00	6.93	0.00	0.00	69.06	25.00	24.87
199.00	6.93	0.00	0.00	69.06	25.00	24.87
200.00	6.93	0.00	0.00	69.06	25.00	24.86
201.00	6.93	0.00	0.00	69.06	25.00	24.85
202.00	6.93	0.00	0.00	69.06	25.00	24.85
203.00	6.93	0.00	0.00	69.06	25.00	24.84
204.00	6.93	0.00	0.00	69.06	25.00	24.84
205.00	6.93	0.00	0.00	69.06	25.00	24.83
206.00	6.93	0.00	0.00	69.06	25.00	24.83
207.00	6.93	0.00	0.00	69.06	25.00	24.82
208.00	6.93	0.00	0.00	69.06	25.00	24.82
209.00	6.93	0.00	0.00	69.06	25.00	24.81
210.00	6.93	0.00	0.00	69.06	25.00	24.80
211.00	6.93	0.00	0.00	69.06	25.00	24.80
212.00	6.93	0.00	0.00	69.06	25.00	24.79
213.00	6.93	0.00	0.00	69.06	25.00	24.79
214.00	6.93	0.00	0.00	69.06	25.00	24.78
215.00	6.93	0.00	0.00	69.06	25.00	24.78
216.00	6.93	0.00	0.00	69.06	25.00	24.77
217.00	6.93	0.00	0.00	69.06	25.00	24.77
218.00	6.93	0.00	0.00	69.06	25.00	24.76
219.00	6.93	0.00	0.00	69.06	25.00	24.76
220.00	6.93	0.00	0.00	69.06	25.00	24.75
221.00	6.93	0.00	0.00	69.06	25.00	24.75
222.00	6.93	0.00	0.00	69.06	25.00	24.75
223.00	6.93	0.00	0.00	69.06	25.00	24.74
224.00	6.93	0.00	0.00	69.06	25.00	24.74
225.00	6.93	0.00	0.00	69.06	25.00	24.73
226.00	6.93	0.00	0.00	69.06	25.00	24.73
227.00	6.93	0.00	0.00	69.06	25.00	24.72
228.00	6.93	0.00	0.00	69.06	25.00	24.72
229.00	6.93	0.00	0.00	69.06	25.00	24.71
230.00	6.93	0.00	0.00	69.06	25.00	24.71
231.00	6.93	0.00	0.00	69.06	25.00	24.71
232.00	6.93	0.00	0.00	69.06	25.00	24.70
233.00	6.93	0.00	0.00	69.06	25.00	24.70
234.00	6.93	0.00	0.00	69.06	25.00	24.69
235.00	6.93	0.00	0.00	69.06	25.00	24.69
236.00	6.93	0.00	0.00	69.06	25.00	24.68
237.00	6.93	0.00	0.00	69.06	25.00	24.68
238.00	6.93	0.00	0.00	69.06	25.00	24.68
239.00	6.93	0.00	0.00	69.06	25.00	24.67
240.00	6.93	0.00	0.00	69.06	25.00	24.67
241.00	6.93	0.00	0.00	69.06	25.00	24.66
242.00	6.93	0.00	0.00	69.06	25.00	24.66
243.00	6.93	0.00	0.00	69.06	25.00	24.66
244.00	6.93	0.00	0.00	69.06	25.00	24.65
245.00	6.93	0.00	0.00	69.06	25.00	24.65
246.00	6.93	0.00	0.00	69.06	25.00	24.64
247.00	6.93	0.00	0.00	69.06	25.00	24.64
248.00	6.93	0.00	0.00	69.06	25.00	24.64
249.00	6.93	0.00	0.00	69.06	25.00	24.63
250.00	6.93	0.00	0.00	69.06	25.00	24.63
251.00	6.93	0.00	0.00	69.06	25.00	24.63
252.00	6.93	0.00	0.00	69.06	25.00	24.62
253.00	6.93	0.00	0.00	69.06	25.00	24.62

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
254.00	6.93	0.00	0.00	69.06	25.00	24.62
255.00	6.93	0.00	0.00	69.06	25.00	24.61
256.00	6.93	0.00	0.00	69.06	25.00	24.61
257.00	6.93	0.00	0.00	69.06	25.00	24.61
258.00	6.93	0.00	0.00	69.06	25.00	24.60
259.00	6.93	0.00	0.00	69.06	25.00	24.60
260.00	6.93	0.00	0.00	69.06	25.00	24.60
261.00	6.93	0.00	0.00	69.06	25.00	24.59
262.00	6.93	0.00	0.00	69.06	25.00	24.59
263.00	6.93	0.00	0.00	69.06	25.00	24.59
264.00	6.93	0.00	0.00	69.06	25.00	24.58
265.00	6.93	0.00	0.00	69.06	25.00	24.58
266.00	6.93	0.00	0.00	69.06	25.00	24.58
267.00	6.93	0.00	0.00	69.06	25.00	24.57
268.00	6.93	0.00	0.00	69.06	25.00	24.57
269.00	6.93	0.00	0.00	69.06	25.00	24.57
270.00	6.93	0.00	0.00	69.06	25.00	24.56
271.00	6.93	0.00	0.00	69.06	25.00	24.56
272.00	6.93	0.00	0.00	69.06	25.00	24.56
273.00	6.93	0.00	0.00	69.06	25.00	24.55
274.00	6.93	0.00	0.00	69.06	25.00	24.55
275.00	6.93	0.00	0.00	69.06	25.00	24.55
276.00	6.93	0.00	0.00	69.06	25.00	24.54
277.00	6.93	0.00	0.00	69.06	25.00	24.54
278.00	6.93	0.00	0.00	69.06	25.00	24.54
279.00	6.93	0.00	0.00	69.06	25.00	24.54
280.00	6.93	0.00	0.00	69.06	25.00	24.53
281.00	6.93	0.00	0.00	69.06	25.00	24.53
282.00	6.93	0.00	0.00	69.06	25.00	24.53
283.00	6.93	0.00	0.00	69.06	25.00	24.52
284.00	6.93	0.00	0.00	69.06	25.00	24.52
285.00	6.93	0.00	0.00	69.06	25.00	24.52
286.00	6.93	0.00	0.00	69.06	25.00	24.52
287.00	6.93	0.00	0.00	69.06	25.00	24.51
288.00	6.93	0.00	0.00	69.06	25.00	24.51
289.00	6.93	0.00	0.00	69.06	25.00	24.51
290.00	6.93	0.00	0.00	69.06	25.00	24.51
291.00	6.93	0.00	0.00	69.06	25.00	24.50
292.00	6.93	0.00	0.00	69.06	25.00	24.50
293.00	6.93	0.00	0.00	69.06	25.00	24.50
294.00	6.93	0.00	0.00	69.06	25.00	24.49
295.00	6.93	0.00	0.00	69.06	25.00	24.49
296.00	6.93	0.00	0.00	69.06	25.00	24.49
297.00	6.93	0.00	0.00	69.06	25.00	24.49
298.00	6.93	0.00	0.00	69.06	25.00	24.48
299.00	6.93	0.00	0.00	69.06	25.00	24.48
300.00	6.93	0.00	0.00	69.06	25.00	24.48
301.00	6.93	0.00	0.00	69.06	25.00	24.47
302.00	6.93	0.00	0.00	69.06	25.00	24.47
303.00	6.93	0.00	0.00	69.06	25.00	24.47
304.00	6.93	0.00	0.00	69.06	25.00	24.47
305.00	6.93	0.00	0.00	69.06	25.00	24.46
306.00	6.93	0.00	0.00	69.06	25.00	24.46
307.00	6.93	0.00	0.00	69.06	25.00	24.46
308.00	6.93	0.00	0.00	69.06	25.00	24.46
309.00	6.93	0.00	0.00	69.06	25.00	24.45
310.00	6.93	0.00	0.00	69.06	25.00	24.45
311.00	6.93	0.00	0.00	69.06	25.00	24.45
312.00	6.93	0.00	0.00	69.06	25.00	24.45
313.00	6.93	0.00	0.00	69.06	25.00	24.44
314.00	6.93	0.00	0.00	69.06	25.00	24.44
315.00	6.93	0.00	0.00	69.06	25.00	24.44
316.00	6.93	0.00	0.00	69.06	25.00	24.44
317.00	6.93	0.00	0.00	69.06	25.00	24.43
318.00	6.93	0.00	0.00	69.06	25.00	24.43
319.00	6.93	0.00	0.00	69.06	25.00	24.43
320.00	6.93	0.00	0.00	69.06	25.00	24.43
321.00	6.93	0.00	0.00	69.06	25.00	24.42
322.00	6.93	0.00	0.00	69.06	25.00	24.42
323.00	6.93	0.00	0.00	69.06	25.00	24.42

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
324.00	6.93	0.00	0.00	69.06	25.00	24.42
325.00	6.93	0.00	0.00	69.06	25.00	24.41
326.00	6.93	0.00	0.00	69.06	25.00	24.41
327.00	6.93	0.00	0.00	69.06	25.00	24.41
328.00	6.93	0.00	0.00	69.06	25.00	24.41
329.00	6.93	0.00	0.00	69.06	25.00	24.41
330.00	6.93	0.00	0.00	69.06	25.00	24.40
331.00	6.93	0.00	0.00	69.06	25.00	24.40
332.00	6.93	0.00	0.00	69.06	25.00	24.40
333.00	6.93	0.00	0.00	69.06	25.00	24.40
334.00	6.93	0.00	0.00	69.06	25.00	24.39
335.00	6.93	0.00	0.00	69.06	25.00	24.39
336.00	6.93	0.00	0.00	69.06	25.00	24.39
337.00	6.93	0.00	0.00	69.06	25.00	24.39
338.00	6.93	0.00	0.00	69.06	25.00	24.39
339.00	6.93	0.00	0.00	69.06	25.00	24.38
340.00	6.93	0.00	0.00	69.06	25.00	24.38
341.00	6.93	0.00	0.00	69.06	25.00	24.38
342.00	6.93	0.00	0.00	69.06	25.00	24.38
343.00	6.93	0.00	0.00	69.06	25.00	24.38
344.00	6.93	0.00	0.00	69.06	25.00	24.37
345.00	6.93	0.00	0.00	69.06	25.00	24.37
346.00	6.93	0.00	0.00	69.06	25.00	24.37
347.00	6.93	0.00	0.00	69.06	25.00	24.37
348.00	6.93	0.00	0.00	69.06	25.00	24.37
349.00	6.93	0.00	0.00	69.06	25.00	24.36
350.00	6.93	0.00	0.00	69.06	25.00	24.36
351.00	6.93	0.00	0.00	69.06	25.00	24.36
352.00	6.93	0.00	0.00	69.06	25.00	24.36
353.00	6.93	0.00	0.00	69.06	25.00	24.36
354.00	6.93	0.00	0.00	69.06	25.00	24.35
355.00	6.93	0.00	0.00	69.06	25.00	24.35
356.00	6.93	0.00	0.00	69.06	25.00	24.35
357.00	6.93	0.00	0.00	69.06	25.00	24.35
358.00	6.93	0.00	0.00	69.06	25.00	24.35
359.00	6.93	0.00	0.00	69.06	25.00	24.35
360.00	6.93	0.00	0.00	69.06	25.00	24.34

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	75.90	75.20	0.00	0.00
2	113.03	32.60	0.00	0.00
3	113.03	32.60	0.00	0.00
4	73.84	32.40	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
Basin 1	26.29	75.20	24.00	0.00
Basin 2	26.32	78.00	25.00	0.00
Basin 3	26.30	75.00	25.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
Basin 1	325.20	196.27	471.49	0.00	49.98	0.00
Basin 2	69.05	0.00	69.05	0.00	0.01	0.00
Basin 3	127.30	0.00	127.22	0.00	0.08	0.00

Project Name: Arrow_B_Modification

Reviewer: ABC

Project Number: 28-00119-S-03

Period Begin: Jan 01, 2000;0000 hr End: Jan 16, 2000;0000 hr Duration: 360 hr

Time Step: 0.2 hr, Iterations: 10

Basin 1: Basin 1

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 843.003 acres

Ground Storage: 2.5 inches

Time of Concentration: 5.6 hours

Initial Stage: 24 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
24.00	0.00
24.50	72.68
25.00	156.20
26.00	268.80
27.00	459.80
28.00	717.80

APPLICATION NUMBER

080714 - 9

OKS

ORIGINAL SUBMITTAL

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Basin 2: Basin 2

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 179 acres

Ground Storage: 2.5 inches

Time of Concentration: 10.5 hours

Initial Stage: 25 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
25.00	0.00
30.00	150.00
32.00	350.00

Basin 3: Basin 3

Method: Santa Barbara Unit Hydrograph

Rainfall Distribution: SFWMD - 3day

Design Frequency: 10 year

1 Day Rainfall: 5.1 inches

Area: 330 acres

Ground Storage: 2.5 inches

Time of Concentration: 4.8 hours

Initial Stage: 25 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
25.00	0.00
30.00	150.00
32.00	352.00

