



SR 400 (I-4) Project Development and Environment (PD&E) Study
FM No.: 432100-1-22-01



Wetland Evaluation Report (WER)

**Segment 2: State Road 400 (SR 400)/Interstate 4 (I-4)
from West of SR 528 (Beachline Expressway)
to West of SR 435 (Kirkman Road)**

Orange County (75280), Florida

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1.0 SUMMARY OF PROJECT

The Florida Department of Transportation (FDOT) is conducting an update/reevaluation of the Project Development and Environment (PD&E) studies for the extension of proposed express lanes for State Road (SR) 400 (SR 400)/Interstate 4 (I-4). The project limits in the original PD&E studies were:

- West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line, (29.5 miles);
- CR 532 (Polk/Osceola County Line) to West of SR 528 Beachline Expressway (13.7 miles), and
- West of SR 528 (Beachline Expressway) to SR 472 (43 miles).

The corresponding environmental documents associated with these PD&E studies include: Environmental Assessment/Finding of No Significant Impact (EA/FONSI) for SR 400 (I-4) from West of Memorial Boulevard (SR 546) to the Polk/Osceola County Line [Financial Project Number (FPN) 201210 (December 1998)] and from CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway) [FPN 242526 and 242483 (December 1999)] and Final Environmental Impact Statement (FEIS) for I-4 from SR 528 (Beachline Expressway) to SR 472 [FPN 242486, 242592 and 242703 (August 2002, Record of Decision Pending)].

The project limits of the current SR 400 (I-4) PD&E reevaluation, herein referred to as I-4 Beyond the Ultimate (BtU) PD&E Reevaluation Study, include a total of approximately 43 miles of roadway sections east and west of the 21-mile, I-4 Ultimate project. The I-4 Ultimate project, which began construction in early 2015, is reconstruction to include new express lanes, for the section of I-4 that extends from west of SR 435 (Kirkman Road) to east of SR 434. For analysis purposes, the current I-4 BtU PD&E study has been divided into the following five (5) segments:

- Segment 1: SR 400 (I-4) from West of CR 532 (Polk/Osceola County Line) to West of SR 528 (Beachline Expressway) - Osceola County (92130) and Orange County (75280);
- Segment 2: SR 400 (I-4) from West of SR 528 (Beachline Expressway) to West of SR 435 (Kirkman Road) - Orange County (75280);
- Segment 3: SR 400 (I-4) from 1 Mile East of SR 434 to East of SR 15-600/US 17-92 (Seminole/Volusia County Line) - Seminole County (77160);
- Segment 4: SR 400 (I-4) from East of SR 15-600/US 17-92 (Seminole/Volusia County Line) to 1/2 Mile East of SR 472 - Volusia County (79110); and
- Segment 5: SR 400 (I-4) from West of SR 25/US 27 to West of CR 532 (Polk/Osceola County Line) Polk County (16320).

Since no Record of Decision has been issued by the Federal Highway Administration (FHWA) for Segments 2, 3 or 4, the current PD&E BtU study for these three segments will update the original PD&E study. This wetland evaluation report (WER) was prepared for Segment 2 of the SR 400 (I-4) BtU PD&E Reevaluation Study and contains details of the wetland and other surface water information that fulfills the purpose and need for the SR 400 (I-4), from West of SR 528 (Beachline Expressway) to West of SR 435 (Kirkman Road), PD&E study.

The purpose of this wetland evaluation report is to document the potential wetland and/or other surface water involvement based on design changes in support of the PD&E update for the I-4 BtU Segment 2 portion of the FEIS

for I-4 from SR 528 (Beachline Expressway) to SR 472 (FPN 242486-1, 242592-1 and 242703-1, August 2002, Record of Decision pending). This update includes an analysis of the original design concept, which showed six general use lanes (GULs) and two high occupancy vehicles (HOV) lanes (6+2), to the current proposed design, which includes six GULs and four express lanes (EL) operating under a variable price toll plan (6+4). Other changes being reanalyzed include stormwater management, access plan and interchange configurations.

1.1 Description of Proposed Action

FDOT is proposing to reconstruct and widen I-4 as part of the I-4 BtU concept. This involves the build-out of I-4 to its ultimate condition through Central Florida, including segments in Polk, Osceola, Orange, Seminole and Volusia Counties. The concept design proposes the addition of two new express lanes in each direction, resulting in a total of ten dedicated lanes. The project limits for the segment analyzed in this report are within a 3.9-mile segment of I-4 that extends from west of SR 528 (MP 5.650) to west of SR 435 (Kirkman Road) [MP 9.528] in Orange County (herein referred to as I-4 Segment 2), as shown in Figure 1.1 and Appendix A, Exhibit 1. Although the interstate is a designated east-west corridor, the alignment follows more of a north-south orientation through the majority of Segment 2. The study area in this section, from west of SR 528 to west of SR 435 (Kirkman Road), includes interchanges at SR 528, Sand Lake Road, and Universal Boulevard.

Two mainline typical sections are proposed for I-4 Segment 2. The typical section from the begin project limits east of Central Florida Parkway to SR 528 includes a 44-foot rail envelope in the median within a minimum 300 foot right of way (6+4 with rail envelope). The typical section, from SR 528 to west of SR 435, does not include the rail corridor and also has a proposed minimum 300 foot right of way (6+4 without rail envelope). Both typical sections have a design speed of 70 miles per hour (mph) and will include three 12-foot general use lanes with a 10-foot inside shoulder and a 12-foot outside shoulder (10-foot paved) and two 12-foot express lanes with a 4-foot inside shoulder and a 10-foot outside shoulder, in each direction. A barrier wall between adjacent shoulders will separate the express lanes from the general use lanes. Additionally, up to three (3) auxiliary lanes in either direction of travel will be provided in some areas. Figure 1.2 and Figure 1.3 illustrate the proposed mainline typical sections for I-4 Segment 2.

While the overall typical section remains consistent throughout Segment 2, there are some areas along the I-4 BtU corridor that will have special sections. Special cross sections were developed to meet the needs of the project due to right-of-way constraints, existing utility easements or other design considerations along the corridor. These special sections may include C-D roads, braided ramp systems, elevated express lanes or elevated general use lanes. Additionally, the median width may vary in certain locations to accommodate changes in the horizontal alignment due to crossroad support structures or other design features. The special sections within the Segment 2 corridor include a C-D system between Central Florida Parkway and SR 528; the eastbound C-D Road is at grade and the westbound C-D Road is elevated. The eastbound C-D Road extends approximately 1.9 miles between SR 528 in Segment 2 and the Daryl Carter Parkway interchange located within Segment 1 of the I-4 BtU corridor. The westbound C-D Road extends approximately 5.9 miles between SR 528 in Segment 2 and the Osceola Parkway interchange located within Segment 1 of the I-4 BtU corridor.



Figure 1.1: Project Location Map

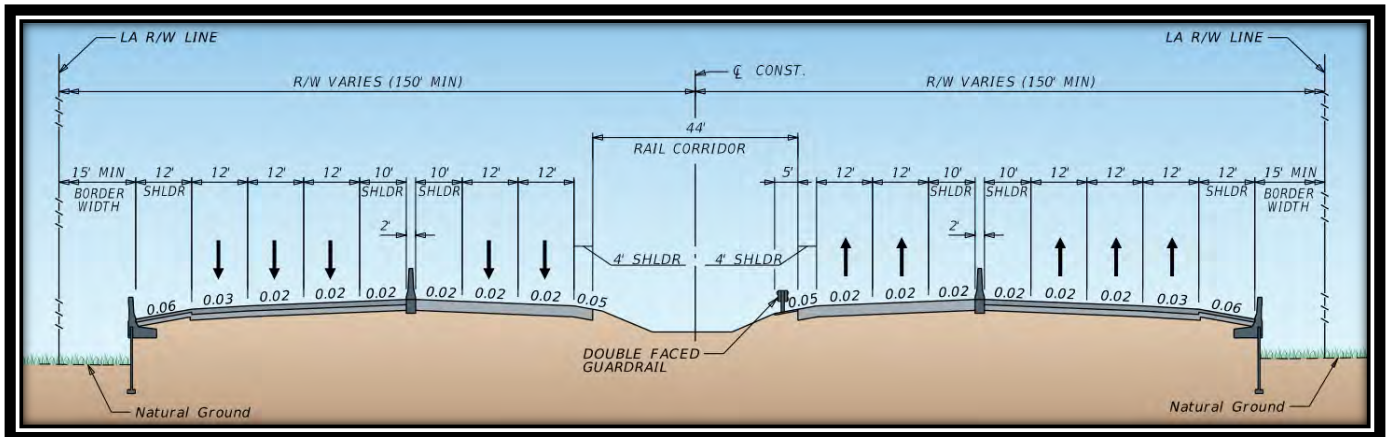


Figure 1.2: Proposed Typical Section (6+4 with rail envelope) – East of Central Florida Parkway to SR 528

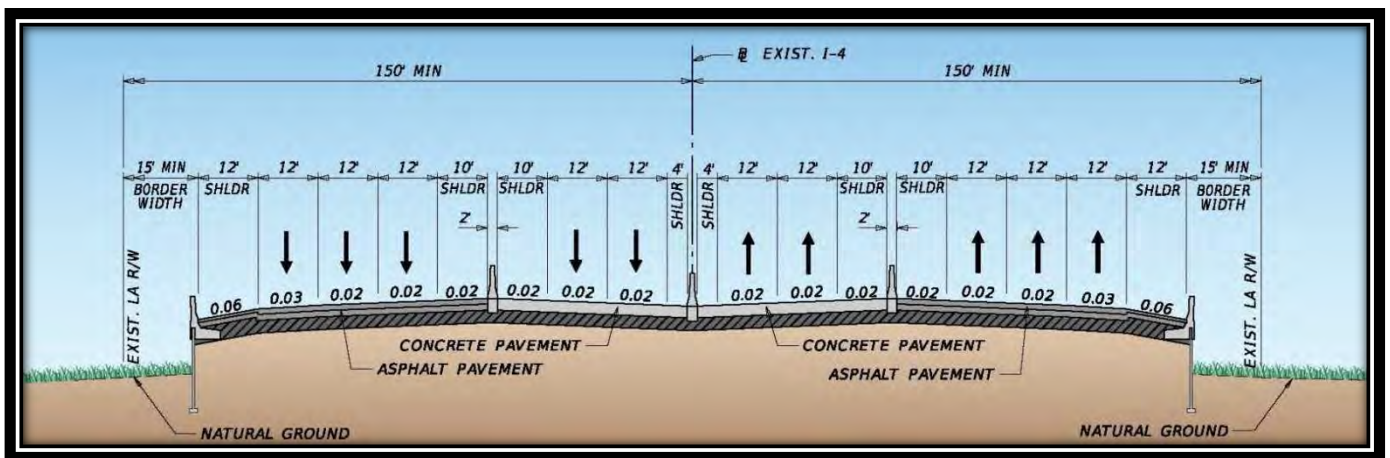


Figure 1.3: Proposed Typical Section (6+4 without rail envelope) – SR 528 to West of SR 435

1.2 Purpose and Need

The proposed improvements to I-4 include widening the existing six (6) lane divided urban interstate to a ten lane divided highway in order to improve traffic operations, enhance connectivity and improve mobility by providing travel choices to the motoring public. I-4 is an east-west limited access freeway which links the west and east coasts of Florida, from I-275 in Tampa to I-95 in Daytona Beach. I-4 spans across six counties in Central Florida, traversing many cities including Lakeland, Orlando, Altamonte Springs, Sanford and DeLand. I-4 is a critical component of Florida's Strategic Intermodal System (SIS) which links seaports, rail, airports and other intermodal facilities. This aspect of I-4's significance is evidenced through connectivity provided by major junctions with I-275 and I-75 in the Tampa Bay area, SR 429 (Daniel Webster Western Beltway), SR 417 (Southern Connector/Central Florida Greenway/Seminole Expressway), SR 528 (Martin Andersen Beachline Expressway), SR 91 (Florida's Turnpike), SR 408 (Spessard Lindsay Holland East-West Expressway) in Central Florida and I-95 on the east coast.

I-4 serves as the primary corridor in the movement of people and freight between major population, employment and activity centers in the Central Florida region. When the entire Interstate was fully opened in the early 1960's, it was designed to serve intrastate and interstate travel by providing a critical link between the east and west coasts of Central Florida. Although this role continues to be a crucial transportation function of I-4, the highway also serves large volumes of local and commuter traffic with shorter trip distances. Today, the highway serves as the primary link between hotel/resort complexes and tourist attractions such as Walt Disney World®, Universal Orlando®, SeaWorld® Orlando, the International Drive Resort Area and downtown Orlando. Since I-4 is the only north-south limited access facility that is centrally located between the predominant employment centers and the major suburbs to the north, it has become the primary commuting corridor in the Central Florida metropolitan area.

Growth in Central Florida over the past decades, has made it difficult for the transportation system to accommodate travel demand. Additionally, traffic congestion and crash incidents have resulted in major delays on the Interstate as well as other arterials surrounding the corridor. Increased congestion levels are experienced outside of the typical morning and afternoon rush-hour periods, affecting mobility levels for more hours of the day and impacting other non-commuter/non-weekday travel. The congestion on I-4 is further evidenced by the less than desirable levels of service on the Interstate as well as the crossroads.

Projections of future population and employment in the region indicate that travel demand will continue to increase well into the future. The ability to accommodate the new travel patterns resulting from growth must be provided to sustain the region's economy. Without the improvements, extremely congested conditions are expected to occur for extended periods of time in both the morning and evening peak periods. Due to these congested conditions, user travel times will continue to increase, the movement of goods through the urban area will be slower, and the deliveries of goods within the urban area will be forced to other times throughout the day. The need for improvements to I-4 is illustrated by the important transportation roles I-4 serves to the Central Florida region and the State of Florida. If no improvements are made to the Interstate, a loss in mobility for the area's residents, visitors, and commuters can be expected, resulting in a severe threat to the continued viability of the economy and the quality of life.

This PD&E update involves revising the original design concept showing 6 GULs + 2 HOV lanes, as recommended in the FEIS for I-4 from SR 528 to SR 472 (FPN No. 242486, 242592 & 242703, August 2002, Record of Decision Pending), to the current proposed design of 6 GUL + 4 EL. The express lanes are tolled lanes and will extend the full length of the project. The access to/from the tolled lanes will be evaluated as part of this effort to determine if changes are needed from the previously approved concept for access to/from the HOV Lanes.

The original I-4 PD&E Studies involved physical separation between the general use lanes and the HOV lanes on I-4, with demand management in the HOV lanes. The original demand management strategy was to control the use of the lanes by requiring a minimum number of occupants per vehicle to maintain an acceptable level of service (Level of Service D). This update also addresses revising the demand management tool to convert the HOV lanes to tolled express lanes. The express lanes will be separated from the general use travel lanes by two shoulders with a barrier wall between the shoulders. A variable pricing tolling plan is proposed for the express lanes. The tolls will vary by time of day and day of week to maintain acceptable levels of service in the express lanes. The tolls will be collected electronically through existing E-Pass, SunPass and other systems currently in place in the Central Florida area. The conversion to express lanes will maintain the same right of way limits as documented previously and will not change the impacts to the social, natural or physical environment. An update to the Systems Access Modification Report (SAMR) prepared in January 2013 is being completed in conjunction with this effort.

The jurisdictional wetland and other surface waters limits for I-4 Segment 2 were previously identified in a wetland evaluation report dated May 2000. In addition, the report addressed the potential for wetland and other surface water impacts, it addressed an alternative analysis and avoidance and minimization, as well as conducted a WET II Functional Analysis to assess the impacts and the conceptual mitigation plan. The Wetland Evaluation Report prepared during the study identified wetlands and other surface waters within the study corridor; classifying the majority of the systems as disturbed. Commitments for wetland involvement included: (1) Minimization and avoidance of wetland impacts, where possible, would be used based on safe and sound engineering and construction constraints. (2) Agency coordination will continue during the permitting phase. (3) Adverse wetland impacts will be mitigated based on coordination with agencies during the permitting phase.

