SUNBRIDGE PARKWAY SEGMENTS 2, 3, AND 4
PRELIMINARY DESIGN STUDY REPORT

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And

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I. PURPOSE OF REPORT

This report has been prepared by Donald W. McIntosh Associates, Inc. (DWMA) in order to assist Tavistock East Services, LLC (Tavistock) and Orange County, Florida in their evaluation of a corridor for Sunbridge Parkway Segments 2, 3 and 4 (Project). The purpose of this report is to recommend a roadway improvement concept that provides a safe and cost effective route extending south from the intersection of Sunbridge Parkway with Aerospace Parkway/Dowden Road to the Orange County/Osceola County line, where the roadway will ultimately be extended into Osceola County’s Northeast District to provide connectivity between two large areas of Tavistock’s Sunbridge community. The planning of this corridor must take into account the long range plans of both Orange County and Osceola County as well as a number of physical, geometric and environmental constraints affecting the planned corridor. This report includes a compilation of several reports prepared by the consultant team for the Project, which are presented in their entirety as appendices prefaced by a summary discussion in this report.

II. GENERAL

a. NEED FOR IMPROVEMENT

The Sunbridge Master Planned Development in southeast Orange County and northeast Osceola County requires a north/south roadway to accommodate that development. Orange County and Tavistock East Services, LLC are working together to construct Sunbridge Parkway Segments 2, 3 and 4 to service that need through a public-private partnership arrangement as set forth in the Transportation Agreement for Sunbridge Parkway (From Dowden Road to Osceola County Line; Orange County Records, Document# 20170253449) ("Road Agreement"; Appendix A) executed by the owners (through their representatives) of these parcels and Orange County. Development projects in the region as illustrated on the Planning Context Map, Figure II-1, include:

- In Orange County:
  - Sunbridge PD (fka Innovation Way East (IWE) and International Corporate Park (ICP))
  - Storey Park (fka Innovation Place)
  - Starwood
  - Camino Reale South (CRS)
- In Osceola County
  - Sunbridge (aka Northeast District (NED))
  - Narcoossee Community Overlay
The location of the recommended Sunbridge Parkway corridor as selected by this study is also depicted on that map. The map illustrates the significance of Sunbridge Parkway as a connective transportation link for all of the development areas noted above when connected to the east-west roadways including Cyrils Drive and the Osceola Parkway Extension in Osceola County and Innovation Way South, Dowden Road (Aerospace Parkway) and the full interchange with the Beachline Expressway (SR 528) in Orange County.

b. The Study Area

Proposed Sunbridge Parkway, Segments 2, 3 and 4, will lie within the Sunbridge PD (fka International Corporate Park (ICP) and Innovation Way East (IWE)) and Camino Real South (CRS) properties in east Orange County in accordance with the Road Agreement. Segment 1, which is located to the north of Segments 2, 3 and 4, is currently in the design and permitting stage. Segment 1 begins south of the interchange of Sunbridge Parkway and the Beachline Expressway (SR-528), at the intersection of Sunbridge Parkway and Aerospace Parkway, and runs roughly 4,466 feet southerly to a point roughly 1,300 feet northwest of the Orlando Utilities Commission (OUC) railroad. Segments 2, 3 and 4 continue southerly from that point to the Orange County/Osceola County line. (See Project Location Map, Figure II-2 and Segments Map, Fig II-3).
FIGURE II-3: SEGMENTS MAP
c. **CONFORMANCE WITH TRANSPORTATION AND LONG RANGE PLANS**

The Sunbridge Parkway project is consistent with the Transportation Element of the Orange County Comprehensive Plan. Specific policies supporting the consistency are reproduced below with discussion shown in *italics font*.

**OBJ T1.1** The County adopts the Long-Range Transportation Plan (LRTP), the County’s long-term transportation improvement program, as Map 1 of the Transportation Element. This plan includes the 10-year Capital Improvement Schedule, a 5-year Capital Improvement Program, state roadway projects, and other needed County transportation improvement projects inclusive of proposed partnership projects. This annually-updated plan represents a cost feasible project plan that addresses current and future roadway deficiencies within the planning horizon.

*Sunbridge Parkway is depicted on Map 1 of the Transportation Element of the Comprehensive Plan as “North-South Rd” and designated on the map as “County Partnership.” The recommended corridor is substantially consistent with the LRTP. See Figure II-4, Excerpt from Orange County LRTP – Map 1.*

**T1.3.3** Orange County shall consider all available funding sources, including those at the State and Federal levels, gasoline taxes, impact fees, development-related, and public/private initiatives for transportation projects.

*The Roadway Agreement is an example of the County working with developers to accomplish development related and public/private initiatives for transportation projects to develop regional infrastructure.*

**T1.1.1** The County shall implement the LRTP by utilizing the following four-step process: Roadway Conceptual Analysis (RCA), which confirms roadway and corridor needs, recommends the most suitable alignment and design characteristics, provides refined cost estimates and analyzes social/environmental land use impacts; Roadway Design; Right-of-Way Acquisition; and Roadway Construction.

*This PDS and its review process has been performed to fulfill the RCA component of this policy.*
FIGURE II-4: EXCERPT FROM LRTP MAP 1

* Derived from Orange County Comprehensive Plan
T1.1.1.2 The planning, design, construction, and operation of roadway corridors shall reflect the context of the communities and environment through which the corridors pass to the fullest extent possible.

The recommended roadway corridor and cross-sections have been selected to balance the transportation needs of the developing region with the environmental protections established by the County, other regulatory agencies and Tavistock. Sunbridge Parkway is comprised of both urban and rural cross-sections to reflect the urban development context of the Sunbridge PD in the northern area and the rural ranch context of CRS in the southern area.

T1.1.1.2 Through the RCA process, or other appropriate method, the County will seek public involvement throughout the process to determine measures to mitigate adverse impacts to adjacent land uses and established neighborhoods to the extent possible.

This PDS and its review process has been performed to conform with this policy. This PDS process has engaged the public at a Small Group Meeting on November 10, 2017 and at a Public Information Meeting on November 30, 2017. A Newsletter has been issued and public notices have been published. Ongoing public involvement through newsletters, workshops and public hearings will continue through the completion of the study.

T1.2.1 Orange County shall use the official transportation modeling structure as adopted by METROPLAN Orlando.

The PDS transportation engineering consultant, Kittelson & Associates, has been coordinating with Orange County engineering staff to ensure that the traffic models are prepared consistent with methodologies acceptable to the County.

T1.3.2 To ensure the Capital Improvements Program is responsive to transportation demands, priority for funding County transportation improvement projects shall be based on factors such as:

A. Safety for all users;
B. Capacity deficiency;
C. Right-of-Way availability/preservation;
D. Partnership potential;
E. Consistency with the Comprehensive Plan and METROPLAN Orlando’s Long Range Transportation Plan;
F. Supports the use of alternative modes of transportation;
G. Located within the County’s Urban Service.
The Sunbridge Parkway project is consistent with the above stated objectives. The new multimodal corridor will be designed in accordance with current design criteria for safety and will provide adequate capacity based on the traffic analysis through the study period to 2040. Bicycle lanes will be provided along the entire length of the corridor and multi-purpose pathways will be provided on both sides in the urban area and on one side in the rural area. Coordination of the project through the public-private partnership process represented by the existing roadway agreement with the engaged property owners provides for acquiring right-of-way from undeveloped properties sufficient to serve long term capacity demands. The process, objectives and conceptual designs are consistent with the Comprehensive Plan and the long term transportation plans of the County and Metroplan. While only the northern portion of the corridor is located within the Orange County Urban Services Area (USA), the entirety of the proposed roadway is essential for connectivity between the Orange County and Osceola County urbanized areas of Sunbridge.

T1.3.3 Orange County shall consider all available funding sources, including those at the State and Federal levels, gasoline taxes, impact fees, development-related, and public/private initiatives for transportation projects.

The Sunbridge Parkway Segments 2, 3 and 4 project is the result of the public-private partnership process represented by the existing Roadway Agreement with the engaged property owners.

T1.3.6 To provide for an efficient and cost-effective transportation system, Orange County shall continue to acquire rights-of-way for timely management or acquisition of property to the extent financially practical and permitted by law.

The Project and the associated Roadway Agreement provides for the acquisition of sufficient right-of-way for future traffic capacity demands to be serviced by the four-lane divided roadway with northbound and southbound bicycle lanes and multi-purpose pathways and for a future overpass at the OUC railroad should it ever be warranted.

T1.3.7 The County will continue to participate in Interlocal agreements, Joint Participation Agreements, and other coordinated funding efforts with other local jurisdictions and public/private partnerships with private developers as a means of funding necessary transportation projects identified in the LRTP and that are consistent with the County’s adopted comprehensive plan and METROPLAN Orlando’s LRTP.

The Road Agreement is a public/private partnership as anticipated by this Policy.
T3.2.2 The County shall ensure that existing and new developments are connected by pedestrian, bikeways and roadways systems to encourage travel between adjoining properties and minimize trips on major roadways.

Sunbridge Parkway will be built with continuous, 7-foot wide buffered bicycle lanes for the entire six-mile roadway. Additionally, a 14-foot wide trail will be constructed on the west side of the roadway for the entire length of Sections 2 – 4 and a 10-foot wide multi-purpose path will be constructed on the east side of the urban section.

III. PUBLIC INVOLVEMENT

a) NEWSLETTERS

A series of newsletters is being issued to the public throughout the study to provide status updates of this Preliminary Design Study. The initial Newsletter was mailed to over 1,400 recipients in November 2017. A copy of the November newsletter is provided in Appendix B.

Future newsletters are to be issued prior to the Local Planning Agency meeting and the Board of County Commissioners meeting and a final newsletter at the conclusion of the study.

b) PUBLIC MEETINGS

Public meetings were held as listed below to exchange information with interested parties.

Copies of the mailing list and public notices are provided in Appendix C.

Small Group Meeting No. 1: The first Small Group Meeting occurred November 10, 2017, at 1:30 p.m. at the offices of Tavistock Development Company 6900 Tavistock Lakes Boulevard, Suite 200, Orlando 32827. A copy of the attendees sign-in sheet together with meeting minutes are provided in Appendix D.
Public Information Meeting: A Public Information Meeting occurred on November 30, 2017, at 6:00 p.m. in the cafeteria at Lake Nona Middle School, 13700 Narcoossee Road, Orlando, 32832. Orange County Staff presented the Recommended Improvement Concept at that time. A copy of the attendees sign-in sheet together with written comments from the public and the County responses are presented in Appendix E. The public comments and County responses are summarized as follows:

c) PUBLIC HEARINGS

Workshops and Public Hearings before the LPA and BCC will take place at a future date to consider the recommendations contained in this report.

d) UTILITY COMPANY AND REGULATORY AGENCY COORDINATION

Initial contacts and coordination to inform utility companies having facilities and regulatory agencies having authority in the project area have been conducted to solicit input. The companies and agencies contacted are listed below; copies of the correspondences are provided in Appendix F.

- South Florida Water Management District (SFWMD);
- Orange County Utilities Department (OCU);
- Orange County Environmental Protection Department (OCEPD);
- Osceola County Community Development Department (Osceola);
- United States Fish & Wildlife Service (USFWS);
- U.S. Army Corps of Engineers, (USACOE);
- Florida Department of Environmental Protection (FDEP);
- Florida Fish & Wildlife Conservation Commission (FWC);
- Orange County Public Schools (OCPS);
- Orange County Fire Rescue (OCFR);
- Central Florida Expressway Authority (CFX);
- Florida Department of Transportation (FDOT);
- Florida’s Turnpike Enterprise (FTE);
- Orlando Utilities Commission (OUC);
- Florida Gas Transmission (FGT);
- TECO Peoples Gas (TECO);
- Duke Energy.
A second round of coordination was initiated as the Recommended Improvement Concept Map evolved to address potential conflicts and future needs in a more specific and targeted manner. Copies of the meeting minutes are provided in Appendix F.

IV. EXISTING CONDITIONS

The Recommended Alignment is located in generally vacant property. However, there are several existing conditions affecting the selection of the recommended alignment. These can be divided into five groups of constraints: the OUC railroad, existing utilities, land ownership, environmental management (wetlands and wildlife) and existing and planned roadways that will intersect the Parkway. Improvements within the corridor include the OUC Railroad within its 300 wide right-of-way and various utility facilities and easements, typically located in the vicinity of the railroad.

a. PHYSICAL CONSTRAINTS

1. Railroad
   The OUC railroad runs southwest-northeast across the roadway corridor within a 300-foot wide right-of-way. It is desirable to cross the railroad bed at as close to perpendicular as possible. An at-grade crossing will require proper markings, signage and protective equipment. Long term, it is possible that a bridge crossing will be required if warranted by additional traffic. As it is recommended that adequate right-of-way to accommodate the bridge crossing be acquired in the initial right-of-way acquisition, it is included and accounted for in this report.
2. Existing Utilities

Existing utilities that may affect the roadway design include (See Figure IV-1, Existing and Proposed Utility Map):

- **OUC 230 kV electric transmission facilities (lines and towers):** The existing transmission facilities run within an existing 300-foot wide OUC right-of-way, generally parallel to the existing railroad.

- **OCU potable water main:** A 24-inch DIP water main runs along the north side of the OUC railroad right-of-way in a 30-foot wide sewer and water line easement adjacent to the railroad right-of-way. The Sunbridge Parkway corridor crosses the main in the vicinity of the anticipated roadway/railroad crossing.

- **OCU wastewater force main:** A 16-inch PVC force main runs along the north side of the OUC railroad right-of-way in a 30-foot wide sewer and water line easement adjacent to the railroad right-of-way. The Sunbridge Parkway corridor crosses the main in the vicinity of the anticipated roadway/railroad crossing.

- **Florida Gas Transmission Company high pressure gas transmission system and facilities:** A gate station is located at the south side of the roadway corridor and two gas transmission mains cross the roadway corridor in the vicinity of the anticipated roadway/railroad crossing. A 26-inch high pressure (975 psi) main runs generally east-west (south of and adjacent to the Duke Energy easement) and extends to Florida Power and Light’s Cape Canaveral Clean Energy Center as its sole source of fuel. This main is valved in and around the gate station, including a blow down valve and metering facility. A 16-inch main runs along the east side of the OUC railroad right-of-way and extends to OUC’s Curtis Stanton Energy Plant as a secondary source of fuel.

- **TECO gas distribution system facilities:** Extending from the gate station and crossing the Sunbridge Parkway corridor are one 6-inch main running northeasterly in a 10-foot wide easement on the north side of the railroad right-of-way (adjacent to the 30-foot wide sewer and water line easement; see above).

- **Duke Energy 96 kV electric transmission facilities (lines and poles):** The overhead line runs generally east-west within a 55-foot wide easement, crossing the Sunbridge Parkway corridor near the anticipated roadway/railroad crossing.

- **City of Cocoa potable water supply well sites and raw water mains:** The City of Cocoa has several well sites, both fee simple and within easements, generally aligned along the west and north property lines of IWE. The raw water main runs between these sites, generally along the property lines, and continues easterly to the City of Cocoa’s Claud H. Dyal water treatment plant. The roadway corridor crosses the main at the IWE/ICP property boundary.

In addition to the listed existing utilities, proposed potable water, wastewater and reclaimed water utility lines are depicted on the Existing and Proposed Utilities Map; however, these are not anticipated to be funded with the road construction are not included in the PDS project scope or cost projections.
The proposed electric power distribution, telecommunications line extensions and gas main extensions noted on the Existing and Proposed Utilities Map are similarly not anticipated to be funded with the road construction and are not included in the PDS project scope or cost projections.
3. Land Ownership

The most significant element controlling the roadway alignment is the commonly agreed upon objective that the road right-of-way lands shall be obtained from lands controlled by Tavistock. The current Owners of these lands include: Suburban Land Reserve, Inc.; Farmland Reserve, Inc.; Central Florida Property Holdings 100, LLC; and Central Florida Property Holdings 200, LLC. Additionally, there are seven City of Cocoa water supply well sites located along the corridor, five of which are on sites owned by the City of Cocoa and two of which are within easement areas. (See Figure II-1, Planning Context Map). The selected alignment must provide sufficient wellhead protection in accordance with State, County and City of Cocoa requirements.

Fee ownership of the land underlying the privately gated portion of Wewahootee Road in the vicinity of the recommended roadway corridor appears to be vested in Suburban Land Reserve, Inc. and Central Florida Property Holdings 100, LLC. This interpretation was made utilizing title information obtained in connection with the preparation of sketches of description for the proposed ROW&E, as described in the Transportation Agreement for Sunbridge Parkway (see Appendix A). Future dedication of ROW&E to Orange County will need to accommodate existing easement rights associated with existing utility facilities (e.g., City of Cocoa, Sprint, etc.). Access rights benefiting individuals that were created by the Wewahootee Road Easement Agreement (ORB 5761, PG 3567) terminate roughly 600 feet west of the proposed west right-of-way line of Sunbridge Parkway and therefore do not appear to affect the proposed right-of-way dedication.

Although the fee ownership of the lands from which ROW&E are to be acquired resides with the parties to the Roadway Agreement, the roadway corridor is affected by several existing easements and/or rights-of-way associated with existing utility facilities and the existing OUC railroad that benefit other parties. There is no alternative alignment that would provide a roadway corridor connecting the proposed end of Segment 1 to the proposed roadway network within Osceola County’s Northeast District that does not cross these existing easements and/or rights-of-way. Therefore, an alternatives analysis will not produce an alignment that avoids the impact of these encumbrances. The proposed alignment minimizes the impact to these easements and/or rights-of-way to the greatest extent practicable.

4. Environmental Management

Environmental constraints are imparted by the requirement for avoidance and minimization of impacts to the existing wetland areas and wildlife corridors. The recommended alignment for Sunbridge 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 including wildlife corridors. See Figure IV-2.

5. Roadway Intersections

Roadway Intersections with Sunbridge Parkway that will affect the alignment and the access management plan include:

- Wewahootee Road (Private Road);
- Innovation Way South (Proposed);
- Various entry drives serving City of Cocoa water supply well sites;
- TM Ranch Road;
- Access road to Holland Ranch;
- Various access drives to adjacent ranch lands;
- Osceola County/Northeast District proposed alignment of Sunbridge Parkway.

A more detailed discussion of these major physical controls governing the recommended alignment is as follows (proceeding southerly from the southern end of Sunbridge Parkway – Segment 1. See Figure IV-3, Corridor Constraints for location references):

6. Ranching Operations

It is desirable to minimize the adverse impact to ongoing Ranch operation’s by maximizing contiguous available pasture east of the roadway corridor. A consequential benefit of such an alignment is the minimization of available pasture lands to the west of the corridor adjacent to Robert’s Island Slough, thereby providing greater protection of the slough from the impacts of cattle grazing.

Segment 2

- Orlando Utilities Commission (OUC) 300-foot wide right-of-way containing both railroad facilities (tracks and appurtenances) and 230 kV electric transmission facilities (lines and towers). The crossing of the railroad will initially be at grade and as near to perpendicular as possible. Consideration must also be given to the projected future need for a grade separated crossing, although such a need is not anticipated to occur within the long term (design year 2040) study period.
- Orange County Utilities (OCU) potable water main adjacent to the OUC right-of-way.
- OCU wastewater force main adjacent to the OUC right-of-way.
- Florida Gas Transmission Company high pressure gas transmission system easements and facilities, including metering station, blow-down and other appurtenances.
- TECO gas distribution system easements and facilities.
- Duke Energy (fka Florida Power Corp) easements and 96 kV electric transmission facilities (lines and poles).
- Limited boundary contiguity between ICP and IWE (574± feet).
- City of Cocoa potable water supply well sites and raw water mains.
- Wetlands and wildlife corridors – avoid/minimize impacts and conform to the intent of the Orange County Environmental Land Stewardship Program (ELSP).
- Near perpendicular orientation to Innovation Way South, which enters IWE from the adjacent Master Planned Community of Camino Reale.

**Segment 3**

- Wetlands and wildlife corridors – avoid/minimize impacts and conform to the intent of the Orange County Environmental Land Stewardship Program (ELSP).
- City of Cocoa potable water supply well sites and raw water mains.
- Limited boundary contiguity between IWE and CRS (931± feet).

**Segment 4**

- The Disston Canal, which separates segments 3 and 4, must be crossed in a manner that does not impede the function of the canal.
- The entirety of Segment 4 is subject to the horizontal curve design guidelines for a 60 mph design speed.
- The entire segment length is also subject to consideration of a possible future electric power transmission easement along the west side of the corridor.
- The northern portion of this segment is constrained by three City of Cocoa potable water supply well sites and raw water mains.
- Wetlands and wildlife corridors – avoid/minimize impacts and conform to the intent of the Orange County Environmental Land Stewardship Program (ELSP).
- Consideration should be given to the use of the adjacent lands for cattle pasture or other agricultural pursuits, maximizing the contiguous area of available land in order to minimize the impact of the road on agricultural operations.
- The bend to the southwest at the southern end of the segment should be located to minimize impacts to Roberts Island Slough by crossing in the approximate location of an existing roadway crossing.
- The proposed roadway corridor should be aligned to be consistent with the approved master plan for the portion of Sunbridge lying within Osceola County (aka The Northeast District).

In addition to the physical constraints affecting the alignment of the roadway, there are also design constraints detailed in the Orange County Code and in the Florida Department of Transportation Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (“Florida Greenbook”) to which the roadway design must adhere.
FIGURE IV-2: ELSP LAND AND WILDLIFE CORRIDORS
FIGURE IV-3: CORRIDOR CONSTRAINTS

CONSTRAINTS KEY

1. CONNECT TO SEGMENT 1
2. OUC RAILROAD CROSSING—PERPENDICULAR
3. UTILITY CROSSINGS
4. AVOID/MINIMIZE WETLAND IMPACTS
5. COMMON PROPERTY BOUNDARY
6. COCOA WATER SUPPLY WELL SITE AVOIDANCE
7. INNOVATION WAY SOUTH ROAD CROSSING—PERPENDICULAR
8. MAXIMIZE REMAINDER RANCH LANDS
9. NORTHEAST DISTRICT CONNECTION

ORANGE COUNTY
OSCEOLA COUNTY

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

Donald W. Michel & Associates, Inc.
City of Cocoa Well Sites – Wellhead Protection Zones

A 500-foot diameter wellhead protection zone as set forth in Chapter 62-521, Florida Administrative Code (FAC) exists at each of the nine (9) City of Cocoa wells located along the study corridor. These protection zones preclude certain uses that have been deemed by the State of Florida to be potential sources of contamination, and are therefore prohibited within the protection zone. As none of the uses/actions defined in 62-521.400 FAC as prohibited or requiring additional defined compliance measures are proposed within the right-of-way, the protection areas are not considered restrictive as to the roadway alignment.

Orange County Comprehensive Plan policies PW2.1.9 and AR 2.1.7 both provide for the protection of potable water wells. However, nothing in these policies appears to prohibit or in any way restrict the construction of a road that is at least 200 feet from the wellhead. Based on guidance received from the Orange County Attorney’s Office, the construction of a roadway within the 500-foot zone is not considered a violation of the protection zone.

Finally, the City of Cocoa has stated that they prohibit development of any kind within 150 feet of the wellhead.

b. GEOTECHNICAL CONDITIONS

Refer to Preliminary Report Geotechnical Engineering Services, Sunbridge Parkway PDS dated October 26, 2017 by Professional Services Industries, Inc. (PSI) (Appendix G)

PSI reported that typical soils in the three strata identified area suitable as select fill with the qualifications that soils from strata 2 may retain excess moisture and be difficult to compact and the cemented sands in strata 3 must be fully pulverized/crushed.

Muck probes performed in the wetland areas along the alignment generally encountered compressible organic soils ranging from 0 to 4 feet in thickness. Compressible soils on the order of 5 to 7 feet in thickness were encountered at a limited number of locations. Subsoil excavation to remove organic soils should be anticipated where the roadway crosses wetland areas.

Groundwater levels encountered in the SPT and auger borings generally ranged from 0 to 5 feet below the existing grade, with a majority of the groundwater depths ranging from 1 to 3.5 feet below existing grade. The average wet season water level for use in designing the wet bottom ponds is anticipated to be 1 foot below the estimated normal seasonal high groundwater elevations. Excavation of stormwater management ponds, compensating storage areas and deeper utility and drainage trenches will require dewatering.
Very dense sands and cemented sands (jointly referred to hereafter as “hardpan”) were encountered during the field exploration over almost the entire length of the corridor and may be encountered at other locations along the roadway alignment and in the pond locations between and away from PSI’s borings. The contractor should be prepared to use special equipment and or procedures to facilitate excavations, dewatering and other earthwork operations.

Based on the review of available data, it is PSI’s opinion the project area is at a low risk for future sinkhole development.

c. ENVIRONMENTAL SITE ASSESSMENT


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, they report that “no High or Medium Risk sites were identified within the study area extending 250 feet in all directions of the study corridor centerline and five pond locations. “One Low Risk site [the OUC railroad crossing] was identified within the study corridor” (See Figure IV-4). PSI concludes that “[based on investigation of the property for evidence of potential contamination issues and other environmental issues, no additional assessment appears warranted at this time.”

d. CULTURAL RESOURCE ASSESSMENT SURVEY

See Desktop Analysis of the Sunbridge Parkway and Ponds for the Preliminary Design Study dated August, 2017 by SEARCH, Inc., Appendix I.

SEARCH reports one potential historic site within the study area, a 1960 single–family residence, shed and barn (referenced from the Property Appraiser’s website). This site is located within the proposed right-of-way and would be impacted by the roadway. The Disston Canal is also noted as a historic linear resource. The previously recorded and not previously recorded sites identified by SEARCH are mapped on Figures IV-6, Figure IV-7 and IV-8.
Search recommends evaluation of the Disston Canal, unimproved roads and the 1960 single-family residence for historic significance. Search also states that there is moderate probability of encountering intact historic or prehistoric archaeological deposits in the portions of the project area with moderately well drained to somewhat poorly drained soils.
Search concludes that “during the [water management district] permitting process, the permit application will be reviewed by the Florida Division of Historical Resources (FDHR) under the legal authority of Chapter 373, Florida Statutes. Given the presence of recorded and unrecorded cultural resources in the vicinity of the project, it is the opinion of Search that FDHR is likely to request that a Phase I cultural resource assessment survey (CRAS) be conducted of the project Area of Potential Effect “APE” and that “[i]f the project would result in an adverse effect to an NRHP-eligible resource, it would be necessary to develop a mitigation strategy in consultation with FDHR.”

e. HYDROLOGIC AND NATURAL FEATURES


a. Wetlands:

   Jurisdictional limits of wetlands occurring within the study area north of Disston Canal have been approved by the Orange County Environmental Protection Division (OCEPD), the associated water management districts including South Florida Water Management District (SFWMD) and St. Johns River Water Management District (SJRWMD), and the Department of the Army, Corps of Engineers (USACOE). Wetlands occurring south of Disston Canal have been approved through OCEPD.

   The selected roadway alignment will result in encroachment impacts to several of the existing wetland strands throughout the alignment corridor. Mitigation will be required.

   The wetland mapping is presented in Figures IV-8 through IV-19.

b. Critical and Strategic Habitat Impacts

   As reported in BDA’s Environmental Considerations report there are no significant (Priority 1 or 2) strategic habitat areas is in the recommended roadway corridor. See Figure IV-20.

c. Stormwater and Natural Drainage Patterns:

   See Conceptual Drainage, Floodplain Impact Analysis, Pond Siting Report dated October 2017, by DWMA, Appendix L (Stormwater Report) and Hydrologic and Natural Features report dated July 31, 2017 by DWMA.
Figure 2. Previous cultural resource surveys intersecting the Sunbridge Parkway and Ponds study areas and previously recorded cultural resources in the study area vicinity.

FIGURE IV-5: PREVIOUS CULTURAL RESOURCES AND SURVEYS
Figure 3.
Potential historic buildings that have not been recorded within the Sunbridge Parkway and Ponds study areas.

Figure 4.
Unrecorded Disston Canal within the Sunbridge Parkway and Ponds study areas.

FIGURE IV-6: POTENTIAL HISTORIC BUILDING

FIGURE IV-7: DISSTON CANAL, POTENTIAL CULTURAL RESOURCE SITE
The project is located within both the St. Johns River Water Management District and the South Florida Water Management District. Stormwater management will be subject to the applicable regulations of both Water Management Districts and Orange County.

The project area generally drains into two major water bodies, Lake Hart to the west and the Econlockhatchee River to the east. Runoff flowing east travels through a series of wetlands to the Econlockhatchee River Swamp, eventually reaching the Econlockhatchee River. A small portion of the southern end of the road drains to the Myrtle/Joel/Preston chain of lakes, which discharge into Lake Mary Jane and Lake Hart.

Runoff flowing westerly from the project area flows through Robert’s Island Slough, the Disston Canal or various other wetlands into Lake Mary Jane and Lake Hart ultimately flowing to Lake Okeechobee.

The majority of the portion of the project located within the SJRWMD is located within the Econlockhatchee River basin, which is listed as an Outstanding Florida Water (OFW). As a result and as a condition of approval for the Sunbridge Parkway PD, the facilities serving the roadway corridor must treat stormwater runoff to OFW standards. This generally consists of providing an additional 50% of the required treatment and permanent pool volumes in all systems within the SJRWMD regulatory boundary.

The portion of the project lying within the SFWMD is located within the Upper Kissimmee River basin, which eventually flows to Lake Okeechobee, an impaired water body (IWB). As a result of the IWB design criteria, an additional 50% water quality treatment volume will be required. A site-specific pollutant analysis for the pollutant of concern (phosphorous) is also required for all project systems within the SFWMD regulatory boundary in addition to meeting IWB criteria, this portion of the road will also be required to meet OFW criteria consistent with the Sunbridge PD conditions of approval.

The roadway corridor will cross through several wetland strands and will cross over the Disston Canal. To maintain the natural flow patterns and general hydrology, appropriately located and sized cross-culverts will be needed. Drainage basins, points of discharge and cross-culverts have been selected in the conceptual stormwater design to route stormwater discharges in a manner that reflects the existing conditions.

Please refer to the Pre-Development Basin and Nodal Map in Appendix B of the Stormwater Report for further information on existing drainage patterns.
FIGURE IV-8: WETLANDS 1
FIGURE IV-9: WETLANDS 2
FIGURE IV-10: WETLANDS 3
FIGURE IV-11: WETLANDS 4
FIGURE IV-12: WETLANDS 5
FIGURE IV-14: WETLANDS 7
FIGURE IV-15: WETLANDS 8

Legend

- **Project Boundary**
- **Econlockhatchee River Hydrologic Basin**
- **Potentially Jurisdictional:**
  - Uplands
  - Wetlands
  - Surface Waters
  - 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.

SEE PAGE 9

SEE PAGE 7
FIGURE IV-17: WETLANDS 10
FIGURE IV-18: WETLANDS 11
FIGURE IV-19: WETLANDS 12

Legend

- Project Boundary
- 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.
FIGURE IV-20: STRATEGIC HABITAT CONSERVATION PRIORITIES
d. Floodplains:

There are multiple areas of 100-year floodplain, typically associated with the wetland areas affecting the roadway corridor. There is no floodway within the corridor. As of this writing, a Conditional Letter of Map Revision (CLOMR; April 29, 2011) covering the portion of the corridor north of Wewahootee Road has been approved by FEMA, providing a basis for future establishment of Zone AE elevations. A Letter of Map Revision (LOMR; effective September 22, 2017) covering the portion of the corridor south of Wewahootee Road has been approved by FEMA, establishing the Zone AE floodplain elevations along that portion of the corridor. The map revisions associated with this LOMR do not currently appear on the FEMA FIRMS. (See Figure IV-21, Floodplain Map, Appendix L). Approximately 24 acres of floodplain area will be impacted by the roadway corridor. The locations and elevations of the FEMA floodplain as derived from the FIRMs and the additional mapping and floodplain elevations as approved in the referenced LOMR are depicted on Figure IV-21, FEMA Flood Zone Map.

f. Threatened & Endangered Species


As part of the USACOE permit process, additional federal agencies including, but not limited to, the U.S. Environmental Protection Agency, USFWS, and National Marine Fisheries Service may review and provide comments. Wetland impacts and mitigation will be reviewed and evaluated as part of the process. Table 3, page 30 of the BDA Environmental Considerations report, provides a summary.

The likelihood of occurrence of protected plants within the study area is reported to be typically “unlikely,” with the likelihood of a few species reported to be “low”.

BDA reports that “the study area is located within the U.S. Fish and Wildlife Service (USFWS) consultation area of several federally listed species” and provides statements as to the likelihood of species occurrences. BDA concludes that “[b]ased on our review of existing databases, recent site inspections, and location of the proposed Sunbridge Parkway alignment associated and identified with this PDS, 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.”

BDA comments regarding those animals whose likelihood of occurrence is higher than “low” and their specific recommendations, including:

- American Alligator
The provision of adequate crossings for wildlife is among the objectives of the ELSP. BDA advises that, although the location of the recommended alignment corridor as presented herein is not totally consistent with the crossing locations as presented in the ELSP, the ELSP ordinance provides for modifications that are consistent with the intent and principles of the ELSP subject to approval of the Orange County Environmental Protection Officer.

V. FUTURE TRAFFIC CONDITIONS

a. GENERAL


“The Design Traffic Technical Memorandum evaluates traffic operations for the short-term (2025) scenario and design-year (2040) scenario for nine intersections along the corridor correlated to Innovation Way South and significant intersections depicted on the Sunbridge PD Regulating Plan. The intersection at Wewahootee Rd (located north of Intersection A) and at a utility/well access road, located between Intersection H and Intersection I, are not included in the analysis as they function primarily as driveways accessing dirt/undeveloped roads and serving ranch/farm land uses. Traffic conditions for proposed Sunbridge Parkway were analyzed by dividing the roadway into four study segments (not to be confused with the roadway segments 2, 3 and 4). These intersections and roadway segments are illustrated and described in Figure V-1 (KAI Fig 2) and the table below.

<table>
<thead>
<tr>
<th>Roadway Segments for Traffic Analysis</th>
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<tbody>
<tr>
<td>From</td>
</tr>
<tr>
<td>Northern project limit</td>
</tr>
<tr>
<td>Wewahootee Road</td>
</tr>
<tr>
<td>Innovation Way South</td>
</tr>
<tr>
<td>South of Intersection G</td>
</tr>
</tbody>
</table>
FIGURE IV-21: FEMA FLOOD ZONE MAP
Future traffic volumes, for both the short-term (2025) and design-year (2040) analysis were taken from analyses performed for the Sunbridge Development’s Comprehensive Plan Amendment and supplemented by the Camino Reale Planned Development Transportation Network Evaluation.

The three northernmost segments are categorized as urban signalized arterials and the southernmost segment is categorized as a rural uninterrupted flow highway. The design speed of the northern portion of Sunbridge Parkway is anticipated to be 45 mph, resulting in Class I designation for the signalized arterial segments. In accordance with the Orange County road agreement for Sunbridge Parkway, the designated LOS threshold is LOS E for all segments.

b. TRAFFIC FORECASTING

1. Average Annual Daily Trips (AADTs)

Forecasted AADTs for 2025 and 2040 throughout the corridor are provided in Figure V-2 (KAI Fig 3).

2. Future Intersection Turning Movement Volumes

Future intersection turning movement volumes for the 2025 and 2040 PM peak hours were developed following the procedures described in NCHRP Report 255. This method is consistent with acceptable tools described in FDOT’s Project Traffic Forecasting Handbook (2014). PM characteristics were selected for use in establishing the design hour. Future turning movement volumes are provided in Figures V-3 and V-4.

c. ACCESS MANAGEMENT

KAI reports that access management should be governed by “the Orange County minimum standards of 600 feet of separation between median openings. However, the current regulating plan depicts a higher degree of access management with a minimum full-access median opening spacing of approximately 1,000 feet.” Although a 600-foot minimum separation is consistent with Orange County Code (§34-177), Orange County policy requires a minimum separation of 660 feet.

d. RAILROAD CROSSING

Considering the potential need for a grade separated crossing at the OUC railroad KAI reports that “FDOT recommends conducting a benefit/cost analysis for grade separation when the average daily traffic (ADT) on the roadway reaches 30,000. Based on current AADT projections, the AADT on Sunbridge Parkway is not expected to reach 30,000 vehicles until 2035 or beyond.”
NOTE: Access locations and roads that impact wetlands and rare uplands are only approximations and are not approved with this plan. The exact location of these roadways will be determined during the Orange County Conservation Area Determination and Impact Permit process.

SOURCE FOR PLANNED DEVELOPMENT: Sunbridge Planned Development Regulating Plan, October 19, 2016

FIGURE V-1: STUDY INTERSECTIONS AND ROAD SEGMENTS
FIGURE V-2: AVERAGE ANNUAL DAILY TRIPS (AADTS)

NOTE: Access locations and roads that impact wetlands and rare uplands are only approximations and are not approved with this plan. The exact location of these roadways will be determined during the Orange County Conservation Area Determination and impact permit process.

SOURCE FOR PLANNED DEVELOPMENT: Sunbridge Planned Development Regulating Plan, October 19, 2016
FIGURE V-3: PEAK HOUR VOLUMES FOR YEAR 2025
FIGURE V-4: PEAK HOUR VOLUMES FOR YEAR 2040
2025 PM Peak-Hour LOS

FIGURE V-5: FUTURE LOS AND LANE CONFIGURATIONS 2025
2040 PM Peak-Hour LOS

FIGURE V-6: FUTURE LOS AND LANE CONFIGURATIONS 2040
### Recommended Turn Lane Lengths

<table>
<thead>
<tr>
<th>Sunbridge Parkway Intersection</th>
<th>Movement</th>
<th>Recommended Length (ft)</th>
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<tr>
<td></td>
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<td>SBL</td>
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### VI. DESIGN CRITERIA

The design criteria utilized to develop the Recommended Improvement Concept are as follows:

#### a. DESIGN SPEED

The 2011 AASHTO Green Book (12.3.6) recommends running speeds of 20 mph to 45 mph and design speeds of 30 mph to 60 mph for urban arterials with an upper limit of 45 mph for low speed designs. A design speed of 45 mph is selected for the urban roadway segments. This standard is also consistent with the FDOT Greenbook.
FDOT Greenbook Table 3-1 recommends design speed of 60 to 70 mph for a rural arterial road. A design speed of 60 mph is selected for the rural roadway segments.

b. **RIGHT-OF-WAY**

A right-of-way width of 133 feet is selected for the urban segments based on a four-lane divided cross-section.

A right-of-way width of 160 feet is selected for the rural segments based on a four-lane divided cross-section.

**c. HORIZONTAL CURVATURE**

Horizontal curvature for the urban segments of the roadway, described by KAI as urban signalized arterial, is selected to avoid excessive superelevation in order to simplify future roadway connections of future development parcels while allowing flexibility to accommodate the physical constraints of the corridor for the 45 mph design speed. Superelevation beyond the 2% remove crown crossgrade is deemed undesirable for the proposed future development.

The minimum curve radii selected for the urban segments in accordance with FDOT Design Standards, Index 511, Superelevation Urban Highways and Streets are:
- Standard (2% normal crown) - 2,200 feet
- Remove Crown (2% superelevation) - 1,005 feet.

The rural segments of the roadway, described by KAI as rural uninterrupted flow highway, are generally not anticipated to provide permanent access to future development parcels.

The minimum curve radii selected for the rural segments in accordance with FDOT Design Standards, Index 510, Superelevation Rural Highways are:
- Standard (2% normal crown) - 11,500 feet
- Remove Crown (2% superelevation) - 7,700 feet;
- Minimum radius (8% superelevation) – 1,050 feet.

The Recommended Improvement Concept Map provides adequate tangent lengths for standard 80%/20% superelevation transitions in all but one case. The tangent between curves C6 and C7 (See Appendix N, Baseline Geometry) is slightly short of that required for 80%/20% superelevation transitions. 70%/30% transitions will work and are more than what is needed, yet above the minimum allowable of 50%/50% under constrained conditions.

The minimum radii are applied at the radially inside edge of travelway.

d. **VERTICAL GEOMETRY**

The vertical gradient along the six-miles of roadway varies only mildly and is not expected to create any significant concerns with regard to vertical curves with exception of the possible future bridge crossing of the OUC railroad track, which is discussed below.
e. **BRIDGE**

- Approach and departure longitudinal grades: Approximately 3% to 4% selected
- Embankment slope: 2H:1V maximum; 3H:1V recommended
- Clearance above track rails 23.5 feet top of rail to lowest obstruction
- Clearance from pavement to overhead power lines: 27 feet (to powerline lowest sag)
- Clearance between Duke energy and OUC power lines: 5 feet

f. **ACCESS MANAGEMENT**

The target median opening separation is 1,000 feet minimum as depicted on the Sunbridge PD Regulating Plan; however, the minimum separation is 660 feet per Orange County standards.

g. **STORMWATER MANAGEMENT AND COMPENSATING STORAGE**

Stormwater management and compensating storage criteria are discussed comprehensively in Existing Condition and Recommended Improvement Concept sections of this report. Also, a copy of Conceptual Drainage, Floodplain Impact Analysis, Pond Siting Report is provided in Appendix L which includes detailed design criteria.

h. **MISCELLANEOUS DESIGN ELEMENTS**

- **Functional Classification:** Minor Arterial
- **Access Management:**
  - 660’ min. full urban
  - 1,320 min. full rural
- **Design Speed (DS):**
  - 45 mph, Urban; 60 mph rural
- **Level of Service:**
  - LOS E (minimum)
- **Vehicle Lane Width:**
  - 11 feet, urban; 12 feet, rural
- **Number of Lanes:**
  - Ultimate Buildout -4 (2 in each direction)
- **Bicycle Lane On-Road:**
  - 7-feet wide; buffered
- **Pathways:**
  - 14’ wide trail (urban & rural)
  - 10’ multi-purpose path (urban only)
- **Median Width:**
  - 40 feet
- **Clear Zone Width:**
  - 4’ urban; 36’ rural
- **Curb Type:**
  - Urban Type E (median); Type F (outside)
  - Rural no curb
- **Allowable Inlets:**
  - P-1, P-2, P-3, & P-4
- **Bridge Embankment Side Slope:**
  - 2 feet horizontal (minimum):1 foot vertical
- **Multi-Purpose Easement Width:**
  - 16’ (urban); 18 feet (rural)
- **Pavement Design**
  - Orange County Public Works and FDOT Flexible Pavement Design Manual
VII.  RECOMMENDED IMPROVEMENT CONCEPT

The Recommended Improvement Concept is depicted on the Recommended Improvement Concept Map (29 sheet set) prepared by Donald W. McIntosh Associates, Inc. presented in Appendix O. The elements of the concept are discussed below:

a.  THE OVERALL ALIGNMENT OF THE RECOMMENDED ROADWAY RIGHT OF WAY

As discussed in the Existing Conditions Section of this report, the most significant element controlling the roadway alignment is the commonly agreed upon objective that the roadway right-of-way lands shall be obtained from those properties controlled by Tavistock in accordance with the Road Agreement. For a discussion of Wewahootee Road ownership, see Section IV.a.3 of this report.

Supplementary to that objective there are numerous physical constraints that have been considered and which result in the alignment as currently proposed. The selected alignment of Sunbridge Parkway Segments 2, 3 and 4 has been developed in response to the many physical constraints as discussed in the Existing Conditions section of this report.

The recommended baseline of construction is presented in Appendix N.

b.  TYPICAL SECTIONS

Various alternative roadway typical sections were evaluated during the development of the recommended improvement concept, with the right-of-way for urban sections ranging from 125 feet to 145 feet in width and for rural sections ranging from 160 feet to 172 feet in width. These various typical sections included alternative accommodations for travel lane widths, bicycle lane widths, pedestrian routes, drainage, utilities, construction phasing and possible future multimodal facilities.

The right-of-way width was ultimately selected to accommodate the proposed ultimate 4-lane roadway cross-sections (see Appendix P):

- Four-lane divided urban section for Segments 2 and 3A; 133 feet minimum width
- Four-lane divided rural section for Segment 4; 160 feet minimum width

The proposed typical road sections for the ultimate configurations are depicted in Figures VII-1 through VII-5 and Appendix P.

The roadway sections are comprised of the following improvements:
• The four-lane divided urban section is comprised of an asphalt trail on the west side (14 feet wide) within a trail and utility easement and a multi-purpose path on the east side (10 feet wide) separated from the back of curb by a grassed parkway, 7-foot wide buffered bicycle paths adjacent to the outside curbs, four 11-foot wide through lanes, a 42.5-foot wide median (inclusive of median curbs and turn lanes), standard curb and gutter (FDOT Type F) at the outside lane edges and median curb and gutter (FDOT Type E) at the median edge.

• The four-lane divided rural section is comprised of 14-foot wide asphalt trail within a trail easement on the east side separated from the roadway by a grassed drainage swale, combination 12-foot wide outside shoulders each comprised of a 5-foot wide stabilized shoulder and a 7-foot wide paved buffered bicycle lane, four 12-foot wide through lanes, 7-foot wide paved and 1-foot wide interior stabilized shoulder on the southbound lanes, 4-foot wide paved and 4-foot wide interior stabilized shoulder on the northbound lanes, a 40-foot wide depressed grassed median and grassed drainage swales on both sides.

• Permanent slope/fill easements and temporary construction easements with 37.5’ width are provided adjacent both sides of the right-of-way to accommodate anticipated fill slopes.

• Additional right-of-way width is provided at the railroad crossing to accommodate fill slopes associated with a potential future grade separate crossing.

• A cattle fencing is provided to preserve the ranching function of the adjacent properties. Fencing would be temporary in Segments 2 and 3 while the initial rural roadway section is in place and would be removed with construction of the urban roadway section. Fences would be permanent in the rural segment.

C. PHASING

The four-lane divided ultimate cross-section was selected based on the Road Agreement and the supporting traffic analysis. Also in accordance with the Road Agreement, the roadway will initially be constructed with a two-lane rural cross-section. Multi-purpose pathways and on-road buffered bicycle lanes will be provided throughout all phases of the roadway development. The ultimate 4-lane divided configuration will be constructed in phases as depicted on the typical-section drawings.

All segments will initially be constructed with a 2-lane rural configuration within the western portion of the right-of-way. The Phase 1 transitions from the Segment 1, four-lane divided section to the two-lane undivided rural section at the northern end of the project (urban segment) and the alignment transition of the two-lane undivided rural sections between the urban segments and the rural segments are depicted in Appendix Q.
FIGURE VII-1: CROSS SECTION PHASE 1; 2-LANE RURAL SEGMENTS 2 AND 3
FIGURE VII-3: CROSS SECTION PHASE 2 INTERIM 2-LANE URBAN
FIGURE VII-4: CROSS SECTION ULTIMATE 4-LANE URBAN
Figure VII-5: Cross Section Ultimate 4-Lane Urban
In conjunction with adjacent urban development along Segments 2 and 3A, a 2-lane urban configuration will be constructed in the eastern portion of the right-of-way and the 2-lane rural roadway will be demolished. Transitions will be required to reduce form 4 lanes at Segment 1 to 2 lanes before the railroad crossing and within Segment 3B to accommodate a shift in the alignment from Segment 3A to Segment 4. The transition will be made in Segment 3B.

Ultimately, a second 2-lane urban configuration will be constructed within the western portion of Segments 2 and 3A, completing the 4-lane urban segments. Again, a transition will be made in Segment 3B to accommodate the alignment shift.

When warranted, a second 2-lane rural section will be constructed within the eastern portion of Segment 4 completing its 4-lane divided configuration.

d. ACCESS MANAGEMENT - LOCATIONS OF MEDIAN OPENINGS

The locations of anticipated median openings are depicted on the Access Management Plan, (Fig. VII-6) and in more detail on the Recommended Improvement Concept Map (Appendix O). The table below lists the station locations of the median openings and the separations between them. Locations were selected with regard to the current Sunbridge PD Regulating Plan and existing points of access routes to adjacent properties including the City of Cocoa water supply well sites and the adjacent ranch lands. The access management design criterion for median opening separation along the urban roadway segments, as reported in the Design Traffic Technical Memorandum, is 660 feet minimum pursuant to Orange County standards (See Section V.c). Due to the increased design speed and rural nature of Segment 4, an increased median opening separation of 2,640 feet is recommended; however, a minor deviation from this standard is proposed along the northerly portion of Segment 4 in order to accommodate existing points of access into the adjacent Holland Ranch. In this instance, the separation between these median openings is 2,100 feet. A listing of the proposed locations of the median openings is provided in the table below. Adjustments to the access points as shown in the Regulating Plan were made to better accommodate the surveyed wetland locations and better serve all of the remainder development parcels, resulting in some median opening spacings being less than those depicted on the Regulating Plan but in no instance being less than the 660-foot minimum. The Regulating Plan is used as the base for the Access Management Plan so that the proposed locations can be readily compared.

