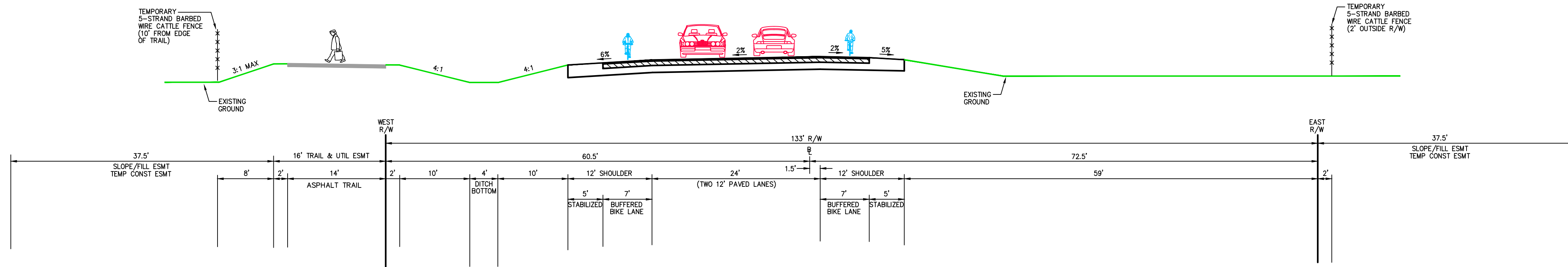
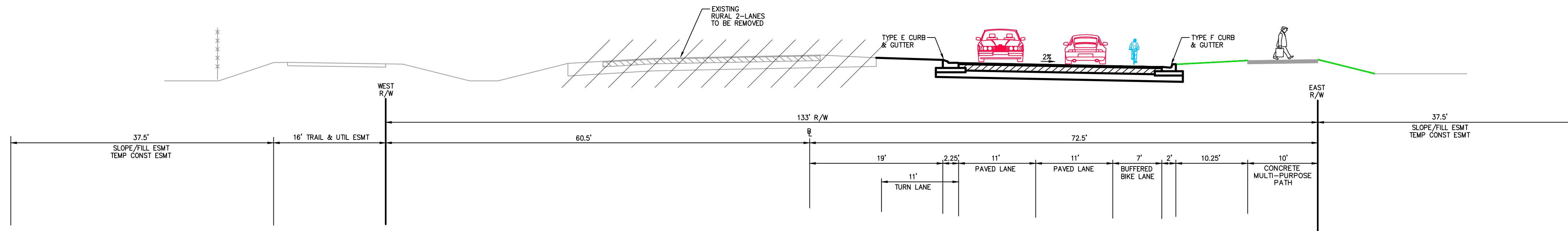


# Appendix P

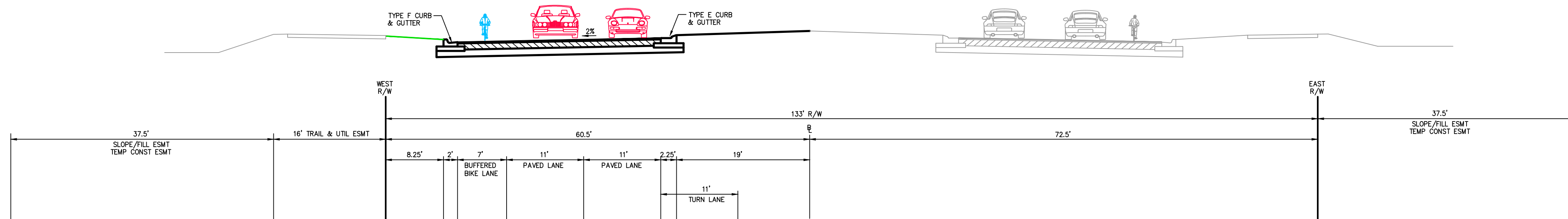
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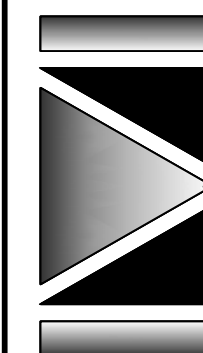
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DESIGN SPEED 45 MPH  
STA 773+66.47 TO 900+00.00  
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STA. 447+56.95 TO 461+50.00



133' R/W PHASE 2 INTERIM TWO-LANE URBAN CONVERSION  
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STA. 447+56.95 TO 461+50.00



133' R/W ULTIMATE FOUR-LANE URBAN EXPANSION  
DESIGN SPEED 45 MPH  
STA 773+66.47 TO 900+00.00  
STATION EQUATION  $900+00.00 = 447+56.95$   
STA. 447+56.95 TO 461+50.00



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DRAWN BY: CC  
CHECKED BY: JW

JOB NO.  
15152

SCALE  
NTS

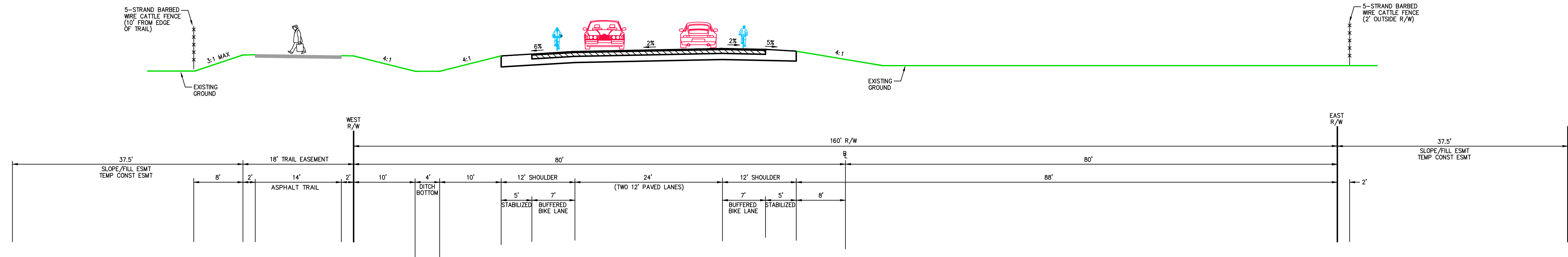
SHEET 1  
OF 1

DATE  
09/15/2017

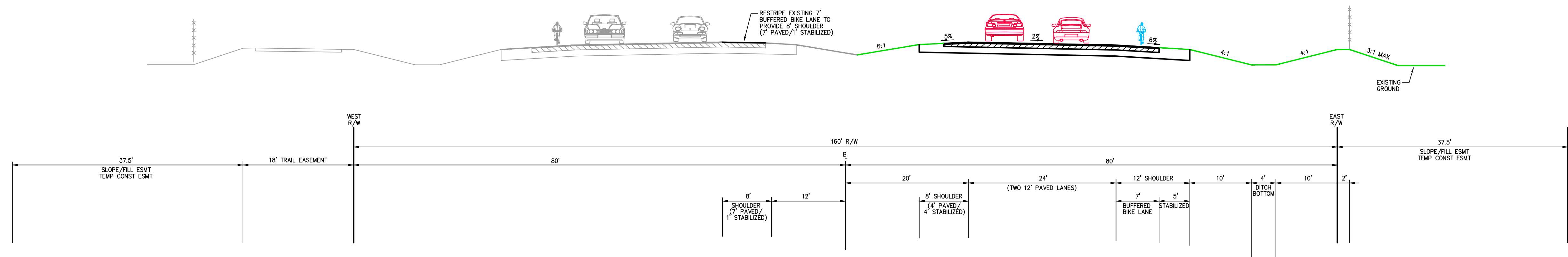
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REVISIONS

SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA  
CROSS SECTIONS—URBAN



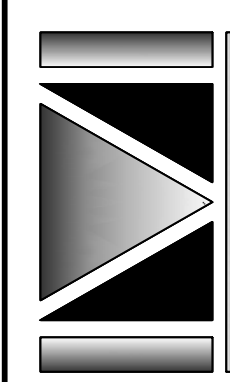


160' R/W PHASE 1 INITIAL TWO-LANE RURAL  
DESIGN SPEED 60 MPH  
STA 578+95.27 TO 773+66.47



160' R/W ULTIMATE FOUR-LANE RURAL EXPANSION  
DESIGN SPEED 60 MPH  
STA 578+95.27 TO 773+66.47

SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA  
CROSS SECTIONS—RURAL



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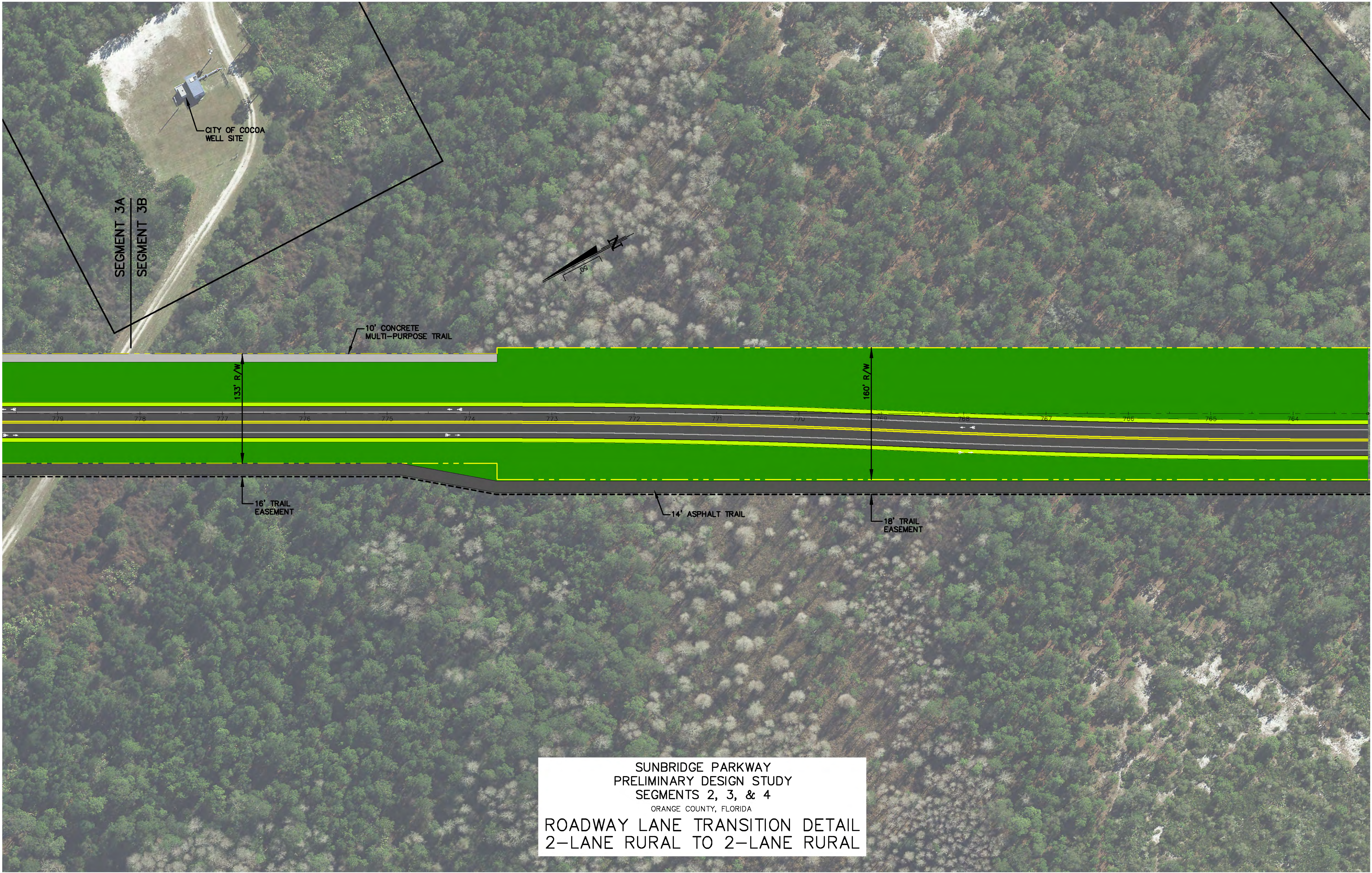
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CHECKED BY: JW				

DATE	BY	DESCRIPTION
		REVISIONS

# Appendix Q

## Roadway Lane Transition Details



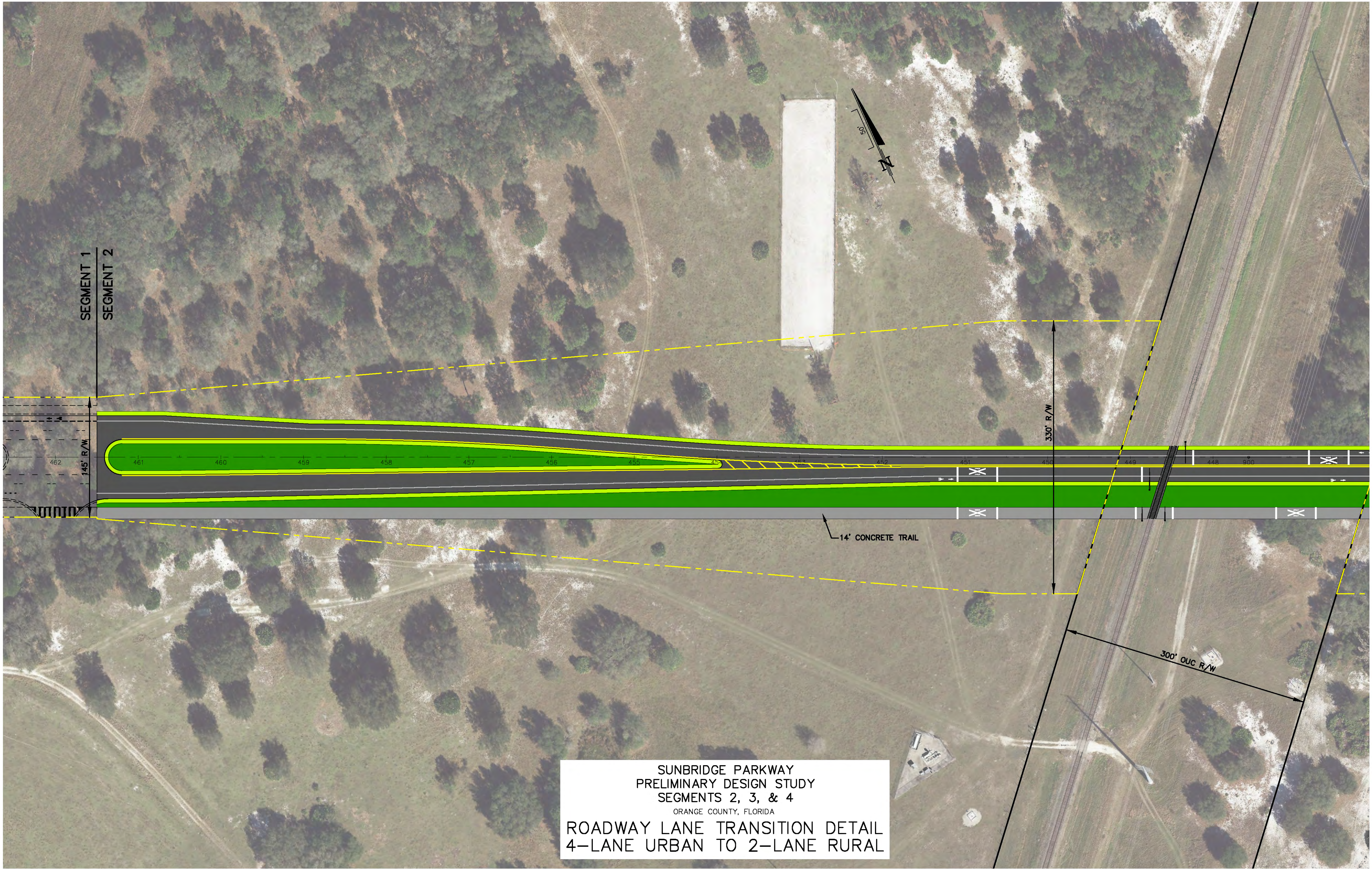


SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4

ORANGE COUNTY, FLORIDA

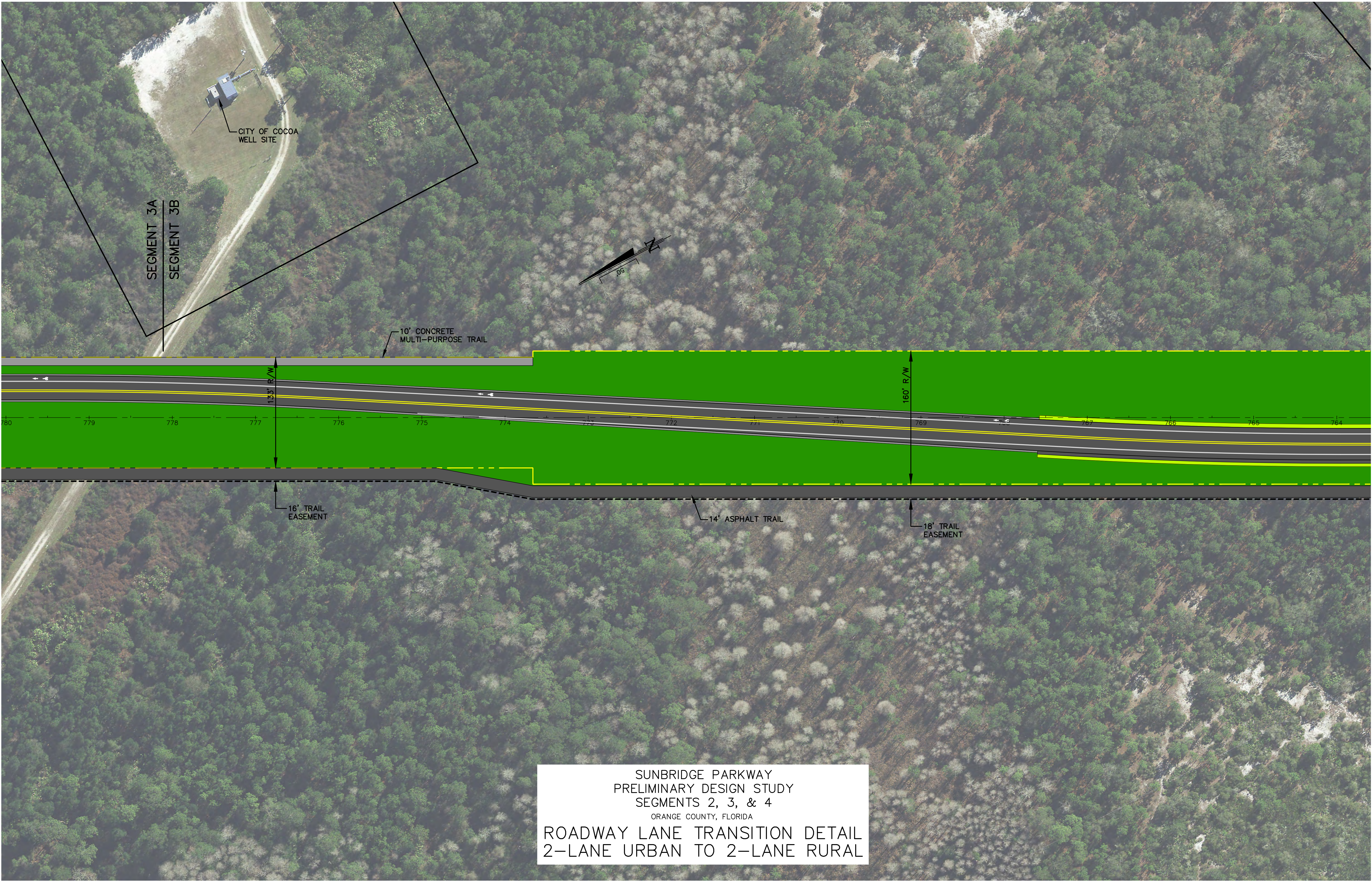
ROADWAY LANE TRANSITION DETAIL  
2-LANE RURAL TO 2-LANE RURAL





SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA  
ROADWAY LANE TRANSITION DETAIL  
4-LANE URBAN TO 2-LANE RURAL





SEGMENT 3A  
SEGMENT 3B

CITY OF COCOA  
WELL SITE

10' CONCRETE  
MULTI-PURPOSE TRAIL

16' TRAIL  
EASEMENT

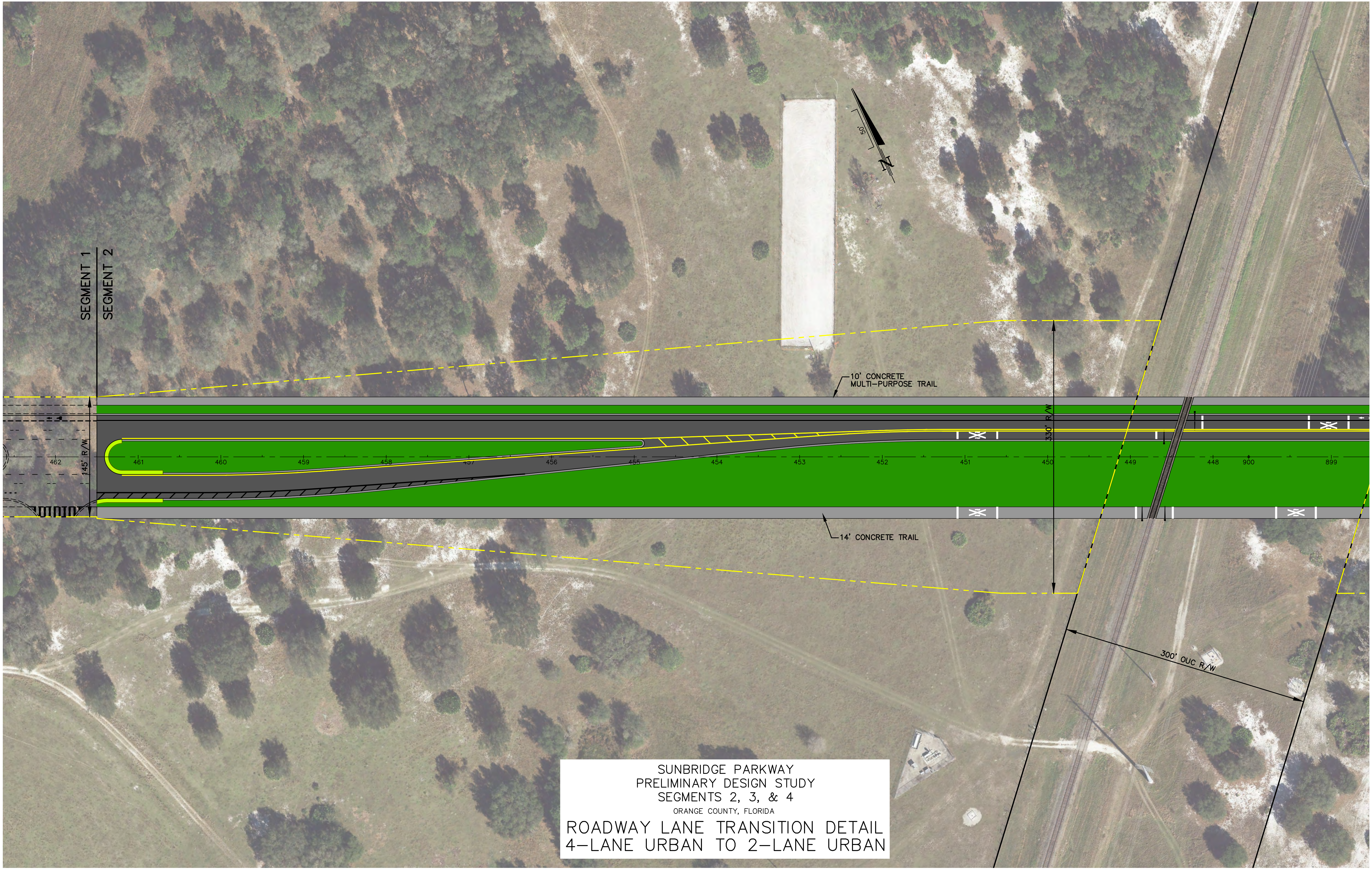
14' ASPHALT TRAIL

18' TRAIL  
EASEMENT

SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA

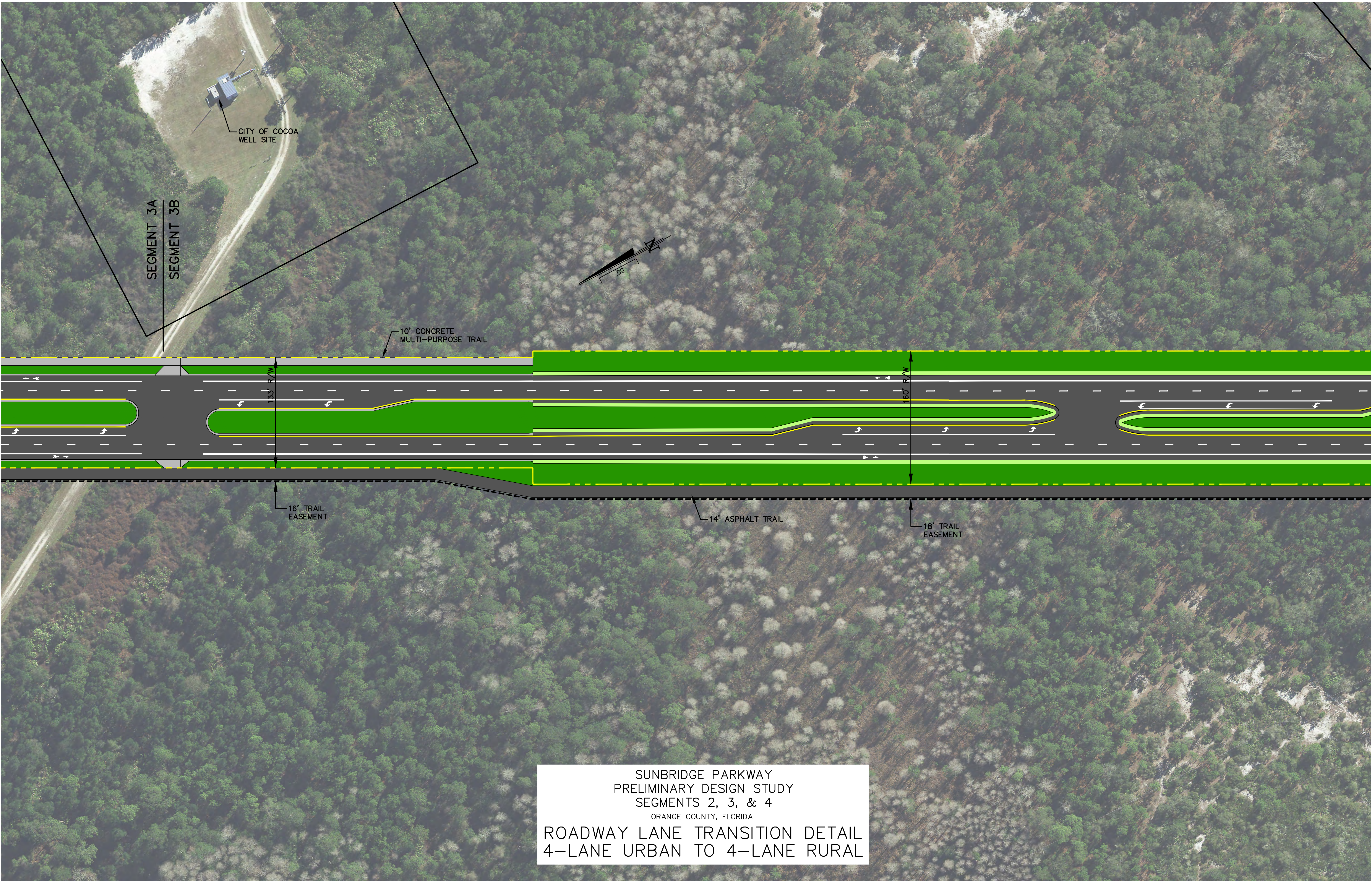
ROADWAY LANE TRANSITION DETAIL  
2-LANE URBAN TO 2-LANE RURAL





SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA  
ROADWAY LANE TRANSITION DETAIL  
4-LANE URBAN TO 2-LANE URBAN





SEGMENT 3A  
SEGMENT 3B

CITY OF COCOA  
WELL SITE

10' CONCRETE  
MULTI-PURPOSE TRAIL

16' TRAIL  
EASEMENT

14' ASPHALT TRAIL

18' TRAIL  
EASEMENT

SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA

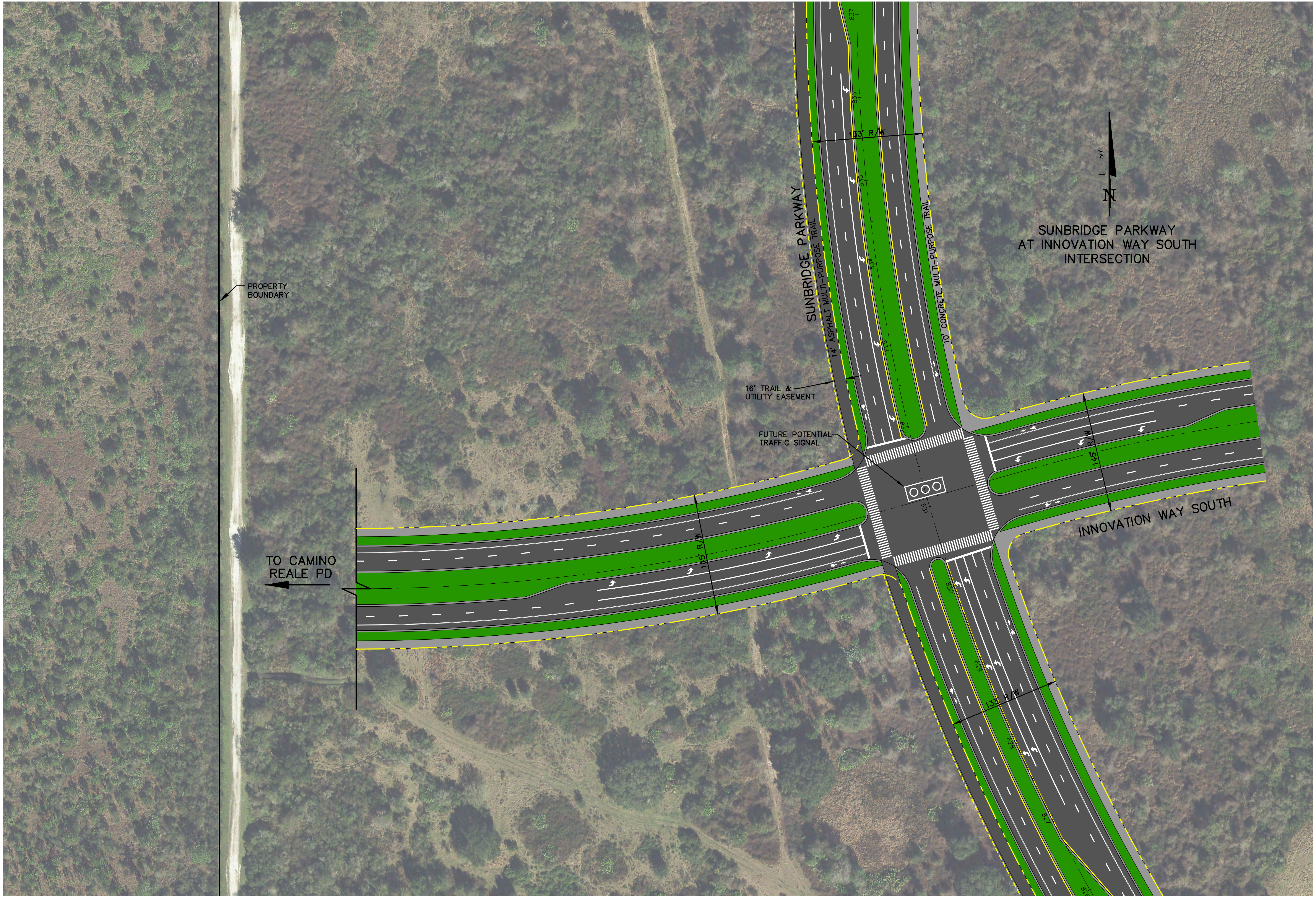
ROADWAY LANE TRANSITION DETAIL  
4-LANE URBAN TO 4-LANE RURAL



## Appendix R

### Innovation Way South Intersection Detail





PROPERTY  
BOUNDARY

TO CAMINO  
REALE PD

SUNBRIDGE PARKWAY

14' ASPHALT MULTI-PURPOSE TRAIL

16' TRAIL &  
UTILITY EASEMENT

FUTURE POTENTIAL  
TRAFFIC SIGNAL

10' CONCRETE MULTI-PURPOSE TRAIL

SUNBRIDGE PARKWAY  
AT INNOVATION WAY SOUTH  
INTERSECTION

50'

N

INNOVATION WAY SOUTH

133' R/W

145' R/W

145' R/W

133' R/W



# Appendix S

## Opinion Of Probable Cost

**Preliminary Design Study Estimate of Probable Construction Costs**  
**Sunbridge Parkway**  
**Aerospace Parkway/Dowden Road to Orange/Osceola County Line**  
**4-Lane Ultimate Configuration**

	<b>Total Cost</b>
Construction Cost	\$ 34,871,000.00
Signalization Cost	\$ 2,555,000.00
Right-of-Way Cost	\$ 3,362,000.00
Cost to Cure	\$ 543,000.00
Contingency (20%)	\$ 7,593,760.00
Total Project Cost	\$ 48,924,760.00

Notes:

- 1) Signalization Cost includes intersection signalization and railroad crossing signalization.
- 2) Cost to cure includes 5-strand barbed wire fence, driveway realignments and driveway culverts
- 3) Total Project Cost does not include cost of mitigation.
- 4) Costs assume construction as a single construction project.
- 5) Contingency is not applied to right-of-way costs.
- 6) Any opinion of the construction cost prepared by DWMA represents its judgment as a design professional and is supplied for the general guidance of the client since DWMA has no control over the cost of labor and material or over competitive bidding or market conditions. DWMA does not guarantee the accuracy of such opinions as compared to contractor bids or actual cost to the client.

Appendix T

Environmental Analysis

by Breedlove, Dennis & Associates, Inc.



**SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
ENVIRONMENTAL ANALYSIS**

November 2, 2017

Prepared by:

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## 1.0 EXECUTIVE SUMMARY

The recommended alignment subject to the Sunbridge Parkway (Parkway) Preliminary Design Study (PDS) analysis includes approximately 185 acres located in Orange County, Florida. A location map depicting the Parkway alignment boundary has been included as Exhibit 1. The recommended alignment, as adjusted from our initial report, does not result in any significant changes to the information included in the previous report. An updated Florida Land Use, Cover and Forms Classification System (FLUCFCS) map and table are included as Exhibit 2 and Exhibit 3, respectively.

Listed species with the potential to occur on-site remain unchanged and include the American alligator (*Alligator mississippiensis*), eastern indigo snake (*Drymarchon couperi*), Florida pine snake (*Pituophis melanoleucus mugitus*), southeastern American kestrel (*Falco sparverius paulus*), Florida burrowing owl (*Athene cunicularia*), Florida sandhill crane (*Grus canadensis pratensis*), wood stork (*Mycteria americana*), and other listed wading birds. Gopher tortoise (*Gopherus polyphemus*) and Sherman's fox squirrel (*Sciurus niger shermani*) were the only listed species observed within the alignment. Species specific and seasonal surveys will be required for Florida sandhill crane, Sherman's fox squirrel, and gopher tortoise prior to construction. Further coordination with the Florida Fish and Wildlife Conservation Commission (FWC) and the U.S. Fish and Wildlife Service (USFWS) will be necessary as part of the permitting process for the Parkway.

The Parkway and associated surface water management system (SWMS) will result in direct impact to approximately 40.34 acres of wetlands and 5.27 acres of surface waters, as well as 5.67 acres of upland Riparian Habitat Protection Zone (RHPZ) impact. Two mitigation options are proposed to address the

functional loss associated with the potential project impacts not previously permitted. These options can be used individually or in combination.

1. Purchase of mitigation banking credits at TM Econ Mitigation Bank: \$2.4 million estimated cost.
2. Preservation and vegetative enhancement of Robert's Island Slough: \$1.04 million estimated cost, plus land costs, if applicable.

Both options provide sufficient long-term environmental benefit to offset the expected environmental impacts associated with construction of the Parkway.

The approved ICP mitigation attributable to Parkway impacts expected to occur within ICP includes the preservation and enhancement of approximately 41 acres of wetlands at a cost of approximately \$84,000 over five years, plus land costs, if applicable.

Based on our review of existing databases, recent site inspections, and location of the proposed Parkway alignment associated and identified with this study area, no wetland or listed species constraints have been identified that would not be anticipated to be approved in the normal course of agency review and permitting.

## **2.0 WETLAND PERMITTING AND MITIGATION**

### **2.1 Introduction**

The Parkway is a planned regional roadway project located primarily in Orange County. The Parkway will ultimately provide a north-south connection between State Road 528 and the planned Osceola Parkway extension consistent with the Comprehensive Plans of both counties. Wetland and surface water impacts are proposed in order to construct the Parkway and associated SWMS.

The Parkway is located within the Innovation Way Overlay of the Orange County Comprehensive Plan. Extensive planning efforts, including consideration of the goals, policies, and objectives of the Innovation Way Overlay and the associated Environmental Land Stewardship Program (ELSP) Ordinance, were undertaken to identify and direct the siting of the Parkway alignment in order to minimize its impact to sensitive environmental areas. The Parkway alignment spans three areas within Orange County subject to the Innovation Way Overlay and ELSP: International Corporate Park (ICP), Innovation Way East (IWE), and Camino Reale South (CRS). The northernmost extent of the alignment from the north terminus to Weewahootee Road is located within the ICP. The portion of the alignment located south of Weewahootee Road and north of Disston Canal is located within the IWE. The southernmost portion of the subject alignment from Disston Canal south to the Orange-Osceola county line is located within the CRS.

### **2.2 Permitting**

The Parkway and associated SWMS will result in direct impacts to approximately 40.34 acres of wetlands and 5.27 acres of surface waters, as well as 5.67 acres of upland RHPZ impacts as currently estimated. Impacts along the proposed alignment were determined in accordance to Sections 10.2 through 10.3.8 of Florida Department of Environmental Protection (FDEP) Environmental Resource Permit (ERP)

Applicant's Handbook (A.H.) Volume I (Exhibit 4). Impacts and mitigation within ICP were previously assessed as part of the overall development of the ICP project as part of previous permitting efforts. A total of 9.87 acres of wetland impacts are expected to occur within ICP. The remaining portion of the proposed alignment will result in direct impact to approximately 30.47 acres of wetlands, 5.27 acres of surface waters, and 5.67 acres of upland RHPZ impacts. Secondary impacts pursuant to Section 10.2.7 of FDEP A.H. Volume I are expected within approximately 11.59 acres of adjacent wetlands and 2.03 acres of RHPZ uplands as a result of the proposed Parkway.

Impacts are proposed to low or moderate quality forested and herbaceous wetlands located within Hydrologic Unit Code (HUC) Basins 03080101 (Upper St. Johns) and 03090101 (Kissimmee); upland RHPZ impacts are proposed primarily to areas currently or formerly subject to agricultural land uses. A Uniform Mitigation Assessment Method (UMAM) analysis as outlined in Chapter 62.345, Florida Administrative Code (F.A.C.), was conducted on the proposed impacts to determine the expected functional loss. Based on the UMAM analysis, a total functional loss of 21.36 units for the portion of the Parkway not within ICP was calculated for the Parkway impacts (direct and secondary).

## **2.3 Mitigation**

Mitigation will be required to offset wetland and RHPZ upland buffer impacts along the proposed alignment where applicable. Mitigation for upland RHPZ impacts are required within the Econlockhatchee (Econ) River Hydrologic Basin in accordance with St. Johns River Water Management District (SJRWMD) and Orange County Environmental Protection Division (OCEPD) regulations. Impacts and mitigation for the portion of the alignment within ICP has been approved as part of SJRWMD and South Florida Water Management District Conceptual ERP Nos. 4-095-20270-17 and 48-02172-P, respectively, and OCEPD Conservation Area Impact Permit No. 10-010. The approved ICP mitigation attributable to Parkway

impacts expected to occur within ICP includes the preservation and enhancement of approximately 41 acres of wetlands at a cost of approximately \$84,000 over five years, plus land costs, if applicable. Modifications to the ICP permits will be required prior to construction to accommodate the final Parkway alignment.

Mitigation for the remainder of the alignment through IWE and CRS is expected to require 21.36 UMAM units to offset the proposed direct and secondary impacts of the proposed project. This analysis presents two potential mitigation options. The first mitigation option provides mitigation through the purchase of mitigation credits at the TM Econ Mitigation Bank in Orange County. The second mitigation option provides mitigation through the off-site preservation of the Roberts Island Slough (Slough) and associated upland buffers utilizing adjacent ELSP lands. Both mitigation options provide regionally significant mitigation and are depicted in Exhibit 5.

### **Mitigation Option 1**

The first mitigation option provides regionally significant mitigation through the purchase of mitigation credits at the TM Econ Mitigation Bank located within the Econ River Basin in eastern Orange County (Exhibit 5). Mitigation banks are located to provide an ecological and hydrological connection to other conservation lands and connect wildlife corridors. The TM Econ Mitigation Bank embraces the headwaters of the Econ River and provides a critical connection between the Orange County Split Oak Conservation Area and the Hal Scott Preserve in eastern Orange County. The mitigation bank service area includes the drainage basins in which the Parkway alignment project is located. Purchased credits can offset either herbaceous or forested wetland impacts satisfying both state and federal mitigation requirements.

Based on the current alignment, approximately 21.36 UMAM credits will be required to be purchased from the TM Econ Mitigation Bank in order to offset the 21.36 UMAM units of functional loss from the proposed

project. The purchase of these credits will offset the direct and secondary wetland and upland RHPZ impacts for the proposed project. The purchase of 21.36 credits (18.61 wetland credits + 2.75 upland RHPZ credits) from the TM Econ Mitigation Bank provides regionally significant, in-basin mitigation, and sufficient mitigation for the proposed Parkway alignment project. The expected costs for the purchase of the credits from the mitigation bank is \$2.4 million.

## **Mitigation Option 2**

The second mitigation option provides regionally significant mitigation through the off-site preservation and enhancement of the Slough and associated upland buffers utilizing adjacent ELSP lands (Exhibit 5). Roberts Island Slough is located west of the alignment within the CRS parcel. The Slough and associated upland buffer are located partially within the Econ River Hydrologic Basin and wholly within the ELSP boundary. The Slough contains a mosaic of forested and herbaceous wetland communities of similar type to the impact areas, but of greater functional value. The Slough was identified as a wildlife corridor and preservation would be consistent with the ELSP. This proposed mitigation plan would provide important ecological connections by establishing a greenway corridor connecting preservation lands in perpetuity.

