FINAL
POND SITING MEMORANDUM

Reconstruction of Old Lake Wilson Road (CR 545)
Widening Project Development and Environment (PD&E) Study
From County Road 532 to South of Sinclair Road

Osceola County

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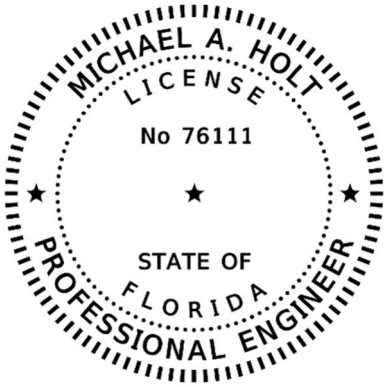

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June 2022

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EXECUTIVE SUMMARY

Osceola County is conducting a Project Development and Environment (PD&E) study to evaluate the widening of Old Lake Wilson Road/County Road 545 (CR 545) from two to four lanes. The purpose of this PD&E study is to evaluate engineering and environmental data and document information that will aid the County in determining the location, type, and preliminary design of the proposed improvements. The total project length is approximately 2.5 miles. The study includes capacity improvements along the roadway and at intersections, a new bridge over Interstate 4 (I-4), the addition of a median, and bicycle and pedestrian features. The proposed project also includes replacing a bridge culvert over Davenport Creek.

The project is located within the jurisdiction of the South Florida Water Management District (SFWMD) and the Florida Department of Environmental Protection (FDEP). The project is divided into 8 sub-basins based on the existing roadway profile, roadside ditch profiles, and culvert and cross drain locations.

The vertical datum used for this study is the North American Vertical Datum of 1988 (NAVD 88). To convert from NAVD 88 to National Geodetic Vertical Datum of 1929 (NGVD 29), add 0.87 feet.

The intent of this Drainage Memo is to document Osceola County, Florida Department of Transportation (FDOT), and SFWMD stormwater requirements and identify existing and/or planned stormwater management facilities with additional storage capacity to accommodate the additional runoff from the widening of CR 545. The stormwater management approach is to minimize cultural and environmental impacts, as well as right-of-way, maintenance, and construction costs by utilizing existing permitted pond sites that account for future improvements of CR 545. Conclusions and recommendations were developed using the best available data and conceptual roadway alignment and typical sections. The pond calculations shall be revised during the design phase, when survey and geotechnical data is available.

Existing permitted ponds designed to accommodate the future widening of CR 545 have been identified along the project limits. This report documents the analysis of the viability of existing permitted ponds to demonstrate compliance with nutrient loading requirements. Nutrient removal calculations have been provided which demonstrate that the pollutant loading can be accommodated within the existing permitted ponds identified along the project corridor.

Table 1 summarizes the existing permitted ponds identified along the project corridor for Basins 1-8.

It should be noted that although the permits were submitted with the roadway areas included in the calcs, the designer was not able to locate any documented easements. However, there are commitments recorded within the local developer's agreements which indicate a legal right to discharge roadway runoff into these facilities (see **Appendix C**). To ensure that the roadway improvements have a "legal discharge" as defined in the Osceola County Land Development Code (Section 4.5), it is suggested that the County proceed with acquiring formalized easements with associated legal sketch/descriptions specific to the locations of proposed connections to the

existing ponds. Preliminary suggestions as to appropriate locations are provided in the figures in **Appendix F**. Conversation should also be initiated with the WMD to determine if a formal survey of existing conditions will be required, or whether the standard SMF inspection reports are sufficient to document continued compliance with the permitted condition(s). It is recommended that the County begin correspondence with the FDOT regarding the use of the infield ponds (105A, 105B, 108A) for stormwater treatment/attenuation associated with the proposed widening ahead of the I-4 BtU project timeline.

Table 1: Existing Permitted Pond Summary

Basin Name	Existing Permit Basin Name(s)	Proposed CR 545 Basin Area (ac)	Required Water Quality Volume (ac-ft)	Provided Water Quality Volume (ac-ft)	Existing Pond Size (ac)
Basin 1	3701 3703	7.81	0.86	20.19	2.86
Basin 2	3742	3.80	0.36	0.55	0.18
Basin 3	4913	9.80	0.94	1.34	1.28
Basin 4	3622	4.33	0.41**	38.30	10.19
Basin 5	BSN108A	4.18	2.29	6.58	3.98
Basin 6	BSN105A BSN105B	3.13	5.50	7.09	8.70
Basin 7	Basin D008	8.20	3.93	5.12	5.26
Basin 8	Basin D001	7.42	1.87	3.46	3.34

** Basin 3622 was not included in the routing calculations for the latest permit modification to Pond 9, SFWMD Permit No. 49-102283-P (Application No. 191004-1965)

Federal Emergency Management Agency (FEMA) floodplains are located at two riverine crossings located along the project corridor. There is one regulatory floodway within the study limits: Davenport Creek. Floodplain compensation will be necessary to offset the floodplain impacts from the proposed improvements and will be further analyzed in the design phase. Please refer to the Location Hydraulics Report (LHR) for additional information on the anticipated floodplain impacts.

1.0 INTRODUCTION

Osceola County is conducting a Project Development and Environment (PD&E) study to evaluate capacity improvements to CR 545. The project limits extend from County Road 532 (CR 532) to south of Sinclair Road, a distance of approximately 2.5 miles. The project consists of the widening of CR 545 from two to four lanes.

Currently, CR 545 is a two (2) lane undivided rural roadway. There are a total of eight intersections within the project limits. The anticipated scope of work at each intersection is summarized below.

- CR 532 Intersection: This intersection is anticipated to be reconstructed as part of the Polk County and/or CR 532 widening; therefore, no changes are anticipated.
- Excitement Drive Intersection: A bi-directional median may be considered to reduce the number of conflict points and to improve safety.
- Assembly Court Intersection: A bi-directional median may be considered to reduce the number of conflict points and to improve safety.
- Spine Road Intersection: Signalization or a roundabout may be considered.
- Fairfax Drive/Marker Avenue Intersection: Signalization or a roundabout may be considered.
- Pendent Court Intersection: This intersection will remain a right-out only driveway.
- Sinclair Road Intersection: This intersection is already four lanes; therefore, no changes are anticipated.
- Access Road for the Gulfstream Interconnect/booster Station: No changes are anticipated.

Several bridge structures will need to be widened or reconstructed along with the roadway. The project corridor includes the crossing of Davenport Creek.

The intent of this Pond Siting Report (PSR) is to document the volume required to comply with design/permitting regulations and identify existing and/or planned stormwater management facilities with additional storage capacity to accommodate the additional runoff from the widening of CR 545. The stormwater management approach is to minimize cultural and environmental impacts, as well as right-of-way, maintenance, and construction costs by utilizing permitted pond sites that account for future improvements of CR 545. Conclusions and recommendations were developed using the best available data and conceptual roadway alignment and typical sections. The pond calculations shall be refined during the design phase, when survey and geotechnical data is available.

2.0 PROJECT DESCRIPTION

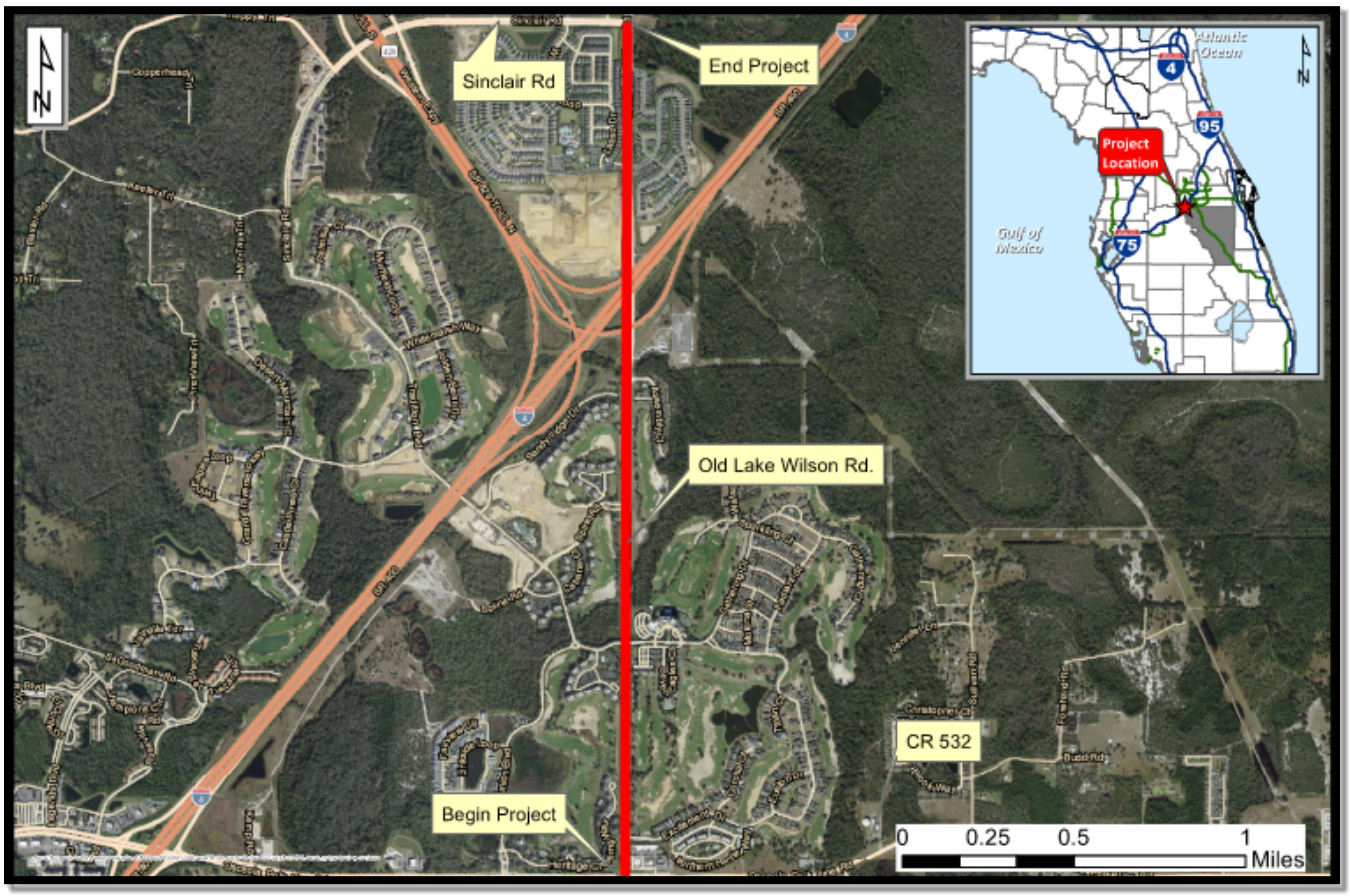
2.1 PROJECT LOCATION

The PD&E study limits include CR 545 from CR 532 to South of Sinclair Road (SR 70). The study limits are in Osceola County. A Project Location Map is shown in **Figure 2-1**. Refer to **Appendix F** for a USGS Quadrangle Map. The project is located within the section, township, and range shown in **Table 2-1**.

Table 2-1: Section, Township, and Range Data

Range	Township	Section
27E	25S	10

Figure 2-1: Project Location Map



2.2 DATUM

The vertical datum used for this study is the North American Vertical Datum of 1988 (NAVD 88). To convert from NAVD 88 to National Geodetic Vertical Datum of 1929 (NGVD 29), add 0.87 feet. Please refer to **Appendix G** for the VERTCON datum conversion.

2.3 EXISTING ROADWAY CHARACTERISTICS

The existing CR 545 from CR 532 to South of Sinclair Road consists of two 12-foot travel lanes and 4-foot unpaved outside shoulders on both sides. **Figure 2-2** shows the Existing Typical Section.

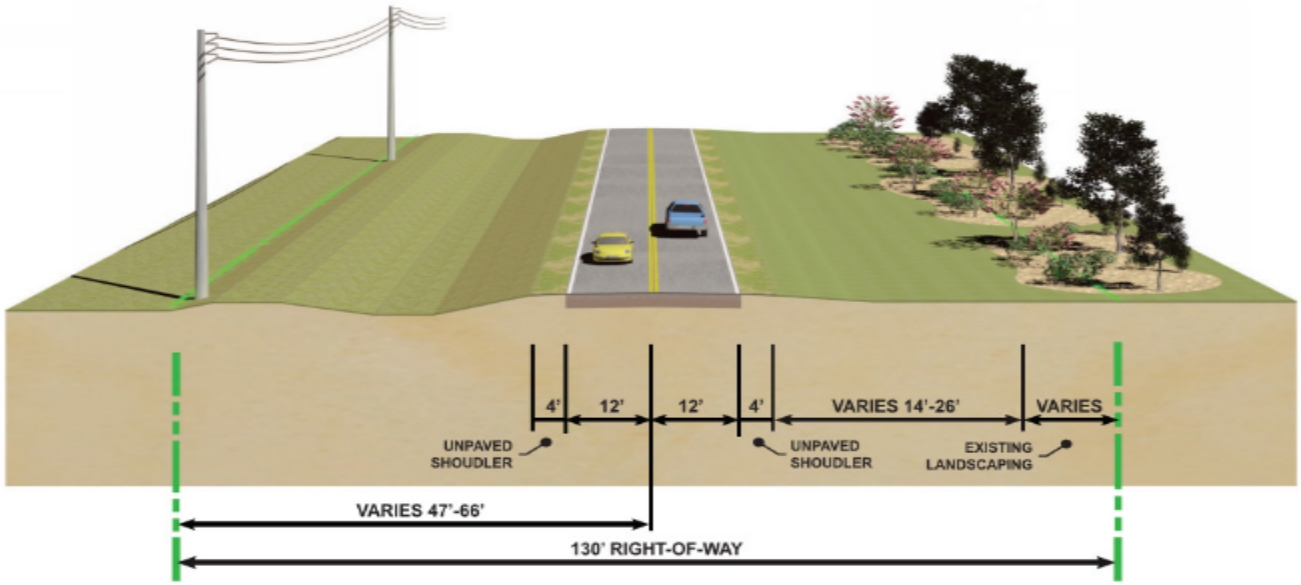


Figure 2-2: Existing Typical Section

2.4 PROPOSED ROADWAY CHARACTERISTICS

The proposed future improvements include widening CR 545 from two 12-foot lanes to four 11-foot lanes, the addition of a median, and accommodations for bicycles and pedestrians. All typical section alternatives maintain the existing landscape on the east side of CR 545. Two (2) typical sections are being considered. Typical Section 1 includes four 11-foot travel lanes, a 37.5-foot median, 5-foot bike lanes, curb and gutter, a 10-foot sidewalk along the left (LT) side of the alignment, and a 5-foot sidewalk along the right (RT) side of the alignment. **Figure 2-3** shows Proposed Typical Section 1.

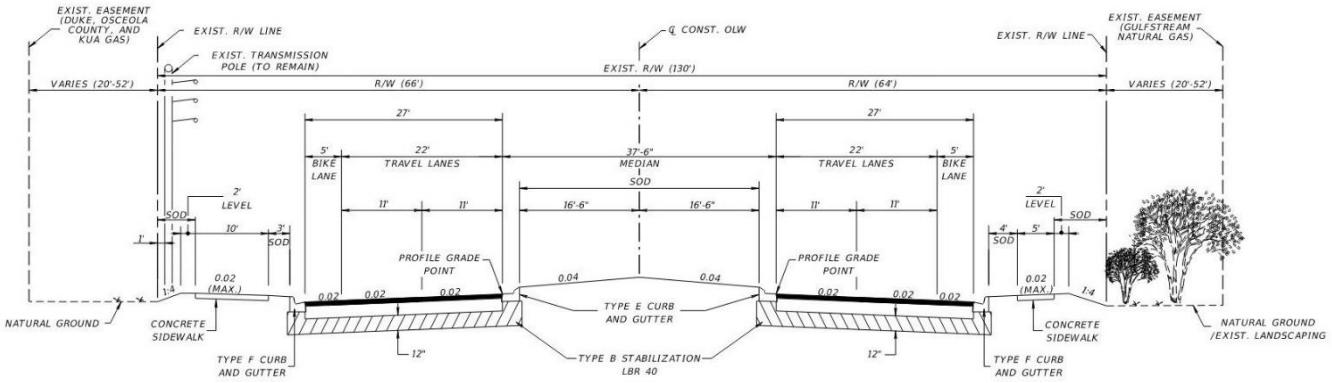


Figure 2-3: Proposed Typical Section 1

Typical Section 2 includes four 11-foot travel lanes, a 37.5-foot median, 7-foot buffered bike lanes, curb and gutter, an 8-foot sidewalk along the left (LT) side of the alignment, and a 5-foot sidewalk along the right (RT) side of the alignment. **Figure 2-4** shows Proposed Typical Section 2.

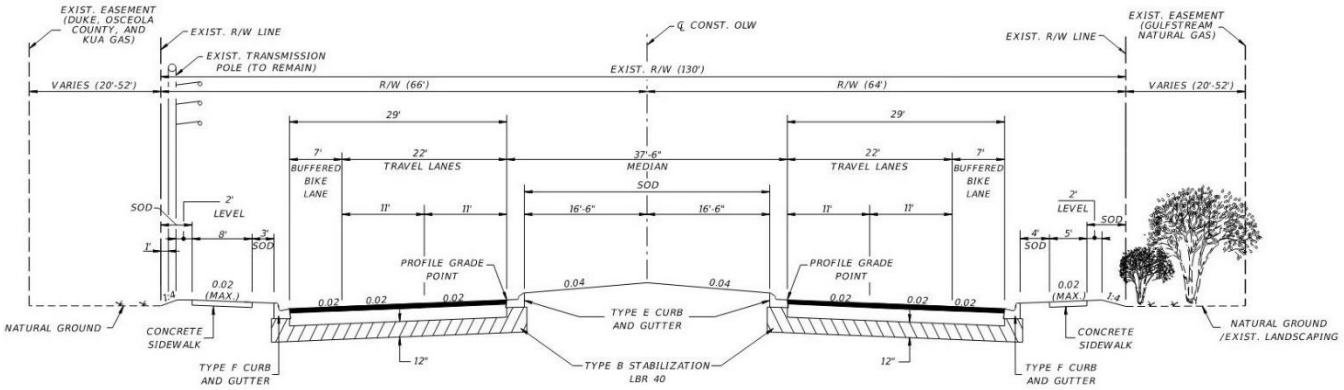


Figure 2-4: Proposed Typical Section 2

3.0 DATA COLLECTION

The following sources assisted in the preparation of this Drainage Memo:

- FDEP Map Direct
- FDOT Drainage Manual (2021)
- FDOT Drainage Design Guide (2021)
- FDOT Project Development and Environment Manual (2019)
- FEMA Flood Map Service Center
- NRCS Web Soil Survey
- SFWMD ePermitting
- FDEP OCULUS Permit Search
- SFWMD ERP Applicant's Handbook, Volume I (2018)
- SFWMD ERP Applicant's Handbook, Volume II (2016)
- Osceola County Land Development Code (OC LDC), Article 4.5 - Stormwater
- FEMA Document: Managing Floodplain Development in Approximate Zone A Areas (1995)
- Central Florida Regional Planning Council, Development of Regional Impact documents for Reunion Resort & Club of Orlando

4.0 DESIGN CRITERIA

4.1 PERMITS

The study area lies within the jurisdiction of the South Florida Water Management District (SFWMD) and the Florida Department of Environmental Protection (FDEP). It is anticipated that the project will require the following permits and approvals:

- SFWMD – Individual Environmental Resource Permit (ERP) Modification
- FDEP – NPDES and Section 404 Permit

4.2 APPLICABLE CRITERIA

The proposed pond alternatives provided within this report were analyzed in accordance with SFWMD, Osceola County, and FDOT design criteria. FDOT criteria were applied as specified in the project scope because Osceola County is seeking state/federal funding for the project. Historical permit data indicates that the existing ponds were originally sized to accommodate the future (4-lane) condition.

4.2.1 SFWMD CRITERIA

- Off-site discharge rate is limited to rates not causing adverse impacts to existing off-site properties, and:
    - Historic discharge rates; or
    - Rates determined in previous Agency permit actions; or
    - Rates specified in District criteria (SFWMD ERP Applicant's Handbook, Volume II, Section 3.2)
- A storm event of 3-day duration and 25-year return frequency shall be used in computing off-site discharge rates (SFWMD ERP Applicant's Handbook, Volume II, Section 3.3). SFWMD typically allows the 10-year frequency, 3-day duration design storm for projects in Osceola County.
- Provision must be made to replace or otherwise mitigate the loss of historic basin storage provided by the project site (SFWMD ERP Applicant's Handbook, Volume II, Section 3.7).
- Retention, detention, or both shall be provided for one of the three following criteria or equivalent combination thereof:
    - Wet detention volume shall be provided for the first inch of runoff from the developed project or the total runoff of 2.5 inches times the percentage of imperviousness, whichever is greater.
    - Dry detention volume shall be provided equal to 75 percent of the above amounts computed for wet detention.
    - Retention volume shall be provided equal to 50 percent of the above amounts computed for wet detention (SFWMD ERP Applicant's Handbook, Volume II, Section 4.2.1).
- Systems discharging to a waterbody that has been identified as impaired by the Department of Environmental Protection (DEP) shall be designed to provide a net improvement (SFWMD ERP Applicant's Handbook, Volume II, Section 4.1.4).
- Side slopes for wet retention/detention and attenuation areas shall be designed with side slopes no steeper than 4:1 (horizontal: vertical) from top of bank out to a minimum depth of two feet below the

control elevation, or an equivalent substitute (SFWMD ERP Applicant's Handbook, Volume II, Section 5.4.2).

- Systems with inlets in grassed areas will be credited with up to 0.2 inches of the required wet detention amount for the contributing areas. Full credit will be based on a ratio of 10:1 impervious area (paved or building area) to pervious area (i.e. the grassed area) with proportionately less credit granted for greater ratios (SFWMD ERP Applicant's Handbook, Volume II, Section 4.2.1).
- No net encroachment into the floodplain, between the average wet season water table and that encompassed by the 100-year event, which will adversely affect the existing rights of others, will be allowed (SFWMD ERP Applicant's Handbook, Volume II, Section 3.6).
- Provision must be made to replace or otherwise mitigate the loss of historic basin storage provided by the project site (SFWMD ERP Applicant's Handbook, Volume II, Section 3.7).

The study limits fall within WBID 3170K (Davenport Creek) which is not currently impaired for TN or TP. However, Reedy Creek, the outfall for Davenport Creek, is impaired for TN and TP and Davenport Creek is located within the Lake Okeechobee Watershed which has a Basin Management Action Plan (BMAP) for phosphorus. The Lake Okeechobee BMAP requires that nutrient loading calculations be conducted to demonstrate a net improvement in phosphorus loading. Refer to **Appendix E** for nutrient loading calculations.

Since Davenport Creek ultimately outfalls to Reedy Creek, a discharge limitation of 13 cubic feet per second (cfs) per square mile for a 50 year/72-hour storm is required by the Reedy Creek Improvement District. Alternatively, an impact fee may substitute meeting the stringent discharge limitation requirements. Refer to **Appendix F** for a WBID map.

The project is not within or adjacent to lands under consideration by the Save Our Rivers program. The project is not located within the radius of influence of a wellfield.

4.2.2 FDOT CRITERIA

- Wet detention ponds shall provide a minimum permanent pool depth of six feet to minimize aquatic growth (FDOT Drainage Manual, Chapter 5.4.1.1).
- Provide a minimum 20 feet of horizontal clearance between the top edge of the control elevation and the right-of-way line (FDOT Drainage Manual, Chapter 5.4.4.2).
- Provide at least 15 feet adjacent to the pond at a slope of 1:8 or flatter for maintenance (FDOT Drainage Manual, Chapter 5.4.4.2).
- At least one foot of freeboard is required from the maximum design stage of the pond to the inside edge of the berm (FDOT Drainage Manual, Chapter 5.4.4.2).
- For linear treatment swales, the minimum freeboard is 0.5 foot (FDOT Drainage Manual, Chapter 5.4.4.2).
- Pond side slopes shall be 1:4 or flatter to two feet below the control elevation (FDOT Drainage Manual, Figure 5-1).

4.2.3 OSCEOLA COUNTY CRITERIA (FROM OC LDC SECTION 4.5.1)

- Design Storm Event: Within the SFWMD boundaries, the post-developed peak rate of discharge, permitted from the site, will not exceed the pre-developed peak rate of discharge from the site, during a 10-year/72-hour storm event (rainfall depth 7.6 inches). If a legal and positive outfall to the ultimate receiving body cannot be provided, additional analysis showing that the post-development discharge volume does not exceed the pre-development discharge volume shall be required.
- Compensating Storage: For encroachments into the 100-year floodplain, compensating storage for development is to be accomplished between the average wet season water table within the special flood hazard area, and the estimated 100-year base flood elevation, or as required by the applicable Water Management District.
- Disposition of Stormwater: The post-development runoff from any site shall be discharged in the same manner as in the pre-development condition. The discharge shall be either sheet flow in a natural way at natural elevations or into a positive legal outfall.
    - A legal outfall as it pertains to this Article, is one which drains to County right-of-way or drainage easements, to other government regulatory rights-of-way or drainage easements. Discharges to a (manmade or natural) drainage system previously approved by the County, or which preceded or otherwise did not require approval from the County when constructed (e.g., drainage ditch or canal within agricultural property), may be considered a legal outfall if appropriate drainage easements or other rights are demonstrated.
- Dry Ponds: Side slopes no steeper than 1:4 (V:H); or on commercial sites with pond depth of less than two (2) feet; no steeper than 1:3. Retaining walls are allowed. A minimum of ten-foot (10') wide unobstructed access to the control structure shall be provided in all dry facilities.
- Wet Ponds: Side slopes no steeper than 1:4 to three (3) feet below control elevation, then no steeper than 1:2 to pond bottom. Retaining walls or bulkheads shall be allowed for up to forty (40%) of the shoreline length, but compensating littoral zone must be provided based on 1:4 side slope. Areas used for excavation during the construction of development shall be shown on the construction plans. No excavation will be permitted into the side slopes of the pond with the exception of structure required for the pond.
- Maintenance Berm: A ten-foot (10') wide unobstructed maintenance berm is required around pond perimeter and shall have a slope no steeper than 1:10. A minimum of a twenty-foot (20') wide tract may be required by the County to provide stormwater facility access from a right-of-way.

4.2.4 FAA CONSIDERATIONS

There are no airports within 5 miles of the project.

5.0 EXISTING AND PROPOSED CONDITIONS

5.1 EXISTING DRAINAGE CONDITIONS

The existing CR 545 from CR 532 to south of Sinclair Road consists of two undivided travel lanes with 4-foot unpaved outside shoulders on both sides. Stormwater runoff sheet flows from the roadway into roadside ditches with no permitted water quality treatment and attenuation. The runoff from the ditches flows into existing culverts and cross drains throughout the corridor. The culverts and cross drains discharge into Davenport Creek. Davenport Creek discharges into Reedy Creek. The general flow of surface waters within the project limits is from west to east.

The project is divided into 8 sub-basins based on the existing roadway profile, roadside ditch profiles, culvert and cross drain locations, and existing permit information. All basins within the project limits are open basins in the existing condition. Refer to **Appendix A** for the Basin Maps.

The project is located within the SFWMD and in one secondary drainage district, listed in **Table 5-1**.

Table 5-1: Secondary Drainage Districts within project limits

Secondary District Name	Approximate Project Limits	Basins within Secondary District
Reedy Creek Improvement District	CR 532 to Sinclair Rd	Basins 1 – 8

Based on the SFWMD permit records, it appears that additional impervious area associated with the widening of Old Lake Wilson Road is accommodated in existing permits from CR 532 to Sinclair Road.

Within the project limits, CR 545 is bordered by the Reunion (Magnolia Creek) Development of Regional Impact (DRI). The first Development Order for the Magnolia Creek Development of Regional Impact was issued by the Osceola Board of County Commissioners in July 1992. The most recent Development Order (8th Amendment) was issued August 28, 2018.

Conceptual Approval for the stormwater management system for the DRI was initially granted by the South Florida Water Management District (SFWMD) on March 10, 1994. ERP 49-00726-S (App No. 930614-1), the initial permit, expired due to lack of construction on the project. An updated Conceptual Approval, along with the construction approval of the first phase (golf course and related facilities) was granted by SFWMD on May 10, 2001 under ERP 49-01107-P (App 000522-5). This permit appears to rely on some pre-development analyses conducted for the previous (expired) Conceptual Approval. To date 83 modifications to Permit 49-01107-P have been processed by the District. A table listing relevant modifications is included in **Appendix B**.

The areas for CR 545 right-of-way were incorporated into the calculations for the conceptual approval at 70% impervious area. This percentage of impervious area was also used in most of the subsequent modifications for permits south of I-4. However, some of these initial assumptions were altered in subsequent permit modifications. North of I-4 to Sinclair Road, the existing ponds were designed to accommodate runoff for the future 6-lanes (up to 82% impervious area) from CR 545. The following stormwater management facilities within the Reunion/Magnolia Creek DRI are relevant to CR 545:

- South of I-4:
    - Pond 370
    - Pond 374
    - Pond 491
    - Pond 362 (Subsequently renumbered to Pond 9 in Permit 49-01107-P-17 (App No. 040526-4) and Permit 49-102283-P (App No. 191004-1965). The CR 545 basin to this pond was also eliminated in these permit updates.
- North of I-4:
    - Pond 8
    - Pond 6

Stormwater for the portion of CR 545 that passes through the I-4/SR-429 interchange was assessed based on infield ponds within the interchange. The following infield ponds were evaluated: Pond 105A, Pond 105B, Pond 108A, and Pond 108B. It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 Beyond the Ultimate (I-4 BtU) project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon). For this reason, the existing conditions of the ponds within the I-4 Interchange were evaluated for the purposes of this report, as compared to the proposed modifications associated with the I-4 BtU project. While the County has an existing MOU with the FDOT for the I-4/Old Lake Wilson Road interchange (included in Appendix C for reference), this MOU explicitly states that any changes beyond the scope of the agreement must be made in writing. It is recommended that the County begin correspondence with the FDOT regarding the use of the infield ponds (105A, 105B, 108A) for stormwater treatment/attenuation associated with the proposed widening ahead of the I-4 BtU project timeline.

Table 5-2: Existing SFWMD Permits within project limits relevant to CR 545

APPLICATION NO	PERMIT NO	APPROVED DATE	PROJECT NAME	NOTES
000522-5	49-01107-P	10-May-01	Magnolia Creek Multi-Use Planned Development	Conceptual Approval & Construction Approval for Golf Course
020913-3	49-01107-P	3-Jan-03	Reunion Country Club	Includes overall update to overall drainage calculations to include the approved modifications to date.
040526-4	49-01107-P-17	16-Jul-04	Reunion Resort and Club Village Center	Revises basins to Ponds 360, 361, 362, 366, and 367, reconfigures/renames ponds to 3, 4, 5, 6, 7, 8, and 9 and eliminates basin from CR 545. (These were subsequently modified by Permit 49-102283-P (App 191004-1965)
040702-5	49-01107-P-14	26-Aug-04	Reunion Resort & Club Phase 1 Parcel 6	Includes updates for Basins to Ponds 370 & 374
150331-13	49-01107-P-38	9-May-16	Reunion West Mass Grading	Includes construction of Ponds 6 & 8, North of I-4
191004-1965	49-102283-P	31-Jan-20	Reunion Resort and Club Village Center	Revises Permit 49-01107-P-17 (App. 040526-4)
020204-8	43-00792-S	29-Dec-10	SR 400 I-4 Widening	I-4 Widening
101024-20	43-00792-S	10-Oct-02	SR 400 I-4 Widening	I-4 Widening
980626-6	49-00954-P	12-Feb-99	C. R. 545 Realignment	CR 545 Realignment
210105-5031	49-104624-P	11-May-21	SR 400/I-4 – SR 429 Auxiliary Lanes Modification	SR 429 Auxiliary Lanes Modification
090515-5	49-00954-P	11-Dec-09	Old Lake Wilson Road Widening (County Road 545)	CR 545 Widening

Table 5-3: Existing FDEP Permits within project limits

Permit Name or Area	FDEP Permit Number
SR 429	49-187636001
I-4 Beyond the Ultimate	0187636-003-EI

5.1.1 CONTRIBUTING OFF-SITE AREAS

There are no significant off-site contributing areas within the project limits. The majority of the off-site area adjacent to CR 545 is accommodated within the Reunion Resort Master Stormwater Management Facilities.

5.1.2 EXISTING PERMITTED PONDS

Existing permitted ponds designed to accommodate the future widening of CR 545 have been identified along the study limits. The purpose of this report is to document the viability of using existing ponds and demonstrate compliance with nutrient loading requirements. Compliance with water quantity requirements was also assessed. The following section describes the basins that are within the limits of CR 545, from CR 532 to south of Sinclair Road. Note that Basins 1 through 4 outfall into Davenport Creek, which is subject to a discharge limitation of 13 cubic feet per second per square mile (csm) for a 50-year, 72-hour storm event per Reedy Creek Improvement District (RCID) requirements. Alternatively, impact fees can be paid to RCID for flows in excess of 13 csm.

The most recent amendment to the Magnolia Creek (formerly known as Osceola Pointe) Development of Regional Impact (DRI) (dated July 18, 2018) does not address stormwater needs for the future widening of CR 545. However, it incorporates (by reference) a number of historical documents, among which is a Facilitation of Public Infrastructure Agreement between the adjacent property owners and Osceola County for roadway improvements of CR 545 (CR 545 Public Infrastructure Agreement) dated July 2003. Sections 4, 5.5 and 12 of the CR 545 Public Infrastructure Agreement have language that grants a nonexclusive, permanent drainage easement to Osceola County allowing for the storm water drainage systems and storm water management facilities for the future widening of Old Lake Wilson Road to outfall onto the adjacent properties. Details regarding the specific location of outfall points from the future widening of CR 545 onto the adjacent properties was not found. Therefore, further coordination between the County and adjacent property owners is recommended to development formal defined easements to access and make use of the available volume within the existing stormwater management facilities. In addition, there are a number of ponds which do not appear to meet all current FDOT and Osceola County requirements for berms and maintenance access since it is incorporated as part of a golf course sand bunker. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions. This approval should be documented by the County ahead of the design phase in order to expedite final plans and construction.

BASIN 1

Basin 1 is an open drainage basin that begins at CR 532 and ends at Phase 1 Parcel 6 (from Station 106+00 to Station 131+50). The existing drainage area consists of the roadway right-of-way between these stations, 7.81 acres, with 1.41 acres of impervious area, with no offsite areas.

Basin 1 is described in SFWMD Permit No. 49-01107-P (Application No's. 000522-5, 020913-3, and 040702-5) as sub-basins 3701 and 3703. In the existing condition, stormwater runoff from the west side of the roadway sheet flows to the west towards existing Pond 370 (a 2.86-acre existing permitted pond), which ultimately discharges to Davenport Creek. The east side of the roadway sheet flows into ill-defined ditches and swales and is conveyed to

onsite wetlands which discharge to Davenport Creek. Davenport Creek flows in a general direction from west to east and ultimately discharges into Reedy Creek.

The CR 545 future roadway basin area included in Application No. 020913-3 is 9.09 acres (7.81 acres from sub-basin 3701 and 1.28 acres from sub-basin 3703). This roadway basin area is included in the pond treatment and attenuation calculation for Pond 370, located within the Reunion Resort Golf Course, west of CR 545. Other sub-basins drain into Pond 370 (sub-basins 3702 and 3704) for a total of 39.05 acres.

Pond 370 is privately owned by Kingwood Orlando Reunion Resort LLC. Based on information found in Application 020913-3, the outfall pipe for Pond 370 is a 42-inch pipe. The existence, location, size, and condition of the Pond 370 outfall pipe will have to be verified during the design phase. Refer to **Appendix C** for a copy of the CR 545 Public Infrastructure Agreement and other supporting documents.

BASIN 2

Basin 2 is an open drainage basin that begins at Phase 1 Parcel 6 and ends at Davenport Creek (approximately from Station 131+50 to Station 146+00). In the existing condition, the drainage area consists of the roadway right-of-way between these stations, 3.80 acres with 0.68 acres of impervious area, with no offsite areas.

Basin 2 is described in SFWMD Permit No. 49-01107-P (Application No's. 000522-5, 020913-3, and 040702-5) as sub-basin 3742. In the existing condition, stormwater runoff sheet flows from the roadway to ill-defined roadside ditches and swales, which discharge north to existing bridge culvert #924147 located at Station 147+00, which then flows into Davenport Creek. Davenport Creek flows in a general direction from west to east and ultimately discharges into Reedy Creek.

The CR 545 future roadway basin area included in Application No. 020913-3 is 3.80 acres. This roadway basin area is included in the pond treatment and attenuation calculations for Pond 374, an 0.18-acre existing permitted pond located at the northwest quadrant of the Reunion Boulevard overpass and CR 545.

One other sub-basin drains into Pond 374 (sub-basin 3741) for a total of 4.13 acres. Pond 374 is privately owned by Reunion East CDD. Based on information found in Application 020913-3, the outfall weir for Pond 374 is a 20-foot trapezoidal weir. The existence, location, size, and condition of the Pond 374 outfall weir will have to be verified during the design phase. Refer to **Appendix C** for a copy of the CR 545 Public Infrastructure Agreement and other supporting documents.

BASIN 3

Basin 3 is an open drainage basin that begins north of Davenport Creek and ends at Station 170+00 (approximately from Station 146+00 to Station 170+00). The existing drainage area consists of the roadway right-of-way between these stations, 9.80 acres with 1.76 acres of impervious area, with no offsite areas.

Basin 3 is described SFWMD Permit No. 49-01107-P (Application No's. 000522-5 and 020913-3) as sub-basin 4913. In the existing condition, stormwater runoff sheet flows from the roadway to ill-defined roadside ditches and swales, which ultimately discharge into Davenport Creek south through existing bridge culvert #924147 located at Station 147+00, or north through an existing triple 42" RCP cross drain, which discharges into Davenport Creek Tributary. Davenport Creek Tributary flows in a general direction from west to east and ultimately discharges into Reedy Creek.

The CR 545 future roadway basin area included in Application No. 020913-3 is 9.90 acres. This roadway basin is included in the pond treatment and attenuation calculations for Pond 491, a 1.28-acre existing permitted pond located directly east of the CR 545 right-of-way north of Davenport Creek.

Two other sub-basins drain into Pond 491 (sub-basins 4911 and 4912) for a total of 17.80 acres. Pond 491 is privately owned by Kingwood Orlando Reunion Resort LLC. Based on information found in Application 020913-3, the outfall weir for Pond 491 is a 3-foot trapezoidal weir. The existence, location, size, and condition of the Pond 491 outfall weir will have to be verified during the design phase. Refer to **Appendix C** for a copy of the CR 545 Public Infrastructure Agreement and other supporting documents.

BASIN 4

Basin 4 is an open drainage basin that begins north of Davenport Creek and ends at the Davenport Creek Tributary triple 42-inch crossing (approximately from Station 170+00 to Station 183+00). The existing drainage area consists of the roadway right-of-way between these stations, approximately 4.33 acres with 1.06 acres of impervious area, with no offsite areas.

In the existing condition, stormwater runoff sheet flows from the roadway to ill-defined roadside ditches and swales, discharging untreated northward through an existing triple 42" RCP cross drain, which discharges into Davenport Creek Tributary. Davenport Creek flows in a general direction from west to east and ultimately discharges into Reedy Creek.

Basin 4 is included in SFWMD Permit No. 49-01107-P (Application No's. 000522-5 and 020913-3) as sub-basin 3622 with a drainage area of 6.47 acres (permits issued May 2001 and January 2003, respectively) draining to Pond 362.

A permit modification was issued for the area on July 2004, Permit No. 49-01107-P-17 (Application No. 040526-4). This permit reduced the drainage area for sub-basin 3622 to 4.33 acres and renamed Pond 362 to Pond 9. The objective of this permit was to increase the amount of impervious areas originally permitted and to modify the configuration of the stormwater ponds.

A second permit modification was issued for this area on January 2020, Permit No. 49-102283-P (Application No. 191004-1965). This permit modified two previously permitted stormwater systems: added an outlet control structure to Pond 4 and modified the orifices for three interconnected ponds (Ponds 3, 5 and 9) to be 3-inches in

diameter. This permit did not include the CR 545 basin in the drainage calculations included in all previous permits, although the basin was delineated in the drainage map.

Pond 362/Pond 9 is privately owned by Kingwood Orlando Reunion Resort LLC and is adjacent to Old Lake Wilson Road right-of-way. The permitted condition for this pond does not account for treatment or attenuation of Old Lake Wilson road right-of-way based on the latest permit; however, the permitted storage volume is significantly greater than required volume for the basins associated with the permit mod, indicating excess volume available.

BASIN 5

Basin 5 is an open drainage basin that begins south of the bridge over the I-4 Interchange and ends at the high point on the bridge over I-4 (approximately from Station 183+00 to Station 197+00). The drainage area consists of the roadway right-of-way between these stations, approximately 4.18 acres with 0.77 acres of impervious area, with no offsite areas. Half of existing Basin 5 is included in FDEP Permit 187636-001 for the SR 429 Western Beltway, Part C, Section 1, as part of Basin G-1. This permit includes 700 feet of the existing CR 545 (approximately 2.09 acres with 0.39 acres of impervious area). The other half of Basin 5 discharges untreated into the existing triple 42" RCP cross drain, which discharges into Davenport Creek Tributary. Half of Basin 5 is also included in FDEP Permit No. 0187636-003-EI for the I-4 BtU project. Although the timing for this project is not known, excerpts from the existing conditions portion of this permit were used in this report to analyze the existing conditions.

On the east side of the road from Station 183+00 to Station 189+43.73 stormwater runoff sheet flows from the roadway to ill-defined roadside ditches and swales, discharges south through an existing triple 42" RCP cross drain, which discharges into Davenport Creek Tributary untreated. From Station 189+43.73 to Station 197+00 stormwater runoff is collected in shoulder gutter inlets which discharge to existing Pond G-1 within the I-4/SR 429 Interchange as described in FDEP Permit No. 187636-001. Existing Pond G-1 ultimately discharges to wetland G1 through an existing 30" RCP cross drain at the SR 429 off ramp to I-4.

On the west side of the road from Station 183+00 to Station 189+72.19 stormwater runoff sheet flows from the roadway to ill-defined roadside ditches and swales, discharges south through the existing triple 42" RCP cross drain untreated. From Station 189+72.19 to Station 197+00 stormwater runoff is collected in shoulder gutter inlets which also discharge to existing Pond G-1.

According to the permit calculations (FDEP Permit 187636-001), in the existing condition, the 25 year-72 hour stage for Pond G-1 is 88.2 ft and the inside berm elevation is 87.8 ft. Thus, Pond G-1 does not meet FDOT freeboard criteria. It should be noted that the original permit used 12.23 inches as the rainfall amount. This value does not appear to match the published WMD rainfall maps, and 9.8 inches as recorded in the BtU permit (FDEP Permit 187636-001) appears to be a more representative rainfall amount. For this reason, our proposed calculations used 9.8 inches for consistency with the current (BtU) FDEP permit.

BASIN 6

Basin 6 is an open drainage basin that begins at the high point on the bridge over I-4 and ends at the bridge return over the I-4 Interchange (approximately from Station 197+00 to Station 207+50.) The drainage area consists of

the roadway right-of-way between these stations, 3.13 acres with 1.01 acres of impervious area, with no offsite areas. In the existing condition, stormwater runoff from the east side of the road is collected by shoulder gutter inlets and conveyed to a concrete ditch on the on the northwest side of the bridge through an MES. The existing ditch flows east to an existing 42-inch cross drain under I-4 and discharges to existing wetland G1.

Basin 6 is shown in FDEP Permit No. 187636-001; however, runoff is untreated in the existing condition. As noted above, proposed conditions calculations were performed using 9.8 inches as the anticipated rainfall amount.

BASIN 7

Basin 7 is an open drainage basin that begins at the Northern I-4 right-of-way and ends at Basin D001 (from Station 207+50 to Station 219+85) as described in SFWMD Permit No. 49-00954-P (Application 090515-5) and Permit No. 49-01107-P-33 (Application 150331-13). The basin area included in the permit (Basin D008) is 8.20 acres with 6.56 acres of impervious area. The permitted pond site (Pond 8) is a 5.26-acre existing pond site. Pond 8 is owned by the Reunion West CDD.

Along the east side of CR 545, stormwater runoff is collected in an ill-defined ditch and is conveyed to a concrete ditch on the north side of the bridge through an endwall located adjacent to Culvert No. EX-254. Along the west side of CR 545, stormwater runoff is collected in an ill-defined ditch and is conveyed beneath CR 545 to a concrete ditch on the north side of the bridge through Culvert No. EX-254. Stormwater runoff collected in the concrete ditch continues flowing northeast through an existing roadway ditch along I-4 and ultimately discharges, untreated, to wetland G1 located southeast of I-4 through existing cross drain CD-6 (single 42” pipe) as described in FDEP Permit No. 49-187636001 and SFWMD Permit No. 49-000792-S (Application 020204-8) (S-30). Note CD-6 is named S-30 in SFWMD Permit No. 49-000792-S (Application 020204-8).

BASIN 8

Basin 8 is an open drainage basin that begins at the Basin D001 as described in SFWMD Permit No. 49-00954-P (Application 090515-5) and Permit No. 49-01107-P-38 (Application 150331-13) and ends south of Sinclair Road (from Station 219+85 to Station 229+20.) The permitted basin area (Basins D001) is 7.42 acres with a 3.34-acre existing permitted pond site (Pond 6). This pond is partially owned by Osceola County and partially privately owned by Reunion West Development Partners LLLP. The portion under county ownership includes a connection to the Old Lake Wilson Road (CR 545) right-of-way. Along both sides of CR 545, stormwater runoff sheet flows into a concrete lined ditch where it is collected by inlets and is conveyed to dry detention pond D002-P and discharges to an adjacent wetland conservation area (N-WL-D002). Runoff from the wetland conservation area then travels southeast through existing cross drain CD-7 (triple 42” cross drain) as documented in FDEP Permit No. 49-187636001 and SFWMD Permit No. 49-000792-S (Application 020204-8) (S-31), and ultimately discharges to Reedy Creek. Note CD-7 is named S-31 in SFWMD Permit No. 49-000792-S (Application 020204-8).

Table 5-4 summarizes the existing drainage basin characteristics. Note that none of the ultimate outfalls for the project are listed as waterbodies impaired for nutrients.

Table 5-4: Existing Drainage Basin Characteristics

Basin Name	Begin Station	End Station	Basin Area included in Permit (ac)	Ultimate Outfall	Existing Drainage Conveyance System	Existing Water Quality Provided	Permit Reference
Basin 1	106+00	131+50	9.09	Davenport Creek/ Reedy Creek	Roadside Ditches	Pond 370	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
Basin 2	131+50	146+00	3.82	Davenport Creek/ Reedy Creek	Roadside Ditches	None	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
Basin 3	146+00	170+00	9.90	Davenport Creek/ Reedy Creek	Roadside Ditches	None	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5 & 020913-3)
Basin 4	170+00	183+00	0.00	Davenport Creek Tributary/ Davenport Creek	Roadside Ditches	None	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3) SFWMD Permit No. 49-01107-P-17 (Application No. 040526-4) SFWMD Permit No. 49-102283-P (Application No. 191004-1965)
Basin 5	183+00	197+00	2.09	Wetland G1	Storm Sewer System	Pond G-1/Pond 108A	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003
Basin 6	197+00	207+50	3.13	Davenport Creek Tributary	Roadside Ditches & Storm Sewer System	None	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003
Basin 7	207+50	219+85	8.20	Wetland G1	Roadside Ditches	None	SFWMD Permit No. 49-00954-P (Application 090515-5) and Permit No. 49-01107-P-33 (Application 150331-13)
Basin 8	219+85	229+20	7.42	Wetland N-WL-D002/ Reedy Creek	Roadside Ditches & Storm Sewer System	Pond D002-P	SFWMD Permit No. 49-00954-P (Application 090515-5) and Permit No. 49-01107-P-38 (Application 150331-13)

5.2 PROPOSED DRAINAGE CONDITIONS

The existing CR 545 from CR 532 to south of Sinclair Road consists of two undivided 12-foot travel lanes with 4-foot unpaved outside shoulders. The proposed typical section consists of four 11-foot travel lanes, a raised median, and pedestrian features. Runoff from the outside lanes and outside shoulders will be collected in curb inlets and conveyed to existing stormwater management facilities. The stormwater conveyance systems will be designed during the design phase. The proposed basin limits are the same as in the existing conditions.

As previously noted, additional impervious areas associated with the potential future widening of CR 545 has been accounted for in existing permitted stormwater management facilities along the corridor. The following discussion in each basin is regarding the feasibility and sufficiency of these accommodations. Although the permits were submitted with the roadway areas included in the calculations, the designer was not able to locate any documented easements, although there are commitments recorded within the local developer's agreements which indicate a legal right to discharge additional runoff into these facilities. There is also no clear indication of a formal easement allowing the construction of conveyance systems from the roadway right-of-way into the ponds.

To ensure that the roadway improvements have a "legal discharge" as defined in Section 4.5 of the Osceola County Land Development Code (see section 4.2.3 of this document), it is recommended that the County proceed with acquiring formalized agreements with the owning and/or maintaining parties. Note that the commitments include "further assurances" (section 20 of the CR 545 Infrastructure Agreement) that the Owner agrees to sign "any other and further instruments and documents, consistent herewith" that are required to ensure compliance with the conditions set forth in the agreement. Conversation should also be initiated with the SFWMD to determine if a formal survey of existing SMF conditions will be required, or whether the standard SMF inspection reports are sufficient to document continued compliance with the permitted condition(s).

5.2.1 POND SITING LIMITS

The purpose of this section is to document the viability of the existing stormwater management facilities to provide treatment and attenuation for the widening of CR 545. The proposed typical sections represent a 4-lane divided roadway, with a maximum of approximately 61% impervious area in Typical Section 2, which is lower than the allowable per the applicable corridor permits as described in the sections below. The impervious basin areas associated with the CR 545 right-of-way is increased to match the 4-lane roadway Typical Section 2, with the exception of Basins 7 & 8 which were permitted for the accommodation of an ultimate 6-lane divided section.

BASIN 1

For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 1 for Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 370 is designed to provide treatment for up to 70% impervious area of Old Lake Wilson Road (CR 545) within the limits of Basin 1. Existing Pond 370 is a dry retention pond. Based on the permitted mass grading plans, a pipe connection to existing Pond 370 is provided within the right-of-way through an existing manhole. In the proposed condition, runoff will be collected and

conveyed by a closed storm sewer system to existing Pond 370. During the design phase, the existence, size, and condition of the pipe will need to be confirmed to assess whether it provides adequate conveyance capacity for the proposed road improvements. A determination as to whether formally defined drainage easements exist for the outfall pipe and pond will be needed and appropriate easements may need to be acquired. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access since it is incorporated as part of a golf course sand bunker. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions. Existing Pond 370 discharges to an onsite wetland conservation area and ultimately discharges to Davenport Creek.

BASIN 2

For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 2 Permit 49-01107-P, Application No. 040702-5, proposes existing Pond 374 will provide treatment of up to 70% impervious area of CR 545 within the limits of Basin 2. Existing Pond 374 is a dry retention pond located along the north side of the Gathering Drive Bridge, adjacent to a wetland conservation area. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system to existing Pond 374. Existing Pond 374 discharges to an onsite wetland conservation area located to the northwest and ultimately discharges to Davenport Creek. Refer to **Appendix B** for permit excerpts. It appears that all or part of this pond may have been filled from its permitted conditions. The permitted pond configuration will need to be re-established to function as the selected stormwater management facility for this basin. This pond design does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions.

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BASIN 3

For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). The most current update to Basin 3 for Permit 49-01107-P Application No. 020913-3, proposes existing Pond 491 will provide treatment of CR 545 within the limits of Basin 3. Existing Pond 491 is a retention pond located along the east side of CR 545, adjacent to a wetland conservation area. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system to existing Pond 491. Existing Pond 491 discharges to an onsite wetland conservation area and ultimately discharges to Davenport Creek. Refer to **Appendix B** for permit excerpts. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements.

BASIN 4

While Basin 4 is not included in the drainage calculations in the latest permit modification, Permit No. 49-102283-P (Application No. 191004-1965), the basin is delineated in the drainage map. The permitted storage volume is significantly greater than required volume for the basins associated with the permit mod, indicating excess volume available to accommodate this basin. As noted in **Table 7-1**, there is 5.17 feet of freeboard in the existing

(permitted) condition. As shown in **Table 1**, the required treatment volume is only 0.41 ac-ft, and the pond is 10.17 acres, indicating that the regulatory volume can be provided with 0.04 feet of storage depth. In previous permits, Basin 4 was included as a sub-basin draining to existing Pond 362 (later renamed Pond 9). Existing Pond 9 is a retention pond located along the west side of CR 545, near Davenport Creek Tributary. For the proposed calculations, the impervious basin area is increased to match the Osceola County 4-lane widening typical section (maximum 61% impervious area). In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system and discharged to existing Pond 9. Permit No. 49-102283-P (Application No. 191004-1965) will require modification to include Basin 4. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements. Pond 9 discharges to an onsite wetland conservation area which discharges to Davenport Creek and ultimately discharges to Reedy Creek. Refer to **Appendix B** for permit excerpts.

BASIN 5

Existing Pond G-1 does not provide enough volume to treat and attenuate the proposed improvements to Old Lake Wilson, since in the existing condition it does not meet FDOT freeboard criteria.

It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon).

Given the lack of available excess volume in the existing configurations, the recommended design approach for Basin 5 is to proceed with the pond configuration documented in FDEP Permit No. 0187636-003-EI for the I-4 Btu project. Half of Basin 5 is included in Basin BSN108A in the FDEP Permit No. 0187636-003-EI with provisions to accommodate 1.28 acres of impervious area (700 feet of Old Lake Wilson) from the proposed 4-lane widening of CR 545 within Pond 108A (a wet detention pond). The remaining half of Basin 5 (2.09 acres with 1.28 acres of impervious), is reflected as untreated area in the permit for the I-4 BtU project (FDEP Permit No. 187636-003), but can also be treated and attenuated within Pond 108A. Review of the aerial imagery of the interchange and the CADD files for the I-4 BtU project indicates that there should be sufficient room within the existing footprint of the interchange to construct the BtU pond configuration(s). Refer to preliminary pond sizing calculations provided in **Appendix D**. It should be noted that the original permit used 12.23 inches as the rainfall amount. This value does not appear to match the published WMD rainfall maps, and 9.8 inches as recorded in the BtU permit (FDEP Permit 187636-001) appears to be a more representative rainfall amount. For this reason, our proposed calculations used 9.8 inches for consistency with the current (BtU) FDEP permit.

In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to Pond 108A and ultimately discharge to Wetland G1. Refer to **Appendix B** for permit excerpts. It is suggested that coordination with FDOT be initiated early in the design phase to validate this alternative for the provision of treatment and attenuation for the proposed improvements within Basin 5. The feasibility of this alternative with respect to hydraulic and/or regulatory permitting considerations will be confirmed during the final design phase.

BASIN 6

It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon).

The recommended design approach for Basin 6 is to proceed with the pond configuration documented in FDEP Permit No. 0187636-003-EI for the I-4 Btu project. Basin 6 is identified as Basin BSN105B in FDEP Permit No. 0187636-003-EI which includes provisions to accommodate 1.92 acres of impervious area from the proposed 4-lane widening of CR 545 within Ponds 105B and 105A. Review of the aerial imagery of the interchange and the CADD files for the I-4 BtU project indicates that there should be sufficient room within the existing footprint of the interchange to construct the BtU pond configuration(s). Refer to preliminary pond sizing calculations provided in **Appendix D**. As noted above, proposed conditions calculations were performed using 9.8 inches as the anticipated rainfall amount. Ponds 105B and Pond 105A are connected by an equalizer pipe. Ponds 105B and 105A are wet detention ponds with control structures. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to Pond 105B which discharges to an existing wetland and ultimately discharges to Davenport Creek Tributary through existing cross drain CD-16 as documented in FDEP Permit No. 0187636-003-EI.

A second alternative is to collect Basin 6 via closed storm sewer system and conveyed to the existing Ponds F-4-A and F-4-B within the existing I-4/SR429 interchange. Preliminary pond sizing calculations (based on information found in FPID Permit 0187636-001) show that Ponds F-4-A and F-4-B currently have enough volume available to provide treatment and attenuation for the Old Lake Wilson Road proposed improvements without modifications to the existing ponds. Although preliminary results indicate that this is a feasible option, it would require that the pond outfall be modified for this project, and again for the permitted (BtU) condition. To avoid the duplication of costs related to mobilization, dewatering, and construction related to the re-configuration of this outfall control structure, it is recommended that the BtU condition be constructed to avoid redundancy of design/construction efforts.

Refer to **Appendix B** for permit excerpts. Refer to **Appendix D** for preliminary pond sizing calculations. For both alternatives to provide treatment and attenuation for the proposed improvements within Basin 6, it is suggested that coordination with FDOT be initiated early in the design process. The feasibility of these alternatives with respect to hydraulic and/or regulatory permitting considerations will be assessed during the final design phase.

BASIN 7

For the proposed calculations, the impervious basin area is increased to match the proposed Osceola County ultimate future condition 6-lane widening typical section as documented in Permit No. 49-01107-P-38 (Application 150331-13) as part of the Reunion West development. Basin 7 is identified as Basin D008 in the permit and includes provisions to accommodate 80% (6.56 acres) of impervious area from the proposed 6-lane widening of

CR 545 within existing Pond 8. Existing Pond 8 is a dry retention pond with a control structure and is contiguous with the CR 545 right of way. Based on the permitted plans, Pond 8 appears to meet current Osceola County standards. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to existing Pond 8. Existing Pond 8 discharges offsite over a weir to a spreader swale and recovers through infiltration. Refer to **Appendix B** for permit excerpts.

BASIN 8

For the proposed calculations, the impervious basin area is increased to match the proposed Osceola County ultimate future condition 6-lane widening typical section as documented in Permit No. 49-00954-P (Application No. 090515-5). This provision is maintained and documented in Permit No. 49-01107-P-38 (Application 150331-13) as part of the Reunion West development. Basin 8 is identified as Basins D001 in Permit No. 49-01107-P-38 (Application 150331-13) and includes provisions to accommodate 82% (6.09 acres) of impervious area from the proposed 6-lane widening of CR 545 within existing Pond 6. Existing Pond 6 is a dry retention pond with a control structure. In the proposed condition, runoff will be collected in and conveyed by a closed storm sewer system to existing Pond 6. Existing Pond 6 discharges offsite over a weir to Wetland N-WL-D002 to the northeast and recovers through infiltration. Based on permitted plans, Pond 6 appears to meet current Osceola County standards. Refer to **Appendix B** for permit excerpts.

Table 5-5 summarizes the proposed drainage basin characteristics.

Table 5-5: Proposed Drainage Basin Characteristics

Basin Name	Begin Station	End Station	Ultimate Outfall Point	Required Water Quality Volume* (ac-ft)	Permitted Water Quality Volume (ac-ft)	Permit Reference
Basin 1	106+00	131+50	Davenport Creek/Reedy Creek	0.86	20.19	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
Basin 2	131+50	146+00	Davenport Creek/ Reedy Creek	0.36	0.55	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
Basin 3	146+00	170+00	Davenport Creek/ Reedy Creek	0.94	1.34	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5 & 020913-3)
Basin 4	170+00	183+00	Davenport Creek Tributary/ Davenport Creek	0.41	0.00	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3) SFWMD Permit No. 49-01107-P-17 (Application No. 040526-4) SFWMD Permit No. 49-102283-P (Application No. 191004-1965)
Basin 5	183+00	197+00	Wetland G1	2.56	6.56	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003
Basin 6	197+00	207+50	Davenport Creek Tributary	6.41	7.11	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003
Basin 7	207+50	219+85	Wetland G1	3.93	5.12	SFWMD Permit No. 49-00954-P (Application No. 090515-5) and Permit No. 49-01107-P-38 (Application No. 150331-13)
Basin 8	219+85	229+20	Wetland N-WL-D002/Reedy Creek	1.87	3.46	SFWMD Permit No. 49-00954-P (Application 090515-5) and Permit No. 49-01107-P-38 (Application No. 150331-13)

* Water quality calculations within Basins 1-4 were permitted at 70% impervious as documented in Permit No. 49-01107-P. Since the retention volume provided is less than the required retention volume, the impervious area was recalculated at the maximum proposed impervious area of 61% impervious corresponding to Typical Section 2. The results demonstrate the retention volume provided is greater than or equal to the required retention volume.

6.0 FLOODPLAIN AND ENVIRONMENTAL INFORMATION

6.1 FLOODPLAINS

The study area can be found on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel number 12097C0040G, effective June 18, 2013. The FEMA Floodplains within the project limits are riverine and compensation shall be provided for any impacts to these floodplains. Refer to **Appendix F** for the FEMA FIRM and floodplain map.

The applicable Flood Insurance Study (FIS) for this project is the Osceola County FIS (effective June 18, 2013). There is one regulatory floodway within this project corridor: Davenport Creek. The Flood Insurance Study has information concerning the floodways' drainage area, discharge, and flood profile. The proposed improvements over the floodway will require a FEMA No-Rise Certification be processed through Osceola County Floodplain Management during the design phase of this project. The construction of this project is considered only a transverse encroachment on Davenport Creek and on Davenport Creek Tributary.

The project is located within the following floodplain zones: Zone A and Zone AE. Zone A is defined as an area subject to inundation by the 1% annual chance flood (100-year flood), for which a base flood elevation (BFE) has not been determined. Zone AE is defined as an area subject to inundation by the 1% annual chance flood (100-year flood), for which a base flood elevation (BFE) has been determined. For the determination of Zone A floodplain elevation, cross drain analysis can be used. This is in accordance with the FEMA published document: Managing Floodplain Development in Approximate Zone A Areas, dated April 1995. **Table 6-1** lists the approximate floodplain impacts along the project.

Table 6-1: Floodplain Encroachments

Floodplain Description	Approximate Location (STA)	Encroachment Limits	Approximate Encroachment Area (ac)
Davenport Creek	146+94	From Station 145+08.91 to Station 151+51.51	1.06
Davenport Creek Tributary	183+16	From Station 181+74.63 to Station 184+51.36	1.11

For additional information on the floodplains, refer to the **Final Location Hydraulics Report**.

6.2 WETLANDS

Based on the National Wetland Inventory (NWI), there is one wetland within the project corridor (PFO1C) which crosses the corridor twice and outfalls to Reedy Creek to the east of the Project location. See **Appendix F** for the National Wetland Inventory Map. This wetland location is consistent with the jurisdictional determination conducted for the adjacent Reunion Project. See Maps "Exhibit 2" and "Exhibit 3C" from Permit No. 49-01107-P (Application No. 000522-5) in **Appendix B**.

7.0 STORMWATER PONDS

Existing permitted ponds were identified along CR 545. The permitted ponds were designed to include additional treatment volume to accommodate the future 4 lane widening of CR 545.

Although the most recent amendment to the Magnolia Creek (formerly known as Osceola Pointe) Development of Regional Impact (DRI) (dated July 18, 2018) does not address stormwater needs for the future widening of CR 545, it incorporates (by reference) a number of historical documents, among which is a Facilitation of Public Infrastructure Agreement between the adjacent property owners and Osceola County for roadway improvements of CR 545 (CR 545 Public Infrastructure Agreement) dated July 2003. Sections 4, 5.5 and 12 of the CR 545 Public Infrastructure Agreement have language that grants a nonexclusive, permanent drainage easement to Osceola County allowing for the storm water drainage systems and storm water management facilities for the future widening of Old Lake Wilson Road to outfall onto the adjacent properties. Details regarding the specific location of outfall points from the future widening of CR 545 onto the adjacent properties was not found. Therefore, further coordination between the County and adjacent property owners is recommended to development formal defined easements with legal sketches/descriptions to access and make use of the available volume within the existing stormwater management facilities.

7.1 POND SIZING AND LOCATION CONSIDERATIONS

A comprehensive review of existing permits was conducted to identify ponds that were designed to accommodate the future widening of CR 545. During the design phase, survey is recommended to confirm that the existing ponds are consistent with the permitted conditions. See below for discussion of the recommended option for each basin.

According to the Facilitation of Public Infrastructure Agreement between the adjacent property owners and Osceola County for roadway improvements of CR 545 (CR 545 Public Infrastructure Agreement) dated July 2003 (provided in **Appendix C**) the Owner has granted a nonexclusive, permanent drainage easement to Osceola County allowing for the storm water drainage systems and storm water management facilities for the future widening of Old Lake Wilson Road to outfall onto the adjacent properties. However, details regarding the specific locations of outfall points from the future widening of CR 545 onto the adjacent properties were not found, nor were clearly defined legal easement descriptions. Therefore, further coordination between the County and adjacent property owners is recommended to development formal defined easements with legal sketches/descriptions to access and make use of the available volume within the existing stormwater management facilities. The exhibits in **Appendix F** show preliminary recommendations of approximate locations for these easements.

Pond 370 - SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)

- The latest permit modification, Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 370 is designed to provide treatment for up to 70% impervious area of CR 545 within the limits of Basin 1. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access since it is incorporated as part of a golf course sand bunker. Based on the demonstrated ability of the

O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions.

Pond 374 - SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)

- The latest permit modification, Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 374 is designed to provide treatment for up to 70% impervious area of CR 545 within the limits of Basin 2. It appears that all or part of this pond may have been filled from its permitted conditions. The permitted pond configuration will need to be re-established in order to use this facility to address stormwater needs for this basin. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions or of the re-established permitted conditions, as applicable.

Pond 491 - SFWMD Permit No. 49-01107-P (Application No.'s 000522-5 & 020913-3)

- The latest permit modification, Permit 49-01107-P Application No. 020913-3, indicates that existing Pond 491 is designed to provide treatment of CR 545 within the limits of Basin 3. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements.

Pond 362/Pond 9 - SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3); SFWMD Permit No. 49-01107-P-17 (Application No. 040526-4); SFWMD Permit No. 49-102283-P (Application No. 191004-1965).

- In previous permits, Basin 4 was included as a sub-basin draining to existing Pond 362 (later named Pond 9). While the latest permit modification, Permit No. 49-102283-P (Application No. 191004-1965), does not include Basin 4 in the routing calculations, it is delineated in the drainage map. The latest calculations indicate that there is sufficient volume to accommodate this basin. In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system and discharged to existing Pond 9. Permit No. 49-102283-P (Application No. 191004-1965) will be modified to include Basin 4. Based on the demonstrated ability of the O&M entity to properly maintain the permitted ponds, it is recommended that the County provide the appropriate documentation of acceptance of the as-built conditions. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirement.

Pond 108A - FDEP Permit No. 0187636-003-EI (I-4 BtU)

- FDEP Permit No. 0187636-003-EI (I-4 BtU) indicates that Pond 108A is designed to provide treatment for 1.28 acres of impervious area (30.5%) from the proposed 4-lane widening of CR 545 within the limits of Basin 5, with additional treatment and attenuation for the 1.28 acres of impervious (30.5%; total 61%) from the currently untreated area of Basin 5 (with minor modifications to the permitted pond for the future I-4 BtU condition). It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon). It is suggested that coordination with FDOT be initiated early in the process to discuss constructing the BtU pond configuration(s) ahead of the

BtU timeline for use with this project. The feasibility of this alternative with respect to hydraulic and/or regulatory permitting considerations will be assessed during the final design phase.

Ponds 105A and 105B - FDEP Permit No. 0187636-003-EI (I-4 BtU)

- FDEP Permit No. 0187636-003-EI (I-4 BtU) indicates that Ponds 105A and 105B are designed to provide treatment for 1.92 of impervious area (61%) from the proposed 4-lane widening of CR 545 within the limits of Basin 6. It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon). It is suggested that coordination with FDOT be initiated early in the process to discuss constructing the BtU pond configuration(s) ahead of the BtU timeline for use with this project. The feasibility of this alternative with respect to hydraulic and/or regulatory permitting considerations will be assessed during the final design phase.

Pond 8 - Permit No. 49-01107-P-38 (Application 150331-13)

- Permit No. 49-01107-P-38 (Application 150331-13) indicates that existing Pond 8 is designed to provide treatment for the 6-lane widening typical section or 80% impervious area of CR 545. Based on the permitted plans, Pond 8 appears to meet current Osceola County standards.

Pond 6 - Permit No. 49-00954-P (Application No. 090515-5) & Permit No. 49-01107-P-38 (Application 150331-13)

- The latest permit modification, Permit No. 49-01107-P-38 (Application 150331-13) indicates that existing Pond 6 is designed to provide treatment for the 6-lane widening typical section or 82% of impervious area of CR 545. Based on permitted plans, Pond 6 appears to meet current FDOT and Osceola County standards.

Nutrient loading calculations are provided for the existing permitted ponds. The nutrient removal calculations performed for the existing permitted ponds resulted in no increase in the required pond sizes. Refer to **Appendix E** for the nutrient loading calculations. Refer to **Appendix B** for permit excerpts used for the nutrient loading calculations.

Table 7-1 documents the pond parameters utilized in the sizing of the existing permitted ponds. **Table 7-2** documents the existing treatment available in the permitted ponds.

Table 7-1: Pond Sizing Parameters

Basin	Outfall	Estimated Tailwater Elevation (ft NAVD)	Estimated Low Edge of Pavement Elevation (ft NAVD)	Estimated SHWT Elevation (ft NAVD)	Permitted 10-Yr/72-Hr Peak Stage (ft NAVD)	Permitted Top of Inside Berm Elevation (ft NAVD)
Basin 1	Davenport Creek	112.77	133.00	97.00	112.77	120.00
Basin 2	Davenport Creek	94.50	133.00	89.00	100.00	100.00
Basin 3	Davenport Creek	94.50	110.00	86.00	97.00	97.00
Basin 4	Davenport Creek	97.40	106.00	90.50	100.83	106.00
Basin 5	Davenport Creek	87.80	115.00	85.30	87.80	89.80
Basin 6	Davenport Creek	87.00	105.00	93.50	97.25	100.50
Basin 7	Davenport Creek	96.65	115.00	89.10	97.09	100.00
Basin 8	Davenport Creek	90.30	125.00	86.30	91.13	95.00

Table 7-2: Existing Treatment Summary from Permit Documents

Basin	Project Stations		No. Future Lanes Permitted	Permitted % Impervious	Proposed* % Impervious	Treatment Type	Permitted Pond Name	Permit Reference
	From	To						
Basin 1	106+00	131+50	4 lane divided typical section	70%	61%	Dry Retention	Pond 370	SFWMD Permit 49-01107-P (Applications 000522-5, 020913-3 & 040702-5)
Basin 2	131+50	146+00	4 lane divided typical section	70%	61%	Dry Retention	Pond 374	SFWMD Permit 49-01107-P (Applications 000522-5, 020913-3 & 040702-5)
Basin 3	146+00	170+00	4 lane divided typical section	70%	61%	Dry Retention	Pond 491	SFWMD Permit 49-01107-P (Applications 000522-5 & 020913-3)
Basin 4	170+00	183+00	4 lane divided typical section	0%	61%	Dry Retention	Pond 362/Pond 9	SFWMD Permit 49-01107-P (Applications 000522-5, 020913-3) SFWMD Permit 49-01107-P-17 (Application 040526-4) SFWMD Permit 49-102283-P (Application 191004-1965)
Basin 5	183+00	197+00	4 lane divided typical section	61%	61%	Wet Detention	Pond 108A (Exist. G1)	FDEP Permit 49-187636001 FDEP Permit 49-187636003
Basin 6	197+00	207+50	4 lane divided typical section	61%	61%	Wet Detention	Ponds 105A/105B (Exist. F4A/F4B)	FDEP Permit 49-187636001 FDEP Permit 49-187636003
Basin 7	207+50	219+85	6 lane divided typical section	80%	61%	Dry Retention	Pond 8	SFWMD Permit 49-00954-P (Application 090515-5) and Permit 49-01107-P-38 (Application 150331-13)
Basin 8	219+85	229+20	6 lane divided typical section	82%	61%	Dry Retention	Pond 6	SFWMD Permit 49-00954-P (Application 090515-5) and Permit 49-01107-P-38 (Application 150331-13)

*Proposed impervious percentage taken from Typical Section 2 since it has the greatest percentage of impervious area

8.0 CONCLUSIONS

Existing permitted stormwater management facilities have been identified along the project corridor. Based on the SFWMD permit records, existing development permits have been designed to accommodate drainage from most of the future widening of CR 545.

Although the most recent amendment to the Magnolia Creek (formerly known as Osceola Pointe) Development of Regional Impact (DRI) (dated July 18, 2018) does not address stormwater needs for the future widening of CR 545, it incorporates (by reference) several historical documents, including a Facilitation of Public Infrastructure Agreement between the adjacent property owners and Osceola County for roadway improvements of CR 545 (CR 545 Public Infrastructure Agreement) dated July 2003. The agreement has language that grants a nonexclusive, permanent drainage easement to Osceola County allowing for the storm water drainage systems and storm water management facilities for the future widening of Old Lake Wilson Road to outfall onto the adjacent properties. Details regarding the specific locations of outfall points from the future widening of CR 545 onto the adjacent properties was not found. Therefore, further coordination between the County and adjacent property owners is recommended to development formal defined easements with legal sketches/descriptions to access and make use of the available volume within the existing stormwater management facilities.

Basin 1 (Pond 370) - The latest permit modification, Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 370 is designed to provide treatment for up to 70% impervious area of CR 545 within the limits of Basin 1. Further coordination between the County and adjacent property owners may be required, including the development of a formal easement, to access and make use of the available volume within Pond 370. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access since it is incorporated as part of a golf course sand bunker. Given the dual-use nature of the pond and the demonstrated ability of the O&M entity to maintain the permitted ponds, it is recommended that the County provide the necessary documentation of acceptance of the as-built condition.

Basin 2 (Pond 374) - The latest permit modification, Permit 49-01107-P, Application No. 040702-5, indicates that existing Pond 374 is designed to provide treatment for up to 70% impervious area of CR 545 within the limits of Basin 2. Further coordination between the County and adjacent property owners may be required, including the development of a formal easement, to access and make use of the available volume within Pond 374. It appears that all or part of this pond may have been filled from its permitted conditions. The permitted pond configuration will need to be re-established during final design. This pond does not appear to meet current FDOT and Osceola County requirements for berms and maintenance access. Given the dual-use nature of the pond and the demonstrated ability of the O&M entity to maintain the permitted ponds, it is recommended that the County provide the necessary documentation of acceptance of the as-built condition or of the re-established permitted conditions, as applicable.

Basin 3 (Pond 491) - The latest permit modification, Permit 49-01107-P Application No. 020913-3, indicates that existing Pond 491 is designed to provide treatment of CR 545 within the limits of Basin 3. However, further

coordination between the County and adjacent property owners may be required, including the development of a formal easement, to access and make use of the available volume within Pond 491. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirements.