A detail depicting the intersection of Sunbridge Parkway with Innovation Way South is presented in Appendix R.
e. **UTILITY STRIPS**

Although the construction of utilities to serve future development is not included in the roadway project, the right-of-way and/or adjacent utility easements must accommodate it. Along the urban segments of Sunbridge Parkway, utilities may be accommodated in the following locations:

- Within the 16’ trail and utility easement along the westerly right-of-way
- Within the median
- Within the easterly right-of-way under the 10’ multi-purpose path
- Under the roadway pavement (gravity sewer only)

The proposed utility placements are depicted in Figure VII-7 below:

f. **POND SITING FOR STORMWATER & FLOODPLAIN MANAGEMENT**

Stormwater management pond locations were selected for the portion of Segment 2 north of Wewahootee Road (Ponds 6C-2, 6C-3 and 13) in accordance with existing SFWMD Conceptual Environmental Resource Permit for ICP and the pending preliminary subdivision plan for Sunbridge Neighborhoods A-D. These ponds will be used to accommodate drainage from both Sunbridge Parkway and the proposed residential subdivision.

The five ponds serving the portion of Segment 2 located south of Wewahootee Road and Segment 3A were located for consistency with land planning objectives for the adjacent property, proximity to the wetland areas into which they will discharge and topography.

No ponds will be used along Segments 3B and 4 where management of stormwater will occur within a system of roadside ditches with check dams.

The stormwater management system concept as presented maintains the existing natural drainage patterns. Drainage basins and points of discharge are selected to route stormwater runoff to the same locations as in the existing condition. Cross-drains are designated at locations where natural flow patterns cross the roadway corridor.

Floodplain management related to the roadway construction project should be consistent with the floodplain management requirements set forth in the County’s Comprehensive Plan, Objective C1.3, Policies C1.3.1, C1.3.3, SM1.1.5 and SM1.5.2 requiring that compensating storage be provided to offset floodplain encroachment, that floodway encroachment be restricted and that retention/detention facilities do not reduce the existing flood storage of the floodplain. Filling of floodplain areas will require the provision of compensating storage (or other satisfactory mitigation) for any fill encroaching into and displacing existing floodplain volume.
<table>
<thead>
<tr>
<th>Median Opening Station</th>
<th>Median Opening Separation</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>579.95</td>
<td></td>
<td>Begin Project</td>
</tr>
<tr>
<td>597.00</td>
<td>4300</td>
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<td>767.00</td>
<td>1100</td>
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<td>800</td>
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<tr>
<td>786.00</td>
<td>1000</td>
<td>KAI- Intersection F*</td>
</tr>
<tr>
<td>796.00</td>
<td></td>
<td>KAI-Intersection F</td>
</tr>
<tr>
<td>812.00</td>
<td>1600</td>
<td>KAI-Intersection E</td>
</tr>
<tr>
<td>812.00</td>
<td>1900</td>
<td></td>
</tr>
<tr>
<td>831.00</td>
<td>900</td>
<td>Innovation Way South (KAI Intersection D)</td>
</tr>
<tr>
<td>840.00</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>847.00</td>
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<tr>
<td>858.00</td>
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<td>Wewhootee Road (KAI Intersection A)</td>
</tr>
<tr>
<td>914.43</td>
<td></td>
<td>Connect to Segment 1</td>
</tr>
</tbody>
</table>

*Based on Kittelson & Associates Traffic Study Intersection Designation*
VIII. ANALYSIS OF THE IMPROVEMENT CONCEPT

a. OPINION OF COST

The Opinion of Probable Cost for Construction inclusive of right-of-way of the 4-lane divided project based on total buildout in one construction phase, with an at-grade railroad crossing and inclusive of signalization at Innovation Way South is $48,924,760.00.

See Appendix S for additional details.

b. WETLAND IMPACTS


Wetlands [Jurisdictional Limits] occurring within the study area north of Disston Canal have been approved by the Orange County Environmental Protection Division (OCEPD), the associated water management districts including South Florida Water Management District (SFWMD) and St. Johns River Water Management District (SJRWMD), and the Department of the Army, Corps of Engineers (USACOE). Wetlands occurring south of Disston Canal have been approved through OCEPD.

The recommended alignment has been selected to avoid and minimize wetland encroachments while accommodating other alignment constraints discussed in this Report. Conformance to the
Environmental Land Stewardship Plan is a design objective and has been accomplished to the maximum extent reasonable and practicable. A modification of the ELSP may ultimately be required in those areas where alternations were deemed beneficial.

The Parkway and associated surface water management system 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. 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.

A total of 9.87 acres of wetland impact associated with the roadway corridor and the associated mitigation have been previously approved in conjunction with the environmental permitting of ICP.

Based on the UMAM analysis, a total functional loss of 21.36 units was calculated for the Sunbridge Parkway impacts (direct and secondary) not previously permitted with ICP. Two mitigation options are proposed to address the functional loss associated with the potential project impacts not previously permitted with ICP. These options can be used individually or in combination.

1. Purchase of 21.36 UMAM mitigation credits at TM Econ Mitigation Bank for the non-ICP impacts: $2.4 million estimated cost.

2. Preservation and vegetative enhancement of 240 acres of the 629-acre Robert’s Island Slough: $1.04 million estimated cost, plus land costs, if applicable. Perpetual management and maintenance would be the responsibility of the management entity following agency release.

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

c. **FLOODPLAIN IMPACTS**

Approximately 24 acres of floodplain area will be impacted by the roadway corridor. The estimated volume of floodplain fill is 30,400 cubic yards based on the Conceptual Drainage and Floodplain Impact Analysis. The conceptual master stormwater management system together with stand-alone floodplain compensation areas are designed to provide roughly 34,300 cubic yards of compensating storage to mitigate for the volume of floodplain filled.

Where feasible, volumetric compensating storage for floodplain encroachment is provided within the stormwater management ponds. Where additional volume is needed, sites comprising roughly 15 acres have been selected where topography provides the necessary excavation benefits and connectivity to the impacted floodplain. Within the rural segments, the
roadside ditches were not used for compensating floodplain storage. Compensating Storage Area easements will be placed over the compensating storage areas with Orange County as a benefitted party. Compensating Storage Area easements will be placed over the compensating storage areas with Orange County as a benefitted party.

d. **CRITICAL AND STRATEGIC HABITAT IMPACTS**

As reported in BDA’s Environmental Considerations report there are no significant (Priority 1 or 2) strategic habitat impacts. See Figure IV-20.

e. **WILDLIFE CORRIDOR IMPACTS**


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.

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.

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.

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 that 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 that facilitate the passage of wetland dependent species should be based on the hydrologic needs at the crossings. Dry culverts that facilitate the passage of terrestrial species should be installed at the interface between wetland and upland habitats on each side of the wet culvert crossing 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.

Accordingly, wildlife crossings are shown in the recommended improvement plan at two locations as depicted on the Recommended Improvement Concept Map, Appendix O. They are comprised of a mix of normally dry and normally wet pipe crossings consistent with the guidelines above.

f. Threatened & Endangered Species Impacts

The presence or the potential for the presence of listed plant or animal species was assessed and included in the Preliminary Design Study, Environmental Considerations dated July 25, 2017, by Breedlove Dennis & Associates, Inc., Appendix J.

Species discussed below 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 includes the gopher tortoise and Sherman’s fox squirrel.

Eastern Indigo Snake (Federally Threatened, Florida Fish & Wildlife Commission; Threatened, United States Fish & Wildlife Service): There are two areas of high probability of eastern indigo snake habitat in the vicinity of the proposed alignment: to the north of the Disston Canal and at the southern portion of the Slough. These are the locations of the proposed wildlife crossings. 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 (State-designated Threatened, Florida Fish & Wildlife Commission; Candidate, United States Fish & Wildlife Service): The gopher tortoise is listed as State-designated Threatened by the Florida Fish & Wildlife Commission but is not listed as threatened or endangered by the United States Fish & Wildlife Service. 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) (Florida Fish & Wildlife Guidelines) to determine the population size and distribution of gopher tortoises within the final alignment and evaluate management options available for this species. Gopher tortoise
relocation is expected to be the most viable option for this project. The Florida Fish & Wildlife Commission 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.

Florida Sandhill Crane (State-designated Threatened, Florida Fish & Wildlife Commission): In accordance with the Florida Fish & Wildlife Commission (Integrated Conservation Strategies for Multiple Species and their Shared Habitats), 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. Recommended conservation measures one through four listed in the Sandhill Crane Guidelines 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:

- 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.
- 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 and within 15 miles of a wood stork rookery. 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 United States Fish & Wildlife Service 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.

Sherman’s Fox Squirrel (Sciurus niger shermani) (Species of Special Concern, Florida Fish & Wildlife Commission): Sherman’s Fox Squirrels have been observed within and north of the study area. In accordance with the Florida Fish & Wildlife Commission (Integrated Conservation Strategies for Multiple Species and their Shared Habitats) 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 the Florida Fish & Wildlife Commission to discuss permitting alternatives should be conducted. Location of nests may vary due to environmental conditions. No mitigation is required for the take permit.

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

g. ARCHEOLOGICAL & HISTORIC FEATURE IMPACTS

See Archeological and Historical Feature Impact Analysis dated September 13, 2017 (Appendix U) and Desktop Analysis of the Sunbridge Parkway and Ponds for the Preliminary Design Study dated August 2017 by SEARCH, Inc., (Appendix I).

The results of the SEARCH Archeological and Historical Feature Impact Analysis are summarized in the two tables below. The sites are depicted on Figures IV-6, Figure VIII-7 and IV-8.

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

<table>
<thead>
<tr>
<th>Archaeological Probability</th>
<th>Approximate Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>4%</td>
</tr>
<tr>
<td>Medium</td>
<td>21%</td>
</tr>
<tr>
<td>Low</td>
<td>75%</td>
</tr>
</tbody>
</table>
The archeological probabilities are mapped by SEARCH, see Figures VIII-1 through VIII-4 Below.

**Figure 5.** Archaeological probability within the northern portion of the Sunbridge Parkway right-of-way and Pond footprints.

**FIGURE VIII-1: ARCHEOLOGICAL PROBABILITY - NORTH**
Figure 6. Archaeological probability within the northern-central portion of the Sunbridge Parkway right-of-way and Pond footprints.

FIGURE VIII-2: ARCHEOLOGICAL PROBABILITY – NORTH CENTRAL
Figure 7. Archaeological probability within the southern-central portion of the Sunbridge Parkway right-of-way and Pond footprints.

FIGURE VIII-3: ARCHEOLOGICAL PROBABILITY – SOUTH CENTRAL
h. Utility Impacts

There are no significant impacts to existing utilities anticipated for construction of the roadway with an at-grade railroad crossing. However, when and if a grade separated/bridge crossing is warranted, impacts to the existing electrical towers and the high pressure gas main will occur. (See Appendix V):

- OUC 230 kV electric transmission facilities (lines and towers): The existing transmission facilities run within an existing 300-foot wide OUC right-of-way, generally parallel to the existing railroad. The towers and lines will need to be raised to maintain minimum clearance requirements from the power lines to the roadway surface.

- Florida Gas Transmission Company high pressure gas transmission system and facilities: A 26-inch high pressure (975 psi) main runs generally east-west (south of and adjacent to the Duke Energy easement) and extends to Florida Power and Light's Cape Canaveral Clean Energy Center as its sole source of fuel. A 16-inch main runs along the east side of the OUC railroad right-of-way and extends to OUC’s Curtis Stanton Energy Plant as a secondary
source of fuel. The mains will lie under the raised roadway embankment for the approach to the bridge. Four alternatives have been defined to address the matter.

- Extend the bridge span to extend beyond the gas mains
- Construct an open-bottom arch culvert over the gas main alignments
- Relocate the gas mains
- Encase the existing mains in concrete

As of this writing the preferred alternative is to construct the open bottom arch culvert over the gas mains.

- Duke Energy 96 kV electric transmission facilities (lines and poles): The overhead line runs generally east-west within a 55-foot wide easement, crossing the Sunbridge Parkway corridor near the anticipated roadway/railroad crossing. The poles will need to be raised to restore minimum clearance requirements from the power lines to the roadway while maintaining the required vertical clearance from the OUC transmission lines.
- OCU potable water main: A 24-inch DIP water main runs along the north side of the OUC railroad right-of-way in a 30-foot wide sewer and water line easement adjacent to the railroad right-of-way. The Sunbridge Parkway corridor crosses the main in the vicinity of the anticipated roadway/railroad crossing. This main will be located within the span of the proposed bridge.
- OCU wastewater force main: A 16-inch PVC force main runs along the north side of the OUC railroad right-of-way in a 30-foot wide sewer and water line easement adjacent to the railroad right-of-way. The Sunbridge Parkway corridor crosses the main in the vicinity of the anticipated roadway/railroad crossing. This main will be located within the span of the proposed bridge.
- TECO gas distribution system facilities: Extending from the gate station and crossing the Sunbridge Parkway corridor is a 6-inch main running northeasterly in a 10-foot wide easement on the north side of the railroad right-of-way. This main will be located within the span of the proposed bridge.

i. Contaminated Sites Impacted


PSI’s reports “no High or Medium Risk sites were identified within the study area extending 250 feet in all directions of the study corridor centerline and five pond locations and “One Low Risk site [the OUC railroad crossing] was identified within the study corridor” (See Figure XX).

As presented in this PDS, an easement or agreement favoring Orange County is assumed over the OUC right-of-way. As a result, no Orange County right-of-way is anticipated to be affected by the “low risk” site.
j. **Geotechnical Analysis**


Although the excavated soils from all (3) strata are deemed to be acceptable for fill material, PSI advises that soils from strata 2 may retain excess moisture and be difficult to compact and the cemented sands in strata 3 will need to be fully pulverized/crushed. Subsoil excavation to remove organic soils (muck) occurring in variable depths of 0 to 7 feet observed in the boring locations should be anticipated where the roadway crosses wetland areas. The muck probe data was used to obtain an order of magnitude estimate of 70,000 raw cubic yards (CY) of muck to be removed exclusive of the top 6-inches (this order of magnitude acknowledges that PSI has reported that the data is not adequate for earthwork takeoffs and should be considered accordingly). For purpose of this report it is assumed that the muck will need to be disposed of off-site. Further we have assumed that organic sands can be remediated by mixing with other soil material and so they are treated as ordinary excavation.

Groundwater levels encountered in the SPT and auger borings generally ranged from 0 to 5 feet below the existing grade, with a majority of the groundwater depths ranging from 1 to 3.5 feet below existing grade. The average wet season water level for use in designing the wet bottom ponds is anticipated to be 1 foot below the estimated normal seasonal high groundwater elevations. Excavation of stormwater management ponds, compensating storage areas and deeper utility and drainage trenches will require dewatering.

PSI recommends roadway grades provide at least 2 feet of separation between the estimated normal seasonal high groundwater level and the bottom of the roadway base. If this separation cannot be provided, they recommend that crushed concrete base, asphaltic base (black base) or underdrains may be required.

PSI recommends that the swales be designed with a minimum of 2 feet of separation between the bottom of the swale and the estimated normal seasonal high groundwater elevation.

The very dense sands and cemented sands (“hardpan”) were encountered during the field exploration over almost the entire length of the corridor and may be encountered at other locations along the roadway alignment and in the pond locations between and away from PSI’s borings. The hardpan and very dense soils encountered raise the following concerns which may result in additional construction costs:

- difficulties during excavation and dewatering operations
- the influence of dewatering well points may be reduced due to restrictive layers and varying permeabilities
- pipe bedding locations may have to be undercut and backfilled to avoid uneven loading (point loads) of pipes and fittings
- difficulty during drilled shaft excavation at proposed sign or signal locations.

The contractor should be prepared to use special equipment and or procedures to facilitate excavations, dewatering and other earthwork operations. The data provided indicates that the surface of the hardpan varies from roughly 2 feet to roughly 18.5 feet below the existing
surface. More typically the higher surfaces appear to occur in the 6 to 8-foot depth range. With the anticipation of several feet of fill for the roadway corridor, it appears that most ordinary utility installations and much of the drainage pipe installations will lie above the hardpan surface. Larger and deeper storm drains and related structures may intercept the higher hardpan surfaces.

Based on the review of available data, it is PSI’s opinion that the project area is at a low risk for future sinkhole development.

PSI’s recommendations for additional actions for the design phase are:

- Additional borings and permeability testing for the pond (2 borings per acre in ponds) and swale locations (one boring every 100 feet) to assist with final design;
- Additional borings and engineering analysis for the Disston Canal crossing once a preferred structure type is determined;
- Plan review and updating of recommendations;
- Wetland hydroperiod determination for systems adjacent to the roadway;
- Borings spaced at 100-foot intervals along the alignment, even though Orange County Standards state a maximum spacing of 200 feet between borings for final design, due to the width of the roadway and the critical nature of Sunbridge Parkway;
- Additional borings should also be planned in areas where very dense sands and cemented sands may impact the installation of buried utilities or pond excavation.

IX. **LEGAL DESCRIPTIONS & TITLE WORK**

Fee simple rights in favor of Orange County will need to be created for the roadway in the form of road right-of-way for the 160-foot wide rural roadway corridor, the 133-foot wide urban roadway corridor, the widened portion of the urban corridor to accommodate a potential future bridge over the railroad, and the stormwater management areas. Compensating storage easements will be needed for those floodplain compensating storage areas that are not included within the stormwater management areas. Slope and Fill easements will be required adjacent to the roadway right-of-way areas currently estimated to be 37.5 feet wide. Temporary Construction Easements will also be needed adjacent to the roadway right-of-way areas to enable slope and fencing construction as well as in the areas where existing roadways/driveways approaching the proposed parkway will require realignment to establish a properly oriented crossing perpendicular to the parkway. These are also currently estimated to be 37.5 feet wide typically and wider at the roadway driveway realignment areas. Drainage easements will be required for stormwater outfalls from ponds and for cross-drains that extend beyond the right-of-way lines. Pathway easements will be needed for the 14-foot wide Trail running adjacent to the west right-of-way line. Utility easements will be required over those parts of the Trail/pathway easements within the urban segments.
A summary of the acreages to be encumbered as preliminarily estimated is as follows:

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<thead>
<tr>
<th>Description</th>
<th>Acres</th>
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<tbody>
<tr>
<td>Fee Simple Right-of-Way</td>
<td>120.8</td>
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<tr>
<td>Stormwater Management Tracts</td>
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<tr>
<td>Drainage Easement Area</td>
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<tr>
<td>Floodplain Compensating Storage Easement Area</td>
<td>26.4</td>
</tr>
<tr>
<td>Temporary Construction Easement Area</td>
<td>27.6</td>
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<tr>
<td>Permanent Slope Easement Area and Temporary Construction Easement for Roadway/Driveway Connections</td>
<td>1.1</td>
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<tr>
<td>Pathway and Utility Easement Area (urban)</td>
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<tr>
<td>Pathway Easement Area (rural)</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Notes:
1. Areas of SMA 6C-2, 6C-3 and 13 are pro-rated.
2. Drainage easement areas overlie slope easement areas.
3. Portions of trail and utility easement areas overlie SMA tracts.
5. Acreages are approximated from the Recommended Improvement Concept Map and are subject to finalization during preparation of legal descriptions.

Legal descriptions and sketches of description together with associated title work will be submitted to the County separately.
APPENDICES

A. TRANSPORTATION AGREEMENT FOR SUNBRIDGE PARKWAY
B. PUBLIC INVOLVEMENT DOCUMENTS — NEWSLETTERS
C. PUBLIC INVOLVEMENT DOCUMENTS — ADVERTISEMENTS
D. PUBLIC INVOLVEMENT DOCUMENTS — SMALL GROUP MEETING NO. 1
E. PUBLIC INVOLVEMENT DOCUMENTS — PUBLIC INFORMATION MEETING
F. PUBLIC INVOLVEMENT DOCUMENTS — UTILITY COMPANY AND AGENCY COORDINATION MEMOS
G. PRELIMINARY REPORT GEOTECHNICAL ENGINEERING SERVICES, SUNBRIDGE PARKWAY
PDS BY PROFESSIONAL SERVICES INDUSTRIES, INC.
H. CONTAMINATION SCREENING EVALUATION REPORT BY PROFESSIONAL SERVICES INDUSTRIES, INC.
I. DESKTOP ANALYSIS OF THE SUNBRIDGE PARKWAY AND PONDS FOR THE PRELIMINARY DESIGN STUDY BY SEARCH, INC.
J. ENVIRONMENTAL ANALYSIS BY BREEDLOVE, DENNIS & ASSOCIATES, INC.
K. HYDROLOGIC AND NATURAL FEATURES BY DONALD W. MCINTOSH ASSOCIATES, INC.
L. CONCEPTUAL DRAINAGE, FLOODPLAIN IMPACT ANALYSIS, POND SITING REPORT BY DONALD W. MCINTOSH ASSOCIATES, INC.
M. DESIGN TRAFFIC TECHNICAL MEMORANDUM BY KITTELSON & ASSOCIATES, INC.
N. BASELINE GEOMETRY
O. RECOMMENDED IMPROVEMENT CONCEPT MAP
P. ROADWAY CROSS-SECTIONS
Q. ROADWAY LANE TRANSITION DETAILS
R. INNOVATION WAY SOUTH INTERSECTION DETAIL
S. OPINION OF PROBABLE COST
T. ENVIRONMENTAL ANALYSIS BY BREEDLOVE, DENNIS & ASSOCIATES, INC.
U. ARCHEOLOGICAL AND HISTORICAL FEATURE IMPACT ANALYSIS BY SEARCH, INC.
V. RAILROAD CROSSING DETAILS
W. CONTAMINATED SITES IMPACT ANALYSIS BY PROFESSIONAL SERVICES INDUSTRIES, INC.
Appendix A

Transportation Agreement

for Sunbridge Parkway
TRANSPORTATION AGREEMENT
FOR SUNBRIDGE PARKWAY (From Dowden Road to Osceola County Line)

THIS TRANSPORTATION AGREEMENT FOR SUNBRIDGE PARKWAY (the "Agreement"), effective as of the latest date of execution (the "Effective Date"), is made and entered into by and among TAVISTOCK EAST HOLDINGS, LLC ("Applicant"), a Florida limited liability company, 6900 Tavistock Lakes Blvd, Suite 200, Orlando, FL 32827, on behalf of all owners of real property which is subject to this Agreement, and ORANGE COUNTY, a charter county and political subdivision of the State of Florida whose mailing address is P.O. Box 1393, Orlando, Florida 32802-1393 ("County"). The Applicant and County may sometimes be referred to collectively as the "Parties."
SUBURBAN LAND RESERVE, INC., a Utah corporation, 79 S Main Street, Suite 500, Salt Lake City, UT 84111, individually and as the duly authorized representative of other owners of real property within the Sunbridge Planned Development, hereby consents to and joins in this Agreement, and is referred to collectively herein as the "Owners."

WITNESSETH:

WHEREAS, Applicant is under contract to be the fee simple owner of certain real property, as shown in the project location map identified as Exhibit "A," and as more particularly described on Exhibit "B" (legal description and sketch of description), both of which are attached hereto and incorporated herein by this reference (the "Property"); and

WHEREAS, Farmland Reserve, Inc., a Utah non-profit corporation, Central Florida Property Holdings 100, LLC, a Florida limited liability company, Central Florida Property Holdings 200, LLC, a Florida limited liability company (collectively "FRI"), and Suburban Land Reserve, Inc., ("SLR") are the current fee simple owners of the Property ("Owners") and by execution of the attached Acknowledgement, Joinder and Consent have recognized the Applicant's rights to purchase, develop and pursue entitlements on the Property; and

WHEREAS, Applicant is developing a portion of the Property as a large-scale master planned community including residential, office, industrial, retail and
hotel uses to be known as the Sunbridge Planned Development ("Sunbridge PD");

and

WHEREAS, Applicant submitted a Road Term Sheet to the County which outlined the major components of its obligations and responsibilities relating to Sunbridge Parkway and such Road Term Sheet was approved by the County as part of its deliberations on the Sunbridge PD rezoning on November 29, 2016; and

WHEREAS, Applicant is willing to convey or cause the conveyance of certain portions of the Property to County in return for credits against transportation impact fees ("Impact Fee Credits") to be paid in the future in connection with the Sunbridge PD; and

WHEREAS, Applicant is willing to construct those Segments of Sunbridge Parkway identified in Section 4 below and associated stormwater facilities within the Property (referred to and defined herein as the "Improvements") in return for Impact Fee Credits; and

WHEREAS the Orange County Engineer has declared that portions of Sunbridge Parkway are impact fee eligible; and

WHEREAS, construction of the Improvements by Applicant and conveyance of road right-of-way, ponds and associated easements ("ROW&E") will serve the health, safety, and general welfare of the public; and
WHEREAS, County and Applicant desire to set forth certain terms, conditions, and agreements between the parties as to the construction of the Improvements, design, engineering and permitting of the Improvements, and conveyance of the ROW&E to County.

NOW, THEREFORE, for and in consideration of the above premises, the mutual covenants and agreements set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Applicant and County (the "Parties") agree as follows:

Section 1. Recitals. The above recitals are true and correct and are incorporated herein by this reference.

Section 2. Preliminary Design Study. Applicant shall fund and conduct a single preliminary design study ("PDS") for Segments 2, 3a, 3b, and 4 of Sunbridge Parkway pursuant to the scope of services attached hereto and incorporated herein as Exhibit "C." The Applicant shall receive transportation impact fee credits for the actual, reasonable, County-approved cost incurred for the PDS, which is currently estimated to be $451,312.45.

Upon request by Applicant, the County is not requiring Applicant to conduct a PDS for Segment 1. The PDS process requires collection and analysis of environmental data. It is not necessary to include Segment 1 within the PDS because this Segment is wholly contained within the former International
Corporate Park of Development of Regional Impact ("ICP DRI") and therefore the environmental attributes of that portion of the Property have already been extensively analyzed and are subject to existing permits issued by the County (Orange County CAI Permit No. 10-010 and Extension Request through 6/23/17) and the South Florida Water Management District (SFWMD Conceptual Permit No. 48-02172-P and Extension Request through 10/11/18). In addition, this Property is subject to the County’s Environmental Land Stewardship Program, which has gone through an extensive public engagement and hearing process.

Section 3. Improvements Included Within This Agreement. For purposes of this Agreement, the Parties agree that the Improvements include only the Segments of Sunbridge Parkway referenced in Section 4.A, below, and associated stormwater facilities relating to the Segments.

Section 4. Sunbridge Parkway Design, Permitting and Construction. Upon completion of the PDS by Applicant and acceptance of the PDS by the County, Applicant will deliver road designs and proceed to permit and construct Sunbridge Parkway within the segments depicted on Exhibit “E,” attached hereto and incorporated herein (the “Segments,” and each a “Segment”).

A. The Segments are as follows:

i. Segment 1 – Design as 4-lane Urban, construct as 4-lane Urban (except as noted in Section 4.C. below)
ii. Segment 2 – Initially Design as 2-lane Rural, initially construct as 2-lane Rural

iii. Segment 3a – Initially Design as 2-lane Rural, initially construct as 2-lane Rural

iv. Segment 3b – Design as 2-lane Rural, construct as 2-lane Rural

v. Segment 4 – Design as 2-lane Rural, construct as 2-lane Rural

Due to the uncertainty of timing of urban development and the potential for premature construction of utility and stormwater systems, the Applicant shall initially design, engineer, permit and construct Segments 2 and 3a as two lane rural segments. The Applicant shall thereafter design, engineer, permit and reconstruct the applicable rural section to an urban section when an application is submitted for a Preliminary Subdivision Plan (“PSP”) adjacent to the relevant Segment 2 or Segment 3a (the “Urban Section Trigger”), with the reconstruction of such Segment being completed prior to the issuance of a Certificate of Completion (“C of C”) for the subdivision improvements. Alternatively, the Applicant shall be responsible for the additional cost that the County would incur when reconstructing the two lane rural sections to two lane urban sections, as part of the expansion to four lane urban sections.

In the event Applicant reconstructs Segment 2 or Segment 3a or Applicant pays for the additional cost that the County would incur when reconstructing the
two lane rural sections to two lane urban sections as part of the County’s expansion to four lane urban sections, the Applicant shall also provide a design for four-laning the relevant Segment(s) as four lane urban sections. The four-lane design for each of Segment 2 and 3a shall be commenced by Applicant within ninety (90) days of its receipt of notice from the County that the volume to capacity ratio based on actual traffic counts on the applicable Segment exceeds eighty (80) percent. Applicant shall submit design plans to County at 30%, 60%, 90%, 100% and Final design completion for County approval. The Applicant shall complete the design within fifteen (15) months of receipt of the notice provided by County pursuant to this paragraph.

If the County proceeds with construction of Segments 2 or 3a from two lane rural to four lane urban prior to the Urban Section Trigger, then, within one hundred eighty (180) days after the decision to proceed is made, the County shall develop and provide to Applicant, in County’s reasonable discretion, an estimate of the expected costs and expenses to be incurred in connection with the construction and provide Applicant with written notice of such estimate. If the Applicant affirmatively accepts the County’s estimate, Applicant shall, with ninety (90) days of acceptance, provide evidence satisfactory to the County that reimbursement of the County’s costs and expenses will be made. If the Applicant does not affirmatively accept the County’s estimate with in thirty (30) days, the parties
agree to meet in good faith to negotiate. If the parties are unable to resolve their disagreement within thirty (30) days, County shall be entitled to obtain at least three (3) bids, accepting bids only from qualified and responsive construction contractors, select the bid from the lowest responsive and responsible bidder, and notify Applicant in writing of the bid selection by providing Applicant copies of the itemized bids and bid selection. Applicant shall with ninety (90) days of receipt of the notice of bid selection, provide evidence satisfactory to the County that reimbursement of the County’s costs and expenses will be made.

B. Within 180 days of the approval of this Agreement, the Applicant shall submit final construction plans for Segment 1 for permitting to the County. Within 180 days of approval of permits for Segment 1, the Applicant shall present a construction contract to the County pursuant to Section 7 below. Upon County’s approval of each such construction contract, the Applicant shall commence the applicable construction within 180 days.

C. The Applicant, at its option, may initially construct Segment 1 as a 2-lane Urban segment. In such instance, the Applicant shall be required to complete construction of the remaining two lanes not later than the development threshold identified in Exhibit “J,” attached hereto and incorporated herein. The Applicant shall commence construction of the expansion of Segment 1 from two lane urban
to four lane urban within 180 days of the County’s approval of the construction permits.

D. Within 180 days of the County’s approval of the PDS, the Applicant shall submit proposals for the DEP Work for Segments 2, 3a, 3b, and 4 to the County pursuant to Section 5 below. Within 180 days of the approval of the DEP Work for Segments 2, 3a, 3b and 4, the Applicant shall submit final construction plans for Segments 2, 3a, 3b, and 4 for permitting to the County. Within 180 days of approval of permits for Segments 2, 3a, 3b and 4, the Applicant shall present a construction contract for one or more Segments to the County pursuant to Section 7 below. Upon County’s approval of said construction contract, the Applicant shall commence construction within 180 days.

E. Notwithstanding the above, the provisions of Section 16 below allow modification of the timing requirements of subsections 4B and 4D above.

F. Impact fee credits for the four-lane design of Segments 2 and 3a shall be based upon the applicable excess capacity percentages shown in Exhibit “F,” attached hereto and incorporated herein, which are exclusive of the upgrades to Segments 2 and 3a from two lane rural to two lane urban described in Subsection 4.A above.
Section 5. Design, engineering and permitting of the Improvements.

Applicant shall design, engineer, and permit ("DEP Work") the Improvements, subject to review and approval by County.

A. The scope of the DEP Work shall be as set forth in the scope of services document attached hereto as Exhibit "G" and incorporated herein by this reference.

   i. It shall be the responsibility of the Applicant to obtain all applicable permits, except that County, at its election, may be a co-applicant where reasonable and preferable to County.

   ii. All required mitigation for the Segments shall be the sole responsibility of Applicant.

B. Each design contract for any one or more of the Segments shall be subject to County review and approval.

   i. The Applicant has selected Donald W. McIntosh Associates, Inc. as the design and engineering consultant for Segment 1 and the County has approved the choice of the firm selected by Applicant. For all other Segments, the Applicant shall obtain at least three (3) proposals from design consultants and sub-consultants pre-qualified to perform work for the Florida Department of Transportation ("FDOT") under applicable FDOT regulations and guidelines (Group 3.1 and 3.2 for highway design roadway, and Group 4 for highway design
bridges, or the relevant prequalifications for a sub-consultant’ s area of work, as applicable). The choices of the prime and sub-consultants selected by Applicant are subject to County approval.

ii. Each design contract shall clearly identify an individual lead consultant acceptable to County who shall serve as project manager (“PM”) and be the primary point of contact for, and be required to coordinate with, County staff throughout the design process. The PM shall be solely responsible for all communications to and coordination with any and all consultants and sub-consultants.

iii. Each design contract shall designate County as a 3rd party beneficiary to all plans and electronic media associated with the Improvements.

iv. Plans for each Segment shall all be subject to County review and approval. Submission of insufficient plans may result in delays and/or County may refuse to accept such submissions for review.

C. The design of the Improvements shall address drainage requirements. The location of the ponds for both the initial and ultimate design of the roads shall be a component of the PDS.

i. Drainage facilities (“Ponds or individually, a “Pond” ) shall be conveyed to County as fee simple or easement interests, at County’s option.
ii. Any Pond intended to be used jointly by the parties shall remain as property of Applicant, who shall enter into a separate recorded joint-use pond agreement with County that establishes Applicant’s obligation to maintain such joint-use pond(s) to County standards.

D. Applicant and County shall cooperate in establishment of a municipal service benefit unit ("MSBU") or other assessment mechanism acceptable to the County to address lighting and landscaping requirements.

E. Applicant shall submit design plans to County at 30%, 60%, 90%, 100%, and Final design completion for review and approval.

F. Costs for the DEP Work shall initially be the responsibility of Applicant, subject to eligibility for Impact Fee Credits, as defined further in this Agreement. The anticipated costs of the DEP Work shall be reviewed for approval by the County following completion of the PDS, and as part of the County’s review of each design contract, and as part of negotiations regarding an amendment to this Agreement, as contemplated in Subsection 5.H, below, if necessary.

G. If updates to the DEP Work are needed after the County has accepted the DEP Work completed by Applicant, the update will be the responsibility of the County, unless such changes are requested or initiated by Applicant or required as
a result of changes in Applicant’s design, engineering, or permitting of the Sunbridge Parkway.

H. The conditions that will be included in the Florida Department of Transportation permit for the railroad grade crossing located within Segment 2 of the Sunbridge Parkway are unknown at the time this Agreement will be approved. The Parties agree that it may be necessary to amend this Agreement to address the design, engineering and permitting provisions herein, as well as the Total Estimated Cost of Improvements (as defined in Section 10, below), and requirements for ROW&E conveyances, once those conditions are finalized. Any decision by County to enter into any such amendment may be made by County in its reasonable discretion.

Section 6. Reimbursement for costs of DEP Work. Subject to the following provisions of this Section 6, County agrees to reimburse Applicant with Impact Fee Credits only for a portion of the actual, reasonable, incurred costs of the DEP Work as follows:

A. Promptly upon County’s acceptance of the final plans pursuant to the DEP Work for any Segment, completion of all required mitigation by Applicant for a Segment, and issuance of all necessary permits for the Improvements of such Segment, County shall credit to the account of Applicant, for purposes of Article IV of Chapter 23 of the Orange County Code and any successor code provisions
(the "Impact Fee Ordinance"), an amount of transportation impact fee credits to which Applicant is entitled under the Impact Fee Ordinance, as further detailed in Section 6.B below.

B. Except as set forth in the immediately following sentence, the Applicant will be responsible without reimbursement by Impact Fee Credits for the design, engineering, permitting and mitigation costs associated with the Segments and for the first two lanes of all other on-site roads within the Sunbridge PD. Notwithstanding the foregoing, the parties agree that 43.8% of the DEP Work costs for Segments 2 and 3a as a four lane urban section shall be impact fee eligible. For information only, such percentage is based on the Segment 2 and 3a excess capacity available to the County weighted by Segment length. The calculation is based on the capacities set forth in attached Exhibit "F."

C. Credits shall be awarded in an amount equal to 43.8% of approved actual, reasonable, costs of the DEP Work for Segments 2 and 3a as a four lane urban section incurred by Applicant, including amounts approved for requested change orders that do not exceed 10% of the cost of the DEP Work, individually or cumulatively. Requested change orders that amount to more than 10% of the cost of the DEP Work, individually or cumulatively, shall require approval by the BCC.

D. Such Impact Fee Credits may only be used within Sunbridge PD or transportation impact fee zone 3.
E. As transportation impact fees become payable from time to time in connection with the Sunbridge PD, and if so instructed by Applicant, County shall deduct such amounts payable from Applicant’s account.

F. For purposes of the foregoing, County shall make deductions from Applicant’s account from time to time only upon receipt of written direction from Applicant (or from such person or entity to whom Applicant expressly may assign this authority, in writing, in the future, or to whom Applicant has expressly assigned this authority by separate written instrument) to effect the particular deduction.

G. Nothing herein shall prevent Applicant from assigning transportation impact fee credits as provided for in Section 23-95(e) of the Orange County Code, as may be amended from time to time.

Section 7. Construction of the Improvements. Applicant shall be responsible for construction of the Improvements.

A. For each construction contract for any one or more of the Segments, Applicant shall obtain at least three (3) bids from qualified contractors acceptable to County. County must approve the awarding of each bid.

B. Each scope of the construction work shall be substantially consistent with the outcome of the PDS.
Applicant shall be responsible to obtain all applicable permits, except that County at its election may be a co-applicant where reasonable and preferable to County.

C. Each construction contract shall be subject to County review and approval.

   i. Each construction contract shall clearly identify Applicant’s project manager (“PM”), who shall serve as the primary point of contact for, and be required to coordinate with, County staff throughout the construction process. The PM shall be solely responsible for all communications to and coordination with any and all contractors and sub-contractors.

   ii. County shall be designated as a 3rd party beneficiary to each contract.

   iii. Prior to commencement of construction of any Segment(s), Applicant shall provide payment and performance bonds satisfactory to County for the costs of the Improvements to be made in such Segment(s), together with a rider to such bonds identifying County as a dual-obligee.

D. Any required temporary construction easements, right-of-way utilization permits, and/or rights of entry shall be the responsibility of Applicant.
Section 8. Inspection, acceptance by County.

A. County shall have the right to inspect work on the Improvements throughout the duration of construction. County shall have the authority to request any construction or construction materials testing for any work on the Improvements. The cost of laboratory testing routinely performed on the job site or subsequent to samples typically retrieved from the job site shall be borne by the County, except for testing which is regularly called for in the County’s Technical Provisions to be provided by the Contractor. Concrete and Soil-Cement mix design and groundwater testing costs shall be borne by the Contractor. The Record Laboratory is the testing laboratory contracted by the County. Only results of testing by the Record Laboratory shall be considered in evaluating the Contractor’s compliance with contract requirements.

B. Upon completion of construction of each Segment, County shall conduct a final inspection and upon approval of the applicable Improvements and Applicant’s compliance with all attendant requirements, shall issue a certificate of completion (“C of C”) for the Improvements.

C. Prior to issuance of the C of C, Applicant shall also deliver to the County a one year maintenance surety covering all Improvements constructed, such surety to be in form of a letter of credit or cash as acceptable to County. From the date of completion until such time as the Improvements are accepted for
maintenance by the County, Applicant shall be responsible for maintaining such, at its expense, to County standards as set forth in Chapter 34, Orange County Code, including landscaping, irrigation, and other improvements within the road right-of-way.

D. Upon any failure by Applicant to complete construction of any Segment or part thereof in accordance with the development thresholds identified in Exhibit "J" attached hereto and incorporated herein, in addition to any other remedies under the law and/or this Agreement, if the final approved plans are not sufficient for County to proceed with construction, Applicant shall immediately pay to County, in the form of cash or a letter of credit acceptable to County, an amount equal to 120% of the anticipated costs to amend the plans to County standards.

Section 9. Indemnification and Insurance.

A. Indemnification. The Owners/Applicant agree, on behalf of itself, its agents, contractors, successors and assigns, that it shall, to the fullest extent permitted by law, defend, indemnify, and hold harmless the County, its officials, agents, and employees from and against any and all liabilities, claims, damages, losses, costs and expenses (including attorneys' fees) or obligations of any kind including without limitation environmental assessments, evaluations, remediation, fines, penalties and clean-up costs asserted against the County and
arising out of or resulting from the performance of the construction activities, excepting those acts or omissions arising out of the sole negligence of the County provided that any such liability, claim, damage, loss, cost or expense:

i. Is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the construction activities themselves) including the loss of use resulting therefrom, and

ii. Is caused in whole or part by an act or omission relating to the construction of the Improvements by the Owners/Applicant, its agents or employees, or any contractor employed by the Owners/Applicant, or anyone directly or indirectly employed by the Owners/Applicant or its contractor(s), their subcontractors, or anyone for whose acts any of them may be liable;

iii. Is caused in whole or in part by any discharge or disposal of any hazardous or toxic materials, trash, debris, refuse, waste or other materials related in any way to the construction activities related to the construction of the Improvements;

Provided, however, if this Agreement or any underlying contract for construction of any Improvements is deemed by a court of competent jurisdiction to be a construction contract under Section 725.06, Florida Statutes, any obligation of the contractors to defend, indemnify or hold harmless the County, its officers, and employees shall be limited to an obligation to indemnify and hold harmless to
the extent caused by the negligence, recklessness or intentionally wrongful conduct of the contractors and persons employed or utilized by the contractors in the performance of the construction activities.

The indemnification provision contained herein shall survive the termination of this Agreement.

B. Insurance. Prior to commencing construction of any portion of the Improvements and throughout the course of construction of the Improvements, the Owners/Applicant or its agents and contractors, shall procure and maintain insurance with such limits and terms as specified in the following Schedule of Limits (see below):

(i) Workers' compensation insurance with statutory workers’ compensation limits and no less than the limits specified in the Schedule of Limits for Employer’s Liability with a waiver of subrogation in favor of the County its employees and officials.

(ii) Commercial general liability insurance for all operations including, but not limited to contractual, products and completed operations and personal injury with limits of not less than the limits specified in the Schedule of Limits per occurrence and an aggregate limit of at least twice the per occurrence limit.
(iii) Business automobile liability insurance for all owned, hired, or non-owned vehicles with limits of not less than the limits specified in the Schedule of Limits per occurrence.

(iv) Professional Liability (errors and omissions) for engineering design in amounts not less than One Million and 00/100 Dollars ($1,000,000.00) per occurrence.

(v) Contractors pollution liability insurance including remediation and monitoring expense for all construction operations with limits of not less than One Million Dollars and 00/100 ($1,000,000.00) per occurrence.

Schedule of Limits:

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<th>Contract Amount</th>
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<th>General Liability</th>
<th>Automobile Liability</th>
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<td>Over $20 million</td>
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The Owners/Applicant shall be responsible for ensuring that each of its contractors and subcontractors of every tier procure and maintain the insurance specified above and shall furnish to the County evidence of such insurance prior to commencement of construction. The County shall be specifically named (scheduled) as an additional insured on all policies except for workers' compensation coverage. All coverage shall be primary and not contributory with
any insurance or self-insurance maintained by the County. All coverage shall be primary and not contributory with any insurance or self-insurance maintained by the County. The Owners/Applicant shall provide the County notice of any material change, cancellation, non-renewal of any policy required herein at least thirty (30) days prior to the occurrence thereof.

Section 10. Reimbursement for costs of construction; Change orders.

Promptly upon County’s issuance of a C of C for a Segment, County shall credit to the account of Applicant, for purposes of Article IV of Chapter 23 of the Orange County Code and any successor code provisions (the “Impact Fee Ordinance”), an amount of transportation impact fee credits to which Applicant is entitled under the Impact Fee Ordinance for such Segment, as detailed in this Section 10, below.

A. For each Segment, Impact Fee Credits shall be granted for the excess capacity percentage above and beyond what is required to accommodate the impacts of development of the Sunbridge PD, as reflected on Exhibit “D” attached hereto and incorporated herein, for the Sunbridge Parkway. Credits for each Segment shall be calculated by multiplying the actual, reasonable approved costs incurred for construction for such Segment by the excess capacity percentage reflected on Exhibit “D.”
B. The total estimated cost of constructing the Improvements, including the cost of the DEP Work and construction, is $30,177,084 ("Total Estimated Cost of Improvements"). The actual construction costs may vary based upon adjustments made as a result of the PDS, the DEP Work, and final construction.

C. Once a final construction contract is approved by the County, change orders that individually or cumulatively exceed 10% of the Total Estimated Cost of Improvements shall require approval by the Board of County Commissioners.

D. Such transportation impact fee credits may only be used within the Sunbridge PD or transportation impact fee zone 3.

E. As impact fees become payable from time to time in connection with the Sunbridge PD, and if so instructed by Applicant, County shall deduct such amounts payable from Applicant’s account.

F. For purposes of the foregoing, County shall make deductions from Applicant’s account from time to time only upon receipt of written direction from Applicant (or from such person or entity to whom Applicant expressly may assign this authority, in writing, in the future) to effect the particular deduction.

G. Nothing herein shall prevent Applicant from assigning transportation impact fee credits as provided for in Section 23-95(e) of the Orange County Code, as may be amended from time to time.
H. The County will allow impact fee credits authorized for Monument Parkway as contained in Account (TCA) #200 and the ICP Interchange to be used for development within any portion of the Sunbridge PD.

Section 11. Conveyance of ROW&E to County by Applicant.

A. ROW&E Defined. For purposes of this Agreement, “Road ROW” shall include lands necessary for construction of Sunbridge Parkway, as follows: Segments 1, 2, and 3a as four lane urban roads, calculated as a minimum of 145 feet in width, and Segments 3b and 4 as four lane rural roads, calculated as a minimum of 160 feet in width (regardless if the actual right-of-way required for the Segments is less wide). For purposes of this Agreement, “Ponds” shall include lands necessary for the detention, retention and treatment of stormwater from Sunbridge Parkway, as such lands are identified by the DEP Work. For purposes of this Agreement, “Easements” shall include all easements necessary for the construction, maintenance and/or operation of Sunbridge Parkway, as identified by the DEP Work, including without limitation temporary and permanent easements for construction, conveyance, drainage, landscaping, shared Ponds if any, and other multi-purpose uses, as needed. For purposes of this Agreement, “ROW&E” shall include Road ROW, Ponds and Easements.

B. Timing for conveyance. Prior to County approval of the initial plat for the Sunbridge PD, Applicant shall convey or cause the conveyance to County of
marketable fee title to Road ROW, easement interests in all Easements, and Ponds in fee or by easement at County’s election.

C. Procedure. Conveyances shall be by special warranty deed or easement, as applicable. All conveyances shall be free and clear of all liens and encumbrances, except for matters of record acceptable to County, if any. Applicant shall pay all costs associated with the conveyances, including all recording fees and documentary stamps related to such conveyances. Ad valorem taxes in connection with the conveyances shall be prorated as of the date of transfer of title and said prorated amount shall be paid by Applicant to the Orange County Tax Collector, in escrow, pursuant to Section 196.295, Florida Statutes, unless the conveyance occurs between November 1 and December 31 of the year of conveyance, in which case ad valorem taxes shall be paid in full by Applicant for the year of conveyance.

D. Title Policy. No less than thirty (30) days prior to any conveyance, Applicant shall deliver to County, at Applicant’s sole cost and expense, a commitment to issue an Owners’ Policy of Title Insurance naming County as the insured (the “Title Commitment”). The original Owners’ Policy of Title Insurance (the “Title Policy”) shall be delivered to County within thirty (30) days of any conveyance.
E. Value of Road ROW and Ponds; Entitlement to Impact Fee Credits.

The value of the Road ROW and Ponds to be conveyed in fee by Applicant to County has been determined in accordance with Section 23-95, Orange County Code, as may be amended from time to time.

The Parties hereby agree that the value of the Road ROW and any Ponds conveyed in fee to be conveyed by Applicant to County in return for Impact Fee Credits is an agreed-upon fair market value of $27,840.31 per acre, or fraction thereof, and a total estimated acreage of 158.68 acres, is estimated to be $4,417,700. The estimate of Impact Fee Credits that will be allocated for the Road ROW and Ponds conveyed in fee is $2,103,559. This calculation is based on 100% of the Road ROW value for the third and fourth lanes of Segments 2, 3b, and 4. Because development of Sunbridge PD will require a portion of the four lane capacity on Segment 3a, the Impact Fee Credits for Segment 3a will be calculated based on the number of Sunbridge PD trips in excess of the two lane capacity divided by the capacity increase associated with four laning that Segment.

The size and location of all Road ROW as depicted on the attached Exhibit "E" are approximate, although the final size and location shall be substantially similar to that shown on Exhibit "E" and will be finalized during the DEP Work. Size and location of Ponds and Easements shall also be determined during the DEP Work. Exhibit "E" includes a depiction of Sunbridge Parkway as shown
in the final Sunbridge Planned Development / Regulating Plan approved by the County on November 29, 2016. The dimensions and location for a particular component of the ROW&E shall be finalized by County and Applicant prior to County approval of the Preliminary Subdivision Plan or Development Plan ("PSP/DP") that includes the ROW&E, and shall be in full compliance with this Agreement. County and Applicant agree that the legal descriptions used to convey the ROW&E to County may be revised based upon final engineering.