This WER reevaluates the jurisdictional limits of wetlands and other surface waters within the project, assesses the potential for wetland and other surface water impacts and provides conceptual mitigation using the Uniform Mitigation Assessment Method (UMAM), provided in the design concept changes. This report has been prepared following guidelines presented in the Project Development (PD&E) Manual, Part 2, Chapter 18 (FDOT, 4/24/2013) to identify jurisdictional wetlands along the project corridor and to document potential project-related impacts.

The Interstate 4 Segment 2 corridor contains both wetland and other surface water communities. These communities were evaluated for their qualitative and quantitative condition for providing habitat for wetland dependent wildlife species. The roadway corridor improvements will involve work in, on or over wetlands and other surface water communities located within limits of Interstate 4 from west of SR 528 to west of Kirkman Road.

Planned activities at I-4 and Kirkman Road have been reviewed and addressed by others. Involvement of wetlands and other surface waters at I-4 and Kirkman Road have been evaluated and authorized under South Florida Water Management District (SFWMD) permit 48-0132-P issued June 4, 2013.

2.0 METHODOLOGY AND ASSESSMENT

The jurisdictional extent of onsite wetlands and other surface water systems, within the project corridor, were evaluated through the review of current and historic aerial photography of the study area and ground-truth activities. Current and historical information reviewed included infrared digitally orthorectified quadrangle maps (DOQ's), U.S. Geological Survey Topographic Maps (Exhibit 2 – USGS Topographic Quadrangle Map), National Wetlands Inventory (NWI) Maps, and Soil Survey Maps (Exhibit 3 – NRCS Soil Survey Map). Jurisdictional limits were identified and established in general accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1), the *November 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic Gulf Coastal Plain Region* and the State of Florida's *Delineation of the Landward Extent of Wetlands and Surface Waters* (Chapter 62-340, Florida Administrative Code). In the event wetland boundaries differed between the federal and state agency's methods, the more "wetland inclusive" extent was used to define that particular wetland system's boundary. The landward extent of surface water systems were recognized to be at the top-of-bank for ditches with side slopes of 1-foot vertical to 4-feet horizontal or steeper or using biological indicators of seasonal high for jurisdictional systems with side slopes flatter than 1-foot vertical to 4-feet horizontal. Wetlands and other surface waters observed were classified using the FDOT's *Florida Land Use, Cover and Forms Classification System* (FLUCFCS) (Exhibit 4 – FLUCFCS Map) and the U.S. Fish and Wildlife Service's (FWS) classification system as described in their *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et. al, 1979), and were revised based on ground-truth activities.

Ground-truth activities of wetland and other surface waters were conducted along the project corridor from April to June 2013 using handheld Global Positioning Systems (GPS) devices to approximate each system's limits. In the field, wetland and other surface water systems were generally delineated from the western project limits to the eastern project limits. The existing right of way (ROW) of Interstate 4 and all proposed stormwater pond areas were the focus of field activities for the study. Photographic representation of wetland and/or other surface waters current conditions are provided in Appendix B.

2.1 Land Use Consideration

Land use types within the project corridor were identified through color aerial and infrared photograph interpretation along with site reconnaissance. The current land use types within the study area are best characterized as transportation, commercial and services related uses, with a large focus on tourism and tourism related activities (e.g. amusement attraction, hotels, motels, restaurant and miscellaneous shopping centers). Other land use types identified within the project corridor include forested uplands and wetlands, herbaceous uplands and wetlands and other surface waters (Exhibit 4 – FLUCFCS Map).

2.2 Wetland Function and Value Assessment

The Uniform Mitigation Assessment Method (UMAM) (Chapter 62-345.100, Florida Administrative Code) was used to qualify each jurisdictional system's current condition. The UMAM is a matrix developed by the Florida

Department of Environmental Protection (FDEP) for evaluating the functional characteristics of a wetland or other surface water system. The UMAM accomplishes this by assigning a numerical value, between 0 and 10 using whole number increments, to each of three (3) criteria: 1) Location and Landscape Support, 2) Water Environment and 3) Community Structure, where applicable. A criterion score of 10 represents optimal functions provided by a system while 0 represents a complete absence of function or negligible functions. Adding each score from each criterion and dividing that number by the maximum score attainable generates the final UMAM score. UMAM then calculates the functional loss (FL) of a wetland or other surface water by taking the UMAM score and multiplying the score by the acreage of area impacted. The result is a number between 0 and 1, qualifying the final UMAM score (functional loss of a wetland).

For the I-4 Segment 2 project, UMAM scoring for wetlands and other surface water functional loss were summarized by assigning a criterion of Low, Moderate or High. Criteria of Low was given to systems with final UMAM scores between 0 and 0.49, Moderate scored between 0.50 and 0.79, while High scored 0.80 or better.

2.3 Wetland and Other Surface Water Descriptions

For this study, jurisdictional systems were identified as either Wetland (WL-#) or Other Surface Water (SW-#) and included the direction of the existing travel lanes of I-4 (i.e. East (E) or West (W)) relative to the location of the system. The term other surface water generally categorizes existing stormwater ponds, lakes, creeks, ditches or swales, mainly associated with the existing drainage conditions of I-4. Wetland and other surface waters within the study area are described below, summarized in Table 1, and depicted in Exhibit 5 – Surface Water and Wetland Map.

EASTBOUND I-4

SURFACE WATER COMMUNITIES

A large percentage of the ditch systems within the project corridor are similar in general conditions, vegetative community and hydrology. These systems were individually reviewed in the field; however, are being reported collectively due to their similarity.

Ditches

Surface Water(s) 1(E), 2(E), 3(E), 5(E), 7(E), 8(E), 9(E), 12(E), 13(E), 15(E), and 18(E)

Surface Water 1(E) (SW-1E)), Surface Water 2(E) (SW-2(E)), Surface Water 3(E) (SW-3(E)), Surface Water 5(E) (SW-5(E)), Surface Water 7(E) (SW-7(E)), Surface Water 8(E) (SW-8(E)), Surface Water 9(E) (SW-9(E)), Surface Water 12(E) (SW-12(E)), Surface Water 13(E) (SW-13(E)), Surface Water 15(E) (SW-15(E)) and Surface Water 18(E) (SW-18(E)) are located along the existing eastbound travel lanes of I-4 from west of SR 528 to west of Kirkman Road. These systems are located within the maintained ROW and are subject to routine maintenance. Surrounding land uses that encompass these systems include major roads and highways, access ramps, commercial development, other surface waters, disturbed forested uplands, forested wetlands and open land.

These systems are best characterized as Streams and Waterways, upland-cut ditches (FLUCFCS 5130) and are of low quality. Dominant vegetation inhabiting these systems include mock bishop's-weed (*Ptilimnium capillaceum*), bidens (*Bidens alba*), sedges (*Carex* sp.), pennywort (*Hydrocotyle* sp.), primrose willow (*Ludwigia* sp.), cattail

(*Typha* sp.), torpedograss (*Panicum repens*), fleabane (*Erigeron quercifolius*), bahiagrass (*Paspalum notatum*), bacopa (*Bacopa* sp.), maidencane (*Panicum hemitomon*), duck potato (*Sagittaria lancifolia*), and beak rush (*Rhynchospora* sp.). These ditches total 5.39 acres in size.

During site reconnaissance, these systems were either inundated or saturated and vegetated by hydrophytes, as identified above. These ditches are cut through uplands and function as conveyance of stormwater runoff from existing travel lanes, access ramps and open lands within the existing I-4 Segment 2 ROW. No wildlife species were observed using these systems; however, it is anticipated that foraging opportunity for avian wetland dependent species (notably wood storks (*Mycteria americana*) may be present.

It is anticipated that approximately 5.39 acres will be directly impacted by I-4 Segment 2 improvements.

Swales

Surface Water(s) 6(E), 10(E), 11(E), 14(E), and 16(E)

Surface Water 6(E) (SW-6(E)), Surface Water 10(E) (SW-10(E)), Surface Water 11(E) (SW-11(E)), Surface Water 14(E) (SW-14(E)), and Surface Water 16(E) (SW-16(E)) are located along the existing eastbound travel lanes of I-4, from west of SR 528 to west of Kirkman Road (See Surface Water and Wetland Map, Exhibits 5.1-5.6). Due to the lack of defined banks, these systems are best characterized as Streams and Waterways, upland-cut swales (FLUCFCS 5130). These systems are also located within the existing I-4 ROW and are subject to routine maintenance activities.

The swales have been created through upland soils and are vegetated by bahiagrass, fleabane, pennywort, bacopa, bidens, carpetweed (*Phyla nodiflora*), mock bishop's-weed, spikerush (*Eleocharis* spp.) and torpedograss. Surrounding land uses include roads and highways, access ramps, ditches, wetlands, commercial developments, lakes, stormwater ponds, open land and upland forests. Collectively, these systems total 1.14 acres and serve the existing stormwater treatment and conveyance needs of the existing travel lanes of I-4. These swales are of low quality in providing habitat functions to wetland dependent wildlife species.

During site reviews, no wildlife was observed using these swales; however, these areas may provide seasonal foraging opportunity for wetland dependent avian species.

It is anticipated that approximately 1.14 acres will be directly impacted by I-4 Segment 2 improvements.

Existing Stormwater Ponds¹

Surface Water(s) 4(E), 17(E), and 19(E)

Surface Water 4(E) (SW-4(E)), Surface Water 17(E) (SW-17(E)), and Surface Water 19(E) (SW-19(E)) are best described as Reservoirs less than 10 acres (FLUCFCS 5340). SW 4(E) is located along the eastbound travel lanes of

¹Pursuant to Chapter 62-340, Florida Administrative Code (F.A.C), permitted stormwater ponds are not considered jurisdictional other surface waters, therefore, alterations or modifications to these systems were not assessed as part of the total project impacts.

I-4 near the intersection of I-4 and SR 528, while SW 17(E) and SW-19(E) are located at the southeast and northeast intersection of I-4 eastbound exit ramp to Universal Boulevard and Universal Boulevard (See Surface Water and Wetland Map, Exhibits 5.1-5.6). These systems are best characterized as stormwater management ponds with well-defined banks and control structures. Surrounding land use types consist of ramps, roads and highways, wetlands and other surface waters, commercial development, open land and upland forests.

SW-4(E) is 3.5 acres and is dominant by cattail, water lily (*Nymphaea odorata*), duck potato, red ludwigia (*Ludwigia repens*), soft rush (*Juncus effusus*), algae (*Pediastrum* spp.) and torpedograss.

SW-17(E) and SW-19(E) total 1.65 acres of largely open water with cypress (*Taxodium* sp.) trees planted along the maintenance berm. These systems provide stormwater treatment for surrounding land uses.

Wildlife species observed using SW-4(E) include Anhinga (*Anhinga anhinga*), mockingbird (*Mimus polyglottos*), mallards (*Anas platyrhynchos*), and mosquitofish (*Gambusia affinis*). No wildlife was observed using SW-17(E) and SW-19(E). It is anticipated that both systems provide foraging opportunities for wetland dependent species.

WESTBOUND I-4

Wetlands

Wetland 1(W)

Wetland 1 (W) (WL-1(W)) is located northwest of I-4 and Central Florida Parkway, east of Big Sand Lake and west of Turkey Lake Road near Station 1350. Surrounding land uses consist of roads and highways, lakes, disturbed land, open land, upland forest, commercial development, stormwater ponds, ditches and wetlands.

WL-1 (W) is an isolated system and is best characterized as Mixed Wetland Hardwoods (FLUCFS 6170) of low quality, and totaling 0.66 acres in size. Dominant vegetation within this system include: Chinese tallow (*Triadica sebifera*), laurel oak (*Quercus laurifolia*), Carolina willow canopy, vitis, Virginia chain fern, wax myrtle, maidencane, salt bush, air potato (*Dioscorea bulbifera*) and royal fern (*Osmunda regalis*). Standing water and royal ferns on hummocks were observed, suggesting an adequate hydro-period; however, the surrounding altered land uses have negatively influenced the overall quality of the system. No wildlife was observed using the system; however, WL-1(W) may provide foraging and roosting opportunity for wetland dependent species.

It is anticipated that approximately 0.66 acres of WL-1(W) will be directly impacted by I-4 Segment 2 improvements.

Wetland 2(W)

Wetland 2(W) (WL-2(W)) is located west of I-4 along the westbound on ramp to I-4 from SR 528 eastbound. Surrounding land uses consist of existing roadways, other surface waters, upland forest, open land and commercial development.

WL-2(W) is an isolated system and is best characterized as a Mixed Wetland Hardwoods (FLUCFS 6170) and is 3.77 acres in size. This low quality system is vegetated by Chinese tallow, red maple, loblolly bay, laurel oak, Carolina willow, wax myrtle, Virginia chain fern, lantana (*Lantana camara*), poison ivy, elderberry, broomsedge

(*Andropogon glameratus*), muscadine, bidens, dog fennel (*Eupatorium cappilifolium*), saw palmetto, and cogongrass (*Imperata cylindrica*).

WL-2(W) is contiguous with an upland-cut ditch that ultimately terminates to the west. Seasonally inundated, this system receives runoff from the surrounding land uses. No wildlife was observed.

It is anticipated that approximately 3.77 acres of WL-2(W) will be directly impacted by I-4 Segment 2 improvements.

Wetland 3(W)

Wetland 3(W) (WL-3(W)) is located just north of WL-2(W) and west of Turkey Lake Road near Station 1400. This system has a vegetated fringe, but is mostly an open-water isolated system and is best characterized as Lakes larger than 10 acres but less than 100 acres (FLUCFS 5230). Vegetation present includes Carolina willow, Virginia chain fern and herbaceous grasses and sedges. No wildlife was observed using this system during site reviews.

No impacts to WL-3(W) are anticipated to result by the I-4 Segment 2 improvements.

Wetland 4(W)

Wetland 4(W) (WL-4(W)) is best characterized as FLUCFCS 5210, Lakes larger than 500 acres near Station 1450. This system is contiguous with Big and Little Sand Lake and consists of a forested and herbaceous fringe. A variety of wading birds were observed using the system during site reviews.

No wetland impacts to WL-4(W) are anticipated to result by the I-4 Segment 2 improvements.

SURFACE WATER COMMUNITIES

Ditches

Surface Water 3(W)

Surface Water 3(W) (SW-3(W)) is located along the westbound travel lanes of I-4, between I-4 and Turkey Lake Road. Surrounding land uses consist of roads and highways, disturbed uplands, other surface waters, and commercial developments.

SW-3(W) is best classified as Streams and Waterways, upland-cut (FLUCFCS 5130) and encompasses 0.03 acres. Vegetation present within this system include: bidens, Carolina willow, primrose willow, bahia, taro (*Colocasia esculenta*), thistle (*Cirsium horridulum*), wax myrtle and muscadine.

SW-3(W) serves the current stormwater management system for the existing I-4 travel lanes. No wildlife was observed using this system.

It is anticipated that approximately 0.03 acres of SW-3(W) will be directly impacted by I-4 Segment 2 improvements.

Swales

Surface Water(s) 1(W), 2(W) and 4(W)

Surface Water 1(W) (SW-1(W)), Surface Water 2(W) (SW-2(W)) and Surface Water 4(W) (SW-4(W)) are located along the existing westbound travel lanes of I-4, from west of SR 528 to west of Kirkman Road, (See Surface Water and Wetland Map, Exhibits 5.1-5.6). These systems are also located within the maintained ROW of I-4 and are subject to routine maintenance. Surrounding land uses include roads and highways, access ramps, commercial development, ditches, open land, forested uplands and forested wetlands.

These systems are best classified as Streams and Waterways, upland-cut swales (FLUCFCS 5130) and total 2.76 acres. Dominant vegetation includes white star sedge (*Rhynchospora colorata*), primrose willow, pennywort, mock bishop's-weed, bacopa, fleabane, bidens, Carolina willow, torpedo grass, sedges, yellow-eyed grass (*Xyris elliotii*) and cinnamon ferns (*Osmunda cinnamomea*).

These systems serve the stormwater treatment and conveyance needs of the existing travel lanes of I-4 westbound. Collectively, these swales are low quality in providing habitat functions to wetland dependent wildlife species. No wildlife was observed using these systems.

It is anticipated that approximately 2.76 acres will be directly impacted by I-4 Segment 2 improvements.

Existing Stormwater Ponds²

Surface Water(s) 5(W) and 6(W)

Surface Water 5(W) (SW-5(W)) and Surface Water 6(W) (SW-6(W)) are located within the infield of the access ramp to I-4 westbound from Sand Lake Road westbound. The land use types that encompass these systems include roads and highways, access ramps, commercial development and open land.