Basin 4 (Pond 362/Pond 9) - The latest permit modification, Permit No. 49-102283-P (Application No. 191004-1965), does not include Basin 4 in the routing calculations; however, it is delineated in the drainage map. The latest calculations indicate that there is sufficient volume to accommodate this basin. In previous permits, Basin 4 was included as a sub-basin draining to existing Pond 362 (later named Pond 9). In the proposed condition, runoff will be collected and conveyed by a closed storm sewer system and discharged to existing Pond 9. Permit No. 49-102283-P (Application No. 191004-1965) will be modified to include Basin 4. Further coordination between the County and adjacent property owners may be required, including the development of a formal easement, to access and make use of the available volume within Pond 9. Prior to design, survey is recommended to determine if the existing pond configuration meets FDOT and Osceola County requirement.

Basin 5 (Pond 108A) - FDEP Permit No. 0187636-003-EI (I-4 BtU) project indicates that Pond 108A is designed to provide treatment for 1.28 acres of impervious area (30.5%) from the proposed 4-lane widening of CR 545 within the limits of Basin 5, with additional treatment and attenuation for the 1.28 acres of impervious (30.5%; total 61%) from the currently untreated area of Basin 5. It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon). It is suggested that coordination with FDOT be initiated early in the process to discuss constructing the BtU pond configuration(s) ahead of the BtU timeline for use with this project.

Basin 6 (Ponds 105A and 105B) - FDEP Permit No. 0187636-003-EI (I-4 BtU) project indicates that Ponds 105A and 105B are designed to provide treatment for 1.92 of impervious area (61%) from the proposed 4-lane widening of CR 545 within the limits of Basin 6. It was originally anticipated that the proposed roadway widening and corresponding storm sewer design within this basin would be constructed as part of the I-4 BtU project. However, recent news releases by the FDOT indicate that the I-4 BtU project is under re-evaluation, with only 2 out of the 5 segments "tentatively" funded (those 2 segments falling outside the 10-year horizon). It is suggested that coordination with FDOT be initiated early in the process to discuss constructing the BtU pond configuration(s) ahead of the BtU timeline for use with this project.

Basin 7 (Pond 8) - Permit No. 49-01107-P-38 (Application 150331-13) indicates that existing Pond 8 is designed to provide treatment for the 6-lane widening typical section or 80% impervious area of CR 545. Based on the permitted plans, Pond 8 appears to meet current Osceola County standards.

Basin 8 (Pond 6) - The latest permit modification, Permit No. 49-01107-P-38 (Application 150331-13) indicates that existing Pond 6 is designed to provide treatment for the 6-lane widening typical section or 82% of impervious area of CR 545. Based on permitted plans, Pond 6 appears to meet current Osceola County standards.

During the design phase, survey is recommended to confirm that the existing ponds are consistent with their permitted conditions.

The viability of the existing permitted stormwater management facilities was evaluated. Treatment requirements for the future 4 lane widening of CR 545 were based on Typical Section 2, representing the maximum percent impervious of the proposed typical section alternatives. Based on the review of existing permits, volumes required to meet the FDEP and SFWMD stormwater requirements can be provided within the existing ponds identified along the project corridor. Nutrient loading calculations demonstrate that the pollutant loading can be accommodated within the existing permitted ponds identified along the project corridor. While there are recorded commitments from the adjacent owners for accommodation of roadway runoff from Basins 1 thru 4, 6, and 7, coordination is recommended to acquire defined legal easements with the associated sketch, legal, and description for each. It is also recommended to begin preliminary discussions with the FDOT regarding the use of the in-field ponds at the I-4 interchange in advance of the I-4 BtU project improvements. The current MOU may need to be updated, or a new MOU created to allow the County to coordinate the construction of the required drainage improvements to convey the roadway runoff to the appropriate stormwater management facility.

Federal Emergency Management Agency (FEMA) floodplains are located at two riverine crossings located along the project corridor: Davenport Creek and Davenport Creek Tributary. Davenport Creek is a FEMA regulatory floodway. Please refer to the Location Hydraulics Report (LHR), under separate cover, for additional information on the anticipated floodplain impacts.

APPENDIX A

BASIN MAPS

BASIN 1
TOTAL AREA: 7.81 AC.
IMPERVIOUS AREA: 4.76 AC.
PERVIOUS AREA: 3.05 AC.
TREATMENT PROVIDED IN POND 370
REFERENCE SFWMD PERMIT NO. 49-01107-P
(Application No.'s 000522-5, 020913-3 & 040702-5)

BASIN 2
TOTAL AREA: 3.80 AC.
IMPERVIOUS AREA: 2.32 AC.
PERVIOUS AREA: 1.48 AC.
TREATMENT PROVIDED IN POND 374
REFERENCE SFWMD PERMIT NO. 49-01107-P
(Application No.'s 000522-5, 020913-3 & 040702-5)

FLOW ARROW

BASIN 3
TOTAL AREA: 9.80 AC.
IMPERVIOUS AREA: 5.98 AC.
PERVIOUS AREA: 3.82 AC.
TREATMENT PROVIDED IN POND 491
REFERENCE SFWMD Permit No. 49-01107-P
(Application No.'s 000522-5 & 020913-3)

BASIN 4
SEE PROPOSED BASIN MAP (2)

GENERAL LOCATION AND SHAPE OF EXISTING STORMWATER MANAGEMENT PONDS. EXACT LOCATION AND SHAPE TO BE CONFIRMED THROUGH SURVEY DURING FINAL DESIGN.

N
0 100 500
Feet

I-4
EXIST. R/W LINE
POND 7
POND 8
POND 9 (POND 362)
POND 6
BEGIN PROJECT
POND 370
POND 374
DAVENPORT CREEK
POND 3
POND 4
BASIN 3
BASIN 4
EXIST. R/W LINE
CR 532
BASIN 1
BASIN 2
BRIDGE CULVERT
#924147
PROP. 12' x 8' CBC
EXIST. R/W LINE
POND 491
PROP. R/W LINE
EXIST. R/W LINE
DAVENPORT CREEK

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

OSCEOLA COUNTY
BOARD OF COUNTY COMMISSIONERS
1 COURTHOUSE SQUARE, SUITE 2300
KISSIMMEE, FLORIDA 34741

MICHAEL A. HOLT, PE #76111
PATEL, GREENE & ASSOCIATES, LLC
280 W. CANTON AVE. SUITE 400
WINTER PARK, FLORIDA 32789

REVISION	DATE	BY

PROPOSED BASIN MAP (1)

OLD LAKE WILSON ROAD (CR 545)

PROJECT NO.

SHEET

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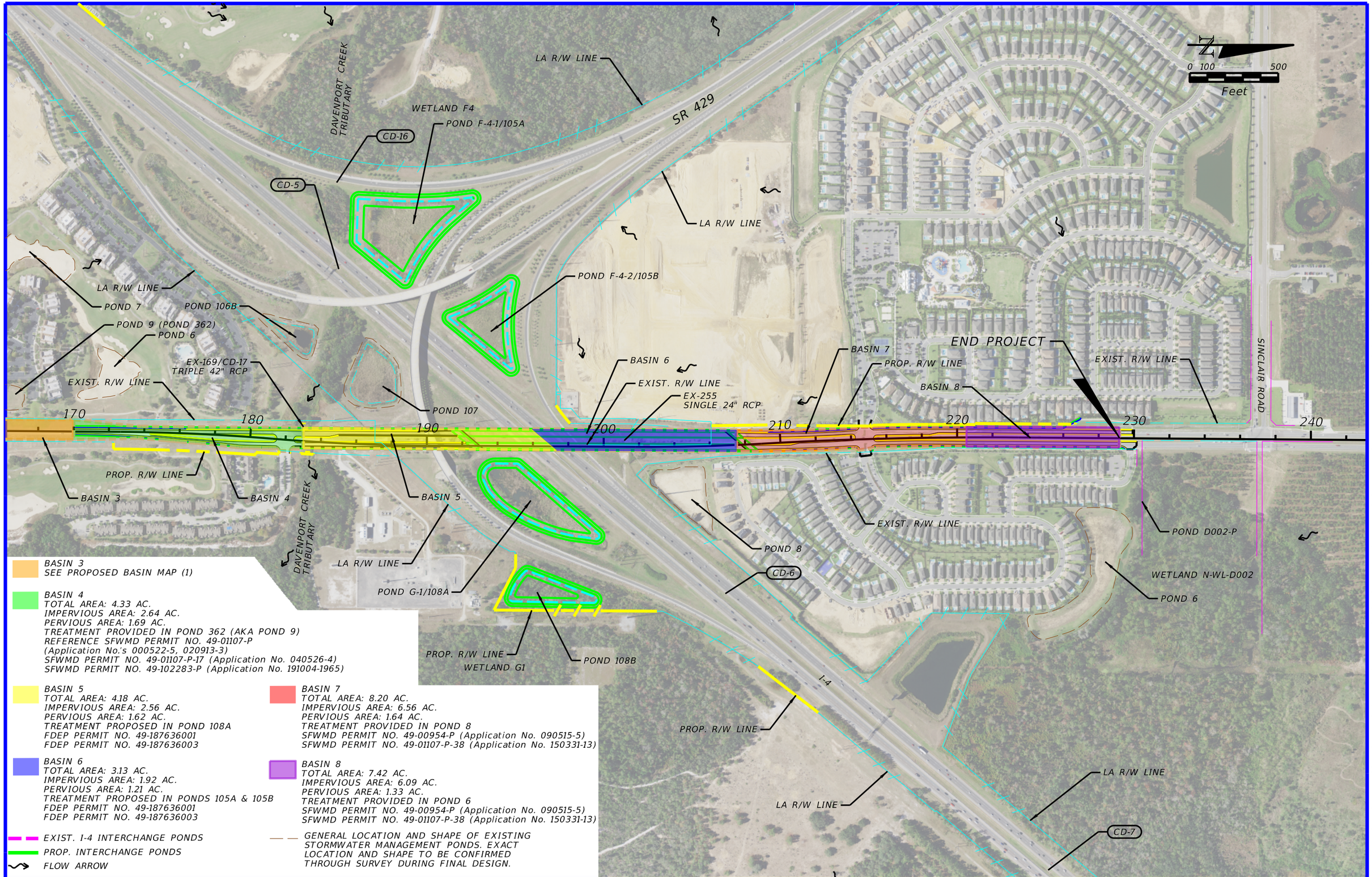

BASIN 3
SEE PROPOSED BASIN MAP (1)

BASIN 4
TOTAL AREA: 4.33 AC.
IMPERVIOUS AREA: 2.64 AC.
PERVIOUS AREA: 1.69 AC.
TREATMENT PROVIDED IN POND 362 (AKA POND 9)
REFERENCE SFWMD PERMIT NO. 49-01107-P
(Application No.'s 000522-5, 020913-3)
SFWMD PERMIT NO. 49-01107-P-17 (Application No. 040526-4)
SFWMD PERMIT NO. 49-102283-P (Application No. 191004-1965)

BASIN 5
TOTAL AREA: 4.18 AC.
IMPERVIOUS AREA: 2.56 AC.
PERVIOUS AREA: 1.62 AC.
TREATMENT PROPOSED IN POND 108A
FDEP PERMIT NO. 49-187636001
FDEP PERMIT NO. 49-187636003

BASIN 6
TOTAL AREA: 3.13 AC.
IMPERVIOUS AREA: 1.92 AC.
PERVIOUS AREA: 1.21 AC.
TREATMENT PROPOSED IN PONDS 105A & 105B
FDEP PERMIT NO. 49-187636001
FDEP PERMIT NO. 49-187636003

EXIST. I-4 INTERCHANGE PONDS

PROP. INTERCHANGE PONDS

FLOW ARROW

BASIN 7
TOTAL AREA: 8.20 AC.
IMPERVIOUS AREA: 6.56 AC.
PERVIOUS AREA: 1.64 AC.
TREATMENT PROVIDED IN POND 8
SFWMD PERMIT NO. 49-00954-P (Application No. 090515-5)
SFWMD PERMIT NO. 49-01107-P-38 (Application No. 150331-13)

BASIN 8
TOTAL AREA: 7.42 AC.
IMPERVIOUS AREA: 6.09 AC.
PERVIOUS AREA: 1.33 AC.
TREATMENT PROVIDED IN POND 6
SFWMD PERMIT NO. 49-00954-P (Application No. 090515-5)
SFWMD PERMIT NO. 49-01107-P-38 (Application No. 150331-13)

GENERAL LOCATION AND SHAPE OF EXISTING STORMWATER MANAGEMENT PONDS. EXACT LOCATION AND SHAPE TO BE CONFIRMED THROUGH SURVEY DURING FINAL DESIGN.

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REVISION	DATE	BY

PROPOSED BASIN MAP (2)

OLD LAKE WILSON ROAD (CR 545)

PROJECT NO.	SHEET

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

APPENDIX B

PERMIT EXCERPTS

Summary of Modifications to SFWMD Conceptual Permit 49-01107

=Permits relevant to Old Lake Wilson Road

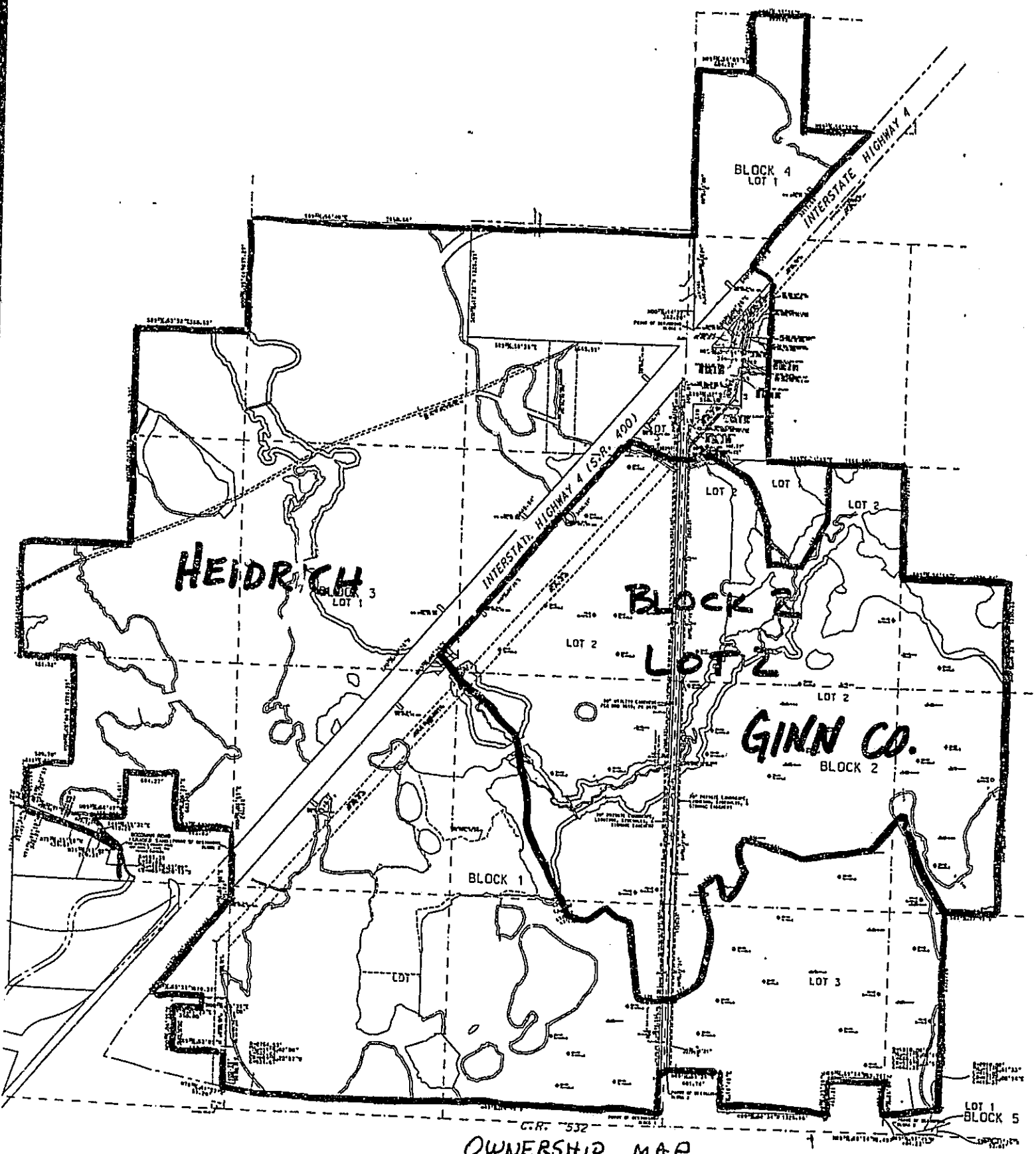
NOTES	APPLICATION NO	PERMIT NO	APPROVED DATE	STATUS	PERMIT TYPE	PROJECT ACRES	PROJECT NAME
	010220-22	49-01107-P	29-Mar-01	Complete	Environmental Resource (Early Work)	2129.4	Magnolia Creek Multi-Use Planned Development
Conceptual Approval & Construction Approval for Golf Course	000522-5	49-01107-P	10-May-01	Complete	Environmental Resource (Conceptual Approval And New Construction/Operation)	2129.4	Magnolia Creek Multi-Use Planned Development
	010620-13	49-01107-P-09	27-Jun-01	Complete	Environmental Resource (Early Work)	4.74	Magnolia Creek Temporary Sales/Administration Center
	010413-19	49-01107-P-09	23-Jul-01	Complete	Environmental Resource (General Permit Modification)	4.74	Magnolia Creek Temporary Sales/Admin Center
	010724-18	49-01107-P-10	18-Sep-01	Complete	Environmental Resource (General Permit Modification)	2.84	Magnolia Creek Reunion Resort And Club
	010328-15	49-01107-P-08	26-Sep-01	Complete	Environmental Resource (General Permit Modification)	83.78	Magnolia Creek - Phase 1 / Parcel 1
	010810-17	49-01107-P-13	5-Oct-01	Complete	Environmental Resource (General Permit Modification)	52.25	Magnolia Creek Phase 2 Parcel 1 And Parcel 1a
	010910-15	49-01107-P	23-Oct-01	Complete	Environmental Resource (Compliance Minor Mod)	2129.4	Magnolia Creek Irrigation Lift Station
	010829-16	49-01107-P-15	26-Oct-01	Complete	Environmental Resource (General Permit Modification)	9.61	Reunion Country Club
	011113-30	49-01107-P-14	9-Jan-02	Complete	Environmental Resource (General Permit Modification)	12.94	Magnolia Creek Reunion Resort And Club-Phase 1 Parcel 6
	011120-4	49-01107-P	17-Jan-02	Complete	Environmental Resource (General Permit Modification)	21.62	Magnolia Creek Reunion Resort And Club
	011218-2	49-01107-P-11	12-Feb-02	Complete	Environmental Resource (General Permit Modification)	11.25	Reunion Resort And Club Phase 1 Parcel 3a
	020102-7	49-01107-P-12	28-Feb-02	Complete	Environmental Resource (General Permit Modification)	12.84	Magnolia Creek Reunion Resort And Club Phase 1 Parcel 3b
	020114-21	49-01107-P-02	9-May-02	Complete	Environmental Resource (Construction/Operation Modification)	54.86	Magnolia Creek/County Road 532 Widening
	020226-15	49-01107-P-02	5-Jul-02	Complete	Environmental Resource (General Permit Modification)	51.04	Reunion Resort And Club (Magnolia Creek)-Sinclair Road
	020717-13	49-01107-P	6-Aug-02	Complete	Environmental Resource (Compliance Mod Nrm)	2129.4	Reunion Resort And Club
	020306-8	49-01107-P-16	19-Aug-02	Complete	Environmental Resource (General Permit Modification)	38.74	Reunion Resort And Club (Magnolia Creek) Phase 2 Parcel 3/3a
	020802-13	49-01107-P	4-Sep-02	Complete	Environmental Resource (Compliance Minor Mod)	1	Magnolia Creek - Cr 545 Cart Tunnels
	020924-2	49-01107-P-11	23-Oct-02	Complete	Environmental Resource (Early Work)	19.49	Reunion Resort And Club Phase 1 Parcel 3a
	020724-3	49-01107-P-11	21-Nov-02	Complete	Environmental Resource (General Permit Modification)	19.49	Reunion Resort And Club - Phase 1 Parcel 3a
Includes overall update to overall drainage calculations to include the approved modifications to date.	020913-3	49-01107-P	3-Jan-03	Complete	Environmental Resource (General Permit Modification)	621.77	Reunion Country Club
	030116-13	49-01107-P-18	14-Mar-03	Complete	Environmental Resource (General Permit Modification)	3.3	Reunion Resort And Club - Check-In Facility
	030507-10	49-01107-P-17	2-Jul-03	Complete	Environmental Resource (General Permit Modification)	145.47	Reunion Resort And Club - Village Center
	030530-13	49-01107-P-21	28-Jul-03	Complete	Environmental Resource (General Permit Modification)	23.64	Reunion Resort & Club- Phase 2 Parcel 2a&2b
	030430-16	49-01107-P	20-Aug-03	Complete	Environmental Resource (General Permit Modification)	0.26	Reunion Resort And Club Dri Palmer Boardwalk/Tee Box
	030703-28	49-01107-P-09	28-Aug-03	Complete	Environmental Resource (General Permit Modification)	8.95	Reunion Resort And Club-Phase 2 Parcel 9
	030703-4	49-01107-P-02	29-Aug-03	Complete	Environmental Resource (General Permit Modification)	14.82	Reunion Resort And Club - Sinclair Road
	030729-10	49-01107-P-19	23-Sep-03	Complete	Environmental Resource (Early Work)	797.43	Reunion Resort Phase 2
	030402-22	49-01107-P-19	11-Dec-03	Complete	Environmental Resource (Construction/Operation Modification)	797.43	Reunion Resort Phase 2
	030905-9	49-01107-P-20	23-Dec-03	Complete	Environmental Resource (General Permit Modification)	69.71	Reunion Resort & Club West Phase 111 Single Family Parcel P3
	030711-20	49-01107-P-22	26-Jan-04	Complete	Environmental Resource (General Permit Modification)	14.37	Reunion Resort And Club (West-Phase 3)
	040121-10	49-01107-P-24	19-Feb-04	Complete	Environmental Resource (Compliance Minor Mod)	3	Reunion Resort And Club West Phase 2
	040211-19	49-01107-P-23	8-Apr-04	Complete	Environmental Resource (General Permit Modification)	66.68	Reunion Resort And Club West - Phase 3
	040202-17	49-01107-P-03	3-May-04	Complete	Environmental Resource (General Permit Modification)	20.2	Reunion Resort & Club Phase 2 Parcel 13 & 14
	040401-15	49-01107-P-25	13-May-04	Complete	Environmental Resource (General Permit Modification)	39.38	Reunion Resort And Club Parcel 9
	040407-21	49-01107-P-26	24-May-04	Complete	Environmental Resource (General Permit Modification)	3.75	Reunion Resort & Club-Phase 2 Parcel 13 & 14
Revises basins to Ponds 360, 361, 362, 366, and 367, reconfigures/renames ponds to 1, 2A, 2B, 3, 4, 5, 6, 7, 8, and 9 and eliminates basin from Old Lake Wilson Road. (These were subsequently modified by Permit 49-102283-P (App 191004-1965)	040526-4	49-01107-P-17	16-Jul-04	Complete	Environmental Resource (General Permit Modification)	145.47	Reunion Resort And Club Village Center
Includes updates for Basins to Ponds 370 & 374	040702-5	49-01107-P-14	26-Aug-04	Complete	Environmental Resource (General Permit Modification)	12.94	Reunion Resort & Club Phase 1 Parcel 6
	040930-27	49-01107-P-27	21-Oct-04	Complete	Environmental Resource (Compliance Minor Mod)	1	Communication Tower At Reunion Resort
	041004-11	49-01107-P-09	2-Dec-04	Complete	Environmental Resource (General Permit Modification)	0.75	Reunion Resort & Club/Modular Office Bldgs Phase 2 Parcel 9
	041214-14	49-01107-P-11	4-Feb-05	Complete	Environmental Resource (General Permit Modification)	11.8	Reunion Resort And Club-Phase 1-Parcel 3a
	041222-28	49-01107-P-29	7-Mar-05	Complete	Environmental Resource (General Permit Modification)	11.77	Reunion Resort And Club Phase 1 Parcel 4a
	050223-12	49-01107-P-03	7-Apr-05	Complete	Environmental Resource (Compliance Minor Mod)	18.9	Reunion Resort & Club Phase 2 Parcel 13 - Terraces @ Reunion
	050215-13	49-01107-P-30	11-Apr-05	Complete	Environmental Resource (General Permit Modification)	9.77	Reunion Resort & Club Phase 1 Parcel 5a
	050114-28	49-01107-P-07	14-Apr-05	Complete	Environmental Resource (General Permit Modification)	8.35	Reunion Resort And Club Phase 1 Parcel 7b
	050301-29	49-01107-P-28	2-Jun-05	Complete	Environmental Resource (General Permit Modification)	18.99	Reunion Resort And Club Phase 1 Parcel 7c
	050323-25	49-01107-P-31	20-Jun-05	Complete	Environmental Resource (General Permit Modification)	32.06	Reunion Resort & Club Phase 2 Parcel 8
	050511-17	49-01107-P-32	1-Aug-05	Complete	Environmental Resource (General Permit Modification)	5.77	Reunion Resort And Club Phase 1 Parcel 5b
	050513-27	49-01107-P-03	17-Aug-05	Complete	Environmental Resource (General Permit Transfer)	18.9	Terraces At Reunion
	051118-5	49-01107-P-31	13-Jan-06	Complete	Environmental Resource (General Permit Modification)	32.06	Reunion - Phase 2 Parcel 8 - Austin Outdoors Facility
	051129-24	49-01107-P-33	20-Mar-06	Complete	Environmental Resource (General Permit Modification)	5.3	Reunion Resort & Club Phase 3 Parcel 4
	050719-8	49-01107-P	10-May-06	Complete	Environmental Resource (Construction/Operation Modification)	123.12	Reunion Resort Phase 3 Sinclair Road Extension
	060622-20	49-01107-P	9-Aug-06	Withdrawn	Environmental Resource (General Permit Modification)	5.29	Reunion Resort & Club Phase 3 Parcel 4
	060706-20	49-01107-P-34	28-Aug-06	Complete	Environmental Resource (General Permit Modification)	1.74	Reunion Resort & Club Golf Academy
	060713-5	49-01107-P-35	8-Sep-06	Complete	Environmental Resource (General Permit Modification)	31.27	Towers At Reunion Square - Parcel 7a
	060817-31	49-01107-P-33	18-Sep-06	Complete	Environmental Resource (Compliance Minor Mod)	2.91	Reunion Resort & Club Phase 3 Parcel 4
	060630-34	49-01107-P	20-Sep-06	Complete	Environmental Resource (General Permit Modification)	92.4	Reunion Resort And Club East Side Trail System Phase 1
	060706-21	49-01107-P	16-Oct-06	Complete	Environmental Resource (General Permit Modification)	31.27	Reunion Resort & Club Phase 1 Parcel 7a Access Road
	070118-5	49-01107-P	20-Feb-07	Complete	Environmental Resource (General Permit Modification)	14.82	Reunion Resort & Club (Sinclair Road
	070215-9	49-01107-P-25	16-Apr-07	Complete	Environmental Resource (Compliance Minor Mod)	2.66	Reunion Resort Phase 3 Parcel 9 Pond 51
	070621-22	49-01107-P-22	17-Aug-07	Complete	Environmental Resource (General Permit Modification)	560.87	Reunion Resort Phase 3
	071206-24	49-01107-P	3-Jan-08	Complete	Environmental Resource (General Permit Extension)	621.77	Reunion Country Club
	080313-31	49-01107-P-22	30-Apr-08	Complete	Environmental Resource (General Permit Modification)	4.74	Reunion Resort Phase 3
	080619-26	49-01107-P-22	1-Oct-08	Complete	Environmental Resource (General Permit Modification)	2.18	Reunion Resort Phase 3

Summary of Modifications to SFWMD Conceptual Permit 49-01107

=Permits relevant to Old Lake Wilson Road

NOTES	APPLICATION NO	PERMIT NO	APPROVED DATE	STATUS	PERMIT TYPE	PROJECT ACRES	PROJECT NAME
	060828-10	49-01107-P	3-Nov-10	Withdrawn	Environmental Resource (General Permit Modification)	31.27	Towers At Reunion Square - Parcel 5b
	111003-1	49-01107-P	17-Jan-12	Complete	Environmental Resource (General Permit Modification)	5.32	Reunion Resort & Club - Patriots Landing/Carriage Point Mod
	080915-21	49-01107-P	7-Aug-12	Withdrawn	Environmental Resource (Compliance Minor Mod)	1	Equestrian Trail At Reunion Resort And Club
	130711-6	49-01107-P-36	2-May-14	Complete	Environmental Resource (General Permit Modification)	82.63	Reunion 17th And 18th Fairway Resort
	130513-1	49-01107-P-38	12-May-14	Complete	Environmental Resource (Construction/Operation Modification)	205.06	Reunion West
	140612-6	49-01107-P	16-Jun-14	Complete	Environmental Resource	358.7	Reunion Resort D R I C U P Mitigation Modification
	140722-1	49-01107-P-38	29-Dec-14	Complete	Environmental Resource (Construction/Operation Modification)	244.69	Reunion West Mass Grading
	150309-7	49-01107-P-36	23-Jun-15	Complete	Environmental Resource (Construction/Operation Modification)	71.42	Reunion 17th And 18th Fairway Resort
	150601-4	49-01107-P-09	17-Jul-15	Complete	Environmental Resource (Construction/Operation Modification)	8.95	Reunion Fire Station
	160202-18	49-01107-P-36	26-Feb-16	Complete	Environmental Resource	72.57	Reunion 17th And 18th Fairway - Phase 1
Includes construction of Ponds 6 & 8, north of I-4	150331-13	49-01107-P-38	9-May-16	Complete	Environmental Resource (Conceptual Approval Modification And Construction/Operation Modification)	270.17	Reunion West Mass Grading
	160615-4	49-01107-P-36	19-Jul-16	Complete	Environmental Resource	48.43	Reunion 17th And 18th Fairway
	161004-15	49-01107-P-36	17-Oct-16	Complete	Environmental Resource	15.7	Reunion 17th & 18th Fairway - Phase 2
	160412-3	49-01107-P	17-Feb-17	Withdrawn	Environmental Resource (Construction/Operation Modification)	32.1	Reunion East Phase 1 (Tract 5a)
	170220-12	49-01107-P-05	14-Apr-17	Complete	Environmental Resource (Construction/Operation Modification)	20.51	Reunion Apartments
	170222-6	49-01107-P-04	25-Apr-17	Complete	Environmental Resource (Minor Mod W/Transfer)	24.79	Reunion West Phase 2 East
	170602-12	49-01107-P-06	28-Jun-17	Complete	Environmental Resource (Minor Mod W/Transfer)	3.71	Osceola County Fire Station No 73
	170530-5	49-01107-P-37	6-Jul-17	Complete	Environmental Resource	3.36	Nicklaus Clubhouse At Reunion
	170925-16	49-01107-P-36	12-Oct-17	Complete	Environmental Resource	15.7	Reunion 17th And 18th Fairway Phase 2
	171127-3	49-01107-P-17	19-Jul-18	Complete	Environmental Resource (Construction/Operation Modification)	46.06	Reunion East Phase 1 (Tract 5 A)

SFWMD PERMIT NO. 49-01107-P (APPLICATION NO. 000522-5)

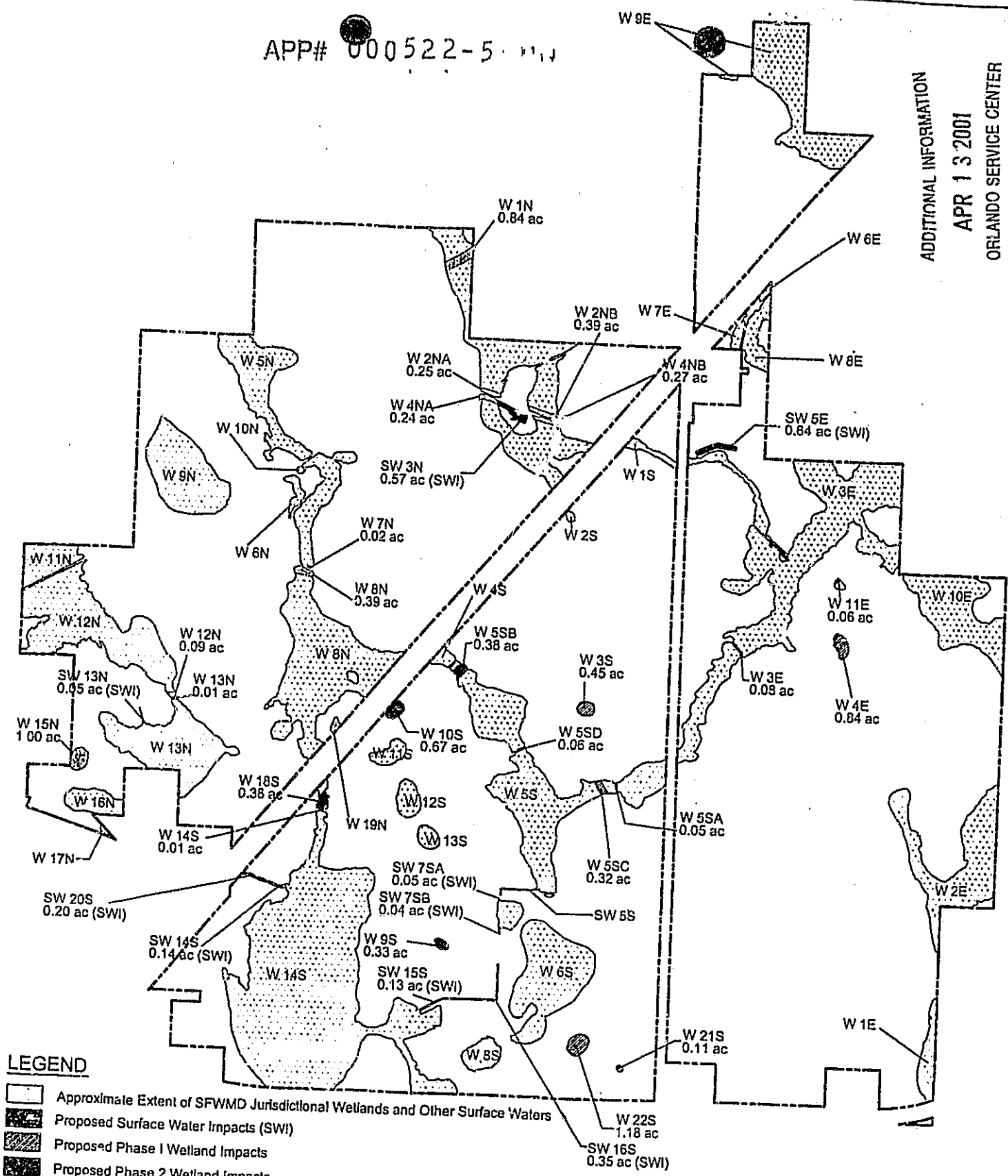


OWNERSHIP MAP
Base Map for
Magnolia Creek

EXHIBIT 1B

APP# 000522-5

ADDITIONAL INFORMATION
APR 13 2001
ORLANDO SERVICE CENTER



LEGEND

- Approximate Extent of SFWMD Jurisdictional Wetlands and Other Surface Waters
- Proposed Surface Water Impacts (SWI)
- Proposed Phase I Wetland Impacts
- Proposed Phase 2 Wetland Impacts
- Proposed Phase 3 Wetland Impacts

N

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MAGNOLIA CREEK

Figure 6 - Wetland Impacts and Phasing Plan

4/13/01

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EXHIBIT 2

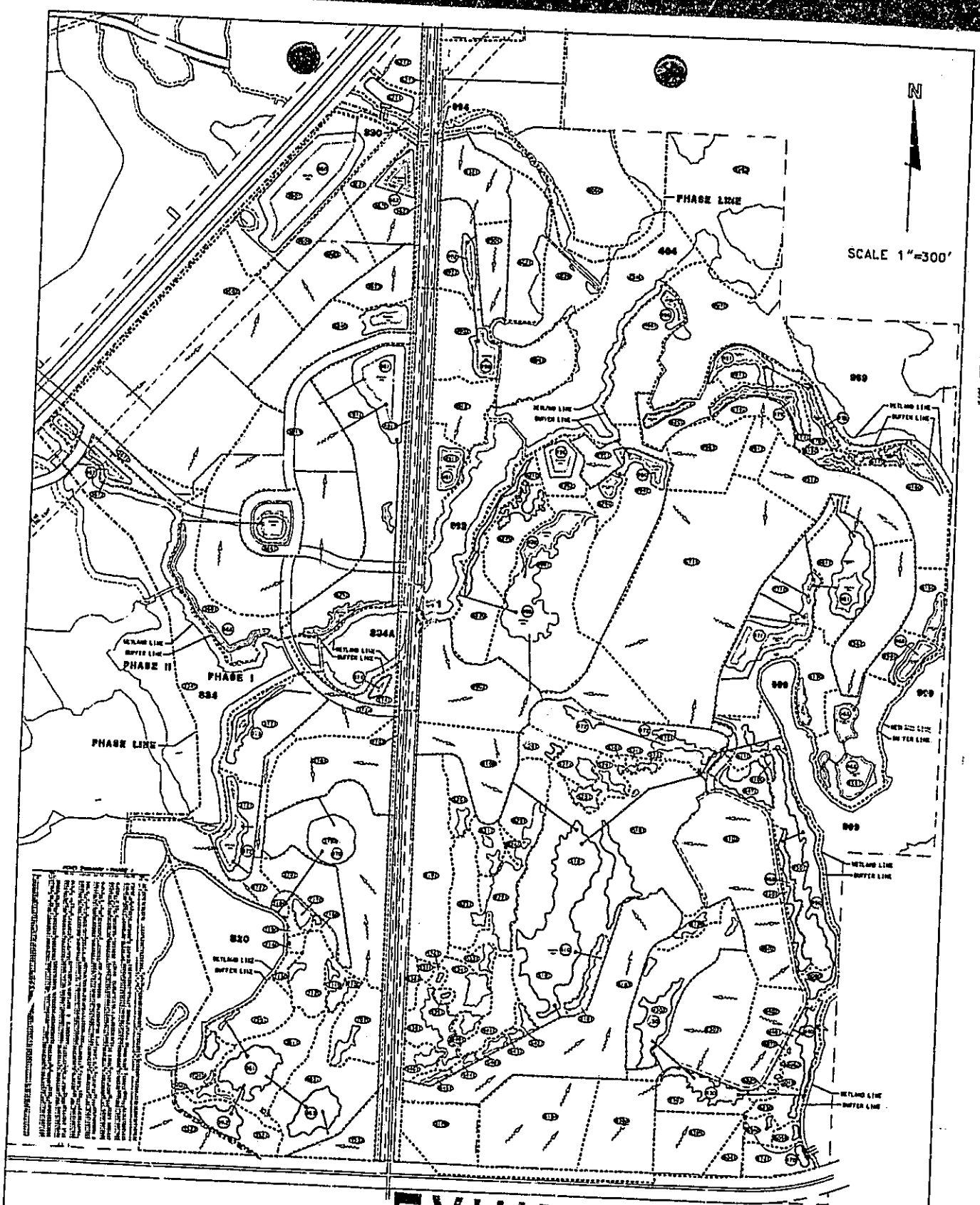

EXHIBIT 9

POST-DEVELOPMENT

PHASE I BASIN MAP
MASS GRADING

LEGEND

- BASIN ID
- FLOW ARROW
- NODE ID
- CONTROL ELEVATION
- CRITICAL NODE LOCATION
- PHASE BOUNDARY
- BASIN LINE

MC2BAS.002

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EXHIBIT 2
1 OF 3

Pond Summary - Phase I - Mass Grading

Node I.D.	TOB Elev. (FT)	10-72	100-24	50-72	10-24	100-72	TOB - 10-72	10-72 Peak Flow
351	108.00	103.38	105.63	104.36	103.78	106.73	4.62	0.05
352	110.00	108.47	109.06	109.21	108.61	110.13	1.53	0.00
353	116.00	105.34	107.65	105.76	106.55	108.68	10.66	0.00
360	107.00	99.48	103.71	101.21	101.24	105.08	7.52	0.00
36	109.00	102.35	107.45	104.64	103.88	108.96	6.65	0.00
362	97.00	95.28	95.47	95.93	95.04	96.21	1.72	15.09
366	105.00	97	98.61	97.35	97.51	98.98	8.00	0.00
367	105.00	102.8	103.76	103.68	103.38	104.29	2.20	0.00
368	98.00	95.59	96.08	95.31	95.9	96.45	2.41	0.00
370	120.00	116.44	118.71	118.8	116.93	120.82	3.56	0.00
372	103.00	100.48	101.96	101.69	101.64	102.58	2.52	0.00
373	98.00	96.18	96.77	96.63	96.23	97.29	1.82	0.66
374	96.00	92.66	94.52	93.93	92.7	94.69	3.34	0.00
430	110.00	107.52	110.07	109.02	108.33	110.44	2.48	0.00
440	92.00	89.61	90.88	90.62	90.63	91.38	2.39	0.00
450	90.00	86.74	88.35	87.77	87.79	88.9	3.26	0.00
460	96.00	94.81	94.97	95.17	94.77	95.66	1.19	7.65
461	98.00	94.03	95.83	95.47	93.73	95.72	3.97	10.18
466	90.00	88.36	89.15	88.98	88.73	89.82	1.64	0.00
468	88.00	84.66	86.19	85.38	84.85	87.08	3.34	0.00
470	94.00	92.24	92.79	92.79	92.67	93.09	1.76	0.00
471	96.00	94.03	95.79	95.45	93.7	95.29	1.97	0.00
472	112.00	109.65	110.66	110.54	109.7	111.08	2.35	0.00
478	94.00	90.37	92.59	90.8	90.57	92.84	3.63	0.00
479	98.00	95.17	96.64	95.8	95.99	97	2.83	0.00
481	95.00	91.9	93.67	92.47	92.64	94.37	3.10	0.00
490	96.50	94.08	95.33	95.23	94.86	96.07	2.42	0.00
491	97.00	95.31	95.5	95.96	95.08	96.35	1.69	14.66
492	96.00	94.12	95.58	95.43	94.86	96.43	1.88	4.94
494	95.00	93.76	94.91	94.92	93.62	95.78	1.24	0.00
495	93.00	89.62	91.86	91.54	91	92.64	3.38	0.00
496	92.00	91.47	91.35	91.74	91.19	91.87	0.53	22.40
498	110.00	107.55	109.16	109.43	107.81	109.47	2.45	0.00
510	106.00	103.74	104.69	105.65	101.93	106.28	2.26	0.00
518	106.00	105.19	105.47	105.79	104.7[illegible]	106.28	0.81	0.00
519	106.00	106.13	106.12	106.3	106.01	106.36	-0.13	7.93
520	128.00	127.41	128.01	128.03	126.02	128.12	0.59	0.00
521	110.00	110.05	110.05	110.12	110	110.15	-0.05	1.70
522	110.00	103.82	104.29	104.87	103	105.52	6.18	0.00
523	110.00	110.12	110.07	110.18	110.03	110.22	-0.12	6.87
524	110.00	110.01	110.02	110.06	109.51	110.07	-0.01	0.10
525	110.00	109.45	110.01	110.04	108.0[illegible]	110.13	0.55	0.00
526	122.00	122.01	122.03	122.09	121.57	122.12	-0.01	0.27
527	108.00	104.35	104.95	105.68	103.31	106.49	3.65	0.00
528	110.00	108.02	108.5	109.09	107.15	109.75	1.98	0.00
529	106.00	104.38	104.88	105.47	103.48	106.28	1.62	0.00
530	110.00	109.44	109.82	110	108.77	110.01	0.56	0.00
531	110.00	109.4	109.77	110	108.77	110.01	0.60	0.00
532	110.00	107.83	108.21	108.66	107.15	109.15	2.17	0.00
533	114.00	112.24	112.74	113.34	111.35	114	1.76	0.00
534	118.00	114.02	114.56	115.21	113.1	115.95	3.98	0.00
535	128.00	128	128.01	128.04	127.41	128.05	0.00	0.03

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 In Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	Water Elev. (FT)	Control Elev. (FT)	TOB Elev. (FT)
4301	430	4.34	3.44	0.71	[redacted]		41.95	0.36	0.05	0.63	0.36	8.36	103.70	104.00	110.00
4302	430	9.25	0.00	0.00			41.95	0.77	0.10	1.33	0.77		0.00	0.00	0.00
4303	430	11.20	0.00	0.00	9.90	1.10	92.10	0.92	2.06	7.01	2.06		0.00	0.00	0.00
4304	430	8.00	0.00	0.00			41.95	0.67	0.08	1.15	0.67		0.00	0.00	0.00
4401	440	3.23	1.17	0.50			41.95	0.27	0.03	0.47	0.27	1.77	90.50	88.00	92.00
4402	440	4.30	0.00	0.00	3.87	0.43	92.10	0.36	0.81	2.74	0.81		0.00	0.00	0.00
4501	450	8.2	2.85	1.02			41.95	0.68	0.09	1.18	0.68	2.96	88.00	86.00	90.00
4601	460	2.10	1.13	0.25			41.95	0.17	0.02	0.30	0.17	1.31	94.50	92.00	98.00
4602	460	6	0.00	0.00	5.40	0.60	92.10	0.50	1.12	3.82	1.12		0.00	0.00	0.00
4611	461	8.13	2.63	1.39			41.95	0.68	0.08	1.17	0.68	6.95	93.50	93.00	96.00
4612	461	8.9	0.00	0.00	8.01	0.89	92.10	0.74	1.67	5.67	1.67		0.00	0.00	0.00
4661	466	9.05	2.90	2.03			41.95	0.75	0.09	1.30	0.75	3.37	88.50	87.00	90.00
4662	466	8	0.00	0.00	7.20	0.80	92.10	0.67	1.50	5.10	1.50		0.00	0.00	0.00
4680	468	2.8	0.76	0.32	0.14	2.66	41.95	0.23	0.03	0.40	0.23	1.14	86.50	84.00	88.00
4701	470	2.7	0.41	0.15	2.07	0.63	84.14	0.22	0.43	1.01	0.13	0.57	92.50	90.00	94.00
4710	471	11.71	0.00	0.00			41.95	0.98	0.12	1.69	0.98		0.00	0.00	0.00
4711	471	36.8	4.00	1.25	29.52	7.28	86.33	3.07	6.15	21.32	6.15	11.98	95.00	90.00	96.00
4721	472	9.23	1.70	0.11			41.95	0.77	0.10	1.33	0.77	1.52	110.50	108.00	112.00
4780	478	1.7	0.74	0.21	0.09	1.62	41.95	0.14	0.02	0.24	0.14	0.94	92.50	90.00	94.00
4791	479	2.8	1.30	0.40			41.95	0.23	0.03	0.40	0.23	1.70	96.50	94.00	98.00
4792	479	2	0.00	0.00	1.80	0.20	92.10	0.17	0.37	1.27	0.37		0.00	0.00	0.00
4811	481	3.6	1.60	0.59			41.95	0.30	0.04	0.52	0.30	2.26	93.50	91.00	95.00
4812	481	2	0.00	0.00	1.80	0.20	92.10	0.17	0.37	1.27	0.37		0.00	0.00	0.00
4901	490	3.7	1.32	0.60	2.14	1.56	73.16	0.31	0.45	1.65	0.45	3.23	94.80	91.00	96.50
4902	490	10.7	0.00	0.00			41.55	0.69	0.11	1.54	0.89		0.00	0.00	0.00
4911	491	3.5	1.28	0.80			41.95	0.29	0.04	0.50	0.29	1.34	94.50	93.00	97.00
4912	491	4.5	0.00	0.00			41.95	0.37	0.05	0.65	0.37		0.00	0.00	0.00
4913***	491	9.9	0.00	0.00	6.93	2.97	80.30	0.82	1.44	5.14	1.44		0.00	0.00	0.00
4921	492	5.8	0.00	0.00	5.22	0.58	92.10	0.48	1.09	3.70	1.09		0.00	0.00	0.00
4922	492	4.8	0.78	0.35			41.95	0.40	0.05	0.69	0.40	1.95	94.80	91.00	96.00
4941	494	11.3	0.28	0.07			41.95	0.94	0.12	1.63	0.94	0.2[illegible]	93.30	91.00	95.00
4951	495	3	1.44	0.57	1.40	1.60	66.61	0.25	0.29	1.14	0.29	5.01	91.50	88.00	93.00
4952	495	3	0.00	0.00			41.95	0.25	0.03	0.43	0.25		97.00	0.00	0.00
4953	495	6.6	0.00	0.00	5.94	0.66	92.10	0.55	1.24	4.21	1.24		0.00	0.00	0.00
4961	496	7.57	0.54	0.10	6.33	1.24	88.31	0.63	1.32	4.54	1.32	1.02	90.80	87.00	92.00
4981	498	17.7	5.46	2.29			41.95	1.47	0.18	2.55	1.47	9.28	108.75	106.00	110.00
4982	498	13.7	0.00	0.00	12.33	1.37	92.10	1.14	2.57	8.73	2.57		0.00	0.00	0.00
5101	510	38.2	0.00	0.00	29.50	8.70	84.56	3.18	6.14	21.46	6.14		0.00	0.00	0.00
5102	510	12.3	0.00	0.00	11.07	1.23	92.10	1.02	2.31	7.84	2.31		0.00	0.00	0.00
5103	510	19.6	0.00	0.00	17.64	1.96	92.10	1.63	3.67	12.49	3.67		0.00	0.00	0.00
5104	510	12.5	0.00	0.00	11.25	1.25	92.10	1.04	2.34	7.97	2.34		0.00	0.00	0.00
5105	510	8.5	0.00	0.00	7.65	0.85	92.10	0.71	1.59	5.42	1.59		0.00	0.00	0.00
5106	510	6.8	0.00	0.00	6.21	0.63	92.10	0.57	1.29	4.40	1.29		0.00	0.00	0.00
										59.58	17.36				

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 in Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	Weir Elev. (FT)	Control Elev. (FT)	TOB Elev. (FT)
3511	331	8	2.04	1.67			41.95	0.67	0.06	1.15	0.67	5.36	106.20	103.20	108.00
3521	352	3.7	0.83	0.17			41.95	0.31	0.04	0.53	0.31	1.64	108.50	104.50	110.00
3522	352	4.62	0	0	4.16	0.46	92.10	0.38	0.87	2.95	0.87		0.00	0.00	0.00
3531	353	10.6	1.94	0.18			39.22	0.88	0.11	1.34	0.88	4.40	111.00	104.50	116.00
3532	353	3.2	0	0	2.88	0.32	92.10	0.27	0.60	2.04	0.60		0.00	0.00	0.00
3601	360	13.2	9.5	5			41.95	1.10	0.14	1.90	1.10	50.16	104.50	97.00	107.00
3602	360	39.8	0	0	35.82	3.98	92.10	3.32	7.46	25.37	7.46		0.00	0.00	0.00
3603	360	7.4	0	0	6.66	0.74	92.10	0.62	1.39	4.72	1.39		0.00	0.00	0.00
3604	360	3.3	0	0			41.95	0.27	0.03	0.48	0.27		0.00	0.00	0.00
3611	361	16.3	5	1.31			41.95	1.36	0.17	2.35	1.36	33.83	107.50	98.00	109.00
3612	361	35.2	0	0	31.68	3.52	92.10	2.93	6.60	22.44	6.60		0.00	0.00	0.00
3620	362	[illegible]	1.3	0.71	4.68	1.82	61.50	0.54	0.98	3.46	0.98	2.82	94.70	91.50	97.00
3621	362	2.25	0	0			41.95	0.19	0.02	0.32	0.19		0.00	0.00	0.00
3622***	362	6.2	0	0	4.34	1.86	80.30	0.52	0.90	3.22	0.90		0.00	0.00	0.00
3623	362	3.68	0	0			41.95	0.31	0.04	0.53	0.31		0.00	0.00	0.00
3661	366	4.8	1.5	0.4	2.97	1.83	75.51	0.40	0.62	2.26	0.62	2.00	98.40	95.00	105.00
3671	367	3.6	1.05	0.16	2.30	1.31	76.61	0.30	0.48	1.73	0.48	1.65	103.50	100.00	105.00
3672	367	3.1	0	0			41.95	0.26	0.03	0.45	0.26		0.00	0.00	0.00
3681	368	7.1	1.22	0.27	5.29	1.81	82.98	0.59	1.10	3.87	1.10	1.13	94.95	93.00	96.00
3701	370	6.4	2.86	0.12			41.95	0.53	0.07	0.92	0.53	20.19	118.10	103.00	120.00
3702	370	15.4	0	0	13.86	1.54	92.10	1.28	2.89	9.82	2.89		0.00	0	0
3703***	370	14.4	0	0	10.08	4.32	80.30	1.20	2.10	7.47	2.10		0.00	0	0
3704	370	9.6	0	0	5.85	3.75	74.95	0.80	1.22	4.46	1.22		0.00	0	0
3721	372	4.43	1.27	0.55			41.95	0.37	0.05	0.64	0.37	2.81	101.50	98.00	103.00
3722	372	6.22	0	0	5.60	0.62	92.10	0.52	1.17	3.97	1.17		0.00	0.00	0.00
3731	373	7.3	1.32	0.25			41.95	0.61	0.08	1.05	0.61	1.29	95.50	93.00	98.00
3732	373	4.3	0	0	3.87	0.43	92.10	0.36	0.81	2.74	0.81		0.00	0.00	0.00
3741	374	1.55	0.2	0.05			41.95	0.13	0.02	0.22	0.13	0.36	94.50	91.00	96.00
		621.77													

P (in) = 8.6 Impervious Area CN = 98 Pervious Area CN = 39

Sample Calculation

* Imperv. Area = {Basin Area - Area (T.O.B.)} * 0.90

** Span & Rise of Circular Orifice (Recover 0.5" within 24 hours)= {[(0.5" Runoff Ac-Ft) * (43560 ft^2/Acre)] / [(86,400 sec/day) * (0.6) * (2*32.2*H)^0.5] * [144]}^0.5

$$Q = C * A * (2 * G * H) ^ 0.5$$

*** Future Roadway Basins @ 70% Impervious

NODE 510

STAGE	AREA	STORAGE	
94	4.37	0	
96	5.69	0.00	
98.0	6.63	12.32	
100.0	8.80	27.75	
102	11.50	48.05	
104	13.4	72.95	
105.65	21.89	102.06	50-72
106	23.7	110.04	

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Magnolia Creek Post Development

02/05/01

********** Node Maximum Conditions - HEP10072 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	66.83	102.88	105.00	0.0081	3141897.54	59.92	1580.20	66.83	585.83
306	BASE	66.84	97.38	105.00	-0.0821	6690.75	66.83	585.83	66.84	585.83
310	BASE	60.05	129.46	135.00	0.0243	155948.47	59.92	447.85	60.05	334.91
319	BASE	62.44	106.30	109.00	0.0030	150756.39	60.08	32.11	62.24	5.41
320	BASE	62.56	105.37	106.00	0.0119	805636.99	60.00	632.04	62.56	76.70
330	BASE	61.30	94.62	98.00	0.0083	151385.42	59.92	292.61	61.30	233.43
331	BASE	72.00	95.51	100.00	0.0820	12762.66	70.39	1664.23	70.39	1663.35
334	BASE	72.00	91.95	95.00	-0.0426	1267636.21	70.39	1730.61	72.00	1705.26
334A	BASE	72.00	91.24	95.00	-0.2579	128174.98	72.00	1717.98	72.00	1717.12
351	BASE	64.22	106.72	108.00	0.0142	84552.90	59.96	74.19	64.81	5.58
352	BASE	59.97	110.13	110.00	0.0161	36610.25	59.92	48.18	59.97	43.89
353	BASE	72.00	108.68	116.00	0.0080	49449.36	59.92	22.92	0.00	0.00
360	BASE	64.18	105.08	107.00	0.0181	376096.96	59.92	405.35	64.18	13.97
361	BASE	64.15	108.96	109.00	0.0256	217327.74	59.92	318.59	64.15	11.51
362	BASE	60.00	96.21	97.00	0.0119	53333.07	59.92	97.12	60.00	83.94
366	BASE	60.41	99.51	105.00	0.0102	39057.31	59.92	32.27	60.41	9.14
367	BASE	60.02	104.29	105.00	0.0078	40246.88	59.92	37.01	60.02	29.63
368	BASE	60.00	96.45	96.00	0.0052	59362.35	59.92	48.99	60.00	42.28
370	BASE	60.24	120.82	120.00	0.0285	130367.61	59.92	300.07	60.24	112.29
372	BASE	60.01	102.58	103.00	0.0082	52704.82	59.92	62.62	60.01	51.55
373	BASE	60.04	97.48	98.00	0.0095	52690.54	59.92	60.57	60.04	45.63
374	BASE	60.19	94.69	96.00	0.0149	6999.78	59.92	6.32	60.19	2.84
400	BASE	0.00	85.00	85.00	0.0000	0.00	59.92	60.92	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	59.92	666.73	0.00	0.00
402	BASE	61.29	86.72	90.00	0.0092	144194.06	60.00	247.50	61.58	241.48
404	BASE	71.98	83.50	90.00	0.0599	1921835.04	71.91	1851.66	71.98	1850.27
406	BASE	0.00	82.00	82.00	0.0000	252736.16	71.92	1852.16	0.00	0.00
430	BASE	60.17	110.44	110.00	0.0166	158586.50	59.92	166.84	60.17	77.36
440	BASE	60.02	91.38	92.00	0.0067	46450.79	59.92	43.97	60.02	35.73
450	BASE	60.50	88.90	90.00	0.0086	102254.74	59.92	63.45	60.50	37.19
460	BASE	60.10	95.66	96.00	0.0077	45973.09	59.92	51.54	59.96	30.07
461	BASE	60.28	97.20	96.00	0.0140	115577.82	59.92	97.59	60.69	41.00
466	BASE	60.13	89.82	90.00	0.0077	124096.91	59.92	94.21	60.13	49.95
468	BASE	64.11	87.08	88.00	0.0102	28674.75	59.92	15.33	64.11	0.68
470	BASE	59.95	93.09	94.00	0.0058	15284.40	59.92	18.93	59.95	17.92
471	BASE	60.07	96.93	96.00	0.0134	192819.91	59.92	314.04	60.07	220.16
472	BASE	60.26	111.08	112.00	0.0104	58158.34	59.92	37.64	60.26	14.21
478	BASE	61.78	92.84	94.00	0.0092	25521.21	60.13	11.24	61.78	7.09
479	BASE	60.19	97.00	98.00	0.0080	46833.89	59.92	25.74	60.19	11.34
481	BASE	61.49	94.37	95.00	0.0098	62797.60	59.92	34.63	60.23	7.68
490	BASE	60.04	96.35	96.50	0.0150	56638.30	59.92	119.08	60.04	99.36
491	BASE	60.01	96.35	97.00	0.0132	52368.08	59.92	98.95	60.01	83.41
492	BASE	60.03	96.43	96.00	0.0184	35602.28	59.92	61.12	59.92	50.97
494	BASE	60.42	95.78	96.00	0.0151	48398.73	59.92	46.09	60.42	13.63
495	BASE	60.04	92.64	93.00	0.0144	60800.03	59.92	78.32	60.04	56.94

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [14]
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MANOLIA CREEK - POST-DEVELOPMENT - 02/05/01

********** Input Report: Nodes **********

Name: 370 Base Flow(cfs): 0 Init Stage(ft): 103
Group: BASE Length(ft): 0 Warn Stage(ft): 120
Comment:

Stage(ft)	Area(ac)
103	0.12
120	2.86

Name: 372 Base Flow(cfs): 0 Init Stage(ft): 98
Group: BASE Length(ft): 0 Warn Stage(ft): 103
Comment:

Stage(ft)	Area(ac)
98	0.55
103	1.27

Name: 373 Base Flow(cfs): 0 Init Stage(ft): 93
Group: BASE Length(ft): 0 Warn Stage(ft): 98
Comment:

Stage(ft)	Area(ac)
93	0.25
98	1.32

Name: 374 Base Flow(cfs): 0 Init Stage(ft): 91
Group: BASE Length(ft): 0 Warn Stage(ft): 96
Comment:

Stage(ft)	Area(ac)
91	0.05
96	0.2

Name: 400 Base Flow(cfs): 0 Init Stage(ft): 85
Group: BASE Length(ft): 0 Warn Stage(ft): 85
Comment:

Time(hrs)	Stage(ft)
0	85
100	85

Name: 401 Base Flow(cfs): 0 Init Stage(ft): 85
Group: BASE Length(ft): 0 Warn Stage(ft): 85
Comment:

Time(hrs)	Stage(ft)
0	85
100	85

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.11) [18]
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MANOLIA CREEK - POST-DEVELOPMENT - 02/05/01

********** Input Report: Nodes **********

Name: 491 Base Flow(cfs): 0 Init Stage(ft): 93
Group: BASE Length(ft): 0 Warn Stage(ft): 97
Comment:

Stage(ft)	Area(ac)
93	0.8
97	1.28

Name: 492 Base Flow(cfs): 0 Init Stage(ft): 91
Group: BASE Length(ft): 0 Warn Stage(ft): 96
Comment:

Stage(ft)	Area(ac)
91	0.35
96	0.78

Name: 494 Base Flow(cfs): 0 Init Stage(ft): 91
Group: BASE Length(ft): 0 Warn Stage(ft): 96
Comment:

Stage(ft)	Area(ac)
91	0.07
96	1.16

Name: 495 Base Flow(cfs): 0 Init Stage(ft): 86
Group: BASE Length(ft): 0 Warn Stage(ft): 93
Comment:

Stage(ft)	Area(ac)
86	0.57
93	1.44

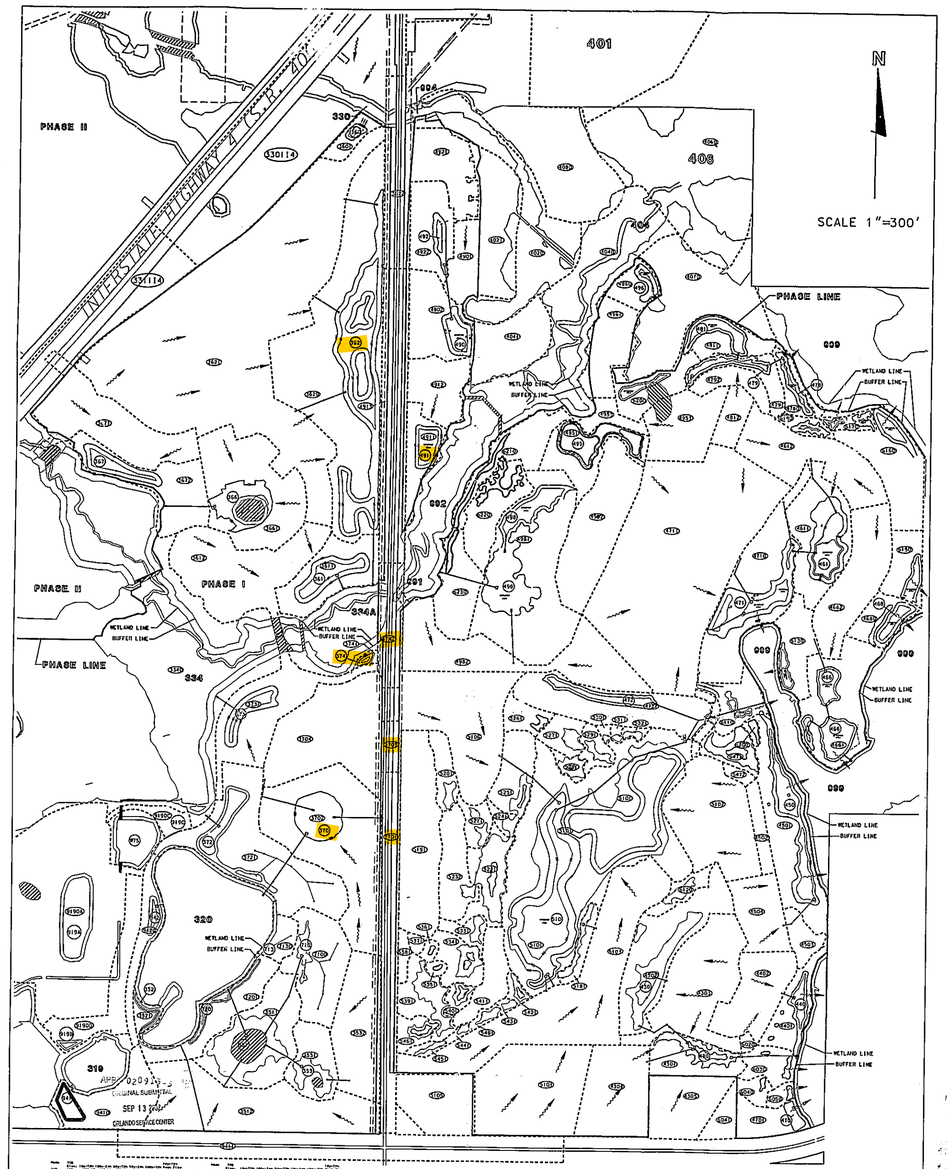
Name: 496 Base Flow(cfs): 0 Init Stage(ft): 87
Group: BASE Length(ft): 0 Warn Stage(ft): 92
Comment:

Stage(ft)	Area(ac)
87	0.1
92	0.54

Name: 498 Base Flow(cfs): 0 Init Stage(ft): 106
Group: BASE Length(ft): 0 Warn Stage(ft): 110
Comment:

Stage(ft)	Area(ac)
106	2.28
110	5.46

SFWMD PERMIT NO. 49-01107-P (APPLICATION NO. 020913-3)


INTERSTATE HIGHWAY 4 (S.R. 400)
PHASE II
PHASE I
PHASE III
PHASE LINE
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330A
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334A
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310
332
331
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339A
339B
339C
339D
339E
339F
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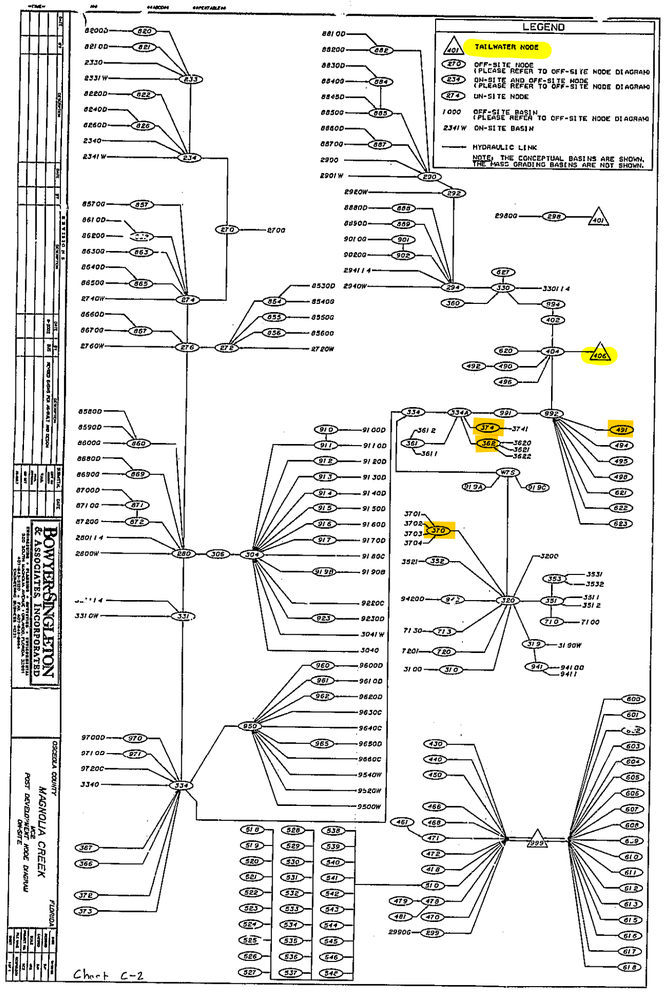

LEGEND
TAILWATER NODE
OFF-SITE NODE (PLEASE REFER TO OFF-SITE NODE DIAGRAM)
ON-SITE AND OFF-SITE NODE (PLEASE REFER TO OFF-SITE NODE DIAGRAM)
ON-SITE NODE
OFF-SITE BASIN (PLEASE REFER TO OFF-SITE NODE DIAGRAM)
ON-SITE BASIN
HYDRAULIC LINK
NOTE: THE CONCEPTUAL BASINS ARE SHOWN. THE BASIC GRADING BASINS ARE NOT SHOWN.
BOWYER SINGLETON & ASSOCIATES, INCORPORATED
MAGNOLIA CREEK
POST HORIZONTAL SPINE DRIVE
Chart C-2

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [15]
Copyright 1995, Streamline Technologies, Inc.