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	23.50
1000.00	23.50

Structure: 1

From Basin: Basin 1

To Basin: Offsite1

Structure Type: Gravity

Weir: Sharp Crested, Crest Elev = 25.5 ft NGVD, Length = 3.29167 ft

Bleeder: Rect-Notch, Invert Elev = 24 ft NGVD, Top Elev = 25.5 ft NGVD

Width = 3.29167 ft

Default Coefs: Weir Coef = 3.13, Orifice Coef = 0.6

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 80 ft

US Invert Elev = 20 ft NGVD, DS Invert Elev = 20 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	24.00	23.50
1.00	0.03	0.00	0.00	0.00	24.00	23.50
2.00	0.06	0.00	0.00	0.00	24.00	23.50
3.00	0.09	0.00	0.00	0.00	24.00	23.50
4.00	0.12	0.00	0.00	0.00	24.00	23.50
5.00	0.16	0.00	0.00	0.00	24.00	23.50
6.00	0.19	0.00	0.00	0.00	24.00	23.50
7.00	0.22	0.00	0.00	0.00	24.00	23.50
8.00	0.25	0.00	0.00	0.00	24.00	23.50
9.00	0.28	0.00	0.00	0.00	24.00	23.50
10.00	0.31	0.00	0.00	0.00	24.00	23.50
11.00	0.34	0.00	0.00	0.00	24.00	23.50
12.00	0.37	0.00	0.00	0.00	24.00	23.50
13.00	0.40	0.00	0.00	0.00	24.00	23.50
14.00	0.43	0.00	0.00	0.00	24.00	23.50
15.00	0.47	0.00	0.00	0.00	24.00	23.50
16.00	0.50	0.00	0.00	0.00	24.00	23.50
17.00	0.53	0.04	0.02	0.00	24.00	23.50
18.00	0.56	0.18	0.02	0.00	24.00	23.50
19.00	0.59	0.40	0.02	0.01	24.00	23.50
20.00	0.62	0.67	0.02	0.01	24.00	23.50
21.00	0.65	1.00	0.03	0.01	24.00	23.50
22.00	0.68	1.36	0.03	0.01	24.00	23.50
23.00	0.71	1.75	0.03	0.01	24.00	23.50
24.00	0.74	2.16	0.03	0.02	24.00	23.50
25.00	0.79	2.96	0.03	0.02	24.00	23.50
26.00	0.84	3.80	0.04	0.02	24.01	23.50
27.00	0.88	4.66	0.05	0.03	24.01	23.50
28.00	0.93	5.52	0.05	0.03	24.01	23.50
29.00	0.97	6.39	0.06	0.03	24.02	23.50
30.00	1.02	7.25	0.07	0.04	24.02	23.50
31.00	1.06	8.10	0.09	0.05	24.02	23.50
32.00	1.11	8.93	0.10	0.05	24.03	23.50
33.00	1.15	9.75	0.18	0.07	24.07	23.50
34.00	1.20	10.54	0.20	0.08	24.07	23.50
35.00	1.24	11.32	0.23	0.10	24.08	23.50
36.00	1.29	12.07	0.26	0.12	24.09	23.50
37.00	1.33	12.80	0.31	0.14	24.09	23.50
38.00	1.38	13.51	0.41	0.18	24.10	23.50
39.00	1.42	14.19	0.45	0.21	24.11	23.50
40.00	1.47	14.85	0.52	0.25	24.12	23.50
41.00	1.51	15.49	0.56	0.30	24.13	23.50
42.00	1.56	16.10	0.69	0.35	24.16	23.50
43.00	1.60	16.70	0.77	0.41	24.17	23.50
44.00	1.65	17.27	0.83	0.48	24.18	23.50
45.00	1.70	17.82	1.00	0.56	24.20	23.50
46.00	1.74	18.35	1.07	0.64	24.21	23.50
47.00	1.79	18.87	1.17	0.73	24.22	23.50
48.00	1.83	19.36	1.33	0.84	24.25	23.50
49.00	1.88	20.30	1.44	0.95	24.27	23.50
50.00	1.93	21.17	1.61	1.08	24.28	23.50
51.00	1.99	22.83	1.74	1.22	24.29	23.50
52.00	2.06	24.78	1.93	1.37	24.33	23.50
53.00	2.15	28.33	2.09	1.54	24.34	23.50
54.00	2.25	33.33	2.36	1.73	24.36	23.50
55.00	2.38	39.68	2.67	1.93	24.41	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
56.00	2.53	47.30	3.03	2.17	24.43	23.50
57.00	2.70	56.64	3.48	2.44	24.48	23.50
58.00	2.92	69.15	3.96	2.75	24.53	23.50
59.00	3.20	88.04	4.60	3.11	24.58	23.50
60.00	5.18	309.58	5.96	3.55	24.69	23.50
61.00	5.74	327.85	9.15	4.20	24.92	23.50
62.00	6.00	306.60	13.18	5.15	25.18	23.50
63.00	6.17	276.91	17.34	6.45	25.41	23.50
64.00	6.32	250.94	22.53	8.14	25.62	23.50
65.00	6.41	221.52	25.82	10.17	25.79	23.50
66.00	6.50	196.93	28.82	12.46	25.93	23.50
67.00	6.59	176.39	30.99	14.96	26.04	23.50
68.00	6.69	159.24	32.48	17.59	26.10	23.50
69.00	6.75	141.00	33.78	20.34	26.16	23.50
70.00	6.81	125.76	34.87	23.19	26.21	23.50
71.00	6.87	113.02	35.79	26.12	26.25	23.50
72.00	6.93	102.37	36.55	29.12	26.28	23.50
73.00	6.93	85.63	37.14	32.17	26.31	23.50
74.00	6.93	71.62	37.53	35.26	26.32	23.50
75.00	6.93	59.91	37.76	38.37	26.33	23.50
76.00	6.93	50.11	37.86	41.50	26.34	23.50
77.00	6.93	41.92	37.86	44.63	26.34	23.50
78.00	6.93	35.06	37.84	47.76	26.34	23.50
79.00	6.93	29.33	37.77	50.88	26.33	23.50
80.00	6.93	24.53	37.65	54.00	26.33	23.50
81.00	6.93	20.52	37.48	57.10	26.32	23.50
82.00	6.93	17.16	37.28	60.19	26.31	23.50
83.00	6.93	14.36	37.02	63.26	26.30	23.50
84.00	6.93	12.01	36.77	66.31	26.29	23.50
85.00	6.93	10.05	36.46	69.33	26.28	23.50
86.00	6.93	8.40	36.17	72.33	26.27	23.50
87.00	6.93	7.03	35.84	75.30	26.25	23.50
88.00	6.93	5.88	35.52	78.25	26.24	23.50
89.00	6.93	4.92	35.17	81.17	26.22	23.50
90.00	6.93	4.11	34.84	84.06	26.21	23.50
91.00	6.93	3.44	34.48	86.92	26.19	23.50
92.00	6.93	2.88	34.14	89.76	26.18	23.50
93.00	6.93	2.41	33.78	92.56	26.16	23.50
94.00	6.93	2.01	33.44	95.34	26.15	23.50
95.00	6.93	1.68	33.08	98.08	26.13	23.50
96.00	6.93	1.41	32.75	100.80	26.11	23.50
97.00	6.93	1.18	32.39	103.49	26.10	23.50
98.00	6.93	0.99	32.06	106.15	26.08	23.50
99.00	6.93	0.82	31.71	108.78	26.07	23.50
100.00	6.93	0.69	31.39	111.39	26.05	23.50
101.00	6.93	0.58	31.05	113.97	26.04	23.50
102.00	6.93	0.48	30.73	116.52	26.02	23.50
103.00	6.93	0.40	30.40	119.04	26.01	23.50
104.00	6.93	0.34	30.02	121.53	25.99	23.50
105.00	6.93	0.28	29.53	123.99	25.97	23.50
106.00	6.93	0.24	29.11	126.41	25.95	23.50
107.00	6.93	0.20	28.66	128.79	25.93	23.50
108.00	6.93	0.17	28.26	131.14	25.91	23.50
109.00	6.93	0.14	27.83	133.46	25.89	23.50
110.00	6.93	0.12	27.45	135.74	25.87	23.50
111.00	6.93	0.10	27.04	137.99	25.85	23.50
112.00	6.93	0.08	26.68	140.20	25.83	23.50
113.00	6.93	0.07	26.28	142.39	25.81	23.50
114.00	6.93	0.06	25.94	144.55	25.79	23.50
115.00	6.93	0.05	25.57	146.67	25.78	23.50
116.00	6.93	0.04	25.24	148.77	25.76	23.50
117.00	6.93	0.03	24.88	150.84	25.74	23.50
118.00	6.93	0.03	24.57	152.88	25.72	23.50
119.00	6.93	0.02	24.23	154.89	25.71	23.50
120.00	6.93	0.02	23.93	156.88	25.69	23.50
121.00	6.93	0.02	23.61	158.84	25.67	23.50
122.00	6.93	0.01	23.33	160.78	25.66	23.50
123.00	6.93	0.01	23.02	162.69	25.64	23.50
124.00	6.93	0.01	22.75	164.58	25.63	23.50
125.00	6.93	0.01	22.46	166.45	25.61	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
126.00	6.93	0.01	22.21	168.29	25.60	23.50
127.00	6.93	0.01	21.93	170.11	25.58	23.50
128.00	6.93	0.00	21.69	171.91	25.57	23.50
129.00	6.93	0.00	21.43	173.69	25.55	23.50
130.00	6.93	0.00	21.21	175.45	25.54	23.50
131.00	6.93	0.00	20.97	177.20	25.52	23.50
132.00	6.93	0.00	20.76	178.92	25.51	23.50
133.00	6.93	0.00	18.88	180.60	25.50	23.50
134.00	6.93	0.00	18.66	182.15	25.49	23.50
135.00	6.93	0.00	18.43	183.68	25.47	23.50
136.00	6.93	0.00	18.19	185.19	25.46	23.50
137.00	6.93	0.00	17.97	186.68	25.45	23.50
138.00	6.93	0.00	17.74	188.15	25.44	23.50
139.00	6.93	0.00	17.53	189.61	25.43	23.50
140.00	6.93	0.00	17.31	191.05	25.41	23.50
141.00	6.93	0.00	17.11	192.47	25.40	23.50
142.00	6.93	0.00	16.90	193.87	25.39	23.50
143.00	6.93	0.00	16.69	195.26	25.38	23.50
144.00	6.93	0.00	16.50	196.63	25.37	23.50
145.00	6.93	0.00	16.28	197.98	25.36	23.50
146.00	6.93	0.00	16.10	199.32	25.35	23.50
147.00	6.93	0.00	15.92	200.64	25.34	23.50
148.00	6.93	0.00	15.71	201.95	25.33	23.50
149.00	6.93	0.00	15.54	203.24	25.31	23.50
150.00	6.93	0.00	15.36	204.51	25.31	23.50
151.00	6.93	0.00	15.16	205.77	25.29	23.50
152.00	6.93	0.00	15.00	207.02	25.28	23.50
153.00	6.93	0.00	14.83	208.25	25.28	23.50
154.00	6.93	0.00	14.64	209.46	25.26	23.50
155.00	6.93	0.00	14.48	210.67	25.25	23.50
156.00	6.93	0.00	14.33	211.86	25.25	23.50
157.00	6.93	0.00	14.14	213.03	25.24	23.50
158.00	6.93	0.00	13.99	214.19	25.23	23.50
159.00	6.93	0.00	13.84	215.34	25.22	23.50
160.00	6.93	0.00	13.67	216.48	25.21	23.50
161.00	6.93	0.00	13.52	217.60	25.20	23.50
162.00	6.93	0.00	13.38	218.71	25.19	23.50
163.00	6.93	0.00	13.21	219.81	25.18	23.50
164.00	6.93	0.00	13.07	220.89	25.17	23.50
165.00	6.93	0.00	12.94	221.97	25.16	23.50
166.00	6.93	0.00	12.78	223.03	25.16	23.50
167.00	6.93	0.00	12.65	224.08	25.15	23.50
168.00	6.93	0.00	12.51	225.12	25.14	23.50
169.00	6.93	0.00	12.36	226.14	25.13	23.50
170.00	6.93	0.00	12.23	227.16	25.12	23.50
171.00	6.93	0.00	12.11	228.17	25.11	23.50
172.00	6.93	0.00	11.96	229.16	25.11	23.50
173.00	6.93	0.00	11.84	230.14	25.10	23.50
174.00	6.93	0.00	11.72	231.11	25.09	23.50
175.00	6.93	0.00	11.58	232.08	25.08	23.50
176.00	6.93	0.00	11.47	233.03	25.07	23.50
177.00	6.93	0.00	11.35	233.97	25.07	23.50
178.00	6.93	0.00	11.22	234.90	25.06	23.50
179.00	6.93	0.00	11.11	235.82	25.05	23.50
180.00	6.93	0.00	10.99	236.74	25.04	23.50
181.00	6.93	0.00	10.87	237.64	25.04	23.50
182.00	6.93	0.00	10.76	238.53	25.03	23.50
183.00	6.93	0.00	10.66	239.42	25.02	23.50
184.00	6.93	0.00	10.53	240.29	25.02	23.50
185.00	6.93	0.00	10.42	241.16	25.01	23.50
186.00	6.93	0.00	10.32	242.01	25.00	23.50
187.00	6.93	0.00	10.22	242.86	24.99	23.50
188.00	6.93	0.00	10.12	243.70	24.99	23.50
189.00	6.93	0.00	10.01	244.53	24.98	23.50
190.00	6.93	0.00	9.91	245.35	24.97	23.50
191.00	6.93	0.00	9.81	246.17	24.97	23.50
192.00	6.93	0.00	9.71	246.97	24.96	23.50
193.00	6.93	0.00	9.61	247.77	24.95	23.50
194.00	6.93	0.00	9.51	248.56	24.95	23.50
195.00	6.93	0.00	9.41	249.34	24.94	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
196.00	6.93	0.00	9.31	250.11	24.93	23.50
197.00	6.93	0.00	9.22	250.88	24.93	23.50
198.00	6.93	0.00	9.12	251.64	24.92	23.50
199.00	6.93	0.00	9.03	252.38	24.91	23.50
200.00	6.93	0.00	8.94	253.13	24.91	23.50
201.00	6.93	0.00	8.85	253.86	24.90	23.50
202.00	6.93	0.00	8.76	254.59	24.90	23.50
203.00	6.93	0.00	8.67	255.31	24.89	23.50
204.00	6.93	0.00	8.59	256.02	24.88	23.50
205.00	6.93	0.00	8.50	256.73	24.88	23.50
206.00	6.93	0.00	8.42	257.43	24.87	23.50
207.00	6.93	0.00	8.34	258.12	24.87	23.50
208.00	6.93	0.00	8.25	258.80	24.86	23.50
209.00	6.93	0.00	8.17	259.48	24.86	23.50
210.00	6.93	0.00	8.09	260.15	24.85	23.50
211.00	6.93	0.00	8.01	260.82	24.84	23.50
212.00	6.93	0.00	7.94	261.48	24.84	23.50
213.00	6.93	0.00	7.86	262.13	24.83	23.50
214.00	6.93	0.00	7.78	262.77	24.83	23.50
215.00	6.93	0.00	7.71	263.41	24.82	23.50
216.00	6.93	0.00	7.63	264.05	24.82	23.50
217.00	6.93	0.00	7.56	264.67	24.81	23.50
218.00	6.93	0.00	7.49	265.29	24.81	23.50
219.00	6.93	0.00	7.42	265.91	24.80	23.50
220.00	6.93	0.00	7.35	266.52	24.80	23.50
221.00	6.93	0.00	7.28	267.12	24.79	23.50
222.00	6.93	0.00	7.21	267.72	24.79	23.50
223.00	6.93	0.00	7.14	268.31	24.78	23.50
224.00	6.93	0.00	7.07	268.90	24.78	23.50
225.00	6.93	0.00	7.01	269.48	24.77	23.50
226.00	6.93	0.00	6.94	270.06	24.77	23.50
227.00	6.93	0.00	6.88	270.63	24.76	23.50
228.00	6.93	0.00	6.82	271.20	24.76	23.50
229.00	6.93	0.00	6.75	271.76	24.75	23.50
230.00	6.93	0.00	6.69	272.31	24.75	23.50
231.00	6.93	0.00	6.63	272.86	24.74	23.50
232.00	6.93	0.00	6.57	273.41	24.74	23.50
233.00	6.93	0.00	6.51	273.95	24.73	23.50
234.00	6.93	0.00	6.45	274.48	24.73	23.50
235.00	6.93	0.00	6.39	275.01	24.73	23.50
236.00	6.93	0.00	6.33	275.54	24.72	23.50
237.00	6.93	0.00	6.28	276.06	24.72	23.50
238.00	6.93	0.00	6.22	276.57	24.71	23.50
239.00	6.93	0.00	6.16	277.08	24.71	23.50
240.00	6.93	0.00	6.11	277.59	24.70	23.50
241.00	6.93	0.00	6.06	278.09	24.70	23.50
242.00	6.93	0.00	6.00	278.59	24.70	23.50
243.00	6.93	0.00	5.95	279.08	24.69	23.50
244.00	6.93	0.00	5.90	279.57	24.69	23.50
245.00	6.93	0.00	5.84	280.06	24.68	23.50
246.00	6.93	0.00	5.79	280.54	24.68	23.50
247.00	6.93	0.00	5.74	281.02	24.68	23.50
248.00	6.93	0.00	5.69	281.49	24.67	23.50
249.00	6.93	0.00	5.64	281.96	24.67	23.50
250.00	6.93	0.00	5.59	282.42	24.66	23.50
251.00	6.93	0.00	5.55	282.88	24.66	23.50
252.00	6.93	0.00	5.50	283.34	24.66	23.50
253.00	6.93	0.00	5.45	283.79	24.65	23.50
254.00	6.93	0.00	5.40	284.24	24.65	23.50
255.00	6.93	0.00	5.36	284.68	24.64	23.50
256.00	6.93	0.00	5.31	285.12	24.64	23.50
257.00	6.93	0.00	5.27	285.56	24.64	23.50
258.00	6.93	0.00	5.22	285.99	24.63	23.50
259.00	6.93	0.00	5.18	286.42	24.63	23.50
260.00	6.93	0.00	5.14	286.85	24.63	23.50
261.00	6.93	0.00	5.09	287.27	24.62	23.50
262.00	6.93	0.00	5.05	287.69	24.62	23.50
263.00	6.93	0.00	5.01	288.10	24.62	23.50
264.00	6.93	0.00	4.97	288.51	24.61	23.50
265.00	6.93	0.00	4.92	288.92	24.61	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
266.00	6.93	0.00	4.88	289.33	24.61	23.50
267.00	6.93	0.00	4.84	289.73	24.60	23.50
268.00	6.93	0.00	4.80	290.13	24.60	23.50
269.00	6.93	0.00	4.76	290.52	24.60	23.50
270.00	6.93	0.00	4.72	290.91	24.59	23.50
271.00	6.93	0.00	4.69	291.30	24.59	23.50
272.00	6.93	0.00	4.65	291.69	24.59	23.50
273.00	6.93	0.00	4.61	292.07	24.58	23.50
274.00	6.93	0.00	4.57	292.45	24.58	23.50
275.00	6.93	0.00	4.54	292.83	24.58	23.50
276.00	6.93	0.00	4.50	293.20	24.57	23.50
277.00	6.93	0.00	4.46	293.57	24.57	23.50
278.00	6.93	0.00	4.43	293.94	24.57	23.50
279.00	6.93	0.00	4.39	294.30	24.56	23.50
280.00	6.93	0.00	4.36	294.66	24.56	23.50
281.00	6.93	0.00	4.32	295.02	24.56	23.50
282.00	6.93	0.00	4.29	295.38	24.55	23.50
283.00	6.93	0.00	4.25	295.73	24.55	23.50
284.00	6.93	0.00	4.22	296.08	24.55	23.50
285.00	6.93	0.00	4.19	296.43	24.55	23.50
286.00	6.93	0.00	4.15	296.77	24.54	23.50
287.00	6.93	0.00	4.12	297.11	24.54	23.50
288.00	6.93	0.00	4.09	297.45	24.54	23.50
289.00	6.93	0.00	4.06	297.79	24.53	23.50
290.00	6.93	0.00	4.03	298.12	24.53	23.50
291.00	6.93	0.00	3.99	298.45	24.53	23.50
292.00	6.93	0.00	3.96	298.78	24.53	23.50
293.00	6.93	0.00	3.93	299.11	24.52	23.50
294.00	6.93	0.00	3.90	299.43	24.52	23.50
295.00	6.93	0.00	3.87	299.75	24.52	23.50
296.00	6.93	0.00	3.84	300.07	24.52	23.50
297.00	6.93	0.00	3.81	300.39	24.51	23.50
298.00	6.93	0.00	3.79	300.70	24.51	23.50
299.00	6.93	0.00	3.76	301.01	24.51	23.50
300.00	6.93	0.00	3.73	301.32	24.51	23.50
301.00	6.93	0.00	3.70	301.63	24.50	23.50
302.00	6.93	0.00	3.67	301.93	24.50	23.50
303.00	6.93	0.00	3.64	302.23	24.50	23.50
304.00	6.93	0.00	3.61	302.53	24.49	23.50
305.00	6.93	0.00	3.58	302.83	24.49	23.50
306.00	6.93	0.00	3.55	303.13	24.49	23.50
307.00	6.93	0.00	3.52	303.42	24.49	23.50
308.00	6.93	0.00	3.49	303.71	24.48	23.50
309.00	6.93	0.00	3.46	303.99	24.48	23.50
310.00	6.93	0.00	3.43	304.28	24.48	23.50
311.00	6.93	0.00	3.40	304.56	24.47	23.50
312.00	6.93	0.00	3.37	304.84	24.47	23.50
313.00	6.93	0.00	3.35	305.12	24.47	23.50
314.00	6.93	0.00	3.32	305.39	24.47	23.50
315.00	6.93	0.00	3.29	305.67	24.46	23.50
316.00	6.93	0.00	3.26	305.94	24.46	23.50
317.00	6.93	0.00	3.24	306.21	24.46	23.50
318.00	6.93	0.00	3.21	306.47	24.46	23.50
319.00	6.93	0.00	3.18	306.74	24.45	23.50
320.00	6.93	0.00	3.16	307.00	24.45	23.50
321.00	6.93	0.00	3.13	307.26	24.45	23.50
322.00	6.93	0.00	3.11	307.52	24.45	23.50
323.00	6.93	0.00	3.08	307.77	24.44	23.50
324.00	6.93	0.00	3.05	308.02	24.44	23.50
325.00	6.93	0.00	3.03	308.28	24.44	23.50
326.00	6.93	0.00	3.01	308.52	24.44	23.50
327.00	6.93	0.00	2.98	308.77	24.43	23.50
328.00	6.93	0.00	2.96	309.02	24.43	23.50
329.00	6.93	0.00	2.93	309.26	24.43	23.50
330.00	6.93	0.00	2.91	309.50	24.43	23.50
331.00	6.93	0.00	2.89	309.74	24.42	23.50
332.00	6.93	0.00	2.86	309.98	24.42	23.50
333.00	6.93	0.00	2.84	310.21	24.42	23.50
334.00	6.93	0.00	2.82	310.45	24.42	23.50
335.00	6.93	0.00	2.80	310.68	24.42	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
336.00	6.93	0.00	2.77	310.91	24.41	23.50
337.00	6.93	0.00	2.75	311.14	24.41	23.50
338.00	6.93	0.00	2.73	311.36	24.41	23.50
339.00	6.93	0.00	2.71	311.59	24.41	23.50
340.00	6.93	0.00	2.69	311.81	24.40	23.50
341.00	6.93	0.00	2.67	312.03	24.40	23.50
342.00	6.93	0.00	2.65	312.25	24.40	23.50
343.00	6.93	0.00	2.63	312.47	24.40	23.50
344.00	6.93	0.00	2.61	312.69	24.40	23.50
345.00	6.93	0.00	2.59	312.90	24.39	23.50
346.00	6.93	0.00	2.57	313.11	24.39	23.50
347.00	6.93	0.00	2.55	313.32	24.39	23.50
348.00	6.93	0.00	2.53	313.53	24.39	23.50
349.00	6.93	0.00	2.51	313.74	24.39	23.50
350.00	6.93	0.00	2.49	313.95	24.38	23.50
351.00	6.93	0.00	2.47	314.15	24.38	23.50
352.00	6.93	0.00	2.45	314.36	24.38	23.50
353.00	6.93	0.00	2.43	314.56	24.38	23.50
354.00	6.93	0.00	2.41	314.76	24.38	23.50
355.00	6.93	0.00	2.40	314.96	24.37	23.50
356.00	6.93	0.00	2.38	315.15	24.37	23.50
357.00	6.93	0.00	2.36	315.35	24.37	23.50
358.00	6.93	0.00	2.34	315.54	24.37	23.50
359.00	6.93	0.00	2.33	315.74	24.37	23.50
360.00	6.93	0.00	2.31	315.93	24.37	23.50