Mitigation activities will include preservation and enhancement of Roberts Island Slough. The total acreage of the Slough within the CRS parcel includes 577.97 acres of wetlands and 51.32 acres of uplands (Exhibit 5). Unbuffered agricultural land uses currently abut a majority of the Roberts Island Slough. This proposed mitigation plan would designate upland buffers of 50 feet in width along both the east and west sides of the Roberts Island Slough, thereby providing an additional protection to the wetlands that does not currently exist. The upland buffers will be allowed to naturally regenerate to a native pine flatwoods community to maximize wildlife habitat benefits to the adjacent wetlands and provide for a wildlife corridor along Roberts Island Slough and along the majority of the west side of the Parkway alignment. The proposed wetland

and upland mitigation areas will be subject to nuisance/exotic maintenance and management, a recorded conservation easement, and protection in perpetuity. This proposed mitigation includes regionally significant lands that provide connectivity of hydrology and habitat that meets the goals, policies, and objectives of the Orange County Comprehensive Plan and fully offsets the adverse wetland and surface water impacts within the Econ River Hydrologic Basin and associated HUC Basins.

Preservation of the entire Slough (629 acres of uplands and wetlands) is expected to generate a functional gain of 59.57 units. Preservation of only a portion of the Slough and uplands buffers (approximately 240 acres) would be sufficient to offset the functional loss associated with the Parkway. The expected costs for the preservation and enhancement of the 240 acres is estimated at \$1.04 million in maintenance, monitoring, and reporting costs over five years, plus land costs if applicable. The responsibility for the perpetual management and maintenance would transfer to the designated management entity (CDD, POA, Special District, etc.) following agency release at the end of five years if success criteria. Agencies may require financial assurance to ensure the perpetual management of the area.



## **3.0 WILDLIFE HABITAT PROTECTION**

### **3.1 Introduction**

The Parkway alignment design and mitigation options are consistent with the planning principles and mapped ELSP lands in Orange County. Implementation of either mitigation option will preserve the ecological conditions of the upland and wetland and provide viable, sustainable, ecological, and hydrological functions in the post-development condition for both wetland resources and wetland-dependent and wetland-independent wildlife species utilizing the project site.

### **3.2 Corridors**

Planning for wildlife corridors on the Parkway alignment was based on concept definitions for local-scale wildlife movement linkages and landscape-scale ecological corridors as a component of the Orange County Comprehensive Plan. Local-scale linkages facilitate the movement of animals or plants between two or more patches of otherwise disjunct habitat. Landscape-scale corridors consist of a system of natural and/or semi-natural landscape elements that are managed to maintain or restore ecological functions and provide a sustainable use of natural resources.

Wildlife corridors that exist near the Parkway study area include Turkey Creek to the northeast, the Econ River to the east of the alignment, and the Slough along the western side of the Parkway alignment. These ecological corridors are important for the hydrologic connectivity within the basins and provide for wildlife movement along and within Orange County conservation and ELSP lands. These corridors consist of existing forested wetlands systems that comprise relatively continuous linkages of varying widths in a general north-south orientation. These forested wetlands and adjacent upland habitat meet the primary requirements for cover for common species, such as white-tailed deer (*Odocoileus virginianus*), bobcat

(*Lynx rufus*), wild turkey (*Melagris gallopavo*), red-tailed hawk (*Buteo jamaicensis*), barred owl (*Strix varia*), and pileated woodpecker (*Dryocopus pileatus*), as well as provide food items and nesting habitat for these species. These common species of wildlife have large home ranges and were considered focal species for wildlife habitat and corridor planning. Implementation of the ELSP principles on the Parkway and surrounding properties will not only provide for these species, but for listed species as well as for other species with smaller area requirements.

Wildlife corridors identified within the Parkway study area were reviewed and approved as part of the Environmental Land Stewardship Area Determination provided with the Future Land Use Map 2016-2-A-4-2. The ELSP areas and wildlife corridors are depicted in Exhibit 6. The wildlife corridors and associated environmental stewardship lands provide important ecological connections and establish a greenway corridor that will extend off-site to neighboring preservation lands. Provisions should be made for wildlife corridor connectivity and wildlife crossings, including creating suitable design features for the transportation corridor in accordance with the ELSP. These habitat linkages should be capable of allowing wildlife to meet all of their life cycle requirements within the linkage, such as movement, mating, food resources, relocation in response to natural disasters, and re-colonization of habitats.

Two wildlife crossings that were identified as important wildlife corridors across the Parkway study area include where the proposed alignment crosses within the vicinity of the Disston Canal and the southern portion of the Slough. The factors utilized to consider for the need, type, and location of the wildlife crossings for the Sunbridge Parkway study area include proximity of proposed transportation to designated preserve areas, size and location of the preserve areas, upland or wetland communities may be affected, species most likely to inhabit the preserved areas adjacent to the transportation corridor, and whether the preserve functionally connects to other designated preserve areas (i.e, public lands). Based on these factors,

wet and dry circular culverts are recommended to facilitate the movement of wildlife. Wet culverts can be 12 to 36 inches or larger based on the hydrologic needs at the crossings. A ledge may be installed if the culverts are elevated. Dry culverts should be installed at the interface between wetland and upland habitats and should be 24 to 36 inches in diameter. The locations and appropriate sizing of the wildlife crossings should be reviewed and finalized with Orange County, FWC, and USFWS at the time of final roadway construction plan submittals.

### **3.3 Listed Species**

Geographic Information Systems databases were used to compile natural resource mapping for the Parkway study area. Environmental data for the state of Florida are available from public agencies, including the FWC and Florida Natural Areas Inventory databases. Analyses were completed using the most reliable current available data and supplemented where available with actual field verified data. The presence or the potential for the presence of listed plant or animal species was assessed and included in the previous report. Species discussed herein are those that are expected to require updated species-specific surveys, agency coordination, permitting, or may be impacted by the construction of the Parkway in its current alignment. Listed wildlife observed within the Parkway study area include the gopher tortoise and Sherman's fox squirrel.

#### **Reptiles**

**Eastern Indigo Snake (FT, FWC; T, USFWS):** Eastern indigo snakes are found in a variety of habitats throughout Florida and occasionally utilize wetland habitats and the burrows of other animals, to include the burrows of gopher tortoises. On the Parkway site, two areas of high probability of eastern indigo snakes habitat in the vicinity of the proposed alignment is to the north of the Disston Canal and at the southern portion of the Slough. These two areas were identified as important wildlife corridors across the Parkway

in which wildlife crossings will be installed. The locations and appropriate sizing of the wildlife crossings will be reviewed and finalized with Orange County, FWC, and USFWS at the time of final roadway construction plan submittals.

Additionally, the USFWS provides *Standard Protection Measures for the Eastern Indigo Snake* (USFWS 2013), and an effects determination key for the eastern indigo snake to evaluate project impacts. Implementation of the *Standard Protection Measures for the Eastern Indigo Snake* are expected to be a condition of the federal permit authorization for construction activities on the Parkway to minimize potential adverse effects from construction to the eastern indigo snake.

**Gopher Tortoise (ST, FWC; Candidate, USFWS):** The gopher tortoise is listed as ST by the FWC but is not listed as T or E by the USFWS. A survey of 100% of suitable gopher tortoise habitat will be required prior to development stages in accordance with the Gopher Tortoise Permitting Guidelines (April 2008 - revised January 2017) (FWC Guidelines) to determine the population size and distribution of gopher tortoises within the final alignment and evaluate management options available for this species. A gopher tortoise relocation is expected to be the most viable option for this project. The FWC will require a conservation permit prior to conducting the relocation. The application fee, relocation costs, and recipient site fees will be dependent on the number of gopher tortoises located within the final Parkway alignment.

## **Birds**

**Florida Sandhill Crane (ST, FWC):** The Florida sandhill crane is a resident, breeding, non-migratory subspecies of sandhill crane (*Grus canadensis*). Florida sandhill cranes nest in shallow, emergent palustrine wetlands, particularly those dominated by pickerelweed (*Pontederia cordata*) and maidencane (*Panicum hemitomon*) and feed in a variety of open, upland habitats, mostly prairies, but also human-manipulated

habitats such as sod farms, ranchlands, pastures, golf courses, airports, and suburban subdivisions (Nesbitt 1996, Wood 2001). Florida sandhill cranes nesting locations may change year to year due to environmental conditions.

In accordance with the FWC ISMP Florida Sandhill Crane Species Guidelines (Sandhill Crane Guidelines), the recommended survey methodology within Florida sandhill crane breeding habitat should be conducted prior to any development phases located within the Parkway site to identify any new nesting locations, if present. The recommended conservation measures one through four listed in the Sandhill Crane Guidelines, and summarized below, have been considered for the proposed project. If Florida sandhill crane nests are documented during preconstruction surveys, the proper avoidance measures indicated in measures five and six of the Sandhill Crane Guidelines should be followed:

- 1) Maintain or restore hydrology in areas suitable for sandhill cranes.
- 2) Avoid placement of impermeable surfaces, such as roads or parking lots, adjacent to wetlands suitable for nesting cranes.
- 3) Maintain quality sandhill crane breeding habitat when possible by ensuring availability of areas with average water depths between five to 13 inches from January through April.
- 4) Include a shallow end or shelf vegetated with native herbaceous wetland species, such as maidencane, pickerelweed, and smartweeds (*Polygonum* spp.) when constructing new ponds.
- 5) Take steps when possible to avoid disturbing active nests and flightless young (e.g., conduct activities outside of the breeding season or outside of a 400-foot buffer around active nests when feasible) when conducting land management activities beneficial to wildlife in accordance with Rule 68A-27.007(2)(c), F.A.C.

- 6) Maintain open areas for foraging through cattle grazing, mowing, or other means.

**Wading Bird Rookeries and Wood Storks:** The PDS review area is within 9.3 miles of a rookery that includes listed wading bird species of site and within 15 miles of a wood stork rookery (Exhibit 7). Wetlands located within those distances to rookeries are considered important to nesting success. Impacts to wetlands associated with the Parkway will require consideration of the impact to the listed wading bird species and wood stork. The USFWS may require additional information regarding impacts and mitigation of wood stork suitable foraging habitat biomass.

The mitigation options proposed both provide long-term conservation benefits for the wood storks and listed wading birds and are expected to offset potential impact.

## **Mammals**

**Sherman's Fox Squirrel (*Sciurus niger shermani*) (SSC, FWC):** Sherman's fox squirrels have been observed within and north of the study area. In accordance with the FWC ISMP Sherman's Fox Squirrel Species Guidelines (Sherman's Fox Squirrel Guidelines), the recommended survey methodology to determine the presence of Sherman's fox squirrels should be conducted in suitable habitat prior to any development phases located within the Parkway site. For accuracy, surveys should be conducted within 60 days of clearing or construction. If fox squirrel nests are found within the final Parkway alignment, a 125-foot buffer distance from the nest should be maintained until occupancy can be determined. Removal of unoccupied nests is allowed without a permit. If nests are occupied, take of the nest should be avoided until the fox squirrel leaves the nest. If it is necessary to remove a nest tree or work within 125 feet of an occupied nest tree, further coordination with FWC to discuss permitting alternatives should be conducted. Location of nests may vary due to environmental conditions. No mitigation is required for the take permit.

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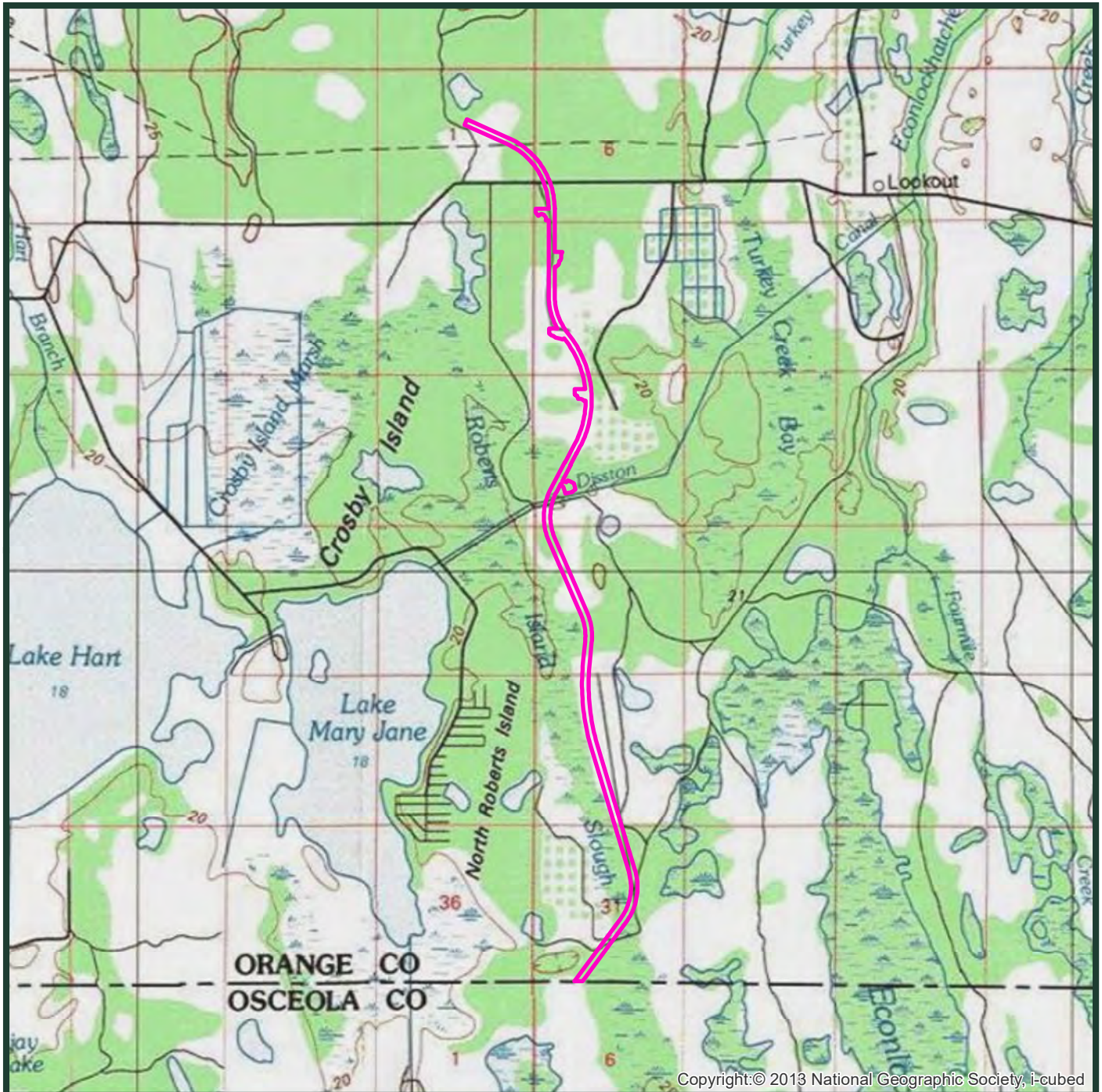


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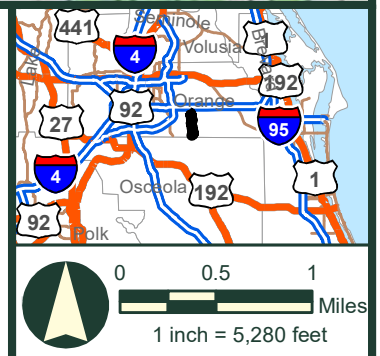
## **EXHIBIT 1**

### **LOCATION OF SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**



## Legend

 Project Boundary



**EXHIBIT 1.**  
**LOCATION OF SUNBRIDGE PARKWAY PRELIMINARY DESIGN**  
**STUDY AREA, ORANGE COUNTY, FLORIDA.**

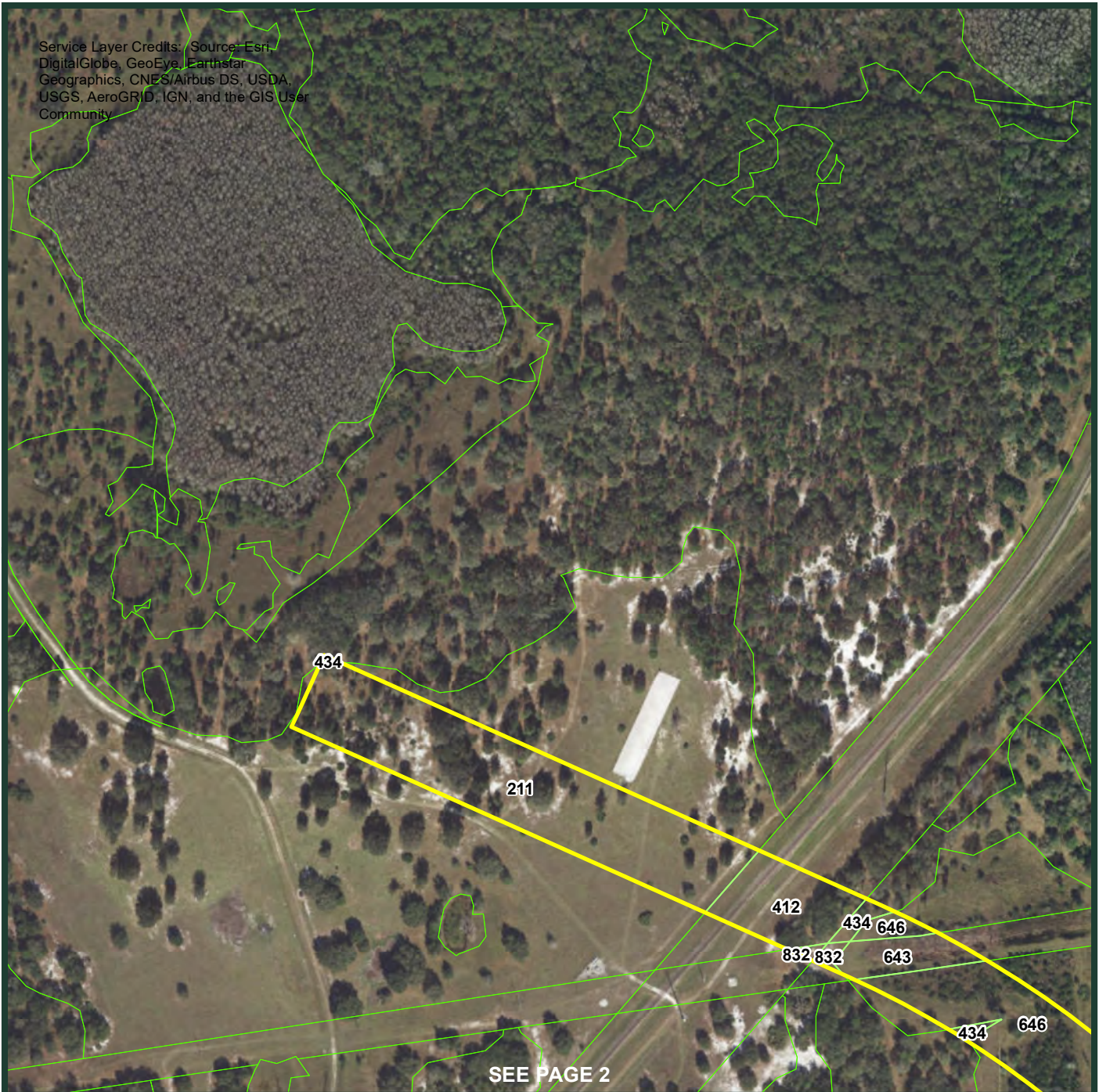
**BDA** BREEDLOVE, DENNIS  
& ASSOCIATES, INC.  
Environmental Consultants  
330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882

## **EXHIBIT 2**

### **FLORIDA LAND USE, COVERS, AND FORMS CLASSIFICATION SYSTEM MAP FOR SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**







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Community





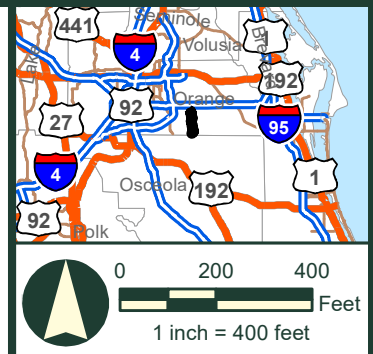
## Legend

 Project Boundary

## FLUCFCS

 211 - Improved Pastures  
 412 - Railroad ROW  
 434 - Hardwood - Coniferous Mixed  
 643 - Wet Prairies