Post-Development
Reunion
09/09/02

********** Input Report **********

--------Class: Node----------

Name: 402 Base Flow(cfs): 0 Init Stage(ft): 82.4
Group: BASE Warn Stage(ft): 90
Comment:

Stage(ft)	Area(ac)
82.4	0
85	0.9
90	2.5

--------Class: Node----------

Name: 404 Base Flow(cfs): 0 Init Stage(ft): 75.1
Group: BASE Warn Stage(ft): 90
Comment:

Stage(ft)	Area(ac)
75.1	0
80	13.5
85	37
90	86.1

--------Class: Node----------

Name: 406 Base Flow(cfs): 0 Init Stage(ft): 82
Group: BASE Warn Stage(ft): 82
Comment:

Time(hrs)	Stage(ft)
0	82
100	82

--------Class: Node----------

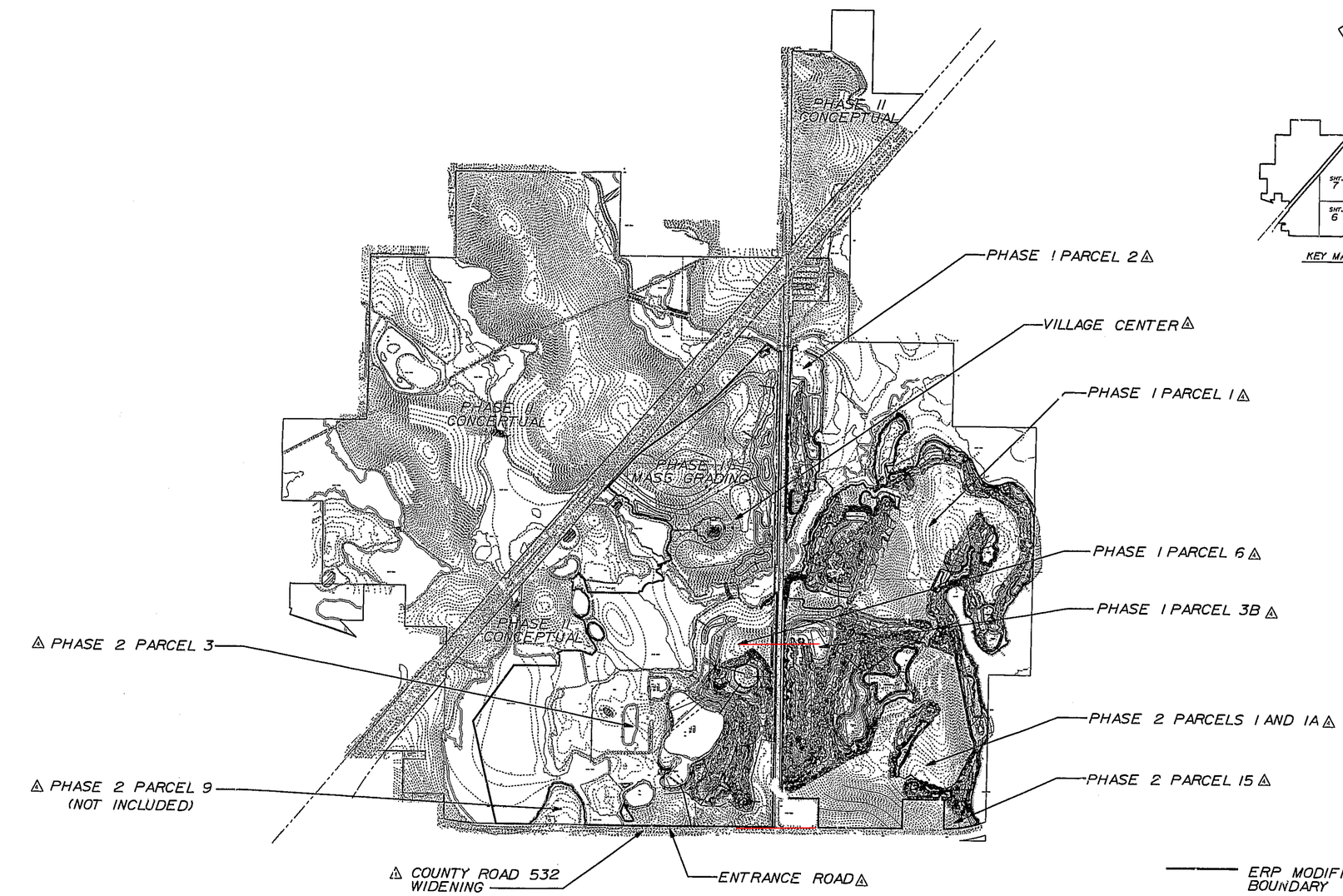
Name: 430 Base Flow(cfs): 0 Init Stage(ft): 104
Group: BASE Warn Stage(ft): 110
Comment:

Stage(ft)	Area(ac)
104	1.09
105	1.63
106	2.04
107	2.55
108	3.07
109	3.5
110	3.95

--------Class: Node----------

Name: 440 Base Flow(cfs): 0 Init Stage(ft): 88
Group: BASE Warn Stage(ft): 92
Comment:

Stage(ft)	Area(ac)
88	0.45
92	1.02



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SEP 13 2002

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
						09-13-02	NLE	ERP MODIFICATION ⚠
						05-10-01	NLE	REVISED PER COUNTY COMMENTS

SUBMITTAL	DATE
CITY OR COUNTY	
W.M.D.	
FINAL APPROVAL	
BID SET	
AS-BUILT	

BOWYER-SINGLETON & ASSOCIATES, INCORPORATED
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
520 SOUTH MAGNOLIA AVENUE • ORLANDO, FLORIDA 32801
407-843-5120 • FAX 407-649-8664
ENGINEERING BUSINESS #1221

Daniel J. Hayes
Florida Reg. Number 48895

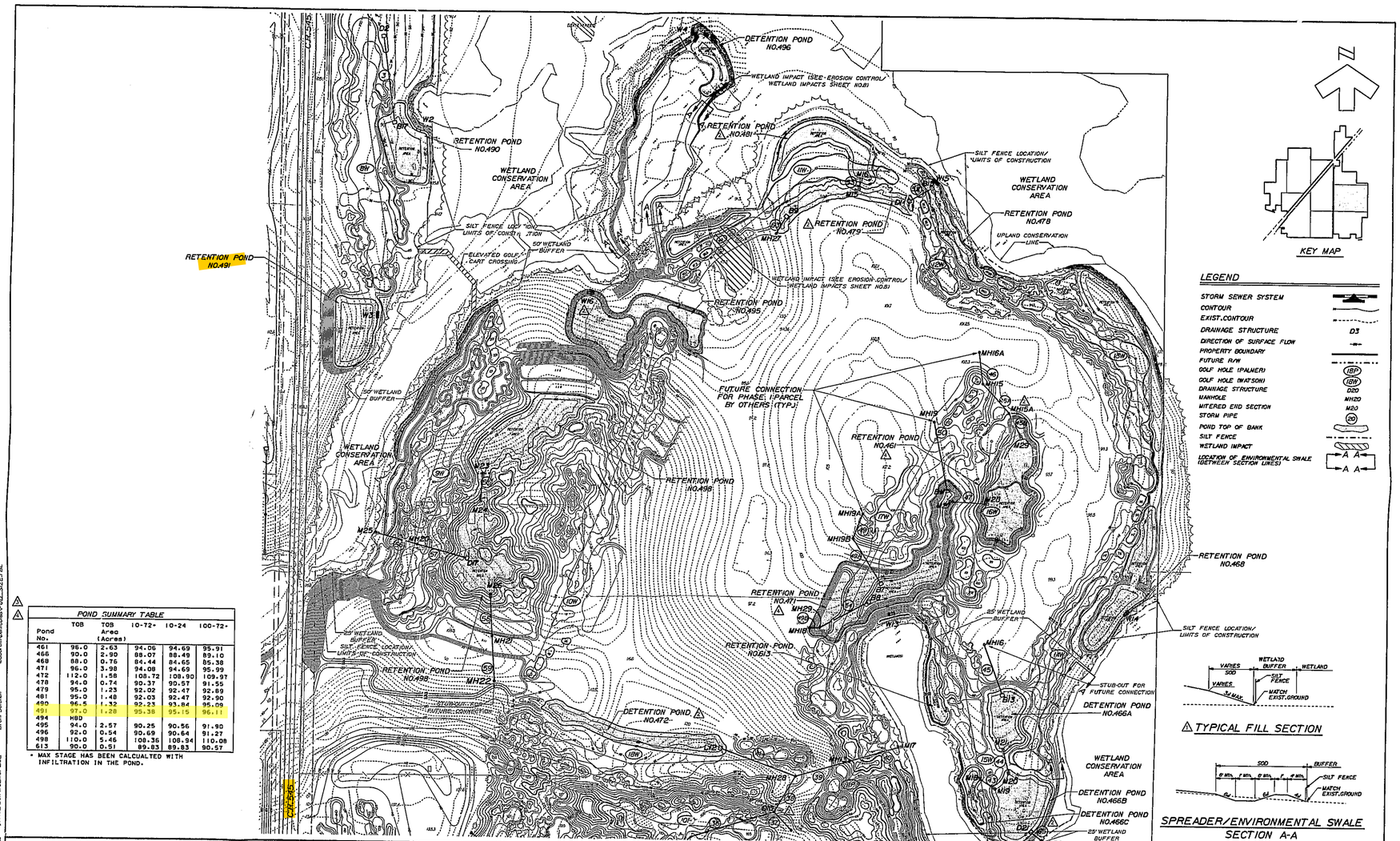
OSCEOLA COUNTY FLORIDA

OVERALL SITE PLAN

MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	DS, EKO
CHECKED	DJH
SCALE	1" = 800'
PROJECT NO.	MC2
FILE NAME	MC2COS.DGN
SHEET	3 OF 12

MACRO CLIP #CU0003
MITPO CO.# #01-0003



POND SUMMARY TABLE					
Pond No.	TOB	TOB Area (Acres)	10-72*	10-24	100-72*
461	96.0	2.63	94.06	94.69	95.91
466	90.0	2.90	88.07	88.49	89.10
468	88.0	0.76	84.44	84.65	85.38
471	96.0	3.98	94.08	94.69	95.99
472	112.0	1.58	108.72	108.90	109.97
478	94.0	0.74	90.37	90.57	91.55
479	95.0	1.23	92.02	92.47	92.89
481	95.0	1.48	92.03	92.47	92.90
490	96.5	1.32	92.23	93.84	95.09
491	97.0	1.28	95.38	95.15	96.11
494	H&D				
495	94.0	2.57	90.25	90.56	91.90
496	92.0	0.54	90.69	90.64	91.27
498	110.0	5.46	108.36	108.94	110.08
613	90.0	0.51	89.83	89.83	90.57

* MAX STAGE HAS BEEN CALCUALTED WITH INFILTRATION IN THE POND.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
						09-13-02	BJS	ERP MODIFICATION
						08-02-02	NLE	CONSTRUCTION MODIFICATION #2
						03-11-01	NLE	CONSTRUCTION MODIFICATION #1
						05-10-01	NLE	REVISED PER COUNTY COMMENTS

SUBMITTAL	DATE
CITY OR COUNTY	
W.M.D.	
FINAL APPROVAL	
BD SET	
AS-BUILT	

SEP 12 2002

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520 SOUTH MAGNOLIA AVENUE • ORLANDO, FLORIDA 32801
407-843-5120 • FAX 407-649-8664
ENGINEERING BUSINESS #1221

Daniel J. Hayes, Florida Reg. Number 48892

OSCEOLA COUNTY FLORIDA

MASS GRADING PLAN
MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	SS, DKO
CHECKED	DJH
SCALE	1"=200'
PROJECT NO.	MC2
FILE NAME	MCSMGP.002
SHEET	5 OF 12

MACRO CDP #200003
MICRO CDP #01-0003

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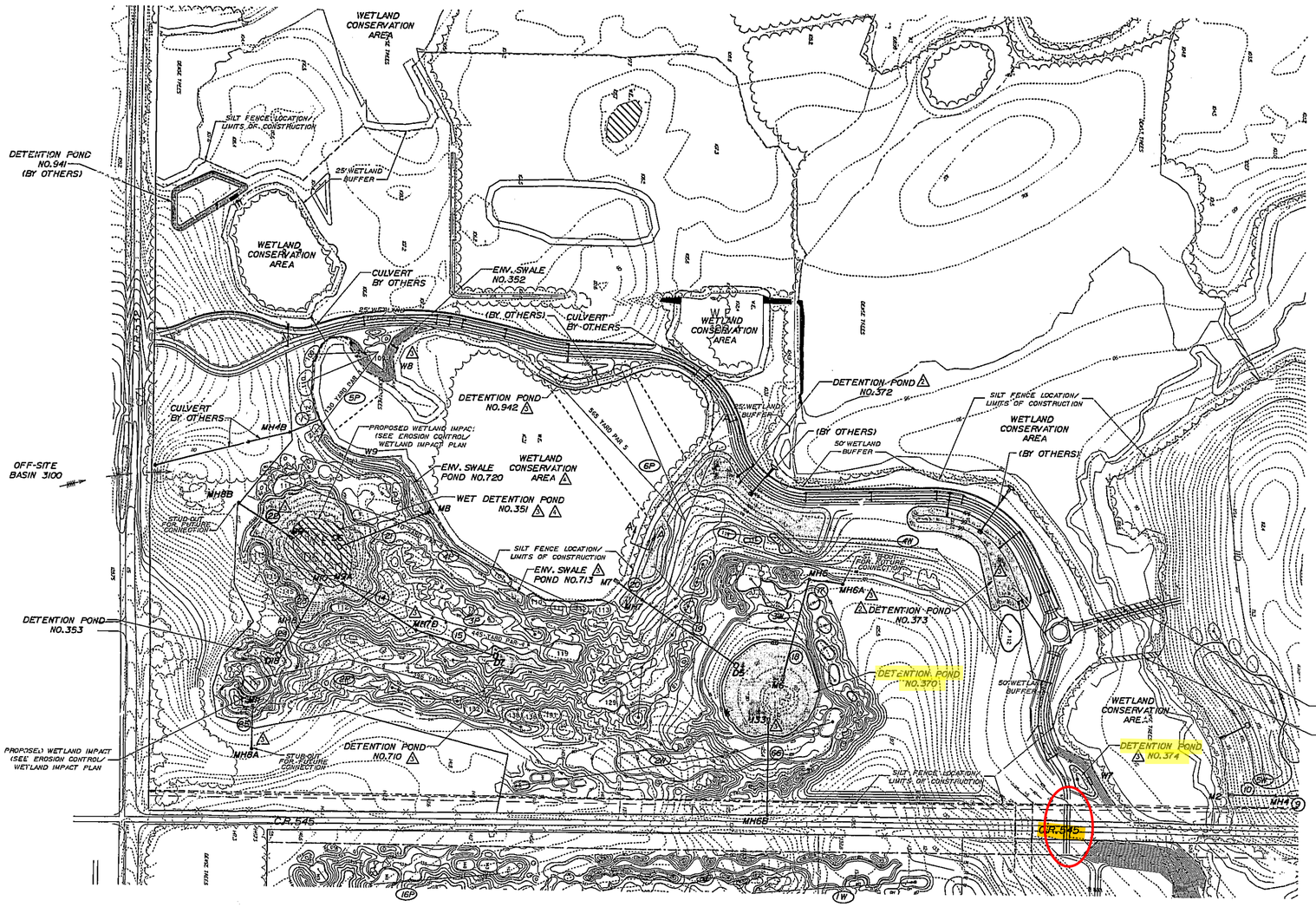
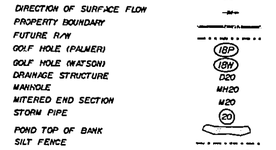


N

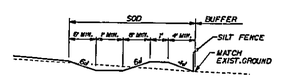
KEY MAP

LEGEND

STORM SEWER SYSTEM	
CONTOUR	
EXIST. CONTOUR	
DRAINAGE STRUCTURE	D3
DIRECTION OF SURFACE FLOW	
PROPERTY BOUNDARY	
FUTURE R/W	
GOLF HOLE (PALMER)	18P
GOLF HOLE (WATSON)	18W
DRAINAGE STRUCTURE	D20
MANHOLE	MH20
MITERED END SECTION	M20
STORM PIPE	20
POND TOP OF BANK	
SILT FENCE	
WETLAND IMPACT	
LOCATION OF ENVIRONMENTAL SWALE (BETWEEN SECTION LINES)	A A



TYP. FILL SECTION



SPREADER/ENVIRONMENTAL SWALE SECTION A-A

POND SUMMARY TABLE

Pond No.	TOB	TOB Area (Acres)	10-72*	10-24	100-72*
351	107.5	4.14	106.72	106.59	109.00
352	107.0	0.09	106.56	106.63	106.38
353	117.0	1.01	115.64	115.40	116.86
370	120.0	2.86	112.77	112.57	117.82
372	100.0	2.29	102.72	102.69	104.07
373	105.0	1.67	99.38	99.42	101.43
374	100.0	0.18	96.05	95.87	96.22
710	118.0	0.44	115.88	115.80	116.30
713	106.0	0.09	105.96	105.95	106.06
720	106.0	0.65	103.84	103.86	105.69
942	114.0	0.46	108.66	108.57	109.40

* MAX STAGE HAS BEEN CALCULATED WITH INFILTRATION IN THE POND.

SEP 13 2002

REVISIONS

DATE	BY	DESCRIPTION
09-13-02	BJS	ERP MODIFICATION 3
05-14-02	BJS	CONSTRUCTION MODIFICATION #2 2
08-14-01	NLE	CONSTRUCTION MODIFICATION #1 1
05-10-01	NLE	REVISED PER COUNTY COMMENTS

SUBMITTAL	DATE
CITY OR COUNTY	
W.M.D.	
FINAL APPROVAL	
BID SET	
AS-BUILT	

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ENGINEERING BUSINESS #1221

Daniel J. Hayes
Florida Reg. Number 48895

OSCEOLA COUNTY FLORIDA

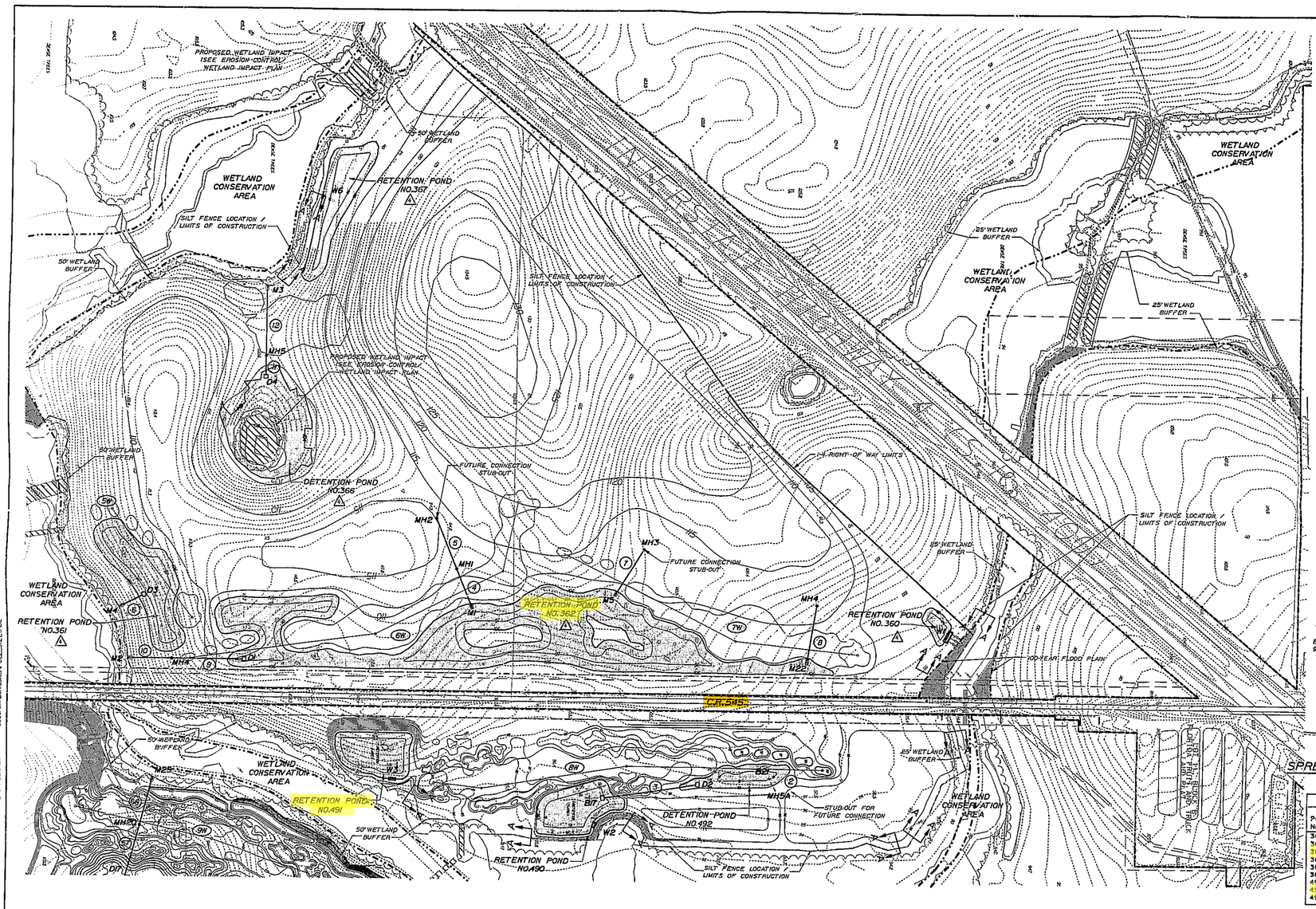
MASS GRADING PLAN

MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	SS, EKD
CHECKED	DJH
SCALE	1" =200'
PROJECT NO.	MC2
FILE NAME	MCSHOP.003
SHEET	8 OF 12

MACRO CDP #-01003
MICRO CDP #-01-0003

9/12/2002 15:28:35 J:\MC2\DGN\MC2MGP.003 Brent Satchell \\Osprey\vanderlaan's\FULL_SIZE\TBL



POND SUMMARY TABLE

Pond No.	TOB	TOB Area (Acres)	10-72*	10-24	100-72*
360	95.0	0.15	94.85	95.02	95.52
361	105.0	2.17	100.16	101.54	102.96
362	106.0	10.19	100.83	102.12	103.60
366	104.0	2.86	101.11	102.39	102.13
367	105.0	1.64	103.57	104.46	104.77
368	HBD	N/A	N/A	N/A	N/A
490	96.5	1.32	93.23	93.84	95.09
491	97.0	1.28	95.38	95.15	96.11
492	96.0	0.70	93.58	93.84	95.22

SEP 13 2002

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
						09-13-02	BJS	ERP MODIFICATION
						05-10-01	NLE	REVISED PER COUNTY COMMENTS

SUBMITTAL	DATE
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AS-BUILT	

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MASS GRADING PLAN

MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	SS, DKD
CHECKED	DJH
SCALE	1" = 200'
PROJECT NO.	MC2
FILE NAME	MC2MGP.004
SHEET	7 OF 12

MACRO CDP #001003
MICRO CDP #01-0003

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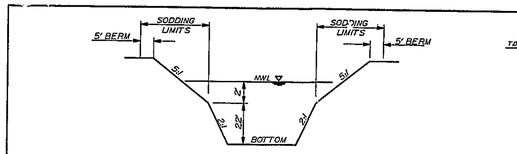
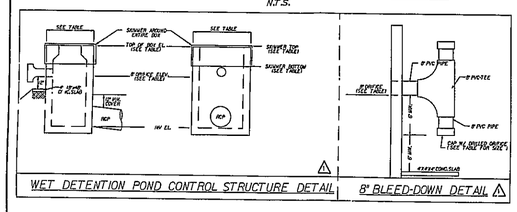
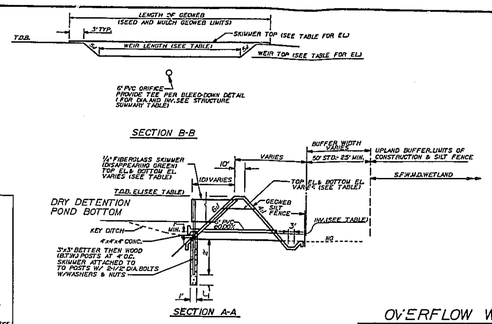


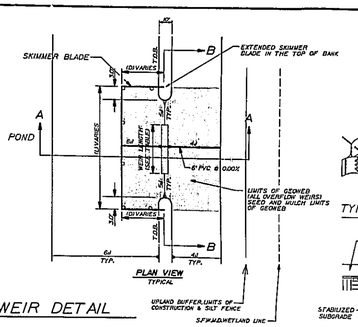
WET DETENTION POND TYPICAL SECTION

N.T.S.

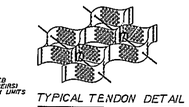


WET DETENTION POND CONTROL STRUCTURE DETAIL | 6" BLEED-DOWN DETAIL

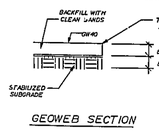




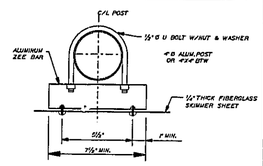
OVERFLOW WEIR DETAIL



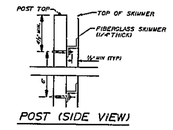
TYPICAL TENDON DETAIL



GEOWEB SECTION

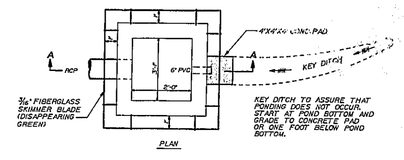


POST (TOP VIEW)

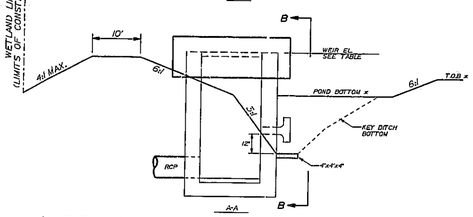


POST (SIDE VIEW)

DRY DETENTION DROP STRUCTURES



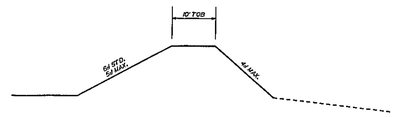
PLAN



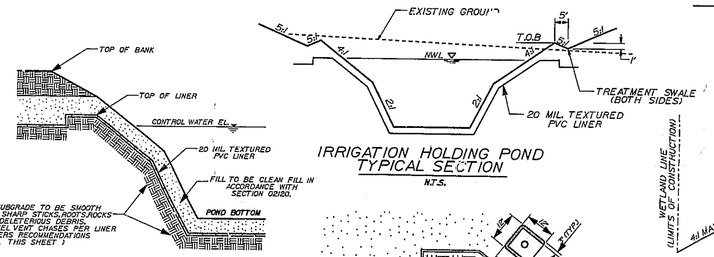
⚠ MODIFIED TYPE 'C' INLET OUTFALL CONTROL STRUCTURES

PER F.D.O.T. INDEX NO. 232

×SEE TABLES FOR ELEVATIONS



⚠ TYPICAL DRY RETENTION POND

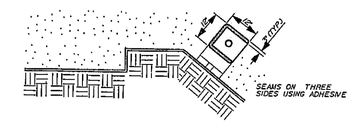


IRRIGATION HOLDING POND TYPICAL SECTION

N.T.S.

PVC POND LINER TYP. SECTION

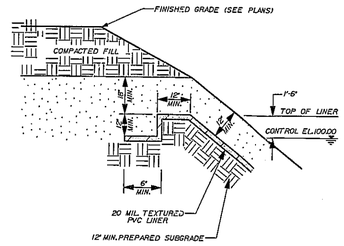
N.T.S.



HORIZONTAL, VERTICAL LOCATION, FREQUENCY, AND SPACING AS PER LINER MANUFACTURERS RECOMMENDATION TO PREVENT ENTRAPMENT OF GAS, AIR AND HYDRAULIC PRESSURE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW.

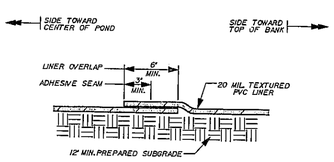
POND LINER TYPICAL AIR VENT

N.T.S.



TYPICAL POND LINER TOE-IN

N.T.S.



TYPICAL POND LINER FIELD JOINT

N.T.S.

NOTE

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND SPECIFICATIONS FOR SKIMMER BLADES & POSTS DEMONSTRATING ADEQUATE UV PROTECTION & STRUCTURAL INTEGRITY.

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
						09-13-02	BJS	ERP MODIFICATION ⚠
						05-10-01	NLE	CONSTRUCTION MODIFICATION #1 ⚠
						05-10-01	NLE	REVISED PER COUNTY COMMENTS ⚠

SUBMITTAL	DATE
CITY OR COUNTY	
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SEP 13 2002

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ENGINEERING BUSINESS #1221

Daniel J. Hayes
Florida Reg. Number 48895

OSCEOLA COUNTY FLORIDA

MASS GRADING

DRAINAGE DETAILS

MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	SS,DKO
CHECKED	DJH
SCALE	NONE
PROJECT NO.	MC2
P.E. NAME	MC2FPD.001
SHEET	9 OF 12

MACRO CDP #001003
MICRO CDP #01-0003

9/10/2002 16:24:56 J:\MC2\DGN\MC2FPD001 Brent Sinclair \\Boworkfiles\data\FULL_SIZE\TBL

CONTROL STRUCTURES △ △

Structure Number	From Pond	To Node	TOB (ft)	Weir Elev.	Invert Elev.	FDOT Inlet Type	Weir Length	△ Max. Stage	Orifice Size	Orifice Elev.	Skimmer Bottom	Skimmer Top	Skimmer Depth D (FT)	Skimmer Length L (FT)
D1	362	334A	106.0	103.20	95.5	E	-	100.83	-	-	* N\A	NO DISCHARGE		
D2	492	490	96	94.8	91.62	D	-	93.58	3.0	90.0	94.3	95.10		
D3	361	334A	106.0	103.9	94.4	C	-	100.16	-	-	* N\A	NO DISCHARGE		
D4	366	334	104.0	102.4	96.0	C	-	101.11	-	-	* N\A	NO DISCHARGE		
D5	370	320	120	118.1	110.0	H	-	112.77	-	-	* N\A	NO DISCHARGE		
D6	351	320	110.0	106.0	103.0	E	-	106.72	3.0	103.2	105.5	108.50		
D7	710	351	114.0	113.85	109	C	-	113.85	-	-	113.35	114.82		
D8	430	999	110	108.7	102.7	D	-	107.33	-	-	* N\A	NO DISCHARGE		
D9	HAS BEEN DELETED													
D10	510	999	(SEE DETAIL SHEET 4 OF 12)					100.25	-	-				
D12	472	999	112	109.8	104.7	C	-	108.72	-	-	* N\A	NO DISCHARGE		
D14	479	478	95	92.5	87.40	C	-	92.02	-	-	* N\A	NO DISCHARGE		-
D15	HAS BEEN DELETED (BY OTHERS)													
D16	HAS BEEN DELETED													
D17	498	992	110	108.75	101.5	D	-	108.36	-	-	108.25	110.00		
D18	353	351	117.0	115.0	107.0	C	-	115.64	-	-	114.3	116.76		
D19	HAS BEEN DELETED (BY OTHERS)													
D20	HAS BEEN DELETED (BY OTHERS)													
D21	466	999	90.0	88.4	84.5	C	-	88.07	3.0	86.0	87.9	89.25	18.6	-
W1	360	330	98.0	96.5	-	-	0'	94.85	-	-	* N/A	NO DISCHARGE		
W2	490	992	96.5	94.8	-	-	10'	93.23	-	-	94.3	95.54	20.2	33
W3	491	992	97	94.5	-	-	3'	95.38	-	-	94	96.62	25.0	34
W4	496	404	92	90.4	-	-	10'	90.69	3.0	86.0	89.90	91.78	18.6	28
W5	HAS BEEN DELETED													
W6	367	334	106.0	104.2	-	-	5'	103.57	-	-	* N\A	NO DISCHARGE		
W7	374	334A	96	95.7	-	-	20'	96.05	-	-	* N/A	NO DISCHARGE		
W8	352	320	107	106.80	-	-	50'	106.58	-	-	* N/A	NO DISCHARGE		
W9	720	320	106	105.95	-	-	100'	103.84	-	-	* N/A	NO DISCHARGE		
W10	440	999	92	90.75	-	-	10'	90.43	-	-	* N/A	NO DISCHARGE		
W11	450	999	92	91.00	-	-	10'	90.30	3.0	88.0	90.0	91.12	19.0	31
W12	450	999	92	91.00	-	-	10'	90.30	-	-	90.50	91.56		
W13	471	999	96	94.5	-	-	10.5'	94.08	4.0	89.0	94.7	96.46	13.8	15
W14	468	999	88	87.0	-	-	10'	84.44	-	-	N/A	NO DISCHARGE		
W15	478	999	94	91.2	-	-	10'	90.37	-	-	* N/A	NO DISCHARGE		
W16	495	992	94	92.5	-	-	10'	90.25	-	-	* N/A	NO DISCHARGE		
W17	HAS BEEN CHANGED TO D1													
W18	HAS BEEN CHANGED TO DROP STRUCTURE BY OTHERS													
	613	999	90	-	-	-	-	-	3.0	99.0	-	-	-	-
	614	999	88	-	-	-	-	-	3.0	83.0	-	-	-	-
	625	334A	93	-	-	-	-	-	3.0	87.0	-	-	-	-

Max Stage - 10 Year - 72 Hour Storm Event
Skimmer Design set at 0.5' above 50 Year - 72 Hour Storm Event

CONCEPTUAL STRUCTURE TABLE - PHASE II

Struct. Number	From pond *	To Node	TOB (ft)	Weir Elev. (ft)	FDOT Inlet	Weir Len. (ft)	Max Stage (ft)
W298	298	401	100.00	98.30	-	10	96.19
W299	299	999	99.00	97.60	-	10	95.55
W820	820	233	117.00	115.60	-	10	113.57
W821	821	233	115.00	113.80	-	10	111.66
W822	822	234	115.00	113.60	-	10	111.60
W826	826	234	113.00	111.40	-	10	110.33
W854	854	272	112.00	110.50	-	10	108.79
W855	855	272	123.00	121.80	-	10	120.67
W856	856	272	110.50	109.00	-	10	108.37
W857	857	274	110.50	109.20	-	10	107.55
W860	860	280	110.50	109.10	-	10	107.08
W862	862	274	110.50	109.10	-	10	107.62
W863	863	274	108.00	106.50	-	10	105.77
W865	865	274	110.00	108.80	-	10	107.08
W867	867	276	113.50	112.20	-	10	110.38
W869	869	280	111.00	109.80	-	10	108.45
W871	871	872	124.00	122.40	-	10	120.84
W872	872	280	109.00	107.70	-	10	106.83
W882	882	290	111.00	109.30	-	10	107.60
W884	884	885	116.00	114.60	-	10	113.23
W885	885	290	106.00	104.50	-	10	103.19
W887	887	290	110.50	109.00	-	10	107.31
W888	888	294	103.00	101.80	-	10	100.96
W889	889	294	105.00	103.70	-	10	101.59
W901	901	902	122.00	120.40	-	10	119.40
W902	902	294	108.50	107.00	-	10	105.96
W910	910	911	123.50	122.00	-	10	119.77
W911	911	304	116.50	115.30	-	10	113.25
W912	912	304	115.00	113.80	-	10	111.77
W913	913	304	115.00	113.60	-	10	111.32
W914	914	304	111.00	109.50	-	10	107.50
W915	915	304	109.50	108.30	-	10	106.63
W916	916	304	112.00	110.80	-	10	108.80
W917	917	304	110.00	108.70	-	10	106.65
W919	919	304	HAS BEEN DELETED (DESIGN BY OTHERS)				
W921	921	304	HAS BEEN DELETED (DESIGN BY OTHERS)				
W923	923	304	111.00	109.60	-	10	107.61
W941	941	319	HAS BEEN DELETED (DESIGN BY OTHERS)				
W942	942	320	HAS BEEN DELETED (DESIGN BY OTHERS)				
W960	960	950	109.00	107.80	-	10	105.85
W961	961	950	108.00	106.80	-	10	104.77
W962	962	950	109.50	108.40	-	10	106.56
W965	965	950	110.50	109.40	-	10	107.80
W970	970	334	106.50	105.40	-	10	103.40
W971	971	334	106.00	104.50	-	10	102.87

Max Stage - 10 Year - 72 Hour Storm Event

MITERED END SECTIONS △

MES No. BSA (PEC)	Size & Type	Invert Elev.
M1	30" M.E.S. FDOT INDEX 272	101
M2	30" M.E.S. FDOT INDEX 272	92.5
M3	18" M.E.S. FDOT INDEX 272	93.5
M4	18" M.E.S. FDOT INDEX 272	94.0
M5	36" M.E.S. FDOT INDEX 272	101
M6	36" M.E.S. FDOT INDEX 272	110
M7	42" M.E.S. FDOT INDEX 272	98
M8	30" M.E.S. FDOT INDEX 272	100.5
M9	36" M.E.S. FDOT INDEX 272	104
M9A	18" M.E.S. FDOT INDEX 272	104
M10	24" M.E.S. FDOT INDEX 272	104
M11	30" M.E.S. FDOT INDEX 272	112
M12 (05)	42" M.E.S. FDOT INDEX 272	104
M13 (06)	42" M.E.S. FDOT INDEX 272	104
M14	24" M.E.S. FDOT INDEX 272	92
M15	36" M.E.S. FDOT INDEX 272	91
M16	36" M.E.S. FDOT INDEX 272	91
M17	24" M.E.S. FDOT INDEX 272	89
M18	18" M.E.S. FDOT INDEX 272	87
M19	18" M.E.S. FDOT INDEX 272	87
M20	36" M.E.S. FDOT INDEX 272	87
M21	36" M.E.S. FDOT INDEX 272	87
M22	30" M.E.S. FDOT INDEX 272	102
M23	42" M.E.S. FDOT INDEX 272	106
M24	42" M.E.S. FDOT INDEX 272	106
M25	24" M.E.S. FDOT INDEX 272	100
M26	54" M.E.S. FDOT INDEX 272	106
M27	24" M.E.S. FDOT INDEX 272	90
M28	24" M.E.S. FDOT INDEX 272	90
M29	48" M.E.S. FDOT INDEX 272	86.82
M30	HAS BEEN DELETED (BY OTHERS)	
M31	HAS BEEN DELETED (BY OTHERS)	
M32	18" M.E.S. FDOT INDEX 272	83.5
M33	30" M.E.S. FDOT INDEX 272	114.88

MANHOLES △

MANHOLE NO. BSA (PEC)			
△ MH1	TOP ELEV. 111.5 INV. 102.8	MH15 D146	TYPE J-7T (8' BARRELL) TOP ELEV. 103.0 INV. 91.27 (N) INV. 87.48 (S)
△ MH2	TOP ELEV. 115.0 INV. 105.1	△ MH15A	TYPE J-8 MANHOLE TOP ELEV. 98.0 INV. 87.0
△ △ MH3	TOP ELEV. 114.0 INV. 103.3	MH16 D157	TOP ELEV. 96.75 INV. 82.47 (E,SW)
		MH16A D145	TYPE "J" BOTTOM TOP ELEV. 100.87 INV. 91.56 (N,S)
△ MH4	TOP ELEV. 99.0 INV. 93.7		
△ MH4A	TOP ELEV. 114.0 INV. 106.40	MH17	TOP ELEV. 96.0 INV. 81.47 (E) INV. 90.37 (W)
△ MH4B	TOP ELEV. 113.0 INV. 107.25	MH18 D51	TOP ELEV. 96.0 INV. 86.28 (N,W) INV. 84.09 (E)
△ MH5	TOP ELEV. 114.0 INV. 94.10	MH19 D97	TOP ELEV. 103.50 INV. 87.59 (W) INV. 83.14 (E)
MH5A	TOP ELEV. 97.0	MH19A D67	TOP ELEV. 105.0 INV. 90.75 (S,W)
△ △ MH6	TOP ELEV. 121.0 INV. 111.25	MH19B D68	TOP ELEV. 101.5 INV. 90.50 (W) INV. 84.99 (E)
△ MH6A	TOP ELEV. 124.0 INV. 111.44	MH20	TOP ELEV. 108.5 INV. 101.14 (E) INV. 100.31 (W)
△ △ MH6B	TOP ELEV. 132.0 INV. 115.59	MH21	TOP ELEV. 116.0 INV. 106.16 (N & S)
△ △ MH7	TOP ELEV. 120.0 INV. 103.5 (N) INV. 99.50 (S)	MH22	TOP ELEV. 119.0 INV. 105.34
△ MH7A	HAS BEEN DELETED	MH23 D69	TOP ELEV. 114.0 INV. 97.76
△ △ MH7B	TOP ELEV. 117.0 INV. 106.5	MH24 D33A	TOP ELEV. 113.5 INV. 104.18
△ MH8	TOP ELEV. 113.0 INV. 104.37	MH25 D20A	TOP ELEV. 101.6 INV. 96.35 (W) INV. 86.72 (E)
△ △ MH8A	TOP ELEV. 130.0 INV. 112.5		
△ MH8B	TYPE C INLET TOP 111.50 INV. 105.25	△ MH26 D1	TOP ELEV. 112.25 INV. 100.42 (S)(36")
△ MH9 D43	TYPE V INLET TOP ELEV. 113.26 INV. 104.4	△ MH27 D127	TOP ELEV. 98.00 INV. 86.32
△ MH9A D44	TOP ELEV. 114.05 INV. 107.58 (SW) INV. 104.00 (NW,NE)	△ MH28 D127	TOP ELEV. 121.0 INV. 96.3 (SW) INV. 96.3 (E) INV. 104.3 (W)
△ MH9B D41	TYPE V INLET TOP ELEV. 113.22 INV. 106.73 (E) INV. 104.0 (N,S)	△ MH29	TOP ELEV. 94.0 INV. 84.00
MH9C D25A	TOP ELEV. 104.10 INV. 96.69 (W) INV. 83.15 (E)		
MH10	TOP ELEV. 100.0 INV. 92.35 (E) INV. 96.0 (W)		
MH10A D48	TOP ELEV. 115.30 INV. 107.57 (S) INV. 90.58 (N)		
MH10B	TOP ELEV. 115.58 INV. 106.58 INV. 91.69		
MH10C D65	TOP ELEV. 117.10 INV. 108.98 (E) INV. 101.70 (W)		
MH11	TOP ELEV. 112.0 INV. 92.38 (E) INV. 107.1 (W)		
MH11A	TOP ELEV. 132.0 INV. 108.65		
MH12	TOP ELEV. 108.0 INV. 95.2 (E) INV. 93.25 (W)		
MH12A	TOP ELEV. 104.0 INV. 97.6		
MH13	TOP ELEV. 99.0 INV. 89.39 (E) INV. 95.63 (W)		
△ △ MH14	TOP ELEV. 97.0 INV. 86.60		

SEP 13 2002

STORM PIPES △

△ 1	124'	- 24" HDPE @ 1.0%
2	82'	- 30" HDPE @ 1.0%
△ 3	397'	- 18" HDPE @ 0.5%
△ 4	182'	- 30" HDPE @ 1.0%
△ 5	228'	- 30" HDPE @ 1.0%
△ △ 6	110'	- 18" HDPE @ 0.36%
△ 7	233'	- 36" HDPE @ 1.0%
△ 8	238'	- 30" HDPE @ 1.0%
△ △ 9	300'	- 30" HDPE @ 0.60%
△ 10	187'	- 30" HDPE @ 0.44%
△ △ 11	284'	- 18" HDPE @ 0.46%
12	298'	- 18" HDPE @ 0.40%
13	HAS BEEN DELETED	
△ 14	327'	- 18" HDPE @ 0.76%
△ △ 15	315'	- 18" HDPE @ 0.78%
△ △ 16	HAS BEEN DELETED	
△ △ 17	124'	- 36" HDPE @ 0.15%
△ 18	390'	- 36" HDPE @ 0.32%
△ △ 19	436'	- 42" HDPE @ 1.50%
△ △ 20	116'	- 42" HDPE @ 0.43%
△ 21	360'	- 30" HDPE @ 0.7%
△ △ 22	246'	- 36" HDPE @ 0.5%
△ 23	176'	- 24" HDPE @ 0.21%
△ 24	124'	- 24" HDPE @ 2.10%
△ △ 25	158'	- 30" HDPE @ 0.30%
26	110'	- 48" HDPE @ 0.07%
26A	96'	- 24" HDPE @ 0.20%
26B	98'	- 24" HDPE @ 0.20%
27	112'	- 42" HDPE @ 0.00%
27A	101'	- 42" HDPE @ 0.00%
28	119'	- 42" HDPE @ 0.00%
28A	26'	- 42" HDPE @ 0.00%
29	264'	- 24" HDPE @ 2.50%
30	233'	- 24" HDPE @ 0.15%
31	97'	- 30" HDPE @ 0.15%
△ 32	245'	- 24" HDPE @ 0.45%
33	307'	- 36" HDPE @ 0.5%
34	275'	- 36" HDPE @ 0.5%
35	241'	- 36" HDPE @ 0.6%
35A	400'	- 36" HDPE @ 0.6%
36	400'	- 36" HDPE @ 0.6%
37	118'	- 42" HDPE @ 0.27%
38	191'	- 18" HDPE @ 0.21%
39	250'	- 24" HDPE @ 0.15%
40	259'	- 24" HDPE @ 0.15%
△ 41	352'	- 18" HDPE @ 0.11%
△ △ 42	358'	- 30" HDPE @ 0.84%
43	93'	- 18" HDPE @ 0.00%
44	124'	- 36" HDPE @ 0.0%
45	245'	- 36" HDPE @ 0.20%
△ 45A	184'	- 48" HDPE @ 0.26%
△ 45B	89'	- 48" HDPE @ 0.20%
46	147'	- 48" HDPE @ 0.20%
△ 47	152'	- 24" HDPE @ 0.0%
△ 49	348'	- 42" HDPE @ 1.0%
49A	244'	- 42" HDPE @ 0.20%
49B	45'	- 60" HDPE @ 0.20%
△ 50	321'	- 66" RCP @ 0.20%
△ 52	108'	- 18" HDPE @ 1.00%
△ 53	60'	- 36" HDPE @ 0.00%
△ △ 54	250'	- 60" HDPE @ 0.20%
55	138'	- 42" HDPE @ 0.00%
56	207'	- 24" HDPE @ 0.15%
57	234'	- 24" HDPE @ 0.15%
58	199'	- 54" HDPE @ 0.08%
59	212'	- 54" HDPE @ 0.08%
60	375'	- 48" HDPE @ 0.07%
61	97'	- 36" HDPE @ 0.10%
62	61'	- 24" HDPE @ 0.20%
63	88'	- 36" HDPE @ 0.20%
△ △ 64	HAS BEEN DELETED	
△ 65	76'	- 18" HDPE @ 1.32%
△ 66	354'	- 36" HDPE @ 0.20%

BUBBLE UP STRUCTURES

B No. BSA (PEC)	Size & Type	Top	Elev.	Invert El.	sump el.
B1	TYPE "H"	96	91.7	90.7	
△ B2	HAS BEEN DELETED				
B3	TYPE "H"	96	91	90	
B4 07	TYPE "H"	96	90.5	89.5	
B4A 08	TYPE "H"	96	91.5	90.5	
B5 09	TYPE "H"	106	101.5	100.5	
B6 03	TYPE "E"	88	83	82	
B7 D69	TYPE "H"	90	84.5	83.5	
△ B8 D51A	TYPE "H"	90	83.5	82.5	
△ B9 D128	TYPE "H"	91	86	85	
B11 D98	TYPE "H"	90	82.5	81.5	
△ B12	HAS BEEN DELETED				
B13 D158	TYPE "H"	87	81.98	80.98	
△ B15	TYPE "E"	90	86.32	85.32	
△ B16	HAS BEEN DELETED				
B17	TYPE "E"	91	87.3	86.3	
△ B18	HAS BEEN DELETED				
B19	TYPE "H"	38	93	92	
△ B20	HAS BEEN DELETED				
B21	TYPE "E"	91	86	85	
B22	HAS BEEN DELETED				
B23	HAS BEEN DELETED				
B24 06A	TYPE "H"	104	97.5	96.5	
B25 04	TYPE "E"	104	98.5	97.5	
B26 02	TYPE "D"	90	85.5	84.5	

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
						05-14-02	BJS	CONSTRUCTION MODIFICATION #2 △
						09-11-01	NLE	CONSTRUCTION MODIFICATION #1 △
						05-10-01	NLE	REVISED PER COUNTY COMMENTS △
			9-13-02	BJS	ERP MODIFICATION △	04-30-01	DKO	REVISED PER PARCEL COORDINATION

REVISIONS

SUBMITTAL	DATE
CITY OR COUNTY	
W.M.D.	
FHAC APPROVAL	
BID SET	
AS-BUILT	

BOWYER-SINGLETON & ASSOCIATES, INCORPORATED
ENGINEERING • PLANNING • SURVEYING • ENVIRONMENTAL
920 SOUTH MAGNOLIA AVENUE • ORLANDO, FLORIDA 32801
407-843-5120 • FAX 407-649-8664
ENGINEERING BUSINESS #1221

Daniel J. Hayes
Florida Reg. Number 48895

OSCEOLA COUNTY — FLORIDA

MASS GRADING
DRAINAGE DETAILS
MAGNOLIA CREEK
PHASE ONE

DATE	10-25-00
DESIGNED	SS,DKO
CHECKED	DJH
SCALE	NONE
PROJECT NO.	MC2
FILE NAME	MC2PR0.002
SHEET	11 OF 12

MACRO CDP #001003
MICRO CDP #01-0003

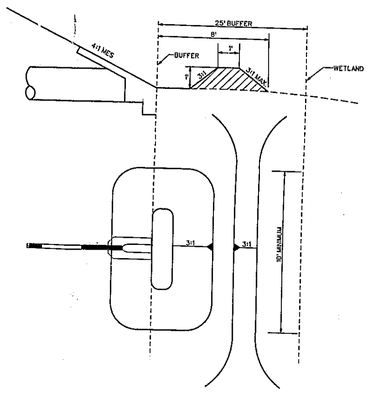
9/10/2002 16:54:27 J:\MC2\DGN\MC2PR0.002 Brent Setzer \\Documents\details\FULL_SIZE.TBL

POND SUMMARY - PHASE II - CONCEPTUAL ⚠

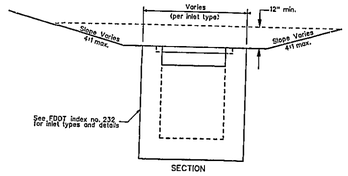
Node	TOB Elev.	10y-72h	100y-24h	50y-72h	10y-24h	100y-72h	10y-72h Peak Flow	TOB - 10y-72h
298	100	96.19	98.46	98.18	96.08	98.76	0	3.81
299	99	95.54	97.77	97.22	95.53	98	0	3.46
820	117	113.57	115.89	114.39	114.34	114.95	0	3.43
821	115	111.66	114.11	112.53	112.96	113.13	0	3.34
822	115	111.6	113.9	112.46	112.89	113.04	0	3.40
826	113	110.11	111.89	111.61	110.47	112.05	0	2.89
854	112	108.79	110.92	110.33	109.42	110.77	0	3.21
855	123	120.67	121.94	121.	120.88	121.99	0	2.33
856	110.5	108.37	109.11	108.92	108.59	109.17	0	2.13
857	110.5	107.55	109.77	109.15	108.35	109.64	0	2.95
860	110.5	107.08	109.72	108.68	108.09	109.48	0	3.42
862	110.5	107.62	109.54	109.33	107.88	109.82	0	2.88
863	108	105.77	106.78	106.85	105.76	107.17	0	2.83
865	110	107.08	109.19	108.76	107.69	109.28	0	2.92
867	113.5	110.38	112.6	111.98	111.02	112.61	0	3.12
868	111	108.45	110.09	109.94	108.8	110.31	0	2.55
871	124	120.84	122.89	122.67	121.17	123.2	0	3.16
872	109	106.83	108.26	107.95	107.01	108.54	0	2.17
882	111	107.6	109.66	109.16	108.18	109.72	0	3.40
884	116	113.23	114.92	114.71	113.55	115.11	0	2.77
885	106	103.18	105.03	104.83	103.16	105.34	0	2.82
887	110.5	107.31	109.35	108.69	108.06	109.32	0	3.19
888	103	100.06	102.11	100.68	101.15	101.12	0	2.94
889	105	101.59	104.01	102.42	102.87	103	0	3.41
901	122	119.4	120.76	120.68	119.47	121.12	0	2.60
902	108.5	105.96	107.48	107.4	105.9	107.95	0	2.54
910	123.5	119.77	122.36	120.71	121.17	121.36	0	3.73
911	116.5	113.24	115.74	114.11	114.53	114.21	0	3.26
912	115	111.77	114.08	112.66	113.04	113.28	0	3.23
913	115	111.32	113.93	112.47	112.77	112.93	0	3.68
914	111	107.52	109.75	108.04	108.78	108.71	0	3.48
915	109.5	106.12	108.5	107.37	107.42	108.11	0	3.38
916	112	108.8	111.02	109.85	109.94	110.5	0	3.20
917	110	106.65	108.99	107.39	107.93	107.75	0	3.35
923	111	107.61	109.86	108.89	108.87	109.64	0	3.39
960	109	105.85	107.96	106.85	106.93	107.45	0	3.15
961	108	104.77	107.04	105.26	105.99	106	0	3.23
962	109.5	106.56	108.6	107.56	107.7	107.49	0	2.94
965	110.5	107.8	109.58	108.82	108.72	108.37	0	2.70
970	106.5	103.4	105.57	104.4	104.64	104.35	0	3.10
971	106	102.87	104.77	104.12	103.71	104.65	0	3.13
							0	

POND SUMMARY - PHASE I ⚠

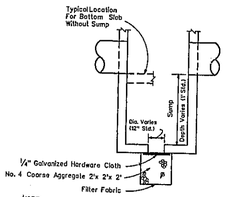
Node	TOB Elev.	10y-72h	100y-24h	50y-72h	10y-24h	100y-72h	10y-72h Peak Flow
319	108	106.47	107.22	107.19	106.45	107.64	4.83
320	106	102.99	104.98	104.71	102.69	105.67	0
351	111.5	106.72	107.53	107.99	106.58	109	27.04
352	107	106.58	106.82	106.85	106.63	106.38	0
353	117	115.64	115.71	116.26	115.4	116.86	16.34
360	98	94.85	96.52	95.85	95.02	96.52	0
361	106	100.16	104.02	101.85	101.54	102.96	0
362	106	100.83	103.89	102.67	102.12	103.6	0
366	104	101.11	102.82	101.71	102.39	102.13	0
367	106	103.57	105.09	104.09	104.46	104.77	0
370	120	112.77	117.23	115.89	112.57	117.82	0
372	106	102.72	104.25	103.53	102.85	104.07	0.06
373	105	99.39	101.25	100.64	99.42	101.43	0.36
374	100	96.05	95.94	96.16	95.87	96.22	14.11
430	110	107.33	110.05	108.71	108.21	109.56	0
440	92	90.43	91.21	91.2	90.91	91.5	0
450	92	90.3	91.17	91.06	90.4	91.34	0
461	96	94.06	95.61	95.26	94.60	95.91	5.87
466	90	88.07	88.89	88.75	88.49	89.1	0
468	88	84.44	85.73	84.99	84.65	85.38	0
470	95	92.28	93.76	93.43	92.67	94.04	0.38
471	96	94.08	95.47	95.34	94.69	95.99	0
472	112	108.72	109.93	109.52	108.9	109.97	0
478	94	90.37	91.51	91.21	90.57	91.55	0
479	95	92.02	92.82	92.64	92.47	92.89	0
481	95	92.03	92.82	92.64	92.47	92.9	1.9
490	96.5	93.23	95.11	94.52	93.84	95.09	0
491	97	95.38	95.54	95.9	95.15	96.11	17.27
492	96	93.58	95.17	94.6	93.84	95.22	5.63
495	95	90.25	92.26	91.26	90.56	91.9	0
496	92	90.69	90.84	91.1	90.64	91.27	5.59
498	110	108.36	109.48	109.51	108.94	110.08	0
510	106	100.25	103.47	101.68	101.26	102.5	0
518	106	105.19	105.47	105.79	104.71	106.01	0
519	132	132.03	132.07	132.26	131.5	132.32	3.47
520	128	126.49	127.09	127.81	125.43	128.02	0
521	112	110.75	111.38	111.96	109.64	111.98	0
522	110	103.82	104.29	104.87	103	105.52	0
523	112	111.96	111.97	112.08	111.76	112.12	2.28
524	112	110.04	110.47	110.99	109.25	111.56	0
525	110	109.43	110.01	110.04	108.08	110.13	0
526	122	121.97	121.98	122.05	121.62	122.07	0.37
527	108	104.35	104.95	105.68	103.31	106.49	0
528	110	108.01	108.5	109.09	107.15	109.75	0
529	106	104.38	104.88	105.47	103.48	106.01	0
530	110	109.43	109.82	110	108.77	110.01	0
531	110	109.4	109.77	110	108.77	110.01	0
532	110	107.83	108.21	108.66	107.15	109.15	0
533	114	112.24	112.74	113.34	111.35	114	0
534	118	114.02	114.56	115.21	113.1	115.95	0
535	128	128	128.01	128.03	127.41	128.05	0.03
536	126	126	126.01	126.03	125.41	126.05	0.03
537	134	132.42	132.94	133.56	131.48	134.01	0
538	136	135.88	136.01	136.03	135.01	136.07	0
539	134	128	128.44	128.95	127.22	129.53	0
540	126	123.15	123.49	123.92	122.59	124.4	0
541	114	113.96	113.99	114.08	112.79	114.13	0.24
542	114	111.83	112.29	112.85	111.03	113.47	0
543	116	115.65	115.98	116.01	115.06	116.03	0
544	130	128.82	129.4	130	127.77	130.01	0
545	138	136.44	136.92	137.49	135.56	138.01	0
546	136	133.46	133.88	134.4	132.76	135	0
547	110	105.74	106.1	106.54	105.12	107.03	0
548	124	121.75	122.2	122.76	120.97	123.37	0
600	90	88.14	88.99	88.42	88.34	88.63	0
603	90	89.65	90	90.03	89.84	90.09	0
604	98	98.03	98	98.08	97.97	98.11	3.97
605	90	89.05	90.01	89.27	89.18	89.75	0
610	104	100.57	101.69	101.07	100.75	101.41	0
611	96	95.13	96.03	96	95.25	96.09	0
612	114	112.51	113.71	113.04	112.7	113.4	0
613	90	89.83	90.23	90.38	89.83	90.57	0
615	92	89.81	91.41	90.61	89.98	91.16	0
616	90	86.38	88.42	87.66	87.04	88.18	0
617	91	88.31	89.69	89.07	88.4	89.53	0
618	98	94.56	95.73	95.09	94.74	95.43	0
620	90	89.17	90.08	89.48	89.38	89.7	0
621	100	98.55	99.6	99.01	98.72	99.32	0
622	100	99.39	100.07	99.83	99.59	100.08	0
623	102	101.63	102.04	102.12	101.65	102.23	0
710	114	113.85	114.1	114.32	113.8	114.9	0
713	106	105.96	105.98	106.04	105.95	106.06	0.08
719A	109	107.23	107.92	108.19	106.78	108.8	14.19
9198	109	108.32	108.11	108.65	107.94	108.96	20.57
919C	108	105.17	105.73	105.19	105.17	105.47	0.85
941	113	111.94	111.67	112.14	111.72	112.24	40.84
942	114	108.83	108.82	109.31	108.68	109.75	6.22
W7S	105	103.47	103.8	103.78	103.46	103.89	10.7
							202.82



SPREADER SWALE SECTION



SECTION



NOTE:
1. See FDOT Index no. 232 for inlet types and details
2. Sump bottom appropriate for all bubble-up structure's. Cost for sump bottom to be included in the contract unit price for inlet or manhole.

BUBBLE-UP STRUCTURE DETAIL

REVISIONS									SUBMITTAL	DATE
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	CITY OR COUNTY	
									W.M.D.	
									FDEP APPROVAL	
						9-13-02	BJS	ERP MODIFICATION ⚠	JD SET	
						05-10-01	NLE	REVISED PER COUNTY COMMENTS	AS-BUILT	

SEP 13 2002

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407-843-5120 • FAX 407-849-8864
ENGINEERING BUSINESS #122!

Daniel J. Hayes
Florida Reg. Number 48590

OSCEOLA COUNTY FLORIDA

MASS GRADING

DRAINAGE DETAILS

MAGNOLIA CREEK
PHASE ONE

DATE	9-27-00
DESIGNED	SSJMC
CHECKED	DJH
SCALE	NONE
PROJECT NO.	MCP
FILE NAME	MCPPD.003
SHEET	12 OF 12

MACRO CDP #001003
MICRO CDP #01-0003

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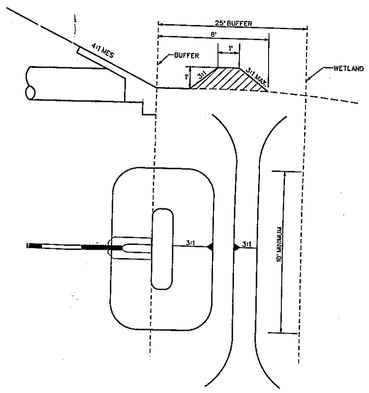
POND SUMMARY - PHASE II - CONCEPTUAL ⚠

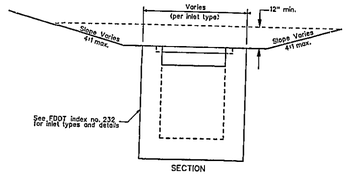
Node	TOB Elev.	10y-72h	100y-24h	50y-72h	10y-24h	100y-72h	10y-72h Peak Flow	TOB - 10y-72h
298	100	96.19	98.46	98.18	96.08	98.76	0	3.81
299	99	95.54	97.77	97.22	95.53	98	0	3.46
820	117	113.57	115.89	114.39	114.34	114.95	0	3.43
821	115	111.66	114.11	112.53	112.96	113.13	0	3.34
822	115	111.6	113.9	112.46	112.89	113.04	0	3.40
826	113	110.11	111.89	111.61	110.47	112.05	0	2.89
854	112	108.79	110.92	110.33	109.42	110.77	0	3.21
855	123	120.67	121.94	121.	120.88	121.99	0	2.33
856	110.5	108.37	109.11	108.92	108.59	109.17	0	2.13
857	110.5	107.55	109.77	109.15	108.35	109.64	0	2.95
860	110.5	107.08	109.72	108.68	108.09	109.48	0	3.42
862	110.5	107.62	109.54	109.33	107.88	109.82	0	2.88
863	108	105.77	106.78	106.85	105.76	107.17	0	2.83
865	110	107.08	109.19	108.76	107.69	109.28	0	2.92
867	113.5	110.38	112.6	111.98	111.02	112.61	0	3.12
868	111	108.45	110.09	109.94	108.8	110.31	0	2.55
871	124	120.84	122.89	122.67	121.17	123.2	0	3.16
872	109	106.83	108.26	107.95	107.01	108.54	0	2.17
882	111	107.6	109.66	109.16	108.18	109.72	0	3.40
884	116	113.23	114.92	114.71	113.55	115.11	0	2.77
885	106	103.18	105.03	104.83	103.16	105.34	0	2.82
887	110.5	107.31	109.35	108.69	108.06	109.32	0	3.19
888	103	100.06	102.11	100.68	101.15	101.12	0	2.94
889	105	101.59	104.01	102.42	102.87	103	0	3.41
901	122	119.4	120.76	120.68	119.47	121.12	0	2.60
902	108.5	105.96	107.48	107.4	105.9	107.95	0	2.54
910	123.5	119.77	122.36	120.71	121.17	121.36	0	3.73
911	116.5	113.24	115.74	114.11	114.53	114.21	0	3.26
912	115	111.77	114.08	112.66	113.04	113.28	0	3.23
913	115	111.32	113.93	112.47	112.77	112.93	0	3.68
914	111	107.52	109.75	108.04	108.78	108.71	0	3.48
915	109.5	106.12	108.5	107.37	107.42	108.11	0	3.38
916	112	108.8	111.02	109.85	109.94	110.5	0	3.20
917	110	106.65	108.99	107.39	107.93	107.75	0	3.35
923	111	107.61	109.86	108.89	108.87	109.64	0	3.39
960	109	105.85	107.96	106.85	106.93	107.45	0	3.15
961	108	104.77	107.04	105.26	105.99	106	0	3.23
962	109.5	106.56	108.6	107.56	107.7	107.49	0	2.94
965	110.5	107.8	109.58	108.82	108.72	108.37	0	2.70
970	106.5	103.4	105.57	104.4	104.64	104.35	0	3.10
971	106	102.87	104.77	104.12	103.71	104.65	0	3.13
							0	

POND SUMMARY - PHASE I ⚠

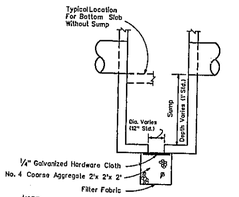
Node	TOB Elev.	10y-72h	100y-24h	50y-72h	10y-24h	100y-72h	10y-72h Peak Flow
319	108	106.47	107.22	107.19	106.45	107.64	4.83
320	106	102.99	104.98	104.71	102.69	105.67	0
351	111.5	106.72	107.53	107.99	106.58	109	27.04
352	107	106.58	106.82	106.85	106.63	106.38	0
353	117	115.64	115.71	116.26	115.4	116.86	16.34
360	98	94.85	96.52	95.85	95.02	96.52	0
361	106	100.16	104.02	101.85	101.54	102.96	0
362	106	100.83	103.89	102.67	102.12	103.6	0
366	104	101.11	102.82	101.71	102.39	102.13	0
367	106	103.57	105.09	104.09	104.46	104.77	0
370	120	112.77	117.23	115.89	112.57	117.82	0
372	106	102.72	104.25	103.53	102.85	104.07	0.06
373	105	99.39	101.25	100.64	99.42	101.43	0.36
374	100	96.05	95.94	96.16	95.87	96.22	14.11
430	110	107.33	110.05	108.71	108.21	109.56	0
440	92	90.43	91.21	91.2	90.91	91.5	0
450	92	90.3	91.17	91.06	90.4	91.34	0
461	96	94.06	95.61	95.26	94.60	95.91	5.87
466	90	88.07	88.89	88.75	88.49	89.1	0
468	88	84.44	85.73	84.99	84.65	85.38	0
470	95	92.28	93.76	93.43	92.67	94.04	0.38
471	96	94.08	95.47	95.34	94.69	95.99	0
472	112	108.72	109.93	109.52	108.9	109.97	0
478	94	90.37	91.51	91.21	90.57	91.55	0
479	95	92.02	92.82	92.64	92.47	92.89	0
481	95	92.03	92.82	92.64	92.47	92.9	1.9
490	96.5	93.23	95.11	94.52	93.84	95.09	0
491	97	95.38	95.54	95.9	95.15	96.11	17.27
492	96	93.58	95.17	94.6	93.84	95.22	5.63
495	95	90.25	92.26	91.26	90.56	91.9	0
496	92	90.69	90.84	91.1	90.64	91.27	5.59
498	110	108.36	109.48	109.51	108.94	110.08	0
510	106	100.25	103.47	101.68	101.26	102.5	0
518	106	105.19	105.47	105.79	104.71	106.01	0
519	132	132.03	132.07	132.26	131.5	132.32	3.47
520	128	126.49	127.09	127.81	125.43	128.02	0
521	112	110.75	111.38	111.96	109.64	111.98	0
522	110	103.82	104.29	104.87	103	105.52	0
523	112	111.96	111.97	112.08	111.76	112.12	2.28
524	112	110.04	110.47	110.99	109.25	111.56	0
525	110	109.43	110.01	110.04	108.08	110.13	0
526	122	121.97	121.98	122.05	121.62	122.07	0.37
527	108	104.35	104.95	105.68	103.31	106.49	0
528	110	108.01	108.5	109.09	107.15	109.75	0
529	106	104.38	104.88	105.47	103.48	106.01	0
530	110	109.43	109.82	110	108.77	110.01	0
531	110	109.4	109.77	110	108.77	110.01	0
532	110	107.83	108.21	108.66	107.15	109.15	0
533	114	112.24	112.74	113.34	111.35	114	0
534	118	114.02	114.56	115.21	113.1	115.95	0
535	128	128	128.01	128.03	127.41	128.05	0.03
536	126	126	126.01	126.03	125.41	126.05	0.03
537	134	132.42	132.94	133.56	131.48	134.01	0
538	136	135.88	136.01	136.03	135.01	136.07	0
539	134	128	128.44	128.95	127.22	129.53	0
540	126	123.15	123.49	123.92	122.59	124.4	0
541	114	113.96	113.99	114.08	112.79	114.13	0.24
542	114	111.83	112.29	112.85	111.03	113.47	0
543	116	115.65	115.98	116.01	115.06	116.03	0
544	130	128.82	129.4	130	127.77	130.01	0
545	138	136.44	136.92	137.49	135.56	138.01	0
546	136	133.46	133.88	134.4	132.76	135	0
547	110	105.74	106.1	106.54	105.12	107.03	0
548	124	121.75	122.2	122.76	120.97	123.37	0
600	90	88.14	88.99	88.42	88.34	88.63	0
603	90	89.65	90	90.03	89.84	90.09	0
604	98	98.03	98	98.08	97.97	98.11	3.97
605	90	89.05	90.01	89.27	89.18	89.75	0
610	104	100.57	101.69	101.07	100.75	101.41	0
611	96	95.13	96.03	96	95.25	96.09	0
612	114	112.51	113.71	113.04	112.7	113.4	0
613	90	89.83	90.23	90.38	89.83	90.57	0
615	92	89.81	91.41	90.61	89.98	91.16	0
616	90	86.38	88.42	87.66	87.04	88.18	0
617	91	88.31	89.69	89.07	88.4	89.53	0
618	98	94.56	95.73	95.09	94.74	95.43	0
620	90	89.17	90.08	89.48	89.38	89.7	0
621	100	98.55	99.6	99.01	98.72	99.32	0
622	100	99.39	100.07	99.83	99.59	100.08	0
623	102	101.63	102.04	102.12	101.65	102.23	0
710	114	113.85	114.1	114.32	113.8	114.9	0
713	106	105.96	105.98	106.04	105.95	106.06	0.08
719A	109	107.23	107.92	108.19	106.78	108.8	14.19
9198	109	108.32	108.11	108.65	107.94	108.96	20.57
919C	108	105.17	105.73	105.19	105.17	105.47	0.85
941	113	111.94	111.67	112.14	111.72	112.24	40.84
942	114	108.83	108.82	109.31	108.68	109.75	6.22
W7S	105	103.47	103.8	103.78	103.46	103.89	10.7
							202.82



SPREADER SWALE SECTION



SECTION



NOTE:
1. See FDOT Index no. 232 for inlet types and details
2. Sump bottom appropriate for all bubble-up structure's. Cost for sump bottom to be included in the contract unit price for inlet or manhole.

BUBBLE-UP STRUCTURE DETAIL

REVISIONS									SUBMITTAL	DATE
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	CITY OR COUNTY	
									W.M.D.	
									FDEP APPROVAL	
						9-13-02	BJS	ERP MODIFICATION ⚠	JD SET	
						05-10-01	NLE	REVISED PER COUNTY COMMENTS	AS-BUILT	

SEP 13 2002

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Daniel J. Hayes
Florida Reg. Number 48590

OSCEOLA COUNTY FLORIDA

MASS GRADING

DRAINAGE DETAILS

MAGNOLIA CREEK
PHASE ONE

DATE	9-27-00
DESIGNED	SSJMC
CHECKED	DJH
SCALE	NONE
PROJECT NO.	MCP
FILE NAME	MCPPD.003
SHEET	12 OF 12

MACRO CDP #001003
MICRO CDP #01-0003

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L. County Road 545

The roadway design is currently underway and will be submitted as a separate permit by Professional Engineering Consultants. We have included piping to convey stormwater runoff from the right-of-way to the development for treatment at Pond 370. Basin areas have been revised. They are consistent with the previous permit. We have assumed a widened section of 4 lane divided section and have made accommodations to accept the future runoff. Refer to the post-development drainage map, nodal diagram and routings for more information. The following explains the basin divides for C.R. 545.

- Pond 370 will provide treatment for C.R. 545 from C.R. 532 north to Phase 1 Parcel 6.
- Pond 374 will provide treatment for C.R. 545 from Phase 1 Parcel 6 to Davenport Creek.
- Pond 391 will provide treatment for C.R. 545 north of Davenport Creek.
- Pond 362 will also provide treatment north to the wetland crossing.
- Pond 627 previously was in the conceptual portion of the permit, and treats a portion of C.R. 545 from the wetland-crossing north to Interstate 4. This area has been acquired into the Interstate 4/Western Beltway right-of-way and is being included in the Interstate 4 basin and modeled as such.

M. Village Center (also known as Phase 1 Parcels 4, 5, and 7)

This area includes development that has not been submitted for a permit modification; however, preliminary planning and engineering have provided enough information, which was been used to complete mass grading and master stormwater infrastructure as described. The impervious ratio was originally assumed to be 90% for the development. The actual development impervious ratio has been updated for an assumed 80%. Three golf holes have been redesigned to accommodate the development plan. The overall scheme for this area is consistent with the original permit. The ponds are revised as follows:

- Pond 367 is similar in size and location. The basin areas are consistent with the new development plan.
- Pond 368 has been deleted.

Table H-3

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 in Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	WSE (FT)	Control Elev. (FT)	TOB Elev. (FT)
4301	430	4.22	3.95	1.09	0.21	4.01	41.95	0.35	0.04	0.61	0.35	10.38	108.70	104.00	110.00
4302	430	9.25	0.00	0.00	0.46	8.79	41.95	0.77	0.10	1.33	0.77		0.00	0.00	0.00
4303	430	10.01	0.00	0.00	7.57	3.24	80.30	0.90	1.58	5.61	1.58		0.00	0.00	0.00
4304	430	8.00	0.00	0.00	6.40	1.60	86.20	0.67	1.33	4.63	1.33		0.00	0.00	0.00
4305	430	5.60	0.00	0.00	4.48	1.12	86.20	0.47	0.93	2.24	0.93		0.00	0.00	0.00
4401	440		0.00	0.00	0.18	3.48	41.95	0.30	0.04	0.52	0.30	1.78	90.75	88.00	92.00
4402	440		3.48	0.45	4.25	1.82	80.30	0.51	0.89	3.15	0.89		0.00	0.00	0.00
4501	450		0.00	0.00	0.48	9.21	41.95	0.81	0.10	1.40	0.81	4.81	91.00	89.00	92.00
4502	450		0.00	0.00	1.09	0.47	80.30	0.13	0.23	0.81	0.23		0.00	0.00	0.00
4503	450		0.00	0.00	0.08	1.61	41.95	0.14	0.02	0.24	0.14		0.00	0.00	0.00
4504	450	4.63	0.00	0.00	3.24	1.39	80.30	0.39	0.68	2.40	0.68		0.00	0.00	0.00
4611	461	8.13	2.63	0.94	0.41	7.72	41.95	0.68	0.08	1.17	0.68	SEE 471		93.00	98.00
4612	461	10.64	0.00	0.00	7.55	3.09	80.87	0.89	1.57	5.58	1.57		0.00	0.00	0.00
4561	456	9.05	2.80	2.03	0.45	8.60	41.95	0.75	0.09	1.30	0.75	2.18	88.00	87.00	90.00
4662	466	8.24	0.00	0.00	5.53	2.71	78.60	0.69	1.15	4.13	1.15		0.00	0.00	0.00
4680	468	2.8	0.76	0.22	0.14	2.66	41.95	0.23	0.05	0.40	0.23		0.00	0.00	0.00
4701	470	2.84	0.29	0.15	1.27	1.57	65.38	0.24	0.26	1.05	0.26	1.14	86.50	84.00	88.00
4710	471	11.71	0.72	0.25	0.58	11.12	41.95	0.96	0.12	1.65	0.98	0.21	92.15	91.00	95.00
4711	471	42.52	0.00	0.00	29.43	13.09	78.84	3.54	8.13	21.86	8.13	9.79	94.50	90.00	96.00
4721	472	9.23	1.58	0.75	0.46	8.77	41.95	0.77	0.10	1.33	0.77		0.00	0.00	0.00
4780	478	1.7	0.74	0.21	0.09	1.62	41.95	0.14	0.02	0.24	0.14	1.89	109.80	108.00	112.00
4781	479	2.8	1.20	0.40	0.14	2.66	41.95	0.23	0.03	0.40	0.23	0.35	91.20	90.00	94.00
4792	479	4.18	0.00	0.00	1.99	2.19	67.09	0.35	0.41	1.61	0.41	0.85	92.50	91.00	95.00
4811	481	3.6	1.60	0.59	0.18	3.42	41.95	0.30	0.04	0.52	0.30		0.00	0.00	0.00
4812	481	1.07	0.00	0.00	1.05	0.02	96.90	0.09	0.22	0.73	0.22	1.37	92.70	91.00	95.00
4901	490	2.98	0.00	0.00	1.63	1.35	71.27	0.25	0.34	1.28	0.34		0.00	0.00	0.00
4902	490	5.93	1.32	0.60	0.90	5.03	41.95	0.49	0.06	0.85	0.49	0.00	94.80	91.00	96.50
4911	491	3.4	2.28	0.80	0.17	3.23	41.95	0.28	0.04	0.49	0.28		0.00	0.00	0.00
4912	491	4.5	0.00	0.00	0.29	4.21	41.95	0.37	0.05	0.65	0.37	1.34	94.50	93.00	97.00
4913***	491	9.9	0.00	0.00	6.93	2.97	80.30	0.82	1.44	5.14	1.44		0.00	0.00	0.00
4921	492	5.22	0.00	0.00	3.41	1.81	73.69	0.43	0.71	2.38	0.71		0.00	0.00	0.00
4922	492	4.88	0.78	0.35	0.25	4.63	41.95	0.41	0.05	0.72	0.41		0.00	0.00	0.00
4951	495	5.33	2.81	1.07	0.27	15.06	41.95	0.44	0.06	0.77	0.44	1.95	94.80	91.00	98.00
4952	495	9.71	0.00	0.00	0.49	9.22	41.95	0.81	0.10	1.40	0.81	5.73	92.60	89.00	95.00
4953	495	1.55	0.00	0.00	1.09	0.47	80.30	0.13	0.23	0.80	0.23		0.00	0.00	0.00
4960	496	2.15	0.54	0.10	0.11	2.04	41.95	0.18	0.02	0.31	0.18		0.00	0.00	0.00
4961	496	4.91	0.00	0.00	3.13	1.78	78.61	0.41	0.65	2.37	0.65	0.85	90.40	87.00	92.00
4981	498	17.7	5.49	2.26	0.89	16.82	41.95	1.47	0.18	2.55	1.47	9.28	108.75	106.00	110.00
4982	498	11.77	0.00	0.00	9.42	2.35	88.20	0.98	1.96	6.81	1.96		0.00	0.00	0.00
4983	HBD	0	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
4984	HBD	0	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
5101	510	36.37	23.39	3.73	27.85	8.52	84.18	3.03	5.80	20.29	5.80	96.27	103.50	95.00	106.00
5102	510	10.6	0.00	0.00	7.42	3.18	80.30	0.88	1.55	5.50	1.55		0.00	0.00	0.00
5103	510	19.6	0.00	0.00	13.72	5.88	80.30	1.83	2.88	10.17	2.88		0.00	0.00	0.00
5104	510	12.5	0.00	0.00	10.00	2.50	88.20	1.04	2.08	7.23	2.08		0.00	0.00	0.00
5105	510	8.5	0.00	0.00	7.65	0.85	92.10	0.71	1.59	5.42	1.59		0.00	0.00	0.00
5106	510	12.84	0.00	0.00	6.79	6.05	70.20	1.07	1.41	5.38	1.41		0.00	0.00	0.00
										53.96	15.30				
3511	351	9.49	1.14	0.65	0.47	9.02	41.95	0.79	0.10	1.37	0.79	3.31	106.04	103.20	111.50
3512	351	15	0.00	0.00	12.00	3.00	86.20	1.25	2.50	8.67	2.50				
3521	352	0.98	0.09	0.02	0.00	0.91	41.95	0.08	0.01	0.14	0.08	0.09	106.80	105.00	107.00
3522	HBD	0	0.00	0.00	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00

EXHIBIT 17 A

water qual sum.xls

10/18/2002

Table H-3

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 in Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	Water Surface Elev. (FT)	Control Elev. (FT)	TOB Elev. (FT)
3531	353	4.1	1.01	0.09			41.95	0.34	0.04	0.59	0.34	1.59	115.00	111.00	117.00
3532	353	7.97	0	0	6.38	1.59	86.20	0.66	1.33	4.61	1.33		0.00	0.00	0.00
3601	360	1.21	0.15	0.09	0.06	1.15	41.95	0.10	0.01	0.17	0.10	0.27	96.50	94.00	98.00
3602	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3603	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3604	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3611	361	6.34	0	0	5.70	0.63	41.95	0.53	0.07	0.91	0.53	10.04	103.90	97.00	106.00
3612	361	11.99	2.17	1.01	9.59	2.40	86.20	1.00	2.00	8.93	2.00		0.00	0.00	0.00
3620	362	31.17	10.19	4.07	24.96	6.21	41.95	2.80	0.32	4.49	2.80	38.30	103.20	97.00	101.00
3621	362	54.86	0	0	43.89	10.97	86.20	4.57	9.14	31.72	8.14		0.00	0.00	0.00
3622***	362	6.47	0	0	4.53	1.94	80.30	0.54	0.94	3.36	0.94		0.00	0.00	0.00
3623	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3651	365	12.6	2.08	2.16	10.08	2.52	86.20	1.05	2.10	7.29	2.10	5.69	102.40	100.00	104.00
3671	367	15.18	1.34	0.64	10.63	4.35	81.10	1.26	2.26	8.00	2.26	6.37	104.20	98.00	106.00
3672	367	2.23	0	0	1.56	0.67	80.30	0.19	0.33	1.16	0.33		0.00	0.00	0.00
3681	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00	#DIV/0!	0.00	0.00	0.00
3701***	370	7.81	0	0	5.47	2.34	80.30	0.65	1.14	4.05	1.14			0.00	0.00
3702	370	17.02	2.86	0.12	12.26	4.76	41.95	1.42	0.18	2.45	1.42	20.19	118.10	103.00	120.00
3703***	370	1.28	0	0	0.90	0.38	80.30	0.11	0.19	0.66	0.19		0.00	0	0
3704	370	12.94	0	0	6.10	6.84	60.81	1.08	1.27	4.95	1.27		0.00	0.00	0.00
3721	372	14.21	2.28	1.16	9.94	4.27	59.65	1.18	1.04	4.44	1.18	4.74	105.00	102.00	106.00
3722	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3731	373	9.16	1.57	0.82	7.31	1.85	59.65	0.78	0.67	2.87	0.78	3.48	103.00	99.00	105.00
3732	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3741	374	0.31	0.16	0.06	0.02	0.29	41.95	0.03	0.00	0.04	0.03	0.55	95.70	91.00	96.00
3742***	374	3.82	0	0	2.87	1.15	80.30	0.32	0.56	1.98	0.56				
		616.43			305.16										

P (In) = 8.6 Impervious Area CN = 98 Pervious Area CN = 39

Sample Calculation

* Imperv. Area = (Basin Area - Area (T.O.B.)) * 0.90

** Span & Rise of Circular Orifice (Recover 0.5" within 24 hours)= [[(0.5" Runoff Ac-Ft) * (43560 ft^2/Acre)] / [(86,400 sec/day) * (0.6) * (2*32.2*ft)^0.5] * [144]]^0.5

Q = C * A * (2 * G * H) ^ 0.5

*** Future Roadway Basins @ 70% Impervious

EXHIBIT 17 R

water qual sum.xls

9/11/02

SFWMD PERMIT NO. 49-01107-P (APPLICATION 040526-4)

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 in Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	Weir Elev. (FT)	Control Elev (FT)	TOB Elev. (FT)
3531	353	4.1	1.01	0.09	0.21	0.05	41.95	0.31	0.04	0.59	0.34	1.59	115.00	111.00	117.00
3532	353	7.97	0	0	6.38	1.59	86.20	0.66	1.33	4.61	1.33		0.00	0.00	0.00
3601	360	1.21	0.15	0.09	0.06	1.15	41.95	0.10	0.01	0.17	0.10	0.27	96.50	94.00	98.00
3602	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3603	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3604	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3611	361	6.34	2.17	1.01	5.00	1.34	41.95	0.53	0.07	0.91	0.53	10.04	103.90	97.00	106.00
3612	361	11.99	0	0	9.59	2.40	86.20	1.00	2.00	6.93	2.00		0.00	0.00	0.00
3620	362	31.17	10.19	4.07	16.00	4.01	41.95	2.60	0.32	4.49	2.60	38.30	103.20	97.00	106.00
3621	362	54.86	0	0	43.89	10.97	86.20	4.57	9.14	31.72	9.14		0.00	0.00	0.00
3622***	362	6.47	0	0	4.53	1.94	80.30	0.54	0.94	3.36	0.94		0.00	0.00	0.00
3623	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3661	366	12.6	2.06	2.16	10.08	2.52	86.20	1.05	2.10	7.29	2.10	5.69	102.40	100.00	104.00
3671	367	15.18	1.54	0.64	10.63	4.35	81.10	1.26	2.26	8.00	2.26	6.37	104.20	98.00	108.00
3672	367	2.23	0	0	1.56	0.67	80.30	0.19	0.33	1.16	0.33		0.00	0.00	0.00
3681	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00	#DIV/0!	0.00	0.00	0.00
3701***	370	7.81	0	0	5.47	2.34	80.30	0.65	1.14	4.05	1.14			0.00	0.00
3702	370	17.02	2.86	0.12	12.77	4.25	41.95	1.42	0.18	2.45	1.42	20.19	118.10	103.00	120.00
3703***	370	1.28	0	0	0.90	0.38	80.30	0.11	0.19	0.66	0.19		0.00	0	0
3704	370	12.94	0	0	6.10	6.84	60.81	1.08	1.27	4.96	1.27		0.00	0	0
3721	372	14.21	2.28	1.18	4.77	9.24	59.65	1.18	1.04	4.44	1.18	4.74	105.00	102.00	106.00
3722	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3731	373	0.18	1.57	0.62	3.21	5.61	59.65	0.76	0.67	2.67	0.76	3.48	103.00	99.00	105.00
3732	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3741	374	0.31	0.18	0.06	0.02	0.29	41.95	0.03	0.00	0.04	0.03	0.55	95.70	91.00	96.00
3742***	374	3.82	0	0	2.67	1.15	80.30	0.32	0.58	1.98	0.56				
		616.43			305.16										

P (in) = 8.6 Impervious Area CN = 98 Pervious Area CN = 39

Sample Calculation

* Imperv. Area = (Basin Area - Area (T.O.B.)) * 0.90

** Span & Rise of Circular Orifice (Recover 0.5" within 24 hours)= [[(0.5" Runoff Ac-Ft) * (43560 ft^2/Acre)] / [(86,400 sec/day) * (0.6) * (2*32.2*1)^0.5] * [144]]^0.5

$$Q = C * A * (2 * G * H)^{0.5}$$

*** Future Roadway Basins @ 70% Impervious

EXHIBIT 17 R

Excerpts from App 040526-4

III. Design Criteria

A. Water Quality Treatment

For purposes of this submittal, the site is assumed to be comprised of 75% (increase in the area of roads and sidewalks) impervious area. As a result, requiring treatment volume of 2.5 inches of runoff over the impervious areas will generate greater water quality volume than will the treatment volume of 1 inch over the entire drainage basin as demonstrated in the computations found in Section 'C' of this report. In keeping with the Water Quality Criteria as outlined in ERP Section 5.0 the drawdown orifices have been sized so as not to release more than one-half (1/2) of the water quality volume in less than 24 hours following the 10 year / 72 hour return storm event (model hour 96).

