

POND SITING REPORT

SR 417 (Seminole Expressway) Sanford Airport Connector from SR 417 to Red Cleveland Boulevard

Project Development and Environment Study

Seminole County, FL

Project 417-246A

Prepared for:

**CENTRAL
FLORIDA
EXPRESSWAY
AUTHORITY**

Central Florida Expressway Authority

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June 2025

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I am a registered professional engineer in the State of Florida practicing engineering with The Balmoral Group and that I have supervised the preparation of and approve the analysis, findings, opinions, conclusions and technical advice hereby reported for:

PROJECT: SR 417 (Seminole Expressway) Sanford Airport Connector PD&E Study
 from SR 417 to Red Cleveland Boulevard
 Pond Siting Report
 Project ID: 417-246A
 Seminole County, Florida

The engineering work represented by this document was performed through the following duly authorized engineering business:

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This report provides the results of the preliminary analysis of the existing drainage conditions and the analysis required for the estimation of stormwater pond sizes for the proposed improvements including the potential pond locations for the Project Development and Environment (PD&E) Study for the SR 417 (Seminole Expressway) Sanford Airport Connector Capacity Improvements from SR 417 (Seminole Expressway) to the entrance of the Orlando Sanford International Airport at Red Cleveland Boulevard. The results in this report are based on assumptions from existing permits and best available desktop data; no site-specific investigations were performed for this analysis. It is recommended that additional site specific analysis be performed to finalize the report or prior to purchasing any recommended sites. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of hydrologic analysis and hydraulic engineering as applied through professional judgment and experience.

Any engineering analysis, documents, conclusions or recommendations relied upon from other professional sources or provided with responsibility by the client are referenced accordingly in the following report.

FLORIDA REGISTERED ENGINEER:

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This item has been digitally signed and sealed by Jennifer Nunn on the date indicated here.

Signature must be verified on any electronic copies.

EXECUTIVE SUMMARY

The Central Florida Expressway Authority (CFX) is conducting a Project Development and Environment (PD&E) Study to evaluate the proposed State Road (SR) 417 (Seminole Expressway) Sanford Airport Connector Capacity Improvements from SR 417 (Seminole Expressway) to the entrance of the Orlando Sanford International Airport (SFB) at Red Cleveland Boulevard in Seminole County, FL.

The purpose of this Pond Siting Report (PSR) is to provide a pond siting evaluation to assess stormwater management facilities (SMFs) for the preferred alternative, Alignment 2A, to determine potential impacts to the human, natural, cultural and/or physical environment. Water quality treatment and runoff attenuation is provided using wet detention ponds. No floodplain impacts are anticipated; therefore, floodplain compensation is not required. The design of the stormwater facilities will comply with the standards set forth by CFX, St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection (FDEP), and Florida Department of Transportation (FDOT).

The proposed roadway typical section consists of two 15-foot wide travel lanes, one in each direction, separated by a 32-foot grassed median. Initially, six potential alignments were considered as part of this PD&E study; however, Alignment 2A was determined to be the preferred alternative and is the only build alternative considered for this pond siting analysis. Alignment 2A originates at a proposed interchange north of the existing SR 417 Lake Jesup toll plaza and continues in a northerly direction intersecting East Lake Mary Boulevard and terminating at Red Cleveland Boulevard. Pond sizing was performed assuming a fully paved median to allow for future conditions. See **Figure 1, Project Location Map** in **Appendix A, Figures**.

Required pond sizes for each basin were determined by evaluating the increase in runoff volume using the Natural Resources Conservation Service (NRCS) curve number (CN) method, and calculating treatment volume requirements. These volumes were summed and combined with landscaping, pond geometry, side slopes, freeboard, and maintenance berm assumptions to produce an estimated total required pond size. Pond size estimates include a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground. Since this is a rough analysis for pond sizing capacity, recovery calculations for orifice sizing and permanent pool calculations are not included in the pond sizing considerations. Please note that the recommendations were based on pond sizes determined from preliminary data, reasonable engineering judgment, and assumptions. Pond size requirements may change during final design as more detailed information on seasonal high groundwater table (SHGWT), wetland hydrologic information, and final roadway profile become available.

Design considerations for each pond site location included a desktop review of the best available data, which included hydraulic data, hydrology (land use cover, soil types, SHGWT, etc.), contamination sites, wetland extents, wildlife areas, archaeological or historical sites, and conservation areas. No site-specific investigations have been performed or used in this analysis, including field survey, geotechnical testing, wetland delineation, threatened and endangered species observations, archaeological/cultural resources investigations, or contamination screenings. The analyses in this report are based on best available GIS data, permit research, and site field review. The results are summarized in **Table 1 – Pond Option Summary**.

TABLE 1 – POND OPTION SUMMARY

Pond Site	Preferred Pond	Wetland Impact (ac)	Conservation Easement	Wildlife Habitat	Contamination Risk	Archeological Resources Impacts	Cultural Resources Impacts	Access Issues	Number of Parcels/ Property Owners	Pond Right-of-Way Area (ac)
Pond 417-1A (Option 1)		0	None	Low	None	Low	High	None	3/2	1.75
Pond 417-1B (Option 2)	✓	0	None	Low	None	Low	Low	None	1/1	1.75
Pond 417-1C1, Pond 417-1C2	✓	0.34	None	Low	None	Low	Low	None	N/A ⁽²⁾	1.60
Pond 417-2A (Option 1)	✓	0.11	None	Low	None	Low	Low	None	1/1	1.45
Pond 417-2B (Option 2)		0	None	Low	None	Low	Low	None	2/1	1.45
Pond 417- 3A (Option 1)		1.66 ⁽¹⁾	Yes	High – Eagle Nest < 330ft	None	Moderate	Low	None	1/1	3.44
Pond 417-3B (Option 2)	✓	3.44	None	High – Eagle Nest @ 330ft	None	Low	Low	None	1/1	3.44
Pond 417-4A (Option 1)	✓	0	None	High- Eagle Nest @ 660 ft	None	Low	Low	None	1/1	4.70
Pond 417-4B (Option 2)		1.35	None	Low	High	Low	Low	None	1/1	1.35

(1) Wetland impacts based on National Wetland Inventory linework; however, adjacent permits suggest wetland impacts may be higher.

(2) These ponds are within the proposed right-of-way footprint and therefore ownership is not a factor for the pond location.

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1. Introduction

The CFX is conducting a PD&E Study to evaluate the proposed SR 417 (Seminole Expressway) Sanford Airport Connector Capacity Improvements from SR 417 (Seminole Expressway) to the entrance of the Orlando Sanford International Airport (SFB) at Red Cleveland Boulevard.

Initially, six potential alignments were considered as part of this PD&E study within the study area shown in **Plate 1**. Alignment 2A was determined to be the preferred alternative and is the only build alternative considered for this pond siting analysis. Alignment 2A originates at a proposed interchange north of the existing SR 417 Lake Jesup toll plaza and continues in a northerly direction intersecting East Lake Mary Boulevard and terminating at Red Cleveland Boulevard. See **Figure 1, Project Location Map in Appendix A, Figures**.

The proposed roadway typical section consists of two 15-foot wide travel lanes, one in each direction, separated by a 32-foot grassed median. Each travel direction includes a 4-foot outside paved shoulder with curb and gutter, 10-foot landscaped areas, and 27-foot sodded areas for a total width of 150 feet as shown in **Plate 2**. The proposed connector has a design speed of 45 miles per hour (mph) with the ramps to and from SR 417 having design speeds of 50 mph. For the purposes of pond sizing, the median was assumed to be paved from Oakway Street to East Lake Mary Boulevard to accommodate future lanes.

The project horizontal datum is Florida State Plane East Zone (NAD 1983), and the vertical datum is North American Vertical Datum of 1988 (NAVD). Conversion to NAVD elevation is accomplished by subtracting 1.04 ft. from the National Geodetic Vertical Datum of 1929 (NGVD) elevation (i.e., 10.00 ft. NGVD = 8.96 ft. NAVD).

The project is located in Seminole County and within the SJRWMD jurisdiction. The study area encompasses Township 20 South, Range 30 East, Sections 12 and 13, and within Township 20 South, Range 31 East, Sections 7-9, and 16-20. See **Figure 2, USGS Topographic Map in Appendix A, Figures**.

The Federal Emergency Management Agency (FEMA) has determined the 100-year floodplain extents within the study area (effective date of 9/28/07). Within the study area, flood zones classified as Zone X, Zone A, and Zone AE are present. Zone X is an area of minimal flood hazard, outside of the 100-year floodplain. Zones A and AE are areas which have a 1% chance of flooding annually. A Zone A floodplain is located east of SR 417 and north of Pine Way. The Zone AE flood zone has a determined base flood elevation (BFE) of 9.00 feet NAVD and is associated with Lake Jesup. Alignment 2A does not encroach on any FEMA 100-year floodplain. See **Figure 4, FEMA Floodplain Map in Appendix A, Figures**.

The study area is located within the Middle St. Johns watershed and includes the Lake Jesup Drain, Navy Canal, and Six Mile Creek basins. The study area drains primarily to two waterways (Six Mile Creek and Phelps Creek/Navy Canal) and various channelized ditches which then discharge to Lake Jesup. The entire project limits are located within the Lake Jesup BMAP. There are no Outstanding Florida Waters (OFW) within the study area.

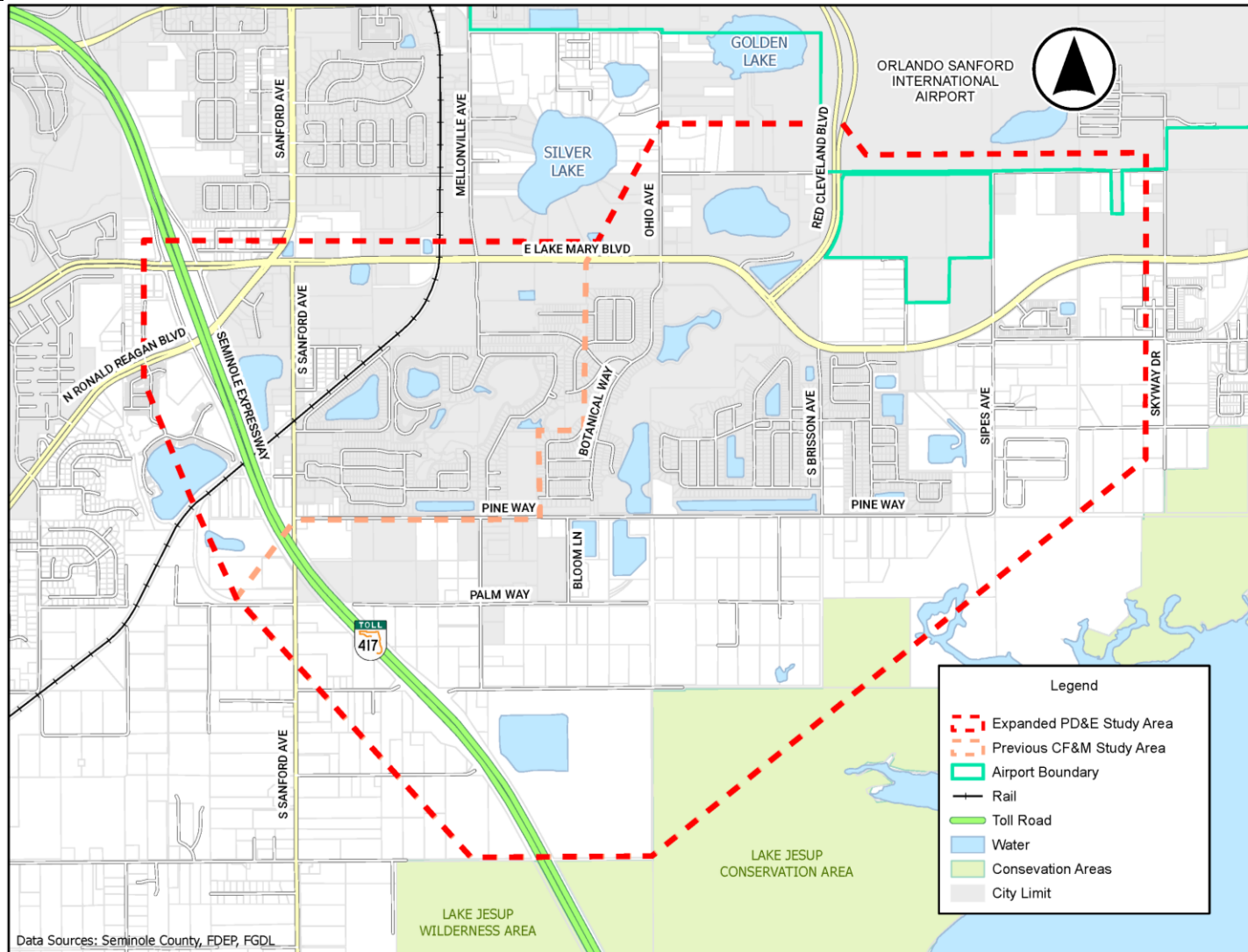


PLATE 1 – SR 417 (SEMINOLE EXPRESSWAY) SANFORD AIRPORT CONNECTOR STUDY AREA

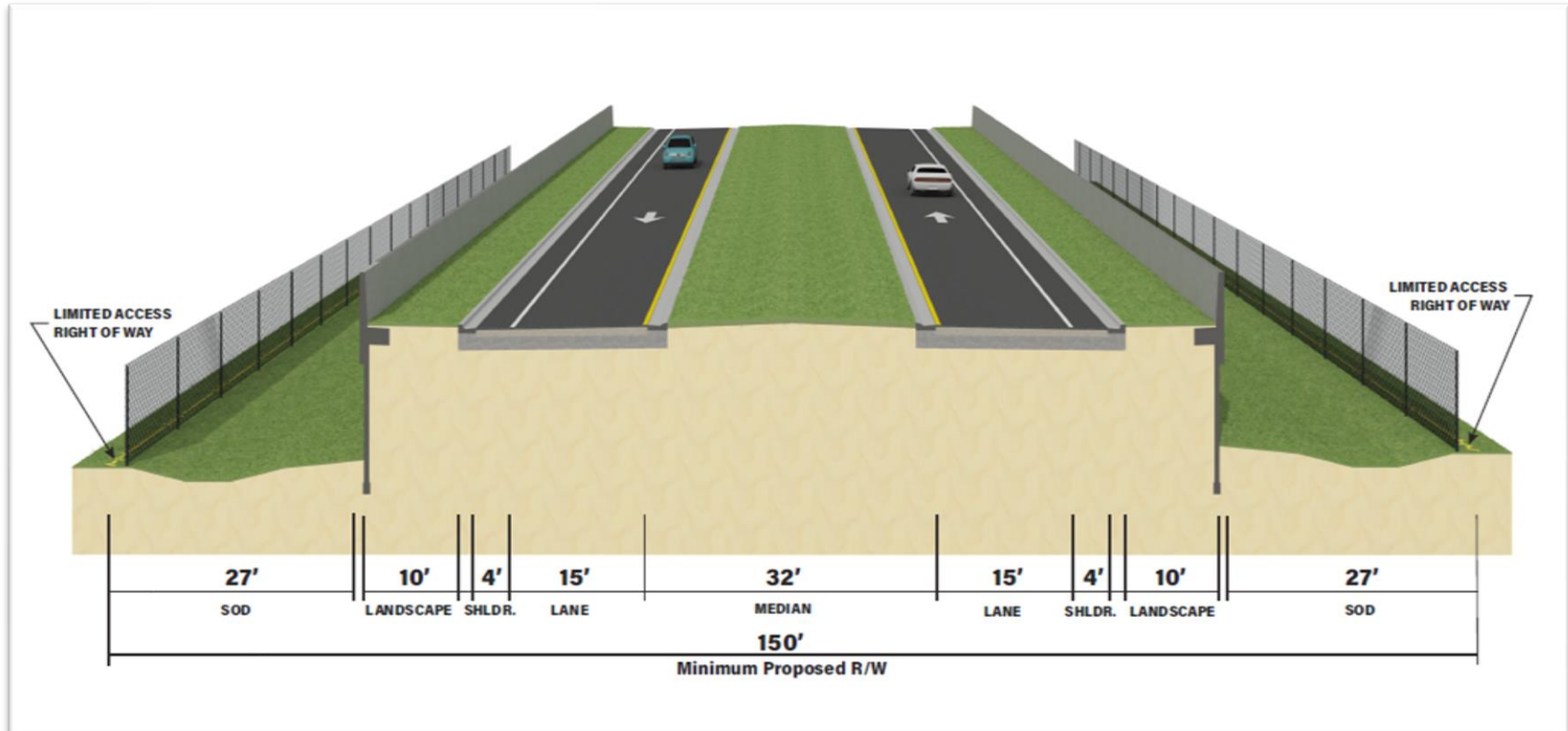


PLATE 2 – SR 417 (SEMINOLE EXPRESSWAY) SANFORD AIRPORT CONNECTOR PROPOSED TYPICAL SECTION

2. Purpose

The purpose of the proposed SR 417 (Seminole Expressway) Sanford Airport Connector is to provide a direct, limited access connection between SR 417 and SFB to provide better connectivity and accommodate future traffic growth in the area. The primary access to the airport is along East Lake Mary Boulevard via Red Cleveland Boulevard, which extends north from the airport entrance to the airport terminal. A proposed connector would provide a limited access connection directly to SFB from SR 417, thereby reducing the demand along East Lake Mary Boulevard and improving travel time for all users. The proposed improvements are to 1) enhance regional connectivity, 2) accommodate transportation demand, 3) provide needed capacity, 4) improve safety, 5) support modal connectivity, and 6) serve social and economic growth.

The purpose of this PSR is to provide a pond siting evaluation to assess pond locations for the preferred alternative, Alignment 2A, to determine potential impacts to the human, natural, cultural and/or physical environment. Stormwater management for water quality treatment and runoff attenuation is provided using wet detention ponds. No floodplain impacts are anticipated; therefore, floodplain compensation is not required. The design of the stormwater facilities will comply with the standards set forth by CFX, SJRWMD, FDEP, and FDOT.

3. Data Collection

The design team collected and reviewed data from the following sources:

- FDOT Drainage Manual, January 2025
- FDOT Drainage Design Guide, January 2025
- FDOT Design Manual, January 2025
- FDOT PD&E Manual, June 2024
- FEMA Panel Nos. 12117C0070F, 12117C0090F, 12117C0160F and 12117C0180F effective September 28, 2007 for Seminole County and Incorporated Areas.
- U.S. Department of Agriculture (USDA) NRCS SSURGO Database of Seminole County, Florida
- U.S. National Park Service's National Register of Historic Places
- U.S. Fish and Wildlife Service (USFWS) datasets for National Wetland Inventory (NWI), Wood Stork Nesting Sites, Florida Panther Focus Area, Environmental Conservation Online System (ECOS)
- Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute (FWC-FWRI) datasets for Gopher Tortoise Relocation Sites, Florida Mortality Locations
- FDEP and Water Management Districts (WMD) Mitigation Bank Service Areas
- FDEP datasets for Waste Cleanup Sites, Brownfields, Spring Locations, WBID, OFW, Verified Impaired Waters, Waters Not Attaining Standards (WNAS)
- FDEP and Florida Geological Survey (FGS) datasets for Spring Protective Areas, Wells, Swallets
- FDEP and Department of Management Services (DMS) Florida State Owned Land and Record Information System (FL-SOLARIS) and Land Inventory Tracking System (LITS)
- Florida Natural Areas Inventory datasets for Florida Forever Projects, Florida Conservation Lands (FLMA)
- Florida Ecological Greenways Network
- University of Florida – GeoPlan Center dataset for Florida Sand Skink and Blue-Tailed Mole Skink suitable habitat locations
- United States Geological Survey (USGS) OPR FL Peninsular for Seminole County LiDAR, 2018
- Florida Department of Revenue Parcel Data
- Lake Jesup Total Maximum Daily Load
- Lake Jesup BMAP
- SJRWMD and FDEP Permit Search

Elevation information was obtained from USGS for Seminole County 2018 LiDAR to create a 2.5-foot Digital Elevation Model (DEM) using CatchmentSIM. This DEM was used to verify SHGWT estimates and estimate pond outfall locations. No topographic survey was available for the project limits, and no field survey was collected for this phase.

Several existing permits were used to assist in making assumptions to establish SHGWT, wetland normal pool elevations, existing on-site storage and treatment, and existing cross drain information. **Table 2** and

Plate 3 shows the existing permits within the project study area that were used in the evaluation. The analysis in this report utilizes the best available information.

TABLE 2 – EXISTING PERMIT SUMMARY

Project Name	Application No.	Date Issued	Description
Baker Farms	21757	1/08/1985	Single family residential subdivision
Lake Mary Boulevard	21945-12	4/08/1996	Widening of US 17-92 to Sanford Ave and construction of wet detention ponds to serve Lake Mary Blvd. expansion
Silver Lakes Industrial Park	22290-2	12/7/1992	Construction of industrial subdivision consisting of streets, stormwater management facilities, and conservation and mitigations areas
Silver Lakes Industrial Park	22290-3	1/11/1993	Construction of a conveyance network for a 46-lot industrial subdivision
Sylvestri Estates	22290-10	9/29/2016	Construction of stormwater management system to serve 215-acre single family development
Sylvestri Lakes SD Sanford	22290-12	6/21/2021	Construction of a stormwater management system for Sylvestri Lakes
Sylvestri Lakes Amenity Center Sanford	22290-14	10/14/2021	Minor modification of Permit No. 22290-12 to include the construction and operation of a 1.5-acre project
Safari Commercial Parcels	22290-15	2/5/2023	Minor modification of Permit No. 22290-12 to include the construction and operation of a 14.25-acre project
Sylvestri Lakes S/D (Transfer) Sanford	22290-17	7/24/2023	Operation and maintenance transfer of a surface water management system serving a 229.08-acre single-family residential development
SFB Crossing	22290-18	Pending	Minor modification of Permit No. 22290-12 to include the construction and operation of a 9.31-acre project
FDOT Borrow Pit	22339-1	9/08/1992	Excavation of a proposed borrow pit
White Construction Borrow Pits CR 427	22339-3	9/08/1992	Construction of two borrow pits
FDOT Borrow Pit	22339-5	7/13/1993	Modification of previous permit – excavation only in dry instead of wet
Marquette Shores Borrow Pit	22367-3	2/09/1993	Restoration of a Borrow Pit
CR 427	22381-1	2/08/1994	Roadway Improvements from SR 434 to Longwood-Lake Mary Road
East Lake Mary Boulevard Segment IIA	22496-3	6/10/2002	Construction of a surface water management system consisting of the modification and expansion (by two lanes) of a 0.5-mile segment of Lake Mary Blvd., a 0.45-mile segment of Airport Rd. and construction of a 0.17-mile segment of Frontage Rd.

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Project Name	Application No.	Date Issued	Description
East Lake Mary Boulevard Segment IIB	22496-4	4/08/2003	Modification of the existing permit 4-117-22496-3 for the extension of East Lake Mary Blvd. and includes approximately 3.70 miles of four-lane roadway on a new alignment with an urban section
East Lake Mary Boulevard Segment I	22496-5	11/12/2002	Construction along East Lake Mary Blvd. right-of-way from Sanford Avenue to Ohio Avenue
Pine Way @ Navy Canal Culvert Replacement	70929 - 1	5/02/2001	Replace six existing 42-inch pipes and a 10'x5' box culvert under the Pine Way crossing at the Navy Canal with equivalently sized 3-10'x4' box culverts
Magnolia Park, PD	71069-1	8/14/2001	Construction of a surface water management system consisting of a 170-lot single-family subdivision on a 64.57-acre site, includes two wet detention ponds
Navy Canal Stormwater Facility	90051-1	9/07/2004	Construction of a 5-acre off-line wet detention pond and the impoundment of water along the historical flow path of Navy Canal for the purpose of reducing pollutant loading to Lake Jessup
The Preserve at Eagle Lake	96997-1	7/29/2005	Construction of a surface water management system to serve a 65.63-acre townhome development
Brisson East	110906-3	8/31/2012	Construction of a surface water management system with stormwater treatment by wet detention
Brisson East Residential Development	110906-5	4/30/2014	Modification of a surface water management system with stormwater treatment by wet detention
Brisson West Residential Development	110906-7	11/3/2017	Construction of a surface water management system with stormwater treatment by wet detention
Skylar Crest Townhomes Stormwater Management System	181400-1	5/09/2022	Construction of a stormwater management system for a 14.69-acre multifamily residential project known as Skylar Crest
Palmetto Pointe	182187 - 2	10/11/2023	Construction of a stormwater management system for a 39.76-acre project
SR 417 (Seminole Expressway)	FDEP Permit No. MS591733339 & 591723289	Unknown	Construction of SR 417 and a stormwater management system

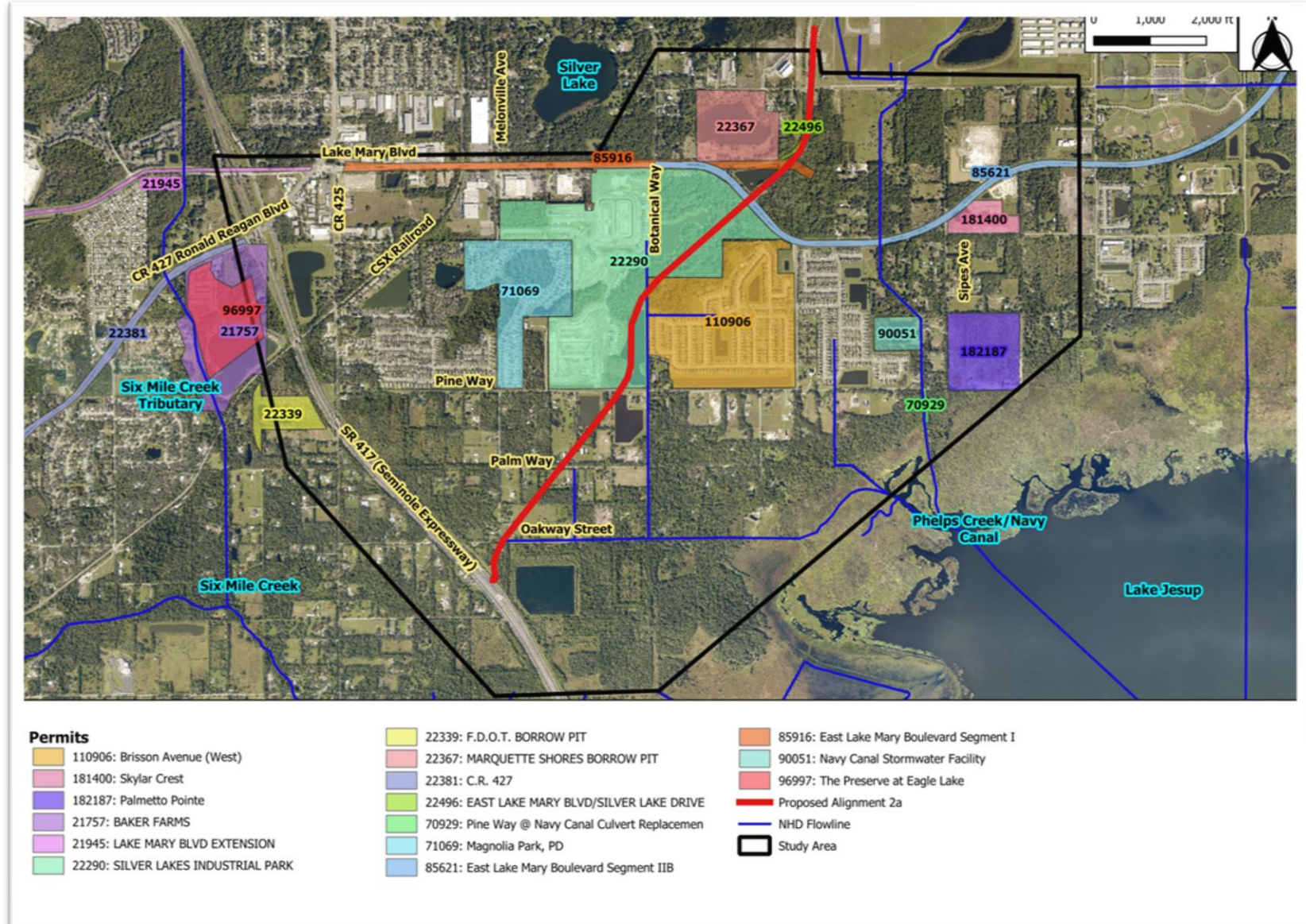


PLATE 3 – RELEVANT EXISTING PERMITS

4. Design Criteria

The design of the stormwater facilities will comply with the standards set forth by CFX, SJRWMD, Seminole County, and FDOT. An Environmental Resource Permit (ERP) will be acquired from SJRWMD during the design of this project.

All basins are considered open basins. Wet detention systems were analyzed to provide water quality improvements, as well as water quantity attenuation for the project runoff. Wet detention is based on the high SHGWT prevalent throughout the project limits. The stormwater ponds have been preliminarily designed and sized for the proposed Alignment 2A. Required pond sizes for each basin were calculated by evaluating the increase in runoff volume using the NRCS CN method and calculating treatment volume requirements. These volumes were added together and combined with landscaping and maintenance berm assumptions to result in the total required pond size. Please refer to the summary below for the water quality, water quantity, and detention pond facilities configuration criterion used for the project.

4.1 Water Quality Criteria

Per Section 8.2 of the *2018 SJRWMD Environmental Resource Permit Applicant's Handbook Volume II*, wet detention volume shall be provided for one inch of runoff over the drainage area, or the total runoff of 2.5-inches times the impervious area (excluding water bodies), whichever is greater. Since this is a preliminary analysis for pond sizing capacity, recovery calculations for orifice sizing and permanent pool calculations are not included in the pond sizing considerations.

This project does not discharge to an OFW, Class I, Class II, or Class III waters which are approved, conditionally approved, restricted, or conditionally restricted for shellfish harvesting; therefore, only standard treatment volume is required and no pre-treatment is required.

4.2 Water Quantity Criteria

4.2.1 SJRWMD Criteria

Per Section 3.2.1 (a) of the *2018 SJRWMD Environmental Resource Permit Applicant's Handbook Volume II*, the post-development peak discharge rate must not exceed the pre-development peak rate of discharge for the mean annual storm for systems serving: (a) new construction area greater than 50% impervious (excluding waterbodies), and (b) projects for the construction of new developments that exceed the thresholds in paragraphs 62-330.020(2)(b) or (c), F.A.C.

Per Section 3.2.1 (b) of the *2018 SJRWMD Environmental Resource Permit Applicant's Handbook Volume II*, unless otherwise specified by previous Agency permits or criteria, a storm event of 25-year/24-hour shall be used in computing off-site discharge rates.

For the purposes of this analysis, the 25-year/24-hour storm event is considered the governing event and was used for pond sizing purposes.