SW-5(W) and SW-6(W) total 0.76 acres and are best classified as Reservoirs less than 10 acres (FLUCFCS 5340). Both systems are characterized as stormwater management ponds with well-defined banks and control structures. Vegetation present includes primrose willow, fleabane, carpetweed, cattail, Carolina willow, pickerelweed and pennywort.

These systems provide treatment for surrounding land uses. No wildlife was observed using these systems.

Surface Water 7(W)

Surface Water 7(W) (SW-7(W)) is located west of the exit ramp from I-4 westbound to Sand Lake Road. Surrounding land uses include roads and highways, commercial development, other surface waters and open land.

²Pursuant to Chapter 62-340, Florida Administrative Code (F.A.C), permitted stormwater ponds are not considered jurisdictional other surface waters, therefore, alterations or modifications to these systems were not assessed as part of the total project impacts.

SW-7(W) is best classified as Reservoirs, less than 10 acres (FLUCFCS 5340) and totals 0.66 acres. Vegetation observed includes red ludwigia, smartweed, cattail, primrose willow, Carolina willow, algae, and torpedograss. The surrounding maintained berm is planted with wax myrtle, pines (*Pinus* sp.) and cypress trees.

SW-7(W) provides stormwater treatment for surrounding land uses. No wildlife was observed using this system.

Surface Water 8(W)

Surface Water 8(W) (SW-8(W)) is located west of I-4, between the on ramp from Adventure Way to I-4 westbound and the off ramp from I-4 westbound to Adventure Way. Surrounding land uses consist of ramps, I-4, other surface waters, open land and wetlands.

SW-8(W) is best characterized as a Reservoirs, less than 10 acres (FLUCFCS 5340) and totals 0.80 acres. Vegetation present include: cattail, duck potato, primrose willow, pennywort, torpedo grass, dog fennel, rushes, taro, water lily and algae. The berms are maintained with planted cypress, and laurel bays (*Laurus nobilis*).

SW-8(W) provides stormwater treatment for surrounding land uses. Two (2) common birds were observed using the pond; red-winged blackbird (*Agelaius phoeniceus*) and a fish crow (*Corvus ossifragus*). No other wildlife was observed.

Surface Water(s) 9(W) and 10(W)

Surface Water 9(W) (SW-9(W)) and Surface Water 10(W) (SW-10(W)) are located in the infield of I-4 westbound and Universal Boulevard interchange. Surrounding land uses consist of roads and highways, stormwater ponds and access ramps.

These systems are best classified as Reservoirs, less than 10 acres (FLUCFCS 5340) and total 2.27 acres. Dominant features of these systems consist of open water, minimal littoral zones vegetated with cattail, bidens and bahiama, and maintained banks with planted cypress and palm trees.

These systems receive runoff from surrounding roads and highways. Two (2) mallards were observed.

Although no federally and/or state listed wildlife was observed, it is anticipated that these systems could be used by wetland dependent species for foraging.

Existing and Proposed Pond Locations

Stormwater management for the I-4 Segment 2 improvements will be accommodated by using existing ponds or constructing new ponds. Existing ponds will either be regraded, enlarged or unchanged to meet design criteria. Below is a summary of the proposed ponds.

Pond 200A (Alternate)

Pond 200A is located on the west side of Turkey Lake Road, approximately 0.15 miles from north of Central Florida Parkway and Turkey Lake Road intersection near Station 1350. This site has been altered by land clearing and the construction of street patterns with no structures.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 200B (Recommended)

Pond 200B is located on the west side of Turkey Lake Road, approximately 0.10 miles north of Central Florida Parkway and Turkey Lake Road intersection near Station 1350. The habitat of this proposed pond site has been altered from a more natural state as evident of recent mowing or bush hogging activity. A majority of the site is remnant citrus grove; however, WL-1(W) is located within the identified ROW of this pond site.

It is anticipated that 0.66 acres of WL-1(W) will be directly impacted as a result of pond construction.

Pond 201 (Recommended)

Pond 201 is located between the I-4 westbound ROW and Turkey Lake Road, within the median of I-4 eastbound travel lanes and the off ramp of I-4 east to SR 528 eastbound. This proposed pond area consists of existing roadway, forested uplands and wetlands, WL-2 (W). WL-2(W) is a mixed hardwood wetland that has been disturbed by surrounding development, routine maintenance and runoff from the existing roads and highways.

It is anticipated that 2.75 acres of WL-2(W) will be directly impacted as a result of pond construction.

Pond 202A (Recommended)

Pond 202A is located east of the eastbound travel lanes of I-4, within the median of I-4 eastbound travel lanes and the off ramp of I-4 east to SR 528 eastbound. This area consists of disturbed forested uplands and maintained open land.

It is anticipated that 0.28 acres of SW-2(E) and 0.17 acres of SW-3(E) will be directly impacted as a result of pond construction.

Pond 202B (Recommended)

Pond 202B is located just east of Pond 202A. This proposed pond site is located within maintained open land.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 202C (Recommended)

Pond 202C is located within the median of the I-4 east travel lanes and westbound interchange from SR 528, immediately east of Ponds 202A and 202B. This site is an existing stormwater pond (SW-4(E)) with a maintained berm and outfall structure and will encompass a portion of upland habitat along the eastern side.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 202D (Recommended)

Pond 202D is located north of pond 202C. This site consists of existing travel lanes of SR 528 off ramp to I-4, open maintained land and disturbed forested uplands.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond Sites 203A, 203B, 204A, and 204B

These pond locations are at the interchange of SR 528 and International Drive. These four (4) systems are proposed by others and have been permitted under permit number 48-01254-P, application 04072-13, through the South Florida Water Management District. Activities permitted include the construction and operation of a surface water management system to serve 460 acres of a highway project known as SR 528/Beachline Expressway widening from I-4 to McCoy Road. Wetland and other surface water involvement have been addressed through the permit application. These systems are being considered in this study for stormwater management purposes only (See Surface Water and Wetland Map, Exhibits 5.1-5.6).

Pond 205A (Alternate)

Pond 205A is located on the west side of Turkey Lake Road, just north of I-4 and SR 528 interchange near Station 1400. This proposed pond area lies entirely within upland habitat.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 205B (Alternate)

Pond 205B is located northwest of Pond 205A on the west side of Turkey Lake Road near Station 1400. Land use within this proposed pond site includes a paved road, and disturbed uplands.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 205C (Recommended)

Pond 205C is located adjacent to Pond site 205A. This pond site is located entirely within uplands.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 205D (Recommended)

Pond 205D is located within forested uplands and adjacent to WL-4(W) near Station 1450. It is anticipated that WL-4(W) will be avoided.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 206 (Recommended)

Pond 206 is located within the northwest quadrant of I-4 and Sand Lake Road interchange near Station 1500. Land uses within the proposed pond area consist of existing travel lanes, herbaceous uplands, an existing stormwater pond (SW-6(W)), planted palm trees and maintained open land.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 206A (Recommended)

Pond 206A is located at the southwest quadrant of I-4 and Sand Lake Road interchange near Station 1500. Land uses within the proposed pond area include roadway and herbaceous uplands.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 206B (Recommended)

This pond is located at the northeast quadrant of I-4 and Sand Lake Road interchange near Station 1500. Habitat present includes herbaceous uplands and roadway.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 207 (Recommended)

Pond 207 is located on the west side of the I-4 westbound exit ramp to Sand Lake Road near Station 1500. This site is an existing stormwater pond, (SW-7(W)), with planted cypress trees, pine trees and wax myrtle in a maintained open land area.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Pond 208 (Recommended)

Pond 208 is located in the median of the on and off ramps at Adventure Way to and from I-4 westbound near Station 1550. The land use of this site consists of an existing stormwater pond (SW-8(W)), with maintained berm, emergent aquatic vegetation and control structure. Modification to the existing stormwater pond is not anticipated.

It is anticipated that no jurisdictional wetland or other surface waters impacts will result in the construction of this pond for I-4 Segment 2 improvements.

Ponds F-32, F-33, F-34 and F-35

These stormwater management systems are located within the interchange of I-4 and Kirkman Road, just east of Segment 2 project limits. Wetland and other surface water involvement for construction of these pond areas will be addressed and permitted under a separate project by others. These systems are being considered in this study for accommodation of stormwater management of I-4 Segment 2 purposes only (See Surface Water and Wetland Map, Exhibits 5.1-5.6).

Table 1 summarizes the classifications of onsite jurisdictional wetlands and other surface waters using the Classification of Wetlands and Deep Water Habitats of the United States and the Florida Land Use, Cover and Forms Classification System.

Table 1 Summary of Jurisdictional Wetlands and Other Surface Waters			
ID	*USFWS Classification	**FLUCFCS Code	Description/ Vegetation Summary
SW-1(E)	PEM2E	5130	Upland-cut ditch
SW-2(E)	PEM2E	5130	Upland-cut ditch
SW-3(E)	PEM2E	5130	Upland-cut ditch
SW-5(E)	PEM2E	5130	Upland-cut ditch
SW-6(E)	PEM2E	5130	Upland-cut swale
SW-7(E)	PEM2E	5130	Upland-cut ditch
SW-8(E)	PEM2E	5130	Upland-cut ditch
SW-9(E)	PEM2E	5130	Upland-cut ditch
SW-10(E)	PEM2E	5130	Upland-cut swale
SW-11(E)	PEM2E	5130	Upland-cut swale
SW-12(E)	PEM2E	5130	Upland-cut ditch
SW-13(E)	PEM2E	5130	Upland-cut ditch
SW-14(E)	PEM2E	5130	Upland-cut swale
SW-15(E)	PEM2E	5130	Upland-cut ditch
SW-16(E)	PEM2E	5130	Upland-cut swale

ID	*USFWS Classification	**FLUCFCS Code	Description/ Vegetation Summary
SW-18(E)	PEM2E	5130	Upland-cut ditch
SW-1(W)	PEM2E	5130	Upland-cut swale
SW-2(W)	PEM2E	5130	Upland-cut swale
SW-3(W)	PEM2E	5130	Upland-cut ditch
SW-4(W)	PEM2E	5130	Upland-cut swale
WL-1(W)	PFO4A	6170	Mixed Wetland Hardwoods
WL-2(W)	PFO4A	6170	Mixed Wetland Hardwood
WL-3(W)	L2EMH	5230	Lakes
WL-4(W)	L2EMH	5210	Lakes

*United States Fish and Wildlife Service (USFWS) Classifications:
 L2EMH: Lacustrine/Littoral/Emergent/Permanently Flooded; PEM2E: Palustrine/Emergent/Nonpersistent/Seasonally Flooded/Saturated PFO14E: Palustrine/Forested/Broad Leaved Deciduous/Needle-Leaved Evergreen/Seasonally Flooded/Saturated.
 **Florida Land Use Cover and Forms Classification System (FLUCFCS): 5130 (Streams and Waterways); 5210 (Lakes larger than 500 acres); 5230 (Lakes larger than 10 acres but less than 100 acres); and 6170 (Mixed Wetland Hardwoods).

3.0 WETLAND IMPACT ASSESSMENT

Estimates suggest that 9.32 acres of other surface waters (upland-cut ditches and swales) and 4.43 acres of wetland communities will be directly impacted by proposed improvements associated with I-4 Segment 2 improvements, please reference Table 2. These estimates are based on field assessment of jurisdictional limits and preliminary plan preparation for design. Impacts to jurisdictional areas will be refined as design details are finalized. The impact areas, quality of each system, and likelihood of requiring mitigation for adverse impacts are summarized in Table 2.

Impacts to wetlands and other surface waters during construction will also be classified as temporary or permanent, depending on the proposed level of disturbance. The type and amount of mitigation for adverse impacts will be based on the final impact acreages, the nature of disturbance (temporary or permanent), and the overall quality of the systems.

ID	FLUCFCS Code	Total Area within ROW (acres)	Proposed Impacts (acres)	*Quality (UMAM)	**Mitigation Requirements (Y, N, N/A)
Wetlands					
WL-1(W)	6170	0.66	0.66	Low	Y
WL-2(W)	6170	3.77	3.77	Low	Y

Table 2
 Summary of Proposed Impacts to Jurisdictional Wetlands/Other Surface Waters

ID	FLUCFCS Code	Total Area within ROW (acres)	Proposed Impacts (acres)	*Quality (UMAM)	**Mitigation Requirements (Y, N, N/A)
WL-3(W)	5230	0.00	0.00	Moderate	N/A
WL-4(W)	5210	0.00	0.00	Moderate	N/A
Subtotal Acres		4.43	4.43		
Subtotal Impacts			4.43		
Other Surface Waters (Upland-Cut Ditches and Swales)					
SW-1(E)	5130	2.60	2.60	Low	N
SW-2(E)	5130	0.28	0.28	Low	N
SW-3(E)	5130	0.17	0.17	Low	N
SW-5(E)	5130	0.06	0.06	Low	N
SW-6(E)	5130	0.18	0.18	Low	N
SW-7(E)	5130	0.24	0.24	Low	N
SW-8(E)	5130	0.73	0.73	Low	N
SW-9(E)	5130	0.17	0.17	Low	N
SW-10(E)	5130	0.15	0.15	Low	N
SW-11(E)	5130	0.26	0.26	Low	N
SW-12(E)	5130	0.25	0.25	Low	N
SW-13(E)	5130	0.51	0.51	Low	N
SW-14(E)	5130	0.25	0.25	Low	N
SW-15(E)	5130	0.17	0.17	Low	N
SW-16(E)	5130	0.30	0.30	Low	N
SW-18(E)	5130	0.21	0.21	Low	N
SW-1(W)	5130	1.50	1.50	Low	N
SW-2(W)	5130	0.48	0.48	Low	N
SW-3(W)	5130	0.03	0.03	Low	N
SW-4(W)	5130	0.78	0.78	Low	N
Subtotal Acres		9.32			
Subtotal Impacts			9.32		
Project Total		13.75	13.75		
*Low= UMAM Score between 0 and 0.49		Moderate= UMAM Score between 0.50 and 0.79		High= UMAM Score of 0.80 or better.	
**Y= Jurisdictional/Mitigation Required		N = Jurisdictional/No Mitigation Required		N/A = No Mitigation Required	

Table 3 summarizes jurisdictional wetland and other surface water impacts, anticipated to require mitigation, by type (forested wetlands vs. freshwater wetlands) for the Segment 2 design and includes the hydrologic basin where impacts are located.

Hydrological Basin	Forested Wetlands (acres)	Freshwater Wetlands (acres)	Other Surface Waters (acres)
Shingle Creek	4.43	--	--
Totals	4.43	--	--

4.0 ALTERNATIVE ANALYSIS

Reconstruction and widening of I-4 Segment 2 involves the build-out of I-4 to its ultimate condition of the mainline and modifications of interchange configurations at SR 528 and Sand Lake Road. As such, the build scenario includes improvements to all land area within the existing right-of-way, thus rendering a single design project.

The planned interchange improvements involve work at the junction of existing roads and highways. As such, alternative configurations are restricted in using the existing built conditions. In general, the land uses at the proposed interchanges includes roads and highways, access/exit ramps, forested and herbaceous uplands and low quality wetlands or other surface waters. Design modifications (relocating, reconfiguring, reduction and removing) have been explored to avoid and/or reduce wetland impacts. The mainline and proposed pond designs will likely result in unavoidable impacts to jurisdictional wetland and other surface water communities.

The current interchange layouts represent the best design alternative when considering engineering constraints, health and human welfare and the environment.

5.0 AVOIDANCE AND MINIMIZATION OF IMPACTS

The proposed reconstruction and widening of I-4 from west of SR 528 to west of Sand Lake Road, is intended to improve the level of service and enhance safety for the general public. Due to the FDOT and the American Association of State Highway and Transportation Standards (AASHTO) design criteria, the ultimate condition build-out of the I-4 mainline presents little opportunities to avoid or minimize adverse wetland impacts within the existing I-4 ROW and interchange designs. In addition, a majority of the wetlands and other surface water systems, within the mainline ROW, are of low quality, located mostly within historically altered environment or have been constructed through upland soils.