B. Peak Discharge Attenuation / Allowable Discharge

The post development discharge for the Village Center basins is required to be equal to or below the discharges presented in the conceptual permit. The design storm for this permit application is the 10 year 72 hour storm event using the SFWMD synthetic rainfall distribution.

The Development basins located within the project area as defined in the original permit are list below:

Existing Permit Pond Node	Existing Permit Development Basin	Total Project Area	10Yr/72 Hr Max. Outflow
360	BASIN 3601	1.21 Acres	0 cfs
361	BASIN 3611	6.34 Acres	0 cfs
	BASIN 3612	11.99 Acres	
362	BASIN 3620	31.17 Acres	0 cfs
	BASIN 3621	54.86 Acres	
	BASIN 3622	6.47 Acres	
366	BASIN 3661	12.60 Acres	0 cfs
367	BASIN 3671	15.18 Acres	0 cfs
	BASIN 3672	2.23 Acres	

As stated above the conceptual permit allows for zero discharge of the ponds during the 10 year 72 hour storm event. Our dry detention pond system allows only incidental discharge through the three (3) inch orifice provided one (1) foot below the pond bottom during this storm event.

Excerpts from App 040526-4

IV. Post-Development Condition Analysis

A. Time of Concentration

The time of concentration used for the post-development basins was conservatively estimated at 10 minutes in order to maintain consistency with the originally approved conceptual ERP application

B. Post-Development Basin Information

BASIN ID	AREA		CNN	Tc	
VC-1	3.943	Ac.	83.25	10	Min.
VC-2A	5.228	Ac.	83.25	10	Min.
VC-2B	4.667	Ac.	83.25	10	Min.
VC-3	41.417	Ac.	80.30	10	Min.
VC-4	29.499	Ac.	80.30	10	Min.
VC-5	11.837	Ac.	83.25	10	Min.
VC-6	23.039	Ac.	80.30	10	Min.
VC-7 & 8	14.277	Ac.	80.30	10	Min.
VC-9	6.430	Ac.	83.25	10	Min.
3622	4.330	Ac.	80.30	10	Min.

10YR-24HR
SFWMD24 hour distribution
Santa Barbara Linear Reservoir Routing Method
Rainfall Amount: 5.50 inches

10YR-72HR
SFWMD72 hour distribution
Santa Barbara Linear Reservoir Routing Method
Rainfall Amount: 7.60 inches

100YR-72HR
SFWMD72 hour distribution
Florida Modified Rainfall Distribution
Rainfall Amount: 11.50 inches

Excerpts from App 040526-4

Project Name: Reunion Resort & Club Village Center
Project Number: 110.01
File Name: 11001-storm7-proposed.xls

4/12/2004
10:08 AM

VILLAGE CENTER - 9	AREA (s.f.)	AREA (ac.)	CN	CN x A
Impervious (75%)	210,059	4.822	98	473
Pervious (25%)	70,020	1.607	39	63
TOTAL SITE	280,078	6.430	CN =	83.25

WATER QUALITY VOLUME

1" OVER DRAINAGE BASIN =	23,340	cubic feet
	0.536	acre feet
2.5" OVER IMPERVIOUS AREA =	43,762	cubic feet
	1.005	acre feet
	32,822	cubic feet
	0.753	acre feet

Per ERP Section 5.2.1[(a)2] dry bottom ponds must treat only 75% of that required for wet detention facilities.

POND - 9 (As Designed)

STAGE (ft.)	POND #9 AREA (sq.ft.)	POND #9 AREA (acre)	CUMULATIVE VOLUME (cu.ft.)	CUMULATIVE VOLUME (ac.ft.)
94.0	14,966	0.3436	0	0.000
95.0	20,479	0.4701	17,724	0.407
96.0	24,429	0.5608	40,178	0.922
97.0	28,491	0.6541	66,638	1.530
98.0	32,712	0.7510	97,239	2.232
99.0	37,026	0.8500	132,108	3.033
100.0	41,423	0.9509	171,333	3.933

Top of Pond Bank =	100.00	NGVD
Top of Structure =	99.00	NGVD
Water quality is achieved @ El. =	95.67	NGVD
1/2 water quality elevation =	94.84	NGVD
4" Diameter Bleeder Orifice =	93.00	NGVD

Note:
Stormwater facilities for Village Center 9 are designed to treat the water quality volume produced by construction of parking lots and roadways covering 75% of the total drainage basin.

Prepared by:
MILLER, EINHOUSE, RYMER and BOYD

Excerpts from App 040526-4

D. Receiving Tailwater

The receiving tailwater elevation for Davenport Creek was modeled as three separate nodes with an elevation set at the 100-year flood elevation as depicted in the FEMA flood map. These nodes were modeled as a stage time relationship with the 100-year flood stage remaining constant throughout the storm duration.

The receiving tailwater for Pond 9 was taken from the originally approved ERP. The pond is modeled for discharge to Node 330, which was set to the parameters described in the Bowyer Singleton stormwater model approved with the existing ERP.

PROJECT NAME: Reunion Resort & Club Village Center
PROJECT NUMBER: 110.01
FILENAME: 11001-SUMMARY.xls

04/14/04
10:36 AM

SUMMARY OF PROPOSED CONDITIONS

	POND #1	POND #2A	POND #2B	POND #3	POND #4	POND #5	POND #6	POND #7	POND #8	POND #9
10 year / 24 hour	100.85	99.04	98.52	96.80	96.81	100.22	100.23	106.19	106.13	97.83
TOP OF POND BANK	103.00	102.00	102.00	100.00	100.00	105.00	105.00	107.00	107.00	100.00
10 year / 72 hour	101.57	99.75	99.12	98.43	98.45	102.22	102.24	106.52	106.35	98.86
FREEBOARD	1.43	2.25	2.88	1.57	1.55	2.78	2.76	0.48	0.65	1.14
100 year / 72 hour	102.31	101.11	100.64	99.92	100.27	104.38	104.75	106.93	106.93	99.66

Proposed peak discharge to receiving boundary nodes:

BOUNDARY NODE	10 yr / 72 hr	
330	0.97	c.f.s.
DAVENPORT (DAV-1)	1.32	c.f.s.
DAVENPORT (DAV-3)	4.20	c.f.s.
TOTAL DISCHARGE=	6.49	c.f.s.
TOTAL DRAINAGE BASIN =	144.667	acres
AVE. DISCHARGE PER ACRE =	0.04	c.f.s. / acre

Note:
The dry detention pond system allows only incidental discharge through the orifice provided one (1) foot below the pond bottom during the storm event.

*Routing calculation printouts are included in the appendix.

Prepared by:
MILLER, EINHOUSE, RYMER and BOYD

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [1]
Copyright 1995, Streamline Technologies, Inc.

REUNION RESORT & CLUB VILLAGE CENTER
Proposed Conditions - Final Design
DATE: 04/05/04 FILE: 11001-P

********** Node Time Series by Node - 10Y-72H **********

			Inflow						
Time (hrs)	Stage (ft)	Surface Ar.(ac)	Base Q (cfs)	Onsite (cfs)	Offsite (cfs)	Bndry Q (cfs)	Link Q (cfs)	Link Outflow (cfs)	Cumulative Volume In (ac.ft)	Cumulative Volume Out (ac.ft)
*** Group: BASE		Node: POND-9								
0.000	93.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0000	0.0000
24.043	93.25	0.09	0.00	0.11	0.00	0.00	0.00	0.08	0.1049	0.0840
48.043	93.76	0.26	0.00	0.36	0.00	0.00	0.00	0.30	0.5636	0.4609
72.007	98.75	0.83	0.00	0.00	0.00	0.00	0.00	0.96	0.9169	1.7085
(1) 96.007	96.40	0.60	0.00	0.00	0.00	0.00	0.00	0.69	0.9169	3.3494
120.007	94.46	0 40	0.00	0.00	0.00	0.00	0.00	0.28	0.9169	4.3115
(2) 144.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
168.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
192.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
216.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
240.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
264.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
288.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
312.007	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891
(3) 312.032	94.06	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.9169	4.5891

V. 100 Flood Compensatory Storage

Not applicable

VI. Design Results Summary

A. Design Peak Stages

		Roadway Elevation			Finished Floor Elevation	
Pond Node	Pond Top of Bank	10Yr/24Hr Storm Event Peak Stage	Pond Control Elevation	Minimum Roadway Edge of Pavement Elevation	100Yr/72Hr Storm Event Peak Stage	Minimum Finished Floor Elevation
PND-1	103.00	100.85	102.00	100.85	102.31	102.31
PND-2A	102.00	99.04	101.00	99.04	101.11	101.11
PND-2B	102.00	98.52	101.00	98.52	100.64	100.64
PND-3	100.00	96.80	99.30	96.80	99.92	99.92
PND-4	100.00	96.81	99.30	96.81	100.27	100.27
PND-5	105.00	100.22	104.00	100.22	104.38	104.38
PND-6	105.00	100.23	104.00	100.23	104.75	104.75
PND-7	107.00	106.19	106.00	106.19	106.93	106.93
FND-8	107.00	106.13	106.00	106.13	106.93	106.93
PND-9	100.00	97.83	99.00	97.83	99.66	99.66

VII. Environmental

Please refer to the originally approved ERP #49-01107-P and the Environmental Assessment performed by Glatting Jackson Kercher Anglin Lopez Rinehart, Inc. for all information pertaining to environmental impacts and assessments. The environmental assessment report pertaining to this site was performed with the Palmer Golf Course Construction Permit submittal.

VIII. Utilities

Water Service for development adjacent to this project will be provided by the City of Kissimmee.

Wastewater water collection for development adjacent to this project will be provided by the City of Kissimmee.

IX. Ownership & Maintenance

Ginn-L.A. Orlando Ltd. LLLP will be the ownership entity for the storm water ponds and storm water collection system located within the Reunion Development upon completion of the proposed project.

The ownership and maintenance for the roadway and storm water piping located within the proposed right-of-way will be the responsibility of the Reunion East CDD.

Advar d Interconnected Channel & Pond Routing (ICPR Ver 2.20) [5]
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REUNION RESORT & CLUB VILLAGE CENTER

********** Input Report **********

--------Class: Node----------

Name: POND-9 Base Flow(cfs): 0 Init Stage(ft): 93
Group: BASE Warn Stage(ft): 100
Comment: PROPOSED POND SERVING VC-9 BASIN

Stage(ft)	Area(ac)
93	0.001
94	0.3436
95	0.4701
96	0.5608
97	0.6541
98	0.751
99	0.85
100	0.9509

--------Class: Basin----------

Basin: 3622 Node: POND-9 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: Storm Duration(hrs): 0
Rainfall Amount(in): 0 Time Increment(min): 1
Area(ac): 4.33
Curve #: 80.3 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

CR 545 OFFSITE STORMWATER PER BSA CONCEPTUAL

--------Class: Basin----------

Basin: VC-1 Node: POND-1 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: Storm Duration(hrs): 1
Rainfall Amount(in): 0 Time Increment(min): 1
Area(ac): 3.943
Curve #: 83.25 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

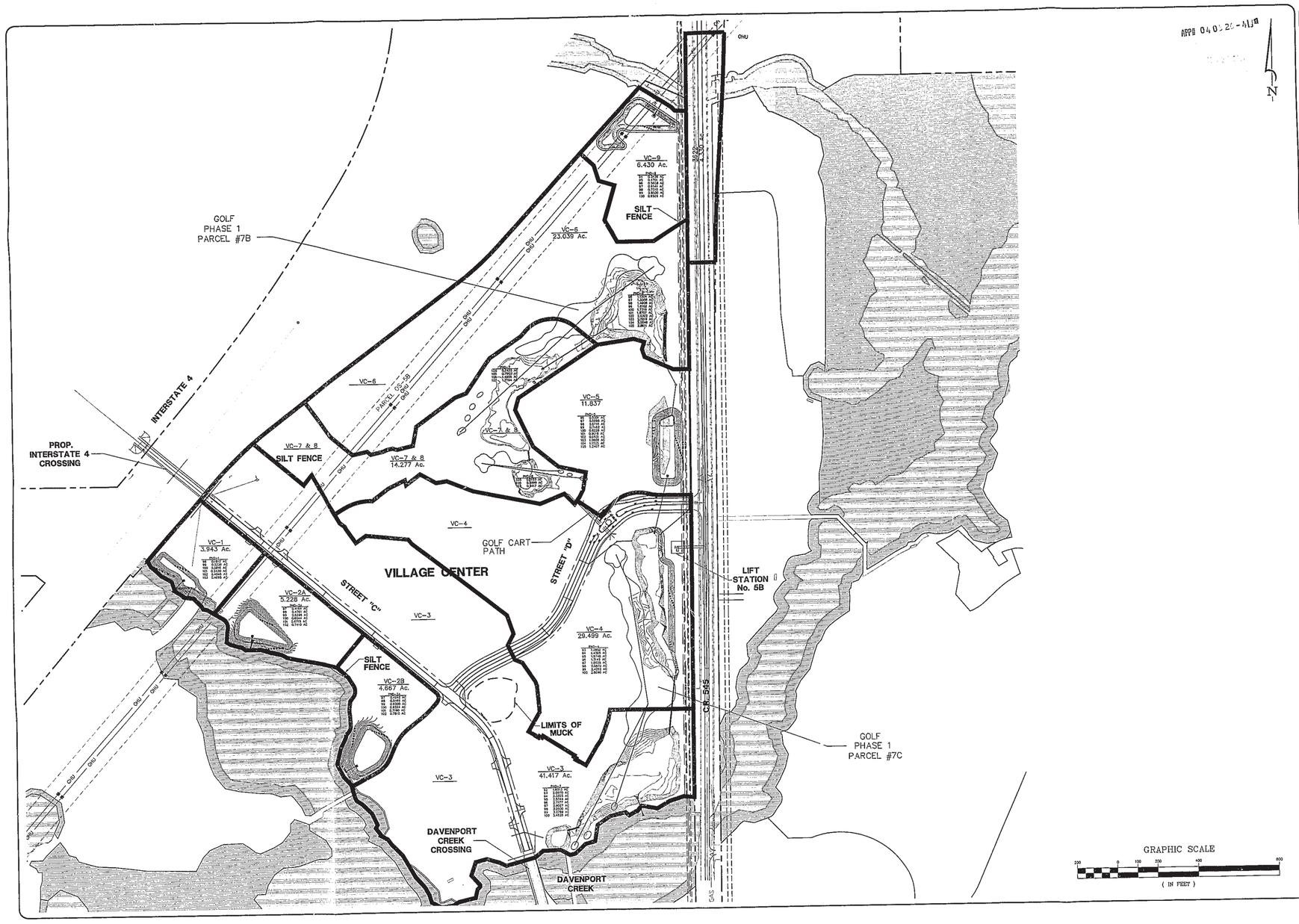
PROPOSED BASIN DRAINING TO POND-1

--------Class: Basin----------

Basin: VC-2A Node: POND-2A Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: Storm Duration(hrs): 1
Rainfall Amount(in): 0 Time Increment(min): 1
Area(ac): 5.228
Curve #: 83.25 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

PROPOSED BASIN DRAINING TO POND-2A

Excerpts from App 040526-4



APP# 040526-4

N

Miller Einhouse Rymer & Associates, Inc.
■ Planners
■ Engineers
■ Landscape Architects
Ph. (407) 343-8182
Fax (407) 343-1994
E-mail: mail@MERassociates.com
330 East Monument Ave., Suite B
Kissimmee, Florida 34741

ENGINEER OF RECORD
JAMES W. WELLS, P.E.

DATE	DESCRIPTION	BY	CHK
7/6/05	ADDED POND RISERS AND POND CENTERLINES	TMF	BMM
		DWG BY	CHK
		ES BY	REG. #20394

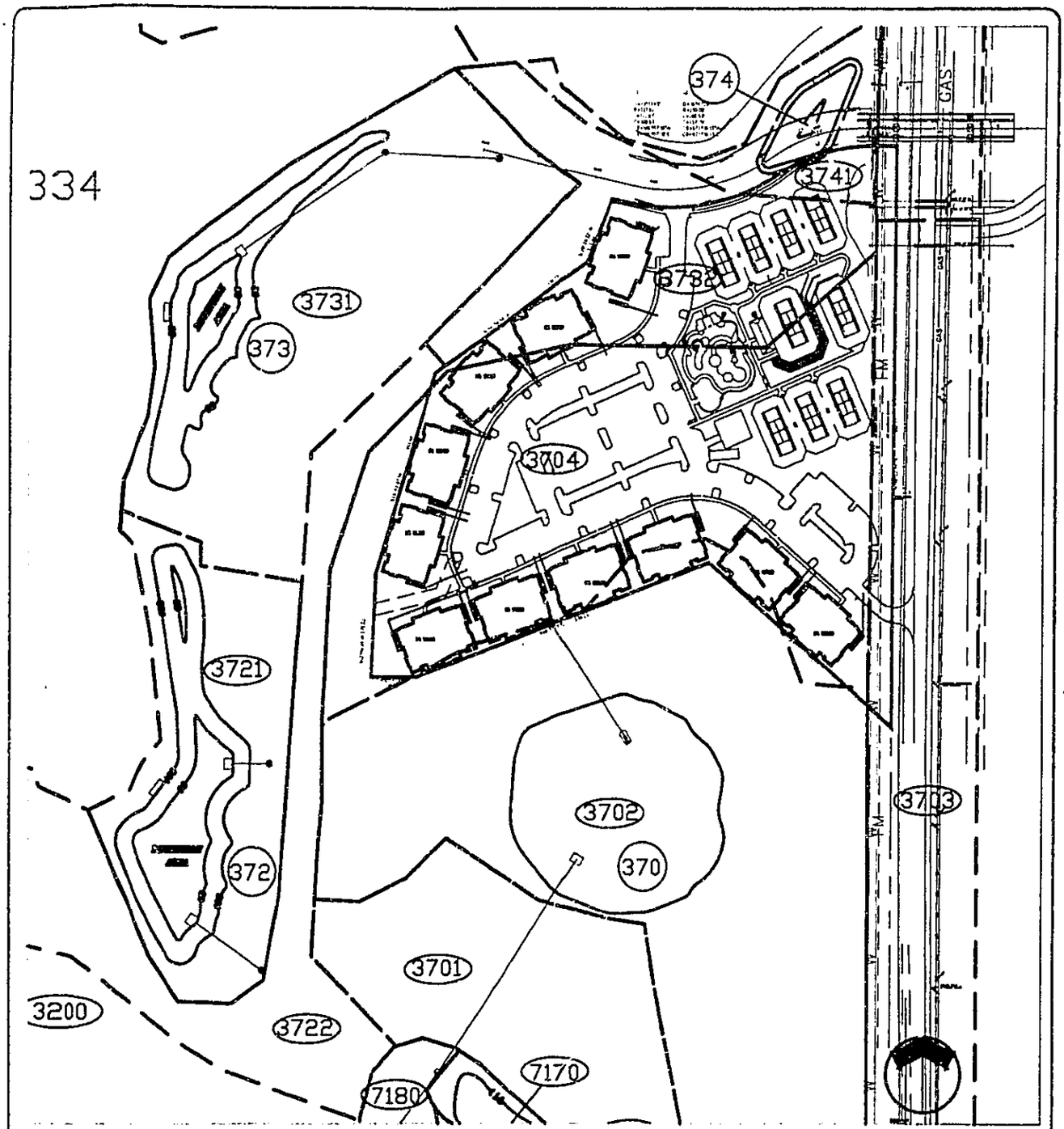
REUNION RESORT & CLUB
VILLAGE CENTER
PHASE 1 INFRASTRUCTURE
OSCEOLA COUNTY, FLORIDA

POST DEVELOPMENT BASIN MAP

DATE: 4/28/2003
SCALE: 1"=200'
PROJECT NO.: 0110.02
DRAWN BY: BMM
DESIGNED BY: BMM
CHECKED BY: BMM

SHEET NO.
1.0

SFWMD PERMIT NO. 49-01107 (APPLICATION NO. 040702-5)



PROPOSED vs. EXISTING BASIN MAP

Miller Einhouse Rymer & Boyd

- Community Planning
- Project Management
- Civil Engineering
- Landscape Architecture

CERT. OF AUTH. #00006067

2301 East Monument Ave., Suite B
Kissimmee, Florida 34741

Phone: (407) 343-8192
Fax: (407) 343-1994
www.MERandB.com

PHASE 1
PARCEL 6
Osceola County, Florida

PREPARED FOR:
REUNION RESORT & CLUB

DATE:	June, 2004
SCALE:	N.T.S.
PROJECT NO.:	0057.65
EXHIBIT	E

EXHIBIT 3

B. 100 Year Flood Plain

The 100 Year flood plain for the project area was taken from the FEMA flood plain maps. A copy of Exhibit 10 as included in the Conceptual ERP permit application is included on the following page. The map shows that the project site is not within the floodplain. Based on existing topography and the floodplain map, the 100 Year flood elevation lies below the 93' contour.

IV. Proposed Condition Analysis

A. Proposed Development

The proposed development runoff will be treated entirely by the storm water pond labeled 370 in the Conceptual Master Plan.

Basins Data Reference to the Conceptual Master Plan

Basin ID	Total Area	Impervious Area	Pervious Area	CNN	Required Retention
Master Plan Basin					
3702	15.40	13.86	1.54	92.10	2.89
3704	9.60	5.85	3.75	74.95	1.22
3732	4.30	3.87	0.43	92.10	0.81
3741	1.55	0.08	1.47	41.95	0.13
Phase 1 Parcel 6 (Development for this application)					
P1-P6	12.94	7.43	5.51	72.88	1.17

Note: Basin 3732 & 3741 were shown for informational purposes only. The stormwater generated by this site will be treated in its entirety by the stormwater pond (Node 370).

Proposed Development Comparison Table

Pond Node	Total Runoff Area	Impervious Area	Pervious Area	Required Retention	Provided Retention
370	45.80	30.11	15.69	6.74	20.19
Phase 1 Parcel 6	12.94	7.43	5.51	1.29	N/A

V. 100 Flood Compensatory Storage

Not applicable

EXHIBIT 9

Reunion Resort & Club - Phase 1 / Parcel 6
0057.65
0057.65-SUMMARY.XLS

22-Jun-04
6:08 PM

POND #370 PERFORMANCE
PERMITTED vs. PROPOSED

TOB ELEV	WEIR ELEV	PEAK STAGE 10y-72h	PEAK STAGE 100y-24h	PEAK STAGE 50y-72h	PEAK STAGE 10y-24h	PEAK STAGE 100y-72h	10y-72h Peak Flow (cfs)
120.0	118.10	112.77	117.23	115.89	112.57	117.82	0.00
113.0	**112.00**	**107.24**	**108.29**	**109.57**	**105.42**	**111.06**	**0.00**

EXHIBIT 10

Prepared by:
Miller, Einhouse, Rymer and Boyd

PROJECT NAME: Reunion Resort & Club - Phase 1 / Parcel 6
PROJECT NUMBER: 0057.65
FILENAME: 0057.65-SUMMARY.XLS

22-Jun-04
6:08 PM

AS-BUILT POND CONFIGURATION

STAGE	AREA (sf)	AREA (acres)	CUMULATIVE VOLUME (cf)	CUMULATIVE VOLUME (ac.ft.)
113.0	216,196	4.9632	1,715,180.50	39.3751
112.0	204,866	4.7031	1,504,649.50	34.5420
111.0	192,443	4.4179	1,305,995.00	29.9815
110.0	181,330	4.1628	1,119,108.50	25.6912
109.0	171,342	3.9335	942,772.50	21.6431
108.0	160,379	3.6818	776,912.00	17.8354
107.0	148,702	3.4137	622,371.50	14.2877
106.0	137,338	3.1528	479,351.50	11.0044
105.0	126,047	2.8936	347,659.00	7.9812
104.0	113,580	2.6074	227,845.50	5.2306
103.0	97,832	2.2459	122,139.50	2.8039
102.0	65,449	1.5025	40,499.00	0.9297
101.0	15,549	0.3570	0.00	0.0000

Note:

Proposed Weir elevation =	112.00	NGVD
Quality Volume Required =	3.72	ac.ft.
Quality Volume Provided =	34.5420	ac.ft.

EXHIBIT 11

Prepared by:
Miller, Einhouse, Rymer and Boyd

III.Design Criteria

A. Water Quality Treatment

2.5 Inches times the percent impervious area or 1 inch over the entire basin , whichever is greater. ½ of the treatment volume must be discharged in not less that 24 hours following the end of the storm event.

Proposed Development Treatment Volume Calculations

BASIN	AREA (ft^2)	CN	PRODUCT CN x A
BUILDING AREA	102,879	98.00	10,082,142
PARKING	138,542	98.00	13,577,116
SIDWALKS	18,870	98.00	1,849,260
TENNIS COURTS	63,401	98.00	6,213,298
PERVIOUS	239,971	39.00	9,358,869
WET PONDS	0	100.00	0

TOTAL	563,663	s.f.
	12.94	Acres
	72.88	Composite Curve Number (CN)
	57%	Proposed Impervious Ratio
	90%	*Permitted Impervious Ratio*

QUALITY VOLUME REQUIREMENT

1 INCH over BASIN 1.08 AC.FT.

2.5 INCH over PERCENT IMPERVIOUS

Total Basin =	12.94	A.C.
Roof =	2.36	A.C.
Wet Ponds =	-	A.C.
Pervious =	5.51	A.C.
Asphalt & Sidewalk =	3.61	A.C.
% Impervious =	48%	
VOLUME =	1.29	AC.FT. ← GREATER VOLUME

REQUIRED VOLUME = 1.29 AC.FT.
56,274 C.F.
42,205 ***C.F..*** ←

Per ERP Section 5.2.1.(a1) dry retention ponds are required to treat only 75% of the volume required for wet ponds.

- Pond 942's stage storage was adjusted to accommodate golf tees adjacent to the pond. The outfall structure was revised to discharge through the retaining wall to Node/Basin 320.

- Wetland W 8S also known as Basin 319 flows to Wetland W 6S or Basin 320 and is connected by a 48" culvert per the entrance road permit modification by MERA. At the recommendation of Glatting Jackson, we revised the inverts to better simulate the existing conditions and wetland hydro-period. The connection inverts were changed to a flat elevation of 105.50.

- Wetland 320 has revisions to the buffer and impacts for golf course fly over. All impacts and mitigation items are explained in Section U in the Glatting Jackson report. Wetland 320 flows northwest to W 7S and is connected by a 48" culvert per the entrance road permit modification by MERA. At the recommendation of Glatting Jackson, we revised the inverts to better simulate the existing conditions and wetland hydroperiod. The connection inverts were changed to 104.5 upstream and 102.5 downstream.

- Pond 372 has been enlarged to provide additional storage and provide more of a golf course feature. The discharge structure is consistent with the entrance road modification.

- Pond 373 has been enlarged to provide additional storage and provide more of a golf course feature. The discharge structure is consistent with the entrance road modification.

J. Phase 2 Parcel 3

MERA applied for a permit modification for the impervious construction for the Resort Parcel Development. The impervious ratio was originally assumed to be 90% for the development. The actual development impervious ratio is 73%. The model has been updated for the development's impervious ratio and basin information. A portion of the parcel discharges southwest to Wetland W 14S and the remainder discharges to Wetland W 7S. There is a drop structure in Wetland W 7S, which controls the discharge of the three-wetland system (W 8S to W 6S to W7S). The drop structure has been updated into our model as permitted by MERA.

K. Phase 1 Parcel 6

MERA applied for and received a permit modification for the impervious construction for the Resort Parcel Development. The impervious ratio was originally assumed to be 90% for the development. The actual development impervious ratio is 47%. The model has been updated for the development's impervious ratio. The parcel discharges to Pond 370 as previously permitted. Pond 370 is consistent with the original permit.

PHASE I - WATER QUALITY SUMMARY - MASS GRADING

Basin I.D.	Node I.D.	Basin Gross Area	Pond Area (T.O.B.)	Area @ Control ELEV.	Impervious Area*	Pervious Area	COMPOSITE CN	1 in Runoff (Ac-Ft)	2.5 in X % Imp. (Ac-Ft)	25 yr Volume (Ac-Ft)	Req'd Ret. Volume (Ac-Ft)	Provided Ret. Volume (Ac-Ft)	Weir Elev. (El)	Control Elev. (FT)	TOB Elev. (FT)
3531	353	4.1	1.01	0.09	0.21	3.90	41.95	0.34	0.04	0.59	0.34	1.59	115.00	111.00	117.00
353[illegible]	353	7.97	0	0.01	6.38	1.59	86.20	0.66	1.33	4.61	1.33		0.00	0.00	0.00
360[illegible]	360	1.21	0.15	0.09	0.06	1.15	41.95	0.10	0.01	0.17	0.10	0.27	96.50	94.00	98.00
3602	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3603	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3604	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3611	361	6.34	2.17	1.01	0.12	76.02	41.95	0.53	0.07	0.91	0.53	10.04	103.90	97.00	106.00
3612	361	11.99	0	0	9.59	2.40	86.20	1.00	2.00	6.93	2.00		0.00	0.00	0.00
3620	362	31.17	10.19	4.07	1.56	29.61	41.95	2.60	0.32	4.49	2.60	38.30	103.20	97.00	105.00
3621	362	54.86	0	0	43.89	10.97	86.20	4.57	9.14	31.72	9.14		0.00	0.00	0.00
3622***	362	6.47	0	0	4.53	1.94	80.30	0.54	0.94	3.36	0.94		0.00	0.00	0.00
3623	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3661	366	12.6	2.86	2.16	10.08	2.52	86.20	1.05	2.10	7.29	2.10	5.69	102.40	100.00	104.00
3671	367	15.18	1.64	0.64	10.83	4.35	81.10	1.26	2.26	8.00	2.26	6.37	104.20	98.00	106.00
3672	367	2.23	0	0	1.56	0.67	80.30	0.19	0.33	1.16	0.33		0.00	0.00	0.00
3681	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00	#DIV/0!	0.00	0.00	0.00
3701***	370	7.81	0	0	5.47	2.34	80.30	0.65	1.14	4.05	1.14			0.00	0.00
3702	370	17.02	2.86	0.12	0.85	16.17	41.95	1.42	0.18	2.45	1.42	20.19	118.10	103.00	120.00
3703***	370	1.28	0	0	0.90	0.38	80.30	0.11	0.19	0.66	0.19		0.00	0	0
3704	370	12.94	0	1.01	6.10	6.84	66.81	1.08	1.27	4.96	1.27		0.00	0	0
3721	372	14.21	2.28	1.16	4.97	9.24	59.65	1.18	1.04	4.44	1.18	4.74	105.00	102.00	106.00
3722	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3731	373	9.18	1.57	0.52	6.21	2.97	59.65	0.76	0.67	2.87	0.76	3.48	103.00	99.00	105.00
3732	HBD	0	0	0	0.00	0.00	#DIV/0!	0.00	0.00	#DIV/0!	0.00		0.00	0.00	0.00
3741	374	0.31	0.18	0.06	0.02	0.29	41.95	0.03	0.00	0.04	0.03	0.55	95.70	91.00	96.00
3742***	374	3.82	0	0	2.67	1.15	80.30	0.32	0.56	1.98	0.56				
		616.43			305.16										

P (in) = 8.6 Impervious Area CN = 98 Pervious Area CN = 39

Sample Calculation

* Imperv. Area = {Basin Area - Area (T.O.B.)} * 0.90

** Span & Rise of Circular Orifice (Recover 0.5" within 24 hours)= {[(0.5" Runoff Ac-Ft) * (43560 ft^2/Acre)] / [(86,400 sec/day) * (0.6) * (2*32.2*H)^0.5] * [144]}^0.5

$$Q = C * A * (2 * G * H) ^ 0.5$$

*** Future Roadway Basins @ 70% Impervious

Mass Grading Phase 1 Max Stage Results

Table H-6

Node	TOB Elev.	10y-72h	100y-24h	50y-72h	10y-24h	100y-72h	10y-72h Peak Flow
319	108	106.47	107.22	107.19	106.45	107.64	4.83
320	106	102.99	104.98	104.71	102.69	105.67	0
351	111.5	106.72	107.53	107.99	106.58	109	27.04
352	107	106.58	106.82	106.85	106.63	106.38	0
353	117	115.64	115.71	116.26	115.4	116.86	16.34
360	98	94.85	96.52	95.85	95.02	96.52	0
361	106	100.16	104.02	101.85	101.54	102.96	0
362	106	100.83	103.89	102.67	102.12	103.6	0
366	104	101.11	102.82	101.71	102.39	102.13	0
367	106	103.57	105.09	104.09	104.6	104.77	0
370	120	112.77	117.23	115.89	112.57	117.82	0.2
372	106	102.72	104.25	103.53	102.85	104.07	0.06
373	105	99.39	101.25	100.64	99.42	101.43	0.36
374	100	96.05	95.94	96.16	95.87	96.22	14.11
430	110	107.33	110.05	108.71	108.21	109.56	0
440	92	90.43	91.21	91.2	90.91	91.5	0
450	92	90.3	91.17	91.06	90.4	91.34	0
461	96	94.06	95.61	95.26	94.69	95.91	5.87
466	90	88.07	88.89	88.75	88.49	89.1	0
468	88	84.44	85.73	84.99	84.65	85.38	0
470	95	92.28	93.78	93.43	92.67	94.04	0.38
471	96	94.08	95.47	95.34	94.69	95.99	0
472	112	108.72	109.93	109.52	108.9	109.97	0
478	94	90.37	91.51	91.21	90.57	91.55	0
479	95	92.02	92.82	92.64	92.47	92.89	0
481	95	92.03	92.82	92.64	92.47	92.9	1.9
490	96.5	93.23	95.11	94.52	93.84	95.09	0
491	97	95.38	95.54	95.9	95.15	96.11	17.27
492	96	93.58	95.17	94.6	93.84	95.22	5.63
495	95	90.25	92.26	91.26	90.56	91.9	0
496	92	90.69	90.84	91.1	90.64	91.27	5.59
498	110	108.36	109.48	109.51	108.94	110.08	0
510	106	100.25	103.47	101.68	101.26	102.5	0
518	106	105.19	105.47	105.79	104.71	106.01	0
519	132	132.03	132.07	132.26	131.5	132.32	3.47
520	128	126.49	127.09	127.81	125.43	128.02	0
521	112	110.75	111.38	111.96	109.64	111.98	0
522	110	103.82	104.29	104.87	103	105.52	0
523	112	111.96	111.97	112.08	111.76	112.12	2.28
524	112	110.04	110.47	110.99	109.25	111.56	0
525	110	109.43	110.01	110.04	108.08	110.13	0
526	122	121.97	121.98	122.05	121.62	122.07	0.37
527	103	104.35	104.95	105.68	103.31	106.49	
528	110	108.01	108.5	109.09	107.15	109.75	
529	106	104.38	104.88	105.47	103.48	106.01	
530	110	109.43	109.82	110	108.77	110.01	0
531	110	109.4	109.77	110	108.77	110.01	0
532	110	107.83	108.21	108.66	107.15	109.15	0
533	114	112.24	112.74	113.34	111.35	114	0
534	118	114.02	114.56	115.21	113.1	115.95	0
535	128	128	128.01	128.03	127.41	128.05	0.03
536	126	126	126.01	126.03	125.41	126.05	0.03
537	134	132.42	132.94	133.56	131.48	134.01	0
538	136	135.88	136.01	136.03	135.01	136.07	0
539	134	128	128.44	128.95	127.22	129.53	0

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) [11]
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Post-Development
Reunion
09/09/02

********** Input Report **********

--------Class: Node----------

Name: 310 Base Flow(cfs): 0 Init Stage(ft): 125
Group: BASE Warn Stage(ft): 135
Comment:

Stage(ft)	Area(ac)
125	0.1
130	4
135	23

--------Class: Node----------

Name: 319 Base Flow(cfs): 0 Init Stage(ft): 105
Group: BASE Warn Stage(ft): 108
Comment:

Stage(ft)	Area(ac)
105	3.2
108	4

--------Class: Node----------

Name: 320 Base Flow(cfs): 0 Init Stage(ft): 100.5
Group: BASE Warn Stage(ft): 106
Comment:

OUTFALL NODE FOR POND # 370

Stage(ft)	Area(ac)
100.5	16.91
106	22.55

--------Class: Node----------

Name: 330 Base Flow(cfs): 0 Init Stage(ft): 89.7
Group: BASE Warn Stage(ft): 98
Comment:

Stage(ft)	Area(ac)
89.7	0.1
91	0.2
92	0.9
95	3.8
98	9.5

--------Class: Node----------

Name: 331 Base Flow(cfs): 0 Init Stage(ft): 87
Group: BASE Warn Stage(ft): 100
Comment:

Stage(ft)	Area(ac)
87	0.1
90	0.5
95	2.8
100	4

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********** Input Report **********

--------Class: Node--------

Name: 360 Base Flow(cfs): 0 Init Stage(ft): 94
Group: BASE Warn Stage(ft): 98
Comment:

Stage(ft)	Area(ac)
94	0.09
98	0.15

--------Class: Node--------

Name: 361 Base Flow(cfs): 0 Init Stage(ft): 97
Group: BASE Warn Stage(ft): 106
Comment:

Stage(ft)	Area(ac)
97	1.01
106	2.17

--------Class: Node--------

Name: 362 Base Flow(cfs): 0 Init Stage(ft): 97
Group: BASE Warn Stage(ft): 106
Comment:

Stage(ft)	Area(ac)
97	4.07
106	10.19

--------Class: Node--------

Name: 366 Base Flow(cfs): 0 Init Stage(ft): 100
Group: BASE Warn Stage(ft): 104
Comment:

Stage(ft)	Area(ac)
100	2.16
104	2.86

--------Class: Node--------

Name: 367 Base Flow(cfs): 0 Init Stage(ft): 98
Group: BASE Warn Stage(ft): 106
Comment:

Stage(ft)	Area(ac)
98	0.64
106	1.64

--------Class: Node--------

Name: 370 Base Flow(cfs): 0 Init Stage(ft): 103
Group: BASE Warn Stage(ft): 120
Comment:

Stage(ft)	Area(ac)
103	0.12
120	2.86

POND CONFIGURATION
AS ORIGINALLY PERMITTED

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********** Input Report **********

--------Class: Basin--------

Basin: 3671 Node: 367 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 15.18
Curve #: 86.2 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

--------Class: Basin--------

Basin: 3672 Node: 367 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 2.23
Curve #: 80.3 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

--------Class: Basin--------

Basin: 3701 Node: 370 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 7.81
Curve #: 80.3 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

--------Class: Basin--------

Basin: 3702 Node: 370 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 17.02
Curve #: 41.95 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

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********** Input Report **********

--------Class: Basin----------

Basin: 3703 Node: 370 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 1.28
Curve #: 80.3 Concentration Time(min): 15
DCIA(%): 0 Time Shift(hrs): 0

--------Class: Basin----------

Basin: 3704 Node: 370 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 12.94
Curve #: 66.81 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

PHASE 1
PARCEL 6
PERMITTED
CONDITION

--------Class: Basin----------

Basin: 3721 Node: 372 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 14.21
Curve #: 41.95 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

--------Class: Basin----------

Basin: 3731 Node: 373 Status: On Site Type: Santa Barbara
Group: BASE
Rainfall File: SFWMD72 Storm Duration(hrs): 72
Rainfall Amount(in): 9.51 Time Increment(min): 5
Area(ac): 9.18
Curve #: 41.95 Concentration Time(min): 10
DCIA(%): 0 Time Shift(hrs): 0

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********** Input Report **********

--------Class: Drop Structure----------

Name: 370-320 From Node: 370 Length(ft): 550
Group: BASE To Node: 320 Count: 1

CONTROL STRUCTURE AS PERMITTED

Outlet Cntrl Spec: Use dc or tw Inlet Cntrl Spec: Use dn
Upstream Geometry: Circular Downstream Geometry: Circular

	UPSTREAM	DOWNSTREAM
Span(in):	42	42
Rise(in):	42	42
Invert(ft):	110	99
Manning's N:	0.013	0.013
Top Clip(in):	0	0
Bottom Clip(in):	0	0

Entrance Loss Coef: 0.5 Flow: Both
Exit Loss Coef: 0 Equation: Aver Conveyance

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall 1 1
Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall 1 1

*** Weir 1 of 1 for Drop Structure 370-320 *** [TABLE]

Count: 1 Bottom Clip(in): 0
Type: Horiz Top Clip(in): 0
Flow: Both Weir Discharge Coef: 3.2
Geometry: Rectangular Orifice Discharge Coef: 0.6

Span(in): 36 Invert(ft): 118.1
Rise(in): 79 Control Elev(ft): 118.1

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MAGNOLIA CREEK POST DEVELOPMENT
10 yr/72 hr STORM
09/09/02

********** Basin Summary - HEPO1072 **********

Curve Number:	41.95	41.95	41.95	86.20	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	1.56	1.96	10.28	51.59	50.55
Runoff Volume (in):	2.21	2.21	2.21	7.83	2.21
Runoff Volume (cf):	7698	9702	50836	340634	249932
***					
Basin Name:	3621	3622	3661	3671	3672
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	362	362	366	367	367
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	54.86	6.47	12.60	15.18	2.23
Curve Number:	86.20	80.30	86.20	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	236.07	26.54	54.22	65.32	9.15
Runoff Volume (in):	7.83	7.09	7.83	7.83	7.09
Runoff Volume (cf):	1558562	166531	357964	431261	57398
***					
Basin Name:	3702	3703	3704	3721	3731
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	370	370	370	372	373
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	15.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	17.02	1.28	12.94	14.21	9.18
Curve Number:	41.95	80.30	66.81	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00

MAGNOLIA CREEK POST DEVELOPMENT
10 yr/72 hr STORM
09/09/02

********** Basin Summary - HEPO1072 **********

Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	27.60	4.77	44.45	23.05	14.89
Runoff Volume (in):	2.21	7.09	5.38	2.21	2.21
Runoff Volume (cf):	136472	32946	252655	113941	73608
***					
Basin Name:	3741	7100	7130	7201	5181
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	710	713	720	518
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	0.34	7.03	1.53	5.11	1.56
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	0.55	11.40	2.48	8.29	2.53
Runoff Volume (in):	2.21	2.21	2.21	2.21	2.21
Runoff Volume (cf):	2726	56369	12268	40974	12509
***					
Basin Name:	5191	5201	5211	5221	5231
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	519	520	521	522	523
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	10.07	1.96	1.53	4.10	4.30
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92

MAGNOLIA CREEK POST DEVELOPMENT
10 yr/72 hr STORM
09/09/02

********** Basin Summary - HEPO1072 **********

Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	25.00	15.00	15.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	37.80	5.20	1.21	39.76	26.30
Curve Number:	50.00	97.00	97.00	42.00	42.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	61.50	21.34	4.96	64.65	42.76
Runoff Volume (in):	3.22	9.15	9.15	2.22	2.22
Runoff Volume (cf):	441968	172690	40184	319699	211471

***

Basin Name:	4913	4701	334A	3190W	4021
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	491	470	334A	319	404
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	9.90	2.84	7.70	3.84	7.60
Curve Number:	80.30	65.38	98.00	97.00	83.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.75	59.92
Flow Max (cfs):	40.61	9.51	34.70	16.97	31.93
Runoff Volume (in):	7.09	5.20	9.27	9.15	7.43
Runoff Volume (cf):	254816	53562	259089	127525	204936

***

Basin Name:	4960	4983	4984	3512	3701
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	496	498	498	351	370
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00

MAGNOLIA CREEK POST DEVELOPMENT
10 yr/72 hr STORM
09/09/02

********** Basin Summary - HEPO1072 **********

Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	15.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	2.15	5.92	4.00	15.00	7.81
Curve Number:	41.95	92.10	92.10	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	3.49	26.29	17.76	58.72	32.04
Runoff Volume (in):	2.21	8.55	8.55	7.83	7.09
Runoff Volume (cf):	17239	183797	124187	426147	201022
***					
Basin Name:	3742	3531	9190A	9190B	9190C
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	353	919A	919B	919C
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	9.51	9.51	9.51	9.51	9.51
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	3.82	4.10	29.43	5.55	1.42
Curve Number:	80.30	41.95	85.42	84.13	84.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	15.67	6.65	125.96	23.53	6.01
Runoff Volume (in):	7.09	2.21	7.73	7.57	7.55
Runoff Volume (cf):	98323	32875	825764	152494	38933
***					
Basin Name:	W7S	9411	4502	5472	
Group Name:	BASE	BASE	BASE	BASE	
Node Name:	W7S	941	450	547	
Hydrograph Type:	SB	SB	SB	SB	
Spec Time Inc (min):	5.00	5.00	5.00	5.00	
Comp Time Inc (min):	5.00	5.00	5.00	5.00	
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	
Rainfall Amount (in):	9.51	9.51	9.51	9.51	

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MAGNOLIA CREEK POST DEVELOPMENT
10 yr/72 hr STORM
09/09/02

********** Node Maximum Conditions - HEPO1072 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	65.20	101.23	105.00	-0.3379	2450793.74	59.92	1012.62	65.20	422.13
306	BASE	65.21	96.49	105.00	-0.0903	6762.00	65.20	422.13	65.21	422.13
310	BASE	60.04	127.75	135.00	-0.2712	97978.38	59.92	220.84	60.04	177.76
319	BASE	62.35	106.47	108.00	0.0034	156613.74	60.00	49.95	62.35	4.83
320	BASE	72.16	102.99	106.00	0.0034	848154.13	59.99	263.40	0.00	0.00
330	BASE	60.19	93.14	98.00	0.0194	89378.18	59.93	189.96	60.19	153.19
331	BASE	68.81	93.36	100.00	0.0434	89522.58	73.10	876.00	68.81	803.27
334	BASE	69.98	88.09	95.00	-0.0288	728770.60	68.64	813.43	69.78	810.30
334A	BASE	70.03	87.89	95.00	-0.1828	80687.13	69.78	810.95	0.00	908.71
351	BASE	60.58	106.72	111.50	0.0099	90243.83	59.92	71.37	60.58	27.04
352	BASE	61.26	106.58	107.00	-0.0166	3274.12	59.92	1.43	0.00	0.00
353	BASE	60.24	115.64	117.00	-0.0271	34903.66	59.92	36.10	60.24	16.34
360	BASE	61.13	94.85	98.00	0.0041	4476.46	59.92	1.72	0.00	0.00
361	BASE	62.43	100.16	106.00	0.0109	61742.38	59.92	58.80	0.00	0.00
362	BASE	62.61	100.83	106.00	0.0122	290593.00	59.92	299.29	0.00	0.00
366	BASE	61.07	101.11	104.00	0.0049	102587.50	59.92	48.52	0.00	0.00
367	BASE	62.00	103.57	106.00	0.0151	58217.25	59.92	71.75	0.00	0.00
370	BASE	64.17	112.77	120.00	0.0197	473832.15	59.92	105.82	0.00	0.00
372	BASE	61.00	102.72	106.00	0.0036	59357.52	59.92	19.90	61.00	0.06
373	BASE	61.23	99.39	105.00	0.0072	25592.39	59.92	13.84	61.23	0.36
374	BASE	59.93	96.05	100.00	0.0186	4398.75	59.92	14.35	59.93	14.11
400	BASE	0.00	85.00	85.00	0.0000	0.00	59.92	36.33	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	59.92	389.04	0.00	0.00
402	BASE	60.74	86.13	90.00	0.0082	123753.53	60.39	165.07	60.74	151.26
404	BASE	70.10	82.51	90.00	0.0401	1657244.31	69.65	839.02	70.10	838.81
406	BASE	0.00	82.00	82.00	0.0000	252736.16	70.10	840.01	0.00	0.00
430	BASE	62.09	107.33	110.00	0.0105	118459.43	59.92	95.44	0.00	0.00
440	BASE	62.15	90.43	92.00	0.0094	34670.59	59.92	26.61	0.00	0.00
450	BASE	61.03	90.30	92.00	0.0034	122006.74	59.92	38.84	0.00	0.00
461	BASE	72.00	94.06	96.00	0.0087	96806.43	59.92	57.06	61.72	5.87
466	BASE	68.13	88.07	90.00	0.0045	101948.03	59.92	42.46	0.00	0.00
468	BASE	60.65	84.44	88.00	0.0024	16070.93	59.92	3.68	0.00	0.00
470	BASE	60.71	92.28	95.00	0.0138	8546.25	59.92	7.63	60.72	0.38
471	BASE	61.13	94.08	96.00	0.0126	150022.53	59.92	169.87	0.00	0.00
472	BASE	61.00	108.72	112.00	0.0036	39164.73	59.92	12.92	0.00	0.00
478	BASE	60.58	90.37	94.00	0.0021	11279.86	59.92	2.17	0.00	0.00
479	BASE	60.97	92.02	95.00	0.0058	29320.88	59.82	14.43	0.00	0.00
481	BASE	61.01	92.03	95.00	0.0031	42864.22	59.92	10.65	62.77	1.90
490	BASE	61.84	93.23	96.50	0.0073	38863.19	59.92	22.74	0.00	0.00
491	BASE	60.25	95.38	97.00	0.0112	47305.22	59.92	50.89	60.25	17.27
492	BASE	60.56	93.58	96.00	0.0105	24929.21	59.92	26.73	60.18	5.63
495	BASE	61.53	90.25	95.00	0.0056	56238.63	59.92	27.91	0.00	0.00
496	BASE	60.28	90.69	92.00	0.0126	18502.69	59.92	19.43	60.28	5.59
498	BASE	62.01	108.36	110.00	0.0077	180882.03	59.92	115.72	0.00	0.00
510	BASE	64.00	100.25	106.00	0.0149	358067.42	59.92	408.39	0.00	0.00

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Magnolia Creek Post Development
100yr/24hr Storm
09/09/02

********** Basin Summary - HEPO0024 **********

Curve Number:	41.95	41.95	41.95	86.20	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	0.75	0.95	4.97	25.87	24.45
Runoff Volume (in):	3.07	3.07	3.07	9.29	3.07
Runoff Volume (cf):	10697	13483	70646	404152	347323
***					
Basin Name:	3621	3622	3661	3671	3672
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	362	362	366	367	367
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	54.86	6.47	12.60	15.18	2.23
Curve Number:	86.20	80.30	86.20	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	118.39	13.28	27.19	32.76	4.58
Runoff Volume (in):	9.29	8.52	9.29	9.29	8.52
Runoff Volume (cf):	1849191	200069	424714	511679	68957
***					
Basin Name:	3702	3703	3704	3721	3731
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	370	370	370	372	373
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	15.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	17.02	1.28	12.94	14.21	9.18
Curve Number:	41.95	80.30	66.81	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00

Magnolia Creek Post Development
100yr/24hr Storm
09/09/02

********** Basin Summary - HEPO0024 **********

Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	13.35	2.61	22.10	11.15	7.20
Runoff Volume (in):	3.07	8.52	6.69	3.07	3.07
Runoff Volume (cf):	189652	39581	314014	158340	102292
***					
Basin Name:	3741	7100	7130	7201	5181
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	710	713	720	518
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	0.34	7.03	1.53	5.11	1.56
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	0.27	5.52	1.20	4.01	1.22
Runoff Volume (in):	3.07	3.07	3.07	3.07	3.07
Runoff Volume (cf):	3789	78334	17049	56940	17383
***					
Basin Name:	5191	5201	5211	5221	5231
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	519	520	521	522	523
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	10.07	1.96	1.53	4.10	4.30
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92

Magnolia Creek Post Development
100yr/24hr Storm
09/09/02

********** Basin Summary - HEPO0024 **********

Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	25.00	15.00	15.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	37.80	5.20	1.21	39.76	26.30
Curve Number:	50.00	97.00	97.00	42.00	42.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.00	8.92	8.92	8.92	8.92
Flow Max (cfs):	37.88	11.73	2.73	31.28	20.69
Runoff Volume (in):	4.26	10.64	10.64	3.08	3.08
Runoff Volume (cf):	584785	200757	46715	444109	293764

***

Basin Name:	4913	4701	334A	3190W	4021
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	491	470	334A	319	404
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	9.90	2.84	7.70	3.84	7.60
Curve Number:	80.30	65.38	98.00	97.00	83.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.50	8.50	8.92
Flow Max (cfs):	20.33	4.73	17.45	8.71	16.00
Runoff Volume (in):	8.52	6.48	10.76	10.64	8.87
Runoff Volume (cf):	306133	66850	300669	148277	244770

***

Basin Name:	4960	4983	4984	3512	3701
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	496	498	498	351	370
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00

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Magnolia Creek Post Development
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********** Basin Summary - HEPO0024 **********

Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	15.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	2.15	5.92	4.00	15.00	7.81
Curve Number:	41.95	92.10	92.10	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	1.69	13.20	8.92	32.18	16.03
Runoff Volume (in):	3.07	10.03	10.03	9.29	8.52
Runoff Volume (cf):	23957	215580	145662	505612	241505

***

Basin Name:	3742	3531	9190A	9190B	9190C
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	353	919A	919B	919C
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00	11.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	3.82	4.10	29.43	5.55	1.42
Curve Number:	80.30	41.95	85.42	84.13	84.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	7.84	3.22	63.16	11.79	3.01
Runoff Volume (in):	8.52	3.07	9.19	9.02	9.00
Runoff Volume (cf):	118124	45686	981305	181702	46403

***

Basin Name:	W7S	9411	4502	5472
Group Name:	BASE	BASE	BASE	BASE
Node Name:	W7S	941	450	547
Hydrograph Type:	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	11.00	11.00	11.00	11.00

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Magnolia Creek Post Development
100yr/24hr Storm
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********** Node Maximum Conditions - HEP00024 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	15.57	102.23	105.00	0.0198	2870000.98	9.00	782.56	15.57	503.47
306	BASE	15.59	96.94	105.00	0.1312	6690.75	15.57	503.47	15.59	503.47
310	BASE	9.04	127.15	135.00	-0.3508	77668.04	9.00	108.86	9.04	106.12
319	BASE	11.26	107.22	108.00	0.0036	165349.90	8.93	39.76	11.26	16.60
320	BASE	24.00	104.98	106.00	0.0038	937349.01	9.00	200.72	24.00	1.94
330	BASE	10.02	92.91	98.00	0.0173	79470.59	9.00	140.80	10.01	138.57
331	BASE	21.93	94.51	100.00	0.1232	112562.29	21.86	1135.24	21.93	1135.18
334	BASE	23.10	89.54	95.00	-0.0425	969813.72	21.90	1149.56	22.93	1134.26
334A	BASE	23.12	89.25	95.00	-0.2579	99361.98	22.89	1141.79	22.99	1141.44
351	BASE	10.10	107.53	111.50	0.0067	105582.74	9.00	57.22	10.18	42.58
352	BASE	9.81	106.82	107.00	0.0042	3651.40	9.00	0.73	9.81	0.66
353	BASE	9.04	115.71	117.00	0.0071	35367.78	8.75	19.90	9.04	19.07
360	BASE	17.27	96.52	98.00	0.0032	5565.75	9.00	0.93	17.27	0.08
361	BASE	18.84	104.02	106.00	0.0072	83428.07	8.75	30.28	18.84	1.39
362	BASE	13.30	103.89	106.00	0.0079	381325.94	8.75	153.27	13.30	27.41
366	BASE	11.10	102.82	104.00	0.0038	115556.39	8.75	27.04	11.10	8.59
367	BASE	10.02	105.09	106.00	0.0100	66482.14	8.75	37.11	10.02	22.91
370	BASE	24.00	117.23	120.00	0.0137	105140.50	8.75	52.19	0.00	0.00
372	BASE	23.21	104.25	106.00	0.0028	77984.46	9.00	10.87	23.21	0.29
373	BASE	18.90	101.25	105.00	0.0037	39826.02	9.00	7.02	18.90	0.48
374	BASE	8.76	95.94	100.00	0.0030	4305.62	8.75	8.01	8.76	7.99
400	BASE	0.00	85.00	85.00	0.0000	0.00	8.75	18.62	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	8.75	212.29	0.00	0.00
402	BASE	10.05	86.15	90.00	0.0042	124716.87	9.75	156.27	10.05	154.52
404	BASE	23.20	82.86	90.00	0.0599	1751258.51	22.96	1200.74	23.20	1196.77
406	BASE	0.00	82.00	82.00	0.0000	252736.16	23.18	1197.38	0.00	0.00
430	BASE	15.07	110.05	110.00	0.0064	172950.16	8.75	48.80	15.07	3.34
440	BASE	9.47	91.21	92.00	0.0060	39501.88	8.75	14.95	9.47	11.63
450	BASE	13.18	91.17	92.00	0.0027	137122.69	8.75	20.75	13.18	4.78
461	BASE	11.53	95.61	96.00	0.0066	111031.76	8.75	27.59	12.2[illegible]	8.12
466	BASE	10.28	88.89	90.00	0.0033	112253.81	8.75	22.92	10.28	11.03
468	BASE	24.00	85.73	88.00	0.0020	22217.77	9.00	2.14	0.00	0.00
470	BASE	10.15	93.78	95.00	0.0065	10744.32	8.75	4.60	10.15	2.61
471	BASE	10.14	95.47	96.00	0.0083	167640.80	8.75	81.87	10.14	44.15
472	BASE	13.93	109.93	112.00	0.0027	50138.31	9.00	7.06	13.93	1.55
478	BASE	11.16	91.51	94.00	0.0049	17864.51	11.00	6.32	11.16	6.21
479	BASE	11.07	92.82	95.00	0.0025	35818.80	10.00	6.34	11.07	5.66
481	BASE	11.09	92.82	95.00	0.0033	48633.19	9.00	5.03	11.27	2.24
490	BASE	13.04	95.11	96.50	0.0057	49558.50	9.00	[illegible].85	13.04	6.06
491	BASE	9.07	95.54	97.00	0.0055	48112.27	8.75	25.79	9.07	24.06
492	BASE	13.02	95.1[illegible]	96.00	0.0057	30878.77	8.[illegible]5	13.33	10.77	4.55
495	BASE	24.00	92.26	95.00	0.0041	94097.59	9.[illegible]	14.51	0.00	0.00
496	BASE	8.94	90.84	92.00	0.0078	19067.99	8.[illegible]5	11.09	8.94	10.89
498	BASE	10.25	109.48	110.00	0.0048	219762.75	8.75	60.05	10.25	27.62
510	BASE	24.00	103.47	106.00	0.0102	796751.86	8.75	210.45	0.00	0.00

Magnolia Creek Post Development
50 yr/72 hr Storm
09/09/02

********** Basin Summary - HEPO5072 **********

Curve Number:	41.95	41.95	41.95	86.20	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	2.92	3.68	19.29	71.41	94.82
Runoff Volume (in):	4.29	4.29	4.29	11.17	4.29
Runoff Volume (cf):	14949	18842	98724	486137	485367
***					
Basin Name:	3621	3622	3661	3671	3672
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	362	362	366	367	367
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	54.86	6.47	12.60	15.18	2.23
Curve Number:	86.20	80.30	86.20	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	326.72	37.39	75.04	90.41	12.89
Runoff Volume (in):	11.17	10.37	11.17	11.17	10.37
Runoff Volume (cf):	2224311	243568	510870	615476	83950
***					
Basin Name:	3702	3703	3704	3721	3731
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	370	370	370	372	373
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	15.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	17.02	1.28	12.94	14.21	9.18
Curve Number:	41.95	80.30	66.81	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00

Magnolia Creek Post Development
50 yr/72 hr Storm
09/09/02

********** Basin Summary - HEPO5072 **********

Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	51.77	6.73	66.48	43.23	27.92
Runoff Volume (in):	4.29	10.37	8.41	4.29	4.29
Runoff Volume (cf):	265029	48186	395049	221273	142947
***					
Basin Name:	3741	7100	7130	7201	5181
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	710	713	720	518
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	0.34	7.03	1.53	5.11	1.56
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	1.03	21.38	4.65	15.54	4.75
Runoff Volume (in):	4.29	4.29	4.29	4.29	4.29
Runoff Volume (cf):	5294	109468	23825	79571	24292
***					
Basin Name:	5191	5201	5211	5221	5231
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	519	520	521	522	523
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	10.07	1.96	1.53	4.10	4.30
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92

Magnolia Creek Post Development
50 yr/72 hr Storm
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********** Basin Summary - HEPO5072 **********

Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	.5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	25.00	15.00	15.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	37.80	5.20	1.21	39.76	26.30
Curve Number:	50.00	97.00	97.00	42.00	42.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	105.52	29.00	6.75	121.16	80.15
Runoff Volume (in):	5.69	12.55	12.55	4.30	4.30
Runoff Volume (cf):	781075	236820	55106	620408	410380

***

Basin Name:	4913	4701	334A	3190W	4021
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	491	470	334A	319	404
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	9.90	2.84	7.70	3.84	7.60
Curve Number:	80.30	65.38	98.00	97.00	83.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.75	59.92
Flow Max (cfs):	57.22	14.34	47.12	23.06	44.60
Runoff Volume (in):	10.37	8.19	12.67	12.55	10.74
Runoff Volume (cf):	372692	84443	354091	174883	296309

***

Basin Name:	4960	4983	4984	3512	3701
Group Name:	PASE	BASE	BASE	BASE	BASE
Node Name:	496	498	498	351	370
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00

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Magnolia Creek Post Development
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********** Basin Summary - HEPO5072 **********

Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	15.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	2.15	5.92	4.00	15.00	7.81
Curve Number:	41.95	92.10	92.10	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	6.54	35.93	24.27	81.34	45.14
Runoff Volume (in):	4.29	11.93	11.93	11.17	10.37
Runoff Volume (cf):	33479	256474	173293	608179	294013

***

Basin Name:	3742	3531	9190A	9190B	9190C
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	353	919A	919B	919C
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91	12.91
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	3.82	4.10	29.43	5.55	1.42
Curve Number:	80.30	41.95	85.42	84.13	84.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	22.08	12.47	174.69	32.75	8.37
Runoff Volume (in):	10.37	4.29	11.07	10.89	10.88
Runoff Volume (cf):	143807	63844	1182173	219458	56060

***

Basin Name:	W7S	9411	4502	5472
Group Name:	BASE	BASE	BASE	BASE
Node Name:	W7S	941	450	547
Hydrograph Type:	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	12.91	12.91	12.91	12.91

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Magnolia Creek Post Development
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********** Node Maximum Conditions - HEP05072 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	67.06	102.10	105.00	-0.3526	2815194.89	59.92	1333.74	67.06	485.18
306	BASE	67.07	96.85	105.00	0.0915	6690.75	67.06	485.18	67.07	485.18
310	BASE	60.03	128.51	135.00	-0.2712	123849.23	59.92	355.13	60.03	287.41
319	BASE	61.39	107.19	108.00	0.0051	165085.80	60.00	82.17	61.39	16.14
320	BASE	72.53	104.71	106.00	0.0056	925481.87	59.99	453.49	72.43	0.51
330	BASE	60.35	93.87	98.00	0.0221	119872.09	59.92	253.68	60.35	197.03
331	BASE	72.87	94.91	100.00	0.0435	120627.15	72.81	1360.45	72.87	1360.37
334	BASE	73.75	90.41	95.00	-0.0288	1092004.51	72.85	1366.97	73.57	1350.47
334A	BASE	73.79	89.96	95.00	-0.1828	109549.11	73.57	1350.47	73.67	1350.08
351	BASE	60.72	107.99	111.50	0.0130	114219.82	59.92	135.32	60.43	44.03
352	BASE	60.00	106.85	107.00	-0.0149	3698.74	59.92	2.73	60.00	2.34
353	BASE	60.15	116.26	117.00	-0.0156	39022.09	59.92	53.58	60.01	30.96
360	BASE	62.05	95.85	98.00	-0.0080	5128.36	59.92	3.42	0.00	0.00
361	BASE	64.01	101.85	106.00	0.0145	71215.03	59.92	87.27	0.00	0.00
362	BASE	64.03	102.67	106.00	0.0157	345103.75	59.92	442.96	0.00	0.00
366	BASE	61.56	101.71	104.00	0.0068	107090.68	59.92	69.22	0.00	0.00
367	BASE	62.51	104.09	106.00	0.0189	61022.26	59.92	92.08	0.00	0.00
370	BASE	64.48	115.89	120.00	-0.0235	95723.22	59.92	166.11	0.00	0.00
372	BASE	61.17	103.53	106.00	0.0066	69160.99	59.92	39.80	61.17	0.22
373	BASE	61.94	100.64	105.00	0.0096	35114.82	59.92	26.42	61.94	0.44
374	BASE	59.93	96.16	100.00	-0.0142	4492.37	59.92	21.77	59.93	21.53
400	BASE	0.00	85.00	85.00	0.0000	0.00	59.92	51.07	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	59.92	555.85	0.00	0.00
402	BASE	60.83	86.57	90.00	0.0082	138086.62	60.42	214.09	60.86	203.82
404	BASE	72.95	83.05	90.00	0.0401	1800015.13	71.92	1390.54	72.95	1387.10
406	BASE	0.00	82.00	82.00	0.0000	252736.16	72.94	1387.16	0.00	0.00
430	BASE	62.51	108.71	110.00	0.0128	147035.98	59.92	144.61	62.51	0.00
440	BASE	60.35	91.20	92.00	0.0116	39472.27	59.92	39.55	60.35	11.43
450	BASE	61.23	91.06	92.00	0.0052	135177.30	59.92	65.04	61.23	0.92
461	BASE	62.07	95.26	96.00	0.0112	107830.31	59.92	86.44	62.87	6.57
466	BASE	60.99	88.75	90.00	0.0068	110513.07	59.92	69.94	60.99	6.69
468	BASE	61.08	84.99	88.00	0.0046	18685.73	59.92	7.58	0.00	0.00
470	BASE	60.51	93.43	95.00	0.0131	10219.25	59.92	11.99	60.51	1.92
471	BASE	60.54	95.34	96.00	0.0165	166172.22	59.92	248.84	60.54	33.99
472	BASE	61.63	109.52	112.00	0.0065	46423.93	59.92	25.82	0.00	0.00
478	BASE	62.15	91.21	94.00	0.0038	16119.85	59.92	4.51	62.15	0.02
479	BASE	60.98	92.64	95.00	-0.0150	34374.53	59.72	21.68	60.98	1.64
481	BASE	61.00	92.64	95.00	0.0056	47356.53	59.92	17.49	61.26	2.51
490	BASE	64.14	94.52	96.50	0.0106	46224.64	59.92	37.28	0.00	0.00
491	BASE	59.99	95.90	97.00	0.0129	50031.32	59.92	78.43	59.99	45.66
492	BASE	63.99	94.60	96.00	0.0137	28732.94	59.92	38.72	60.08	5.42
495	BASE	62.02	91.26	95.00	0.0093	76282.54	59.92	51.58	0.00	0.00
496	BASE	60.03	91.10	92.00	0.0139	20079.41	59.92	28.24	60.03	24.05
498	BASE	60.57	109.51	110.00	0.0089	220823.53	59.92	176.00	60.57	27.91
510	BASE	62.53	101.68	106.00	0.0204	629955.12	59.92	624.86	0.00	0.00

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Magnolia Creek Post Development
10 yr/24 hr Storm
09/09/02

********** Basin Summary - HEPO1024 **********

Curve Number:	41.95	41.95	41.95	86.20	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.92	9.92	9.92	8.92	9.92
Flow Max (cfs):	0.24	0.30	1.58	15.60	7.75
Runoff Volume (in):	0.99	0.99	0.99	5.39	0.99
Runoff Volume (cf):	3453	4352	22803	234474	112110
***					
Basin Name:	3621	3622	3661	3671	3672
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	362	362	366	367	367
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	54.86	6.47	12.60	15.18	2.23
Curve Number:	86.20	80.30	86.20	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	71.39	7.66	16.40	19.75	2.64
Runoff Volume (in):	5.39	4.73	5.39	5.39	4.73
Runoff Volume (cf):	1072832	111007	246403	296858	38261
***					
Basin Name:	3702	3703	3704	3721	3731
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	370	370	370	372	373
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	15.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	17.02	1.28	12.94	14.21	9.18
Curve Number:	41.95	80.30	66.81	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00

Magnolia Creek Post Development
10 yr/24 hr Storm
09/09/02

********** Basin Summary - HEPO1024 **********

Time Max (hrs):	9.92	8.92	8.92	9.92	9.92
Flow Max (cfs):	4.23	1.50	11.13	3.53	2.28
Runoff Volume (in):	0.99	4.73	3.29	0.99	0.99
Runoff Volume (cf):	61216	21961	154375	51110	33018
***					
Basin Name:	3741	7100	7130	7201	5181
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	710	713	720	518
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	0.34	7.03	1.53	5.11	1.56
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.92	9.92	9.92	9.92	9.92
Flow Max (cfs):	0.08	1.75	0.38	1.27	0.39
Runoff Volume (in):	0.99	0.99	0.99	0.99	0.99
Runoff Volume (cf):	1223	25285	5503	18379	5611
***					
Basin Name:	5191	5201	5211	5221	5231
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	519	520	521	522	523
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	10.07	1.96	1.53	4.10	4.30
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.92	9.92	9.92	9.92	9.92