4.2.2 Seminole County Criteria

Seminole County requires that the post-construction peak flows for the 25-year/24-hour storm event be attenuated to the pre-construction levels.

4.3 Floodplain Compensation Criteria

No floodplain impacts are anticipated with this project.

4.4 Pond Geometry Criteria

For this analysis, all proposed ponds within the SR 417 (Seminole Expressway) Sanford Airport Connector are wet detention facilities. The ponds must meet the following criteria per *2018 SJRWMD Environmental Resource Permit Applicant's Handbook Volume II*. Note there are other pond geometry requirements for permanent pool, drawdown, littoral zone, etc. but these are not being evaluated as part of the conceptual pond sizing at this time.

- a) The average length to width ratio of the pond must be at least 2:1.
- b) Side slopes shall not be steeper than 1:3 measured between the control elevation and two feet below the control elevation. This analysis assumes pond side slopes of 1:4 for easier maintenance.

The ponds must meet the following criteria per *2025 FDOT Drainage Manual Section 5.4.4.2*:

- a) Maintenance Berm: Design ponds to provide a minimum 20 feet of horizontal clearance between the top edge of the control elevation and the right-of-way line. Provide at least 15 feet adjacent to the pond at a slope of 1:8 or flatter. This analysis assumes a flat 20-foot wide maintenance berm.
- b) Freeboard: At least one foot of freeboard is required above the maximum design stage of the pond.
- c) Consistent with the Highway Beautification Policy, the pond aesthetics design approach should be developed early in order to include it in the determination of pond right-of-way acquisition needs.

5. Existing Conditions

5.1 Land Use

The existing land use along proposed SR 417 (Seminole Expressway) Sanford Airport Connector was evaluated based on the 2024 Land Cover/Land Use created by SJRWMD, which uses the Florida Land Use Cover Classification (FLUCCS) data, 2024 Parcel data, and 2024 aerial imagery.

The terrain within the study area is relatively flat, and elevations range from 3 feet NAVD to 94 feet NAVD. The elevations are lower in the vicinity of Lake Jesup, located southeast of the project limits. The existing land use within the study area consists mainly of roadways, residential (low density and rural), commercial and services, agriculture, and institutional. There are a number of existing retention ponds located within the study area.

The existing land use classifications were used to develop the CN calculations. For the purpose of developing proposed CN calculations, the land use within the roadway right-of-way was categorized in the calculations as either impervious, open space, or water.

5.2 Soils

The USDA NRCS soil characteristics were used to identify the soil types within and adjacent to the project limits (See **Figure 3, NRCS Soils Map in Appendix A, Figures**). Project soils include hydrologic soil groups: A, A/D, and B/D. **Table 3** shows the soils within the project study area that were used in the evaluation.

If a soil is assigned to a dual hydrologic group (i.e. A/D, B/D), the first letter is for the drained areas and the second is for the undrained areas. To identify whether the area was in a drained or undrained condition, SHGWT estimates were collected from available data. Areas where the SHGWT was within two-feet of the existing ground were assumed to be an undrained condition and were classified as a D soils group. This was the case in all instances along the corridor.

Map Unit Symbol	Soil Name	Hydrologic Soil Group	SHGWT Depth (ft)
9	Basinger and Delray Fine Sands	A/D	1
10	Basinger, Samsula and Hontoon Soils,	A/D	< 1
11	Basinger and Smyrna Fine Sands,	A/D	0
13	Eaugallie and Immkalee Fine Sands	A/D	1.5
15	Felda and Manatee Mucky Fine	A/D	0
17	Brighton, Samsula, and Sanibel Mucks	A/D	0
19	Manatee, Floridiana, and Holopaw	B/D	<1
20	Myakka and Eaugallie Fine Sands	A/D	1.5
24	Paola-St, Lucie Sands, 0 to 5 Percent	A	> 6
25	Pineda-Pineda, Wet, Fine Sand, 0 to 2	A/D	1.5
26	Udorthents, Excavated	A	6
27	Pomello Fine Sand, 0 to 5 Percent	A	3.5
29	St. Johns and Eaugallie Fine Sands	B/D	1.5
31	Tavares-Millhopper Complex, 0 to 5	A	6
35	Wabasso Fine Sand, 0 to 2 Percent	A/D	1.5

Table 3 – NRCS Soil Survey Information

5.3 Floodplains

FEMA has determined the 100-year floodplain extents within the study area with an effective date of September 28, 2007. Within the study area, flood zones classified as Zone X, Zone A, and Zone AE are present. Along and adjacent to Alignment 2A, there are only areas of Zone X, which are areas of minimal flood hazard and are determined to be outside the 100-year floodplain. There are no regulated floodways within the study area.

5.4 Existing Drainage Conditions

The existing drainage system within the study area is comprised of an open system where runoff ultimately drains to Lake Jesup. The study area drains primarily to two named waterways (Six Mile Creek and Phelps Creek/Navy Canal) and various channelized ditches which then discharge to Lake Jesup. As this area is highly developed, runoff generally flows from north to south, and drains into existing ponds, roadside ditches, and swales before discharging into Lake Jesup. Existing SMFs along the corridor include wet detention ponds, dry retention ponds, and linear swales.

Surface water runoff from Alignment 2A discharges within the Navy Canal (WBID 2982) basin, which is within the Middle St. Johns Watershed. The Navy Canal WBID is impaired for bacteria (fecal coliform). See **Figure 5, Waterbody ID (WBID) Map in Appendix A, Figures.**

The entire project limits are located within the Lake Jesup BMAP which has an established Total Phosphorous (TP) and Total Nitrogen (TN) loading target. There are no OFWs within the study area. The project is located within the jurisdiction of the SJRWMD.

5.4.1 Existing Flooding

The project area is low lying with a high SHGWT. Permit documentation for the Sylvestri Lakes Community (ERP 22290-12) (now known as Concorde) indicates that the area south of Pine Way has had historic flooding issues, but the associated permitted improvements (Sylvestri Lakes Community) would assist in alleviating flooding in that area. Other documented comments from public input were received regarding reoccurring flooding issues. These are included in **Appendix D, Correspondence.**

5.4.2 Existing Ponds

There are existing SMFs within the study area which were permitted by SJRWMD and which could be impacted by Alignment 2A. There is Pond 1 which treats a portion of East Lake Mary Boulevard, Pond P-5, P-6, and P-7, permitted for the Sylvestri community, an existing borrow pit, and linear swales along SR 417, associated with the mainline construction and the SR 417 Lake Jesup toll plaza conversion. These are discussed further in this section and summarized in **Table 4** with **Plate 4** showing the locations.

Pond 1 is a wet detention pond with an open basin encompassed by East Lake Mary Boulevard, Airport Entrance Road (now known as Red Cleveland Boulevard), and Frontage Road (now known as Skyraider Court) (Application 22496-1), which includes onsite and offsite runoff. Offsite runoff is separated from the runoff of the existing roadways. Offsite runoff is collected and conveyed through the offsite ditches and cross drains southeasterly to a wetland area. Onsite runoff is collected by curb inlets and conveyed by a-

storm sewer system to Pond 1 prior to discharge to a wetland area. Onsite Basin 1 has 9.92 acres of impervious area and the existing treatment volume is governed by the 2.5-inch over the impervious area criteria. Pond 1 discharges southeasterly into a low wetland area and ultimately into Lake Jesup.

A wet detention pond (Track Pond P-7), was permitted for the construction of Sylvestri Lake development (Application 22290-10). The development included the construction of one new stormwater management pond and a change in the land use from industrial to single family residential and commercial. This pond discharges into an adjacent unnamed wetland, which ultimately discharges to Lake Jesup. This site was originally permitted as Silver Lakes Industrial Park (46 lot industrial park), Permit No. 4-117-0317, Application No. 22290.

Two wet retention ponds (Track Ponds P-5 and P-6) were permitted for the construction of Sylvestri Lake development (Application 22290-17). The development included the construction of new stormwater management ponds and single family residential lots. These ponds discharge into an existing ditch. This site was originally permitted as Silver Lakes Industrial Park (46 lot industrial park), Permit No. 4-117-0317, Application No. 22290.

There is a remnant of a **SR 417 borrow pit** (aka Esterson Borrow Pit) located east of SR 417 and south of Oakway Street, however, there is no available information for this location on the SJRWMD Permit website.

Two dry treatment facilities (Treatment Swale I5-1, Treatment Swale I5-2) were permitted for the construction of the Seminole Expressway (SR 417) which was originally constructed in two phases. Phase I, which was permitted prior to 1995, is a 12-mile phase between Aloma Avenue (SR 426) and US 17-92. Phase II, which was permitted after 1995, is a six-mile phase between US 17-92 and I-4. The project construction was permitted by the USACE as an Individual Permit (No: 89IPI-90868) and FDEP (Permit Nos. MS591733339 and 591723289) as an MSSW Permit. As part of Seminole Expressway Widening project (2007), the permitted stormwater management systems were evaluated to determine if they had adequate capacity to handle the volume requirements for the eight-lane widening. As part of FDEP Permit 59-0274533-001, SR 417 Lake Jesup Toll Plaza Open Road Toll (ORT) Conversion, **offline dry retention ponds (Pond 300 and Pond 400)** were constructed adjacent to the toll plaza and provide treatment for the proposed impervious area. Alignment 2A bridges over Pond 400 and therefore, the impacts to this facility is expected to be minor; no other impacts to the other stormwater facilities is anticipated. Within Basin 1-1, it is estimated 2.54 acres of impervious area is currently being treated by Pond 300 and Pond 400 while the remaining SR 417 impervious area is currently not receiving treatment.

Refer to **Table 4** and **Plate 4** for a summary of the permitted stormwater facilities and a map depicting the location of these permitted facilities.

TABLE 4 – SUMMARY OF PERMITTED STORMWATER FACILITIES

Application No.	Treatment Facility	Treatment Method	Treatment Criteria	Onsite Basin Area (ac)	Required Treatment (ac-ft)	Provided Treatment (ac-ft)	Discharge Location	Special Criteria	Comments
22496-4	Pond 1 (Lake Mary Boulevard)	Wet Detention	Greater of: 1-inch over basin, 2.5-inch over impervious	13.83	2.07	2.10	Lake Jesup	Attenuated peak flow for the mean Annual and 25-year/ 24-hour storm events	Treated impervious area 9.92 acres; Reference: Drainage Calculations and Permitting Narrative, East Lake Mary Blvd, Segment II-A (Jan. 2002)
22290-17	Track Pond P-5 (Sylvestri Lakes)	Wet Retention	Greater of: 1-inch over basin, 2.5-inch over impervious	79.62	6.64	6.64	Lake Jesup	Attenuated peak flow for the 25-year/ 24-hour storm event	Treated impervious area 22.72 acres; Reference: Sylvestri Lake Drainage Plans, (April 2020); West Pineway Pond (P-5) & East Pineway Pond (P-6) in Sylvestri Lakes Stormwater Calculations Report (Feb. 2021)
	Track Pond P-6 (Sylvestri Lakes)	Wet Retention							
22290-10	Track Pond P-7 (Sylvestri Lakes)	Wet Detention	Greater of: 1-inch over basin, 2.5-inch over impervious + 50% to discharge an impaired waterbody	52.50	10.03	16.35	Lake Jesup	Attenuated peak flow for the 25-year/ 24-hour storm event	Treated impervious area 32.03 acres; Reference: Original ERP 4-117-0317, App. 22290; Pond 2 in Sylvestri Estates Master Stormwater Mgmt System Calculations Report (Jan. 2016)
327008	Esterson Borrow Pit	Historic ERP – White Construction Co., Inc.; No information available							
FDEP Permit Nos. 591733339 & 591723289	Treatment Swale I5-1, Treatment Swale I5-2	Dry Retention	Greater of: 0.5-inch over basin, 1.25-inches over impervious	75.40	1.6	1.6	Lake Jesup Floodplain	Attenuated peak flow for the 25-year/ 24-hour storm event	Reference: Stormwater Alternative Report for Seminole Expressway Widening PD&E (May 2007)
FDEP Permit Nos. 590274533	Pond 300 and Pond 400	Dry Retention	Greater of: 0.5-inch over basin, 1.25-inches over impervious	17.0	0.90	0.91	Lake Jesup Floodplain	Attenuated peak flow for the 25-year/ 24-hour storm event	Reference: SR 417 Lake Jesup ORT Conversion

Note: Onsite basin areas do not include pond areas

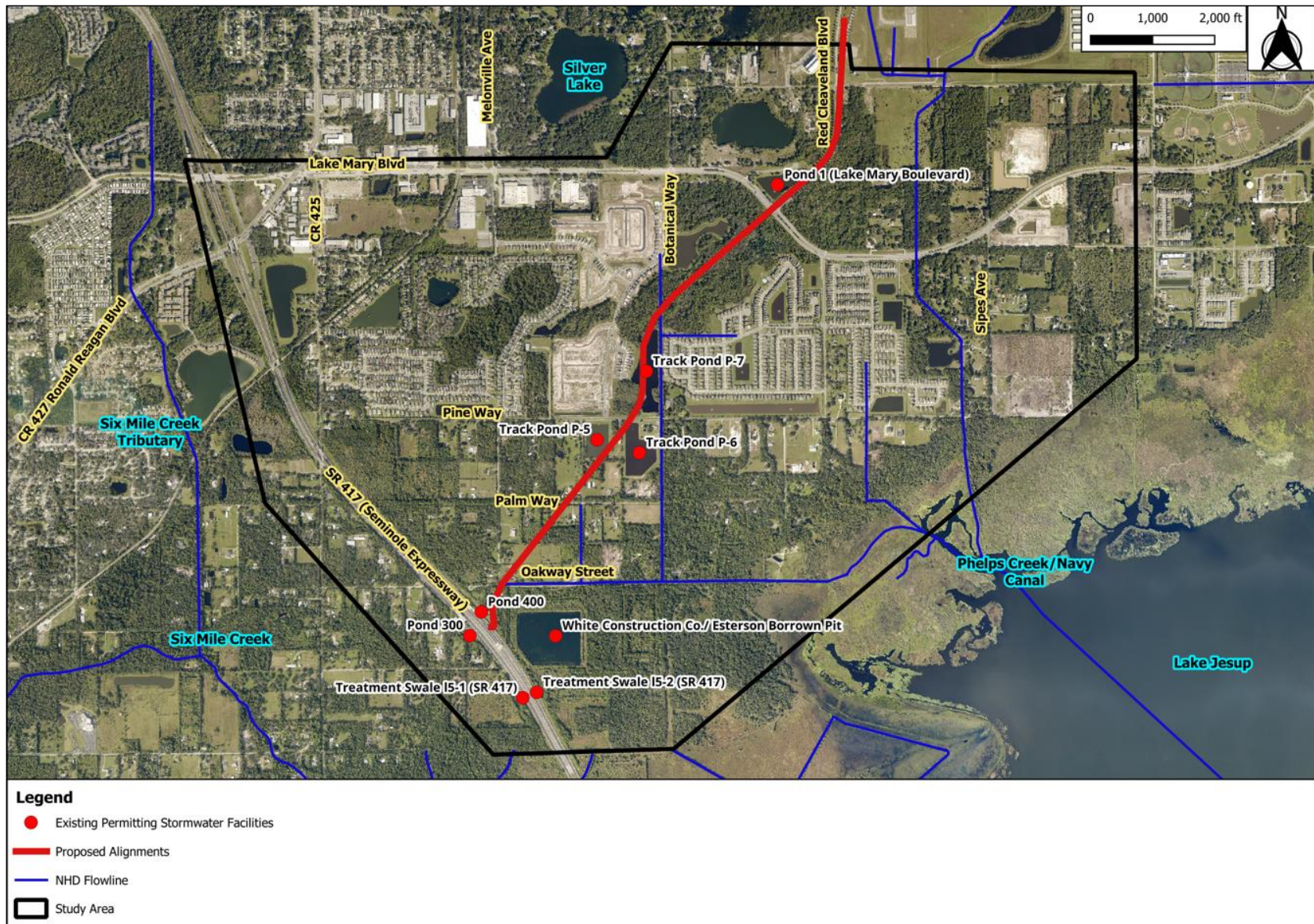


PLATE 4 – PERMITTED STORMWATER FACILITIES

6. Proposed Stormwater Management

6.1 Pond Sizing Methodology

The required pond volume for the proposed improvements is calculated by the following:

$$\text{Total Pond Volume Required} = \text{Required Treatment Volume} + \text{Required Attenuation Volume}$$

The treatment volume includes the runoff volume from the proposed developed site to be detained and treated prior to discharging downstream. The attenuation volume includes the storage of the additional runoff caused by the proposed development by minimizing the peak flowrate from the site to mimic pre-development conditions so as not to adversely impact offsite properties.

The basin area includes the alignment corridor right-of-way, which was divided into several subbasins along hydraulic boundaries from the existing topography or proposed roadway bridge crossings. Assumptions were made concerning the proposed basin divides for stormwater management as the proposed mainline roadway profiles were preliminary. Each subbasin is designed to be treated and attenuated by one pond, which is sized using the methodology described within the following sections. Two pond alternatives are provided for each subbasin. All assumptions were based on the best available data from desktop review.

Within this PD&E effort, it is assumed that each of the pond volume parameters are “stacked” instead of taking credit for any possible volume overlapping; this provides a conservative estimate which can be further evaluated during the final design phase. The methodology used to determine these parameters for calculating pond volumes are described within the following sections.

6.1.1 Treatment Volume

For the purposes of the PD&E study, all proposed ponds are assumed to be wet. The required treatment volume for wet ponds is larger than dry ponds, and the SHGWTs are generally shallow within the project area. Further evaluation of pond types will be accomplished during the final design phase.

The SJRWMD required treatment volume criterion for a wet detention pond is the greatest volume of either one inch of runoff over the drainage area or 2.5-inches times the impervious area (excluding water bodies). The project does not discharge to an OFW, Class I or Class II waterbody, and therefore, standard treatment volume criteria applies.

$$\text{Treatment Volume} = \text{Greater of } 1" \text{ over Basin Area or } 2.5" \text{ times New Impervious Area}$$

Existing roadway impervious areas that cross the alternative alignments were digitized via aerial imagery. The proposed roadway impervious area along the interchanges and side roads was digitized from the PD&E roadway design files.

6.1.2 Pollutant Loading Analysis

Per Section 8.3 of the 2024 Applicant's Handbook Volume I, the stormwater quality nutrient permitting requirements do not apply for public transportation projects which have a completed PD&E Study prior to June 28, 2026. As this PD&E Study is intended to meet this schedule, the treatment criteria is based on the 2018 SJRWMD Applicant's Handbook Volume II. Because the project is within the Lake Jesup BMAP, which has TP and TN requirements, a preliminary pre-post nutrient loading analysis was performed for a sample basin (Basin 1) within the proposed roadway alignment, in accordance with the FDEP 2010 Draft ERP Stormwater Quality Applicant's Handbook.

For the proposed post analysis, it was assumed that the roadway runoff is collected via curb and gutter and into a closed storm sewer system before conveyance into the stormwater management facility, and therefore, the roadway directly connected impervious area (DCIA) is assumed to be 100-percent. Also, the proposed analysis excludes the proposed wet pond areas from the basin as these areas do not contribute nutrient loading.

6.1.3 Attenuation Volume

Criteria set forth by SJRWMD and Seminole County was reviewed to determine the governing criteria from these agencies. It was determined that the controlling criteria for attenuation is the SJRWMD requirement which states that the post-development peak flow rate shall not exceed the pre-development peak flow rate for the 25-year/24-hour and mean annual 24-hour storm events.

Since several proposed basins are linear in nature, review of the basin outfall and pond outfall was performed to determine the point of analysis with respect to attenuation. The flow path was reviewed to occur within roadway right-of-way or County maintained ditches.

It was determined that the project design storm would require retaining the attenuation volume from 7.78-inches of rainfall to meet SJRWMD and Seminole County 25-year/24-hour storm event. The rainfall depth was obtained from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 (NOAA Station Sanford 08-7982). Since no stormwater routing modeling is being performed during this PD&E phase, the attenuation volume is based on the pre-post difference in volume generation, not peak discharge rate.

The CN Method was used to determine the total runoff generation for the pre-development and post-development conditions. The 2024 SJRWMD land cover and land use was used to determine the CN for the pre-development condition. Alignment 2A was digitized to determine the difference in land use along the proposed corridor.

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

$$S = \frac{1000}{CN} - 10$$

$$Volume = Runoff * Basin Area$$

$$Attenuation Volume = Post Development Volume - Pre Development Volume$$

6.1.4 SHGWT Evaluation

In order to perform the pond sizing calculations, a normal water level (NWL) must be estimated. For planning purposes, the NWL is assumed to be the SHGWT within the pond site location. The SHGWT elevations were estimated using the best available data and considered the following sources in **Table 5**. No site-specific information (i.e. geotechnical testing, wetland survey, topographic survey, etc.) was obtained for these estimates. No hydrologic/hydraulic modeling was performed. Some of the information reviewed utilized the NGVD 1929 vertical datum, and this information was converted to NAVD.

To estimate the SHGWT, the factors local to the area of the pond site were weighted heavier. If the SHGWT was estimated from a provided source (i.e. stage data, permit data, etc.), the elevation was rounded to the nearest 0.1 foot; if the elevation was estimated from the DEM, it was rounded to the nearest half foot. The following ranking was applied in order to estimate the SHGWT:

- a) Wet detention pond information in an ERP application; note, it is understood that the normal water elevation is not equivalent to the SHGWT, but it can serve as a reliable approximation.
- b) Tailwater information from an ERP application if tailwater (or initial stage of tailwater) is identified as being representative of the SHGWT.
- c) Comparison of adjacent wetland shapes to the DEM to estimate wetland SHGWT.
- d) Comparison of infrared and historic aerial images to the DEM to estimate water elevations in previous years (i.e. visible standing water, etc.).
- e) NRCS soils depth to water table applied over the DEM.

TABLE 5 – DESCRIPTION OF DATA REVIEWED IN PRELIMINARY ANALYSIS

Data	Source	Relevance
FEMA Flood Insurance Study	FEMA Geodatabase & 2007 Flood Insurance Study (FIS) for Seminole County	High
DEM or Contours developed from source	2018 LiDAR data from Seminole County	High
USGS 7.5-Minute Quad Maps with 5-ft contours (ft, NGVD29)	USGS Quad Maps Historic Maps dated 1955 to 2024	High
Infrared aerial imagery	Seminole County	High
Historic aerial imagery	Google Earth Pro (dating back to 1984) and UF Historical Imagery Library (dating back to 1947)	High
Geotechnical borings	SJRWMD ERP Applications	High
Wet detention ponds normal water level elevations	SJRWMD ERP Applications	High
Wetland SHGWT	SJRWMD ERP Applications	High
Cross Drain Stages	East Lake Mary Blvd I, IIA and IIB Stormwater Management Calculations.	Medium
Depth to Surficial Aquifer Water Table	FDEP Florida Aquifer Vulnerability Assessment (FAVA) (Data very coarse (6,000 feet x 6000 feet grid)	Low
Soil coverage	NRCS coverage provided by USDA (Depth to water table information)	High
Land use land coverage	SJRWMD	Low
National Wetland Inventory	US Fish and Wildlife Service (Used where other information could not be found)	Low

6.1.5 Pond Sizing

It is assumed that all proposed ponds within the SR 417 (Seminole Expressway) Sanford Airport Connector are wet detention SMFs. Pond sizing calculations are based on a 2:1 length to width ratio, and during design, every effort will be made to provide appropriate distance between the inlet and outlet structures of the pond. However, in this analysis, pond sites were chosen based upon a variety of parameters (i.e. wetlands, impacting least number of parcels, etc.), and a 2:1 ratio could not always be achieved. During final design, it is recommended that sufficient permanent pool volume be provided to provide appropriate mixing and hydraulic residence time. The proposed pond side slopes are 1:4 and extend to two feet below the NWL and then extend 1:2 or flatter to the pond bottom. A 20-foot flat maintenance berm is assumed for each pond. Pond size estimates include a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground. (See **Plate 5 for Pond Sizing Typical Section**).

There are existing ponds that are proposed to be impacted along the proposed corridor. For Alignment 2A, bridges are proposed over these ponds to avoid pond volume impacts. Any loss of storage is expected to be minimal and therefore is not included in the proposed pond sizing.

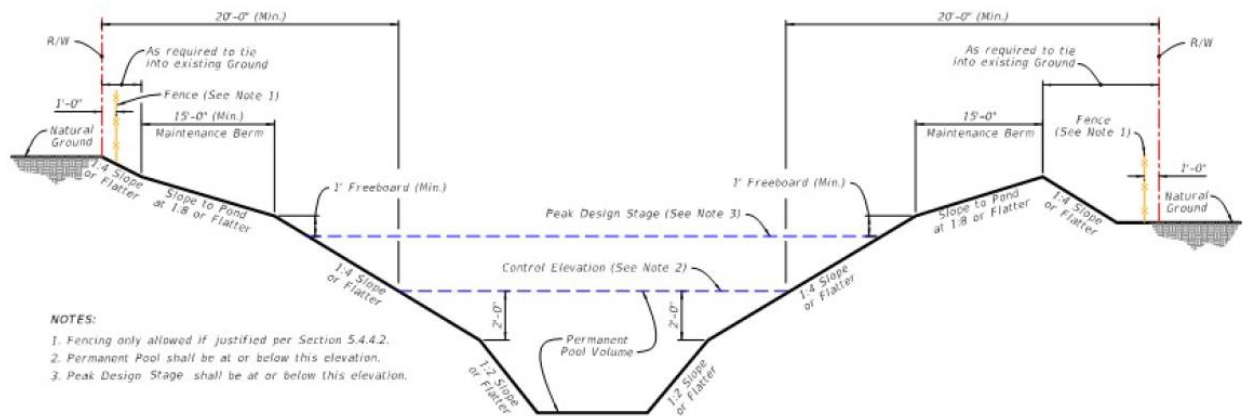


PLATE 5 – POND SIZING TYPICAL SECTION (NOT TO SCALE)

6.2 Basis of Evaluation

An alternative comparison analysis has been performed which consists of a description of each SMF location along with an analysis of the following parameters for each site. Note, analysis of these parameters is based on a desktop review of the best available data. Any data used in the review of that parameter is listed and a date is provided where available. Field analysis of these parameters for all proposed sites will be necessary as design progresses.

- a) Wetland Impacts: Pertains to impacts to wetland areas (National Wetland Inventory (NWI))
- b) Wildlife Habitat Impacts: Desktop Analysis provided by Ardurra, dated May 29, 2025. This evaluation is included in **Appendix E, PSR Support Documents**.
- c) Contamination Risk: Desktop Analysis provided by Geotechnical and Environmental Consultants Inc., dated May 28, 2025. A portion of this evaluation is included in **Appendix E, PSR Support Documents**.
- d) Geotechnical Information: Addresses the underlying soil conditions within the pond footprint. While this factor was considered in selecting pond sites, no proposed sites are within an area of an identified brownfield, FGS swallet, or FGS well per the available data. Therefore, this item is not included in the pond evaluation matrix. Additional geotechnical investigation for the specific pond sites will need to be performed to detect the presence of muck and unsuitable materials.
- e) Floodplain Impacts: FEMA floodplains for Seminole County were not present along the corridor and were not included in the pond evaluation matrix.

- f) Cultural or Archaeological Resources Impacts: Desktop Analysis provided by Archaeological Consultants, Inc., dated May 27, 2025. This evaluation is included in **Appendix E, PSR Support Documents**.
- g) Permitability: Addresses impacts to permitting efforts to local, state, and federal agencies. This includes a review of the following sources: OFWs and Verified Impaired WBIDs. Since this is consistent for all the alternatives, this was not included in the pond evaluation matrix.
- h) Ownership/Number of Property Owners: Addresses the impacts to property owner(s) and identifies the number of impacted entities.
- i) Utilities: Addresses impacts to existing apparent utilities and known future utilities at each alternative location. This included a review of aerial imagery and the Antenna Structures shapefiles. No critical infrastructure was found and therefore, this was not included in the pond evaluation matrix.
- j) Access/Maintainability: Adequate area needed for regular cleaning, sediment removal, mowing, and other required maintenance. This includes evaluation to determine if a drainage easement would be required. Since all sites are adjacent to the limited access right-of-way, all sites would have similar access, and this was not included in the pond evaluation matrix.
- k) Cost: Costs associated with construction costs were not evaluated for each pond option as it was determined that the sites would incur similar construction costs.
- l) Hydraulics: Consider the flow path of runoff within the basin to the proposed pond site. This includes evaluation of the how the basin would drain to the pond based on ground elevations, estimated high and low points, existing roadway crossings, and cross drains.

6.3 Proposed SMF Alternatives

The proposed SR 417 (Seminole Expressway) Sanford Airport Connector is a predominantly new roadway alignment, except at the beginning and end of the project where the proposed road will tie into existing roadways, and will alter drainage patterns to some extent as a result. The proposed drainage patterns will mimic the existing/historic drainage patterns as closely as possible. Proposed cross drains will convey existing ditches/streams and off-site flows. The Location Hydraulics Report (LHR) for the project addresses off-site conveyance and is provided under a separate cover.

The ponds were sized for an ultimate typical section as shown in **Plate 2** with the addition of a paved median. The ultimate condition includes a total impervious area of 45.05 acres. Consequently, new SMFs are required to adequately treat the additional pavement and meet regulatory criteria. Two pond sites for each basin were identified along the corridor; both sized to provide sufficient treatment capacity. The following sections provide a detailed discussion of the proposed basins and associated SMFs. **Table 6** provides a summary of the treatment volume analysis for each basin.

Note, Basin 417-1 was utilized for a pre-post nutrient analysis in order to demonstrate that the proposed wet detention SMF can provide a post-development loading less than the pre-development loading for TN and TP. The overall post-development removal with the wet detention pond is 43% removal for TN and 81% removal for TP. These nutrient loadings as well as the pond calculations for all basins are found in **Appendix B, Pond Calculations**.

6.3.1 Basin 417-1-1 and Basin 417-1-2

The first basin for the pond siting analysis was split into two basins, Basin 417-1-1 and Basin 417-1-2, to account for the difference in discharge locations. Basin 417-1-1 is proposed as an open basin, and includes the portion of improvements occurring within the existing SR 417 (Seminole Expressway) right-of-way, extending from Station 298+00 to the existing SR 417 Lake Jesup Toll Plaza at Station 320+00. This basin integrates existing onsite drainage and impervious areas associated with SR 417 (Seminole Expressway), of which a portion are treated by existing linear swales along SR 417. Within Basin 417-1-1, it is estimated 2.54 acres of impervious area is currently being treated by Pond 300 and Pond 400, while the remaining SR 417 impervious area is currently not receiving treatment. The proposed flyover ramp appears to clip a portion of Pond 400, but since this is bridge, any impacts to storage is anticipated to be minor. The proposed roadway improvements do not impact any other treatment facility within SR 417.