Site planning modifications include the use of existing stormwater management ponds, relocation of proposed stormwater management ponds and the reconfiguration of ponds to avoid wetland impacts. It is anticipated that jurisdictional systems within the I-4 Segment 2 ROW improvement corridor will be avoided and/or minimized to the greatest extent practical while maintaining safety and function. Further avoidance and minimization efforts of wetlands will be evaluated during the design and construction phases. Appropriate mitigation will be provided

based on the final roadway, interchange design and pond locations that will offset adverse impacts to jurisdictional wetlands or other surface waters.

6.0 SECONDARY AND CUMULATIVE IMPACTS

It is anticipated that improvements along the mainline of I-4 will not result in adverse secondary (indirect) impacts in meeting the intent of sections 10.2.7 and 10.2.8 of Volume I of the Environmental Resource Permit Information Manual. Direct wetland impacts are associated with isolated wetland systems and include impacts to the entire system. Should impacts associated with these systems result in secondary impacts during the design and permitting phase, an evaluation of potential indirect impacts will be conducted to jurisdictional wetland system. In order to determine potential secondary impacts, the South Florida Water Management Districts 25-foot rule will be utilized.

It is presumed that cumulative impacts would result should direct impacts occur. However, a cumulative impact analysis and appropriate mitigation could satisfy the cumulative impact presumption. It is anticipated that the proposed project will not result in unacceptable cumulative impacts to wetland functions in the Shingle Creek Basin provided that there is appropriate and available mitigation within the same basin as the adverse impacts, or that a cumulative impact assessment analysis determines the mitigation plan is sufficient in addressing.

A cumulative impact assessment for I-4 Segment 2 improvements will be refined during the permitting phase in determining the exact mitigation needed in offsetting adverse impacts.

7.0 CONCEPTUAL MITIGATION

Mitigation requirements are based on a compilation of wetland parameters including quality, type, function and size. Impacts to wetlands and other surface waters will be avoided and minimized to the maximum extent possible while maintaining safe and sound engineering and construction practices. Primarily, avoidance and minimization efforts are related to the proposed stormwater management pond locations.

A mitigation plan that adequately offsets adverse impacts will be developed and implemented. Adverse wetland impacts that result from the construction of this project will be mitigated, satisfying the requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s.1344. Compensatory mitigation for this project will be completed through the use of mitigation banks and/or any other mitigation options that satisfy state requirements.

Estimates suggest that 4.43 acres of direct impacts to low-quality wetland systems will result from I-4 Segment 2 improvements. No secondary impacts are anticipated. Direct impacts will require approximately 3.1 mitigation credits (based on a 0.7 average UMAM score) to offset adverse wetland impacts. Mitigation banks with service areas within limits of the project and mitigation credit availability are summarized in Table 4.

Table 4
 Summary of Available Mitigation Credits per Service Area

Mitigation Bank (MB)	Mitigation Service Area	* Credit Availability
SHINGLE CREEK MB	SHINGLE CREEK	15.76 UMAM CREDITS
HATCHINEHA RANCH MB	SHINGLE CREEK	50 UMAM CREDITS
SOUTHPORT RANCH MB	SHINGLE CREEK	170 UMAM CREDITS
REEDY CREEK MB	SHINGLE CREEK	60 UMAM CREDITS
COLLANY MB	SHINGLE CREEK	3.5 UMAM CREDITS
BULLFROG BAY MB	SHINGLE CREEK	14 UMAM CREDITS

*Based on June 2014/September 2015 mitigation credit ledger review and coordination with Mitigation Marketing Resources, LLC and Florida Mitigation Technologies (2016).

8.0 COORDINATION

It is anticipated that project improvements will result in impacts to wetlands and other surface waters regulated by the State of Florida. A USACOE permit under Section 404 of the Clean Water Act is not anticipated for proposed project improvements; however an Environmental Resource Permit from the South Florida Water Management District will be needed for the project prior to implementation of construction activities. In addition, a National Pollutant Discharge Elimination System Permit from the Florida Department of Environmental Protection will be required.

9.0 DISCUSSION AND COMMITMENTS

This wetland evaluation was conducted for I-4 PD&E Study Segment 2: SR 400 (I-4) from State Road 400 (SR 400)/Interstate 4 (I-4) from West of 528 (Beachline Expressway) to West of SR 435 (Kirkman Road) in compliance with Executive Order 11990, Protection of Wetlands, to assure that every practicable effort will be made to avoid short and long-term impacts to wetlands. The approximate total of jurisdictional wetland impacts anticipated to require mitigation is 4.43 acres. Sufficient mitigation to offset adverse impacts is currently available at the Reedy Creek, Hatchineha Ranch, Shingle Creek, Bullfrog Bay, Collany, and Southport Mitigation Banks.

I-4 Segment 2 is located within two (2) wood stork Core Foraging Areas (CFAs). Wetland mitigation will adhere to the requirements of the *Corps of Engineers and U. S. Fish and Wildlife Service Effect Determination Key for the Wood Stork in South Florida* (2010).

The following commitments are being proposed to ensure that the I-4 Segment 2 project does not result in adverse impacts to wetland communities and the functions provide.

- During the permitting process, FDOT will coordinate with federal and state agency personnel to ensure minimization and reduction of adverse wetland impacts have been explored to the fullest extent of the project while meeting engineering standards and practice.
- Wetland impacts (direct and secondary) that will result from the construction of this project will be mitigated pursuant to requirements of Part IV, Chapter 373, F.S. and 33 U.S.C.s.1344. The FDOT is committed to minimize direct, secondary and temporary impacts, where feasible.
- During the design, a Quality Enhancement Strategies (QES) addressing the avoidance and minimization for losses of waters of the United States and alternative design changes to minimize wetland impacts (without jeopardizing safety) will be committed by others.
- During permitting, FDOT will coordinate with the permitting agencies to quantify and provide compensation for any unavoidable impacts to wood stork suitable foraging habitat (SFH). Mitigation for these impacts will be provided within the service area of a USFWS-approved wetland mitigation bank that provides an amount of habitat and foraging function equivalent to that of the impacted SFH in accordance with the *Corps of Engineers and U.S. Fish and Wildlife Service Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*.

10.0 REFERENCES

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APPENDIX A
PROJECT MAPS AND FIGURES

EXHIBIT 1
LOCATION MAP

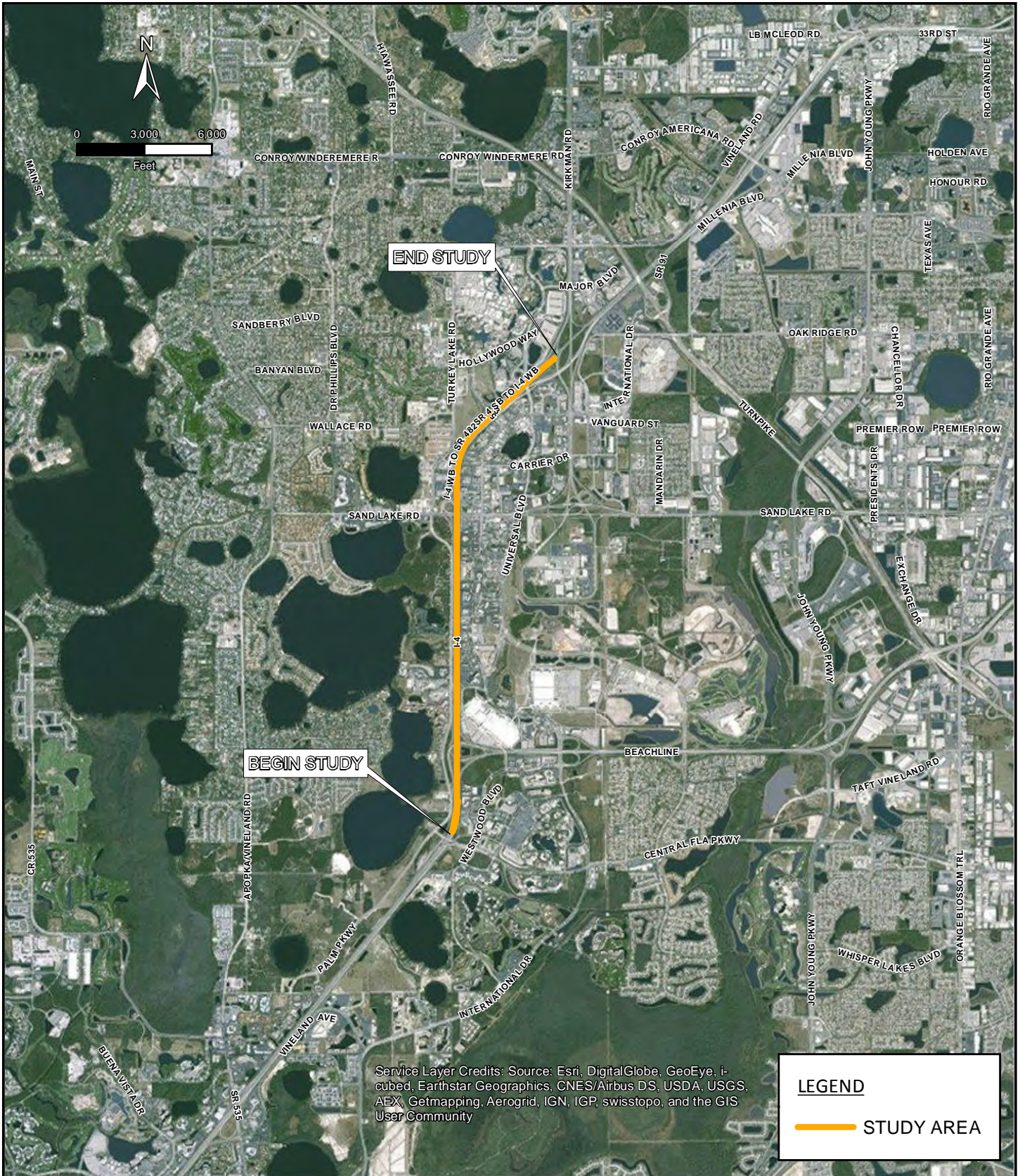


Exhibit 1

EXHIBIT 2
USGS TOPOGRAPHIC QUADRANGLE MAP

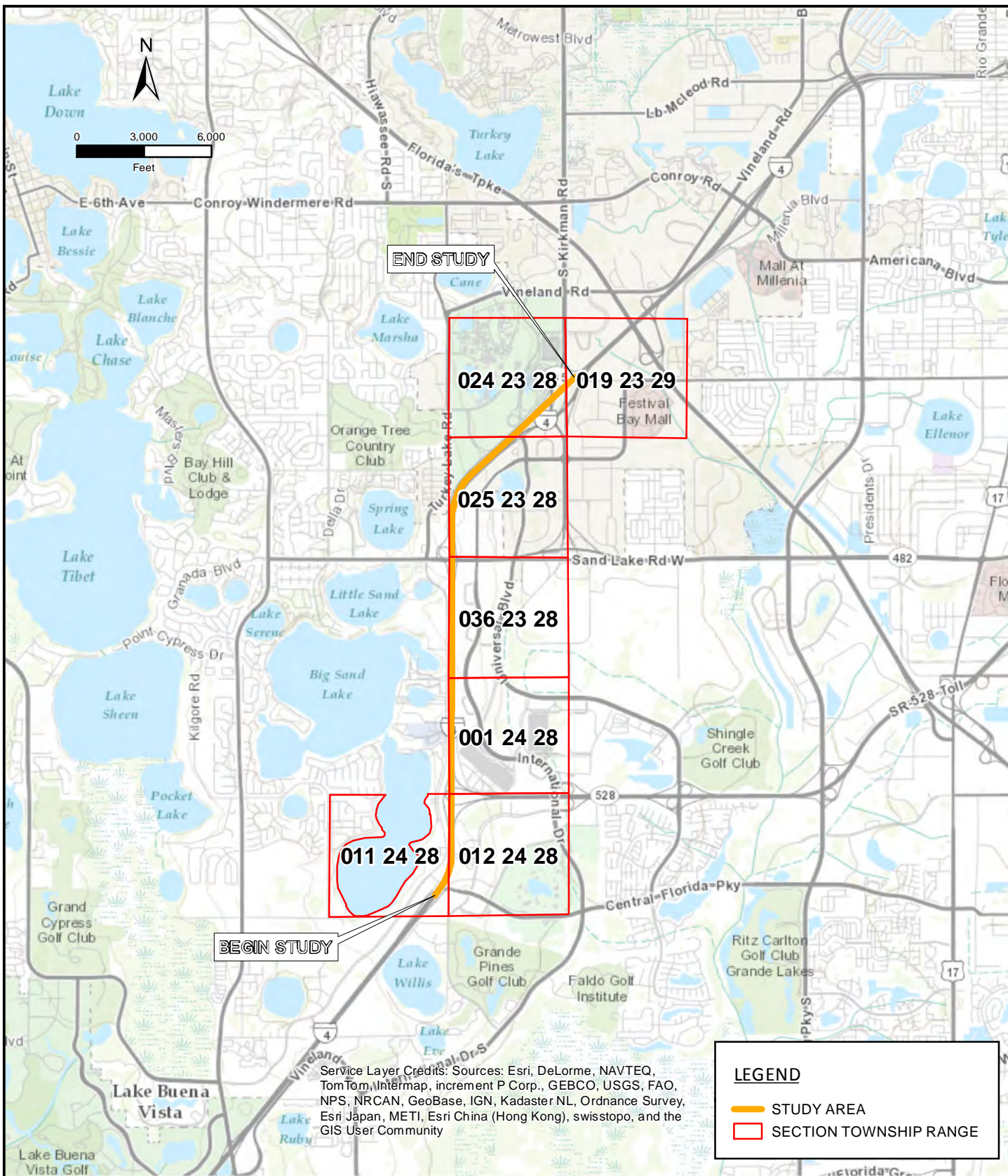
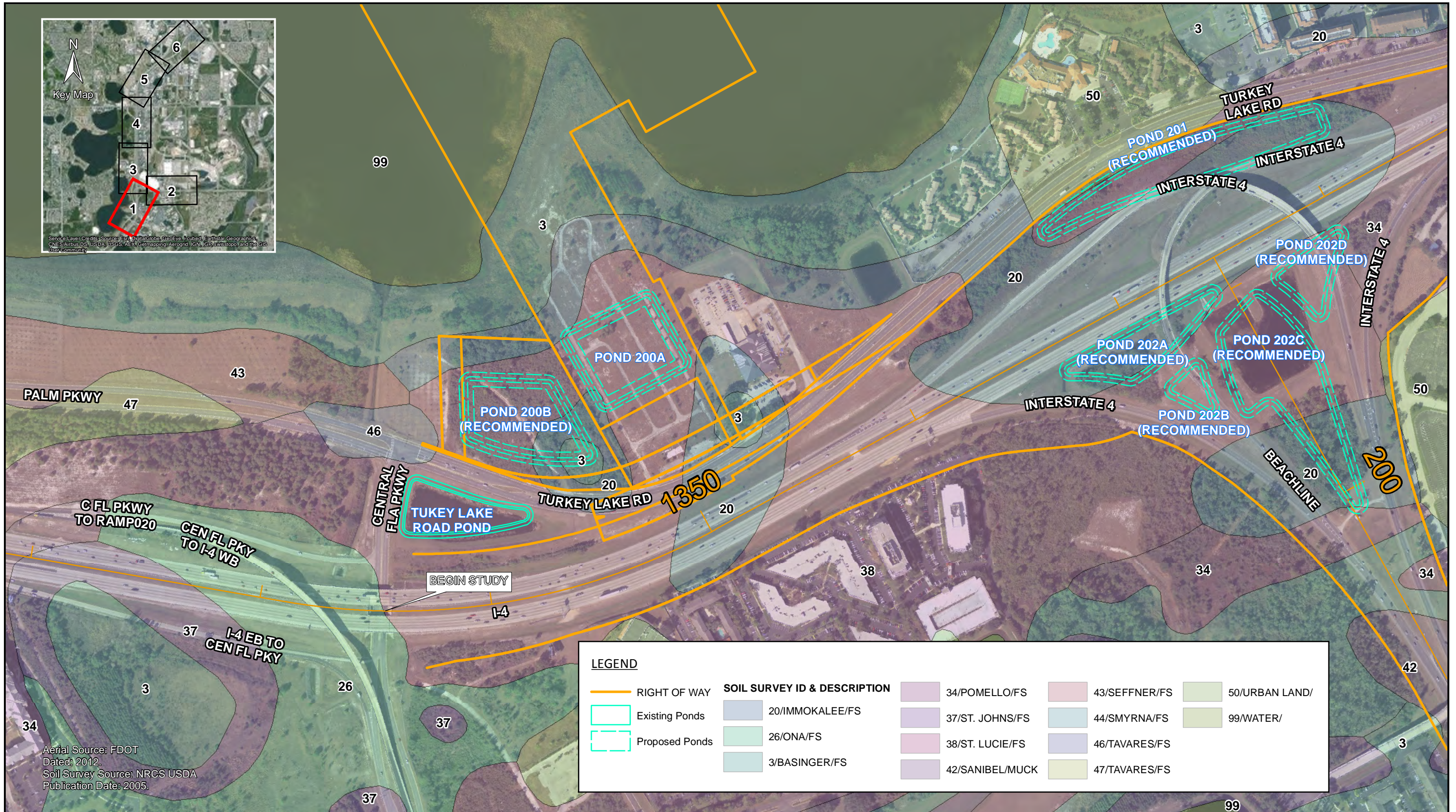
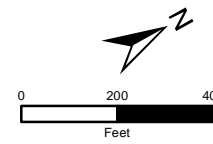