Structure: 2

From Basin: Basin 1

To Basin: Offsite1

Structure Type: Gravity

Weir: Sharp Crested, Crest Elev = 25.5 ft NGVD, Length = 5.275 ft

Bleeder: Rect-Notch, Invert Elev = 24 ft NGVD, Top Elev = 25.5 ft NGVD

Width = 1.30833 ft

Default Coefs: Weir Coef = 3.13, Orifice Coef = 0.6

Pipe: None

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	24.00	23.50
1.00	0.03	0.00	0.00	0.00	24.00	23.50
2.00	0.06	0.00	0.00	0.00	24.00	23.50
3.00	0.09	0.00	0.00	0.00	24.00	23.50
4.00	0.12	0.00	0.00	0.00	24.00	23.50
5.00	0.16	0.00	0.00	0.00	24.00	23.50
6.00	0.19	0.00	0.00	0.00	24.00	23.50
7.00	0.22	0.00	0.00	0.00	24.00	23.50
8.00	0.25	0.00	0.00	0.00	24.00	23.50
9.00	0.28	0.00	0.00	0.00	24.00	23.50
10.00	0.31	0.00	0.00	0.00	24.00	23.50
11.00	0.34	0.00	0.00	0.00	24.00	23.50
12.00	0.37	0.00	0.00	0.00	24.00	23.50
13.00	0.40	0.00	0.00	0.00	24.00	23.50
14.00	0.43	0.00	0.00	0.00	24.00	23.50
15.00	0.47	0.00	0.00	0.00	24.00	23.50
16.00	0.50	0.00	0.00	0.00	24.00	23.50
17.00	0.53	0.04	0.01	0.00	24.00	23.50
18.00	0.56	0.18	0.01	0.00	24.00	23.50
19.00	0.59	0.40	0.01	0.00	24.00	23.50
20.00	0.62	0.67	0.01	0.00	24.00	23.50
21.00	0.65	1.00	0.01	0.00	24.00	23.50
22.00	0.68	1.36	0.01	0.00	24.00	23.50
23.00	0.71	1.75	0.01	0.01	24.00	23.50
24.00	0.74	2.16	0.01	0.01	24.00	23.50
25.00	0.79	2.96	0.01	0.01	24.00	23.50
26.00	0.84	3.80	0.02	0.01	24.01	23.50
27.00	0.88	4.66	0.02	0.01	24.01	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
28.00	0.93	5.52	0.02	0.01	24.01	23.50
29.00	0.97	6.39	0.02	0.01	24.02	23.50
30.00	1.02	7.25	0.03	0.02	24.02	23.50
31.00	1.06	8.10	0.03	0.02	24.02	23.50
32.00	1.11	8.93	0.04	0.02	24.03	23.50
33.00	1.15	9.75	0.07	0.03	24.07	23.50
34.00	1.20	10.54	0.08	0.03	24.07	23.50
35.00	1.24	11.32	0.09	0.04	24.08	23.50
36.00	1.29	12.07	0.10	0.05	24.09	23.50
37.00	1.33	12.80	0.12	0.06	24.09	23.50
38.00	1.38	13.51	0.16	0.07	24.10	23.50
39.00	1.42	14.19	0.18	0.08	24.11	23.50
40.00	1.47	14.85	0.21	0.10	24.12	23.50
41.00	1.51	15.49	0.22	0.12	24.13	23.50
42.00	1.56	16.10	0.27	0.14	24.16	23.50
43.00	1.60	16.70	0.30	0.16	24.17	23.50
44.00	1.65	17.27	0.33	0.19	24.18	23.50
45.00	1.70	17.82	0.40	0.22	24.20	23.50
46.00	1.74	18.35	0.42	0.26	24.21	23.50
47.00	1.79	18.87	0.46	0.29	24.22	23.50
48.00	1.83	19.36	0.53	0.33	24.25	23.50
49.00	1.88	20.30	0.57	0.38	24.27	23.50
50.00	1.93	21.17	0.64	0.43	24.28	23.50
51.00	1.99	22.83	0.69	0.49	24.29	23.50
52.00	2.06	24.78	0.77	0.55	24.33	23.50
53.00	2.15	28.33	0.83	0.61	24.34	23.50
54.00	2.25	33.33	0.94	0.69	24.36	23.50
55.00	2.38	39.68	1.06	0.77	24.41	23.50
56.00	2.53	47.30	1.21	0.86	24.43	23.50
57.00	2.70	56.64	1.38	0.97	24.48	23.50
58.00	2.92	69.15	1.57	1.09	24.53	23.50
59.00	3.20	88.04	1.83	1.24	24.58	23.50
60.00	5.18	309.58	2.37	1.41	24.69	23.50
61.00	5.74	327.85	3.64	1.67	24.92	23.50
62.00	6.00	306.60	5.24	2.05	25.18	23.50
63.00	6.17	276.91	6.89	2.56	25.41	23.50
64.00	6.32	250.94	9.45	3.25	25.62	23.50
65.00	6.41	221.52	12.19	4.17	25.79	23.50
66.00	6.50	196.93	15.00	5.31	25.93	23.50
67.00	6.59	176.39	17.18	6.67	26.04	23.50
68.00	6.69	159.24	18.72	8.17	26.10	23.50
69.00	6.75	141.00	20.10	9.79	26.16	23.50
70.00	6.81	125.76	21.27	11.51	26.21	23.50
71.00	6.87	113.02	22.27	13.32	26.25	23.50
72.00	6.93	102.37	23.11	15.20	26.28	23.50
73.00	6.93	85.63	23.77	17.15	26.31	23.50
74.00	6.93	71.62	24.21	19.13	26.32	23.50
75.00	6.93	59.91	24.46	21.15	26.33	23.50
76.00	6.93	50.11	24.57	23.18	26.34	23.50
77.00	6.93	41.92	24.57	25.21	26.34	23.50
78.00	6.93	35.06	24.55	27.24	26.34	23.50
79.00	6.93	29.33	24.47	29.26	26.33	23.50
80.00	6.93	24.53	24.33	31.28	26.33	23.50
81.00	6.93	20.52	24.14	33.28	26.32	23.50
82.00	6.93	17.16	23.92	35.26	26.31	23.50
83.00	6.93	14.36	23.63	37.23	26.30	23.50
84.00	6.93	12.01	23.35	39.17	26.29	23.50
85.00	6.93	10.05	23.02	41.08	26.28	23.50
86.00	6.93	8.40	22.70	42.97	26.27	23.50
87.00	6.93	7.03	22.33	44.83	26.25	23.50
88.00	6.93	5.88	21.98	46.65	26.24	23.50
89.00	6.93	4.92	21.60	48.45	26.22	23.50
90.00	6.93	4.11	21.24	50.22	26.21	23.50
91.00	6.93	3.44	20.85	51.96	26.19	23.50
92.00	6.93	2.88	20.49	53.66	26.18	23.50
93.00	6.93	2.41	20.10	55.34	26.16	23.50
94.00	6.93	2.01	19.74	56.98	26.15	23.50
95.00	6.93	1.68	19.36	58.59	26.13	23.50
96.00	6.93	1.41	19.01	60.18	26.11	23.50
97.00	6.93	1.18	18.63	61.73	26.10	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
98.00	6.93	0.99	18.29	63.25	26.08	23.50
99.00	6.93	0.82	17.92	64.75	26.07	23.50
100.00	6.93	0.69	17.59	66.21	26.05	23.50
101.00	6.93	0.58	17.24	67.65	26.04	23.50
102.00	6.93	0.48	16.91	69.06	26.02	23.50
103.00	6.93	0.40	16.58	70.44	26.01	23.50
104.00	6.93	0.34	16.20	71.79	25.99	23.50
105.00	6.93	0.28	15.71	73.10	25.97	23.50
106.00	6.93	0.24	15.30	74.38	25.95	23.50
107.00	6.93	0.20	14.85	75.62	25.93	23.50
108.00	6.93	0.17	14.46	76.83	25.91	23.50
109.00	6.93	0.14	14.05	78.01	25.89	23.50
110.00	6.93	0.12	13.69	79.15	25.87	23.50
111.00	6.93	0.10	13.30	80.26	25.85	23.50
112.00	6.93	0.08	12.97	81.34	25.83	23.50
113.00	6.93	0.07	12.60	82.40	25.81	23.50
114.00	6.93	0.06	12.29	83.42	25.79	23.50
115.00	6.93	0.05	11.96	84.42	25.78	23.50
116.00	6.93	0.04	11.67	85.40	25.76	23.50
117.00	6.93	0.03	11.36	86.35	25.74	23.50
118.00	6.93	0.03	11.09	87.27	25.72	23.50
119.00	6.93	0.02	10.80	88.17	25.71	23.50
120.00	6.93	0.02	10.55	89.05	25.69	23.50
121.00	6.93	0.02	10.29	89.91	25.67	23.50
122.00	6.93	0.01	10.06	90.75	25.66	23.50
123.00	6.93	0.01	9.82	91.57	25.64	23.50
124.00	6.93	0.01	9.61	92.37	25.63	23.50
125.00	6.93	0.01	9.39	93.16	25.61	23.50
126.00	6.93	0.01	9.21	93.92	25.60	23.50
127.00	6.93	0.01	9.01	94.68	25.58	23.50
128.00	6.93	0.00	8.84	95.41	25.57	23.50
129.00	6.93	0.00	8.67	96.13	25.55	23.50
130.00	6.93	0.00	8.53	96.84	25.54	23.50
131.00	6.93	0.00	8.38	97.54	25.52	23.50
132.00	6.93	0.00	8.27	98.23	25.51	23.50
133.00	6.93	0.00	7.50	98.90	25.50	23.50
134.00	6.93	0.00	7.42	99.51	25.49	23.50
135.00	6.93	0.00	7.33	100.12	25.47	23.50
136.00	6.93	0.00	7.23	100.72	25.46	23.50
137.00	6.93	0.00	7.14	101.31	25.45	23.50
138.00	6.93	0.00	7.05	101.90	25.44	23.50
139.00	6.93	0.00	6.97	102.48	25.43	23.50
140.00	6.93	0.00	6.88	103.05	25.41	23.50
141.00	6.93	0.00	6.80	103.62	25.40	23.50
142.00	6.93	0.00	6.72	104.17	25.39	23.50
143.00	6.93	0.00	6.63	104.72	25.38	23.50
144.00	6.93	0.00	6.56	105.27	25.37	23.50
145.00	6.93	0.00	6.47	105.81	25.36	23.50
146.00	6.93	0.00	6.40	106.34	25.35	23.50
147.00	6.93	0.00	6.33	106.86	25.34	23.50
148.00	6.93	0.00	6.24	107.38	25.33	23.50
149.00	6.93	0.00	6.18	107.90	25.31	23.50
150.00	6.93	0.00	6.11	108.40	25.31	23.50
151.00	6.93	0.00	6.03	108.90	25.29	23.50
152.00	6.93	0.00	5.96	109.40	25.28	23.50
153.00	6.93	0.00	5.90	109.89	25.28	23.50
154.00	6.93	0.00	5.82	110.37	25.26	23.50
155.00	6.93	0.00	5.76	110.85	25.25	23.50
156.00	6.93	0.00	5.69	111.32	25.25	23.50
157.00	6.93	0.00	5.62	111.79	25.24	23.50
158.00	6.93	0.00	5.56	112.25	25.23	23.50
159.00	6.93	0.00	5.50	112.71	25.22	23.50
160.00	6.93	0.00	5.43	113.16	25.21	23.50
161.00	6.93	0.00	5.37	113.60	25.20	23.50
162.00	6.93	0.00	5.32	114.05	25.19	23.50
163.00	6.93	0.00	5.25	114.48	25.18	23.50
164.00	6.93	0.00	5.20	114.91	25.17	23.50
165.00	6.93	0.00	5.14	115.34	25.16	23.50
166.00	6.93	0.00	5.08	115.76	25.16	23.50
167.00	6.93	0.00	5.03	116.18	25.15	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
168.00	6.93	0.00	4.97	116.59	25.14	23.50
169.00	6.93	0.00	4.91	117.00	25.13	23.50
170.00	6.93	0.00	4.86	117.40	25.12	23.50
171.00	6.93	0.00	4.81	117.80	25.11	23.50
172.00	6.93	0.00	4.76	118.20	25.11	23.50
173.00	6.93	0.00	4.71	118.59	25.10	23.50
174.00	6.93	0.00	4.66	118.98	25.09	23.50
175.00	6.93	0.00	4.60	119.36	25.08	23.50
176.00	6.93	0.00	4.56	119.74	25.07	23.50
177.00	6.93	0.00	4.51	120.11	25.07	23.50
178.00	6.93	0.00	4.46	120.48	25.06	23.50
179.00	6.93	0.00	4.41	120.85	25.05	23.50
180.00	6.93	0.00	4.37	121.21	25.04	23.50
181.00	6.93	0.00	4.32	121.57	25.04	23.50
182.00	6.93	0.00	4.28	121.92	25.03	23.50
183.00	6.93	0.00	4.24	122.27	25.02	23.50
184.00	6.93	0.00	4.18	122.62	25.02	23.50
185.00	6.93	0.00	4.14	122.97	25.01	23.50
186.00	6.93	0.00	4.10	123.31	25.00	23.50
187.00	6.93	0.00	4.06	123.64	24.99	23.50
188.00	6.93	0.00	4.02	123.98	24.99	23.50
189.00	6.93	0.00	3.98	124.31	24.98	23.50
190.00	6.93	0.00	3.94	124.64	24.97	23.50
191.00	6.93	0.00	3.90	124.96	24.97	23.50
192.00	6.93	0.00	3.86	125.28	24.96	23.50
193.00	6.93	0.00	3.82	125.60	24.95	23.50
194.00	6.93	0.00	3.78	125.91	24.95	23.50
195.00	6.93	0.00	3.74	126.22	24.94	23.50
196.00	6.93	0.00	3.70	126.53	24.93	23.50
197.00	6.93	0.00	3.66	126.83	24.93	23.50
198.00	6.93	0.00	3.63	127.13	24.92	23.50
199.00	6.93	0.00	3.59	127.43	24.91	23.50
200.00	6.93	0.00	3.55	127.72	24.91	23.50
201.00	6.93	0.00	3.52	128.02	24.90	23.50
202.00	6.93	0.00	3.48	128.31	24.90	23.50
203.00	6.93	0.00	3.45	128.59	24.89	23.50
204.00	6.93	0.00	3.41	128.88	24.88	23.50
205.00	6.93	0.00	3.38	129.16	24.88	23.50
206.00	6.93	0.00	3.35	129.43	24.87	23.50
207.00	6.93	0.00	3.31	129.71	24.87	23.50
208.00	6.93	0.00	3.28	129.98	24.86	23.50
209.00	6.93	0.00	3.25	130.25	24.86	23.50
210.00	6.93	0.00	3.22	130.52	24.85	23.50
211.00	6.93	0.00	3.19	130.78	24.84	23.50
212.00	6.93	0.00	3.15	131.04	24.84	23.50
213.00	6.93	0.00	3.12	131.30	24.83	23.50
214.00	6.93	0.00	3.09	131.56	24.83	23.50
215.00	6.93	0.00	3.06	131.81	24.82	23.50
216.00	6.93	0.00	3.03	132.06	24.82	23.50
217.00	6.93	0.00	3.01	132.31	24.81	23.50
218.00	6.93	0.00	2.98	132.56	24.81	23.50
219.00	6.93	0.00	2.95	132.81	24.80	23.50
220.00	6.93	0.00	2.92	133.05	24.80	23.50
221.00	6.93	0.00	2.89	133.29	24.79	23.50
222.00	6.93	0.00	2.87	133.53	24.79	23.50
223.00	6.93	0.00	2.84	133.76	24.78	23.50
224.00	6.93	0.00	2.81	133.99	24.78	23.50
225.00	6.93	0.00	2.79	134.23	24.77	23.50
226.00	6.93	0.00	2.76	134.45	24.77	23.50
227.00	6.93	0.00	2.73	134.68	24.76	23.50
228.00	6.93	0.00	2.71	134.91	24.76	23.50
229.00	6.93	0.00	2.68	135.13	24.75	23.50
230.00	6.93	0.00	2.66	135.35	24.75	23.50
231.00	6.93	0.00	2.63	135.57	24.74	23.50
232.00	6.93	0.00	2.61	135.78	24.74	23.50
233.00	6.93	0.00	2.59	136.00	24.73	23.50
234.00	6.93	0.00	2.56	136.21	24.73	23.50
235.00	6.93	0.00	2.54	136.42	24.73	23.50
236.00	6.93	0.00	2.52	136.63	24.72	23.50
237.00	6.93	0.00	2.49	136.84	24.72	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
238.00	6.93	0.00	2.47	137.04	24.71	23.50
239.00	6.93	0.00	2.45	137.25	24.71	23.50
240.00	6.93	0.00	2.43	137.45	24.70	23.50
241.00	6.93	0.00	2.41	137.65	24.70	23.50
242.00	6.93	0.00	2.39	137.85	24.70	23.50
243.00	6.93	0.00	2.36	138.04	24.69	23.50
244.00	6.93	0.00	2.34	138.24	24.69	23.50
245.00	6.93	0.00	2.32	138.43	24.68	23.50
246.00	6.93	0.00	2.30	138.62	24.68	23.50
247.00	6.93	0.00	2.28	138.81	24.68	23.50
248.00	6.93	0.00	2.26	139.00	24.67	23.50
249.00	6.93	0.00	2.24	139.18	24.67	23.50
250.00	6.93	0.00	2.22	139.37	24.66	23.50
251.00	6.93	0.00	2.20	139.55	24.66	23.50
252.00	6.93	0.00	2.19	139.73	24.66	23.50
253.00	6.93	0.00	2.17	139.91	24.65	23.50
254.00	6.93	0.00	2.15	140.09	24.65	23.50
255.00	6.93	0.00	2.13	140.27	24.64	23.50
256.00	6.93	0.00	2.11	140.44	24.64	23.50
257.00	6.93	0.00	2.09	140.62	24.64	23.50
258.00	6.93	0.00	2.08	140.79	24.63	23.50
259.00	6.93	0.00	2.06	140.96	24.63	23.50
260.00	6.93	0.00	2.04	141.13	24.63	23.50
261.00	6.93	0.00	2.02	141.30	24.62	23.50
262.00	6.93	0.00	2.01	141.46	24.62	23.50
263.00	6.93	0.00	1.99	141.63	24.62	23.50
264.00	6.93	0.00	1.97	141.79	24.61	23.50
265.00	6.93	0.00	1.96	141.95	24.61	23.50
266.00	6.93	0.00	1.94	142.11	24.61	23.50
267.00	6.93	0.00	1.92	142.27	24.60	23.50
268.00	6.93	0.00	1.91	142.43	24.60	23.50
269.00	6.93	0.00	1.89	142.59	24.60	23.50
270.00	6.93	0.00	1.88	142.74	24.59	23.50
271.00	6.93	0.00	1.86	142.90	24.59	23.50
272.00	6.93	0.00	1.85	143.05	24.59	23.50
273.00	6.93	0.00	1.83	143.20	24.58	23.50
274.00	6.93	0.00	1.82	143.35	24.58	23.50
275.00	6.93	0.00	1.80	143.50	24.58	23.50
276.00	6.93	0.00	1.79	143.65	24.57	23.50
277.00	6.93	0.00	1.77	143.80	24.57	23.50
278.00	6.93	0.00	1.76	143.95	24.57	23.50
279.00	6.93	0.00	1.75	144.09	24.56	23.50
280.00	6.93	0.00	1.73	144.23	24.56	23.50
281.00	6.93	0.00	1.72	144.38	24.56	23.50
282.00	6.93	0.00	1.70	144.52	24.55	23.50
283.00	6.93	0.00	1.69	144.66	24.55	23.50
284.00	6.93	0.00	1.68	144.80	24.55	23.50
285.00	6.93	0.00	1.66	144.93	24.55	23.50
286.00	6.93	0.00	1.65	145.07	24.54	23.50
287.00	6.93	0.00	1.64	145.21	24.54	23.50
288.00	6.93	0.00	1.63	145.34	24.54	23.50
289.00	6.93	0.00	1.61	145.48	24.53	23.50
290.00	6.93	0.00	1.60	145.61	24.53	23.50
291.00	6.93	0.00	1.59	145.74	24.53	23.50
292.00	6.93	0.00	1.58	145.87	24.53	23.50
293.00	6.93	0.00	1.56	146.00	24.52	23.50
294.00	6.93	0.00	1.55	146.13	24.52	23.50
295.00	6.93	0.00	1.54	146.26	24.52	23.50
296.00	6.93	0.00	1.53	146.38	24.52	23.50
297.00	6.93	0.00	1.52	146.51	24.51	23.50
298.00	6.93	0.00	1.50	146.63	24.51	23.50
299.00	6.93	0.00	1.49	146.76	24.51	23.50
300.00	6.93	0.00	1.48	146.88	24.51	23.50
301.00	6.93	0.00	1.47	147.00	24.50	23.50
302.00	6.93	0.00	1.46	147.12	24.50	23.50
303.00	6.93	0.00	1.45	147.24	24.50	23.50
304.00	6.93	0.00	1.44	147.36	24.49	23.50
305.00	6.93	0.00	1.42	147.48	24.49	23.50
306.00	6.93	0.00	1.41	147.60	24.49	23.50
307.00	6.93	0.00	1.40	147.71	24.49	23.50

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
308.00	6.93	0.00	1.39	147.83	24.48	23.50
309.00	6.93	0.00	1.38	147.94	24.48	23.50
310.00	6.93	0.00	1.36	148.06	24.48	23.50
311.00	6.93	0.00	1.35	148.17	24.47	23.50
312.00	6.93	0.00	1.34	148.28	24.47	23.50
313.00	6.93	0.00	1.33	148.39	24.47	23.50
314.00	6.93	0.00	1.32	148.50	24.47	23.50
315.00	6.93	0.00	1.31	148.61	24.46	23.50
316.00	6.93	0.00	1.30	148.72	24.46	23.50
317.00	6.93	0.00	1.29	148.82	24.46	23.50
318.00	6.93	0.00	1.28	148.93	24.46	23.50
319.00	6.93	0.00	1.27	149.03	24.45	23.50
320.00	6.93	0.00	1.25	149.14	24.45	23.50
321.00	6.93	0.00	1.24	149.24	24.45	23.50
322.00	6.93	0.00	1.23	149.34	24.45	23.50
323.00	6.93	0.00	1.22	149.44	24.44	23.50
324.00	6.93	0.00	1.21	149.54	24.44	23.50
325.00	6.93	0.00	1.20	149.64	24.44	23.50
326.00	6.93	0.00	1.19	149.74	24.44	23.50
327.00	6.93	0.00	1.18	149.84	24.43	23.50
328.00	6.93	0.00	1.18	149.94	24.43	23.50
329.00	6.93	0.00	1.17	150.04	24.43	23.50
330.00	6.93	0.00	1.16	150.13	24.43	23.50
331.00	6.93	0.00	1.15	150.23	24.42	23.50
332.00	6.93	0.00	1.14	150.32	24.42	23.50
333.00	6.93	0.00	1.13	150.42	24.42	23.50
334.00	6.93	0.00	1.12	150.51	24.42	23.50
335.00	6.93	0.00	1.11	150.60	24.42	23.50
336.00	6.93	0.00	1.10	150.69	24.41	23.50
337.00	6.93	0.00	1.09	150.78	24.41	23.50
338.00	6.93	0.00	1.09	150.87	24.41	23.50
339.00	6.93	0.00	1.08	150.96	24.41	23.50
340.00	6.93	0.00	1.07	151.05	24.40	23.50
341.00	6.93	0.00	1.06	151.14	24.40	23.50
342.00	6.93	0.00	1.05	151.23	24.40	23.50
343.00	6.93	0.00	1.04	151.31	24.40	23.50
344.00	6.93	0.00	1.04	151.40	24.40	23.50
345.00	6.93	0.00	1.03	151.48	24.39	23.50
346.00	6.93	0.00	1.02	151.57	24.39	23.50
347.00	6.93	0.00	1.01	151.65	24.39	23.50
348.00	6.93	0.00	1.00	151.73	24.39	23.50
349.00	6.93	0.00	1.00	151.82	24.39	23.50
350.00	6.93	0.00	0.99	151.90	24.38	23.50
351.00	6.93	0.00	0.98	151.98	24.38	23.50
352.00	6.93	0.00	0.97	152.06	24.38	23.50
353.00	6.93	0.00	0.97	152.14	24.38	23.50
354.00	6.93	0.00	0.96	152.22	24.38	23.50
355.00	6.93	0.00	0.95	152.30	24.37	23.50
356.00	6.93	0.00	0.95	152.38	24.37	23.50
357.00	6.93	0.00	0.94	152.46	24.37	23.50
358.00	6.93	0.00	0.93	152.53	24.37	23.50
359.00	6.93	0.00	0.92	152.61	24.37	23.50
360.00	6.93	0.00	0.92	152.69	24.37	23.50