Basin 417-1-2 is a proposed open basin and extends from the existing SR 417 (Seminole Expressway) right-of-way at Station 320+00 to Palm Way at Station 119+17.80. There are no treatment facilities within this basin.

The borrow pit was originally permitted under SJRWMD 4-117-0343, Application 22339, and was constructed adjacent to SR 417 by White Construction Company to provide fill material for construction. Existing conditions evaluation provided limited stormwater data for analysis,

and it is assumed that this borrow pit does not provide any stormwater treatment or attenuation. While not listed as a potential pond site, this remnant borrow pit could be considered as a potential pond site during design. FTE plans to widen the SR 417 (Seminole Expressway) and this pond could be a potential joint use pond option. Further coordination during design should be performed for this option.

The onsite Basin 417-1-1 drainage basin encompasses a total area of 18.30 acres. The total impervious area within the drainage basin was determined to be 11.60 acres, including 10.64 acres attributable to SR 417. The proposed onsite basin provides stormwater management for 18.30 acres of drainage area and 3.51 acres of additional impervious area. It is assumed the 2.54 acres of existing treated impervious will continue to receive treatment in Pond 300 and Pond 400. Stormwater runoff from the onsite area is captured through roadside and median ditches and conveyed via storm sewer to proposed dry linear retention swales, Pond 417-1C1 and Pond 417-1C2, within the SR 417 right-of-way. This onsite option will be further evaluated in design once site specific parameters such as survey and geotechnical data are obtained and could be configured in a different location along SR 417. The current layout assumes a 2-ft deep swale with 1:4 side slopes, 20-foot swale bottom width, and 5-ft berm along the outside. The total required pond area is 1.60 acres.

The onsite Basin 417-1-2 drainage basin encompasses a total area of 11.12 acres with a total proposed impervious area of 4.11 acres. Stormwater runoff from the onsite area is captured through curb and gutter and conveyed via storm sewer to a proposed Pond 417-1A or Pond 417-1B.

Pond 417-1 is a wet detention facility discharging to an existing ditch through a control structure. The proposed treatment volume is governed by 1-inch of runoff from the drainage area and is estimated to be 0.88 ac-ft. The attenuation volume is calculated to be 0.78 ac-ft, based on the pre-post difference in volume generation for 25-year/24-hour storm event. Therefore, the total required volume was determined to be 1.66 ac-ft. The footprint area, including a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground, is determined to be 1.75 acres.

Two potential pond sites, Pond 417-1A and Pond 417-1B, were evaluated, with soils were identified as Felda and Manatee mucky fine sands (B/D) and Pineda-Pineda wet fine sand (A/D). The SHGWT depth ranges from approximately 0 to 18 inches below the existing ground surface. The existing land use within the basin consists of roadway, brush, pasture, residential, and wooded areas.

See **Table 6** for a summary of treatment volume analysis and **Table 7** for a pond option matrix. Refer to **Figures 2, 3A and 3B in Appendix B, Pond Calculations**, for the exhibits showing the Basin 417-1 Pond Alternatives.

6.3.2 Basin 417-2

Basin Pond 417-2 is an open basin which extends from Station 119+17.80 to Station 136+96.50. The total onsite basin area is 6.22 acres, of which 3.47 acres is impervious area. Onsite storm runoff is collected via roadside and median ditches that convey runoff via storm sewer to proposed Pond 417-2.

Pond 417-2 is a wet detention facility discharging to an existing ditch through a control structure. The proposed treatment volume is governed by 2.5-inches of runoff from the total impervious area and is estimated to be 0.72 ac-ft. The attenuation volume is calculated to be 0.51 ac-ft, based on the pre-post difference in volume generation for 25-year/24-hour storm event. Therefore, the total required volume was determined to be 1.24 ac-ft. The footprint area, including a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground, is determined to be 1.45 acres. Due to the size of the pond, a permanent pool volume calculation check confirmed that the provided volume could exceed the required volume per SJRWMD criteria.

Two potential pond sites, Pond 417-2A and Pond 417-2B, were evaluated, with soils identified as Felda and Manatee mucky fine sands (B/D) and Pineda-Pineda wet fine sand (A/D). The SHGWT depth ranges from approximately 0 to 18 inches below the existing ground surface. The land use within the basin consists of open good and wooded areas, along with some wetlands and ponds.

See **Table 6** for a summary of treatment volume analysis and **Table 7** for a pond option matrix. Refer to **Figures 4A and 4B** in **Appendix B, Pond Calculations**, for the exhibits showing the Basin 417-2 Pond Alternatives.

6.3.3 Basin 417-3

Basin Pond 417-3 is an open basin which extends from Station 136+96.50 to Station 176+16.50. The total onsite basin area is 18.45 acres, of which 10.27 acres is impervious area. Onsite storm runoff is collected via roadside and median ditches that convey runoff via storm sewer to proposed Pond 417-3.

Pond 417-3 is a wet detention facility discharging to an existing wetland through a control structure. The proposed treatment volume is governed by 2.5-inches of runoff from the total impervious area and is estimated to be 2.14 ac-ft. The attenuation volume is calculated to be 2.08 ac-ft, based on the pre-post difference in volume generation for 25-year/24-hour storm event. Therefore, the total required volume was determined to be 4.22 ac-ft. The footprint area, including a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground, is determined to be 3.44 acres.

Two potential pond sites, Pond 417-3A and Pond 417-3B, were evaluated, with soils identified as Felda and Manatee mucky fine sands (B/D) and Pineda-Pineda wet fine sand (A/D). The SHGWT depth ranges from approximately 0 to 18 inches below the existing ground surface.

The land use within the basin consists of open good and wood areas, along with some wetlands and ponds.

See **Table 6** for a summary of treatment volume analysis and **Table 7** for a pond option matrix. Refer to **Figures 5A and 5B** in **Appendix B, Pond Calculations**, for the exhibits showing the Basin 417-3 Pond Alternatives.

6.3.4 Basin 417-4

Basin Pond 417-4 is an open basin which extends from Station 176+16.50 to Station 200+57.00. Part of the basin currently includes permitted onsite drainage and impervious areas established under Permit 22496-3 (East Lake Mary Boulevard, Segment II-A, dated January 2002). With the proposed alignment, the existing basin is impacted resulting in adjustments to the contributing drainage area and impervious surface coverage. These changes necessitate an evaluation of the existing stormwater management system to ensure continued compliance with water quality and water quantity requirements. Any modification to the pond needs to account for impacts to runoff volume, peak discharge rates, and treatment requirements.

Two treatment options were evaluated for managing runoff within the basin. The first option involves utilizing the existing Pond 1 (Pond 417-4A) to treat the entire drainage area, requiring modifications to increase its treatment capacity to meet regulatory standards. The second option considers the construction of a new detention pond, Pond 417-4B, specifically designed to treat the additional contributing area. Both alternatives were analyzed in terms of hydraulic requirements, water quality treatment, and footprint requirement.

Pond 417-4A (Existing Pond 1)

This option involves utilizing the existing Pond 1 to continue to provide treatment for the Lake Mary Boulevard basin and Basin 4 of the new roadway. The total onsite basin area encompasses 19.93 acres, of which 17.11 acres of drainage area is permitted within Pond 1. The total impervious area is 12.62 acres, of which 9.92 acres of impervious area is permitted within Pond 1.

Pond 1 is a wet detention facility located on the west side of Red Cleveland Boulevard. The pond will be affected by the proposed improvements and requires regrading to accommodate the planned roadway right-of-way. The current pond footprint is 6.14 acres and is anticipated to be reduced to approximately 4.70 acres with the proposed roadway improvements.

Modification of the control structure is required to achieve the required treatment volume. Specifically, the weir elevation must be increased from 32.5 feet NAVD to 32.72 feet NAVD. Additionally, the existing orifice diameter is proposed to be reduced from 10-inches to 7-inches to comply with the discharge requirement of releasing no more than 1/2-inch of detention volume within the first 24 to 30 hours. The permit documents utilized for the existing Pond 1 calculations are included in **Appendix C, Existing Permit Documents**.

Pond 417-4B

This option involves utilizing the existing Pond 1 to continue to treat the Lake Mary Boulevard basin and constructing a new pond to serve the additional drainage area for Basin 4 of the new roadway. The total onsite drainage basin is 21.87 acres, of which 17.11 acres of drainage area is permitted within existing Pond 1. The total impervious area is 12.62 acres, of which 9.92 acres of impervious area is permitted within Pond 1. Consequently, the new onsite basin accounts for 3.81 acres of drainage area, including 2.70 acres of impervious area. Stormwater runoff from the onsite area is captured through roadside and median ditches and conveyed via storm sewer to proposed Pond 417-4B.

Pond 417-4B is a wet detention facility discharging to an existing wetland through a control structure. The proposed treatment volume is governed by 2.5-inches of runoff from the total impervious area, and is estimated to be 0.56 ac-ft. The attenuation volume is calculated to be 0.55 ac-ft, based on the pre-post difference in volume generation for 25-year/24-hour storm event. Accordingly, the total required storage volume is determined to be 1.11 ac-ft. The footprint area, including a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground, is determined to be 1.35 acres. There is a future planned development on this parcel, called the SFB Crossing. The pond has been configured to not impact the proposed future development; however, wetland impacts are anticipated with this site.

Pond 417-4B is located within soils identified as Basinger, Samsula, and Hontoon soils (A/D). The SHGWT depth is approximately 0 inches below the existing ground surface, indicating a shallow groundwater condition. The land use within the basin consists of open good areas and adjacent future planned development.

See **Table 6** for a summary of treatment volume analysis and **Table 7** for a pond option matrix. Refer to **Figures 6A and 6B** in **Appendix B, Pond Calculations**, for the exhibits showing the Basin 417-4 Pond Alternatives.

SR 417 (Seminole Expressway) Sanford Airport Connector
Central Florida Expressway Authority
June 2025

TABLE 6 – SUMMARY OF TREATMENT VOLUME ANALYSIS

Name	Outfall	Area (ac)	Existing Impervious Area (ac)	Proposed Impervious Area (ac)	Treatment Volume (ac-ft)	Attenuation Volume (ac-ft)	Floodplain Impact Volume (ac-ft)	Required Pond Volume⁽¹⁾ (ac-ft)	Required Pond Area⁽²⁾ (ac)
Basin 417-1-1	Lake Jesup Floodplain	18.30	10.64	11.60	0.76	0.04	0.00	0.81	1.60
Basin 417-1-2	Existing Ditch	11.12	0.05	4.11	0.88	0.78	0.00	1.66	1.75
Basin 417-2	Existing Ditch	6.22	0.05	3.47	0.72	0.51	0.00	1.24	1.45
Basin 417-3	Existing Wetland	18.45	0.00	10.27	2.14	2.08	0.00	4.22	3.44
Basin 417-4A ⁽³⁾	Existing Wetland	19.93	9.92	12.62	2.63	1.92	0.00	4.56	4.70
Basin 417-4B ⁽⁴⁾	Existing Wetland	21.87	0.00	2.70	0.56	0.55	0.00	1.11	1.35

(1) Includes the required volume for the roadway alternative as well as additional volume to accommodate attenuation at the pond site.

(2) Includes a 20% increase in area to account for landscaping aesthetics and tie-ins to the existing ground.

(3) Option 1 involves utilizing the existing Pond 1 to serve the entire drainage area.

(4) Option 2 involves utilizing the existing Pond 1 with no modifications and constructing a new pond to serve the additional drainage area. Calculations for new drainage area only.

SR 417 (Seminole Expressway) Sanford Airport Connector
Central Florida Expressway Authority
June 2025

TABLE 7 – POND OPTION MATRIX

Pond Site	Preferred Pond	Wetland Impact (ac)	Conservation Easement	Wildlife Habitat	Contamination Risk	Archeological Resources Impacts	Cultural Resources Impacts	Access Issues	Number of Parcels/Property Owners	Pond Right-of-Way Area (ac)
Pond 417-1A (Option 1)		0	None	Low	None	Low	High	None	3/2	1.75
Pond 417-1B (Option 2)	✓	0	None	Low	None	Low	Low	None	1/1	1.75
Pond 417-1C1, Pond 417-1C2	✓	0.34	None	Low	None	Low	Low	None	N/A ⁽²⁾	1.60
Pond 417-2A (Option 1)	✓	0.11	None	Low	None	Low	Low	None	1/1	1.45
Pond 417-2B (Option 2)		0	None	Low	None	Low	Low	None	2/1	1.45
Pond 417- 3A (Option 1)		1.66 ⁽¹⁾	Yes	High – Eagle Nest < 330ft	None	Moderate	Low	None	1/1	3.44
Pond 417-3B (Option 2)	✓	3.44	None	High – Eagle Nest @ 330ft	None	Low	Low	None	1/1	3.44
Pond 417-4A (Option 1)	✓	0	None	High- Eagle Nest @ 660 ft	None	Low	Low	None	1/1	4.70
Pond 417-4B (Option 2)		1.35	None	Low	High	Low	Low	None	1/1	1.35

(1) Wetland impacts based on National Wetland Inventory linework; however, adjacent permits suggest wetland impacts may be higher.

(2) These ponds are within the proposed right-of-way footprint and therefore ownership is not a factor for the pond location.

7. Conclusion

Alternative pond sites have been identified along the project corridor. The evaluation provides estimates for right-of way needs implementing a volumetric analysis that accounts for the water quantity and quality requirements set forth by CFX, FDOT, SJRWMD, and FDEP for the project area.

For the proposed conditions, it is anticipated that the offsite basins and the roadway runoff will be kept separate with no co-mingling.

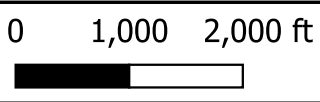
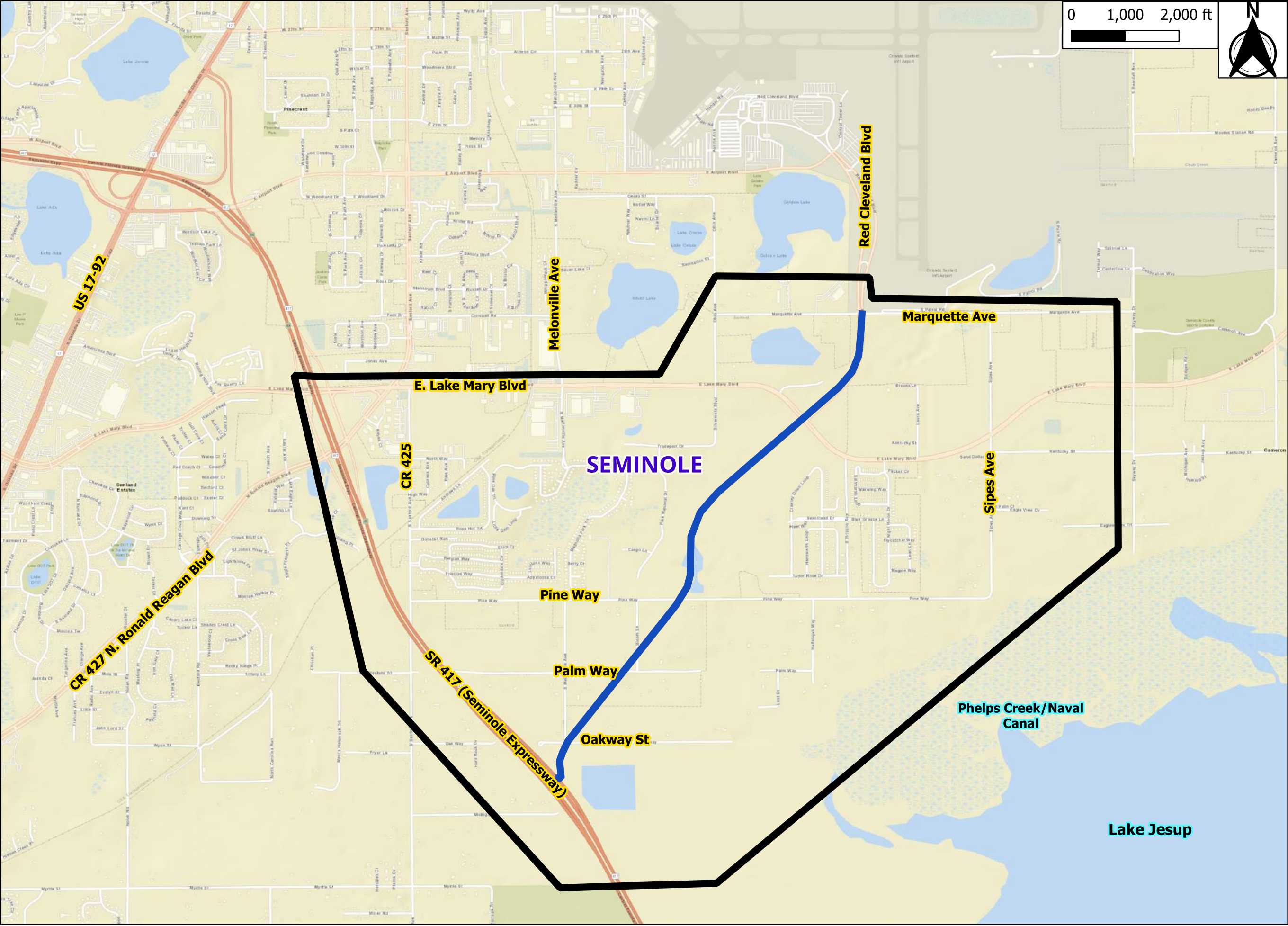
A recommended pond site was chosen based on the basis of evaluation as described in **Section 6.2**. The recommended site balances the avoidance of wetland/surface water impacts, damages to businesses, impacts to wildlife habitat, cultural resources, and contamination risk, while considering the number of property owners affected for the pond site location. The preliminary pond sizing calculations used to support the recommendations are included in **Appendix B, Pond Calculations**.

Please note that the recommendations are based on preliminary data and calculations, reasonable engineering judgment, and assumptions. The pond sizes and locations are subject to change during final design when additional project detailed data becomes available for the permeability rates of the soils, estimated SHGWT elevations, and final roadway profiles. Please refer to **Table 7 – Pond Option Matrix** for recommended pond sites.

8. References

1. Central Florida Expressway Authority (March 2025). 2025 Design Guidelines.
2. Federal Emergency Management Agency (Effective September 28, 2007). Flood Insurance Rate Maps, Seminole County, Florida and incorporated Areas. Community-Panel Numbers 12117C0070F, 12117C0090F, 12117C0160F and 12117C0180F.
3. Federal Emergency Management Agency (Effective September 28, 2007). Flood Insurance Study, Seminole County, Florida and incorporated Areas. Community-Panel Numbers 12117CV000A.
4. Florida Department of Transportation (January, 2025). Design Manual.
5. Florida Department of Transportation (January, 2025). Drainage Manual.

Appendix A – Figures



Legend

- Alignment 2A
- County Boundary
- Study Area

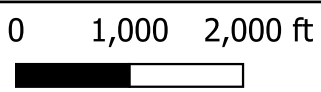
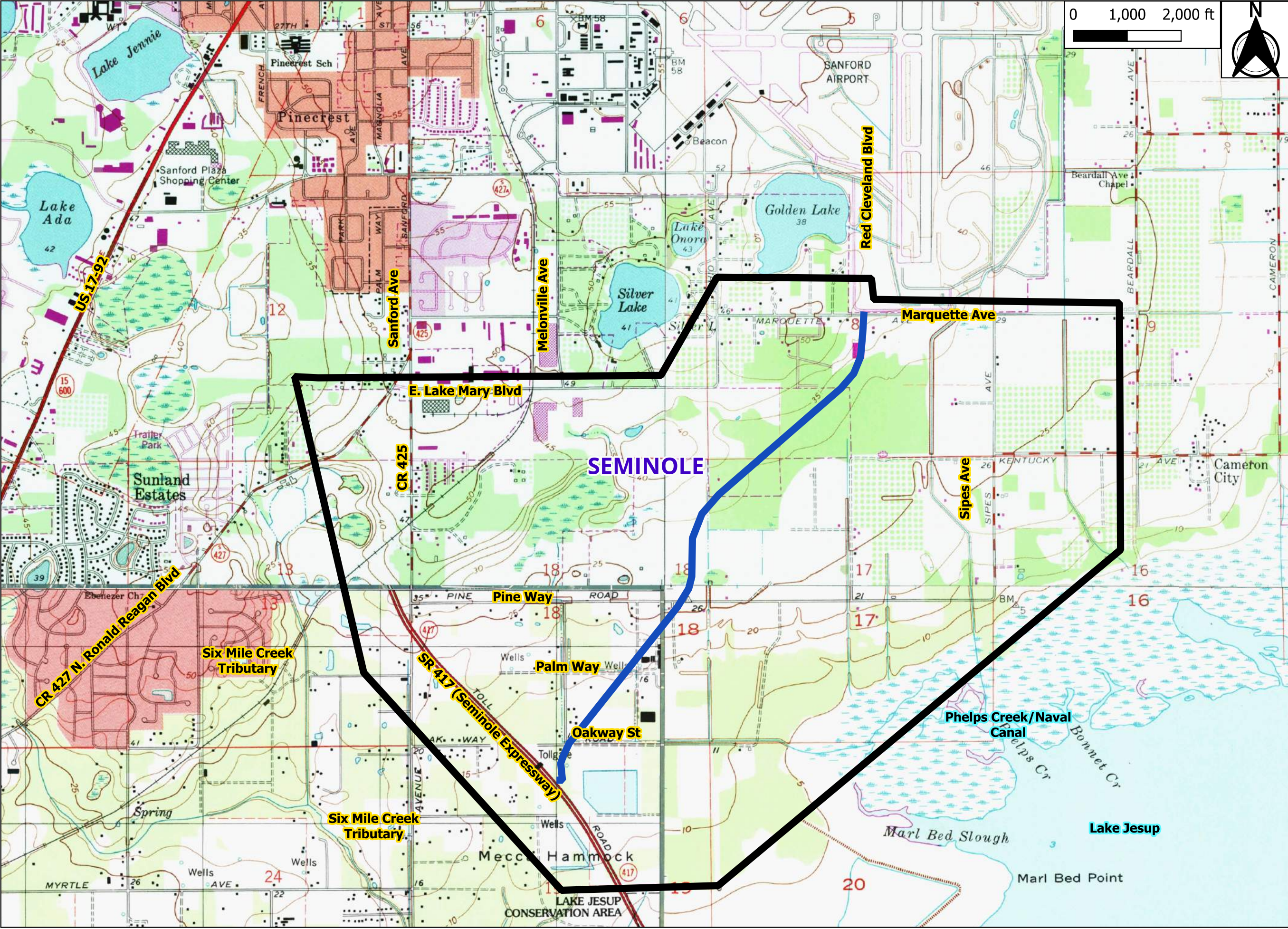
Figure 1

Project Location Map

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- Legend**
- Alignment 2A
 - County Boundary
 - Study Area

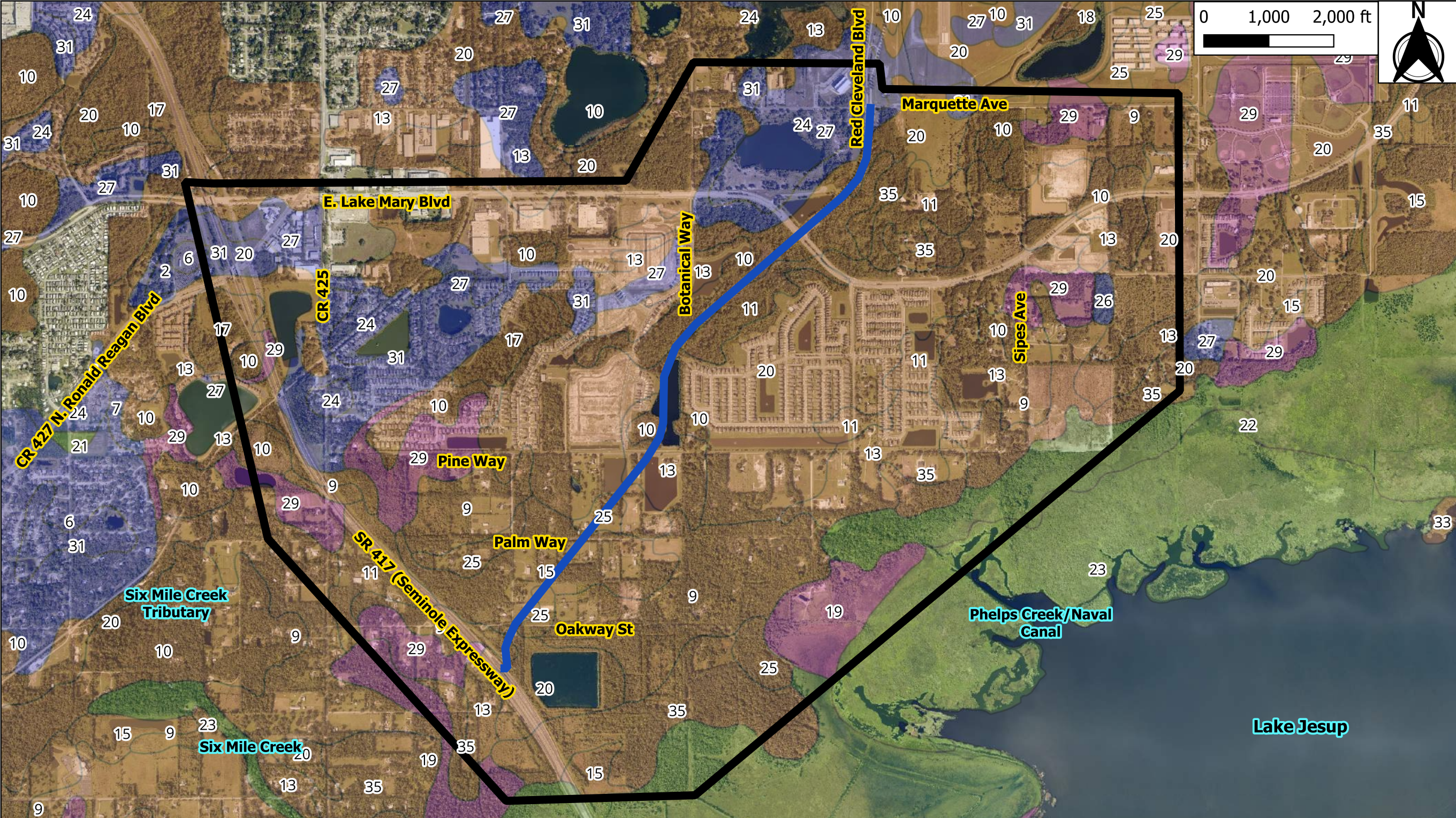
Sources:
Topographic Map
United States Geological
Survey
February 12, 2021

Figure 2
USGS Topographic Map

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CFX Project Number:
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Legend

- Alignment 2A
- NRCS Soils
 - A
 - A/D
 - B/D
 - C/D
- Study Area

Sources:
Natural Resources
Conservation Service
October, 2023

Figure 3

NRCS Soils Map

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Seminole County

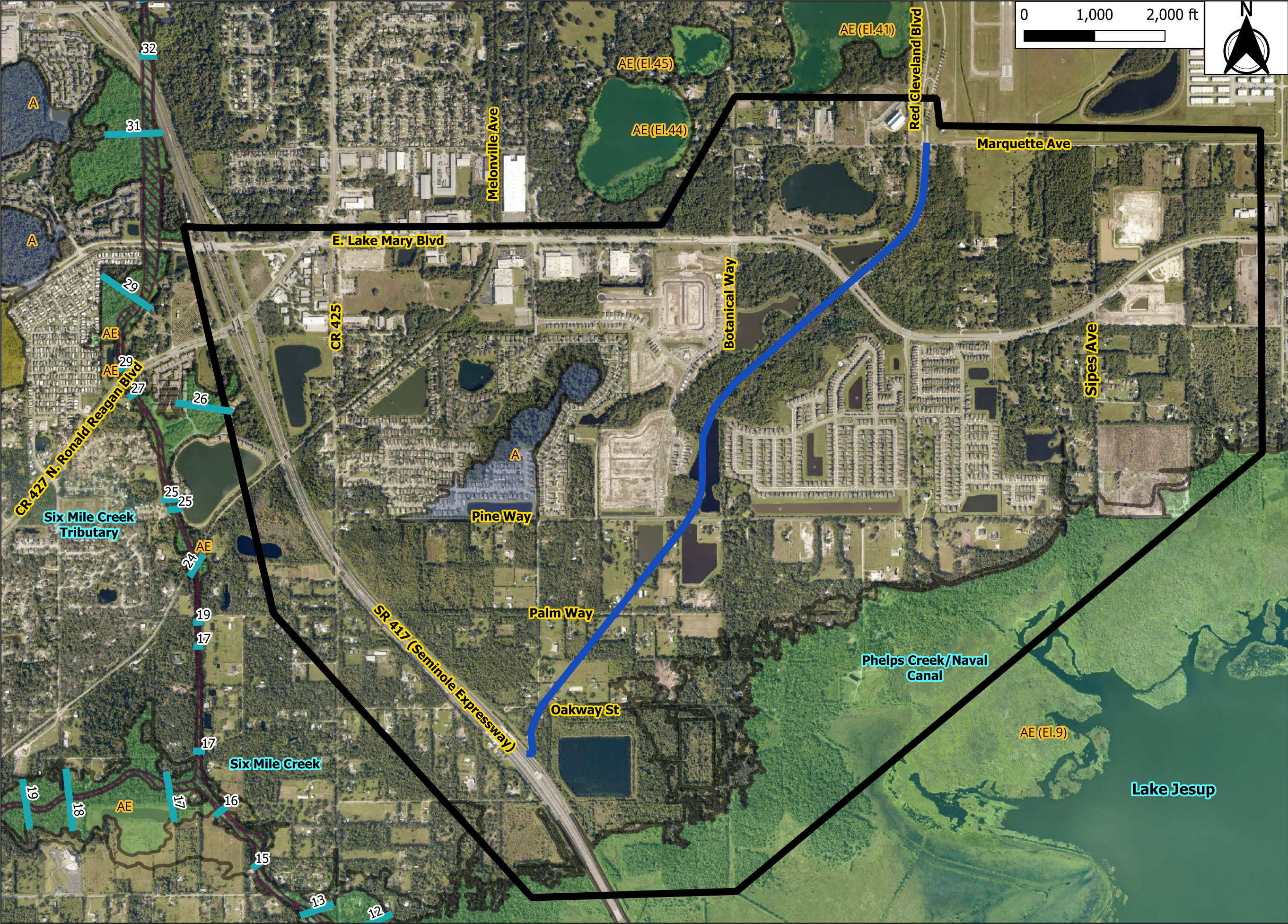
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Seminole County Soils