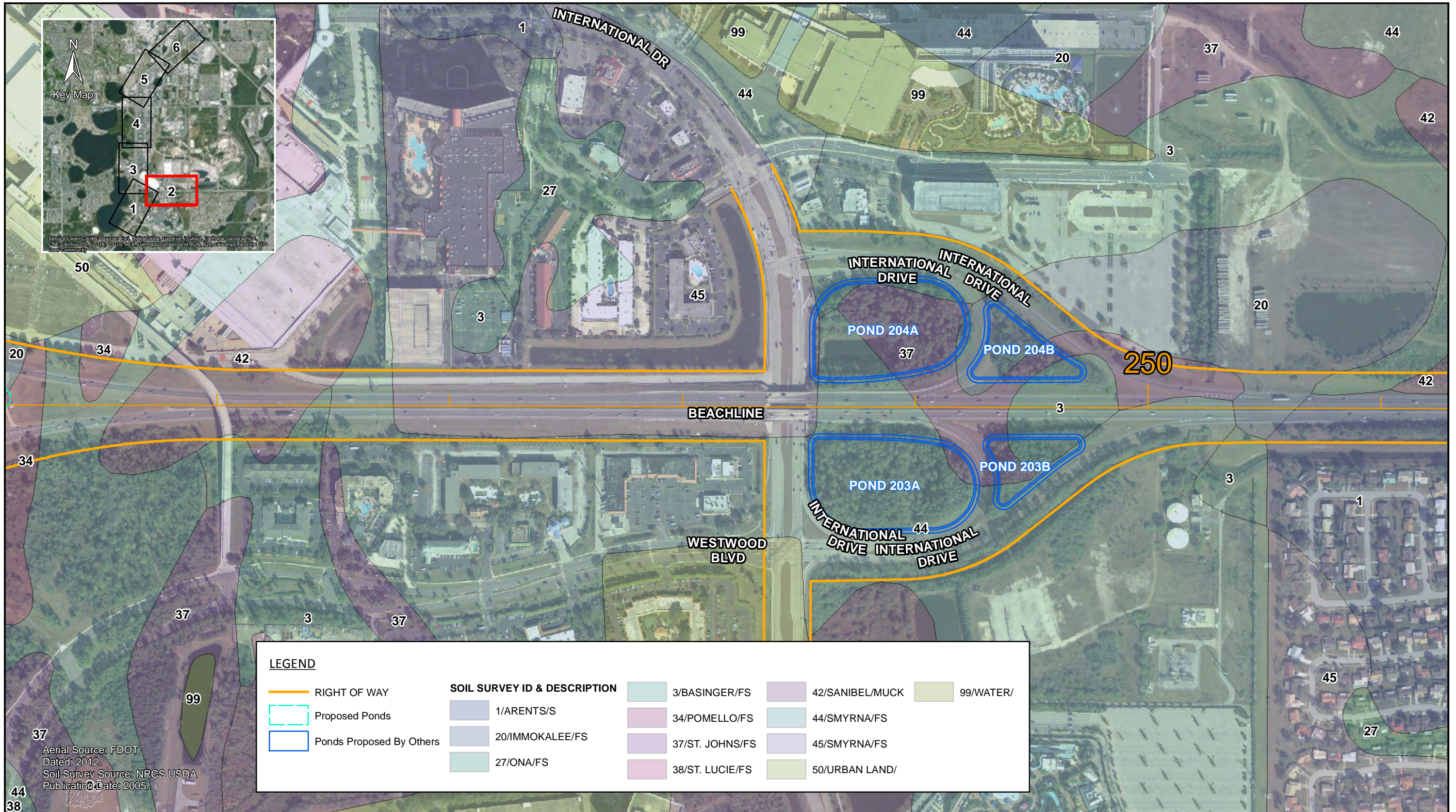
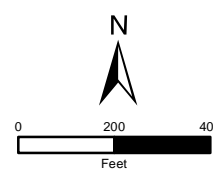
Exhibit 2

EXHIBIT 3
NRCS SOIL SURVEY MAP



Aerial Source: FDOT
 Dated: 2012.
 Soil Survey Source: NRCS USDA
 Publication Date: 2005.

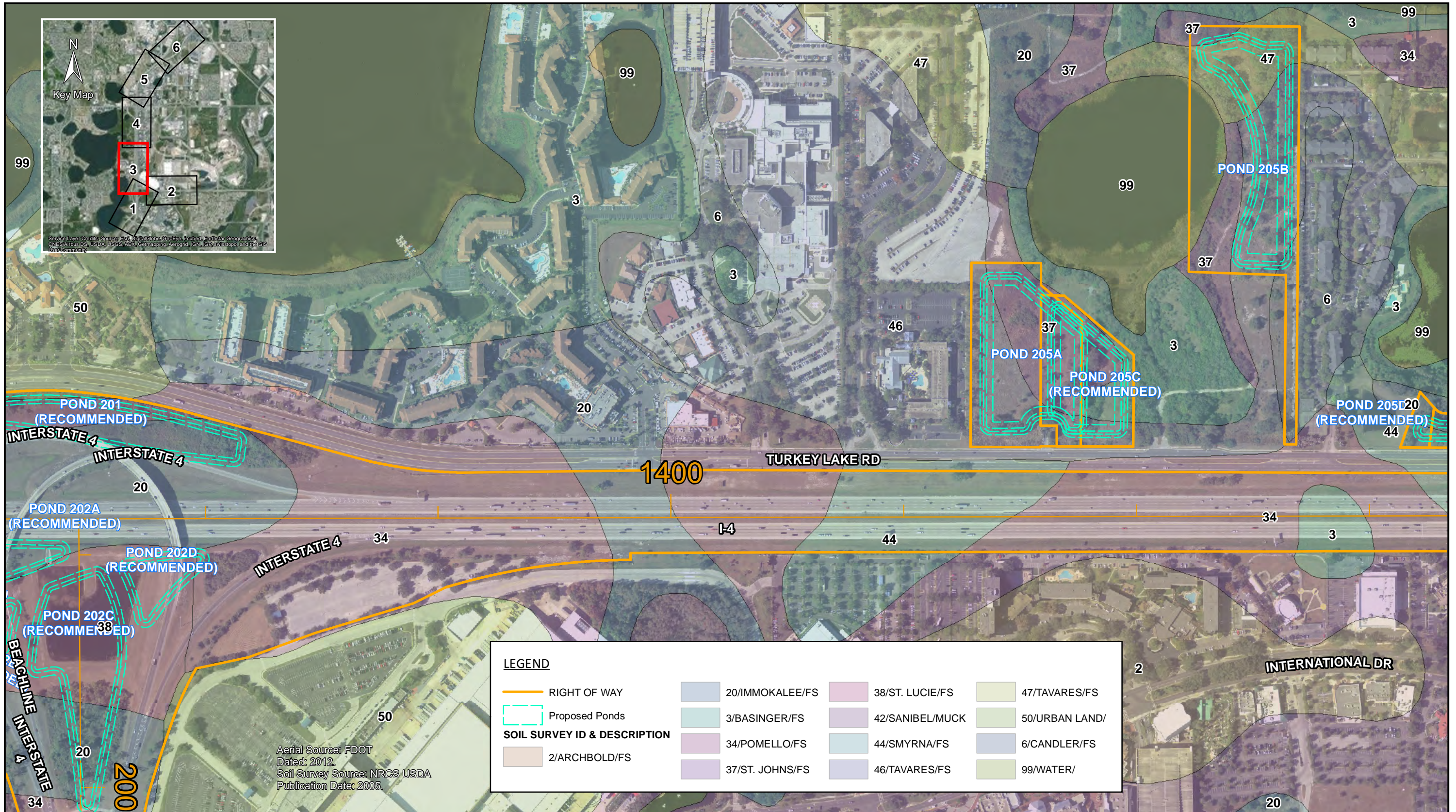
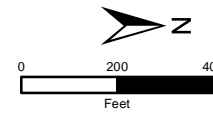
Exhibit 3.1



LEGEND		SOIL SURVEY ID & DESCRIPTION			
	RIGHT OF WAY		1/ARENDS/S		3/BASINGER/FS
	Proposed Ponds		20/IMMOKALEE/FS		42/SANIBEL/MUCK
	Ponds Proposed By Others		27/ONA/FS		44/SMYRNA/FS
			34/POMELLO/FS		45/SMYRNA/FS
			37/ST. JOHNS/FS		50/URBAN LAND/
			38/ST. LUCIE/FS		

Aerial Source: FDOT
 Dated: 2012.
 Soil Survey Source: NRCS USDA
 Publication Date: 2005.

Exhibit 3.2



LEGEND

- RIGHT OF WAY
- Proposed Ponds

SOIL SURVEY ID & DESCRIPTION

2/ARCHBOLD/FS	20/IMMOKALEE/FS	38/ST. LUCIE/FS	47/TAVARES/FS
3/BASINGER/FS	34/POMELLO/FS	42/SANIBEL/MUCK	50/URBAN LAND/
37/ST. JOHNS/FS	44/SMYRNA/FS	46/TAVARES/FS	6/CANDLER/FS
			99/WATER/

Aerial Source: FDOT
 Dated: 2012.
 Soil Survey Source: NRCS USDA
 Publication Date: 2005.

Exhibit 3.3

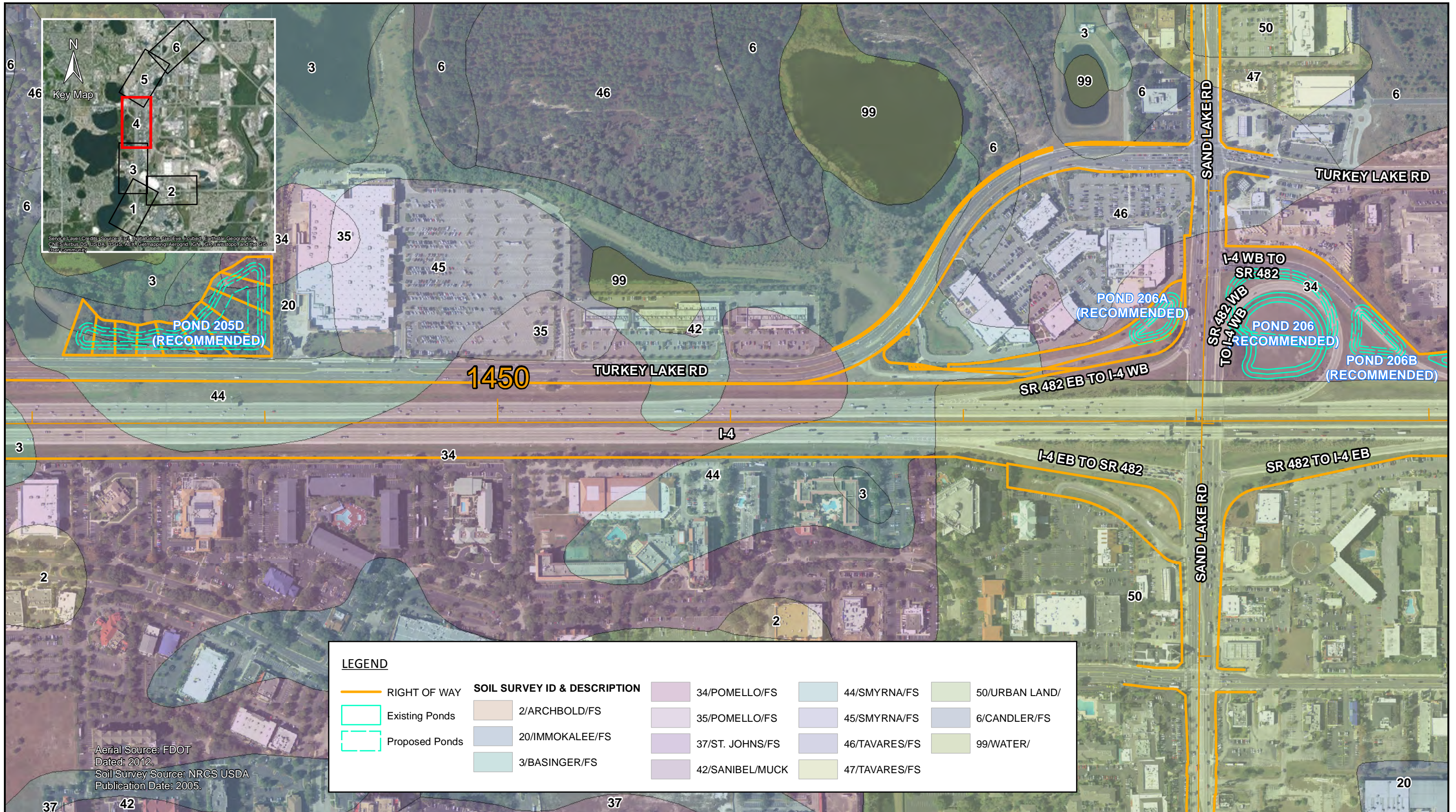
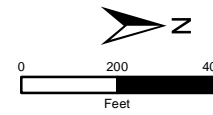