F. Environmental Audit. No less than thirty (30) days prior to conveyance, Applicant shall submit to County a current (within 6 months of conveyance to County) Phase I environmental audit of the areas encompassed by the ROW&E. The Phase I environmental audit shall be conducted in accordance with the requirements of the All Appropriate Inquiries Final Rule, or with the standards set forth in the American Society for Testing and Materials (ASTM) E-1527-13. In the event the Phase I environmental audit presents a matter of concern, as determined by County, then prior to the conveyance, Applicant shall submit to County a Phase II environmental audit. If the Phase II environmental audit is performed and reveals the need for remediation to the ROW&E, one of the following events shall occur: (i) Applicant shall remediate the ROW&E to County's satisfaction prior to the conveyance; or (ii) Applicant and County shall
negotiate and enter into a separate agreement whereby Applicant shall pay the full cost of remediation; or (iii) County may terminate this Agreement at its option.

G. Compliance with Section 286.23, Florida Statutes. Applicant shall execute and deliver to County the "Disclosure of Beneficial Interests" required pursuant to section 286.23, Florida Statutes.

Section 12. Transportation Impact Fee Credits for Conveyances of Road ROW and Ponds Conveyed in Fee. For purposes of this Agreement, the impact fee eligible road is Sunbridge Parkway.

Promptly upon County’s approval of any environmental assessments and title commitment required under Section 11, and upon approval and acceptance of the special warranty deed, County shall credit on its books to the account of Applicant, for purposes of Article IV of Chapter 23 of the Orange County Code and any successor code provisions (the "Impact Fee Ordinance"), the aforementioned amount of transportation impact fee credits to which Applicant is entitled under the Impact Fee Ordinance for Road ROW and Ponds conveyed in fee, as calculated in Section 11E above. Such transportation impact fee credits may only be used in Sunbridge PD or transportation impact fee zone 3. Thereafter, as impact fees become payable from time to time in connection with the Sunbridge PD, and if so instructed by Applicant, County shall deduct such amounts payable from Applicant’s account.
For purposes of the foregoing, County shall make deductions from Applicant's account from time to time only upon receipt of written direction from Applicant (or from such person or entity to whom Applicant expressly has assigned or may in the future assign this authority, in writing, in the future) to effect the particular deduction.

Nothing herein shall prevent Applicant from assigning transportation impact fee credits as provided for in Section 23-95(e) of the Orange County Code, as may be amended from time to time.

Section 13. Dowden Road and IWS Right-of-Way

If the County determines that right-of-way and/or ponds and easements for Dowden Road or IWS Road, as shown on Exhibit “E,” within Sunbridge PD are needed to complete a network connection to the west prior to the time development in that portion of the Sunbridge PD has taken place, the County has the right to require dedication upon reasonable notice to Applicant, provided that an agreement has been executed which secures the right-of-way and funding to complete either Dowden to SR 417 or IWS to Moss Park Road.

Impact Fee Credits for conveyance of either Dowden Road or IWS right-of-way, and/or ponds and easements shall be determined in accordance with Section 23-95, Orange County Code, as may be amended from time to time. Conveyances
shall be completed in a manner substantially consistent with the processes set forth in Section 11, above.

**Section 14. Good Faith Negotiations Required.**

Developer will negotiate in good faith with landowners whose property is necessary to construct Innovation Way South from Sunbridge Parkway to Moss Park Road and thereby provide an east-west interconnection between Sunbridge PD and Moss Park Road. A separate agreement will be required to provide details for funding, timing, right-of-way acquisition, design, permitting, construction, cost allocations and impact fee credits for IWS.

**Section 15. Coordination With Adjacent Development Required.**

Prior to any PSP or DP adjacent to Camino Reale, as depicted on attached Exhibit "E," the Applicant shall document to the County reasonable coordination efforts for the access points as depicted in the Sunbridge PD-RP. A separate agreement will be required to provide details for funding, timing, right-of-way acquisition, design, permitting, construction, cost allocations and impact fee credits for Camino Reale access.

Subsequent to the construction of any portion Section 2 of Sunbridge Parkway, the County shall have the ability to require conveyance of right-of-way for a two-lane connection to Camino Reale as generally depicted on Exhibit E. The County shall not require conveyance until after Camino Reale has an approved
regulatory plan, term sheet, and Road Network Agreement that addresses the
timing of infrastructure and development, including restrictions regarding the
amount of development that can occur on a single access point prior to the
completion of Innovation Way South, west to State Road 417.

Section 16. Orange County Gun Range. The County is the owner of
property located at 14500 Wewahootee Rd. Orlando, Florida 32832, on which the
Orange County Gun Range is located. The Applicant has entered into a School
Mitigation Agreement for Capacity Enhancement ("CEA") with the School Board
of Orange County, Florida ("School Board"), which was approved at the
November 1, 2016 meeting of the School Board. Due to the proximity of the
property to the Orange County Gun Range, the School Board has established an
Excluded Area on the property, which prohibits the location of any school within
one mile of the Orange County Gun Range or any location west of the railroad
tracks.

Due strictly to this restriction, the Applicant reserves the reasonable right to
delay the PDS, DEP Work, and/or construction of any segment of Sunbridge
Parkway only until such time that the gun range provisions of the Excluded Area in
the CEA are waived, modified or satisfied.

Section 17. Vested Trips for Sunbridge PD. The Sunbridge PD is vested
for 70,673 annual average daily net external vehicle trips. These vested trips are
based on a calculation of an originally vested 82,000 trips for the International Corporate Park Development of Regional Impact (ICP DRI), less the 11,327 annual average daily net external vehicle trips assigned to development within the former ICP DRI, now known as the ICP PD. The 70,673 may be "spread" within the Sunbridge PD, and trips between the former ICP DRI and Innovation Way East will not be considered to be external trips in the calculation of trips. An application for a new or amended vested certificate rights is not required to validate the vested rights to the 70,673 trips.

A. Upon completion of each Segment, the Sunbridge PD shall be vested for the peak hour, peak directional Sunbridge PD trips shown in Exhibit "D" (Excess Capacity Calculation) along the specific section of Sunbridge Parkway. These trips are in addition to the current vesting of 70,673 annual average daily net external trips, as they are intended to reflect a combination of internal and external traffic through buildout of the Sunbridge PD. In the event that the monitoring studies conclude that the Sunbridge PD impact exceeds or is expected to exceed total vested trips, the Sunbridge PD may be required to mitigate additional impacts.

B. Applicant shall conduct monitoring of gross daily trip-end generation in accordance with Exhibit "H," attached hereto and incorporated herein.
C. In assessing transportation impacts for projects impacting roads that are also impacted by the Sunbridge PD, the County shall consider the vested trips of the Sunbridge PD as committed trips on those roads.

Section 18. Lake Mary Jane Alliance Commitments.

A. The connection of any road within Sunbridge PD, including but not limited to Sunbridge Parkway, to Lake Mary Jane Road, as shown on Exhibit “I,” attached hereto and incorporated herein, or to any road within the Lake Mary Jane Rural Settlement that connects to Lake Mary Jane Road, shall be prohibited.

B. There shall be no public access to or use by the general public of the existing private road shown on the attached Exhibit “I” as TM Ranch Driveway, provided, in the event of a declared emergency, TM Ranch Driveway may be temporarily used for emergency ingress or egress and Capri Road may be used and maintained for agricultural pursuits and purposes, consistent with the current usage.

C. Applicant will not propose any crossings of Roberts Island Slough as shown on attached Exhibit “I” to connect the portion of Camino South identified as CS-1 on the attached Exhibit “I” to Sunbridge Parkway. The road ingress and egress to and from CS-1 will be from Lake Mary Jane Road.

D. There will be no roads connecting parcel CS-2, as shown on the attached Exhibit “I” to any roads within the Lake and Pine Estate section within
the Lake Mary Jane Settlement, located along the southwestern boundary of the Camino South parcel. Any ingress or egress by road to said parcel CS-2 shall only occur via direct connection to the Sunbridge Parkway. Access over the Roberts Island Slough shall be permitted in connection with ingress and egress to and from CS-2 and for Sunbridge Parkway as depicted on Exhibit “I”.

**Section 19. Utilities.** This agreement does not address utility requirements. Applicant shall coordinate with the Orange County Utilities Director, or a designee, with respect to any utility easements necessary to accommodate appropriately-sized wastewater sewer mains or lines, potable water mains or lines, and/or reclaimed water mains or lines.

**Section 20. Notice.** Any notice delivered with respect to this Agreement shall be in writing and shall be deemed to be delivered (whether or not actually received) (i) when hand delivered to the person(s) hereinafter designated, or (ii) upon deposit of such notice in the United States mail, postage prepaid, certified mail, return receipt requested, addressed to the person at the address set forth opposite the party’s name below, or to such other address or to such other person as the party shall have specified by written notice to the other party delivered in accordance herewith.

As to Applicant:  Tavistock East Holdings, LLC
Attention: James Zboril, President
6900 Tavistock Lakes Blvd, Suite 200
Orlando, FL 328927
As to County: Orange County Administrator
P.O. Box 1393
201 S. Rosaline Ave
Orlando, FL 32802-1393

With a copy to: Orange County Community, Environmental, and Development Services Department
Manager, Transportation Planning Division
Orange County Public Works Complex
4200 S. John Young Parkway
Orlando, FL 32839-9205
Orlando, Florida 32839-9205

As to Owners: Suburban Land Reserve, Inc.
Central Property Holdings 100, LLC
Central Property Holdings 200, LLC
Attention: R. Steven Romney
79 South Main St., Suite 500
Salt Lake City, UT 84111

With copies to: Vivien Monaco
Burr & Forman, LLP
200 South Orange Ave, Suite 800
Orlando, FL 32801

Loyal Hulme
Kirton McConkie
50 East South Temple, Suite 400
Salt Lake City, UT 84111

And: Farmland Reserve, Inc.
Attn: E. Erik Johnson
79 South Main Street, Suite 1000
Salt Lake City, UT 84111

Section 21. Covenants Running with the Land. This Agreement shall run with the Property and shall be binding upon, and shall inure to the benefit and
burden of, the heirs, legal representatives, successors, and assigns of the Applicant and the Owners and to any person, firm, corporation, or other entity that may become a successor in interest to the Property. Notwithstanding the foregoing, however, the authority under Sections 6, 10 and 12 to instruct County to make deductions from Applicant’s transportation impact fee account shall remain with Applicant unless expressly assigned in writing to another by Applicant.

Section 22. Recordation of Agreement. An executed original of this Agreement shall be recorded, at Applicant’s expense, in the Public Records of Orange County, Florida within thirty (30) days of the Effective Date.

Section 23. Applicable Law. This Agreement and the provisions contained herein shall be construed, controlled, and interpreted according to the laws of the State of Florida.

Section 24. Time is of the Essence. Time is hereby declared of the essence to the lawful performance of the duties and obligations contained in this Agreement.

Section 25. Further Documentation. The Parties agree that at any time following a request therefor by the other party, each shall execute and deliver to the other party such further documents and instruments reasonably necessary to confirm and/or effectuate the obligations of either party hereunder and the consummation of the transactions contemplated hereby.
Section 26. Limitation of Remedies. County and Applicant expressly agree that the consideration, in part, for each of them entering into this Agreement is the willingness of the other to limit the remedies for all actions arising out of or in connection with this Agreement.

A. Limitations on County’s remedies. Upon any failure by Applicant or any Owner to perform its obligations under this Agreement, County shall be limited strictly to only the following remedies:

i. action for specific performance or injunction; or

ii. the right to set off, against the amounts of impact fees to be credited in favor of Applicant under this Agreement, (A) any amounts due to County from Applicant or any Owner under this Agreement but remaining unpaid and (B) the cost to County of performing any action or actions required to be done under this Agreement by Applicant or any Owner, but which Applicant, or such Owner has failed or refused to do when required; or

iii. the withholding of development permits and other approvals or permits in connection with the Sunbridge PD and/or the Property; or

iv. any combination of the foregoing.

In addition to the foregoing, nothing in this Agreement prohibits or estops County from exercising its power of eminent domain with respect to the ROW&E or any other portion of the Property as County may lawfully elect.
B. **Limitations on Applicant’s remedies.** Upon any failure by County to perform its obligations under this Agreement, Applicant shall be limited strictly to only the following remedies:

i. action for specific performance; or

ii. action for injunction; or

iii. action for declaratory judgment regarding the rights and obligations of Applicant; or

iv. any combination of the foregoing.

Both parties expressly waive their respective rights to sue for damages of any type for breach of, or default under, this Agreement by the other. Both parties expressly agree that each party shall bear the cost of its own attorney fees for any action arising out of or in connection with this Agreement. Venue for any actions initiated under or in connection with this Agreement shall be in the Circuit Court of the Ninth Judicial Circuit in and for Orange County, Florida.

**Section 27. Amendment.** This Agreement may be amended only in writing, formally executed in the same manner as this Agreement.

**Section 28. Counterparts.** This Agreement and any amendment(s) may be executed in up to three counterparts, each of which shall be deemed an original and all of which shall constitute one and the same instrument.
Section 29. Authority to Contract. The execution of this Agreement has been duly authorized by the appropriate body or official of each party hereto.

Section 30. Entire Agreement. This Agreement embodies and constitutes the entire understanding of the parties with respect to the subject matter addressed herein, and all prior or contemporaneous agreement, understandings, representations, and statements, oral or written, are merged into this Agreement.

Section 31. Interpretation. This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the parties, it being recognized that all parties have contributed substantially and materially to the preparation hereof. Captions and section headings in this Agreement are provided for convenience only and shall not be deemed to explain, modify, amplify, or aid in the interpretation, construction, or meaning of this Agreement.

Section 32. Disclaimer of Third Party Beneficiaries. Except as stated below, this Agreement is solely for the benefit of the formal parties hereto and no right or cause of action shall accrue by reason hereof to or for the benefit of any third party not a formal party hereto. Nothing in this Agreement, expressed or implied, is intended or shall be construed to confer upon or give any person or entity any right, remedy, or claim under or by reason of this Agreement or any provisions or conditions hereof, other than the parties hereto and their respective
representatives, heirs, successors, and assigns. The Parties acknowledge that Owners, by virtue of their ownership of the Property, are third-party beneficiaries of this Agreement.

**Section 33. Survival.** The obligations of this Agreement to convey ROW&E shall survive termination of this Agreement.

**Section 34. Severability.** If any provision of this Agreement, the deletion of which would not adversely affect the receipt of any material benefits by any party hereunder nor substantially increase the burden of any party hereunder, shall be held to be invalid or unenforceable to any extent by a court of competent jurisdiction, the same shall not affect in any respect whatsoever the validity or enforceability of the remainder of this Agreement.

**Section 35. Termination; Effect of Annexation.** This Agreement shall remain in effect so long as the Property remains in unincorporated Orange County, Florida, unless the Parties terminate it in writing. If any portion of the Property is proposed to be annexed into a neighboring municipality, and out of the unincorporated areas, County may, in its sole discretion, terminate this Agreement upon notice to the Applicant and the Owners.

[Signatures appear on following pages]
IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed by their respective duly authorized representatives on the dates set forth below, but effective as of the Effective Date.

ORANGE COUNTY, FLORIDA
By: Board of County Commissioners

By: Teresa Jacobs
Orange County Mayor
Date: 5.1.17

ATTEST: Phil Diamond, CPA, County Comptroller
As Clerk of the Board of County Commissioners
By: Craig A. Stopa
for Deputy Clerk
Printed name: Craig A. Stopa
WITNESSES:

James Zboril, President

TAVISTOCK EAST HOLDINGS, LLC

By: _______________________

Date: 4-16-17

Print Name: RICHARD LEVY

Print Name: DIANA GARCIA

STATE OF FLORIDA
COUNTY OF Orange

The foregoing instrument was acknowledged before me by James Zboril, the President of Tavistock East Services, LLC, on behalf of the company, who is known by me to be the person described in herein and who executed the foregoing, this 17 day of April, 2017. He/she is personally known to me or has produced ___________________________ as identification and did/did not take an oath.

WITNESS my hand and official seal in the County and State last aforesaid this 17 day of April, 2017.

Notary Public

DIANA GARCIA

Print Name: DIANA GARCIA

My Commission Expires: 07-09-2017
JOINDER AND CONSENT OF SUBURBAN LAND RESERVE, INC.

Suburban Land Reserve, Inc., a Utah corporation, for itself and on behalf of all other owners of real property within the Sunbridge Planned Development, hereby joins in and consents to the Agreement as a “joinder” party for the express purpose of acknowledging and agreeing to the terms contained in this Agreement.

Signed, witnessed, executed and acknowledged on this 3rd day of April, 2017.

WITNESSES:

SUBURBAN LAND RESERVE, INC.
A Utah Corporation

By: 
Name: R. Steven Romney
Title: President
Date: 4/3/2017

STATE OF UTAH
COUNTY OF SALT LAKE

The foregoing instrument was acknowledged before me by R. Steven Romney, the President of Suburban Land Reserve, Inc., on behalf of the corporation, who is known by me to be the person described in herein and who executed the foregoing, this 3rd day of April, 2017. He/she is personally known to me or has produced identification and did did not take an oath.

WITNESS my hand and official seal in the County and State last aforesaid this 3rd day of April, 2017.

MALLORY TURNER
Notary Public

Print Name: Mallory Turner

My Commission Expires: 06/23/2018
ACKNOWLEDGMENT, JOINDER, AND CONSENT

THIS ACKNOWLEDGMENT, JOINDER, AND CONSENT ("Acknowledgment") dated as of the Effective Date (the "Effective Date" is the date of the last signature hereto), is made by CENTRAL FLORIDA PROPERTY HOLDINGS 100, LLC, a Florida limited liability company ("CFPH 100"); CENTRAL FLORIDA PROPERTY HOLDINGS 200, LLC, a Florida limited liability company ("CFPH 200") (collectively, "CFPH 100 and 200"); FARMLAND RESERVE, INC., a Utah non-profit corporation ("FRI"); and SUBURBAN LAND RESERVE, INC., a Utah corporation ("SLR"), in favor of ORANGE COUNTY, a charter county and political subdivision of the State of Florida (the "County").

This Acknowledgment is made with reference to the following facts:

A. FRI is the current fee simple owner, but not the developer, of a majority of that certain real property located in Orange County, Florida commonly referred to as Innovation Way East (the "FRI IWE Property"), and that certain real property commonly referred to as Camino Reale South (the "Camino South Property"). FRI is not in the land development business and is not a developer.

B. CFPH 100 and 200 is the current fee simple owner, but not the developer, of the southwest portion of that certain real property located in Orange County, Florida commonly referred to as Innovation Way East (the "CFPH 100 and 200 IWE Property").

C. SLR is the current fee simple owner of certain real property located in Orange County, Florida commonly referred to as ICP ("SLR ICP Property"). Collectively, the FRI IWE Property, the Camino South Property, the CFPH 100 and 200 IWE Property, and the SLR ICP Property are referred to herein as the "Property."

D. Pursuant to a purchase and sale agreement SLR has obtained the rights to purchase the FRI IWE Property, the Camino South Property, and the CFPH 100 and 200 IWE Property and the rights to perform any actions necessary to entitle and develop such property, subject to the fulfillment of certain conditions.

E. SLR does hereby state that SLR has granted to Tavistock East Holdings, LLC, a Florida limited liability company ("Tavistock"), its rights to purchase, entitle, and develop the Property, including the FRI IWE Property and the CFPH 100 and 200 IWE Property, pursuant to a separate agreement between Tavistock and SLR.
F. FRI and CFPH 100 and 200 understand and SLR does hereby state that, under certain conditions being met, including those set forth in a separate written agreement between SLR and Tavistock, SLR (i) will grant to Tavistock its rights to purchase the Property, and (ii) has authorized Tavistock to perform certain actions necessary to entitle, encumber, and develop the Property pursuant to a separate agreement between Tavistock and SLR.

G. FRI and CFPH 100 and 200 understand and acknowledge that Tavistock and/or SLR will be required to enter into certain agreements with the County to entitle, encumber, and obtain approvals to develop the FRI IWE Property, the Camino South Property, and the CFPH 100 and 200 IWE Property, respectively, prior to Tavistock’s purchase of such properties, and that such agreements, including the Transportation Agreement for Sunbridge PD ("Transportation Agreement"), may apply to and affect the Property while FRI and CFPH 100 and 200 are the fee simple owners of their respective properties.

H. SLR understands and acknowledges that the authorization that SLR has granted to Tavistock to entitle, encumber, and develop the Property, pursuant to a separate agreement between Tavistock and SLR, will require Tavistock to enter into agreements with the County, including the Transportation Agreement, to entitle and obtain approvals for the Property, and that such agreements may apply to and affect the SLR ICP Property, the FRI IWE Property, the Camino South Property, and the CFPH 100 and 200 IWE Property while SLR, FRI, and CFPH 100 and 200 are the respective fee simple owners of such property, including, but not limited to the requirement to convey easements over certain designated portions of such property necessary for construction of Sunbridge Parkway (the "ROW&E") and other roads at certain designated times.

I. Due to FRI, CFPH 100 and 200, and SLR’s current ownership of and existing rights in the Property, the County desires that SLR, CFPH 100 and 200, and FRI acknowledge, join in, and consent to the Transportation Agreement between the County and Tavistock.

NOW THEREFORE SLR, CFPH 100 and 200, and FRI, as applicable, hereby state the following:

1. FRI and CFPH 100 and 200 Acknowledgment, Joinder, and Consent. FRI and CFPH 100 and 200 acknowledge that SLR has a current and existing right to purchase, develop, and pursue entitlements on the FRI IWE Property, the Camino South Property, and the CFPH 100 and 200 IWE Property, respectively, which includes the right to pursue and finalize the Transportation Agreement, which will apply to and affect such properties. FRI and CFPH 100 and 200 join and consent to the Transportation Agreement solely for the purposes of (i) consenting to have the Transportation Agreement recorded in the Public Records of Orange County, Florida upon their respective properties, such that it will encumber, run with title to, and create a servitude upon the Property, and (ii)
agreeing to convey any ROW&E located within the FRI IWE Property, the Camino South Property, and the CFPH 100 and 200 IWE Property to the applicable governing entity, SLR or its successor in title prior to the time such conveyances are required pursuant to the Transportation Agreement so that SLR or Tavistock, or their respective successors in title, can perform under the Transportation Agreement, which conveyance(s) will be consistent with the rights obtained by SLR, or its successor in title, from FRI and CFPH 100 and 200 referenced herein in Recital D.

2. **SLR Acknowledgment, Joinder, and Consent.** SLR acknowledges that Tavistock has conditionally obtained from SLR its current and existing right to purchase, develop, and pursue entitlements on the Property, which includes the right to pursue and finalize the Transportation Agreement, and agrees to convey any ROW&E to the applicable governing entity, Tavistock, or its successor in title, or to the County, as may be applicable, prior to the time such conveyances are required under the Transportation Agreement, which conveyance(s) will be consistent with the rights obtained by Tavistock from SLR referenced herein in Recital E. SLR consents to having the Transportation Agreement recorded in the Public Records of Orange County, Florida upon its respective properties, such that it will encumber, run with title to, and create a servitude upon the Property.

[SIGNATURES ON FOLLOWING PAGES]
Signed, witnessed, executed, and acknowledged by the parties as set forth below.

FARMLAND RESERVE, INC.,
a Utah non-profit corporation

By: 

Name (Print): K. Erik Jacobson

Its: 

Date: 3/30/17

STATE OF Florida
COUNTY OF Osceola

The foregoing instrument was acknowledged before me this 30th day of March, 2017, by K. Erik Jacobson, as President of Farmland Reserve, Inc., a Utah non-profit corporation, on behalf of the corporation. He is ☑ personally known to me or ☐ produced ________________ as identification.

WITNESS my hand and official seal in the State and County last aforesaid this 30th day of March, 2017.

[Affix Notary Seal]

Debra Lynn Justesen
NOTARY PUBLIC
STATE OF FLORIDA
Commit FF901844
Expires 9/3/2019

Signature of Notary
SUBURBAN LAND RESERVE, INC.,
a Utah corporation

By:  
Name (Print): R. Steven Romney
Its: President

Date: 1/3/2017

STATE OF UTAH

COUNTY OF Salt Lake

The foregoing instrument was acknowledged before me this 3rd day of April, 2017, by R. Steven Romney, President of Suburban Land Reserve, Inc., a Utah corporation, on behalf of the corporation. He is __ personally known to me or __ produced __________________ as identification.

WITNESS my hand and official seal in the State and County last aforesaid this 3rd day of April, 2017.

[Affix Notary Seal]

Signature of Notary

MALLORY TURNER
NOTARY PUBLIC - STATE OF UTAH
My Comm. Exp. 06/23/2018
Commission # 678163
CENTRAL FLORIDA PROPERTY
HOLDINGS 100, LLC
a Florida limited liability company

By: [Signature]

Name (Print): [Name]

Its:

Date: 3/30/17

STATE OF FLORIDA
COUNTY OF Ocala

The foregoing instrument was acknowledged before me this 30th day of March, 2017, by [Name], as Manager of Central Florida Property Holdings 100, LLC, a Florida limited liability company, on behalf of the company. He is ______ personally known to me or ____ produced _______ as identification.

WITNESS my hand and official seal in the State and County last aforesaid this 30th day of March, 2017.

[Affix Notary Seal]

Debra Lynn Justesen
NOTARY PUBLIC
STATE OF FLORIDA
Compliance #: 1571844
Expires 9/3/2019

Signature of Notary
Transportation Agreement for Sunbridge Parkway  
Tavistock East Holdings, LLC  
Page 50 of 50

CENTRAL FLORIDA PROPERTY HOLDINGS 200, LLC  
a Florida limited liability company

By: [Signature]
Name (Print):  [Name]
Its:  
Date:  

STATE OF FLORIDA  
COUNTY OF Osceola

The foregoing instrument was acknowledged before me this ___ day of 
March ______, 2017, by [Name], as Manager of 
Central Florida Property Holdings 200, LLC, a Florida limited liability company, 
on behalf of the company. He is _ personally known to me or ___ produced 
____________________ as identification.

WITNESS my hand and official seal in the State and County last aforesaid 
this ___ day of ______, 2017.

[Affix Notary Seal]  
Debra Lynn Justison  
NOTARY PUBLIC  
STATE OF FLORIDA  
Commit FF301644  
Expires 9/3/2019  
Signature of Notary
List of Exhibits to Transportation Agreement

A  Project Location Map
B  Legal description of Property
C  PDS Scope of Services
D  Excess Capacity Calculation
E  Sunbridge Parkway Segments Map
F  Four Lane Design Excess Capacity
G  DEP Work Scope of Services
H  Biennial Monitoring Process for External Trips
I  Lake Mary Jane Road Exhibit
J  Development Thresholds
Exhibit A
Project Location Map
(1 page)
Exhibit B
Legal Description of Property
(15 pages)
DESCRIPTION:

PARCEL A:

That portion of Section 1, Township 24 South, Range 31 East, and a portion of Section 6, Township 24 South, Range 32 East, Orange County, Florida, more particularly described as follows:

Commence at the Northwest corner of Section 6, Township 24 South, Range 32 East; thence run North 89 degrees 57 minutes 33 seconds East along the North line of said Section 6, a distance of 300.00 feet to the point of intersection with the East line of an O.U.C. Railroad Right of Way Easement as recorded in Official Records Book 3307, Page 2154 (Official Records Book 3590, Page 355), Public Records of Orange County, Florida; thence run South 00 degrees 02 minutes 17 seconds West along the East line of said O.U.C. Railroad Right of Way Easement a distance of 1203.04 feet to the POINT OF BEGINNING; thence departing said Right of Way Easement line run South 16 degrees 05 minutes 22 seconds East, a distance of 1530.10 feet; thence run South 00 degrees 02 minutes 17 seconds West a distance of 1309.07 feet to the point of intersection with the centerline of Wewahootee Road; thence run South 89 degrees 39 minutes 56 seconds West along said centerline of Wewahootee Road a distance of 2867.66 feet to the point of intersection with the Easterly line of the aforementioned O.U.C. Railroad Right of Way as recorded in Official Records Book 3307, Page 2154 (Official Records Book 3590, Page 355); thence run North 41 degrees 09 minutes 44 seconds East along the Easterly line of said O.U.C. Railroad Right of Way a distance of 3673.80 feet to the POINT OF BEGINNING.

Together with easement rights for the benefit of Parcel A:


PARCEL B

(CONSISTING OF NORTHWEST PARCEL, NORTHEAST PARCEL, CENTER PARCEL, SOUTHEAST PARCEL, SOUTHWEST PARCEL AND TRACT 8 PARCEL)

NORTHWEST PARCEL:

A parcel of land located in Section 25, Township 23 South, Range 31 East, Orange County, Florida. Said parcel being more particularly described as follows:

Commence at Southeast corner of said Section 25; thence North 00° 02' 15" West, 315.07 feet to the Point of Beginning, said point being on the Northerly right of way line of State Road 528 (Bee Line Expressway) as shown on an Orlando - Orange County Expressway Authority Right of Way Map, Section 1.1 - 1.2, 75002 - 3501; thence the following courses and distances along said Northerly right of way line, South 78° 27' 52" West, 1320.50 feet; thence North 89° 33' 17" West, 1263.28 feet; thence South 89° 45' 47" West, 2878.58 feet to a point on the West line of said Section 25; thence leaving said Northerly right of way line, run North 00° 14' 09" East along said West line 2600.49 feet to the West 1/4
corner of said Section 25; thence continue along said West line, North 00° 16' 31" East, 2654.65 feet to the Northwest corner of said Section 25; thence leaving said West line, run North 89° 52' 15" East along the North line of said Section 25 a distance of 2656.50 feet to the North 1/4 corner of said Section 25; thence continue along said North line, North 89° 54' 29" East, 2750.01 feet to the Northeast corner of said Section 25; thence leaving said North line, run South 00° 05' 21" East along the East line of said Section 25 a distance of 2656.64 feet to the East 1/4 corner of said Section 25; thence continue along said East line, South 00° 02' 15" East, 2342.69 feet to the Point of Beginning.

LESS AND EXCEPT A, B, C AND D AS SET FORTH BELOW:

A) ALAFAYA TRAIL EXTENSION (Official Records Book 8893, Page 1974)
All of that part of the Northwest 1/4 and the Southwest 1/4 of Section 25, Township 23 South, Range 31 East, Orange County, Florida lying within 60.00 feet left and right of the following described centerline:

Commence at the Northwest corner of the Northwest 1/4 of Section 25, Township 23 South, Range 31 East, Orange County, Florida; thence run S. 00° 17' 00" W. along the West line of the Northwest 1/4 of said Section 25 a distance of 263.92 feet for a Point of Beginning; thence departing said West line run S. 74° 33' 39" E. for a distance of 622.97 feet to the point of curvature of a curve concave Southwesterly having a radius of 1206.23 feet; thence run Southeasterly along the arc of said curve through a central angle of 74° 33' 39" a distance of 1569.70 feet to the point of tangency; thence run S. 00° 00' 00" E. tangent to said curve a distance of 936.90 feet to the point of curvature of a curve concave Northeastery having a radius of 1206.23 feet; thence run Southeastery along the arc of said curve through a central angle of 44° 30' 10" a distance of 931.56 feet to the point of tangency; thence run S. 44° 14' 56" E. tangent to said curve a distance of 255.00 feet to the point of curvature of a curve concave Southwesterly having a radius of 1206.23 feet; thence run Southeastery along the arc of said curve through a central angle of 44° 14' 56" a distance of 931.56 feet to the point of tangency; thence run S. 00° 15' 14" E. a distance of 144.58 feet to the end of said centerline. The right of way lines left and right of the above described centerline are intended to extend or shorten as necessary to terminate at the West line of the Northwest 1/4 of said Section 25.


C) Lands conveyed to Orange County by General Warranty Deed recorded May 11, 2010 in Official Records Book 10042, Page 7271, Public Records of Orange County, Florida. (Monument Parkway)

D) Lands conveyed to the Central Florida Expressway Authority by Special Warranty Deed, recorded April 27, 2016 in Document #20160212591, Public Records of Orange County, Florida.

NORTHEAST PARCEL:

Tracts B, C and E, International Corporate Park, Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41, of the Public Records of Orange County, Florida; Together with an un-platted portion of Section 31, Township 23 South, Range 32 East, Orange County, Florida. Said parcel being more particularly described as follows:

Commence at the Northwest corner of said Section 31; thence North 89° 50' 52" East along the North line of said Section 31 a distance of 1759.72 feet; thence leaving said North line, run South 00° 09' 08" East, 277.78 feet to the Point of Beginning, being a point on the Southerly right of way line of State Road 528 (Bee Line Expressway) as shown on an Orlando - Orange County Expressway Authority Right of Way
Map, Section 1.1 - 1.2, 75002 - 3501; thence South 89° 33' 17" East along said Southerly right of way line 3191.50 feet; thence South 77° 36' 38" East along said Southerly right of way line 379.91 feet to a point on the East line of said Section 31; thence leaving said Southerly right of way line, run South 00° 09' 42" West along said East line 2180.32 feet to a point on the Northerly right of way line of Aerospace Parkway as shown on said plat of International Corporate Park, Phase One - Unit I; thence the following courses and distances along said Northerly right of way line, also being a point on a non-tangent curve concave Southerly, having a radius of 1347.24 feet, a central angle of 36° 56' 23" and a chord of 853.63 feet that bears North 86° 30' 03" West; thence leaving said East line, run along the arc of said curve a distance of 868.59 feet to the point of compound curvature of a curve to the left, having a radius of 1070.69 feet and a central angle of 2° 10' 46"; thence along the arc of said curve a distance of 40.73 feet to the point of reverse curvature of a curve to the right, having a radius of 50.00 feet and a central angle of 84° 25' 07"; thence along the arc of said curve a distance of 73.67 feet to the point of tangency; thence North 22° 43' 54" West, 22.15 feet; thence South 67° 16' 06" West, 118.00 feet; thence South 43° 54" East, 22.15 feet to the point of curvature of a curve to the right, having a radius of 50.00 feet and a central angle of 84° 25' 07"; thence along the arc of said curve a distance of 73.67 feet to the point of reverse curvature of a curve to the left, having a radius of 1070.69 feet and a central angle of 6° 14' 50"; thence along the arc of said curve a distance of 116.74 feet to the point of reverse curvature of a curve to the right, having a radius of 3000.00 feet and a central angle of 6° 16' 38"; thence along the arc of said curve a distance of 328.67 feet to the point of compound curvature of a curve to the right, having a radius of 3771.72 feet and a central angle of 10° 25' 58"; thence along the arc of said curve a distance of 686.78 feet to the point of tangency; thence South 72° 08' 58" West, 153.55 feet to the point of curvature of a curve to the right, having a radius of 759.00 feet and a central angle of 9° 59' 11"; thence along the arc of said curve a distance of 132.29 feet to the point of tangency; thence South 82° 08' 09" West, 125.46 feet to the point of curvature of a curve to the left, having a radius of 841.00 feet and a central angle of 19° 58' 23"; thence along the arc of said curve a distance of 293.17 feet to the point of tangency; thence South 62° 09' 46" West, 125.47 feet to the point of curvature of a curve to the right, having a radius of 759.00 feet and a central angle of 9° 59' 11"; thence along the arc of said curve a distance of 132.29 feet to the point of tangency; thence South 72° 08' 58" West, 263.87 feet to the point of curvature of a curve to the right, having a radius of 3771.72 feet and a central angle of 13° 02' 44"; thence along the arc of said curve a distance of 858.77 feet to a point on the East boundary line of International Corporate Park Parcel 10, as recorded in Plat Book 67, Pages 56 through 58, of the Public Records of Orange County, Florida; thence leaving said curve and Northerly right of way line, run the following courses and distances along said East boundary line, North 21° 32' 39" East, 1243.02 feet; thence North 02° 04' 41" East, 1563.62 feet; thence North 50° 46' 16" East, 212.12 feet; thence North 29° 05' 08" West, 267.49 feet; thence North 01° 45' 25" West, 282.79 feet to the Point of Beginning.

LESS AND EXCEPT A, B, AND C AS SET FORTH BELOW:

A) LOT 17B (Official Records Book 8863, Page 3058) A parcel of land located in Section 31, Township 23 South, Range 32 East, Orange County, Florida. Said parcel being more particularly described as follows:

Begin at the Southeast corner of Tract B, per the plat of International Corporate Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41 of the Public Records of Orange County, Florida, said point also being a point on the Northerly right of way line of Aerospace Parkway per said plat; thence North 29° 27' 25" West along the Easterly line of said Tract B a distance of 71.13 feet; thence leaving said Easterly line, run North 46° 52' 12" East, 94.06 feet; thence North 03° 15' 47" West, 95.34 feet; thence North 29° 18' 31" West, 96.26 feet; thence North 03° 27' 06" East, 14.24 feet; thence North 60° 09' 14" East, 387.28 feet; thence South 29° 24' 05" East, 35.23 feet; thence South 82° 38' 26" East, 93.95 feet; thence North 85° 31' 12" East, 60.47 feet; thence South 89° 21' 05" East, 271.59 feet; thence North 76° 59' 12" East, 36.24 feet; thence South 40° 50' 55" East, 30.90 feet; thence South 62° 10' 43" East, 48.20 feet; thence South 68° 26' 08" East, 43.11 feet; thence South 48° 44' 34" East, 62.59 feet; thence South 60° 51' 00" East, 59.07 feet to a point on said Northerly right of way line of Aerospace Parkway; thence the following courses and distances along said Northerly right of way line of Aerospace Parkway as shown on said plat of International Corporate Park, Phase One - Unit I; thence the following courses and distances along said Northerly right of way line of Aerospace Parkway as shown on said plat of International Corporate Park, Phase One - Unit I;
Parkway, said point also being a point on a non-tangent curve concave Southeasterly, having a radius of 841.00 feet, a central angle of 19° 58' 23" and a chord of 291.69 feet that bears South 72° 08' 58" West; thence along the arc of said curve a distance of 293.17 feet to the point of tangency; thence South 62° 09' 46" West, 125.47 feet to the point of curvature of a curve to the right, having a radius of 759.00 feet and a central angle of 9° 59' 11"; thence along the arc of said curve a distance of 132.29 feet to the point of tangency; thence South 72° 08' 58" West, 263.87 feet to the point of curvature of a curve to the right, having a radius of 3771.72 feet and a central angle of 3° 43' 34"; thence along the arc of said curve a distance of 245.29 feet to the Point of Beginning.

B) Tract C, International Corporate Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41 of the Public Records of Orange County, Florida.

C) Central Florida Expressway Authority Parcel 2 as described in Official Records Book 11029, Page 6496 of the Public Records of Orange County, Florida.

CENTER PARCEL:

A parcel of land located in the Southwest quarter of Section 31, Township 23 South, Range 32 East, Orange County, Florida. Said parcel being more particularly described as follows:

Commence at the Southwest corner of said Section 31; thence North 89° 57' 33" East along the South line of the Southwest 1/4 of said Section 31, a distance of 400.00 feet to the Point of Beginning, said point being on the East right of way line of a 400.00' Orlando Utilities Commission railroad right of way, as recorded in Official Records Book 3435, Page 2304 of the Public Records of Orange County, Florida; thence North 00° 04' 18" West, along said East right of way 1827.01 feet to the Southerly right of way line of Aerospace Parkway, per the plat of International Corporate Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41 of the Public Records of Orange County, Florida; thence leaving said East right of way line, run the following courses and distances along said Southerly right of way line, North 89° 57' 30" East, 501.51 feet to the point of curvature of a curve to the left, having a radius of 3867.72 feet and a central angle of 17° 48' 33"; thence along the arc of said curve a distance of 1202.20 feet to the point of tangency; thence North 72° 08' 58" East, 149.25 feet to the Westerly boundary line of Lot 1, per said International Corporate Park Phase One - Unit I; thence leaving said Westerly right of way line, run the following courses and distances along said Westerly boundary line, South 23° 53' 08" West, 1160.22 feet; thence South 00° 08' 58" East, 997.50 feet to said South line of the Southwest 1/4 of Section 31; thence leaving said Westerly boundary line, run South 89° 57' 33" West along said South line, 1356.91 feet to the Point of Beginning.

LESS AND EXCEPT:

LOT 11 (Official Records Book 8863, Page 3384)
A parcel of land located in Section 31, Township 23 South, Range 32 East, Orange County, Florida. Said parcel being more particularly described as follows:

Begin at the intersection of the Southerly right of way line of Aerospace Parkway according to the Plat of International Corporate Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41 of the Public Records of Orange County, Florida and the East right of way line of a 400.00 foot wide Orlando Utilities Commission railroad right of way per Official Records Book 3435, Page 2304 of the Public Records of Orange County, Florida; thence run North 89° 57' 30" East, along said Southerly right of way line 501.63 feet to the point of curvature of a curve to the left, having a radius of 3867.72 feet and a central angle of 0° 29' 04"; thence along the arc of said curve and Southerly right of way a distance of 32.70 feet; thence leaving said curve and Southerly right of way line, run the following courses and distances along the wetland line as flagged by Glatten Jackson Kercher Anglin Lopez Rinehart, Inc. and

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field location by Vanasse Hangen Brustlin, Inc., South 31° 02' 45" West, 41.15 feet; thence South 45° 31'
39" West, 38.41 feet; thence South 24° 39' 04" West, 26.59 feet; thence South 85° 33' 10" West, 60.83
feet; thence South 20° 19' 12" West, 38.84 feet; thence South 82° 00' 51" West, 41.68 feet; thence
South 20° 38' 33" East, 49.51 feet; thence South 20° 29' 01" East, 34.88 feet; thence South 32° 23' 04"
East, 36.10 feet; thence South 64° 36' 19" West, 55.63 feet; thence North 77° 20' 10" West, 37.93 feet;
thence South 48° 51' 17" West, 69.83 feet; thence South 46° 54' 16" West, 37.00 feet; thence North 45°
21' 47" West, 65.33 feet; thence South 48° 06' 38" West, 20.87 feet; thence North 84° 09' 20" West,
22.19 feet; thence South 64° 15' 23" West, 26.32 feet; thence North 08° 00' 36" East, 41.67 feet; thence
South 34° 05' 24" East, 21.88 feet; thence North 71° 04' 51" East, 25.11 feet; thence North 00° 40' 18"
East, 34.32 feet; thence North 87° 06' 41" West, 31.97 feet; thence South 55° 25' 44" West, 28.10 feet;
thence South 66° 42' 19" West, 47.39 feet; thence South 74° 06' 57" West, 79.87 feet to a point on the
aforesaid East right of way line of a 400.00 foot wide Orlando Utilities Commission railroad right of way;
thence leaving said Wetlandline, run North 00° 03' 46" West, along said East right of way line 295.53
feet to the Point of Beginning.

SOUTHEAST PARCEL:

A parcel of land located in Section 6, Township 24 South, Range 32 East, Orange County, Florida. Said
parcel being more particularly described as follows:

Begin at the Northeast corner of said Section 6; thence South 00° 32' 57" East along the East line of said
Section 6, a distance of 2654.81 feet to the East 1/4 corner of said Section 6; thence continue along said
East line, South 00° 35' 47" East, 1311.44 feet to the centerline of Wewahootee Road; thence leaving said
East line, run South 89° 39' 56" West, along said centerline of Wewahootee Road, 3324.79 feet to the
East Boundary line of Correct Craft, Inc. as recorded in the Special Warranty Deed, Official Records
Book 6091, Page 2523 of the Public Records of Orange County, Florida, and the East line of LOT 1,
CORRECT CRAFT, as recorded in Plat Book 68, Pages 61 through 63, of said Public Records; thence
leaving said centerline of Wewahootee Road, run North 00° 02' 17" East along said East boundary line
and East line of said LOT 1, 3975.92 feet to the North line of said Section 6, thence leaving said East
Boundary line, run North 89° 57' 33" East along said North line 636.81 feet to the North 1/4 corner of
said Section 6; thence continue along the North line of said Section 6, North 89° 48' 12" East, 2646.20
feet to the Point of Beginning.

SOUTHWEST PARCEL:

Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41, of the Public Records of
Orange County, Florida, together with additional land located in Section 1, Township 24 South, Range 31
East and Section 36, Township 23 South, Range 31 East Orange County, Florida. Said parcel being more
particularly described as follows:

Commence at the Northeast corner of said Section 36, said point also being on the West right of way line
of a 400.00 feet Orlando Utilities Commission Railroad right of way, as recorded in the Official Records
Book 3435, Page 2304, of the Public Records of Orange County, Florida; thence the following courses and
distances along said West right of way line and the East line of said Section 36, run South 00° 07' 13"
East, 533.10 feet to the Point of Beginning; also being a point on the Southerly right of way line of State
Road 528 (Bee Line Expressway) as shown on an Orlando - Orange County Expressway Authority Right of
Way Map, Section 1.1 - 1.2, 75002 - 3501; thence continue along said West right of way line and East
line, South 00° 07' 13" East, 2123.46 feet to the East 1/4 corner of said Section 36; thence continue
along said West right of way line and East line, South 00° 04' 18" East, 2922.70 feet to the Southeast
corner of said Section 36; thence leaving said East line of Section 36 and the West right of way line, run
the following courses and distances along the East line of said Section 1 and the West right of way line of
a 300.00 feet Orlando Utilities Commission Railroad right of way, as recorded in the Official Records Book 3590, Page 355, of the Public Records of Orange County, Florida, South 00° 02' 07" West, 343.69 feet to the point of curvature of a curve to the right, having a radius of 1990.00 feet and a central angle of 41° 06' 13"; thence leaving said East line of Section 1, run along the arc of said curve and West right of way line a distance of 1427.61 feet to the point of tangency; thence South 41° 13' 36" West, 3123.90 feet to the centerline of Wewahootee Road, as recorded in the Official Records Book 5761, Pages 3567-3602, of the Public Records of Orange County, Florida; thence leaving said West right of way line, run the following courses and distances along said centerline, South 89° 39' 56" West, 21.10 feet to the point of curvature of a curve to the left, having a radius of 400.00 feet and a central angle of 44° 01' 33"; thence along the arc of said curve a distance of 307.36 feet to the point of tangency; thence South 45° 38' 23" West, 1557.46 feet to the point of curvature of a curve to the right, having a radius of 400.00 feet, a central angle of 38° 11' 16"; thence along the arc of said curve a distance of 266.60 feet to a point on the South line of said Section 1; thence leaving said centerline of Wewahootee Road, run North 89° 50' 55" West along said South line 1199.62 feet to the Southwest corner of said Section 1; thence leaving said South line, run North 01° 53' 15" West along the West line of said Section 1 a distance of 2660.90 feet to the West 1/4 corner of said Section 1; thence continue along said West line, North 00° 46' 04" East, 2646.14 feet to the Northwestern corner of said Section 1; thence North 88° 06' 44" West along the South line of said Section 36 a distance of 10.78 feet to the Southwest corner of said Section 36; thence North 00° 09' 05" East along the West line of said Section 36 a distance of 2923.13 feet to the West 1/4 corner of said Section 36; thence continue along said West line, North 00° 10' 56" East, 2412.09 feet to said Southerly right of way line of State Road 528 (Bee Line Expressway); thence leaving said West line of Section 36, run the following courses and distances along said Southerly right of way, North 89° 45' 47" East, 2879.03 feet; thence South 89° 33' 17" East, 1261.51 feet; thence South 77° 38' 56" East, 1328.23 feet to the Point of Beginning.

LESS AND EXCEPT A, B, C, D, E, AND F AS SET FORTH BELOW:

A) Limited Access Right of Way (Official Records Book 4282, Page 3520)
Commence at the Southeast corner of the Northeast 1/4 of Section 36, Township 23 South, Range 31 East, Orange County, Florida; thence N00°07'13"W along the East line of said Northeast 1/4, 1047.59 feet to the POINT OF BEGINNING, said point of beginning of a line of limited access and a point on a curve concave Northerly and having a radius of 482.42 feet; thence departing said East line on a chord bearing of N69°04'46"W run Northwesterly along the arc of said curve, through a central angle of 16°47'58", 141.45 feet; thence S79°13'57"W, 27.35 feet to the end of the line of limited access; thence continue S79°13'57"W, 50.29 feet to a point on the Southeasterly right-of-way line of I.C.P. Boulevard, also being a point on a curve concave Northerly and having a radius of 811.94 feet; thence on a chord bearing of N29°19'13"E run Northeasterly along the arc of said curve through a central angle of 14°08'57", 200.51 feet to the beginning of a line of limited access; thence S20°35'32"E, 77.64 to a point on a curve concave Northerly and having a radius of 382.42 feet; thence on a chord bearing of S67°23'14"E run Southeasterly along the arc of said curve, through a central angle of 13°24'54", 89.54 feet to a point on the aforesaid East line of the NE 1/4 of Section 36 and the end of the line of limited access; thence S00°07'13"E, along said East line, 103.17 feet to the POINT OF BEGINNING.