- 10: BASINGER, SAMSULA, AND HONTOON SOILS, DEPRESSIONAL
- 11: BASINGER AND SMYRNA FINE SANDS, DEPRESSIONAL
- 13: EAUGALLIE AND IMMOKALEE FINE SANDS
- 15: FELDA AND MANATEE MUCKY FINE SANDS, DEPRESSIONAL
- 17: BRIGHTON, SAMSULA, AND SANIBEL MUCKS
- 18: MALABAR FINE SAND, 0 TO 2 PERCENT SLOPES
- 19: MANATEE, FLORIDANA, AND HOLOPAW SOILS, FREQUENTLY FLOODED
- 2: ADAMSVILLE-SPARR FINE SANDS
- 20: MYAKKA AND EAUGALLIE FINE SANDS

- 21: NITTAW MUCKY FINE SAND, DEPRESSIONAL
- 22: NITTAW MUCK, OCCASIONALLY FLOODED
- 23: NITTAW, OKEELANTA, AND BASINGER SOILS, FREQUENTLY FLOODED
- 24: PAOLA-ST. LUCIE SANDS, 0 TO 5 PERCENT SLOPES
- 25: PINEDA-PINEDA, WET, FINE SAND, 0 TO 2 PERCENT SLOPES
- 26: UDORTHENTS, EXCAVATED
- 27: POMELLO FINE SAND, 0 TO 5 PERCENT SLOPES
- 29: ST. JOHNS AND EAUGALLIE FINE SANDS
- 3: ARENTS, 0 TO 5 PERCENT SLOPES

- 31: TAVARES-MILLHOPPER COMPLEX, 0 TO 5 PERCENT SLOPES
- 33: TERRA CEIA MUCK, 0 TO 1 PERCENT SLOPES, FREQUENTLY FLOODED
- 34: URBAN LAND, 0 TO 2 PERCENT SLOPES
- 35: WABASSO FINE SAND, 0 TO 2 PERCENT SLOPES
- 6: ASTATULA-AOPKA FINE SANDS, 0 TO 5 PERCENT SLOPES
- 7: ASTATULA-AOPKA FINE SANDS, 5 TO 8 PERCENT
- 8: ASTATULA-AOPKA FINE SANDS, 8 TO 12 PERCENT SLOPES
- 9: BASINGER AND DELRAY FINE SANDS
- 99: WATER



Legend

- Alignment 2A
- BFE
- Regulatory Floodway
- FEMA Floodplain
 - A
 - AE
 - AH
 - X
- Study Area

Source: FEMA FIS for
Seminole County and
Incorporated Areas
Effective 9/28/2007

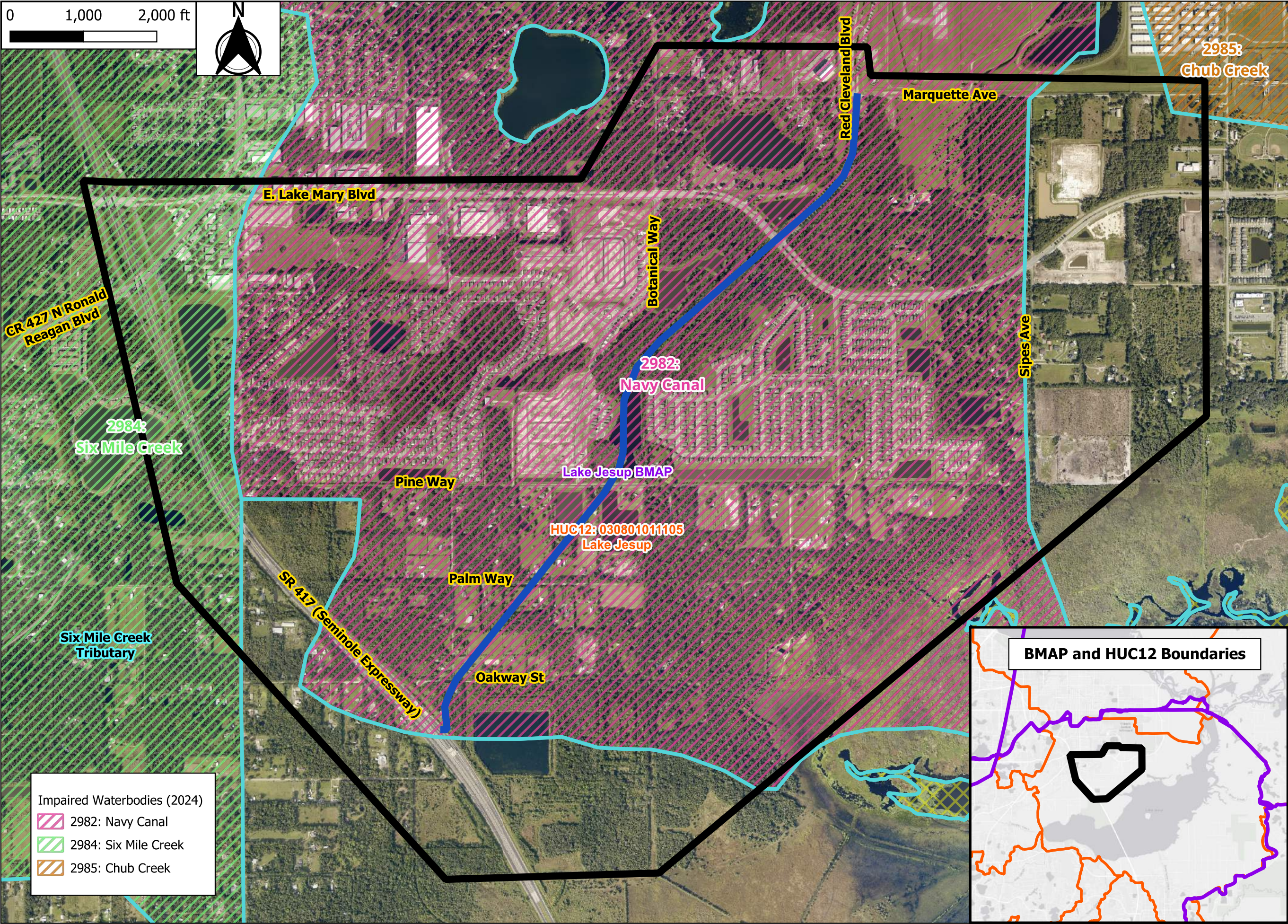
Figure 4

FEMA Floodplain Map

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Impaired Waterbodies (2024)

- 2982: Navy Canal
- 2984: Six Mile Creek
- 2985: Chub Creek

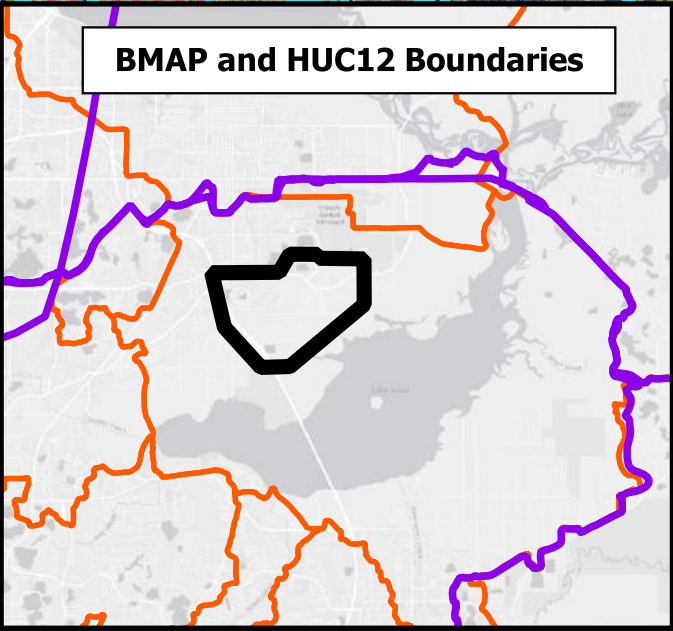
Legend

- Alignment 2A
- TMDL
- WBIDs
- BMAP Boundaries
- HUC12 Basin
- Study Area

Sources:
BMAP: FDEP, October 2024
HUC12: FDEP, January 2022
Impaired Waers: FDEP, November 2024
TMDL: U.S. Environmental Protection Agency, May 2020
WBIDs: FDEP, January 2025

Figure 5
Waterbody ID (WBID) Map

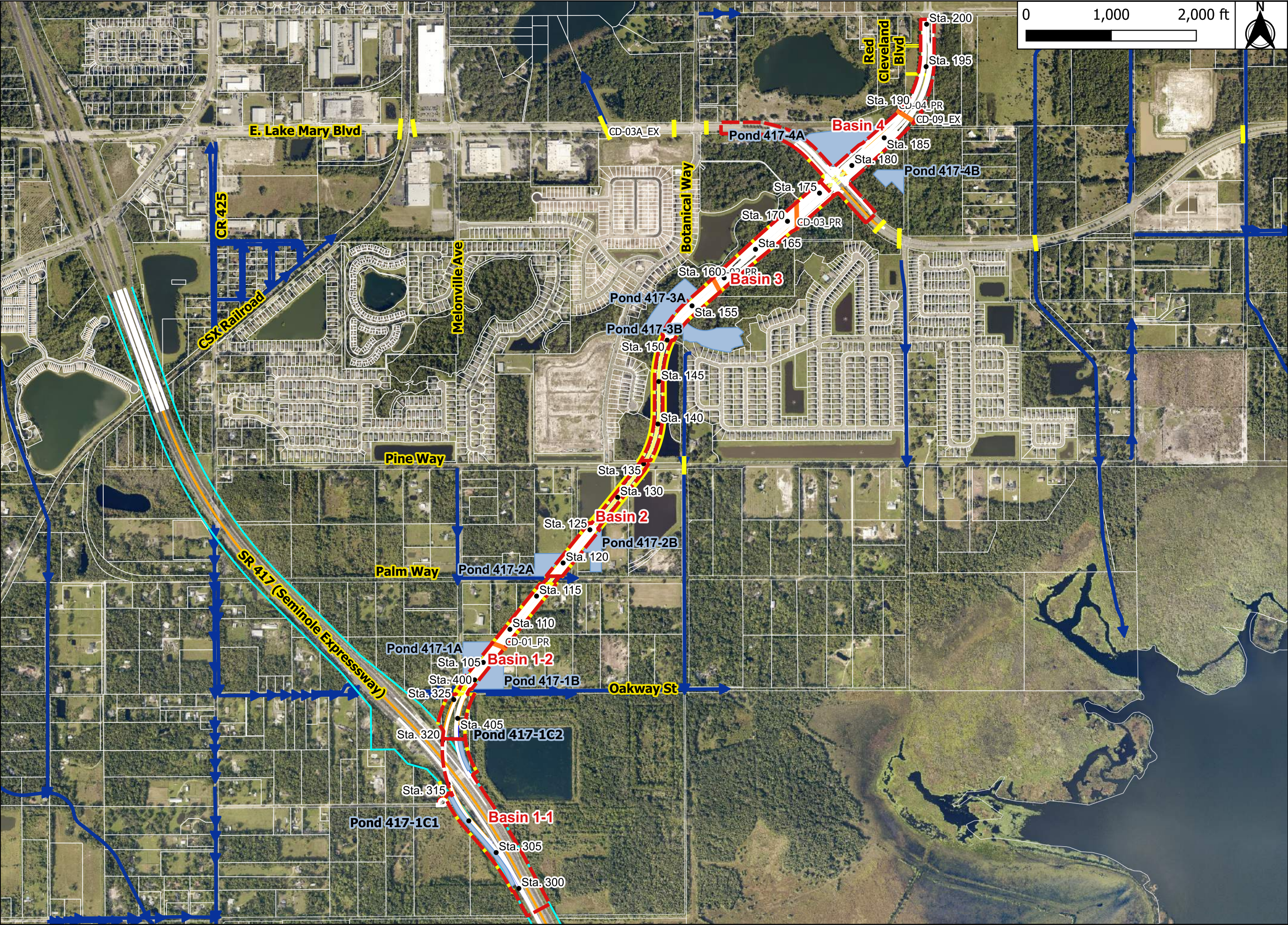
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Appendix B – Pond Calculations



Legend

- Proposed CD
- Existing CD
- Proposed Ponds
- County Maintained Ditches
- Alignment 2A
- Proposed Bridges
- Basins
- Parcels

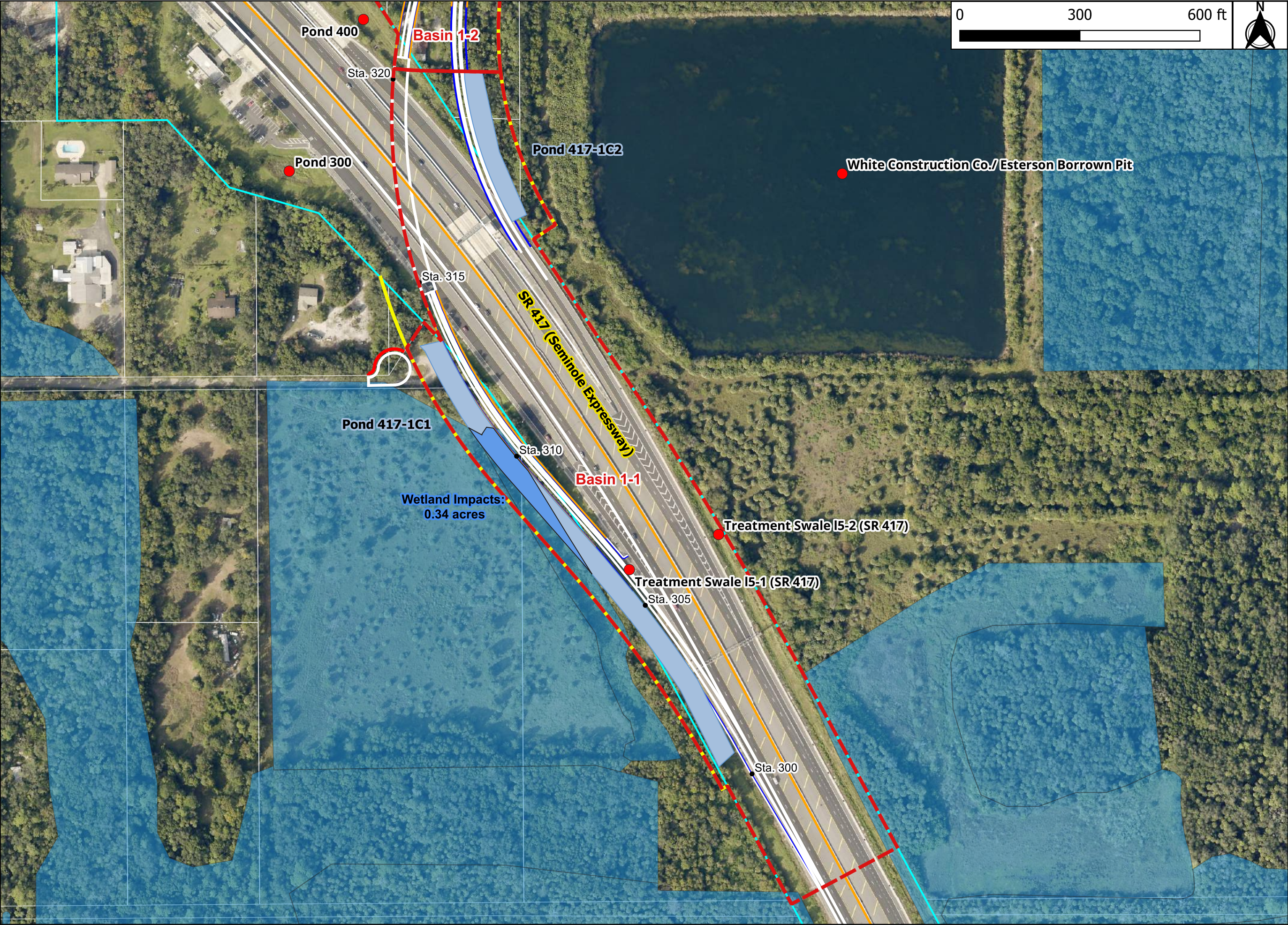
Figure 1

Proposed Pond Locations
Map

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Legend

- Existing Permitting Stormwater Facilities
- Proposed Ponds
- Wetlands
- Stations
- Alignment 2A
- Basins
- Parcels

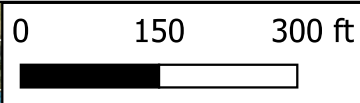
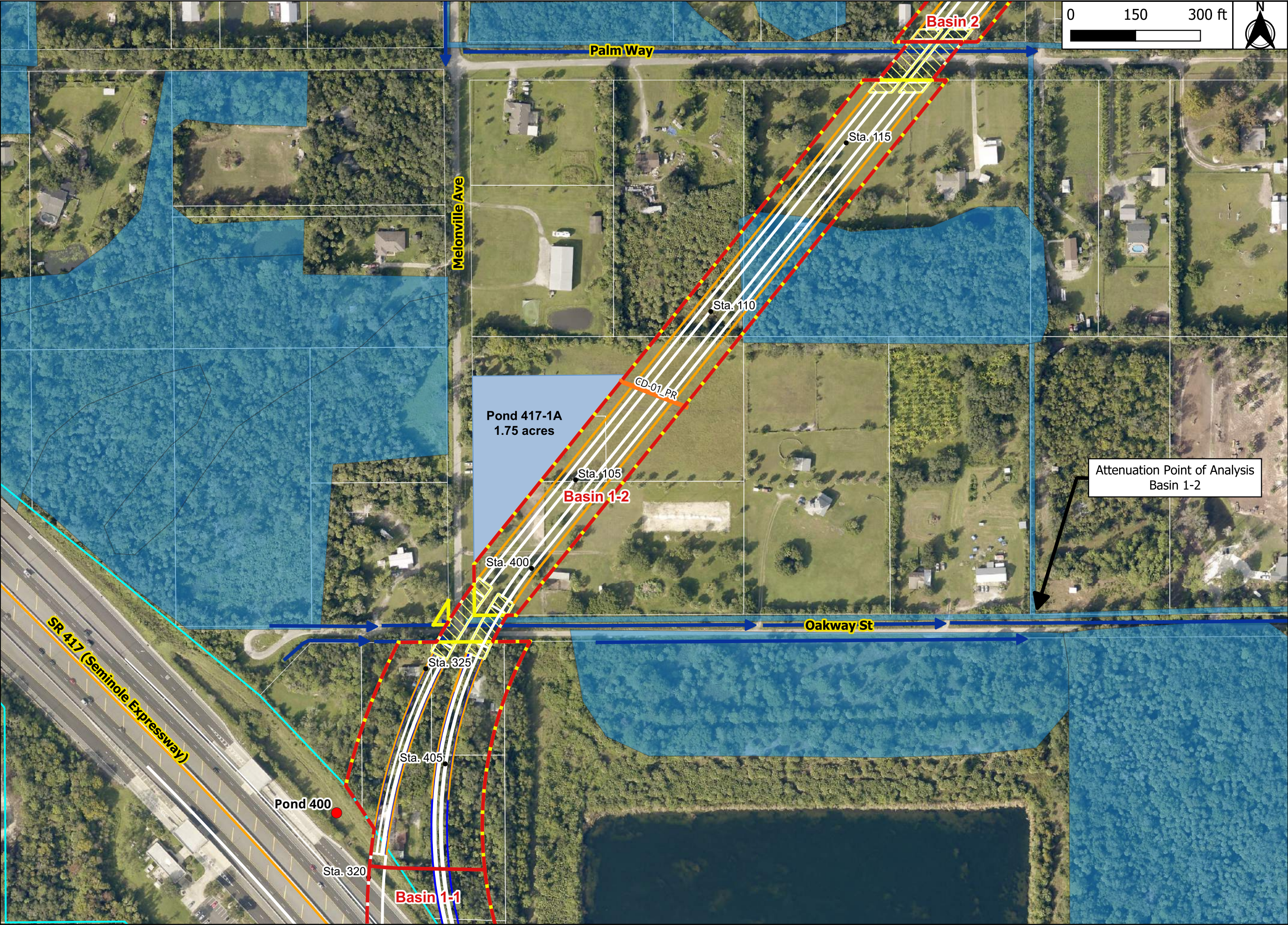
Figure 2

Proposed Ponds 417-1C1
and 417-1C2
Location Map

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Legend

- Existing Permitting Stormwater Facilities
- Proposed CD
- Existing CD
- Proposed Ponds
- Wetlands
- ➡ County Maintained Ditches
- Stations
- Alignment 2A
- ▨ Proposed Bridges
- ▭ Basins
- ▭ Parcels

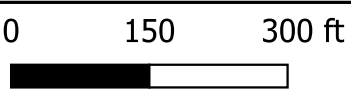
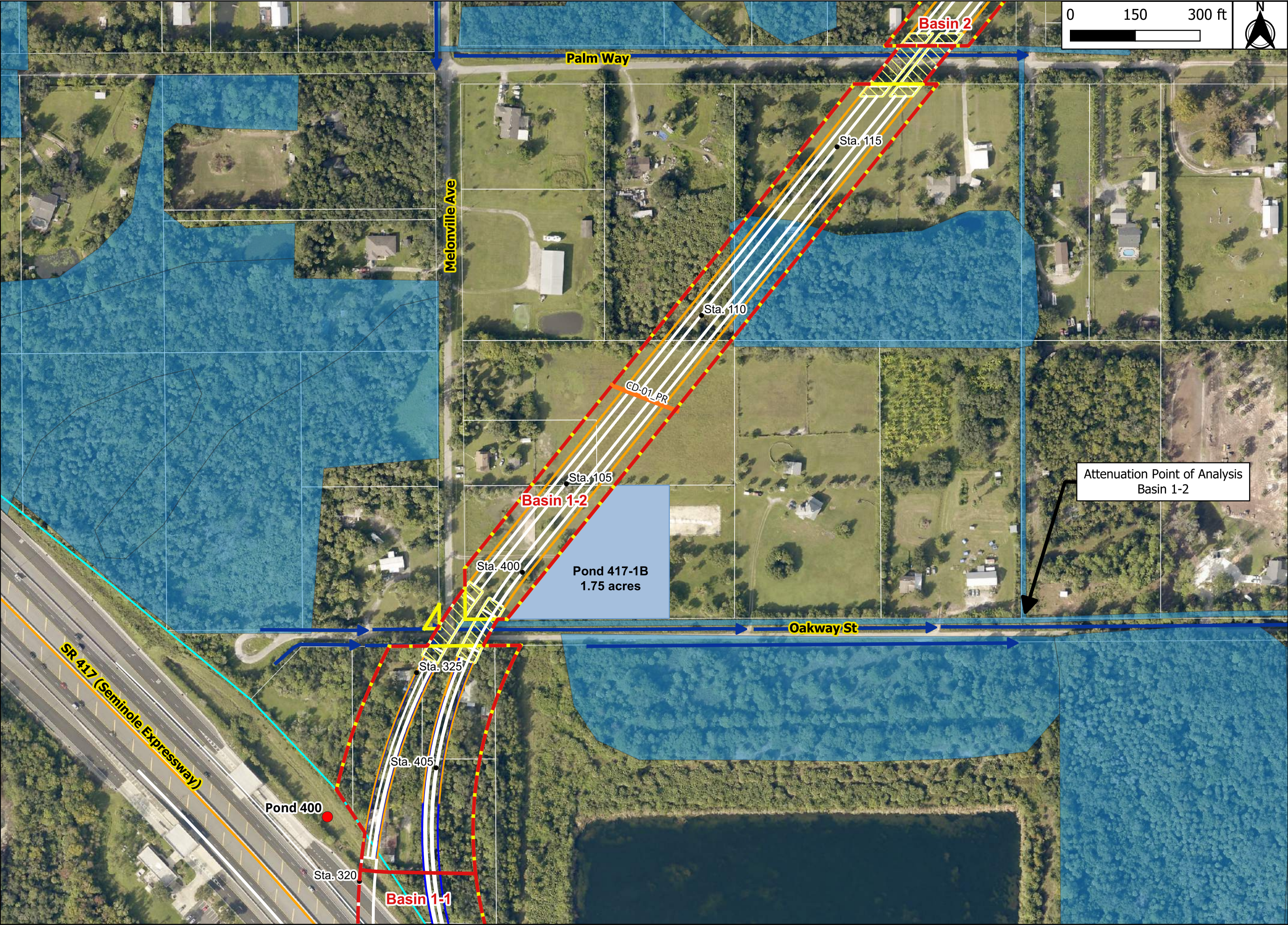
Figure 3A

Proposed Pond 417-1A
Location Map

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Legend

- Existing Permitting Stormwater Facilities
- Proposed CD
- Existing CD
- Proposed Ponds
- Wetlands
- ➡ County Maintained Ditches
- Stations
- Alignment 2A
- ▨ Proposed Bridges
- ▭ Basins
- ▭ Parcels

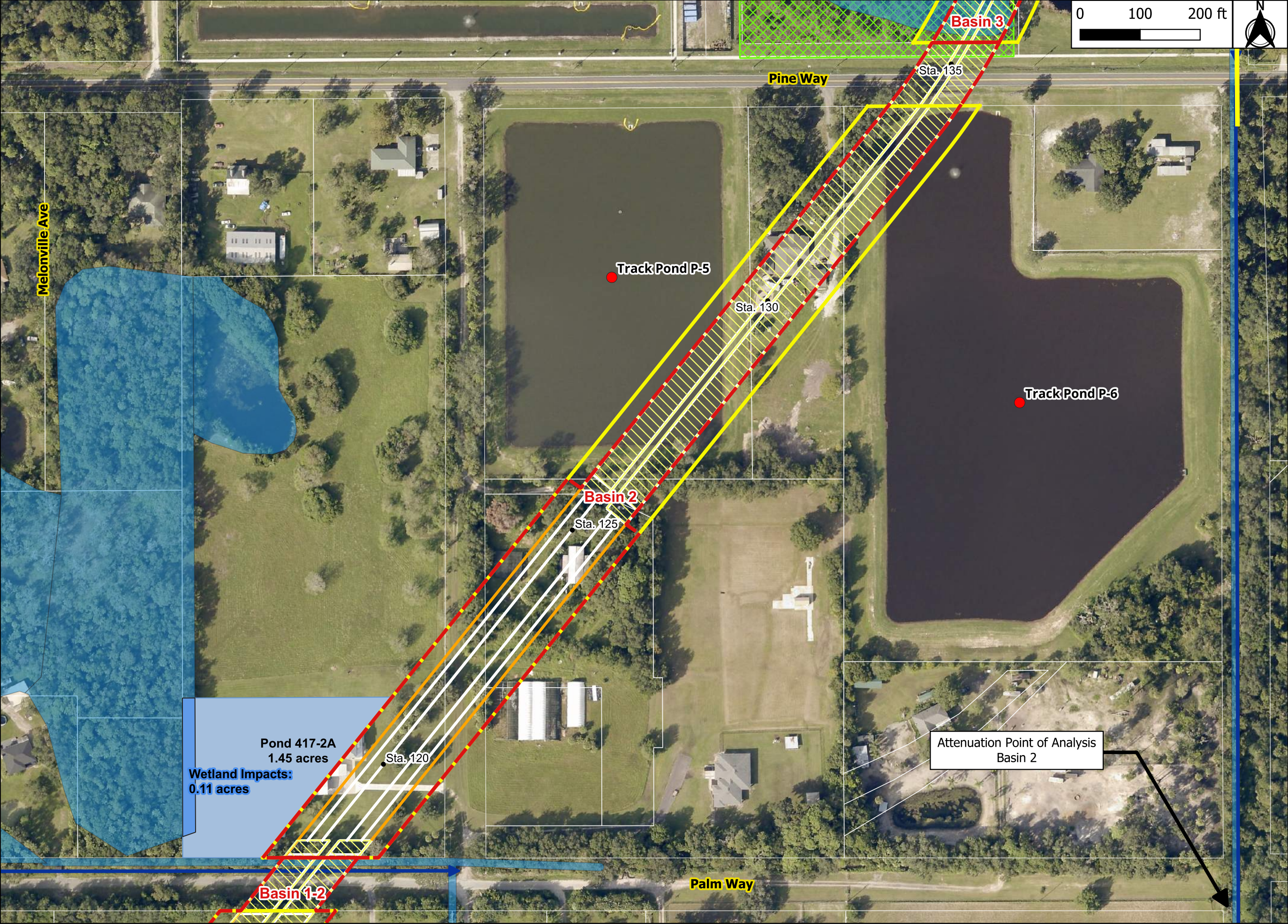
Figure 3B

Proposed Pond 417-1B
Location Map

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Legend

- Existing Permitting Stormwater Facilities
- Proposed CD
- Existing CD
- Proposed Ponds
- Wetlands
- County Maintained Ditches
- Conservation Easement
- Stations

Alignment 2A

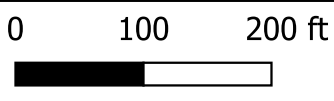
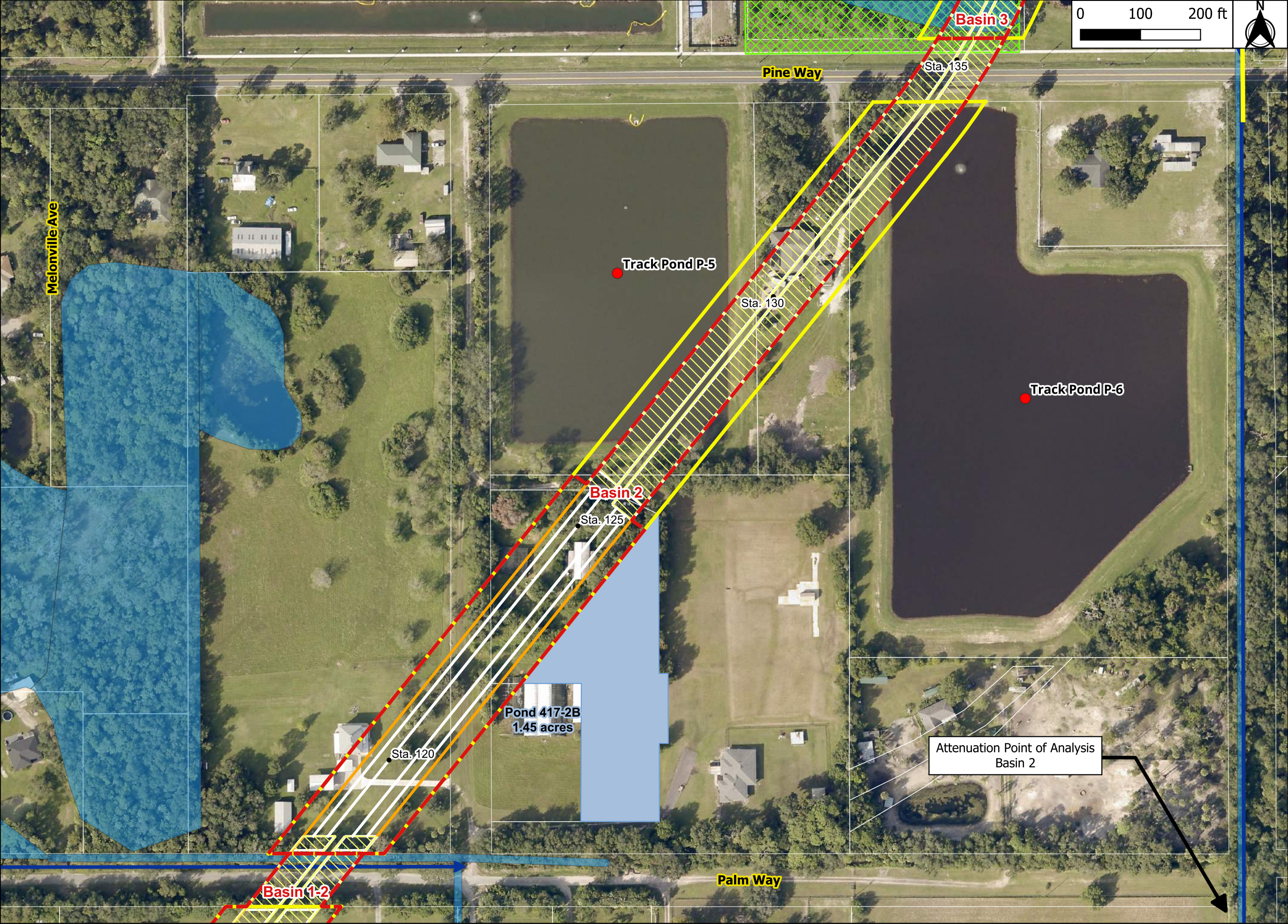
- Proposed Bridges
- Basins
- Parcels