 646 - Mixed Scrub-Shrub Wetland  
 832 - Electrical Power  
Transmission Lines

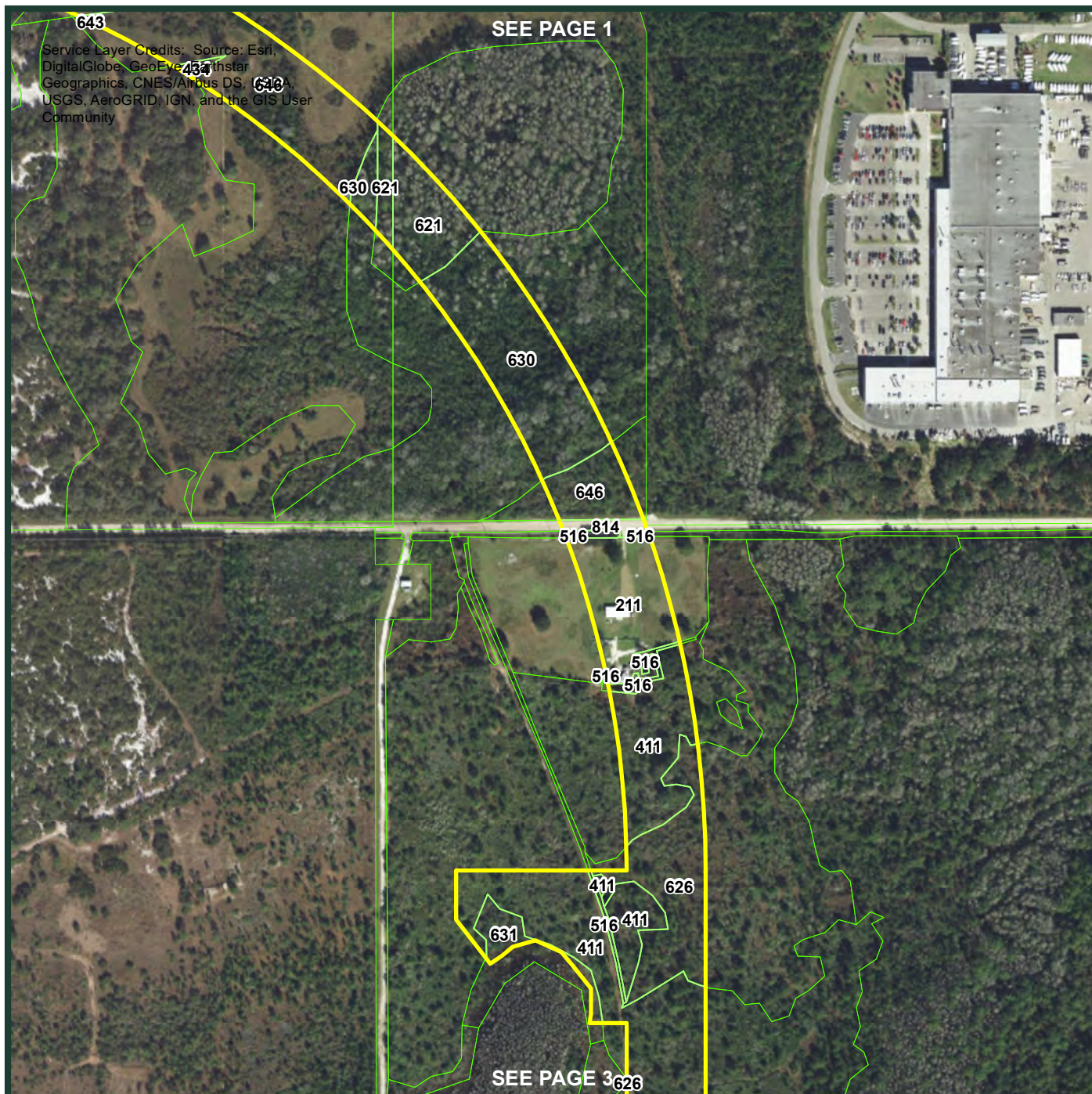


## EXHIBIT 2. (PAGE 1 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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## Legend

Project Boundary

## FLUCFCS

211 - Improved Pastures

411 - Pine Flatwoods

434 - Hardwood - Coniferous Mixed

516 - Ditch / Swale

621 - Cypress

626 - Hydric Pine Savanna

630 - Wetland Forested Mixed

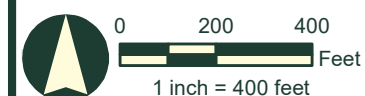
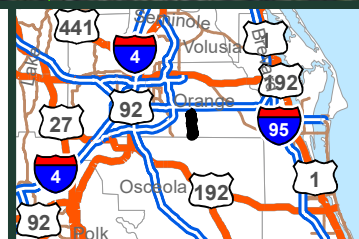
631 - Wetland Shrub

643 - Wet Prairies

646 - Mixed Scrub-Shrub Wetland

814 - Roads and Highways

832 - Electrical Power Transmission Lines



## EXHIBIT 2. (PAGE 2 OF 12)

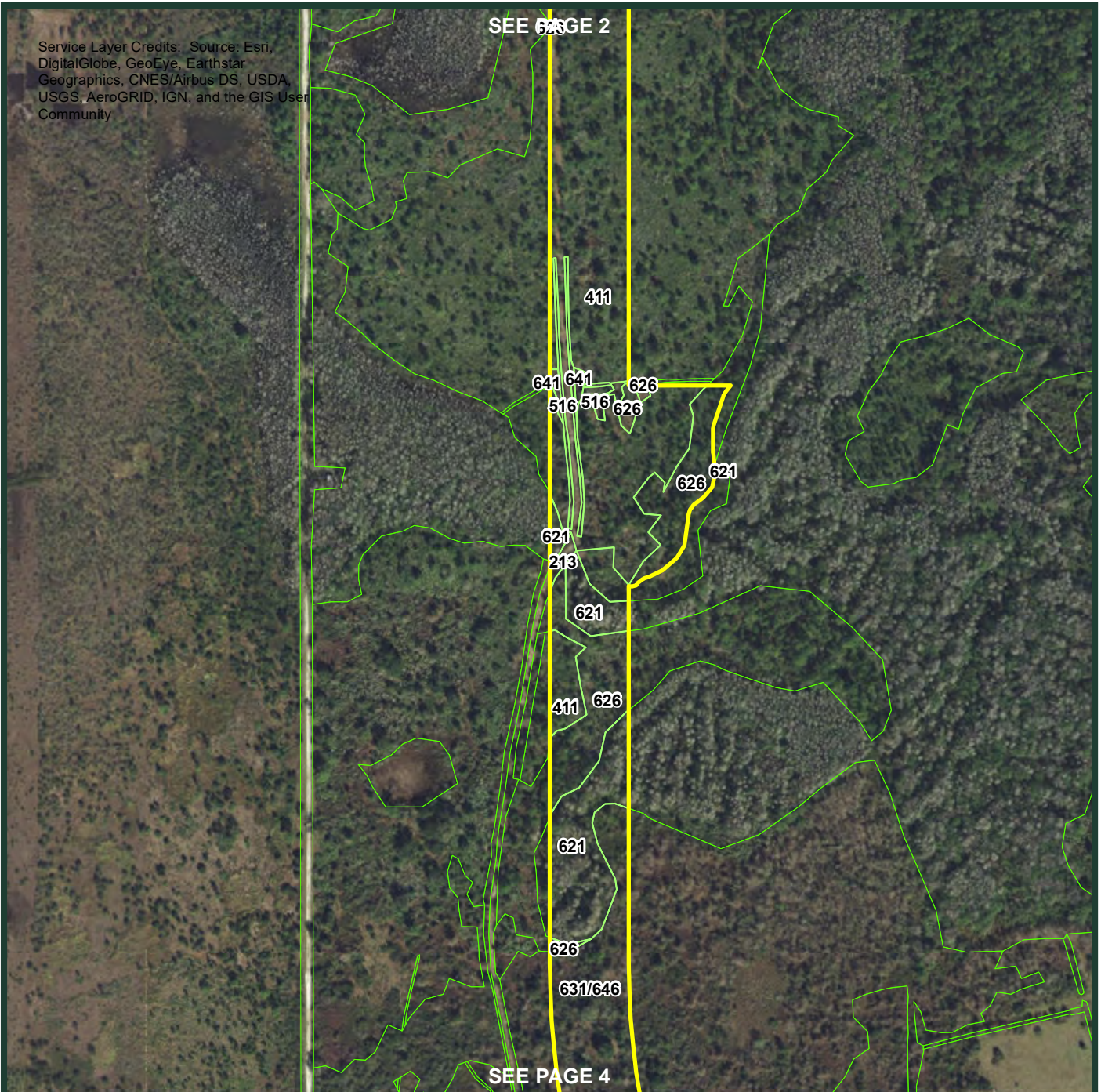
FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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SEE PAGE 2




## Legend


 Project Boundary


## FLUCFCS


 213 - Woodland Pastures

 411 - Pine Flatwoods

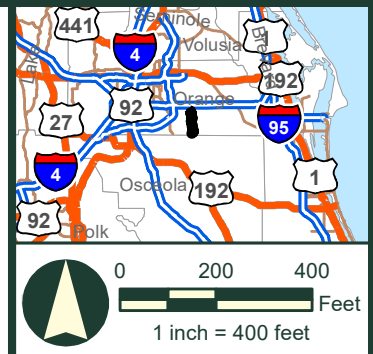
 516 - Ditch / Swale

 621 - Cypress

 626 - Hydric Pine Savanna

 631/646 - Shrub Wetland/Treeless Hydric Savannah

 641 - Freshwater Marshes



## EXHIBIT 2. (PAGE 3 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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SEE PAGE 3



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
## Legend


 Project Boundary


## FLUCFCS


 213 - Woodland Pastures


 411 - Pine Flatwoods

 421 - Xeric Oak

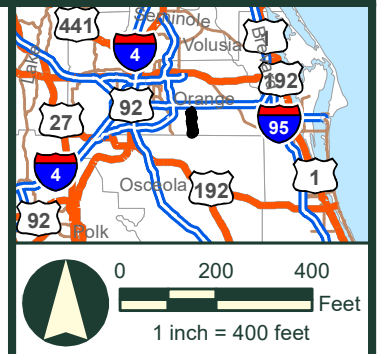
 516 - Ditch / Swale

 534 - Reservoirs <10 acres

 621 - Cypress

 631/646 - Shrub Wetland/Treeless  
Hydric Savannah

 641 - Freshwater Marshes



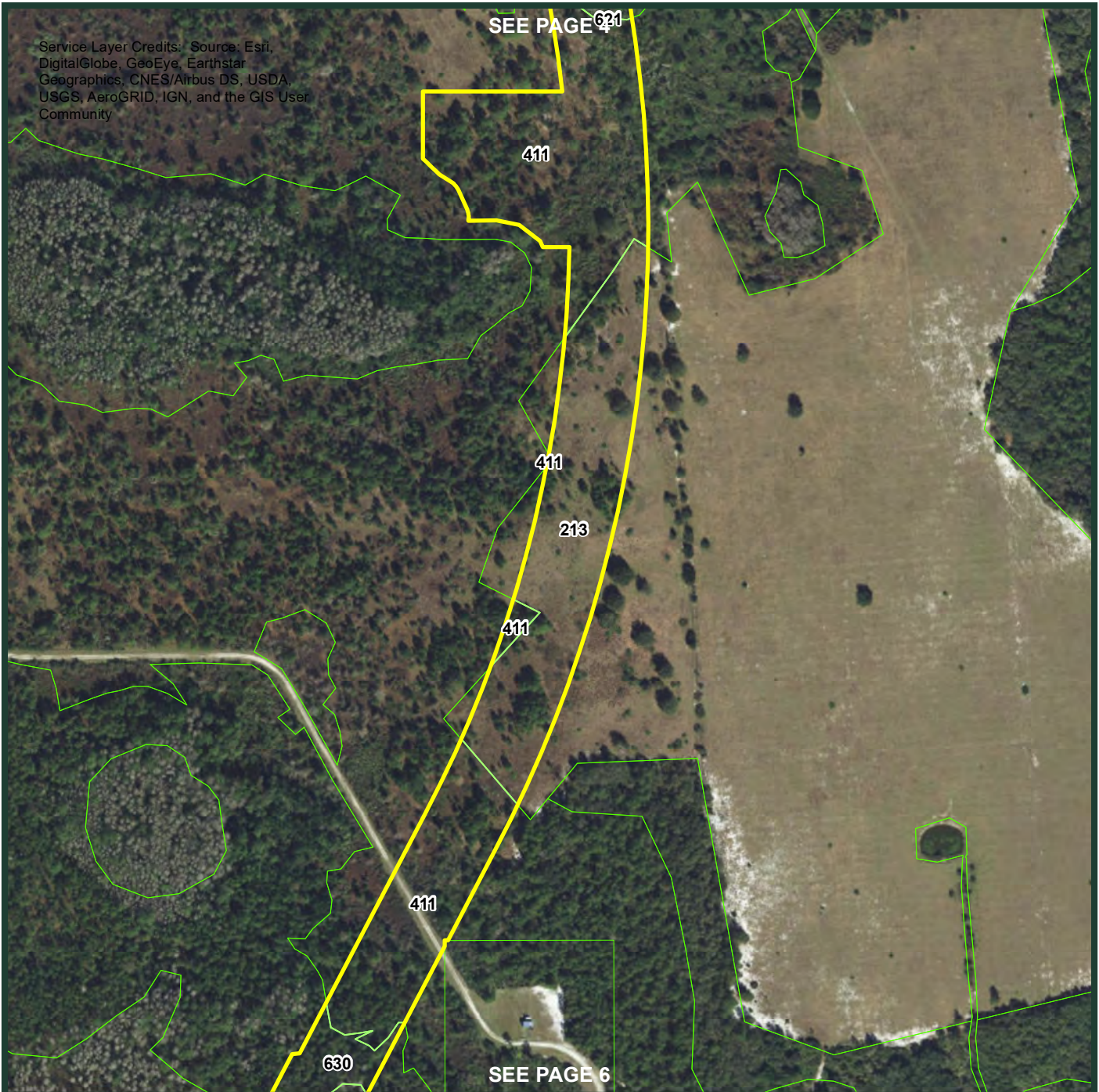
## EXHIBIT 2. (PAGE 4 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
 SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Geographics, CNES/Airbus DS, USDA,  
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Community




## Legend

 Project Boundary

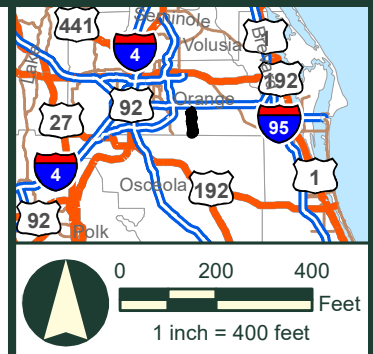
## FLUCFCS

 213 - Woodland Pastures

 411 - Pine Flatwoods

 621 - Cypress

 630 - Wetland Forested Mixed



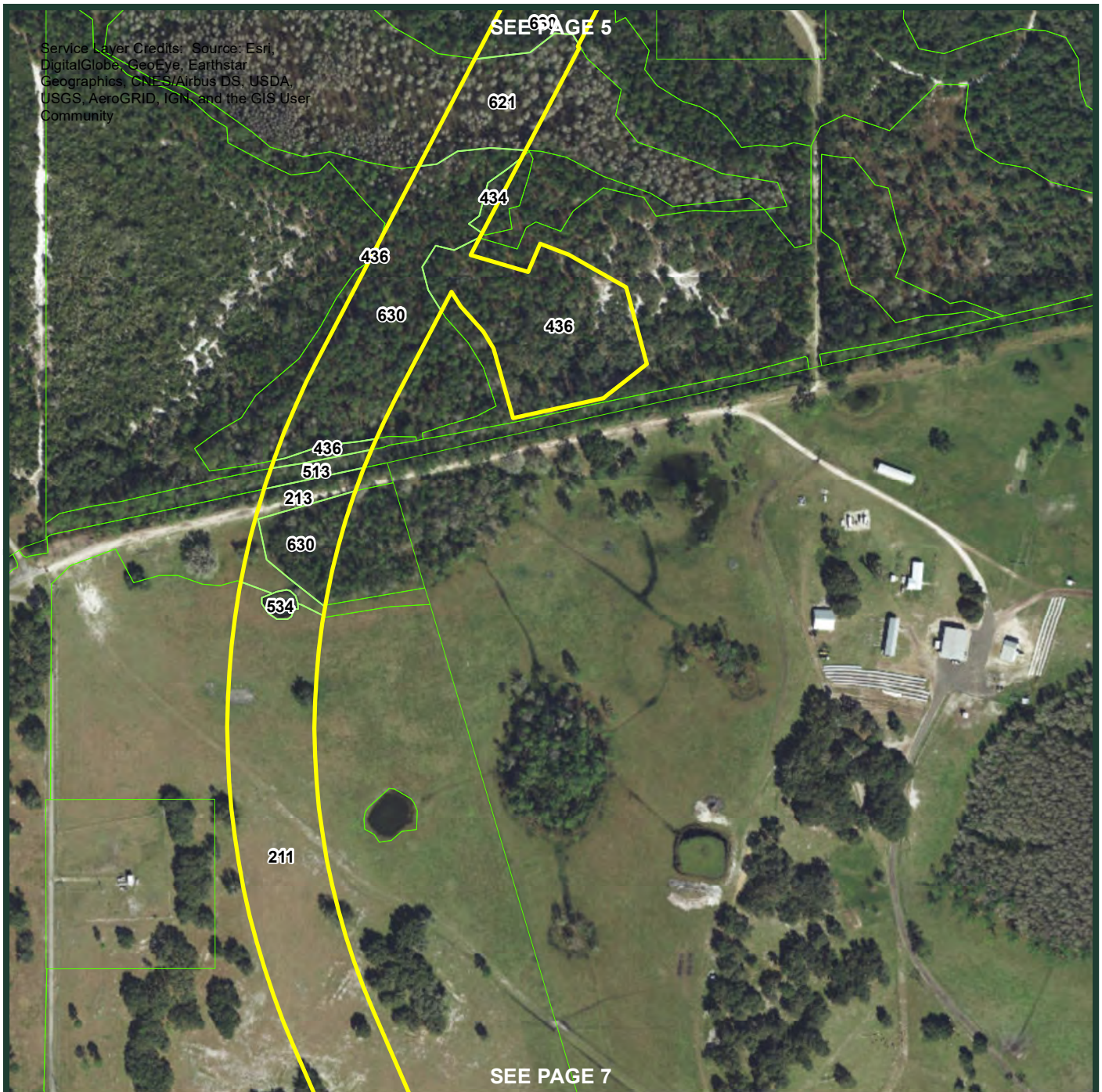
## EXHIBIT 2. (PAGE 5 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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## Legend

Project Boundary

### FLUCFCS

211 - Improved Pastures

213 - Woodland Pastures

434 - Hardwood - Coniferous Mixed

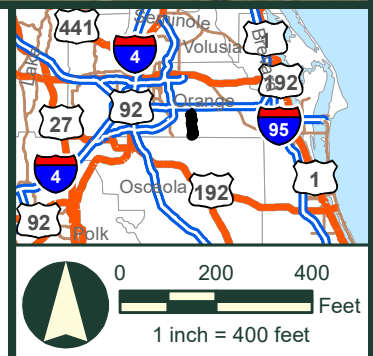
436 - Upland Scrub, Pine and Hardwoods

513 - Canal

534 - Reservoirs <10 acres

621 - Cypress

630 - Wetland Forested Mixed



## EXHIBIT 2. (PAGE 6 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Community

SEE PAGE 6



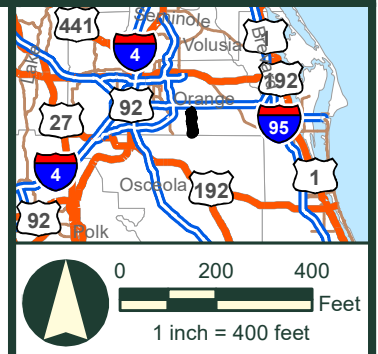
## Legend

 Project Boundary

### FLUCFCS

 211 - Improved Pastures

 630 - Wetland Forested Mixed



### EXHIBIT 2. (PAGE 7 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Geographics, CNES/Airbus DS, USDA,  
USGS, AeroGRID, IGN, and the GIS User  
Community

SEE PAGE 7

211

641

221

510


SEE PAGE 9


## Legend

 Project Boundary

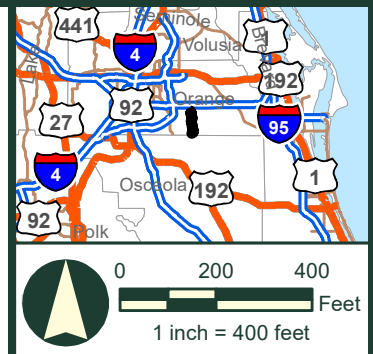
### FLUCFCS

 211 - Improved Pastures

 221 - Citrus groves

 516 - Ditch / Swale

 641 - Freshwater Marshes



### EXHIBIT 2. (PAGE 8 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Geographics, CNES/Airbus DS, USDA,  
USGS, AeroGRID, IGN, and the GIS User  
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## Legend

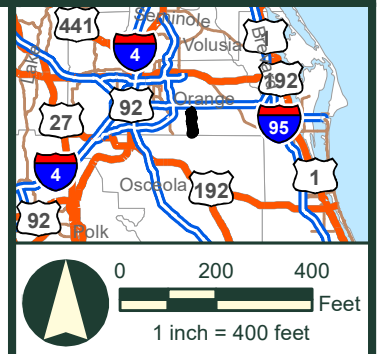
 Project Boundary

### FLUCFCS

 211 - Improved Pastures

 221 - Citrus groves

 516 - Ditch / Swale



### EXHIBIT 2. (PAGE 9 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Geographics, CNES/Airbus DS, USDA,  
USGS, AeroGRID, IGN, and the GIS User  
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## Legend


 Project Boundary


## FLUCFCS

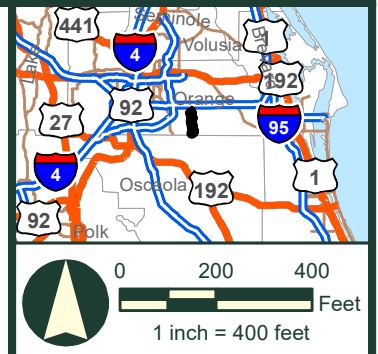
 211 - Improved Pastures

 221 - Citrus groves

 320 - Shrub and Brushland

 421 - Xeric Oak

 516 - Ditch / Swale



## EXHIBIT 2. (PAGE 10 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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DigitalGlobe, GeoEye, Earthstar  
Geographics, CNES/Airbus DS, USDA,  
USGS, AeroGRID, IGN, and the GIS User  
Community