Exhibit 3.4

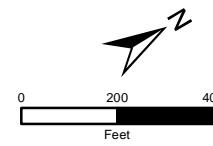


Exhibit 3.5

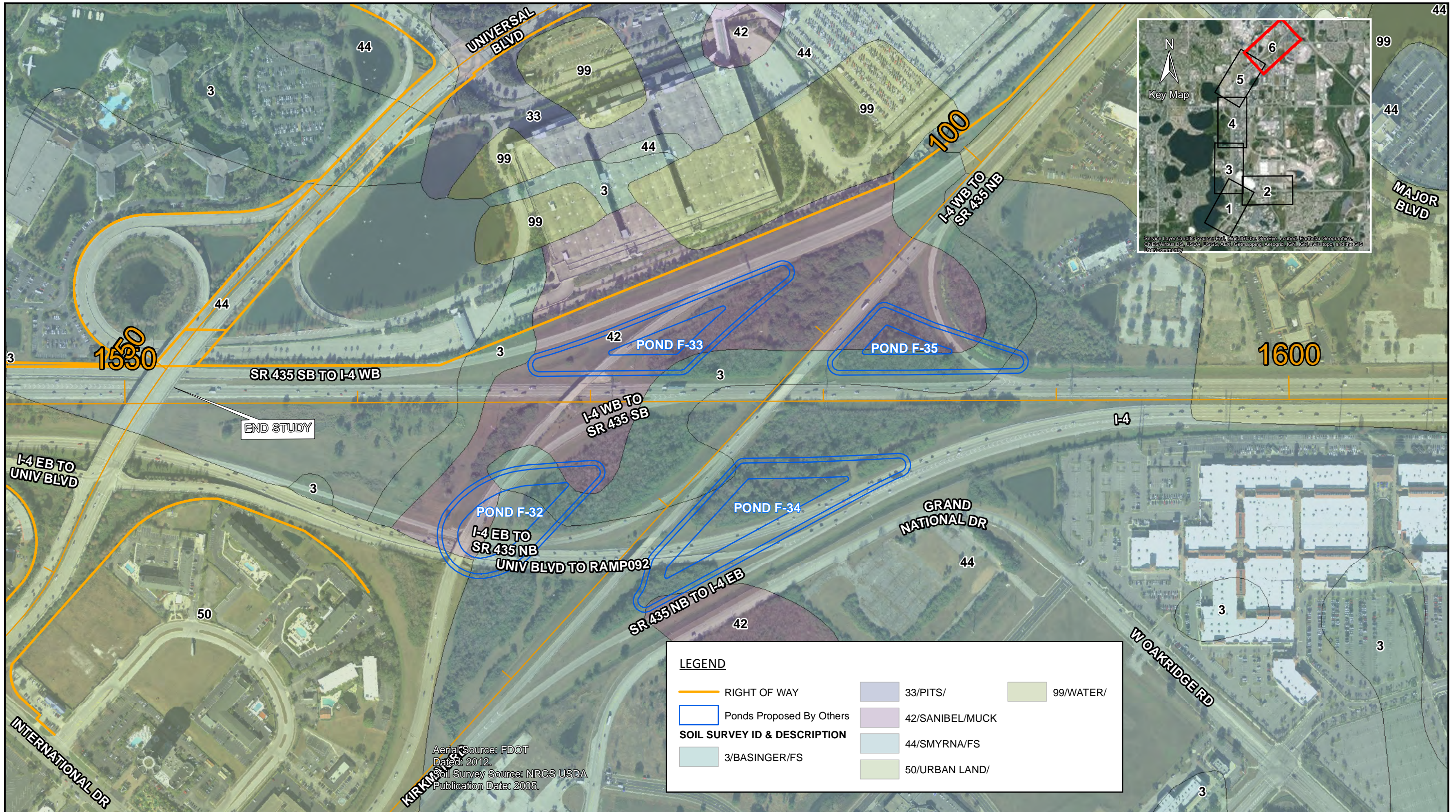
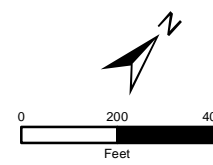
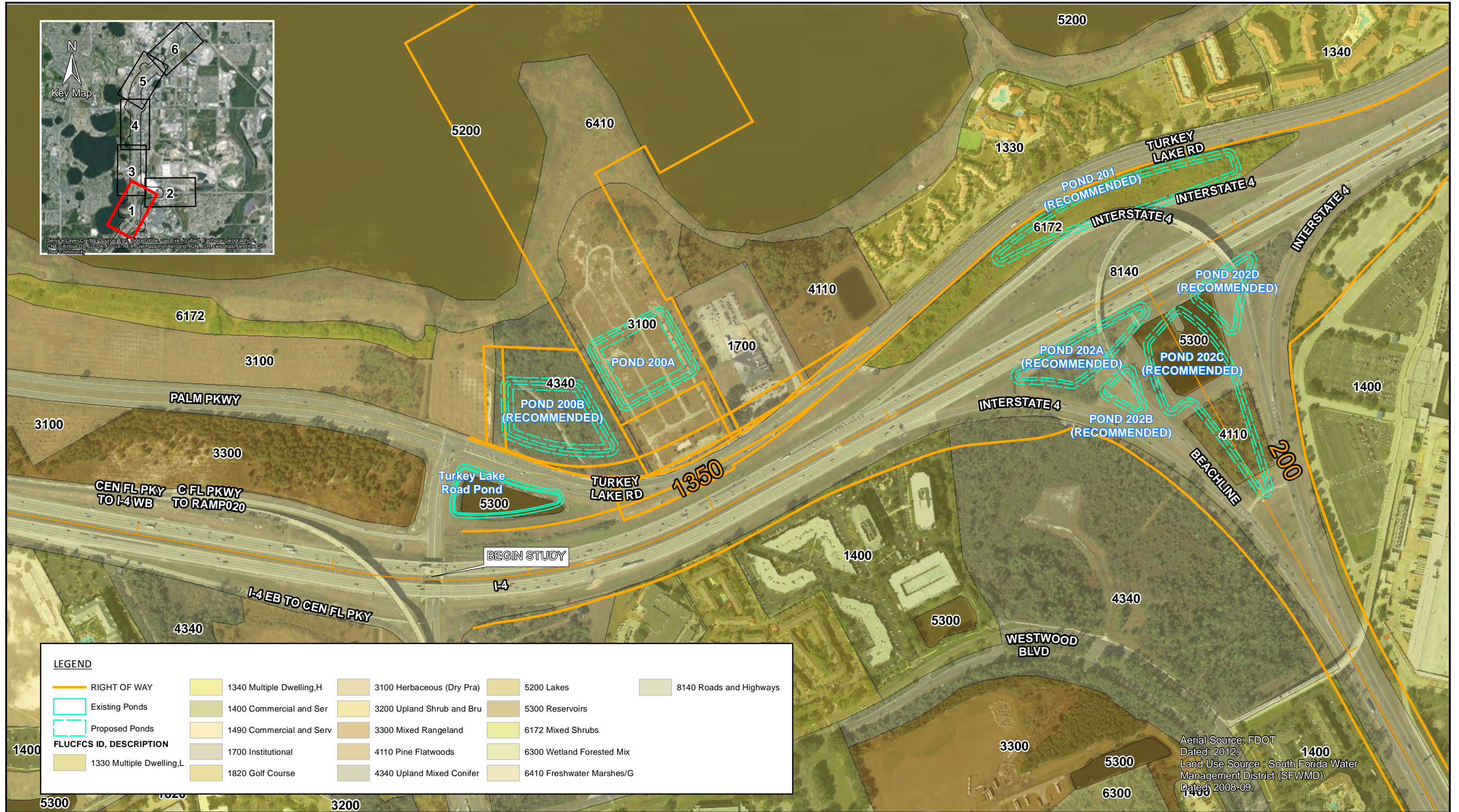
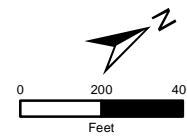


Exhibit 3.6

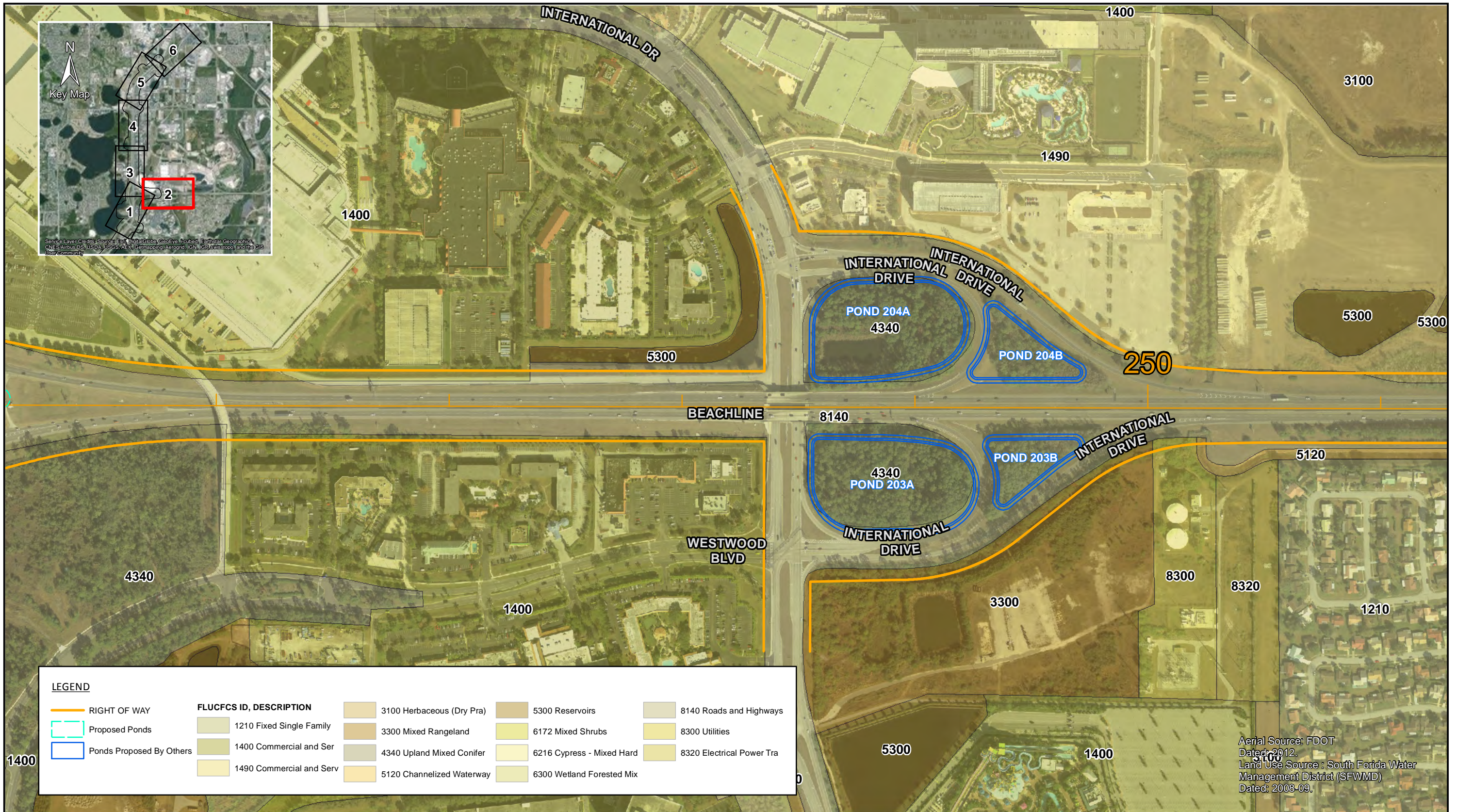
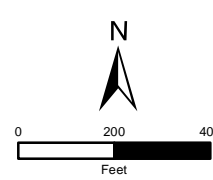
EXHIBIT 4
FLUCFCS MAP



LEGEND					
	RIGHT OF WAY		1340 Multiple Dwelling,H		3100 Herbaceous (Dry Pra)
	Existing Ponds		1400 Commercial and Ser		3200 Upland Shrub and Bru
	Proposed Ponds		1490 Commercial and Serv		3300 Mixed Rangeland
FLUCFCS ID, DESCRIPTION			1700 Institutional		4110 Pine Flatwoods
	1330 Multiple Dwelling,L		1820 Golf Course		4340 Upland Mixed Conifer
					5200 Lakes
					5300 Reservoirs
					6172 Mixed Shrubs
					6300 Wetland Forested Mix
					6410 Freshwater Marshes/G
					8140 Roads and Highways

Aerial Source: FDOT
 Dated: 2012.
 Land Use Source: South Florida Water Management District (SFWMD)
 Dated: 2008-09.

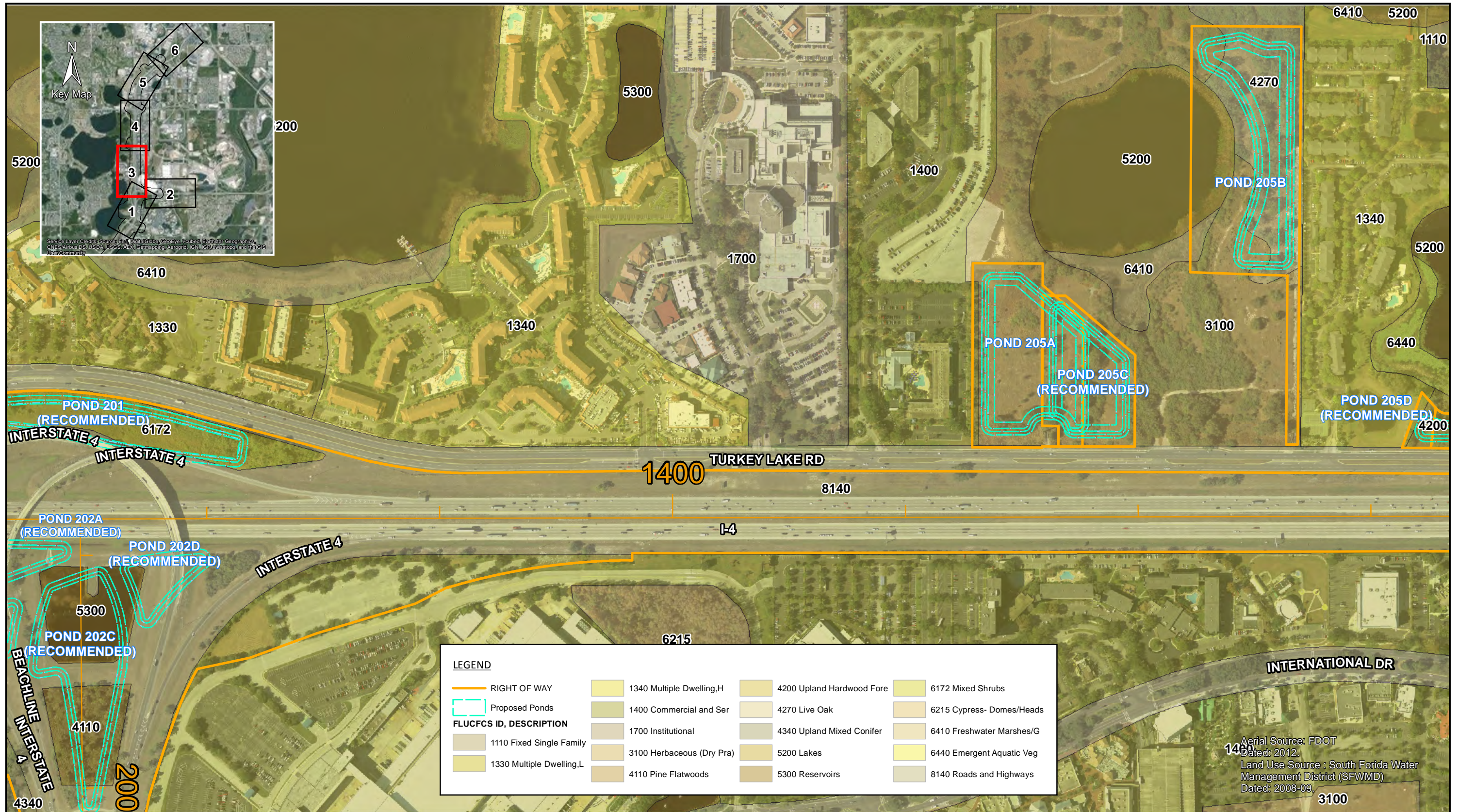
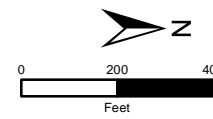
Exhibit 4.1



LEGEND	
	RIGHT OF WAY
	Proposed Ponds
	Ponds Proposed By Others
FLUCFCS ID, DESCRIPTION	
	1210 Fixed Single Family
	1400 Commercial and Ser
	1490 Commercial and Serv
	3100 Herbaceous (Dry Pra)
	3300 Mixed Rangeland
	4340 Upland Mixed Conifer
	5120 Channelized Waterway
	5300 Reservoirs
	6172 Mixed Shrubs
	6216 Cypress - Mixed Hard
	6300 Wetland Forested Mix
	8140 Roads and Highways
	8300 Utilities
	8320 Electrical Power Tra

Aerial Source: FDOT
 Dated: 2012.
 Land Use Source: South Florida Water
 Management District (SFWMD)
 Dated: 2008-09.

Exhibit 4.2



LEGEND			
	RIGHT OF WAY		1340 Multiple Dwelling,H
	Proposed Ponds		1400 Commercial and Ser
FLUCFCS ID, DESCRIPTION			1700 Institutional
	1110 Fixed Single Family		4270 Live Oak
	1330 Multiple Dwelling,L		4340 Upland Mixed Conifer
	4110 Pine Flatwoods		5200 Lakes
	4200 Upland Hardwood Fore		5300 Reservoirs
	6172 Mixed Shrubs		6215 Cypress- Domes/Heads
	6215 Cypress- Domes/Heads		6410 Freshwater Marshes/G
	6440 Emergent Aquatic Veg		8140 Roads and Highways

Aerial Source: FDOT
 Dated: 2012.
 Land Use Source : South Florida Water
 Management District (SFWMD)
 Dated: 2008-09.