Figure 4A
Proposed Pond 417-2A
Location Map

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Legend

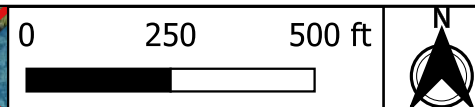
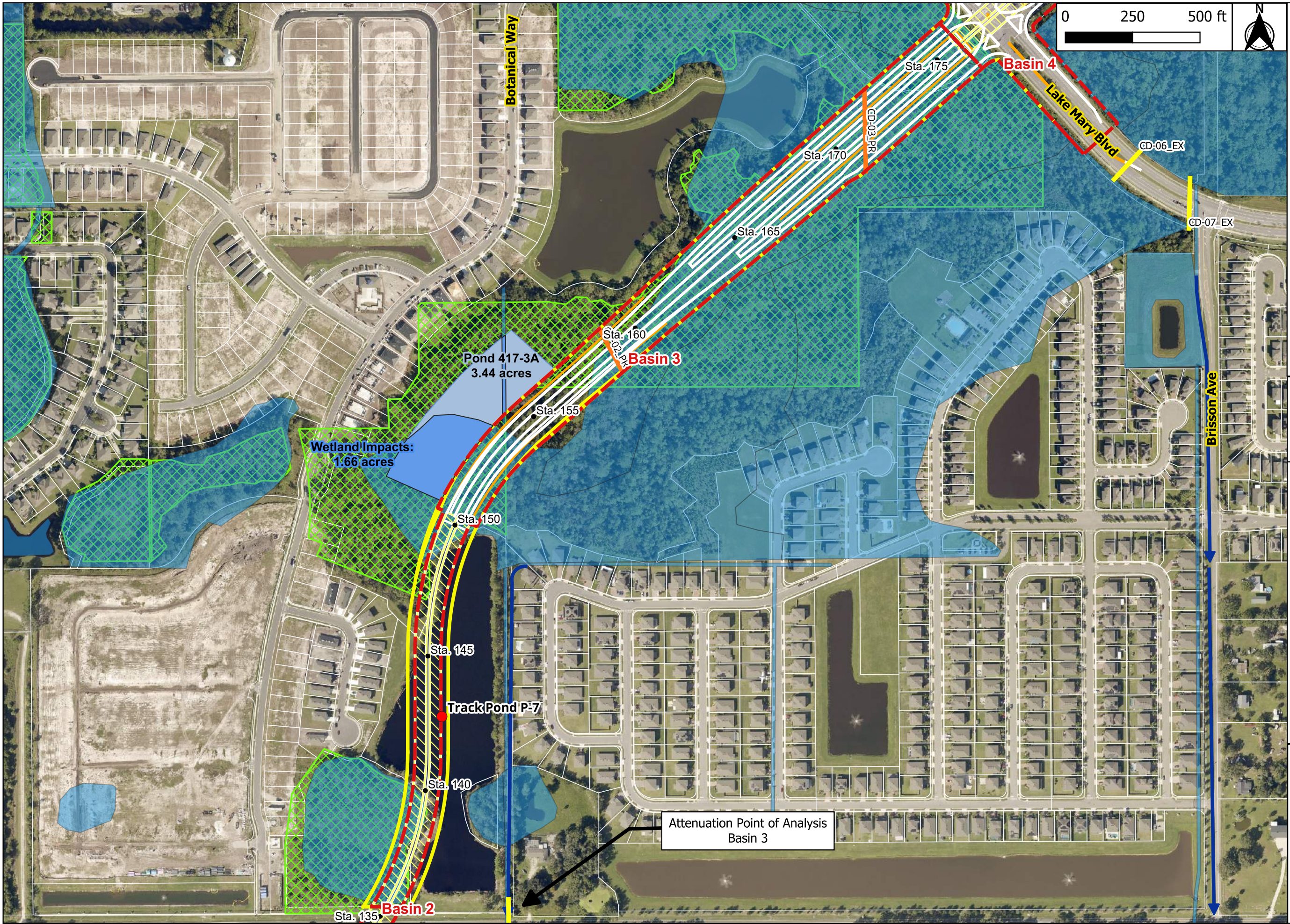
- Existing Permitting Stormwater Facilities
- Proposed CD
- Existing CD
- Proposed Ponds
- Wetlands
- ➡ County Maintained Ditches
- ▨ Conservation Easement
- Stations
- Alignment 2A
 - ▨ Proposed Bridges
 - ▭ Basins
 - ▭ Parcels

Figure 4B
Proposed Pond 417-2B
Location Map

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- Legend**
- Existing Permitting Stormwater Facilities
 - Proposed CD
 - Existing CD
 - Proposed Ponds
 - Wetlands
 - ➔ County Maintained Ditches
 - ▨ Conservation Easement
 - Stations
- Alignment 2A**
- ▨ Proposed Bridges
 - ▭ Basins
 - ▭ Parcels

Figure 5A
Proposed Pond 417-3A
Location Map

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Legend

- Existing Permitting Stormwater Facilities
- Proposed CD
- Existing CD
- Proposed Ponds
- Wetlands
- County Maintained Ditches
- Conservation Easement
- Stations

Alignment 2A

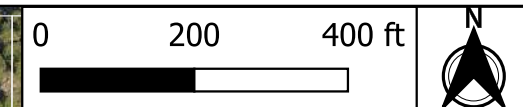
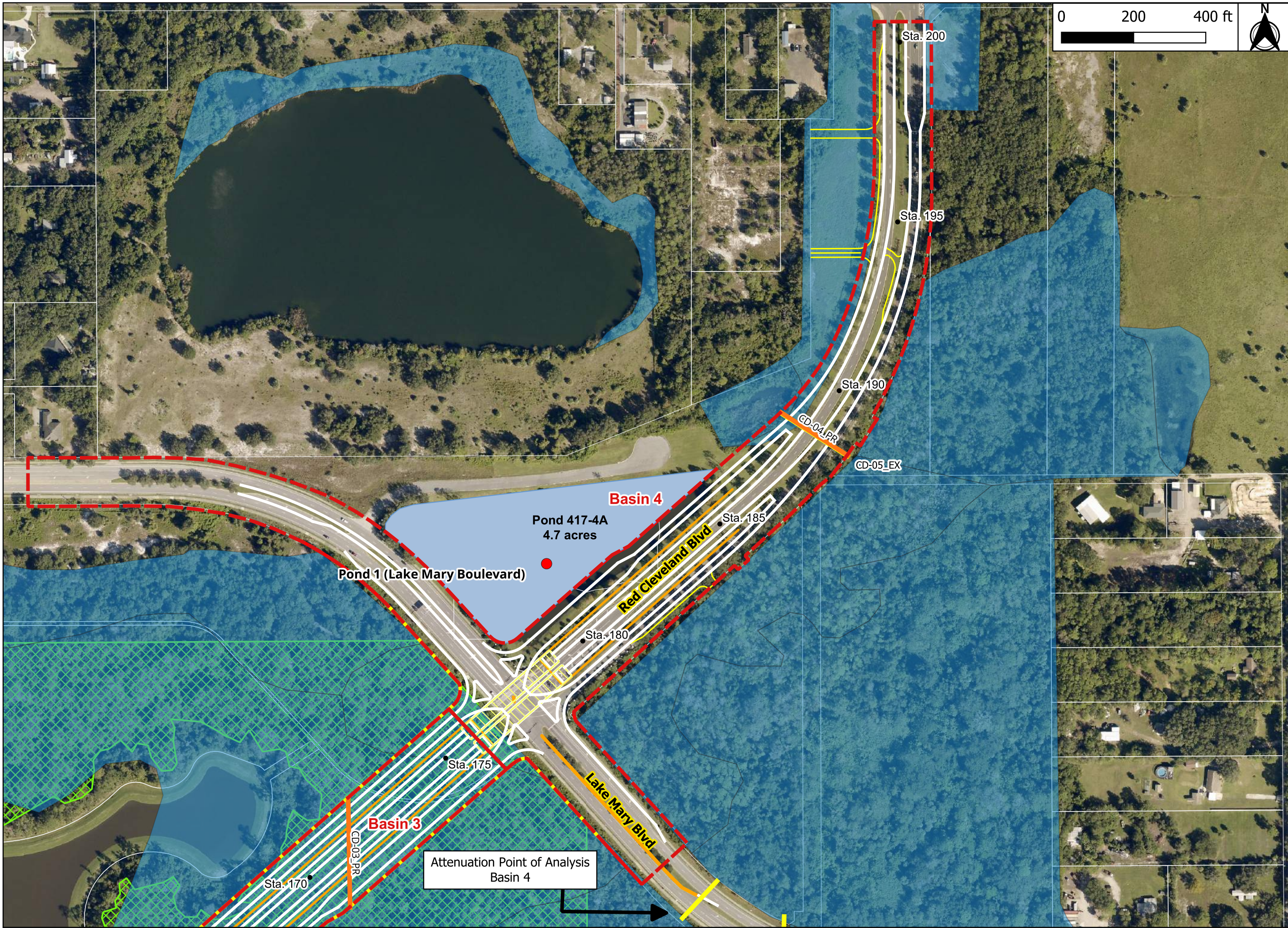
- Proposed Bridges
- Basins
- Parcels

Figure 5B
Proposed Pond 417-3B
Location Map

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- Legend**
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 - Proposed CD
 - Existing CD
 - Proposed Ponds
 - Wetlands
 - ▨ Conservation Easement
 - Stations
 - Alignment 2A
 - ▨ Proposed Bridges
 - ▭ Basins
 - ▭ Parcels

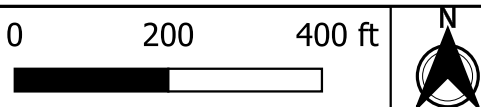
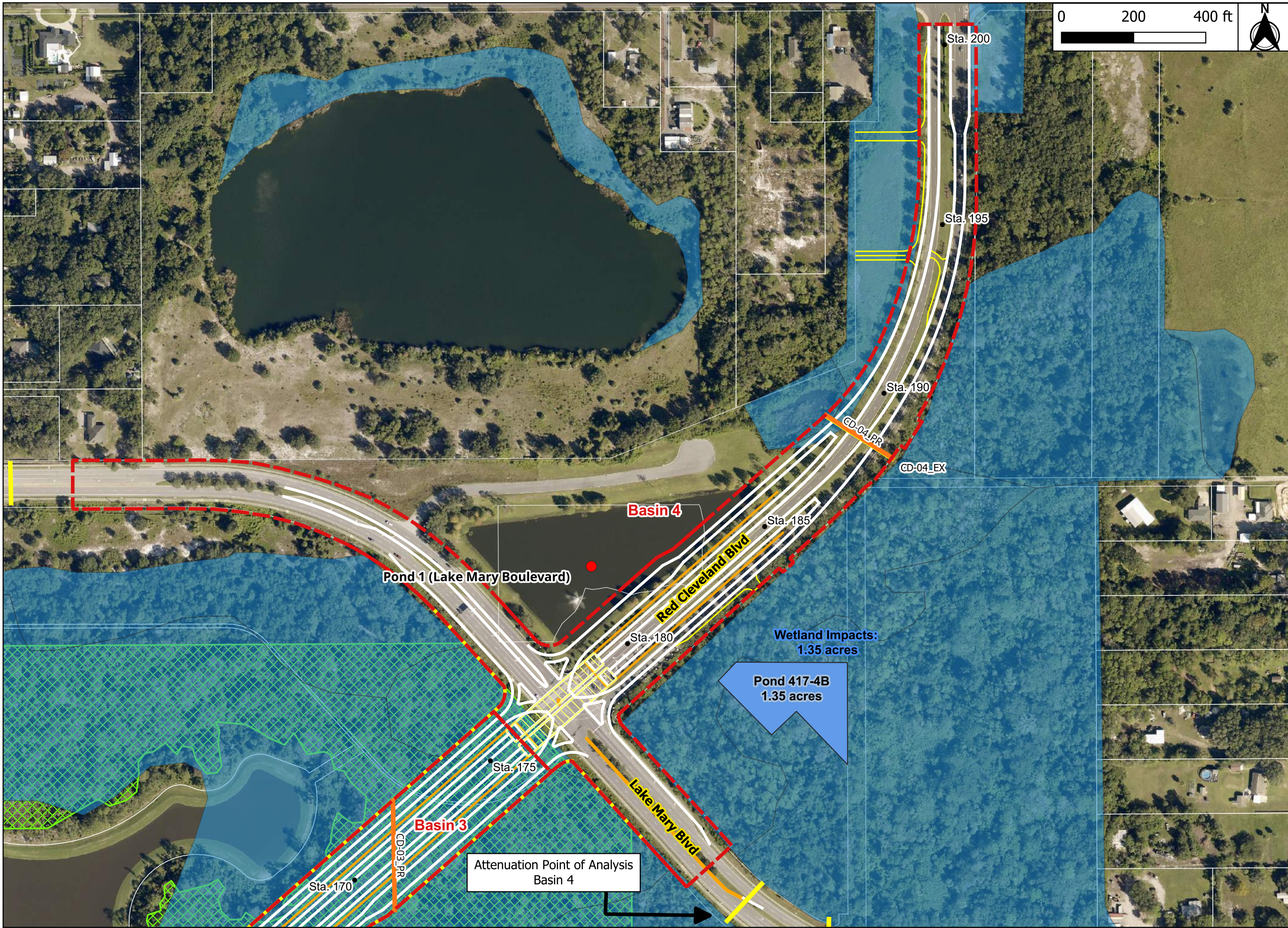
Figure 6A

Proposed Pond 417-4A
Location Map

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- Legend**
- Existing Permitting Stormwater Facilities
 - Proposed CD
 - Existing CD
 - Proposed Ponds
 - Wetlands
 - ▤ Conservation Easement
 - Stations
 - Alignment 2A
 - ▤ Proposed Bridges
 - ▭ Basins
 - ▭ Parcels

Figure 6B

Proposed Pond 417-4B
Location Map

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POND 417-1A (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 4.11 ac
Total drainage area = 11.12 ac
New impervious area = 4.11 ac
New drainage area = 10.52 ac *(Excluding NWL Pond)*

Required Treatment Volume

2.50" runoff from total impervious area = 0.86 Ac-Ft (for new impervious area only)
1" runoff from drainage area = 0.88 Ac-Ft (for new drainage area only)
Greater of above = 0.88 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 0.88 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition (for new drainage area only)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.05	98
Pervious Area (Open Brush)	D	0.07	73
Pervious Area (Open Pasture Good)	D	5.00	80
Pervious Area (Open Res. 1 ac)	D	0.00	84
Pervious Area (Open Res. 2 ac)	D	3.55	82
Pervious Area (Wood Good)	D	0.70	77
Water	---	0.00	100
Pond Area (Open Area)	D	1.75	80
Total Area		11.12	
Avg CN		80.48	

Post-developed Condition (Ultimate Condition)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	4.11	98
Roadway R/W (Open Good)	D	5.25	80
Pond Area (NWL)	D	0.60	98
Pond Area (SOD)	D	1.16	80
Total Area		11.12	
Avg CN		87.62	

Pre-developed Runoff

CN =	80.48	
S =	2.43	inch
Runoff Depth =	5.47	inch
Runoff Volume =	5.07	ac-ft

Post-developed Runoff

CN =	87.62	
S =	1.41	inch
Runoff Depth =	6.31	inch
Runoff Volume =	5.85	ac-ft

Attenuation Volume = 0.78 ac-ft**Total Required Volume = 1.66 ac-ft**

POND 417-1A (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 1A Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	0.67 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	121 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	242 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	121 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	242 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	10.92 ft
		SHGWT =	9.92 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
10.92	1.75		
13.42	1.23		
13.42	0.82		
12.42	0.75	0.89	1.68
11.17	0.67	0.79	0.79
9.92	0.60	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm (Flat Slope)**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**NWL***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **11.71** ft NAVDProvided Treatment Volume Capacity = **1.18** Ac-ftRequired Attenuation Volume = **0.78** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **0.51** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	107+96.50	30.77

POND 417-1B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 4.11 ac
Total drainage area = 11.12 ac
New impervious area = 4.11 ac
New drainage area = 10.52 ac (Excluding NWL Pond)

Required Treatment Volume

2.50" runoff from total impervious area = 0.86 Ac-Ft (for new impervious area only)
1" runoff from drainage area = 0.88 Ac-Ft (for new drainage area only)
Greater of above = 0.88 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 0.88 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.05	98
Pervious Area (Open Brush)	D	0.07	73
Pervious Area (Open Pasture Good)	D	5.00	80
Pervious Area (Open Res. 1 ac)	D	0.00	84
Pervious Area (Open Res. 2 ac)	D	3.55	82
Pervious Area (Wood Good)	D	0.70	77
Water	---	0.00	100
Pond Area (Open Area)	D	1.75	80
Total Area		11.12	
Avg CN		80.48	

Post-developed Condition (Ultimate Condition)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	4.11	98
Roadway R/W (Open Good)	D	5.25	80
Pond Area (NWL)	D	0.60	98
Pond Area (SOD)	D	1.16	80
Total Area		11.12	
Avg CN		87.62	

Pre-developed Runoff

CN =	80.48	
S =	2.43	inch
Runoff Depth =	5.47	inch
Runoff Volume =	5.07	ac-ft

Post-developed Runoff

CN =	87.62	
S =	1.41	inch
Runoff Depth =	6.31	inch
Runoff Volume =	5.85	ac-ft

Attenuation Volume = 0.78 ac-ft**Total Required Volume = 1.66 ac-ft**

POND 417-1B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 1B Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	0.67 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	121 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	242 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	121 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	242 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	10.75 ft
		SHGWT =	9.75 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
10.75	1.75		
13.25	1.23		
13.25	0.82		
12.25	0.75	0.89	1.68
11.00	0.67	0.79	0.79
9.75	0.60	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm (Flat Slope)**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**NWL***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **11.54** ft NAVDProvided Treatment Volume Capacity = **1.18** Ac-ftRequired Attenuation Volume = **0.78** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **0.51** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	107+96.50	30.77

POND 417-1C (OPTION 1 - BASIN 1-1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area =	11.60 ac
Total drainage area =	18.30 ac
Existing impervious area (treated) =	2.54 ac
Existing impervious area (untreated) =	8.10 ac
Existing drainage area =	18.30 ac
New impervious area =	3.51 ac
New drainage area =	18.30 ac

Required Treatment Volume

1.25" runoff from total impervious area =	0.37 Ac-Ft	(for new impervious area only)
0.5" runoff from drainage area =	0.76 Ac-Ft	(for new drainage area only)
Greater of above =	0.76 Ac-Ft	
Pond discharge to OFW =	No	
Add 50% for OFW =	N/A	

Required Treatment Volume = 0.76 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition (Basin 1-1)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	10.64	98
Pervious Area (Open Brush)	D	1.44	73
Pervious Area (Open Pasture Good)	D	0.41	80
Pervious Area (Open Res. 1 ac)	D	0.52	84
Pervious Area (Open Res. 2 ac)	D	0.85	82
Pervious Area (Wood Good)	D	0.00	77
Water	---	0.91	100
Open (Open Area)	D	3.53	80
Total Area		18.30	
Avg CN		91.12	

Post-developed Condition (Ultimate Condition)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	11.60	98
Roadway R/W (Open Good)	D	6.70	80
Pond Area (NWL)	D	0.00	98
Pond Area (SOD)	D	0.00	80
Total Area		18.30	
Avg CN		91.41	

Pre-developed Runoff

CN =	91.12	
S =	0.97	inch
Runoff Depth =	6.73	inch
Runoff Volume =	10.26	ac-ft

Post-developed Runoff

CN =	91.41	
S =	0.94	inch
Runoff Depth =	6.76	inch
Runoff Volume =	10.31	ac-ft

Attenuation Volume = 0.04 ac-ft**Total Required Volume = 0.81 ac-ft**

POND 417-1C (OPTION 1 - BASIN 1-1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 1C Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

1 ft	Max. Volume Height	Mid Storage Height Average Area =	0.81 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	36 ft
20 ft	Swale Bottom Width	Req. Mid Storage Height ~Length =	980 ft
5 ft	Berm Width	Provided Mid Storage Height ~Width =	36 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	980 ft
		Average Ground Elev @ Pond Site =	9.00 ft
		SHGWT =	8.00 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
11.00	1.60		
11.00	1.33		
11.00	0.92		
10.00	0.84	0.41	0.81
9.50	0.81	0.40	0.40
9.00	0.78	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm (Flat Slope)**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **10.00** ft NAVDProvided Treatment Volume Capacity = **0.81** Ac-ftRequired Attenuation Volume = **0.04** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **0.00** ac-ft

POND 417-2A (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 3.47 ac
Total drainage area = 5.78 ac (Excluding NWL Pond)

Required Treatment Volume

2.50" runoff from total impervious area = 0.72 Ac-Ft
1" runoff from drainage area = 0.48 Ac-Ft
Greater of above = 0.72 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 0.72 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.05	98
Pervious Area (Open Good)	D	3.83	80
Pervious Area (Woods Good)	D	0.00	77
Water	--	0.89	100
Pond Area (Open Area)	D	1.45	80
Total Area		6.22	
Avg CN		83.00	

Pre-developed Runoff

CN =	83.00	
S =	2.05	inch
Runoff Depth =	5.77	inch
Runoff Volume =	2.99	ac-ft

Attenuation Volume = 0.51 ac-ft**Total Required Volume = 1.24 ac-ft****Post-developed Condition (Ultimate Condition)**

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	3.47	98
Pervious Area (Open Good)	D	1.29	80
Water	--	0.00	100
Pond Area (NWL)	D	0.44	98
Pond Area (SOD)	D	1.01	80
Total Area		6.22	
Avg CN		91.33	

Post-developed Runoff

CN =	91.33	
S =	0.95	inch
Runoff Depth =	6.75	inch
Runoff Volume =	3.50	ac-ft

Pond 2A Sizing Calculations (Wet Detention):**Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	0.50 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	105 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	210 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	105 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	210 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	12.10 ft
		SHGWT =	11.10 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
12.10	1.45		
14.60	1.00		
14.60	0.64		
13.60	0.58	0.68	1.27
12.35	0.51	0.59	0.59
11.10	0.44	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**NWL***Provided Treatment Volume Calculations**

Weir Elevation (Top of Treatment Volume) =	12.74	ft NAVD
Provided Treatment Volume Capacity =	0.80	Ac-ft

Required Attenuation Volume =	0.51	ac-ft
Available Attenuation Volume ($V_{total} - \text{Provided TV}$) =	0.47	ac-ft

Low Travel Lane Elevations:

ROAD	STA	EOP EL.
SR 417	122+96.50	35.04

POND 417-2B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 3.47 ac
Total drainage area = 5.78 ac *(Excluding NWL Pond)*

Required Treatment Volume

2.50" runoff from total impervious area = 0.72 Ac-Ft
1" runoff from drainage area = 0.48 Ac-Ft
Greater of above = 0.72 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 0.72 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.05	98
Pervious Area (Open Good)	D	3.83	80
Pervious Area (Woods Good)	D	0.00	77
Water	--	0.89	100
Pond Area (Open Area)	D	1.45	80
Total Area		6.22	
Avg CN		83.00	

Pre-developed Runoff

CN =	83.00	
S =	2.05	inch
Runoff Depth =	5.77	inch
Runoff Volume =	2.99	ac-ft

Attenuation Volume = 0.51 ac-ft**Total Required Volume = 1.24 ac-ft****Post-developed Condition (Ultimate Condition)**

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	3.47	98
Pervious Area (Open Good)	D	1.29	80
Water	--	0.00	100
Pond Area (NWL)	D	0.44	98
Pond Area (SOD)	D	1.01	80
Total Area		6.22	
Avg CN		91.33	

Post-developed Runoff

CN =	91.33	
S =	0.95	inch
Runoff Depth =	6.75	inch
Runoff Volume =	3.50	ac-ft

POND 417-2B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 2B Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	0.50 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	105 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	210 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	105 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	210 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	11.90 ft
		SHGWT =	10.90 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
11.90	1.45		
14.40	1.00		
14.40	0.64		
13.40	0.58	0.68	1.27
12.15	0.51	0.59	0.59
10.90	0.44	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**NWL***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **12.54** ft NAVDProvided Treatment Volume Capacity = **0.80** Ac-ftRequired Attenuation Volume = **0.51** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **0.47** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	122+96.50	35.04

POND 417-2B (OPTION 2) PERMANENT POOL VOLUME CHECK

PROJECT: SR 417 SANFORD AIRPORT CONNECTOR PREPARED: JAN DATE: 5/12/2025
 LOCATION: SEMINOLE COUNTY, FLORIDA CHECKED: LCS DATE: 6/23/2025

Permanent Pool CalculationsBasin Characteristics

	Area (ac)	C
Impervious Area =	3.47	0.95
Open Area =	2.30	0.2
TOTAL Area to MES =	5.78	
Composite C =	0.65	

Wet Seasonal Normal Rainfall (P) = 32 inches
 Based on Figure 26-1 from SJRWMD Permit Information manual)

Residence Time (RT) = 21 days (non-littoral zone)

Length of wet season (WS) = 153 days

Minimum Permanent Pool Volume

Area x C x P x RT / WS / (12 in/ft) = 1.38 ac-ft
 Additional 50% for OFW = N/A ac-ft
Minimum PPV Required = 1.38 ac-ft

Elev.	h	Area	Area	Inc. Volume	Cum. Volume	
---	ft	sf	ac	Ac-ft	Ac-ft	
10.90	8.0	19180	0.44	2.95	2.95	NWL
2.9	0.0	12994	0.30	0.00	0.00	Pond Bottom

Permanent Pool Volume Provided = 2.95 ac-ft

Permanent Pool Volume Required=	1.38	ac-ft
Permanent Pool Volume Provided=	2.95	ac-ft

POND 417-3A (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 10.27 ac
Total drainage area = 16.88 ac *(Excluding NWL Pond)*

Required Treatment Volume

2.50" runoff from total impervious area = 2.14 Ac-Ft
1" runoff from drainage area = 1.41 Ac-Ft
Greater of above = 2.14 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 2.14 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.00	98
Pervious Area (Open Good)	D	0.04	80
Pervious Area (Wood Good)	D	12.77	77
Water	--	2.21	98
Pond Area (Open Area)	D	3.44	80
Total Area		18.45	
Avg CN		80.08	

Pre-developed Runoff

CN =	80.08	
S =	2.49	inch
Runoff Depth =	5.43	inch
Runoff Volume =	8.35	ac-ft

Attenuation Volume = 2.08 ac-ft**Total Required Volume = 4.22 ac-ft****Post-developed Condition (Ultimate Condition)**

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	10.27	98
Pervious Area (Open Good)	D	4.74	80
Pervious Area (Wood Good)	D	0.00	77
Water	--	0.00	98
Pond Area (NWL)	D	1.57	98
Pond Area (SOD)	D	1.87	80
Total Area		18.45	
Avg CN		91.55	

Post-developed Runoff

CN =	91.55	
S =	0.92	inch
Runoff Depth =	6.78	inch
Runoff Volume =	10.42	ac-ft

POND 417-3A (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 3A Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	1.69 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	192 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	384 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	192 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	384 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	28.23 ft
		SHGWT =	27.23 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
28.23	3.44		
30.73	2.54		
30.73	1.92		
29.73	1.82	2.20	4.23
28.48	1.69	2.04	2.04
27.23	1.57	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**Total Pond Size Area (Includes tie-in and 20% for landscaping)***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **28.60** ft NAVDProvided Treatment Volume Capacity = **2.25** Ac-ftRequired Attenuation Volume = **2.08** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **1.98** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	161+04.47	35.91

POND 417-3B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area = 10.27 ac
Total drainage area = 16.88 ac *(Excluding NWL Pond)*

Required Treatment Volume

2.50" runoff from total impervious area = 2.14 Ac-Ft
1" runoff from drainage area = 1.41 Ac-Ft
Greater of above = 2.14 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 2.14 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.00	98
Pervious Area (Open Good)	D	0.04	80
Pervious Area (Wood Good)	D	12.77	77
Water	--	2.21	98
Pond Area (Open Area)	D	3.44	80
Total Area		18.45	
Avg CN		80.08	

Pre-developed Runoff

CN =	80.08	
S =	2.49	inch
Runoff Depth =	5.43	inch
Runoff Volume =	8.35	ac-ft

Attenuation Volume = 2.08 ac-ft**Total Required Volume = 4.22 ac-ft****Post-developed Condition (Ultimate Condition)**

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	10.27	98
Pervious Area (Open Good)	D	4.74	80
Pervious Area (Wood Good)	D	0.00	77
Water	--	0.00	98
Pond Area (NWL)	D	1.57	98
Pond Area (SOD)	D	1.87	80
Total Area		18.45	
Avg CN		91.55	

Post-developed Runoff

CN =	91.55	
S =	0.92	inch
Runoff Depth =	6.78	inch
Runoff Volume =	10.42	ac-ft

POND 417-3B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 3B Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	1.69 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	192 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	384 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	192 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	384 ft
1:2	PPV Side Slopes	Average Ground Elev @ Pond Site =	28.40 ft
		SHGWT =	27.40 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
28.40	3.44		
30.90	2.54		
30.90	1.92		
29.90	1.82	2.20	4.23
28.65	1.69	2.04	2.04
27.40	1.57	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**Total Pond Size Area (Includes tie-in and 20% for landscaping)***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **28.77** ft NAVDProvided Treatment Volume Capacity = **2.25** Ac-ftRequired Attenuation Volume = **2.08** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **1.98** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	161+04.47	35.91