B) Pump Station (Official Records Book 5543, Page 2698)
A portion of the NE 1/4 of Section 36, Township 23 South, Range 31 East, Orange County, Florida, being a portion of the land described in a Special Warranty Deed recorded February 5, 1988 in Official Records Book 3955, Pages 3115 through 3131, of the Public Records of Orange County, Florida;

Being more particularly described as follows: BEGIN at the Southeast corner of Tract "J", INTERNATIONAL CORPORATE PARK, PHASE ONE-UNIT I, according to the plat thereof recorded in Plat Book 23, Pages 38 through 41, of the Public Records of Orange County, Florida, thence run S00°07'13"E along the East line of the Northeast quarter of said Section 36, (said East line also being the West line of a 400' wide Orlando Utilities Commission railroad right-of-way per Official Records Book 3435, Page 2304,
Public Records of Orange County, Florida), for a distance of 105.12 feet; thence, leaving said East line of said Northeast quarter and said West O.U.C. (Orlando Utilities Commission) right-of-way line, run S89°52'47"W, (non-radial), a distance of 131.63 feet to a point on a curve concave Northwesterly having a radius of 811.94 feet, said point also being on the Easterly right-of-way line of I.C.P. Boulevard, as shown on aforesaid Plat Book 23, Pages 38 through 41; thence run Northeasterly along the arc of said curve and along said Easterly right-of-way line for a distance of 94.04 feet through a central angle of 06°38'11", said curve having a chord length of 93.99 feet bearing N22°43'15"E, to the Southwest corner of said Tract "J", of said Plat Book 23, Pages 38 through 41; thence, leaving aforesaid curve and aforesaid Easterly right-of-way line of I.C.P. Boulevard, run along the South boundary of said Tract "J" for the following four (4) courses: run S70°03'50"E (radial), 19.81 feet; thence N89°52'47"E, 56.48 feet; thence N00°07'13"W, 25.12 feet; thence run N89°52'47"E, 20.00 feet to the POINT OF BEGINNING.

C) Retention/Detention Pond Area (Official Records Book 4282, Page 3520)
Commence at the Southeast corner of the Northeast 1/4 of Section 36, Township 23 South, Range 31 East, Orange County, Florida; thence N00°07'13"W along the East line of said Northeast 1/4, 677.59 feet to the POINT OF BEGINNING; Continue N00°07'13"W, 370.00 feet to a point on the Southerly right-of-way line of the Bee Line Expressway (S.R. 528) access road and being a point on a curve concave Northerly and having a radius of 482.42 feet; thence departing said East line on a chord bearing of N69°04'46"W run Northwesterly along the arc of said curve, through a central angle of 16°47'58", 141.45 feet; thence S79°13'57"W, 27.35 feet to a line of limited access and a point on a curve concave Northwesterly having a radius of 846.94 feet; thence on a chord bearing of 541°15'40"W run Southwesterly along the arc of said curve through a central angle of 14°43'36", 217.69 feet to the end of said line of limited access; thence S38°45'10"E, 323.44 feet; thence N89°52'47"E, 100.00 feet to the POINT OF BEGINNING.

D) That part of Aerospace Parkway and International Corporate Park Boulevard per said plat of International Corporate Park Phase One - Unit I, a public right of way lying in Section 36.

E) Tract J, International Corporate Park Phase One - Unit I, as recorded in Plat Book 23, Pages 38 through 41 of the Public Records of Orange County, Florida.

F) Central Florida Expressway Authority Parcel 1 as described in Official Records Book 11029, Page 6496 of the Public Records of Orange County, Florida.

TRACT 8 PARCEL:
TRACT 8, INTERNATIONAL CORPORATE PARK - PARCEL 10, as recorded in Plat Book 67, Pages 56 through 58, of the Public Records of Orange County, Florida.

TOGETHER WITH EASEMENT RIGHTS 1 THROUGH 13 FOR THE BENEFIT OF PARCEL B:
1. Reservations and Easements set forth in Warranty Deed recorded October 6, 1983 in Official Records Book 3427, Page 1809; and First Amendment recorded September 18, 1992 in Book 4462, Page 4935, Public Records of Orange County, Florida (Offsite);

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6. Easement recorded October 26, 1987 in Official Records Book 3931, Page 179, Public Records of Orange County, Florida (Offsite);

7. Department of Corrections Temporary Construction Easement recorded October 26, 1987 in Official Records Book 3931, Page 186, Public Records of Orange County, Florida (Offsite);


12. Rights and easements set forth in Special Warranty Deed recorded September 20, 2000 in Official Records Book 6091, Page 2523, Public Records of Orange County, Florida; and


PARCEL C:

A TRACT OF LAND, BEING A PORTION OF LOT 1, INTERNATIONAL CORPORATE PARK PHASE ONE - UNIT I, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN PLAT BOOK 23, PAGES 38 THROUGH 41, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA, BEING DESCRIBED AS FOLLOWS:

COMMENCE AT THE SOUTHEAST CORNER OF SAID LOT 1 FOR A POINT OF REFERENCE; THENCE RUN SOUTH 89°48'23" WEST, ALONG THE SOUTH LINE OF SAID LOT 1, A DISTANCE OF 1145.89 FEET; THENCE RUN NORTH 00°11'48" WEST, 639.97 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE SOUTHWESTERLY; THENCE RUN NORTHWESTERLY ALONG SAID CURVE, HAVING A RADIUS OF 1150.00 FEET, A CENTRAL ANGLE OF 21°11'40", AN ARC LENGTH OF 425.40 FEET, A CHORD LENGTH OF 422.98 FEET AND A CHORD BEARING OF NORTH 100°47'38" WEST TO THE POINT OF TANGENCY; THENCE RUN NORTH 21°23'28" WEST, 24.06 FEET TO THE POINT OF BEGINNING; THENCE RUN SOUTH 68°36'32" WEST, 30.00 FEET; THENCE RUN SOUTH 29°50'29" WEST, 32.92 FEET; THENCE RUN SOUTH 89°50'29" WEST, 1015.88 FEET; THENCE RUN NORTH 01°52'18" EAST, 425.48 FEET; THENCE RUN NORTH 88°07'35" WEST, 232.71 FEET; THENCE RUN SOUTH 00°22'18" EAST, 64.23 FEET; THENCE RUN SOUTH 16°02'55" WEST, 153.31 FEET; THENCE RUN SOUTH 60°51'00" WEST, 93.12 FEET; THENCE RUN SOUTH 63°16'37" WEST, 107.36 FEET; THENCE RUN SOUTH 89°00'01" WEST, 143.24 FEET; THENCE RUN NORTH 66°41'16" WEST, 65.77 FEET; THENCE RUN SOUTH 85°59'18" WEST, 107.53 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE SOUTHEASTERLY; THENCE RUN SOUTHWESTERLY ALONG SAID CURVE, HAVING A RADIUS OF 38.75 FEET, A CENTRAL ANGLE OF 60°29'27", AN ARC LENGTH OF 40.91 FEET, A CHORD LENGTH OF 39.04 FEET, AND A CHORD BEARING

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OF SOUTH 55°44'35" WEST TO THE POINT OF TANGENCY; THENCE RUN SOUTH 25°29'51" WEST, 137.40 FEET; THENCE RUN SOUTH 89°50'29" WEST, 399.17 FEET TO A POINT LYING ON THE WEST LINE OF SAID LOT 1; THENCE RUN NORTH 23°53'33" EAST, ALONG THE WEST LINE OF SAID LOT 1, A DISTANCE OF 1115.92 FEET TO THE NORTHWEST CORNER OF SAID LOT 1 AND THE SOUTHERLY RIGHT-OF-WAY LINE OF SPACE TRIANGLE PARKWAY; THENCE RUN NORTH 72°08'58" EAST, ALONG THE NORTH LINE OF SAID LOT 1 AND ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, 1070.19 FEET TO THE POINT OF CURVATURE OF A CURVE CONCAVE NORTHWESTERLY; THENCE RUN NORTHEASTERLY ALONG THE NORTH LINE OF SAID LOT 1, ALONG SAID SOUTHERLY RIGHT-OF-WAY LINE, AND ALONG SAID CURVE, HAVING A RADIUS OF 3867.72 FEET, A CENTRAL ANGLE OF 04°23'50", AN ARC LENGTH OF 296.84 FEET, A CHORD LENGTH OF 296.77 FEET, AND A CHORD BEARING OF NORTH 69°57'03" EAST, THENCE, NON-RADIAL TO SAID CURVE, RUN SOUTH 21°23'28" EAST, 1508.24 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT ANY PORTION CONVEYED TO ORANGE COUNTY IN WARRANTY DEED RECORDED MARCH 6, 2009 IN OFFICIAL RECORDS BOOK 9839, PAGE 626, PUBLIC RECORD OF ORANGE COUNTY, FLORIDA.

TOGETHER WITH EASEMENT RIGHTS GRANTED IN:

1) MASTER STORMWATER DRAINAGE AGREEMENT RECORDED MAY 5, 1987 IN OFFICIAL RECORDS BOOK 3884, PAGE 440, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA;

2) BORROW PIT EASEMENT RECORDED MAY 5, 1987 IN OFFICIAL RECORDS BOOK 3884, PAGE 442; AS AFFECTED BY SECTION 9 OF THAT CERTAIN DEVELOPMENT AGREEMENT RECORDED SEPTEMBER 14, 2006 IN OFFICIAL RECORDS BOOK 8860, PAGE 3134, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA;

3) DECLARATION OF CROSS EASEMENTS AND RESTRICTIONS RECORDED SEPTEMBER 14, 2006 IN OFFICIAL RECORDS BOOK 8860, PAGE 3101, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA; AND

4) CROSS EASEMENT AGREEMENT RECORDED MARCH 19, 2008 IN OFFICIAL RECORDS BOOK 9632, PAGE 3846, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.

AND:

That part of Section 1, Township 24 South, Range 31 East, Orange County, Florida, described as follows:

Commence at the Southeast corner of said Section 1; thence N00°08'02"W along the East line of the Southeast 1/4 of said Section 1 for a distance of 1218.30 feet to the POINT OF BEGINNING; thence S89°32'00"W, 2246.81 feet to the Southeasterly right-of-way line of a 300 foot wide Orlando Utilities Commission Railroad right-of-way, as recorded in Official Records Book 3471, Page 617, of the Public Records of Orange County, Florida; thence N41°08'54"E along said Southeasterly right-of-way line 147.13 feet to the centerline of Wewahootee Road, as recorded in Official Records Book 5761, Page 3567, of said Public Records; thence N89°32'00"E along said centerline 2149.73 feet to the aforesaid East line of the Southeast 1/4; thence S00°08'02"E along said East line 110.00 feet to the POINT OF BEGINNING.

AND:

A parcel of land within the Southeast 1/4 of Section 1, Township 24 South, Range 31 East, Orange County, Florida, lying South of the centerline of Wewahootee Road, and lying Northwesterly of the Northwest right-of-way line of a 300 foot wide Orlando Utilities Commission Railroad right-of-way, as
recorded in Official Records Book 3471, Page 617, of said Public Records, more particularly described as
follows:

Commence at the South 1/4 corner of said Section 1; thence N00°16'08"W along the West line of the
Southeast 1/4 of said Section 1 for a distance of 1056.39 feet to said Northwest right-of-way line of a 300
foot wide Orlando Utilities Commission Railroad right-of-way and the POINT OF BEGINNING; thence
continue N00°16'08"W along said West line 204.81 feet to the centerline of said Wewahootee Road and a
point on a non-tangent curve concave Southeasterly having a radius of 400.00 feet and a chord bearing
of N74°23'53"E; thence Northeasterly along said centerline and the arc of said curve through a central
angle of 30°43'36" for a distance of 214.51 feet to the point of tangency; thence N89°45'41"E along said
centerline 25.70 feet to said Northwesterly right-of-way line; thence S41°08'54"W along said
Northwesterly right-of-way line 347.84 feet to the POINT OF BEGINNING.

AND:

That part of the land described below lying Westerly of the following described line:

Commence at the Southwest corner of the Southeast 1/4 of Section 8, Township 24 South, Range 32
East; thence N89°46'01"E, along the South line of said Southeast 1/4 a distance of 175.57 feet to the
POINT OF BEGINNING; thence departing said South line run N09°15'45"W, a distance of 6739.67 feet;
thence N42°56'37"E, 1411.00 feet; thence N28°40'16"W, 1796.62 feet; thence N19°50'33"E, 1955.48
feet; thence N01°28'36"E, 1129.65 feet; thence N33°23'35"E, 923.57 feet; thence N79°28'20"E, 1623.18
feet; thence N29°06'06"E, 1397.71 feet; thence N48°04'07"E, 1962.60 feet to the South right-of-way line
of the Martin Anderson Beachline Expressway (SR 528) as recorded in Official Records Book 1533, Page
371, of the Public Records of Orange County, Florida and the POINT OF TERMINATION.

That part of Sections 32, 33 and 34, Township 23 South, Range 32 East; all of Sections 5, 7 and 8,
Township 24 South, Range 32 East; that part of Sections 4, 6, 9 and 18, Township 24 South, Range 32
East, all lying in Orange County, Florida, more particularly described as follows:

Commence at the Southwest corner of said Section 5; thence run N00°34'58"W, along the West line of
the Southwest 1/4 of said Section 5 for a distance of 1333.50 feet to the POINT OF BEGINNING; thence
continue N00°34'58"W along said West line, 1311.44 feet to the West 1/4 corner of said Section 5;
thence N00°33'01"W along the West line of the Northwest 1/4 of said Section 5 for a distance of 2655.00
feet to the Northwest corner of said Section 5; thence N00°00'52"W along the West line of the Southwest
1/4 of said Section 32 for a distance of 2928.81 feet to the West 1/4 corner of said Section 32; thence
N00°09'33"E along the West line of the Northwest 1/4 of said Section 32 for a distance of 2199.52 feet to
the South right-of-way line of the Martin Anderson Beachline Expressway (SR 528) as recorded in Official
Records Book 1533, Page 371, of the Public Record of Orange County, Florida; thence run the following
seven (7) courses along said South right-of-way line: S77°35'21"E, 948.51 feet; thence N00°28'04"E,
61.26 feet; thence N78°29'36"E, 1328.78 feet; thence S89°34'41"E, 8325.62 feet; thence N89°16'47"E,
1078.27 feet; thence S00°49'55"E, 299.60 feet; thence N89°22'29"E, 180.67 feet to the centerline of the
Econolohatchee River and Reference Point A; thence Southerly along said centerline 18,672 feet more or
less to a point which bears S15°55'50"W, 16,115.43 feet from said Reference Point A, said point being on
the South line of the Southwest 1/4 of said Section 9; thence S89°53'19"W along said South line 2068.95
feet to the Southwest corner of said Section 9; thence S89°46'01"W along the South line of the
Southeast 1/4 of said Section 8 for a distance of 2643.34 feet to the South 1/4 corner of said Section 8;
thence S89°45'58"W along the South line of the Southwest 1/4 of said Section 8 for a distance of,
2657.52 feet to the Northeast corner of said Section 18; thence S00°04'46"W along the East line of the
Northeast 1/4 of said Section 18 for a distance of 2373.19 feet to the centerline of the Disston Canal;
thence run the following five (5) courses along said centerline: thence S24°55'59"W, 1234.87 feet to the
point of curvature of a curve concave Northwesterly having a radius of 140.00 feet and a chord bearing
of S51°12'01"W; thence Southwesterly along the arc of said curve through a central angle of 52°32'03"
for a distance of 128.37 feet to the point of tangency; thence S77°28′02″W, 3885.21 feet; thence
S77°56′38″W, 914.16 feet; thence S58°14′24″W, 16.45 feet to the West line of the Southwest 1/4 of said
Section 18; thence N00°00′08″W along said West line, 1938.09 feet to the West 1/4 corner of said
Section 18; thence N00°07′29″W along the West line of the Northwest 1/4 of said Section 18 for a
distance of 498.15 feet to the Southwest corner of lands described in Official Records Book 4268, Page
1042, of said Public Records (City of Cocoa, Florida - Well Site Number 21); thence run the following
three (3) courses along the South, East and North lines of said lands: N89°52′31″E, 450.00 feet; thence
N00°07′29″W, 450.00 feet; thence S89°52′31″W, 450.00 feet to the West line of the Northwest 1/4 of
said Section 18; thence N00°07′29″W along said West line, 1300.01 feet to the Southwest corner of said
lands described in Official Records Book 4268, Page 1042, of said Public Records (City of Cocoa, Florida -
Well Site Number 20); thence run the following three (3) courses along the South, East and North lines
of said lands: N89°52′32″E, 450.00 feet; thence N00°07′28″W, 450.00 feet; thence S89°49′58″W, 449.95
feet to the West line of the Southwest 1/4 of said Section 7; thence N00°03′11″W, along said West line
2612.89 feet to the West 1/4 corner of said Section 7; thence N00°05′32″W along the West line of the
Northwest 1/4 of said Section 7 for a distance of 1328.30 feet to the centerline of the Wewahootie Grade;
thence N89°32′00″E along said centerline, 721.40 feet; thence N89°44′57″E along said centerline, 1299.99 feet; thence N89°39′59″E, along said centerline 3324.43 feet to the POINT OF BEGINNING;

Less and Except the Central Florida Expressway Authority right-of-way Parcel A and Parcel B, as
described in Official Records Book 11029, Page 6485, of the Public Records of Orange County, Florida.

Less and Except the following five City of Cocoa, Florida - Well Sites as described in Official Records Book
1012, Page 220, of the Public Records of Orange County, Florida:

Well Site "K"

Commencing at the Southwest corner of Section 5, Township 24 South, Range 32 East, Orange County,
Florida; thence Northerly along the West line of said Section 5, a distance of 1337.28 feet (N00°34′56″W,
1333.50 feet measured) to an intersection with the centerline of Wewahootie Grade; thence Easterly
along the said centerline a distance of 3832 feet (N89°34′02″E, 1449.20 feet and N89°36′27″E, 2382.74
feet measured) to the POINT OF BEGINNING; thence continuing along said centerline a distance of
208.71 feet (N89°36′27″E, 208.71 feet measured); thence Southerly at a right angle to said centerline a
distance of 308.71 feet (S00°23′33″E, 308.71 feet measured); thence Westerly parallel to said centerline
a distance of 208.71 feet (S89°36′27″W, 208.71 feet measured); thence Northerly at a right angle to said
centerline a distance of 308.71 feet (N00°23′33″W, 308.71 feet measured) to the POINT OF BEGINNING.
Subject to a right-of-way over the Northerly 100 feet for road purposes.

Well Site "L"

Commencing at the Southwest corner of Section 5, Township 24 South, Range 32 East, Orange County,
Florida; thence Northerly along the West line of Section 5, a distance of 1337.28 feet (N00°34′56″W,
1333.50 feet measured) to an intersection with the centerline of Wewahootie Grade; thence Easterly
along the said centerline a distance of 1450 feet (N89°34′02″E, 1449.20 feet measured) to the POINT OF
BEGINNING; thence continuing along said centerline a distance of 208.71 feet (N89°36′27″E, 208.71 feet measured);
thence Southerly at a right angle to said centerline a distance of 308.71 feet (S00°23′33″E, 308.71 feet measured);
thence Westerly parallel to said centerline a distance of 208.71 feet (S89°36′27″W, 208.71 feet measured);
thence Northerly at a right angle to said centerline a distance of 308.71 feet (N00°23′33″W, 308.71 feet measured) to the POINT OF BEGINNING. Subject to a right-of-
way over the Northerly 100 feet for road purposes.

Well Site "M"

http://interchange.tavistock.com/Sunbridge/Entitlements/Orange/Agreements/RoadAgreement/SL14360(A)desc(ICP,Camino
Reale 100' Strip, IWE (West of CPA Line) Les...docx - Created on 3/17/2017 - Last printed 3/17/2017 1:47:00 PM
Commencing at the Southeast corner of Section 6, Township 24 South, Range 32 East, Orange County, Florida; thence Northerly along the East line of Section 6, 1337.28 feet (N00°00'58"W, 1333.50 feet measured) to an intersection with the centerline of Wewahootee Grade; thence Southerly at a right angle to the Wewahootee Grade centerline a distance of 247.56 feet (S00°21'33"E, 244.31 feet measured); thence Westerly parallel to the said centerline a distance of 147.56 feet (S89°38'27"W, 147.56 feet measured); thence Northerly and at a right angle to said centerline a distance of 247.56 feet (N00°21'33"W, 244.37 feet measured) to the centerline of said grade; thence Easterly along the said centerline a distance of 147.56 feet (N89°39'59"E, 147.56 feet measured) to the POINT OF BEGINNING. Subject to a right-of-way over the Northerly 100 feet for road purposes.

Well Site "N"

Commencing at the Southeast corner of Section 6, Township 24 South, Range 32 East, Orange County, Florida; thence Northerly along the East line of Section 6 a distance of 1337.28 feet (N00°00'58"W, 1333.50 feet measured) to an intersection with the centerline of Wewahootee Grade; thence Westerly along the said centerline a distance of 3180 feet (S89°38'27"W, 3179.05 feet measured) to the POINT OF BEGINNING; thence Southerly at a right angle to the Wewahootee Gradecenterline a distance of 247.56 feet (N00°21'33"W, 245.19 feet measured); thence Westerly parallel to the said centerline a distance of 147.56 feet (S89°38'27"W, 147.56 feet measured); thence Northerly and at a right angle to said centerline a distance of 247.56 feet (N00°21'33"W, 245.26 feet measured) to the centerline of said Grade; thence Easterly along the said centerline a distance of 147.56 feet (N89°44'57"E, 2.19 feet measured and N89°39'59"E, 145.37 feet measured) to the POINT OF BEGINNING. Subject to a right-of-way over the Northerly 100 feet for road purposes.

Well Site "O"

Commencing at the Southwest corner of Section 6, Township 24 South, Range 32 East, Orange County, Florida; thence Northerly along the West line of Section 6 a distance of 1326.04 feet (N00°08'02"W, 1328.30 feet measured) to an intersection with the centerline of Wewahootee Grade and the POINT OF BEGINNING; thence Easterly along said centerline a distance of 147.56 feet (N89°32'00"E, 147.56 feet measured); thence Southerly parallel to the West line of said Section 6, a distance of 247.56 feet (S00°08'02"E, 246.64 feet measured); thence Westerly parallel to the centerline of Wewahootee Grade a distance of 147.56 feet (S89°38'27"W, 147.56 feet measured) to the West line of said Section 6; thence Northerly along said West line a distance of 247.56 feet (N00°08'02"W, 246.36 feet measured) to the POINT OF BEGINNING.

Less and Except the following City of cocoa, Florida - Well Site described in Order of Taking recorded in Official Records Book 4268, Page 1042, of the Public Records of Orange County, Florida:

Well Site #22:

Commence at the Northwest corner of Section 18, Township 24 South, Range 32 East, Orange County, Florida, and run 500°31'23"W, along the West line of said Section 18, a distance of 2160.40 feet (500°07'29"E, 2160.40 feet measured); thence run S89°28'37"E a distance of 1135.60 feet (N89°52'31"E, 1136.01 feet measured); thence run S29°49'23"E a distance of 967.57 feet (S30°28'15"E, 967.23 feet measured) to the POINT OF BEGINNING; thence run S00°01'42"E, a distance of 450.00 feet (N89°58'18"E, 450.00 feet measured); thence run N00°37'10"E a distance of 450.00 feet (N00°01'42"W, 450.00 feet measured); thence run N89°22'50"W a distance of 450.00 feet (S89°58'18"W, 450.00 feet measured); thence run S00°37'10"W a distance of 118.42 feet (S00°01'42"E, 118.42 feet measured) to the POINT OF BEGINNING.

Containing 4698.369 acres more or less and being subject to any rights-of-way, restrictions and easements of record.
DESCRIPTION:

That part of Sections 13 and 24, Township 24 South, Range 31 East, and part of Sections 18, 19 and all of Sections 29, 30, 31 and 32, Township 24 South, Range 32 East, Orange County, Florida, described as follows:

Beginning at the Southeast corner of Section 19, Township 24 South, Range 32 East, Orange County, Florida; thence S89°57'12"W along the South line of said Section 19 a distance of 3146.18 feet; thence run North 05°38'25" East, 1169.63 feet to a 1/2" iron rod with cap marked "LB 6915", Atlantic Surveying, Inc.; thence run North 14°52'28" West, 929.69 feet to a 1/2" iron rod with cap marked "LB 6915"; thence run North 13°48'56" West, 1202.80 feet to a 1/2" iron rod with cap marked "LB 6915"; thence run North 13°44'26" West, 756.42 feet to a 1/2" iron rod with cap marked "LB 6915"; thence run North 16°50'12" West, 1520.28 feet to a 1/2" iron rod with cap marked "LB 6915"; thence continue North 16°50'12" West, 808.08 feet more or less to the centerline of Disston Canal; thence the following two (2) courses along the centerline of said canal: S77°53'03"W, 914.16 feet; thence S58°10'49"W a distance of 16.44 feet to the East line of the East 3/4 of Section 13, Township 24 South, Range 31 East, Orange County, Florida; thence S00°03'15"E along said East line, 4.89 feet to the centerline of said canal; thence the following three (3) courses along said centerline: S71°45'51"W, 58.70 feet; thence S57°53'24"W, 3455.41 feet; thence S57°54'36"W, 251.71 feet to the Easterly right-of-way line of Lake Mary Jane Road; thence S38°49'00"E along said Easterly right-of-way line a distance of 1241.35 feet; thence leaving said Easterly right-of-way line, N59°35'32"E a distance of 733.87 feet; thence S38°48'28"E a distance of 600.00 feet; thence S59°35'32"W a distance of 733.87 feet to aforesaid Easterly right-of-way line of Lake Mary Jane Road and a point of curve concave Westerly having a radius of 623.69 feet and a chord bearing of S06°44'28"E; thence run along said right-of-way line and the arc of said curve through a central angle of 64°08'00" an arc distance of 698.12 feet; thence S25°19'32"W a distance of 830.98 feet to a point of curve concave Easterly having a radius of 1382.70 feet and a chord bearing of S13°22'02"W; thence run along the arc of said curve through a central angle of 23°55'00" an arc distance of 577.17 feet; thence S01°24'32"W a distance of 241.08 feet; thence leaving said right-of-way, N89°59'04"E a distance of 780.24 feet; thence S01°24'32"W a distance of 360.11 feet to the South line of the East 1/2 of Section 24, Township 24 South, Range 31 East, Orange County, Florida; thence N89°59'04"E a distance of 1697.74 feet to the Southeast corner of said East 1/2 of Section 24; thence S00°12'49"E along the West line of Section 30, Township 24 South, Range 32 East, Orange County, Florida, a distance of 2658.18 feet to the West 1/4 corner of said Section 30; thence S00°12'49"E a distance of 2658.18 feet to the Northwest corner of Section 31, Township 24 South, Range 32 East, Orange County, Florida; thence S00°09'36"E a distance of 2671.73 feet to the West 1/4 corner of said Section 31; thence S00°15'37"E a distance of 2841.08 feet to the Southwest corner of said Section 31; thence S89°38'46"E a distance of 2655.16 feet to the South 1/4 corner of said Section 31; thence S89°38'08"E a distance of 2654.78 feet to the Southeast corner of said Section 31; thence S89°38'47"E a distance of 2654.90 feet to the South 1/4 corner of Section 32, Township 24 South, Range 32 East, Orange County, Florida; thence S89°37'50"E a distance of 2654.88 feet to the Southeast corner of said Section 32; thence
N00°21'48"W a distance of 2924.84 feet to the East 1/4 corner of said Section 32; thence N00°21'48"W a distance of 2658.95 feet to the Northeast corner of said Section 32; thence N00°11'51"W a distance of 2658.94 feet to the Northeast corner of said Section 29, Township 24 South, Range 32 East, Orange County, Florida; thence N00°11'51"W a distance of 2658.94 feet to the Northeast corner of said Section 29; thence S89°59'09"W a distance of 2649.16 feet to the North 1/4 corner of said Section 29; thence S89°59'09"W a distance of 2649.16 feet to the POINT OF BEGINNING;

LESS:

That part of Sections 18 and 19, Township 24 South, Range 32 East, Orange County, Florida, described as City of Cocoa Well Field Sites #31, #32 and #33, recorded in Official Records Book 4874, Page 1504, 1505 and 1506, Public Records of Orange County, Florida, more particularly described as follows:

City of Cocoa Well Field Site #31 is described as follows: Begin at the concrete monument marking the Northwest corner of said Section 19 and run South 00°29'34" West, along the West line of the Northwest 1/4 of said Section 19, a distance of 433.00 feet to an iron rod; thence South 89°30'26" East perpendicular to said West line, a distance of 450.04 feet to an iron rod; thence North 00°29'34" East parallel to said West line of the Northwest 1/4, a distance of 450.00 feet to an iron rod; thence North 89°30'26" West perpendicular to said West line of the Northwest 1/4, a distance of 450.00 feet to an iron rod on the West line of the Southwest 1/4 of aforesaid Section 18; thence South 00°37'50" West, along the West line of said Southwest 1/4, a distance of 17.00 feet to the POINT OF BEGINNING.

AND LESS:

City of Cocoa Well Field Site #32 is described as follows: Commence at a concrete monument marking the Northwest corner of said Section 19, and run South 00°29'34" West, along the West line of the Northwest 1/4 of said Section 19, a distance of 1199.38 feet; thence South 31°55'11" East, a distance of 496.61 feet to an iron rod, the POINT OF BEGINNING; thence North 89°22'50" West, a distance of 100.00 feet to an iron rod; thence South 00°37'10" West, perpendicular to the first course of this description, a distance of 450.00 feet to an iron rod; thence South 89°22'50" East, parallel to the first course of this description, a distance of 450.00 feet to an iron rod; thence North 00°37'10" East perpendicular to the first course of this description, a distance of 450.00 feet to an iron rod; thence North 89°22'50" West parallel to the first course of this description, a distance of 350.00 feet to the POINT OF BEGINNING.

AND LESS:

City of Cocoa Well Field Site #33 is described as follows: Commence at the concrete monument marking the Northwest corner of said Section 19, and run South 00°29'34" West along the West line of the Northwest 1/4 of said Section 19, a distance of 1199.38 feet; thence South 31°55'11" East, a distance of 496.61 feet to a point on the North line of City of Cocoa Well Field Site #32; thence North 89°22'50" West, along said North line a distance of 100.00 feet to the Northwest corner of said Site #32; thence South 00°37'10" West, along the West line of said Site #32 a distance of 450.00 feet to the Southwest corner of said Site #32; thence South 89°22'50" East,
along the South line of said Site #32, a distance of 450.00 feet to the Southeast corner of said Site #32; thence South 00°37'10" West, a distance of 170.52 feet; thence South 44°22'50" East, a distance of 424.26 feet; thence South 00°37'10" West, a distance of 323.73 feet; thence South 44°22'50" East a distance of 432.40 feet to an iron rod, the POINT OF BEGINNING; thence South 89°22'50" East a distance of 450.00 feet to an iron rod; thence South 00°37'10" West, perpendicular to the first course of this description, a distance of 450.00 feet to an iron rod; thence North 89°22'50" West parallel to the first course of this description, a distance of 450.00 feet to an iron rod; thence North 00°37'10" East perpendicular to the first course of this description, a distance of 450.00 feet to the POINT OF BEGINNING.

AND LESS: 76 ACRE SITE

That part of Sections 29 and 30, Township 24 South, Range 32 East, Orange County, Florida, described as follows:

Begin at the Northeast corner of said Section 30; thence N89°59'27"W along the North line of said Section 30 for a distance of 790.24 feet; thence S00°00'33"W, 2273.27 feet; thence S89°59'27"E, 789.46 feet; thence S89°57'05"E, 666.06 feet; thence N00°02'55"E, 2273.27 feet to the North line of the aforesaid Section 29; thence N89°57'05"W along said North line for a distance of 666.85 feet to the POINT OF BEGINNING.

Containing 3076.036 acres more or less and being subject to any rights-of-way, restrictions and easements of record.

THE FOLLOWING RECIPROCAL EASEMENTS ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND HAVE NOT BEEN SURVEYED.

TOGETHER WITH EASEMENT RIGHTS GRANTED IN AGREEMENT GRANTING RECIPROCAL EASEMENTS FOR DRAINAGE, UTILITIES, INGRESS, AND EGRESS BY AND BETWEEN CAMINO REALE PROPERTIES, LLC AND FARMLAND RESERVE, INC. RECORDER DECEMBER 23, 2009 IN OFFICIAL RECORDS BOOK 9979, PAGE 8989, PUBLIC RECORDS OF ORANGE COUNTY, FLORIDA.
Exhibit C

PDS Scope of Services

(14 pages)
Sunbridge Parkway Preliminary Design Study
Scope of Services – Expedited Version – Private Ownership of Future Road Corridor
Assumed Project Duration – 12 months

1.0 Administration
1.1 Notice to Proceed Meeting
The Consultant shall attend a Notice to Proceed Meeting with County representatives, where relevant project information will be provided by the County, along with procedures for administering the contract.

1.2 Project Status Meetings
The Consultant shall attend periodic meetings (up to six (6)) with the Orange County Project Manager and staff to discuss project progress and status, upcoming events and activities. The purpose of these meetings is to maintain clear communication between the County and the Project Team. The Consultant shall prepare and distribute meeting minutes following each of these meetings.

1.3 Project Management/Supervision (May or may not be included per Applicant’s determination)
The Consultant shall coordinate and manage the efforts of the Consulting Team throughout the Preliminary Design Study. Management shall include solicitation of proposals, review of invoices, schedule management and coordination of deliverables.

1.4 PDS Project Schedule
The Consultant shall prepare and submit a detailed project schedule for the project identifying major tasks, their duration and tasks relationships.

1.5 Monthly Invoices (Progress reports)
The Consultant shall provide monthly progress reports to Orange County summarizing the effort expended to date by the Consulting Team.

1.6 Quality Assurance/Quality Control
The Consultant shall implement a Quality Assurance/Quality Control program for review of documents produced by the Consultant and by other Consulting Team members for consistency with this Scope of Services and internal consistency.

1.7 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:
  • Project Schedule

1.8 Pay Items
Not included
2.0 Public Involvement
The public involvement element of this project is a primary component distinguishing this project from a roadway design project. The purpose of the public involvement element is to get the community involved in the project development and decision-making process, so that the County can develop a project that not only meets the transportation needs of the area, but is also supported by the community it is intended to serve. Therefore, the Consultant shall conduct the following public involvement activities throughout the project.

2.1 Public Involvement Plan
Not included

2.2 Coordination Meetings
The Consultant shall coordinate and conduct one (1) initial meeting or telephone call and one (1) follow-up telephone call with the following local and state organizations to inform them of the project and solicit their input:

- South Florida Water Management District (SFWMD)
- Orange County Utilities Department (OCU)
- Orange County Environmental Protection Department (OCEPD)
- Osceola County Community Development Department (Osceola)
- United States Fish & Wildlife Service (USFWS)
- Army Corps of Engineers, (ACOE)
- Florida Department of Environmental Protection (FDEP)
- Florida Fish & Wildlife Conservation Commission (FFWCC)
- Orange County Public Schools (OCPS)
- Orange County Fire Rescue (OCFR)
- Central Florida Expressway Authority (CFX)
- Florida Department of Transportation (FDOT)
- Florida’s Turnpike Enterprise (FTE)
- Orlando Utilities Commission (OUC)
- Florida Gas Transmission (FGT)
- TECO Peoples Gas (TECO)

Consultant shall prepare minutes for each meeting or telephone call and provide copies to Orange County.

2.3 Small Group Meetings (Up to two)
The Consultant shall prepare for and participate in up to two (2) Small Group Meetings, to be conducted on an as needed basis at the discretion of Orange County. County staff shall facilitate any required Small Group Meeting and the Consultant shall prepare the requisite exhibits.
2.4 Updated Mailing List
Orange County shall prepare an initial mailing list and Consultant shall update and maintain the mailing list throughout the project duration based on information received from Orange County.

2.5 Newsletters
Orange County shall provide a newsletter template and Consultant shall update and distribute up to four (4) such newsletters, subject to Orange County approval prior to distribution.

2.6 Website Creation / Maintenance (Orange County)
Orange County shall create and maintain the project website. Consultant shall provide website content as requested by Orange County.

2.7 Advertisements / News Releases
Orange County shall provide templates for all required advertisements and/or news releases and Consultant shall prepare and publish up to three (3) such advertisements and/or news releases, which are subject to Orange County approval prior to publication.

2.8 Public Information Meetings
The Consultant shall prepare for and conduct one (1) public information meeting as described below.

- Recommended Concept Public Meeting - Following identification of a recommended improvement concept, the Consultant shall coordinate and conduct a Recommended Concept Public Meeting. The purpose of this meeting is to present the project team’s draft recommended improvement concept to the public for review and comment prior to presenting to the Local Planning Agency (LPA), and the Board of County Commissioners (BCC). County staff shall present the recommended improvement concept to the public in a formal PowerPoint presentation and script prepared by Orange County. Orange County shall distribute a comment form to the meeting participants. The comment form shall be designed to elicit information from the public relevant to the road improvement being considered.

The Consultant shall provide exhibits for display at meetings and shall be mounted on foam board unless otherwise directed by the County. Exhibits shall be plotted in color or black and white as appropriate. Exhibits shall include maps on an aerial photography base and typical sections and detail sketches.

The Consultant shall conduct all preparations for the meetings for the County and shall ensure an adequate number of Consultant personnel are present. Orange County shall make arrangements for the meeting room rental and setup, and ensure that adequate directional signs are placed on the meeting grounds to direct
2.4 Updated Mailing List
Orange County shall prepare an initial mailing list and Consultant shall update and maintain the mailing list throughout the project duration based on information received from Orange County.

2.5 Newsletters
Orange County shall provide a newsletter template and Consultant shall update and distribute up to four (4) such newsletters, subject to Orange County approval prior to distribution.

2.6 Website Creation / Maintenance (Orange County)
Orange County shall create and maintain the project website. Consultant shall provide website content as requested by Orange County.

2.7 Advertisements / News Releases
Orange County shall provide templates for all required advertisements and/or news releases and Consultant shall prepare and publish up to three (3) such advertisements and/or news releases, which are subject to Orange County approval prior to publication.

2.8 Public Information Meetings
The Consultant shall prepare for and conduct one (1) public information meeting as described below.

- Recommended Concept Public Meeting - Following identification of a recommended improvement concept, the Consultant shall coordinate and conduct a Recommended Concept Public Meeting. The purpose of this meeting is to present the project team's draft recommended improvement concept to the public for review and comment prior to presenting to the Local Planning Agency (LPA), and the Board of County Commissioners (BCC). County staff shall present the recommended improvement concept to the public in a formal PowerPoint presentation and script prepared by Orange County. Orange County shall distribute a comment form to the meeting participants. The comment form shall be designed to elicit information from the public relevant to the road improvement being considered.

The Consultant shall provide exhibits for display at meetings and shall be mounted on foam board unless otherwise directed by the County. Exhibits shall be plotted in color or black and white as appropriate. Exhibits shall include maps on an aerial photography base and typical sections and detail sketches.

The Consultant shall conduct all preparations for the meetings for the County and shall ensure an adequate number of Consultant personnel are present. Orange County shall make arrangements for the meeting room rental and setup, and ensure that adequate directional signs are placed on the meeting grounds to direct
participants to the meeting room. Orange County shall have the PowerPoint presentation and all meeting materials in final format ready for review and approval by County staff no later than two weeks prior to the scheduled public meeting. Orange County shall document all comments received and questions addressed at the meetings and shall prepare written responses to all questions not adequately addressed at the meetings.

2.10 Local Planning Agency Work Session and Public Hearing
The Consultant shall provide all support necessary for the County to conduct one (1) work session and one (1) public hearing on the recommended improvement concept. The County shall prepare a PowerPoint presentation and script for the LPA Public Hearing.

2.11 Board of County Commissioners Public Hearing
The Consultant shall provide all support necessary for the County to conduct one (1) Final Public Hearing on the recommended improvement concept. The County shall prepare a PowerPoint presentation and script for the BCC Public Hearing.

2.12 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

- Updated Mailing List
- Newsletters
- Web Page Content
- Advertisements & News Releases
- Public Information Meeting Materials
  - Exhibits
  - PowerPoint Presentations
- Local Planning Agency Work Session Presentation
- Local Planning Agency Public Hearing PowerPoint Presentation
- Board of County Commissioners Public Hearing PowerPoint Presentation

2.13 Pay Items

3.0 Data Collection
Immediately upon receipt of the notice to proceed, the Consulting Team shall begin collecting the engineering, drainage, hydraulic, and environmental data necessary to develop and evaluate a recommended improvement concept. The Consultant shall utilize information gathered in previous engineering reports and/or other existing right-of-way documentation.

3.1 Aerial Photography / Base Maps
The Consultant shall utilize the latest publically available Orange County aerial photography to prepare color 1"=100' and 1"=50' scale base maps. These maps shall be used to present the master drainage basins (1"=100'), the recommended improvement concept (1"=50'), and right-of-way requirements (1"=50').
The Consultant shall prepare color aerial photography on standard 22 x 34 inch sheets with appropriate title blocks, which shall be suitable for public display. Color aerial imaging shall be used to present the overall project concept and the final recommended improvement concept to the public at the various public meetings. The Consultant shall also provide to the County in digital format on CD-ROM.

3.2 Existing Roadway Characteristics
Not included

3.3 Traffic Data
Orange County shall provide to the Consultant existing and projected traffic data from either previously prepared Innovation Way traffic studies or the Orange County Comprehensive Plan. Utilizing the traffic data supplied by the County, the Consultant shall establish the basic design requirements for the roadway typical section, a typical detail for major and minor intersection improvements. The Consultant shall summarize the traffic data and analysis activities in a report to be included in the Preliminary Design Study Report.

3.3.1 Traffic Counts
Not included

3.3.2 Traffic Factors
Not included

3.3.3 Design Traffic Projections (MetroPlan Orlando OUATS Model)
Using the adopted travel forecasts from the Orange County Comprehensive Plan, the Consultant shall prepare opening year and design year travel forecasts for the Sunbridge Parkway study segment for Build conditions.

The design traffic shall be used to establish the basic design requirements for the roadway typical section and each intersection. Using the design traffic, the Consultant shall perform an operational analysis of each of the identified intersections to establish the minimum required lane geometry (including queue lengths) needed to adequately serve the projected turning movements.

3.3.4 Crash Data
Not included

3.3.5 Design Traffic Technical Memorandum
Not included
3.3.6 Design Traffic Engineering Report
The Consultant shall prepare a detailed Design Traffic Engineering Report describing the traffic data collection effort, forecasts and analysis. The report shall contain tabulations of all data collected, warrant analyses where appropriate, and recommendations as to traffic control methods and turn lane geometry for specific intersections. The draft Design Traffic Engineering Report shall be submitted for review prior to scheduling the Recommended Concept Public Meeting. The final Design Traffic Engineering Report shall be summarized in and appended to the Sunbridge Parkway Preliminary Design Study.

3.4 Utilities
The Consultant shall identify any existing and proposed utilities, which may influence location and design consideration, including but not limited to the following:

- Overhead: transmission lines, microwave towers, etc.
- Underground: water, gas, sanitary sewer, force mains, power and telephone cables, as identified by an underground utility locating service.

The Consultant shall coordinate with utilities to:

1) Make them aware of the project at the conceptual level. (All information provided to each utility shall be documented as noted below.)
2) Obtain information on proposed utility construction.

The Consultant shall map and document this information in the Utility Section of the Preliminary Design Study Report, which shall summarize how the existing utilities shall influence location and design considerations.

3.5 Bridges and Structures
Not included

3.6 Transportation Plans
Not included

3.7 Existing Multimodal Accommodations and Services
Not included

3.8 Soil Survey and Geotechnical Data
The Consultant shall review existing soil maps and available geotechnical information for the study area. Preliminary borings should be conducted along the recommended alignment (20-feet deep approximately every 600 f.) to determine seasonal groundwater levels and in areas of the alignment that have a probability of having significant depths of unsuitable materials.
The Consultant shall also perform one soil boring to a depth of 15 feet for each proposed stormwater retention pond site.

The results of the geotechnical data collection activities shall be mapped and documented in a Geotechnical Report, which shall be summarized in and appended to the Preliminary Design Study Report. This section shall document existing data and boring results, and shall contain preliminary recommendations relevant to the project.

3.9 Environmental Site Assessment
The Consultant shall conduct a Contamination Screening Evaluation Report (CSER) for the properties affected by the recommended alignment. The Environmental Site Assessment shall be mapped and documented in a CSER report, which shall be summarized in and appended to the Preliminary Design Study Report.

3.10 Land Use / Development Plans
Orange County shall provide to the Consultant, and the Consultant shall consider in the preparation of the Preliminary Design Study, any Regulating Plan, Land Use Plan, Preliminary Subdivision Plan or Development Plan that could potentially influence the determination of a recommended improvement concept for Sunbridge Parkway.

3.11 Cultural Facilities
Not included

3.12 Archaeological and Historic Features
The Consultant shall review federal, state and local sources to identify recorded historical and archaeological sites within the study area, which shall include the proposed right-of-way, all proposed stormwater facilities and a 100-foot buffer on all sides of the proposed right-of-way and stormwater facilities. Utilizing this information, the Consultant shall map all sites that may influence the location and evaluation of alternative improvement concepts. This information shall be documented in the Cultural Resource Section of the Sunbridge Parkway Preliminary Design Study Report.

3.13 Hydrologic and Natural Features
The Consultant shall review existing information to identify significant hydrologic and natural features found within the study area. The Consultant shall document offsite and bypass drainage features occurring within the study corridor. The Consultant shall supplement documented information with field reviews of the study area. Information to be documented shall, at a minimum, include the following:
• Wetlands
• Conservation Areas
• Mitigation Sites
• Water Quality
• Floodplains and Floodways
• Drainage Outfalls

The Consultant shall also collect corridor-wide permit-related information on environmental resource permits, dredge and fill permits, water quality permits, or stormwater discharge permits. This activity shall include identifying and coordinating with all applicable permitting agencies, as well as identifying all existing permits and their conditions.

3.14 Threatened and Endangered Species
The Consultant shall review existing information to determine the potential presence of threatened or endangered plant and animal species within the study area. The Consultant shall supplement documented information with field reviews of the study area. The Consultant shall document in report and map format, in the Preliminary Design Study Report, all information that may influence the location and evaluation of the recommended improvement concept.

3.15 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

• Color Aerial Base Map
• Design Traffic Engineering Report
• Geotechnical Reports and Maps
• Environmental Site Assessment Report
• Cultural Resource Assessment Survey
• Hydrologic & Natural Features Report
• Threatened & Endangered Species Report
• Maps:
  o Existing and Proposed Utilities
  o Hazardous Materials Areas
  o Land Use & Development Plans
  o Archaeological & Historical Sites
  o Hydrologic & Natural Features
  o Threatened & Endangered Species
  o Critical & Strategic Habitat
  o Wildlife Corridors

3.16 Pay Items
Not included
4.0 Right-of-Way Engineering Projects (Right-of-Way Identification Maps)
4.1 Right-of-Way Mapping
Not Included

4.2 Parcels
4.2.1 Review of Title Work
The Consultant shall obtain and review Ownership and Encumbrance Reports in support of property and right-of-way surveys for each parcel anticipated to be conveyed to Orange County as a road right-of-way parcel or stormwater management parcel and shall show all known encumbrances on the Legal Descriptions and Parcel Sketches.

4.2.2 Legal Descriptions and Parcel Sketches
The Consultant shall prepare for each right-of-way parcel and stormwater management parcel to be conveyed to Orange County via warranty deed a Legal Description and Sketch in accordance with applicable State of Florida Standards of Practice as set forth by the Board of Professional Surveyors and Mappers, Chapter 51-17.05, Florida Administrative Code, per Section 472.027, Florida Statutes. Such legal descriptions and sketches shall be appropriately tied to existing physical monuments and section corners. Closure reports shall be provided for all legal descriptions.

4.2.3 Parcel Staking for Appraisal
Not included

4.3 Topographic Maps
The Consultant shall utilize the latest publicly available Orange County aerial topographic and/or LiDAR surveys, or best available topographic surveys where available, to prepare the required topographic maps, 1" = 100' scale. In addition, the Consultant shall provide elevations along the centerline of the recommended alignment (approximately every 100 feet) to confirm the base topography. The Consultant shall utilize the topographic survey and centerline elevations to evaluate the horizontal alignment of the recommended improvement concept such that it may be developed to its recommended configuration with due consideration to applicable engineering criteria.

4.4 Minimization of Compensable Impacts
Not included

4.5 Changes to Documents during Right-of-Way Acquisition
Not included

4.6 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:
4.7 Pay Items
Not included

5.0 Corridor Analysis Documentation
Consultant shall prepare a Characteristics of the Study Area report which provides a summary of the data collected for each item in Section 3.0.

5.1 Deliverables
Characteristics of the Study Areas report

5.2 Pay Items
Not included

6.0 Improvement Development
The Consultant shall perform the following tasks to develop and analyze the recommended improvement concept. The Consultant shall document in the Sunbridge Parkway Preliminary Design Study the design criteria utilized in the analysis process for roadway and drainage improvement concepts.

6.1 Typical Sections
Based on the Design Traffic Engineering Report, drainage considerations and other available information, the Consultant shall consider alternative typical sections and shall evaluate these alternatives using criteria that shall include but not be limited to access management, right-of-way requirements, offsite and bypass drainage systems and traffic volumes. The analysis shall be documented in the Sunbridge Parkway Preliminary Design Study and submitted to the County with a recommendation of viable typical sections.