Structure: 3

From Basin: Basin 3

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 60 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.02	0.00	0.00	25.00	24.00
18.00	0.56	0.08	0.00	0.00	25.00	24.00
19.00	0.59	0.18	0.00	0.00	25.00	24.00
20.00	0.62	0.30	0.00	0.00	25.00	24.00
21.00	0.65	0.44	0.00	0.00	25.00	24.00
22.00	0.68	0.59	0.00	0.00	25.00	24.00
23.00	0.71	0.76	0.00	0.00	25.01	24.00
24.00	0.74	0.93	0.00	0.00	25.01	24.00
25.00	0.79	1.27	0.00	0.00	25.01	24.00
26.00	0.84	1.63	0.00	0.00	25.01	24.01
27.00	0.88	1.99	0.00	0.00	25.02	24.01
28.00	0.93	2.35	0.00	0.00	25.03	24.01
29.00	0.97	2.70	0.00	0.00	25.03	24.02
30.00	1.02	3.05	0.00	0.00	25.04	24.02
31.00	1.06	3.39	0.00	0.00	25.05	24.02
32.00	1.11	3.73	0.00	0.00	25.06	24.03
33.00	1.15	4.05	0.00	1.87	25.00	24.07
34.00	1.20	4.37	0.00	1.87	25.00	24.07
35.00	1.24	4.67	0.00	1.87	25.00	24.08
36.00	1.29	4.96	0.00	1.87	25.00	24.09
37.00	1.33	5.25	0.00	1.87	25.00	24.09
38.00	1.38	5.52	0.00	1.87	25.01	24.10
39.00	1.42	5.79	0.00	1.87	25.03	24.11
40.00	1.47	6.04	0.00	1.87	25.04	24.12
41.00	1.51	6.28	0.00	1.87	25.06	24.13
42.00	1.56	6.52	0.00	3.65	25.00	24.16
43.00	1.60	6.75	0.00	3.65	25.00	24.17
44.00	1.65	6.96	0.00	3.65	25.00	24.18
45.00	1.70	7.17	0.00	3.65	25.02	24.20
46.00	1.74	7.38	0.00	3.65	25.04	24.21
47.00	1.79	7.57	0.00	3.65	25.06	24.22
48.00	1.83	7.76	0.00	5.33	25.00	24.25
49.00	1.88	8.15	0.00	5.33	25.00	24.27
50.00	1.93	8.50	0.00	5.33	25.01	24.28
51.00	1.99	9.21	0.00	5.33	25.04	24.29
52.00	2.06	10.04	0.00	6.92	25.00	24.33
53.00	2.15	11.57	0.00	6.92	25.00	24.34
54.00	2.25	13.73	0.00	6.92	25.02	24.36
55.00	2.38	16.47	0.00	8.41	25.00	24.41
56.00	2.53	19.72	0.00	8.41	25.01	24.43
57.00	2.70	23.71	0.00	9.82	25.00	24.48
58.00	2.92	29.05	80.06	11.15	25.01	24.53
59.00	3.20	37.20	75.63	12.40	25.01	24.58
60.00	5.18	136.98	68.05	14.69	25.04	24.69
61.00	5.74	142.17	49.99	19.36	25.11	24.92
62.00	6.00	129.99	32.22	22.66	25.26	25.18
63.00	6.17	114.75	21.46	24.72	25.45	25.41
64.00	6.32	101.86	17.96	26.29	25.64	25.62
65.00	6.41	87.93	16.01	27.68	25.81	25.79
66.00	6.50	76.64	14.53	28.92	25.95	25.93
67.00	6.59	67.48	18.85	30.25	26.06	26.04
68.00	6.69	60.05	19.16	31.85	26.13	26.10
69.00	6.75	52.27	17.44	33.36	26.18	26.16

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
70.00	6.81	45.96	15.71	34.71	26.23	26.21
71.00	6.87	40.84	14.32	35.94	26.26	26.25
72.00	6.93	36.68	13.25	37.06	26.30	26.28
73.00	6.93	29.78	11.66	38.08	26.32	26.31
74.00	6.93	24.18	10.11	38.97	26.33	26.32
75.00	6.93	19.64	8.87	39.74	26.34	26.33
76.00	6.93	15.94	7.88	40.42	26.34	26.34
77.00	6.93	12.94	6.72	41.03	26.34	26.34
78.00	6.93	10.51	5.66	41.52	26.34	26.34
79.00	6.93	8.53	5.05	41.96	26.34	26.33
80.00	6.93	6.93	4.60	42.35	26.33	26.33
81.00	6.93	5.63	4.38	42.72	26.32	26.32
82.00	6.93	4.57	0.00	43.00	26.32	26.31
83.00	6.93	3.71	7.76	43.39	26.31	26.30
84.00	6.93	3.01	0.00	43.64	26.29	26.29
85.00	6.93	2.44	7.19	44.00	26.28	26.28
86.00	6.93	1.99	0.00	44.23	26.27	26.27
87.00	6.93	1.61	6.78	44.57	26.25	26.25
88.00	6.93	1.31	0.00	44.79	26.24	26.24
89.00	6.93	1.06	6.50	45.12	26.23	26.22
90.00	6.93	0.86	0.00	45.33	26.21	26.21
91.00	6.93	0.70	6.29	45.65	26.20	26.19
92.00	6.93	0.57	0.00	45.85	26.18	26.18
93.00	6.93	0.46	6.12	46.16	26.16	26.16
94.00	6.93	0.37	0.00	46.36	26.15	26.15
95.00	6.93	0.30	5.97	46.66	26.13	26.13
96.00	6.93	0.25	0.00	46.85	26.12	26.11
97.00	6.93	0.20	5.84	47.14	26.10	26.10
98.00	6.93	0.16	0.00	47.33	26.09	26.08
99.00	6.93	0.13	5.71	47.62	26.07	26.07
100.00	6.93	0.11	0.00	47.81	26.06	26.05
101.00	6.93	0.09	5.58	48.08	26.04	26.04
102.00	6.93	0.07	0.00	48.27	26.03	26.02
103.00	6.93	0.06	5.45	48.54	26.01	26.01
104.00	6.93	0.05	0.00	48.74	25.99	25.99
105.00	6.93	0.04	7.78	49.13	25.97	25.97
106.00	6.93	0.03	0.00	49.38	25.95	25.95
107.00	6.93	0.02	7.41	49.76	25.93	25.93
108.00	6.93	0.02	0.00	50.00	25.91	25.91
109.00	6.93	0.02	7.15	50.35	25.89	25.89
110.00	6.93	0.01	0.00	50.59	25.87	25.87
111.00	6.93	0.01	6.90	50.93	25.85	25.85
112.00	6.93	0.01	0.00	51.16	25.83	25.83
113.00	6.93	0.01	6.67	51.49	25.81	25.81
114.00	6.93	0.01	0.00	51.71	25.80	25.79
115.00	6.93	0.00	6.45	52.03	25.78	25.78
116.00	6.93	0.00	0.00	52.24	25.76	25.76
117.00	6.93	0.00	6.25	52.56	25.74	25.74
118.00	6.93	0.00	0.00	52.76	25.73	25.72
119.00	6.93	0.00	6.05	53.06	25.71	25.71
120.00	6.93	0.00	0.00	53.26	25.69	25.69
121.00	6.93	0.00	5.86	53.55	25.68	25.67
122.00	6.93	0.00	0.00	53.74	25.66	25.66
123.00	6.93	0.00	5.68	54.03	25.65	25.64
124.00	6.93	0.00	0.00	54.21	25.63	25.63
125.00	6.93	0.00	5.52	54.49	25.61	25.61
126.00	6.93	0.00	0.00	54.67	25.60	25.60
127.00	6.93	0.00	5.36	54.94	25.58	25.58
128.00	6.93	0.00	0.00	55.11	25.57	25.57
129.00	6.93	0.00	5.22	55.37	25.56	25.55
130.00	6.93	0.00	0.00	55.54	25.54	25.54
131.00	6.93	0.00	5.09	55.80	25.53	25.52
132.00	6.93	0.00	0.00	55.97	25.51	25.51
133.00	6.93	0.00	4.97	56.21	25.50	25.50
134.00	6.93	0.00	0.00	56.37	25.49	25.49
135.00	6.93	0.00	0.00	56.60	25.47	25.47
136.00	6.93	0.00	4.52	56.80	25.46	25.46
137.00	6.93	0.00	0.00	56.95	25.45	25.45
138.00	6.93	0.00	4.08	57.16	25.44	25.44
139.00	6.93	0.00	0.00	57.30	25.42	25.43

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
140.00	6.93	0.00	4.76	57.52	25.41	25.41
141.00	6.93	0.00	0.00	57.66	25.40	25.40
142.00	6.93	0.00	1.91	57.83	25.39	25.39
143.00	6.93	0.00	0.00	57.97	25.38	25.38
144.00	6.93	0.00	0.00	58.17	25.37	25.37
145.00	6.93	0.00	5.92	58.37	25.36	25.36
146.00	6.93	0.00	0.00	58.46	25.35	25.35
147.00	6.93	0.00	0.00	58.66	25.33	25.34
148.00	6.93	0.00	5.72	58.85	25.32	25.33
149.00	6.93	0.00	0.00	58.94	25.31	25.31
150.00	6.93	0.00	0.00	59.13	25.30	25.31
151.00	6.93	0.00	5.52	59.31	25.29	25.29
152.00	6.93	0.00	0.00	59.40	25.28	25.28
153.00	6.93	0.00	0.00	59.58	25.27	25.28
154.00	6.93	0.00	5.33	59.76	25.26	25.26
155.00	6.93	0.00	0.00	59.84	25.25	25.25
156.00	6.93	0.00	0.00	60.02	25.24	25.25
157.00	6.93	0.00	5.15	60.19	25.23	25.24
158.00	6.93	0.00	0.00	60.27	25.23	25.23
159.00	6.93	0.00	0.00	60.44	25.21	25.22
160.00	6.93	0.00	4.97	60.60	25.21	25.21
161.00	6.93	0.00	0.00	60.69	25.20	25.20
162.00	6.93	0.00	0.00	60.85	25.19	25.19
163.00	6.93	0.00	4.82	61.01	25.18	25.18
164.00	6.93	0.00	0.00	61.09	25.17	25.17
165.00	6.93	0.00	0.00	61.24	25.16	25.16
166.00	6.93	0.00	4.65	61.40	25.15	25.16
167.00	6.93	0.00	0.00	61.47	25.15	25.15
168.00	6.93	0.00	0.00	61.63	25.14	25.14
169.00	6.93	0.00	4.50	61.77	25.13	25.13
170.00	6.93	0.00	0.00	61.85	25.12	25.12
171.00	6.93	0.00	0.00	62.00	25.11	25.11
172.00	6.93	0.00	4.36	62.14	25.10	25.11
173.00	6.93	0.00	0.00	62.21	25.10	25.10
174.00	6.93	0.00	0.00	62.35	25.09	25.09
175.00	6.93	0.00	4.20	62.49	25.08	25.08
176.00	6.93	0.00	0.00	62.56	25.07	25.07
177.00	6.93	0.00	0.00	62.70	25.06	25.07
178.00	6.93	0.00	4.14	62.84	25.06	25.06
179.00	6.93	0.00	0.00	62.90	25.05	25.05
180.00	6.93	0.00	0.00	63.03	25.04	25.04
181.00	6.93	0.00	3.76	63.16	25.04	25.04
182.00	6.93	0.00	0.00	63.23	25.03	25.03
183.00	6.93	0.00	0.00	63.36	25.02	25.02
184.00	6.93	0.00	4.84	63.50	25.01	25.02
185.00	6.93	0.00	3.47	63.59	25.01	25.01
186.00	6.93	0.00	0.00	63.66	25.00	25.00
187.00	6.93	0.00	0.00	63.70	25.00	24.99
188.00	6.93	0.00	0.00	63.70	25.00	24.99
189.00	6.93	0.00	0.00	63.70	25.00	24.98
190.00	6.93	0.00	0.00	63.70	25.00	24.97
191.00	6.93	0.00	0.00	63.70	25.00	24.97
192.00	6.93	0.00	0.00	63.70	25.00	24.96
193.00	6.93	0.00	0.00	63.70	25.00	24.95
194.00	6.93	0.00	0.00	63.70	25.00	24.95
195.00	6.93	0.00	0.00	63.70	25.00	24.94
196.00	6.93	0.00	0.00	63.70	25.00	24.93
197.00	6.93	0.00	0.00	63.70	25.00	24.93
198.00	6.93	0.00	0.00	63.70	25.00	24.92
199.00	6.93	0.00	0.00	63.70	25.00	24.91
200.00	6.93	0.00	0.00	63.70	25.00	24.91
201.00	6.93	0.00	0.00	63.70	25.00	24.90
202.00	6.93	0.00	0.00	63.70	25.00	24.90
203.00	6.93	0.00	0.00	63.70	25.00	24.89
204.00	6.93	0.00	0.00	63.70	25.00	24.88
205.00	6.93	0.00	0.00	63.70	25.00	24.88
206.00	6.93	0.00	0.00	63.70	25.00	24.87
207.00	6.93	0.00	0.00	63.70	25.00	24.87
208.00	6.93	0.00	0.00	63.70	25.00	24.86
209.00	6.93	0.00	0.00	63.70	25.00	24.86

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
210.00	6.93	0.00	0.00	63.70	25.00	24.85
211.00	6.93	0.00	0.00	63.70	25.00	24.84
212.00	6.93	0.00	0.00	63.70	25.00	24.84
213.00	6.93	0.00	0.00	63.70	25.00	24.83
214.00	6.93	0.00	0.00	63.70	25.00	24.83
215.00	6.93	0.00	0.00	63.70	25.00	24.82
216.00	6.93	0.00	0.00	63.70	25.00	24.82
217.00	6.93	0.00	0.00	63.70	25.00	24.81
218.00	6.93	0.00	0.00	63.70	25.00	24.81
219.00	6.93	0.00	0.00	63.70	25.00	24.80
220.00	6.93	0.00	0.00	63.70	25.00	24.80
221.00	6.93	0.00	0.00	63.70	25.00	24.79
222.00	6.93	0.00	0.00	63.70	25.00	24.79
223.00	6.93	0.00	0.00	63.70	25.00	24.78
224.00	6.93	0.00	0.00	63.70	25.00	24.78
225.00	6.93	0.00	0.00	63.70	25.00	24.77
226.00	6.93	0.00	0.00	63.70	25.00	24.77
227.00	6.93	0.00	0.00	63.70	25.00	24.76
228.00	6.93	0.00	0.00	63.70	25.00	24.76
229.00	6.93	0.00	0.00	63.70	25.00	24.75
230.00	6.93	0.00	0.00	63.70	25.00	24.75
231.00	6.93	0.00	0.00	63.70	25.00	24.74
232.00	6.93	0.00	0.00	63.70	25.00	24.74
233.00	6.93	0.00	0.00	63.70	25.00	24.73
234.00	6.93	0.00	0.00	63.70	25.00	24.73
235.00	6.93	0.00	0.00	63.70	25.00	24.73
236.00	6.93	0.00	0.00	63.70	25.00	24.72
237.00	6.93	0.00	0.00	63.70	25.00	24.72
238.00	6.93	0.00	0.00	63.70	25.00	24.71
239.00	6.93	0.00	0.00	63.70	25.00	24.71
240.00	6.93	0.00	0.00	63.70	25.00	24.70
241.00	6.93	0.00	0.00	63.70	25.00	24.70
242.00	6.93	0.00	0.00	63.70	25.00	24.70
243.00	6.93	0.00	0.00	63.70	25.00	24.69
244.00	6.93	0.00	0.00	63.70	25.00	24.69
245.00	6.93	0.00	0.00	63.70	25.00	24.68
246.00	6.93	0.00	0.00	63.70	25.00	24.68
247.00	6.93	0.00	0.00	63.70	25.00	24.68
248.00	6.93	0.00	0.00	63.70	25.00	24.67
249.00	6.93	0.00	0.00	63.70	25.00	24.67
250.00	6.93	0.00	0.00	63.70	25.00	24.66
251.00	6.93	0.00	0.00	63.70	25.00	24.66
252.00	6.93	0.00	0.00	63.70	25.00	24.66
253.00	6.93	0.00	0.00	63.70	25.00	24.65
254.00	6.93	0.00	0.00	63.70	25.00	24.65
255.00	6.93	0.00	0.00	63.70	25.00	24.64
256.00	6.93	0.00	0.00	63.70	25.00	24.64
257.00	6.93	0.00	0.00	63.70	25.00	24.64
258.00	6.93	0.00	0.00	63.70	25.00	24.63
259.00	6.93	0.00	0.00	63.70	25.00	24.63
260.00	6.93	0.00	0.00	63.70	25.00	24.63
261.00	6.93	0.00	0.00	63.70	25.00	24.62
262.00	6.93	0.00	0.00	63.70	25.00	24.62
263.00	6.93	0.00	0.00	63.70	25.00	24.62
264.00	6.93	0.00	0.00	63.70	25.00	24.61
265.00	6.93	0.00	0.00	63.70	25.00	24.61
266.00	6.93	0.00	0.00	63.70	25.00	24.61
267.00	6.93	0.00	0.00	63.70	25.00	24.60
268.00	6.93	0.00	0.00	63.70	25.00	24.60
269.00	6.93	0.00	0.00	63.70	25.00	24.60
270.00	6.93	0.00	0.00	63.70	25.00	24.59
271.00	6.93	0.00	0.00	63.70	25.00	24.59
272.00	6.93	0.00	0.00	63.70	25.00	24.59
273.00	6.93	0.00	0.00	63.70	25.00	24.58
274.00	6.93	0.00	0.00	63.70	25.00	24.58
275.00	6.93	0.00	0.00	63.70	25.00	24.58
276.00	6.93	0.00	0.00	63.70	25.00	24.57
277.00	6.93	0.00	0.00	63.70	25.00	24.57
278.00	6.93	0.00	0.00	63.70	25.00	24.57
279.00	6.93	0.00	0.00	63.70	25.00	24.56

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
280.00	6.93	0.00	0.00	63.70	25.00	24.56
281.00	6.93	0.00	0.00	63.70	25.00	24.56
282.00	6.93	0.00	0.00	63.70	25.00	24.55
283.00	6.93	0.00	0.00	63.70	25.00	24.55
284.00	6.93	0.00	0.00	63.70	25.00	24.55
285.00	6.93	0.00	0.00	63.70	25.00	24.55
286.00	6.93	0.00	0.00	63.70	25.00	24.54
287.00	6.93	0.00	0.00	63.70	25.00	24.54
288.00	6.93	0.00	0.00	63.70	25.00	24.54
289.00	6.93	0.00	0.00	63.70	25.00	24.53
290.00	6.93	0.00	0.00	63.70	25.00	24.53
291.00	6.93	0.00	0.00	63.70	25.00	24.53
292.00	6.93	0.00	0.00	63.70	25.00	24.53
293.00	6.93	0.00	0.00	63.70	25.00	24.52
294.00	6.93	0.00	0.00	63.70	25.00	24.52
295.00	6.93	0.00	0.00	63.70	25.00	24.52
296.00	6.93	0.00	0.00	63.70	25.00	24.52
297.00	6.93	0.00	0.00	63.70	25.00	24.51
298.00	6.93	0.00	0.00	63.70	25.00	24.51
299.00	6.93	0.00	0.00	63.70	25.00	24.51
300.00	6.93	0.00	0.00	63.70	25.00	24.51
301.00	6.93	0.00	0.00	63.70	25.00	24.50
302.00	6.93	0.00	0.00	63.70	25.00	24.50
303.00	6.93	0.00	0.00	63.70	25.00	24.50
304.00	6.93	0.00	0.00	63.70	25.00	24.49
305.00	6.93	0.00	0.00	63.70	25.00	24.49
306.00	6.93	0.00	0.00	63.70	25.00	24.49
307.00	6.93	0.00	0.00	63.70	25.00	24.49
308.00	6.93	0.00	0.00	63.70	25.00	24.48
309.00	6.93	0.00	0.00	63.70	25.00	24.48
310.00	6.93	0.00	0.00	63.70	25.00	24.48
311.00	6.93	0.00	0.00	63.70	25.00	24.47
312.00	6.93	0.00	0.00	63.70	25.00	24.47
313.00	6.93	0.00	0.00	63.70	25.00	24.47
314.00	6.93	0.00	0.00	63.70	25.00	24.47
315.00	6.93	0.00	0.00	63.70	25.00	24.46
316.00	6.93	0.00	0.00	63.70	25.00	24.46
317.00	6.93	0.00	0.00	63.70	25.00	24.46
318.00	6.93	0.00	0.00	63.70	25.00	24.46
319.00	6.93	0.00	0.00	63.70	25.00	24.45
320.00	6.93	0.00	0.00	63.70	25.00	24.45
321.00	6.93	0.00	0.00	63.70	25.00	24.45
322.00	6.93	0.00	0.00	63.70	25.00	24.45
323.00	6.93	0.00	0.00	63.70	25.00	24.44
324.00	6.93	0.00	0.00	63.70	25.00	24.44
325.00	6.93	0.00	0.00	63.70	25.00	24.44
326.00	6.93	0.00	0.00	63.70	25.00	24.44
327.00	6.93	0.00	0.00	63.70	25.00	24.43
328.00	6.93	0.00	0.00	63.70	25.00	24.43
329.00	6.93	0.00	0.00	63.70	25.00	24.43
330.00	6.93	0.00	0.00	63.70	25.00	24.43
331.00	6.93	0.00	0.00	63.70	25.00	24.42
332.00	6.93	0.00	0.00	63.70	25.00	24.42
333.00	6.93	0.00	0.00	63.70	25.00	24.42
334.00	6.93	0.00	0.00	63.70	25.00	24.42
335.00	6.93	0.00	0.00	63.70	25.00	24.42
336.00	6.93	0.00	0.00	63.70	25.00	24.41
337.00	6.93	0.00	0.00	63.70	25.00	24.41
338.00	6.93	0.00	0.00	63.70	25.00	24.41
339.00	6.93	0.00	0.00	63.70	25.00	24.41
340.00	6.93	0.00	0.00	63.70	25.00	24.40
341.00	6.93	0.00	0.00	63.70	25.00	24.40
342.00	6.93	0.00	0.00	63.70	25.00	24.40
343.00	6.93	0.00	0.00	63.70	25.00	24.40
344.00	6.93	0.00	0.00	63.70	25.00	24.40
345.00	6.93	0.00	0.00	63.70	25.00	24.39
346.00	6.93	0.00	0.00	63.70	25.00	24.39
347.00	6.93	0.00	0.00	63.70	25.00	24.39
348.00	6.93	0.00	0.00	63.70	25.00	24.39
349.00	6.93	0.00	0.00	63.70	25.00	24.39