Magnolia Creek Post Development
10 yr/24 hr Storm
09/09/02

********** Basin Summary - HEPO1024 **********

Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	25.00	15.00	15.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	37.80	5.20	1.21	39.76	26.30
Curve Number:	50.00	97.00	97.00	42.00	42.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.92	8.92	8.92	9.92	9.92
Flow Max (cfs):	14.46	7.44	1.73	9.92	6.56
Runoff Volume (in):	1.67	6.64	6.64	0.99	0.99
Runoff Volume (cf):	228602	125354	29169	143570	94967

***

Basin Name:	4913	4701	334A	3190W	4021
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	491	470	334A	319	404
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	9.90	2.84	7.70	3.84	7.60
Curve Number:	80.30	65.38	98.00	97.00	83.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	8.92	8.50	8.50	8.92
Flow Max (cfs):	11.73	2.34	11.08	5.52	9.43
Runoff Volume (in):	4.73	3.14	6.76	6.64	5.03
Runoff Volume (cf):	169856	32374	188942	92585	138677

***

Basin Name:	4960	4983	4984	3512	3701
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	496	498	498	351	370
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00

Magnolia Creek Post Development
10 yr/24 hr Storm
09/09/02

********** Basin Summary - HEPO1024 **********

Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	15.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	2.15	5.92	4.00	15.00	7.81
Curve Number:	41.95	92.10	92.10	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	9.92	8.92	8.92	8.92	8.92
Flow Max (cfs):	0.53	8.23	5.56	19.35	9.25
Runoff Volume (in):	0.99	6.07	6.07	5.39	4.73
Runoff Volume (cf):	7733	130340	88068	293337	133998

***

Basin Name:	3742	3531	9190A	9190B	9190C
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	353	919A	919B	919C
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00	7.00
Storm Duration (hr):	24.00	24.00	24.00	24.00	24.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	3.82	4.10	29.43	5.55	1.42
Curve Number:	80.30	41.95	85.42	84.13	84.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	8.92	9.92	8.92	8.92	8.92
Flow Max (cfs):	4.52	1.02	37.88	7.01	1.79
Runoff Volume (in):	4.73	0.99	5.30	5.15	5.14
Runoff Volume (cf):	65541	14747	566088	103824	26489

***

Basin Name:	W7S	9411	4502	5472
Group Name:	BASE	BASE	BASE	BASE
Node Name:	W7S	941	450	547
Hydrograph Type:	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00
Rainfall File:	ORANGE	ORANGE	ORANGE	ORANGE
Rainfall Amount (in):	7.00	7.00	7.00	7.00

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Magnolia Creek Post Development
10 yr/24 hr Storm
09/09/02

********** Node Maximum Conditions - HEPC 024 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	13.87	100.84	105.00	-0.1156	2286938.07	9.00	544.91	13.87	378.18
306	BASE	13.89	96.24	105.00	-0.0495	6762.00	13.87	378.18	13.89	378.18
310	BASE	9.15	126.46	135.00	-0.1774	54130.21	9.00	46.80	9.15	43.51
319	BASE	13.76	106.45	108.00	0.0027	156462.14	9.01	20.77	13.76	4.69
320	BASE	24.00	102.69	106.00	0.0025	834895.03	9.96	82.86	0.00	0.00
330	BASE	9.07	91.39	98.00	-0.0032	22724.81	9.00	50.02	9.06	49.41
331	BASE	14.95	91.77	100.00	0.0616	63576.79	9.66	887.86	14.95	509.42
334	BASE	15.16	86.98	95.00	-0.0146	542289.30	14.05	525.79	15.06	519.11
334A	BASE	15.18	86.87	95.00	-0.0987	65946.29	15.02	520.09	0.00	908.71
351	BASE	10.20	106.58	111.50	0.0056	87559.04	9.75	24.13	10.20	19.09
352	BASE	24.00	106.63	107.00	0.0027	3361.86	9.75	0.23	0.00	0.00
353	BASE	9.94	115.40	117.00	0.0073	33288.82	8.75	10.80	9.94	8.00
360	BASE	24.00	95.02	98.00	0.0014	4589.51	9.75	0.28	0.00	0.00
361	BASE	24.00	101.54	106.00	0.0057	69465.57	8.75	16.46	0.00	0.00
362	BASE	24.00	102.12	106.00	0.0064	328987.22	8.75	83.17	0.00	0.00
366	BASE	24.00	102.39	104.00	0.0030	112295.51	8.75	16.22	0.00	0.00
367	BASE	14.07	104.46	106.00	0.0092	63071.07	8.75	22.13	14.07	2.61
370	BASE	24.00	112.57	120.00	0.0120	72447.97	9.00	24.58	0.00	0.00
372	BASE	23.27	102.85	106.00	0.0013	60937.21	9.75	3.33	23.27	0.11
373	BASE	14.28	99.42	105.00	0.0017	25269.51	9.75	2.15	14.28	0.36
374	BASE	8.77	95.87	100.00	0.0021	4239.49	8.75	4.49	8.77	4.48
400	BASE	0.00	85.00	85.00	0.0000	0.00	8.75	10.37	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	8.75	113.99	0.00	0.00
402	BASE	9.74	85.11	90.00	0.0037	91760.38	9.06	62.16	9.77	58.42
404	BASE	14.11	82.25	90.00	0.0234	1592462.88	13.99	553.27	14.11	551.79
406	BASE	0.00	82.00	82.00	0.0000	252736.16	14.04	554.18	0.00	0.00
430	BASE	24.00	108.21	110.00	0.0054	137732.06	8.75	25.03	0.00	0.00
440	BASE	12.79	90.91	92.00	0.0049	37640.48	8.75	7.64	12.79	2.09
450	BASE	24.00	90.40	92.00	0.0018	123715.37	9.00	9.29	0.00	0.00
461	BASE	19.07	94.69	96.00	0.0062	102601.58	8.75	13.81	20.45	0.81
466	BASE	15.04	88.49	90.00	0.0021	107294.58	9.00	10.84	15.04	0.93
468	BASE	24.00	84.65	88.00	0.0009	17056.64	9.75	0.66	0.00	0.00
470	BASE	11.27	92.67	95.00	0.0049	9105.11	9.00	2.24	11.27	0.75
471	BASE	19.03	94.69	96.00	0.0063	158298.41	8.84	42.94	19.03	2.98
472	BASE	24.00	108.90	112.00	0.0013	40843.44	9.75	2.17	0.00	0.00
478	BASE	24.00	90.57	94.00	0.0008	12423.63	9.75	0.40	0.00	0.00
479	BASE	24.00	92.47	95.00	0.0020	32963.06	8.50	2.61	0.00	0.00
481	BASE	24.00	92.47	95.00	0.0019	46061.36	9.00	2.18	23.96	0.19
490	BASE	24.00	93.84	96.50	0.0041	42316.97	9.01	6.79	0.00	0.00
491	BASE	10.03	95.15	97.00	0.0055	46069.05	8.75	12.78	10.03	9.26
492	BASE	24.00	93.84	96.00	0.0039	25879.90	9.00	6.16	9.43	3.09
495	BASE	24.00	90.56	95.00	0.0020	62346.59	9.75	4.86	0.00	0.00
496	BASE	9.98	90.64	92.00	0.0073	18318.16	8.75	5.62	9.98	4.18
498	BASE	14.14	108.94	110.00	0.0039	201275.52	8.75	31.74	14.14	3.83
510	BASE	24.00	101.26	106.00	0.0086	550149.36	8.75	122.23	0.00	0.00

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Magnolia Creek Post Development
100yr/72hr Storm
09/09/02

********** Basin Summary - HEP10072 **********

Curve Number:	41.95	41.95	41.95	86.20	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	3.92	4.93	25.86	84.66	127.13
Runoff Volume (in):	5.88	5.88	5.88	13.43	5.08
Runoff Volume (cf):	20503	25843	135407	584714	665715
***					
Basin Name:	3621	3622	3661	3671	3672
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	362	362	366	367	367
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	54.86	6.47	12.60	15.18	2.23
Curve Number:	86.20	80.30	86.20	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	387.37	44.64	88.97	107.19	15.39
Runoff Volume (in):	13.43	12.61	13.43	13.43	12.61
Runoff Volume (cf):	2675347	296082	614462	740280	102050
***					
Basin Name:	3702	3703	3704	3721	3731
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	370	370	370	372	373
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	15.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	17.02	1.28	12.94	14.21	9.18
Curve Number:	41.95	80.30	66.81	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00

Magnolia Creek Post Development
100yr/72hr Storm
09/09/02

********** Basin Summary - HEP10072 **********

Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	69.42	8.04	81.32	57.95	37.44
Runoff Volume (in):	5.88	12.61	10.53	5.88	5.88
Runoff Volume (cf):	363506	58576	494415	303491	196062
***					
Basin Name:	3741	7100	7130	7201	5181
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	710	713	720	518
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	0.34	7.03	1.53	5.11	1.56
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	1.39	28.67	6.24	20.84	6.36
Runoff Volume (in):	5.88	5.88	5.88	5.88	5.88
Runoff Volume (cf):	7262	150144	32677	109137	33318
***					
Basin Name:	5191	5201	5211	5221	5231
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	519	520	521	522	523
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	10.07	1.96	1.53	4.10	4.30
Curve Number:	41.95	41.95	41.95	41.95	41.95
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92

Magnolia Creek Post Development
100yr/72hr Storm
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********** Basin Summary - HEP10072 **********

Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	25.00	15.00	15.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	37.80	5.20	1.21	39.76	26.30
Curve Number:	50.00	97.00	97.00	42.00	42.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	136.68	34.15	7.95	162.40	107.42
Runoff Volume (in):	7.51	14.84	14.84	5.89	5.89
Runoff Volume (cf):	1030522	280026	65160	850686	562703

***

Basin Name:	4913	4701	334A	3190W	4021
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	491	470	334A	319	404
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	15.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	9.90	2.84	7.70	3.84	7.60
Curve Number:	80.30	65.38	98.00	97.00	83.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.75	59.92
Flow Max (cfs):	68.31	17.60	55.49	27.17	53.06
Runoff Volume (in):	12.61	10.29	14.96	14.84	12.99
Runoff Volume (cf):	453047	106065	418085	206789	358403

***

Basin Name:	4960	4983	4984	3512	3701
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	496	498	498	351	370
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00

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Magnolia Creek Post Development
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********** Basin Summary - HEP10072 **********

Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	15.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	2.15	5.92	4.00	15.00	7.81
Curve Number:	41.95	92.10	92.10	86.20	80.30
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	8.77	42.40	28.65	96.47	53.89
Runoff Volume (in):	5.88	14.22	14.22	13.43	12.61
Runoff Volume (cf):	45919	305517	206430	731502	357404

***

Basin Name:	3742	3531	9190A	9190B	9190C
Group Name:	BASE	BASE	BASE	BASE	BASE
Node Name:	374	353	919A	919B	919C
Hydrograph Type:	SB	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20	15.20
Storm Duration (hr):	72.00	72.00	72.00	72.00	72.00
Status:	ONSITE	ONSITE	ONSITE	ONSITE	ONSITE
Time of Conc. (min):	10.00	10.00	10.00	10.00	10.00
Lag Time (hr):	0.00	0.00	0.00	0.00	0.00
Area (acres):	3.82	4.10	29.43	5.55	1.42
Curve Number:	80.30	41.95	85.42	84.13	84.00
DCIA (%):	0.00	0.00	0.00	0.00	0.00
Time Max (hrs):	59.92	59.92	59.92	59.92	59.92
Flow Max (cfs):	26.36	16.72	207.29	38.91	9.95
Runoff Volume (in):	12.61	5.88	13.33	13.15	13.13
Runoff Volume (cf):	174812	87566	1423801	264912	67686

***

Basin Name:	W7S	9411	4502	5472
Group Name:	BASE	BASE	BASE	BASE
Node Name:	W7S	941	450	547
Hydrograph Type:	SB	SB	SB	SB
Spec Time Inc (min):	5.00	5.00	5.00	5.00
Comp Time Inc (min):	5.00	5.00	5.00	5.00
Rainfall File:	SFWMD72	SFWMD72	SFWMD72	SFWMD72
Rainfall Amount (in):	15.20	15.20	15.20	15.20

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Magnolia Creek Post Development
100yr/72hr Storm
09/09/02

********** Node Maximum Conditions - HEP10072 **********

(Time units - hours)

Node Name	Group Name	Max Time Conditions	Max Stage (ft)	Warning Stage (ft)	Max Delta Stage (ft)	Max Surface Area (sf)	Max Time Inflow	Max Inflow (cfs)	Max Time Outflow	Max Outflow (cfs)
304	BASE	67.64	102.53	105.00	-0.3640	2994551.69	59.92	1542.38	67.64	542.75
306	BASE	67.46	97.15	105.00	0.0905	6690.75	67.64	542.75	67.64	542.79
310	BASE	60.03	128.97	135.00	-0.2712	139244.25	59.92	447.85	60.03	361.11
319	BASE	61.21	107.64	108.00	0.0058	170263.11	60.00	100.79	61.21	25.90
320	BASE	72.00	105.67	106.00	0.0067	968606.18	59.98	559.93	71.99	9.70
330	BASE	60.61	94.25	98.00	0.0234	135899.01	59.92	284.35	60.61	216.31
331	BASE	72.81	95.31	100.00	0.0436	125550.86	72.76	1623.06	72.81	1623.06
334	BASE	74.15	91.58	95.00	-0.0288	1225946.53	71.92	1647.05	73.96	1631.07
334A	BASE	74.19	90.93	95.00	-0.1828	123703.60	73.96	1631.07	74.08	1630.91
351	BASE	61.16	109.00	111.50	0.0131	133217.60	59.92	170.31	60.07	44.34
352	BASE	60.16	106.38	107.00	0.0071	2981.74	59.58	1.90	0.00	0.00
353	BASE	60.24	116.86	117.00	-0.0135	43061.11	59.92	65.75	59.84	31.05
360	BASE	61.67	96.52	98.00	0.0097	5570.10	59.92	4.66	61.67	0.13
361	BASE	64.07	102.96	106.00	0.0165	77453.91	59.92	106.86	0.00	0.00
362	BASE	62.22	103.60	106.00	0.0177	372697.55	59.92	541.80	62.22	12.01
366	BASE	61.96	102.13	104.00	0.0080	110303.52	59.92	83.05	0.00	0.00
367	BASE	60.77	104.77	106.00	0.0206	64720.58	59.92	110.76	60.77	9.88
370	BASE	67.99	117.82	120.00	-0.0256	109291.60	59.92	208.05	0.00	0.00
372	BASE	64.15	104.07	106.00	0.0081	75829.79	59.83	50.28	64.15	0.28
373	BASE	62.06	101.43	105.00	0.0113	41178.78	59.92	35.69	62.06	0.49
374	BASE	59.92	96.22	100.00	-0.0156	4545.54	59.92	26.54	59.92	26.28
400	BASE	0.00	85.00	85.00	0.0000	0.00	59.92	60.92	0.00	0.00
401	BASE	0.00	85.00	85.00	0.0000	7.45	59.92	665.00	0.00	0.00
402	BASE	60.91	86.68	90.00	0.0083	142159.38	60.00	239.46	60.97	227.27
404	BASE	73.88	83.35	90.00	0.0401	1881474.95	71.92	1704.91	73.88	1699.63
406	BASE	0.00	82.00	82.00	0.0000	252736.16	73.88	1699.63	0.00	0.00
430	BASE	62.62	109.56	110.00	0.0140	163465.87	59.92	178.69	62.62	0.43
440	BASE	60.12	91.50	92.00	0.0123	41326.84	59.92	47.37	60.12	26.96
450	BASE	60.52	91.34	92.00	0.0063	140029.65	59.92	83.48	60.52	14.17
461	BASE	61.43	95.91	96.00	0.0123	113778.52	59.92	106.77	62.39	11.23
466	BASE	60.51	89.10	90.00	0.0079	114935.17	59.92	86.22	60.51	18.99
468	BASE	61.42	85.38	88.00	0.0059	20564.94	59.92	10.43	0.00	0.00
470	BASE	60.40	94.04	95.00	0.0146	11124.19	59.92	14.94	60.40	3.41
471	BASE	60.24	95.99	96.00	0.0183	173305.61	59.92	300.24	60.24	95.96
472	BASE	61.01	109.97	112.00	0.0082	50453.15	59.92	35.22	61.01	2.19
478	BASE	60.75	91.55	94.00	0.0050	18070.94	60.47	8.49	60.75	7.41
479	BASE	60.56	92.89	95.00	-0.0155	36416.96	59.75	24.59	60.53	7.67
481	BASE	60.58	92.90	95.00	0.0073	49235.84	59.92	22.39	60.78	5.11
490	BASE	61.50	95.09	96.50	0.0122	49476.16	59.92	47.05	61.50	5.61
491	BASE	60.06	96.11	97.00	0.0150	51101.62	59.92	86.89	60.06	61.31
492	BASE	60.53	95.22	96.00	0.0161	31063.82	59.92	49.40	60.18	13.66
495	BASE	62.10	91.90	95.00	0.0107	89516.52	59.92	68.39	0.00	0.00
496	BASE	59.99	91.27	92.00	0.0109	20705.87	59.92	37.71	59.99	34.59
498	BASE	60.64	110.08	110.00	0.0097	240747.05	59.92	217.46	60.64	29.64
510	BASE	62.68	102.50	106.00	0.0232	726782.19	59.92	767.02	0.00	0.00

B. 100 Year Flood Plain

The 100 Year flood plain for the project area was taken from the FEMA flood plain maps. A copy of Exhibit 10 as included in the Conceptual ERP permit application is included on the following page. The map shows that the project site is not within the floodplain. Based on existing topography and the floodplain map, the 100 Year flood elevation lies below the 93' contour.

IV. Proposed Condition Analysis

A. Proposed Development

The proposed development runoff will be treated entirely by the storm water pond labeled 370 in the Conceptual Master Plan.

Basins Data Reference to the Conceptual Master Plan

Basin ID	Total Area	Impervious Area	Pervious Area	CNN	Required Retention
Master Plan Basin					
3702	15.40	13.86	1.54	92.10	2.89
3704	9.60	5.85	3.75	74.95	1.22
3732	4.30	3.87	0.43	92.10	0.81
3741	1.55	0.08	1.47	41.95	0.13
Phase 1 Parcel 6 (Development for this application)					
P1-P6	12.94	7.43	5.51	72.88	1.17

Note: Basin 3732 & 3741 were shown for informational purposes only. The stormwater generated by this site will be treated in its entirety by the stormwater pond (Node 370).

Proposed Development Comparison Table

Pond Node	Total Runoff Area	Impervious Area	Pervious Area	Required Retention	Provided Retention
370	45.80	30.11	15.69	6.74	20.19
Phase 1 Parcel 6	12.94	7.43	5.51	1.29	N/A

V. 100 Flood Compensatory Storage

Not applicable

SFWMD PERMIT NO. 49-01107-P-38 (APPLICATION 150331-13)

DAVE SCHMITT ENGINEERING INC.

Stormwater Management Design Report

Reunion West
Osceola County, Florida

(DSE Job No.: EHO-7)

Prepared By
Dave Schmitt Engineering, Inc.
Prepared For
Encore Housing Opportunity Fund
General Partner, LLC
May 2013
Revised June 2013
Revised August 2013
Revised November 2013
Revised January 2014
Revised February 2014
Revised April 2014
Revised June 2014
Revised September 2014
Revised October 2014
Revised December 2014
Revised March 2015
Revised May 2015
Revised June 2015
Revised December 2015
Revised March 2016

Submit to: SFWMD
Osceola County
State of Florida Board of Professional Engineers
Certification of Authorization #27471

Stormwater Management Design Report

Reunion West

Osceola County, Florida

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Revised March 2015
Revised May 2015
Revised June 2015
Revised December 2015
Revised March 2016

Dave Schmitt, P.E.
FL Reg. #48274

12301 Lake Underhill Road Suite 241, Orlando, Florida 32828 (407) 207-9088
State of Florida Board of Professional Engineers
Certification of Authorization #27471

Stormwater Management Design Report
Reunion West
Osceola County, Florida

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Drainage Summary

The subject site is located East and West of N Old Lake Wilson Rd, West of I-4 and East of Toll Road 429. The project site consists of six parcels: Parcel ID: 22-25-27-3160-000D-0010, Parcel ID: 22-25-27-3160-000D-0071, Parcel ID: 22-25-27-3160-000D-0040, Parcel ID: 34-25-27-4012-0040-0010, Parcel ID: 34-25-27-4012-0040-0011, Parcel ID: 34-25-27-4012-0004-0018 consisting of ± 271.53 acres. Several offsite areas are modeled in pre and post-development. They are labeled SIN-201, SIN-301, D001, D005-OS, D006-OS, and D008. **Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.**

The owner proposes to develop 732 single family residential lots with site improvements that include roadways, utilities, drainage collection, and stormwater treatment systems.

Existing Conditions

The existing site contains partially cleared property with large areas containing scattered trees and grassy ground cover and some densely wooded areas. There is an existing off-site retention area on the East side of N. Old Lake Wilson Rd. and an existing on-site wet pond on the West side of N. Old Lake Wilson Rd., south of Sinclair Rd. Natural ground elevations range from a high of about elevation 167 to a low elevation of 87.

The soils encountered on the site according to NSDA soil survey are Candler sand, 0 to 5 percent slopes hydrologic group A, Candler Sand, 5 to 12 percent slopes hydrologic group A, Myakka fine sand hydrologic group A/D, Placid fine sand, depressional hydrologic group A/D, Pomello fine sand, 0 to 5 percent slopes hydrologic group A, Samsula muck hydrologic group A/D, Smyrna fine sand hydrologic group A/D. Please refer to the soils map located in section 2.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), Panel Number 12097C0040G, there are no flood prone areas associated with the subject property. Please refer to the FIRM Map located in Section 2.

Post Development Conditions

The project will be divided into 13 basins. Basins 1, 2, 3a, 4, 5, Future Basin 1 and (offsite SIN-201, SIN-301) are located on the West side of N. Old Lake Wilson road. Basins 6, 8, and D002-P are located on the East side of N. Old Lake Wilson road and basins D001, D005-OS, and D006-OS cover N Old Lake Wilson Rd. The runoff from each basin will be collected by the storm sewer system and conveyed to the proposed dry and wet ponds in each basin. Weirs and control structures located in the stormwater ponds will control the peak rate of discharge which must not exceed the pre development peak rate of discharge.

Design Criteria

The project falls within the jurisdictions of the South Florida Water Management District (SFWMD) and Osceola County. The design of the proposed stormwater management system for the proposed site is in accordance with standards and criteria set forth by both jurisdictions.

Attenuation

Osceola County:

All development must be designed, constructed and maintained to meet but not limited to the following minimum performance standards:

Retention volume shall be provided so that the post-development peak rate of discharge shall not exceed the pre-development peak rate of discharge for the 10-year/72-hour design storm event, having a rainfall depth of 7.6 inches.

SFWMD:

The proposed ± 271.53 acres post development peak rate of discharge must not exceed the pre-development peak rate of discharge for the 25-year/24-hour design storm event.

Water Quality

SFWMD:

Provide Water Quality Treatment Volume (WQTV) – Wet detention volume run-off from the greater of either the first 1 inch of rainfall over the entire drainage area or the first 2.5 inches of rainfall over the impervious area, whichever is greater. Dry retention volume shall be provided equal to 50% of the wet detention volume. (SFWMD)

Additionally the water quality volume is also determined by the nutrient loading analysis (specifically phosphorus) as developed by Harvey Harper. The UCF Stormwater Academy

spread sheet was utilized to determine the required retention volume when a dry retention/ wet detention treatment train is proposed.
Stormwater runoff from Basin 1 is pretreated in a dry retention pond prior to discharge to the Future Basin 1 area.

A dry retention pond or swale captures the first flush of stormwater runoff. Additional stormwater is routed to a wet detention pond. The residence time calculations for the wet detention ponds ignore the volume that is captured and infiltrated by the dry retention pretreatment. Average daily rainfall for the wet season is used to determine the residence time.

The recovery orifices were sized such that no more than one half of the treatment volume is discharged in the first 24 hours; however, in the event the orifice is less than 3", the minimum size orifice is 3". The dry retention recovery through percolation of the pretreatment volume as determined by the phosphorous loading analysis is no greater than 12 days.

HYDROLOGIC ANALYSIS

Hydrologic analyses were performed with Advanced ICPR by Streamline Technologies. Runoff hydrographs were developed, using the FL-mod Hydrograph Methodology, for the appropriate storm events. Rainfall distributions used in the analysis are those provided in the SFWMD and Osceola County Regulations.

Drainage basins were defined by a combination of topographical survey, Osceola County Aerial Maps, and field reconnaissance. See attached Pre and Post Development Basin Map.

The CN values were obtained from the Soil Conservation Service Technical Release 55 (SCS TR- 55), June 1986, using a general hydrologic classification of the soils encountered in accordance with the USDA Soil Conservation Service.

The time of concentration values were developed from the information and methodologies outlined in the SCS TR-55.

A recovery analysis was performed using ICPR with PercPack. For this analysis a separate ICPR routing was used which set the initial stage for each stormwater pond at the water quality treatment weir elevation. A 3-day routing was selected to determine the estimated recovery time for each of the ponds.

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.

2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.

3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Peak Stage and Minimum Elevation Summary

Routing Software used: ICPR

Basin #	10 yr-24 hr	**Min. Road (10 yr-72 hr)**	100 yr-24 hr	1' above 100 yr-24 hr	100 yr-72 hr	**Min. F.F.**
Pond 1	120.02	120.91	121.46	122.46	122.69	122.69
Pond 2	134.22	134.68	134.85	135.85	136.20	136.20
Pond 3A	123.86	124.44	124.81	125.81	125.65	125.81
Pond 4	106.43	108.65	110.34	111.34	112.65	112.65
Pond 5	121.75	122.58	122.90	123.90	124.18	124.18
Pond 6	91.13	92.24	93.59	94.59	94.57	94.59
Pond 8	97.09	97.83	98.13	99.13	99.41	99.41

Note: Min. F.F. is set at the 100 yr-72 hr storm event or 1 ft above the 100 yr-24 hr storm event; whichever is greater.

Min Roadway grade set at 10 yr-72 hr storm event

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
RESULTS

Routing Software used: ICPR

	Curve Extrapolation	OLWR
Storm Frequency	**Precipitation (in.)**	**Precipitation (in.)**
10yr-24hr	5.7	6.0
100yr-24hr	9.0	10.5
100yr-72hr	11.6	12.0
10yr-72hr	7.8	8.0

Pre vs. Post Development Discharge

Storm Frequency	Pre-development (cfs)	Post-development (cfs)
10yr-24hr	22.18	8.11
100yr-24hr	157.25	39.41
100yr-72hr	412.73	72.50
10yr-72hr	132.04	26.58 *

*** Future basin 1 discharge is not included in total discharge of 10yr - 72hr storm event**

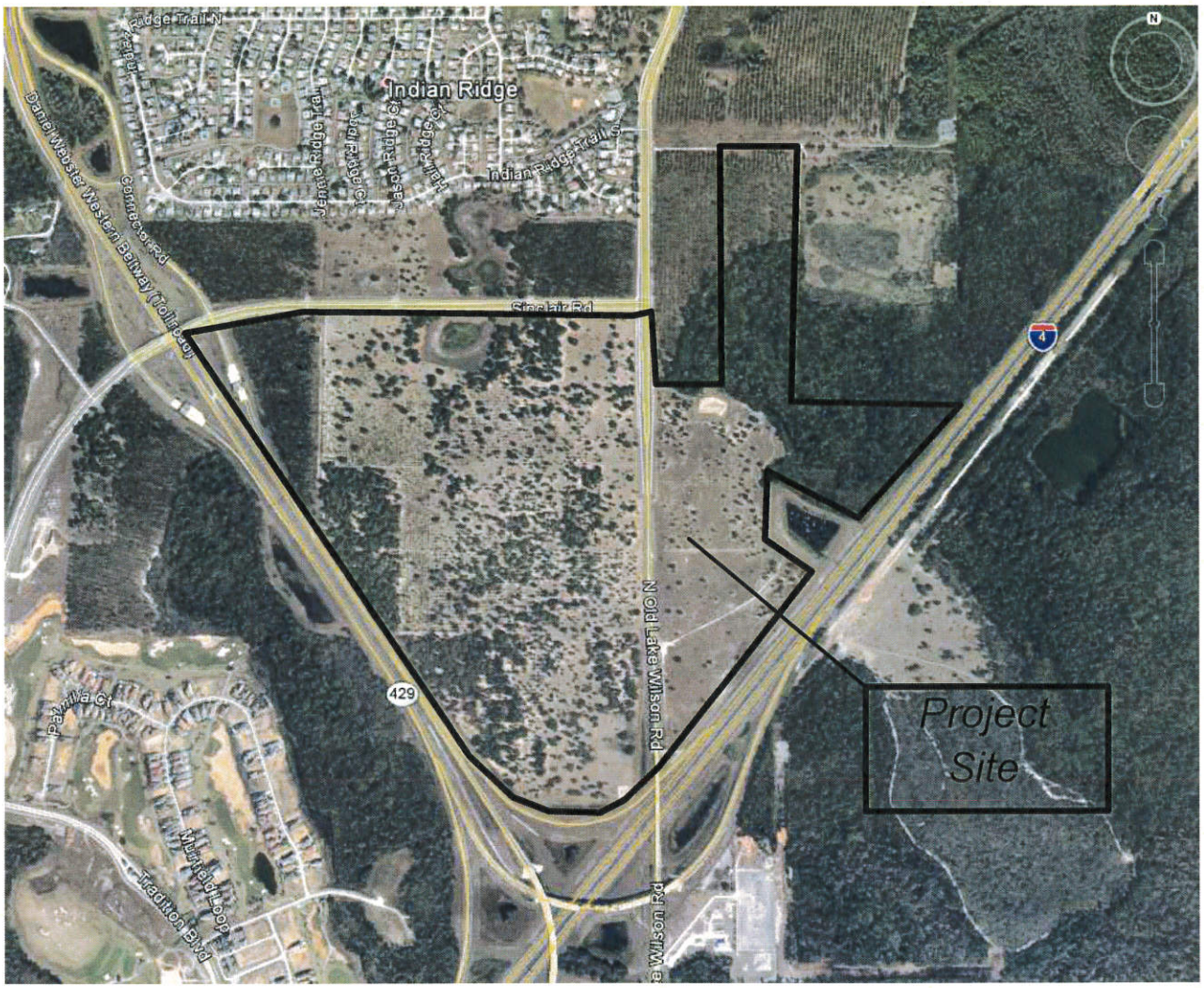
REUNION WEST
OSCEOLA COUNTY, FLORIDA

TABLE CS - CONTROL STRUCTURE SUMMARY

NODE ID	STRUCTURE ID	STRUCTURE TYPE	STRUCTURE DIMENSIONS	CIRCULAR BLEEDER ORIFICE			WATER QUALITY WEIR		STRUCTURE TOP ELEVATION (ft)	SKIMMER		OUTFALL PIPE	
				INVERT (ft)	NUMBER OF ORIFICES	DIAMETER (in)	ELEVATION (ft)	TOTAL WIDTH (in)		TOP ELEVATION (ft)	BOTTOM ELEVATION (ft)	PIPE SIZE (in)	INVERT ELEVATION (ft)
POND 1	WEIR POND 1	BC WEIR	-	-	-	-	126.60	120	128.0	128.50	126.10	-	-
POND 2	CS-2	FDOT TYPE D	3'-1" x 4'-1"	-	-	-	134.30	18	136.5	137.00	133.80	14X23	131.0
POND 3A	CS3A	FDOT TYPE C	3'-4" x 4'-5"	-	-	-	123.90	6	128.5	129.00	123.40	18.0	123.0
POND 4	CS4	FDOT TYPE H	7'-11" x 4'-4"	99.5	2	5.2	105.75	3	114.5	115.00	104.00	48.0	99.5
POND 5	CS5	FDOT TYPE C	3'-4" x 4'-5"	-	-	-	121.90	10	124.0	124.50	121.40	18.0	117.0
POND 6	DS-002P	FDOT TYPE H	7'-11" x 4'-4"	-	-	-	90.30	10	94.5	95.00	89.80	24.0	87.0
POND 8	CS-8	FDOT TYPE D	3'-1" x 4'-1"	-	-	-	96.65	30	99.5	100.00	96.15	19X30	96.5

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Control Elevation Summary

Pond #	Wet or Dry	Soils SHWT	Bottom	Control Elevation	Determination Method
1	Dry	93.5	119.0	119.0	Based on PB-13 (95.0), PB-14 (93.5), and PB-15 (92.0)
2	Dry	96.3	132.0	132.0	Based on PB-11 (96.5), and PB-12 (96.0)
3A	Dry	99.5	123.0	123.0	Based on PB-1 (99.5) and PB-2 (99.5)
4	Wet	97.3	87.0	97.30	Based on PB-3 (98.0), PB-4 (97.0) and PB-5 (97.0)
5	Dry	91.5	117.0	117.0	Based on PB-6 (91.5) and PB-8 (91.5)
6	Dry	86.3	88.6	88.6	Established from previous ERP# 49-01107-P-03 plus PB-16 (87.5), PB-17 (86.5), PB-18 (85.0)
8	Dry	89.1	95.0	95.0	Based on PB-19 (87.5), PB-20 (89.0), PB-21 (89.5), and PB-22 (90.5)



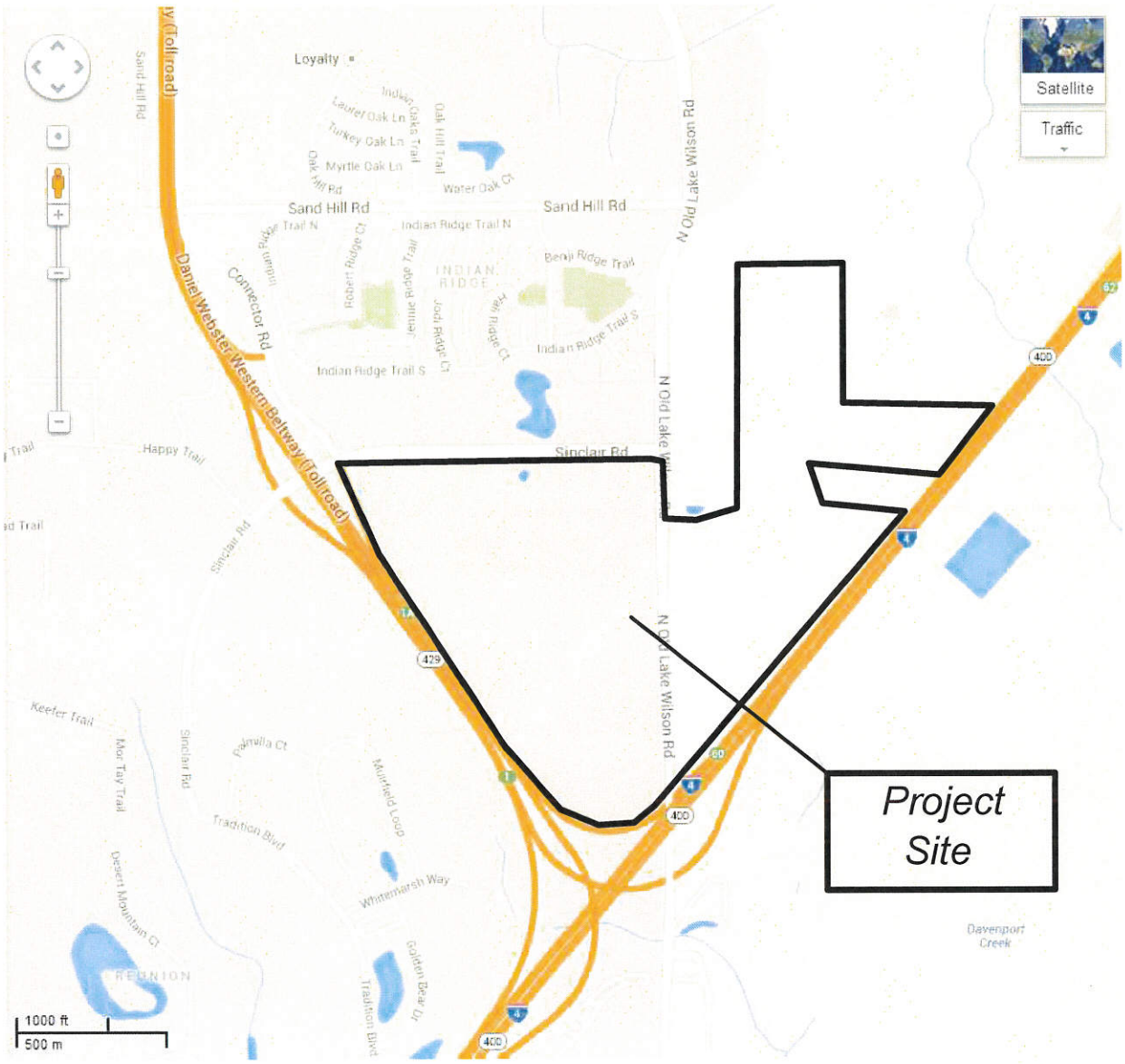
SCALE: 1" =1000'

DAVE SCHMITT ENGINEERING INC.

Reunion West

Encore Housing Opportunity Fund

Aerial Map



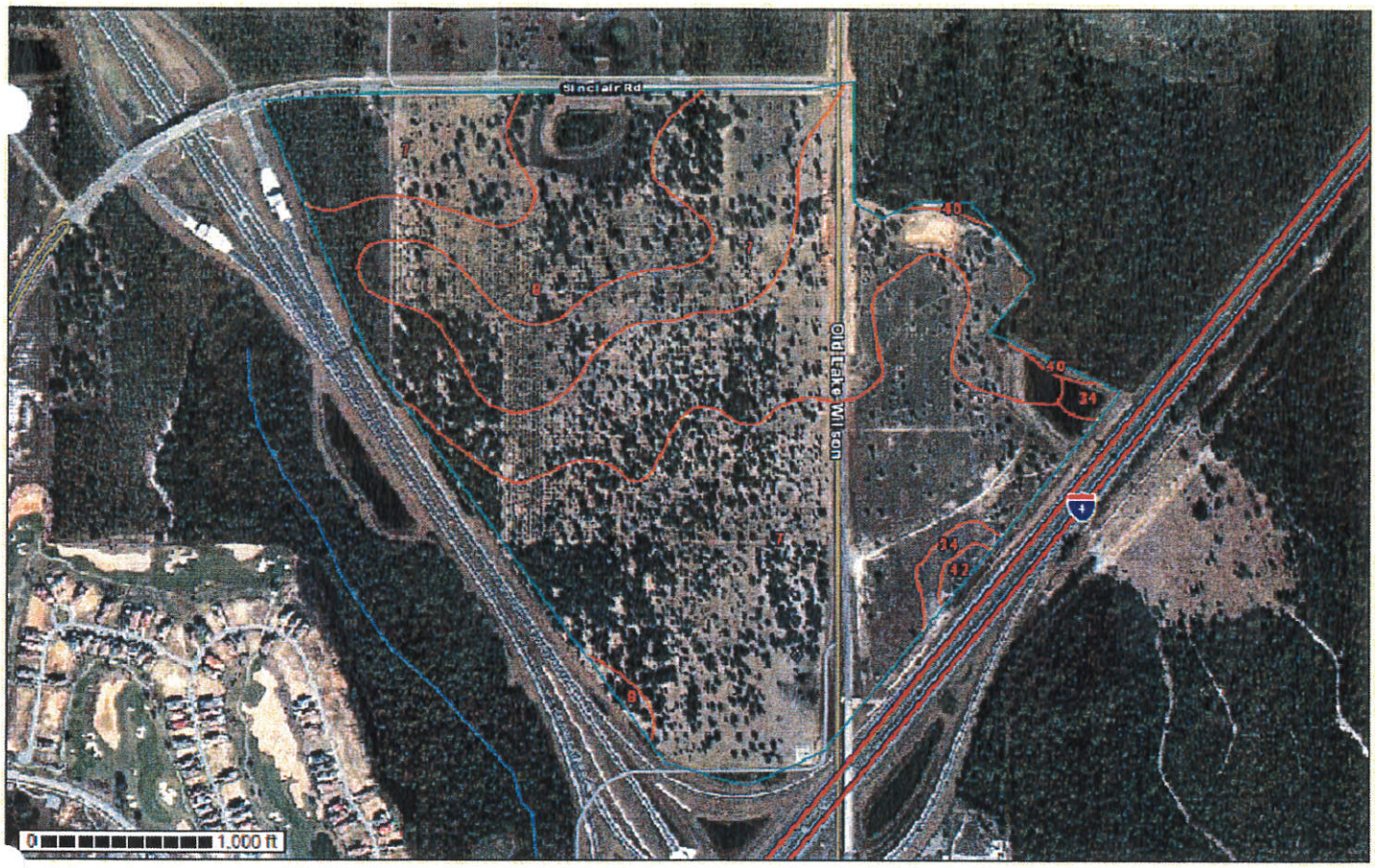
SCALE: 1" =1000'

DAVE SCHMITT ENGINEERING INC.

Reunion West

Encore Housing Opportunity Fund

Location Map



Map Unit Legend

Osceola County, Florida (FL097)

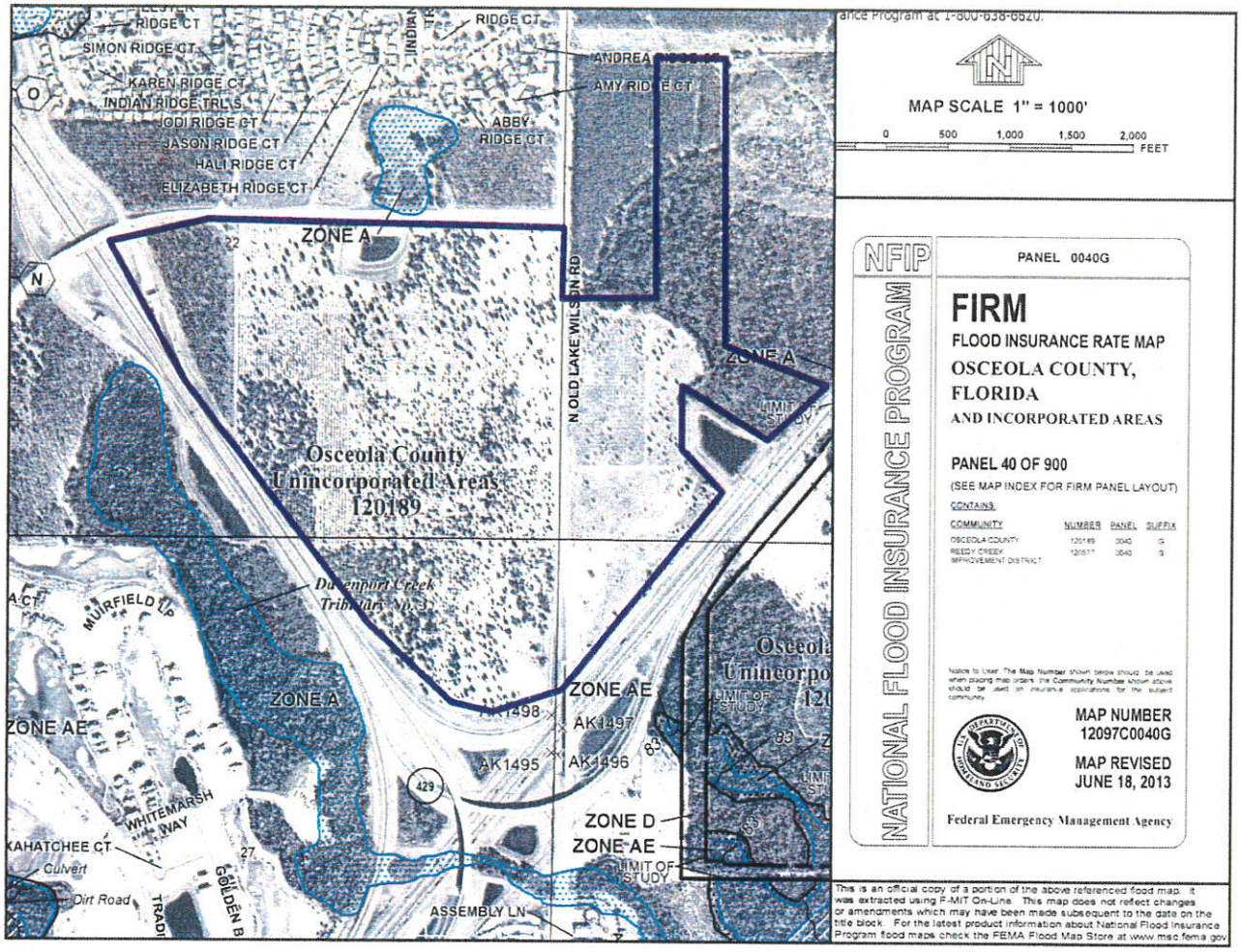
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Candler sand, 0 to 5 percent slopes	176.0	62.4%
8	Candler sand, 5 to 12 percent slopes	100.1	35.5%
34	Pomello fine sand, 0 to 5 percent slopes	3.6	1.3%
40	Samsula muck	1.1	0.4%
42	Smyrna fine sand	1.1	0.4%
Totals for Area of Interest		282.0	100.0%

DAVE SCHMITT ENGINEERING INC.

Reunion West

Encore Housing Opportunity Fund

Soils Map

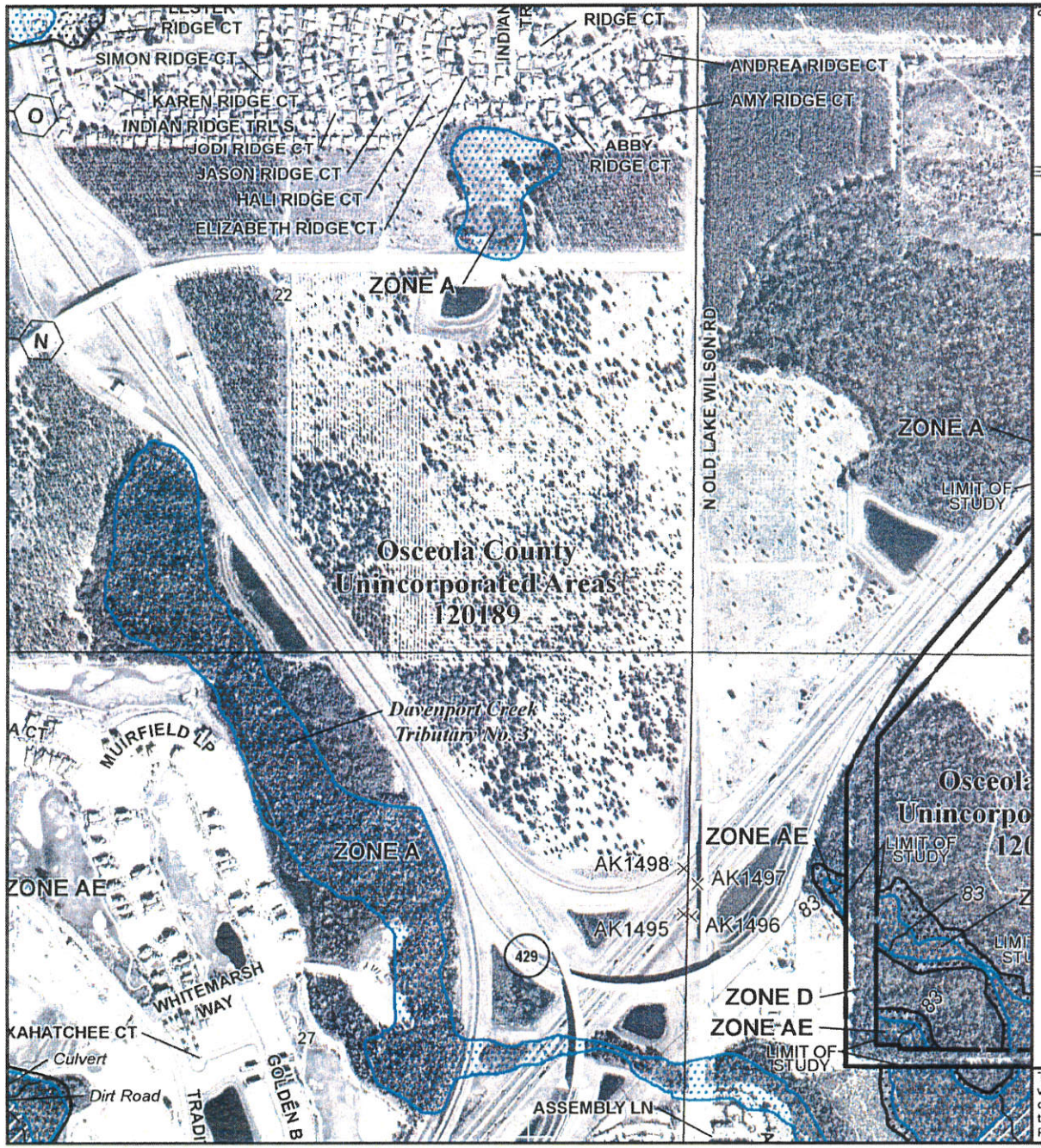


DAVE SCHMITT ENGINEERING INC.

Reunion West

Encore Housing Opportunity Fund

FEMA Map



ance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'

0 500 1,000 1,500 2,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0040G

FIRM

FLOOD INSURANCE RATE MAP

OSCEOLA COUNTY, FLORIDA

AND INCORPORATED AREAS

PANEL 40 OF 900

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
OSCEOLA COUNTY	120189	0040	G
REEDY CREEK IMPROVEMENT DISTRICT	120577	0040	G

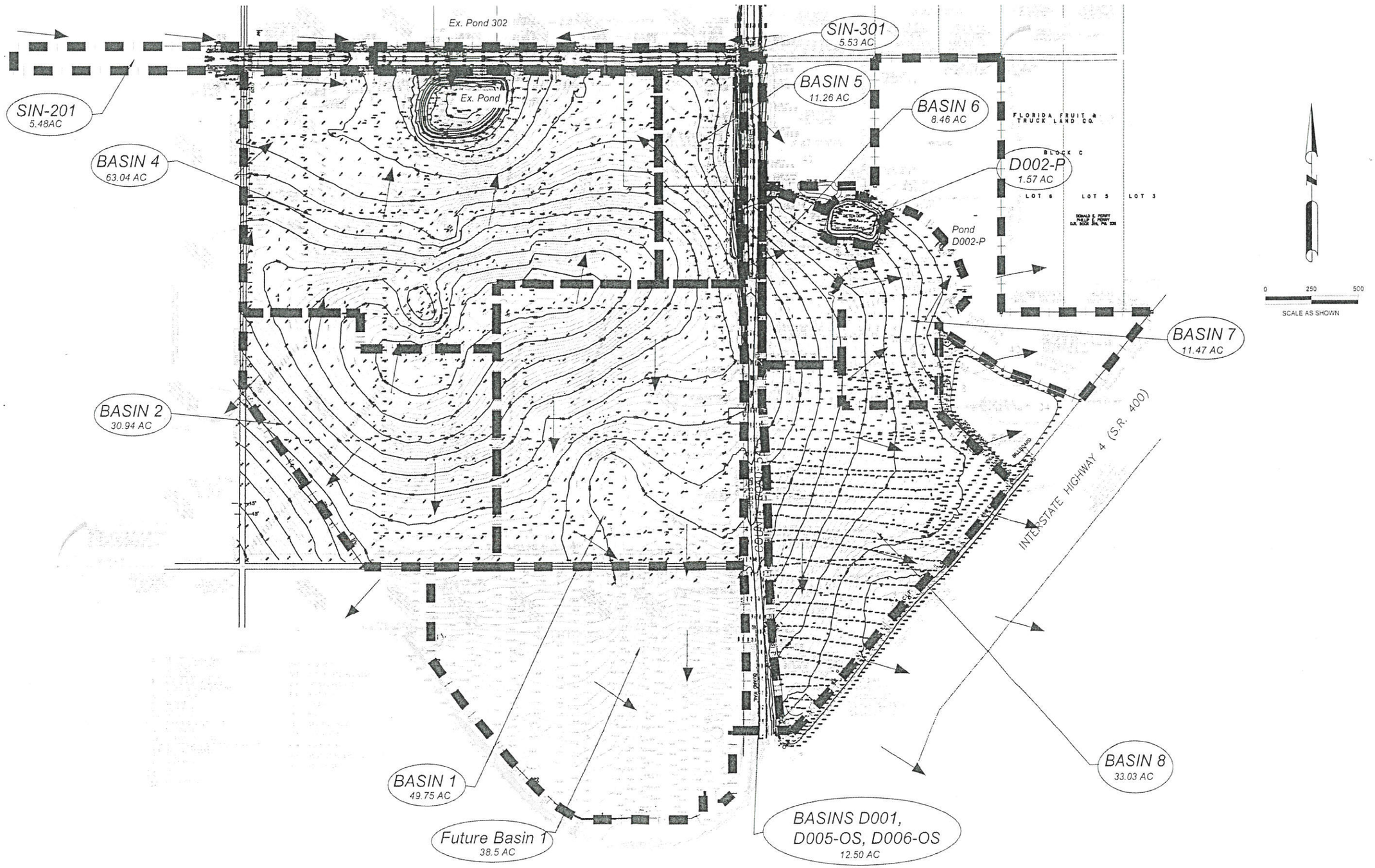
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12097C0040G

MAP REVISED
JUNE 18, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



F:\EHO7\Drain. Pre Development Basin with South Parcel 3-17-15.dwg,3/20/2015 8:50:03 AM

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9066 FAX 407-207-9069
Certification of Authorization #27471

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

PRE DEVELOPMENT BASIN MAP

REUNION WEST
OSCEOLA COUNTY, FLORIDA

DATE:	MARCH 2015
PROJECT NO.:	EHO-7
DRAWN BY:	APG
CHECKED BY:	DMS
SCALE:	1"=400'
SHEET:	1 OF 1

Reunion West
PRE-DEVELOPMENT STORMWATER ANALYSIS
Basin Area, Curve Number, and Tc Summary

BASIN #	AREA (ac)	CN	TC (min)
1	41.22	39	25
2	30.94	39	25
SIN-201	5.48	83	14
SIN-301	5.53	84	14
4	63.04	72	29
5	8.56	39	25
6	8.46	48	23
7	11.47	39	22
8	33.03	45	26
D001	7.42	89	10
D002-P	1.57	48	10
D005-OS	7.06	48	10
D006-OS	2.75	48	10
Future Basin 1	40.94	39	25
TOTAL	267.47		

Notes: 1. Total Site Acerage = 226.39 acres.
2. Offsite wetland area on the East side remaining of 23.31 acres.
3. Offsite Area including Basins SIN-201, SIN-301, D001, D005-OS, and D006-OS of 23.51 acres

Reunion West
PRE-DEVELOPMENT STORMWATER ANALYSIS
Basin Area Summary

BASIN #	ON SITE AREA (ac)	OFF SITE AREA (ac.)	TOTAL (ac.)
1	41.22	0.00	41.22
2	30.94	0.00	30.94
SIN-201	0.00	5.48	5.48
SIN-301	0.00	5.53	5.53
4	63.04	0.00	63.04
5	8.56	0.00	8.56
6	8.46	0.00	8.46
7	11.47	0.00	11.47
8	33.03	0.00	33.03
D001	0.00	7.42	7.42
D002-P	1.57	0.00	1.57
D005-OS	0.00	7.06	7.06
D006-OS	0.00	2.75	2.75
Future Basin 1	40.94	0.00	40.94
TOTAL	239.23	28.24	267.47

REUNION WEST

PRE-DEVELOPMENT STORMWATER ANALYSIS

TIME OF CONCENTRATION CALCULATIONS

BASIN	SHEET FLOW SLOPE FT/FT	SHEET FLOW L FT	MAN n	SHEET FLOW Tt MIN	SHALLOW CON SLOPE FT/FT	SHALLOW CON FLOW L FT	P or U	AVG. VEL. V FT/S	SHALLOW CON FLOW Tt MIN	PIPE FLOW L FT	PIPE FLOW Tt MIN	TC MIN
1	0.0500	300	0.24	16.3	0.0100	1000	U	2	8.3	0	0.0	25
2	0.0500	300	0.24	16.3	0.0100	1100	U	2	9.2	0	0.0	25
SIN-201	0.0050	40	0.04	2.1	0.0050	1450	P	2	12.1	0	0.0	14
SIN-301	0.0050	40	0.04	2.1	0.0050	1450	P	2	12.1	0	0.0	14
4	0.0500	300	0.24	16.3	0.0100	1550	U	2	12.9	0	0.0	29
5	0.0500	300	0.24	16.3	0.0100	1000	U	2	8.3	0	0.0	25
6	0.0500	300	0.24	16.3	0.0100	750	U	2	6.3	0	0.0	23
7	0.0500	300	0.24	16.3	0.0100	725	U	2	6.0	0	0.0	22
8	0.0500	300	0.24	16.3	0.0100	1140	U	2	9.5	0	0.0	26
D001	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
D002-P	0.0500	50	0.24	5.6	0.0100	0	U	2	0.0	200	1.7	10
D005-OS	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
D006-OS	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
Future Basin 1	0.0330	300	0.24	18.5	0.0310	761	U	2	6.3	0	0.0	25

Note:

Kinematic Wave Equation (Sheet Flow, Shallow Conc. Flow & Pipe Flow) (SCS TR-55):

$t = 0.93*L^{0.6}*n^{0.6}/I^{0.4}*s^{0.3} + L/60*V + L/60*V$

t = overland flow travel time (minutes), L = overland flow length (ft.), n = mannings roughness coefficient

I = rainfall intensity (4.50 in/hr), s = average slope (ft/ft), V = average velocity (ft/s) = $20.3282(s^{0.5})$ (paved) or $16.1345(s^{0.5})$ (unpaved)

60=conversion factor from seconds to minutes

REUNION WEST
PRE-DEVELOPMENT STORMWATER ANALYSIS
BASIN CURVE NUMBER CALCULATIONS

Basin ID : 1
Total Acres: 41.22

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	45.6%	22.7	885
Candler Sand, 5-12% slopes	8	A	woods/grass	39	54.4%	27.1	1056
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	49.75	
					Composite CN:		**39**

Basin ID : 2
Total Acres: 30.94

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	51.7%	16.0	622
Candler Sand, 5-12% slopes	8	A	woods/grass	39	48.3%	14.9	582
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	30.87	
					Composite CN:		**39**

Basin ID : SIN-201
Total Acres: 5.48

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Pervious			grass	72	56.4%	3.1	223
Impervious			road	98	43.6%	2.4	235
Water			water	100	0.0%	0.0	0
					100.0%	5.50	
					Composite CN:		**83**

Basin ID : SIN-301
Total Acres: 5.53

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Road			grass	74	56.4%	3.1	230
Impervious			road	98	43.6%	2.4	235
Water			water	100	0.0%	0.0	0
					100.0%	5.51	
					Composite CN:		**84**

Basin ID : 4
Total Acres: 63.04

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	70	45.6%	28.4	1989
Candler Sand, 5-12% slopes	8	A	woods/grass	70	49.1%	30.6	2141
Road			road	98	0.0%	0.0	0
Water			water	100	5.2%	3.3	326
					100.0%	62.27	
					Composite CN:		**72**

Basin ID : 5
Total Acres: 8.56

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	74.2%	8.4	326
Candler Sand, 5-12% slopes	8	A	woods/grass	39	25.8%	2.9	113
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	11.26	
					Composite CN:		**39**

Basin ID : 6
Total Acres: 8.46

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	38.4%	3.3	127
Candler Sand, 5-12% slopes	8	A	woods/grass	39	47.4%	4.0	156
Road			road	98	0.0%	0.0	0
Water			water	100	14.2%	1.2	120
					100.0%	8.46	
					Composite CN:		**48**

Basin ID : 7
Total Acres: 11.47

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	47.3%	5.4	212
Candler Sand, 5-12% slopes	8	A	woods/grass	39	52.7%	6.0	236
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	11.47	
					Composite CN:		**39**

Basin ID : 8

Total Acres: 33.03

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	80.7%	26.7	1039
Pomello fine sand, 0-5% slopes	34	A	woods/grass	68	14.2%	4.7	318
Smyrna fine sand	42	A/D	woods/grass	68	5.1%	1.7	116
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	33.03	
					Composite CN:		**45**

Basin ID : D001

Total Acres: 6.42

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	48	17.9%	1.3	64
Pomello fine sand, 0-5% slopes	34	A	woods/grass	48	0.0%	0.0	0
Smyrna fine sand	42	A/D	woods/grass	48	0.0%	0.0	0
Road			road	98	82.1%	6.1	597
Water			water	100	0.0%	0.0	0
					100.0%	7.42	
					Composite CN:		**89**

Basin ID : D002-P

Total Acres: 1.57

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	48	63.2%	1.1	52
Pomello fine sand, 0-5% slopes	34	A	woods/grass	48	0.0%	0.0	0
Smyrna fine sand	42	A/D	woods/grass	48	0.0%	0.0	0
Road			road	98	0.0%	0.0	0
Water			water	48	36.8%	0.6	30
					100.0%	1.71	
					Composite CN:		**48**

Basin ID : D005-OS

Total Acres: 7.06

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	48	100.0%	1.9	91
Pomello fine sand, 0-5% slopes	34	A	woods/grass	48	0.0%	0.0	0
Smyrna fine sand	42	A/D	woods/grass	48	0.0%	0.0	0
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	1.90	
					Composite CN:		**48**

Basin ID : D006-OS

Total Acres: 2.75

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	48	100.0%	2.8	132
Pomello fine sand, 0-5% slopes	34	A	woods/grass	48	0.0%	0.0	0
Smyrna fine sand	42	A/D	woods/grass	48	0.0%	0.0	0
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	2.75	
					Composite CN:		**48**

Basin ID : Fututure Basin 1

Total Acres: 40.94

Name	ID#	Soil Class	Cover Type	CN	% Area	Area	Factor
Candler Sand, 0-5% slopes	7	A	woods/grass	39	95.7%	36.9	1437
Candler Sand, 5-12% slopes	8	A	woods/grass	39	4.3%	1.7	64
Road			road	98	0.0%	0.0	0
Water			water	100	0.0%	0.0	0
					100.0%	38.50	
					Composite CN:		**39**

REUNION WEST
PRE-DEVELOPMENT STORMWATER ANALYSIS
STAGE – STORAGE CALCULATIONS

EX. POND (BASIN 4)

ELEVATION (feet)	AREA (acres)	AVG AREA (acres)	DEPTH (feet)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
99.50	2.23				0.00
		2.25	0.50	1.13	
100.00	2.28				1.13
		2.33	1.00	2.33	
101.00	2.39				3.46
		2.45	1.00	2.45	
102.00	2.51				5.91
		2.57	1.00	2.57	
103.00	2.63				8.48
		2.69	1.00	2.69	
104.00	2.75				11.17
		2.81	1.00	2.81	
105.00	2.87				13.98
		2.93	1.00	2.93	
106.00	3.00				16.92
		3.07	1.00	3.07	
107.00	3.13				19.98
		3.20	1.00	3.20	
108.00	3.26				23.18

EX. POND D002-P

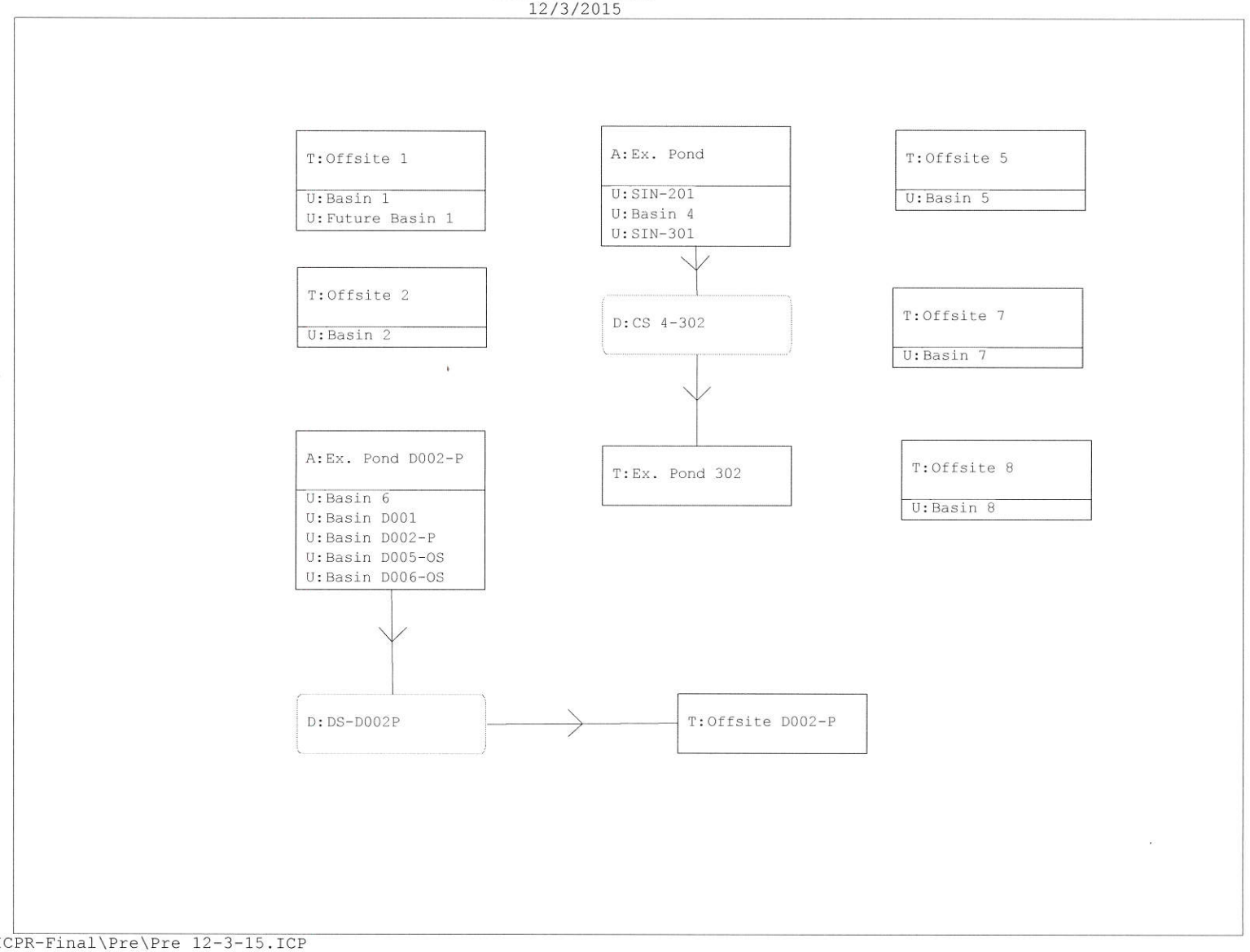
ELEVATION (feet)	AREA (acres)	AVG AREA (acres)	DEPTH (feet)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
88.60	0.63				0.00
		0.64	0.40	0.26	
89.00	0.66				0.26
		0.69	1.00	0.69	
90.00	0.72				0.95
		0.75	1.00	0.75	
91.00	0.79				1.70
		0.82	1.00	0.82	
92.00	0.86				2.52
		0.89	1.00	0.89	
93.00	0.93				3.41
		0.94	1.00	0.94	
94.00	0.96				4.36
		1.00	1.00	1.00	
95.00	1.03				5.35

EHO-7
PRE-DEVELOPMENT
12/3/2015

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



F:\EHO7\Drainage\ICPR-Final\Pre\Pre 12-3-15.ICP

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc.

```
            Basin Name: Basin D001
            Group Name: BASE
            Simulation: 100Y-24H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
          Rainfall File: Flmod
  Rainfall Amount (in): 10.500
  Storm Duration (hrs): 24.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
              Area (ac): 7.420
  Vol of Unit Hyd (in): 1.000
          Curve Number: 89.000
              DCIA (%): 0.000

         Time Max (hrs): 12.02
        Flow Max (cfs): 49.040
    Runoff Volume (in): 9.154
   Runoff Volume (ft3): 246551.597
```

```
            Basin Name: Basin D002-P
            Group Name: BASE
            Simulation: 100Y-24H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
          Rainfall File: Flmod
  Rainfall Amount (in): 10.500
  Storm Duration (hrs): 24.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
              Area (ac): 1.570
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

         Time Max (hrs): 12.04
        Flow Max (cfs): 4.289
    Runoff Volume (in): 3.625
   Runoff Volume (ft3): 20657.601
```

```
            Basin Name: Basin D005-OS
            Group Name: BASE
            Simulation: 100Y-24H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
```

```
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 10.500
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.900
   Vol of Unit Hyd (in): 1.000
           Curve Number: 48.000
               DCIA (%): 0.000

         Time Max (hrs): 12.04
        Flow Max (cfs): 5.190
     Runoff Volume (in): 3.625
    Runoff Volume (ft3): 24999.644


--------------------------------------------------------------------------------

              Basin Name: Basin D006-OS
              Group Name: BASE
              Simulation: 100Y-24H
               Node Name: Ex. Pond D002-P
              Basin Type: SCS Unit Hydrograph

         Unit Hydrograph: Uh323
           Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 10.500
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 3.180
   Vol of Unit Hyd (in): 1.000
           Curve Number: 48.000
               DCIA (%): 0.000

         Time Max (hrs): 12.04
        Flow Max (cfs): 8.687
     Runoff Volume (in): 3.625
    Runoff Volume (ft3): 41841.510


--------------------------------------------------------------------------------

              Basin Name: Basin D001
              Group Name: BASE
              Simulation: 100Y-72H
               Node Name: Ex. Pond D002-P
              Basin Type: SCS Unit Hydrograph

         Unit Hydrograph: Uh323
           Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Sfwmd72
   Rainfall Amount (in): 12.000
   Storm Duration (hrs): 72.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 7.420
   Vol of Unit Hyd (in): 1.000
```

```
          Curve Number: 89.000
              DCIA (%): 0.000

         Time Max (hrs): 60.00
        Flow Max (cfs): 41.715
     Runoff Volume (in): 10.639
    Runoff Volume (ft3): 286553.786


--------------------------------------------------------------------------------

            Basin Name: Basin D002-P
            Group Name: BASE
            Simulation: 100Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
   Rainfall Amount (in): 12.000
   Storm Duration (hrs): 72.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.570
   Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

         Time Max (hrs): 60.02
        Flow Max (cfs): 5.151
     Runoff Volume (in): 4.681
    Runoff Volume (ft3): 26675.485


--------------------------------------------------------------------------------

            Basin Name: Basin D005-OS
            Group Name: BASE
            Simulation: 100Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
   Rainfall Amount (in): 12.000
   Storm Duration (hrs): 72.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.900
   Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

         Time Max (hrs): 60.02
        Flow Max (cfs): 6.233
     Runoff Volume (in): 4.681
    Runoff Volume (ft3): 32282.434
```

```
            Basin Name: Basin D006-OS
            Group Name: BASE
            Simulation: 100Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
          Rainfall File: Sfwmd72
  Rainfall Amount (in): 12.000
  Storm Duration (hrs): 72.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
              Area (ac): 3.180
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

         Time Max (hrs): 60.02
         Flow Max (cfs): 10.433
    Runoff Volume (in): 4.681
   Runoff Volume (ft3): 54030.601


            Basin Name: Basin D001
            Group Name: BASE
            Simulation: 10Y-24H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
          Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
          Rainfall File: Flmod
  Rainfall Amount (in): 6.000
  Storm Duration (hrs): 24.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
              Area (ac): 7.420
  Vol of Unit Hyd (in): 1.000
          Curve Number: 89.000
              DCIA (%): 0.000

         Time Max (hrs): 12.04
         Flow Max (cfs): 26.316
    Runoff Volume (in): 4.737
   Runoff Volume (ft3): 127601.178


            Basin Name: Basin D002-P
            Group Name: BASE
            Simulation: 10Y-24H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

        Unit Hydrograph: Uh323
```

```
         Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 6.000
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.570
   Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 12.07
        Flow Max (cfs): 0.917
     Runoff Volume (in): 1.002
    Runoff Volume (ft3): 5712.270


--------------------------------------------------------------------------------

             Basin Name: Basin D005-OS
             Group Name: BASE
             Simulation: 10Y-24H
              Node Name: Ex. Pond D002-P
             Basin Type: SCS Unit Hydrograph

         Unit Hydrograph: Uh323
           Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 6.000
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
              Area (ac): 1.900
   Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 12.07
        Flow Max (cfs): 1.109
     Runoff Volume (in): 1.002
    Runoff Volume (ft3): 6912.939


--------------------------------------------------------------------------------

             Basin Name: Basin D006-OS
             Group Name: BASE
             Simulation: 10Y-24H
              Node Name: Ex. Pond D002-P
             Basin Type: SCS Unit Hydrograph

         Unit Hydrograph: Uh323
           Peaking Fator: 323.0
    Spec Time Inc (min): 1.33
    Comp Time Inc (min): 1.33
          Rainfall File: Flmod
   Rainfall Amount (in): 6.000
   Storm Duration (hrs): 24.00
                 Status: Onsite
     Time of Conc (min): 10.00
       Time Shift (hrs): 0.00
```

```
            Area (ac): 3.180
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 12.07
        Flow Max (cfs): 1.856
    Runoff Volume (in): 1.002
   Runoff Volume (ft3): 11570.076


--------------------------------------------------------------------------------

            Basin Name: Basin D001
            Group Name: BASE
            Simulation: 10Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
  Spec Time Inc (min): 1.33
  Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
  Rainfall Amount (in): 8.000
  Storm Duration (hrs): 72.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
            Area (ac): 7.420
  Vol of Unit Hyd (in): 1.000
          Curve Number: 89.000
              DCIA (%): 0.000

        Time Max (hrs): 60.00
        Flow Max (cfs): 27.237
    Runoff Volume (in): 6.690
   Runoff Volume (ft3): 180180.765


--------------------------------------------------------------------------------

            Basin Name: Basin D002-P
            Group Name: BASE
            Simulation: 10Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
  Spec Time Inc (min): 1.33
  Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
  Rainfall Amount (in): 8.000
  Storm Duration (hrs): 72.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
            Area (ac): 1.570
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 60.02
        Flow Max (cfs): 2.378
    Runoff Volume (in): 2.042
   Runoff Volume (ft3): 11640.276
```

```
------------------------------------------------------------------------------

            Basin Name: Basin D005-OS
            Group Name: BASE
            Simulation: 10Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
  Rainfall Amount (in): 8.000
  Storm Duration (hrs): 72.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
            Area (ac): 1.900
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 60.02
        Flow Max (cfs): 2.878
    Runoff Volume (in): 2.042
   Runoff Volume (ft3): 14086.959


------------------------------------------------------------------------------

            Basin Name: Basin D006-OS
            Group Name: BASE
            Simulation: 10Y-72H
             Node Name: Ex. Pond D002-P
            Basin Type: SCS Unit Hydrograph

       Unit Hydrograph: Uh323
         Peaking Fator: 323.0
   Spec Time Inc (min): 1.33
   Comp Time Inc (min): 1.33
         Rainfall File: Sfwmd72
  Rainfall Amount (in): 8.000
  Storm Duration (hrs): 72.00
                Status: Onsite
    Time of Conc (min): 10.00
      Time Shift (hrs): 0.00
            Area (ac): 3.180
  Vol of Unit Hyd (in): 1.000
          Curve Number: 48.000
              DCIA (%): 0.000

        Time Max (hrs): 60.02
        Flow Max (cfs): 4.817
    Runoff Volume (in): 2.042
   Runoff Volume (ft3): 23577.120
```

Name: Basin D001 Node: Ex. Pond D002-P Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 7.420 Time Shift(hrs): 0.00
Curve Number: 89.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin D002-P Node: Ex. Pond D002-P Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 1.570 Time Shift(hrs): 0.00
Curve Number: 48.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin D005-OS Node: Ex. Pond D002-P Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 1.900 Time Shift(hrs): 0.00
Curve Number: 48.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: Basin D006-OS Node: Ex. Pond D002-P Status: Onsite
Group: BASE Type: SCS Unit Hydrograph CN

Unit Hydrograph: Uh323 Peaking Factor: 323.0
Rainfall File: Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 3.180 Time Shift(hrs): 0.00
Curve Number: 48.00 Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00

Name: DS-D002P | From Node: Ex. Pond D002-P | Length(ft): 118.00
Group: BASE | To Node: Offsite D002-P | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	87.000	86.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 1.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure DS-D002P ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Vertical: Mavis | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Rectangular | Orifice Disc Coef: 0.600

Span(in): 8.00 | Invert(ft): 89.950
Rise(in): 99999.00 | Control Elev(ft): 89.950

*** Weir 2 of 3 for Drop Structure DS-D002P ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Horizontal | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Rectangular | Orifice Disc Coef: 0.600

Span(in): 37.00 | Invert(ft): 92.500
Rise(in): 24.00 | Control Elev(ft): 92.500

*** Weir 3 of 3 for Drop Structure DS-D002P ***

TABLE

Count: 1 | Bottom Clip(in): 0.000
Type: Vertical: Mavis | Top Clip(in): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Rectangular | Orifice Disc Coef: 0.600

Span(in): 36.00 | Invert(ft): 92.400
Rise(in): 9999.00 | Control Elev(ft): 92.400

Name: 100Y-24H
Filename: F:\EHO7\Drainage\ICPR-Final\Pre\100Y-24H.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 10.50

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 100Y-72H
Filename: F:\EHO7\Drainage\ICPR-Final\Pre\100Y-72H.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 12.00

Time(hrs)	Print Inc(min)
80.000	15.00

Name: 10Y-24H
Filename: F:\EHO7\Drainage\ICPR-Final\Pre\10Y-24H.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 6.00

Time(hrs)	Print Inc(min)
30.000	15.00

Name: 10Y-72H
Filename: F:\EHO7\Drainage\ICPR-Final\Pre\10Y-72H.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 8.00

Time(hrs)	Print Inc(min)
80.000	5.00

```
         Name: 100Y-24H            Hydrology Sim: 100Y-24H
     Filename: F:\EHO7\Drainage\ICPR-Final\Pre\100Y-24H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 30.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------------
         Name: 100Y-72H            Hydrology Sim: 100Y-72H
     Filename: F:\EHO7\Drainage\ICPR-Final\Pre\100Y-72H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 80.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
80.000          15.000

Group           Run
--------------- -----
BASE            Yes


-------------------------------------------------------------------------------------------------------
         Name: 10Y-24H             Hydrology Sim: 10Y-24H
     Filename: F:\EHO7\Drainage\ICPR-Final\Pre\10Y-24H.I32

      Execute: Yes         Restart: No           Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 30.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
30.000          15.000

Group           Run
```

BASE	Yes

Name: 10Y-72H Hydrology Sim: 10Y-72H
Filename: F:\EHO7\Drainage\ICPR-Final\Pre\10Y-72H.I32

Execute: Yes Restart: No Patch: No
Alternative: No

Max Delta Z(ft): 1.00 Delta Z Factor: 0.50000
Time Step Optimizer: 10.000
Start Time(hrs): 0.000 End Time(hrs): 80.00
Min Calc Time(sec): 0.5000 Max Calc Time(sec): 60.0000
Boundary Stages: Boundary Flows:

Time(hrs)	Print Inc(min)
80.000	15.000

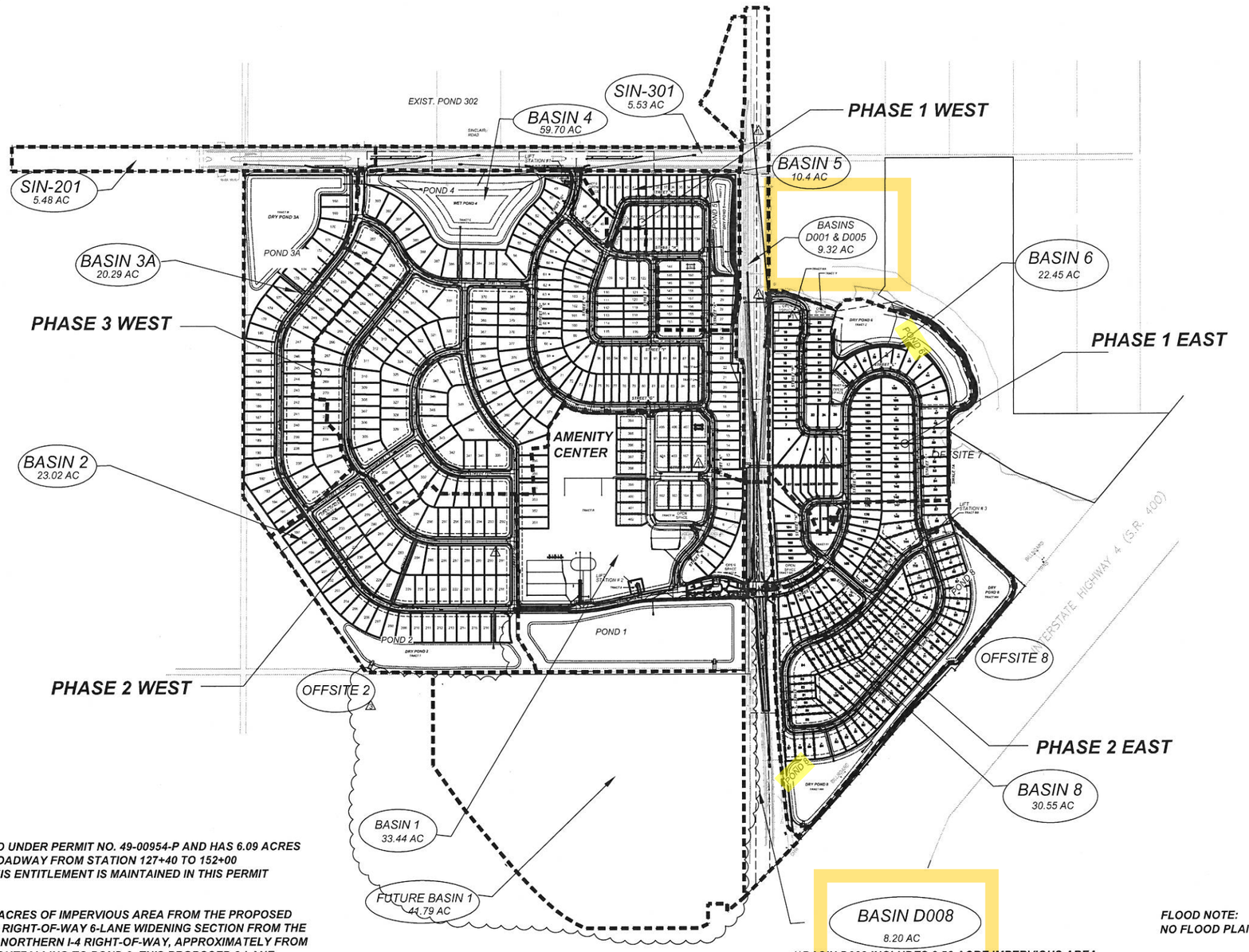
Group	Run
BASE	Yes

EHO-7
PRE-DEVELOPMENT
12/4/2015

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Ex. Pond D002-P	BASE	100Y-24H	12.54	93.644	95.000	0.0091	41353	12.00	76.660	12.54	34.082
Ex. Pond D002-P	BASE	100Y-72H	60.42	94.184	95.000	0.0065	42378	60.00	82.163	60.42	35.833
Ex. Pond D002-P	BASE	10Y-24H	13.35	91.640	95.000	0.0047	36365	12.00	30.589	13.35	4.689

EHO-7
PRE-DEVELOPMENT
12/4/2015

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
DS-D002P	BASE	100Y-24H	12.54	34.082	0.273	12.54	93.644	0.00	79.740
DS-D002P	BASE	100Y-72H	60.42	35.833	0.258	60.42	94.184	0.00	79.740
DS-D002P	BASE	10Y-24H	13.35	4.689	0.010	13.35	91.640	0.00	79.740
DS-D002P	BASE	10Y-72H	60.40	18.631	0.997	60.40	92.814	0.00	79.740



COUNTY NOTE:
BASIN D001 WAS PERMITTED UNDER PERMIT NO. 49-00954-P AND HAS 6.09 ACRES OF IMPERVIOUS AREA OF ROADWAY FROM STATION 127+40 TO 152+00 OUTFALLING TO POND 6. THIS ENTITLEMENT IS MAINTAINED IN THIS PERMIT MODIFICATION.