6.2 Access Management Determination
The Consultant shall determine the proper access classification and standard to be applied to the project and coordinated with the County's access management regulations.

6.3 Develop Alignment Improvement Concept
The Consultant shall develop a recommended improvement concept based on review and analysis of collected data related to the project.

6.4 Analyze Improvement Concept
The Consultant shall analyze the benefits and impacts associated with the recommended improvement concept. The results of the analysis of the
recommended improvement concept shall be documented in the Preliminary Design Study Report and shall include:

- Compensable Impacts Analysis
  Not included

- Cost Analysis
  The Consultant shall develop engineering design and construction cost estimates for the recommended improvement concept. The Consultant shall provide the County with a Right-of-Way Impacts Estimation Package Right-of-way cost estimates shall be provided by the County and shall include property values and damages. The cost estimates provided by the County shall be based on the information in the Right-of-Way Impacts Estimation Package.

- Conceptual Drainage Analysis
  The Consultant shall perform a preliminary drainage analysis of the recommended improvement concept to determine the potential outfall locations and preliminary sizes (volume and area) of required detention and/or retention facilities for stormwater treatment or attenuation. This analysis shall also address off-site and bypass systems within the corridor including the sizing of closed systems. Pond locations shall be evaluated for each basin for the recommended improvement concept. Pond site evaluations shall require coordination with the property owner to determine the owner's preferred location within the property. The evaluation shall also consider permitability, avoidance of wetland and floodplain impacts, outfall availability, hydraulics and County standards with regards to the pond slopes and configuration. The findings shall be documented in a Pond Siting Report that shall be appended to the Preliminary Design Study Report.

- Community (social-economic) Impact Analysis
  Not included

- Computer Enhanced Photographs
  Not included

- Wetland Impacts
  The Consultant shall estimate the acres of wetlands impacted by the recommended alignment and identify potential mitigation strategies, including costs.

- Flood Plain Impacts
  The Consultant shall estimate the extent of flood plain encroachment for the recommended improvement concept and identify potential floodplain compensation alternatives and costs.
- Critical and Strategic Habitat Impact
  The Consultant shall evaluate potential impacts to any identified critical and strategic habitat area resulting from the recommended improvement concept. This includes a Conceptual Mitigation Plan, if applicable.

- Wildlife Corridor Impact
  The Consultant shall evaluate potential impacts to any identified wildlife corridors resulting from the recommended improvement concept. This includes recommendations for wildlife crossings, if applicable.

- Threatened & Endangered Species Impacts
  The Consultant shall quantify/qualify the potential impacts to threatened and endangered species and habitats associated with the recommended alignment and shall identify potential mitigation strategies and costs. The Consultant shall coordinate with regulatory agencies to identify permitability of impacts of the recommended alignment to Threatened and Endangered Species.

- Archaeological and Historic Feature Impacts
  The Consultant shall evaluate potential impacts to any identified archaeological or historical features resulting from the recommended improvement concept. This includes a Conceptual Management Plan, if applicable.

- Contaminated Sites Impacted
  The Consultant shall identify the location and known extent of potential contaminated sites for the recommended improvement and shall recommend whether a Phase II Environmental Site Assessment is necessary to determine whether modifications are warranted.

- Geotechnical Analysis
  The Consultant shall evaluate the suitability of the soil underlying the recommended alignment for roadway and pond construction.

6.5 Alternatives Comparison Matrix
Not included

6.6 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:
- Typical Sections
- Access Management Map
- Alignment Map
- Cost Analysis of Recommended Improvement Concept
- Conceptual Drainage Analysis and Pond Siting Report
- Wetlands Impact Analysis
- Floodplain Impact Analysis
6.7 Pay Items  
Not included

7.0 Recommended Improvement Concept Evaluation  
The Consultant shall refine the final recommended improvement concept to finalize the major elements of the project. These refinements shall include estimating the final recommended right-of-way limits, pond locations, cost and other major features needed to advance the project to the subsequent design phase. Impacts that are not quantifiable shall be documented in the Preliminary Design Study Report.

7.1 Preliminary Design Study Report  
One primary document entitled the Sunbridge Parkway Preliminary Design Study Report shall be prepared. This document shall record all public involvement activities analysis efforts, and the final recommendation. A report outline shall be submitted to the County for review and approval prior to initiating documentation. It shall contain summaries and recommendations pertaining to the recommended improvement concept and potential impacts associated with it. The Consultant shall prepare the draft Preliminary Design Study Report documenting all activities leading to and including all comments received from the public to that point, and the selection of the recommended improvement concept. The Consultant shall finalize the Preliminary Design Study Report.

The Preliminary Design Study Report shall, at a minimum, contain the following information in the body of the report (including maps as appropriate):
- Public Involvement – Provided by Orange County
- Existing Conditions
- Conformance with Transportation and Long Range Plans
- Geotechnical Considerations
- Environmental Site Assessment Issues
- Hydrologic and Natural Features
- Threatened and Endangered Species
- Recommended Improvement Concept Narrative
- Recommended Improvement Concept Map
In addition, the Preliminary Design Study Report shall include the following as appendices or as separate volumes of the report:
- Geotechnical Report
- Environmental Site Assessment Report
- Pond Siting Report

7.2 Cost Estimates and Final Design Schedule
Not included

7.3 Final Recommended Improvement Concept Map
The Consultant shall prepare a Recommended Improvement Concept Map that shall graphically depict the location of the roadway alignment and the proposed improvements prior to the Recommended Concept Public Meeting. The map shall be prepared in a strip-map format at a scale of 1" = 50'. The Recommended Improvement Concept Map shall show the location of median openings (identified as to full or directional), lane configurations, pedestrian/bicycle facilities, potential pond/mitigation/flood plain compensation sites, utility strips, privacy walls and any other project elements identified for inclusion in the final design of the roadway. If deviations from the proposed typical sections are proposed in specific areas (such as reductions in lane widths, modification to border areas, etc.), they shall be clearly identified on the Recommended Improvement Concept Map.

The Consultant shall submit a Final Recommended Improvement Concept Map with the Final Preliminary Design Study Report.

The draft and final submittals of the Preliminary Design Study Report with Executive Summary shall include final Recommended Improvement Concept Maps formatted onto 11-inch X 17-inch sheets at a scale of 1" = 100'.

7.4 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:
- Draft, updated draft, and final Preliminary Design Study Report (including 11" X 17" maps)
- Recommended Improvement Concept Map, drafts and final

TABLE OF DELIVERABLES
- Preliminary Design Study Report 4 Copies/1 Disc
- Final Report 4 Copies/1 Disc

7.5 Pay Items
Not included
Exhibit D

Excess Capacity Calculation

(1 page)
### Exhibit D - Excess Capacity Calculation

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3/17/2017 10:40 AM EDT
Exhibit E
Sunbridge Parkway Segments Map
(1 page)
Exhibit F - Four-Lane Design Excess Capacity

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3/17/2017 10:40 AM EDT
Exhibit G
DEP Work Scope of Services
(43 pages)
Exhibit G

Project Name
(Project Limits)
(Approximate Length)

Final Engineering Design
Scope of Services

The Consultant shall provide final engineering design and construction plan preparation for the above referenced project. The Consultant shall perform those engineering services required to prepare a complete set of contract documents (plans and specifications) as described elsewhere herein.

The Consultant shall use the design concepts provided in the Preliminary Design Study as approved by the Board of County Commissioners. The Consultant shall perform the required engineering services utilizing all the applicable materials and data collected and provided in the Preliminary Design Study process.

The Consultant’s Engineer-of-Record shall sign and seal a certification on the plans stating that the design has been prepared in accordance with the State of Florida Manual of Uniform Standards for Design, Construction, and Maintenance for Streets and Highways. Plans shall be accurate, legible and completed in accordance with the Florida Department of Transportation (FDOT) Roadway Plans Preparation Manual and the Florida Department of Transportation Roadway and Traffic Design Standards latest English Units edition, in effect at the time of the Notice to Proceed, as modified herein. The Consultant shall utilize his/her best engineering judgment, practices and principles in performing the work.

The Consultant is to prepare plans for the construction of _____ lanes for __________ from ________ to ____________. Special treatment and/or additional lanes at major intersections, and widening of crossroads up to 600 feet in each direction shall be provided as identified in the Preliminary Design Study. The Consultant shall also be responsible for proper tie-in of all crossroads to the existing condition with respect to grading and drainage.

The lump sum fee and man-hour requirements shall be presented utilizing forms in Exhibit B. A general Project Schedule shall be attached to the fee proposal as Exhibit C.

The tasks included in this Scope of Services can be generally grouped into the following nine primary categories:

1. Administration
2. Public Information
3. Design and Plans Preparation
4. Permitting
5. Right-of-Way Engineering
6. Design Surveys
7. Geotechnical Services
8. Railroad Coordination
9. Post Design Services

This Scope of Services addresses each task within these elements and serves to further define specific requirements. The Consultant shall submit all required deliverables and provide specific services (with the exception of Post Design Services) within ____ days (inclusive of four-week review periods by County for review of progress submittals) upon written authorization from the COUNTY.

1.0 Administration

1.1 Notice to Proceed Meeting
The Consultant will prepare for and attend a Notice to Proceed Meeting with the Orange County Project Manager and staff. At this meeting, Orange County staff and key members of the Consulting team shall set the final parameters for the project and formally initiate final design.

1.2 Project Meetings
The appropriate members of the Consulting team shall attend periodic meetings (up to ____ ) with the Orange County Project Manager and staff to discuss project progress and status, technical issues, and upcoming events and activities. The purpose of these meetings is to maintain clear communication between the County and the Project Team. The Consultant shall prepare and distribute meeting minutes following each of these meetings.

1.3 Project Management and Supervision
Project Management and Supervision shall be included as a percentage of manhours for each primary categories listed above except for Administration and Post Design Services.

1.4 Final Design Project Schedule
The Consultant shall prepare and submit a detailed project schedule prior to the Notice to Proceed Meeting for completion of final design and plans preparation identifying major tasks, their duration and tasks relationships. All deliverables shall be identified as milestones on the schedule. This schedule will utilize the Orange County Standard Roadway Project Schedule format on MS Project. The Consultant shall submit an updated design project schedule as directed by the Orange County Project Manager.

1.5 Cost Estimates and Construction Schedule
The Consultant shall prepare and submit a detailed engineer's cost estimate for construction of the project at each 60%, 90%, and final submittal. The Consultant shall also provide an estimate of construction time at the 90% and final submittals.

Note: If no bid is within +/- 10 % of the Engineer's estimate, the Consultant will prepare a revised estimate, re-evaluate the construction plans, evaluate the bids and submit
a report that summarizes this information. This report will include recommendations for revisions to the construction documents, if needed. This report shall be prepared at no cost to the County.

1.6 Utility Coordination
The Consultant shall coordinate with all utility providers within the project limits by furnishing plans at the 30%, 60%, 90%, 100% and final review stages to the utilities for review, confirmation of utility location and relocation purposes. The development of the roadway plans shall incorporate and consider the input provided by each utility. The Consultant shall coordinate with all utilities to ensure that the final design considers all existing and proposed utilities. As part of each progress submittal Consultant shall provide a list of all utilities that have been provided copies of the construction plans, and the dates the plans were delivered to each Utility. Consultant shall also provide a summary of the response received from each Utility.

The Consultant shall conduct timely on-going utility coordination efforts to ensure timely receipt of design information from the various utilities. The Consultant shall hold utility coordination meetings at Orange County Public Works at 60%, 90% and at 100% plans as necessary, and shall furnish the most recent project schedule to the utility companies. The Consultant shall prepare and distribute the meeting minutes following each of these meetings.

The Consultant shall prepare a utilities conflict matrix and resolve all utility conflicts prior to submitting final plans. No utilities shall be in conflict with any proposed roadway improvements.

The consultant shall be responsible to coordinate with utility companies to identify any unrecorded or prescriptive easements. Said information shall be communicated to Orange County appraisal/right-of-way acquisition staff.

1.7 Progress Review Meetings
The Consultant shall conduct a progress review meeting at the request of Orange County at the 30%, 60%, 90%, and bid package review stages with Orange County. The purpose of the meetings will be for the Consultant and County’s staff to discuss the project design issues such as constructability, utility coordination, right-of-way requirements, and any other applicable issues.

1.8 Coordination with project stakeholders
The Consultant shall coordinate the 30%, 60%, 90%, and 100% plans review submittals and obtain comments directly from the following Orange County Divisions: Engineering, Traffic Engineering, Roads and Drainage, Highway Construction, Stormwater, and any other required coordination with any other Department and/or Division of Orange County. Also, any required coordination related to the design with any other city or county should be handled by the Consultant.

1.9 Quality Assurance/Quality Control
The Consultant shall designate appropriate staff to conduct Quality Assurance/Quality Control (QA/QC) reviews of all work products. These reviews shall be performed for all work products prior to their being submitted to the County for review or use. Work effort for QA/QC reviews shall be addressed as part of the work effort for each Pay Item as identified elsewhere herein.

1.10 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

- Final design project Schedule
- Construction Time Estimate
- Cost Estimate
- Utility Conflict Matrix

1.11 Pay Item
Work to be completed under this section by the Consultant shall be paid for under the following pay items as listed on the Activity and Fee Summary:

- Administration

2.0 Public Information
The purpose of the public information element is to keep the community advised of the project status. Therefore, the Consultant will conduct the following public information activities throughout the project.

2.1 Small Group Meetings
The Consultant shall be available to conduct up to _______ (__) meetings with organizations interested in the final design. These meetings/presentations may be made to informal homeowners groups, formal homeowner associations or other formal organizations. The Consultant will be responsible for all presentation and handout materials, as identified in the Table of Deliverables.

2.2 Newsletters
The Consultant shall prepare and distribute project newsletters at the following three (3) milestones during the design:

1. Within two weeks of the Notice to Proceed
2. At the start of the right-of-way acquisition process
3. When the project is advertised for bids

The newsletters shall be printed in color on 8 1/2 inch X 11 inch sheets in a format acceptable to the County. Sufficient copies of each edition shall be printed by the Consultant to provide 110% of the addressees on the mailing list at each mailing. The newsletters will be sent to each entry included in the data base mailing list. Newsletters shall be mailed as First Class mail. Those newsletters not mailed will be distributed as needed through small
group meetings and workshops. The Project Manager, the Chief Engineer of the Engineering Design Section and the Manager of the Transportation Planning Division must approve all final newsletter proofs prior to final printing.

2.3 Web Page Update / Maintenance
The Consultant shall provide updated information for the Orange County website during the design phase of the project. The information shall be provided to Orange County within three (3) weeks of the Notice to Proceed being issued to the Consultant, and shall be installed on the Orange County web page by Orange County staff. The information shall be in Microsoft word of PDF format. The information shall be consistent with the county template.

The Consultant shall provide updated information as necessary throughout the design process, but at a minimum concurrently with the issuance of project newsletters. The web site file shall also be updated to reflect the results of the bid process and at the issuance of the Notice to Proceed to the Contractor.

2.4 Mailing List
The County shall provide the Consultant with the final mailing list that was used for the Preliminary Design Study, and with a current list of property owners and their addresses. The list shall contain all homeowners/property owners located within the study corridor as determined by the County. The Consultant shall review the two lists and shall combine them to create the initial mailing list for the final design process. The County shall provide the Consultant with an updated list of homeowners/property owners prior to the mailing of each newsletter. The Consultant shall update the mailing list with the information provided by the County prior to mailing the newsletters. The Consultant shall also expand the initial mailing list throughout the duration of the project to include any person or institution expressing an interest in the project, potential permitting or review agencies, elected and appointed officials in the area, community leaders, and media representatives.

2.5 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

- Small group meeting presentations materials and handouts
- Newsletters
- Initial website information and periodic updates

2.6 Pay Item
Work to be completed under this section by the Consultant shall be paid for under the following pay items as listed on the Activity and Fee Summary:

- Public Involvement

3.0 Design and Plans Preparation
The Consultant shall prepare the Final Roadway Plans Package. This work effort includes the roadway design needed to provide complete construction plans and specifications for the project with sufficient information to allow for constructing, permitting and right-of-way acquisitions. These plans are for the use of the Contractor to bid and build the project and for Orange County to ensure the project is built as designed and to specifications. The Consultant shall provide 30%, 60%, 90% and 100% progress review submittals, in both full size (22 inches x 34 inches) and half size (11 inches x 17 inches) formats. All text shall be clear and legible on both the full size and half size plans. Full size and half size plans shall identify the scale of the drawing in both numerical and graphic formats. All references to scale hereafter refer to the scale on the full size (22 inches x 34 inches) format. Each submittal shall contain the information items listed in the appropriate Orange County Progress Review Submittal checklist. A copy of the appropriate checklist shall accompany each submittal with a certification signed by the Consultant's Project Manager certifying that the submittal completely addresses the required items as listed on the check list. Each review submittal shall include documentation of the internal Quality Assurance and Quality Control review conducted by the Consultant. The Consultant shall complete designs required for all aspects of the project as specifically described herein.

Final bid documents shall be submitted in both hard copy, as specified elsewhere herein, and electronic format in accordance with the standards established by the Orange County Purchasing and Contracts Division.

3.1 Roadway Design

The Consultant shall complete all design analysis, studies, and geotechnical investigations as required to complete the roadway design of the project. This effort shall include, but not be limited to the following areas.

3.1.1 Design Analysis

The Consultant shall design the geometrics for the project using the design standards that are most appropriate, with the proper consideration given to the design traffic volumes, design speed, capacity and levels of service, functional classification, design consistency and driver expectancy, aesthetics, pedestrian and bicycle concerns, ADA requirements, access management, to be consistent with the alignment and typical sections, the type of construction and other design parameters identified and described in the Preliminary Design Study (PDS). The design elements shall include, but not be limited to, the horizontal and vertical alignments, lane widths, shoulder widths, cross slopes, borders, side slopes and ditches, lane transitions, superelevation, features of intersections and interchanges, and limited access points. The geometric design developed by the Consultant shall be the engineering solution to a given problem and not merely an adherence to minimum County, ASHTO and/or FDOT standards.

Changes to the alignment as shown on the PDS shall be limited to that necessary to address project requirements not previously identified and must be approved by the County.
The Consultant shall prepare a Typical Section Package that shall include information sufficient for the County to approve overall elements of the roadway improvements related to the typical section. Significant variations along a corridor, or multiple affected roadways, may require multiple typical sections. Information to be included in the typical section package shall include the following elements with dimensions as appropriate: lanes, medians, profile grade point(s), cross-slopes (all elements as appropriate), curb type, shoulders, sidewalk placement relative to curb (or edge of pavement), centerline of construction, right of way, easements, clearing and grubbing limits, and side slopes or retaining walls as appropriate. Other elements to be provided in the package include: type of (but not necessarily thickness of) subgrade stabilization, base course, structural course and friction course (for concrete pavement the concrete is shown in lieu of the latter two items); design speed, recommended posted speed, and traffic volumes (opening and design year).

The Consultant shall review the typical sections presented in the Preliminary Design Study and inform the County of any concerns they may have regarding these sections. The Consultant shall then prepare a Typical Section Package addressing the proposed section(s) for the mainline (including bridges if applicable) as well as all side streets. The Consultant shall also prepare a Roadway Design Criteria Package utilizing the basic design parameters recommended in the PDS Report. This criteria package shall address such items as Roadway Classification, Design Vehicle, Design Year, Design Speed, Horizontal Alignment, Vertical Alignment, Cross Section elements, MOT concept etc. The Typical Section and Roadway Design Packages shall be submitted to the County for review and approval prior to commencing any work for the 30% design and plans packages.

The Consultant shall prepare a Pavement Design Package in accordance with FDOT's Flexible Pavement Design Manual. The Consultant shall determine the twenty-year Equivalent Single-Axle Loads based on traffic counts and projections, including truck traffic. The Consultant shall review the traffic data provided by the Preliminary Design Study and shall obtain additional data as necessary to support the pavement design. The Consultant shall also determine the pavement structural number necessary to withstand the projected traffic loads. The pavement design shall include calculation of the thickness of each layer of the pavement structure based on the appropriate layer structural coefficients. The Consultant shall utilize Superpave (SP) Asphalt Concrete or Type S Asphalt Concrete as directed by the County. For designs using Superpave Asphalt Concrete, Consultant shall determine the type of asphalt binder, traffic level, and nominal maximum aggregate size for each pavement layer, and shall show this information on the typical sections. All Superpave Asphalt designs shall specify that fine graded mixes shall be used. Soils and traffic loading data used as input for the design shall be included in the package. The Pavement Design Package shall be submitted to the County for review and approval with the 30% Plans Package.
3.1.2 Roadway Design Documentation and Computation Book
The Consultant shall submit all design notes; design calculations and computations in book form to document the decisions and conclusions reached during the development of the construction plans. The Consultant shall also submit a quantity computation book that provides a breakdown of the quantity calculations and pay items necessary to construct the project.

3.2 Drainage Design
The Consultant shall finalize the design of the drainage and stormwater management systems. The PDS has identified recommended potential stormwater management ponds for the roadway. The Consultant shall verify the number and location of pond sites needed to appropriately meet the needs of the project.

3.2.1 Drainage Analysis
The Consultant shall finalize the drainage design for the project including underdrain as necessary using the design standards that are applicable for the appropriate water management district and County standards. The final stormwater management system shall be consistent with the concepts identified and described in the PDS, unless otherwise approved by the County. The final drainage design shall consider and address property impacts in accordance with section 5.4 of this scope of work.

3.2.2 Design Documentation and Drainage Calculations
The Consultant shall submit a Drainage Design Documentation Report containing all design notes and computations to document the decisions and conclusions reached during the development of the stormwater management systems including geotechnical investigations and reports. The Consultant shall also submit signed and sealed drainage calculations for the project.

3.2.3 Bridge Hydraulics Report (BHR)
The Consultant shall prepare a Bridge Hydraulics Report (BHR) for all bridges crossing over a water body including bridge and box culvert widening and replacement. This report shall address hydrology, Hydraulics, deck drainage and scour. The outcome of the scour analysis shall be reflected in the Bridge Hydraulics Recommendation Sheet discussed in detail under section 3.4.27.3 of this scope.

3.3 Structural Design
3.3.1 Bridge Concept Report (BCR)
The Consultant shall review the recommendations in the PDS Report, and prepare and evaluate design alternatives for all bridge structures. The Consultant shall provide the County with acceptable justification for Consultant's selection of superstructure, substructure and retaining wall types from the list below. Selection of viable alternatives shall be site specific and agreed upon by the County. Consultant shall coordinate with all utilities to ensure alternatives accommodate all affected existing and proposed utilities.
3.3.1.1 Superstructure Alternatives
The Consultant shall evaluate at a minimum two separate superstructure types for possible development during final design. Whenever span configurations allow, a concrete and a steel alternative shall be evaluated. Each superstructure type shall be developed to the point of beam size selection and spacing to allow for a constructability and cost analysis to be performed.

3.3.1.2 Static System Alternatives
The Consultant shall evaluate multiple span arrangements and configurations to determine feasibility of each system with regards to substructure requirements and placement, superstructure depths and profile requirements, and possible right of way and traffic impacts.

3.3.1.3 Substructure Foundation Alternatives
The Consultant shall evaluate at a minimum two separate substructure types for possible development during final design. Whenever soil conditions allow, a shallow and a deep alternative shall be evaluated. Each substructure type shall be developed to the point of pile and/or footing size selection and spacing to allow for constructability and cost analysis to be performed.

3.3.1.4 Retaining Wall Alternatives
The Consultant shall evaluate the potential utilization of conventional (non-proprietary) walls and proprietary wall systems. Cost analysis and recommended foundation designs for the evaluated systems shall be prepared and submitted to the County for review and selection of the wall system(s) to be implemented in the final design.

3.3.2 Bridge Design

3.3.2.1.1 Bridge Geometrics
Bridge geometrics shall be developed in accordance with the roadway design.

3.3.2.2 Structure Design Analysis
The bridge design shall include all components of the structure as well as the approach slabs and erosion protection for bridge approaches and embankments. The Consultant shall submit to the County all reports and design calculations prepared during the development of the plans. The design calculations submitted shall adequately address the complete design of all bridge components and retaining walls. These calculations shall be neatly and logically presented on 8-1/2” X 11” paper (where possible) and shall be signed and sealed by a Florida registered professional engineer. A cover sheet indexing the contents of the calculations shall be included and
the engineer shall sign and seal that sheet. These structure design calculations shall include, but not be limited to the following:

Superstructure design, pile capacity computations (vertical and horizontal), end bent design, intermediate bent design, pier design, pre-stressed concrete beam design, steel beam design, geometric data, quantities and tabulation, cost estimates and quantity computation book backup.

3.3.2.3 Load Rating
The Consultant shall complete a bridge load rating for inventory and operating conditions for design and Florida Legal Load configurations.

3.3.2.4 Bridge Number Identification
The Consultant shall complete a Bridge Number Request form and submit it to the FDOT District 5 Structures and Facilities Engineer for processing. The resulting Bridge Identification Number(s) shall be included in the Structures Plan package.

3.3.3 Retaining Wall Design
The Consultant shall provide all necessary design effort required to produce a complete set of construction documents for a conventional retaining wall system. The Consultant shall also determine appropriate Proprietary Wall types from the FDOT proprietary wall standards to the extent necessary to finalize the wall plans as described herein for proprietary wall systems. Retaining walls are anticipated at the following locations:

At the County's option, the Consultant shall obtain project specific retaining wall drawings from proprietary wall companies and incorporate these drawings into the contract document.

[Add locations here]

3.3.4 Critical Temporary Retaining Wall Design
A critical temporary retaining wall is defined as a wall required during the construction stage only to protect existing facilities during excavation operations, when other construction methods such as benching or sloping are not practical. These walls may be removed and reused after completion of the work. Such systems as steel sheet pilings, soldier beams and lagging, or other similar systems are commonly used. In such cases, the Consultant is responsible for designing and detailing the wall in the set of contract plans.

Critical temporary retaining walls are anticipated to be required at the following locations:

[Add locations here]
3.3.5 Miscellaneous Highway Related Structures

The Consultant shall design miscellaneous Highway Related Structures. This work effort includes the design analysis and associated plan preparation needed to prepare a complete set of contract plans and other necessary documents pursuant to the County criteria and the FDOT Plans Preparation Manuals.

3.3.5.1 Box Culverts - The Consultant shall provide the structural design for all box culverts (new and/or existing). Existing box culverts that are hydraulically adequate shall be structurally evaluated to determine whether it is appropriate to extend or replace the structure. Applicable FDOT Box Culvert standards shall be evaluated and incorporated to the extent possible.

Box culverts are anticipated at the following locations:

[Add locations here]

3.3.5.2 Overhead Sign Structures - The Consultant shall provide the design of sign structures for overhead cantilever and overhead truss sign assemblies and the associated foundation design. Applicable FDOT Overhead Sign Structure standards shall be evaluated and incorporated to the extent possible.

Overhead Sign Structures are anticipated at the following locations:

[Add locations here]

3.3.5.3 Traffic Mast Arms/Mono Tubes/Trusses - The Consultant shall provide the design of traffic mast arms/mono tube/trusses and the associated foundation design for signalized intersections. Applicable FDOT Standard pole and arm configurations shall be evaluated and incorporated to the extent possible.

Mast Arms/Mono Tube/Trusses are anticipated at the following locations:

[Add locations here]

3.4 Roadway Construction Plans

The Consultant shall prepare final construction plan sheets, notes and details to include, all sheets necessary to convey the intent and scope of the project for the purposes of construction. The plan sheets shall be assembled in the following order:

1. Cover Sheet
2. General Notes
3.4.1 Cover Sheet
The County will provide a standard County cover sheet in AutoCAD format to the Consultant. The Consultant shall complete the cover sheet with the information applicable to the project.

3.4.2 General Notes
The County shall provide a standard general notes sheet in AutoCAD format to the Consultant. The Consultant shall review and modify the general notes as required for this project.

3.4.3 Standard Drawings and Details
The Consultant shall include standard drawings and details as required for this project, including:

1. Supplementary details shall be provided for superelevation transitions. Profiles shall be shown for the profile grade line and the outside edge of each driving lane. Elevations shall be shown at 25 foot intervals, at grade breaks for the profile grade line, each lane profile on the graphical profile and on a superelevation table.
2. Details for all non-standard structures not covered elsewhere.
3. Standard details provided by Orange County, e.g., driveways, manhole rim and cover, etc.

3.4.4 Summary of Pay Items
The Consultant shall include all pay items and quantities that are required for this project. Pay items shall be based on FDOT pay items, but may be amended by the County. The necessary pay items and quantities shall be shown on the summary of pay items sheet. The summary of pay items with quantities shall be submitted no later than the 60% plans.

3.4.5 Drainage Map
Drainage maps shall be developed at 1” = _____ (200)’ scale on current black and white aerial photography provided by the Consultant for the entire length of the project. Ponds should be shown in their entirety.

3.4.6 Typical Sections
Upon approval of the Typical Section Package, the Consultant shall prepare the typical section sheets including the mainline, bridges (if applicable) and side streets with all applicable details added to the sections. These sheets shall also include other miscellaneous details necessary to construct the project. The details shall include but are not limited to milling and resurfacing, non-standard superelevation transitions, etc.

3.4.7 Summary of Quantities
The Consultant shall prepare a summary of quantities sheet in accordance with FDOT Basis of Estimates Manual showing individual summaries including but not limited to guardrail, fence, turnouts, sodding, ditch pavement, side drains, underdrains, and earthwork.

3.4.8 Summary of Drainage Structures
The Consultant shall prepare a table listing all proposed or modified drainage structures on the project. The structures shall be listed by structure number in numerical order. Cross drains and storm sewer structures shall be tabulated by structure number, providing the station, side (left/right), size, type, length and incidental quantities appropriate for the pipe material contained in the plans.

3.4.9 Survey Control Sheets
See Section 6.3.

3.4.10 Plan and Profile Sheets
The plan and profile sheets shall be developed for (street names) , and , and conform to the following requirements:
1. Plan and profile sheets shall be prepared at a scale of 1"=20' horizontal and 1"=2' vertical, and oriented such that north is shown to the top or right side of each sheet.
2. All stationing shall be positive and shall proceed from south to north or from west to east.
3. Existing features including existing utilities shall be shown with dashed lines and proposed or design features shall be shown with solid lines. Vertical utility locations verified in the field shall be shown on the profile.
4. Locations, dimensions and types of existing and proposed driveways shall be shown.
5. The plans shall show the names of all intersecting streets and shall identify the station and angle of the intersection of the centerlines.
6. Each plan and profile sheet shall show two readily accessible benchmarks to establish vertical control.
7. Horizontal control points shall be shown at all Points of Curvature, Points of Tangency, and Points of Intersection. Horizontal control points shall also be shown for Points on Curve or Points on Line such that the maximum spacing between control points is 600 feet or less.
8. All property lines and improvements located within 25 feet of the right-of-way or limits of construction, whichever extent is greater, shall be shown on the plan view.
9. Existing and proposed elevations shall be shown on the profile at even hundred foot stations and at all Points of Vertical Intersection on the Profile Grade Line. Proposed elevations shall be shown at 25-foot intervals along vertical curves and at Points of Vertical Curvature and Points of Vertical Tangency.
10. The following information shall be given for each horizontal curve on the centerline of construction and the center line of right-of-way:

   1. Curve Number
   2. P.I. Station
   3. Delta in degrees, minutes and seconds
   4. Degree of Curve
   5. Tangent length
   6. Arc length
   7. Radius
   8. P.C. Station
   9. P.T. Station
   10. Superelevation rate

11. Percent of slope for profile grade lines, ditch flow lines, and all drainage pipes where not shown on the drainage details.
12. Plan and profile sheets shall be provided for all side street improvements extending more than 50 feet from the right-of-way of the main project alignment.
13. Plan and profile sheets shall be provided for all drainage outfalls extending more than 50 feet from the right-of-way of the main project alignment.

14. No separate profile sheets will be allowed unless approved by the County.

15. Driveway horizontal geometry shall conform to County standards. Profiles shall be shown for all driveways.

16. Submittal of 60% construction plans and 90% right-of-way maps shall only show the centerline of construction. Baseline of survey shall not be shown. All locations and offsets shall be based on centerline of construction.

3.4.11 Intersection Details
The Consultant shall prepare intersection detail sheets for the intersections of (street names). Intersection sheets shall show all necessary details and geometric controls/access management features, including, turn lanes, special drainage and grading. Intersection details shall be drawn at a scale of 1" = 10'. Spot elevations shall be shown along pavement lane lines and curb returns at 10 foot intervals and at all grade breaks. Profiles for all radius returns shall be included with the detail of each intersection.

3.4.12 Drainage Structure Cross Sections
The Consultant shall prepare drainage structure cross sections for all pipes crossing under the roadway. Drainage structure sheets shall show the drainage structures, location, offsets not covered by template/standard index sheets, cross section, flow line elevations of all weirs or slots, top of grates, culverts and top of manhole elevations, pipe slopes, and similar data.

3.4.13 Box Culverts (If Required)
Details shall be provided for box culverts showing all dimensions, critical elevations and all reinforcing steel. Major box culverts may be included in the bridge plans portion of the construction plans.

3.4.14 Pond Details and Cross Sections
Pond detail sheets shall be provided showing a plan view of each pond at a scale acceptable to the County. Typical sections of each pond shall be shown for at least two axes of the pond. Each pond shall have cross sections to accurately depict the pond configuration. Details shall be provided for all control structures. Boring locations shall be shown on the plan view and soil boring logs shall be plotted on the pond cross sections.

3.4.15 Flood Plain Compensation Area Details and Cross Sections
Detail sheets shall be provided showing a plan view of each flood plain compensation area at a scale acceptable to the County. Typical sections of each area shall be shown for at least two axes of the area. Each flood plain compensation
area shall have cross sections to accurately depict the compensation area configuration. Boring locations shall be shown on the plan view and soil boring logs shall be plotted on the cross sections.

3.4.16 Environmental Consideration Plans (Dredge and Fill Sketches)
The consultant shall develop Environmental Consideration Plans, at a scale acceptable to the County, including necessary notes and details, as part of the contract plans necessary to secure applicable permits. The objectives of the plans are to depict wetland and upland buffer locations and impacts. The plans shall provide, at a minimum, wetland and upland buffer locations, impacts areas, limits of construction, and limits of the project. The objective of the plans are to provide unencumbered details of wetland and buffer impacts including remaining wetland and upland buffers that would be preserved throughout construction.

3.4.16.1 Mitigation Plans
Once a mitigation plan has been reviewed and approved by the County, the Consultant shall be responsible for coordinating the proposed mitigation plan with the environmental agencies and for preparing the wetland mitigation plan to be included as a part of the Environmental Resource Permit application and to be included in the final construction documents.

Wetland mitigation area detail sheets shall be provided showing a plan view of each mitigation area at a scale acceptable to the County. Typical sections of each mitigation area shall be shown for at least two axes of each mitigation area. Planting zones shall be shown and dimensioned on the plan view with elevations shown on both the plan view and the cross sections. Each wetland mitigation area shall have cross sections to accurately depict the configuration of the mitigation area suitable for construction purposes. Plantings shall be listed in a table giving the common and scientific name of each species, the size of the plantings, and the number of each size of each species to be planted in each zone. Planting details, as necessary, shall also be provided. Soil boring locations shall be plotted on the plan views. Soil boring logs shall be plotted on mitigation area cross-sections or other acceptable location.

3.4.17 Geotechnical Soil Survey
The Consultant shall prepare soil survey sheets, which depicts the various types of soils encountered within the project limits, classification, mechanical properties, and recommended usage of those soils. The soil survey sheets shall include the following information at a minimum:

- Narrative description of each soil type with its engineering characteristics
- Supplemental soils investigations, such as muck probes

3.4.18 Cross Sections
Cross sections sheets shall include the following information at a minimum for roadways, lateral ditches, ponds, flood compensation areas and mitigation areas.
1. Unless otherwise approved by the County, the horizontal scale shall be 1" = 10' and the vertical scale shall be 1" = 5'.
2. The elevation grid shall be labeled on both left and right sides of each section.
3. The station shall be shown to the right each section.
4. Existing ground, structures, drainage conduits and utilities shall be shown as dashed lines and designed or proposed features shall be shown as solid lines.
5. End areas in square feet for earthwork cut and fill shall be shown. End areas for unsuitable materials shall be identified.
6. Existing ground shall be shown at least 25 feet outside the proposed rights-of-way lines, easements or limits of construction, whichever is further.
7. Existing buildings, structures, or drainage facilities shall be shown within the limits of the cross section as described in Item 6 above.
8. Section stationing shall increase from the bottom of the sheet to the top. When more than one row of sections are placed on a sheet, the stationing shall increase from bottom to top and from left to right.
9. The existing ground elevation at the centerline, design profiles and ditches shall be shown on each section.
10. Cross sections shall be shown at intervals not exceeding 50 feet. Additional intermediate cross sections shall be shown as necessary to provide supplementary information at bridges, box culverts, intersections, side streets, railroads, etc. Additional cross sections as negotiated on a project-by-project basis may be necessary to support right-of-way acquisition basis.
11. Cross section sheets shall be provided for all side street improvements extending more than 50 feet from the right-of-way line of the main project alignment.
12. Soil boring information, including encountered and estimated seasonal high groundwater levels shall be shown on all applicable cross sections.
13. Horizontal and vertical location of unsuitable soils.
14. The Consultant shall prepare driveway profiles for each driveway within the limits of construction, including side streets. Driveway profiles shall be drawn on the cross section sheets at the stations where they occur. These profiles shall show existing and proposed grade lines. Grades of proposed driveways shall conform to Orange County policies and procedures and Florida Department of Transportation Standard Indexes.

3.4.19 Erosion Control Plans
The Consultant shall develop Erosion Control details, at a scale acceptable to the County, including necessary notes and details, as part of the contract plans necessary to secure applicable permits. The objectives of the erosion control plans are to prevent erosion where construction activities are occurring, prevent pollutants from mixing with storm water and prevent pollutants from being discharged by trapping them on-site. The construction documents shall provide stormwater pollution prevention plans (SWPPP) to be paid for as a lump sum item.
3.4.20 Miscellaneous Details
Any details not included elsewhere in the plan set shall be shown here.

3.4.21 Screen Wall Plans
The Consultant shall evaluate the project relative to screen wall placement and/or replacement and make recommendations in accordance with the County’s “Screen Wall Policy.”

Areas that may require new walls include the following locations:

(List potential locations)
Any other locations identified in the Preliminary Design Study

The County will make the final determination if new walls will be included in the project. All new walls shall be placed within the public right-of-way, unless otherwise directed by the County.

Existing walls along the corridor which may require adjustment or replacement due to project impacts include the following:

(List potential locations)
Any other locations identified in the Preliminary Design Study

The County shall provide an electronic copy of its standard wall detail sheet to the Consultant. The Consultant shall review, modify and supplement the County’s standard wall detail sheet as necessary to provide all necessary plans and details for all screen walls (new or adjusted) along the corridor. Consultant shall determine that the detail sheet and any necessary modifications meet all current standards and the requirements of the project. The consultant shall sign and seal the detail sheet. Plans shall include depiction of walls on plan and profile sheets and cross section sheets; notes on plan and profile sheets, general construction and foundation notes, structural details and wall finishing notes and details.

3.4.22 Maintenance of Traffic Plans
The Consultant shall prepare plan sheets, notes and details to move vehicular and pedestrian traffic during all phases of construction. The maintenance of traffic plans shall include construction phasing of ___________ (including side streets), ingress and egress to existing properties, temporary signing and pavement markings, temporary signals, and detour routes. Additional sheets such as cross sections, profiles, drainage structures, retaining wall details and sheet piling may be necessary to ensure implementation of the maintenance of traffic plan and will be provided by the Consultant. The plan sheets will be developed at 1” = ___ ’ scale. The construction documents shall provide for Maintenance of Traffic to be paid for as a lump sum item.
3.4.23 Utility Adjustment Plans/Roadway Lighting Coordination
The Consultant shall prepare separate plan and profile sheets showing proposed new or relocated facilities by others. These plans shall be prepared based on information provided by the utility companies.

Consultant shall coordinate with the applicable power companies to arrange for a lighting design to be prepared in accordance with agreements between the County and the power companies. Consultant shall coordinate the design of the lighting (performed by the power company) with the design of the roadway improvements and landscaping. Consultant shall show the location of the street lights provided by the power company on the Utility Adjustment Plans.

3.4.24 Signing and Pavement Marking Plans
The Consultant shall prepare plan sheets at a scale of 1" = ___' for the entire length of the project, including side streets, showing pavement markings and signage to be installed on the project. Pavement markings and signs shall conform to the Manual on Uniform Traffic Control Devices. Signing and Marking Plans shall include, but not be limited to, the following: General Note sheet(s), summary of Pay Items sheets, Plan sheet(s), and Special Marking Detail sheet(s), as needed.

3.4.25 Signalization Plans
The Consultant shall prepare plan sheets, notes and details to include, but not be limited to, the following: Intersection Signalization Plan sheets at 1" = 20' scale, General Note sheet(s), Summary of Pay Items sheet(s), Pole Mast Arm Detail sheet(s), Foundation Details sheet(s) and special detail sheet(s) and soil boring data, as needed. The signalization plans will include overhead and pole mounted lighted street signs and signal support structures and required foundations. Florida Department of Transportation standard foundation designs shall be used where applicable. The sign support structures will be aesthetically compatible with the County's current lighted sign standards. This project will involve ____ signals at ___________________ and ___________________, which shall be interconnected, with ______ to the (provide compass direction) and ______ to the (provide compass direction). The County will provide all available traffic data. The Consultant shall provide additional traffic data as necessary for these intersections. Span wire signal designs are not acceptable. All signals shall be mast arm/mono tube/truss design as appropriate and approved by the County.

3.4.26 Landscape Plans
Consultant shall provide landscape plans prepared by a registered Landscape Architect. The plans shall identify the location and type of plant materials to be installed. Unless otherwise directed by the County, plantings shall be limited to trees of a species that will not require irrigation after maturity. Species and location shall be coordinated with clear zone requirements, sight distance requirements, proposed signage, ground conditions, streetlight locations, billboard locations, and utility conflicts and clearance. The location of the streetlights shall also be shown.
on the landscaping plans to ensure there are no conflicts between the streetlights and existing trees to remain or proposed trees. The landscape plans shall also include General Notes and Details and a summary of Pay Items sheet(s).

Design shall be based on a landscaping construction budget not to exceed $75,000 per mile of total project length.

3.4.27 Structural Plans
The Consultant shall prepare plan sheets, notes and details to include all drawings referenced in the submittal checklist.

3.4.27.1 Bridge Structure Plans Package
Upon approval of the BCR, the Consultant shall prepare a Structure Plans Package for each bridge structure included in the project. This work includes the effort needed to prepare a complete set of Structure Plans pursuant to all applicable County criteria and the FDOT Plans Preparation Manuals. The structural concept shall represent the recommended structure type presented in the BCR as approved by the County.

3.4.27.2 Wall Control Drawings
3.4.27.2.1 The Consultant shall prepare control drawings for all permanent walls required. These drawings shall provide vertical and horizontal alignments, wall lengths, and details for any special features that need to be provided. Barriers, architectural treatments, etc., are considered to be special features.

3.4.27.2.2 For conventional wall designs, the Consultant shall prepare drawings and specifications needed to supplement the control drawings. Appropriate FDOT standard drawings may be used if applicable.

3.4.27.3 Bridge Hydraulic Recommendation Sheet
The Consultant shall furnish and complete the Bridge Hydraulics Recommendation Sheet for all bridges over water and applicable box culvert systems. For information on the preparation of this sheet, see the FDOT Drainage Manual, (March 2010). The Consultant is responsible for the design of erosion protection for bridge approaches and embankments.

3.4.27.4 Retaining Wall Plans
This task includes the effort necessary for the preparation of a complete set of Retaining Wall Drawings to include Plan and Elevation, Reinforcement Details (if required) and Special Details. The Plans shall be prepared pursuant to the County standards and the FDOT Plans Preparation Manuals.

3.4.27.5 Critical Temporary Retaining Wall Plans
This task includes the effort necessary for the preparation of a complete set of Critical Temporary Retaining Wall Drawings to include Plan and Elevation, Reinforcement Details (if required) and Special Details. The Plans shall be prepared pursuant to the County standards and the FDOT Plans Preparation Manuals.

### 3.4.27.6 Miscellaneous Highway Related Structures

This task includes the effort necessary for the preparation of a complete set of Drawings to include Plan and Elevation, Reinforcement Details (if required) and Special Details for any miscellaneous highway related structures not covered elsewhere herein, including box culverts, overhead sign structures traffic signal mast arms, mono tubes and trusses. The Plans shall be prepared pursuant to the County standards and the FDOT Plans Preparation Manuals.

### 3.5 Progress Review Submittals

All submittals shall be accompanied by documentation of the Quality Assurance/Quality Control reviews in accordance with Section 1.7 herein. Submittals shall conform to the requirements outlined in the Orange County Progress Review Submittal checklist incorporated herein by reference. A copy of the checklist certified by the Consultant’s Project Manager in accordance with Section 1.7 herein. Submittals shall conform to the requirements outlined in the Orange County Progress Submittal checklist. A copy of the checklist certified by the Consultant’s Project Manager in accordance with Section 3.0 herein shall accompany each submittal.

The Consultant shall submit construction plans to the County for review at the 30%, 60%, 90%, 100% and final completion stages. The 30% roadway plans and the 30% bridge plans shall be separate submittals. A 60% bridge plan submittal is not required.

All County comments or questions on previous submittals, and any additional direction received from County must be addressed. Responses to the comments submitted by the reviewers should be addressed in writing and distributed to all reviewers. Cost estimates are required per section 1.5.

### 3.6 Specifications

The Consultant shall provide a complete bid package that includes: Schedule of Prices and complete set of Technical Provisions and Special Provisions for the project. The Schedule of Prices, Technical and Special Provisions shall be provided in MS Word format, which meet County requirements, as well as in any other electronic format required in accordance with the standards established by the Orange County Purchasing and Contracts Division. The Special Provisions shall clearly identify the responsible entity for each permit condition in each regulatory permit.

### 3.7 Electronic Design and Topography

The Consultant shall provide electronic Design and Topography files to the County in Microstation DGN format and Autodesk DWG file format at each review submittal and as requested by the County. Orange County recommends using the Microstation SAVE AS
command available in Microstation V8 software when converting DGN files to DWG file format.

3.8 Bid Package
The Consultant will prepare a draft and a final bid packages for construction. Orange County will provide the Consultant with a master reference document. The bid package shall include, but are not limited to the following documents:

- Project Information Sheet
- Location Map
- Scope of Work
- Engineer’s Estimate
- Index of Plan Sheets
- Part D Schedule of prices (In Word Format)
- Part G Special provisions
- Index of Technical Provisions
- Permits
- Construction Plans
- Bid Check List

3.9 Deliverables
Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

- Drainage Design Documentation Report
- Roadway Design Criteria Package
- Typical Section Package
- Pavement Design Package
- Bridge Hydraulics Report (BHR)
- 30% Bridge Plans
- 30%, 60%, 90%, and 100% Construction Plans and Engineer’s Cost Estimate
- Bridge Concept Report
- Final Construction Plans and Engineer’s Cost Estimate
- Roadway Design Documents and Computation Book
- Quantity Computation Book
- Draft Schedule of Prices Technical and Special Provisions
- Final Schedule of Prices Technical and Special Provisions
- Final Electronic Design and Topography Files
- Electronic Bid Document Package
- Load Rating (Form or Report)
- Environmental Consideration Plans
- Mitigation Plans
3.10 Pay Items

Work to be completed under this section by the Consultant shall be paid for under the following pay items as listed on the Activity and Fee Summary.

- Drainage Design Documentation Report
- Bridge Hydraulics Report (BHR)
- 30% Bridge Plans
- Roadway Design Criteria, Typical Section and Pavement Design Packages
- 30%, 60%, 90%, 100% Construction Plans
- Bridge Concept Report
- Final Construction Plans
- Design Notes and Computations Book
- Quantity Computation Book
- Draft Technical and Special Provisions
- Final Technical and Special Provisions
- 30%, 60%, 90%, 100% and Final Engineer's Cost Estimate
- Electronic Bid Document Package
- Final Electronic Design and Topography Files
- Load Rating (Form or Report)
- Environmental Consideration Plans
- Mitigation Plans
- Alum Treatment Facility Plans
- Draft Bid Package
- Final Bid Package

4.0 Permitting

The Consultant will prepare all applications and other submittals and provide all environmental services necessary to obtain all permits including Environmental Resource Permits, Army Corps of Engineers Permits, FDOT connection permits, N.P.D.E.S. permit package, Florida Fish and Wildlife Conservation Commission, dewatering permits, and any other permits that may be necessary for the construction of the proposed improvements. The Consultant will pay for all permit application fees from out of pocket expenses. The construction plans package shall not be considered complete until all required permits have been received.

4.1 Environmental Permitting

4.1.1 Agency Coordination

The Consultant shall coordinate the environmental permitting effort with the Orange County Project Manager and Public Works Environmental Project
Manager. The Consultant shall notify the County Project Manager and Orange County Public Works Environmental Project Manager of all meetings with regulatory agencies to coordinate attendance by County staff. The Consultant shall submit meeting minutes and provide copies of all permit-related correspondence. In addition, the Consultant shall coordinate with County staff for any information, which may be relevant to the project design. This coordination shall take place prior to any regulatory meetings.