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
350.00	6.93	0.00	0.00	63.70	25.00	24.38
351.00	6.93	0.00	0.00	63.70	25.00	24.38
352.00	6.93	0.00	0.00	63.70	25.00	24.38
353.00	6.93	0.00	0.00	63.70	25.00	24.38
354.00	6.93	0.00	0.00	63.70	25.00	24.38
355.00	6.93	0.00	0.00	63.70	25.00	24.37
356.00	6.93	0.00	0.00	63.70	25.00	24.37
357.00	6.93	0.00	0.00	63.70	25.00	24.37
358.00	6.93	0.00	0.00	63.70	25.00	24.37
359.00	6.93	0.00	0.00	63.70	25.00	24.37
360.00	6.93	0.00	0.00	63.70	25.00	24.37

Structure: 4

From Basin: Basin 3

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 5 ft, Manning's n = 0.024, Length = 60 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.02	0.00	0.00	25.00	24.00
18.00	0.56	0.08	0.00	0.00	25.00	24.00
19.00	0.59	0.18	0.00	0.00	25.00	24.00
20.00	0.62	0.30	0.00	0.00	25.00	24.00
21.00	0.65	0.44	0.00	0.00	25.00	24.00
22.00	0.68	0.59	0.00	0.00	25.00	24.00
23.00	0.71	0.76	0.00	0.00	25.01	24.00
24.00	0.74	0.93	0.00	0.00	25.01	24.00
25.00	0.79	1.27	0.00	0.00	25.01	24.00
26.00	0.84	1.63	0.00	0.00	25.01	24.01
27.00	0.88	1.99	0.00	0.00	25.02	24.01
28.00	0.93	2.35	0.00	0.00	25.03	24.01
29.00	0.97	2.70	0.00	0.00	25.03	24.02
30.00	1.02	3.05	0.00	0.00	25.04	24.02
31.00	1.06	3.39	0.00	0.00	25.05	24.02
32.00	1.11	3.73	0.00	0.00	25.06	24.03
33.00	1.15	4.05	0.00	1.87	25.00	24.07
34.00	1.20	4.37	0.00	1.87	25.00	24.07
35.00	1.24	4.67	0.00	1.87	25.00	24.08
36.00	1.29	4.96	0.00	1.87	25.00	24.09
37.00	1.33	5.25	0.00	1.87	25.00	24.09
38.00	1.38	5.52	0.00	1.87	25.01	24.10
39.00	1.42	5.79	0.00	1.87	25.03	24.11
40.00	1.47	6.04	0.00	1.87	25.04	24.12
41.00	1.51	6.28	0.00	1.87	25.06	24.13
42.00	1.56	6.52	0.00	3.65	25.00	24.16

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
43.00	1.60	6.75	0.00	3.65	25.00	24.17
44.00	1.65	6.96	0.00	3.65	25.00	24.18
45.00	1.70	7.17	0.00	3.65	25.02	24.20
46.00	1.74	7.38	0.00	3.65	25.04	24.21
47.00	1.79	7.57	0.00	3.65	25.06	24.22
48.00	1.83	7.76	0.00	5.33	25.00	24.25
49.00	1.88	8.15	0.00	5.33	25.00	24.27
50.00	1.93	8.50	0.00	5.33	25.01	24.28
51.00	1.99	9.21	0.00	5.33	25.04	24.29
52.00	2.06	10.04	0.00	6.92	25.00	24.33
53.00	2.15	11.57	0.00	6.92	25.00	24.34
54.00	2.25	13.73	0.00	6.92	25.02	24.36
55.00	2.38	16.47	0.00	8.41	25.00	24.41
56.00	2.53	19.72	0.00	8.41	25.01	24.43
57.00	2.70	23.71	0.00	9.82	25.00	24.48
58.00	2.92	29.05	80.06	11.15	25.01	24.53
59.00	3.20	37.20	75.63	12.40	25.01	24.58
60.00	5.18	136.98	68.05	14.69	25.04	24.69
61.00	5.74	142.17	49.99	19.36	25.11	24.92
62.00	6.00	129.99	32.22	22.66	25.26	25.18
63.00	6.17	114.75	21.46	24.72	25.45	25.41
64.00	6.32	101.86	17.96	26.29	25.64	25.62
65.00	6.41	87.93	16.01	27.68	25.81	25.79
66.00	6.50	76.64	14.53	28.92	25.95	25.93
67.00	6.59	67.48	18.85	30.25	26.06	26.04
68.00	6.69	60.05	19.16	31.85	26.13	26.10
69.00	6.75	52.27	17.44	33.36	26.18	26.16
70.00	6.81	45.96	15.71	34.71	26.23	26.21
71.00	6.87	40.84	14.32	35.94	26.26	26.25
72.00	6.93	36.68	13.25	37.06	26.30	26.28
73.00	6.93	29.78	11.66	38.08	26.32	26.31
74.00	6.93	24.18	10.11	38.97	26.33	26.32
75.00	6.93	19.64	8.87	39.74	26.34	26.33
76.00	6.93	15.94	7.88	40.42	26.34	26.34
77.00	6.93	12.94	6.72	41.03	26.34	26.34
78.00	6.93	10.51	5.66	41.52	26.34	26.34
79.00	6.93	8.53	5.05	41.96	26.34	26.33
80.00	6.93	6.93	4.60	42.35	26.33	26.33
81.00	6.93	5.63	4.38	42.72	26.32	26.32
82.00	6.93	4.57	0.00	43.00	26.32	26.31
83.00	6.93	3.71	7.76	43.39	26.31	26.30
84.00	6.93	3.01	0.00	43.64	26.29	26.29
85.00	6.93	2.44	7.19	44.00	26.28	26.28
86.00	6.93	1.99	0.00	44.23	26.27	26.27
87.00	6.93	1.61	6.78	44.57	26.25	26.25
88.00	6.93	1.31	0.00	44.79	26.24	26.24
89.00	6.93	1.06	6.50	45.12	26.23	26.22
90.00	6.93	0.86	0.00	45.33	26.21	26.21
91.00	6.93	0.70	6.29	45.65	26.20	26.19
92.00	6.93	0.57	0.00	45.85	26.18	26.18
93.00	6.93	0.46	6.12	46.16	26.16	26.16
94.00	6.93	0.37	0.00	46.36	26.15	26.15
95.00	6.93	0.30	5.97	46.66	26.13	26.13
96.00	6.93	0.25	0.00	46.85	26.12	26.11
97.00	6.93	0.20	5.84	47.14	26.10	26.10
98.00	6.93	0.16	0.00	47.33	26.09	26.08
99.00	6.93	0.13	5.71	47.62	26.07	26.07
100.00	6.93	0.11	0.00	47.81	26.06	26.05
101.00	6.93	0.09	5.58	48.08	26.04	26.04
102.00	6.93	0.07	0.00	48.27	26.03	26.02
103.00	6.93	0.06	5.45	48.54	26.01	26.01
104.00	6.93	0.05	0.00	48.74	25.99	25.99
105.00	6.93	0.04	7.78	49.13	25.97	25.97
106.00	6.93	0.03	0.00	49.38	25.95	25.95
107.00	6.93	0.02	7.41	49.76	25.93	25.93
108.00	6.93	0.02	0.00	50.00	25.91	25.91
109.00	6.93	0.02	7.15	50.35	25.89	25.89
110.00	6.93	0.01	0.00	50.59	25.87	25.87
111.00	6.93	0.01	6.90	50.93	25.85	25.85
112.00	6.93	0.01	0.00	51.16	25.83	25.83

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
113.00	6.93	0.01	6.67	51.49	25.81	25.81
114.00	6.93	0.01	0.00	51.71	25.80	25.79
115.00	6.93	0.00	6.45	52.03	25.78	25.78
116.00	6.93	0.00	0.00	52.24	25.76	25.76
117.00	6.93	0.00	6.25	52.56	25.74	25.74
118.00	6.93	0.00	0.00	52.76	25.73	25.72
119.00	6.93	0.00	6.05	53.06	25.71	25.71
120.00	6.93	0.00	0.00	53.26	25.69	25.69
121.00	6.93	0.00	5.86	53.55	25.68	25.67
122.00	6.93	0.00	0.00	53.74	25.66	25.66
123.00	6.93	0.00	5.68	54.03	25.65	25.64
124.00	6.93	0.00	0.00	54.21	25.63	25.63
125.00	6.93	0.00	5.52	54.49	25.61	25.61
126.00	6.93	0.00	0.00	54.67	25.60	25.60
127.00	6.93	0.00	5.36	54.94	25.58	25.58
128.00	6.93	0.00	0.00	55.11	25.57	25.57
129.00	6.93	0.00	5.22	55.37	25.56	25.55
130.00	6.93	0.00	0.00	55.54	25.54	25.54
131.00	6.93	0.00	5.09	55.80	25.53	25.52
132.00	6.93	0.00	0.00	55.97	25.51	25.51
133.00	6.93	0.00	4.97	56.21	25.50	25.50
134.00	6.93	0.00	0.00	56.37	25.49	25.49
135.00	6.93	0.00	0.00	56.60	25.47	25.47
136.00	6.93	0.00	4.52	56.80	25.46	25.46
137.00	6.93	0.00	0.00	56.95	25.45	25.45
138.00	6.93	0.00	4.08	57.16	25.44	25.44
139.00	6.93	0.00	0.00	57.30	25.42	25.43
140.00	6.93	0.00	4.76	57.52	25.41	25.41
141.00	6.93	0.00	0.00	57.66	25.40	25.40
142.00	6.93	0.00	1.91	57.83	25.39	25.39
143.00	6.93	0.00	0.00	57.97	25.38	25.38
144.00	6.93	0.00	0.00	58.17	25.37	25.37
145.00	6.93	0.00	5.92	58.37	25.36	25.36
146.00	6.93	0.00	0.00	58.46	25.35	25.35
147.00	6.93	0.00	0.00	58.66	25.33	25.34
148.00	6.93	0.00	5.72	58.85	25.32	25.33
149.00	6.93	0.00	0.00	58.94	25.31	25.31
150.00	6.93	0.00	0.00	59.13	25.30	25.31
151.00	6.93	0.00	5.52	59.31	25.29	25.29
152.00	6.93	0.00	0.00	59.40	25.28	25.28
153.00	6.93	0.00	0.00	59.58	25.27	25.28
154.00	6.93	0.00	5.33	59.76	25.26	25.26
155.00	6.93	0.00	0.00	59.84	25.25	25.25
156.00	6.93	0.00	0.00	60.02	25.24	25.25
157.00	6.93	0.00	5.15	60.19	25.23	25.24
158.00	6.93	0.00	0.00	60.27	25.23	25.23
159.00	6.93	0.00	0.00	60.44	25.21	25.22
160.00	6.93	0.00	4.97	60.60	25.21	25.21
161.00	6.93	0.00	0.00	60.69	25.20	25.20
162.00	6.93	0.00	0.00	60.85	25.19	25.19
163.00	6.93	0.00	4.82	61.01	25.18	25.18
164.00	6.93	0.00	0.00	61.09	25.17	25.17
165.00	6.93	0.00	0.00	61.24	25.16	25.16
166.00	6.93	0.00	4.65	61.40	25.15	25.16
167.00	6.93	0.00	0.00	61.47	25.15	25.15
168.00	6.93	0.00	0.00	61.63	25.14	25.14
169.00	6.93	0.00	4.50	61.77	25.13	25.13
170.00	6.93	0.00	0.00	61.85	25.12	25.12
171.00	6.93	0.00	0.00	62.00	25.11	25.11
172.00	6.93	0.00	4.36	62.14	25.10	25.11
173.00	6.93	0.00	0.00	62.21	25.10	25.10
174.00	6.93	0.00	0.00	62.35	25.09	25.09
175.00	6.93	0.00	4.20	62.49	25.08	25.08
176.00	6.93	0.00	0.00	62.56	25.07	25.07
177.00	6.93	0.00	0.00	62.70	25.06	25.07
178.00	6.93	0.00	4.14	62.84	25.06	25.06
179.00	6.93	0.00	0.00	62.90	25.05	25.05
180.00	6.93	0.00	0.00	63.03	25.04	25.04
181.00	6.93	0.00	3.76	63.16	25.04	25.04
182.00	6.93	0.00	0.00	63.23	25.03	25.03

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
183.00	6.93	0.00	0.00	63.36	25.02	25.02
184.00	6.93	0.00	4.84	63.50	25.01	25.02
185.00	6.93	0.00	3.47	63.59	25.01	25.01
186.00	6.93	0.00	0.00	63.66	25.00	25.00
187.00	6.93	0.00	0.00	63.70	25.00	24.99
188.00	6.93	0.00	0.00	63.70	25.00	24.99
189.00	6.93	0.00	0.00	63.70	25.00	24.98
190.00	6.93	0.00	0.00	63.70	25.00	24.97
191.00	6.93	0.00	0.00	63.70	25.00	24.97
192.00	6.93	0.00	0.00	63.70	25.00	24.96
193.00	6.93	0.00	0.00	63.70	25.00	24.95
194.00	6.93	0.00	0.00	63.70	25.00	24.95
195.00	6.93	0.00	0.00	63.70	25.00	24.94
196.00	6.93	0.00	0.00	63.70	25.00	24.93
197.00	6.93	0.00	0.00	63.70	25.00	24.93
198.00	6.93	0.00	0.00	63.70	25.00	24.92
199.00	6.93	0.00	0.00	63.70	25.00	24.91
200.00	6.93	0.00	0.00	63.70	25.00	24.91
201.00	6.93	0.00	0.00	63.70	25.00	24.90
202.00	6.93	0.00	0.00	63.70	25.00	24.90
203.00	6.93	0.00	0.00	63.70	25.00	24.89
204.00	6.93	0.00	0.00	63.70	25.00	24.88
205.00	6.93	0.00	0.00	63.70	25.00	24.88
206.00	6.93	0.00	0.00	63.70	25.00	24.87
207.00	6.93	0.00	0.00	63.70	25.00	24.87
208.00	6.93	0.00	0.00	63.70	25.00	24.86
209.00	6.93	0.00	0.00	63.70	25.00	24.86
210.00	6.93	0.00	0.00	63.70	25.00	24.85
211.00	6.93	0.00	0.00	63.70	25.00	24.84
212.00	6.93	0.00	0.00	63.70	25.00	24.84
213.00	6.93	0.00	0.00	63.70	25.00	24.83
214.00	6.93	0.00	0.00	63.70	25.00	24.83
215.00	6.93	0.00	0.00	63.70	25.00	24.82
216.00	6.93	0.00	0.00	63.70	25.00	24.82
217.00	6.93	0.00	0.00	63.70	25.00	24.81
218.00	6.93	0.00	0.00	63.70	25.00	24.81
219.00	6.93	0.00	0.00	63.70	25.00	24.80
220.00	6.93	0.00	0.00	63.70	25.00	24.80
221.00	6.93	0.00	0.00	63.70	25.00	24.79
222.00	6.93	0.00	0.00	63.70	25.00	24.79
223.00	6.93	0.00	0.00	63.70	25.00	24.78
224.00	6.93	0.00	0.00	63.70	25.00	24.78
225.00	6.93	0.00	0.00	63.70	25.00	24.77
226.00	6.93	0.00	0.00	63.70	25.00	24.77
227.00	6.93	0.00	0.00	63.70	25.00	24.76
228.00	6.93	0.00	0.00	63.70	25.00	24.76
229.00	6.93	0.00	0.00	63.70	25.00	24.75
230.00	6.93	0.00	0.00	63.70	25.00	24.75
231.00	6.93	0.00	0.00	63.70	25.00	24.74
232.00	6.93	0.00	0.00	63.70	25.00	24.74
233.00	6.93	0.00	0.00	63.70	25.00	24.73
234.00	6.93	0.00	0.00	63.70	25.00	24.73
235.00	6.93	0.00	0.00	63.70	25.00	24.73
236.00	6.93	0.00	0.00	63.70	25.00	24.72
237.00	6.93	0.00	0.00	63.70	25.00	24.72
238.00	6.93	0.00	0.00	63.70	25.00	24.71
239.00	6.93	0.00	0.00	63.70	25.00	24.71
240.00	6.93	0.00	0.00	63.70	25.00	24.70
241.00	6.93	0.00	0.00	63.70	25.00	24.70
242.00	6.93	0.00	0.00	63.70	25.00	24.70
243.00	6.93	0.00	0.00	63.70	25.00	24.69
244.00	6.93	0.00	0.00	63.70	25.00	24.69
245.00	6.93	0.00	0.00	63.70	25.00	24.68
246.00	6.93	0.00	0.00	63.70	25.00	24.68
247.00	6.93	0.00	0.00	63.70	25.00	24.68
248.00	6.93	0.00	0.00	63.70	25.00	24.67
249.00	6.93	0.00	0.00	63.70	25.00	24.67
250.00	6.93	0.00	0.00	63.70	25.00	24.66
251.00	6.93	0.00	0.00	63.70	25.00	24.66
252.00	6.93	0.00	0.00	63.70	25.00	24.66

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
253.00	6.93	0.00	0.00	63.70	25.00	24.65
254.00	6.93	0.00	0.00	63.70	25.00	24.65
255.00	6.93	0.00	0.00	63.70	25.00	24.64
256.00	6.93	0.00	0.00	63.70	25.00	24.64
257.00	6.93	0.00	0.00	63.70	25.00	24.64
258.00	6.93	0.00	0.00	63.70	25.00	24.63
259.00	6.93	0.00	0.00	63.70	25.00	24.63
260.00	6.93	0.00	0.00	63.70	25.00	24.63
261.00	6.93	0.00	0.00	63.70	25.00	24.62
262.00	6.93	0.00	0.00	63.70	25.00	24.62
263.00	6.93	0.00	0.00	63.70	25.00	24.62
264.00	6.93	0.00	0.00	63.70	25.00	24.61
265.00	6.93	0.00	0.00	63.70	25.00	24.61
266.00	6.93	0.00	0.00	63.70	25.00	24.61
267.00	6.93	0.00	0.00	63.70	25.00	24.60
268.00	6.93	0.00	0.00	63.70	25.00	24.60
269.00	6.93	0.00	0.00	63.70	25.00	24.60
270.00	6.93	0.00	0.00	63.70	25.00	24.59
271.00	6.93	0.00	0.00	63.70	25.00	24.59
272.00	6.93	0.00	0.00	63.70	25.00	24.59
273.00	6.93	0.00	0.00	63.70	25.00	24.58
274.00	6.93	0.00	0.00	63.70	25.00	24.58
275.00	6.93	0.00	0.00	63.70	25.00	24.58
276.00	6.93	0.00	0.00	63.70	25.00	24.57
277.00	6.93	0.00	0.00	63.70	25.00	24.57
278.00	6.93	0.00	0.00	63.70	25.00	24.57
279.00	6.93	0.00	0.00	63.70	25.00	24.56
280.00	6.93	0.00	0.00	63.70	25.00	24.56
281.00	6.93	0.00	0.00	63.70	25.00	24.56
282.00	6.93	0.00	0.00	63.70	25.00	24.55
283.00	6.93	0.00	0.00	63.70	25.00	24.55
284.00	6.93	0.00	0.00	63.70	25.00	24.55
285.00	6.93	0.00	0.00	63.70	25.00	24.55
286.00	6.93	0.00	0.00	63.70	25.00	24.54
287.00	6.93	0.00	0.00	63.70	25.00	24.54
288.00	6.93	0.00	0.00	63.70	25.00	24.54
289.00	6.93	0.00	0.00	63.70	25.00	24.53
290.00	6.93	0.00	0.00	63.70	25.00	24.53
291.00	6.93	0.00	0.00	63.70	25.00	24.53
292.00	6.93	0.00	0.00	63.70	25.00	24.53
293.00	6.93	0.00	0.00	63.70	25.00	24.52
294.00	6.93	0.00	0.00	63.70	25.00	24.52
295.00	6.93	0.00	0.00	63.70	25.00	24.52
296.00	6.93	0.00	0.00	63.70	25.00	24.52
297.00	6.93	0.00	0.00	63.70	25.00	24.51
298.00	6.93	0.00	0.00	63.70	25.00	24.51
299.00	6.93	0.00	0.00	63.70	25.00	24.51
300.00	6.93	0.00	0.00	63.70	25.00	24.51
301.00	6.93	0.00	0.00	63.70	25.00	24.50
302.00	6.93	0.00	0.00	63.70	25.00	24.50
303.00	6.93	0.00	0.00	63.70	25.00	24.50
304.00	6.93	0.00	0.00	63.70	25.00	24.49
305.00	6.93	0.00	0.00	63.70	25.00	24.49
306.00	6.93	0.00	0.00	63.70	25.00	24.49
307.00	6.93	0.00	0.00	63.70	25.00	24.49
308.00	6.93	0.00	0.00	63.70	25.00	24.48
309.00	6.93	0.00	0.00	63.70	25.00	24.48
310.00	6.93	0.00	0.00	63.70	25.00	24.48
311.00	6.93	0.00	0.00	63.70	25.00	24.47
312.00	6.93	0.00	0.00	63.70	25.00	24.47
313.00	6.93	0.00	0.00	63.70	25.00	24.47
314.00	6.93	0.00	0.00	63.70	25.00	24.47
315.00	6.93	0.00	0.00	63.70	25.00	24.46
316.00	6.93	0.00	0.00	63.70	25.00	24.46
317.00	6.93	0.00	0.00	63.70	25.00	24.46
318.00	6.93	0.00	0.00	63.70	25.00	24.46
319.00	6.93	0.00	0.00	63.70	25.00	24.45
320.00	6.93	0.00	0.00	63.70	25.00	24.45
321.00	6.93	0.00	0.00	63.70	25.00	24.45
322.00	6.93	0.00	0.00	63.70	25.00	24.45