Exhibit 4.3

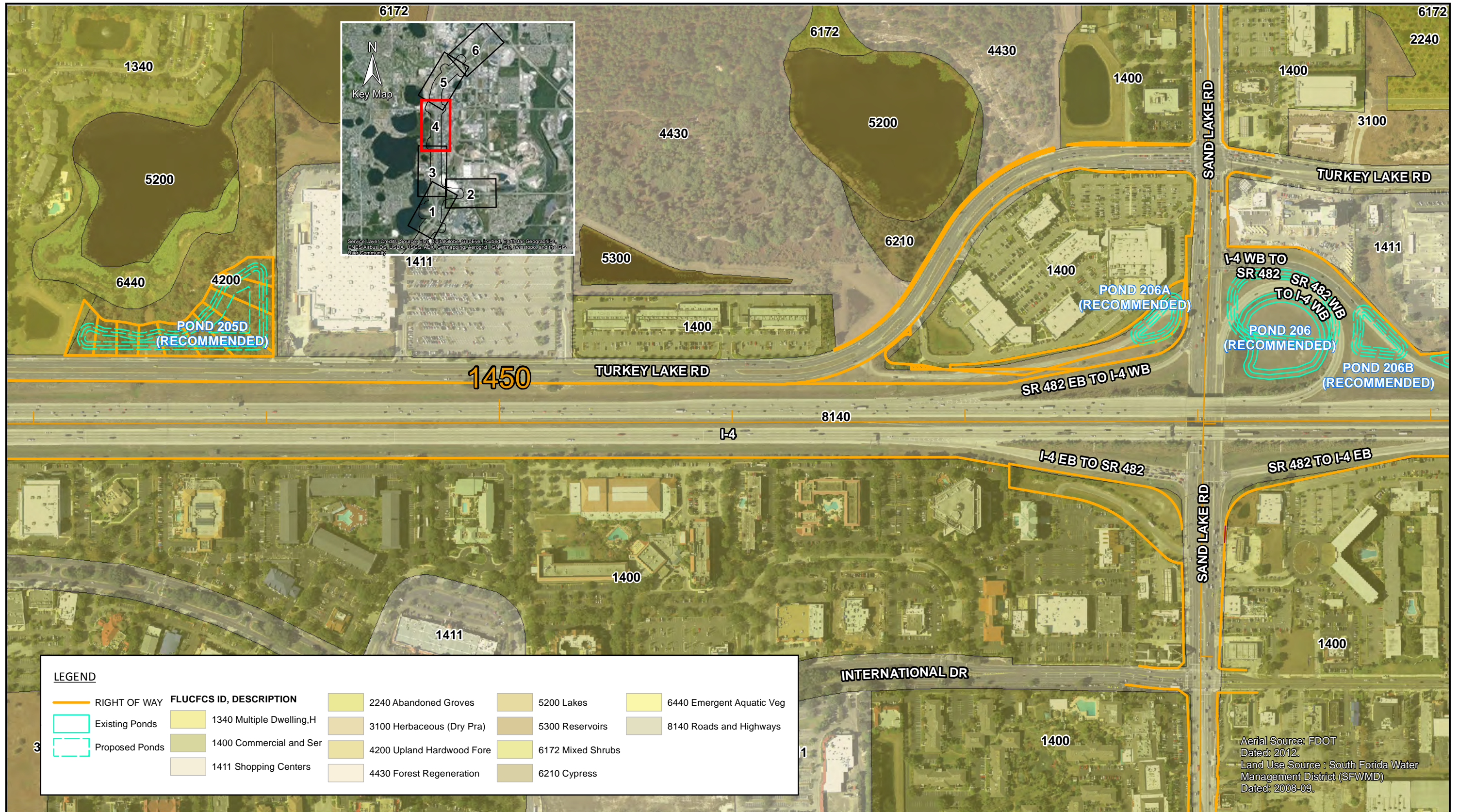
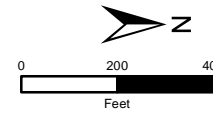
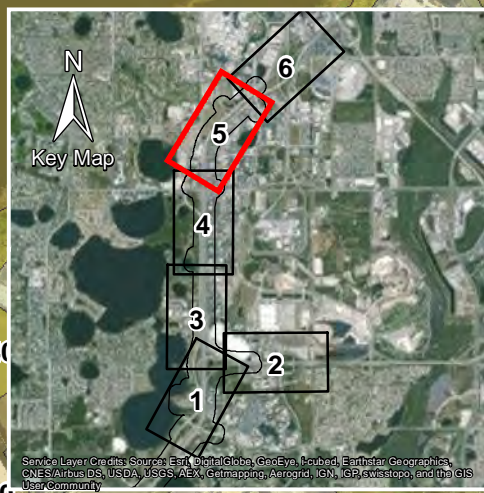
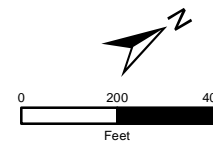


Exhibit 4.4



LEGEND			
	RIGHT OF WAY		1330 Multiple Dwelling,L
	Existing Ponds		1490 Commercial and Serv
	Proposed Ponds		2240 Abandoned Groves
FLUCFCS ID, DESCRIPTION			3100 Herbaceous (Dry Pra)
	1310 Fixed Single Family		5200 Lakes
	1390 High Density Under		5300 Reservoirs
	1400 Commercial and Ser		6172 Mixed Shrubs
	1411 Shopping Centers		8140 Roads and Highways

Aerial Source: FDOT
 Dated: 2012.
 Land Use Source: South Florida Water Management District (SFWMD)
 Dated: 2008-09.

Exhibit 4.5

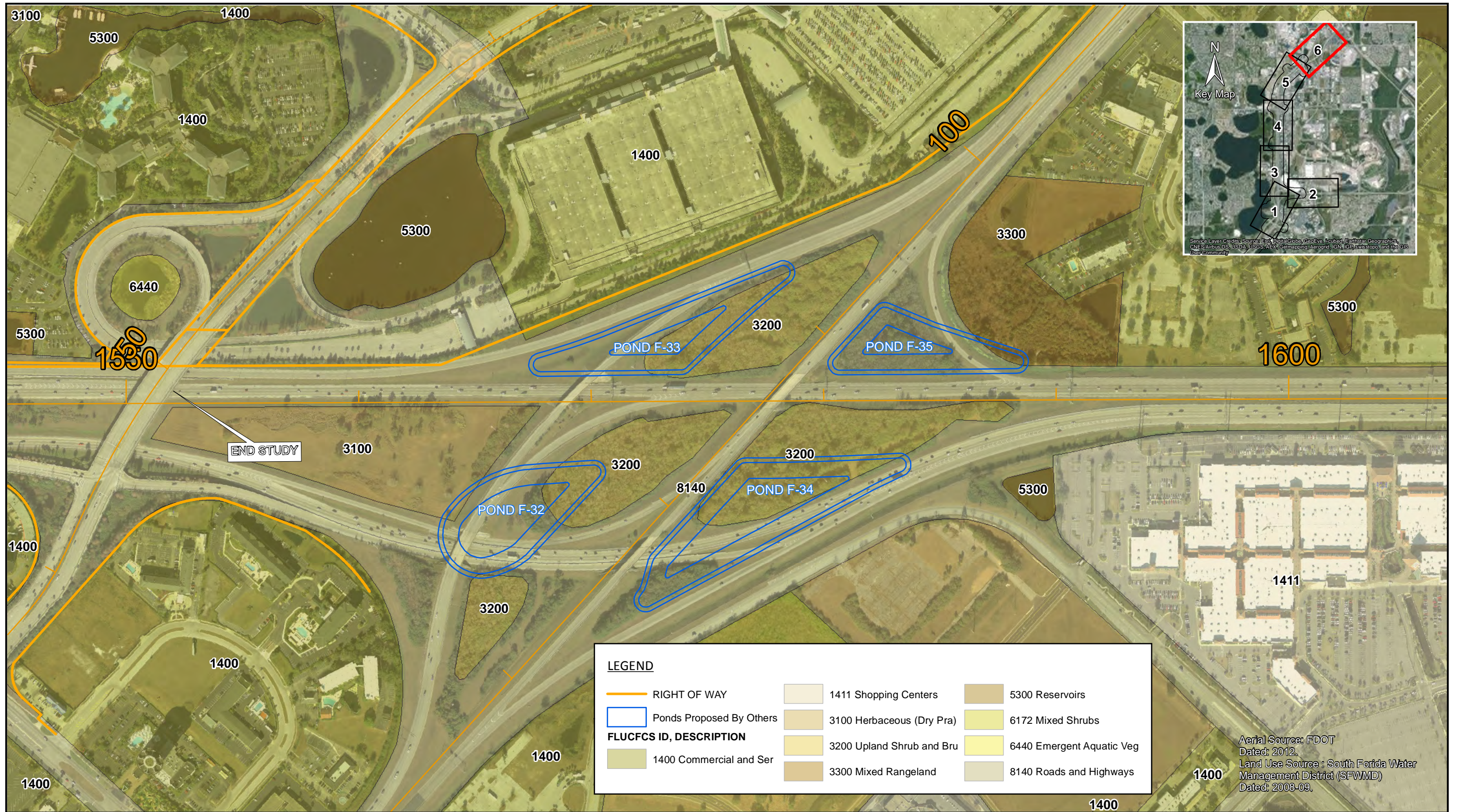
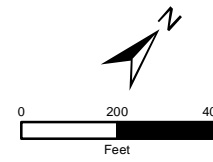


Exhibit 4.6

EXHIBIT 5
SURFACE WATER AND WETLAND MAP

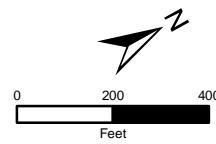


Exhibit 5.1

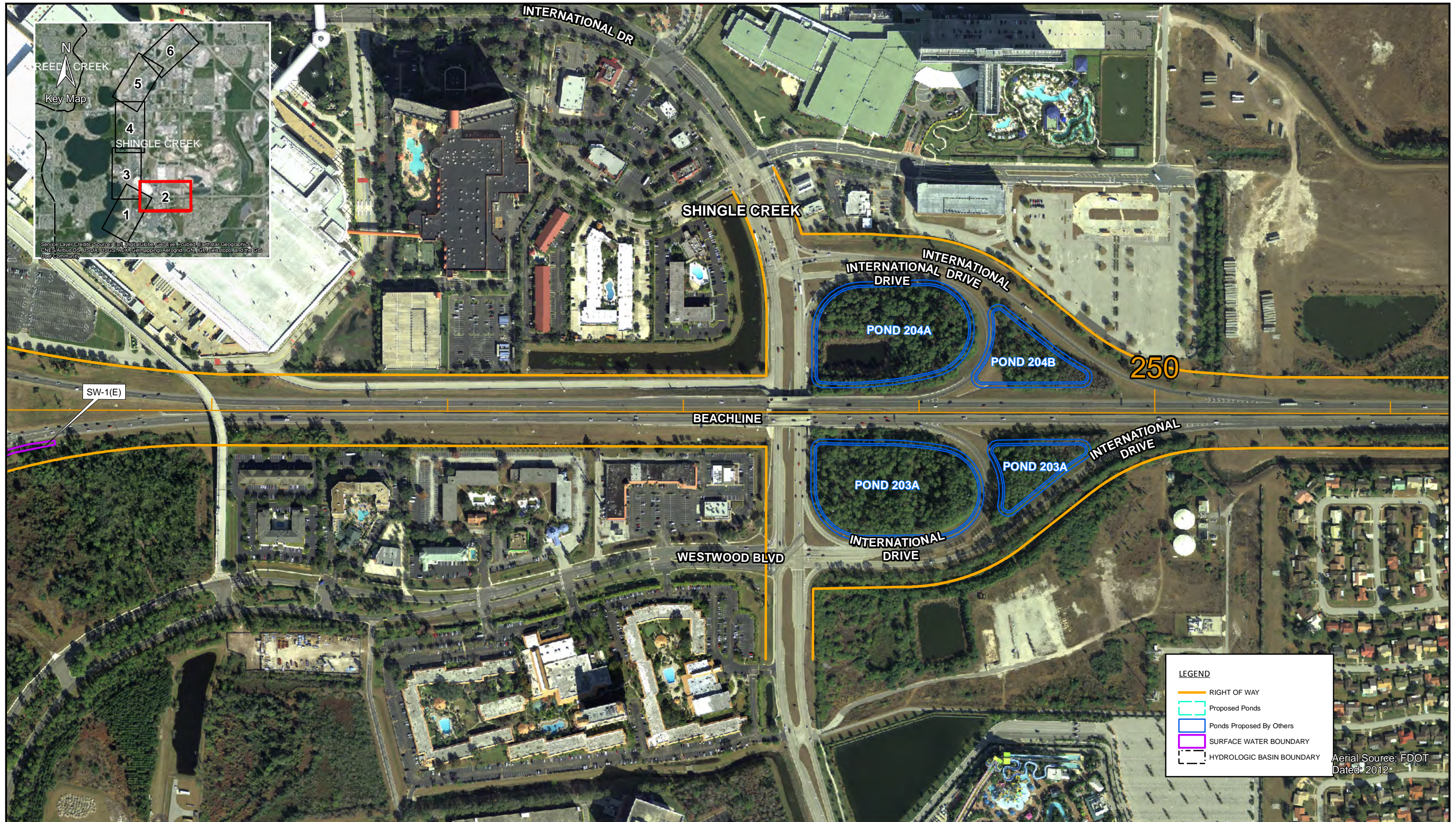
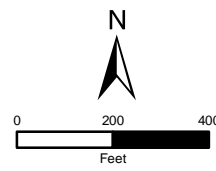


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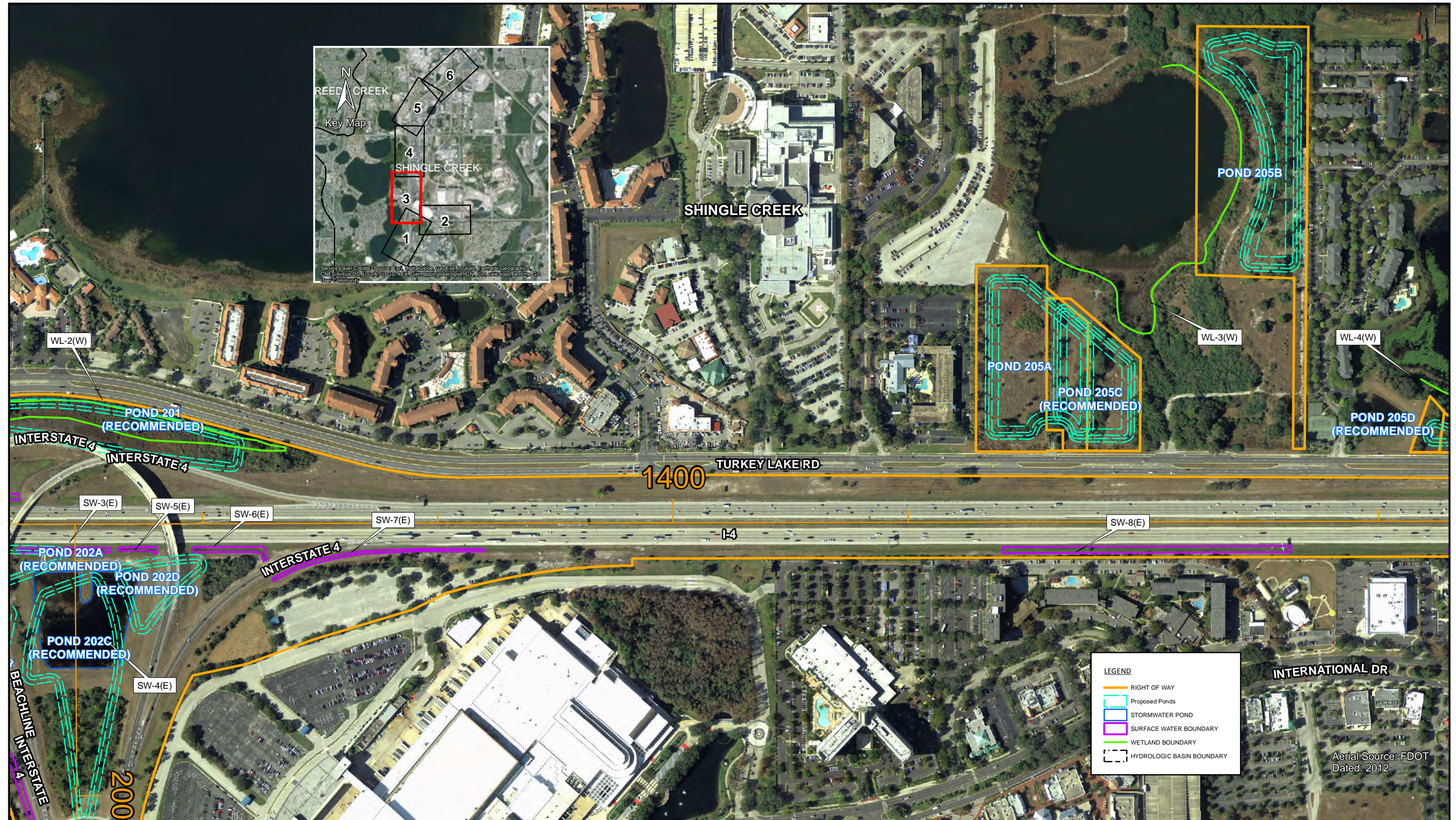
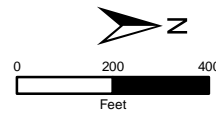
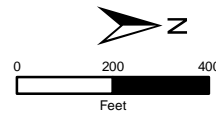
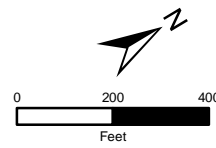