4.1.2 Wetland Delineation and Agency Field Review
The Consultant shall conduct identify and wetlands in accordance with all applicable State and Federal Regulations. The Consultant shall conduct and coordinate field investigations as necessary with County staff and with the appropriate regulatory agencies. The consultant shall provide meeting minutes and field notes to County Environmental Project Manager.

4.1.3 Wetland Mitigation (Limiting Amount)
If wetland impacts cannot be avoided, the Consultant shall coordinate with the County and investigate mitigation alternatives including the following, as appropriate:

- Payment to DEP/WMD per acre of wetlands impacted as defined in CH 373.4137 FS
- Monetary participation in regional offsite mitigation area (ROMA) and/or a permitted mitigation bank
- Creation/restoration/preservation on private or County owned lands

The Consultant shall coordinate with County personnel prior to approaching any environmental permitting or review agency. In the event that physical creation, restoration or preservation is the only feasible alternative to offset wetland impacts, the Consultant shall collect all of the data and information necessary to prepare alternative mitigation concepts. The alternative mitigation concepts may be presented to the permitting agencies and commenting agencies that are processing or reviewing a permit application for this project.

Prior to selection of a final mitigation site, the Consultant will provide as necessary and evaluate the following, in the development of alternative mitigation concepts:

- Wetland jurisdictional determination for each proposed site
- Preliminary geotechnical and survey data to substantiate each design alternative
- Construction and ROW cost estimations for each proposed site
- Contamination Screening Evaluation for each site
- Coordination of alternative sites with the County and affected environmental agencies
The Consultant shall prepare and submit a written Alternative Wetland Mitigation Concepts Report, listing potential sites with justifications for those recommended and non-recommended. The County shall review this report and make the final determination as to the recommended mitigation alternative.

### 4.1.4 Threatened and Endangered Species (Limiting Amount)

The Consultant shall review the PDS to familiarize himself with the location and extent of any protected species (plant and animal species listed by state and federal agencies as threatened, endangered or species of special concern) identified by the PDS.

The Consultant shall also:

- Review occurrence records, GIS Data Bases, and other records from the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC) and any other generally accepted source for the potential presence of protected species.
- Conduct qualitative site reviews of the project area to verify the presence of protected species and/or critical habitats.
- Conduct quantitative population surveys for those protected species confirmed within the project area following methodologies approved by the USFWS, FFWCC, or other regulatory agencies having jurisdiction.
- Prepare a Protected Species Management Alternatives Report which shall discuss the results of preliminary species evaluations and population surveys, regulations affecting each species, potential effect of the project upon each species, potential impacts to the project and a discussion of available and acceptable management alternatives.
- Prepare a final Protected Species Management Plan, which shall be suitable for submittal to the appropriate State and Federal review agencies. This shall address specific Management approaches to be used to address unavoidable impacts. It shall include all additional investigations, maps or other documentation needed to support permitting of the unavoidable impacts.
- Update the Threatened and Endangered Species Survey and Management Plan which shall be performed 90 days prior to the start of construction.
- **Gopher Tortoise Live Capture and Off-Site Relocation**
  - The Consultant shall provide a Registered Gopher Tortoise agent certified to survey, permit, and relocate by both mechanical and bucket trapping.
  - The Consultant shall perform the following:
    - Coordination with the FFWCC, backhoe operator, recipient site representative, and the County to schedule excavation, relocation of gopher tortoises.
    - Provide personnel and equipment (including a hydraulic backhoe and operator) necessary to excavate gopher tortoises burrows and
live capture gopher tortoises from the area proposed for development.

- Transport the gopher tortoises to an approved long-term protected, off-site location (recipient site) for release. Payment of the recipient site fees will be responsibility of the County.
- Prepare and submit to the FFWCC an Off-Site Gopher Tortoise Relocation After Action Report.

### 4.2 Other Permitting Agencies

The Consultant shall be responsible for obtaining all other permits required to construct the proposed improvements. These permits may include FDOT, CFX, SHPPO, FAA, GOAA, FDEP, FFWCC, FWS, dewatering permits, etc. The Consultant is responsible for coordination with these agencies early on to confirm the permitting process and the agency’s criteria. This shall also include preparation of all necessary documents to secure the permit.

### 4.3 Preparation and Submittal

The Consultant shall prepare and submit all necessary permits. All permit packages shall be provided to the County for review and comment prior to submittal. It is anticipated that permit preparation shall include one or more Requests for Additional Information (RAI) from the permitting agencies. In addition, the Consultant shall prepare a N.P.D.E.S. Stormwater Pollution Prevention Plan, which will satisfy the requirements, at the time the permit application is submitted, of the FDEP. The Stormwater Pollution Prevention Plan shall be included in the Technical Provisions.

### 4.4 Renewals and Extensions

Permit fee renewals and extensions, as necessary, shall be paid for under Post Design Services.

### 4.5 Additional Permit Requirements (Limiting Amount)

Consultant shall conduct surveys and prepare legal descriptions and sketches and survey drawings as necessary to address permit conditions. These shall include the following as necessary:

- Conservation/mitigation easements
- Sovereign/submerged lands leases/easements

### 4.6 Deliverables

Work to be completed under this section by the Consultant shall require the following items to be delivered and accepted by the County:

- Water Management District/ACOE Permit Package
- Alternative Wetland Mitigation Concepts Report
- FDOT Permit Application Package(s)
- N.P.D.E.S. Stormwater Pollution Prevention Plan Package
- Special Permit Documents (Surveys)
4.7 Pay Items
Work to be completed under this section by the Consultant shall be paid for under the following pay items as listed on the Activity and Fee Summary:

- Water Management District/ACOE Permit Package
- Alternative Wetland Mitigation Concepts Report (if applicable)
- FDOT Permit Application Package(s)
- N.P.D.E.S. Stormwater Pollution Prevention Plan Package
- Permit(s) Issuance
- Special Permit Documents (Survey) Limiting Amount
- Threatened and Endangered Species Reports and After Action Report (if applicable)
- Site Evaluation Report and FDEP Contaminated Groundwater Permit (if applicable)

5.0 Right-of-Way Engineering for Survey Projects
Right-of-Way Engineering services shall begin immediately upon issuance of the Notice to Proceed by the County, and shall be conducted on an expedited schedule. The County will provide the Consultant with title searches on each parcel identified on the Parcel Identification Map as furnished by the County. The title work will be provided to the Consultant at the Notice to Proceed meeting. All survey work shall meet the requirements of Chapter 472, Florida Statutes and Chapter 5J-17, Florida Administrative Code.

The Consultant shall not deviate from the alignment and right-of-way limits per from the Scope of Services as provided by the County. Any deviations must be justified by the Consultant and approved by the Project Manager.

5.1 Right-of-Way Mapping
Consultant shall prepare right-of-way maps/miscellaneous surveys for the entire project area at a scale of 1" = 40' on half size (11 inches x 17 inches) or at a scale approved by the Project Manager. Right-of-way mapping services shall conform to the most current version (at the time of the Notice to Proceed) of the Orange County Procedures for Right-of-Way Engineering, a copy of which will be provided to the Consultant. The Consultant shall analyze each proposed acquisition to identify the appropriate property interest to be acquired (fee simple right-of-way, drainage easement, fill slope easement, temporary construction easement, temporary demolition easement, etc.). The Consultant shall submit 30%, 60%, 90% and 100% progress review submittals of the right-of-way maps in 11 inches x 17 inches formats, as well as electronic copies in AutoCAD and PDF format as requested by the County.

Each submittal of right-of-way maps/miscellaneous surveys, legal descriptions and parcel sketches shall implement the information items listed in the appropriate Orange County Procedures for Right-of-Way Engineering checklist. A copy of the appropriate checklist shall accompany each submittal with a certification signed by the Consultant's Project Manager and the Surveyor of

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Final Design
Scope of Services
March 2017
Record certifying that the submittal completely addresses the required items as listed on the checklist.

Prior to submittal of the 60% right-of-way maps, the baseline of survey and/or the centerline of construction shall be the same line and approved by the Project Manager. From that time on, only the centerline of construction shall be shown on the right-of-way maps/miscellaneous surveys and construction plans, if required.

Consultant shall update and modify legal descriptions and parcel sketches, right-of-way maps/miscellaneous surveys and construction plans in a timely manner to reflect changes in proposed acquisitions resulting from right-of-way acquisitions, negotiations and litigation. After approval of the 100% right-of-way maps/miscellaneous surveys modifications shall be addressed in accordance with Section 5.5.

5.2 Parcels

5.2.1 Review of Title Work
The Consultant shall review the title work provided by the County, supplemental surveys and investigations performed by the Consultant and/or other record information. The size, location, and dimensions of each parent tract, parcel and property interest and encumbrances (easements, leases, etc.) shall be determined by the Consultant from this review. This information shall be shown on the right-of-way maps/miscellaneous surveys and parcel sketches, as appropriate. Recorded and Unrecorded easements shall be shown to the extent they can be identified and located on the right-of-way maps/miscellaneous surveys and parcel sketches.

5.2.2 Legal Descriptions and Parcel Sketches
Consultant shall have a licensed Professional Surveyor and Mapper prepare legal descriptions and parcel sketches for each parcel as necessary in accordance with the previously described Orange County Procedures for Right-of-Way Engineering. A draft of each legal description and parcel sketch for every parcel shall be submitted prior to the 90% right-of-way maps, if required. If any parcels are added or modified prior to the 100% right-of-way map submittal, the Consultant shall submit the legal descriptions and sketches of the modified parcels with revisions to the right-of-way maps showing the modifications. The signed and sealed final Parcel Sketches and Legal Descriptions shall be submitted upon request by the County for use in parcel acquisitions, but not later than with the submittal of the 100% Right-of-Way Map.

5.2.3 Parcel Staking for Appraisal (If Required)
The Consultant shall have a licensed Professional Surveyor and Mapper stake the limits of acquisition on each parcel in preparation for appraisals. The timing and method of marking the acquisition limits shall be as directed by the Project Manager.

5.3 Right-of-Way Surveys, Alignment and Monumentation
The Consultant shall have a licensed Professional Surveyor and Mapper conduct field surveys to supplement the field survey data obtained during the Preliminary Design Study (PDS) and provided to the Consultant. All survey information shall conform to the most current version of the Orange County Procedures for Right-of-Way Engineering, and shall be recorded in a cross section field book that has 10 columns by 10 rows per inch on both pages supplied by the Consultant. The field book remains the property of the County, and must be submitted with the Final Right-of-Way Map/miscellaneous surveys and be Signed and Sealed. When a data collector is used, the
Consultant shall submit a paper copy of the raw data files and coordinate data files bound in a book, together with the electronic copy on a disk. All Right-of-Way computations shall be documented in a Right-of-Way Computation Book, which shall be submitted to the Project Manager with the Survey Field Notes, State Plane Coordinate file, adjusted bench run and Final Right-of-Way Maps/miscellaneous surveys.

Consultant shall have a licensed Professional Surveyor and Mapper monument the center line of construction at stations that are not more than 600 feet apart and at all P.C.’s, P.T.’s, side street intersections, and changes in direction. Stationing shall be marked in the field. Similar monumentation and markings shall be provided at all side streets to 150 feet beyond the limits of the topographic survey or at other locations as approved by the Project Manager. The centerlines of construction shall be referenced to permanent monumentation located outside the limits of construction at the beginning and end of project, all P.C.’s and P.T.’s, all changes in direction, and intermediate points such that referenced points are spaced not more than 600 feet apart. Horizontal control, as stated above shall be tied to the Florida State Plane Coordinate System, North American Datum of 1983/1990 Adjustment East Zone and shall be shown on the final right-of-way maps/miscellaneous surveys.

5.4 Minimization of Compensable Impacts (If Required)
The Consultant shall coordinate with Orange County Right of Way Acquisition Section as early as possible in the design phase of the project to review the design corridor and make the necessary revisions to the design to minimize compensable impacts to private properties. The Consultant shall also identify and evaluate alternatives to right-of-way acquisition (e.g., retaining walls instead of fill slope easements, closed drainage system instead of ditch systems, etc.) to determine the most cost effective way to meet the project needs.

The Consultant shall perform the following services during this phase:
- Meet as necessary with the Orange County Right of Way Acquisition Section and property owners.
- Perform site inspections of properties together with the Orange County Right of Way Acquisition Section as may be necessary to evaluate the potential for minimization of compensable impacts. Coordinate with the Orange County Right of Way Acquisition Section to identify compensable impacts and evaluate cost effective ways to reduce compensable impacts to the greatest extent possible.
- Consult with the Orange County Right of Way Acquisition Section during the design process and fully address any right-of-way review comments provided.

During this phase the Consultant and the County shall inspect affected properties in the field to determine the extent of compensable impacts on each parcel, and whether such impacts can be reduced in a cost-effective manner. The Consultant shall at a minimum consider site access, onsite drainage, onsite parking, onsite utilities, including septic systems, and any other existing facilities impacted by the proposed improvements. This effort shall include meetings with property owners to obtain their input on the configuration of the proposed improvements in those cases where various options exist. The Consultant shall modify the design, where possible, to minimize the number and extent of such compensable impacts, and to accommodate the property owner preferences where appropriate.

The Consultant shall document the above-described investigations and their findings and recommendations. This work should occur early in the design process and prior to completion of 60% plans.
Consultant shall meet with all property owners where the proposed right-of-way exceeds the limits shown on the Right-of-Way Identification Maps prepared during Phase I.

### 5.5 Changes to Documents during Right-of-Way Acquisition

There shall be a limiting amount in this contract to cover work required due to right-of-way acquisition or other developments. This work shall include, but not limited to changes to construction plans (beyond the normal design process as agreed to by the County), right-of-way maps, legal descriptions and parcel sketches. It will also include staking parcels at the County’s request (in addition to the parcel staking for appraisals), attendance at Order of Taking Hearings, Mediations and Settlement Conferences, and responding to questions posed by the County from property owners and property owners’ representatives and experts. This work may be required at any time during the contract at the request of the County. It will be billed on an hourly basis, as approved by the Project Manager. The limiting amount shall include hourly rates for the consultant and all applicable sub-consultants including, but not limited to, surveyor, drainage engineer and environmental staff.

### 5.6 Deliverables

Work to be completed under this section shall require the following items to be delivered and accepted by the County:

- Right-of-Way Maps (30%, 60%, 90%, 100%, and Final)/miscellaneous surveys
- Parcel Legal Descriptions and Sketches (Draft and Final) (If Required)
- Right-of-Way Survey Field Books and electronic AutoCAD and PDF files.
- Right-of-Way Computation Book (Raw Data Files, Coordinate data files, Benchmarks, etc.)
- Parcels staked for appraisal
- Updated/Modified documents during right-of-way acquisition
- Book and Page number where the final Right-of-Way Maps were recorded in the Orange County Comptroller Office Public Records (Required, to be Recorded and paid by Consultant)
- All of the above items must be in an acceptable Orange County format approved by the Project Manager. Hardcopies and electronic submittals will be certified where required and approved by the Project Manager.

### 5.7 Pay Items

Work to be completed under this section by the Consultant shall be paid for under the following pay items as listed on the Activity and Fee Summary:

- Right-of-Way Maps (30%, 60%, 90%, 100%, and Final)/miscellaneous surveys.
- Parcel Legal Descriptions and Sketches (Draft and Final) (If Required).
- Right-of-Way Survey Field Books and electronic AutoCAD files.
- Right-of-Way Computation Book (Raw Data Files, Coordinate Data Files, benchmarks, etc.)
- Parcels staked for appraisal
- Changes to documents during right-of-way acquisition (Limiting Amount)
- Subsurface Utility Locations
- Boring Locations
- Recordation of Right-of-Way Maps with the Orange County Comptroller Office (Required, to be Recorded and paid by Consultant)
6.0 Design Survey Services for Major Survey Projects

The Consultant shall have a licensed Professional Surveyor and Mapper conduct field surveys as necessary to support the design of the project. These surveys shall include, but not be limited to, horizontal and vertical control surveys and topographic surveys of the roadway alignment and adjacent areas and retention ponds, mitigation areas, wetland, jurisdictional limits, environmentally sensitive areas, flood plain compensation areas, or other areas where information is needed to support the design and permitting of the project.

Controlled aerial photography or other data collection methods may be used to collect topographic information as approved by the Project Manager. When aerial photography is used the Consultant shall provide all necessary control and shall document the setting of targets and collection of other control information as required above.

All such survey information will be recorded in a cross section field book that has 10 columns by 10 rows per inch on both pages supplied by the Consultant. The field book remains the property of the County, and must be submitted with the Final Construction Plans, if required. When a data collector is used, the Consultant shall submit a paper copy of the raw data files and coordinate data files bound in a book, together with an electronic copy on a disk.

All survey work shall meet the requirements of Chapter 472, Florida Statutes, and Chapter 5J-17, Florida Administrative Code, and shall provide sufficiently detailed information to meet the design requirements of the project. Survey data shall be sufficient to establish drainage basins, address localized drainage issues within and adjacent to the project limits, and include all areas as necessary to address project design considerations.

6.1 Horizontal Control and Monumentation

Consultant shall monument the center line of construction at each 600-foot station and at all P.C.’s, P.T.’s, side street intersections, and changes in direction. Stationing shall be marked in the field. Similar monumentation and markings shall be provided at all side streets to one hundred fifty (150) feet beyond the limits of the topographic survey. The center line of construction shall be referenced to permanent monumentation located outside the limits of construction at the beginning and end of project, all P.C.’s and P.T.’s, all changes in direction, and intermediate points such that referenced points are spaced not more than six hundred (600) feet apart. Horizontal control shall be tied to the Florida State Plane Coordinate System, North American Datum of 1983/1990 Adjustment East Zone and either shown graphically or in tabulation format on the Right of Way Maps/miscellaneous surveys and Survey Control Sheet(s).

6.2 Vertical Control and Monumentation

All vertical control shall be based on NAVD 1988 datum, and shall be established from at least two (2) Orange County benchmarks. Permanent benchmarks shall be set outside the limits of construction. The location of benchmarks shall be approximately 600 feet apart and coordinated with the design such that a minimum of two benchmarks are identified on each sheet of the construction plans. Features that may be moved/adjusted in the future (e.g., utility poles, fire hydrants, etc.) shall not be used for benchmarks. Preferred locations include, but not limited to concrete drop inlets, concrete curb inlets, concrete headwalls, etc. or other permanent structures as approved by the County Surveyor or his/her agent.

6.3 Survey Control Sheet(s)
Consultant shall prepare Survey Control Sheet(s) for inclusion in the Construction plans. The survey control sheet(s) shall identify and show the location and type of all horizontal control points, reference points (three (3) outside of proposed right-of-way limits) and benchmarks. Details shall be included as necessary to clarify the relationship of monumentation and project control lines. The survey control sheet(s) shall be signed and sealed by a Professional Surveyor or Mapper registered in the State of Florida, and shall conform to the requirements of Chapter 53-17 of the Florida Administrative Code. The Survey Control Sheet(s) shall also include, but not limited to the following:

- The complete centerline alignment data, including beginning of survey station, all curve data, P.C.'s, P.T.'s, side street intersections, changes of directions, all intermediate control point stations, and end of survey station must be shown. All control points must be identified as to type of material set and/or found at each respective point.
- All section lines, all quarter section lines, (and all quarter-quarter section lines when pertinent) must be shown with the station where their intersection with the centerline or baseline of survey occurs, a distance from the nearest corner to the centerline, and bearings and distances to all corners. The type of corner, found or set, shall be spelled out or identified by a legend.
- Centerline data will be referenced to State Plane Coordinate System, and labeled on the Survey Control Sheet(s) using North American Datum of 1983/1990 adjustment (NAD83/90) East Zone and shown on the Survey Control Sheet(s) either in tabular format or placed on the survey alignment.
- All Centerline Control points shall have a minimum of 3 reference points outside the limits of construction and shall be shown on the Survey Control Sheet(s).
- All Benchmarks shall be shown both in graphic and note form on the Survey Control Sheet(s).

6.4 Vertical Data
Vertical data shall be of sufficient accuracy to support the development of profiles and/or cross sections at intervals not exceeding 50 feet, including, but not limited to the main line roadway, side streets, drainage ways, retention ponds, etc. Check cross sections shall be measured at appropriate intervals, but not less than every 1,000 feet.

6.5 Pay Items
- Design Survey
- Design Survey Field Books and/or raw data files hard copies and electronic copies
- Design survey Computation Book
- Subsurface utility locations
- Boring locations

6.6 Deliverables
- Design Survey
- Design Survey Field Books and/or raw data files hard copies and electronic copies
- Design Survey Computation Book
- Subsurface utility locations
- Boring locations

7.0 Geotechnical Services
The Consultant shall be responsible for a complete geotechnical investigation. All work performed by the Consultant shall be in general accordance with the Florida Department of Transportation Soils and Foundation Handbook and other applicable standards, or as otherwise described in this scope of services. Any changes regarding geotechnical standards, policies and procedures shall be discussed on a project-by-project basis. The Consultant shall be responsible for obtaining any permits needed to perform the work. The County will assist in obtaining property owner permission to perform the necessary geotechnical fieldwork.

7.1 Data Collection
The Consultant shall review printed literature including topographic maps, county agricultural maps, aerial photographs (including historic photos), ground water resources, geology bulletins, potentiometric maps, pile driving records, historic construction records and other geotechnical related resources. Prior to field investigations, the Consultant shall review U.S.G.S., S.C.S and potentiometric maps to identify areas with problematic soil and groundwater conditions.

7.2 Roadway
The Consultant shall be responsible for coordination of all geotechnical related fieldwork activities. The Consultant shall retain all samples until Final Plans are submitted.

7.2.1 A preliminary roadway exploration shall be performed before the 30% plans submittal. The preliminary roadway exploration will be performed and results provided to assist in setting roadway grades and locating potential problem areas. Boring frequency shall be one every ____ feet. Borings shall be of sufficient depth to determine seasonal high water elevation and other critical geotechnical features. The preliminary auger borings shall be surveyed for use in the final design.

Pavement cores shall be obtained in areas to be milled and resurfaced, and specifically at the following locations:

7.2.2 The final roadway exploration shall include one auger boring every 200 feet to a depth of 5 feet. The borings shall be extended to 20 feet every 600 feet along the roadway. Boring depths shall be adjusted to accommodate roadway cuts and utility excavations. Additional ____ borings or muck probes shall be performed in suspected muck areas to evaluate the extent of organic soils.

Standard Penetration Test (SPT) borings shall be performed every 400 feet in high fill embankment areas (i.e., fill greater than about 10 feet). SPT boring depths shall be to 1.5 times the fill height. Undisturbed samples of
compressible materials such as muck, peat, clay or silt shall be obtained for use in consolidation testing for settlement analysis.

Routine soil classification shall be performed on representative samples obtained from the borings. These tests typically include grain size analysis, percent fines, Atterberg limits, organic content and moisture content. Additional bulk samples of representative soils encountered along the alignment shall be collected for Limerock Bearing Ratio (LBR) and corrosion testing. All laboratory testing and classification shall be performed in accordance with applicable AASHTO or ASTM standards.

7.3 Stormwater Systems
The Consultant shall evaluate subsurface conditions in proposed stormwater systems. For stormwater ponds, two auger borings to a depth of 20 feet below the bottom of the proposed pond elevation shall be performed per acre of pond. One field permeability test per acre of pond shall also be provided. One auger boring to a depth of 20 feet shall be performed every 500 feet for exfiltration trenches and treatment swales. One field permeability test or Double Ring Infiltrometer (DRI) test shall be performed every 500 feet.

Two auger borings per acre shall be performed in proposed floodplain compensation areas and mitigation areas to a depth below the proposed lowest elevation in those areas.

The Consultant shall provide an analysis of stormwater volume recovery through infiltration or background see page analysis as required.

7.4 Structures
SPT borings shall be performed at bridge structures to evaluate foundation alternatives. Borings shall be performed at end bent and intermediate bent locations. Borings for intermediate bends shall be no further apart than one every ___ feet. Borings shall be of sufficient depth to determine a bearing layer for pile foundations and are expected to be ___ feet deep. SPT borings shall be sampled on two-foot centers to 10 feet and at five-foot centers thereafter to the termination depth.

7.5 Special Geotechnical Investigations
This shall include box culverts, signals, overhead signs and retaining walls. A minimum of two SPT borings shall be performed to a depth of 30 feet at each box culvert location. Box culverts are anticipated at the locations listed in Section 3.3.5.1.

Borings shall also be drilled to a depth of 30 feet at the mast arm pole locations listed in Section 3.3.5.3.

SPT borings shall be performed 40 feet deep at each overhead cantilever or truss sign location. Overhead signs are anticipated at the locations listed in Section 3.3.5.2.

SPT borings shall be performed every 200 feet along retaining wall alignments to a depth equal to 2 times the wall height. The borings shall be sampled on two-foot centers to ten
feet and at five-foot centers thereafter to the termination depth. Retaining walls are anticipated at the locations listed in Section 3.3.3 and 3.3.4.

7.6 Contamination Evaluation
The Consultant shall determine the location and extent of soil and groundwater contamination within the project limits, and shall avoid or minimize impacts to contaminated areas to the extent possible.

7.6.1 Contamination Screening Evaluation Report (CSER)
The Contamination Screening Evaluation Report prepared during the Preliminary Design Study shall be updated as requested by the County. The update is intended to obtain and review the most current information about potential contamination impact sites identified in the PDS and to identify any new sites not identified in the original report. The methodology to be used to update the report shall be compatible to that used in the Preliminary Design Study.

7.6.2 Preliminary Contamination Assessment (PCA)
The Consultant shall perform Preliminary Contamination Assessment on sites identified in the Contamination Screening Report as MEDIUM or HIGH risk for contamination impacts. Soil and groundwater samples shall be obtained from those sites and tested for the presence of contaminant of concern as identified in the report. Based on the PDS, the following sites shall be investigated:

The Preliminary Contamination Assessment investigations shall be performed in such a manner as to detect the contaminants of concern identified in the Contamination Screening Evaluation Report. For petroleum-impacted sites, auger borings with Organic Vapor Analyzer soil screening shall be performed at locations where contamination is most likely. A laboratory shall test soil samples with high Organic Vapor Analyzer readings. Groundwater samples shall be obtained and analyzed for the contaminants of concern using testing protocols approved by the Florida Department of Environmental Protection. If appropriate, geophysical methods such as Ground Penetrating Radar or Magnetometer surveys shall be performed to look for unknown buried fuel storage tanks or other buried objects of concern such as sumps, pits, etc. All field and sampling activities shall conform to Florida Department of Environmental Protection requirements. A Florida Department of Health approved laboratory shall perform all laboratory analyses. Prior to drilling any borings or installing/obtaining groundwater samples, the location of underground utilities shall be determined and sampling locations cleared in accordance with local regulations.
The County shall assist the Consultant in obtaining access onto private property as necessary to conduct the Preliminary Contamination Assessments.

The approximate area of potential construction contamination impacts shall be crosshatched on the plan view of the roadway and labeled as "Approximate Limits of Potential Contamination Area." The following issues shall be addressed in the plans, details and/or specifications:

- Type of contamination.
- Specific Contractor responsibilities (dewatering, disposal of contaminated soils, etc).
- Special permitting requirements and constraints.

### 7.7 Geotechnical Reports

#### 7.7.1 Roadway Soil Survey Report
The Consultant shall submit a preliminary Roadway Soil Survey Report with the 60% plans and a final report with the 90% plans. The preliminary and final Roadway Soil Survey Reports shall include the following:

- A report of tests sheet (i.e. Roadway Soil Survey sheet) that summarizes the laboratory test results, the soil stratification (i.e., soils grouped into layers of similar materials) and construction recommendations relative to FDOT Standard Indices 500 and 505.
- Data interpretation and analysis including a Design LBR, seasonal high groundwater levels for roadway base clearance, aquifer parameters for stormwater systems and volume recovery analysis, limits of unsuitable material and removal recommendations, magnitude and time rate of embankment settlement, calculation of factor of safety for embankment slope stability, and embankment construction recommendations.
- Determination of seasonal high water shall consider proposed improvements impacting existing hydrological features, and identifying impacts to adjacent properties, including existing septic systems.
- An Appendix that contains stratified soil boring profiles, laboratory test data sheets, sample embankment settlement and stability calculations, design LBR calculation/graphs, and other pertinent calculations.

#### 7.7.2 Bridge Foundation Report
The Consultant shall submit preliminary and final Bridge Foundation Reports. The preliminary Bridge Foundation Report shall include the following:

- Copies of the U.S.G.S. and S.C.S. maps with project limits shown.
- Data interpretation and analysis including soil and rock classification, design groundwater level for structures, evaluation and selection of foundation alternatives such as spread footings, pre-stressed concrete piling, steel H and pipe piles and drilled shafts.
- Soil D$_{50}$ values for scour calculations.
- Soil and/or water corrosion data for substructure environmental classification.
- An Appendix which includes SPT boring profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, a complete FHWA check list, pile driving records (if available) and any other pertinent information.

The detailed analysis and basis for the selected foundation alternative shall include the following:

- For pile and drilled shaft foundations, provide graphs of ultimate aciaI soil resistance versus tip elevations. Scour resistance and/or downdrag (negative skin friction) shall be calculated, if applicable.
- Provide the design soil profile(s), including the soil model/type of each layer and all soil-engineering properties required to run the FBPIer computer program. Review lateral analysis of the selected foundation for geotechnical compatibility.
- Bearing capacity for shallow foundations (including soil bearing capacity, minimum footing width, and minimum embedment depth) shall be given.
- The maximum driving resistance anticipated for pile foundations shall be estimated.
- Settlement analysis of foundation systems shall be provided.

In addition to the information included in the preliminary Bridge Foundation Report, the final Bridge Foundation Report shall include the following:

- A detailed analysis of the foundation system selected in the BCR, including test pile lengths, scour resistance, downdrag, minimum tip elevation, etc.
- Recommendations for foundation installation, or other site preparation soils-related construction considerations.
- Special provisions required for construction that are not addressed in the FDOT Standard Specifications.

### 7.7.3 Miscellaneous Structure Foundation Report

The Consultant shall prepare a Miscellaneous Structure Foundation Report to cover traffic signal and sign supports, box culverts and walls. The report shall include the following:
Data interpretation and analysis including design soil profiles(s) that include the soil model/type of each layer and all soil properties required for foundation design, lateral earth pressure coefficients, estimated differential and total (long term and short term) settlements, wing wall stability evaluation, external stability of conventional and retained earth wall systems, soil parameters used in analysis for retained earth wall systems and minimum soil reinforcement lengths versus wall heights, sheet pile wall analysis, and a review of the design for geotechnical compatibility and constructability.
Recommendations for foundation installation, or other site preparation soils related construction considerations.
An Appendix which includes SPT boring profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, and any other pertinent information.

7.7.4 Contamination Screening Report
The updated Contamination Screening Report shall identify all potential contamination impact sites and shall rank them with their risk potential. A discussion of the available information about the contamination issues at each site shall be provided. Recommendations for further Preliminary Contamination Assessment evaluation shall be made. The report shall follow the format outlined in Chapter 22 of the FDOT Preliminary Design and Environment Manual.

7.7.5 Preliminary Contamination Assessment Report
The Preliminary Contamination Assessment Report shall fully describe the contamination concerns at each site, and shall discuss the sampling and testing methodologies used and the findings. The following information shall be presented in the report:

- Site location map on an aerial photo background
- Background information relative to known or suspect contamination issues (e.g., plume maps, groundwater flow direction maps, etc.)
- Sampling and testing locations map
- Sampling and testing results
- Conclusions relative to contamination impacts affecting the project, including potential costs during construction

7.8 Deliverables
- Roadway Soil Survey Report (Preliminary and Final)
7.9 Pay Items

- Fieldwork, lab analysis and engineering
- Roadway Soil Survey Report (Preliminary and Final)
- Bridge Foundation Report (Preliminary and Final)
- Miscellaneous Structures Foundations Report
- Updated Contamination Screening Evaluation Report
- Preliminary Contamination Assessment Report

8.0 Railroad Coordination

This project includes (expansion of an existing at-grade railroad crossing or (grade separated railroad crossing) or (a new railroad crossing) with the ______ Railroad. The Consultant will be responsible for all coordination with the ______ Railroad, including preparation of all documentation as necessary to secure the FDOT railroad crossing permit and/or Railroad agreements. The following activities may be necessary:

- Confirmation of railroad criteria as may affect the project.
- Coordinate signal interconnects with Railroad.
- Meetings and miscellaneous coordination with the ______ Railroad and existing utilities within the railroad right-of-way.
- Preparation of studies as may be necessary to support the project design (at-grade crossing versus grade-separated, reference Florida Administrative Code Section 14-57).
- FDOT permit application preparation and follow-up as necessary where applicable.
- Inclusion of agreement conditions into plans, specifications and/or technical provisions.
- Pipeline and/or wireline crossing agreements.

Orange County shall execute permits and agreements and shall pay any fees associated therewith. It is anticipated the ________ Railroad will prepare the design of all facilities to be owned by the Railroad.

8.1 Deliverables

- FDOT permit application.

8.2 Pay Items

- FDOT permit application.
- Railroad coordination.
9.0 Post Design Services

- **Shop Drawing Review**
  The Consultant shall provide engineering services to complete a shop drawing review for bridge and structural component submittals.

- **Construction Administration**
  The Consultant shall provide engineering services during the construction of the project as requested by the County. The Consultant may be required to attend a Pre-Bid Construction Meeting and the Pre-Construction Conference.

- **Modification of Final Construction Plans**
  Consultant shall update and modify the final Construction Plans as may be necessary to reflect changes in proposed improvements identified after submittal of the 100% plans. The consultant shall provide signed and sealed copies of the updated final construction plans. Additional signed and sealed copies of the final construction plans, or portions thereof, shall be provided during the completion of the right-of-way acquisition process, as requested by the County. Plans may require revisions until the completion of the right-of-way acquisition process.

- **Permit Renewals and Extensions**
  Consultant will be responsible for renewals and extensions of the permits as requested by the County.

- **Pay Items**
  - Post Design Services
## TABLE OF DELIVERABLES

### 1.0 Administration

- **Final Design Project Schedule** – Paper, Digital File & pdf File
- **Construction Time Estimate** – Paper, Digital File & pdf File
- **Workshop Review Meeting Minutes** Paper & pdf file

### 2.0 Public Involvement

- **Public Involvement Plan** – Paper, Digital File & pdf File
- **Small Group Meeting Materials** As required

### 3.0 Design and Plans Preparation

- **Preliminary Drainage Calculations** – Paper & Digital pdf File
- **Final Drainage Calculations** (Signed & Sealed & pdf File)
- **Roadway Design Criteria Package** (Paper & pdf File)
- **Typical Section Package** (Paper & pdf File)
- **Pavement Design Package** (Paper & pdf File)
- **30%, 60%, 90% & 100% Cost/Engineers Estimate** – Paper
  - 3 Copies
- **Final Cost/Engineers Estimate** – Paper, Digital File & pdf File
- **Design Notes and Computation Book**
- **Quantity Computation Book**
- **Draft Schedule of Prices and Technical and Special Provisions** – Paper & MS Word File
- **Final Schedule of Prices Technical and Special Provisions** – Paper & MS Word File
- **Electronic Bid Document Package**
- **Final Electronic Design and Topography files** (ACAD 2010 & Microstation)
- **Environmental Consideration Plans** – Paper, Digital File & pdf File
- **Draft Bid Package** – Paper, Digital file
- **Final Bid Package** – Paper, Digital File, pdf File

### 3.0 A - Construction Plans

- **30% Submittal** – Paper, Half Sized
  - 1/10 Copies
- **60% Submittal** – Paper, Half Sized
  - 4/19 Copies
- **90% Submittal** – Paper, Half Sized
  - 4/18 Copies
- **100% Submittal** – Paper, Half Sized
  - 4/18 Copies

### 3.0 B - Final Construction Plans

- **Hard Copy** – Paper, Half Sized
  - 25 Copies
- **Hard Copy** – Paper, Half Sized (Signed and Sealed)
  - 3 Copies
Digital Files – AutoCAD 2010, Microstation & pdf Files 1 Copy each

4.0 Permitting

<table>
<thead>
<tr>
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<tr>
<td>Water Management District/ACOE Permit Package (Paper &amp; pdf File)</td>
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<td>Alternatives Wetland Mitigation Concepts Report (Paper &amp; pdf File)</td>
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<tr>
<td>RCID Permit Application Package(s) (Paper &amp; pdf File)</td>
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<tr>
<td>N.P.D.E.S. Pollution Prevention Plan (Paper &amp; pdf Files)</td>
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5.0 Right-of-Way Engineering

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<tr>
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</tr>
<tr>
<td>Final Sketches and Legal Descriptions (Signed and Sealed) (Hard copy, Digital)</td>
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<tr>
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<td>Original Books</td>
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<td>3/1 Copies</td>
</tr>
<tr>
<td>Right-of-Way Computation Book</td>
<td>1 Copies</td>
</tr>
<tr>
<td>Parcels Staked in Field for Appraisal</td>
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</tr>
<tr>
<td>Minimization Of Compensable Impacts Report (Paper &amp; pdf File)</td>
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<tr>
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5.0 A - Preliminary Right-of-Way Maps

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<td>90% Submittal – Paper, 11” X 17” Sized</td>
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</tr>
<tr>
<td>100% Submittal – Paper, 11” X 17” Sized</td>
<td>1/3 Copies</td>
</tr>
</tbody>
</table>

5.0 B - Final Right-of-Way Maps

| Hard Copy – Paper, 11” X 17” Sized (Signed and Sealed)                           | 3 Copies     |
| Digital Files – AutoCAD 2016 & pdf Files                                         | 1 Copy each  |

5.0 - Updated/Modified Right-of-Way Maps (Each Modification Cycle)

| Hard Copy – Paper, 11” X 17” Sized                                              | 3 Copies     |
| Hard Copy – Paper, 11” X 17” Sized (Signed & Sealed)                            | 3 Copies     |

6.0 Design Survey Services

| Design Survey Field Books (Signed and Sealed)                                    | All          |
| Books                                                                             |              |

Final Design
Scope of Services
March 2017
Original Books
Raw Data Files – Paper & Digital File
Design Survey Computation Book

7.0 Geotechnical Services

Final Preliminary Roadway Soil Survey Report (including ponds and swales) 3 Copies
Roadway Soil Survey Report (including ponds and swales)(S & S) 3 Copies
Miscellaneous Structure Foundation Report 3 Copies
Updates Contamination Screening Report 3 Copies
Preliminary Contamination Assessment Report 3 Copies
Box Culvert Report (If Required) (Signed & Sealed) 3 Copies
Mast Arm Signal Pole Report (Signed & Sealed) 3 Copies
Retaining Walls Report (Signed & Sealed) 3 Copies
Exhibit H

Biennial Monitoring Process for External Trips

(1 page)
A. Developer will commence biennial monitoring of the gross daily trip-end generation potential for all approved building permits five years following the effective date of the Sunbridge PD-RP. The gross trip-end generation calculations shall be based upon the then current Trip Generation Manual as published by the Institute of Transportation Engineers and presented in a ledger format, clearly indicating the gross trip end generation potential for all approved building permits, to the County. In the event the biennial reporting ledger indicates more than 70,673 gross daily trip ends are being generated by development within the Sunbridge PD-RP, the Owners shall prepare a monitoring study to refine site-specific trip end generation potential and internalization rates of the development. The scope of the monitoring study shall: 1) quantify total daily and peak hour traffic volumes entering and departing Sunbridge PD; 2) quantify the proportion of peak hour traffic using roadways with access to Sunbridge PD; and 3) quantify internal and external trip end generation of the occupied development. The methodology for the monitoring shall be approved in advance by the County Transportation Planning Division, and the results of the monitoring shall be provided to the County.

B. In the event the monitoring study indicates fewer than 63,606 (90% of 70,673) annual average daily next external vehicle trips are being generated by development within the Sunbridge PD-RP, exclusive of other development within the geographic area encompassed by the Sunbridge PD-RP, the Owners and the County shall agree to the time period or development threshold at which another monitoring study shall be completed.

C. In the event annual monitoring indicates that more than 63,606 annual average daily net external vehicle trips are being generated by development within the Sunbridge PD-RP, exclusive of other development within the geographic area encompassed by the Sunbridge PD-RP, the Owners shall commence negotiations with the County and thereafter enter into a concurrency agreement with the County to mitigate the impacts of development of the Sunbridge PD-RP beyond the vested 70,673 net external trips on the external roadway network.
Exhibit I
Lake Mary Jane Road Exhibit
(1 page)
# Exhibit J - Development Thresholds

<table>
<thead>
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<th>Needed Improvement</th>
<th>Approximate Percentage of Buildout Development Program</th>
<th>Annual Average Daily Net External Vehicle Trip Ends Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunbridge Parkway to Innovation Way South (Segments 1 and 2)</td>
<td>25%</td>
<td>25,498</td>
</tr>
<tr>
<td>Sunbridge Parkway from Innovation Way South to Osceola County (Segments 3a, 3b, and 4)</td>
<td>31%</td>
<td>32,474</td>
</tr>
<tr>
<td>Widen Sunbridge Parkway Segment 1 from 2LU to 4LU</td>
<td>40%</td>
<td>40,800</td>
</tr>
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Appendix B

Public Involvement Documents - Newsletters
Sunbridge Parkway STUDY

Public Meeting

Orange County Transportation Planning Division has initiated a Preliminary Design Study for Sunbridge Parkway from south of Aerospace Parkway/Dowden Road to the Orange/Osceola County line. The purpose of this study is to assess current and future travel demand in the area and identify roadway improvements along this corridor.

We invite you to attend the public meeting to review the improvement concept that is under consideration. The meeting is scheduled for **Thursday, November 30 in the cafetorium at Lake Nona Middle School, located at 13700 Narcoossee Road, Orlando, Florida, from 6:00 - 7:00 p.m.**

The meeting will begin with an open house at 6:00 p.m. At 6:15 p.m. there will be a formal presentation followed by a question-and-answer forum. Aerial maps, potential improvements and other project-related information will be available for your review and comment. The Orange County Study Team will be available to discuss the project and answer any questions. Meeting information will also be posted on the County’s website.

Visit our website for more information! www.ocfl.net/TrafficTransportation/TransportationProjects
Public participation is solicited without regard to race, color, national origin, age, sex, religion, income density, or familial status. Persons who require language translation or interpretation services, which are provided at no cost, should contact Ricardo Daye, Orange County Title VI/Nondiscrimination Coordinator at 407-836-5825 or by email at Ricardo.daye@ocfl.net at least seven (7) days prior to a meeting. Persons requiring special accommodations under the Americans with Disabilities Act of 1990 (ADA) may request assistance from Dianne Arnold, the County ADA Coordinator, at 407-836-7588 or Dianne.arnold@ocfl.net at least seven (7) days prior to a meeting.
Carretera Sunbridge
ESTUDIO

Reunión Pública
La Dirección de Planificación Vial del Condado de Orange ha iniciado un Estudio de Diseño Preliminar para extender la Carretera Sunbridge desde el cruce de la Carretera Aerospace con la Calle Dowden hasta la colindancia con el Condado de Osceola. El propósito del Estudio es de evaluar la demanda actual y futura de tránsito en la zona e identificar mejoras viales que se requieran a lo largo de esta ruta.

Invitamos al público a la Reunión Pública para conocer el concepto de mejora bajo análisis. La Reunión se celebrará el **jueves 30 de noviembre en el comedor de la Escuela Intermedia Lake Nona, ubicada en 13700 Narcoossee Road en Orlando, desde las 6:00 hasta las 7:00 p.m.**

La Reunión empezará con recepción abierta a partir de las 6:00 p.m. A las 6:15 habrá una presentación formal, seguida por un foro de pregunta y respuesta. Habrá mapas aéreos, croquis de las mejoras propuestas y otro material sobre el Proyecto para su revisión y comentario. El Equipo a cargo del Estudio estará presente para explicar el Proyecto y responder preguntas. Asimismo, se publicará información sobre la Reunión en el sitio web del Condado.

Boletín
Edición No. 1 | Noviembre 2017

De parte de la Alcaldesa Teresa Jacobs y la Comisionada del Distrito 4 Jennifer Thompson, el Condado de Orange se complace en seguir informando sobre el Estudio de Diseño Preliminar de la Carretera Sunbridge.

Manténgase Informado(a)
La participación del público es un componente clave del Estudio. Por eso el Condado ha programado una Reunión Pública para informar y recibir comentarios de los interesados y del público en general.

Reunión Pública
**Jueves 30 de Noviembre**
6:00 – 7:00 p.m.
(Presentación a las 6:15 p.m.)
Escuela Intermedia Lake Nona
(Comedor Escolar)
13700 Narcoossee Road
Orlando, Florida

Audiencias Públicas
Se espera celebrar Audiencias Públicas ante la Dirección de Planificación y la Junta de Comisionados del Condado durante el último trimestre del 2017 y el primer trimestre del 2018.

¡Visite nuestro sitio web para mayor información! www.ocfl.net/TrafficTransportation/TransportationProjects
¡Comuníquese con nosotros para informarse!
www.ocfl.net

Blanche Hardy, PG
Directora de Proyectos
Condado de Orange
Dirección de Planificación Vial
4200 South John Young Parkway
Orlando, FL 32839
Teléfono: 407-836-0257
Correo Electrónico: blanche.hardy@ocfl.net

Esther Fernández Cañizares
(en español)
Ingeniera II
Condado de Orange
Dirección de Ingeniería
4200 South John Young Parkway
Orlando, FL 32839
Teléfono: 407-836-7982
Correo Electrónico: Esther.Fernandez@ocfl.net

La participación queda abierta a todos, sin restricciones por raza, color, origen nacional, edad, género, religión, ingreso, discapacidad o estado familiar. Las personas que requieran servicios de interpretación o traducción (los cuales se ofrecen libre de cobro) deben comunicarse con Ricardo Daye, Coordinador del Programa de No Discriminación Título VI, al teléfono 407-836-5825 ó bien por correo electrónico a: ricardo.daye@ocfl.net por lo menos siete (7) días antes de la Reunión. Las personas que requieran acomodo especial de conformidad con la Ley para Norteamericanos con Discapacidad (ADA) pueden solicitar asistencia con la Coordinadora ADA del Condado Dianne Arnold, al teléfono 407-836-7588 ó bien por correo electrónico a: dianne.arnold@ocfl.net por lo menos siete (7) días antes de la fecha de la Reunión.
Appendix C

Public Involvement Documents -
Advertisements
PUBLIC NOTICE
SUNBRIDGE PARKWAY STUDY PUBLIC MEETING

You are invited to attend a public meeting to review and discuss the extension of Sunbridge Parkway from south of Aerospace Parkway/Dowden Road to the Orange-Osceola County line. The meeting agenda will focus on the improvement concept developed by the study team.

Public Meeting Scheduled
To ensure that you have the opportunity to review the improvement concept that is under consideration, we invite you to attend the Public Meeting scheduled for Thursday, November 30, 2017 in the cafetorium at Lake Nona Middle School, located at 13700 Narcoossee Road, Orlando, Florida from 6:00 p.m. to 7:00 p.m. The meeting will begin with an open house at 6:00 p.m. There will be a formal presentation at 6:15 p.m. followed by a question-and-answer forum. Aerial maps, potential improvements and other project-related information will be available for your review and comment. Orange County staff will be available to discuss the project, and we encourage you to share your interests and concerns regarding the development of the Sunbridge Parkway.

Should you have any questions or need additional information, please contact:
Blanche Hardy, P.G., Project Manager
Orange County Community, Environmental and Development Services Department Transportation Planning Division.
Phone: 407-836-0257
Email: blanche.hardy@ocfl.net

Para informacion en Español, llame a:
Esther Fernández Cañizares
Engineer II
Orange County Public Works Department Engineering Division
Phone: 407-836-7982
Email: esther.fernandez@ocfl.net

Public participation is solicited without regard to race, color, national origin, age, sex, religion, income, disability or familial status. Persons who require language translation or interpretive services, which are provided at no cost, should contact Ricardo Daye, Orange County Title VI/Nondiscrimination Coordinator, at 407-836-5825 or at ricardo.daye@ocfl.net at least seven (7) days prior to the meeting. Persons requiring special accommodations under the Americans with Disabilities Act of 1990 (ADA) may request assistance may contact Dianne Arnold, the County ADA Coordinator, at 407-836-7588 or at dianne.arnold@ocfl.net at least seven (7) days prior to the meeting.

www.ocfl.net
AVISOS PUBLICOS

REUNION PUBLICA SOBRE EL ESTUDIO DE LA CARRETERA SUNBRIDGE

Se le invita a la Reunión Pública para analizar y discutir la extensión de la Carretera Sunbridge desde el cruce de la Carretera Aerospace con la Calle Dowden hasta la colindancia con el Condado de Osceola. La agenda de la Reunión se enfocará en la propuesta de mejora vial desarrollada por el equipo del Estudio.