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
323.00	6.93	0.00	0.00	63.70	25.00	24.44
324.00	6.93	0.00	0.00	63.70	25.00	24.44
325.00	6.93	0.00	0.00	63.70	25.00	24.44
326.00	6.93	0.00	0.00	63.70	25.00	24.44
327.00	6.93	0.00	0.00	63.70	25.00	24.43
328.00	6.93	0.00	0.00	63.70	25.00	24.43
329.00	6.93	0.00	0.00	63.70	25.00	24.43
330.00	6.93	0.00	0.00	63.70	25.00	24.43
331.00	6.93	0.00	0.00	63.70	25.00	24.42
332.00	6.93	0.00	0.00	63.70	25.00	24.42
333.00	6.93	0.00	0.00	63.70	25.00	24.42
334.00	6.93	0.00	0.00	63.70	25.00	24.42
335.00	6.93	0.00	0.00	63.70	25.00	24.42
336.00	6.93	0.00	0.00	63.70	25.00	24.41
337.00	6.93	0.00	0.00	63.70	25.00	24.41
338.00	6.93	0.00	0.00	63.70	25.00	24.41
339.00	6.93	0.00	0.00	63.70	25.00	24.41
340.00	6.93	0.00	0.00	63.70	25.00	24.40
341.00	6.93	0.00	0.00	63.70	25.00	24.40
342.00	6.93	0.00	0.00	63.70	25.00	24.40
343.00	6.93	0.00	0.00	63.70	25.00	24.40
344.00	6.93	0.00	0.00	63.70	25.00	24.40
345.00	6.93	0.00	0.00	63.70	25.00	24.39
346.00	6.93	0.00	0.00	63.70	25.00	24.39
347.00	6.93	0.00	0.00	63.70	25.00	24.39
348.00	6.93	0.00	0.00	63.70	25.00	24.39
349.00	6.93	0.00	0.00	63.70	25.00	24.39
350.00	6.93	0.00	0.00	63.70	25.00	24.38
351.00	6.93	0.00	0.00	63.70	25.00	24.38
352.00	6.93	0.00	0.00	63.70	25.00	24.38
353.00	6.93	0.00	0.00	63.70	25.00	24.38
354.00	6.93	0.00	0.00	63.70	25.00	24.38
355.00	6.93	0.00	0.00	63.70	25.00	24.37
356.00	6.93	0.00	0.00	63.70	25.00	24.37
357.00	6.93	0.00	0.00	63.70	25.00	24.37
358.00	6.93	0.00	0.00	63.70	25.00	24.37
359.00	6.93	0.00	0.00	63.70	25.00	24.37
360.00	6.93	0.00	0.00	63.70	25.00	24.37

Structure: 5

From Basin: Basin 2

To Basin: Basin 1

Structure Type: Gravity

Weir: None

Bleeder: None

Pipe: Diameter = 4 ft, Manning's n = 0.024, Length = 40 ft

US Invert Elev = 25 ft NGVD, DS Invert Elev = 25 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	25.00	24.00
1.00	0.03	0.00	0.00	0.00	25.00	24.00
2.00	0.06	0.00	0.00	0.00	25.00	24.00
3.00	0.09	0.00	0.00	0.00	25.00	24.00
4.00	0.12	0.00	0.00	0.00	25.00	24.00
5.00	0.16	0.00	0.00	0.00	25.00	24.00
6.00	0.19	0.00	0.00	0.00	25.00	24.00
7.00	0.22	0.00	0.00	0.00	25.00	24.00
8.00	0.25	0.00	0.00	0.00	25.00	24.00
9.00	0.28	0.00	0.00	0.00	25.00	24.00
10.00	0.31	0.00	0.00	0.00	25.00	24.00
11.00	0.34	0.00	0.00	0.00	25.00	24.00
12.00	0.37	0.00	0.00	0.00	25.00	24.00
13.00	0.40	0.00	0.00	0.00	25.00	24.00
14.00	0.43	0.00	0.00	0.00	25.00	24.00
15.00	0.47	0.00	0.00	0.00	25.00	24.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
16.00	0.50	0.00	0.00	0.00	25.00	24.00
17.00	0.53	0.00	0.00	0.00	25.00	24.00
18.00	0.56	0.02	0.00	0.00	25.00	24.00
19.00	0.59	0.05	0.00	0.00	25.00	24.00
20.00	0.62	0.08	0.00	0.00	25.00	24.00
21.00	0.65	0.13	0.00	0.00	25.00	24.00
22.00	0.68	0.18	0.00	0.00	25.00	24.00
23.00	0.71	0.23	0.00	0.00	25.00	24.00
24.00	0.74	0.29	0.00	0.00	25.00	24.00
25.00	0.79	0.40	0.00	0.00	25.00	24.00
26.00	0.84	0.52	0.00	0.00	25.00	24.01
27.00	0.88	0.65	0.00	0.00	25.01	24.01
28.00	0.93	0.78	0.00	0.00	25.01	24.01
29.00	0.97	0.92	0.00	0.00	25.01	24.02
30.00	1.02	1.06	0.00	0.00	25.01	24.02
31.00	1.06	1.20	0.00	0.00	25.02	24.02
32.00	1.11	1.35	0.00	0.00	25.02	24.03
33.00	1.15	1.50	0.00	1.22	25.00	24.07
34.00	1.20	1.64	0.00	1.22	25.00	24.07
35.00	1.24	1.79	0.00	1.22	25.00	24.08
36.00	1.29	1.93	0.00	1.22	25.00	24.09
37.00	1.33	2.08	0.00	1.22	25.00	24.09
38.00	1.38	2.22	0.00	1.22	25.01	24.10
39.00	1.42	2.36	0.00	1.22	25.01	24.11
40.00	1.47	2.49	0.00	2.39	25.00	24.12
41.00	1.51	2.63	0.00	2.39	25.00	24.13
42.00	1.56	2.76	0.00	2.39	25.00	24.16
43.00	1.60	2.89	0.00	2.39	25.01	24.17
44.00	1.65	3.02	0.00	2.39	25.01	24.18
45.00	1.70	3.14	0.00	3.50	25.00	24.20
46.00	1.74	3.26	0.00	3.50	25.00	24.21
47.00	1.79	3.38	0.00	3.50	25.00	24.22
48.00	1.83	3.50	0.00	3.50	25.01	24.25
49.00	1.88	3.66	0.00	4.58	25.00	24.27
50.00	1.93	3.82	0.00	4.58	25.00	24.28
51.00	1.99	4.08	0.00	4.58	25.01	24.29
52.00	2.06	4.38	62.09	5.60	25.00	24.33
53.00	2.15	4.88	0.00	5.60	25.00	24.34
54.00	2.25	5.57	0.00	5.60	25.01	24.36
55.00	2.38	6.45	0.00	6.59	25.00	24.41
56.00	2.53	7.53	0.00	6.59	25.01	24.43
57.00	2.70	8.86	0.00	7.52	25.01	24.48
58.00	2.92	10.62	0.00	8.40	25.00	24.53
59.00	3.20	13.20	0.00	9.24	25.01	24.58
60.00	5.18	39.42	42.08	11.46	25.00	24.69
61.00	5.74	44.01	24.45	14.08	25.03	24.92
62.00	6.00	43.84	0.00	14.75	25.12	25.18
63.00	6.17	42.27	0.00	14.75	25.24	25.41
64.00	6.32	40.71	0.00	14.75	25.35	25.62
65.00	6.41	38.38	0.00	14.75	25.46	25.79
66.00	6.50	36.27	0.00	14.75	25.57	25.93
67.00	6.59	34.35	0.00	14.75	25.66	26.04
68.00	6.69	32.61	0.00	14.75	25.76	26.10
69.00	6.75	30.57	0.00	14.75	25.84	26.16
70.00	6.81	28.71	0.00	14.75	25.92	26.21
71.00	6.87	27.03	0.00	14.75	26.00	26.25
72.00	6.93	25.50	0.00	14.75	26.07	26.28
73.00	6.93	23.18	0.00	14.75	26.14	26.31
74.00	6.93	21.07	0.00	14.75	26.20	26.32
75.00	6.93	19.16	0.00	14.75	26.26	26.33
76.00	6.93	17.42	0.00	14.75	26.31	26.34
77.00	6.93	15.84	7.41	14.95	26.35	26.34
78.00	6.93	14.40	11.77	15.82	26.36	26.34
79.00	6.93	13.09	13.18	16.87	26.36	26.33
80.00	6.93	11.90	13.70	17.99	26.36	26.33
81.00	6.93	10.82	13.81	19.13	26.36	26.32
82.00	6.93	9.84	13.62	20.27	26.35	26.31
83.00	6.93	8.94	13.51	21.39	26.33	26.30
84.00	6.93	8.13	13.01	22.48	26.32	26.29
85.00	6.93	7.39	12.77	23.54	26.31	26.28

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
86.00	6.93	6.72	12.20	24.57	26.29	26.27
87.00	6.93	6.11	11.93	25.57	26.28	26.25
88.00	6.93	5.55	11.36	26.52	26.26	26.24
89.00	6.93	5.05	11.10	27.45	26.24	26.22
90.00	6.93	4.59	10.54	28.34	26.23	26.21
91.00	6.93	4.17	10.31	29.20	26.21	26.19
92.00	6.93	3.80	9.77	30.02	26.19	26.18
93.00	6.93	3.45	9.59	30.82	26.18	26.16
94.00	6.93	3.14	9.07	31.59	26.16	26.15
95.00	6.93	2.85	8.94	32.33	26.14	26.13
96.00	6.93	2.59	8.45	33.05	26.13	26.11
97.00	6.93	2.36	8.36	33.74	26.11	26.10
98.00	6.93	2.14	7.89	34.41	26.10	26.08
99.00	6.93	1.95	7.85	35.06	26.08	26.07
100.00	6.93	1.77	7.40	35.69	26.06	26.05
101.00	6.93	1.61	7.39	36.30	26.05	26.04
102.00	6.93	1.46	6.96	36.89	26.03	26.02
103.00	6.93	1.33	6.99	37.46	26.02	26.01
104.00	6.93	1.21	7.58	38.05	26.00	25.99
105.00	6.93	1.10	8.73	38.74	25.98	25.97
106.00	6.93	1.00	8.34	39.45	25.96	25.95
107.00	6.93	0.91	8.63	40.15	25.94	25.93
108.00	6.93	0.83	8.02	40.84	25.92	25.91
109.00	6.93	0.75	8.25	41.51	25.90	25.89
110.00	6.93	0.68	7.63	42.16	25.88	25.87
111.00	6.93	0.62	7.87	42.80	25.86	25.85
112.00	6.93	0.56	7.25	43.42	25.84	25.83
113.00	6.93	0.51	7.52	44.04	25.82	25.81
114.00	6.93	0.47	6.91	44.63	25.80	25.79
115.00	6.93	0.42	7.20	45.21	25.78	25.78
116.00	6.93	0.39	6.60	45.78	25.77	25.76
117.00	6.93	0.35	6.91	46.34	25.75	25.74
118.00	6.93	0.32	6.31	46.88	25.73	25.72
119.00	6.93	0.29	6.64	47.42	25.71	25.71
120.00	6.93	0.26	6.05	47.94	25.70	25.69
121.00	6.93	0.24	6.40	48.46	25.68	25.67
122.00	6.93	0.22	5.81	48.95	25.67	25.66
123.00	6.93	0.20	6.18	49.45	25.65	25.64
124.00	6.93	0.18	5.59	49.93	25.63	25.63
125.00	6.93	0.16	5.98	50.42	25.62	25.61
126.00	6.93	0.15	5.39	50.88	25.60	25.60
127.00	6.93	0.14	5.79	51.35	25.59	25.58
128.00	6.93	0.12	5.20	51.79	25.57	25.57
129.00	6.93	0.11	5.62	52.25	25.56	25.55
130.00	6.93	0.10	5.04	52.68	25.54	25.54
131.00	6.93	0.09	5.47	53.12	25.53	25.52
132.00	6.93	0.08	4.89	53.54	25.52	25.51
133.00	6.93	0.08	5.28	53.97	25.50	25.50
134.00	6.93	0.07	4.42	54.36	25.49	25.49
135.00	6.93	0.06	4.12	54.74	25.48	25.47
136.00	6.93	0.06	4.75	55.12	25.46	25.46
137.00	6.93	0.05	4.15	55.48	25.45	25.45
138.00	6.93	0.05	4.63	55.85	25.44	25.44
139.00	6.93	0.04	4.09	56.21	25.43	25.43
140.00	6.93	0.04	4.58	56.57	25.42	25.41
141.00	6.93	0.04	3.81	56.91	25.41	25.40
142.00	6.93	0.03	4.27	57.26	25.39	25.39
143.00	6.93	0.03	4.12	57.60	25.38	25.38
144.00	6.93	0.03	3.51	57.93	25.37	25.37
145.00	6.93	0.02	4.49	58.27	25.36	25.36
146.00	6.93	0.02	3.99	58.59	25.35	25.35
147.00	6.93	0.02	3.36	58.91	25.34	25.34
148.00	6.93	0.02	4.35	59.24	25.33	25.33
149.00	6.93	0.02	3.85	59.55	25.32	25.31
150.00	6.93	0.02	3.21	59.86	25.31	25.31
151.00	6.93	0.01	4.22	60.18	25.30	25.29
152.00	6.93	0.01	3.71	60.48	25.29	25.28
153.00	6.93	0.01	3.07	60.78	25.28	25.28
154.00	6.93	0.01	4.09	61.08	25.27	25.26
155.00	6.93	0.01	3.59	61.37	25.26	25.25

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
156.00	6.93	0.01	2.94	61.66	25.25	25.25
157.00	6.93	0.01	3.97	61.95	25.24	25.24
158.00	6.93	0.01	3.47	62.23	25.23	25.23
159.00	6.93	0.01	2.81	62.51	25.22	25.22
160.00	6.93	0.01	3.86	62.80	25.21	25.21
161.00	6.93	0.01	3.35	63.06	25.20	25.20
162.00	6.93	0.00	2.69	63.33	25.19	25.19
163.00	6.93	0.00	3.75	63.61	25.18	25.18
164.00	6.93	0.00	3.25	63.87	25.17	25.17
165.00	6.93	0.00	2.57	64.13	25.17	25.16
166.00	6.93	0.00	3.65	64.40	25.16	25.16
167.00	6.93	0.00	3.14	64.64	25.15	25.15
168.00	6.93	0.00	2.46	64.90	25.14	25.14
169.00	6.93	0.00	3.55	65.16	25.13	25.13
170.00	6.93	0.00	3.05	65.39	25.12	25.12
171.00	6.93	0.00	2.35	65.64	25.11	25.11
172.00	6.93	0.00	3.46	65.89	25.11	25.11
173.00	6.93	0.00	2.95	66.12	25.10	25.10
174.00	6.93	0.00	2.25	66.36	25.09	25.09
175.00	6.93	0.00	3.37	66.60	25.08	25.08
176.00	6.93	0.00	2.86	66.82	25.08	25.07
177.00	6.93	0.00	2.14	67.05	25.07	25.07
178.00	6.93	0.00	3.29	67.29	25.06	25.06
179.00	6.93	0.00	2.78	67.51	25.05	25.05
180.00	6.93	0.00	2.08	67.73	25.05	25.04
181.00	6.93	0.00	3.19	67.96	25.04	25.04
182.00	6.93	0.00	2.67	68.16	25.03	25.03
183.00	6.93	0.00	1.79	68.38	25.02	25.02
184.00	6.93	0.00	3.23	68.61	25.02	25.02
185.00	6.93	0.00	3.02	68.81	25.01	25.01
186.00	6.93	0.00	2.56	69.01	25.00	25.00
187.00	6.93	0.00	0.00	69.06	25.00	24.99
188.00	6.93	0.00	0.00	69.06	25.00	24.99
189.00	6.93	0.00	0.00	69.06	25.00	24.98
190.00	6.93	0.00	0.00	69.06	25.00	24.97
191.00	6.93	0.00	0.00	69.06	25.00	24.97
192.00	6.93	0.00	0.00	69.06	25.00	24.96
193.00	6.93	0.00	0.00	69.06	25.00	24.95
194.00	6.93	0.00	0.00	69.06	25.00	24.95
195.00	6.93	0.00	0.00	69.06	25.00	24.94
196.00	6.93	0.00	0.00	69.06	25.00	24.93
197.00	6.93	0.00	0.00	69.06	25.00	24.93
198.00	6.93	0.00	0.00	69.06	25.00	24.92
199.00	6.93	0.00	0.00	69.06	25.00	24.91
200.00	6.93	0.00	0.00	69.06	25.00	24.91
201.00	6.93	0.00	0.00	69.06	25.00	24.90
202.00	6.93	0.00	0.00	69.06	25.00	24.90
203.00	6.93	0.00	0.00	69.06	25.00	24.89
204.00	6.93	0.00	0.00	69.06	25.00	24.88
205.00	6.93	0.00	0.00	69.06	25.00	24.88
206.00	6.93	0.00	0.00	69.06	25.00	24.87
207.00	6.93	0.00	0.00	69.06	25.00	24.87
208.00	6.93	0.00	0.00	69.06	25.00	24.86
209.00	6.93	0.00	0.00	69.06	25.00	24.86
210.00	6.93	0.00	0.00	69.06	25.00	24.85
211.00	6.93	0.00	0.00	69.06	25.00	24.84
212.00	6.93	0.00	0.00	69.06	25.00	24.84
213.00	6.93	0.00	0.00	69.06	25.00	24.83
214.00	6.93	0.00	0.00	69.06	25.00	24.83
215.00	6.93	0.00	0.00	69.06	25.00	24.82
216.00	6.93	0.00	0.00	69.06	25.00	24.82
217.00	6.93	0.00	0.00	69.06	25.00	24.81
218.00	6.93	0.00	0.00	69.06	25.00	24.81
219.00	6.93	0.00	0.00	69.06	25.00	24.80
220.00	6.93	0.00	0.00	69.06	25.00	24.80
221.00	6.93	0.00	0.00	69.06	25.00	24.79
222.00	6.93	0.00	0.00	69.06	25.00	24.79
223.00	6.93	0.00	0.00	69.06	25.00	24.78
224.00	6.93	0.00	0.00	69.06	25.00	24.78
225.00	6.93	0.00	0.00	69.06	25.00	24.77

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
226.00	6.93	0.00	0.00	69.06	25.00	24.77
227.00	6.93	0.00	0.00	69.06	25.00	24.76
228.00	6.93	0.00	0.00	69.06	25.00	24.76
229.00	6.93	0.00	0.00	69.06	25.00	24.75
230.00	6.93	0.00	0.00	69.06	25.00	24.75
231.00	6.93	0.00	0.00	69.06	25.00	24.74
232.00	6.93	0.00	0.00	69.06	25.00	24.74
233.00	6.93	0.00	0.00	69.06	25.00	24.73
234.00	6.93	0.00	0.00	69.06	25.00	24.73
235.00	6.93	0.00	0.00	69.06	25.00	24.73
236.00	6.93	0.00	0.00	69.06	25.00	24.72
237.00	6.93	0.00	0.00	69.06	25.00	24.72
238.00	6.93	0.00	0.00	69.06	25.00	24.71
239.00	6.93	0.00	0.00	69.06	25.00	24.71
240.00	6.93	0.00	0.00	69.06	25.00	24.70
241.00	6.93	0.00	0.00	69.06	25.00	24.70
242.00	6.93	0.00	0.00	69.06	25.00	24.70
243.00	6.93	0.00	0.00	69.06	25.00	24.69
244.00	6.93	0.00	0.00	69.06	25.00	24.69
245.00	6.93	0.00	0.00	69.06	25.00	24.68
246.00	6.93	0.00	0.00	69.06	25.00	24.68
247.00	6.93	0.00	0.00	69.06	25.00	24.68
248.00	6.93	0.00	0.00	69.06	25.00	24.67
249.00	6.93	0.00	0.00	69.06	25.00	24.67
250.00	6.93	0.00	0.00	69.06	25.00	24.66
251.00	6.93	0.00	0.00	69.06	25.00	24.66
252.00	6.93	0.00	0.00	69.06	25.00	24.66
253.00	6.93	0.00	0.00	69.06	25.00	24.65
254.00	6.93	0.00	0.00	69.06	25.00	24.65
255.00	6.93	0.00	0.00	69.06	25.00	24.64
256.00	6.93	0.00	0.00	69.06	25.00	24.64
257.00	6.93	0.00	0.00	69.06	25.00	24.64
258.00	6.93	0.00	0.00	69.06	25.00	24.63
259.00	6.93	0.00	0.00	69.06	25.00	24.63
260.00	6.93	0.00	0.00	69.06	25.00	24.63
261.00	6.93	0.00	0.00	69.06	25.00	24.62
262.00	6.93	0.00	0.00	69.06	25.00	24.62
263.00	6.93	0.00	0.00	69.06	25.00	24.62
264.00	6.93	0.00	0.00	69.06	25.00	24.61
265.00	6.93	0.00	0.00	69.06	25.00	24.61
266.00	6.93	0.00	0.00	69.06	25.00	24.61
267.00	6.93	0.00	0.00	69.06	25.00	24.60
268.00	6.93	0.00	0.00	69.06	25.00	24.60
269.00	6.93	0.00	0.00	69.06	25.00	24.60
270.00	6.93	0.00	0.00	69.06	25.00	24.59
271.00	6.93	0.00	0.00	69.06	25.00	24.59
272.00	6.93	0.00	0.00	69.06	25.00	24.59
273.00	6.93	0.00	0.00	69.06	25.00	24.58
274.00	6.93	0.00	0.00	69.06	25.00	24.58
275.00	6.93	0.00	0.00	69.06	25.00	24.58
276.00	6.93	0.00	0.00	69.06	25.00	24.57
277.00	6.93	0.00	0.00	69.06	25.00	24.57
278.00	6.93	0.00	0.00	69.06	25.00	24.57
279.00	6.93	0.00	0.00	69.06	25.00	24.56
280.00	6.93	0.00	0.00	69.06	25.00	24.56
281.00	6.93	0.00	0.00	69.06	25.00	24.56
282.00	6.93	0.00	0.00	69.06	25.00	24.55
283.00	6.93	0.00	0.00	69.06	25.00	24.55
284.00	6.93	0.00	0.00	69.06	25.00	24.55
285.00	6.93	0.00	0.00	69.06	25.00	24.55
286.00	6.93	0.00	0.00	69.06	25.00	24.54
287.00	6.93	0.00	0.00	69.06	25.00	24.54
288.00	6.93	0.00	0.00	69.06	25.00	24.54
289.00	6.93	0.00	0.00	69.06	25.00	24.53
290.00	6.93	0.00	0.00	69.06	25.00	24.53
291.00	6.93	0.00	0.00	69.06	25.00	24.53
292.00	6.93	0.00	0.00	69.06	25.00	24.53
293.00	6.93	0.00	0.00	69.06	25.00	24.52
294.00	6.93	0.00	0.00	69.06	25.00	24.52
295.00	6.93	0.00	0.00	69.06	25.00	24.52