BASIN D008 INCLUDES 6.56 ACRES OF IMPERVIOUS AREA FROM THE PROPOSED TYPICAL OSCEOLA COUNTY RIGHT-OF-WAY 6-LANE WIDENING SECTION FROM THE END OF BASIN D001 TO THE NORTHERN I-4 RIGHT-OF-WAY, APPROXIMATELY FROM STATION 127+40 TO 106+60 OUTFALLING TO POND 8. THIS PROPOSED 6-LANE WIDENING SECTION IS SIMILAR TO THE AREA IN BASIN D001 PREVIOUSLY PERMITTED UNDER PERMIT NO. 49-00954-P.

THE LOWEST INLET ELEVATION ALONG OLD LAKE WILSON ROAD ADJACENT TO THESE PONDS IS APPROXIMATELY 109.90'. POND 8 HAS A PEAK STAGE OF 97.09' AND POND 6 A PEAK STAGE OF 91.13' FOR THE 10-YEAR, 24-HOUR STORM.

*****BASIN D008 INCLUDES 6.56 ACRE IMPERVIOUS AREA FOR THE PROPOSED 6-LANE EXPANSION OF OLD LAKE WILSON ROAD***

FLOOD NOTE:
NO FLOOD PLAIN ON OR ADJACENT TO SITE

⚠ ***ACCESS NOTE:***
OWNER GRANTS A BLANKET ACCESS EASEMENT TO THE PROPERTY OWNER (PARCEL ID 27252731600000A0085) FOR INGRESS/EGRESS UNTIL SUCH TIME AS THE RIGHT-OF-WAY IS VACATED AND THE PLAT IS RECORDED.

PS-14-00003
SDP13-0033

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			02-24-15	JL	REV .PER OWNER ⚠2
			10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS ⚠1
			05-05-14	DLS	ADD ADD'L PROPERTY TO SOUTH/ RECONFIGURE WEST SIDE LAYOUT

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

POST DEVELOPMENT BASIN MAP

REUNION WEST
OSCEOLA COUNTY, FLORIDA

DATE: MAY 2015
PROJECT NO.: EHO7
DRAWN BY: JL
CHECKED BY: DMS
~~SCALE: 1"= 300'~~
SHEET: 3 OF13 ⚠3

F:\EHO7\Drainage\EHO7 Post Dev map 3-07-16.dwg,3/15/2016 11:15:57 AM

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.
2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.
3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Area, Curve Number, and Tc Summary

BASIN #	AREA (ac)	CN	TC (min)
1	33.44	57	32
2	23.02	64	15
SIN-201	5.48	83	14
SIN-301	5.53	84	14
3A	20.29	58	10
4	59.70	74	14
5	10.40	67	14
6	22.45	61	12
8	30.55	63	12
D001	7.42	89	10
D005-OS	1.90	48	10
D008	8.20	88	10
Future Basin 1	41.79	39	25
TOTAL	270.17		

Notes:
1. Total Site Acerage = 223.84 acres.
2. Offsite wetland area on the East side remaining of 21.33 acres.
3. Offsite Area including Basins SIN-201, SIN-301, D001, D005-OS, and D006-OS of 23.51 acres

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.

2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.

3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Area Summary

BASIN #	ON SITE AREA (ac)	OFF SITE AREA (ac.)	TOTAL (ac.)
1	33.44	0.00	33.44
2	23.02	0.00	23.02
SIN-201	0.00	5.48	5.48
SIN-301	0.00	5.53	5.53
3A	20.29	0.00	20.29
4	59.70	0.00	59.70
5	10.40	0.00	10.40
6	22.45	0.00	22.45
8	30.55	0.00	30.55
D001	0.00	7.42	7.42
D005-OS	0.00	1.90	1.90
D008	0.00	8.20	8.20
Future Basin 1	41.79	0.00	41.79
TOTAL	241.64	28.53	270.17

Notes: 1. Total On Site Acreage = 241.64 acres.
2. 205.06 ac + 21.33 ac = 226.39 acres

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.
2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.
3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Impervious Area Calculations

		Areas		Roadways: Internal Road			Other	Sub-total	Pond	Total
Basin #	# Houses	House[1]	Driveways[2]	Length	Cul-de-sac	Area	Area	Impervious	Area	Impervious
		(ac)	(ac)	(ft.)	(#)	(ac)	(ac)	(ac)	(ac)	(ac)
1	26	1.49	0.24	0	0.0	1.95	6.70	10.38	6.57	16.95
2	81	7.44	0.74	0	0.0	1.00	0.76	9.94	2.76	12.70
SIN-201	0	0.00	0.00	0	0.0	2.03	0.36	2.39	0.00	2.39
SIN-301	0	0.00	0.00	0	0.0	2.04	0.36	2.40	0.00	2.40
3A	55	5.05	0.51	0	0.0	0.86	0.27	6.69	3.65	10.34
4	185	16.99	1.70	0	0.0	3.40	11.98	34.07	1.63	35.70
5	57	3.27	0.52	0	0.0	0.48	0.58	4.85	1.03	5.88
6	101	5.80	0.93	0	0.0	1.11	0.40	8.24	1.86	10.10
8	127	7.29	1.17	0	0.0	2.92	0.95	12.33	5.26	17.59
D001	0	0.00	0.00	0	0.0	0.00	6.09	6.09	0.00	6.09
D005-OS	0	0.00	0.00	0	0.0	0.00	0.00	0.00	0.00	0.00
D008	0	0.00	0.00	0	0.0	6.56	0.00	6.56	0.00	6.56

NOTES: 1. Houses were assumed to be 4000, 3,250, or 2,500 sq ft footprint area, depending on location.
2. Driveways were assumed to be 400 sqft.
3. Other Impervious Area in Basin 1 assumes 6.7 ac of impervious area for Pool, Building Soccer Field, Clubhouse & Parking Lot
4. Basins D001, D002-P, D005-OS, D006-OS have been permitted under Permit No. 49-00954-P
5. Basin D001 Includes 6.09 acres of paving for future 6 lane right-of-way, as permitted under 49-00954-P
6. Basin 4 houses and all impervious area were assumed the avg. of 2500 sq ft. and 4000 sq ft.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Time of Concentration Calculations

BASIN	SHEET FLOW SLOPE FT/FT	SHEET FLOW L FT	MAN n	SHEET FLOW Tt MIN	SHALLOW CON SLOPE FT/FT	SHALLOW CON FLOW L FT	P or U	AVG. VEL. V FT/S	SHALLOW CON FLOW Tt MIN	PIPE FLOW L FT	PIPE FLOW Tt MIN	TC MIN
1	0.0133	300	0.16	23.9	0.0000	0	P	2	0.0	975	8.1	32
2	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1830	15.3	15
SIN-201	0.0050	40	0.04	2.1	0.0050	1450	P	2	12.1	0	0.0	14
SIN-301	0.0050	40	0.04	2.1	0.0050	1450	P	2	12.1	0	0.0	14
3A	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1220	10.2	10
4	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1640	13.7	14
5	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1650	13.8	14
6	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1400	11.7	12
8	0.0000	0	0.00	0.0	0.0000	0	P	2	0.0	1450	12.1	12
D001	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
D005-OS	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
D008	0.0500	50	0.24	5.6	0.0100	0	P	2	0.0	200	1.7	10
Future Basin 1	0.0330	300	0.24	18.5	0.0310	761	U	2	6.3	0	0.0	25

Kinematic Wave Equation (Sheet Flow), Shallow Conc. Flow & Pipe Flow (SCS TR-55):

t = 0.93*L^0.6*n^0.6/I^0.4*s^0.3 + L/60*V + L/60*V

t = overland flow travel time (minutes), L = overland flow length (ft.), n = mannings roughness coefficient

I = rainfall intensity (4.50 in/hr), s = average slope (ft/ft), V = average velocity (ft/s) = 20.3282(s^0.5) (paved) or 16.1345(s^0.5) (unpaved)

60=conversion factor from seconds to minutes

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Curve Number Calculations

Basin #	CN=98 Impervious (ac)	Impervious (% of Total)	CN=100 Pond (ac)	Pond (% of Total)	Pervious (ac)	Pervious (% of Total)	Pervious CN	Total (ac)	Composite CN
1	**10.38**	31%	**0.00**	0%	**23.06**	69%	**39**	**33.44**	**57**
2	**9.94**	43%	**0.00**	0%	**13.08**	57%	**39**	**23.02**	**64**
SIN-201	**2.39**	44%	**0.00**	0%	**3.09**	56%	**72**	**5.48**	**83**
SIN-301	**2.40**	43%	**0.00**	0%	**3.13**	57%	**74**	**5.53**	**84**
3A	**6.69**	33%	**0.00**	0%	**13.60**	67%	**39**	**20.29**	**58**
4	**34.07**	57%	**1.63**	3%	**24.00**	40%	**39**	**59.70**	**74**
5	**4.85**	47%	**0.00**	0%	**5.55**	53%	**39**	**10.40**	**67**
6	**8.24**	37%	**0.00**	0%	**14.21**	63%	**39**	**22.45**	**61**
8	**12.33**	40%	**0.00**	0%	**18.22**	60%	**39**	**30.55**	**63**
D001	**6.09**	82%	**0.00**	0%	**1.33**	18%	**48**	**7.42**	**89**
D005-OS	**0.00**	0%	**0.00**	0%	**1.90**	100%	**48**	**1.90**	**48**
D008	**6.56**	80%	**0.00**	0%	**1.64**	20%	**48**	**8.20**	**88**
Future Basin 1	**0.00**	0%	**0.00**	0%	**43.69**	105%	**39**	**41.79**	**41**
							TOTAL	**270.17**	

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Water Quality Calculations

For Wet Ponds, The district requries a Treatment Volume of either 1 inch of runoff or 2.5 inches times the imperivous area, whichever is greater.

Because Lake Okeechobee is an impaired water body and the treatment volume required is an additional 150% of the previously mentioned WQ volume.

For Dry Ponds, The district requries a Treatment Volume equal to 50 percent of the Wet Pond.

To provide the water quality volume necessary to meet pre-development phosphorous loading 4 inches over the drainage area must be retained for basins using dry ponds.

To provide the water quality volume necessary to meet pre-development phosphorous loading 0.85 inches over the drainage area must be retained plus wet detention with 21 day resident time for basins with wet detention.

Basin	Dry Ponds	Area	Impervious Area	Water Quality 1 in x area	Water Quality 2.5 in x imp	Normal W.Q. Required	Dry Retention 50% Credit	Impaired Water Body 150% Additional WQ Vol. Ac-ft	**Required stormwater runoff retention	**Required stormwater runoff retention	Governing Volume	Volume Provided
#	#	(ac)	(ac)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(inch)	(ac-ft)	(ac-ft)	(ac-ft)
2	Pond 2	23.02	9.94	1.92	2.07	2.07	1.04	1.55	0.75	1.44	2.07	4.12
3A	Pond 3A	20.29	6.69	1.69	1.39	1.69	0.85	1.27	0.75	1.27	1.69	2.83
5	Pond 5	10.40	4.85	0.87	1.01	1.01	0.51	0.76	0.75	0.65	1.01	2.08
6	Pond 6	22.45	8.24	1.87	1.72	1.87	0.94	1.40	0.75	1.40	1.87	3.46
8	Pond 8	38.75	18.89	3.23	3.93	3.93	1.97	2.95	0.75	2.42	3.93	5.12
1	Pond 1	33.44	10.38	2.79	2.16	2.79	1.39	2.09	1.25	3.48	3.48	15.22

Basin	Wet Ponds	Area	Impervious Area	Water Quality 1 in x area	2.5 in x imp	Normal W.Q. Required	Dry Retention 50%	Impaired Water Body 150% Additional WQ Vol. Ac-ft	**Required stormwater runoff retention	**Required stormwater runoff retention	Governing Volume	Volume Provided
#	#	(ac)	(ac)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(inch)	(ac-ft)	(ac-ft)	(ac-ft)
SIN-201	Pond 4											
SIN-301	Pond 4	59.70	40.49	4.98	8.44	8.44	N/A	12.65	1.50	7.46	12.65	12.70
4	Pond 4											

Notes:

From Sinclair Road Pond 201 Revision Stormwater Calculations (June 27, 2003), required treatment volume = 9.94 ac-ft for Pond 4

** From UCF Stormwater Academy Nutrient Loading Worksheet

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations

Dry Pond 2

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
132.00	1.58	0.00	0
133.00	1.76	1.67	1.67
134.00	1.93	1.85	3.52
135.00	2.11	2.02	5.54
136.00	2.29	2.20	7.74
137.00	2.76	2.53	10.26

Required Treatment Volume =	2.07	Ac-ft
Water Quality Elev. at or above =	133.29	feet
1/2 TV =	1.04	Ac-ft
Elevation at which 1/2 TV has recovered =	132.66	feet
Water Quality Elev. Set at =	134.3	feet
Provided Treatment Volume =	4.12	Ac-ft

Dry Pond 3A

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
123.00	2.97	0.00	0
124.00	3.31	3.14	3.14
125.00	3.48	3.40	6.54
126.00	3.65	3.57	10.10
127.00	3.82	3.74	13.84
128.00	4.00	3.91	17.75
129.00	4.45	4.23	21.97

Required Treatment Volume =	1.69	Ac-ft
Water Quality Elev. at or above =	123.54	feet
1/2 TV =	0.85	Ac-ft
Elevation at which 1/2 TV has recovered =	123.27	feet
Water Quality Elev. Set at =	123.9	feet
Provided Treatment Volume =	2.83	Ac-ft

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations

Wet Pond 4

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
99.50	1.63	0.00	0
100.00	1.69	0.83	0.83
101.00	1.81	1.75	2.58
102.00	1.94	1.88	4.46
103.00	2.07	2.01	6.46
104.00	2.21	2.14	8.60
105.00	2.35	2.28	10.88
106.00	2.49	2.42	13.30
107.00	2.64	2.57	15.87
108.00	2.79	2.72	18.58
117.00	4.34	32.09	50.67
118.00	4.81	4.58	55.24

Required Treatment Volume =	12.65	Ac-ft
Set Weir at or above =	105.73	feet
1/2 TV =	6.33	Ac-ft
Elevation at which 1/2 TV has recovered =	102.93	feet
Weir Set at =	105.75	feet
Provided Treatment Volume =	12.70	Ac-ft

Dry Pond 5

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
117.00	0.21	0.00	0
118.00	0.29	0.25	0.25
119.00	0.38	0.34	0.59
120.00	0.47	0.43	1.01
121.00	0.57	0.52	1.53
122.00	0.66	0.62	2.15
123.00	0.76	0.71	2.86
124.50	1.03	1.34	4.20

Required Treatment Volume =	1.01	Ac-ft
Water Quality Elev. at or above =	120.16	feet
1/2 TV =	0.51	Ac-ft
Elevation at which 1/2 TV has recovered =	119.03	feet
Water Quality Elev. Set at =	121.9	feet
Provided Treatment Volume =	2.08	Ac-ft

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations

Dry Pond 6

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
88.60	1.87	0.00	0
89.00	1.94	0.76	0.76
90.00	2.13	2.04	2.80
91.00	2.31	2.22	5.02
92.00	2.5	2.41	7.42
93.00	2.7	2.60	10.02
94.00	2.89	2.80	12.82
95.00	3.34	3.12	15.93

Required Treatment Volume =	1.87	Ac-ft
Water Quality Elev. at or above =	89.58	feet
1/2 TV =	0.94	Ac-ft
Elevation at which 1/2 TV has recovered =	89.09	feet
Water Quality Elev. Set at =	90.3	feet
Provided Treatment Volume =	3.46	Ac-ft

Dry Pond 8

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
95.00	2.82	0.00	0
96.00	3.12	2.97	2.97
97.00	3.51	3.32	6.29
98.00	3.89	3.70	9.99
99.00	4.26	4.08	14.06
100.00	5.26	4.76	18.82

Required Treatment Volume =	3.93	Ac-ft
Water Quality Elev. at or above =	96.29	
1/2 TV =	1.97	Ac-ft
Elevation at which 1/2 TV has recovered =	95.66	feet
Water Quality Elev. Set at =	96.65	feet
Provided Treatment Volume =	5.12	Ac-ft

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations

Dry Pond 1

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
119.00	3.97	0.00	0.00
120.00	4.18	4.08	4.08
121.00	4.39	4.29	8.36
122.00	4.6	4.50	12.86
123.00	4.82	4.71	17.57
124.00	5.04	4.93	22.50
125.00	5.26	5.15	27.65
126.00	5.49	5.38	33.02
127.00	5.72	5.61	38.63
128.00	6.29	6.01	44.63

Required Treatment Volume =	3.48 Ac-ft
Water Quality Elev. at or above =	119.86 feet
1/2 TV =	1.74 Ac-ft
Elevation at which 1/2 TV has recovered =	119.43 feet
Water Quality Elev. Set at =	126.6 feet
Provided Treatment Volume =	32.36 Ac-ft

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Drawdown Orifice Design

Pond 4

C=	0.6	Orifice Coefficient
TV=	12.65	Acre-feet Required treatment volume
h1=	6.2	ft (Depth of water from the top of the TV to the orifice flow line)
h2=	3.4	ft (Depth of water from 1/2 of the TV to the orifice flow line)
h=	4.83	Average depth
	0	Additional seepage flow (cfs)

t min= 24 hours (No more than 0.5 TV discharged in the first 24 hours)

Maximum orifice size: ***7.4 inches*** Orifice size required to allow no more than 1/2 TV to leave pond in first 24

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Permanent Pool Calculations

POND	4	
BASIN AREA	70.71	ACRES
IMPERVIOUS AREA	40.49	ACRES
AVG RAINFALL	31	INCHES (JUNE-OCTOBER)
WET SEASON	153	DAYS
C - FACTOR	0.63	

	ELEV (FEET)	AREA (ACRES)	AVG. AREA (ACRES)	INC. DEPTH (FEET)	INC. STORAGE (AC-FT)	CUM. STORAGE (AC-FT)
BOT	87.00	0.87	-	-	-	0.00
GRDBRK	92.00	1.41	1.14	5.00	5.70	5.70
NWL	99.50	1.63	1.52	7.50	11.40	17.10

PERMANENT POOL AVAIL.= 17.10 AC-FT

AVERAGE DAILY RUNOFF VOLUME (USING 153 DAY RAINFALL PERIOD) =
(TOTAL AREA*C)(31"/153 DAYS)(1'/12") =
= 0.75 AC-FT

POND INFLOW =	2348.467 CFD =	0.05	AC-FT/DAY	from Pond 3a
SEEPAGE INFLOW =	0 CFD =	0.00	AC-FT/DAY	(POND INFLOW)
SEEPAGE INFLOW =	0 CFD =	0.00	AC-FT/DAY	(UNDERDRAIN INFLOW)
TOTAL INFLOW =	0.81 AC-FT			

$$\text{RESIDENCE TIME} = \frac{\text{PERMANENT VOLUME AVAILABLE}}{\text{AVERAGE DAILY RUNOFF VOLUME}} = 21.2 \text{ DAYS}$$

RESIDENCE TIME = > 14.0 DAYS O.K.

********** ********** ********** **********

REUNION WEST
OSCEOLA COUNTY, FLORIDA
SUMMARY OF HYDRAULIC CONDUCTIVITY

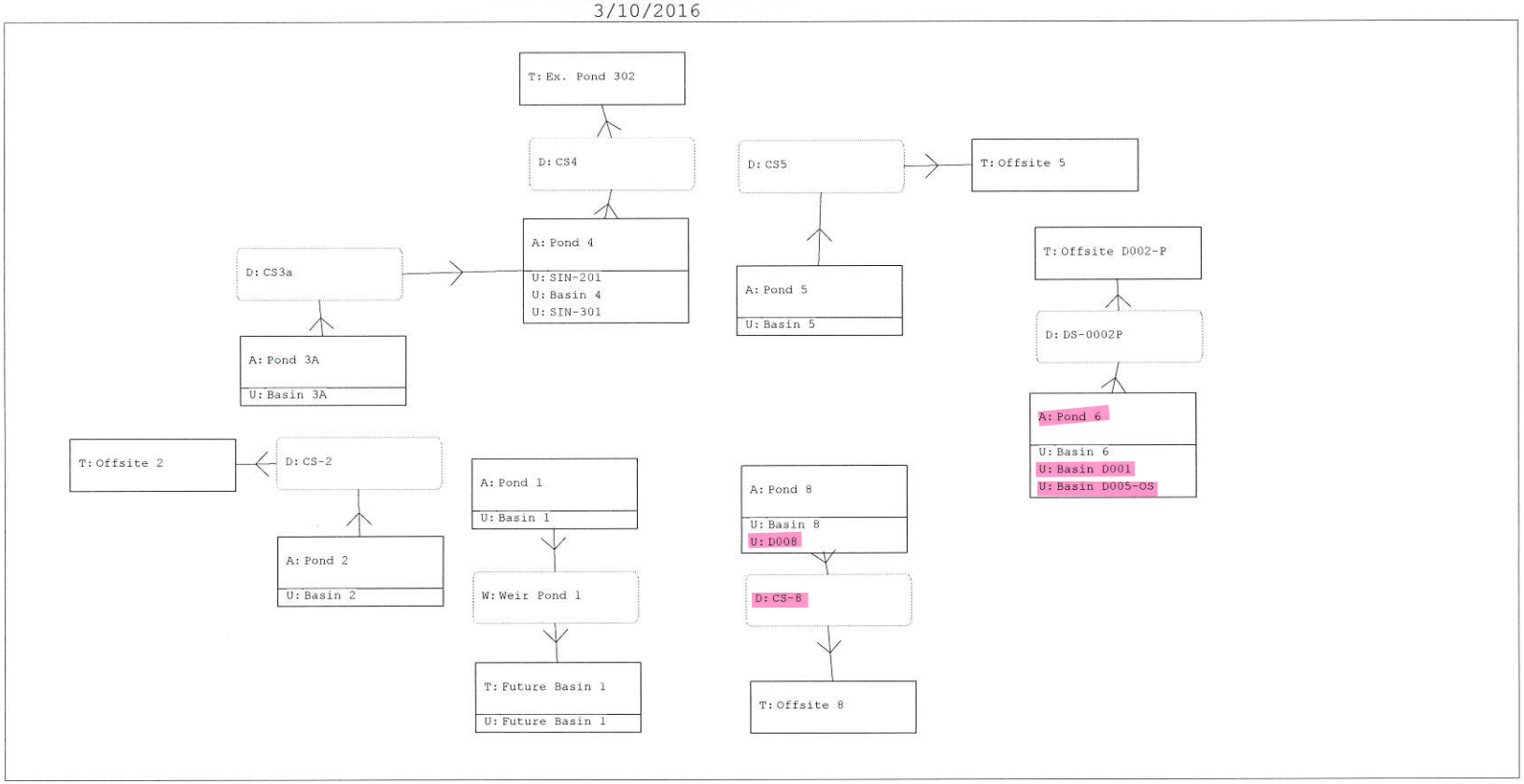
POND ID ERP APPLICATION (units)	POND ID FROM GEOTECH REPORT (units)	HORIZONTAL HYDRAULIC CONDUCTIVITY (ft/day)	VERTICAL HYDRAULIC CONDUCTIVITY (ft/day)
3A	1	30	4
4	2	30	4
5	3	30	4
2	4	30	4
1	5	30	4
6	6	20	4
8	7	20	4

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



F:\EHO7\Drainage\ICPR-Final\Post\EHO7- Curve Extrapolation.ICP

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc.

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Name:	Basin 1	Basin 2	Basin 3A	Basin 4	Basin 5
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-24H	100Y-24H	100Y-24H	100Y-24H	100Y-24H
Node:	Pond 1	Pond 2	Pond 3A	Pond 4	Pond 5
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Comp Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	9.000	9.000	9.000	9.000	9.000
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	32.00	15.00	10.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	33.440	23.020	20.290	59.700	10.400
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.000	1.000
Curve Num:	57.000	64.000	58.000	74.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.30	12.10	12.04	12.07	12.07
Flow Max(cfs):	57.177	71.160	60.647	240.794	35.816
Runoff Volume(in):	3.732	4.596	3.857	5.830	4.965
Runoff Volume(ft3):	452978.280	384028.011	284056.550	1263505.646	187451.372

Name:	Basin 8	D008	Future Basin 1	SIN-201	SIN-301
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-24H	100Y-24H	100Y-24H	100Y-24H	100Y-24H
Node:	Pond 8	Pond 8	Future Basin 1	Pond 4	Pond 4
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Comp Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	9.000	9.000	9.000	9.000	9.000
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	12.00	10.00	25.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	30.550	8.200	41.790	5.480	5.530
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	88.000	39.000	83.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.05	12.02	12.33	12.07	12.07
Flow Max(cfs):	100.249	45.432	26.715	25.687	26.269
Runoff Volume(in):	4.472	7.551	1.603	6.938	7.061
Runoff Volume(ft3):	495956.827	224766.742	243222.818	138019.246	141739.377

Name:	Basin 1	Basin 2	Basin 3A	Basin 4	Basin 5
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-72H	100Y-72H	100Y-72H	100Y-72H	100Y-72H
Node:	Pond 1	Pond 2	Pond 3A	Pond 4	Pond 5
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Comp Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Rain File:	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72
Rain Amount(in):	11.600	11.600	11.600	11.600	11.600
Duration(hrs):	72.00	72.00	72.00	72.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	32.00	15.00	10.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	33.440	23.020	20.290	59.700	10.400
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.000	1.000

Curve Num:	57.000	64.000	58.000	74.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.16	60.03	60.02	60.04	60.04
Flow Max(cfs):	81.219	89.321	79.653	268.024	43.019
Runoff Volume(in):	5.774	6.818	5.928	8.243	7.253
Runoff Volume(ft3):	700867.033	569733.326	436584.027	1786337.879	273806.176

Name:	Basin 8	D008	Future Basin 1	SIN-201	SIN-301
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-72H	100Y-72H	100Y-72H	100Y-72H	100Y-72H
Node:	Pond 8	Pond 8	Future Basin 1	Pond 4	Pond 4
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Comp Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Rain File:	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72
Rain Amount(in):	11.600	11.600	11.600	11.600	11.600
Duration(hrs):	72.00	72.00	72.00	72.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	12.00	10.00	25.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	30.550	8.200	41.790	5.480	5.530
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	88.000	39.000	83.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.03	60.00	60.11	60.04	60.04
Flow Max(cfs):	125.077	44.327	63.949	26.451	26.854
Runoff Volume(in):	6.671	10.114	2.978	9.462	9.594
Runoff Volume(ft3):	739835.348	301063.732	451704.132	188223.367	192585.257

Name:	Basin 1	Basin 2	Basin 3A	Basin 4	Basin 5
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	10Y-24H	10Y-24H	10Y-24H	10Y-24H	10Y-24H
Node:	Pond 1	Pond 2	Pond 3A	Pond 4	Pond 5
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Comp Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	5.700	5.700	5.700	5.700	5.700
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	32.00	15.00	10.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	33.440	23.020	20.290	59.700	10.400
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.000	1.000
Curve Num:	57.000	64.000	58.000	74.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.37	12.10	12.07	12.07	12.07
Flow Max(cfs):	20.584	30.547	22.921	121.184	16.182
Runoff Volume(in):	1.496	2.053	1.574	2.935	2.306
Runoff Volume(ft3):	181637.700	171544.482	115894.717	636019.863	87071.574

Name:	Basin 8	D008	Future Basin 1	SIN-201	SIN-301
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	10Y-24H	10Y-24H	10Y-24H	10Y-24H	10Y-24H
Node:	Pond 8	Pond 8	Future Basin 1	Pond 4	Pond 4
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Comp Time Inc(min):	1.60	1.33	3.33	1.87	1.87

Rain File:	Flmod	Flmod	Flmod	Flmod	Flmod
Rain Amount(in):	5.700	5.700	5.700	5.700	5.700
Duration(hrs):	24.00	24.00	24.00	24.00	24.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	12.00	10.00	25.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	30.550	8.200	41.790	5.480	5.530
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	88.000	39.000	83.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.08	12.04	12.61	12.07	12.07
Flow Max(cfs):	42.302	26.903	3.001	14.427	14.912
Runoff Volume(in):	1.970	4.339	0.363	3.815	3.917
Runoff Volume(ft3):	218497.670	129163.673	55112.679	75884.273	78639.200

Name:	Basin 1	Basin 2	Basin 3A	Basin 4	Basin 5
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	10Y-72H	10Y-72H	10Y-72H	10Y-72H	10Y-72H
Node:	Pond 1	Pond 2	Pond 3A	Pond 4	Pond 5
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Comp Time Inc(min):	4.27	2.00	1.33	1.87	1.87
Rain File:	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72
Rain Amount(in):	7.800	7.800	7.800	7.800	7.800
Duration(hrs):	72.00	72.00	72.00	72.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	32.00	15.00	10.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	33.440	23.020	20.290	59.700	10.400
Vol of Unit Hyd(in):	1.001	1.000	1.000	1.000	1.000
Curve Num:	57.000	64.000	58.000	74.000	67.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.16	60.03	60.02	60.04	60.04
Flow Max(cfs):	41.907	50.096	42.405	163.028	24.829
Runoff Volume(in):	2.860	3.624	2.969	4.749	3.957
Runoff Volume(ft3):	347196.027	302820.605	218689.593	1029072.914	149384.026

Name:	Basin 8	D008	Future Basin 1	SIN-201	SIN-301
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	10Y-72H	10Y-72H	10Y-72H	10Y-72H	10Y-72H
Node:	Pond 8	Pond 8	Future Basin 1	Pond 4	Pond 4
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Comp Time Inc(min):	1.60	1.33	3.33	1.87	1.87
Rain File:	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72	Sfwmd72
Rain Amount(in):	7.800	7.800	7.800	7.800	7.800
Duration(hrs):	72.00	72.00	72.00	72.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	12.00	10.00	25.00	14.00	14.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	30.550	8.200	41.790	5.480	5.530
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	63.000	88.000	39.000	83.000	84.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.03	60.00	60.17	60.04	60.04
Flow Max(cfs):	69.786	29.068	22.415	16.960	17.302
Runoff Volume(in):	3.514	6.375	1.075	5.788	5.905
Runoff Volume(ft3):	389639.187	189770.705	163058.593	115145.816	118541.530

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Ex. Pond 302	BASE	100Y-24H	24.00	90.000	90.000	0.0002	0	17.76	12.237	0.00	0.000
Ex. Pond 302	BASE	100Y-72H	24.00	90.000	90.000	0.0002	0	62.80	19.276	0.00	0.000
Ex. Pond 302	BASE	10Y-24H	24.00	90.000	90.000	0.0002	0	23.59	3.980	0.00	0.000
Ex. Pond 302	BASE	10Y-72H	24.00	90.000	90.000	0.0002	0	64.39	7.987	0.00	0.000
Future Basin 1	BASE	100Y-24H	30.00	93.000	96.000	0.0001	0	12.25	26.035	0.00	0.000
Future Basin 1	BASE	100Y-72H	60.00	96.000	96.000	-0.0007	0	60.17	63.677	0.00	0.000
Future Basin 1	BASE	10Y-24H	30.00	93.000	96.000	0.0001	0	12.50	2.928	0.00	0.000
Future Basin 1	BASE	10Y-72H	60.00	96.000	96.000	-0.0007	0	60.17	22.386	0.00	0.000
Offsite 2	BASE	100Y-24H	0.00	128.000	128.010	0.0000	0	13.83	7.868	0.00	0.000
Offsite 2	BASE	100Y-72H	0.00	128.000	128.010	0.0000	0	61.05	14.680	0.00	0.000
Offsite 2	BASE	10Y-24H	0.00	128.000	128.010	0.0000	0	0.00	0.000	0.00	0.000
Offsite 2	BASE	10Y-72H	0.00	128.000	128.010	0.0000	0	62.11	4.533	0.00	0.000
Offsite 5	BASE	100Y-24H	0.00	112.000	112.010	0.0000	0	14.80	2.649	0.00	0.000
Offsite 5	BASE	100Y-72H	0.00	112.000	112.010	0.0000	0	60.69	11.415	0.00	0.000
Offsite 5	BASE	10Y-24H	0.00	112.000	112.010	0.0000	0	0.00	0.000	0.00	0.000
Offsite 5	BASE	10Y-72H	0.00	112.000	112.010	0.0000	0	62.88	1.491	0.00	0.000
Offsite 8	BASE	100Y-24H	0.00	93.000	93.010	0.0000	0	14.67	10.137	0.00	0.000
Offsite 8	BASE	100Y-72H	0.00	93.000	93.010	0.0000	0	61.27	18.191	0.00	0.000
Offsite 8	BASE	10Y-24H	0.00	93.000	93.010	0.0000	0	22.72	2.114	0.00	0.000
Offsite 8	BASE	10Y-72H	0.00	93.000	93.010	0.0000	0	62.10	7.854	0.00	0.000
Offsite D002-P	BASE	100Y-24H	0.00	88.600	88.600	0.0000	0	17.67	4.691	0.00	0.000
Offsite D002-P	BASE	100Y-72H	0.00	88.600	88.600	0.0000	0	64.11	6.410	0.00	0.000
Offsite D002-P	BASE	10Y-24H	0.00	88.600	88.600	0.0000	0	22.71	1.667	0.00	0.000
Offsite D002-P	BASE	10Y-72H	0.00	88.600	88.600	0.0000	0	64.09	3.962	0.00	0.000
Pond 1	BASE	100Y-24H	26.75	121.460	128.000	0.0011	195434	12.25	56.495	0.00	0.000
Pond 1	BASE	100Y-72H	74.58	122.692	128.000	0.0014	207005	60.17	81.105	0.00	0.000
Pond 1	BASE	10Y-24H	26.75	120.023	128.000	0.0005	182290	12.25	19.716	0.00	0.000
Pond 1	BASE	10Y-72H	74.58	120.911	128.000	0.0009	190415	60.17	41.873	0.00	0.000
Pond 2	BASE	100Y-24H	13.83	134.852	137.000	0.0017	90749	12.00	64.110	13.83	7.868
Pond 2	BASE	100Y-72H	61.05	136.196	137.000	0.0017	103768	60.00	87.825	61.05	14.680
Pond 2	BASE	10Y-24H	25.25	134.215	137.000	0.0011	85755	12.25	26.373	0.00	0.000
Pond 2	BASE	10Y-72H	62.11	134.682	137.000	0.0015	89418	60.08	49.095	62.11	4.533
Pond 3A	BASE	100Y-24H	24.14	124.810	129.000	0.0008	150182	12.00	57.663	24.14	0.854
Pond 3A	BASE	100Y-72H	72.10	125.645	129.000	0.0011	156362	60.00	79.343	72.10	1.266
Pond 3A	BASE	10Y-24H	25.00	123.858	129.000	0.0005	142086	12.00	21.040	0.00	0.000

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EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Pond 3A	BASE	10Y-72H	72.14	124.436	129.000	0.0008	147412	60.00	42.103	72.14	0.582
Pond 4	BASE	100Y-24H	17.76	110.341	118.000	0.0055	139094	12.00	273.411	17.76	12.237
Pond 4	BASE	100Y-72H	62.80	112.648	118.000	0.0050	156402	60.00	318.847	62.80	19.276
Pond 4	BASE	10Y-24H	23.59	106.432	118.000	0.0050	111289	12.00	138.162	23.59	3.980
Pond 4	BASE	10Y-72H	64.39	108.652	118.000	0.0050	126422	60.00	194.864	64.39	7.987
Pond 5	BASE	100Y-24H	14.80	122.896	124.500	0.0033	32650	12.00	32.929	14.80	2.649
Pond 5	BASE	100Y-72H	60.69	124.177	124.500	0.0026	42333	60.00	42.482	60.69	11.415
Pond 5	BASE	10Y-24H	25.25	121.754	124.500	0.0034	27786	12.00	14.460	0.00	0.000
Pond 5	BASE	10Y-72H	62.88	122.579	124.500	0.0028	31271	60.00	24.415	62.88	1.491
Pond 8	BASE	100Y-24H	14.67	98.125	100.000	0.0019	171464	12.00	138.722	14.67	10.137
Pond 8	BASE	100Y-72H	61.27	99.408	100.000	0.0019	203331	60.00	168.396	61.27	18.191
Pond 8	BASE	10Y-24H	22.71	97.085	100.000	0.0015	154297	12.00	64.807	22.72	2.114
Pond 8	BASE	10Y-72H	62.09	97.827	100.000	0.0018	166580	60.00	98.078	62.10	7.854

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

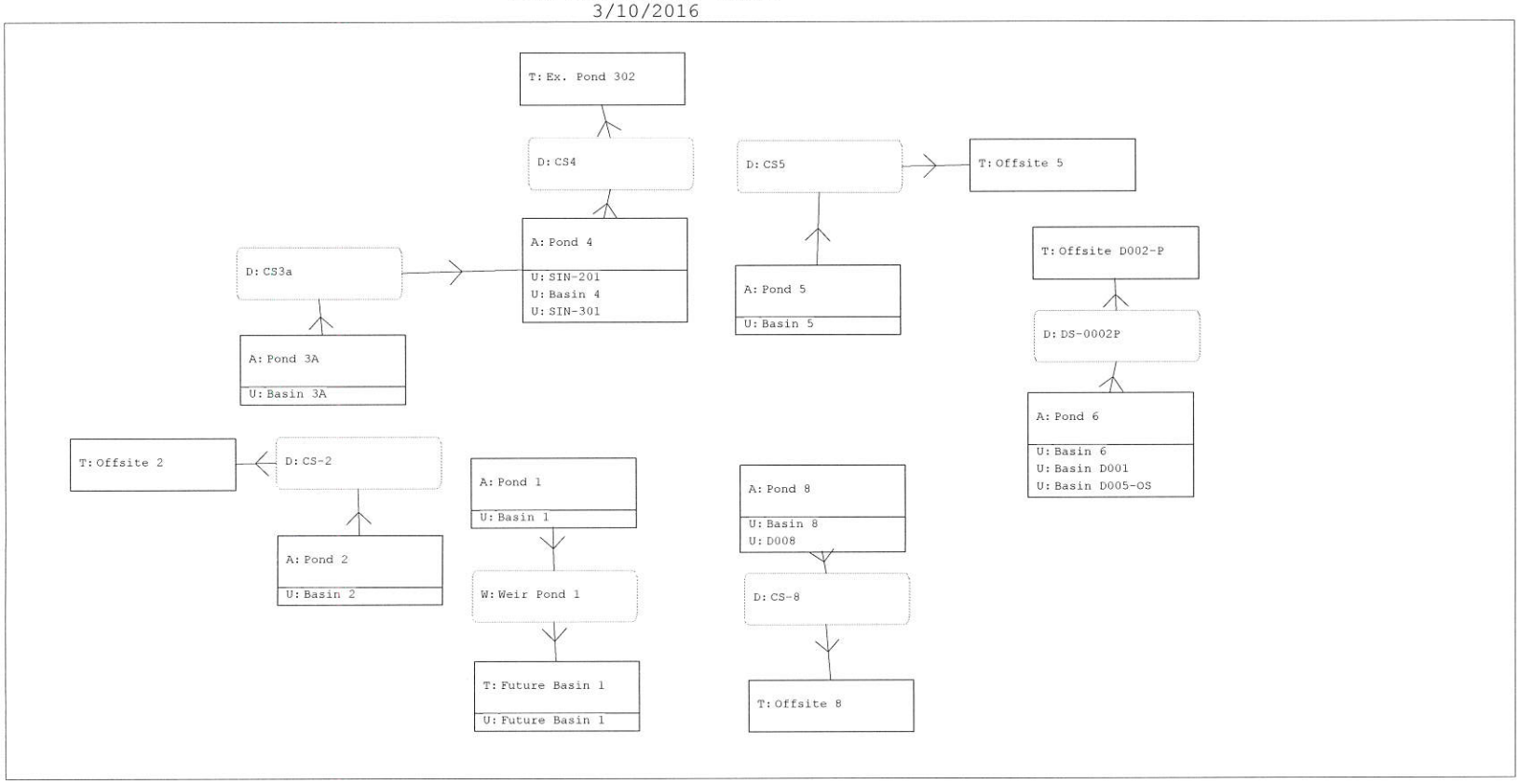
Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
CS-2	BASE	100Y-24H	13.83	7.868	0.018	13.83	134.852	0.00	128.000
CS-2	BASE	100Y-72H	61.05	14.680	0.035	61.05	136.196	0.00	128.000
CS-2	BASE	10Y-24H	0.00	0.000	0.000	25.25	134.215	0.00	128.000
CS-2	BASE	10Y-72H	62.11	4.533	0.010	62.11	134.682	0.00	128.000
CS-8	BASE	100Y-24H	14.67	10.137	0.014	14.67	98.125	0.00	93.000
CS-8	BASE	100Y-72H	61.27	18.191	0.016	61.27	99.408	0.00	93.000
CS-8	BASE	10Y-24H	22.72	2.114	0.002	22.71	97.085	0.00	93.000
CS-8	BASE	10Y-72H	62.10	7.854	0.011	62.09	97.827	0.00	93.000
CS3a	BASE	100Y-24H	24.14	0.854	0.000	24.14	124.810	17.76	110.341
CS3a	BASE	100Y-72H	72.10	1.266	0.002	72.10	125.645	62.80	112.648
CS3a	BASE	10Y-24H	0.00	0.000	0.000	25.00	123.858	23.59	106.432
CS3a	BASE	10Y-72H	72.14	0.582	0.000	72.14	124.436	64.39	108.652
CS4	BASE	100Y-24H	17.76	12.237	-0.012	17.76	110.341	24.00	90.000
CS4	BASE	100Y-72H	62.80	19.276	-0.012	62.80	112.648	24.00	90.000
CS4	BASE	10Y-24H	23.59	3.980	-0.012	23.59	106.432	24.00	90.000
CS4	BASE	10Y-72H	64.39	7.987	-0.012	64.39	108.652	24.00	90.000
CS5	BASE	100Y-24H	14.80	2.649	0.004	14.80	122.896	0.00	112.000
CS5	BASE	100Y-72H	60.69	11.415	0.015	60.69	124.177	0.00	112.000
CS5	BASE	10Y-24H	0.00	0.000	0.000	25.25	121.754	0.00	112.000
CS5	BASE	10Y-72H	62.88	1.491	0.002	62.88	122.579	0.00	112.000
Weir Pond 1	BASE	100Y-24H	0.00	0.000	0.000	26.75	121.460	30.00	93.000
Weir Pond 1	BASE	100Y-72H	0.00	0.000	0.000	74.58	122.692	60.00	96.000
Weir Pond 1	BASE	10Y-24H	0.00	0.000	0.000	26.75	120.023	30.00	93.000
Weir Pond 1	BASE	10Y-72H	0.00	0.000	0.000	74.58	120.911	60.00	96.000

EHO-7
POST-DEVELOPMENT (OLWR)
3/10/2016

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



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EHO-7
POST-DEVELOPMENT (OLWR)
3/10/2016

Name:	Basin 6	Basin D001	Basin D005-OS	Basin 6	Basin D001
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-24H	100Y-24H	100Y-24H	100Y-72H	100Y-72H
Node:	Pond 6	Pond 6	Pond 6	Pond 6	Pond 6
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.60	1.33	1.33	1.60	1.33
Comp Time Inc(min):	1.60	1.33	1.33	1.60	1.33
Rain File:	Flmod	Flmod	Flmod	Sfwmd72	Sfwmd72
Rain Amount(in):	10.500	10.500	10.500	12.000	12.000
Duration(hrs):	24.00	24.00	24.00	72.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	12.00	10.00	10.00	12.00	10.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	22.450	7.420	1.900	22.450	7.420
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	61.000	89.000	48.000	61.000	89.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	12.05	12.02	12.04	60.03	60.00
Flow Max(cfs):	89.931	49.040	5.190	93.258	41.715
Runoff Volume(in):	5.448	9.154	3.625	6.719	10.639
Runoff Volume(ft3):	443973.291	246551.597	24999.644	547551.947	286553.786

Name:	Basin D005-OS	Basin 6	Basin D001	Basin D005-OS	Basin 6
Group:	BASE	BASE	BASE	BASE	BASE
Simulation:	100Y-72H	10Y-24H	10Y-24H	10Y-24H	10Y-72H
Node:	Pond 6	Pond 6	Pond 6	Pond 6	Pond 6
Type:	SCS	SCS	SCS	SCS	SCS
Unit Hydrograph:	Uh323	Uh323	Uh323	Uh323	Uh323
Peaking Factor:	323.0	323.0	323.0	323.0	323.0
Spec Time Inc(min):	1.33	1.60	1.33	1.33	1.60
Comp Time Inc(min):	1.33	1.60	1.33	1.33	1.60
Rain File:	Sfwmd72	Flmod	Flmod	Flmod	Sfwmd72
Rain Amount(in):	12.000	6.000	6.000	6.000	8.000
Duration(hrs):	72.00	24.00	24.00	24.00	72.00
Status:	Onsite	Onsite	Onsite	Onsite	Onsite
TC(min):	10.00	12.00	10.00	10.00	12.00
Time Shift(hrs):	0.00	0.00	0.00	0.00	0.00
Area(ac):	1.900	22.450	7.420	1.900	22.450
Vol of Unit Hyd(in):	1.000	1.000	1.000	1.000	1.000
Curve Num:	48.000	61.000	89.000	48.000	61.000
DCIA(%):	0.000	0.000	0.000	0.000	0.000
Time Max(hrs):	60.02	12.08	12.04	12.07	60.03
Flow Max(cfs):	6.233	31.470	26.316	1.109	50.731
Runoff Volume(in):	4.681	2.006	4.737	1.002	3.446
Runoff Volume(ft3):	32282.434	163504.994	127601.178	6912.939	280831.904

Name:	Basin D001	Basin D005-OS
Group:	BASE	BASE
Simulation:	10Y-72H	10Y-72H
Node:	Pond 6	Pond 6
Type:	SCS	SCS
Unit Hydrograph:	Uh323	Uh323
Peaking Factor:	323.0	323.0
Spec Time Inc(min):	1.33	1.33
Comp Time Inc(min):	1.33	1.33
Rain File:	Sfwmd72	Sfwmd72
Rain Amount(in):	8.000	8.000
Duration(hrs):	72.00	72.00
Status:	Onsite	Onsite
TC(min):	10.00	10.00
Time Shift(hrs):	0.00	0.00
Area(ac):	7.420	1.900
Vol of Unit Hyd(in):	1.000	1.000

Curve Num:	89.000	48.000
DCIA(%):	0.000	0.000
Time Max(hrs):	60.00	60.02
Flow Max(cfs):	27.237	2.878
Runoff Volume(in):	6.690	2.042
Runoff Volume(ft3):	180180.765	14086.959

EHO-7
POST-DEVELOPMENT (OLWR)
3/10/2016

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Pond 6	BASE	100Y-24H	17.69	93.594	95.000	0.0027	122525	12.00	137.751	17.69	5.668
Pond 6	BASE	100Y-72H	62.76	94.566	95.000	0.0024	136989	60.00	140.365	62.76	7.667
Pond 6	BASE	10Y-24H	20.24	91.130	95.000	0.0018	101700	12.00	55.237	20.24	2.017
Pond 6	BASE	10Y-72H	64.09	92.244	95.000	0.0022	111027	60.00	80.205	64.09	4.130

EHO-7
POST-DEVELOPMENT (OLWR)
3/10/2016

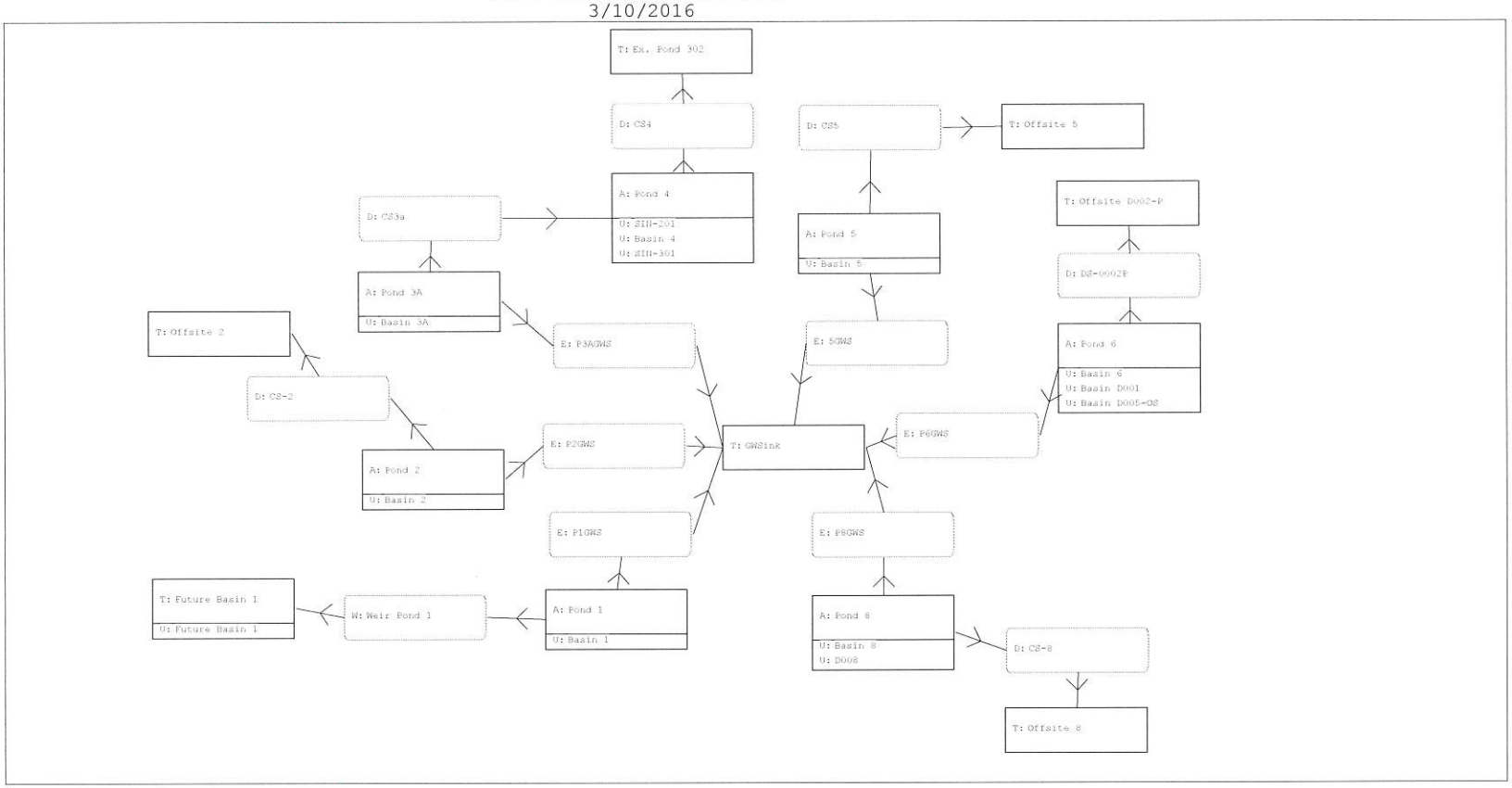
Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
DS-0002P	BASE	100Y-24H	17.69	5.668	0.009	17.69	93.594	0.00	88.600
DS-0002P	BASE	100Y-72H	62.76	7.667	0.004	62.76	94.566	0.00	88.600
DS-0002P	BASE	10Y-24H	20.24	2.017	0.001	20.24	91.130	0.00	88.600
DS-0002P	BASE	10Y-72H	64.09	4.130	0.007	64.09	92.244	0.00	88.600

EHO-7
POST-DEVELOPMENT RECOVERY
3/10/2016

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



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EHO-7
POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	0.00	126.6	128.0	245156	0.000	0.000	0.00	0.00
Recovery	Pond 1	BASE	1.00	126.4	128.0	243486	0.000	11.272	0.00	0.47
Recovery	Pond 1	BASE	2.00	126.3	128.0	241816	0.000	11.195	0.00	1.39
Recovery	Pond 1	BASE	3.00	126.1	128.0	240146	0.000	11.118	0.00	2.32
Recovery	Pond 1	BASE	4.00	125.9	128.0	238477	0.000	11.041	0.00	3.23
Recovery	Pond 1	BASE	5.00	125.8	128.0	236807	0.000	10.963	0.00	4.14
Recovery	Pond 1	BASE	6.00	125.6	128.0	235137	0.000	10.886	0.00	5.04
Recovery	Pond 1	BASE	7.00	125.4	128.0	233467	0.000	10.809	0.00	5.94
Recovery	Pond 1	BASE	8.00	125.3	128.0	231797	0.000	10.731	0.00	6.83
Recovery	Pond 1	BASE	9.00	125.1	128.0	230128	0.000	10.654	0.00	7.71
Recovery	Pond 1	BASE	10.00	124.9	128.0	228487	0.000	10.578	0.00	8.59
Recovery	Pond 1	BASE	11.00	124.8	128.0	226890	0.000	10.504	0.00	9.46
Recovery	Pond 1	BASE	12.00	124.6	128.0	225292	0.000	10.430	0.00	10.33
Recovery	Pond 1	BASE	13.00	124.4	128.0	223695	0.000	10.356	0.00	11.19
Recovery	Pond 1	BASE	14.00	124.3	128.0	222098	0.000	10.282	0.00	12.04
Recovery	Pond 1	BASE	15.00	124.1	128.0	220501	0.000	10.208	0.00	12.89
Recovery	Pond 1	BASE	16.00	123.9	128.0	218904	0.000	10.134	0.00	13.73
Recovery	Pond 1	BASE	17.00	123.8	128.0	217306	0.000	10.060	0.00	14.56
Recovery	Pond 1	BASE	18.00	123.6	128.0	215709	0.000	9.987	0.00	15.39
Recovery	Pond 1	BASE	19.00	123.4	128.0	214112	0.000	9.913	0.00	16.21
Recovery	Pond 1	BASE	20.00	123.3	128.0	212515	0.000	9.839	0.00	17.03
Recovery	Pond 1	BASE	21.00	123.1	128.0	210918	0.000	9.765	0.00	17.84
Recovery	Pond 1	BASE	22.00	122.9	128.0	209320	0.000	9.691	0.00	18.64
Recovery	Pond 1	BASE	23.00	122.8	128.0	207723	0.000	9.617	0.00	19.44
Recovery	Pond 1	BASE	24.00	122.6	128.0	206126	0.000	9.543	0.00	20.23
Recovery	Pond 1	BASE	25.00	122.4	128.0	204529	0.000	9.469	0.00	21.02
Recovery	Pond 1	BASE	26.00	122.3	128.0	202932	0.000	9.395	0.00	21.80
Recovery	Pond 1	BASE	27.00	122.1	128.0	201334	0.000	9.321	0.00	22.57
Recovery	Pond 1	BASE	28.00	121.9	128.0	199766	0.000	9.248	0.00	23.34
Recovery	Pond 1	BASE	29.00	121.8	128.0	198242	0.000	9.178	0.00	24.10
Recovery	Pond 1	BASE	30.00	121.6	128.0	196717	0.000	9.107	0.00	24.85
Recovery	Pond 1	BASE	31.00	121.4	128.0	195192	0.000	9.037	0.00	25.60
Recovery	Pond 1	BASE	32.00	121.3	128.0	193668	0.000	8.966	0.00	26.35
Recovery	Pond 1	BASE	33.00	121.1	128.0	192143	0.000	8.896	0.00	27.09
Recovery	Pond 1	BASE	34.00	120.9	128.0	190619	0.000	8.825	0.00	27.82
Recovery	Pond 1	BASE	35.00	120.8	128.0	189094	0.000	8.754	0.00	28.55
Recovery	Pond 1	BASE	36.00	120.6	128.0	187569	0.000	8.684	0.00	29.27
Recovery	Pond 1	BASE	37.00	120.4	128.0	186045	0.000	8.613	0.00	29.98
Recovery	Pond 1	BASE	38.00	120.3	128.0	184520	0.000	8.543	0.00	30.69
Recovery	Pond 1	BASE	39.00	120.1	128.0	182996	0.000	8.472	0.00	31.39
Recovery	Pond 1	BASE	40.00	119.9	128.0	181471	0.000	8.401	0.00	32.09
Recovery	Pond 1	BASE	41.00	119.8	128.0	179946	0.000	8.331	0.00	32.78
Recovery	Pond 1	BASE	42.00	119.6	128.0	178422	0.000	8.260	0.00	33.47

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 1	BASE	43.00	119.4	128.0	176897	0.000	8.190	0.00	34.15
Recovery	Pond 1	BASE	44.00	119.3	128.0	175373	0.000	8.119	0.00	34.82
Recovery	Pond 1	BASE	45.00	119.1	128.0	173848	0.000	8.049	0.00	35.49
Recovery	Pond 1	BASE	46.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	47.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	48.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	49.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	50.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	51.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	52.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	53.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	54.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	55.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	56.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	57.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	58.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	59.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	60.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	61.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	62.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	63.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	64.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	65.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	66.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	67.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	68.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	69.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	70.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	71.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	72.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 1	BASE	72.00	119.0	128.0	172933	0.000	0.000	0.00	35.82
Recovery	Pond 2	BASE	0.00	134.3	137.0	86423	0.000	0.000	0.00	0.00
Recovery	Pond 2	BASE	1.00	134.1	137.0	85116	0.000	3.941	0.00	0.16
Recovery	Pond 2	BASE	2.00	134.0	137.0	83824	0.000	3.881	0.00	0.49
Recovery	Pond 2	BASE	3.00	133.8	137.0	82590	0.000	3.824	0.00	0.80
Recovery	Pond 2	BASE	4.00	133.6	137.0	81356	0.000	3.766	0.00	1.12
Recovery	Pond 2	BASE	5.00	133.5	137.0	80121	0.000	3.709	0.00	1.43
Recovery	Pond 2	BASE	6.00	133.3	137.0	78887	0.000	3.652	0.00	1.73
Recovery	Pond 2	BASE	7.00	133.1	137.0	77653	0.000	3.595	0.00	2.03
Recovery	Pond 2	BASE	8.00	133.0	137.0	76404	0.000	3.537	0.00	2.33
Recovery	Pond 2	BASE	9.00	132.8	137.0	75097	0.000	3.477	0.00	2.62
Recovery	Pond 2	BASE	10.00	132.6	137.0	73791	0.000	3.416	0.00	2.90

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 2	BASE	11.00	132.5	137.0	72484	0.000	3.356	0.00	3.18
Recovery	Pond 2	BASE	12.00	132.3	137.0	71177	0.000	3.295	0.00	3.45
Recovery	Pond 2	BASE	13.00	132.1	137.0	69870	0.000	3.235	0.00	3.72
Recovery	Pond 2	BASE	14.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	15.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	16.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	17.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	18.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	19.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	20.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	21.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	22.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	23.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	24.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	25.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	26.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	27.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	28.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	29.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	30.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	31.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	32.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	33.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	34.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	35.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	36.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	37.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	38.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	39.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	40.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	41.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	42.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	43.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	44.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	45.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	46.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	47.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	48.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	49.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	50.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	51.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	52.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	53.00	132.0	137.0	68825	0.000	0.000	0.00	3.86

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POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 2	BASE	54.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	55.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	56.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	57.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	58.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	59.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	60.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	61.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	62.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	63.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	64.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	65.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	66.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	67.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	68.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	69.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	70.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	71.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	72.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 2	BASE	72.00	132.0	137.0	68825	0.000	0.000	0.00	3.86
Recovery	Pond 3A	BASE	0.00	123.9	129.0	142703	0.000	0.000	0.00	0.00
Recovery	Pond 3A	BASE	1.00	123.7	129.0	140234	0.000	6.492	0.00	0.27
Recovery	Pond 3A	BASE	2.00	123.6	129.0	137766	0.000	6.378	0.00	0.80
Recovery	Pond 3A	BASE	3.00	123.4	129.0	135297	0.000	6.264	0.00	1.32
Recovery	Pond 3A	BASE	4.00	123.2	129.0	132829	0.000	6.149	0.00	1.84
Recovery	Pond 3A	BASE	5.00	123.1	129.0	130361	0.000	6.035	0.00	2.34
Recovery	Pond 3A	BASE	6.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	7.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	8.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	9.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	10.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	11.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	12.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	13.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	14.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	15.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	16.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	17.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	18.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	19.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	20.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	21.00	123.0	129.0	129373	0.000	0.000	0.00	2.59

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POST-DEVELOPMENT RECOVERY
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Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 3A	BASE	22.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	23.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	24.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	25.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	26.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	27.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	28.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	29.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	30.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	31.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	32.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	33.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	34.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	35.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	36.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	37.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	38.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	39.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	40.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	41.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	42.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	43.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	44.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	45.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	46.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	47.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	48.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	49.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	50.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	51.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	52.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	53.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	54.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	55.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	56.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	57.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	58.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	59.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	60.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	61.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	62.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	63.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	64.00	123.0	129.0	129373	0.000	0.000	0.00	2.59

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 3A	BASE	65.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	66.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	67.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	68.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	69.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	70.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	71.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	72.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 3A	BASE	72.00	123.0	129.0	129373	0.000	0.000	0.00	2.59
Recovery	Pond 4	BASE	0.00	105.8	118.0	106940	0.000	3.481	0.00	0.00
Recovery	Pond 4	BASE	1.00	105.6	118.0	106226	0.000	3.447	0.00	0.29
Recovery	Pond 4	BASE	2.00	105.5	118.0	105515	0.000	3.412	0.00	0.57
Recovery	Pond 4	BASE	3.00	105.4	118.0	104806	0.000	3.378	0.00	0.85
Recovery	Pond 4	BASE	4.00	105.3	118.0	104100	0.000	3.343	0.00	1.13
Recovery	Pond 4	BASE	5.00	105.2	118.0	103396	0.000	3.308	0.00	1.40
Recovery	Pond 4	BASE	6.00	105.1	118.0	102695	0.000	3.273	0.00	1.67
Recovery	Pond 4	BASE	7.00	104.9	118.0	101997	0.000	3.237	0.00	1.94
Recovery	Pond 4	BASE	8.00	104.8	118.0	101301	0.000	3.202	0.00	2.21
Recovery	Pond 4	BASE	9.00	104.7	118.0	100609	0.000	3.166	0.00	2.47
Recovery	Pond 4	BASE	10.00	104.6	118.0	99920	0.000	3.130	0.00	2.73
Recovery	Pond 4	BASE	11.00	104.5	118.0	99234	0.000	3.093	0.00	2.99
Recovery	Pond 4	BASE	12.00	104.4	118.0	98551	0.000	3.056	0.00	3.24
Recovery	Pond 4	BASE	13.00	104.3	118.0	97872	0.000	3.020	0.00	3.50
Recovery	Pond 4	BASE	14.00	104.2	118.0	97197	0.000	2.982	0.00	3.74
Recovery	Pond 4	BASE	15.00	104.0	118.0	96525	0.000	2.945	0.00	3.99
Recovery	Pond 4	BASE	16.00	103.9	118.0	95857	0.000	2.907	0.00	4.23
Recovery	Pond 4	BASE	17.00	103.8	118.0	95193	0.000	2.869	0.00	4.47
Recovery	Pond 4	BASE	18.00	103.7	118.0	94534	0.000	2.831	0.00	4.70
Recovery	Pond 4	BASE	19.00	103.6	118.0	93878	0.000	2.793	0.00	4.94
Recovery	Pond 4	BASE	20.00	103.5	118.0	93227	0.000	2.754	0.00	5.17
Recovery	Pond 4	BASE	21.00	103.4	118.0	92581	0.000	2.715	0.00	5.39
Recovery	Pond 4	BASE	22.00	103.3	118.0	91940	0.000	2.676	0.00	5.61
Recovery	Pond 4	BASE	23.00	103.2	118.0	91303	0.000	2.636	0.00	5.83
Recovery	Pond 4	BASE	24.00	103.1	118.0	90672	0.000	2.596	0.00	6.05
Recovery	Pond 4	BASE	25.00	103.0	118.0	90055	0.000	2.556	0.00	6.26
Recovery	Pond 4	BASE	26.00	102.9	118.0	89479	0.000	2.516	0.00	6.47
Recovery	Pond 4	BASE	27.00	102.8	118.0	88909	0.000	2.475	0.00	6.68
Recovery	Pond 4	BASE	28.00	102.7	118.0	88344	0.000	2.434	0.00	6.88
Recovery	Pond 4	BASE	29.00	102.6	118.0	87786	0.000	2.392	0.00	7.08
Recovery	Pond 4	BASE	30.00	102.5	118.0	87233	0.000	2.350	0.00	7.28
Recovery	Pond 4	BASE	31.00	102.4	118.0	86687	0.000	2.307	0.00	7.47
Recovery	Pond 4	BASE	32.00	102.3	118.0	86148	0.000	2.264	0.00	7.66