SEE PAGE 10

320

421

320

211

213

630

211

626

516/641

213

626

SEE PAGE 12

## Legend


 Project Boundary

## FLUCFCS

 211 - Improved Pastures

 213 - Woodland Pastures

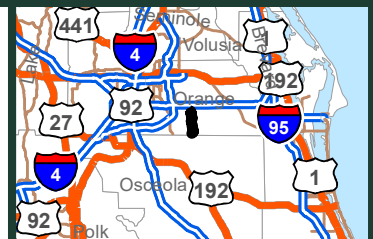
 320 - Shrub and Brushland

 421 - Xeric Oak

 516/641 - Ditch / Freshwater Marsh

 626 - Hydric Pine Savanna

 630 - Wetland Forested Mixed



## EXHIBIT 2. (PAGE 11 OF 12)

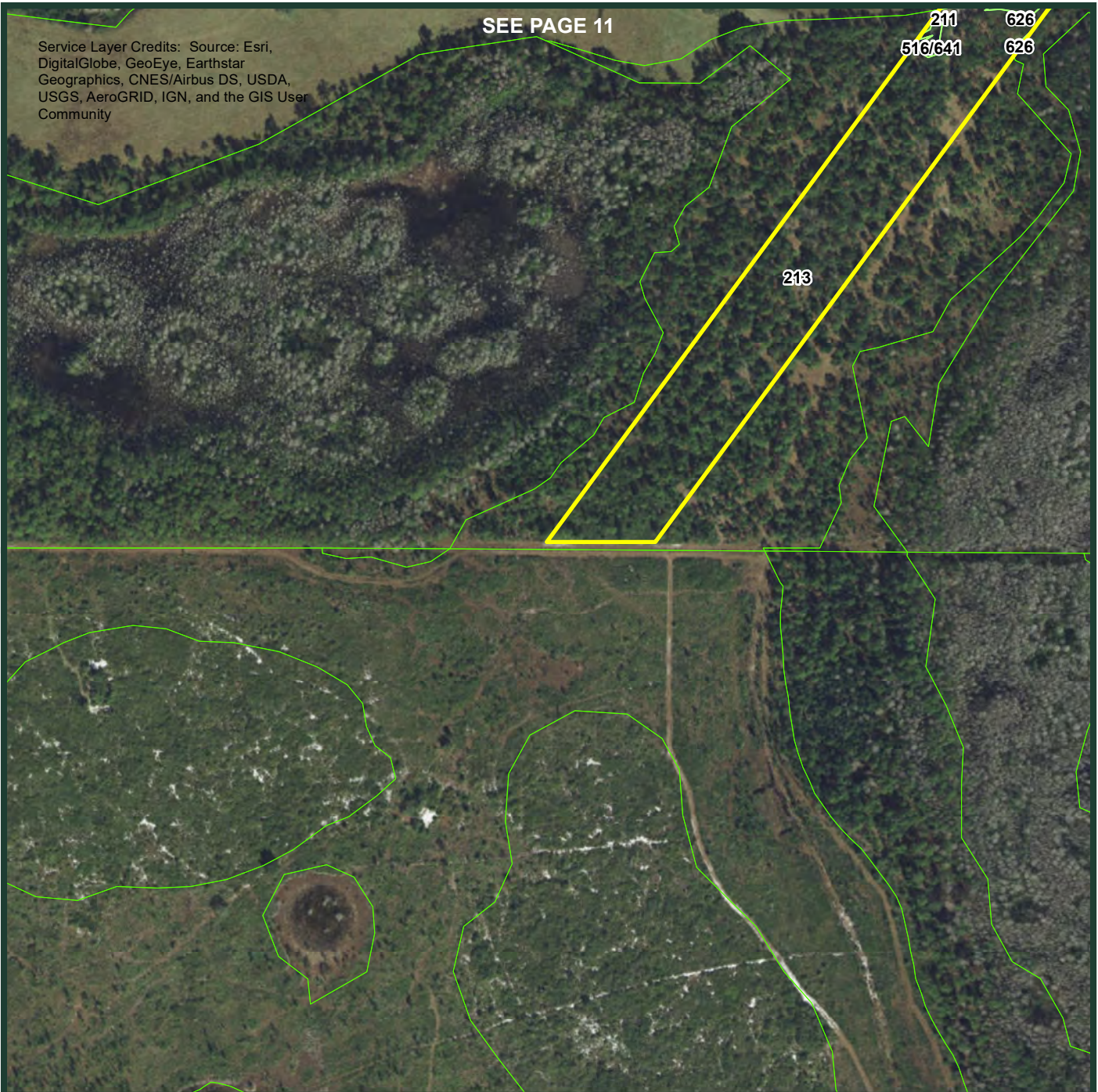
FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Geographics, CNES/Airbus DS, USDA,  
USGS, AeroGRID, IGN, and the GIS User  
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SEE PAGE 11




## Legend

 Project Boundary

## FLUCFCS

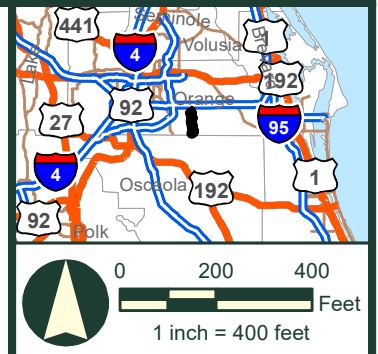
 211 - Improved Pastures

 213 - Woodland Pastures

 516/641 - Ditch / Freshwater Marsh

 626 - Hydric Pine Savanna

 630 - Wetland Forested Mixed



## EXHIBIT 2. (PAGE 12 OF 12)

FLORIDA LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM (FLUCFCS) MAP FOR  
SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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## **EXHIBIT 3**

### **FLORIDA LAND USE, COVERS, AND FORMS CLASSIFICATION SYSTEM COVER TYPES AND ACREAGES FOR SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**

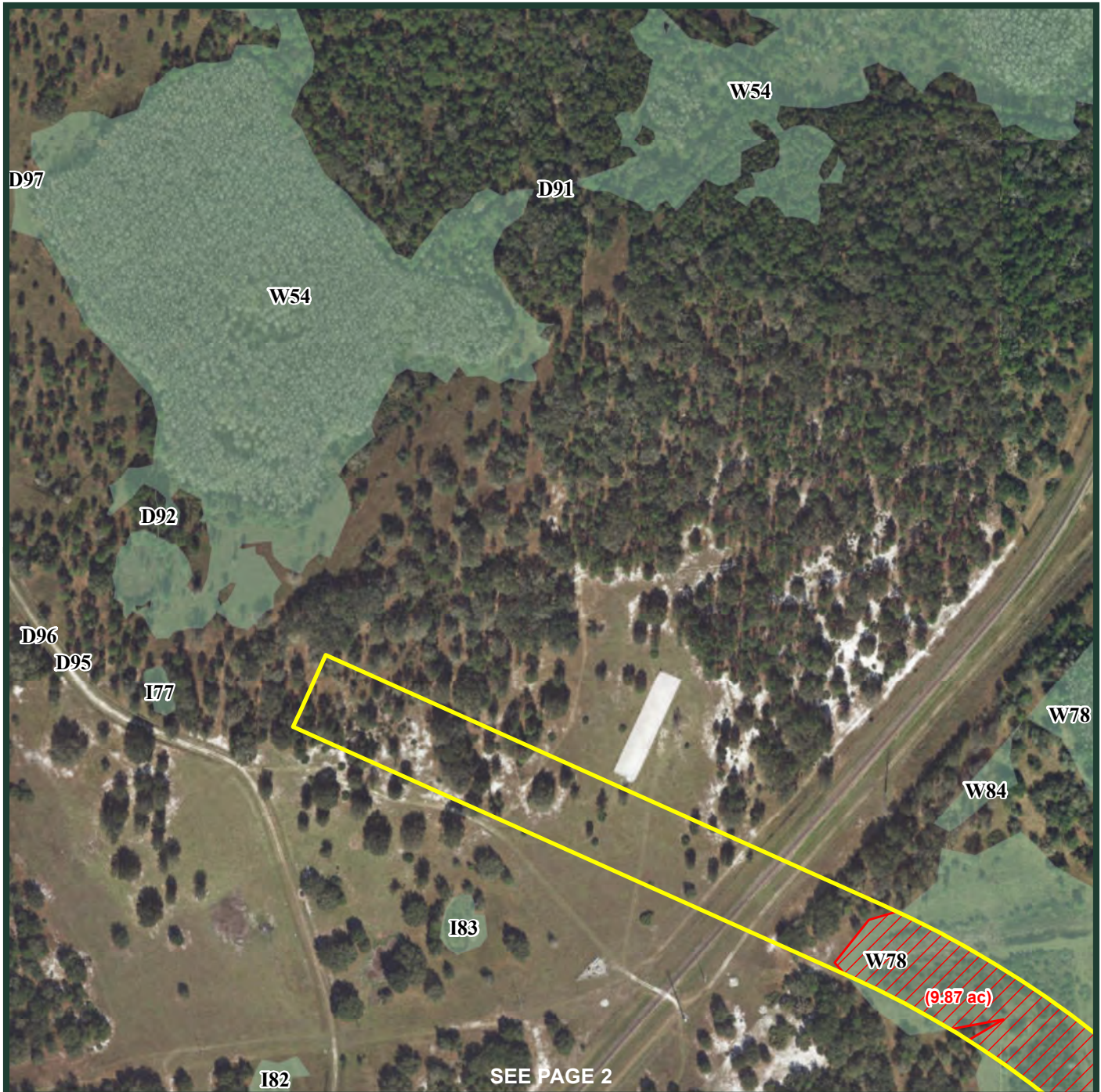
**Exhibit 3      Florida Land Use, Cover and Forms Classification System Cover Types and Acreages for the Sunbridge Parkway Preliminary Design Study Area, Orange County, Florida.**

<b>Cover Type</b>	<b>Description</b>	<b>Acreage</b>
211	Improved Pastures	57.48
213	Woodland Pastures	23.43
221	Citrus Groves	19.16
320	Shrub and Brushland	0.35
411	Pine Flatwoods	27.59
421	Xeric Oak	5.56
434	Hardwood - Coniferous Mixed	0.39
436	Upland Scrub, Pine and Hardwoods	3.99
513	Canal	0.29
516	Ditch / Swale	4.43
534	Reservoirs <10 acres	0.78
621	Cypress	6.04
626	Hydric Pine Savanna	5.26
630	Wetland Forested Mixed	16.49
631	Wetland Shrub	6.65
641	Freshwater Marshes	0.55
643	Wet Prairies	0.71
646	Mixed Scrub-Shrub Wetland	4.39
812	Railroad ROW	1.46
814	Roads and Highways	0.16
832	Electrical Power Transmission Lines	0.13
<b>Total</b>		<b>185.29</b>



## **EXHIBIT 4**

### **WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**



## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

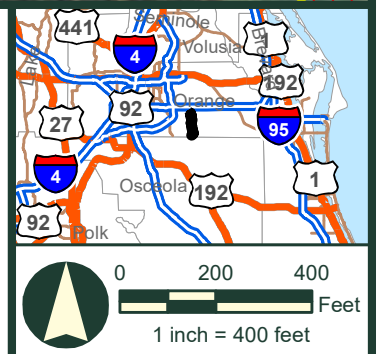
Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

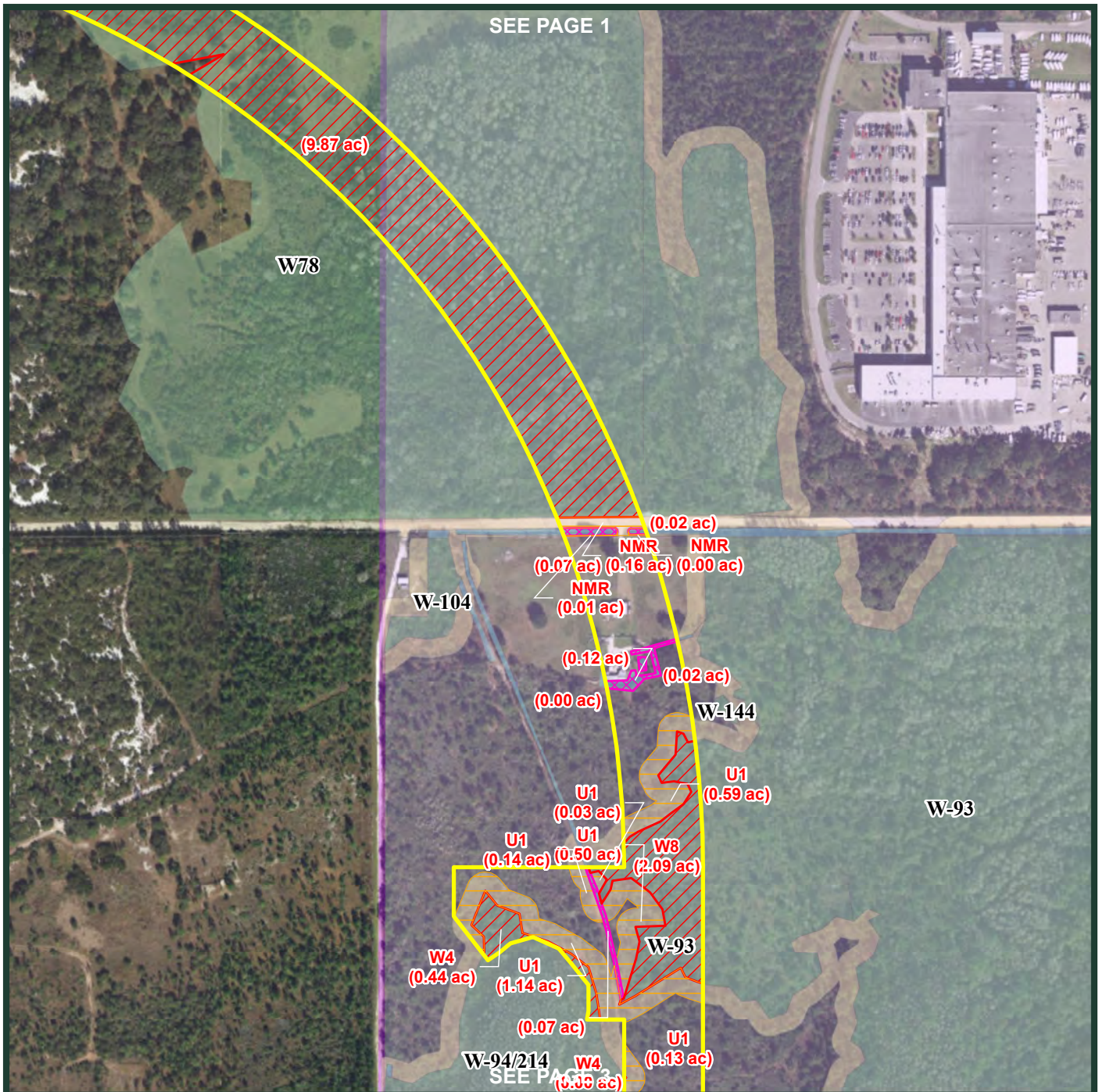
Upland RHPZ Impacts



**EXHIBIT 4. (PAGE 1 OF 12)**  
**WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY**  
**DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.**

**BDA** BREEDLOVE, DENNIS  
 & ASSOCIATES, INC.  
 Environmental Consultants  
 330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882





## Legend

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

Surface Waters

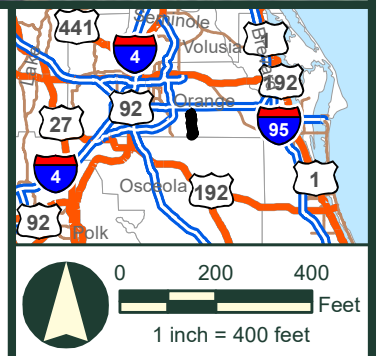
Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

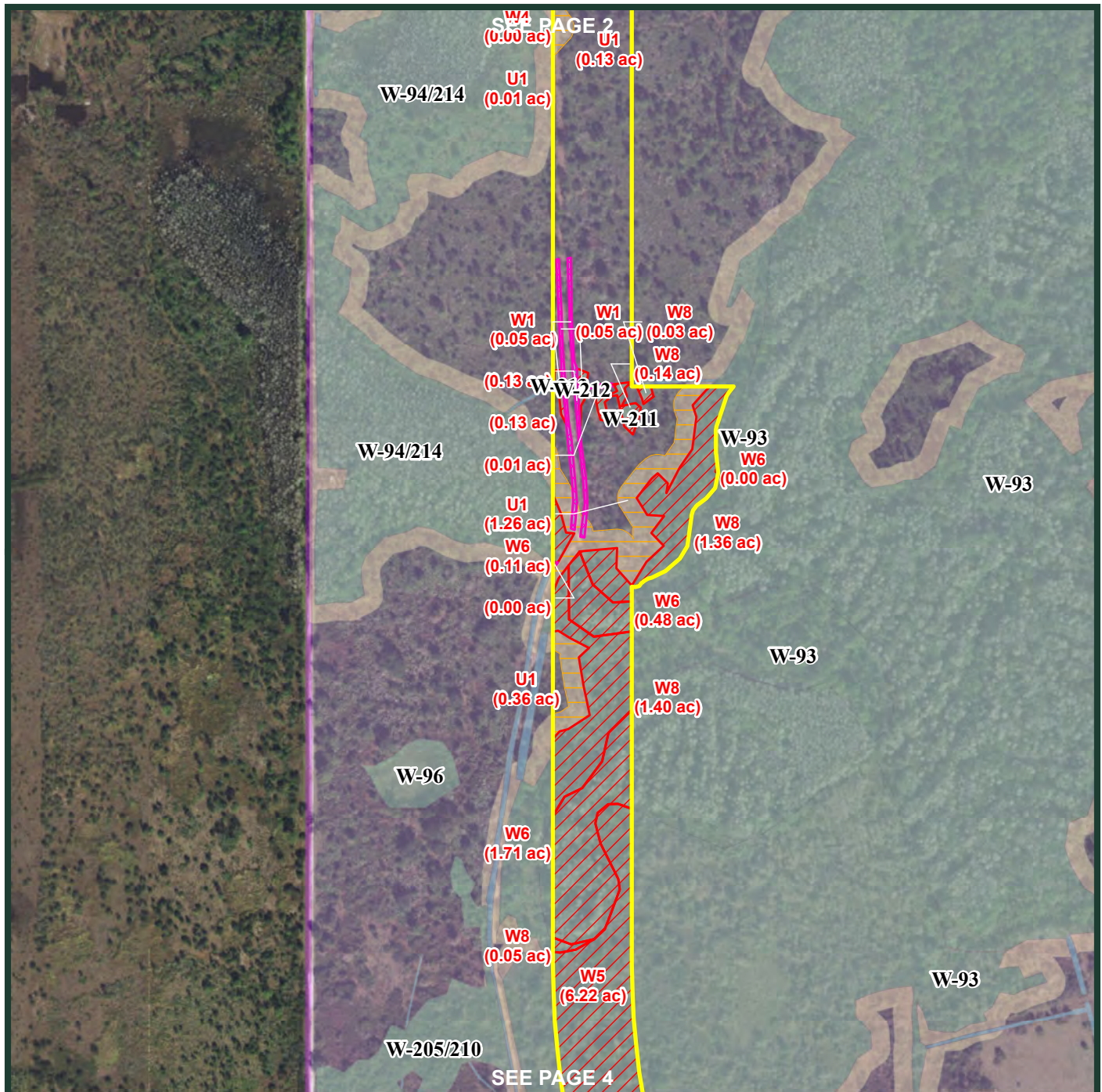


## EXHIBIT 4. (PAGE 2 OF 12)

### WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
Environmental Consultants  
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## Legend

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

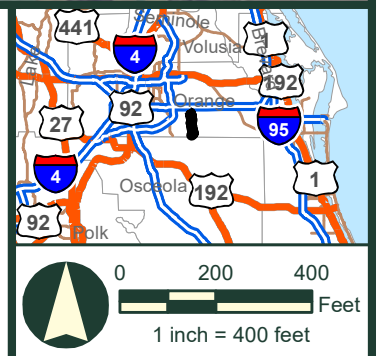


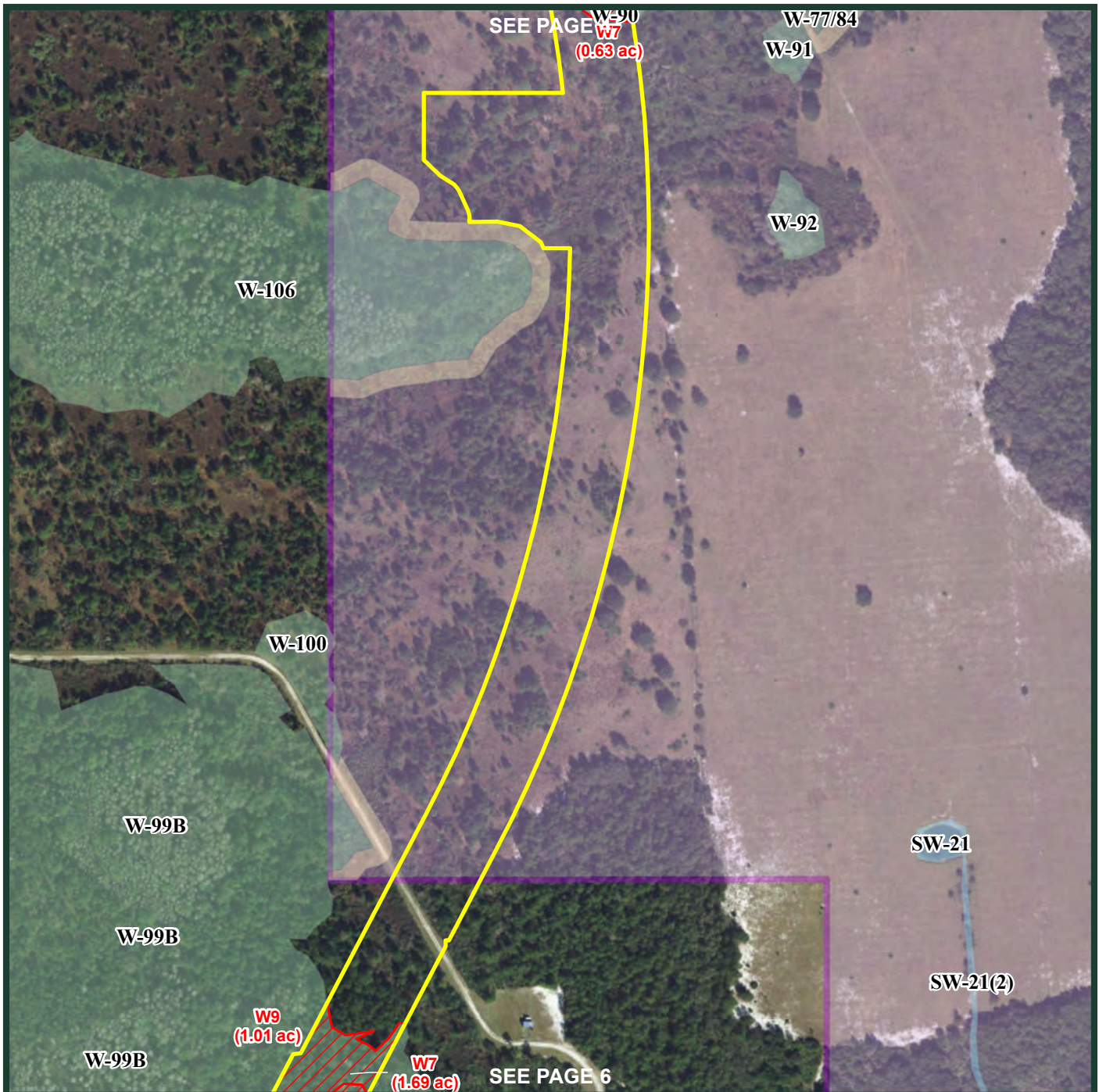
EXHIBIT 4. (PAGE 3 OF 12)  
WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY  
DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS  
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## Legend