POND 417-4A (EXISTING) (OPTION 1) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Permitted impervious area = 9.92 ac (permitted for Existing Pond 1)
Permitted drainage area = 17.11 ac (permitted for Existing Pond 1)
Proposed impervious area = 12.62 ac
Total drainage area = 19.93 ac **(Excluding NWL Pond)**

Required Treatment Volume

2.50" runoff from total impervious area = 2.63 Ac-Ft
1" runoff from drainage area = 1.66 Ac-Ft
Greater of above = 2.63 Ac-Ft
Pond discharge to OFW = No
Add 50% for OFW = N/A

Required Treatment Volume = 2.63 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 8.50 in (Permitted Rainfall)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	9.92	98
Grass (Rdwy Area)	D	3.91	60
Grass (Pond)	D	3.28	75
Water (Pond)	--	3.81	100
Total Area		20.92	
Avg CN		87.66	

Pre-developed Runoff

CN =	87.66	
S =	1.41	inch
Runoff Depth =	7.01	inch
Runoff Volume =	12.22	ac-ft

Post-developed Condition (Ultimate Condition)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	12.62 ac	98
Grass (Rdwy Area)	D	4.03	60
Grass (Pond)	D	3.28	75
Water (Pond)	--	3.81	100
Total Area		23.74	
Avg CN		88.69	

Post-developed Runoff

CN =	88.69	
S =	1.27	inch
Runoff Depth =	7.15	inch
Runoff Volume =	14.15	ac-ft

Attenuation Volume = 1.92 ac-ft**Total Required Volume = 4.56 ac-ft****Pond Storage from Permit Documentation**

Elevation (ft-NGVD)	Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
38.50	37.46	6.14	5.63	25.70
37.50	36.46	5.11	17.98	20.08
33.54	32.50	3.97	2.10	2.10
33.00	31.96	3.81	0.00	0.00

Outside Berm

Inside Berm

NWL

Pond Storage Modified

Elevation (ft-NGVD)	Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
38.50	37.46	4.70	4.58	22.30
37.50	36.46	4.45	15.84	17.72
33.54	32.50	3.54	1.88	1.88
33.00	31.96	3.43	0.00	0.00

Outside Berm

Inside Berm

NWL

Provided Treatment Volume Calculations

Weir Elevation (Top of Treatment Volume) = 32.72 ft NAVD
Provided Treatment Volume Capacity = 2.66 Ac-ft

Available Volume for Attenuation ($V_{\text{inside berm}}$ - Provided TV) = 19.64 ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	188+00.00	37.85

POND 417-4B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Estimating Treatment Volume****SJRWMD Criteria:****Total Impervious Area**

Proposed impervious area =	12.62 ac	(Total including area of existing Pond 1)
Proposed drainage area =	21.87 ac	(Total including area of existing Pond 1)
Permitted impervious area =	9.92 ac	(permitted for Existing Pond 1)
Permitted drainage area =	13.83 ac	(permitted for Existing Pond 1)
New impervious area =	2.70 ac	
New drainage area =	3.81 ac	(Excluding NWL Pond)

Required Treatment Volume

2.50" runoff from new impervious area =	0.56 Ac-Ft	(only for new impervious area)
1" runoff from new drainage area =	0.32 Ac-Ft	(only for new drainage area)
Greater of above =	0.56 Ac-Ft	
Pond discharge to OFW =	No	
Add 50% for OFW =	N/A	

Required Treatment Volume = 0.56 Ac-ft**Estimating attenuation volume using differences in runoff volume****25-year/24-hr Parameters****Runoff Volume**

Precipitation = 7.78 in (NOAA Station Sanford 08-7982)

Pre-developed Condition

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	0.00	98
Pervious Area (Open Good)	D	2.85	80
Pond Area (Open Good)	D	1.35	80
Total Area		4.20	
Avg CN		80.00	

Post-developed Condition (Ultimate Condition)

Land Use	HSG	Area (ac)	CN
Impervious Area (Rdwy + Bridges)	--	2.70	98
Pervious Area (Open Good)	D	0.15	80
Pond Area (NWL)	D	0.39	98
Pond Area (SOD)	D	0.96	80
Total Area		4.20	
Avg CN		93.25	

Pre-developed Runoff

CN =	80.00	
S =	2.5	inch
Runoff Depth =	5.42	inch
Runoff Volume =	1.90	ac-ft

Post-developed Runoff

CN =	93.25	
S =	0.72	inch
Runoff Depth =	6.98	inch
Runoff Volume =	2.44	ac-ft

Attenuation Volume = 0.55 ac-ft**Total Required Volume = 1.11 ac-ft**

POND 417-4B (OPTION 2) STORAGE VOLUME CALCULATIONS FOR PROPOSED CONDITIONPROJECT: SR 417 SANFORD AIRPORT CONNECTORPREPARED: JANDATE: 5/12/2025LOCATION: SEMINOLE COUNTY, FLORIDACHECKED: LCSDATE: 6/23/2025**Pond 4B Sizing Calculations (Wet Detention):****Pond Design Geometry Assumptions:**

2.5 ft	Max. Volume Height	Mid Storage Height Average Area =	0.45 Ac
1 ft	Freeboard Height	Req. Mid Storage Height ~Width =	99 ft
12 ft	PPV Depth	Req. Mid Storage Height ~Length =	198 ft
20 ft	Berm Width	Provided Mid Storage Height ~Width =	99 ft
1:4	Side slopes	Provided Mid Storage Height ~Length =	198 ft
1:4	PPV Side Slopes	Average Ground Elev @ Pond Site =	29.40 ft
		SHGWT =	28.40 ft (assume 1-ft below ground elevation)

Pond Storage Estimates & Assumed Elevations:

Elevation (ft-NAVD)	Area (ac)	Inc. Volume (ac-ft)	Total Volume (ac-ft)
29.40	1.35		
31.90	0.92		
31.90	0.57		
30.90	0.52	0.60	1.13
29.65	0.45	0.52	0.52
28.40	0.39	0.00	0.00

*Total Pond Size Area (Includes tie-in and 20% for landscaping)**Outside Berm**Inside Berm (Freeboard)**Top of Attenuation Volume / Total Provided Volume**Mid Storage Height**NWL***Provided Treatment Volume Calculations**Weir Elevation (Top of Treatment Volume) = **29.72** ft NAVDProvided Treatment Volume Capacity = **0.56** Ac-ftRequired Attenuation Volume = **0.55** ac-ftAvailable Attenuation Volume ($V_{\text{total}} - \text{Provided TV}$) = **0.57** ac-ft**Low Travel Lane Elevations:**

ROAD	STA	EOP EL.
SR 417	188+00.00	37.85

PROJECT SR 417 SANFORD AIRPORT CONNECTOR
SUBJECT NUTRIENT LOADING ANALYSIS

DESIGN BY: JAN
CHECK BY: LCS

DATE: 5/12/2025
DATE: 5/29/2025

The following calculations are compiled based on FDEP ERP Applicant's Handbook, June 2024.

Basin: Basin Pond 417-1
Pond: Pond 417-1

Meteorological Region: Zone 2 (Seminole County)

Calculate Annual Runoff Volume (A_R):

Annual Runoff Volume A_R (ac-ft) = $A_L \times R \times CR \times 1 \text{ ft} / 12$

A_L = Land Use Area (ac)

R = Rainfall Depth = 51 in/year

CR = Annual Runoff Coefficient (Zone 2 Table, Appendix N-2)

Impervious Area	
EC IA	0.05 acres
PC IA	4.11 acres

Calculate Pollutant Loadings:

Load (kg/yr) = ($A_R \times C_p$) \times (43560 ft^2/acre) \times (7.48 gal/ ft^3) \times (3.785 liter/gal) \times (1 kg/ 10^6 mg)

C_p = Annual TP Load Pollutant Conc. (mg/l) (Table 9.2)

Existing Conditions

Assumed Undeveloped/Rangeland

Land Use	Soil Type	Area (acres)	Impv. Area (acres)	% DCIA ¹	Non DCIA CN	Annual Runoff C Value	Annual Runoff Volume (ac-ft/yr)	Annual Runoff Reduction for onsite facility (%)	Annual Runoff Reduction for roadside ditch (%)	Annual Runoff (A_R) P. Loading (ac-ft/yr)	Annual Loading Rate		Total Annual Load	
											TN (mg/l)	TP (mg/l)	TN (kg/yr)	TP (kg/yr)
Roadway	D	0.05	0.05	0.00	80	0.112	5.01	0%	0%	5.01	1.15	0.055	7.10	0.34
Open Space	D	10.48	0.00	0.00	80									
Subtotal for Pollutant Analysis		10.52											7.10	0.34

Total Pollutant Loading prior to Treatment:	TN =	7.10 kg/yr
	TP =	0.34 kg/yr

Proposed Conditions

Assume Statewide Highway Loading

Land Use	Soil Type	Area (acres)	Impv. Area (acres)	% DCIA ¹	Non DCIA CN	Annual Runoff C Value	Annual Runoff Volume (ac-ft/yr)	Annual Runoff Reduction for onsite facility (%)	Annual Runoff Reduction for roadside ditch (%)	Annual Runoff (A_R) P. Loading (ac-ft/yr)	Annual Loading Rate		Total Annual Load	
											TN (mg/l)	TP (mg/l)	TN (kg/yr)	TP (kg/yr)
Roadway	D	4.11	4.11	100.00	80	0.185	8.27	0%	0%	8.27	1.19	0.155	12.14	1.58
Open Space	D	6.41	0.00	0.00	80									
Subtotal for Pollutant Analysis		10.52											12.14	1.58

Total Pollutant Loading prior to Treatment:	TN =	12.14 kg/yr
	TP =	1.58 kg/yr

Evaluate Proposed Treatment Facility

Method	Wet Detention
Annual Runoff Volume	5.01 ac-ft/yr
Provided Permanent Pool Volume (PPV)	4.77 ac-ft
Wet Detention Hydraulic Residence Time (RT)*	200 days
Total Nitrogen (TN) % Removal	43%
Total Phosphorous (TP) % Removal	81%

*Residence Time utilizes either $RT = PPV/(\text{Annual Runoff})$ 365 or 200 days as maximum residence time

Reduction from Post

Total Pollutant Loading after Treatment:	TN =	6.94 kg/yr	43%
	TP =	0.30 kg/yr	81%

Appendix C – Existing Permit Documentation

SEMINOLE COUNTY, FLORIDA

THIS CONTRACT PLAN SET INCLUDES:

- ROADWAY PLANS
- SIGNING AND PAVEMENT MARKING PLANS
- SIGNALIZATION PLANS
- LANDSCAPE PLANS

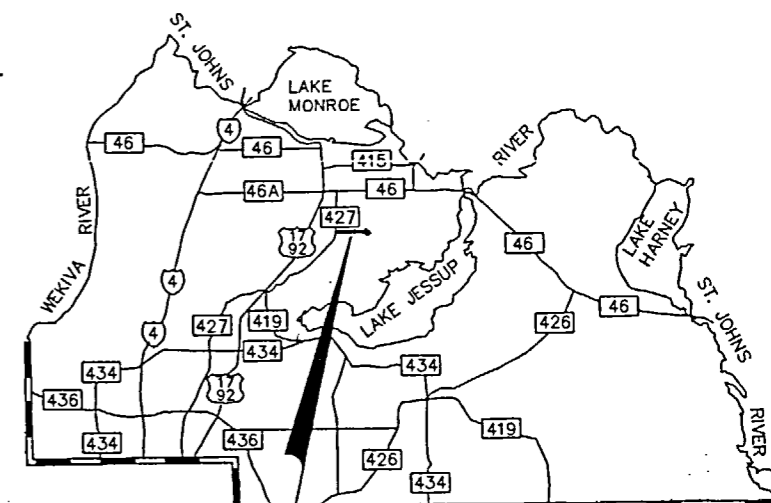
A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH GROUP OF PLANS

BOARD OF COUNTY COMMISSIONERS
PUBLIC WORKS DEPARTMENT – ENGINEERING DIVISION

PUBLIC WORKS DIRECTOR
Larry Sellers



COUNTY ENGINEER
Jerry McCollum



LOCATION OF PROJECT

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	SUMMARY OF PAY ITEMS
3-4	DRAINAGE MAPS
5-8	TYPICAL SECTIONS
9A-9B	SUMMARY OF QUANTITIES
10-12	SUMMARY OF DRAINAGE STRUCTURES
13-14	PROJECT LAYOUT
15	REFERENCE POINTS
16	GENERAL NOTES
17-35	PLAN / PROFILE
36-37	INTERSECTION DETAILS
38-39	RAILROAD INTERSECTION DETAILS
40	NPDES SHEET
41	SUPERELEVATION DETAILS
42-44A	SOIL SURVEY REPORT & PROFILES
45-56	WATER RETENTION AREAS & CROSS SECTIONS
57-58	DETAIL SHEETS
59	CROSS SECTION PATTERN SHEET
60-114	ROADWAY CROSS SECTIONS
115-116	TRAFFIC CONTROL PLAN
117-135	UTILITY ADJUSTMENT SHEETS

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, ROADWAY AND TRAFFIC DESIGN STANDARDS (BOOKLET DATED JANUARY, 1994).

LENGTH OF PROJECT					
	LN.FT.	MILES	CROSS ROADS	LN.FT.	TOTAL
ROADWAY	8429.07	1.596	2138.50	0.405	10567.57
BRIDGES	-	-	-	-	-
NET LENGTH OF PROJECT	8429.07	1.596	2138.50	0.405	10567.57
EXCEPTIONS	-	-	-	-	-
GROSS LENGTH OF PROJECT	8429.07	1.596	2138.50	0.405	10567.57

EAST LAKE MARY BOULEVARD SEGMENT I

SANFORD AVE. TO AIRPORT ENTRANCE RD.

RECEIVED
22495-5 X = SEP 27 2002
PDS
ALTAMONTE SVC. CTR.

PREPARED BY:



GEE & JENSON

Engineers, Architects, Planners, Inc.
2701 Maitland Center Pkwy., Suite 150
Maitland, Florida 32751

GOVERNING SPECIFICATIONS: STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONST., DATED JANUARY 1991, AND SUPPLEMENTS THERETO INCORPORATED IN THE SPECIAL PROVISIONS FOR THIS PROJECT.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

ROADWAY PLANS
APPROVED BY: *John J. Nemethy* September 1, 1998
JOHN J. NEMETHY, P.E. #148541 DATE

REVISIONS		
BY	DATE	DESCRIPTION
CND	8/98	REVISED SHEETS 2, 3, 5-8, 9B, 10, 12, 17-28, 36, 38-39, 45, 60-61, 69-71, 75-76, 100-101, 114, 117, 120-121.
CND	8/98	REMOVED SHEETS 46-48

CONSTRUCTION COMPLETED

FIELD VERIFIED

Seminole County Project Manager JERRY MATTHEWS

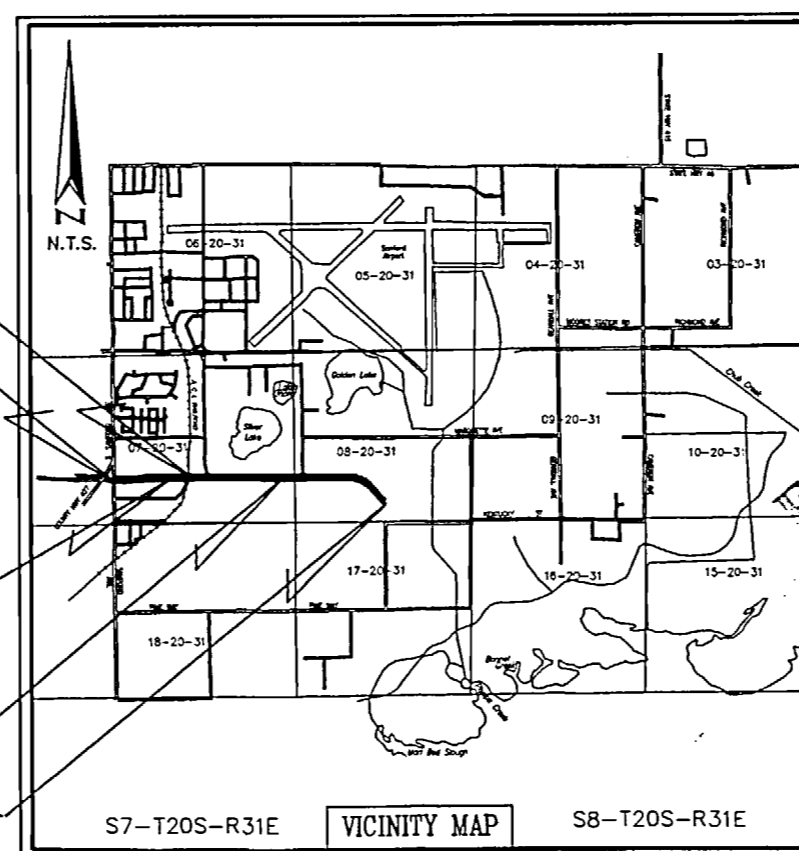
R.R. CROSSING
R.R.M.P. 772.51

BEGIN PROJECT
STATION 10+00.00

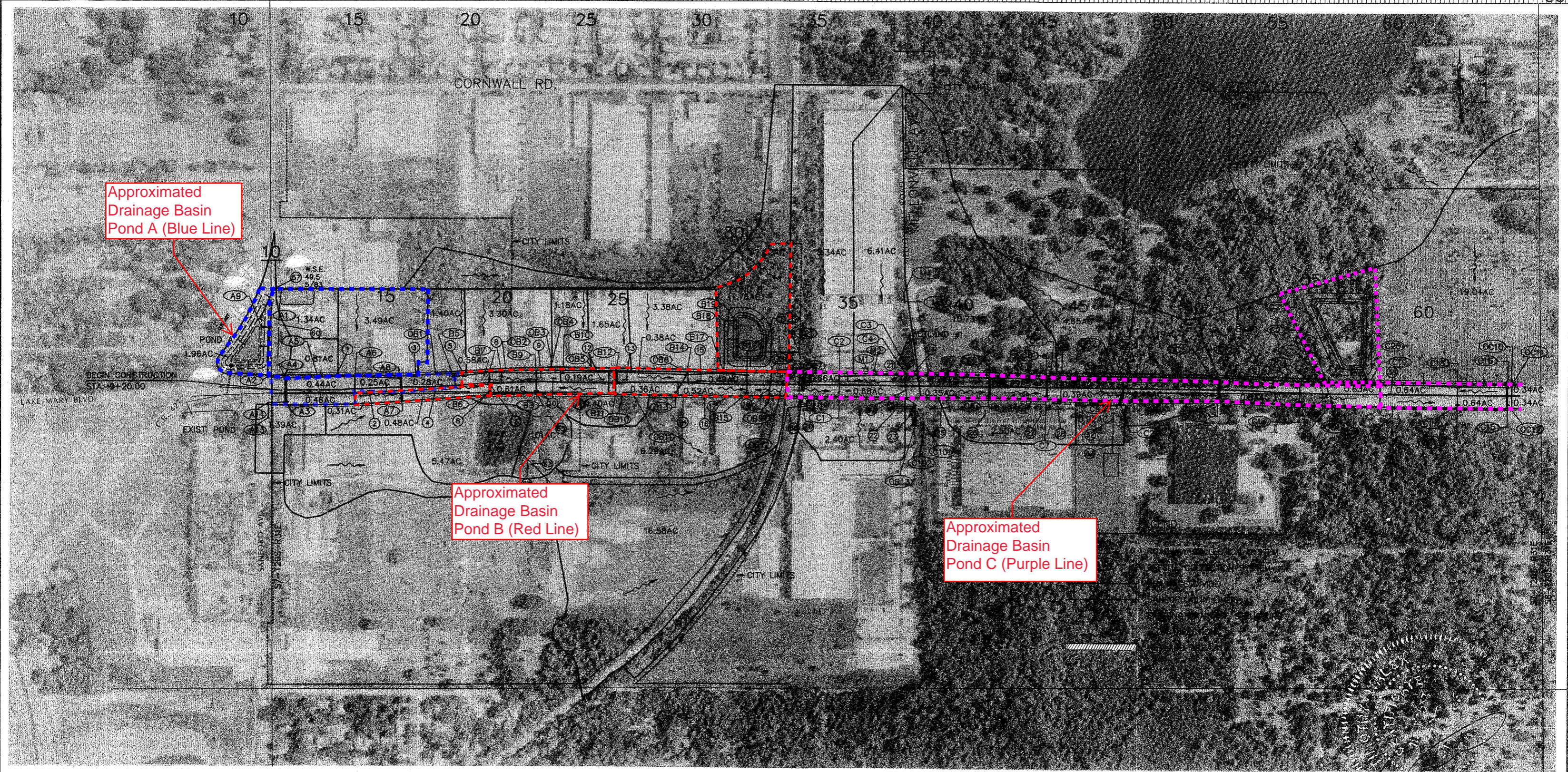
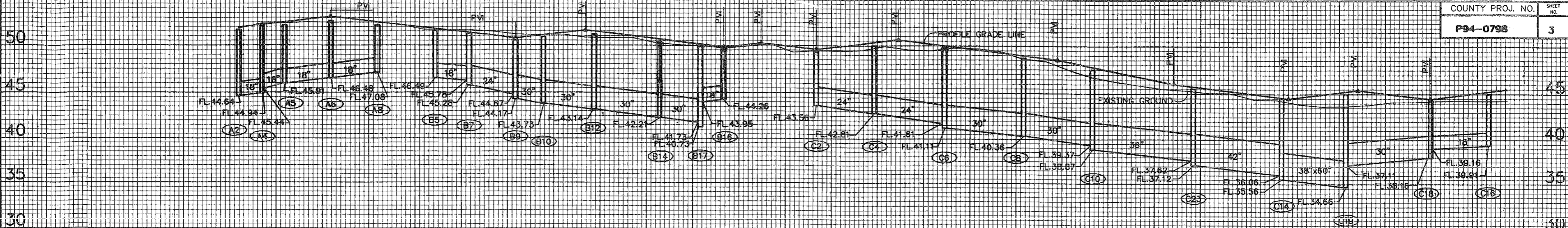
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STATION 22+87.41 AHD.

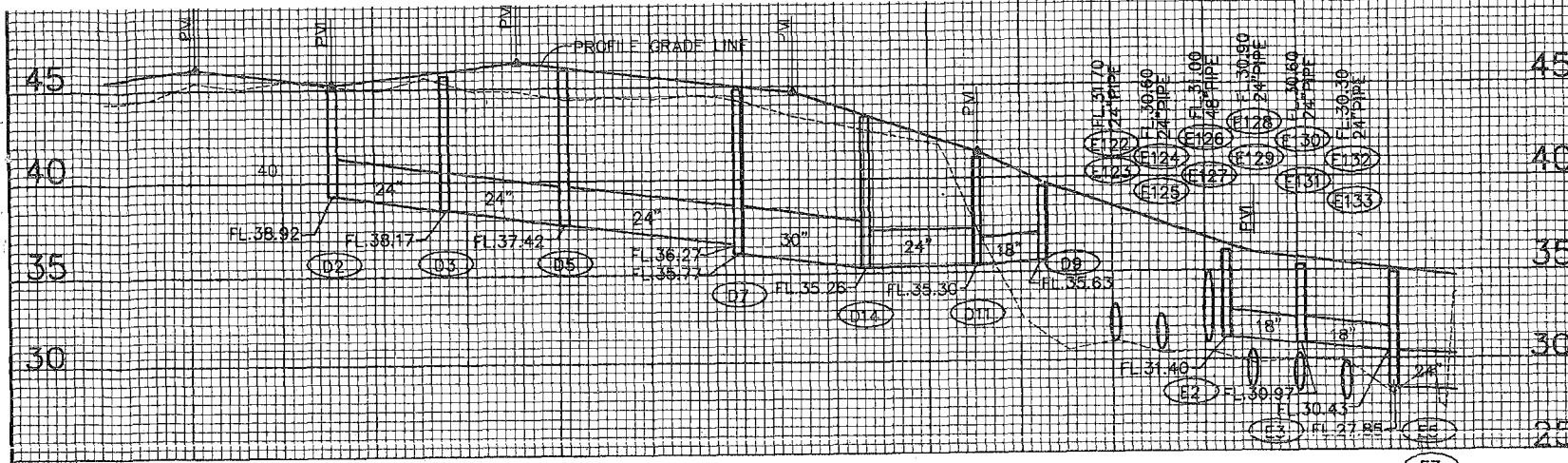
EQUATION:
STATION 56+50.23 BK. =
STATION 56+50.00 AHD.

END PROJECT
STATION 94+27.57

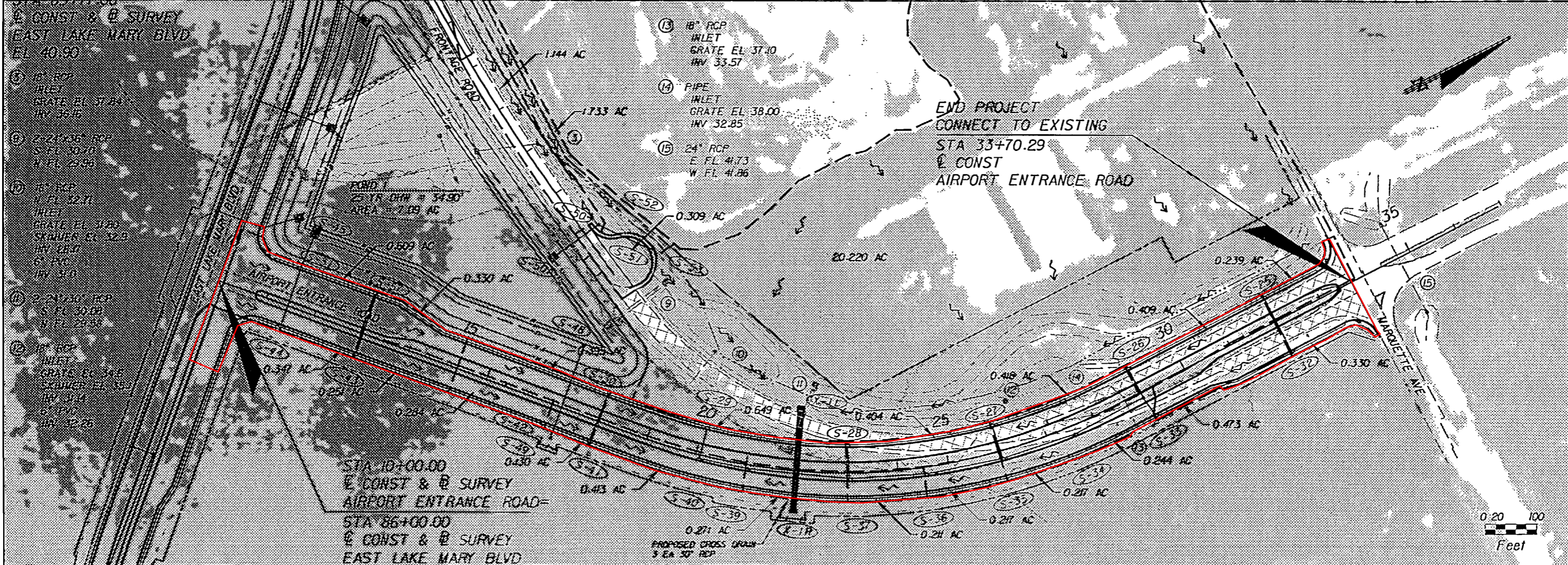
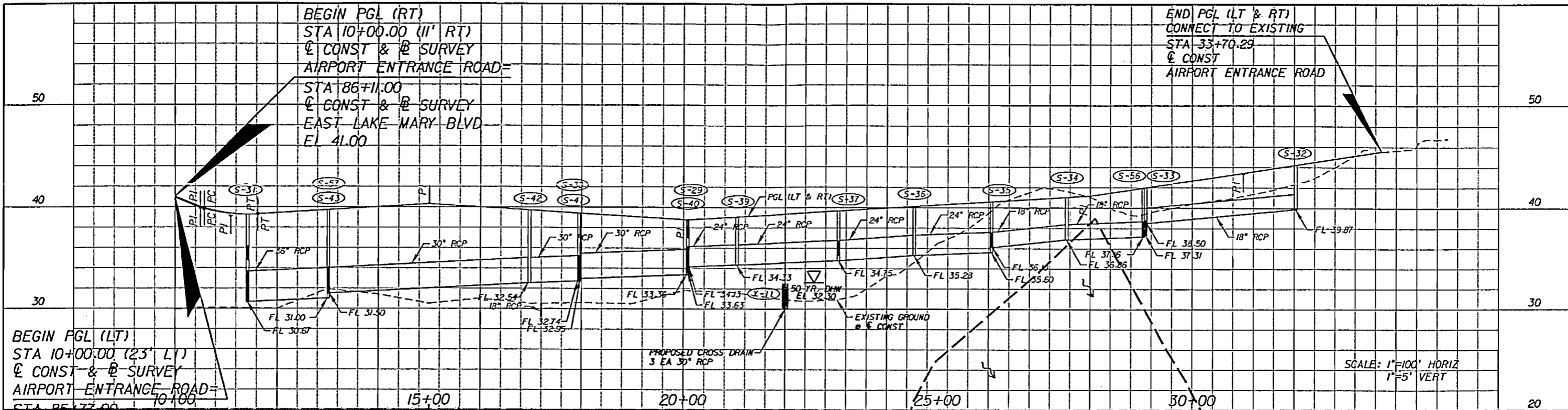


FINAL PERMITTED
DATE _____
INITIAL _____





EXISTING DRAINAGE STRUCTURES			
1. 48 LF OF 18" RCP N.F.L. 48.17 S.F.L. 48.55	20. 36 LF OF 36" RCP N.F.L. 42.34 S.F.L. 42.84	39. 52 LF OF 15" RCP N.F.L. 41.2 S.F.L. 41.2	57. 22 LF OF 18" CMP N.F.L. 46.9 S.F.L. 49.0
2. 32 LF OF 18" RCP N.F.L. 48.16 S.F.L. 48.28	31. 54 LF OF 24" RCP N.F.L. 46.03 S.F.L. 46.74	40. NO INFO N.F.L. --- S.F.L. ---	58. 60 LF OF 18" RCP N.F.L. 48.1 S.F.L. 48.4
3. 48 LF OF 18" RCP N.F.L. 48.04 S.F.L. 48.22	41. 54 LF OF 18" RCP N.F.L. 44.2 S.F.L. 44.7	42. 54 LF OF 18" RCP N.F.L. 44.2 S.F.L. 44.7	59. 40 LF OF 18" CMP N.F.L. 48.6 S.F.L. 49.0
4. 32 LF OF 18" RCP N.F.L. 47.03 S.F.L. 47.15	43. 32 LF OF 18" RCP N.F.L. 44.28 S.F.L. 44.16	44. 240 LF OF 18" CMP N.F.L. 47.6 S.F.L. 47.2	60. 240 LF OF 18" CMP N.F.L. 47.6 S.F.L. 47.2
5. 27 LF OF 18" RCP N.F.L. 47.68 S.F.L. 47.50	45. 52 LF OF 15" RCP N.F.L. 41.5 S.F.L. 41.7	61. 30 LF OF 18" CMP N.F.L. 48.3 S.F.L. 48.3	62. 30 LF OF 18" CMP N.F.L. 48.3 S.F.L. 48.3
6. 36 LF OF 24" RCP N.F.L. 47.52 S.F.L. 48.33	46. 108 LF OF 36" RCP N.F.L. 44.65 S.F.L. 44.49	63. 32 LF OF 24" RCP N.F.L. 44.4 S.F.L. 44.9	64. 32 LF OF 24" RCP N.F.L. 44.4 S.F.L. 44.9
7. 48 LF OF 18" RCP N.F.L. 48.83 S.F.L. 48.55	47. 48 LF OF 18" RCP N.F.L. 44.7 S.F.L. 44.2	65. 12 LF OF 36" RCP N.F.L. 44.7 S.F.L. 44.8	66. 12 LF OF 36" RCP N.F.L. 44.7 S.F.L. 44.8
8. 48 LF OF 18" RCP N.F.L. 47.55 S.F.L. 48.27	48. 48 LF OF 18" RCP N.F.L. 40.15 S.F.L. 41.02	67. 112 LF OF 36" RCP N.F.L. 44.3 S.F.L. 44.1	68. 112 LF OF 36" RCP N.F.L. 44.3 S.F.L. 44.1
9. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	49. 48 LF OF 18" RCP N.F.L. 40.48 S.F.L. 40.32	69. 40 LF OF 24" RCP N.F.L. 42.2 S.F.L. 42.2	70. 40 LF OF 24" RCP N.F.L. 42.2 S.F.L. 42.2
10. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	50. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	71. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	72. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
11. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	51. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	73. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	74. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
12. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	52. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	75. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	76. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
13. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	53. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	77. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	78. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
14. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	54. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	79. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	80. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
15. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	55. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	81. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	82. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
16. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	56. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	83. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	84. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
17. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	57. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	85. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	86. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
18. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	58. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	87. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	88. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66
19. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	59. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	89. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66	90. 36 LF OF 18" RCP N.F.L. 48.44 S.F.L. 48.66



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

EARTH TECH 30 SOUTH KELLER ROAD, SUITE 500, ORLANDO, FL 32810 407.660.1719 CERTIFICATE OF AUTHORIZATION NO. 8115		SEMINOLE COUNTY PUBLIC WORKS DEPARTMENT ENGINEERING DIVISION ROAD NO. COUNTY PROJECT ID SEMINOLE PS-0137	PROPOSED DRAINAGE MAP SHEET NO. 4 Appendix C Page 5
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**DRAINAGE CALCULATIONS
AND
PERMITTING NARRATIVE

FOR

EAST LAKE MARY BLVD. SEGMENT IIA**

Prepared For:

**Seminole County
Public Works Department
Engineering Division**

4 22490 3

RECEIVED

JAN 22 2002

PDS

ALTAMONTE SVC. CTR.