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
296.00	6.93	0.00	0.00	69.06	25.00	24.52
297.00	6.93	0.00	0.00	69.06	25.00	24.51
298.00	6.93	0.00	0.00	69.06	25.00	24.51
299.00	6.93	0.00	0.00	69.06	25.00	24.51
300.00	6.93	0.00	0.00	69.06	25.00	24.51
301.00	6.93	0.00	0.00	69.06	25.00	24.50
302.00	6.93	0.00	0.00	69.06	25.00	24.50
303.00	6.93	0.00	0.00	69.06	25.00	24.50
304.00	6.93	0.00	0.00	69.06	25.00	24.49
305.00	6.93	0.00	0.00	69.06	25.00	24.49
306.00	6.93	0.00	0.00	69.06	25.00	24.49
307.00	6.93	0.00	0.00	69.06	25.00	24.49
308.00	6.93	0.00	0.00	69.06	25.00	24.48
309.00	6.93	0.00	0.00	69.06	25.00	24.48
310.00	6.93	0.00	0.00	69.06	25.00	24.48
311.00	6.93	0.00	0.00	69.06	25.00	24.47
312.00	6.93	0.00	0.00	69.06	25.00	24.47
313.00	6.93	0.00	0.00	69.06	25.00	24.47
314.00	6.93	0.00	0.00	69.06	25.00	24.47
315.00	6.93	0.00	0.00	69.06	25.00	24.46
316.00	6.93	0.00	0.00	69.06	25.00	24.46
317.00	6.93	0.00	0.00	69.06	25.00	24.46
318.00	6.93	0.00	0.00	69.06	25.00	24.46
319.00	6.93	0.00	0.00	69.06	25.00	24.45
320.00	6.93	0.00	0.00	69.06	25.00	24.45
321.00	6.93	0.00	0.00	69.06	25.00	24.45
322.00	6.93	0.00	0.00	69.06	25.00	24.45
323.00	6.93	0.00	0.00	69.06	25.00	24.44
324.00	6.93	0.00	0.00	69.06	25.00	24.44
325.00	6.93	0.00	0.00	69.06	25.00	24.44
326.00	6.93	0.00	0.00	69.06	25.00	24.44
327.00	6.93	0.00	0.00	69.06	25.00	24.43
328.00	6.93	0.00	0.00	69.06	25.00	24.43
329.00	6.93	0.00	0.00	69.06	25.00	24.43
330.00	6.93	0.00	0.00	69.06	25.00	24.43
331.00	6.93	0.00	0.00	69.06	25.00	24.42
332.00	6.93	0.00	0.00	69.06	25.00	24.42
333.00	6.93	0.00	0.00	69.06	25.00	24.42
334.00	6.93	0.00	0.00	69.06	25.00	24.42
335.00	6.93	0.00	0.00	69.06	25.00	24.42
336.00	6.93	0.00	0.00	69.06	25.00	24.41
337.00	6.93	0.00	0.00	69.06	25.00	24.41
338.00	6.93	0.00	0.00	69.06	25.00	24.41
339.00	6.93	0.00	0.00	69.06	25.00	24.41
340.00	6.93	0.00	0.00	69.06	25.00	24.40
341.00	6.93	0.00	0.00	69.06	25.00	24.40
342.00	6.93	0.00	0.00	69.06	25.00	24.40
343.00	6.93	0.00	0.00	69.06	25.00	24.40
344.00	6.93	0.00	0.00	69.06	25.00	24.40
345.00	6.93	0.00	0.00	69.06	25.00	24.39
346.00	6.93	0.00	0.00	69.06	25.00	24.39
347.00	6.93	0.00	0.00	69.06	25.00	24.39
348.00	6.93	0.00	0.00	69.06	25.00	24.39
349.00	6.93	0.00	0.00	69.06	25.00	24.39
350.00	6.93	0.00	0.00	69.06	25.00	24.38
351.00	6.93	0.00	0.00	69.06	25.00	24.38
352.00	6.93	0.00	0.00	69.06	25.00	24.38
353.00	6.93	0.00	0.00	69.06	25.00	24.38
354.00	6.93	0.00	0.00	69.06	25.00	24.38
355.00	6.93	0.00	0.00	69.06	25.00	24.37
356.00	6.93	0.00	0.00	69.06	25.00	24.37
357.00	6.93	0.00	0.00	69.06	25.00	24.37
358.00	6.93	0.00	0.00	69.06	25.00	24.37
359.00	6.93	0.00	0.00	69.06	25.00	24.37
360.00	6.93	0.00	0.00	69.06	25.00	24.37

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

```
=====
Struc  Max (cfs)  Time (hr)  Min (cfs)  Time (hr)
```



```

=====
1      37.86      76.40      0.00      0.00
2      24.57      76.40      0.00      0.00
3      113.03     32.60      0.00      0.00
4      113.03     32.60      0.00      0.00
5       73.84     32.40      0.00      0.00
=====

```

BASIN MAXIMUM AND MINIMUM STAGES

```

=====
      Basin      Max (ft)      Time (hr)      Min (ft)      Time (hr)
=====
      Basin 1      26.34      76.40      24.00      0.00
      Basin 2      26.36      79.00      25.00      0.00
      Basin 3      26.34      76.20      25.00      0.00
=====

```

BASIN WATER BUDGETS (all units in acre-ft)

```

=====
      Basin      Total      Structure      Structure      Initial      Final
      Runoff      Inflow      Outflow      Storage      Storage      Residual
=====
      Basin 1      325.20      196.43      468.52      0.00      53.12      0.00
      Basin 2       69.05       0.00      69.05      0.00      0.00      0.00
      Basin 3     127.30       0.00     127.38      0.00     -0.08      0.00
=====

```


Charles L. Bryan 863-402-6685**OKS 2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02001700000		23,890	0	23890	60

ORIGINAL SUBMITTAL

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973-0742

2525 SW RUCK'S DAIRY RD
ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCEL 17 + INT IN
COMMON ELEMENTS
97.0
See Additional Legal on Tax Roll

JUL 14 2008**OKS**

AD VALOREM TAXES				
Taxing Authority	Millage Rate	Exemption Amt	Taxable Value	Taxes Levied
001 COUNTY GENERAL	7.3544			175.70
002 SCHOOL				
GENERAL FUND	4.9610			118.52
BASIC DISCRETIONARY	0.5100			12.18
SUPPL DISCRETIONARY	0.1930			4.61
CAPITAL IMPROVEMENT	2.0000			47.78
013 SOUTH FLORIDA WATER MANAGEMENT				
DISTRICT	0.2549			6.09
OKEECHOBEE BASIN	0.2797			6.68
EVERGLADES CONST PRJ	0.0894			2.14

Total Millage: 15.6424**Ad Valorem Taxes: \$373.70**

NON-AD VALOREM ASSESSMENTS		
Levying Authority	Rate	Amount
052 - COUNTY MANDATORY SOLID WASTE	1.000 @ \$130.0000	130.00
054 - LORIDA FIRE IMPROVED	1.000 @ \$20.0000	20.00

Non-ad Valorem Assessments: \$150.00**COMBINED TAXES AND ASSESSMENTS: \$523.70****Charles L. Bryan 863-402-6685****2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02001700000		23,890	0	23890	60

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973-0742

2525 SW RUCK'S DAIRY RD
ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCEL 17 + INT IN
COMMON ELEMENTS
97.0
See Additional Legal on Tax Roll

Charles L. Bryan 863-402-6685

HIGHLANDS COUNTY TAX COLLECTOR
540 S. COMMERCE AVE.
SEBRING, FL 33870

2007 REAL ESTATE**Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02001800000		197,607	0	197607	60

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973

ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCELS 18-19 +
PARCELS 20+21+22+23-LES
See Additional Legal on Tax Roll

AD VALOREM TAXES				
Taxing Authority	Millage Rate	Exemption Amt	Taxable Value	Taxes Levied
001 COUNTY GENERAL	7.3544			1453.28
002 SCHOOL				
GENERAL FUND	4.9610			980.33
BASIC DISCRETIONARY	0.5100			100.78
SUPPL DISCRETIONARY	0.1930			38.14
CAPITAL IMPROVEMENT	2.0000			395.21
013 SOUTH FLORIDA WATER MANAGEMENT DISTRICT	0.2549			50.37
OKEECHOBEE BASIN	0.2797			55.27
EVERGLADES CONST PRJ	0.0894			17.67

Total Millage: 15.6424**Ad Valorem Taxes: \$3,091.05**

NON-AD VALOREM ASSESSMENTS		
Levying Authority	Rate	Amount
052 - COUNTY MANDATORY SOLID WASTE	1.000 @ \$130.0000	130.00
054 - LORIDA FIRE IMPROVED	1.000 @ \$20.0000	20.00

Non-ad Valorem Assessments: \$150.00**COMBINED TAXES AND ASSESSMENTS: \$3,241.05****Charles L. Bryan 863-402-6685**

HIGHLANDS COUNTY TAX COLLECTOR
540 S. COMMERCE AVE.
SEBRING, FL 33870

2007 REAL ESTATE**Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02001800000		197,607	0	197607	60

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973

ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCELS 18-19 +
PARCELS 20+21+22+23-LES
See Additional Legal on Tax Roll

MUST PAY BY CASH, CASHIER CK,
OR MONEY ORDER

Charles L. Bryan 863-402-6685**2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-020AAAA0000		0	0	0	60

ARROW B RANCH OR 1373 PG
1346 TO PG 1413UNKNOWN
AN AGRICULTURAL SUB IN SEC
27-28-29 S OF SR 70 + SECS
31-32-33-34 TWP 37 RG 33

AD VALOREM TAXES				
Taxing Authority	Millage Rate	Exemption Amt	Taxable Value	Taxes Levied
001 COUNTY GENERAL	7.3544			0.00
002 SCHOOL				
GENERAL FUND	4.9610			0.00
BASIC DISCRETIONARY	0.5100			0.00
SUPPL DISCRETIONARY	0.1930			0.00
CAPITAL IMPROVEMENT	2.0000			0.00
013 SOUTH FLORIDA WATER MANAGEMENT				
DISTRICT	0.2549			0.00
OKEECHOBEE BASIN	0.2797			0.00
EVERGLADES CONST PRJ	0.0894			0.00

Total Millage: 15.6424**Ad Valorem Taxes: \$0.00**

NON-AD VALOREM ASSESSMENTS		
Levying Authority	Rate	Amount

Non-ad Valorem Assessments: \$0.00**COMBINED TAXES AND ASSESSMENTS: \$0.00**

If Paid By Please Pay	Jul 31, 2008	Aug 31, 2008	Sep 30, 2008
	0.00	0.00	0.00

Charles L. Bryan 863-402-6685**2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-020AAAA0000		0	0	0	60

ARROW B RANCH OR 1373 PG
1346 TO PG 1413UNKNOWN
AN AGRICULTURAL SUB IN SEC
27-28-29 S OF SR 70 + SECS
31-32-33-34 TWP 37 RG 33MUST PAY BY CASH, CASHIER CK,
OR MONEY ORDER

If Paid By Please Pay	Jul 31, 2008	Aug 31, 2008	Sep 30, 2008
	0.00	0.00	0.00

080714 - 9

Charles L. Bryan 863-402-6685**HIGHLANDS COUNTY TAX COLLECTOR****540 S. COMMERCE AVE.
SEBRING, FL 33870****2007 REAL ESTATE****OKS**
Notice of Ad Valorem Taxes and Non-ad Valorem Assessments**DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02002500000		220,073	0	220073	60

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973

19400 SR 70 WEST
ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCELS 25 THRU 28 + INT
IN COMMON ELEM
See Additional Legal on Tax Roll

AD VALOREM TAXES					
Taxing Authority	Millage Rate	Exemption Amt	Taxable Value	Taxes Levied	
001 COUNTY GENERAL	7.3544			1618.50	
002 SCHOOL					
GENERAL FUND	4.9610			1091.78	
BASIC DISCRETIONARY	0.5100			112.24	
SUPPL DISCRETIONARY	0.1930			42.47	
CAPITAL IMPROVEMENT	2.0000			440.15	
013 SOUTH FLORIDA WATER MANAGEMENT					
DISTRICT	0.2549			56.10	
OKEECHOBEE BASIN	0.2797			61.55	
EVERGLADES CONST PRJ	0.0894			19.67	

ORIGINAL SUBMITTAL**JUL 14 2008****OKS****Total Millage: 15.6424****Ad Valorem Taxes: \$3,442.46**

NON-AD VALOREM ASSESSMENTS		
Levying Authority	Rate	Amount
052 - COUNTY MANDATORY SOLID WASTE	1.000 @ \$130.0000	130.00
054 - LORIDA FIRE IMPROVED	1.000 @ \$20.0000	20.00

Non-ad Valorem Assessments: \$150.00**COMBINED TAXES AND ASSESSMENTS: \$3,592.46****Charles L. Bryan 863-402-6685****HIGHLANDS COUNTY TAX COLLECTOR****540 S. COMMERCE AVE.
SEBRING, FL 33870****2007 REAL ESTATE****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C273733-02002500000		220,073	0	220073	60

PERRY SMITH FAMILY LTD
P O BOX 742
OKEECHOBEE, FL 34973

19400 SR 70 WEST
ARROW B RANCH
OR 1373 PG 1346 TO PG 1413
PARCELS 25 THRU 28 + INT
IN COMMON ELEM
See Additional Legal on Tax Roll

MUST PAY BY CASH, CASHIER CK,
OR MONEY ORDER

Charles L. Bryan 863-402-6685**2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C283733-01003000000		7,973	0	7973	60

PERRY SMITH + SONS INC
P O BOX 742
OKEECHOBEE, FL 34973

19300 SR 70
SUB OF ALL SEC 28-37-33
PB 1-PG 102
LOT 30 9.38 ACRES

AD VALOREM TAXES				
Taxing Authority	Millage Rate	Exemption Amt	Taxable Value	Taxes Levied
001 COUNTY GENERAL	7.3544			58.64
002 SCHOOL				
GENERAL FUND	4.9610			39.55
BASIC DISCRETIONARY	0.5100			4.07
SUPPL DISCRETIONARY	0.1930			1.54
CAPITAL IMPROVEMENT	2.0000			15.95
013 SOUTH FLORIDA WATER MANAGEMENT				
DISTRICT	0.2549			2.03
OKEECHOBEE BASIN	0.2797			2.23
EVERGLADES CONST PRJ	0.0894			0.71

Total Millage: 15.6424**Ad Valorem Taxes: \$124.72**

NON-AD VALOREM ASSESSMENTS		
Levying Authority	Rate	Amount
033 - LORIDA FIRE NON IMPROVED	1.000 @ \$5.0000	5.00

Non-ad Valorem Assessments: \$5.00**COMBINED TAXES AND ASSESSMENTS: \$129.72****Charles L. Bryan 863-402-6685****2007 REAL ESTATE****HIGHLANDS COUNTY TAX COLLECTOR****Notice of Ad Valorem Taxes and Non-ad Valorem Assessments****540 S. COMMERCE AVE.
SEBRING, FL 33870****DUPLICATE BILL**

Account Number	Escrow Cd	Assessed value	Exemptions	Taxable value	Millage code
C283733-01003000000		7,973	0	7973	60

PERRY SMITH + SONS INC
P O BOX 742
OKEECHOBEE, FL 34973

19300 SR 70
SUB OF ALL SEC 28-37-33
PB 1-PG 102
LOT 30 9.38 ACRES

MUST PAY BY CASH, CASHIER CK,
OR MONEY ORDER

Paid 11/15/2007 Rcpt # 100-07-00006003 124.53

Appendix P Calculations

POND SUMMARY

Basin	Pre-Development			Post-Development			Difference			Pond ROW (AC)	Pond ROW Size (Ft)	
	Impervious	Pervious	Total	Impervious	Pervious	Total	Impervious	Pervious	Total		Short Leg	Long Leg
1	0.0	18.5	18.5	5.8	12.8	18.6	5.8	-5.8	0.0	5.5	348	695
2	1.6	14.7	16.3	4.5	11.5	16.1	2.9	-3.1	-0.2	1.6	188	376
3	4.6	28.1	32.7	9.8	22.8	32.7	5.3	-5.3	-0.1	7.8	413	825
4	4.9	30.1	35.0	11.6	23.4	35.0	6.7	-6.7	0.0	7.2	396	791
5	5.2	36.9	42.1	14.0	28.1	42.1	8.8	-8.8	0.0	7.8	413	826
6	0.6	30.6	31.2	10.7	20.5	31.2	10.2	-10.1	0.1	6.7	382	764
7	4.5	49.9	54.4	19.1	36.5	55.6	14.6	-13.4	1.2	9.3	449	898
8	7.5	49.0	56.4	17.9	38.7	56.7	10.5	-10.3	0.2	9.5	456	912
Total			286.7	Total			Total			55.5		

Basin 1

Designer: DAB
Date: 7/16/2025
Pond: 1

Total Area:	Impervious Area:	0.00 ac		
	Pervious Area:	18.52 ac		
	Total Area:	18.52 ac	Percent Impervious	0%

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	0.00	0.00
Pasture of Range Land: Good Condition	B/D	80	18.52	1481.60
Open Water	NA	98	0.00	0.00
Total:			18.52	1481.60

$$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 80.0$$

Runoff:		SFWMD (25yr/72hr)	SFWMD (100yr/72hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10 =$	2.50	
	Precipitation (P) =	8.50	10.90
Direct Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$	6.10	8.38
	Total Runoff (ac-ft) =	9.41	12.94
Total Runoff (R _t) =	A*Q/12		

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 1

Designer: DAB
Date: 7/16/2025
Pond: 1

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 5.80 ac
 Pervious Area: 12.76 ac
 Total Area: 18.56 ac Percent Impervious 31%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	5.80	568.40
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	12.76	1071.84
Open Water	NA	98	0.00	0.00
Total:			18.56	1640.24

CN = Total CN * Area / Total Area = 88.4

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 =$

1.32

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A*Q/12$

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

7.10

10.99

SFWMD
(100yr/72hr)

10.90

9.47

14.64

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	1	Pond:	1

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Wet	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	5.80	ac.
Total Basin Area	18.56	ac.