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 4	BASE	33.00	102.2	118.0	85616	0.000	2.221	0.00	7.84
Recovery	Pond 4	BASE	34.00	102.1	118.0	85091	0.000	2.177	0.00	8.03
Recovery	Pond 4	BASE	35.00	102.0	118.0	84573	0.000	2.133	0.00	8.20
Recovery	Pond 4	BASE	36.00	101.9	118.0	84062	0.000	2.089	0.00	8.38
Recovery	Pond 4	BASE	37.00	101.8	118.0	83559	0.000	2.045	0.00	8.55
Recovery	Pond 4	BASE	38.00	101.7	118.0	83064	0.000	2.000	0.00	8.72
Recovery	Pond 4	BASE	39.00	101.7	118.0	82578	0.000	1.955	0.00	8.88
Recovery	Pond 4	BASE	40.00	101.6	118.0	82099	0.000	1.910	0.00	9.04
Recovery	Pond 4	BASE	41.00	101.5	118.0	81629	0.000	1.865	0.00	9.20
Recovery	Pond 4	BASE	42.00	101.4	118.0	81168	0.000	1.819	0.00	9.35
Recovery	Pond 4	BASE	43.00	101.3	118.0	80715	0.000	1.773	0.00	9.50
Recovery	Pond 4	BASE	44.00	101.3	118.0	80272	0.000	1.727	0.00	9.64
Recovery	Pond 4	BASE	45.00	101.2	118.0	79838	0.000	1.681	0.00	9.78
Recovery	Pond 4	BASE	46.00	101.1	118.0	79414	0.000	1.634	0.00	9.92
Recovery	Pond 4	BASE	47.00	101.0	118.0	78999	0.000	1.587	0.00	10.05
Recovery	Pond 4	BASE	48.00	101.0	118.0	78614	0.000	1.540	0.00	10.18
Recovery	Pond 4	BASE	49.00	100.9	118.0	78250	0.000	1.492	0.00	10.31
Recovery	Pond 4	BASE	50.00	100.8	118.0	77896	0.000	1.445	0.00	10.43
Recovery	Pond 4	BASE	51.00	100.8	118.0	77552	0.000	1.397	0.00	10.55
Recovery	Pond 4	BASE	52.00	100.7	118.0	77219	0.000	1.349	0.00	10.66
Recovery	Pond 4	BASE	53.00	100.6	118.0	76895	0.000	1.301	0.00	10.77
Recovery	Pond 4	BASE	54.00	100.6	118.0	76582	0.000	1.252	0.00	10.87
Recovery	Pond 4	BASE	55.00	100.5	118.0	76280	0.000	1.203	0.00	10.98
Recovery	Pond 4	BASE	56.00	100.5	118.0	75988	0.000	1.155	0.00	11.07
Recovery	Pond 4	BASE	57.00	100.4	118.0	75708	0.000	1.106	0.00	11.17
Recovery	Pond 4	BASE	58.00	100.3	118.0	75439	0.000	1.056	0.00	11.26
Recovery	Pond 4	BASE	59.00	100.3	118.0	75181	0.000	1.007	0.00	11.34
Recovery	Pond 4	BASE	60.00	100.3	118.0	74935	0.000	0.958	0.00	11.42
Recovery	Pond 4	BASE	61.00	100.2	118.0	74706	0.000	0.850	0.00	11.50
Recovery	Pond 4	BASE	62.00	100.2	118.0	74506	0.000	0.736	0.00	11.56
Recovery	Pond 4	BASE	63.00	100.1	118.0	74333	0.000	0.637	0.00	11.62
Recovery	Pond 4	BASE	64.00	100.1	118.0	74181	0.000	0.572	0.00	11.67
Recovery	Pond 4	BASE	65.00	100.1	118.0	74039	0.000	0.547	0.00	11.71
Recovery	Pond 4	BASE	66.00	100.1	118.0	73903	0.000	0.518	0.00	11.76
Recovery	Pond 4	BASE	67.00	100.0	118.0	73775	0.000	0.487	0.00	11.80
Recovery	Pond 4	BASE	68.00	100.0	118.0	73655	0.000	0.457	0.00	11.84
Recovery	Pond 4	BASE	69.00	100.0	118.0	73542	0.000	0.427	0.00	11.88
Recovery	Pond 4	BASE	70.00	100.0	118.0	73436	0.000	0.399	0.00	11.91
Recovery	Pond 4	BASE	71.00	99.9	118.0	73337	0.000	0.373	0.00	11.94
Recovery	Pond 4	BASE	72.00	99.9	118.0	73245	0.000	0.349	0.00	11.97
Recovery	Pond 4	BASE	72.00	99.9	118.0	73245	0.000	0.349	0.00	11.97
Recovery	Pond 5	BASE	0.00	121.9	124.5	28358	0.000	0.000	0.00	0.00

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POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 5	BASE	1.00	121.7	124.5	27704	0.000	1.283	0.00	0.05
Recovery	Pond 5	BASE	2.00	121.6	124.5	27051	0.000	1.252	0.00	0.16
Recovery	Pond 5	BASE	3.00	121.4	124.5	26397	0.000	1.222	0.00	0.26
Recovery	Pond 5	BASE	4.00	121.2	124.5	25744	0.000	1.192	0.00	0.36
Recovery	Pond 5	BASE	5.00	121.1	124.5	25091	0.000	1.162	0.00	0.46
Recovery	Pond 5	BASE	6.00	120.9	124.5	24446	0.000	1.132	0.00	0.55
Recovery	Pond 5	BASE	7.00	120.7	124.5	23807	0.000	1.102	0.00	0.64
Recovery	Pond 5	BASE	8.00	120.6	124.5	23168	0.000	1.073	0.00	0.73
Recovery	Pond 5	BASE	9.00	120.4	124.5	22529	0.000	1.043	0.00	0.82
Recovery	Pond 5	BASE	10.00	120.2	124.5	21890	0.000	1.013	0.00	0.91
Recovery	Pond 5	BASE	11.00	120.1	124.5	21251	0.000	0.984	0.00	0.99
Recovery	Pond 5	BASE	12.00	119.9	124.5	20552	0.000	0.951	0.00	1.07
Recovery	Pond 5	BASE	13.00	119.7	124.5	19811	0.000	0.917	0.00	1.15
Recovery	Pond 5	BASE	14.00	119.6	124.5	19071	0.000	0.883	0.00	1.22
Recovery	Pond 5	BASE	15.00	119.4	124.5	18330	0.000	0.849	0.00	1.29
Recovery	Pond 5	BASE	16.00	119.2	124.5	17590	0.000	0.814	0.00	1.36
Recovery	Pond 5	BASE	17.00	119.1	124.5	16849	0.000	0.780	0.00	1.43
Recovery	Pond 5	BASE	18.00	118.9	124.5	16161	0.000	0.748	0.00	1.49
Recovery	Pond 5	BASE	19.00	118.7	124.5	15507	0.000	0.718	0.00	1.55
Recovery	Pond 5	BASE	20.00	118.6	124.5	14854	0.000	0.688	0.00	1.61
Recovery	Pond 5	BASE	21.00	118.4	124.5	14201	0.000	0.657	0.00	1.66
Recovery	Pond 5	BASE	22.00	118.2	124.5	13547	0.000	0.627	0.00	1.72
Recovery	Pond 5	BASE	23.00	118.1	124.5	12894	0.000	0.597	0.00	1.77
Recovery	Pond 5	BASE	24.00	117.9	124.5	12284	0.000	0.569	0.00	1.82
Recovery	Pond 5	BASE	25.00	117.7	124.5	11703	0.000	0.542	0.00	1.86
Recovery	Pond 5	BASE	26.00	117.6	124.5	11122	0.000	0.515	0.00	1.91
Recovery	Pond 5	BASE	27.00	117.4	124.5	10542	0.000	0.488	0.00	1.95
Recovery	Pond 5	BASE	28.00	117.2	124.5	9961	0.000	0.461	0.00	1.99
Recovery	Pond 5	BASE	29.00	117.1	124.5	9380	0.000	0.434	0.00	2.02
Recovery	Pond 5	BASE	30.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	31.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	32.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	33.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	34.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	35.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	36.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	37.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	38.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	39.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	40.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	41.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	42.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	43.00	117.0	124.5	9148	0.000	0.000	0.00	2.04

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POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 5	BASE	44.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	45.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	46.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	47.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	48.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	49.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	50.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	51.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	52.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	53.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	54.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	55.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	56.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	57.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	58.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	59.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	60.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	61.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	62.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	63.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	64.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	65.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	66.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	67.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	68.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	69.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	70.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	71.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	72.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 5	BASE	72.00	117.0	124.5	9148	0.000	0.000	0.00	2.04
Recovery	Pond 6	BASE	0.00	90.3	95.0	95135	0.000	0.000	0.00	0.00
Recovery	Pond 6	BASE	1.00	90.1	95.0	93828	0.000	4.344	0.00	0.18
Recovery	Pond 6	BASE	2.00	90.0	95.0	92507	0.000	4.283	0.00	0.54
Recovery	Pond 6	BASE	3.00	89.8	95.0	91128	0.000	4.219	0.00	0.89
Recovery	Pond 6	BASE	4.00	89.6	95.0	89748	0.000	4.155	0.00	1.23
Recovery	Pond 6	BASE	5.00	89.5	95.0	88839	0.000	1.861	0.00	1.48
Recovery	Pond 6	BASE	6.00	89.5	95.0	88312	0.000	1.351	0.00	1.61
Recovery	Pond 6	BASE	7.00	89.4	95.0	87901	0.000	1.103	0.00	1.72
Recovery	Pond 6	BASE	8.00	89.4	95.0	87554	0.000	0.948	0.00	1.80
Recovery	Pond 6	BASE	9.00	89.3	95.0	87250	0.000	0.841	0.00	1.87
Recovery	Pond 6	BASE	10.00	89.3	95.0	86977	0.000	0.760	0.00	1.94
Recovery	Pond 6	BASE	11.00	89.3	95.0	86728	0.000	0.696	0.00	2.00

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 6	BASE	12.00	89.2	95.0	86497	0.000	0.645	0.00	2.06
Recovery	Pond 6	BASE	13.00	89.2	95.0	86282	0.000	0.602	0.00	2.11
Recovery	Pond 6	BASE	14.00	89.2	95.0	86081	0.000	0.565	0.00	2.16
Recovery	Pond 6	BASE	15.00	89.2	95.0	85891	0.000	0.534	0.00	2.20
Recovery	Pond 6	BASE	16.00	89.1	95.0	85710	0.000	0.506	0.00	2.24
Recovery	Pond 6	BASE	17.00	89.1	95.0	85539	0.000	0.481	0.00	2.29
Recovery	Pond 6	BASE	18.00	89.1	95.0	85375	0.000	0.459	0.00	2.32
Recovery	Pond 6	BASE	19.00	89.1	95.0	85218	0.000	0.439	0.00	2.36
Recovery	Pond 6	BASE	20.00	89.1	95.0	85067	0.000	0.421	0.00	2.40
Recovery	Pond 6	BASE	21.00	89.1	95.0	84923	0.000	0.404	0.00	2.43
Recovery	Pond 6	BASE	22.00	89.0	95.0	84783	0.000	0.389	0.00	2.46
Recovery	Pond 6	BASE	23.00	89.0	95.0	84649	0.000	0.375	0.00	2.50
Recovery	Pond 6	BASE	24.00	89.0	95.0	84519	0.000	0.362	0.00	2.53
Recovery	Pond 6	BASE	25.00	89.0	95.0	84403	0.000	0.350	0.00	2.56
Recovery	Pond 6	BASE	26.00	89.0	95.0	84291	0.000	0.338	0.00	2.58
Recovery	Pond 6	BASE	27.00	89.0	95.0	84183	0.000	0.328	0.00	2.61
Recovery	Pond 6	BASE	28.00	88.9	95.0	84077	0.000	0.317	0.00	2.64
Recovery	Pond 6	BASE	29.00	88.9	95.0	83975	0.000	0.308	0.00	2.66
Recovery	Pond 6	BASE	30.00	88.9	95.0	83876	0.000	0.299	0.00	2.69
Recovery	Pond 6	BASE	31.00	88.9	95.0	83779	0.000	0.291	0.00	2.71
Recovery	Pond 6	BASE	32.00	88.9	95.0	83685	0.000	0.283	0.00	2.74
Recovery	Pond 6	BASE	33.00	88.9	95.0	83594	0.000	0.275	0.00	2.76
Recovery	Pond 6	BASE	34.00	88.9	95.0	83505	0.000	0.268	0.00	2.78
Recovery	Pond 6	BASE	35.00	88.9	95.0	83418	0.000	0.261	0.00	2.80
Recovery	Pond 6	BASE	36.00	88.8	95.0	83333	0.000	0.255	0.00	2.83
Recovery	Pond 6	BASE	37.00	88.8	95.0	83250	0.000	0.249	0.00	2.85
Recovery	Pond 6	BASE	38.00	88.8	95.0	83169	0.000	0.243	0.00	2.87
Recovery	Pond 6	BASE	39.00	88.8	95.0	83090	0.000	0.237	0.00	2.89
Recovery	Pond 6	BASE	40.00	88.8	95.0	83012	0.000	0.232	0.00	2.91
Recovery	Pond 6	BASE	41.00	88.8	95.0	82936	0.000	0.227	0.00	2.92
Recovery	Pond 6	BASE	42.00	88.8	95.0	82862	0.000	0.222	0.00	2.94
Recovery	Pond 6	BASE	43.00	88.8	95.0	82789	0.000	0.217	0.00	2.96
Recovery	Pond 6	BASE	44.00	88.8	95.0	82718	0.000	0.213	0.00	2.98
Recovery	Pond 6	BASE	45.00	88.8	95.0	82648	0.000	0.208	0.00	3.00
Recovery	Pond 6	BASE	46.00	88.7	95.0	82580	0.000	0.204	0.00	3.01
Recovery	Pond 6	BASE	47.00	88.7	95.0	82513	0.000	0.200	0.00	3.03
Recovery	Pond 6	BASE	48.00	88.7	95.0	82447	0.000	0.196	0.00	3.05
Recovery	Pond 6	BASE	49.00	88.7	95.0	82382	0.000	0.193	0.00	3.06
Recovery	Pond 6	BASE	50.00	88.7	95.0	82318	0.000	0.189	0.00	3.08
Recovery	Pond 6	BASE	51.00	88.7	95.0	82256	0.000	0.186	0.00	3.09
Recovery	Pond 6	BASE	52.00	88.7	95.0	82194	0.000	0.182	0.00	3.11
Recovery	Pond 6	BASE	53.00	88.7	95.0	82134	0.000	0.179	0.00	3.12
Recovery	Pond 6	BASE	54.00	88.7	95.0	82075	0.000	0.176	0.00	3.14

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 6	BASE	55.00	88.7	95.0	82016	0.000	0.173	0.00	3.15
Recovery	Pond 6	BASE	56.00	88.7	95.0	81959	0.000	0.170	0.00	3.17
Recovery	Pond 6	BASE	57.00	88.7	95.0	81902	0.000	0.168	0.00	3.18
Recovery	Pond 6	BASE	58.00	88.7	95.0	81846	0.000	0.165	0.00	3.20
Recovery	Pond 6	BASE	59.00	88.6	95.0	81792	0.000	0.162	0.00	3.21
Recovery	Pond 6	BASE	60.00	88.6	95.0	81738	0.000	0.160	0.00	3.22
Recovery	Pond 6	BASE	61.00	88.6	95.0	81684	0.000	0.157	0.00	3.24
Recovery	Pond 6	BASE	62.00	88.6	95.0	81632	0.000	0.155	0.00	3.25
Recovery	Pond 6	BASE	63.00	88.6	95.0	81580	0.000	0.153	0.00	3.26
Recovery	Pond 6	BASE	64.00	88.6	95.0	81529	0.000	0.150	0.00	3.27
Recovery	Pond 6	BASE	65.00	88.6	95.0	81479	0.000	0.148	0.00	3.29
Recovery	Pond 6	BASE	66.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	67.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	68.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	69.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	70.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	71.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	72.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 6	BASE	72.00	88.6	95.0	81457	0.000	0.000	0.00	3.29
Recovery	Pond 8	BASE	0.00	96.7	100.0	146950	0.000	0.000	0.00	0.00
Recovery	Pond 8	BASE	1.00	96.5	100.0	144118	0.000	6.672	0.00	0.28
Recovery	Pond 8	BASE	2.00	96.3	100.0	141287	0.000	6.541	0.00	0.82
Recovery	Pond 8	BASE	3.00	96.2	100.0	138456	0.000	6.410	0.00	1.36
Recovery	Pond 8	BASE	4.00	96.0	100.0	135689	0.000	6.282	0.00	1.88
Recovery	Pond 8	BASE	5.00	95.8	100.0	133511	0.000	6.181	0.00	2.40
Recovery	Pond 8	BASE	6.00	95.7	100.0	131333	0.000	6.080	0.00	2.90
Recovery	Pond 8	BASE	7.00	95.5	100.0	129155	0.000	5.979	0.00	3.40
Recovery	Pond 8	BASE	8.00	95.3	100.0	126977	0.000	5.879	0.00	3.89
Recovery	Pond 8	BASE	9.00	95.2	100.0	124799	0.000	5.778	0.00	4.37
Recovery	Pond 8	BASE	10.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	11.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	12.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	13.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	14.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	15.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	16.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	17.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	18.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	19.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	20.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	21.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	22.00	95.0	100.0	122839	0.000	0.000	0.00	4.61

EHO-7
POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 8	BASE	23.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	24.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	25.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	26.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	27.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	28.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	29.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	30.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	31.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	32.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	33.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	34.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	35.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	36.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	37.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	38.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	39.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	40.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	41.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	42.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	43.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	44.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	45.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	46.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	47.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	48.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	49.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	50.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	51.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	52.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	53.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	54.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	55.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	56.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	57.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	58.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	59.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	60.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	61.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	62.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	63.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	64.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	65.00	95.0	100.0	122839	0.000	0.000	0.00	4.61

EHO-7
POST-DEVELOPMENT RECOVERY
3/10/2016

Simulation	Node	Group	Time hrs	Stage ft	Warning Stage ft	Surface Area ft2	Total Inflow cfs	Total Outflow cfs	Total Vol In af	Total Vol Out af
Recovery	Pond 8	BASE	66.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	67.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	68.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	69.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	70.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	71.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	72.00	95.0	100.0	122839	0.000	0.000	0.00	4.61
Recovery	Pond 8	BASE	72.00	95.0	100.0	122839	0.000	0.000	0.00	4.61

NUTRIENT LOADING CALCULATIONS

Basin: **1**
Drains to: **Pond 1**

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	41.22	0.026	1.07				1.07
A Soils			-				-
(to represent existing condition)			-				-
Total	41.22		1.07				1.07

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	17.02	0.25	4.26	Dry-Ret.	1.25"	94.00%	0.26
Dry Retention (model as open space)	6.20	0.004	0.02	Dry-Ret.	1.25"	94.00%	0.00
Clubhouse/Amenity (Impervious)	6.70	0.899	6.02	Dry-Ret.	1.25"	88.00%	0.72
Clubhouse/Amenity (open space area)	11.30	0.004	0.05	Dry-Ret.	1.25"	88.00%	0.01
Total	41.22		10.30		***		0.98

* Table 11.7-3 (attached)
** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)
*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.98 kg/yr < 1.07 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: 2
Drains to: Pond 2

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	23.02	0.026	0.60				0.60
A Soils			-				-
(to represent existing condition)			-				-
Total	23.02		0.60				0.60

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	20.26	0.25	5.07	Dry-Ret.	0.75"	90.00%	0.51
Dry Retention (model as open space)	2.76	0.004	0.01	Dry-Ret.	0.75"	90.00%	0.00
Total	23.02		5.08		***		0.51

* Table 11.7-3 (attached)

** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)

*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.51 kg/yr < 0.60 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: 3A
Drains to: Pond 3A

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	20.29	0.026	0.53				0.53
A Soils			-				-
(to represent existing condition)			-				-
Total	20.29		0.53				0.53

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	15.84	0.25	3.96	Dry-Ret.	0.75"	90.00%	0.40
Dry Retention (model as open space)	4.45	0.004	0.02	Dry-Ret.	0.75"	90.00%	0.00
Total	20.29		3.98		***		0.40

* Table 11.7-3 (attached)

** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)

*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.40 kg/yr < 0.53 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: **4, SIN-201, SIN 301**
Drains to: **Pond 4**

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	59.70	0.026	1.55				1.55
A Soils			-				-
(to represent existing condition)			-				-
Highway (Max 50% Imp), A Soils	11.01	0.710	7.82				7.82
Total	70.71		9.37				9.37

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Detention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	54.89	0.25	13.72	Wet Det.	1.50"	64.50%	4.87
Highway (Max 50% Imp), A Soils	11.01	0.710	7.82	Wet Det.	1.50"	64.50%	2.78
Wet Detention (model as open space)	4.81	0.004	0.02	Wet Det.	1.50"	64.50%	0.01
Total	70.71		21.56		***		7.65

* Table 11.7-3 (attached)

** Table 11.7-5 Removal Efficiencies in Wet Detention Systems That Meet Rule 40C-42.026 (attached)

*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (7.65 kg/yr < 9.37 kg/yr) - OK

No Additional Treatment Needed for Wet Detention

NUTRIENT LOADING CALCULATIONS

Basin: 5
Drains to: Pond 5

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	11.96	0.026	0.31				0.31
A Soils			-				-
(to represent existing condition)			-				-
Total	11.96		0.31				0.31

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	10.93	0.25	2.73	Dry-Ret.	0.75"	90.00%	0.27
Dry Retention (model as open space)	1.03	0.004	0.00	Dry-Ret.	0.75"	90.00%	0.00
Total	11.96		2.74		***		0.27

* Table 11.7-3 (attached)
** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)
*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.27 kg/yr < 0.31 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: 6, D001, D005-OS, D006-OS
Drains to: Pond 6

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	22.45	0.026	0.58				0.58
A Soils			-				-
(to represent existing condition)			-				-
Highway (Max 50% Imp), A Soils	16.23	0.710	11.52				11.52
Total	38.68		12.11				12.11

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	19.11	0.25	4.78	Dry-Ret.	0.75"	90.00%	0.48
Highway (Max 50% Imp), A Soils	16.23	0.710	11.52	Dry-Ret.	0.75"	90.00%	1.15
Dry Retention (model as open space)	3.34	0.004	0.01	Dry-Ret.	0.75"	90.00%	0.00
Total	38.68		16.31		***		1.63

* Table 11.7-3 (attached)
** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)
*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (1.63 kg/yr < 12.11 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: 8
Drains to: Pond 8

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	30.55	0.026	0.79				0.79
A Soils			-				-
(to represent existing condition)			-				-
Total	30.55		0.79				0.79

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	25.29	0.25	6.32	Dry-Ret.	0.75"	90.00%	0.63
Dry Retention (model as open space)	5.26	0.004	0.02	Dry-Ret.	0.75"	90.00%	0.00
Total	30.55		6.34		***		0.63

* Table 11.7-3 (attached)

** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)

*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.63 kg/yr < 0.79 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

TABLE 11.7-3

MEAN ANNUAL LOADINGS OF TOTAL PHOSPHORUS FOR LAND USE TYPES IN THE LAKE APOPKA HYDROLOGIC BASIN

LAND USE CATEGORY	MEAN ANNUAL TOTAL PHOSPHORUS LOAD (kg/ac-yr)			
	HSG A	HSG B	HSG C	HSG D
Low-Density Residential (max. 15% impervious)	0.069	0.135	0.215	0.284
Single-Family Residential (max. 25% impervious)	0.227	0.286	0.383	0.465
Single-Family Residential (max. 40% impervious)	0.250	0.333	0.446	0.536
Multi-Family Residential (max. 65% impervious)	1.082	1.156	1.257	1.336
Commercial (max. 80% impervious)	0.899	0.916	0.943	0.964
Highway – max. 50% impervious	0.710	0.756	0.817	0.871
Highway – max. 75% impervious	1.053	1.076	1.106	1.133
Agriculture – Pasture	0.026	0.118	0.239	0.347
Agriculture – Crops, Ornamentals, Nurseries	0.040	0.180	0.366	0.531
Agriculture – Groves	0.007	0.036	0.079	0.123
Open Land/Recreational/Fallow Groves and Cropland	0.004	0.017	0.035	0.051
Forests/Abandoned Tree Crops	0.004	0.021	0.045	0.070

HSG = Hydrologic Soil Group

Table 11.7-22
Removal Efficiencies for Total Phosphorus Using Various Treatment Options in Commercial (max. 80% impervious) for Hydrologic Soil Group A

Retention Depth (inches)	Annual Total P Removal (%)			
	Dry Retention[1]	Retention / Wet Detention[2]		
		t_d=7 days	t_d=14 days	t_d=21 days
0.25	41	73	77	79
0.50	65	84	86	87
0.75	76	89	91	91
1.00	83	92	93	94
1.25	88	95	95	96
1.50	91	96	96	97
1.75	93	97	97	97
2.00	94	97	98	98
2.25	95	98	98	98
2.50	96	98	98	99
2.75	97	98	99	99
3.00	97	99	99	99
3.25	97	99	99	99
3.50	98	99	99	99
3.75	98	99	99	99
4.00	98	99	99	99

1. Dry retention alone.
2. Dry retention followed by wet detention with various residence times.

Table 11.7-14

Removal Efficiencies for Total Phosphorus Using Various Treatment Options in Single-Family Residential (max. 40% impervious) for Hydrologic Soil Group A

Retention Depth (inches)	Annual Total P Removal (%)			
	Dry Retention[1]	Retention / Wet Detention[2]		
		t_d=7 days	t_d=14 days	t_d=21 days
0.25	71	90	93	94
0.50	86	95	96	97
0.75	90	97	98	98
1.00	93	97	98	99
1.25	94	98	99	99
1.50	95	98	99	99
1.75	96	99	99	99
2.00	97	99	99	99
2.25	97	99	99	99
2.50	97	99	99	99
2.75	98	99	99	100
3.00	98	99	99	100
3.25	98	99	100	100
3.50	98	99	100	100
3.75	99	100	100	100
4.00	99	100	100	100

1. Dry retention alone.
2. Dry retention followed by wet detention with various residence times.

Table 11.7-26
Removal Efficiencies for Total Phosphorus Using Various Treatment Options in Highway (max. 50% impervious) for Hydrologic Soil Group A

Retention Depth (inches)	Annual Total P Removal (%)			
	Dry Retention[1]	Retention / Wet Detention[2]		
		t_d=7 days	t_d=14 days	t_d=21 days
0.25	54	79	82	83
0.50	75	88	90	91
0.75	85	93	94	95
1.00	90	95	96	96
1.25	92	97	97	97
1.50	94	97	98	98
1.75	95	98	98	98
2.00	96	98	99	99
2.25	97	99	99	99
2.50	97	99	99	99
2.75	98	99	99	99
3.00	98	99	99	99
3.25	98	99	99	99
3.50	98	99	99	99
3.75	98	99	99	99
4.00	99	99	99	100

1. Dry retention alone.
2. Dry retention followed by wet detention with various residence times.

TABLE 11.7-5

REMOVAL EFFICIENCIES FOR TOTAL PHOSPHORUS IN WET DETENTION SYSTEMS THAT MEET THE DESIGN AND PERFORMANCE CRITERIA IN RULE 40C-42.026, F.A.C.

Residence Time (days)	Phosphorus Removal Efficiency (%)
14	61.5
21	64.5

Table 11.7-6
Removal Efficiencies for Total Phosphorus Using Various Treatment Options in Low-Density Residential (max. 15% impervious) For Hydrologic Soil Group A

Retention Depth (inches)	Annual Total P Removal (%)			
	Dry Retention[1]	Retention / Wet Detention[2]		
		t_d=7 days	t_d=14 days	t_d=21 days
0.25	70	86	88	89
0.50	78	90	92	92
0.75	82	92	93	94
1.00	85	93	94	95
1.25	88	94	95	96
1.50	90	95	96	96
1.75	91	96	96	97
2.00	92	96	97	97
2.25	93	97	97	97
2.50	93	97	97	98
2.75	94	97	98	98
3.00	95	98	98	98
3.25	96	98	98	99
3.50	97	98	99	99
3.75	97	99	99	99
4.00	98	99	99	99

1. Dry retention alone.
2. Dry retention followed by wet detention with various residence times.

Geotechnical Engineering Report for ...

Reunion West
Parcels I, J and K

Parcel I: 139.71 ac; Parcel J: 8.70 ac; Parcel K: 77.98 ac
Interstate Highway 4 & Old Lake Wilson Road (C.R. 545)
[Sections 22, 23 and 26, Township 25 South, Range 27 East]
Osceola County, Florida

MAY 2015

Prepared by

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attention: **JIM BAGLEY**

Ref:

GEOTECHNICAL ENGINEERING REPORT FOR REUNION WEST PARCELS I, J, & K

Parcel I: 139.71 ac; Parcel J: 8.70 ac; Parcel K: 77.98 ac
Interstate Highway 4 & North Old Lake Wilson Road (County Road 545)
Sections 22, 23, and 26 of Township 25 South, Range 27 East; Osceola County, Fl

Dear Mr. Bagley:

The attached report documents the results of the above-captioned geotechnical investigation and associated recommendations to support the civil engineering design of this single family residential development.

This report includes documentation of the following:

❶ site-specific geotechnical testing including soil borings, water table measurements, laboratory tests, seasonal high water table estimates, elevation survey, etc.;

❷ recommendations for mass grading the site (i.e., general cutting and filling);
❸ pavement thickness guidelines per Osceola County land development regulations;
❹ storm/sanitary trench excavation & backfill procedures,

❺ quality control testing requirements, and
❻ recommendations specific to the stormwater pond design including water table and aquifer parameters for modeling ground infiltration.

Important Note:

Note that there are two (2) closed dry depressions within future residential lots and these are identified in Figure 1.4b of the report. These are not new features and appear to be natural. However, once the lot layout is finalized, both these depressions will have to be investigated for sinkhole potential since they are within future residential lots. Typically, deep Standard Penetration Test (SPT) borings are drilled to detect potential indicators of deep (& active) subsurface raveling. This assessment will be required as a supplement to certify those lots are build-able without obvious risk of sinkhole-related movement. Given the expense of this study, it is prudent to perform it when the development layout is final and that assessment can be provided in a supplemental report.

We trust that the technical information contained in the attached report is clearly communicated and easily extracted by the civil engineer.

Please feel free to contact us if there are any questions regarding this report (devo@devoeng.com). We appreciate the opportunity to provide geotechnical engineering services to Encore Housing Opportunity Fund.

RPersad	Devo Seereeram
Robin Persad, B. Sc. Geotechnical Engineer/Project Manager	Devo Seereeram, Ph.D., P.E. Florida Registration No. 48303 Date: May 15, 2015

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1.0 SITE DESCRIPTION

Figure 1.1a (attached) is a scanned image of the USGS Intercession City 7.5 minute series quadrangle map with the approximate boundary line of **Reunion West Parcels I, J, K** (the study area). This boundary circumscribes approximately 226.4 acres and is within the northeast and (part of) the northwest quadrants at the intersection of Interstate Highway 4 (I-4) and Old Lake Wilson Road (County Road 545). Sinclair Road runs along the north boundary line but only on the west side of Old Lake Wilson Road. On the quadrangle map, the site is within Sections 22, 23, and 26 of Township 25 South, Range 27 East in unincorporated Osceola County, Fl.

Figure 1.1b is a magnified view of Figure 1.1a showing closer visual detail of the published land surface contours on the USGS quadrangle map. As seen in Figure 1.1b, the topography of the land is a single, well-defined hillock almost centered within the study limits. Elevations near the top of the hill are approximately +165 ft NGVD and the lowest lands are on the far eastern flank near the edge of the Reedy Creek Swamp, with low elevations of about +80 ft NGVD. This hillock is on a ridge which trends NW-SE, is bounded on the west by Davenport Creek Swamp, and bounded on the east by Reedy Creek Swamp.

More detailed site-specific ground surface contours are overlaid in Figure 1.4b from survey data provided by American Surveying & Mapping, Inc. (the project surveyor). Shaded on this figure are two (2) closed dry depressions identified from review of the topographic data. Both depressions are located within the limits of future single family residential lots. There is also another major "closed depression" on the north side of the property adjacent to Sinclair Road but this seasonally feature will be used for stormwater management only.

Figure 1.2 is a January 2012 aerial image of the property which, although currently undeveloped, has signs of the remnant citrus groves which were cultivated at least since 1958. A portion of this land holding actually includes a part of the Reedy Creek Swamp as seen by the vegetation line in Figure 1.2.

2.0 DEVELOPMENT LAYOUT

An electronic file with the development layout was provided to us by Dave Schmitt Engineering, Inc. This site plan is overlaid on a January 2012 color aerial in Figures 1.4a and 1.4b. The only difference between these 2 figures is that the site topographic contours are an extra layer in Figure 1.4b which is left out in Figure 1.4a for clarity.

As the development layout shows, the land west of Old Lake Wilson Road is to be subdivided into 534 single family lots, while the land on the east is to be subdivided into 207 lots. The total lot count for this plan is 741 lots.

The layout of the internal roads and the seven (7) stormwater ponds (labeled Ponds 1 to 7 for reference in this report) are also shown in Figures 1.4a and 1.4b. Several of these ponds are dry bottom ponds.

3.0 OBJECTIVES

The objectives of this geotechnical investigation are as follows:

① Investigate the soil and ground water conditions along the alignment of the proposed road and assess the following:

- ❶ suitability of subgrade soil to support pavement structure, and
- ❷ seasonal high water table (SHWT) estimates to ensure adequate vertical separation of the pavement base from the SHWT.

② Investigate soil & ground water conditions along alignment of proposed storm sewers. Use this data to provide geotechnical recommendations for excavation of the trenches, ground water control, preparation of the pipe bedding and backfill.

③ Estimate the seasonal high water table within the development limits to facilitate the grading plan.

④ Provide mass grading recommendations for cutting and filling the site including estimated seasonal high water table contours.

⑤ Provide aquifer parameters for modeling the dry-bottom stormwater ponds including:

- ⇨ Estimated seasonal high water table (ft NGVD)
- ⇨ Base of aquifer for lateral saturated flow (ft NGVD)
- ⇨ Fillable porosity (%)
- ⇨ Horizontal saturated hydraulic conductivity (ft/day)
- ⇨ Unsaturated vertical infiltration rate (ft/day)

4.0 NRCS SOIL MAP UNITS

The Natural Resources Conservation Service (NRCS), an agency of the US Department of Agriculture, has mapped and published descriptions of the shallow soils (i.e., within 80 inches of land surface) in Osceola County (Fl). In undeveloped areas (without the addition of impervious areas and establishment of drainage systems), the NRCS soil mapping is usually fairly reliable and it is good practice to review the NRCS characterization data as a precursory step to the site-specific geotechnical investigation.

Figure 1.3 shows a scanned image of the NRCS soils map for the site itself and it's surroundings. The NRCS publication indicates that there are four (4) soil units mapped within the development portions of the site:

- ✓ Candler sand, 0 to 5% slopes (#7)
- ✓ Candler sand, 5 to 12% slopes (#8)
- ✓ Pomello fine sand, 0 to 5% (#34)
- ✓ Smyrna fine sand (#42)

The soil map unit boundaries are also overlaid in Figures 1.4a and 1.4b to visually gage their relative position to the various development elements. As noted in these figures, and the predominant soil map units are the Candler sands (#7 and #8) with very small areas of Pomello fine sand (#34) and Smyrna fine sand (#42) where the site abuts Interstate Highway 4 (below an elevation of about +99 ft NGVD and in the area of future Pond 7). Candler sands are excessively drained soils with a deep water table (>6 ft) and a profile of permeable fine sands in at least the uppermost 7 ft.

Sanibel muck (#40) is mapped outside the development limits and is within the Reedy Creek Swamp.

Key characterization data for the four (4) NRCS soil map units which are within the develop-able portion of the site are presented in Tables 1 to 4.

Table 1. Key NRCS Characterization Data for Candler fine sand, 0 to 5% slopes (#7)

This is an excessively drained, nearly level to gently sloping soil on uplands. Mapped areas range from about 20 to 225 acres. The water table in this soil is at a depth of more than 72 inches, and no flood hazard exists.		
Hydrologic Soil Group		A
Typical Soil Profile		
Depth	Soil Color & Texture	Permeability
0 - 3 in	dark grayish brown sand	> 40.0 ft/day
3 - 6 in	yellowish brown sand	
6 - 17 in	brownish yellow sand	
17 - 35 in	light yellowish brown sand	
35 - 62 in	brownish yellow sand	
62 - 80 in	brownish yellow sand	12.0 to 40.0 ft/day

Table 2. Key NRCS Data for Candler fine sand, 5 to 12% slopes (#8)

This is an excessively drained, sloping to strongly sloping soil on uplands. Mapped areas range from about 20 to 175 acres. The water table in this soil is at a depth of more than 72 inches.		
Hydrologic Soil Group		A
Typical Soil Profile		
Depth	Soil Color & Texture	Permeability
0 - 3 in	dark grayish brown sand	> 40.0 ft/day
3 - 6 in	yellowish brown sand	
6 - 17 in	brownish yellow sand	
17 - 35 in	light yellowish brown sand	
35 - 62 in	brownish yellow sand	
62 - 80 in	brownish yellow sand	12.0 to 40.0 ft/day

Table 3. Key NRCS Characterization Data for Pomello fine sand (#34)

This is a moderately well drained, nearly level to gently sloping soil. It occurs in areas transitional between the high sand ridges and the flatwoods and on slight knolls and low ridges throughout the flatwoods. This soil has a water table at a depth of 24 to 40 inches for periods of about 1 to 4 months during normal wet seasons. During dry seasons, the water table is at a depth of about 40 to 60 inches.		
Hydrologic Soil Group		C
Typical Soil Profile		
Depth	Soil Color & Texture	Permeability
0 to 15 in	gray fine sand	> 40.0 ft/day
15 to 47 in	white fine sand	
47 to 52 in	black fine sand	4.0 to 12.0 ft/day
52 to 58 in	dark reddish brown fine sand	
58 to 65 in	brown fine sand	12.0 to 40.0 ft/day
65 to 80 in	grayish brown fine sand	

Table 4. Key NRCS Characterization Data for Smyrna fine sand (#42)

This is a nearly level, poorly drained soil in broad flat areas in the flatwoods. The water table is at a depth of less than 10 inches for 1 to 4 months and between depths of 10 and 40 inches for more than 6 months in most years. In rainy seasons the water table rises above the surface briefly.		
Hydrologic Soil Group		A/D
Typical Soil Profile		
Depth	Soil Color & Texture	Permeability
0 - 4 in	black fine sand	12 to 40 ft/day
4 - 7 in	dark gray fine sand	
7 - 14 in	light gray fine sand	
14 - 17 in	black fine sand weakly cemented with organic matter	1.2 to 12 ft/day
17 - 20 in	dark reddish brown fine sand weakly cemented with organic matter	
20 - 25 in	brown fine sand	
25 - 43 in	light gray fine sand	12 to 40 ft/day
43 - 56 in	grayish brown fine sand	
56 - 69 in	dark reddish brown fine sand	1.2 to 12 ft/day
69 - 80 in	dark reddish brown and black fine sand	

5.0 SITE SPECIFIC FIELD AND LABORATORY TESTS

The following program of field and laboratory geotechnical testing was undertaken to provide data for this assessment (refer to Figures 1.4a and 1.4b for test locations):

❶ A total of forty eight (48) 12-ft to 13-ft deep hand auger borings were drilled along the proposed alignment of the internal roadways. Their locations are labeled RB-1 through RB-48 in Figure 1.4a (attached). Note that only three (3) of these forty eight (48) bore holes intersected the water table within 13 ft of land surface at the time of drilling (late January-early February 2013).

❷ A total of twenty two (22) 20-ft to 50-ft deep power auger borings were drilled within the proposed stormwater management pond footprints. These test locations are labeled PB-1 to PB-22 in Figure 1.4a. Piezometers were installed in each of these power auger borings to obtain reliable measurements of the water table.

❸ The depth to the stabilized water table was measured in each borehole and piezometer in the period late January to early February 2013. All pond borings and piezometers were surveyed in the field to obtain ground elevations. The elevations for the roadway boreholes were estimated from the 1 ft topographic contours.

❹ The soil samples from all of the borings (pond & roadway) were classified by visual and tactile methods, and the following additional tests were performed on selected samples from the ***pond*** borings:

① nine (9) falling head permeameter hydraulic conductivity tests on undisturbed tube samples retrieved at various depth intervals;
② twenty four (24) "fines fraction" tests [i.e., % by dry weight passing the U.S. No. 200 sieve]; and
③ thirteen (13) natural moisture content tests.

6.0 SOIL STRATIGRAPHY

Presentation of Data

Borehole locations are plotted on the aerial base map in Figure 1.4a. As mentioned in a previous section, these test points were horizontally located in the field by our technicians using a recent color aerial for ground guidance. However, our staff performed an elevation survey of the pond piezometers so those values are not estimated. The numerical values for the elevations of the ground surface, measured water table, and seasonal high water table are shown on Figure 1.4a and 1.4b next to their test labels. Only the estimated ground surface is listed for many of the roadway borings since the water table was not encountered within the depth of drilling for all but 3 of these borings [RB-41, RB-42, and RB-48].

Soil Stratigraphy - Stormwater Ponds

The interpreted soil stratigraphy at each test borehole is presented in the form of color-hatched soil columns for more effective visualization of the data.

The profiles for the stormwater pond borings PB-1 to PB-22 are presented in Figures 2.1 to 2.4 (attached). These are grouped on a pond by pond basis (with pond number banners above each group) and the columns are also positioned on a vertical axis to obtain a true elevation cross-sectional view. Laboratory test results (which include soil permeability, fines fraction, & natural moisture content) are annotated adjacent to the soil columns at the appropriate sample intervals.

The pond boring depths ranged from 20 to 50 ft below land surface. These borings disclosed a thick mantle of free-draining fine sand which is underlain by relatively thin lenses of slightly silty fine sands, silty fine sands, and clayey fine sands, but these less permeable soil lenses do not form a continuous semi-confining layer which can perch the water table.

Based on the results of the nine (9) tests, the measured vertical hydraulic conductivity of the fine sands is as follows:

- Average = 39.9 ft/day
- Geometric mean = 35.0 ft/day
- Median = 32.2 ft/day

The average fines fraction of the tested sand is 1.4%. These measured permeability values are consistent with the published data for Candler fine sands (see Table 1 and Table 2). In these depositional settings, the horizontal hydraulic conductivity is usually 1.5 to 2 times the vertical value.

Soil Stratigraphy - Roadway Borings

Figures 3.1 to 3.8 contain the soil profiles for the forty eight (48) hand auger borings [RB-1 to RB-48, Figure 1.4a] drilled along the alignment of the internal roadways. All of these borings disclosed free-draining fine sands [in various shades of brown] through the 13 ft depth of exploration. In addition, the water table was only encountered within three (3) of these 48 hand augers—those 3 being in the lowest topographic areas of the property.

7.0 WATER TABLE

The stabilized water table readings, where encountered within the depth of exploration at the time of our investigation, are shown as symbols on the soil profiles. However, the actual value of the measured water table elevation is plotted in plan view on Figures 1.4a and 1.4b. These water table readings in the pond borings were measured on Jan 22, 2013, a time of year which is into the dry season but not yet at its minimum.

The water table fluctuates seasonally primarily due to short-term and long-term differences in rainfall and evapotranspiration. Since the evapotranspiration does not vary much from year to year, variations in the rainfall amounts are the primary cause of the fluctuation. In this part of Osceola County, the water table altitude is strongly influenced by the groundwater level in the deep Floridan aquifer. On these ridges, the seasonal fluctuation of the water table is 5 to 6 ft during the course of a normal rainfall year, with peak levels generally being attained at the end of September (end of wet season) and low levels at the end of May (end of dry season).

Estimates of the seasonal high water table at the borehole locations are presented in Figures 1.4a and 1.4b.

8.0 EVALUATION & RECOMMENDATIONS

8.1 Recommendations Aquifer Parameters for Stormwater Modeling

The aquifer parameters listed in Table 7 are recommended for modeling infiltration in the stormwater ponds.

8.2 General Suitability

The soil conditions disclosed by the borings indicate no major geotechnical constraints to the development of typical 1-story to 2-story single family residential units and associated paving/ drainage infrastructure. ***Important:*** However, note that there are two (2) closed dry depressions within future residential lots and these are identified by shading in Figure 1.4b of the report. These are not recently formed features and they do not show signs of active movement. However, once the layout of the residential lots is finalized, both these karst depressions will have to be investigated to assess their potential for sinkhole development. Typically, deep Standard Penetration Test (SPT) borings are drilled to detect potential indicators of deep (& active) subsurface raveling. This assessment will be required as a supplemental study to certify those lots are build-able without above normal risk of sinkhole-related movement. Given the expense of this study, it is prudent to perform it when the development layout is final and that assessment can be provided in a supplemental report.

Table 5. Recommended Aquifer Parameters for Modeling Infiltration in Stormwater Ponds								
Parameter	Unit	POND #						
		1	2	3	4	5	6	7
Normal seasonal high water table	ft NGVD	99.5	98.0	91.5	96.5	93.0	86.0	90.0
Normal seasonal low water table	ft NGVD	93.0	92.0	85.5	90.5	87.0	80.0	84.0
Normal seasonal fluctuation of water table	ft	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Base of aquifer elevation	ft NGVD	79.0	78.0	71.0	86.0	90.0	65.0	70.0
Horizontal hydraulic conductivity	ft/day	30.0	30.0	30.0	30.0	30.0	20.0	20.0
Fillable Porosity	%	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Unsaturated vertical infiltration rate	ft/day	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum bottom elevation for dry pond	ft NGVD	102.5	101.0	94.5	99.5	96.0	89.0	93.0

Notes:

1. Only use unsaturated infiltration component for dry pond recovery if the pond bottom is 3 ft or more above the seasonal high water table. In addition, ***the recommended value for unsaturated vertical infiltration has a built-in safety factor of 2***.
2. Pond #2 may be designed as a wet retention pond.

8.3 Mass Grading Recommendations

The seasonal high water table is well below land surface and there should be adequate separation distance between the proposed final grades and the estimated seasonal high water table. However, we request that the civil engineer provide the cut grades for review upon completion of the grading plan.

These are our recommendations for the mass grading operations:

1. Clear and grub the site and retain any trees that may be identified for preservation and landscaping.

2. Strip the topsoil to a depth of at least 6 inches, and then compact to 95% Modified Proctor Density.

3. Cut and fill the areas identified for reprofiling and compact the fill material and resulting subgrade to 95% Modified Proctor Density.

4. For compaction of the sand, we recommend a large self-propelled vibratory roller which has a minimum static weight of 12,000 pounds and is capable of exerting a minimum impact energy of 20,000 pounds (i.e., DYNAPAC CA-152 or equivalent) in areas more than 75 feet away from existing structures.

   Within 75 feet of an existing structure and areas where the groundwater table is within 2 feet of the ground surface, compaction should be achieved with a vibratory roller in the static mode or the use of non-vibratory compaction equipment, such as a heavy rubber tired front end loader. If a front end loader is used, it should have a minimum bucket size of 3 cubic yards which should be loaded with soil during the compaction process. Note that we do not anticipate this situation on this particular project.

   Compact in lift thicknesses necessary to achieve 95% density. The maximum lift thickness shall not exceed 2 ft, but a 1 ft maximum is recommended for this project. Within the uppermost 5 ft of fill, the lift thickness shall not exceed 12 inches.

5. One (1) compaction test is recommended for every 15,000 square feet of fill for each 1 ft vertical interval. This means that one (1) compaction test is required for approximately 550 cubic yard of in-place fill material. Compaction tests shall be performed at 1 ft vertical intervals even if the lift thickness exceeds 1 ft. All compaction tests and proctor tests shall be documented in a report which

contains a map showing the location of the test and tabulated summaries of the compaction/proctor moisture-density test results.

- The main construction-related problem with such sandy, undulating sites is downhill erosion of sands during heavy rainfall events. Great care should be taken to ensure erosion control measures (silt fences, etc.) are installed and maintained while bare soil is exposed.

8.4 Pavement Design & Earthwork Recommendations

Table 6 (next page) presents recommendations for the pavement section and preparation of the subgrade.

8.5 Storm Sewer Trench

Table 7 contains recommendations for the excavation and backfill of the stormwater pipe trenches.

8.6 Quality Control Tests

Table 8 lists the recommended type and frequency of quality control tests.

Table 6. Bituminous Pavement Design & Earthwork Recommendations

ITEM NO.	ITEM DESCRIPTION	DISCUSSION & RECOMMENDATIONS
		A. DESIGN RECOMMENDATIONS
A.1	General	Except for the areas containing surficial organics, the shallow subsurface soils are suitable for the construction and support of either a flexible (limerock) or semi-flexible (soil-cement) pavement base. However, a minimum separation of 18 inches should be maintained between the bottom of the base course and the seasonal high water table.
A.2	Recommended Pavement Section	The pavement section shall be designed in accordance with Osceola County requirements. The following pavement section is typically recommended based on traffic volume:

Layer	Local	Collector
Bituminous concrete surface course (type S-3)	1.5 in	1.75 in
Bituminous concrete surface course (type S-1)	0.0 in	0.0 in
Limerock base course or soil-cement base course	6 in	8 in
Stabilized subgrade (not required if soil-cement base course is used)	6 in	8 in

A.3	Subgrade Compaction & Stabilization	The subgrade soils shall be compacted to a minimum of 98% of the soil's maximum Modified Proctor Density value (AASHTO T-180) to a depth of 1 foot below the base course. The top 6 or 12 inches of the subgrade (depending on wheel load) shall be stabilized to a minimum Florida Bearing Value (FBV) of 75 psi under curb areas and the limerock base course. Alternatively, the subgrade should be stabilized to a minimum Limerock Bearing Ratio (LBR) of 40. References: Sections 160 and 914 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.4	Limerock Base Course	The limerock base should meet FDOT standards, including a minimum Limerock Bearing Ratio (LBR) of 100. The base material shall be compacted to at least 98 percent of the AASHTO T-180 Maximum Density. References: Sections 200 and 911 of the *FDOT Standard Specifications for Road and Bridge Construction*

Table 6. Bituminous Pavement Design & Earthwork Recommendations		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
A.5	Soil-Cement Base Course Alternative	A stabilized subgrade would not be required in this option. The soil-cement base should be compacted to at least 95 percent of AASHTO T-134. The soil cement shall have a 7-day design strength of at least 350 psi. Reference: Section 270 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.6	Bituminous Concrete Surface Course	The surface course should consist of Type S-3 asphaltic concrete meeting current FDOT specifications. The mixture should be compacted in-place to achieve a density equivalent to at least 95 percent of the laboratory density for the approved mix as determined by the Marshall Stability Test method. Reference: Section 331 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.7	Bituminous Concrete Base Course	The base course should consist of Type S-1 asphaltic concrete meeting current FDOT specifications. The mixture should be compacted in-place to achieve a density equivalent to at least 95 percent of the laboratory density for the approved mix as determined by the Marshall Stability Test method. Reference: Section 331 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.8	Separation of base course from water table	A minimum separation of 18 inches should be maintained between the bottom of the base course and the seasonal high water table (SHWT). If the separation is less than 22 inches, a soil-cement base course is recommended instead of a limerock base course. Road/pavement underdrains are required where the separation of the bottom of the base course and the seasonal high water table is less than that recommended above. ❒ Underdrains should not be relied upon to lower the water table more than 2 feet below the predevelopment SHWT. ❒ A minimum separation of 18 inches should be maintained between the bottom of the pavement base course and the seasonal high water table. The invert of the underdrain pipe should be at least 18 inches below the bottom of the pavement base course.

Table 6. Bituminous Pavement Design & Earthwork Recommendations		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
B. EARTHWORK RECOMMENDATIONS		
B.1	Clearing & grubbing	Paved areas plus a minimum margin of 5 feet and all areas requiring fill should be cleared, stripped and grubbed to remove all surface vegetation, roots, topsoil and other deleterious materials. Materials generated during this process should be removed from the site and disposed of as directed by the owner/engineer. Reference: Section 110 of the *FDOT Standard Specifications for Road and Bridge Construction*
B.2	Proof-rolling	Within the roadway, plus a minimum margin of 5 feet on either side, the resulting cleared surface (& where undercut), the exposed natural soils should be proof-rolled to detect unstable conditions such as yielding or pumping or plastic soils. Soft areas or excessively wet soils should be excavated, removed, dried and/or replaced with suitable compacted fill, as described in item B.6 below.
B.3	Dewatering	Unless the depths of cuts are deeper than normal, limited dewatering (if any) for construction of the pavement is anticipated for this project. Note that dewatering will be required in the depression to be backfilled.
B.4	Compaction method	The resulting cleared surface should be leveled and then compacted by means of a large self propelled vibratory roller which has a minimum static weight of 12,000 pounds and is capable of exerting a minimum impact energy of 20,000 pounds (i.e., DYNAPAC CA-15 or equivalent) in areas more than 75 feet away from existing structure(s). Within 75 feet of an existing structure(s) and areas where the groundwater table is within 2 feet of the ground surface, compaction should be achieved with a vibratory roller in the static mode or the use of non-vibratory compaction equipment, such as a heavy rubber tired front end loader. If a front end loader is used, it should have a minimum bucket size of 3 cubic yards which should be loaded with soil during the compaction process.
B.5	Density Requirements	The compaction efforts should continue until the soils within the proposed roadway are compacted to a minimum density equivalent to 95 percent of the soils' Maximum Modified Proctor Density value (AASHTO T-180), as tested to a minimum depth of 1 foot below the bottom of the pavement base course and/or exposed subgrade.
B.6	Fill	Any fill material required to attain finished grade should consist of relatively clean fine sand containing less than 7 percent passing the U.S. No. 200 Sieve. All sources of structural fill should be approved by the geotechnical engineer prior to their placement. The fill soils should be placed in level lifts not exceeding 12 inches loose thickness and compacted to the minimum density specified in item B.5 above.

Table 6. Bituminous Pavement Design & Earthwork Recommendations		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
B.7	Quality Control	A representative of the project geotechnical engineer should be retained to provide on-site inspection and testing during the site preparation activities so that proper documentation and compliance of the recommendations outlined above can be provided. Table 4 lists the recommended type & frequency of quality control tests.

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
A. PIPE TRENCH EXCAVATION		
A.1	General	Trenches for pipe culverts and for storm sewers shall be excavated to the required depth and to a width sufficient to provide adequate working room. The specified width of the ditch applies at the top of the pipe. References: Section 125-4.4.1 of the *FDOT Standard Specifications for Road and Bridge Construction* pg. 739, Soil Engineering by Handy & Spangler
A.2	Trenches in Fill	For pipes placed above the natural ground line, the embankment shall be placed and compacted prior to excavation of the trench to an elevation at least 24 inches above the top of the pipe and to a width equal to four (4) pipe diameters, and the trench then excavated to the required grade. Where the soils permit, the trench sides shall be vertical up to at least the mid-point of the pipe. Reference: Section 125-4.4.1 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.3	Bedding	PIPE CULVERTS AND STORM SEWERS ≥ 24 INCHES DIAMETER The bedding shall be shaped to conform to the outside of the pipe, for a depth of not less than 10% of its total height (outside dimensions) and recesses provided to receive the bell. If shown in the plans, Class B Bedding shall be used. Class B Bedding shall consist of carefully bedding the pipe on fine granular material over an earth foundation shaped to conform to the outside of the pipe for a depth of not less than 15% of its total height (outside dimensions) and recesses provided to receive the bell. PIPE CULVERTS AND STORM SEWERS < 24 INCHES DIAMETER The trench bottom may be either flat, or shaped to fit the bottom of the pipe, except as provided in A.4 (below) for trenches cut below grade and for areas of unsuitable foundation material. Regardless of the shape of the trench bottom, excavation shall be made for the hubs as required to allow the pipe barrel to rest firmly on the trench bottom. Reference: Section 125-4.4.1 of the *FDOT Standard Specifications for Road and Bridge Construction*

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
A.4	Undercutting (where necessary)	When rock, boulders, or other hard, lumpy or unyielding materials are encountered in the trench bottom they shall be removed to a depth of at least 12 inches below the pipe. Muck or other soft material considered by the Engineer to be unsuitable as foundation for the pipe shall be removed to a depth required for obtaining a firm foundation, and as directed by the Engineer. When undercutting is required in order to remove unsuitable material (either hard or soft), the trench shall be backfilled to a point 6 inches above the bottom of the pipe, with suitable granular material which will form a firm bed for the pipe, and the bottom shall be shaped to fit the pipe, to a point 6 inches above the bottom of the pipe. Such bedding material shall be fine sand or other suitable granular material, obtained from the grading operations on the project, or a commercial material if no suitable material is thus available. Based on the soil borings, there appears to be sufficient quantity of suitable granular material on the site. Those soils considered suitable are classified as fine sand and slightly silty fine sand (uncemented). When a pipe trench is undercut in order to remove unsuitable materials or for other reasons, it shall be brought to the required grade using materials as specified above, after which the bottom shall be compacted to match approximately the density of the soil in which the trench was cut. References: Section 125-4.4.2 of the *FDOT Standard Specifications for Road and Bridge Construction* Section 125-4.4.3 of the *FDOT Standard Specifications for Road and Bridge Construction* Section 125-4.4.4 of the *FDOT Standard Specifications for Road and Bridge Construction*
A.5	Dewatering	Dewatering is not anticipated for this project. However, if some dewatering is required, the water table may be lowered by well points or pumping from interior sumps. The design of the dewatering system is the responsibility of the Contractor. The water table should be lowered to a level 2 ft below the base of the trench during excavation and backfilling.

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
A.6	Safety	The Contractor(s) performing trench excavation on this Contract, in excess of 5 feet in depth, shall comply with the Occupational Safety and Health Administration's (OSHA) trench excavation safety standards, 29 C.F.R., s. 1926.650, Subpart P, including all subsequent revisions or updates to these standards as adopted by the Department of Labor and Employment Security (DLES). The Contractor shall consider all available geotechnical information in his design of the trench excavation safety system. No material or excessive loads shall be applied at the surface within a distance from the edge of the trench equal to the depth of the trench. Reference: Section 125-1 of the *FDOT Standard Specifications for Road and Bridge Construction*

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
	B. TRENCH BACKFILLING	
B.1	Backfill materials	All material used for backfill shall be of a quality acceptable to the Engineer and shall be free from large lumps, wood, or other extraneous material. Fine sands and slightly silty fine sands are generally suitable as backfill and granular bedding provided they are not overly cemented. The slightly clayey fine sands are also suitable but can present problems with moisture control to achieve compaction, especially during the rainy season. The clayey sands will be difficult to compact since it usually comes out in lumps when excavated and the soil moisture is difficult to control. Reference: Section 125-8.1.1 of the *FDOT Standard Specifications for Road and Bridge Construction*
B.2	General	The backfilling of pipe trenches shall be done in three stages as follows: (a) First Stage: The material beneath the haunches of the pipe and above any bedding required shall be placed in 6 inch layers (compacted thickness) and compacted with mechanical tampers suitable for this purpose. (b) Second Stage: The material along the sides of the pipe and to a point of at least 12 inches above the top of the pipe shall be placed in 6 inch layers (compacted thickness) and compacted with appropriate equipment. The width of compaction to be done under this stage shall be the width of the portion of the trench having approximately vertical sides or, when no portion of the trench has approximately vertical sides, compaction shall extend a distance equal to two times the outside diameter of the pipe on either side of the pipe. © Third Stage: The material in the trench above the second stage up to the bottom of the subgrade or the finished surface of the embankment, as appropriate, shall be placed in layers not to exceed 12 inches in thickness and compacted with appropriate equipment. Reference: Section 125-8.3.1 of the *FDOT Standard Specifications for Road and Bridge Construction*

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
B.3	Density Requirements	For non-flexible culvert construction, all backfill shall be compacted to a density of at least 100% of the maximum density as determined by AASHTO T 99, Method C, except as provided below. In locations outside a 2 (horizontal) to 1 (vertical) slope downward from the roadway shoulder line or the back of the curb as applicable and along storm sewer outfall lines where no vehicular traffic will pass over the pipe, backfill shall be compacted to a density as follows: ▶ Height of Material Over Top of Pipe (less than 10 feet): ① All stages - To a firmness approximately equal to that of the soil adjacent to the pipe trench. ▶ Height of Material Over Top of Pipe (10 feet or greater): ① First Stage - to a density of at least 100% of the maximum density as determined by AASHTO T 99, Method C. ② Second Stage - same as first stage. ③ Third Stage - To a firmness approximately equal to that of the soil adjacent to the pipe trench. For flexible culvert construction including structural plate, all backfill shall be compacted to a density of at least 95% of the maximum density as determined by AASHTO T 99, Method C, except as provided below. In locations outside a 2 (horizontal) to 1 (vertical) slope downward from the roadway shoulder line or the back of the curb as applicable and along storm sewer outfall lines where no vehicular traffic will pass over the pipe, backfill shall be compacted to a density as follows: ▶ Height of Material Over Top of Pipe (less than 10 feet): ① All Stages - To a firmness approximately equal to that of the soil adjacent to the pipe trench. ▶ Height of Material Over Pipe (10 ft or greater): ① First Stage - To a density of at least 95% of the maximum density as determined by AASHTO T 99, Method C ② Second Stage - Same as First Stage. ③ Third Stage - To a firmness approximately equal to that of the soil adjacent to the pipe trench. Reference: Section 125-8.3.2 of the *FDOT Standard Specifications for Road and Bridge Construction*

Table 7. Earthwork Recommendations for Pipe Trench		
ITEM NO.	**ITEM DESCRIPTION**	**DISCUSSION & RECOMMENDATIONS**
B.4	Backfill under wet conditions	Where wet conditions are such that dewatering by normal pumping methods would not be effective, the procedure outlined below may be used when specifically authorized by the Engineer. In such specifically authorized cases the backfill material used below the elevation at which mechanical tampers would be effective shall be of the AASHTO A-3 soil classification. After the pipe is bedded properly, the A-3 material shall be placed, and rammed and compacted under the pipe haunches by the use of timbers or hand tampers, and hand-tamping continued during the placing of the backfill until the backfill reaches an elevation such that its moisture content will permit the use of mechanical tampers. When the backfill has reached such elevation, normally acceptable backfill material may be used and compaction shall be obtained by the use of mechanical tampers. The mechanical tamping shall be done in such a manner and to such extent as to transfer the compacting force into the previously hand-tamped fill. Reference: Section 125-8.3.3 of the *FDOT Standard Specifications for Road and Bridge Construction*
B.5	Precautions	Heavy construction equipment shall not be permitted to cross over culverts or storm sewer pipes until backfill material has been placed and compacted to the finished earthwork grade or to an elevation at least 4 ft above the crown of the pipe.
B.6	Minimum cover requirements	The minimum cover over the top of the pipe shall be as per Index 205 of the FDOT Roadway and Traffic Design Standards (Jan. 1992).
B.7	Quality Control	See Table 8

Table 8. Quality Control Tests for Pavement & Underground Trenches

Stormwater Sewer Backfill Soils Testing - Osceola County

1. 1st test shall be at the bedding of the pipe
2. Additional tests shall be every foot to finish grade
3. Test intervals shall be (1) test for each 300 linear foot of pipe and/or run of pipe
4. Density shall be 98% (within pavement areas) and/or 95% (outside pavement areas) of AASHTO T-180 (Modified) unless otherwise noted

Sanitary Sewer Backfill Soils Testing - Osceola County

1. 1st test shall be at the bedding of the pipe
2. Additional tests shall be every foot to finish grade
3. Test intervals shall be (1) test for each 300 linear foot of pipe and/or run of pipe
4. Density shall be 98% (within pavement areas) and/or 95% (outside pavement areas) of AASHTO T-180 (Modified) unless otherwise noted

Watermain Backfill Soils Testing (Roadway Crossings) - Osceola County

1. 1st test shall be at the bedding of the pipe
2. Additional tests shall be every foot to finish grade
3. Density shall be 98% of AASHTO T-180 (Modified) unless otherwise noted

Watermain Backfill Soils Testing (Back of Curb) - Osceola County

1. 1st test shall be at the base of the structure
2. Additional tests shall be every foot to finish grade
3. Density shall be 95% of AASHTO T-180 (Modified) unless otherwise noted

Utility Structure Backfill Soils Testing - Osceola County

1. 1st test shall be at the base of the structure
2. Additional tests shall be every foot to finish grade
3. Density shall be 98% (within pavement areas) and/or 95% (outside pavement areas) of AASHTO T-180 (Modified) unless otherwise noted

Table 8. Quality Control Tests for Pavement & Underground Trenches

Stabilized Subbase (9-inches to 60 psi for roadway and curb) - Osceola County

1. 1 test (FBV and Density) every 300 linear foot and staggered left curb, center of road, right curb, center of road, etc;
2. Density shall be 98% of AASHTO T-180 (Modified)

Limerock Base Course Testing - Osceola County

1. Limerock must meet the minimum LBR100 requirements
2. 1 Density test every 300 linear foot of roadway and no less than (2) per street
3. Density shall be 98% of AASHTO T-180 (Modified)

Soil-Cement Base Testing - Osceola County

1. 1 set of (3) test pills shall be molded for each 2500 square yards of base placed
2. 1 density test for each 300 linear foot of roadway (minimum 2 per street) and staggered left of centerline, on centerline, right of centerline, on centerline, etc;
3. Density shall be 98% of AASHTO T-134 (Standard)
4. Unconfined Compressive Strength shall be 300 psi in 7-days (minimum 60 % of laboratory design)

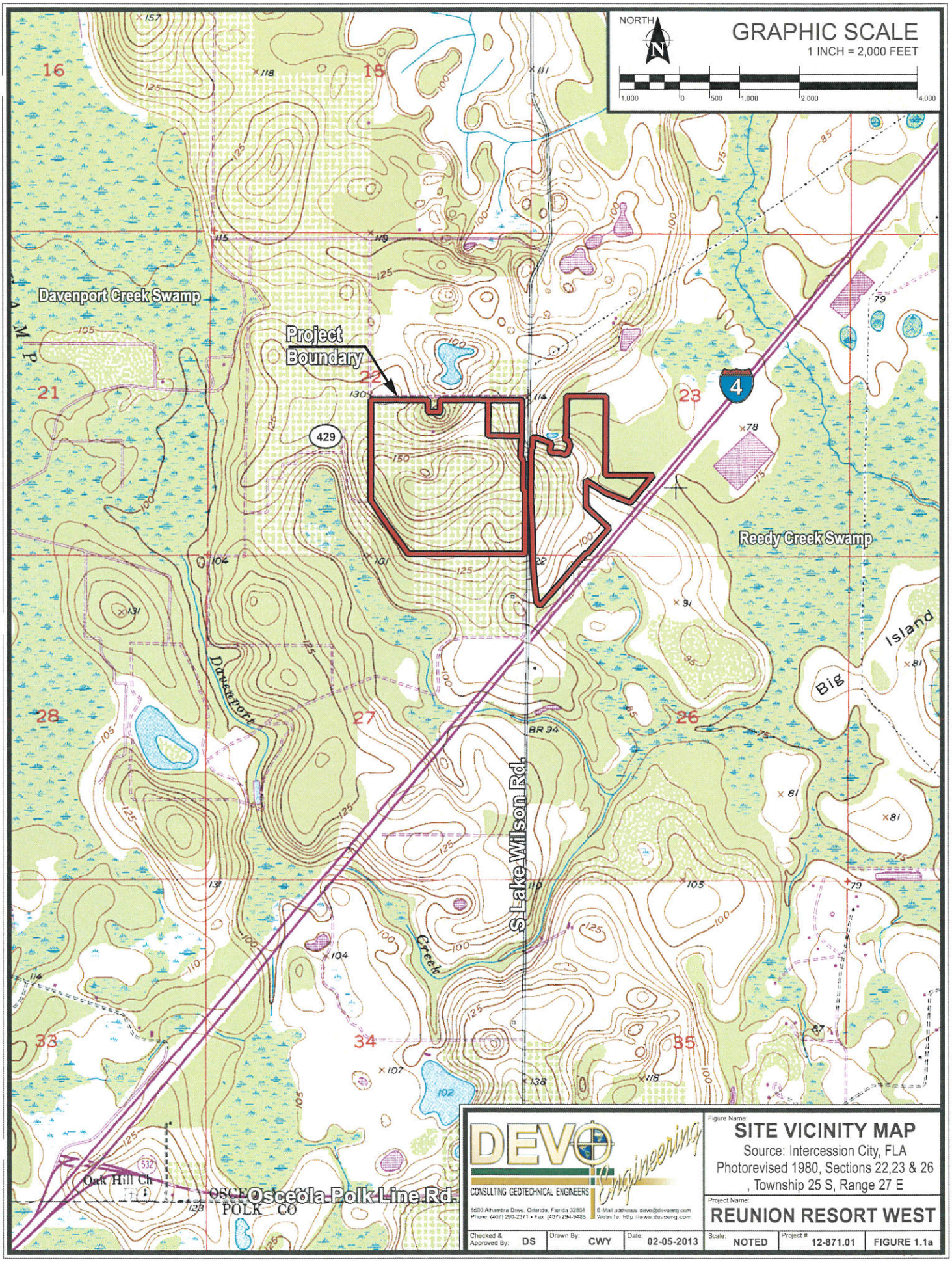
Asphaltic Concrete Testing - Osceola County

1. 1 "Hot Sample" shall be obtained daily (during paving operations) and/or for every 500 tons placed
2. 1 core sample (for density and thickness determination) shall be obtained every 300 linear foot of roadway with no less than (2) per street and staggered from left, centerline, right, centerline, etc;
3. Minimum density shall be 94% of laboratory design

Roadway Underdrain Inspections - Osceola County

1. The underdrain filter sand shall be sampled and delivered to the laboratory for a grain size test and must be in compliance with FDOT 902.4 requirements
2. During the installation of the underdrain, a technician must make periodic site visits to verify and/or provide proper documentation

FIGURES



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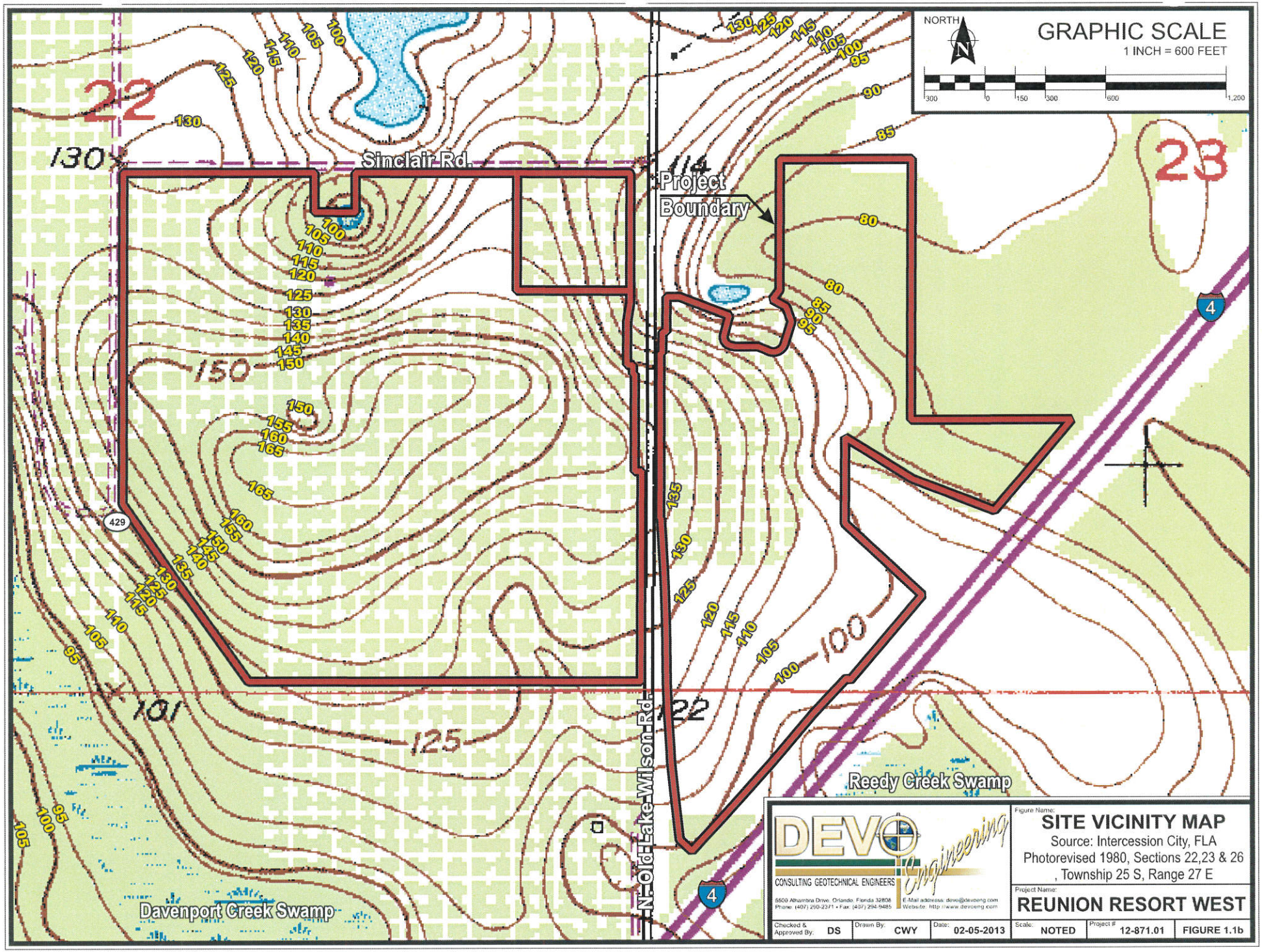
Website: http://www.devoeng.com

Figure Name:
SITE VICINITY MAP
Source: Intercession City, FLA
Photorevised 1980, Sections 22,23 & 26
, Township 25 S, Range 27 E

Project Name:
REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #	
DS	CWY	02-05-2013	NOTED	12-871.01	FIGURE 1.1a


NORTH
GRAPHIC SCALE
1 INCH = 600 FEET
300 0 150 300 600 1,200
22
23
26
Sinclair Rd.
Project Boundary
N. Old Lake Wilson Rd.
Davenport Creek Swamp
Reedy Creek Swamp
429
4
DEVO Engineering
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5500 Alhambra Drive, Orlando, Florida 32808
Phone: (407) 290-2371 • Fax: (407) 294-9485
E-Mail address: devo@devoeng.com
Website: http://www.devoeng.com
Figure Name:
SITE VICINITY MAP
Source: Intercession City, FLA
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, Township 25 S, Range 27 E
Project Name:
REUNION RESORT WEST
Checked & Approved By: DS
Drawn By: CWY
Date: 02-05-2013
Scale: NOTED
Project #: 12-871.01
FIGURE 1.1b