Prepared By:

**Earth Tech Consulting, Inc.
30 South Keller Road, Suite 500
Orlando, Florida 32810**

January 2002

Melissa Gu
1/22/02

3. PROPOSED CONDITIONS

The proposed East Lake Mary Boulevard Segment 2A includes the reconstruction of East Lake Mary Boulevard from 280 feet east of Ohio Avenue to 100 feet east of the proposed intersection of East Lake Mary Boulevard and Airport Entrance Road. It also includes the reconstruction of Airport Entrance Road from the proposed East Lake Mary Boulevard to Marquette Avenue. A new Frontage Road will be provided to access the Marquette borrow pit. None of the proposed roadways lie in the 100-year flood zone according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, included in Appendix D-1.

The proposed East Lake Mary Boulevard and Airport Entrance Road will consist of a four-lane divided urban section with curb and gutter, a raised median, a 5-foot sidewalk on the left and an 8-foot sidewalk on the right side of the proposed roadways.

The proposed Frontage Road will consist of a two-lane rural section with onsite and offsite ditches along the proposed roadway with curb and gutter at the intersection of East Lake Mary Boulevard and the Frontage Road.

The drainage facilities for this project will include a stormwater management pond, storm sewer systems, cross drains, and open ditches.

Runoff from East Lake Mary Boulevard and Airport Entrance Road will be collected by curb inlets and be conveyed by storm sewer to the proposed stormwater management pond. A portion of runoff from Frontage Road will drain into curb inlets or onsite open ditches then be conveyed by storm sewer to the proposed wet pond. Runoff from a portion of Frontage Road covering an area of 0.133 acres will drain into the pond directly.

Offsite runoff will be separated from the runoff of the proposed roadways. Offsite ditches will collect and convey runoff from an area of 22.0 acres to station 22+00 of Airport Entrance Road where five (5) proposed 24-in by 38-in cross drains will convey runoff further southeasterly to a wetland area.

The proposed stormwater management pond will be located in an area, consisting of an existing wet pond and a grassed area immediately east of the pond, encompassed by the proposed East Lake Mary Boulevard, Airport Entrance Road, and Frontage Road. The proposed pond will discharge southeasterly into a low area, and eventually discharge into Lake Jesup.

The following is the Drainage Summary for Proposed Conditions.

Drainage Summary for Proposed Conditions

	Onsite Basin	Offsite Basin	Total
Drainage Area (ac)	20.92	21.95	42.87
25 yr/24hr Peak Discharge(cfs)	7.25	38.85	46.1
Mean Annual/24hr Peak Discharge(cfs)	5.71	4.14	9.85

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Pond 1 Calculations


EARTH TECH		Project Name		East Lake Mary Blvd. Segment 2A	
A tyco INTERNATIONAL LTD. COMPANY		Project No.		46547	
		Prepared By		MG Date 1/4/2002	
		Reviewed By		Date	
Runoff Curve Number for Post-development Conditions:					
	Percent	Width	Area		
	(%)	(ft)	(ac)		
Roadway R/W			13.83		
Impervious =			9.92	(CN = 98)	
Pervious =			3.91	(CN = 60)	
Hydrologic Soil Group "A"	46.9		1.83	(CN = 39)	
Hydrologic Soil Group "C"	14.2		0.56	(CN = 74)	
Hydrologic Soil Group "B/D"	15.7		0.62	(CN = 80)	
Hydrologic Soil Group "D"	23.1		0.90	(CN = 80)	
Proposed Pond =			7.09		
Impervious =			3.81	(CN = 100)	
Pervious =			3.28	(CN = 75)	
Hydrologic Soil Group "A"	7.9		0.26	(CN = 39)	
Hydrologic Soil Group "C"	28.6		0.94	(CN = 74)	
Hydrologic Soil Group "D"	63.5		2.08	(CN = 80)	
Total			20.92	(CN = 87.7)	

Total Basin Area &
Impervious Area
for TV

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EARTH TECH  A tyco INTERNATIONAL LTD. COMPANY	Project Name		East Lake Mary Blvd. Segment 2A	
	Project No.		46547	
	Prepared By	MG	Date	1/4/2002
	Reviewed By		Date	
A2 Required Water Quality Treatment Volume Calculations:				
1" of Runoff from the Contributing Area =		1.15	ac-ft	
or				
2.5" of Impervious Area = (excludes pond area)		2.07	ac-ft	
Required Water Quality Treatment Volume =		2.07	ac-ft	

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PDS
ALTAMONTE SVC. CTR.

EARTH  TECH		Project Name		East Lake Mary Blvd. Segment 2A	
A TUCO INTERNATIONAL LTD. COMPANY		Project No.		46547	
		Prepared By		MG	Date 1/4/2002
		Reviewed By			Date
Pond Storage Volume					
Elevation	Area	Accumulate Volume	Total Storage Volume		
(ft)	(acre)	(ac-ft)	(ac-ft)		
27.00	2.92	0.00	0.00		
31.00	3.28	12.41	12.41		
33.00	3.81	17.10	19.51	(Permanent Pool)	
33.00	3.81	0.00	0.00		
33.54	3.97	2.10	2.10	(Water Quality Treatment Volume)	
37.50	5.11	17.98	20.08		
38.50	6.14	5.63	25.71		
33.00	3.81	0.00	0.00		
33.58	3.98	2.26	2.26	(Water Quality Treatment + Seepage Volume)	
37.50	5.11	17.82	20.08		
38.50	6.14	5.63	25.71		

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A.4 WATER QUALITY TREATMENT VOLUME DRAWDOWN CALCULATIONS

Appendix D – Correspondence

COMMENT FORM

SR 417 Sanford Airport Connector (417-246A)
Project Development & Environment (PD&E) Study
Refined Alternatives Public Workshop
Wednesday, April 2, 2025

All residents in Palm Hammock are
concerned about the run off from 417
We already have water problems

(Please continue comments on the back of this page if more space is needed. Thank you.)

Name:

Terry Smith

Address:

4425 S Mellonville Ave
Sanford, FL 32773

Email:

Phone:



You may also submit a comment using
your phone by scanning above!

We welcome your comments. You may also email your comments to Nick Lulli, Public Involvement Coordinator, at
ProjectStudies@CFXway.com.

Thank you!

COMMENT FORM

SR 417 Sanford Airport Connector (417-246A)
Project Development & Environment (PD&E) Study
Refined Alternatives Public Workshop
Wednesday, April 2, 2025

I own the 5 acres on the NE corner of Mellonville and Pine Way. I've owned my farm (horseteam) since 1998. I can tell you that Alignment 2 is the only environmentally sound option. 2A will cause massive flooding to the north and ~~east~~^{west}. If you looked at a watershed map, the water comes from the north and west and already floods our neighborhood almost up to the houses already. 2A would cause massive backups of the water, and there would not be enough piping/drainage/retention ponds that could hold the flow. It would flood ~~at~~ nearly everyone to the north and east. You would have to buy out the entire neighborhood on Mellonville S/PalmWay.

(Please continue comments on the back of this page if more space is needed. Thank you.)

Name:

Julie Swift

Address:

I own the 5 acres on the NE corner of Mellonville & Pine Way.

Email:

swif4210@bellsouth.net

Phone:

(407) 314-8795



You may also submit a comment using your phone by scanning above!

We welcome your comments. You may also email your comments to Nick Lulli, Public Involvement Coordinator, at ProjectStudies@CFXway.com.

Thank you!

COMMENT FORM

SR 417 Sanford Airport Connector (417-246A)
Project Development & Environment (PD&E) Study
Refined Alternatives Public Workshop
Wednesday, April 2, 2025

In 2024 there was a Seminole County study on stormwater/drainage concerns for this entire area. It is not clear these concerns have been taken into consideration! ^{for cost and impact of these options.} There has been rampant growth in the east Lake Mary Blvd area over the past 10^{or so} years and it has directly impacted the ^{existing} infrastructure and drainage. The past 2 hurricane seasons have seen more and more ^{or near flooding} flooding in the Lake Jesup basin and the Palm Hammock neighborhood directly impacted by this intended roadway due to the rampant growth and lack of drainage/stormwater consideration. Both 2 and 2a will ^{significantly} ~~strongly~~ impact the neighborhood of Palm Hammock which is currently ~~the~~ only accessible via Mellonville to both Palmway and Oakway. Construction of either of these options will likely have little positive impact on the Lake Mary Blvd traffic, one of the stated objectives of this project. Any construction

(Please continue comments on the back of this page if more space is needed. Thank you.)

Name: Gail Fazio (+ Salvator Fazio)
Address: 1300 Oakway
Sanford FL 32773
Email: gsfazio@bellsouth.net
Phone: 407-314-7553



You may also submit a comment using your phone by scanning above!

We welcome your comments. You may also email your comments to Nick Lulli, Public Involvement Coordinator, at ProjectStudies@CFXway.com.

Thank you!

Appendix E – PSR Support Documents



May 29, 2025

Technical Memorandum

State Road 417 Alignment 2A Proposed Pond Site Analysis

Pond 1A

Pond 1A is located along S. Mellonville Avenue near the northeast corner of the S. Mellonville Avenue and Oakway intersection. This pond site is located in a low-density residential development with open pastureland. A small area of forested uplands occurs in the northeast corner of the proposed pond site. No wetlands or surface waters are located within Pond 1A; therefore, no impacts to wetlands are anticipated to be associated with Pond 1A.

Protected species utilization is considered low due to the existing land use conditions. Protected species with the potential to occur within Pond 1A include the eastern indigo snake (*Drymarchon couperi*), Florida burrowing owl (*Athene cunicularia floridana*), gopher tortoise (*Gopherus polyphemus*), southeastern American kestrel (*Falco sparverius Paulus*), and tricolored bat (*Perimyotis subflavus*). Species-specific surveys will likely be required to confirm absence and minimize impacts to these species.

Pond 1B

Pond 1B is located along Oakway near the northeast corner of the S. Mellonville Avenue and Oakway intersection. This pond site is located in a low-density residential development with open pastureland and a sparse canopy of upland forest. No wetlands or surface waters are located within Pond 1B; therefore, no impacts to wetlands are anticipated to be associated with Pond 1B.

Protected species utilization is considered low due to the existing land use conditions. Protected species with the potential to occur within Pond 1A include the EIS, Florida burrowing owl, gopher tortoise, southeastern American kestrel, and tricolored bat.. Species-specific surveys will likely be required to confirm absence and minimize impacts to these species.

Pond 2A

Pond 2A is located along Palm Way near the northwest corner of the Palm Way and Bloom Lane intersection. This site is located in a low-density residential development with open pastureland, forested uplands, and mixed wetland hardwoods. Pond 2A will incur approximately 0.09 acres of direct wetland impacts.



Protected species utilization is considered low due to the existing land use conditions. Protected species with the potential to occur within Pond 2A include the EIS, southeastern American kestrel, and tricolored bat. Species-specific surveys will likely be required to confirm absence and minimize impacts to these species.

Pond 2B

Pond 2B is located along Palm Way near the northeast corner of the Palm Way and Bloom Lane intersection. This site consists of ornamental agriculture, containing six large horticulture grow houses. There is a small area of open lawn and row of upland forest adjacent to Palm Way.

Protected species utilization is considered low due to the existing land use conditions. Protected species with the potential to occur within Pond 2B include the EIS, Florida burrowing owl, gopher tortoise, southeastern American kestrel, and tricolored bat. Species-specific surveys will likely be required to confirm absence and minimize impacts to these species.

Pond 3A

Pond 3A is located approximately 300 feet southeast of the corner of Botanical Way and Hidden Palm Drive. Pond 3A is comprised of hardwood-conifer mixed uplands and forested wetlands classified as hydric pine flatwoods. Pond 3A will incur approximately 1.28 acres of direct wetland impacts. Additionally, this site is located within a Conservation Easement (CE). Impacts to the CE are approximately 3.03 acres.

Protected species utilization is considered high due to the proximity of an active eagle nest (Nest SE026). Pond 3A is within the 330-foot protection zone of Nest SE026. A USFWS Eagle Disturbance Take Permit will be required for construction activities associated with Pond 3A. Suitable roosting habitat occurs for the tricolored bat.

Pond 3B

Pond 3B is located approximately 470 feet northwest of the Swinstead Drive and Tudor Rose Drive intersection. Pond 3B is almost entirely forested wetlands consisting of mixed wetland hardwoods and hydric pine flatwoods, with a small hardwood-conifer mixed upland component. Pond 3B will incur approximately 2.9 acres of direct wetland impacts.

Protected species utilization is considered high due to the proximity of an active eagle nest (Nest SE026). Nest SE026 is located within Pond 3B. A USFWS Eagle Disturbance Take Permit/Nest will be required to authorize potential disturbance associated with the construction of Pond 3B. Suitable roosting habitat occurs for the tricolored bat.

Pond 4A (Existing Pond 1)

Pond 4A is located at the north corner of the East Lake Mary Boulevard and Red Cleveland Boulevard intersection. Pond 4A is an existing stormwater pond with an adjacent mowed and maintained berm area containing a sparse tree canopy. Impacts to this surface water may occur as a result of the expansion of this pond; however, the post-construction condition will maintain the existing surface water function with no net loss anticipated.



Protected species utilization is considered high due to the proximity of an active eagle nest (Nests SE078 and SE078a). Nest SE078a is a historically documented nest that is no longer active or present. However, Pond 4A is located within the 660-foot protection zone of Nest SE078. Therefore, a USFWS Eagle Disturbance Take Permit will be required to authorize potential disturbance associated with the construction activities of Pond 4A. Suitable roosting and foraging habitat occurs for the tricolored bat. Additionally, the littoral zone of the existing pond provides suitable habitat for state-listed wading birds. However, the post-construction condition will maintain or increase the existing foraging habitat, and therefore, no net loss of habitat will result from the expansion of the existing pond

Pond 4B

Pond 4B is located at the east corner of the East Lake Mary Boulevard and Red Cleveland Boulevard intersection. This site is almost entirely forested wetlands consisting of hydric pine flatwoods. Pond 4B will incur approximately 1.20 acres of direct wetland impacts.

Protected species utilization is considered low. Pond 4B is outside the 660-foot projection zone of active eagle nests, and therefore, no involvement is anticipated. Suitable roosting habitat occurs for the tricolored bat.

SR 417 Alignment 2A Pond Alternatives									
Evaluation Criteria	Unit of Measure	Pond 1A (1.6 acres)	Pond 1B (1.6 acres)	Pond 2A (1.191 acres)	Pond 2B (1.189 acres)	Pond 3A (3.143 acres)	Pond 3B (3.14 acres)	Existing Pond 1 (4.702 acres)	Pond 4B (1.353 acres)
Natural Environment									
Potential Surface Water Impacts	Total Acres	0	0	0	0	0	0	0	0
<i>Natural Lakes</i>	<i>Acres</i>	0	0	0	0	0	0	0	0
<i>Stormwater Management Areas</i>	<i>Acres</i>	0	0	0	0	0	0	0	0
<i>Other Reservoirs</i>	<i>Acres</i>	0	0	0	0	0	0	0	0
<i>Canals/Creeks</i>	<i>Acres</i>	0	0	0	0	0	0	0	0
Wetlands	Total Acres	0	0	0.09	0	1.28	2.9	0	1.2
<i>Forested</i>	<i>Acres</i>	0	0	0.09	0	1.28	2.9	0	1.2
<i>Non-forested</i>	<i>Acres</i>	0	0	0	0	0	0	0	0
Regulatory (SJRWMD) Conservation Easement Impacts	Acres	0	0	0	0	3.03	0	0	0
Flood Hazard Area Impacts (100 Year Floodplain)	Acres	0	0	0	0	0	0	0	0
Habitat - Federal Protected Species	Impact Rating	Low	Low	Low	Low	High - Eagle Nest 330ft	High - Eagle Nest in pond site	High - Eagle Nest 660ft	Low
Habitat - State-Protected Species	Impact Rating	Low	Low	Low	Low	Low	Low	Moderate	Low
Bald Eagle Nest	No. of Conflicts	0	0	0	0	1	1	1	0

**PROPOSED POND MATRIX, ALIGNMENT 2A
STATE ROAD (SR) 417 (SEMINOLE EXPRESSWAY)
SANFORD AIRPORT CONNECTOR PD&E STUDY
SEMINOLE COUNTY, FLORIDA**

Proposed Pond (acreage)	ZAP	Comments (i.e., soils, vegetation, drainage, previously recorded sites, etc.)
Pond 1A (1.6 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; residential
	High	Historic Resources: two historic buildings within and one historic building immediately adjacent.
Pond 1B (1.6 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; residential
	Low	Historic Resources: one historic drainage ditch immediately adjacent.
Pond 2A (1.191 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; residential
	Low	Historic Resources: one historic drainage ditch immediately adjacent.
Pond 2B (1.189 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; residential
	Low	Historic Resources: one historic drainage ditch immediately adjacent.
Pond 3A (3.143 acres)	Mod	Pre-Contact Archaeological: no previously recorded sites within or adjacent; in wetland type setting
	Low	Historic Resources: one historic drainage ditch extends through proposed pond.
Pond 3B (3.14 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; in wetland type setting
	Low	Historic Resources: one historic drainage ditch immediately adjacent.
Pond Existing 1 (4.702 acres)	Low	Pre-Contact Archaeological: Existing Pond
	Low	Historic Resources: Existing Pond
Pond 4B (1.353 acres)	Low	Pre-Contact Archaeological: no previously recorded sites within or adjacent; poorly drained soils, wetland
	Low	Historic Resources: none

TECHNICAL MEMORANDUM

August 13, 2024

Revised May 28, 2025

From: Lani A. Frith, Erin Hemmy, Richard P. McCormick, P.G., and Daniel C. Stanfill, P.E.

To: Ms. Amanda Ashby, AICP
Project Manager
Ardurra Group, Inc.

Subject: Existing Contamination Conditions Technical Memorandum
SR 417 SANFORD AIRPORT CONNECTOR PD&E STUDY
Seminole County, Florida
CFX Project No. 417-246A
GEC Project No. 5603E

Geotechnical and Environmental Consultants, Inc. (GEC) is pleased to present this Existing Contamination Conditions Technical Memorandum for the SR 417 Sanford Airport Connector PD&E Study. This study is being performed for Ardurra Group, Inc. and the Central Florida Expressway Authority (CFX).

Contamination Screening

GEC conducted this evaluation using limited elements of the Chapter 20 of the FDOT PD&E Manual dated July 31, 2024. The study area is shown on the attached **Figures 1** through **3B**.

GEC reviewed relevant information from the following sources of information:

- USGS Quadrangle Maps of Oviedo, Osteen, Sanford, and Casselberry, Florida (**Figure 1**),
- National Resource Conservation Service (NRCS) Soil Survey (**Figure 2**), and
- Limited Florida Department of Environmental Protection (FDEP) Map Direct and Nexus Information Portal file research was performed for the sites of concern identified within the study area.

Based on the results of the contamination screening activities, GEC assigned Contamination Risk Ratings (CRRs) to potential contamination sites in the Study Area. The Contamination Risk Rating (CRR) system was developed by FDOT and incorporates four levels of risk: **No, Low, Medium and High**. For a description of the four risk levels please refer to **Appendix A**.

The project study area is shown on a 2022 aerial photograph with site locations shown in attached **Figures 3A and 3B**.

Table 1 – Potential Contamination Site Summary, presents the results of our evaluation. The information obtained from each source of information listed above is summarized for the study area and potential contamination site, along with the corresponding CRRs. Public file excerpts for potential contamination sites are attached as **Appendix C**.

Table 2 – Pond Potential Risk Ratings, presents the CRRs assigned to the 8 proposed pond sites.

Contamination Review Summary

The potential contamination site locations are shown on **Figures 3A-3B**. File review summaries are presented in the two tables below. Note that the site numbers correlate to the earlier Existing Conditions Technical Memorandum.

Table 1
Potential Contamination Site Summary

Site No.	Facility Name and Address	Facility ID	Concerns	Risk Rating
1	Seminole County Main Expressway Plaza 875 Oakway Avenue	9400810	This site maintains a 500-gallon aboveground emergency generator diesel tank. No complaints, violations, or discharges have been recorded at this site.	Low
20	Marquette Shores Borrow Pit C&D Marquette Avenue and Ohio Avenue	27164	This site was a construction demolition debris disposal site, that received a No Further Action status. Debris may remain on-site.	Medium
21	Sanford Airport FUDS Site	FL49799F467500	This site is a former Naval Air Station with the potential for soil and groundwater impacts.	Medium

Site No.	Facility Name and Address	Facility ID	Concerns	Risk Rating
22	Brisson Road/Avenue Landfill/Dump 2861 East Lake Mary Boulevard	ERIC_8881; ERIC_5591; ERIC_5562; 83721	This site is an abandoned landfill. An April 2015 Supplemental Site Assessment Report found high methane soil exceedances, metal groundwater exceedances, and remaining solid waste debris on-site. An October 2015 Addendum recommends a No Further Action for the groundwater due to low levels of exceedances. Landfill debris remains on-site. Additional areas of contamination impacts could exist.	High
25	Historical Citrus Groves and Row Crops	N/A	Typical concerns associated with citrus groves and row crops include pesticide/herbicide storage and usage, grove heating during cooler winter months (smudge pots and other grove heating equipment), tractor and equipment maintenance and fueling, underground and aboveground fuel storage tanks, irrigation pumps and maintenance, and asbestos irrigation lines.	Medium
27	Sunland Park Debris Staging Area 180 Collins Drive	98048	This is an inactive disaster debris management area with no recorded contamination impacts.	Low

Table 2
Pond Potential Risk Rating

Pond Name	Location	Concerns	Risk Rating
Pond 417-1A	Northeast corner of the Mellonville Avenue and Oakway intersection	Historically Pond 417-1A consisted of row crop farming prior to 1986, when the site was developed with a horse pasture. In 2023, a pile of brush and tree debris is visible in the southeast corner. The potential for agricultural impacts may remain on site.	Medium
Pond 417-1B	Northeast corner of the Mellonville Avenue and Oakway intersection	Historically Pond 417-1B consisted of row crop farming and a residence. The row crops became fallow by 1986. The potential for agricultural impacts may remain on site.	Medium
Pond 417-2A	Northwest corner of the Palm Way and Bloom Lane intersection	Historically undeveloped wooded land. Currently the site contains a residence with a covered car port and a garage building.	Low
Pond 417-2B	Northeast corner of the Palm Way and Bloom Lane intersection	Historically Pond 417-2B consisted of row crop farming until developed with six large horticulture grow houses. The potential for agricultural impacts may remain on site.	Medium

Pond Name	Location	Concerns	Risk Rating
Pond 417-3A	Around 300 feet southeast of the corner of Botanical Way and Hidden Palm Drive	Historically undeveloped wooded land located on a natural conservation area.	Low
Pond 417-3B	Around 470 feet northwest of the Swinstead Drive and Tudor Rose Drive intersection	Historically undeveloped wooded land located on a natural conservation area.	Low
Pond 417-Existing 1	North corner of the East Lake Mary Boulevard and Red Cleveland Boulevard intersection	Historically undeveloped wooded land until developed with the existing pond location.	Low
Pond 417-4B	East corner of the East Lake Mary Boulevard and Red Cleveland Boulevard intersection	Historically undeveloped wooded land. This site is located about 500 feet from a closed landfill with known soil contamination impacts and residual landfill debris. (Site No. 22).	High

Level II Impact to Construction Impact Assessments and Recommendations

Due to the preliminary nature of this Technical Memorandum, Level II Impact to Construction Assessments (ICAs) are not required at this time.

Level II ICAs will be recommended for the High Risk pond site adjacent to Site No. 22, and the Medium Risk pond sites with historical agricultural concerns. A Contamination Screening Evaluation Report will be prepared for the selected roadway alignment and include Level II ICA recommendations.

Limitations

The findings, opinions, conclusions, and recommendations presented herein are based in part on reasonably ascertainable information contained in the public record. GEC does not warrant or guarantee the accuracy or completeness of this information. Some of this public record information may be dated and not representative of conditions at the time this report was prepared (June through August 2024 and May 2025), or in the future. Additional limitations are as follows:

- Not discussed in this report are properties that have been historically undeveloped land, are associated with residential use and do not appear to pose a contamination risk, or

are professional/commercial establishments that are not associated with hazardous materials or petroleum products.

- This study also does not include surveys of wetlands, endangered species, asbestos containing materials, lead-based paints, or other potential hazardous building materials.

Use of This Memorandum

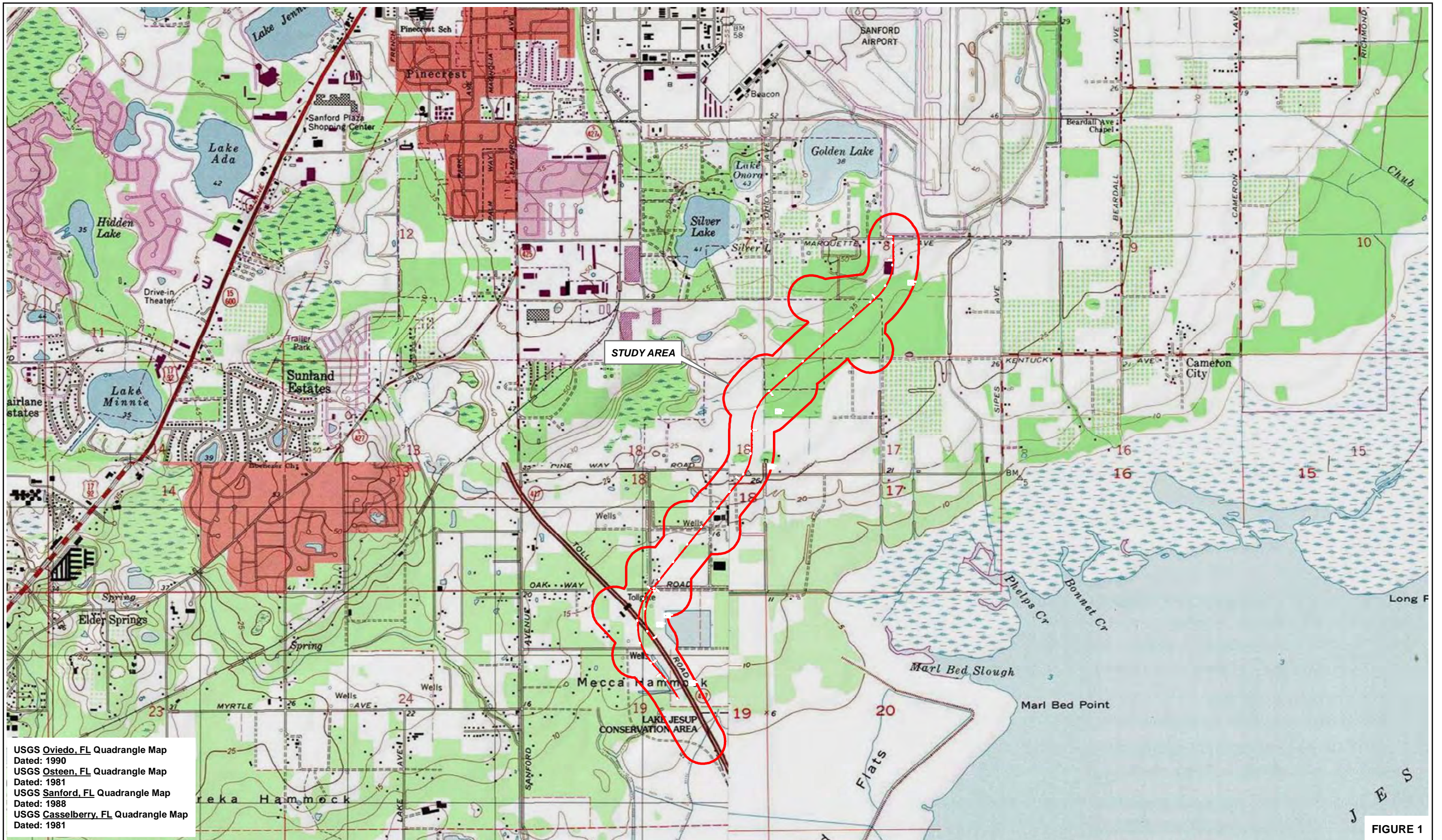
GEC has prepared this memorandum for the exclusive use of our client, Ardurra Group, Inc. and CFX, for application to our client's project. GEC will not be held responsible for any other party's interpretation or use of this report's data or recommendations without our written authorization.