Wet	2.5	inch(s) over New Impervious Area =	1.21 ac-ft
-----	-----	------------------------------------	------------

Treatment V _{req} =	1.21	ac-ft
OFW Requirement (50% additional TV) =	1.21	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)	SFWMD (25yr/72hr)	
	Qpre =	9.41
	Qpost =	10.99
	Δ Q =	1.58
	AV _{req} = Largest ΔQ Volume =	1.58 ac-ft
	TV _{req} = Largest Treatment Volume =	1.21 ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	2.79 ac-ft
-------------------------------	---	------------

Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	0.57
Pond Tie-In Width =	9.72	@ 1:4	Avg. Exist. Ground Elev. (ft) =	29.99
Maximum Stage Elevation =	32.27	1.0 ft freeboard	Normal Water Elevation (ft) =	29.42
			Minimum EOP Elevation (ft) =	33.27

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
29.99	Pond R/W	4.62	NA
32.42	Back of Maintenance Berm	4.23	NA
31.42	Front of Maintenance Berm	3.48	6.68
30.42	Req'd Treatment + Attenuation Volume	3.34	3.27
29.42	Normal Water	3.20	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	2.79
Req'd Treat. + Atten. Stage (ft) =	30.42
Required Pond R/W (20% SF) =	5.5 ac

Basin 2

PRE-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 2

Designer: DAB
Date: 7/16/2025
Pond: 2

EXISTING CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 1.62 ac
Pervious Area: 14.65 ac
Total Area: 16.27 ac Percent Impervious 10%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	1.62	158.76
Pasture of Range Land: Good Condition	B/D	80	14.65	1172.00
Open Water	NA	98	0.00	0.00
Total:			16.27	1330.76

CN = Total CN * Area / Total Area = 81.8

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.23$

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) = 8.50

Direct Runoff (Q) = 6.31

Total Runoff (ac-ft) = 8.56

SFWMD
(25yr/72hr)

8.50

6.31

8.56

SFWMD
(100yr/72hr)

10.90

8.62

11.69

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 2

Designer: DAB
Date: 7/16/2025
Pond: 2

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 4.54 ac
 Pervious Area: 11.52 ac
 Total Area: 16.06 ac Percent Impervious 28%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	4.54	444.92
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	11.52	967.68
Open Water	NA	98	0.00	0.00
Total:			16.06	1412.60

CN = Total CN * Area / Total Area = 88.0

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 =$

1.37

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

7.05

9.44

SFWMD
(100yr/72hr)

10.90

9.41

12.60

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	2	Pond:	2

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Wet	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	2.92	ac.
Total Basin Area	16.06	ac.

Wet	2.5	inch(s) over New Impervious Area =	0.61 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	0.61	ac-ft
OFW Requirement (50% additional TV) =	0.61	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)	SFWMD (25yr/72hr)	
	Qpre =	8.56
	Qpost =	9.44
	Δ Q =	0.88
	AV _{req} = Largest ΔQ Volume =	0.88 ac-ft
	TV _{req} = Largest Treatment Volume =	0.61 ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	1.49 ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	2.76
Pond Tie-In Width =	0.96	@ 1:4	Avg. Exist. Ground Elev. (ft) =	29.05
Maximum Stage Elevation =	29.97	1.0 ft freeboard	Normal Water Elevation (ft) =	26.29
			Minimum EOP Elevation (ft) =	30.97

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
29.05	Pond R/W	2.98	NA
29.29	Back of Maintenance Berm	2.95	NA
28.29	Front of Maintenance Berm	2.33	4.43
27.29	Req'd Treatment + Attenuation Volume	2.21	2.16
26.29	Normal Water	2.10	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	1.49
Req'd Treat. + Atten. Stage (ft) =	27.29
Required Pond R/W (20% SF) =	3.6 ac

LINEAR DITCH SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	2	Pond:	2

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Dry	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	4.54	ac.
Total Basin Area	16.06	ac.

Dry	1.25	inch(s) over New Impervious Area =	0.47 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	0.47	ac-ft
OFW Requirement (50% additional TV) =	0.47	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)

	SFWMD (25yr/72hr)	
Q _{pre} =	8.56	
Q _{post} =	9.44	
Δ Q =	0.88	
AV _{req} = Largest ΔQ Volume =	0.88	ac-ft
TV _{req} = Largest Treatment Volume =	0.47	ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	1.36	ac-ft
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Ditch Stage / Storage Calculations:

Maintenance Area Width =	10.00		Soil depth to water table =	2.76	
Pond Tie-In Width =	16.80	@ 1:4	Avg. Exist. Ground Elev. (ft) =	26.00	Station 430 - 450
Maximum Stage Elevation =	29.97	1.0 ft freeboard	Normal Water Elevation (ft) =	23.24	Station 430 - 450
			Minimum EOP Elevation (ft) =	30.97	Station 454+00

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
26.00	Linear Pond R/W	2.26	NA
30.20	Back of Top Berm	1.80	NA
30.20	Front of Top Berm	1.80	3.08
29.20	Req'd Treatment + Attenuation Volume	1.31	1.39
28.00	Linear Pond Bottom	1.00	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	1.36	
Req'd Treat. + Atten. Stage (ft) =	29.20	
Total Required Ditch R/W (20% SF) =	2.7	ac
Additional R/W Required	1.6	ac

Basin 3

PRE-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 3

Designer: DAB
Date: 7/16/2025
Pond: 3

EXISTING CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 4.56 ac
 Pervious Area: 28.15 ac
 Total Area: 32.71 ac Percent Impervious 14%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	4.56	446.88
Meadow (sod farm) - Good Condition	B/D	78	28.15	2195.70
Open Water	NA	98	0.00	0.00
Total:			32.71	2642.58

CN = Total CN * Area / Total Area = 80.8

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 =$

2.38

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

CN

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

6.19

16.87

SFWMD
(100yr/72hr)

10.90

8.49

23.14

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 3

Designer: DAB
Date: 7/16/2025
Pond: 3

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 9.85 ac
 Pervious Area: 22.81 ac
 Total Area: 32.66 ac Percent Impervious 30%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	9.85	965.30
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	22.81	1916.04
Open Water	NA	98	0.00	0.00
Total:			32.66	2881.34

CN = Total CN * Area / Total Area = 88.2

Runoff:

		SFWMD (25yr/72hr)	SFWMD (100yr/72hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10 =$	1.34	
	CN	Precipitation (P) =	8.50
Direct Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$	Direct Runoff (Q) =	7.08
		Total Runoff (ac-ft) =	19.28
Total Runoff (R _t) =	A*Q/12		25.71

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	3	Pond:	3

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Wet	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	5.28	ac.
Total Basin Area	32.66	ac.

Wet	2.5	inch(s) over New Impervious Area =	1.10 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	1.10	ac-ft
OFW Requirement (50% additional TV) =	1.10	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)	SFWMD (25yr/72hr)	
	Qpre =	16.87
	Qpost =	19.28
	Δ Q =	2.41
	AV _{req} = Largest ΔQ Volume =	2.41 ac-ft
	TV _{req} = Largest Treatment Volume =	1.10 ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	3.51 ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	0.58
Pond Tie-In Width =	9.68	@ 1:4	Avg. Exist. Ground Elev. (ft) =	28.76
Maximum Stage Elevation =	30.57	1.0 ft freeboard	Normal Water Elevation (ft) =	28.18
			Minimum EOP Elevation (ft) =	31.57

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
28.76	Pond R/W	6.51	NA
31.18	Back of Maintenance Berm	6.05	NA
30.18	Front of Maintenance Berm	5.14	9.94
29.18	Req'd Treatment + Attenuation Volume	4.97	4.89
28.18	Normal Water	4.80	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	3.51
Req'd Treat. + Atten. Stage (ft) =	29.18
Required Pond R/W (20% SF) =	7.8 ac

Basin 4

PRE-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 4

Designer: DAB
Date: 7/16/2025
Pond: 4

EXISTING CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 4.93 ac
Pervious Area: 30.10 ac
Total Area: 35.03 ac Percent Impervious 14%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	4.93	483.14
Pasture of Range Land: Good Condition	B/D	80	30.10	2408.00
Open Water	NA	98	0.00	0.00
Total:			35.03	2891.14

CN = Total CN * Area / Total Area = 82.5

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.12$

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

6.40

18.68

SFWMD
(100yr/72hr)

10.90

8.72

25.44

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 4

Designer: DAB
Date: 7/16/2025
Pond: 4

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 11.58 ac
 Pervious Area: 23.44 ac
 Total Area: 35.03 ac Percent Impervious 33%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	11.58	1135.23
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	23.44	1969.21
Open Water	NA	98	0.00	0.00
Total:			35.03	3104.44

CN = Total CN * Area / Total Area = 88.6

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.28$

 CN Precipitation (P) = 8.50

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$ Direct Runoff (Q) = 7.13

 Total Runoff (ac-ft) = 20.82

Total Runoff (R_t) = $A * Q / 12$

SFWMD
(25yr/72hr)

SFWMD
(100yr/72hr)

8.50

10.90

7.13

9.50

20.82

27.73

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	4	Pond:	4

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD
Stormwater Mgmt (Wet or Dry)	Wet
OFW	No
Open/Closed Basin	Open
New Impervious Area	6.65 ac.
Total Basin Area	35.03 ac.

Wet	2.5	inch(s) over New Impervious Area =	1.39 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	1.39	ac-ft
OFW Requirement (50% additional TV) =	1.39	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)

	SFWMD (25yr/72hr)
Q _{pre} =	18.68
Q _{post} =	20.82
Δ Q =	2.14

AV _{req} = Largest ΔQ Volume =	2.14	ac-ft
TV _{req} = Largest Treatment Volume =	1.39	ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	3.53	ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	3.50	
Pond Tie-In Width =	2.00	@ 1:4	Avg. Exist. Ground Elev. (ft) =	30.55	Station 525 - 535
Maximum Stage Elevation =	31.37	1.0 ft freeboard	Normal Water Elevation (ft) =	27.05	Station 525 - 535
			Minimum EOP Elevation (ft) =	32.37	Station 530

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
30.55	Pond R/W	5.99	NA
31.05	Back of Maintenance Berm	5.90	NA
30.05	Front of Maintenance Berm	5.00	14.25
28.05	Req'd Treatment + Attenuation Volume	4.67	4.58
27.05	Normal Water	4.50	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	3.53
Req'd Treat. + Atten. Stage (ft) =	28.05
Required Pond R/W (20% SF) =	7.2 ac

Basin 5

PRE-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 5

Designer: DAB
Date: 7/16/2025
Pond: 5

EXISTING CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 5.24 ac
Pervious Area: 36.87 ac
Total Area: 42.12 ac Percent Impervious 12%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	2.62	256.96
Pasture of Range Land: Good Condition	B/D	80	18.44	1474.84
Open Water	NA	98	0.00	0.00
Total:			21.06	1731.80

CN = Total CN * Area / Total Area = 82.2

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.16$

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

6.36

11.17

SFWMD
(100yr/72hr)

10.90

8.68

15.23

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 5

Designer: DAB
Date: 7/16/2025
Pond: 5

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 13.99 ac
 Pervious Area: 28.11 ac
 Total Area: 42.11 ac Percent Impervious 33%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	7.00	685.76
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	14.06	1180.62
Open Water	NA	98	0.00	0.00
Total:			21.05	1866.38

CN = Total CN * Area / Total Area = 88.7

Runoff:

		SFWMD (25yr/72hr)	SFWMD (100yr/72hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10 =$	1.28	
	CN	Precipitation (P) =	8.50
Direct Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$	Direct Runoff (Q) =	7.14
		Total Runoff (ac-ft) =	12.52
Total Runoff (R _t) =	A*Q/12		16.67

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	5	Pond:	5

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Wet	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	8.75	ac.
Total Basin Area	42.11	ac.

Wet		
	2.5	inch(s) over New Impervious Area = 1.82 ac-ft

Treatment V _{req} = Largest of Trt. Volume =	1.82	ac-ft
OFW Requirement (50% additional TV) =	1.82	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)

	SFWMD (25yr/72hr)
Q _{pre} =	11.17
Q _{post} =	12.52
Δ Q =	1.35

AV _{req} = Largest ΔQ Volume =	1.35	ac-ft
TV _{req} = Largest Treatment Volume =	1.82	ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	3.17	ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	1.50	
Pond Tie-In Width =	4.52	@ 1:4	Avg. Exist. Ground Elev. (ft) =	31.87	Station 625 - 640
Maximum Stage Elevation =	32.90	1.0 ft freeboard	Normal Water Elevation (ft) =	30.37	Station 625 - 640
			Minimum EOP Elevation (ft) =	33.90	Station 640+50

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
31.87	Pond R/W	6.53	NA
33.00	Back of Maintenance Berm	6.31	NA
32.00	Front of Maintenance Berm	5.39	8.55
31.00	Req'd Treatment + Attenuation Volume	5.21	3.25
30.37	Normal Water	5.10	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	<u>3.17</u>	
Req'd Treat. + Atten. Stage (ft) =	31.00	
Required Pond R/W (20% SF) =	7.8	ac

Basin 6

Designer: DAB
Date: 7/16/2025
Pond: 6

Total Area:	Impervious Area:	0.57 ac		
	Pervious Area:	30.60 ac		
	Total Area:	31.17 ac	Percent Impervious	2%

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	3.19	312.82
Pasture of Range Land: Good Condition	B/D	80	49.03	3922.40
Open Water	NA	98	0.00	0.00
Total:			52.22	4235.22

$$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 81.1$$

Runoff:		SFWMD (25yr/72hr)	SFWMD (100yr/72hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10 =$	2.33	
	Precipitation (P) =	8.50	10.90
Direct Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$	6.23	8.53
	Total Runoff (ac-ft) =	27.10	37.12
Total Runoff (R _t) =	A*Q/12		

Designer: DAB
Date: 7/16/2025
Pond: 6

$$\text{Total Runoff (R}_t\text{)} = A \cdot Q / 12$$

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	6	Pond:	6

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD	
Stormwater Mgmt (Wet or Dry)	Wet	
OFW	No	
Open/Closed Basin	Open	
New Impervious Area	10.16	ac.
Total Basin Area	31.23	ac.

Wet	2.5	inch(s) over New Impervious Area =	2.12 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	2.12	ac-ft
OFW Requirement (50% additional TV) =	2.12	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)	SFWMD (25yr/72hr)	
	Qpre =	27.10
	Qpost =	31.11
	Δ Q =	4.00
	AV _{req} = Largest ΔQ Volume =	4.00 ac-ft
	TV _{req} = Largest Treatment Volume =	2.12 ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	6.12 ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	1.50	
Pond Tie-In Width =	8.00	@ 1:4	Avg. Exist. Ground Elev. (ft) =	30.24	Station 640 - 660
Maximum Stage Elevation =	31.67	1.0 ft freeboard	Normal Water Elevation (ft) =	28.74	Station 640 - 660
			Minimum EOP Elevation (ft) =	32.67	Station 653

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
30.24	Pond R/W	5.59	NA
32.24	Back of Maintenance Berm	5.23	NA
31.24	Front of Maintenance Berm	4.39	10.49
30.24	Req'd Treatment + Attenuation Volume	4.24	6.18
28.74	Normal Water	4.00	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	6.12
Req'd Treat. + Atten. Stage (ft) =	30.24
Required Pond R/W (20% SF) =	6.7 ac

Basin 7

Designer: DAB
Date: 7/16/2025
Pond: 7

Total Area:	Impervious Area:	4.49 ac		
	Pervious Area:	49.92 ac		
	Total Area:	54.41 ac	Percent Impervious	8%

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	4.49	440.02
Pasture of Range Land: Good Condition	B/D	80	49.92	3993.60
Open Water	NA	98	0.00	0.00
Total:			54.41	4433.62

$$CN = \text{Total CN} * \text{Area} / \text{Total Area} = 81.5$$

Runoff:		SFWMD (25yr/72hr)	SFWMD (100yr/72hr)
Soil Capacity (S) =	$\frac{1000}{CN} - 10 =$	2.27	
	Precipitation (P) =	8.50	10.90
Direct Runoff (Q) =	$\frac{(P - 0.2S)^2}{(P + 0.8S)}$	6.27	8.58
	Total Runoff (ac-ft) =	28.45	38.90
Total Runoff (R _t) =	A*Q/12		

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Highlands
Basin: 7

Designer: DAB
Date: 7/16/2025
Pond: 7

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 19.078 ac
 Pervious Area: 36.486 ac
 Total Area: 55.56 ac Percent Impervious 34%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	19.08	1869.64
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	36.49	3064.82
Open Water	NA	98	0.00	0.00
Total:			55.56	4934.47

CN = Total CN * Area / Total Area = 88.8

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 =$

1.26

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

CN

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

7.15

33.13

SFWMD
(100yr/72hr)

10.90

9.52

44.09

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Highlands		
Basin:	7	Pond:	7

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD
Stormwater Mgmt (Wet or Dry)	Wet
OFW	No
Open/Closed Basin	Open
New Impervious Area	14.58 ac.
Total Basin Area	55.56 ac.

Wet	2.5	inch(s) over New Impervious Area =	3.04 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	3.04	ac-ft
OFW Requirement (50% additional TV) =	3.04	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)	SFWMD (25yr/72hr)	
Qpre =	28.45	
Qpost =	33.13	
Δ Q =	4.68	
AV _{req} = Largest ΔQ Volume =	4.68	ac-ft
TV _{req} = Largest Treatment Volume =	3.04	ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	7.72	ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	2.50	
Pond Tie-In Width =	3.04	@ 1:4	Avg. Exist. Ground Elev. (ft) =	23.04	Station 2760/Station 2770
Maximum Stage Elevation =	28.27	1.0 ft freeboard	Normal Water Elevation (ft) =	20.54	Station 2760/Station 2770
			Minimum EOP Elevation (ft) =	29.27	Station 747 - 762

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
23.04	Pond R/W	7.71	NA
23.80	Back of Maintenance Berm	7.55	NA
22.80	Front of Maintenance Berm	6.54	14.28
21.80	Req'd Treatment + Attenuation Volume	6.34	7.84
20.54	Normal Water	6.10	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	7.72
Req'd Treat. + Atten. Stage (ft) =	21.80
Required Pond R/W (20% SF) =	9.3 ac

Basin 8

PRE-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Okeechobee
Basin: 8

Designer: DAB
Date: 7/16/2025
Pond: 8

EXISTING CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 7.47 ac
Pervious Area: 48.98 ac
Total Area: 56.45 ac Percent Impervious 13%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	7.47	732.06
Pasture of Range Land: Good Condition	B/D	80	48.98	3918.40
Open Water	NA	98	0.00	0.00
Total:			56.45	4650.46

CN = Total CN * Area / Total Area = 82.4

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 2.14$

Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$

Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) =

Direct Runoff (Q) =

Total Runoff (ac-ft) =

SFWMD
(25yr/72hr)

8.50

6.38

30.02

SFWMD
(100yr/72hr)

10.90

8.70

40.91

POST-DEVELOPMENT

Project: SR 70 PD&E
Financial Project No.: 450334-1
County: Okeechobee
Basin: 8

Designer: DAB
Date: 7/16/2025
Pond: 8

PROPOSED CONDITION

Roadway Area (From CADD):

Total Area: Impervious Area: 17.927 ac
Pervious Area: 38.726 ac
Total Area: 56.65 ac Percent Impervious 32%

Curve Number (FDOT Hydrology Handbook):

Land Use Description	Hydrologic Soil Group	CN	Area (A)	CN * Area
Impervious areas; Streets/Roads	NA	98	17.93	1756.85
Open Space (lawns, parks, golf courses, cemeteries, etc.); Fair Conditions (grass cover - 50% to 75%)	B/D	84	38.73	3252.98
Open Water	NA	98	0.00	0.00
Total:			56.65	5009.83

CN = Total CN * Area / Total Area = 88.4

Runoff:

Soil Capacity (S) = $\frac{1000}{CN} - 10 = 1.31$
Direct Runoff (Q) = $\frac{(P - 0.2S)^2}{(P + 0.8S)}$
Total Runoff (R_t) = $A * Q / 12$

Precipitation (P) = 8.50
Direct Runoff (Q) = 7.11
Total Runoff (ac-ft) = 33.56

SFWMD
(25yr/72hr)

SFWMD
(100yr/72hr)

10.90

9.47

44.72

POND SIZING CALCULATIONS

Project:	SR 70 PD&E	Designer:	DAB
Financial Project No.:	450334-1	Date:	7/16/2025
County:	Okeechobee		
Basin:	8	Pond:	8

Pond Sizing:

Required Treatment Volume (TV)

Selection Criteria:

Permitting Agency	SFWMD
Stormwater Mgmt (Wet or Dry)	Wet
OFW	No
Open/Closed Basin	Open
New Impervious Area	10.46 ac.
Total Basin Area	56.65 ac.

Wet	2.5	inch(s) over New Impervious Area =	2.18 ac-ft
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Treatment V _{req} = Largest of Trt. Volume =	2.18	ac-ft
OFW Requirement (50% additional TV) =	2.18	ac-ft

Required Attenuation Volume (AV)

Total Runoff (ac-ft)

	SFWMD (25yr/72hr)
Q _{pre} =	30.02
Q _{post} =	33.56
Δ Q =	3.54

AV _{req} = Largest ΔQ Volume =	3.54	ac-ft
TV _{req} = Largest Treatment Volume =	2.18	ac-ft

Required Pond Storage Volume:	Treatment Volume + Largest Attenuation Volume =	5.72	ac-ft
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Pond Stage / Storage Calculations:

Maintenance Area Width =	20.00	@ 1:20	Soil depth to water table =	1.00	
Pond Tie-In Width =	8.00	@ 1:4	Avg. Exist. Ground Elev. (ft) =	24.93	Station 2800 - 820
Maximum Stage Elevation =	27.17	1.0 ft freeboard	Normal Water Elevation (ft) =	23.93	Station 2800 - 820
			Minimum EOP Elevation (ft) =	28.17	Station 816

ELEVATION (ft, NAVD)	DESCRIPTION	AREA (ac)	STORAGE (ac-ft)
24.93	Pond R/W	7.96	NA
26.93	Back of Maintenance Berm	7.53	NA
25.93	Front of Maintenance Berm	6.52	12.65
24.93	Req'd Treatment + Attenuation Volume	6.32	6.23
23.93	Normal Water	6.13	0.00

Req'd Treat. + Atten. Vol. (ac-ft) =	5.72
Req'd Treat. + Atten. Stage (ft) =	24.93
Required Pond R/W (20% SF) =	9.5 ac