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

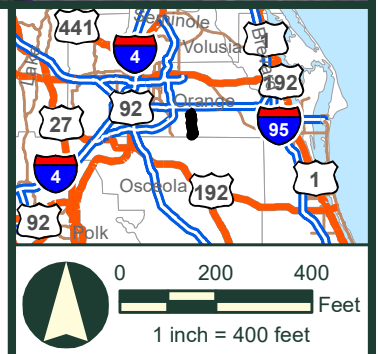
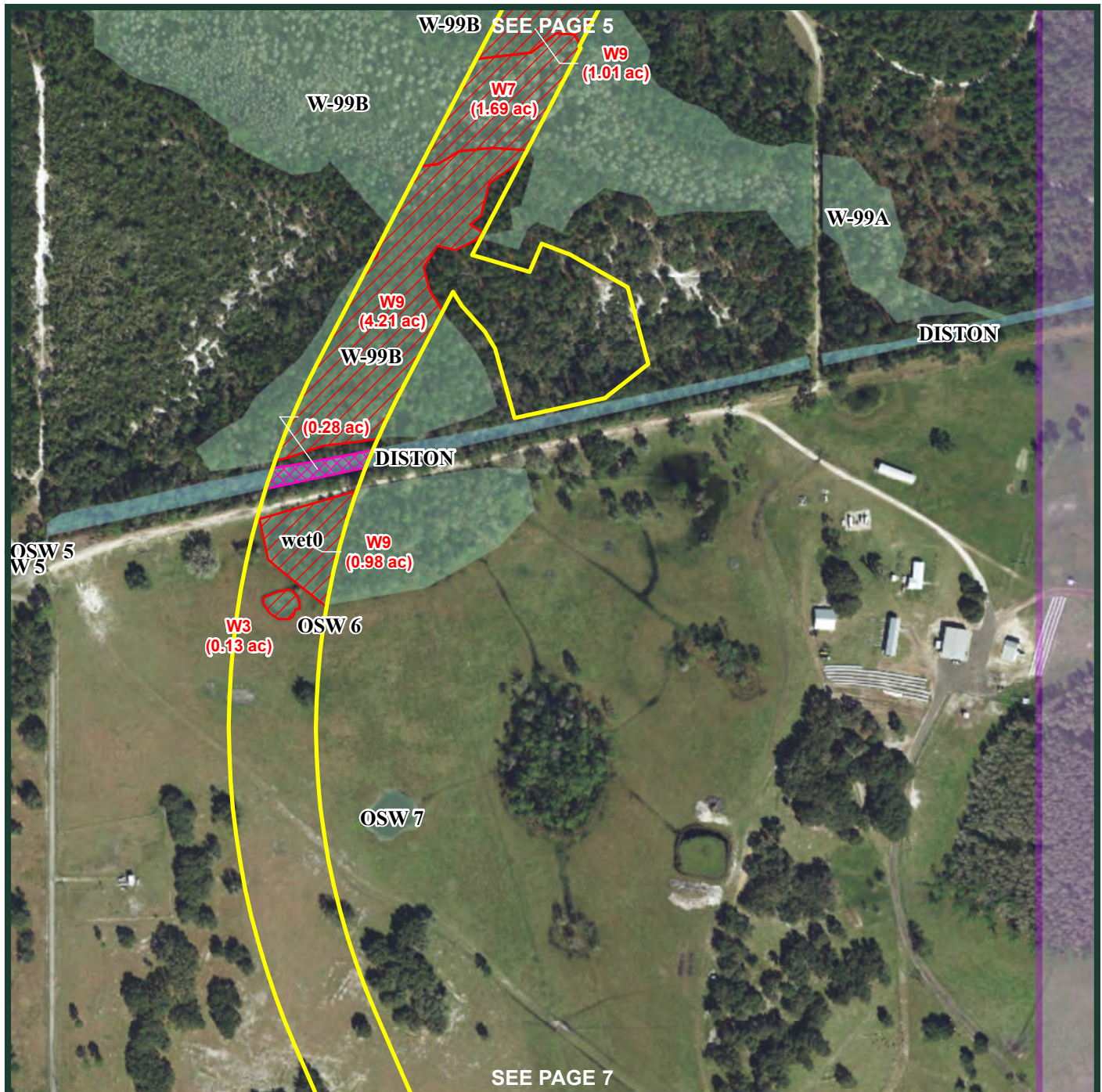


EXHIBIT 4. (PAGE 5 OF 12)  
WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY  
DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS  
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## Legend

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

Surface Waters

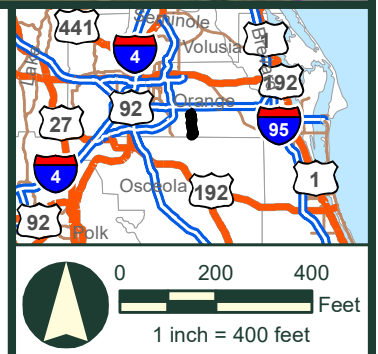
Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

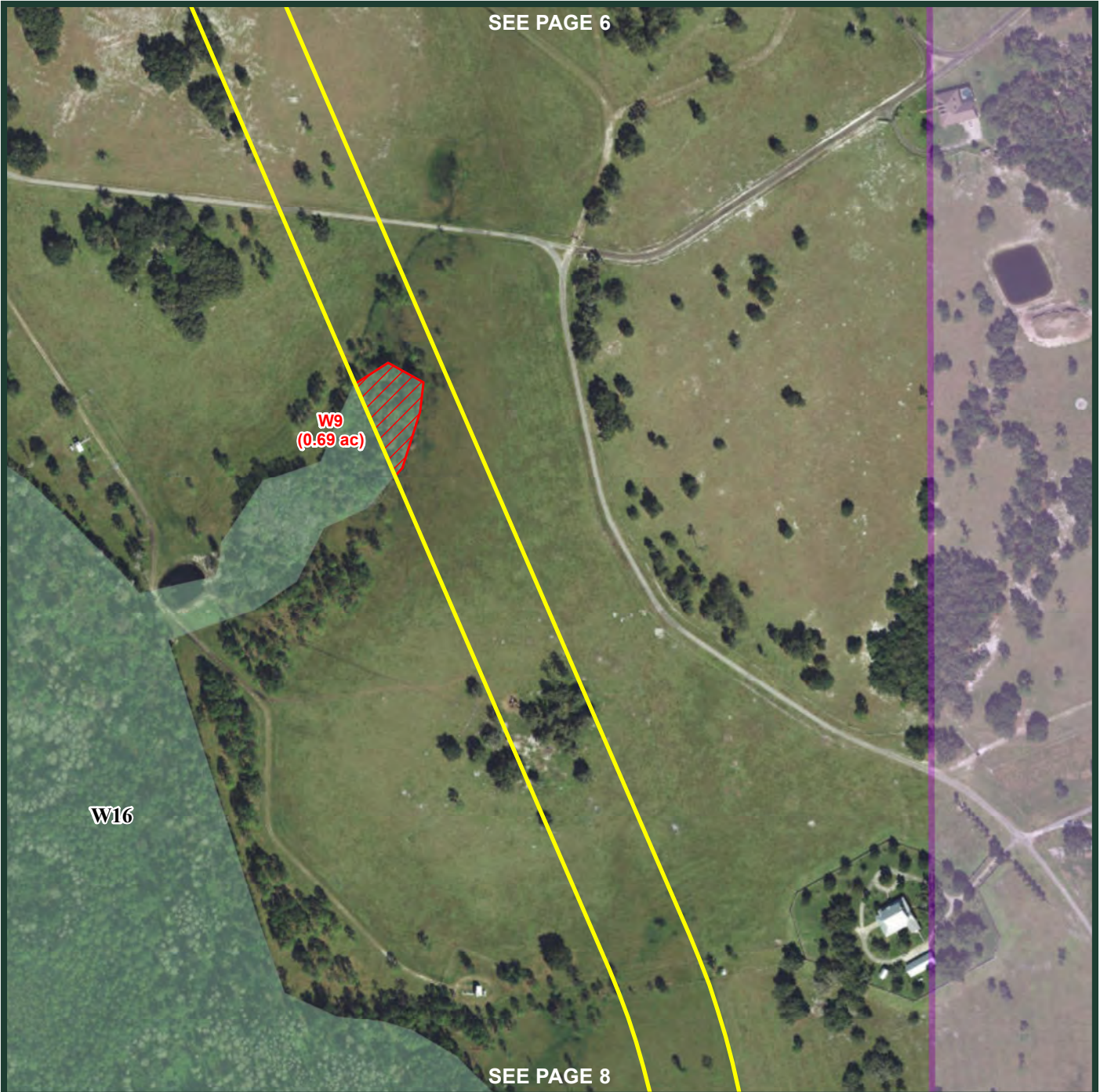


## EXHIBIT 4. (PAGE 6 OF 12) WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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SEE PAGE 6



## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


 Project Boundary

### Potentially Jurisdictional:

 Uplands

 Wetlands

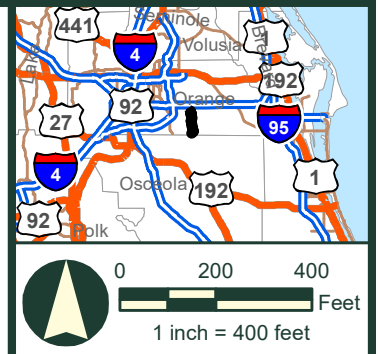
 Surface Waters

 Econlockhatchee River Hydrologic Basin

 Wetland Impacts

 Surface Water Impacts

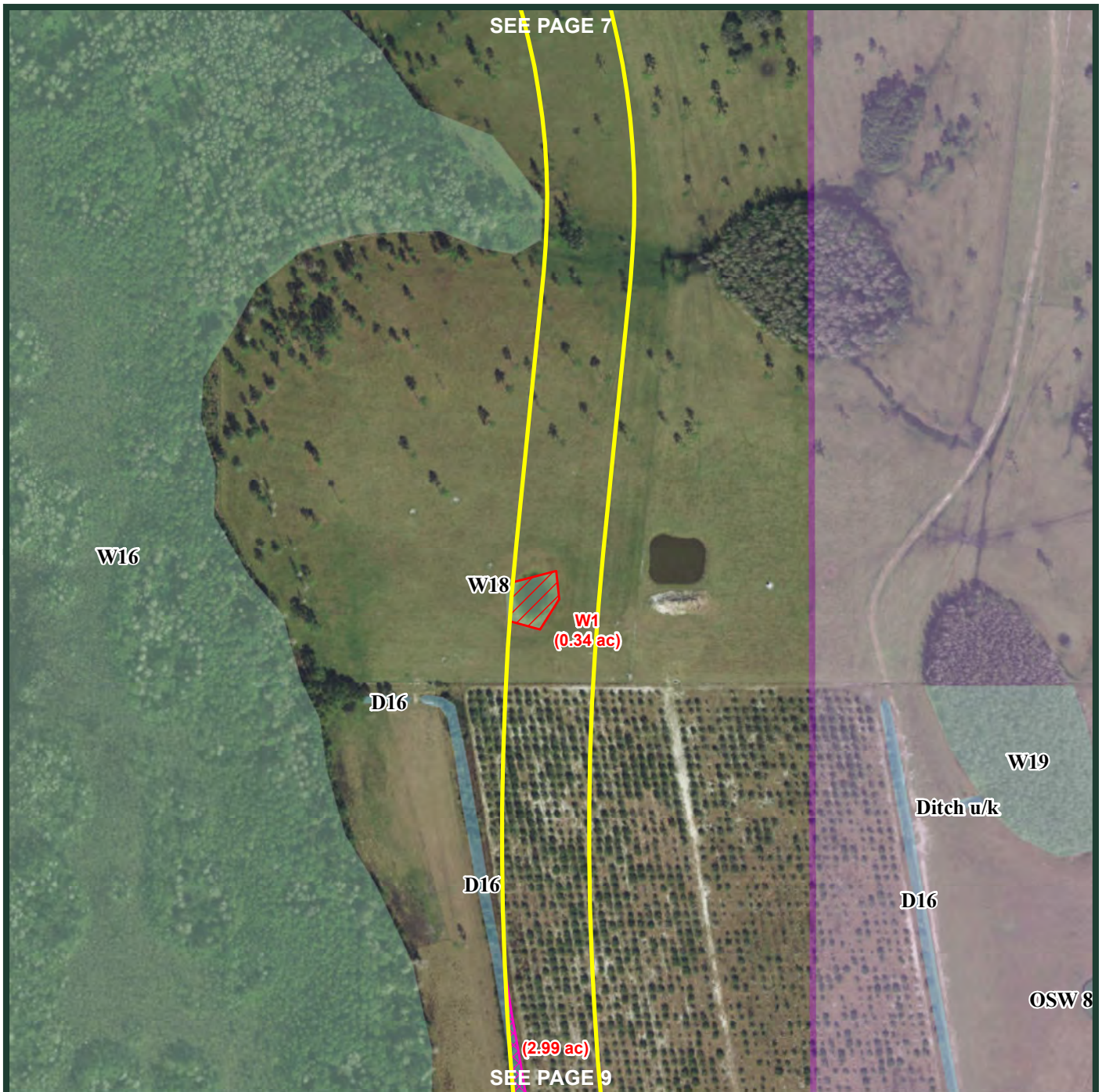
 Upland RHPZ Impacts



## EXHIBIT 4. (PAGE 7 OF 12) WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
Environmental Consultants  
330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882





## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


 Project Boundary

### Potentially Jurisdictional:

 Uplands

 Wetlands

 Surface Waters

 Econlockhatchee River Hydrologic Basin

 Wetland Impacts

 Surface Water Impacts

 Upland RHPZ Impacts

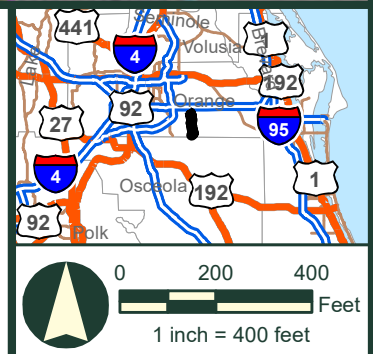
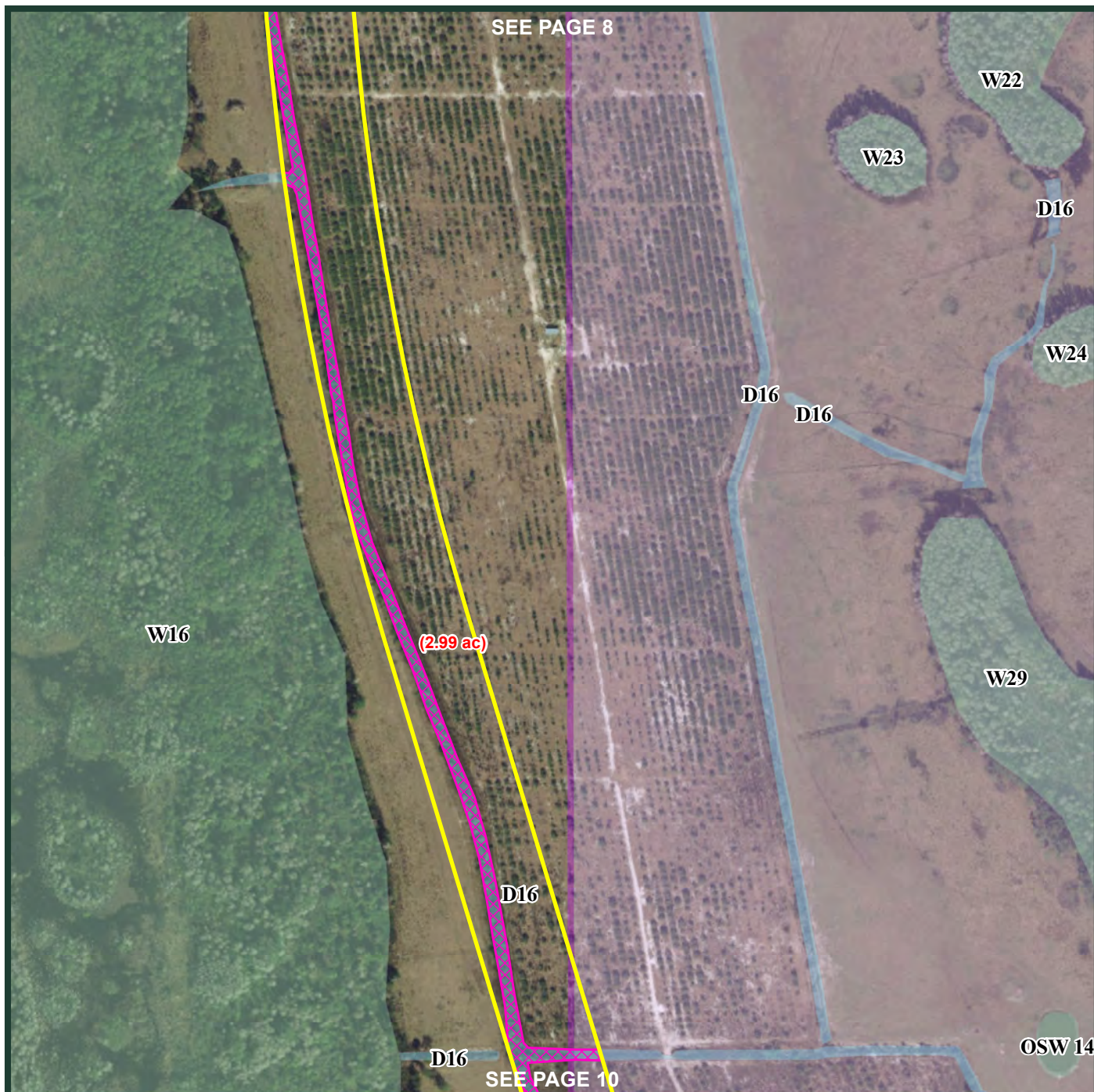


EXHIBIT 4. (PAGE 8 OF 12)  
WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY  
DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS  
& ASSOCIATES, INC.  
Environmental Consultants  
330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882





## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

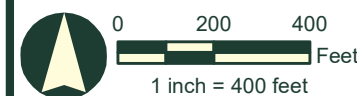
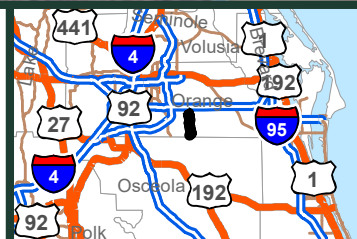
Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts



## EXHIBIT 4. (PAGE 9 OF 12) WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

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Environmental Consultants  
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## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

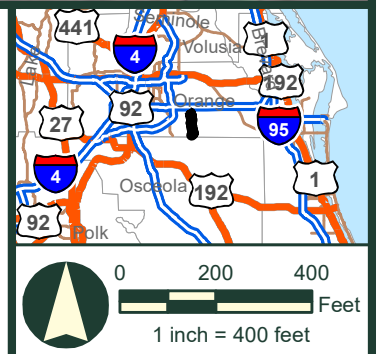
Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