Exhibit 5.3



Aerial Source: FDOT
Dated: 2012

Exhibit 5.4



Aerial Source: FDOT
Dated: 2012

Exhibit 5.5

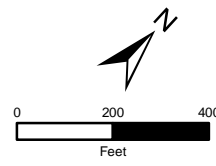


Exhibit 5.6

EXHIBIT 6
SURFACE WATER AND WETLAND
IMPACT MAP

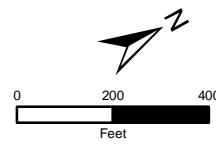


Exhibit 6.1

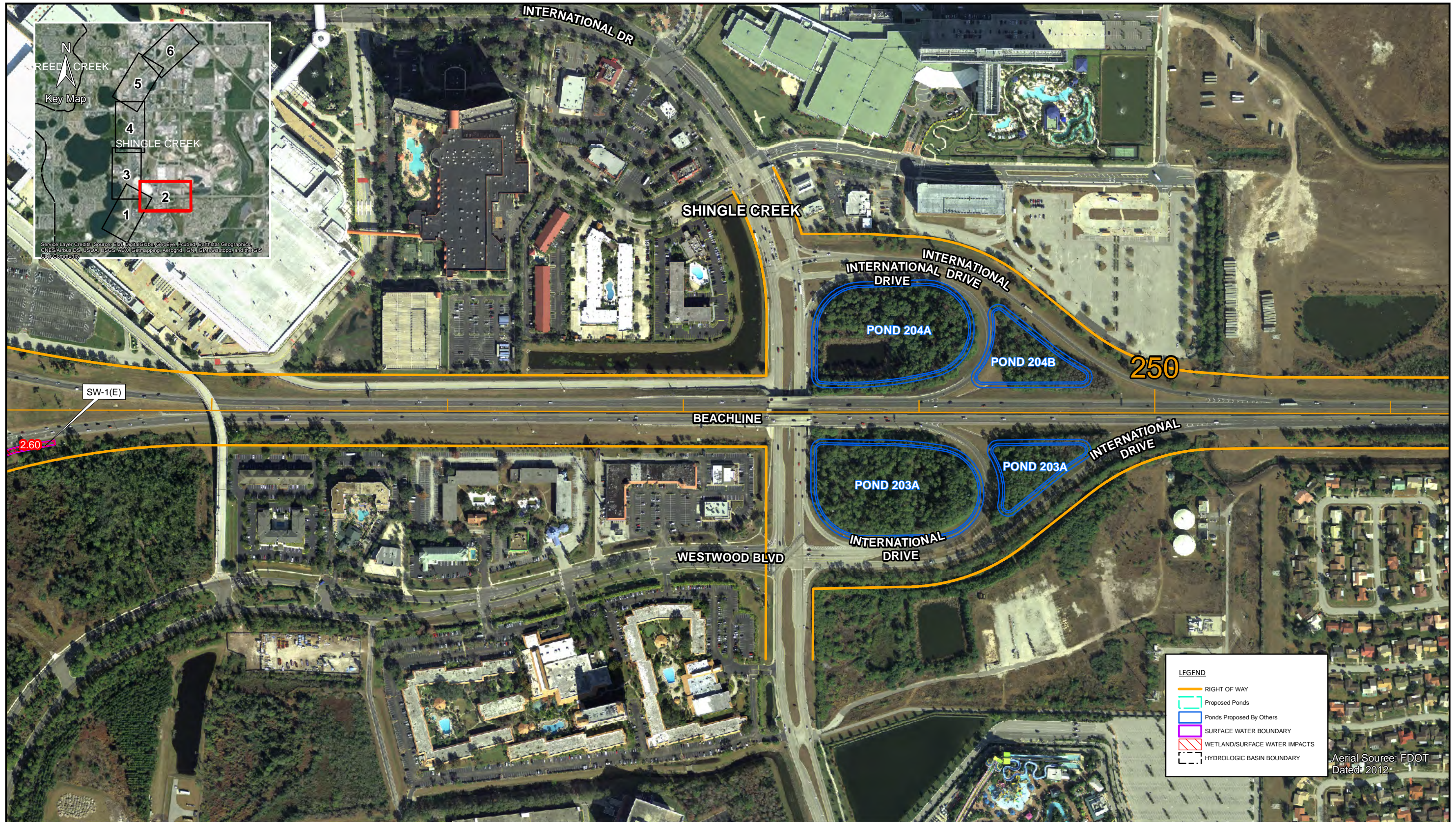
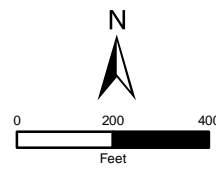


Exhibit 6.2

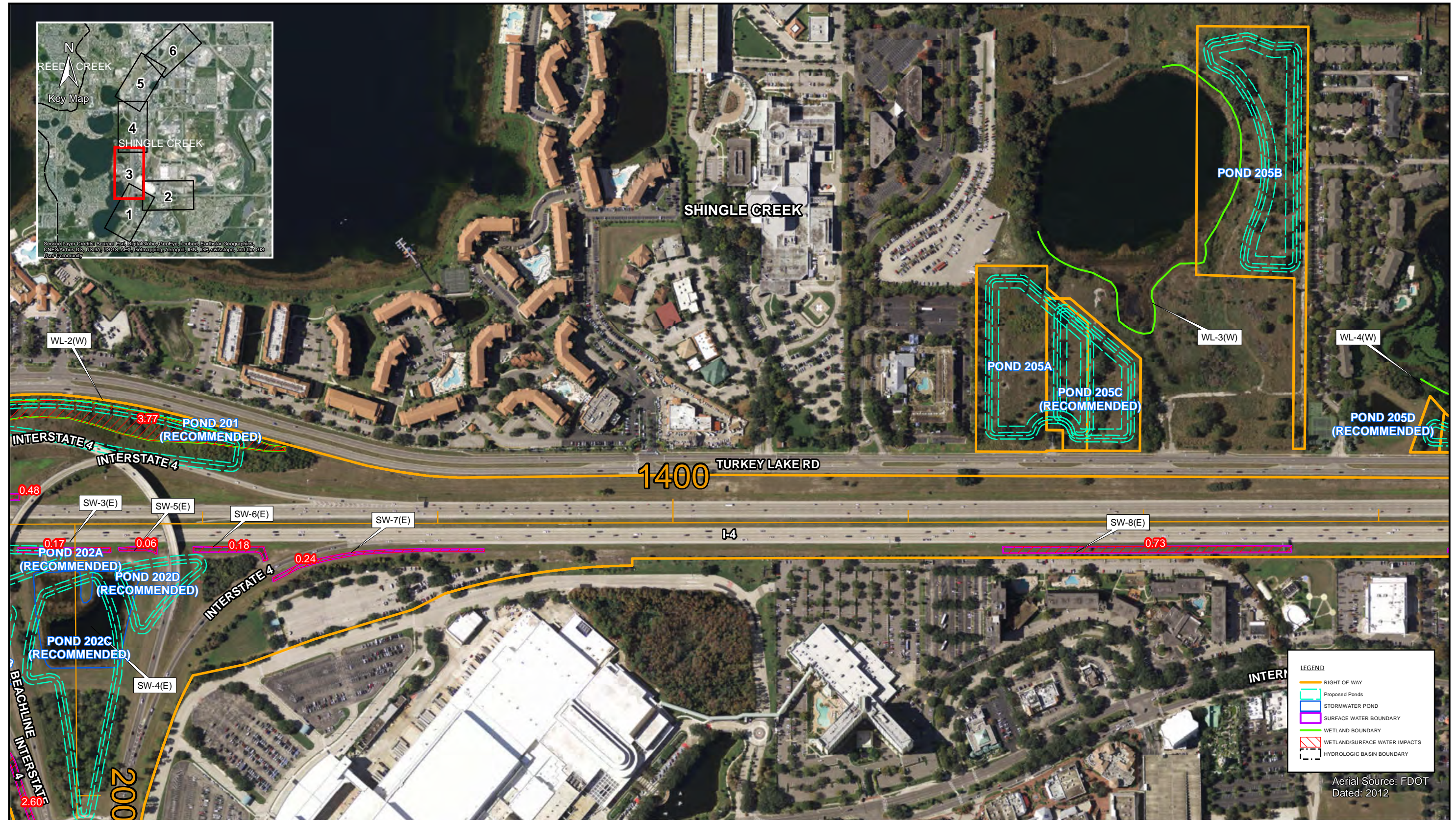
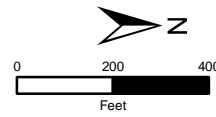
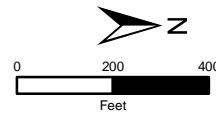


Exhibit 6.3



Aerial Source: FDOT
Dated: 2012

Exhibit 6.4

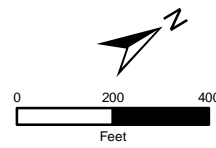


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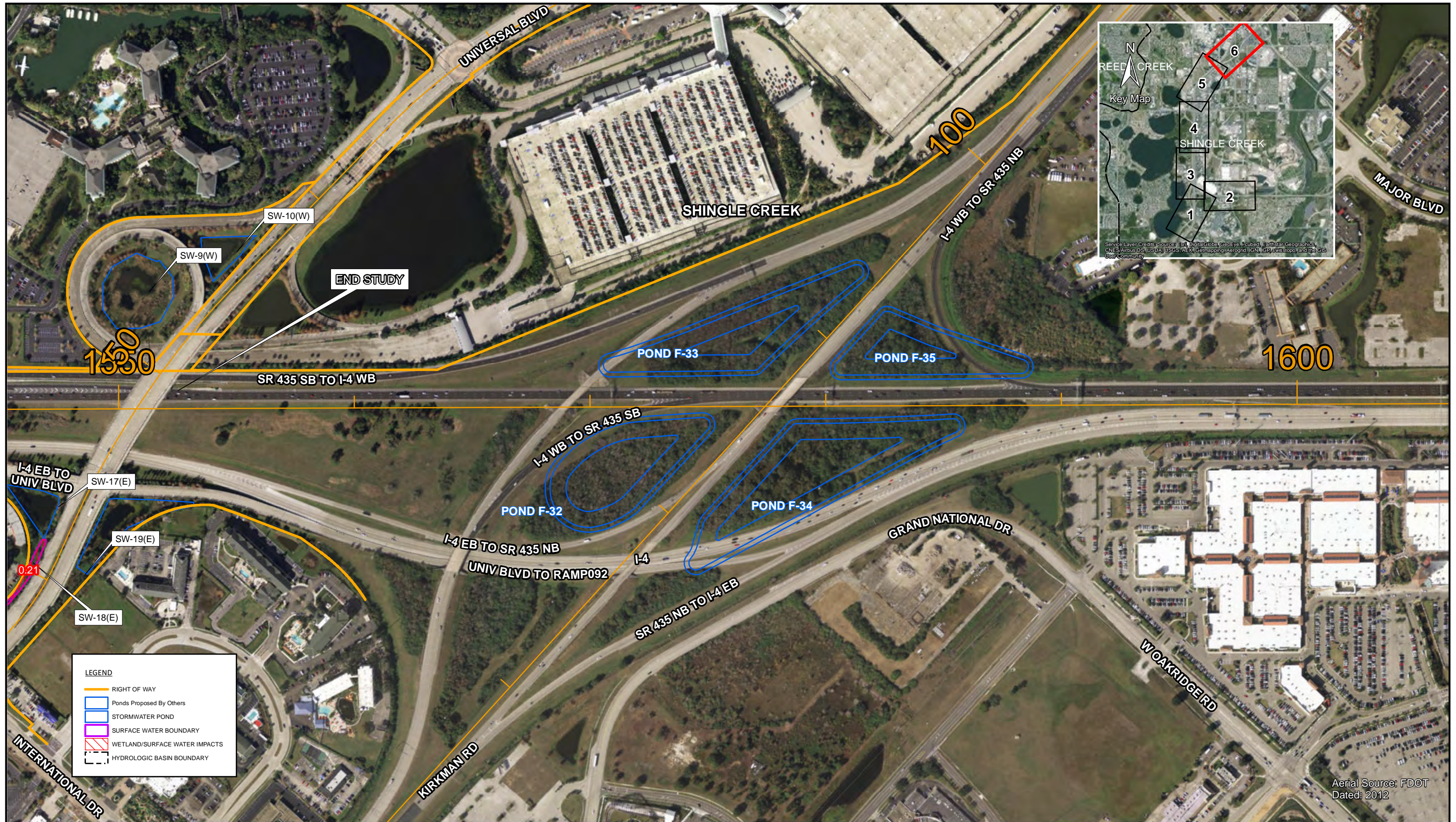
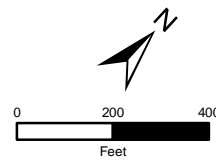


Exhibit 6.6

APPENDIX B
SITE PHOTOGRAPHS

Photographic Log

Client Name:

FDOT- District 5

Project Name:

I-4 west of SR 528 to west of Kirkman Road

Project Location:

Orange County

3E Project No.:

1386-001

Photo:

1

Date:

4/18/2013

Description:
SW-4(E)
Stormwater Pond in
the center of the I-4
and SR 528
interchange looking
northwest.

**Photo:**

2

Date:

4/23/2013

Description:
WL-2(W)
Wetland located west
of I-4, east of Turkey
Lake Road looking
northeast.



Photographic Log

Client Name: FDOT- District 5	Project Name: I-4 west of SR 528 to west of Kirkman Road	Project Location: Orange County	3E Project No.: 1386-001
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Photo: 3	Date: 4/23/2013
Description: WL-2(W) Wetland located west of I-4, east of Turkey Lake Road looking northeast.	



Photo: 4	Date: 5/8/2013
Description: SW-8(E) Surface water ditch located east of I-4 and north of SR 528 looking southwest.	



Photographic Log

Client Name: FDOT- District 5	Project Name: I-4 west of SR 528 to west of Kirkman Road	Project Location: Orange County	3E Project No.: 1386-001
---	--	---	------------------------------------

Photo: 5 Date: 5/8/2013

Description:
SW-8(E)
Typical surface water ditch located east of I-4 and north of SR 528 looking north.



Photo: 6 Date: 4/18/2013

Description:
SW-17(E)
Surface water ditch located on the northeast corner of I-4 and Sand Lake Road looking northwest.



Photographic Log

Client Name: FDOT- District 5	Project Name: I-4 west of SR 528 to west of Kirkman Road	Project Location: Orange County	3E Project No.: 1386-001
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Photo: 7	Date: 4/18/2013
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Description:
SW-7(W)
Stormwater pond located on the west side of Turkey Lake Road, approximately ¼-mile north of Sand Lake Road looking northeast.



Photo: 8	Date: 4/18/2013
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Description:
SW-5(W)
Ditch located on the northeast corner of I-4 and Sand Lake Road ramp, looking southeast.