Reunión Pública Programada
Para brindarle al público la oportunidad de conocer la propuesta de mejora vial bajo análisis, les invitamos a la Reunión Pública a celebrarse el jueves 30 de Noviembre del 2017 en el Comedor de la Escuela Intermedia Lake Nona, ubicada en 13700 Narcoossee Road en Orlando, desde las 6:00 hasta las 7:00 p.m. La Reunión empezará con recepción abierta a partir de las 6:00 p.m. A las 6:15 habrá una presentación formal, seguida por un foro de preguntas y respuestas. Habrá mapas aéreos, croquis de las mejoras propuestas y otro material sobre el Proyecto para que el público pueda informarse y ofrecer sus comentarios. Personal del Condado de Orange estarán presentes para conversar sobre el Proyecto, por lo que le invitamos a compartir sus criterios e inquietudes sobre el desarrollo de la Carretera Sunbridge.

La participación queda abierta a todos, sin restricciones por raza, color, origen nacional, edad, género, religión, ingreso, discapacidad o estado familiar. Las personas que requieran servicios de interpretación o traducción (los cuales se ofrecen libre de cobro) deben comunicarse con Ricardo Daye, Coordinador del Programa de No Discriminación Título VI, al teléfono 407-836-5825 o bien por correo electrónico a: ricardo.daye@ocfl.net por lo menos siete (7) días antes de la Reunión. Las personas que requieran acomodo especial de conformidad con la Ley para Norteamericanos con Discapacidad (ADA) pueden solicitar asistencia con la Coordinadora ADA del Condado, Dianne Arnold, al teléfono 407-836-7588 o bien por correo electrónico a: dianne.arnold@ocfl.net por lo menos siete (7) días antes de la fecha de la Reunión.
Appendix D

Public Involvement Documents –
Small Group Meeting No. 1
Small Group Meeting  
Lake Mary Jane Alliance (LMJA) and Orange County  
Summary of Discussions  

Friday, November 10, 2017 at 1:30 p.m. at the Offices of Tavistock Development Company

Attendees:  
Colonel Bruce Johnson – Lake Mary Jane Alliance  
Suzanne Arnold – Lake Mary Jane Alliance  
Sharon Robbins – Lake Mary Jane Alliance  
Blanche Hardy – Orange County Public Works  
Brian Sanders – Orange County Public Works  
Jerald Marks, Jr. – Orange County Public Works  
Renzo Nastasi – Orange County Public Works  
Richard Levey – Tavistock Development Company  
Lance Jackson – Tavistock Development Company  
Cristyann Courney – Tavistock Development Company  
Jeff Newton – Donald W. McIntosh Associates, Inc.  
Dale Dowling – Breedlove, Dennis & Associates

Jeff Newton gave an overview of the project and discussed the north-south transportation corridor parallel to Narcoossee Road. Mr. Newton stated that the primary purpose of the Parkway is to provide connectivity between the two lobes of Sunbridge. The Parkway may not provide relief to Narcoossee Road but will help avoid challenges that would be created by increased traffic as the area develops.

Mr. Newton described that the Road is divided into several segments. Segment 1 is under design and not a part of this study. The Segment 1 plans are currently in the 60% plan review stage and are progressing toward 90% design completion. Segment 1 supports initial development of the Sunbridge project.

This Study covers Segments 2 - 4. The segments are shown on the map and are briefly described as being rural or urban and 2 lane or 4 lane.

Sharon Robbins stated that it is very important that all or at least portions of the 2-lane to 4-lane roadway in Segment 4 be elevated. Her stated concern was that putting in a 2 lane in a rural area would result in drag racing and animal poaching.

Jeff Newton gave an overview of the neighborhood/primary land areas on the overview map, including surrounding communities in proximity to Sunbridge Parkway, and introduced the Design Goals:

- Environmental Protection
- Wildlife Accommodation
- Drainage Accommodation
- Water Quality Protection
• Pedestrian Accommodation - trail extending southerly from the T4/T5 transects into Osceola County.

The first two goals go hand in hand.

The Corridor Constraints that influenced the recommended roadway alignment are as follows:
• End of Segment 1
• FGT gas transmission main
• OCU potable water main and wastewater force main
• TECO gas distribution main
• Narrow windows of common property ownership
• City of Cocoa well sites
• Environmental land stewardship program constraints
• Innovation Way South generalized alignment per Orange County and the approved Camino Reale regulating plan (not a final alignment)
• Avoid encroachment into the Holland Ranch property
• Minimize impact to FRI ranch operations
• Alignment with the proposed roadway extension into the Northeast District (NED) in Osceola County based on the Osceola County approved Sunbridge Concept Plan
• Geometric and other design constraints based on FDOT design criteria for maximum curvature, design speed, etc.

Breedlove, Dennis & Associates (BDA) is the environmental consultant for the design team. BDA also participated heavily in the development of Orange County’s Environmental Land Stewardship Program, including provisions for wildlife accommodation.

Dale Dowling of BDA showed the areas where wetlands were avoided and pointed out field roads and environmental corridors to the east as well as intra-project corridors. Wildlife crossings are areas that interconnect the preserved areas. The crossings and corridors shown in the recommended improvement concept are based on the historical knowledge of BDA concerning the environmental conditions throughout the corridor.

The proposed wildlife crossings are not designed as elevated crossings as they are intended to accommodate small wildlife. Large wildlife, like deer, generally do not use underground crossings. A wildlife crossing typically consists of three pipes: one is wet and is intended to accommodate both wildlife and drainage and the other two are located at or near the wetland/upland interface and designed as dry crossings.

There was not a general agreement about the location of the corridors. Mr. Robbins suggested that the roadway should be elevated adjacent to the slough.

Mr. Nastasi stated that the design speed and design requirements restrict what can be done. There was discussion of the road alignment entering the rural service area, where modifying the entry angle would likely cause more of an impact on the environmentally sensitive areas.
Ms. Robbins believes that roadway not being elevated guarantees more accidents and hitting deer. It was also suggested by Ms. Robbins that the lower the speed limit the better, which would reduce accidents. She also suggested that the alignment to be pushed to the East. Mr. Newton observed that the narrowest separation from slough is approximately 125 feet. Mr. Nastasi asked the LMJA representatives what is the acceptable distance? The response was that Charles Lee said it has to be elevated if it is near the slough.

Mr. Nastasi stated that elevating the 2.5 miles of road jeopardizes the project. He then inquired regarding a possible accommodation/compromise, asking what is the acceptable distance that LMJA/Charles Lee have identified? This was asked with the caveat of working with the geometry of the road, design speed, etc.? Ms. Arnold said that they did not have an answer for that, and did not believe Charles Lee did either.

Ms. Robbins raised concern regarding flooding; however, the County assured her that appropriate drainage will be required. Mr. Johnson said that he was comfortable with the drainage.

Mr. Nastasi inquired whether the primary issue was the animal crossings, to which Ms. Robbins responded with their concern that if the slough is flooding, animals will be trudging through 3-4 feet of water and crossing over the road rather than through the culverts.

Ms. Arnold questioned the purpose behind the proximity to the slough and whether it was related to cattle operations. Mr. Newton replied that that was one of the primary considerations.

Mr. Nastasi observed that being closer to the slough would lend to a safer crossing because animals are naturally driven to the crossing points by design. The road is being designed along somewhat of a natural ridge.

Mr. Newton indicated that they have only shown corridors/culverts without size because the design is not to that point yet. There could be various types of culverts. The actual crossing designs will be addressed with final roadway design when more detailed wildlife studies are undertaken.

LMJA desire is to be able to see animals as they approach. Mr. Levey offered the example of the culvert constructed by Tavistock under Narcoossee Road as a demonstration of what can be accommodated. LMJA suggested that larger alternatives be considered. The impact of such larger crossings on the design of the road would be determined with final design.

Ms. Robbins asked that Charles Lee weigh in on proximity to the slough similar to what was done with Wekiva Parkway. Mr. Nastasi observed that this roadway is not similar to the Wekiva Parkway.

Ms. Arnold suggested a site visit. Mr. Levey said we can tour the project with proper notice and permission. Mr. Dowling stated that he has previously toured the project.

Mr. Nastasi stated the need to focus on whether the concern is proximity to slough or wildlife crossings. Mr. Newton observed that wildlife would likely remain near the edge of that slough because it is dense and safe.

Mr. Newton described the typical roadway cross sections, which include a trail between the road and slough. He then discussed the 2 lane cross-section, 4 lane cross-section and bike lanes. The trail is
concrete within the County right-of-way and transitions to asphalt when it leaves the right-of-way and is located in an easement.

The County intends to provide street lights along the urban portions of roadway. A determination will need to be made along the rural segments.

Barbed wire fence will be built with the initial rural sections, but will be removed as portions of the road transition from rural to urban since ranching operations will be displaced by urban development.

Segment 4 (rural) will have 12 foot wide travel lanes both directions. Buffered bike lanes will be 7' wide with and an adjacent shoulder. Mr. Levey asked that we do not lose sight of what we are trying to accomplish with the road. It is not just for carrying cars. The trail is an integral part of the character of the roadway. These aspects are placemaking. Mr. Nastasi stated that this concept is consistent with what is going to take place on Innovation Way and that there is also a potential for a transit corridor. A 40' wide median is provided in order to accommodate future transit technology.

Mr. Nastasi stated that the road must be designed for the anticipated travel speed with the proper geometry. Design speed is also influenced by surrounding land uses. Mr. Nastasi anticipates that the road will not be posted at 60 mph but may be posted at 45-50 mph. Hitting a deer at any of those speeds will result in the same outcome. The first priority is safety and design is based on FDOT criteria. Safety will continue to be evaluated as the road becomes used. Predictions and crash patterns will be used to implement measures to minimize crashes. The County will be focused on safety and performance.

Mr. Newton observed that roadway design will accommodate proper drainage and that detailed wildlife studies will be completed at the time of final design. The preliminary estimate of construction costs will not include an elevated bridge crossing the slough. It ultimately comes down to what will be required by the permitting agencies. Any impacts will have to be mitigated.

Potential mitigation options were discussed. Mr. Dowling provided two options: the TM Econ Mitigation Bank (just next door) or placement of the slough under conservation easement.

Ms. Arnold expressed concern over the lack of a bridge over the slough at the south point. Mr. Newton and Mr. Dowling pointed out that culverts, box culverts, etc. can be utilized to accommodate the drainage and wildlife needs, but a bridge is not currently envisioned by the design team.

Mr. Levey asked if Mr. Dowling would share materials on what options would work and be effective as wildlife crossings. Mr. Dowling stated that a series of culverts is in effect a “bridge.” Mr. Levey will include Liz Johnson (Orange County Environmental Protection Division) in the field trip to tour the property.

Both Water Management Districts, Orange County Environmental Protection Division, the U. S. Army Corps of Engineers, Florida Fish & Wildlife Conservation Commission, U. S. Fish and Wildlife Service, Florida Department of Environmental Protection, Donald W. McIntosh Associates, and Breedlove, Dennis & Associates have all been involved in the discussions regarding alignment, drainage, etc.
Appendix E

Public Involvement Documents –
Public Information Meeting
MEETING MEMORANDUM

DATE: December 4, 2017
TO: File, Distribution List
FROM: Jeffrey J. Newton, P.E.
RE: Sunbridge Parkway Preliminary Design Study

A Public Meeting was held on November 30, 2017 at 6:00 p.m. at the Lake Nona Middle School Cafetorium located at 13700 Narcoossee Road in Orlando.

The Orange County Study Team was in attendance as follows:
- Blanche Hardy, PG, Project Manager, Orange County Transportation Planning Division
- Brian Sanders, Orange County Transportation Planning Division
- Cathy Evangelo, Orange County Public Works Division
- Ian Phyars, Orange County Public Works Division
- Cedric Moffett, Orange County Parks & Recreation Division
- Richard Levey, Tavistock Development Company
- Lance Jackson, Tavistock Development Company
- Clint Beaty, Tavistock Development Company
- Patrice Ragusa, Tavistock Development Company
- Jeffrey Newton, Donald W. McIntosh Associates, Inc.

The Public Sign-In Sheets are attached.

An open house commenced at 6:00 p.m. with the public being urged to sign-in, fill out a speaker request card if they would like to speak and to take a public comment form to fill out and put in the comment box or to mail in. The public was also asked to review the display boards of the Sunbridge Parkway project. At 6:15 p.m., Blanche Hardy introduced the Study Team as well as Commissioner Jennifer Thompson who was in the audience. Ms. Hardy then presented an overview of the Sunbridge Parkway project using a power point presentation.

A question and answer forum followed the presentation:

Q. Robert Hoppenfeld asked about the wildlife crossings issue, where are they and where could he find the standards? He asked about reassurances in the next 20 years from the Developer to protect the area.

A. The wildlife crossings will remain in the same places as they are now. Tavistock is required to go through the permitting process and meet all requirements. There are Developer Agreements that are put in place and a Regulating Plan that has to be followed. For any modification to happen from this plan, in the future, you have to go through a public hearing process and a Board of County Commissioners meeting to vote on any change.
Q. Bob MacLeod said that he has lived in the area for twenty (20) years and the traffic has become terrible. SR 417 gets backed up to Lee Vista and Narcoossee Road is going to look like Colonial. He believes the road will be over capacity and we should have four (4) lane from the start. He thinks we are underestimating the traffic.
A. None required.

Q. Mike Knox from the Moss Ridge Homeowners Association asked about Innovation Way South, the connector and how the traffic count is determined.
A. A traffic study has been done and will be put on the Orange County website. DWMA working on finalizing the report, which includes the traffic study.

Q. David Bottomley asked about the bike lanes /trails that are being put in since this is a major arterial.
A. Sunbridge Parkway is not a major arterial. It will include four travel lanes, 14 trail, 10’ multiuse path and 7 ft bike lanes on both sides.

Q. Suzanne Arnold from Lake Mary Jane Alliance stated that they have been meeting with Tavistock, Orange County and the Design Study Team on this project. They are still working on things, but it is actually pretty good. She likes that it is two lanes and the bike path. She also said that they would like Tavistock to have the area between the road and the slough be a preservation area. Suzanne said she will be sitting outside of the doors after the meeting to talk to people and answer any questions that they may have to help everyone understand the project.

Other miscellaneous questions from the public were as follows:

Q. Will the power point slide presentation shown be posted on the Orange County website?
A. Yes it will be posted online in the Orange County Transportation Planning Division.

Q. How is it determined if the road is 2 lanes or 4 lanes? And how is it funded?
A. Blanche Hardy said they have a formula that determines how many lanes and it is mostly based on the traffic study done. Richard Levey said that the first two lanes will be built by the Developer and the 3rd and 4th lanes will likely be by a combination of Developers, but likely would not be needed for 15 years.

Blanche Hardy thanked everyone for attending the Community Meeting and urged people to fill out the public comment forms.

JJN/lt/enclousures
c: Blanche Hardy
   Brian Sanders
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Community Meeting Location: Lake Nona Middle School, Cafetorium, 13700 Narcoossee Road, Orlando, Florida 32832
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Sunbridge Parkway
Preliminary Design Study
Aerospace Parkway / Dowden Road to Orange / Osceola Line

**Sign-In Sheet**

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Community Meeting Location: Lake Nona Middle School, Cafetorium, 13700 Narcoossee Road, Orlando, Florida 32832

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January 11, 2017

Dale and Cindy Vaughn
13507 Lacebark Pine Road
Orlando, FL 32832

Re: Community Meeting
Sunbridge Parkway Preliminary Design Study (PDS)
Segments 2 through 4

Dear Mr. and Mrs. Vaughn:

Thank you for attending the community meeting regarding the proposed Sunbridge Parkway on Thursday, November 30, 2017 and for providing your comments and input on the project. In your comment form you expressed concern about how the presence of wildlife will be maintained and how roadway noise will be managed.

Wildlife
The conceptual Parkway plan includes the addition of three wildlife roadway crossings that correspond to existing wildlife crossing pathways within the project area. These crossing will allow wildlife to continue to occupy the habit they currently use, as well as maintain an existing connection to the regional wildlife corridor along the Saint Johns River. The study criteria, County Comprehensive Plan and Land Stewardship Program governing both the roadway and associated development require the use of least valuable environmental lands for infrastructure. These measures support both existing and future wildlife.

Roadway Noise
The currently proposed location of the Parkway will allow noise to be mitigated by the presence of Roberts Island Slough. Trees and understory vegetation

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TRANSPORTATION PLANNING DIVISION
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4200 S. John Young Parkway, 2nd Floor ■ Orlando FL 32839-9205
Telephone 407-836-8072 ■ FAX 407-836-8079 ■ Renzo.Nastasi@ocfl.net
buffer roadway noise. The cone of audible noise increases with distance from a buffer. Proximity to the slough will help alleviate noise.

Your feedback is important and your comments have been included in the project documentation. If you have any questions or concerns, please contact me by phone or email at (407) 836-0257 or blanche.hardy@ocfl.net. Again, thank you for your involvement with this project.

Sincerely,

Ms. Blanche Hardy, P.G.
Principal Planner, Transportation Planning Division

cc: Renzo Nastasi, AICP, Manager, Transportation Planning
Brian Sanders, Chief Planner, Transportation Planning
Jerald Marks, Jr., Assistant Project Manager, Transportation Planning
Jeffrey J. Newton, P.E., Donald W. McIntosh Associates, Inc.
File

Enclosure: Written Comment

BH/am
Sunbridge Parkway
Preliminary Design Study
Aerospace Parkway / Dowden Road to the Orange / Osceola Line

Public Comment Form

Name: Dale & Cindy Vaughan
Phone: 407 275-6079
Address: 13507 Lacebark Pine Road
City: Orlando State: Florida Zip Code: 32832

☐ Check here to be added to the project mailing list.

Please use this comment form to express your opinions regarding the planned improvement of Sunbridge Parkway from Aerospace Parkway/Dowden Road to the Orange/Osceola line. You can leave your completed form in the comment box at this meeting, with a member of the project team today or mail it, postmarked by Monday, December 11, 2017, to the address below. All comments are part of the project record and are available for viewing by the public and media.

Comments:

While knowing progress goes on, so saddened to think moving out in the country, enjoying the peace and quiet — getting to see different wildlife every day will be disrupted with traffic noise and less wildlife. The east wind blows our direction and knows how noise travels. Please consider all our concerns. Thank you for your time. Cindy

We are on 5 acres that border the Desert Ranch. Purchased the land in 1984, built our home in 1991. We had a plan of living our lives out here until just recently. We are blessed by nature here in many ways. I thank God daily for what we have enjoyed living here. If the Parkway was a mile to the east possibly life would still be good to us. At 62 & 60 years old we are hopeful that progress is slow in overpopulation in our area.

Please mail comment form to:
Ms. Blanche Hardy, P.G.
Orange County Project Manager
Community, Environmental & Development Services
Transportation Planning Division
4200 South John Young Pkwy
Orlando, FL 32839
E-mail: blanche.hardy@ocfl.net
Telephone: 407-836-0257

BEST WISHES
Dale
January 11, 2017

Re: Community Meeting
Sunbridge Parkway Preliminary Design Study (PDS)
Segments 2 through 4

Dear Mr. MacLeod:

Thank you for attending the community meeting regarding the proposed Sunbridge Parkway on Thursday, November 30, 2017 and for providing your comments and input on the project. In your comment form you stated that you are concerned with the decision to defer the four-lane portion of the Sunbridge Parkway to a future date and recommend the entire roadway is constructed as a four-lane roadway from inception.

Progress in the design and construction of Segment 2 through 4 of the Sunbridge Parkway is controlled by a Roadway Agreement Committee (RAC) agreement negotiated between the county and the project developer. Roadway agreements are an important part of the development process and allow property owners to earn road impact fee credits by making improvements to congested roads or dedicating right-of-way to expand the road network.

The Sunbridge Parkway RAC agreement contains formulas and conditions requiring the roadway to be designed and build before related development can occur or be occupied. In this manner, the county assures the infrastructure is present when the associated traffic is created.

Your feedback is important and your comments have been included in the project documentation. If you have any questions or concerns, please contact me by phone or email at (407) 836-0257 or blanche.hardy@ocfl.net. Again, thank you for your involvement with this project.

COMMUNITY, ENVIRONMENTAL AND DEVELOPMENT SERVICES DEPARTMENT
TRANSPORTATION PLANNING DIVISION
RENZO NASTASI, AICP, Manager
4200 S. John Young Parkway, 2nd Floor ▪ Orlando FL 32839-9205
Telephone 407-836-8072 ▪ FAX 407-836-8079 ▪ Renzo.Nastasi@ocfl.net
Sincerely,

Ms. Blanche Hardy, P.G.
Principal Planner, Transportation Planning Division

cc: Renzo Nastasi, AICP, Manager, Transportation Planning
    Brian Sanders, Chief Planner, Transportation Planning
    Jerald Marks, Jr., Assistant Project Manager, Transportation Planning
    Jeffrey J. Newton, P.E., Donald W. McIntosh Associates, Inc.
    File

Enclosure: Written Comment

BH/am
Comments:  My primary concern with the Sunbridge Parkway is the decision to defer the four-lane portion until some unknown future date. I realize the preliminary study suggests light traffic only. I contend this is short-sighted. Narcoossee Road is already significantly congested, particularly during rush hour.

Vista Park (528 & 417) is planning 10,000 homes, which will pour thousands more cars onto Narcoossee Road. There are no other north/south roads in this area. Therefore it is a virtual certainty drivers will seek relief any way possible... and that means Sunbridge. It is foolhardy to build a 2-lane road when a 4-lane road will be necessary almost as soon as the road is opened.
January 11, 2017

Janet Hrroyo-Hickman
14050 Marine Drive
Orlando, FL 32832

Re: Community Meeting
Sunbridge Parkway Preliminary Design Study (PDS)
Segments 2 through 4

Dear Ms. Hrroyo-Hickman:

Thank you for attending the community meeting regarding the proposed Sunbridge Parkway on Thursday, November 30, 2017 and for providing your comments and input on the project. In your comment form you stated traffic is unacceptable on Narcoossee Road between the Beachline Expressway (SR 528) and F.H. 192 (E. Irlo Bronson Memorial Highway). You live on Isle of Pines and would like the traffic on Narcoossee Road addressed as soon as possible.

Narcoossee Road is not included in the current study area for the Sunbridge Parkway; however it is a county roadway on which control of the signals is split. The City of Orlando controls the signals at the SR 417 ramps and the county controls the signals south of the ramps to the Orange-Osceola County line. The city and county are currently working together to coordinate signal timing in an effort to improve traffic conditions within their jurisdiction.

Your feedback is important and your comments have been included in the project documentation. If you have any questions or concerns, please contact me by phone or email at (407) 836-0257 or blanche.hardy@ocfl.net. Again, thank you for your involvement with this project.
Sincerely,

Ms. Blanche Hardy, P.G.
Principal Planner, Transportation Planning Division

cc: Renzo Nastasi, AICP, Manager, Transportation Planning
Brian Sanders, Chief Planner, Transportation Planning
Jerald Marks, Jr., Assistant Project Manager, Transportation Planning
Jeffrey J. Newton, P.E., Donald W. McIntosh Associates, Inc.
File

Enclosure: Written Comment

BH/am
Sunbridge Parkway
Preliminary Design Study
Aerospace Parkway / Dowden Road to the Orange / Osceola Line

Public Comment Form

Name: Janet Arroyo-Huckman
Phone: ________

Address: 14050 Maricopa Dr

City: Orlando State: FL Zip Code: 32832

☐ Check here to be added to the project mailing list.

Please use this comment form to express your opinions regarding the planned improvement of Sunbridge Parkway from Aerospace Parkway/Dowden Road to the Orange/Osceola line. You can leave your completed form in the comment box at this meeting, with a member of the project team today or mail it, postmarked by Monday, December 11, 2017, to the address below. All comments are part of the project record and are available for viewing by the public and media.

Comments: I live in Isle of Pines and the traffic on Narcoossee from the Beechline to 192 is horrible. It took me 15 min. sitting through light several times to come to this meeting (from Moss Park to the middle school). At 6:30 P.M. something needs to desperately done to relieve the traffic on Narcoossee ASAP!!!

Please mail comment form to:
Ms. Blanche Hardy, P.G.
Orange County Project Manager
Community, Environmental & Development Services
Transportation Planning Division
4200 South John Young Pkwy
Orlando, FL 32839
E-mail: blanche.hardy@ocfl.net
Telephone: 407-836-0257

Community Meeting
Thursday, November 30, 2017
6 - 7 p.m.
Presentation at 6:15 p.m.
Lake Nona Middle School
Cafetorium
13700 Narcoossee Road
Orlando, Florida 32832
January 11, 2017

Mike and Susan Duggins
11709 Great Commission Way
Moss Park Enclave
Orlando, FL 32832

Re: Community Meeting
Sunbridge Parkway Preliminary Design Study (PDS)
Segments 2 through 4

Dear Mrs. and Mr. Duggins:

Thank you for attending the community meeting regarding the proposed Sunbridge Parkway on Thursday, November 30, 2017 and for providing your comments and input on the project. In your comment form you stated that you are concerned with the decision to defer the four-lane portion of the Sunbridge Parkway to a future date given the proposed size of the related development within Osceola County and recommend the entire roadway is constructed as a four-lane roadway from inception.

Progress in the design and construction of Segment 2 through 4 of the Sunbridge Parkway is controlled by a Roadway Agreement Committee (RAC) agreement negotiated between the county and the project developer. Roadway agreements are an important part of the development process and allow property owners to earn road impact fee credits by making improvements to congested roads or dedicating right-of-way to expand the road network.

The Sunbridge Parkway RAC agreement contains formulas and conditions requiring the roadway to be designed and build before related development can occur or be occupied. In this manner, the county assures the infrastructure is present when the associated traffic is created.
Your feedback is important and your comments have been included in the project documentation. If you have any questions or concerns, please contact me by phone or email at (407) 836-0257 or blanche.hardy@ocfl.net. Again, thank you for your involvement with this project.

Sincerely,

Ms. Blanche Hardy, P.G.
Principal Planner, Transportation Planning Division

cc: Renzo Nastasi, AICP, Manager, Transportation Planning
    Brian Sanders, Chief Planner, Transportation Planning
    Jerald Marks, Jr., Assistant Project Manager, Transportation Planning
    Jeffrey J. Newton, P.E., Donald W. McIntosh Associates, Inc.
    File

BH/am
Please use this comment form to express your opinions regarding the planned improvement of Sunbridge Parkway from Aerospace Parkway/Dowden Road to the Orange/Osceola line. You can leave your completed form in the comment box at this meeting, with a member of the project team today or mail it, postmarked by Monday, December 11, 2017, to the address below. All comments are part of the project record and are available for viewing by the public and media.

Comments: Tavares should be required to build the road as a 4 lane road all the way to the Osceola line and their illegal development there. It's time our county road roads be built for future needs ahead of demand rather than waiting till traffic is a problem. We should have learned this from the Alafaya Traffic nightmare that went on for years.

If Tavares is not required to do this now and are allowed to get by with the minimum - Orange County taxpayers will be stuck for the cost of widening it in the future (Tavares will have moved on to other projects)

Let's get it right! (when Tavares has to comply with the County)
January 11, 2017

Richard Guthrie
12534 Lake Mary Jane Road
Orlando, FL 32832

Re: Community Meeting
Sunbridge Parkway Preliminary Design Study (PDS)
Segments 2 through 4

Dear Mr. Guthrie:

Thank you for attending the community meeting regarding the proposed Sunbridge Parkway on Thursday, November 30, 2017 and for providing your comments and input on the project. In your comment form you asked how the number of wildlife crossings was determined, what will be done to mitigate roadway noise, if the roadway will be lit and if so, how will light be contained, and if connecting roads adjoining the rural settlement will have turn lanes.

Wildlife Crossings
The number and location of wildlife crossings correspond to existing wildlife crossing areas as noted on the Florida Natural Areas Inventory Maps and similar documents and guidance and as verified in the field by experts in that discipline. The three proposed wildlife crossing correspond to the results of the portion of the PDS specific to these criteria.

Roadway Noise
The currently proposed location of the Parkway will allow noise to be mitigated by the presence of Roberts Island Slough. Trees and understory vegetation buffer roadway noise. The cone of audible noise increases with distance from a buffer. Proximity to the slough will help alleviate noise.
Roadway Lighting
Roadways are lit when constructed or improved as part of the county's roadway lighting program. The county requires compliance with "dark-sky" lighting standards and the exclusive application of downward reflected light. Criteria include the use of cutoff light fixtures and prohibition of sag, convex and drop lenses. Lighting fixtures and the frequency of fixtures for the Sunbridge Parkway will be designed by the local power provider and will be installed after each roadway segment is constructed.

Connecting Roads
Currently connection of the Sunbridge Parkway to the rural settlement is prohibited by a legal agreement between the Lake Mary Jane Alliance and Tavistock East Holding, LLC (developer). There are access points on the rural section of the roadway and are intended to facilitate access for ranch activities and maintenance. The access points will be gated and locked. Turn lanes will not be provided at driveways.

Your feedback is important and your comments have been included in the project documentation. If you have any questions or concerns, please contact me by phone or email at (407) 836-0257 or blanche.hardy@ocfl.net. Again, thank you for your involvement with this project.

Sincerely,

Ms. Blanche Hardy, P.G.
Principal Planner, Transportation Planning Division

cc: Renzo Nastasi, AICP, Manager, Transportation Planning
    Brian Sanders, Chief Planner, Transportation Planning
    Jerald Marks, Jr., Assistant Project Manager, Transportation Planning
    Jeffrey J. Newton, P.E., Donald W. McIntosh Associates, Inc.
    File

Enclosure: Written Comment

BH/am
Public Comment Form

Name: Richard Guthrie
Address: 1234 Lake Mary Jane Rd
City: Orlando
State: FL
Zip Code: 32832

[ ] Check here to be added to the project mailing list.

Please use this comment form to express your opinions regarding the planned improvement of Sunbridge Parkway from Aerospace Parkway/Dowden Road to the Orange/Osceola line. You can leave your completed form in the comment box at this meeting, with a member of the project team today or mail it, postmarked by Monday, December 11, 2017, to the address below. All comments are part of the project record and are available for viewing by the public and media.

Comments:

1) 2 or 3 wildlife crossings seems low for a 6.3 mile road. How was this determined?

2) Too close to Lake Mary Jane Rd.
   What will be done to mitigate noise?
   Will the road be lit? If so, how will the light be contained?

3) Connecting roads will adjoin the rural segment. Will these have turn lanes?

Please mail comment form to:
Ms. Blanche Hardy, P.G.
Orange County Project Manager
Community, Environmental & Development Services
Transportation Planning Division
4200 South John Young Pkwy
Orlando, FL 32839
E-mail: blanche.hardy@ocfl.net
Telephone: 407-836-0257

Community Meeting
Thursday, November 30, 2017
6 - 7 p.m.
Presentation at 6:15 p.m.
Lake Nona Middle School Cafetorium
13700 Narcoossee Road
Orlando, Florida 32832
Appendix F

Public Involvement Documents - Utility Company and Agency Coordination Memos
MEMO:

- Neither Duke Energy nor Florida Gas Transmission were represented at the meeting.
- Jeff Newton reviewed recommended improvement concept with attendees and discussed how each existing facility was proposed to be accommodated in the design.
- The FDOT permit for the railroad crossing is to be submitted by Orange County (Lance Jackson to follow up on the status of this application, which has reportedly not yet been submitted).
- OUC required 27' clear from lowest sagging wire to the road surface:
  - It appears that the clearance could be as much as 7.5' too little.
  - No room to raise wires without raising towers.
- If there will be bridge piles, they must be located at least 3 feet from the TECO gas line.
- A flagger will be required for all work in the OUC right-of-way that is within 25 feet of the rail centerline (coordinate with OUC).
- Signal arm can span the bike lane and up to 2 lanes of traffic. The pedestrian signal arm will need to be separate on the 4-lane section.
- TECO, OUC and Duke will all be looking for distribution facilities along the corridor.
- Jeff Newton to e-mail crossing details to all attendees.
Sunbridge Parkway Preliminary Design Study  
Section 2 through Section 4  

Utility Coordination Meeting  
Orange County Public Works - Engineering Conference Room  

November 13, 2017, 3:00 pm  

SIGN IN SHEET

<table>
<thead>
<tr>
<th>Name</th>
<th>Division/Section</th>
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<tbody>
<tr>
<td>Blanche Hardy</td>
<td>Orange County Public Works</td>
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<td>Joe Kunkel</td>
<td>Orange County Public Works</td>
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<td>Renzo Nastasi</td>
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<td>Heather Brownlie</td>
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<td>Patrina Harris</td>
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<td>Julie Franklin</td>
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<td>David Parham</td>
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<td>Joseph Sanchez</td>
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<td>LeMoyne Adams</td>
<td>Orlando Utilities Commission</td>
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<td>Zoila Easterling</td>
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<td>Mia Torres</td>
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<td>Bruce Stout</td>
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<td>Shawn Winsor</td>
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<td>Clint Beaty</td>
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<td>Richard Levey</td>
<td>Tavistock Development Company</td>
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<td>Lance Jackson</td>
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<td>Jeff Newton</td>
<td>Donald W. McIntosh Associates, Inc.</td>
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<td>John Townsend</td>
<td>Donald W. McIntosh Associates, Inc.</td>
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<td>Kevin Mayer</td>
<td>Block &amp; Veitch</td>
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2017/07/31 MEETING MEMORANDUM

Monday, July 31, 2017
9:30 AM

LOCATION: Phone Conference w/ FDOT

FROM: Jeff Newton

ATTENDEES:
Jason Learned
Blanche Hardy
Lance Jackson
Jeff Newton

MEMO:

Scope review
- Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive, ultimately extending at least to Nova Road
- Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
- Discussed typical sections
  - Segments 1, 2 & 3A are ultimately 4-lane urban in a 145' right-of-way (45 mph design speed)
  - Segment 3B will transition from urban to rural
  - Segment 4 will be 4-lane rural in a 172' right-of-way (60 mph design speed)
- Discussed phasing of improvements
  - Segment 1 will be initially constructed as a 4-lane urban road (not included in PDS)
  - Segments 2-4 will be initially constructed as a 2-lane rural road
- Discussed stormwater management concepts
  - Closed drainage and stormwater management in ponds on urban roadway
  - Open drainage and stormwater management in roadside swales on rural roadway
- Discussed timing
  - Segment 1 construction likely to start in Q1 or early Q2 of 2018
  - PDS on Segments 2-4 to be completed Q1 2018
  - Initial 2-lane configuration of Segments 2-4 likely to commence shortly thereafter as a design-build project
  - Anticipate completion of the road extending from the intersection of Sunbridge Parkway and Aerospace Parkway to the intersection of Cyrils Drive and Absher Road in Osceola County by late 2019 or early 2020

Discussion
- Include a comment in the PDS report that the name of Innovation Way / Dowden Road needs to be resolved
- Are we extending Cyrils Drive? Yes - from Absher Road to Sunbridge Parkway
- How can FDOT help? Railroad crossing permit.
  - FDOT contact is Jim Gainey (386-943-5331)
- Sunbridge Parkway could ultimately be a State road (depends on traffic and logical terminus)
- Will this have an interchange with the Northeast Expressway?
  - Sunbridge Parkway is planned to have an interchange with the Osceola Parkway Extension
  - Cyrils Drive is planned to have an interchange with the Northeast Connector (not the same as Corridor I, which has been named the "Northeast Connector Extension")
- Make sure we use the latest CFRPM, which was recently updated [After the call, it was confirmed that CFRPM v5.01 was used.]

- Are line & grade plans available? No - this is beyond the level of detail to be provided in connection with this study, although we will likely consider possible future road grades at the railroad crossing (at grade and grade separated configurations) & at planned wildlife crossings.
2017/07/25 MEETING MEMORANDUM

Tuesday, July 25, 2017
11:00 AM

LOCATION: Phone Conference w/ FDEP

FROM: Jeff Newton

ROUTE: BH/LJ/DWM/JMF/JTT/RLC

ATTENDEES:

<table>
<thead>
<tr>
<th>Name</th>
<th>Time</th>
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<tbody>
<tr>
<td>Jeff Prather</td>
<td>Kim Rush (11:25)</td>
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<tr>
<td>Dale Dowling</td>
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<tr>
<td>Jeff Newton</td>
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<td>Lance Jackson</td>
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MEMO:

- Scope review
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  - Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
  - Discussed typical sections
    - Segments 1, 2 & 3A are ultimately 4-lane urban in a 145' right-of-way (45 mph design speed)
    - Segment 3B will transition from urban to rural
    - Segment 4 will be 4-lane rural in a 160' right-of-way (60 mph design speed)
  - Discussed phasing of improvements
    - Segment 1 will be initially constructed as a 4-lane urban road (not included in PDS)
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  - Discussed stormwater management concepts
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    - Segment 1 construction likely to start in Q1 or early Q2 of 2018
    - PDS on Segments 2-4 to be completed Q1 2018
    - Initial 2-lane configuration of Segments 2-4 likely to commence shortly thereafter as a design-build project
    - Anticipate completion of the road extending from the intersection of Sunbridge Parkway and Aerospace Parkway to the intersection of Cyrils Drive and Absher Road in Osceola County by late 2019 or early 2020
- FDEP will defer to the WMDs as related to permitting unless requested otherwise
  - Contact Kim Rush if we need any assistance
MEMO:

UTILITY COORDINATION MEETING

Project overview:

- Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive, ultimately extending at least to Nova Road
- Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
- Discussed typical sections
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  - Anticipate completion of the road extending from the intersection of Sunbridge Parkway and Aerospace Parkway to the intersection of Cyrils Drive and Absher Road in Osceola County by late 2019 or early 2020

Existing utilities review:

- The majority of the existing utilities affecting the proposed roadway alignment are located in the International Corporate Park (ICP) property, including:
  - Orange County Utilities (OCU) potable water mains
  - OCU reclaimed water mains
  - OCU wastewater force mains and gravity mains
  - Florida Gas Transmission (FGT) gas transmission main, metering station, and other appurtenances (the existing 26" main serves the Canaveral Power Plant and a 16" main serves the Curtis Stanton Energy Plant)
- TECO gas distribution main
- Orlando Utilities Commission (OUC) electric transmission lines
- Duke Energy electric distribution lines

- In addition to the existing utilities, the proposed roadway will cross the railroad leading to OUC's Curtis Stanton Energy Plant
- A number of proposed utilities will be constructed within the right-of-way for Sunbridge Parkway in order to service the development of Sunbridge, including:
  - OCU potable water transmission mains
  - OCU reclaimed water transmission mains
  - OCU wastewater collection and transmission mains
  - OUC and Duke Energy electrical distribution lines
  - Telecommunication lines
  - Storm drainage collection systems
  - Roadway lighting systems
  - Potentially TECO natural gas distribution mains
  - Potentially median irrigation systems

- A 30" reclaimed water main is proposed by OCU to run parallel to the north side of the FGT/Duke Energy easements to connect to the proposed 24" main in Sunbridge Parkway
- The OCU systems will generally be looped but will include a short segment of dead end main at the end of Segment 3B
- The underground utility systems are not intended to be constructed with the initial rural roadway configuration but rather when the particular roadway segments are converted from rural to urban sections

Various discussion items:
- The transition from 4-lanes to 2-lanes has not yet been designed, but it is our goal to accomplish the transition prior to crossing the OUC railroad rather than transitioning as we cross the railroad
- The roadway will need to be processed through OUC and FDOT several times based on the various configurations, potentially including:
  - Initial crossing as 2-lane rural
  - Improvement to 2-lane urban
  - Improvement to 4-lane urban
  - Improvement to grade separated crossing

- The roadway will also be crossing the OUC 230 kV transmission lines as it crosses the railroad
  - OCU needs to know the planned finished grade of the ultimate road (grade separated crossing) in order to determine line clearances

- The right-of-way for the full 4-lane improvement will be conveyed to Orange County prior to the construction of the initial 2-lane
- The FGT main is currently "thin walled" pipe, which will need to be upgraded based on the number of residential certificates of occupancy issued within 350' of the main (must be upgraded within 2 years of the threshold being met)
- The TECO distribution main runs north from the metering station parallel to the railroad right-of-way
- Many of the proposed underground utilities are proposed to be located beneath the multi-purpose trails running along the roadway for protection
- The trails and most utilities located beneath them are proposed to cross the existing railroad, gas mains, and other utilities.
- DWMA is continuing to coordinate with the City of Cocoa regarding the location of their raw water lines extending from the wellfields to the Dyal Water Treatment Plant and any required wellhead protection zones
- While the ultimate configuration of Segments 2 & 3A as 4-lane urban roads will be served by closed drainage systems and stormwater management ponds, it is possible that stormwater management for the initial configuration as 2-lane rural roads with open drainage systems could

Sunbridge - Orange Page 2
be achieved within the roadside swales

- OUC desires to extend electric transmission lines (230 kV) south along the roadway corridor into Osceola County
- The design of Sunbridge Parkway will need to address the crossing of the FGT gas main:
  - Provide driveway access to the main
  - Provide continuous access under the bridge
  - The County's preference is to span the gas main or reroute it
  - Both FGT and Orange County agree that location of the gas main under a roadway embankment is not desirable
- Duke Energy's goal is to be located underground within Sunbridge
  - Send the Sunbridge Neighborhoods A-D Preliminary Subdivision Plan to Patrina along with any additional information that can help Duke Energy begin load calculations
  - Tavistock anticipates product delivery in late Q1 2019
  - Duke Energy would like to extend distribution lines along the roadway alignment (all segments) - there was some discussion regarding the potential for Duke Energy transmission lines as well
  - Need to provide 36' clear zone to power poles along rural roadway segments based on 60 mph design speed
  - Will need to relocate Duke Energy's existing distribution lines underground at the crossing with Sunbridge Parkway
- If the multi-purpose trails are to cross the OUC railroad, additional crossing signalization may be required
  - Once the crossing is grade separated, the trails will be located on the bridge
- An encroachment agreement will be required to cross the FGT easement
- Sunbridge Parkway is an Orange County project and is a part of their long range transportation plan (per Orange County)
- DWMA is to provide to all attendees the maps that were shared at the meeting

Attachments:
- Aerial Map
- Segment Map
- Proposed Urban Typical Section
- Proposed Rural Typical Section (preliminary)
- ICP Existing Utilities Map
- Potable Water Master Plan (preliminary)
- Reclaimed Water Master Plan (preliminary)
- Wastewater Master Plan (preliminary)
- Survey of RR & Utility Crossing Area
- Meeting Agenda
- Sign In Sheet
Sunbridge Parkway Preliminary Design Study
Section 2 through Section 4

PDS Utility Coordination Meeting
Orange County Public Works Engineering Conf. Rm.
July 17, 2017, 2:30 pm

AGENDA

I. Welcome

II. Study Overview
   a. Overall context
   b. Segment description
   c. Typical sections
   d. Project phasing
   e. Project timing

III. Review of Known Existing Utilities

IV. Review of Future Utility Expansions

V. Action Items

VI. Conclusions
• Scope review
  o Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive, ultimately extending at least to Nova Road
  o Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
  o Discussed typical sections
    • Segments 1, 2 & 3A are ultimately 4-lane urban in a 145' right-of-way (45 mph design speed)
    • Segment 3B will transition from urban to rural
    • Segment 4 will be 4-lane rural in a 160' right-of-way (60 mph design speed)
  o Discussed phasing of improvements
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    • Segments 2-4 will be initially constructed as a 2-lane rural road
  o Discussed stormwater management concepts
    • Closed drainage and stormwater management in ponds on urban roadway
    • Open drainage and stormwater management in roadside swales on rural roadway
  o Discussed timing
    • Segment 1 construction likely to start in Q1 or early Q2 of 2018
    • PDS on Segments 2-4 to be completed Q1 2018
    • Initial 2-lane configuration of Segments 2-4 likely to commence shortly thereafter as a design-build project
    • Anticipate completion of the road extending from the intersection of Sunbridge Parkway and Aerospace Parkway to the intersection of Cyrils Drive and Absher Road in Osceola County by late 2019 or early 2020
# PDS Utility Coordination Meeting

Orange County Public Works Engineering Conf. Rm.
July 17, 2017, 2:30 pm

## SIGN IN SHEET

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2017/07/14 MEETING MEMORANDUM

Friday, July 14, 2017
3:30 PM

LOCATION: Phone Conference w/ FFWCC

FROM: Jeff Newton

ATTENDEES:

Jennifer Goff  Lance Jackson
Jason Hight  Fritz Wettstein
Dale Dowling
Jeff Newton

ROUTE: BH/LJ/DWM/JMF/JTT/RLC

FILE: Sunbridge Pkwy PDS

MEMO:

- Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrls Drive, ultimately extending at least to Nova Road
- Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
- Discussed typical sections
  - Segments 1, 2 & 3A are ultimately 4-lane urban in a 145' right-of-way (45 mph design speed)
  - Segment 3B will transition from urban to rural
  - Segment 4 will be 4-lane rural in a 160' right-of-way (60 mph design speed)
- Discussed phasing of improvements
  - Segment 1 will be initially constructed as a 4-lane urban road (not included in PDS)
  - Segments 2-4 will be initially constructed as a 2-lane rural road
- Discussed stormwater management concepts
  - Closed drainage and stormwater management in ponds on urban roadway
  - Open drainage and stormwater management in roadside swales on rural roadway
- Discussed timing
  - Segment 1 construction likely to start in Q1 or early Q2 of 2018
  - PDS on Segments 2-4 to be completed Q1 2018
  - Initial 2-lane configuration of Segments 2-4 likely to commence shortly thereafter as a design-build project
  - Anticipate completion of the road extending from the intersection of Sunbridge Parkway and Aerospace Parkway to the intersection of Cyrls Drive and Absher Road in Osceola County by late 2019 or early 2020
- FFWCC wants to start getting involved now - prior to WMD permitting - in order to begin addressing wildlife issues before we get too far down the road
  - Gopher tortoises
  - Sandhill Crane
  - Sherman’s Fox Squirrel
- We have already spoke with USFWS re: eastern indigo snakes, wood storks, etc.
- Green and tan areas represent the Orange County Environmental Land Stewardship Program (ELSP)
- Where will wildlife crossings be placed?
  - They are currently planned at the Diston Canal and Roberts Island Slough
○ This is consistent with FFWCC expectations
• Will ELSP be mitigation?
  ○ Yes - we believe most if not all mitigation will be onsite
• WMD will include FFWCC in the Conceptual ERP process
• Will have a biologist reach out to BDA for early coordination
• Cattle fencing will likely be constructed so the land to the east and west can continue to be used for cattle grazing, but we do not plan to provide wildlife restrictive fencing along the entire length of the road
  ○ Fencing can cause more harm than good as related to wildlife
  ○ FFWCC is not concerned about fencing as long as adequate wildlife crossing opportunities are provided, although there may be limited instances where some level of wildlife fencing may be appropriate
LOCATION: Meeting w/ SJRWMD

FROM: Jeff Newton

ATTENDEES:
- Marjorie Cook
- Rick Sobczak
- Dale Dowling
- David Eunice
- Lance Jackson
- Lindsey Porter
- Jeff Newton

MEMO:
- Scope review
  - Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive
  - Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
  - Discussed typical sections
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- How is stormwater managed?
  - Ponds for urban section & ditches for rural section
- How many permits?
  - Conceptual mod and new conceptual for SJRWMD followed by construction permits
- Do we know federal impacts?
  - Not yet
- Do we have formal a JD on IWE?
  - Yes, but not on Camino South (we do have an Orange County CAD on Camino South)
- Do we have an idea of mitigation
  - Not precisely but we anticipate it being done onsite
• Various ownership entities need to be co-applicants for any permitting
• The impact adjacent to CorrectCraft has been eliminated
• Discuss wildlife crossings
  ○ There will be crossings at the Diston Canal & Roberts Island Slough
  ○ Wildlife crossings are anticipated to be 36" - 48" dry culverts
  ○ No provision for larger mammals
• We have tried to collocate with field roads where practical
• No connection will be provided between the Lake Mary Jane Rural Settlement and Sunbridge Parkway as part of an agreement with the Lake Mary Jane Alliance
• Will the road be fenced?
  ○ Not currently planned [Note: There will likely be cattle fencing so the lands to the east and west of the road can continue to be used for cattle grazing.]
• Dale to contact David re: field verification of wetlands in Camino South
• How big are the box culverts at Roberts Island Slough?
  ○ Unknown at this point
• Are we dealing with impaired waterbodies?
  ○ We are following OFW criteria regardless of our ultimate outfall as a condition of our approval and a concession to the Lake Mary Jane Alliance
2017/07/14 MEETING MEMORANDUM

Friday, July 14, 2017
11:00 AM

LOCATION: Phone Conference w/ USACE

FROM: Jeff Newton

ROUTE: BH/LI/DWM/JMF/JTT/RLC

ATTENDEES:

Jeff Collins
Dale Dowling
Jeff Newton

MEMO:

• Scope review
  ○ Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive
  ○ Discussed the various segments of the road and the fact that the PDS includes only Segments 2-4
  ○ Discussed typical sections
    ▪ Segments 1, 2 & 3A are ultimately 4-lane urban in a 145' right-of-way (45 mph design speed)
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    ▪ Segment 4 will be 4-lane rural in a 160' right-of-way (60 mph design speed)
  ○ Discussed phasing of improvements
    ▪ Segment 1 will be initially constructed as a 4-lane urban road (not included in PDS)
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  ○ Discussed stormwater management concepts
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• Dale reviewed status of various jurisdictional wetland determinations
  ○ Impact adjacent to CorrectCraft has been removed
  ○ Segment 2 generally crosses wetlands at existing field roads
  ○ The last crossing on Segment 4 at Roberts Island Slough generally tries to follow existing field roads to the extent geometry allows
• Jeff C. doesn’t view the project as an "egregious design" other than potentially opening new areas for development (secondary impacts?)
• Not sure if we can process as a Nationwide Permit or if it needs to be federalized (Standard Permit)
  ○ It looks like we will be a Standard Permit and will need to follow NEPA process
○ Need to address logical termini for the roadway
○ Jeff C. is concerned over protecting USACE against potential lawsuits (e.g., Volusia County and possibly in northern Orange Count east of the Econ)

• Cumulative effects will need to be addressed

• What is the timing of the permit?
  ○ Likely to submit an application as early as September
  ○ Intent is to split into two applications, one in each county, unless spanning the counties with a single permit makes addressing logical termini easier
  ○ Combined permitting would be better from USACE standpoint but Jeff C. is understanding of the complications involved in multiple counties and water management districts
MEMO:

- Scope review
  - Discussed overall intent to connect the new Beachline interchange to Narcoossee Road at Cyrils Drive
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- Glenn will review the information with the CFX traffic & revenue folks as it will affect their 2025 traffic model (Fishkind works on socioeconomic data)
- CFX as been meeting with Orange & Osceola Counties and with Tavistock re: the overall roadway and development concept
  - Orange County development begins in the northern area near the interchange
  - Osceola County development begins in the northwestern area near Cyrils Drive extension
2017/07/12 MEETING MEMORANDUM

Wednesday, July 12, 2017
1:30 PM

LOCATION: Phone Conference w/ FWS

ROUTE: BH/LJ/DWM/JMF/JTT/RLC

FROM: Jeff Newton

ATTENDEES:
Tony Daly-Crews
Dale Dowling
Jeff Newton

MEMO:

• Scope review
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• Where are we in the environmental aspect?
  o BDA involved in Orange County portion since the 80's
  o Biological opinion on ICP - working through permitting with USACE
  o Will also permit through USACE on the portion extending through IWE & CRS

• What is the number of the biological opinion?
  o BDA to provide - likely 7-10 years old but updated because of the interchange project

• What did original biological opinion include?
  o Eastern indigo snake
  o Red cockaded woodpecker
  o Wood stork
- Florida scrub jay
- Sand skink

- We will have gopher tortoises and wetland impacts. Most of the land is being mowed and used for pasture.