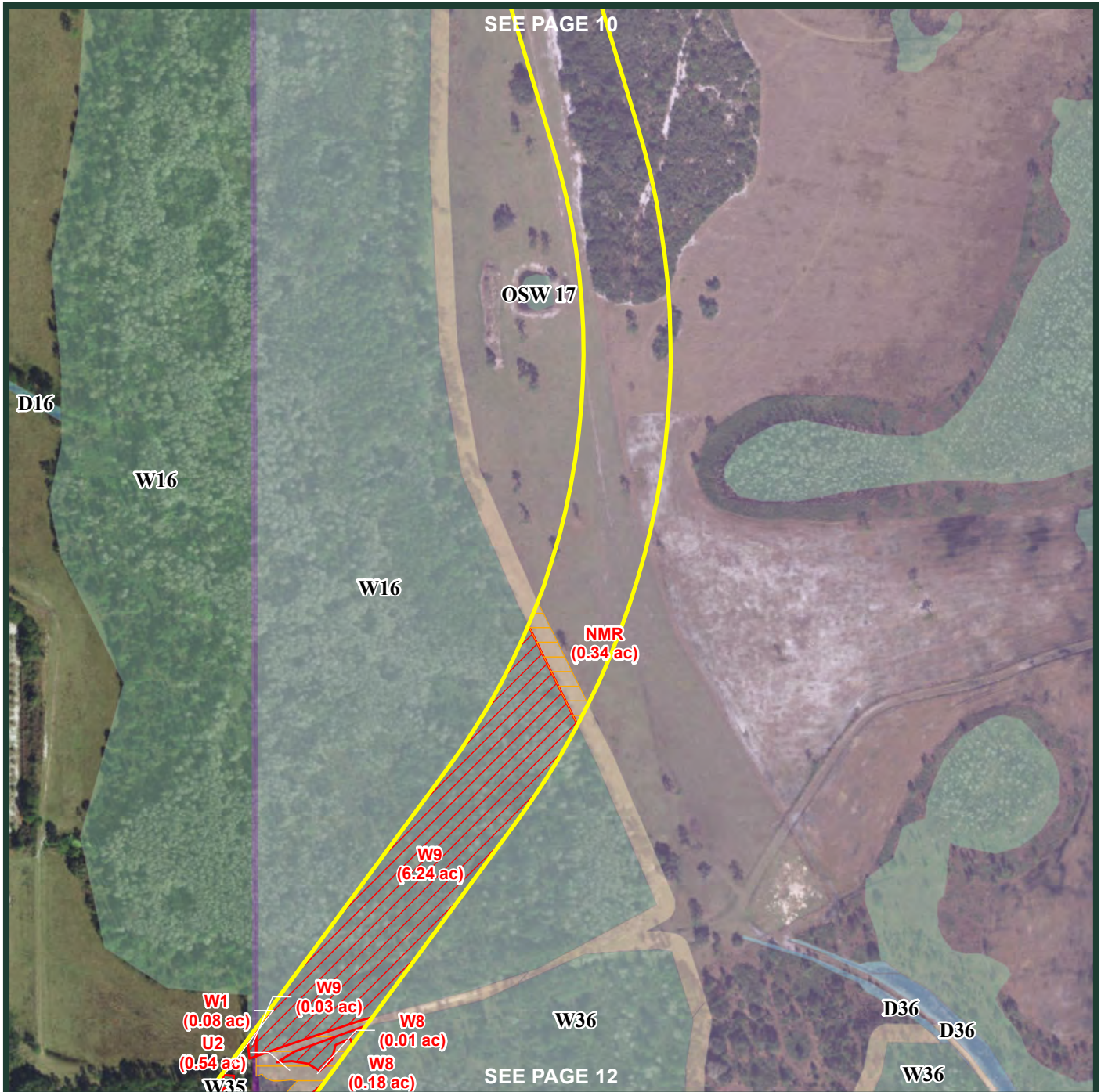
Upland RHPZ Impacts



**EXHIBIT 4. (PAGE 10 OF 12)**  
**WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY**  
**DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.**

**BDA** BREEDLOVE, DENNIS  
 & ASSOCIATES, INC.  
 Environmental Consultants  
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## Legend

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

Surface Waters

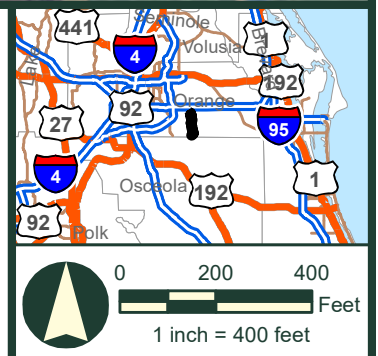
Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts

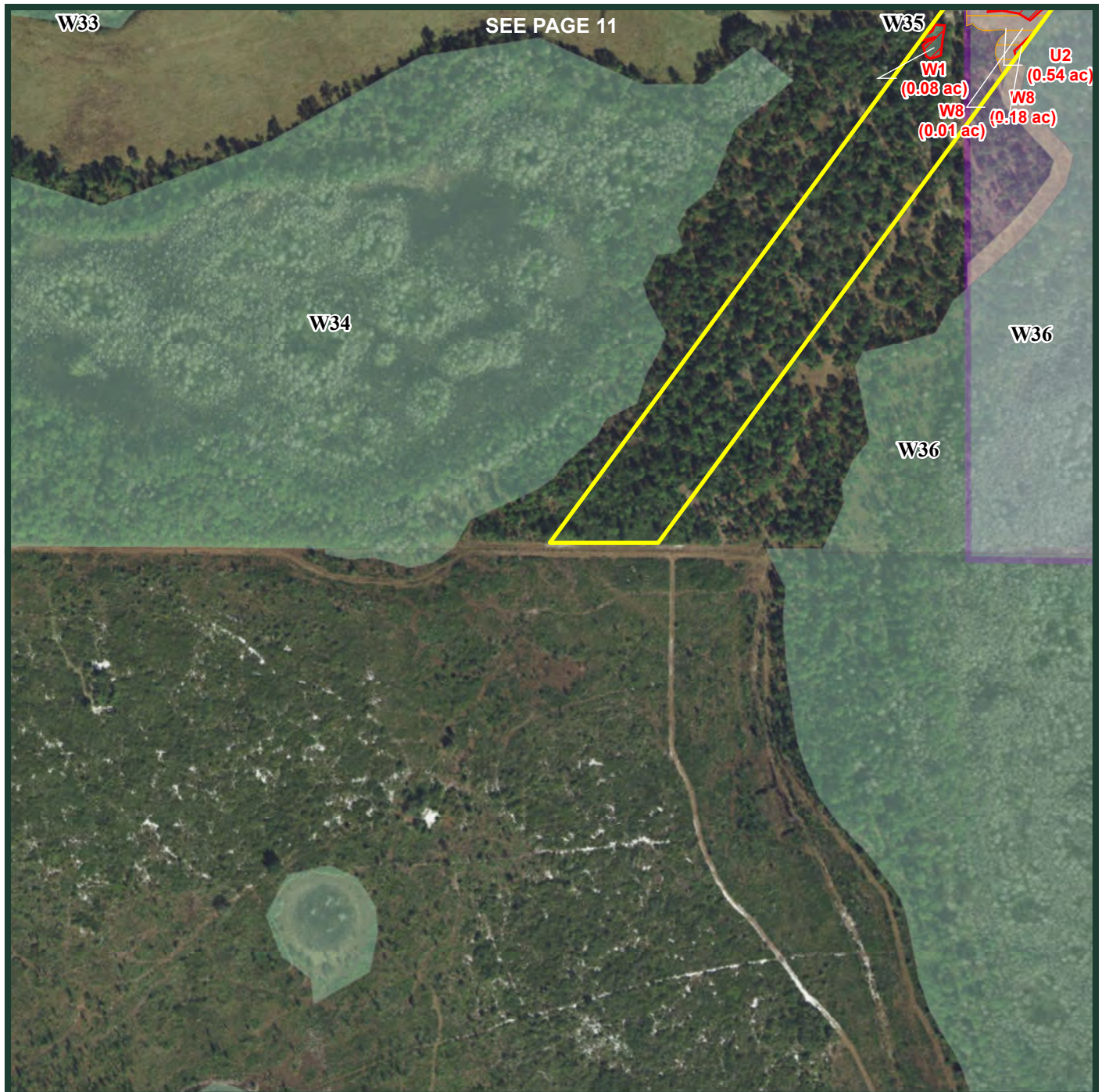
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



## EXHIBIT 4. (PAGE 11 OF 12) WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
Environmental Consultants  
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## Legend

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Project Boundary

### Potentially Jurisdictional:

Uplands

Wetlands

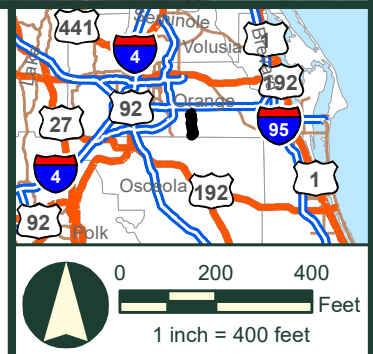
Surface Waters

Econlockhatchee River Hydrologic Basin

Wetland Impacts

Surface Water Impacts

Upland RHPZ Impacts



**EXHIBIT 4. (PAGE 12 OF 12)**  
**WETLANDS WITHIN SUNBRIDGE PARKWAY PRELIMINARY**  
**DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.**

**BDA** BREEDLOVE, DENNIS  
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



## **EXHIBIT 5**

### **PROPOSED MITIGATION FOR WETLAND IMPACTS ON THE SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**

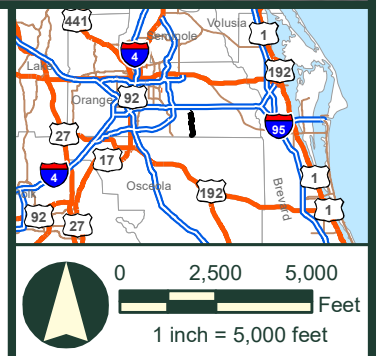




## Legend

- |   |  |   |   |
|---|--|---|---|
|  | Project Boundary                       |  | Conservation Lands and Mitigation Banks |
|  | Econlockhatchee River Hydrologic Basin |  | Wetland Preservation                    |
|  | HUC 8 Boundaries                       |  | Upland Preservation                     |

Service Layer Credits: © 2017 DigitalGlobe © CNES (2017) Distribution Airbus DS © 2017 HERE © 2017 Microsoft Corporation



## EXHIBIT 5. PROPOSED MITIGATION FOR WETLAND IMPACTS ON THE SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.

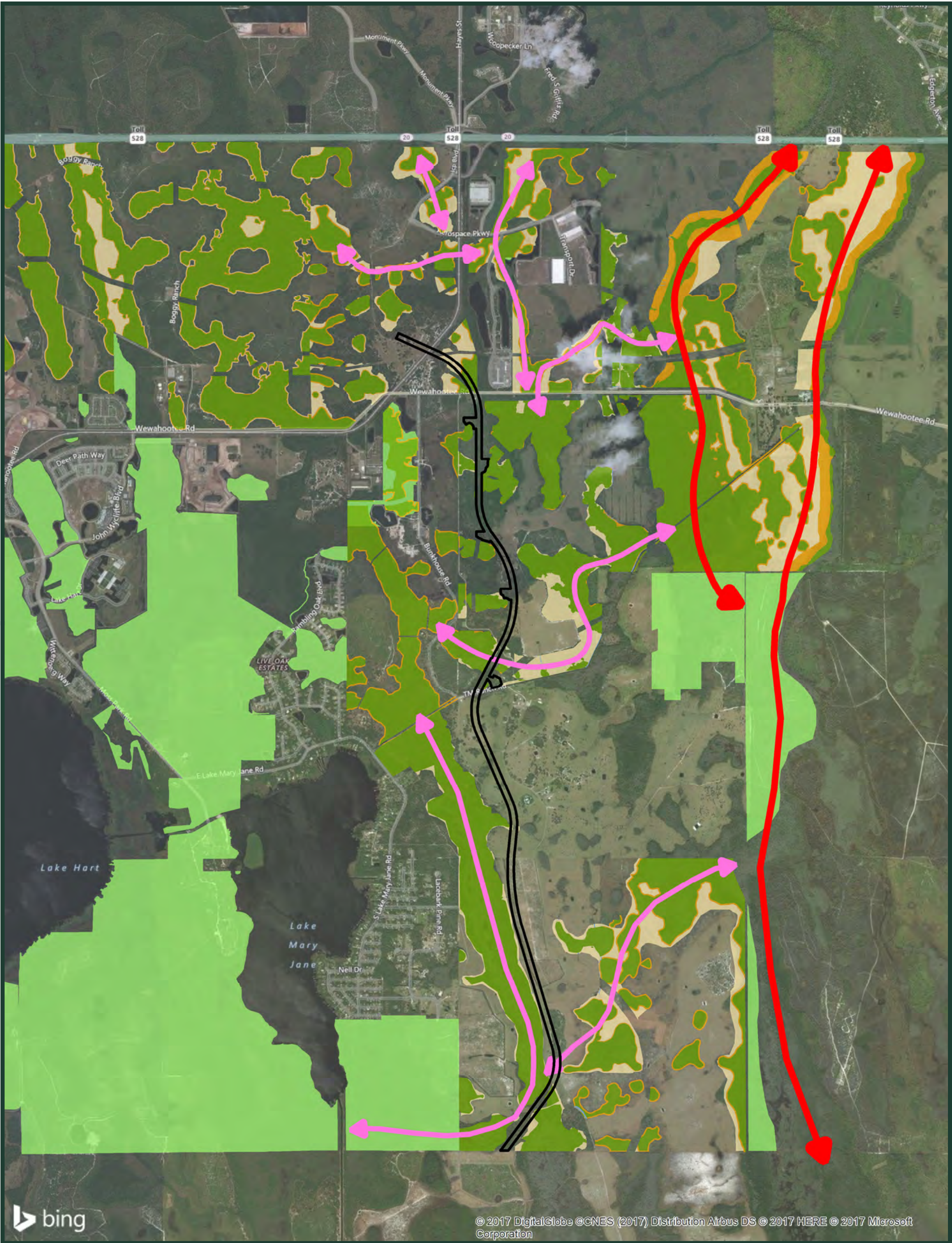
**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
Environmental Consultants  
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## **EXHIBIT 6**

### **ELSP LANDS AND WILDLIFE CORRIDORS IN THE VICINITY OF SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**





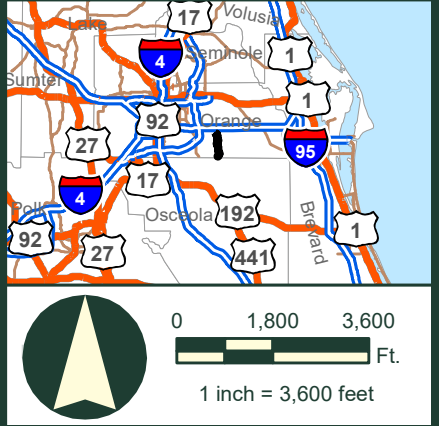
**Legend**

- Intra-Area Wildlife Corridor
- Regional Wildlife Corridor
- Project Boundary

**STEWARDSHIP LANDS**

- Preservation Areas (Public/Private Easements)
- Conservation Areas (Wetlands)
- Required Regulatory Upland Buffers
- Lands that meet ELSP Goals

Source: Orange County ELSP Adopted Map "STEWARDSHIP LANDS" (4-20-2010) provided by Orange County; www.ocepd.org / tim.hull@ocfl.net on 2016-01-25.



**EXHIBIT 6.**  
**ELSP LANDS AND WILDLIFE CORRIDORS IN THE VICINITY OF SUNBRIDGE PARKWAY**  
**PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA.**

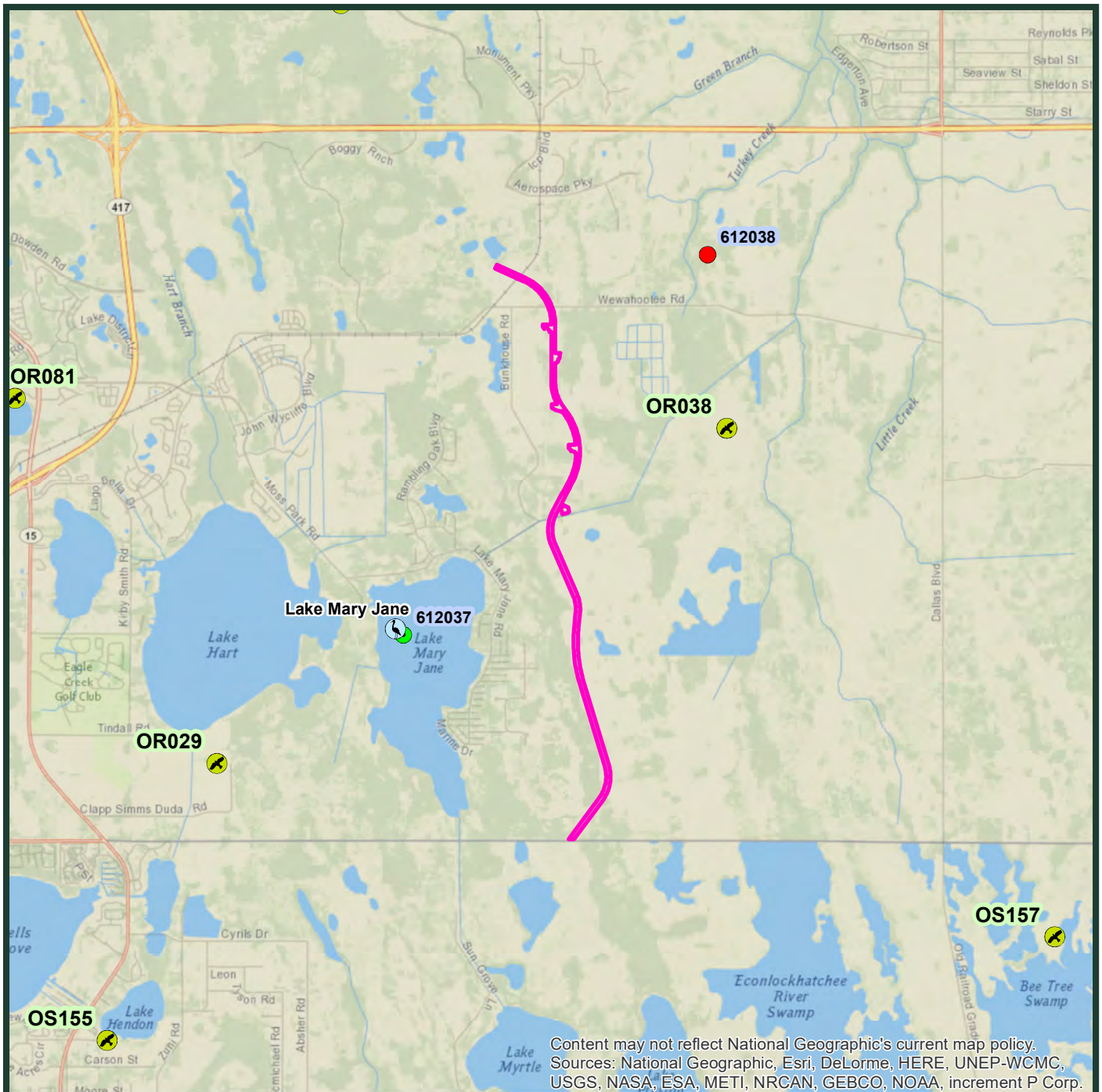
**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
Environmental Consultants  
330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882



## **EXHIBIT 7**

### **BALD EAGLE NESTS AND WADING BIRD ROOKERIES IN THE VICINITY OF SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE COUNTY, FLORIDA**





## Legend

 Project Boundary

 Wood Stork Colonies (2015)


 Eagle's Nests (2015)

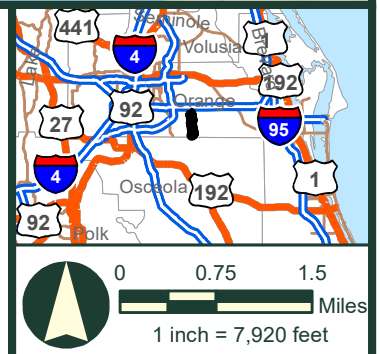
Source: Florida Fish and Wildlife Conservation Commission (FWWC)

## Wading Bird Rookeries (1999)

 Active

 Inactive

 Not checked



**EXHIBIT 7.**  
**BALD EAGLE NESTS AND WADING BIRD ROOKERIES IN THE VICINITY OF**  
**SUNBRIDGE PARKWAY PRELIMINARY DESIGN STUDY AREA, ORANGE CO., FL.**

**BDA** BREEDLOVE, DENNIS & ASSOCIATES, INC.  
 Environmental Consultants  
 330 W. Canton Ave., Winter Park, FL 32789 • 407-677-1882



Appendix U

Archeological and Historical Feature

Impact Analysis

by SEARCH, Inc.



## MEMO

To: Jeffrey J. Newton, PE, Senior Vice President, Donald W. McIntosh Associates, Inc.  
From: Angela Matusik, MA, SEARCH,  
CC: Beth Chambless, MS, RPA, SEARCH  
Date: September 13, 2017  
Re: Archaeological and Historical Feature Impact Analysis

### Sunbridge Parkway and Ponds Preliminary Design Study, Orange County, Florida

Tavistock East Services, LLC is proposing to construct a new roadway and related ponds in Orange County from north of Wewahootee Road extending south to the boundary with Osceola County. SEARCH completed a desktop analysis in June 2017 to identify cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP). **Table 1** and **Table 2** provide a summary of these results. **Figure 1** provides locations for the resources identified.

**Table 1. Previously Recorded and Potential Historic Properties within Sunbridge Parkway and Ponds Study Area**

Florida Master Site File Previously Recorded Resources	Project Impact to Site
The Magnolia Pump House (8OR02206) site is located approximately 170 meters east of the current study area. Evaluated as eligible for the NRHP.	Potential for indirect effects; to be assessed during survey.
Orange County Property Appraiser Unrecorded Resources	Project Impact to Site
One large parcel containing a single family residence, shed, and barn all constructed in 1960 is within the current study area.	Potential for direct effects; to be assessed during survey.
Historic USGS Quadrangle Maps Unrecorded Resources	Project Impact to Site
Disston Canal is evident on the 1953 quad map.	Potential for direct effects; to be assessed during survey.
Unimproved roads/trails.	Potential for direct effects; to be assessed during survey.

**Table 2. Archaeological Probability within Sunbridge Parkway and Ponds Study Area**

Archaeological Probability	Approximate Percentage
High	4%
Medium	21%
Low	75%

Once the final right-of-way alignment has been established, a cultural resource assessment survey (CRAS) including both archaeological and architectural history survey will be conducted. The Area of Potential Effect (APE) for the roadway and ponds will be subjected to subsurface testing at intervals according to the probability of identifying archaeological material. Unrecorded historic resources will be recorded and assessed. The identified historic structures and archaeological sites, if any, will be assessed for their potential eligibility for listing in the NRHP. The results of the CRAS will then be reviewed by the Florida SHPO for concurrence and possible comment.