GEC has performed the services described in this report in a manner consistent with that level of care and skill ordinarily exercised by members of our profession currently practicing in Central Florida. No other representation is made or implied in this document.

The conclusions and recommendations should be disregarded if the final project design differs from the project description in this report. If such changes are contemplated, GEC should be retained to review the new plans to assess the applicability of this report in light of proposed changes.

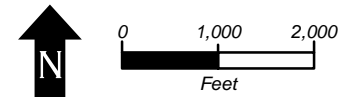
We appreciate the opportunity to work with Ardurra Group, Inc. and CFX on this project. If you have any questions concerning this report, or if we may be of further assistance, please contact us.

FIGURES



USGS Oviedo, FL Quadrangle Map
Dated: 1990
USGS Osteen, FL Quadrangle Map
Dated: 1981
USGS Sanford, FL Quadrangle Map
Dated: 1988
USGS Casselberry, FL Quadrangle Map
Dated: 1981

FIGURE 1



RICHARD P. McCORMICK, P.G.
P.G. LICENSE NUMBER 2096
GEOTECHNICAL AND ENVIRONMENTAL
CONSULTANTS, INC.
919 LAKE BALDWIN LANE
ORLANDO, FL. 32814

NORTHEAST CONNECTOR EXPRESSWAY PHASE 2 PD&E STUDY	
ROAD NO.	PROJECT NO.
--	417-246A



USGS QUADRANGLE MAP

SHEET
NO.

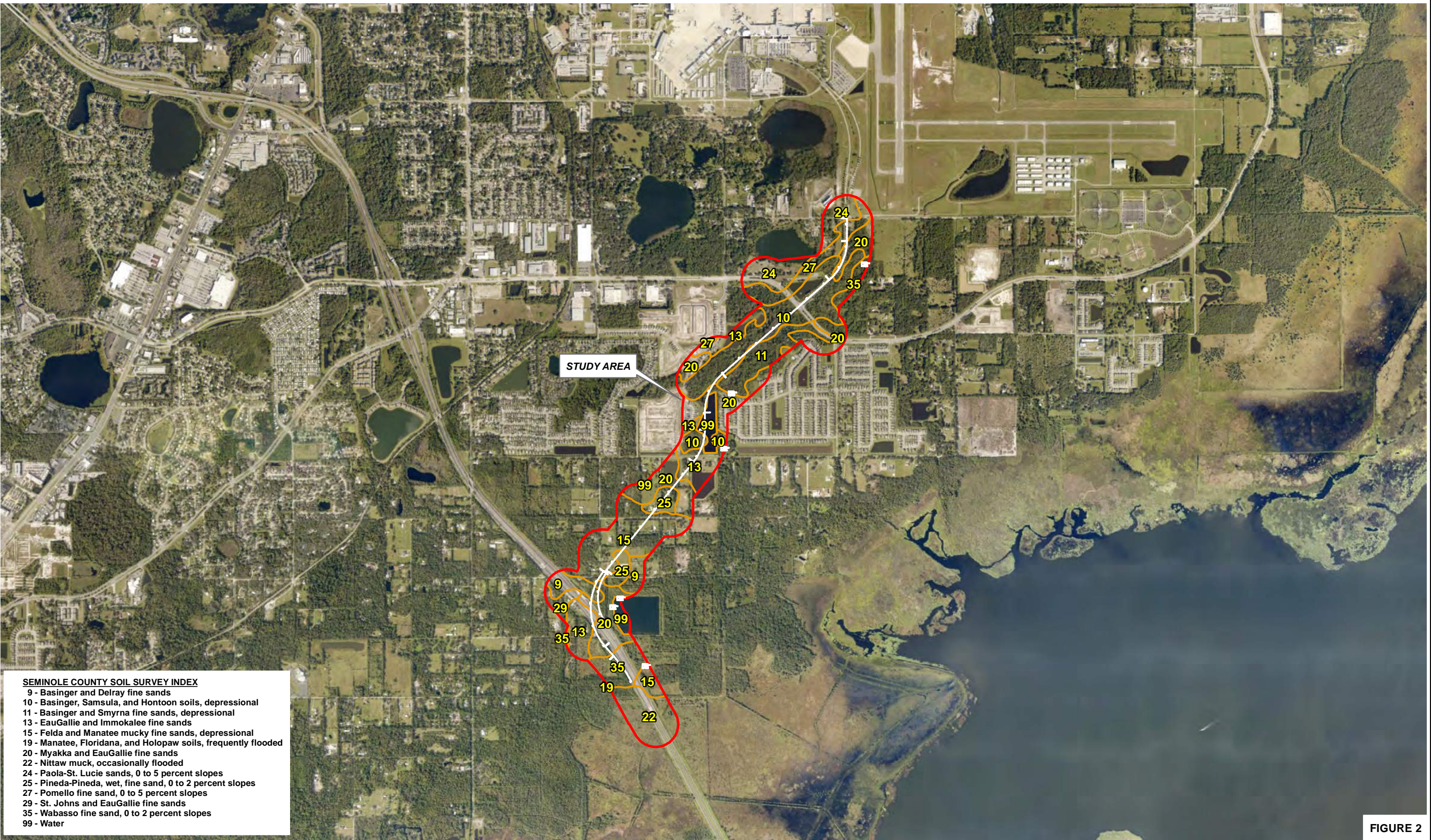
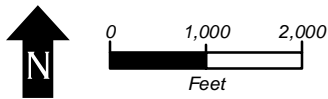


FIGURE 2



RICHARD P. McCORMICK, P.G.
P.G. LICENSE NUMBER 2096
GEOTECHNICAL AND ENVIRONMENTAL
CONSULTANTS, INC.
919 LAKE BALDWIN LANE
ORLANDO, FL. 32814

NORTHEAST CONNECTOR
EXPRESSWAY PHASE 2
PD&E STUDY

ROAD NO.	PROJECT NO.
--	417-246A



NRCS SOIL SURVEY MAP

Appendix E Page 13

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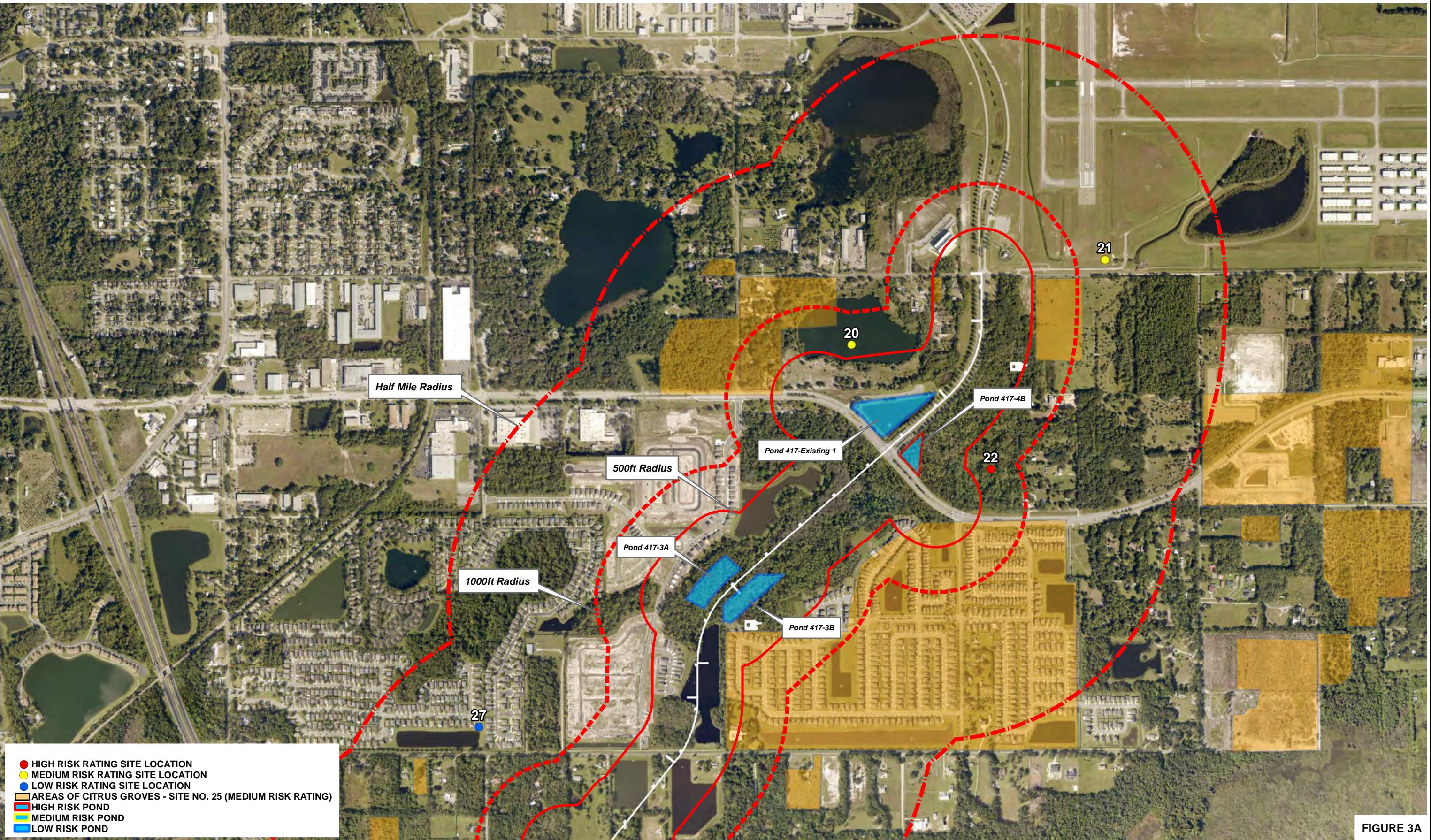
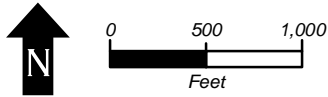


FIGURE 3A



RICHARD P. McCORMICK, P.G.
P.G. LICENSE NUMBER 2096
GEOTECHNICAL AND ENVIRONMENTAL
CONSULTANTS, INC.
919 LAKE BALDWIN LANE
ORLANDO, FL. 32814

NORTHEAST CONNECTOR EXPRESSWAY PHASE 2 PD&E STUDY	
ROAD NO.	PROJECT NO.
--	417-246A



POTENTIAL CONTAMINATION
AND POND SITE LOCATION MAP

Appendix E Page 14

SHEET
NO.

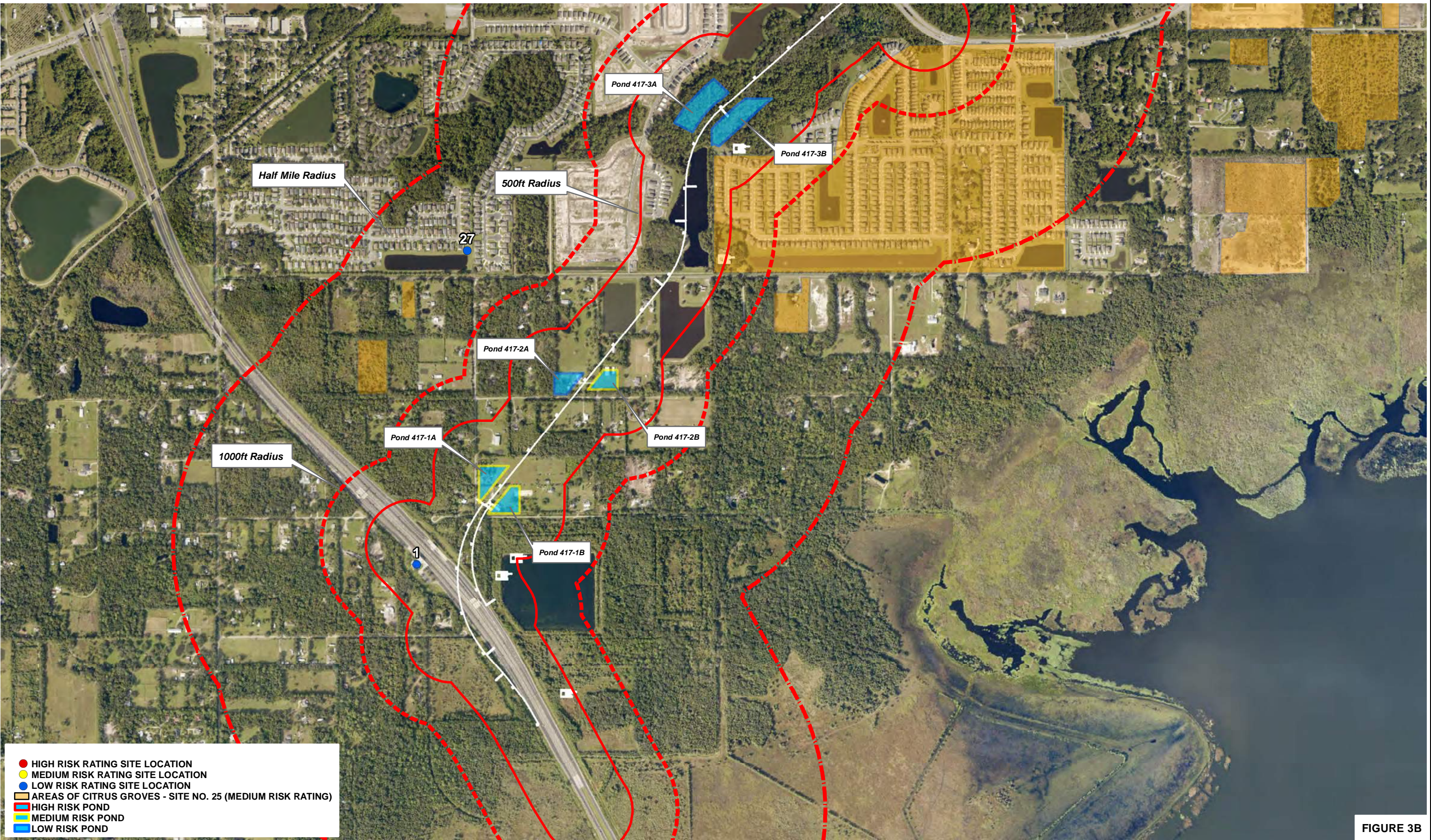


FIGURE 3B

APPENDIX A

Contamination Risk Rating Descriptions

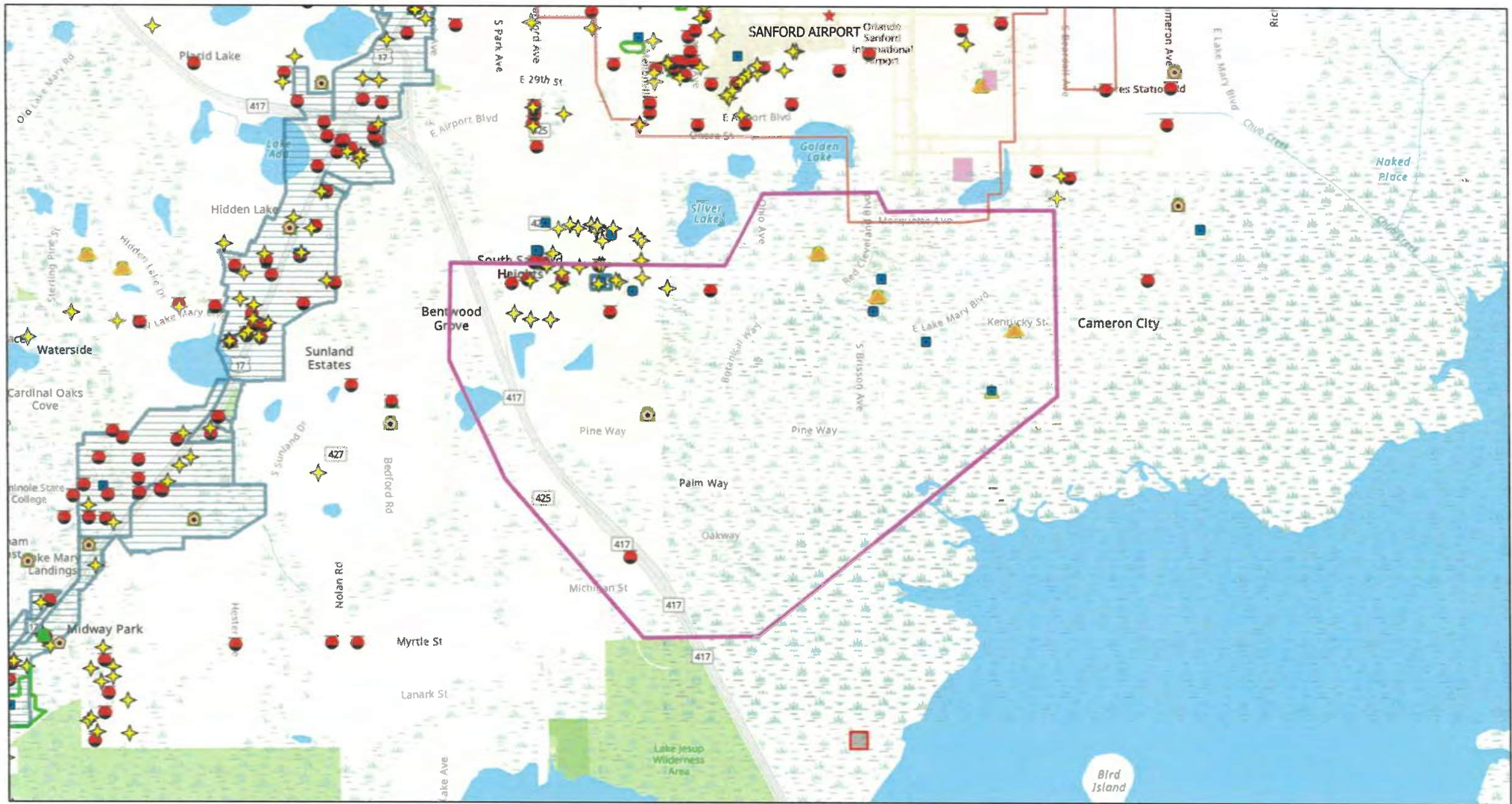
The contamination potential risk rating system was developed by FOOT and is included in Part 2, Chapter 20 of the PD&E Manual, dated July 31, 2024. The rating system incorporates four levels of risk:

- 1. No** - A review of available information on the property and a review of the conceptual or design plans indicates there is no potential contamination impact to the project. It is possible that contaminants have been handled on the property. However, findings from the Level I evaluation indicate that contamination impacts are not expected.
- 2. Low** - A review of available information indicates that past or current activities on the property have an ongoing contamination issue; the site has a hazardous waste generator identification (ID) number, or the site stores, handles, or manufactures hazardous materials. However, based on the review of conceptual or design plans and/or findings from the Level I evaluation, it is not likely that there would be any contamination impacts to the project.
- 3. Medium** - After a review of conceptual or design plans and findings from a Level I evaluation, a potential contamination impact to the project has been identified. If there is insufficient information (such as regulatory records or site historical documents) to make a determination as to the potential for contamination impact, and there is reasonable suspicion that contamination may exist, the property should be rated at least as a "Medium." Properties used historically as gasoline stations and which have not been evaluated or assessed by regulatory agencies, sites with abandoned in place underground petroleum storage tanks or currently operating gasoline stations should receive this rating.
- 4. High** - After a review of all available information and conceptual or design plans, there is appropriate analytical data that shows contamination will substantially impact construction activities, have implications to ROW acquisition or have other potential transfer of contamination related liability to the FDOT.

APPENDIX B

Map Direct Maps

Standard Map



August 13, 2024

ERIC PFAS Sites

- Drycleaning Solvent Cleanup Program, Cleanup Underway
- Drycleaning Solvent Program Cleanup Sites
- Florida Institutional Controls Registry
- Site Investigation Section Sites
- ERIC Waste Cleanup

ERIC PFAS Sites

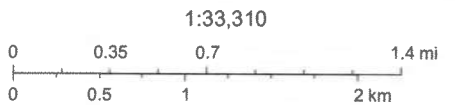
- Drycleaning Solvent Cleanup Program, Cleanup Underway
- ERIC Waste Cleanup
- ▲ OTHER WASTE CLEANUP
- ▲ PETROLEUM
- ▲ PFAS SITES

ERIC Waste Cleanup

- Brownfield Sites
- Brownfield Areas
- Storage Tank Contamination Monitoring (STCM)
- ★ Compliance & Enforcement Tracking-Hazardous Waste Facilities
- Solid Waste Facilities
- Facility

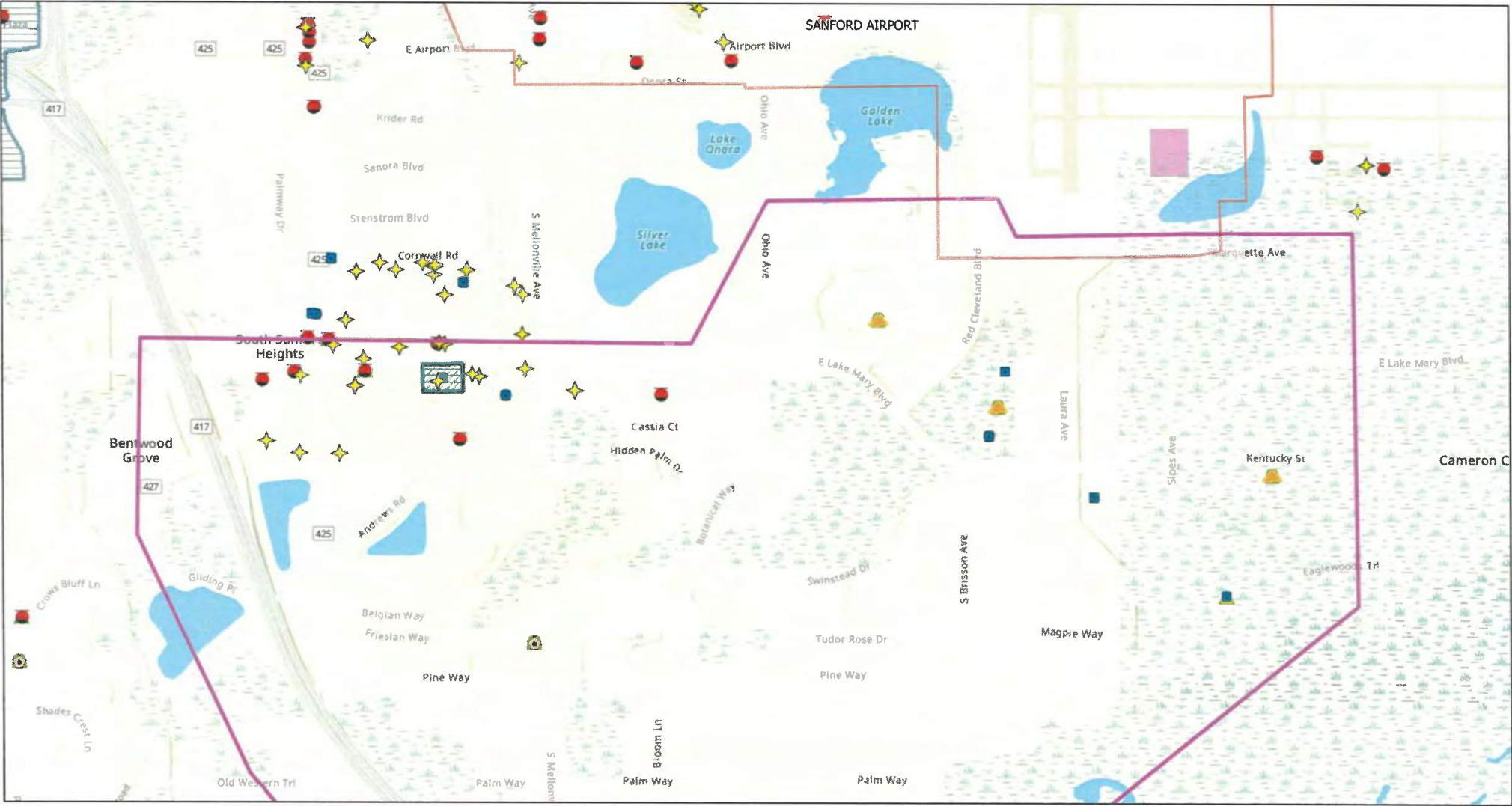
General Disposal Area

- ★ Waste Processing Area
- ★ Formerly Used Defense Sites (FUDS) Points
- ★ Properties with projects
- Formerly Used Defense Sites (FUDS) Polygons
- FUDS Munitions Response Sites
- Florida Institutional Controls Registry



Seminole County GIS, FDEP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, FDEP, DWM, FDEP/DWM, Eon, NASA, NGA, USGS, FEMA, FDEP/MMP, FDEP/DWM/BWC, WRM

Standard Map



August 13, 2024

- Site Investigation Section Sites

ERIC Waste Cleanup

ERIC Waste Cleanup

ERIC Waste Cleanup

DEP Cleanup Sites

OTHER WASTE CLEANUP

PETROLEUM

ERIC Waste Cleanup

Brownfield Sites

Brownfield Areas

Storage Tank Contamination Monitoring (STCM)

Compliance & Enforcement Tracking-Hazardous Waste Facilities

Solid Waste Facilities

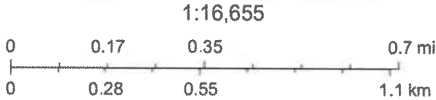
Facility

General Disposal Area

Waste Processing Area

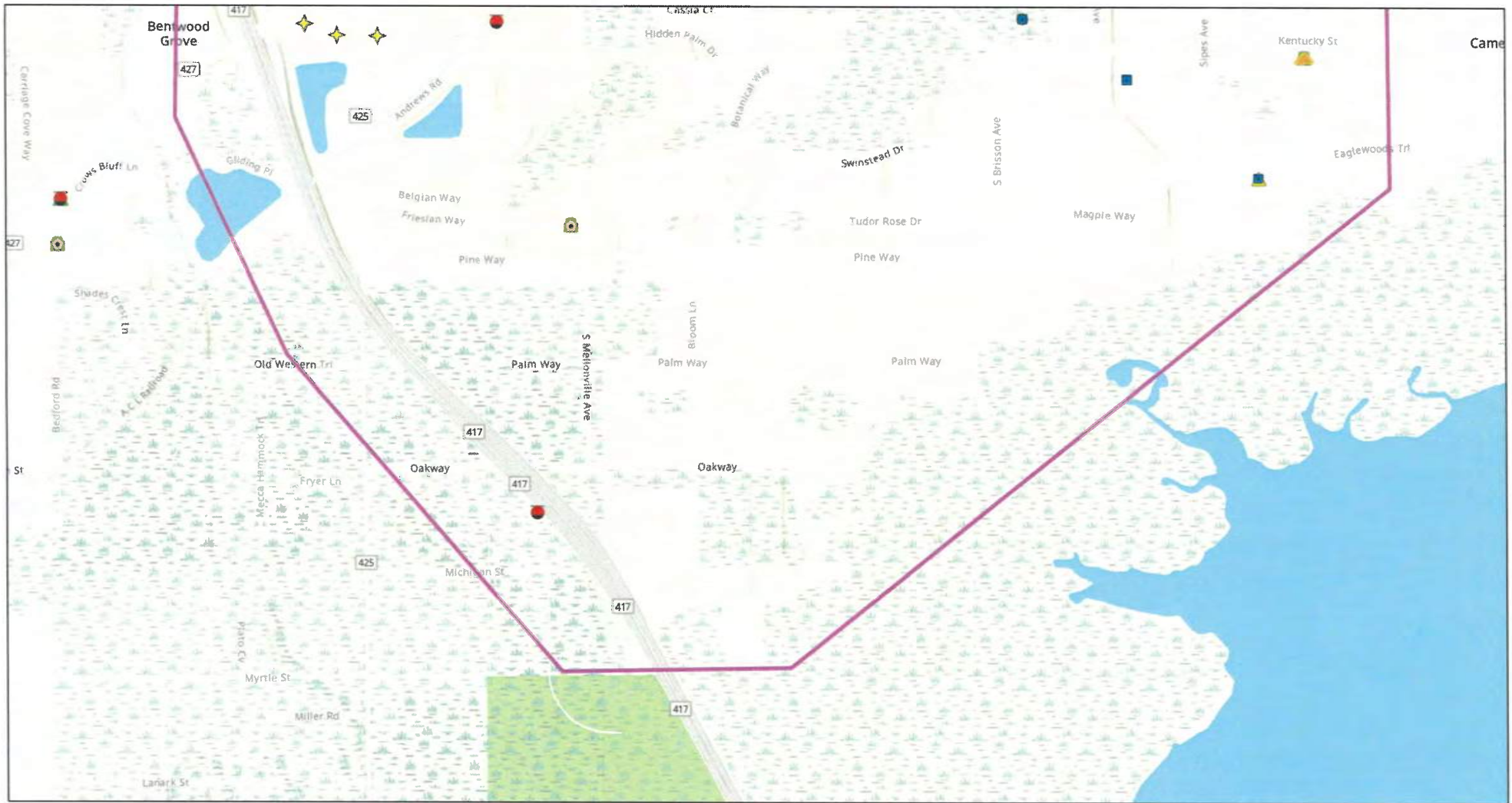
Formerly Used Defense Sites (FUDS) Polygons

FUDS Munitions Response Sites



FDEP, DWM, Esri Community Maps Contributors, Seminole County GIS, FDEP, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA, USFWS, FDEP/DWM, Esri, NASA, NGA, USGS, FEMA, FDEP/

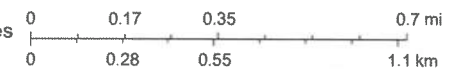
Standard Map



August 13, 2024

- | | | |
|------------------------------------|------------------------------------------------|----------------------------------------------------------------|
| ● Site Investigation Section Sites | ▲ PETROLEUM | ★ Compliance & Enforcement Tracking-Hazardous Waste Facilities |
| ■ ERIC Waste Cleanup | ■ ERIC Waste Cleanup | Solid Waste Facilities |
| ■ ERIC Waste Cleanup | ▨ Brownfield Sites | ■ Facility |
| DEP Cleanup Sites | ▨ Brownfield Areas | ▲ General Disposal Area |
| ▲ OTHER WASTE CLEANUP | ● Storage Tank Contamination Monitoring (STCM) | ■ Waste Processing Area |

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