- Any crossings for eastern indigo snakes? Box culverts?
  - We are providing wildlife crossings at appropriate locations in accordance with ELSP.

- What is the crossing? Bridge? Box culvert?
  - Drainage conveyance with wildlife culverts on either side.

- Will this be a Section 7?
  - Yes - at the appropriate time.

- Any local NIMBY groups?
  - Lake Mary Jane Alliance has historically voiced opposition in the area but was heavily involved during the land use and zoning process and there is an agreement between Tavistock and the Alliance concerning this road.
    - Conflict with the Alliance is not currently anticipated.

- FWS to share their eastern indigo snake modeling with BDA.
MEMO:

- EPD would like to be included in any County distribution of documents related to the PDS
- There will be no formal action related to the ELSP in conjunction with the PDS (e.g., ELSAD, etc.), but we will design the road in consideration of the ELSP
- The PDS should preliminarily address impacts and mitigation
- The modifications to the existing Conservation Area Impact Permit related to Segment 2 should be independent of the modification related to Segment 1 since they are on different timelines
- Wetland crossings will need to address water conveyance and wildlife accommodation where appropriate
  - Wildlife crossings are addressed in the ELSP
- Stormwater management along Segments 3B and 4 will be accommodated in the roadside ditches
- Notify EPD of any meeting related to the PDS, including:
  - Community meetings
  - LPA workshops/hearings
  - BCC workshops/hearings
After a brief description of the project, Ferrell indicated that he did not have any interest in the project from a drainage perspective. Ferrell suggested that we contact the Annette Brennan (FDOT District 5 Design Engineer) at 386-943-5543 and either Brian Stanger or Amy Sirmans (FDOT District 5 PD&E group) to see if they had any interest in the project from an overall transportation capacity standpoint.

[A subsequent call to Annette Brennan revealed that she is no longer the District Design Engineer and now works on airports.]
MEMO:

- When and where will hydrants be provided?
  - Addressed with need as we upgrade to urban road sections with urban development adjacent
- Make sure fire trucks can clear the railroad tracks at the crossing without bottoming out
- What is the timing of the improvements?
  - PDS should be completed by spring 2018
  - Tavistock obligated to seek a design-build group within a time certain after completion of the PDS, likely beginning design around late-summer 2018
  - If design and permitting of the road takes around a year and construction takes another year, the road would likely be completed somewhere around summer of 2020
- Fire doesn't have much input on the road design as long as it meets standard road design criteria
- Fire's primary concern will be with the PSP and the future fire station site that they need
2017/06/28 MEETING MEMORANDUM

Wednesday, June 28, 2017
8:30 AM

LOCATION: Phone Conference w/ OCPS

FROM: Jeff Newton

ROUTE: BH/LI/DWM/JMF/JTT/RLC

ATTENDEES:

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<td>Julie Salvo</td>
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<td>Jeff Newton</td>
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MEMO:

- Suggest that a constraints map highlighting well sites, common boundaries, gas metering station, transmission towers, etc. would be helpful
- Intends to call Tavistock to discuss moving the elementary school site farther from the gun range
- Biggest question is regarding timing of construction of Segment 1 since they will be needing the elementary school sooner than later
- Agrees that the pedestrian connectivity (e.g., bike lanes, trails and sidewalks) will help provide safe routes to school
MEMO:

- Will we be seeking Federal funding for the road?
  - No - it is part of a road agreement with Orange County involving impact fee credits
- Will we be following CCNA?
  - Tavistock is required to obtain multiple design-build proposals for Segments 2-4
  - Contractors and consultants must be FDOT qualified
  - Orange County must approve the selection of the design-build team
- What is the treatment of the road at the county line:
  - The ultimate intent is to transition from rural to urban north of the county line so that the portion of the road in Osceola County ends up being urban
- How wide are the travel lanes?
  - 11' on the urban section and 12' on the rural section
- Will there be bicycle lanes?
  - Yes on the urban section
  - It is likely that the shoulders on the rural section will be striped as bike lanes as well
- The roads within Osceola County are planned to have bicycle lanes and multipurpose trails so having these facilities along the full length of Sunbridge Parkway is important
- What is the timing of construction?
  - PDS should be completed by spring 2018
  - Tavistock obligated to seek a design-build group within a time certain after completion of the PDS, likely beginning design around late-summer 2018
  - If design and permitting of the road takes around a year and construction takes another year, the road would likely be completed somewhere around summer of 2020
- Will the same section be constructed in Osceola County?
  - We are not directly involved in the design of the Osceola County portions of the road system
  - These questions should be directed to Tavistock and/or their consultant for that project
- Request that Osceola County (Mary Moskowitz) be added to the mailing list
  - Done
After a brief description of the project, Pat indicated that he would investigate to see if FTE had any interest in the project. The primary indication is that this is associated with FDOT District 5 (Mario Bizzio at 386-943-5000). If FTE has any interest in discussing it further, Pat will call.
Appendix G

Preliminary Report Geotechnical Engineering Services, Sunbridge Parkway PDS

by Professional Services Industries, Inc.
Preliminary Report
Geotechnical Engineering Services
Sunbridge Parkway PDS
Tavistock East
Orange County, Florida
PSI Project No. 07571768
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APPENDIX A

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SHEETS 9 to 17: MUCK PROBE LOCATION PLAN AND RESULTS
SHEET 18: ROADWAY SOIL SURVEY SHEET
SHEETS 19 to 21: REPORT OF SPT BORINGS FOR ROADWAY
SHEET 22: REPORT OF SPT BORINGS FOR PONDS
SHEET 23: SUNBRIDGE PARKWAY PDS ROADWAY SEGMENT MAP

APPENDIX B

TABLE 1 – GROUNDWATER SUMMARY FOR ROADWAY AND PONDS
TABLE 2 – SUMMARY OF CEMENTED SAND AND VERY DENSE SAND LOCATIONS

APPENDIX C

FDOT INDICES 500 AND 505
Tavistock East Services, LLC  
c/o Jeffrey J. Newton, P.E.  
6900 Tavistock Lakes Boulevard  
Suite 200  
Orlando, Florida 32827

Re: Preliminary Report  
Geotechnical Engineering Services  
Sunbridge Parkway PDS  
Tavistock East  
Orange County, Florida  
PSI Project No. 07571768

Dear Mr. Newton:

As requested, Professional Service Industries, Inc. (PSI) has prepared this preliminary geotechnical engineering report for the planned roadway and associated ponds. We have prepared this report summarizing PSI’s field and laboratory work to date and geotechnical engineering recommendations to support preliminary design of the project. PSI’s report has been updated to include the results of the additional field work and laboratory testing performed for the project. Our services were provided in accordance with the CONSULTANT’S MASTER SERVICES AGREEMENT dated July 17, 2015 between Tavistock East Services, LLC and PSI.

PSI appreciates the opportunity of providing our services to Tavistock East Services, LLC and Donald W. McIntosh Associates, Inc on this project. If you have any questions concerning the contents of this report or need additional information, please do not hesitate to contact our office.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.  
Certificate of Authorization No. 3684

Venkata Prashanth Muppana  
Staff Engineer

Malcolm A. Thompson, E.I.  
Staff Engineer

Eric W. Nagowski, E.I.  
Project Engineer

Robert A. Trompke, P.E.  
Principal Consultant/Department Manager  
Florida License No. 55456
INTRODUCTION

Project Description

Sunbridge Parkway is a new roadway planned in southeastern Orange County and northeast Osceola County, Florida. The new roadway is associated with the planned Sunbridge Development. The project is generally located east of Narcoossee Road and South of SR 528. More specifically, the north end of Sunbridge Parkway PDS begins approximately 2,000 feet north/northeast of the intersection of Wewahootee Road and the existing OUC railroad tracks. From this point the proposed roadway alignment generally proceeds south following the upland areas with short sections of the proposed alignment occasionally crossing lowland/wetland areas. The roadway extends to the Orange and Osceola County Line. Sunbridge Parkway will be extended from the Orange and Osceola County line and tie into Cyrils Drive as part of future development. The section of Sunbridge Parkway south of the Orange and Osceola County line is not included in this study.

Currently the site consists of a mix of upland and lowland/wetland areas. The upland regions are primarily being utilized as grazing pastures for livestock while a majority of the lowland/wetland areas remain undisturbed. The wetland areas are moderately to heavily wooded. A limited number of residential houses associated with ranching operations are located adjacent to the proposed alignment.

The project consists of a new proposed roadway and associated ponds/swales. The planned roadway is approximately 6.1 miles long (Station 579+51 to 900+00 and 447+57 to 458+57). A station equation change occurs where the proposed Sunbridge Parkway alignment crosses the OUC rail line. At this point, station 900+00 is equal to 447+56.95. Based on information provided to PSI by Donald W. McIntosh Associates, Inc. (DWMA), the roadway will be a four-lane urban section from the north end of the roadway to approximately 2,000 feet north (Station 780+00) of TM Ranch Road (Sections 2 and 3A). The roadway section will then transition over the next 2,000 feet between Stations 780+00 to 760+00 (Section 3B) from the urban section to a four-lane rural section. The rural roadway section (Section 4) will continue to the southern end of the roadway (Station 579+51). A pedestrian trail is planned to the west of the roadway along Section 4. **Sheet 23 of Appendix A** shows the approximate Section Limits and Roadway Section Type graphically.

Stormwater collection and treatment for the proposed roadway will be split between six ponds and roadside swales. Six stormwater ponds will be utilized to collect and treat stormwater from the north end of the roadway alignment to TM Ranch Road. The proposed stormwater ponds lie to the east and west of the roadway. Roadside swales will be utilized to collect and treat stormwater for the south section of the roadway from TM Ranch Road to the Orange/Osceola County line.
**REVIEW OF AVAILABLE DATA**

**USGS Topographic Map**

The “Narcoossee NW, Florida” and “Narcoossee, Florida” USGS topographic maps in the vicinity of the proposed roadway alignment were reviewed. The maps indicate the ground surface elevations along the proposed alignment to be fairly level and at approximate elevations ranging between +70 to +75 feet NGVD.

Lowland/wetland areas appear to be at elevations less than +70 feet NGVD. Based on the maps, the land along the alignments appears to be a mix of upland and lowland areas. The alignment occasionally crosses some of the lowland/wetland features. An excerpt of the USGS maps is presented on Figure 1 of Appendix A.

**USDA, NRCS Soil Survey Map**

The Natural Resources Conservation Service (NRCS) “Soil Survey of Orange County, Florida” was reviewed for general near-surface soil information within the vicinity of the roadway alignment. This information indicates there are seven (7) soil units within the vicinity of the proposed roadway and ponds. The soil mapping units are summarized in the table below.

<table>
<thead>
<tr>
<th>Soil Series</th>
<th>Depth (inches)</th>
<th>USDA Unified Soil Classification</th>
<th>USDA Estimated Seasonal High Groundwater Table Depth (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3) Basinger fine sand, depressional, 0 to 1 percent slopes</td>
<td>0 to 80</td>
<td>SP, SP-SM</td>
<td>+2.0 to 1.0</td>
</tr>
<tr>
<td>(20) Immokalee fine sand</td>
<td>0 to 80</td>
<td>SP, SP-SM, SM</td>
<td>0 to 1.0</td>
</tr>
<tr>
<td>(34) Pomello fine sand, 0 to 5 percent slopes</td>
<td>0 to 80</td>
<td>SP, SP-SM, SM</td>
<td>2 to 3.5</td>
</tr>
<tr>
<td>(37) St. Johns fine sand, 0 to 5 percent slopes</td>
<td>0 to 80</td>
<td>SP, SP-SM, SM</td>
<td>0 to 1.0</td>
</tr>
<tr>
<td>(40) Samsula muck</td>
<td>0 to 80</td>
<td>PT SP, SP-SM, SM</td>
<td>+2.0 to 1.0</td>
</tr>
<tr>
<td>(42) Sanibel muck</td>
<td>0 to 80</td>
<td>PT SP, SP-SM</td>
<td>+1.0 to 1.0</td>
</tr>
<tr>
<td>(44) Smyrna -Smyrna, wet fine sand, 0 to 2 percent slopes</td>
<td>0 to 80</td>
<td>SP, SP-SM, SM</td>
<td>0 to 1.0</td>
</tr>
</tbody>
</table>
A reproduction of the USDA soils map for the project area is illustrated on Figure 2 in Appendix A. It should be noted that Orange County Soil Series 40 and 42 may contain significant amounts of compressible organic soils and Soil Series 3, 40 and 42 can have ponded water for 6 to 9 months of the year. Figure 2A included in Appendix A shows the general locations where the proposed alignment crosses Soil Series 3, 40 and 42.

**Potentiometric Surface Map**

The map titled “Potentiometric Surface of the Upper Floridan Aquifer in the St. Johns River Water Management District and Vicinity, Florida, dated June 2010” published by the USGS was reviewed. The map indicates the potentiometric elevation of the Floridan Aquifer along the proposed alignment to be between approximately +30 to +40 feet NGVD. Additionally, there are two deep wells located in close proximity to the alignment that were used to develop the Potentiometric Surface Map. The wells are located to the west of the proposed alignment and have measured water elevations of +31 and +34 feet NVGD. The existing ground surface elevation in the vicinity of the proposed roadway is approximately +70 to +75 feet NGVD. Comparing the ground surface elevations to the potentiometric surface elevations, the potential for artesian conditions to be encountered during construction of the roadway alignment are generally low. Artisan conditions were not observed in any of the borings performed for this study and in our experience, are not likely to impact the planned construction. A portion of this map is presented on Figure 3 of Appendix A.

**Geology**

Orange County is underlain by Upper Eocene limestone units of the Ocala Group. The sedimentary deposits are very fine or fine grained, are chalky and porous, and typically have a cream color. The surface of the limestone generally dips eastward from the outcrop area west of Orange County under an increasing thickness of newer geologic materials. The surface of the limestone is irregular because of the dissolution of the limestone. The sedimentary deposits that immediately overlie the upper Eocene limestone units are of the Hawthorn Group. The highly variable, diverse, lithologic character of the Hawthorn Group includes interbedded lenses of sand, clayey sand, sandy clay, phosphatic sediment, dolomite and limestone. Overlying the Hawthorn group are layers of sand, clay and occasional shell beds.

**FIELD INVESTIGATION**

**General**

A series of muck probes, shallow hand auger borings and Standard Penetration Test (SPT) borings were performed along the proposed roadway alignment and at the proposed pond locations. The SPT borings were performed to depths of 15 to 30 feet below the existing grade while the hand auger borings were performed to depths of 4 to 6 feet below the existing grade. Borings were generally performed at 600-foot intervals along the alignment. Due to field conditions, such as wetland areas and areas of standing water, some borings were moved up or down station from the planned location to an accessible location. Three (3) roadway borings planned as SPT borings were performed as manual auger borings due to the shallow groundwater table and loose soils encountered adjacent to the boring locations. These conditions prevented the drill rig from accessing the area.
The roadway borings and probes were located in the field using a hand held global positioning system (GPS) device and survey locations provided to PSI by Donald W. McIntosh Associates. The approximate locations of the roadway and stormwater pond borings are shown on Sheets 1 through 8 of Appendix A. The approximate locations of the probes performed are shown on Sheets 9 through 17 of Appendix A.

**Standard Penetration Test (SPT) & Auger Borings**

The SPT and auger borings were performed in general conformance with American Society of Testing and Materials (ASTM) D-1586 and D-1452. The upper four feet of some of the SPT borings were drilled with a hand auger to prevent damage to buried utilities that may have been present. From a depth of four feet, continuous soil sampling was performed to a depth of 10 feet and then at 5-foot intervals thereafter to the boring termination depth. The recovered split spoon samples from the SPT borings and samples from the hand auger borings were visually classified in the field with representative portions of the samples placed in air-tight jars and transported to our Orlando office for review by a geotechnical engineer and confirmation of the field classification.

**Muck Probes**

A series of muck probes were performed at intervals along the alignment to identify areas of compressible organic soils. Muck probes are performed by manually pushing a one-half inch diameter, cone tipped steel rod into the ground until soil resistance prevents further penetration. The steel rod will typically penetrate soft compressible soils such as peat, but may also penetrate loose sands and soft clay to some limited degree. Therefore, the results of the muck probes should be considered approximate.

**LABORATORY TESTING**

Representative soil samples were retained from the strata observed in each boring and returned to PSI’s laboratory for visual classification and stratification. Sieve analysis, moisture content and Atterberg limits tests were performed on selected samples for verification of visual classification. The results of the laboratory testing performed are presented adjacent to the boring profiles on Sheets 19 through 22 of Appendix A at the depth at which the sample was obtained and summarized by stratum in the Roadway Soil Survey on Sheet 18 of Appendix A.

**SUBSURFACE CONDITIONS**

**Roadway and Ponds**

The soil types encountered at the specific boring locations are presented in the form of soil profiles on the attached Sheets 19 through 22 in Appendix A. The stratification presented is based on visual examination of the recovered soil samples, interpretation of field logs by a geotechnical engineer, and laboratory testing. Included with the soil profiles are the groundwater levels measured at the time the borings were performed. The following soil types were encountered in the roadway and pond borings.
Muck probes performed in the wetland areas along the alignment generally encountered compressible organic soils ranging from 0 to 4 feet in thickness. Compressible soils on the order of 5 to 7 feet in thickness were encountered at a limited number of locations. The results of the muck probes are shown on Sheets 9 through 17 of Appendix A.

**Groundwater Conditions**

Groundwater levels encountered in the SPT and auger borings performed for the roadway and ponds generally ranged from 0 to 5 feet below the existing grade with a majority of the groundwater depths ranging from 1 to 3.5 feet below existing grade. The estimated normal seasonal high groundwater levels in this report are based on the soil stratigraphy, measured groundwater levels in the borings, USDA/NRCS information and past experience with similar soil conditions. In general, the estimated normal seasonal high groundwater level is not intended to define a limit or ensure future seasonal fluctuations in groundwater levels will not exceed the estimated levels. Post-development groundwater levels could exceed the normal seasonal high groundwater level estimates as a result of a series of rainfall events, changed conditions at the site which alter surface water drainage characteristics, or variations in the duration, intensity, or total volume of rainfall.

Encountered groundwater elevations and estimated normal seasonal high groundwater elevations for the roadway and pond borings are summarized in Table 1 of Appendix B. PSI recommends that a survey of all the wetland areas adjacent to the roadway alignment and pond sites have the hydroperiod determined and surveyed before determination of final grading and roadway/pond design. Once the hydroperiod information is available, PSI should be given the opportunity to review the data and revisit the estimated normal seasonal high groundwater elevations if necessary.

**EVALUATION AND RECOMMENDATIONS**

**General**

Standard construction techniques appear suitable for construction of the proposed roadway and ponds with the exception of the locations where the roadway crosses wetland areas. Subsoil excavation to remove organic soils should be anticipated in these locations. Removal of organic soils from the roadway limits should be performed in accordance with FDOT Index 500 and in accordance with the latest versions of the FDOT “Standard Specification for Road and Bridge Construction”. Backfill soils at these locations should be A-3 Select (S) soils as defined by FDOT Index 505. Copies of FDOT Indices 500 and 505 are included in Appendix C.
Roadway and embankment construction can proceed in accordance with the latest versions of the FDOT “Standard Specification for Road and Bridge Construction,” and the FDOT “Design Standards,” including Indices 500 and 505. Based on laboratory testing, Strata 1, 2 and 3 soils encountered in the roadway and pond borings are select (S) materials in accordance with Index No. 505. Select materials such as Strata 1, 2 and 3 are suitable for use as engineered fill. Stratum 2 soils may retain excess moisture and be difficult to compact. Stratum 3 is suitable as select fill material provided the cemented sands are fully pulverized/crushed.

**Review of Pavement Grades**

We recommend roadway grades provide at least 2 feet of separation between the estimated normal seasonal high groundwater level and the bottom of the roadway base. If this separation cannot be provided, asphaltic base (black base) or underdrains may be required. Roadway plans are not available at this time. PSI requests the opportunity to review the roadway plans to verify roadway grades provide the required separation between the estimated normal seasonal high groundwater level and the bottom of the roadway base prior to grades being finalized.

**Pavement Design Considerations**

PSI understands flexible asphalt surfaced section is the preferred pavement for construction of the proposed roadway. A minimum separation of 24 inches is recommended between the bottom of the base course and the estimated normal seasonal high groundwater level. If 24 inches of separation can be maintained between the bottom of the base course and the estimated normal seasonal high groundwater level, pavement base materials can be comprised of either limerock or crushed concrete material. If this minimum separation cannot be met, then crushed concrete is recommended since it is less susceptible than limerock to groundwater related deterioration. Depending on groundwater clearance, underdrains or asphaltic base may be required.

DWMA provided PSI with a copies of the Draft Design Traffic Technical Memorandum for the Sunbridge Parkway Preliminary Design Study (July 2017) and the ESAL Analysis (August 2017). The analyses were prepared by Kittelson & Associates, Inc. for Tavistock East Services, LLC.

Based on the information provided by DWMA, we understand the proposed roadway will utilize a 4-lane urban roadway section and a 4-lane rural roadway section with a transition zone between these roadway section types. The roadway has been divided into Segments 1, 2, 3A, 3B and 4. Segment 1 is not included in this study. Segments 2 and 3A are proposed as urban roadway sections and Segment 4 is proposed as a rural roadway section. Segment 3B will serve as a transition zone from the urban to rural roadway section. Refer to Sheet 23 of Appendix A for the limits of each roadway segment.

The Equivalent Single Axle Loads (ESAL’s) Analysis provided traffic load data for two and four lane sections. The alignment was divided into 5 sections and ESAL’s for each section were provided. The following table summarizes the ESAL’s PSI utilized for the flexible pavement design.
Using the ESAL’s provided, a flexible pavement design was performed by PSI. The flexible pavement design was performed based on the FDOT design methodology using a Reliability of 95 percent for a 20-year design life. Recommended layer thicknesses are provided for designs using either Type SP-12.5 asphalt or a combination of Type SP-12.5 and SP-9.5 asphalt. The results of the pavement design are summarized in the following table.

The above pavement section is based on the traffic loading data provided to PSI. The flexible pavement design was performed in general accordance with the FDOT Flexible Pavement Design Manual (2016). All pavement materials and construction should be in accordance with FDOT standards.

### Stormwater Ponds

The borings performed at the proposed pond locations encountered groundwater levels between 0.5 and 3.5 feet below the existing grade. Based on the soil and groundwater conditions observed, wet bottom ponds appear appropriate for the project. Wet bottom ponds can be designed using the average wet season water level. The average wet season water level is anticipated to be 1 foot below the estimated normal seasonal high groundwater elevations shown on Table 1 in Appendix B. Stormwater ponds should be designed such that they do not drawdown or negatively affect adjacent wetlands. Determining hydroperiods of the adjacent wetlands should be performed prior to final grading and pond design. PSI recommends additional borings for the pond locations to assist with final design.

### Roadside Swales

It is PSI’s understanding from DWMA that roadside swales will be used for the collection and attenuation of stormwater run-off and are intended to be dry bottom swales. We recommend that the bottom of the swales be designed with a minimum of 2 feet of separation between the bottom of the swale and the estimated normal seasonal high groundwater elevation.
At this time, typical sections and roadway plans showing the locations of the proposed swales are not available. PSI is assuming the swales will be in close proximity to the roadway and constructed in select (A-3) embankment fill. Based on this assumption, the groundwater information obtained in the roadway borings can be used for preliminary design of the swales. Refer to Table 1 in Appendix B for estimated normal seasonal high groundwater elevations along the roadway. PSI recommends additional borings and permeability testing be performed during the final design phase of the project to assist with design of the roadside swales.

Roadway Embankment Settlement Analyses

Plans are not available at this time. Therefore, roadway embankment heights are unknown. Based on the borings completed by PSI, the soils along the alignment generally consist of sandy, cohesionless materials. Settlement of sandy, cohesionless soils is elastic and occurs as the embankment soils are placed. PSI is anticipating embankment heights of 10 feet or less along the alignment. Settlement is anticipated to be within tolerable limits for the proposed roadway for this height of embankment. Once plans are available, PSI requests the opportunity to review the plans and revisit our recommendations if necessary.

Very Dense Sand and Cemented Sand (Hardpan)

The contractor should be made aware that very dense and cemented sand (locally known as “hardpan”) was encountered during our field exploration. Some of the Stratum 1 soils were dense to very dense, but cemented sands were not observed in the samples. However, cemented sands were observed in Stratum 3.

These very dense/cemented soils may be encountered at other locations along the roadway alignment and in the pond locations between and away from PSI’s borings. Hardpan is composed of sands naturally cemented over time by the deposition of minerals from a fluctuating water table. The degree of cementation may vary.

The hardpan and very dense soils encountered may cause difficulties during excavation and dewatering operations. Hardpan/very dense sand encountered in pipe bedding locations may have to be undercut and backfilled to avoid uneven loading (point loads) of pipes and fittings. Hardpan and very dense soils may also make dewatering more difficult. The permeability of these soils may vary on the degree of cementation and or relative density. At times, the hardpan/very dense sands may serve as a restrictive layer, and therefore, the influence of dewatering well points may be reduced. Very dense sands and hardpan encountered at proposed sign or signal locations may cause difficulty during drilled shaft excavation. The contractor should be made aware that hardpan and very dense sands are present along the alignment and should be prepared to use special equipment and or procedures to facilitate excavations, dewatering and other earthwork operations. PSI recommends the contractor review Table 2 in Appendix B, which summarizes the locations where these soils were encountered, and the soil boring profiles on Sheets 19 through 22 of Appendix A prior to initiating construction.
Disston Canal

Based on the preliminary plans provided to PSI by Donald W. McIntosh and Associates, Inc., the proposed roadway will cross the Disston Canal at Station 761+00. The topographic survey provided to PSI shows the canal is approximately 100 feet wide. At this time, the type of structure to be used to convey the roadway over the canal is unknown. Based on the canal width a series of box culverts or a short span bridge appear feasible. Additional borings and engineering analysis are recommended once a preferred structure type is determined.

SINKHOLE POTENTIAL

PSI’s scope of work included an assessment of sinkhole risk based on a desktop review of readily available published geologic information. Typically, a higher frequency of sinkholes can be correlated to areas of high aquifer recharge and where differences between the ground surface and potentiometric surface exist. A review of the topographic maps and potentiometric maps indicated a difference of approximately 35 to 40 feet between the existing ground surface and the potentiometric surface. This difference indicates there is a general downward movement of groundwater. This downward movement of water is a key mechanism in sinkhole development. PSI also reviewed the Floridan Aquifer Recharge Map and Sinkhole Development and Distribution Map, both prepared by the St. Johns River Water Management District. The aquifer recharge map shows the project site in an area of low to moderate recharge. The sinkhole development map shows the project site in an area where historically sinkholes are infrequent, and generally consist of cover-collapse sinkholes that develop gradually.

In conclusion, even though a difference between the existing ground surface and potentiometric surface exists, the project site is in an area of low to moderate recharge, and therefore the downward flow of groundwater is limited compared to higher recharge areas. Based on the review of available data, it is PSI’s opinion the project area is at a low risk for future sinkhole development.

ADDITIONAL GEOTECHNICAL STUDIES

The geotechnical study performed should be considered preliminary in nature. Once roadway grades are determined and plans have been developed, additional borings along the roadway alignment and within the proposed pond/swale locations are recommended. Orange County Standards states a maximum spacing of 200 feet between borings for final design. However, due to the width of the roadway and the critical nature of Sunbridge Parkway, PSI recommends borings should be spaced at 100-foot intervals along the alignment. In locations where roadway proposed embankment heights exceed five feet, SPT borings to assist with settlement analysis and slope stability should be performed to a minimum depth of twice the proposed fill height or 20 feet below the existing grade, whichever is greater. Pond and swale borings should extend at least five feet below the proposed pond/swale bottom. A boring frequency of 2 borings per acre in ponds and one boring every 100 feet in proposed swale locations is recommended. SPT borings conforming to FDOT requirements are also recommended at all overhead sign, high mast lighting and signal locations. Additional borings should also be planned in areas where very dense sands and cemented sands may impact the installation of buried utilities or pond excavation.
REPORT LIMITATIONS

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This company is not responsible for the conclusions, opinions or recommendations made by others based on these data.

The scope of the investigation was intended to evaluate soil conditions within the influence of the proposed roadway improvements and stormwater pond areas. This report also includes an evaluation of possible deep soil issues such as sinkholes. The sinkhole assessment was based on a desktop review of published geologic data and shallow borings performed for this study were not intended to assist with the sinkhole assessment.

The analyses and recommendations submitted in this report are based upon the anticipated location and type of construction and data obtained from the soil borings performed at the locations indicated and does not reflect any variations which may occur among these borings. If any variations become evident during the course of construction, a re-evaluation of the recommendations contained in this report will be necessary after we have had an opportunity to observe the characteristics of the conditions encountered.

The scope of services, included herein, did not include any environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater, air, on the site, below and around the site. Any statements in this report or on the boring logs regarding odors, colors, unusual or suspicious items and conditions are strictly for the information of the client.
APPENDIX A - FIGURES AND SHEETS
SUNBRIDGE PARKWAY CORRIDOR

ORANGE AND OSCEOLA COUNTY, FLORIDA

PROJECT NO. 07571768
DATE CREATED 6/12/2017
FOR: TAVISTOCK EAST SERVICES, LLC

With 125 offices across
North America.
One Company, One Call
1748 33rd Street
Orlando, Florida 32839
(407)304-5560
(407)304-5566 fax

REFERENCE: THE 2016 AERIAL PHOTOGRAPH (ORANGE COUNTY) AND THE 2014 AERIAL PHOTOGRAPH (OSCEOLA COUNTY) WERE OBTAINED FROM ESRI. THE ABOVE DATA WAS OBTAINED FROM LABINS. THE PRESENTED DATA IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT MEANT FOR DESIGN, LEGAL, OR ANY OTHER USES. PSI, INC. ASSUMES NO RESPONSIBILITY FOR ANY DECISIONS MADE OR ANY ACTIONS TAKEN BY THE USER BASED UPON INFORMATION OBTAINED FROM THE ABOVE DATA.

FIGURE 2A

Hydric Soils Map

Legend

- Project Corridor
- Ponds
- Hydric Soils - Orange County
- 3-DANSINGER FINE SAND, DEPRESSIONAL, 0 TO 1 PERCENT SLOPES
- 40-SANIBEL MUCK
- 42-SANIBEL MUCK

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

1 inch = 3,000 feet

0 1,500 3,000 Feet
REFERENCE: POTENCIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER IN THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND VICINITY, FLORIDA, JUNE 2010

SECTIONS: 1, 6, 7, 18, 19, 30, 31
TOWNSHIP: 24 SOUTH
RANGE: 32 EAST

LEGEND

- 40

POTENCIOMETRIC CONTOUR— Shows altitude at which water level would have stood in tightly cased wells. Contour intervals is 10 feet. Datum is sea level.

Note: Elevations Shown on Map are in feet, NGVD
LEGEND

- Standard Penetration Test (SPT) Boring Location
- Approximate location of pond boring
LEGEND

- Standard Penetration Test (SPT) Boring Location
- Approximate location of pond boring
PROBE AREA 2

PROBE AREA 2

NOTE: MUCK PROBE DATA SHOWN FOR SUBSOIL CHARACTERIZATION PURPOSES ONLY. ROOTS, SAND LENSES OR OTHER OBSTRUCTIONS MAY PREVENT HAND PROBES FROM PENETRATING FULL DEPTH OF ORGANICS.
PROBE AREA 3

<table>
<thead>
<tr>
<th>PROBE AREA 3</th>
<th>PROBE LOCATIONS</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1L</td>
<td>0.1 W</td>
<td>0.7 P</td>
</tr>
<tr>
<td>P1R</td>
<td>0.0 W</td>
<td>0.7 (OS)</td>
</tr>
<tr>
<td>P2L</td>
<td>0.0 W</td>
<td>1.1 P</td>
</tr>
<tr>
<td>P2R</td>
<td>0.0 W</td>
<td>1.0 P</td>
</tr>
<tr>
<td>P3L</td>
<td>0.1 W</td>
<td>1.2 P</td>
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<td>P3R</td>
<td>0.0 W</td>
<td>1.2 P</td>
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<td>0.0 P</td>
</tr>
<tr>
<td>P5R</td>
<td>0.0 W</td>
<td>0.2 (OS)</td>
</tr>
</tbody>
</table>

**Legend:**
- Muck Probe Location
- 0.0 W: Depth of standing water in feet
- 0.2 (OS): Thickness of organic fine sand in feet
- 0.2 P: Thickness of peat in feet

**Note:** Muck probe data shown for subsurface characterization purposes only. Roots, sand lenses or other obstructions may prevent hand probes from penetrating full depth of organics.
MUCK PROBE LOCATIONS AND RESULTS
SUNBRIDGE PARKWAY POS
OC RAILROAD TO ORANGE/OSCEOLA COUNTY LINE
TAVISTOCK EAST

NOTE: MUCK PROBE DATA SHOWN FOR SUBSOIL CHARACTERIZATION PURPOSES ONLY. ROOTS, SAND LENSES OR OTHER OBSTRUCTIONS MAY PREVENT HAND PROBES FROM PENETRATING FULL DEPTH OF ORGANICS.

<table>
<thead>
<tr>
<th>PROBE AREA 4</th>
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</thead>
<tbody>
<tr>
<td>P1L</td>
</tr>
<tr>
<td>4.0 W</td>
</tr>
<tr>
<td>0.2 P</td>
</tr>
<tr>
<td>1.0 P</td>
</tr>
<tr>
<td>0.0 W</td>
</tr>
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<table>
<thead>
<tr>
<th>PROBE AREA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2L</td>
</tr>
<tr>
<td>0.0 W</td>
</tr>
<tr>
<td>1.8 P</td>
</tr>
<tr>
<td>0.0 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBE AREA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3L</td>
</tr>
<tr>
<td>0.3 W</td>
</tr>
<tr>
<td>4.0 P</td>
</tr>
<tr>
<td>0.1 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROBE AREA 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4L</td>
</tr>
<tr>
<td>0.0 W</td>
</tr>
<tr>
<td>0.2 P</td>
</tr>
<tr>
<td>0.0 W</td>
</tr>
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</table>
## Muck Probe Locations and Results

### Probe Area 5

<table>
<thead>
<tr>
<th>Probe Location</th>
<th>Water Depth (W)</th>
<th>Organic Sand Depth (P)</th>
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</thead>
<tbody>
<tr>
<td>P5-1</td>
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<td>P5-2</td>
<td>0.0 W</td>
<td>1.3 P</td>
</tr>
<tr>
<td>P5-3</td>
<td>0.0 W</td>
<td>1.0 P</td>
</tr>
<tr>
<td>P5-4L</td>
<td>2.0+ W</td>
<td>2.0 P</td>
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<td>P5-4</td>
<td>1.0 W</td>
<td>2.0 P</td>
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<tr>
<td>P5-4R</td>
<td>2.0+ W</td>
<td>2.0 P</td>
</tr>
<tr>
<td>P5-5L</td>
<td>2.0+ W</td>
<td>3.0 P</td>
</tr>
<tr>
<td>P5-5</td>
<td>2.0+ W</td>
<td>4.0 P</td>
</tr>
<tr>
<td>P5-5R</td>
<td>1.0 W</td>
<td>3.0 P</td>
</tr>
<tr>
<td>P5-6L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P5-6</td>
<td>1.0 W</td>
<td>4.0 P</td>
</tr>
<tr>
<td>P5-6R</td>
<td>1.0 W</td>
<td>3.0 P</td>
</tr>
</tbody>
</table>

### Legend
- Muck Probe Location
- 0.0 W: Depth of standing water in feet
- 0.3 (OS): Thickness of organic fine sand in feet
- 0.3 P: Thickness of peat in feet

**Note:** Muck probe data shown for subsurface characterization purposes only. Roots, sand lenses or other obstructions may prevent hand probes from penetrating full depth of organics.
### LEGEND
- Muck Probe Location
- W Depth of standing water in feet
- P Thickness of organic fine sand in feet
- S Thickness of peat in feet

**NOTE:** MUCK PROBE DATA SHOWN FOR SUBSOIL CHARACTERIZATION PURPOSES ONLY. ROOTS, SAND LENSES OR OTHER OBSTRUCTIONS MAY PREVENT HAND PROBES FROM PENETRATING FULL DEPTH OF ORGANICS.

#### PROBE AREA 6

<table>
<thead>
<tr>
<th>PROBE</th>
<th>0.0 W</th>
<th>0.0 P</th>
<th>1.0 W</th>
<th>1.5 P</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6-1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P6-2</td>
<td>0.0 W</td>
<td>0.0 P</td>
<td>1.0 W</td>
<td>1.5 P</td>
</tr>
<tr>
<td>P6-2L</td>
<td>0.0 W</td>
<td>0.0 P</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P6-3</td>
<td>0.0 W</td>
<td>0.0 P</td>
<td>1.0 W</td>
<td>1.5 P</td>
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</tr>
<tr>
<td>P6-4</td>
<td>0.0 W</td>
<td>0.0 P</td>
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<td></td>
</tr>
</tbody>
</table>

**Orlando, FL, 32839**

**CERTIFICATE OF AUTHORIZATION No. 00003684**

**OUC RAILROAD TO ORANGE/OSCEOLA COUNTY LINE**

**TAVISTOCK EAST SERVICES, LLC**

**ROBERT A. TROMPKE, P.E.**

**PSI PROJECT No. 07571768**

**ORANGE COUNTY, FLORIDA**

**SUNBRIDGE PARKWAY PDS**

**TAVISTOCK EAST**

**MUCK PROBE LOCATIONS AND RESULTS**

**ORANGE COUNTY, FLORIDA**

**ORANGE**

**2012 No.**

**1447 No.**
TAVISTOCK EAST SERVICES, LLC

MUCK PROBE LOCATIONS AND RESULTS
SUBURBAN PARKWAY PDS
OUC RAILROAD TO ORANGE/OSCEOLA COUNTY LINE
TAVISTOCK EAST

ORANGE COUNTY, FLORIDA

PROBE AREA 7

P7-1
0.0 W
0.75 P

P7-2
0.5 W
0.75 P

P7-3
0.0 W
0.1 P

P7-2R
2.0+ W
3.0 P

P7-3R
2.0+ W
3.0 P

NOTE: MUCK PROBE DATA SHOWN FOR SUBSOIL CHARACTERIZATION PURPOSES ONLY. ROOTS, SAND LENSES OR OTHER OBSTRUCTIONS MAY PREVENT HAND PROBES FROM PENETRATING FULL DEPTH OF ORGANICS.
### Muck Probe Locations and Results

**Sunbridge Parkway PDS**

**PROBE AREA 8**

<table>
<thead>
<tr>
<th>Probe Area</th>
<th>Location</th>
<th>Water Depth</th>
<th>Organic Fine Sand</th>
<th>Peat Depth</th>
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<td>P8-1</td>
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<td>3.0 P</td>
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</tr>
<tr>
<td>P8-2</td>
<td>0.0 W</td>
<td>2.0 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P8-3</td>
<td>0.0 W</td>
<td>0.6 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P8-4L</td>
<td>0.0 W</td>
<td>0.8 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P8-4R</td>
<td>0.0 W</td>
<td>1.0 P</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>P8-4L</td>
<td>0.0 W</td>
<td>0.9 P</td>
<td>-</td>
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</tr>
<tr>
<td>P8-5</td>
<td>0.0 W</td>
<td>4.0 P</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Legend**
- Muck Probe Location
- 0.0 W: Depth of standing water in feet
- 0.3 (OS): Thickness of organic fine sand in feet
- 0.3 P: Thickness of peat in feet

**Note:** Muck probe data shown for subsurface characterization purposes only. Roots, sand lenses, or other obstructions may prevent hand probes from penetrating full depth of organics.
**PROBE AREA 5**

<table>
<thead>
<tr>
<th>Probe</th>
<th>0.0 W</th>
<th>0.5 P</th>
<th>1.5 P</th>
<th>2.0 P</th>
<th>2.5 P</th>
<th>3.0 P</th>
<th>3.5 P</th>
<th>4.0 W</th>
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</thead>
<tbody>
<tr>
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<td>0.5 P</td>
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</tr>
<tr>
<td>P9-2</td>
<td>0.0 W</td>
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<td>P9-3</td>
<td></td>
<td>1.5 P</td>
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<td>P9-5</td>
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<td>3.0 P</td>
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<td>P9-8</td>
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<tr>
<td>P9-9</td>
<td>4.0 W</td>
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<td>P9-10</td>
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</tr>
</tbody>
</table>

**LEGEND**

- Muck Probe Location
- Depth of standing water in feet (0.0 W)
- Thickness of organic fine sand in feet (0.2 OS)
- Thickness of peat in feet (0.3 P)

**NOTE:** Muck probe data shown for subsurface characterization purposes only. Muck depths exceeding 12 feet or other obstructions may prevent hand probes from penetrating full depth of organics.

**PROBE AREA 9**

Robustsand 
TAVISTOCK EAST SERVICES, LLC

Muck probe locations and results: SUNBRIDGE PARKWAY POS ORANGE COUNTY LINE TAVISTOCK EAST

ORANGE COUNTY, FLORIDA
## Soil Survey for the Design of Roads

**Cross Section Soil Survey for the Design of Roads**

- **Survey Begins STA:** 579+51
- **Survey Ends STA:** 900+00

### Sieve Analysis Results

<table>
<thead>
<tr>
<th>Stratum No.</th>
<th>% Passing 10 MESH</th>
<th>% Passing 20 MESH</th>
<th>% Passing 30 MESH</th>
<th>% Passing 40 MESH</th>
<th>% Passing 60 MESH</th>
<th>% Passing 80 MESH</th>
<th>% Passing 100 MESH</th>
<th>% Passing 200 MESH</th>
<th>% Passing 300 MESH</th>
<th>% Passing 500 MESH</th>
<th>% Passing 1000 MESH</th>
<th>% Passing 3000 MESH</th>
<th>% Passing 6000 MESH</th>
<th>% Passing 10000 MESH</th>
<th>% Passing 30000 MESH</th>
<th>% Passing 60000 MESH</th>
<th>% Passing 100000 MESH</th>
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### Laboratory Analysis Results

<table>
<thead>
<tr>
<th>Test No.</th>
<th>% Organic</th>
<th>Plastic Limit</th>
<th>Atterberg Limits</th>
<th>Classification</th>
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<td>22-27</td>
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<td>3</td>
<td>9</td>
<td>6</td>
<td>-</td>
<td>A-3</td>
</tr>
</tbody>
</table>

### Environmental Classification

- **Organic Content:** 2%
- **Moisture Content:** 5%
- **Sieve Analysis Results:** % Passing 10 Mesh: 50, 5, 9%
- **Atterberg Limits:** Plastic Index: 22-27, 24, 9%
- **Classification:** A-3, A-2-4, A-3

### Notes

1. Strata boundaries are approximate and represent soil strata at each test hole location only. Any strata connecting lines shown are for estimating earthwork only and do not indicate actual stratum limits. Subsurface variations between borings should be anticipated as indicated in Section 10-3 for further details. See Section 10-3.
2. If the symbol '-' is present, it represents unmeasured soil parameters.
3. Soil analysis includes data from roadway auger borings.
4. The material from Stratum No. 1 is select (S) material and appears satisfactory for use in the embankment when utilized in accordance with Index No. 505. However, Stratum No. 2 material contains hardpan and cemented sands. These soils may be utilized in accordance with Section 120 of the FDOT Design Standard and will require additional treatment and/or procedures to facilitate excavation and penetration.
5. The material from Stratum No. 3 is select (S) material and appears satisfactory for use in the embankment when utilized in accordance with Index No. 505. However, Stratum No. 3 material contains hardpan and cemented sands. These soils may be utilized in accordance with Section 120 of the FDOT Design Standard and will require additional treatment and/or procedures to facilitate excavation and penetration.
6. The material from Stratum No. 4 is select (S) material and appears satisfactory for use in the embankment when utilized in accordance with Index No. 505. However, Stratum No. 4 material contains hardpan and cemented sands. These soils may be utilized in accordance with Section 120 of the FDOT Design Standard and will require additional treatment and/or procedures to facilitate excavation and penetration.
7. The material from Stratum No. 5 is select (S) material and appears satisfactory for use in the embankment when utilized in accordance with Index No. 505. However, Stratum No. 5 material contains hardpan and cemented sands. These soils may be utilized in accordance with Section 120 of the FDOT Design Standard and will require additional treatment and/or procedures to facilitate excavation and penetration.
8. The material from Stratum No. 6 is select (S) material and appears satisfactory for use in the embankment when utilized in accordance with Index No. 505. However, Stratum No. 6 material contains hardpan and cemented sands. These soils may be utilized in accordance with Section 120 of the FDOT Design Standard and will require additional treatment and/or procedures to facilitate excavation and penetration.

---

**Erection and Subgrade Material**

Strata boundaries are approximate, make final check after grading.

Water table encountered at time of survey.

Estimated normal seasonal high water level at time of survey.

Gneiss groundwater level not encountered at time of survey.
LEGEND

1 Light brown, brown, dark gray, dark brown, red-brown fine SAND, (A-2)

2 Brown, dark brown silty fine SAND, (A-2-4)

3 Red-brown fine SAND with cemented sand, (A-3)

(A-3) A.A.S.H.T.O. soils classification group symbol

Depth to groundwater level in feet with date of reading

Standard penetration resistance in blows per foot (18" spoon ASTM D-1586) using 140 lb automatic hammer

Standard penetration resistance in blows per foot (18" spoon ASTM D-1586) using 340 lb safety hammer

Organic content (%) (FM T 267)

Percent passing no. 200 U.S. standard sieve

Liquid limit (FM T 15, 083)

Plasticity index (FM T 15, 080)
ROADWAY SEGMENT MAP

SHEET:  23

PSI PROJECT No. 07571768

ORANGE

ROBERT A. TROMPKE, P.E.

P.E. NO.: 55456

PROFESSIONAL SERVICE IND., INC.

1748 33RD STREET

ORLANDO, FL. 32839

CERTIFICATE OF AUTHORIZATION No. 00003684

ORANGE COUNTY, FLORIDA

ORANGE RAILROAD TO ORANGE/OSCEOLA COUNTY LINE

TAVISTOCK EAST

SUNBRIDGE PARKWAY PDS

ROADWAY SEGMENT MAP

ROADWAY SEGMENT

SEGMENT 2

SEGMENT 3A

SEGMENT 3B

SEGMENT 4

TYPICAL ROADWAY SECTION TYPE

URBAN

URBAN

TRANSITION SECTION

RURAL

GRAPHIC AND INFORMATION PROVIDED BY DONALD W. MCINTOSH, INC.