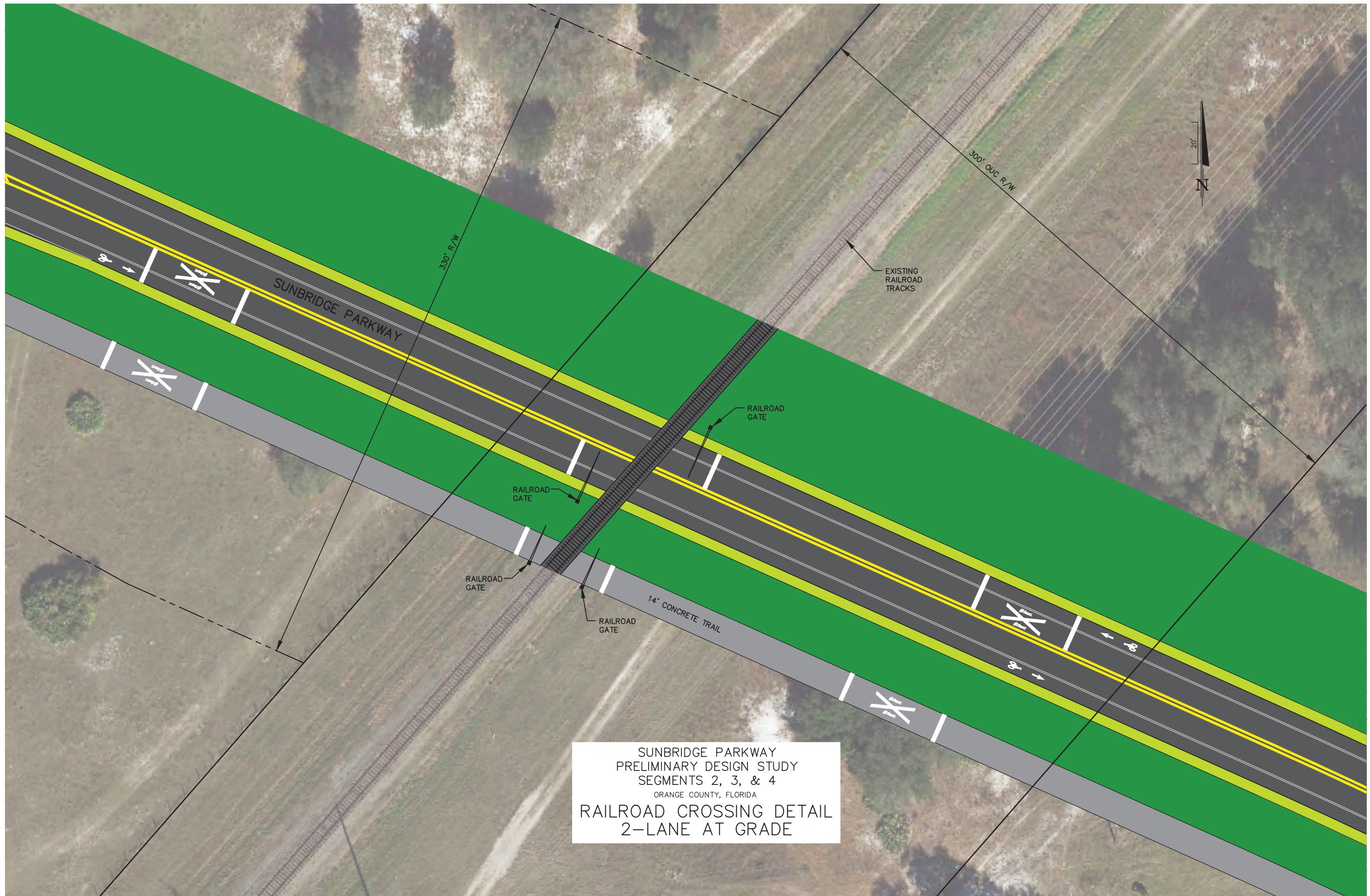
**Figure 1. Cultural resources in the vicinity of the proposed Sunbridge Parkway project.**



# Appendix V

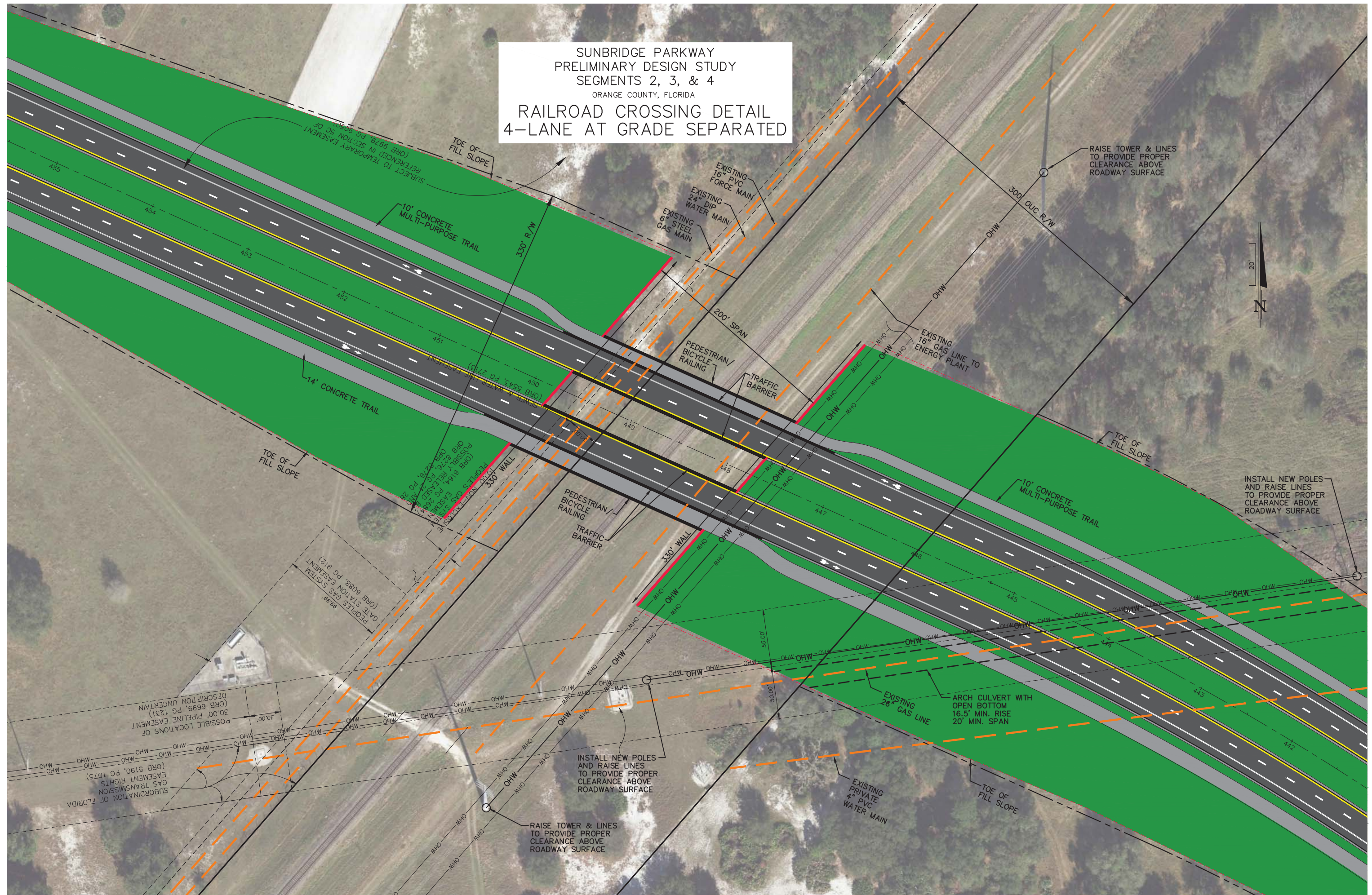
## Railroad Crossing Details



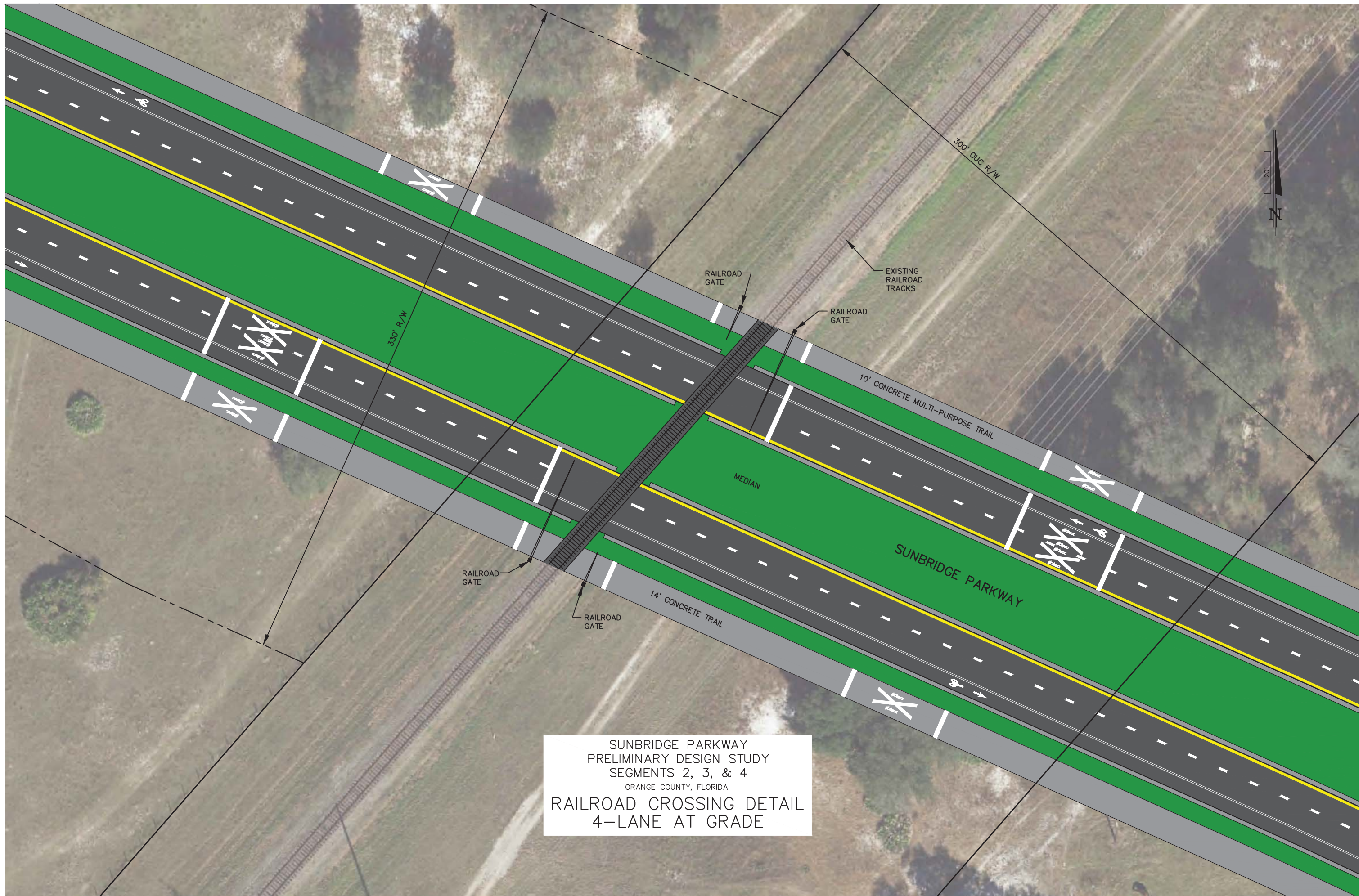




RAILROAD CROSSING DETAIL  
4-LANE AT GRADE SEPARATED







SUNBRIDGE PARKWAY  
PRELIMINARY DESIGN STUDY  
SEGMENTS 2, 3, & 4  
ORANGE COUNTY, FLORIDA  
RAILROAD CROSSING DETAIL  
4-LANE AT GRADE



## Appendix W

Contaminated Sites Impact Analysis  
by Professional Services Industries, Inc.



August 28, 2017

via email: [jjnewton@dwma.com](mailto:jjnewton@dwma.com)

Tavistock East Services, LLC  
6900 Tavistock Lake Boulevard  
Suite 200  
Orlando, Florida 32827

Subject: Contaminated Sites Impact Analysis  
Sunbridge Parkway Corridor  
Osceola County Line to OUC Railroad  
Orlando, Orange County, Florida  
PSI Project No. 06633312

To Whom It May Concern:

Professional Service Industries, Inc. (PSI), an Intertek Company, completed a Contamination Screening Evaluation Report (CSER) for the subject property commencing at the Osceola County, Florida line in the south section and terminating approximately 1,400 feet northwest of the OUC The Reliable One (OUC) Railroad in the north section in Orange County, Florida. Additionally, five proposed pond locations in the north-central section were included within the study area. The CSER was performed in accordance with the contract between Tavistock East Services, LLC (Tavistock) and PSI received on May 11, 2017.

The purpose of this CSER was to evaluate the risk of encountering petroleum or hazardous substance impacted facilities along the study corridor. This study was conducted in general accordance with the methodology described in Chapter 22 of the Florida Department of Transportation (FDOT) Project Development and Environmental (PD&E) Manual - 2016 Version and American Society for Testing and Materials (ASTM) E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

The contamination potential rating system for sites of potential environmental concern are noted below. The findings and conclusions of the CSER identified no High or Medium Risk sites. One Low Risk site, the OUC Railroad, was identified. Potential Contaminants of Concern (COCs) include Pesticides, Metals, and Petroleum. Please note that the OUC railroad line and right-of-way traverses through the north end of the corridor approximately 1,600 feet north of Weewahootee Road. While no information indicating the misuse or misapplication of herbicides, or the misuse or improper placement of creosote-covered railroad ties was obtained during this assessment, in certain instances, the chemicals historically applied to the rail line and chemicals associated with railroad ties historically placed on the right-of-way could be persistent and not biodegrade. As with any land that has been developed as a railroad right-of-way, there exists the possibility that herbicides have been applied or creosote-covered railroad ties placed, which may have impacted the property. However, PSI considers the presence of this railroad right-of-way to be evidence of a low risk in connection with the corridor area at this time given the length of time it has been present.



## Project Impacts and Contamination Potential Rating

The FDOT rating system for sites of potential environmental concern fall into four categories:

**No Risk Site** - After review of all available information, there is nothing to indicate that contamination would be a problem. This does not mean that hazardous waste or materials have not been handled on a site, but indicates that all available information (FDEP reports, monitoring wells, water and soil samples, etc.) indicates problems should not be expected. Examples of operations that may have receive this rating are:

- A gasoline station that has been closed and has a closure assessment or contamination assessment documenting that there is no contamination remaining.
- A wholesale or retail outlet that handles hazardous materials in sealed containers which are never opened while at this facility, such as spray cans of paint at a “drug store.”

**Low Risk Site** - The former or current operation has a hazardous waste generator identification (ID) number, or deals with hazardous materials; however, based on all information, there is no reason to believe there would be any involvement with contamination.

**Medium Risk Site** - After review of all available information, indications are found (reports, Notice of Violations, consent orders, etc) that identify known soil and/or water contamination and that the issue does not need remediation, is being remediated (i.e. air stripper of the groundwater, etc.) or that continued monitoring is required. The complete details of remediation requirements are important to determine what impact the site could have on design or construction of the roadway improvements. This rating expresses the degree of concern for potential contamination problems. Known problems may not necessarily present a high cause for concern if the regulatory agencies are aware of the situation and corrective actions are either underway or complete. The actions may not have an adverse impact on the proposed project. This is the lowest possible rating a gasoline station operating within current regulations could receive.

**High Risk Site** - After a review of all available information, there is a definite potential for the site to have contamination problems. Further assessment will be required to determine the actual presence and/or levels of contamination, the presence of abandoned underground fuel storage tanks, and the need for remedial action. Properties that were previously used as gasoline stations but have not been evaluated or assessed would receive this rating.

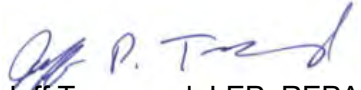
Based on PSI’s review of the EDR Radius Map Report, site reconnaissance, aerial photograph review, city directory review, interviews, and file review conducted on the FDEP’s on-line database, no High or Medium Risk sites have been identified. One Low Risk site was identified within the study corridor that consists of 250 feet in all directions of the study corridor centerline and five pond locations.



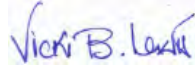
Based on investigation of the property for evidence of potential contamination issues and other environmental issues, no additional assessment appears warranted at this time.

Respectfully submitted,

**PROFESSIONAL SERVICE INDUSTRIES, INC.**



Jeff Townsend, LEP, REPA  
Principal Consultant



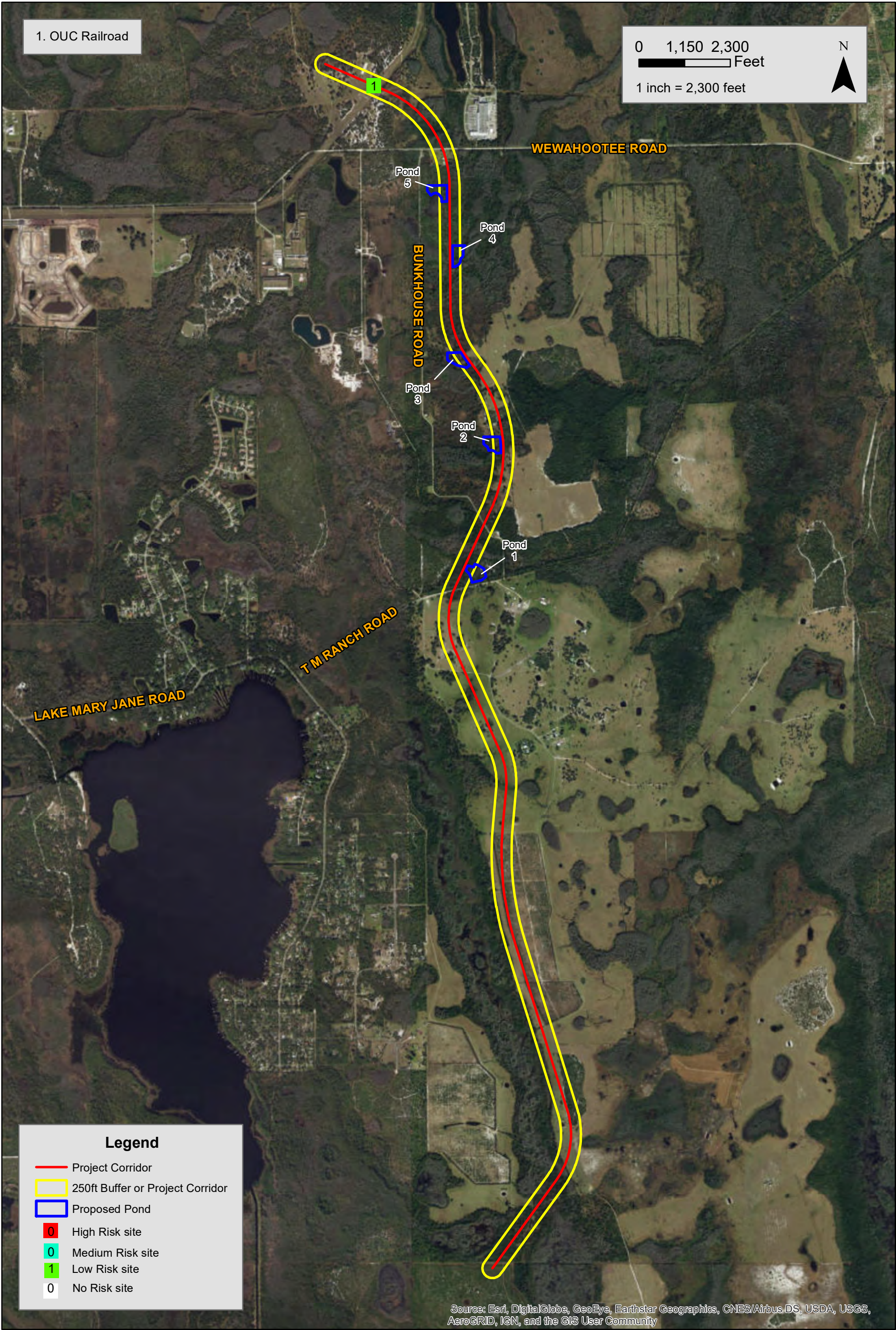
Vicki B. Lewis, LEP, REPA  
Department Manager-Environmental Services/  
Principal Consultant

Attachment: Risk Map


JPT:vbl

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REFERENCE: THE 2016 AERIAL PHOTOGRAPHS WERE OBTAINED FROM ESRI. THE PRESENTED DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. PSI ASSUMES NO RESPONSIBILITY FOR ANY DECISIONS MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

PROJECT NO. <b>06633312</b>	 <b>Information To Build On</b> Engineering • Consulting • Testing	With 125 offices across North America. One Company, One Call	<b>SUNBRIDGE PARKWAY CORRIDOR</b>  EAST ORANGE COUNTY, FLORIDA  <b>FOR: TAVISTOCK EAST SERVICES, LLC</b>	<b>FIGURE 1</b>  Risk Map
TWN/RNG/SEC <b>VARIOUS</b>		1748 33rd Street Orlando, FL 32839 (407)304-5560 (407)304-5561 fax		
DATE CREATED <b>8/28/17</b>				