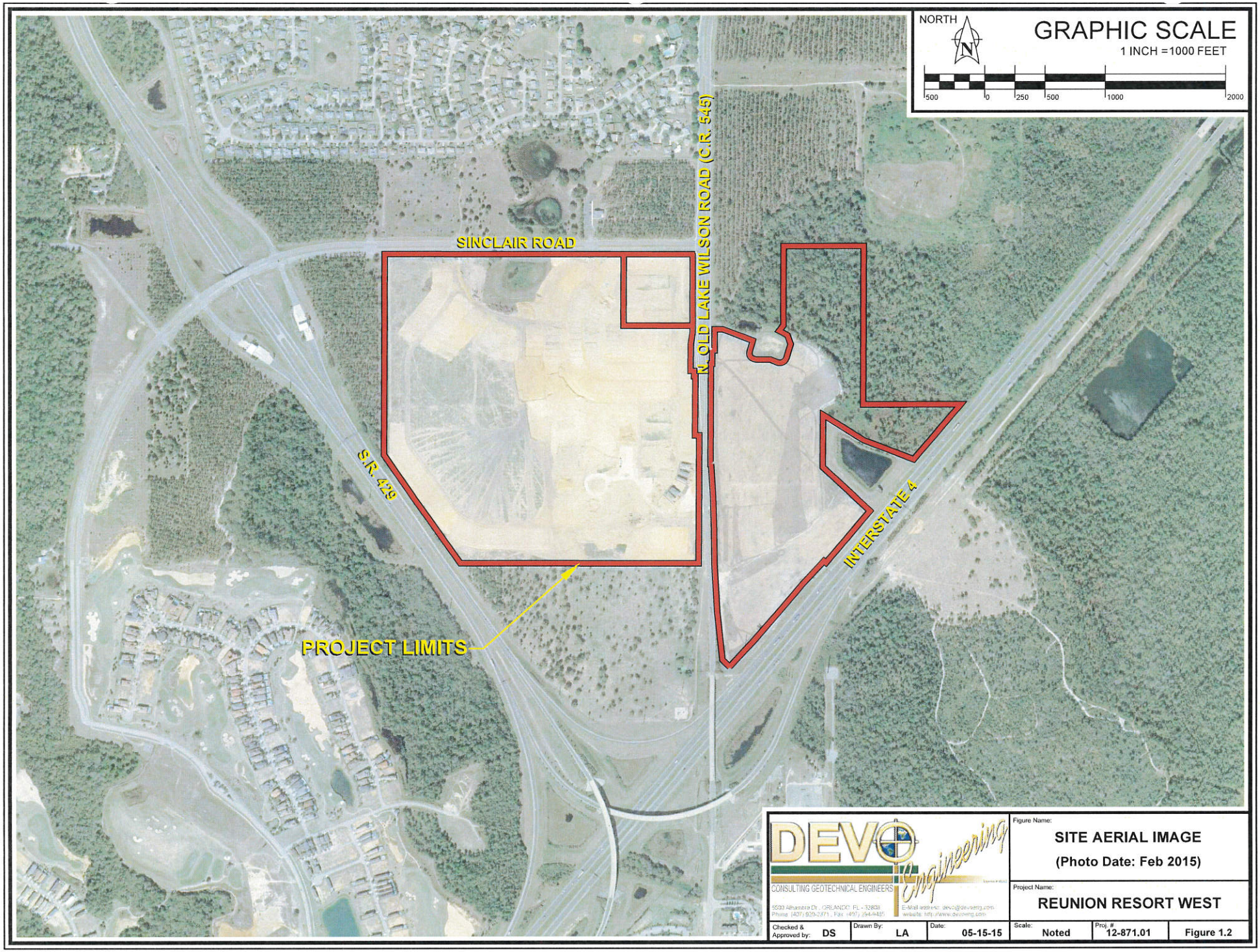

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Figure Name: **SITE AERIAL IMAGE**
(Photo Date: Feb 2015)

Project Name: **REUNION RESORT WEST**

Checked & Approved by:	Drawn By:	Date:	Scale:	Proj. #	
DS	LA	05-15-15	Noted	12-871.01	Figure 1.2

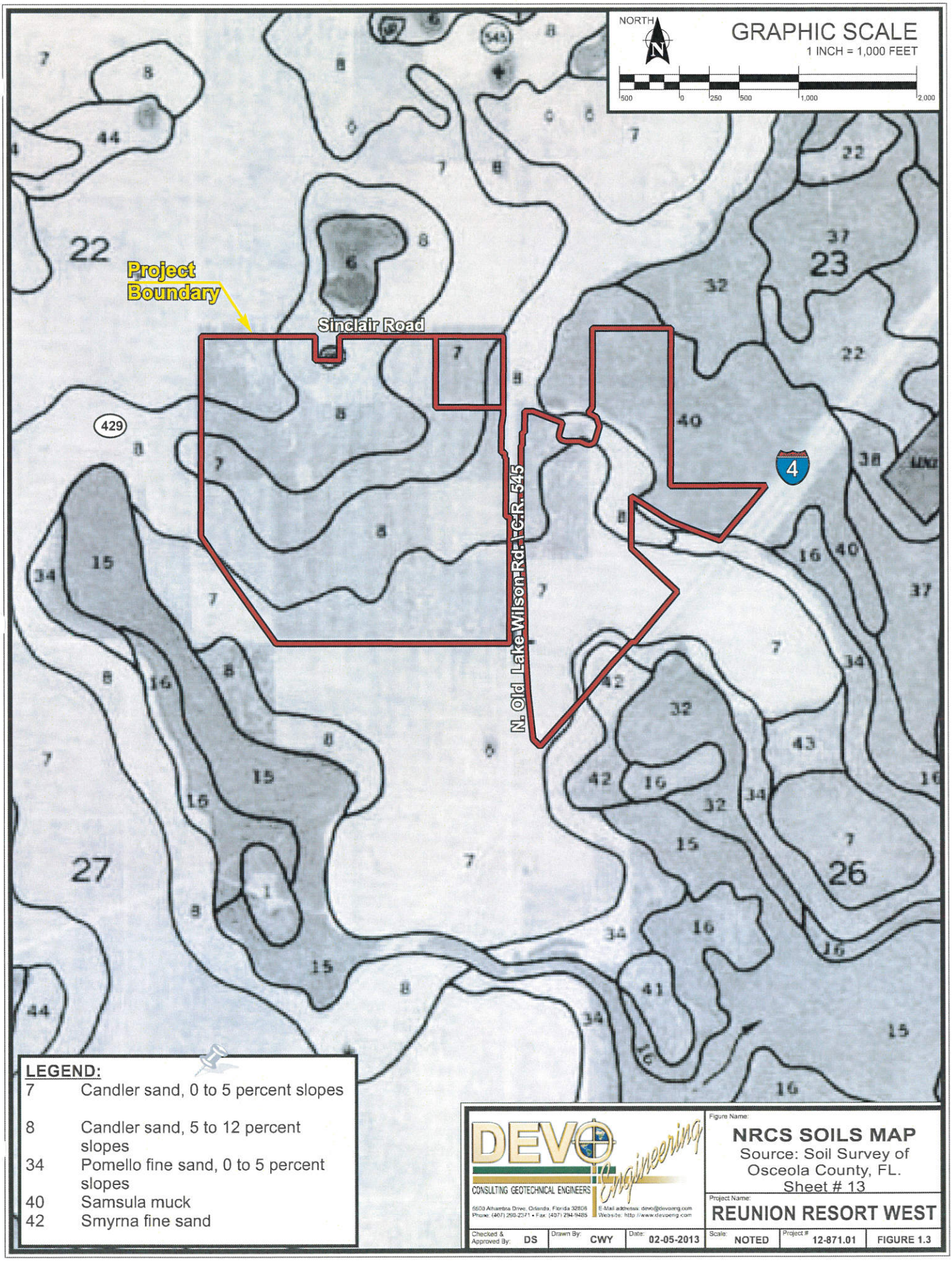
NORTH
GRAPHIC SCALE
1 INCH = 1,000 FEET
500 0 250 500 1,000 2,000
Project Boundary
Sinclair Road
N. Old Lake Wilson Rd. / C.R. 545
429
4
22
23
26
27
LEGEND:
7 Candler sand, 0 to 5 percent slopes
8 Candler sand, 5 to 12 percent slopes
34 Pomello fine sand, 0 to 5 percent slopes
40 Samsula muck
42 Smyrna fine sand
DEVO Engineering
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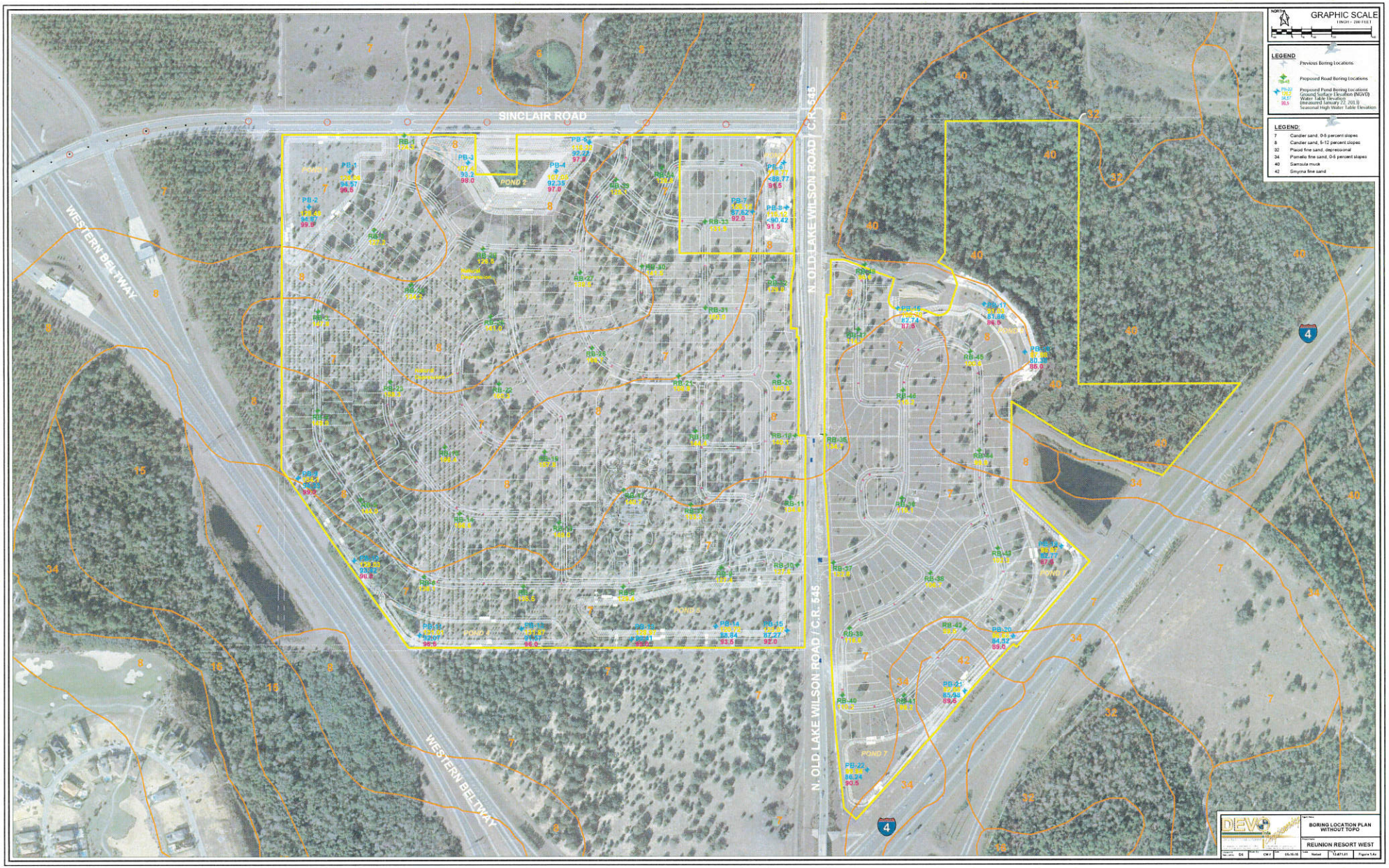
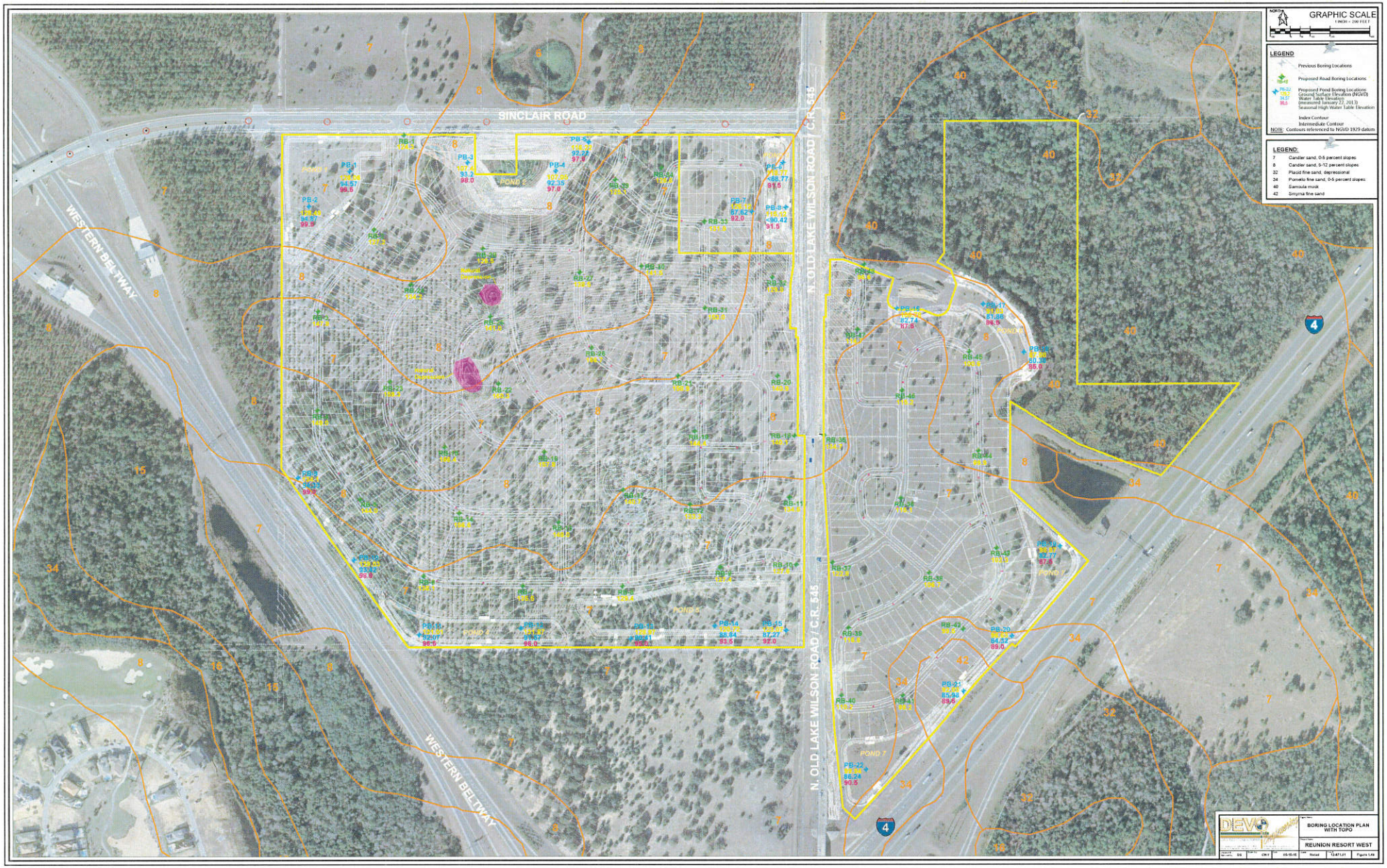
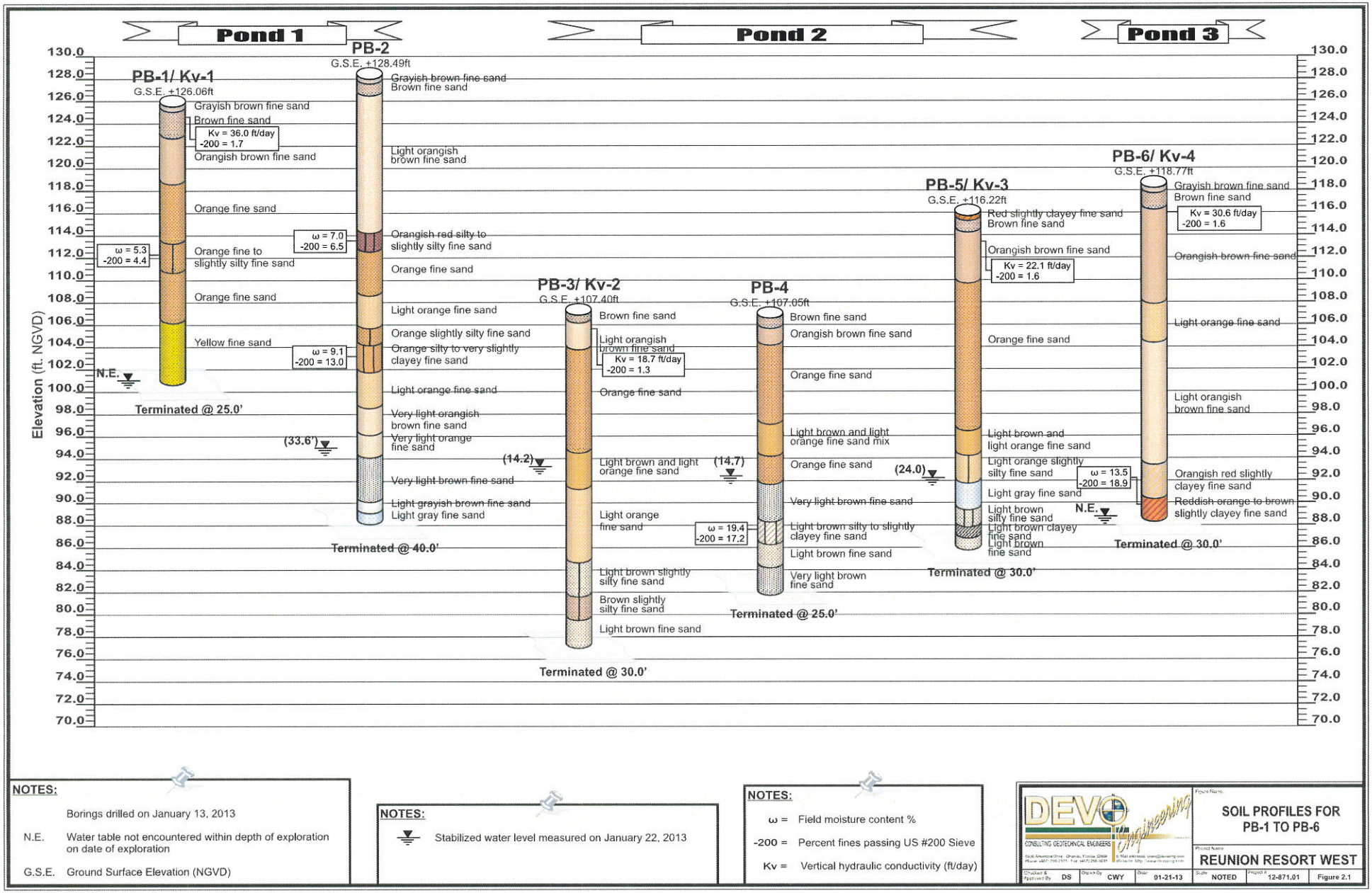
Figure Name:
NRCS SOILS MAP
Source: Soil Survey of Osceola County, FL.
Sheet # 13
Project Name:
REUNION RESORT WEST
Checked & Approved By: DS
Drawn By: CWY
Date: 02-05-2013
Scale: NOTED
Project #: 12-871.01
FIGURE 1.3


SINCLAIR ROAD
N. OLD LAKE WILSON ROAD / C.R. 545
WESTERN BELTWAY
POND 2
POND 3
POND 6
POND 7
GRAPHIC SCALE
1 INCH = 200 FEET
LEGEND
Previous Boring Locations
Proposed Road Boring Locations
Proposed Pond Boring Locations
Ground Surface Elevation (NGVD)
Water Table Elevation
(measured January 22, 2018)
Seasonal High Water Table Elevation
LEGEND:
7 Candler sand, 0-5 percent slopes
8 Candler sand, 5-12 percent slopes
32 Placid fine sand, depressional
34 Pomello fine sand, 0-5 percent slopes
40 Samsula muck
42 Smyrna fine sand
BORING LOCATION PLAN WITHOUT TOPO
REUNION RESORT WEST


SINCLAIR ROAD
WESTERN BELTWAY
N. OLD LAKE WILSON ROAD / C.R. 545
WESTERN BELTWAY
N. OLD LAKE WILSON ROAD / C.R. 545
GRAPHIC SCALE
1 INCH = 200 FEET
LEGEND
Previous Boring Locations
Proposed Road Boring Locations
Proposed Pond Boring Locations
Ground Surface Elevation (NGVD)
Water Table Elevation (measured January 22, 2013)
Seasonal High Water Table Elevation
Index Contour
Intermediate Contour
NOTE: Contours referenced to NGVD 1929 datum
LEGEND:
7 Candler sand, 0-5 percent slopes
8 Candler sand, 5-12 percent slopes
32 Placid fine sand, depressional
34 Pomello fine sand, 0-5 percent slopes
40 Samsula muck
42 Smyrna fine sand
BORING LOCATION PLAN WITH TOPO
REUNION RESORT WEST



NOTES:

Borings drilled on January 13, 2013

N.E. Water table not encountered within depth of exploration on date of exploration

G.S.E. Ground Surface Elevation (NGVD)

NOTES:

Stabilized water level measured on January 22, 2013

NOTES:

ω = Field moisture content %

-200 = Percent fines passing US #200 Sieve

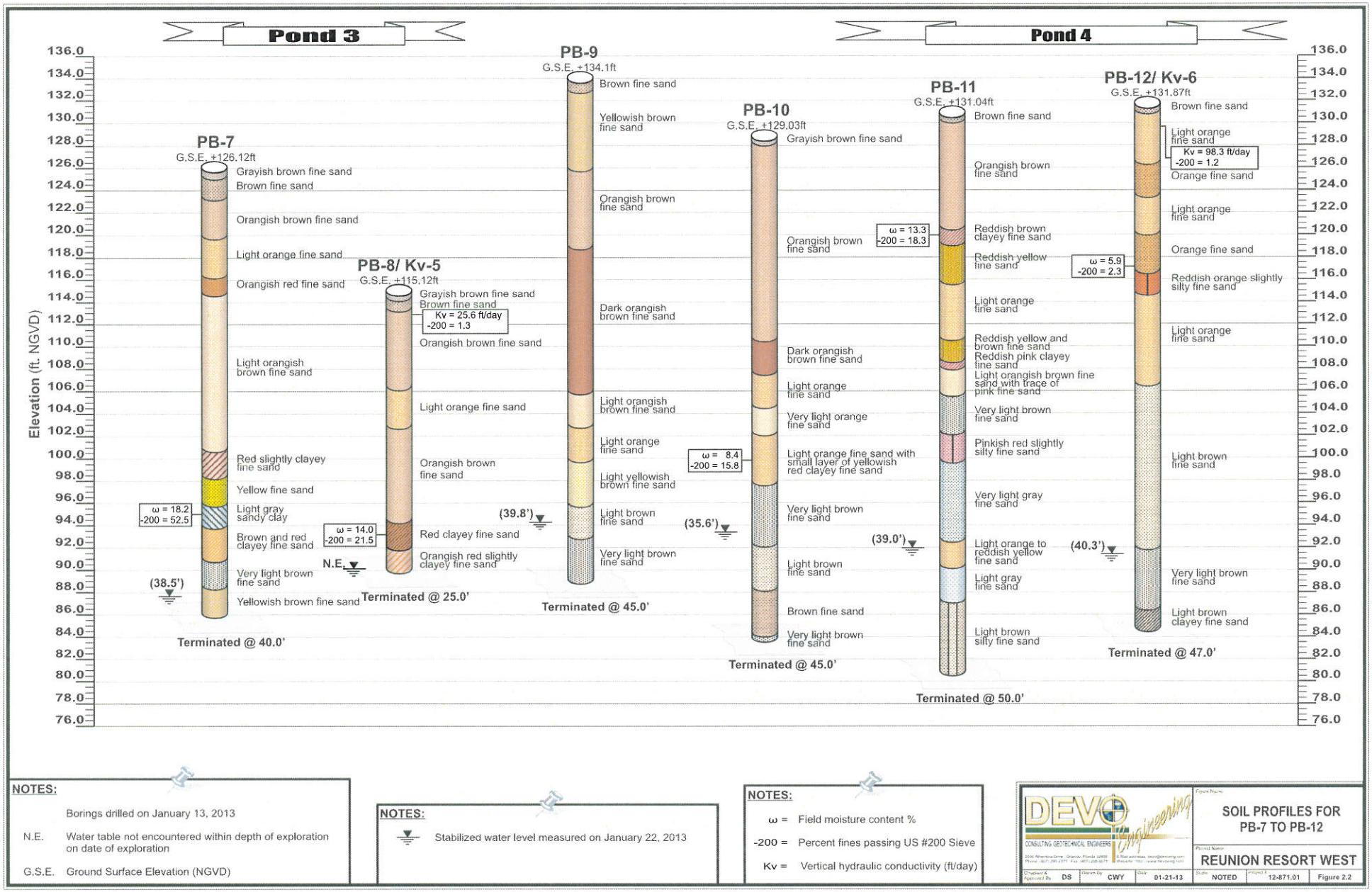
Kv = Vertical hydraulic conductivity (ft/day)

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR PB-1 TO PB-6

Project Name: REUNION RESORT WEST

Checked & Approved By	Drawn By	Date	Scale	Project #	Figure #
DS	CWY	01-21-13	NOTED	12-871.01	Figure 2.1



NOTES:

Borings drilled on January 13, 2013

N.E. Water table not encountered within depth of exploration on date of exploration

G.S.E. Ground Surface Elevation (NGVD)

NOTES:

Stabilized water level measured on January 22, 2013

NOTES:

ω = Field moisture content %

-200 = Percent fines passing US #200 Sieve

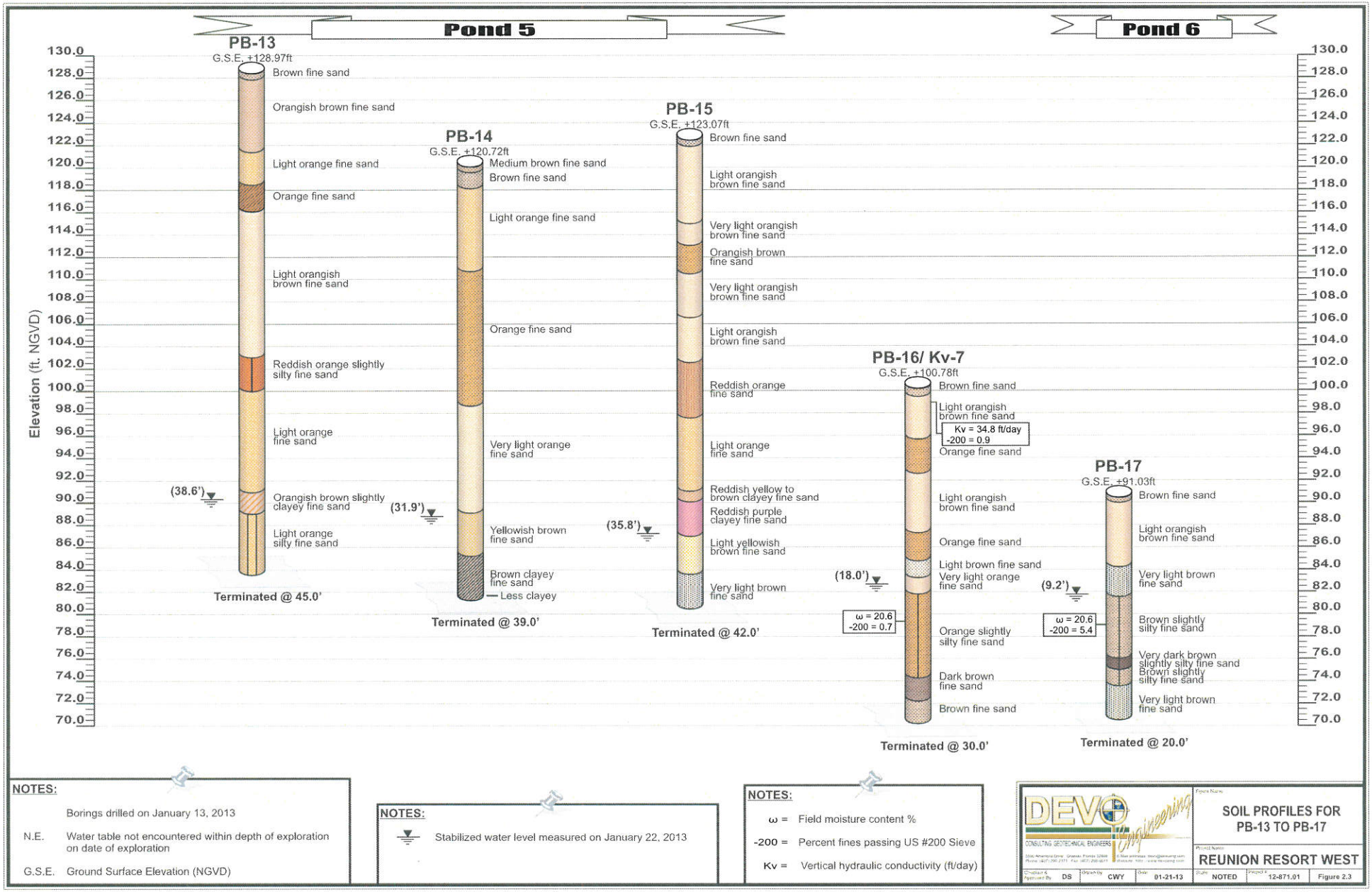
Kv = Vertical hydraulic conductivity (ft/day)

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR PB-7 TO PB-12

Project Name: REUNION RESORT WEST

Designed & Approved By	Drawn By	Date	Scale	Project #	Figure #
DS	CWY	01-21-13	NOTED	12-871.01	Figure 2.2



NOTES:

Borings drilled on January 13, 2013

N.E. Water table not encountered within depth of exploration on date of exploration

G.S.E. Ground Surface Elevation (NGVD)

NOTES:

Stabilized water level measured on January 22, 2013

NOTES:

ω = Field moisture content %

-200 = Percent fines passing US #200 Sieve

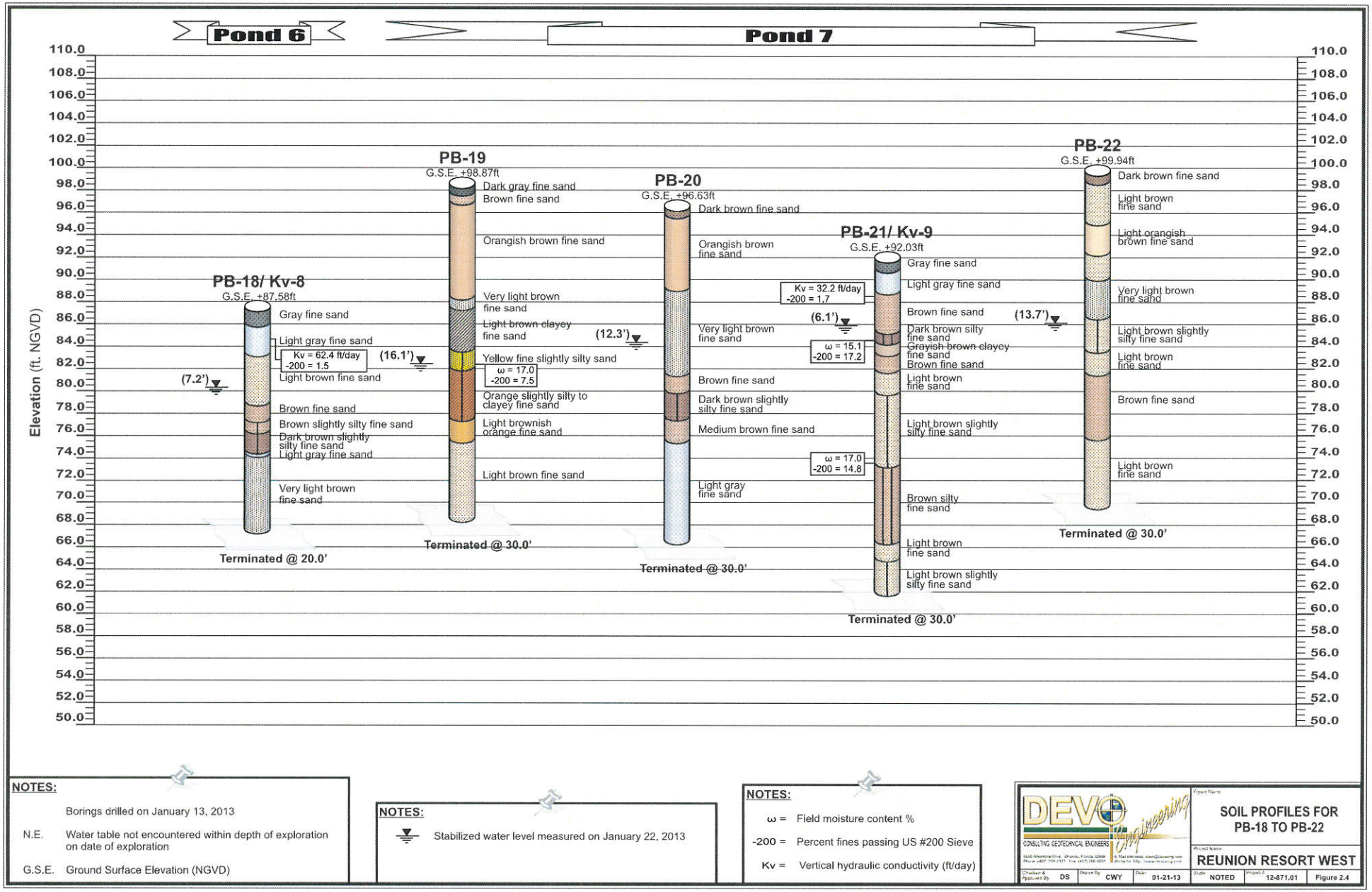
Kv = Vertical hydraulic conductivity (ft/day)

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Project Name: SOIL PROFILES FOR PB-13 TO PB-17

Project Name: REUNION RESORT WEST

Checked & Approved By	Drawn By	Date	Scale	Project #	Figure
DS	CWY	01-21-13	NOTED	12-871.01	Figure 2.3



NOTES:

Borings drilled on January 13, 2013

N.E. Water table not encountered within depth of exploration on date of exploration

G.S.E. Ground Surface Elevation (NGVD)

NOTES:

Stabilized water level measured on January 22, 2013

NOTES:

ω = Field moisture content %

-200 = Percent fines passing US #200 Sieve

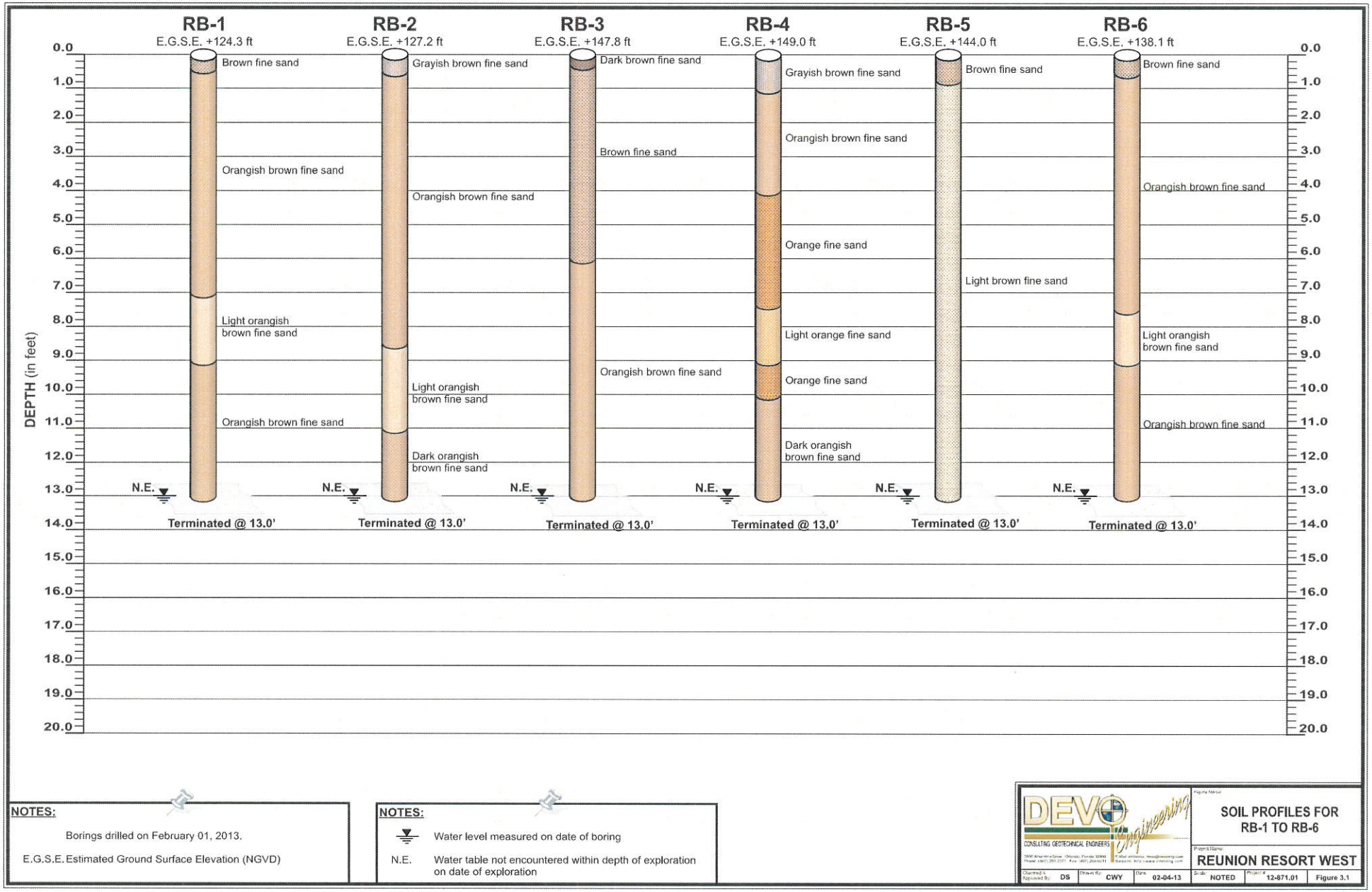
Kv = Vertical hydraulic conductivity (ft/day)

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR PB-18 TO PB-22

Project Name: REUNION RESORT WEST

Checked & Approved By	Drawn By	Date	Scale	Project #	Figure #
DS	CWY	01-21-13	NOTED	12-871.01	Figure 2.4



NOTES:

Borings drilled on February 01, 2013.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

▽ Water level measured on date of boring

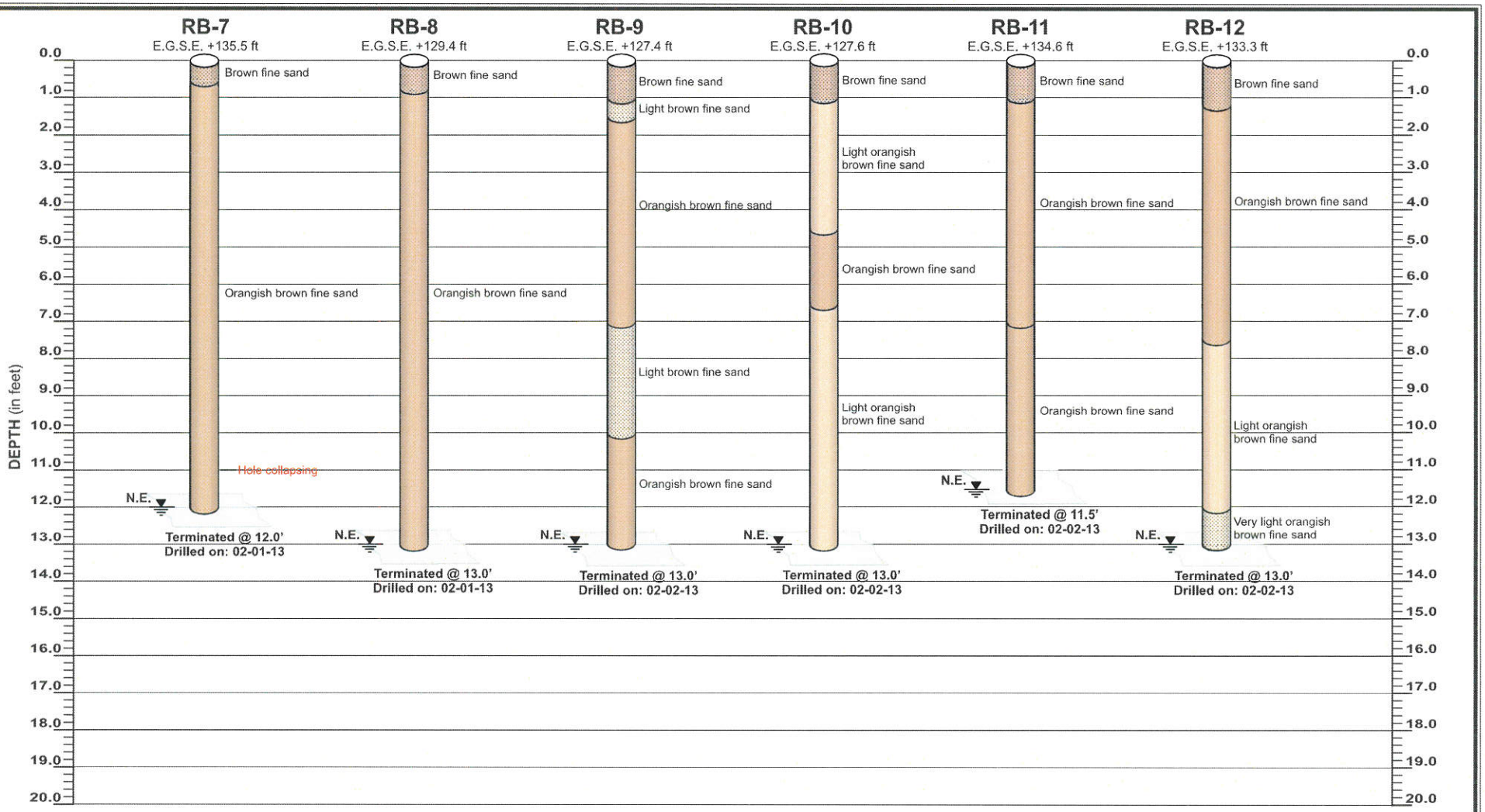
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR RB-1 TO RB-6

Project Name: REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #:	Figure:
DS	CWY	02-04-13	NOTED	12-871.01	Figure 3.1



NOTES:

Borings drilled on date noted.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

Water level measured on date of boring

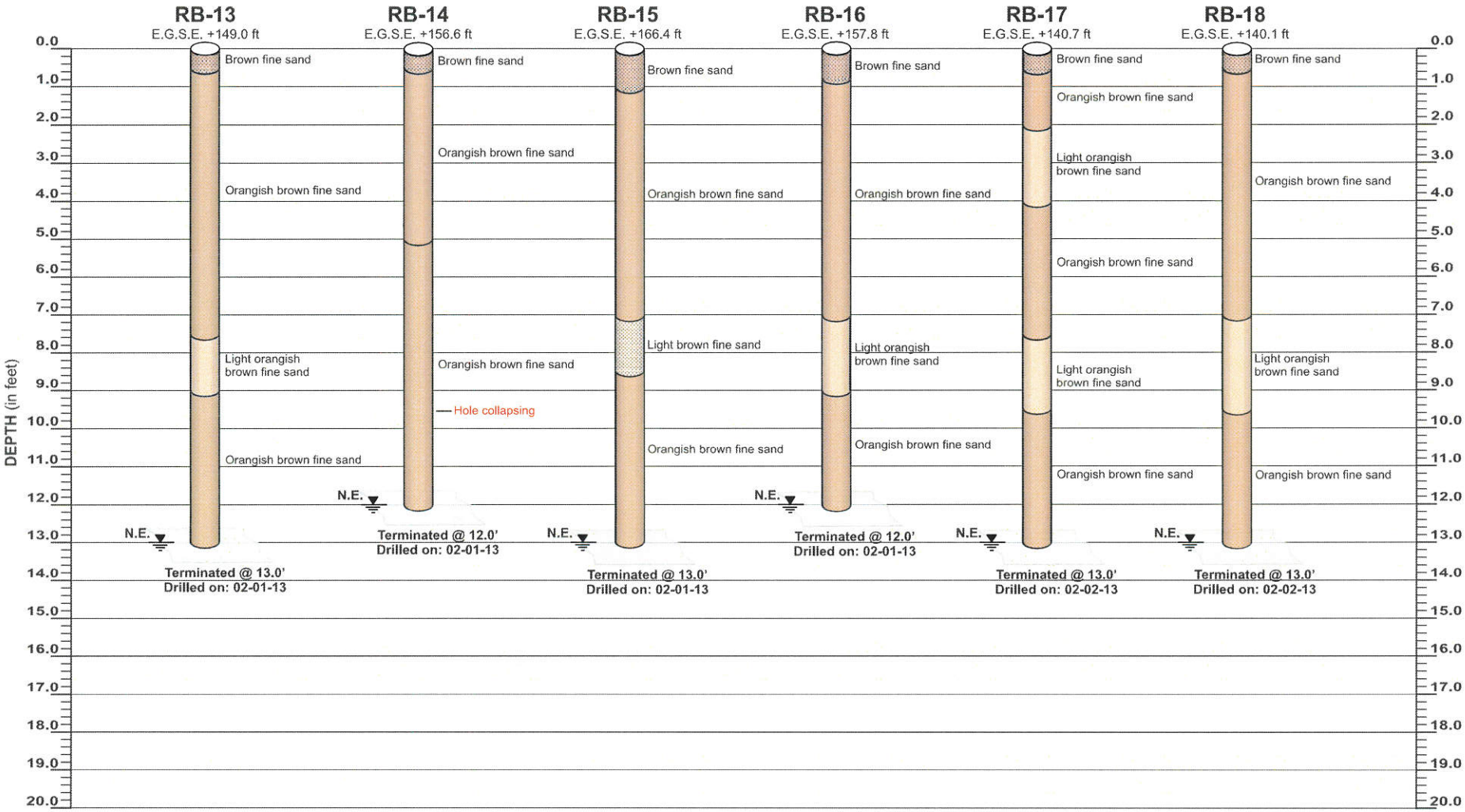
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR RB-7 TO RB-12

Project Name: REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date	Scale:	Project #	Figure
DS	CWY	02-04-13	NOTED	12-871.01	Figure 3.2



NOTES:

Borings drilled on date noted.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

Water level measured on date of boring

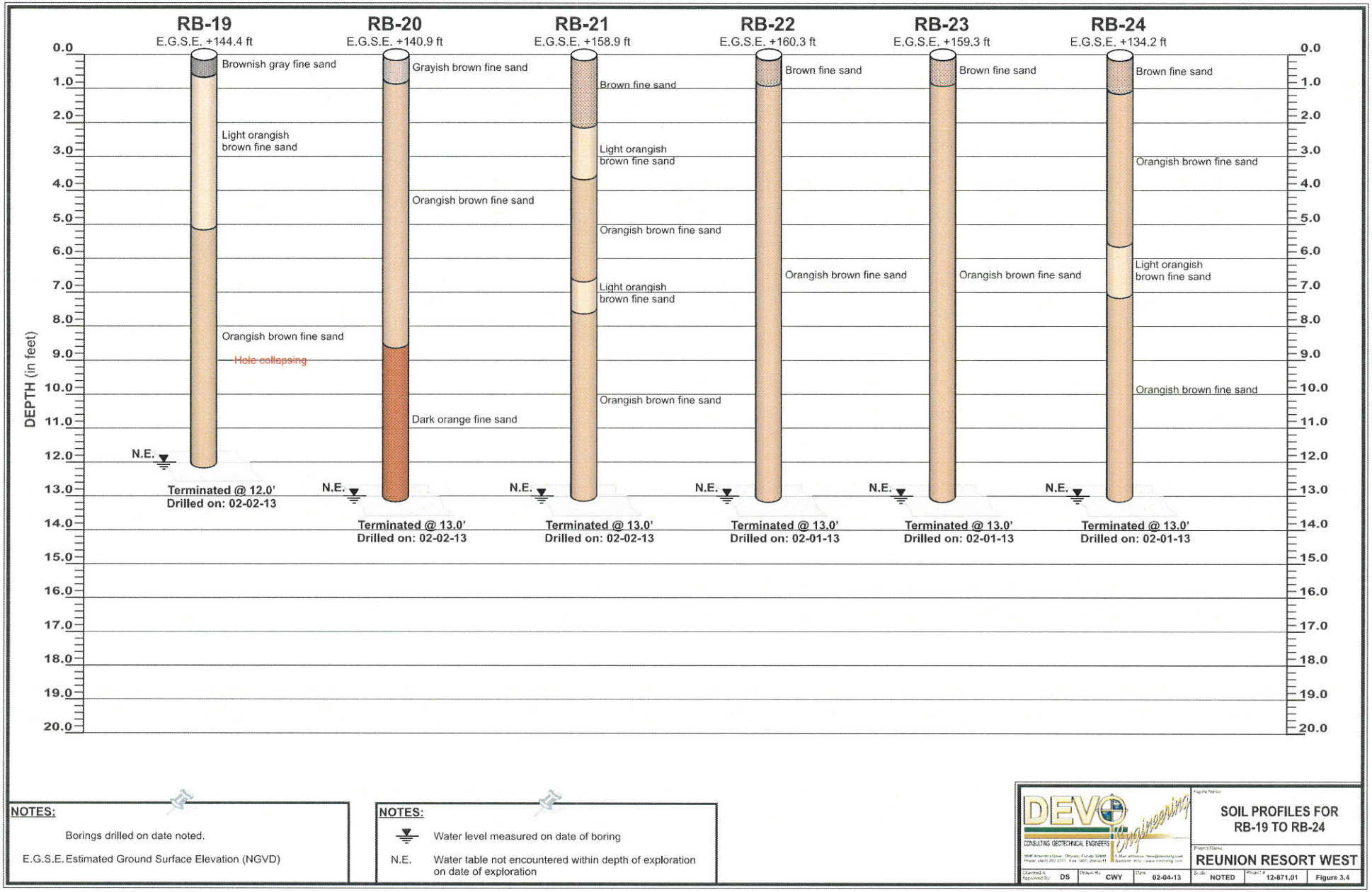
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR RB-13 TO RB-18

Project Name: REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #:	
DS	CWY	02-04-13	NOTED	12-871.01	Figure 3.3



NOTES:

Borings drilled on date noted.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

Water level measured on date of boring

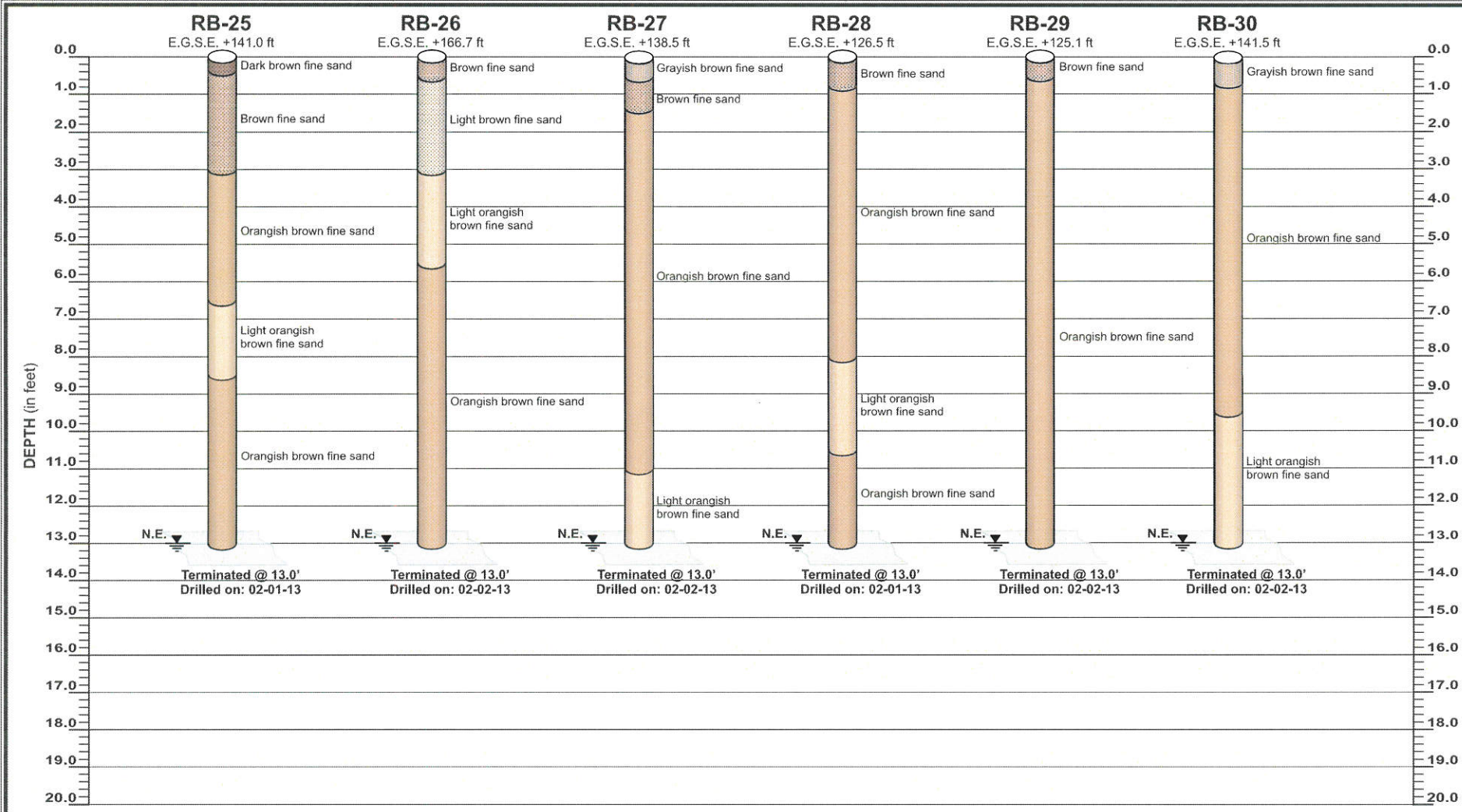
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

SOIL PROFILES FOR RB-19 TO RB-24

REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #	Figure
DS	CWY	02-04-13	NOTED	12-871.01	Figure 3.4



NOTES:

Borings drilled on date noted.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

Water level measured on date of boring

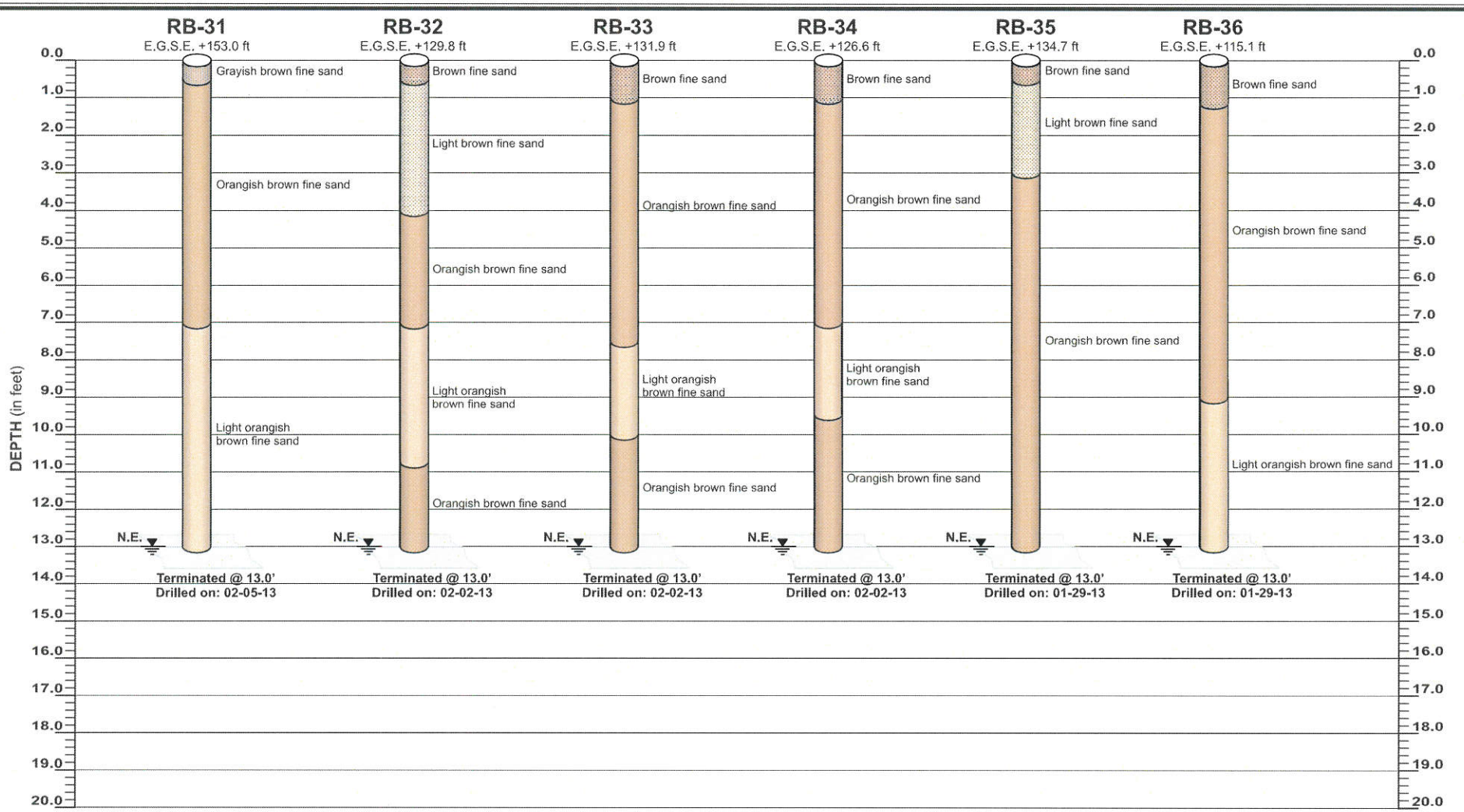
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

SOIL PROFILES FOR RB-25 TO RB-30

REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #	Figure
DS	CWY	02-04-13	NOTED	12-871.01	Figure 3.5



NOTES:

Borings drilled on date noted.

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

Water level measured on date of boring

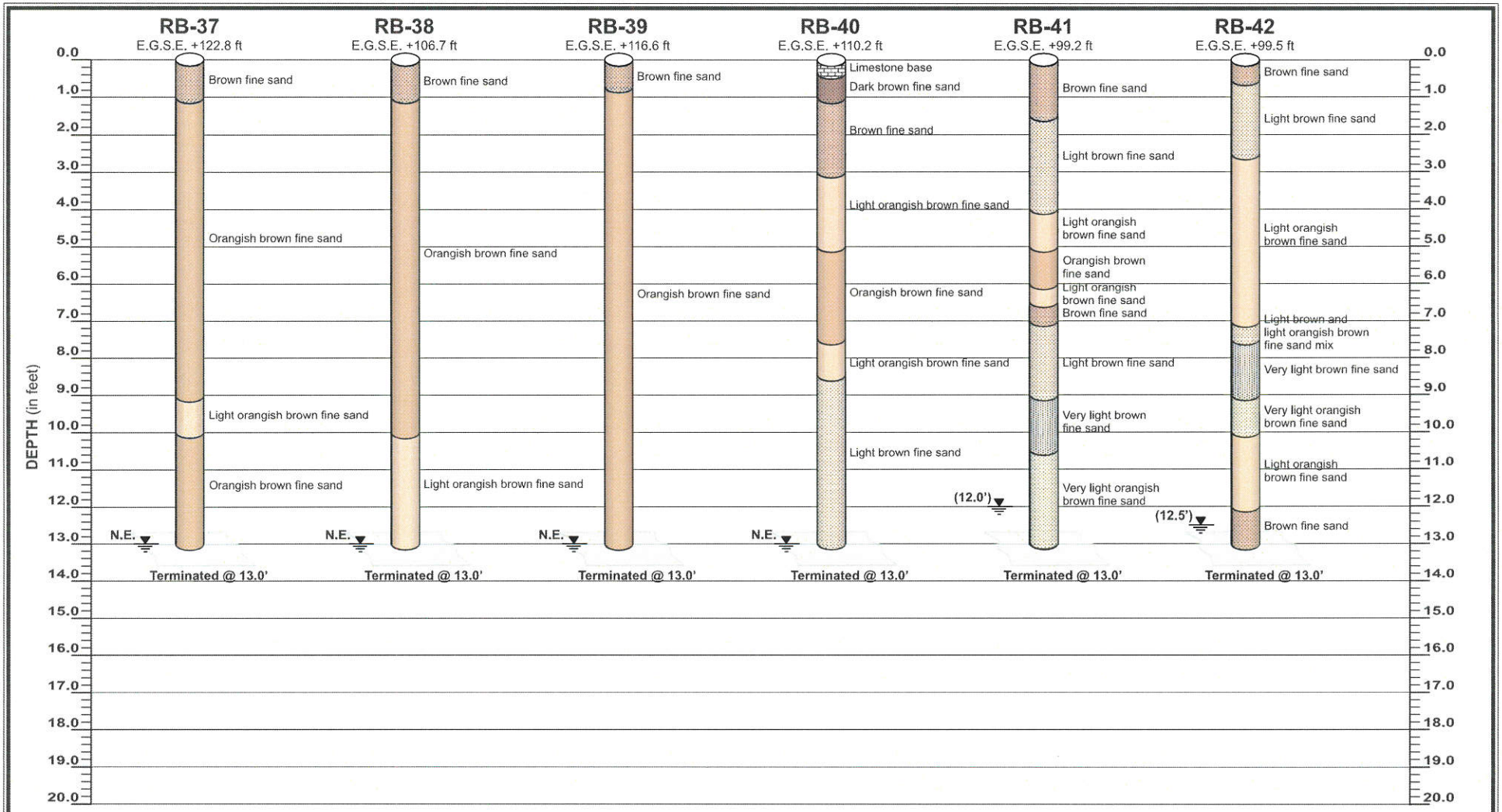
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR RB-31 TO RB-36

Project Name: REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date	Scale:	Project #	Figure
DS	CWY	02-01-13	NOTED	12-871.01	Figure 3.6



NOTES:

Borings drilled on January 29, 2013

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

▽ Water level measured on date of boring

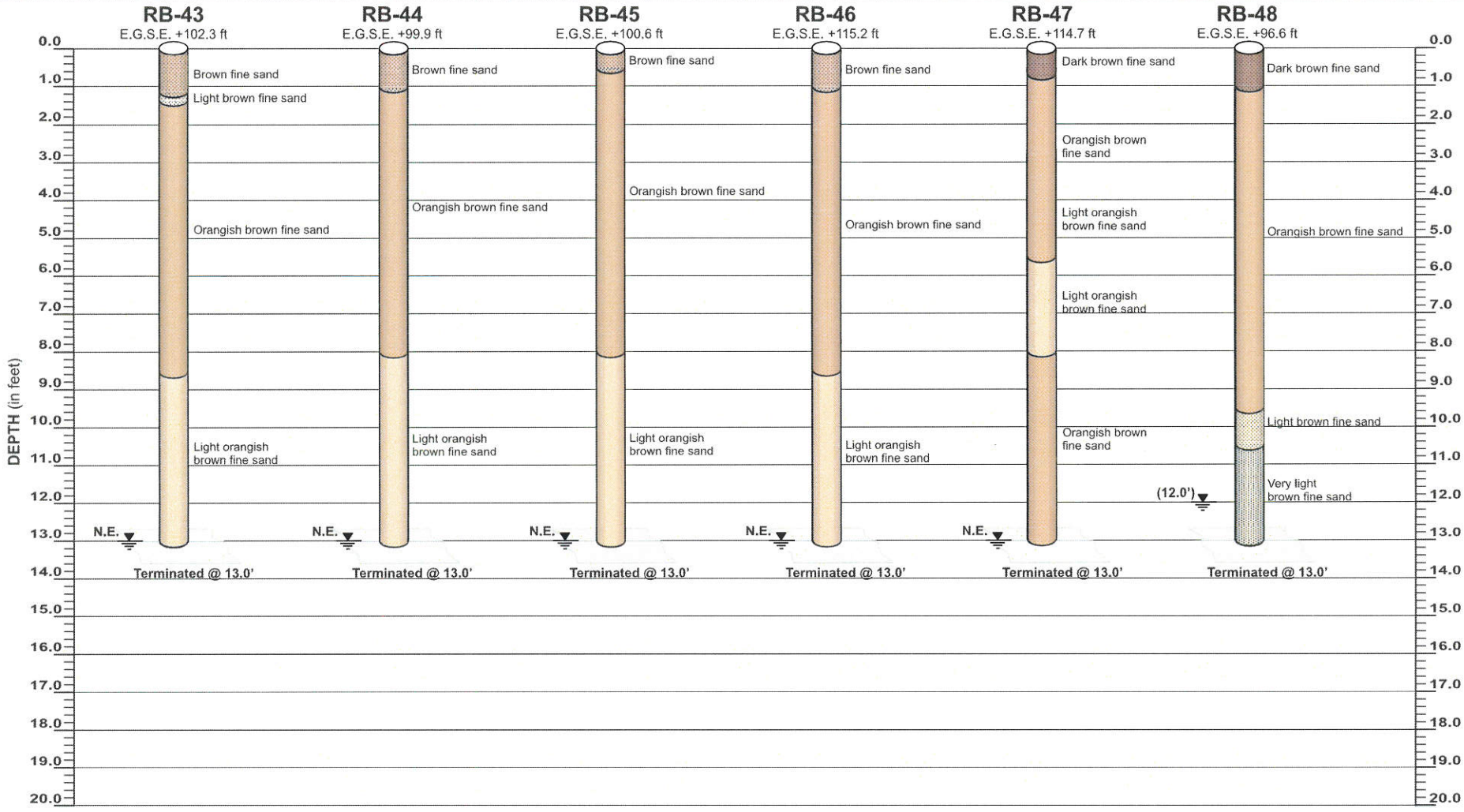
N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

SOIL PROFILES FOR RB-37 TO RB-42

REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date	Scale:	Project #	Figure #
DS	CWY	02-01-13	NOTED	12-871.01	Figure 3.7



NOTES:

Borings drilled on January 29, 2013

E.G.S.E. Estimated Ground Surface Elevation (NGVD)

NOTES:

▼ Water level measured on date of boring

N.E. Water table not encountered within depth of exploration on date of exploration

DEVO Engineering
CONSULTING GEOTECHNICAL ENGINEERS

Figure Name: SOIL PROFILES FOR RB-43 TO RB-48

Project Name: REUNION RESORT WEST

Checked & Approved By:	Drawn By:	Date:	Scale:	Project #:	
DS	CWY	02-01-13	NOTED	12-871.01	Figure 3.8

NOTES:

1. STOCK PILES SHALL NOT BE PLACED WITHIN 50 FEET OF THE PROPERTY LINES.

2. PRIOR TO START OF EARTHWORK OR CONSTRUCTION, THE DEVELOPER/CONTRACTOR SHALL SUBMIT A NPDES NOTICE OF INTENT (NOI), NOTICE OF TERMINATION (NOT) AND STORMWATER POLLUTION PREVENTION PLAN (SPPP) FOR STORMWATER DISCHARGE FROM CONSTRUCTION ACTIVITIES THAT MEETS NPDES PERMIT REQUIREMENTS. THE ENGINEER SHALL PROVIDE SITE DATA NEEDED BY THE CONTRACTOR TO AND PREPARE THE NOI AND SPPP. THE ORIGINAL NOI, NOT AND SPPP SHALL BE SUBMITTED TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION. A COPY OF THE NOI, NOT AND SPPP SHALL ALSO BE SUBMITTED TO THE OSCEOLA COUNTY ENVIRONMENTAL PROTECTION DIVISION. ⚠1

3. THE SITE SHALL BE STABILIZED FOLLOWING GRUBBING, CLEARING, EARTH WORK OR MASS GRADING TO ESTABLISH A DENSE STAND OF GRASS, OR SHALL INCORPORATE OTHER APPROVED BEST MANAGEMENT PRACTICES, ON ALL DISTURBED AREAS IF DEVELOPMENT DOES NOT BEGIN WITHIN 7 DAYS. FINAL STABILIZATION SHALL ACHIEVE A MINIMUM OF 70% COVERAGE OF THE DISTURBED LAND AREA AND SHALL INCLUDE A MAINTENANCE PROGRAM TO ENSURE MINIMUM COVERAGE SURVIVAL AND OVERALL SITE STABILIZATION UNTIL SITE DEVELOPMENT.

4. PRIOR TO ANY PLAN APPROVAL, A LETTER OF CREDIT OR CASH ESCROW SHALL BE SUBMITTED TO THE COUNTY TO GUARANTEE THE REQUIRED SITE STABILIZATION AND MAINTENANCE OF ALL DISTURBED AREAS. SUBMIT AN ENGINEER'S COST ESTIMATE TO ESTABLISH AND MAINTAIN A DENSE STAND OF GRASS OVER THE MINIMUM 70% COVERAGE OF THE DISTURBED LAND AREA.

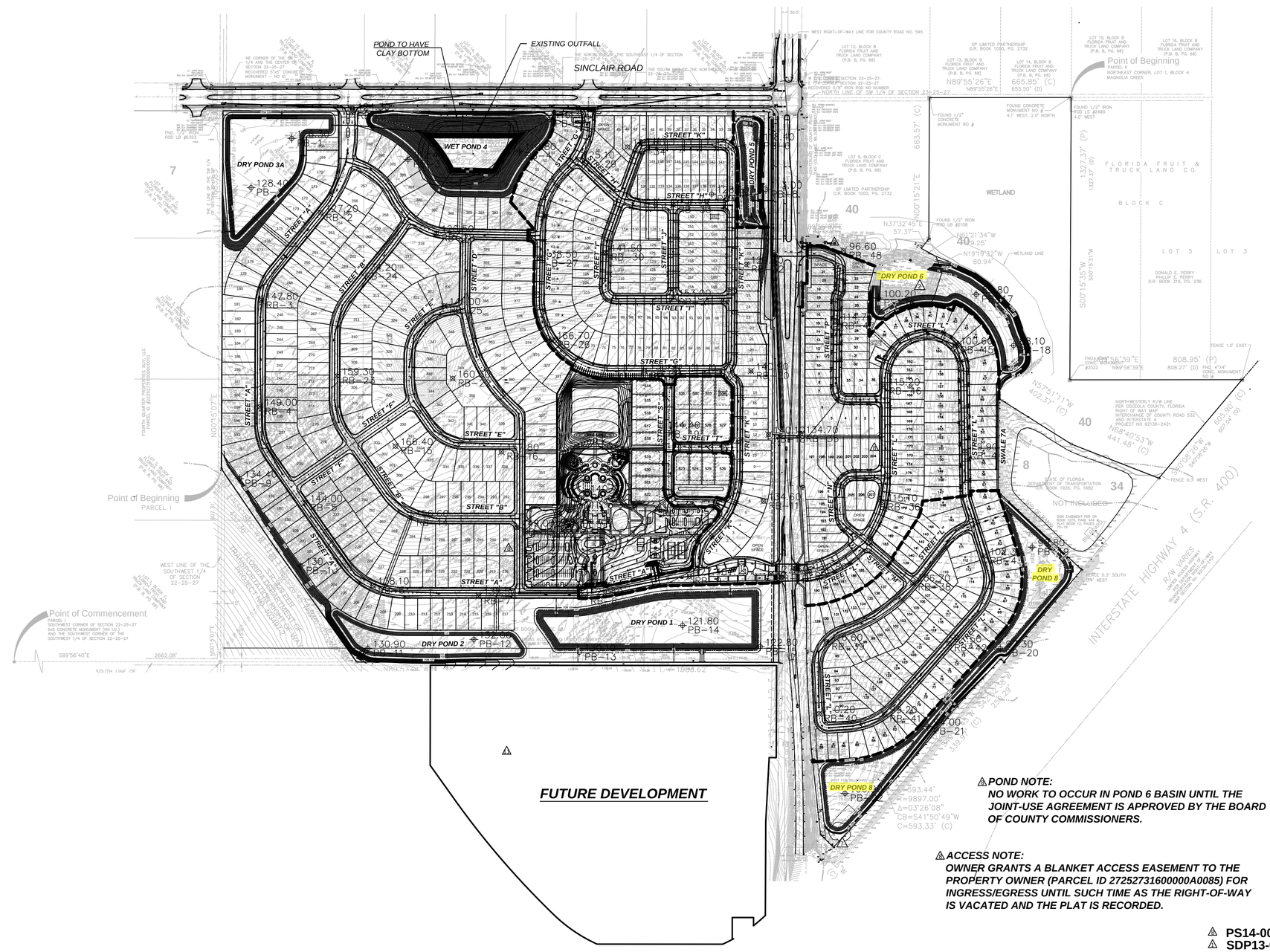
5. IF THE CONTRACTOR IS GOING TO DISCHARGE GROUNDWATER FROM DEWATERING OPERATIONS INTO THE COUNTY MS-4 SYSTEM, THEY SHALL OBTAIN AN FDEP PERMIT FOR DISCHARGE OF PRODUCED GROUNDWATER FROM NON-CONTAMINATED SITES. COPIES OF THE PERMIT NOI AND REQUIRED TEST RESULTS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE OSCEOLA COUNY ENVIRONMENTAL PROTECTION DIVISION AND OSCEOLA PUBLIC WORKS DEVELOPMENT ENGINEERING PERMITTING SECTION. A RIGHT-OF-WAY UTILIZATION PERMIT FOR DEWATERING WILL ALSO BE REQUIRED.

⚠1 6. ALL ROAD RIGHTS-OF-WAY AND ADJACENT PROPERTIES DISTURBED BY EARTHWORK ACTIVITIES SHALL BE RESTORED TO EQUAL OR BETTER CONDITION.

7. INFORMATION: OSCEOLA COUNTY HAS RECENTLY INSTALLED FIBER OPTIC CABLE ALONG OLD LAKE WILSON ROAD.

⚠ SITE DATA

IMPERVIOUS AREA:	135.00 AC. (ONSITE)
PERVIOUS AREA:	88.80 AC. (ONSITE)
POND AREA (DRY T.O.B.):	16.61 AC.
POND AREA (WET NWL):	9.98 AC.
TOTAL DEVELOPED AREA:	250.39 AC.
NON-IMPACTED AREA:	0.00 AC.
TOTAL SITE AREA:	250.39 AC.
EXISTING LAND USE	VACANT
EXISTING ZONING	P-D (REUNION WEST PLANNED DEVELOPMENT)
FUTURE LAND USE	SINGLE FAMILY RESIDENTIAL



⚠ POND NOTE:
NO WORK TO OCCUR IN POND 6 BASIN UNTIL THE JOINT-USE AGREEMENT IS APPROVED BY THE BOARD OF COUNTY COMMISSIONERS.

⚠ ACCESS NOTE:
OWNER GRANTS A BLANKET ACCESS EASEMENT TO THE PROPERTY OWNER (PARCEL ID 27252731600000A0085) FOR INGRESS/EGRESS UNTIL SUCH TIME AS THE RIGHT-OF-WAY IS VACATED AND THE PLAT IS RECORDED.

⚠ PS14-00003
⚠ SDP13-0033

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DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

I hereby state that these "As-Builts" were furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Builts" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor_____ Engineer_____
Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			06-10-14	DRB	REV. PER NEW LOT LAYOUT ⚠6
			01-20-14	DRB	ADD SOUTH PARCEL
03-24-15	DLS	REV PER OWNER ⚠1	11-07-13	DSE	REV. PER OWNERSHIP ISSUE ⚠2
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS ⚠5	08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY ⚠1
09-03-14	LGK	REV. PER SFWMD COMMENTS ⚠4	06-28-13	DSE	REV. PER SFWMD COMMENTS

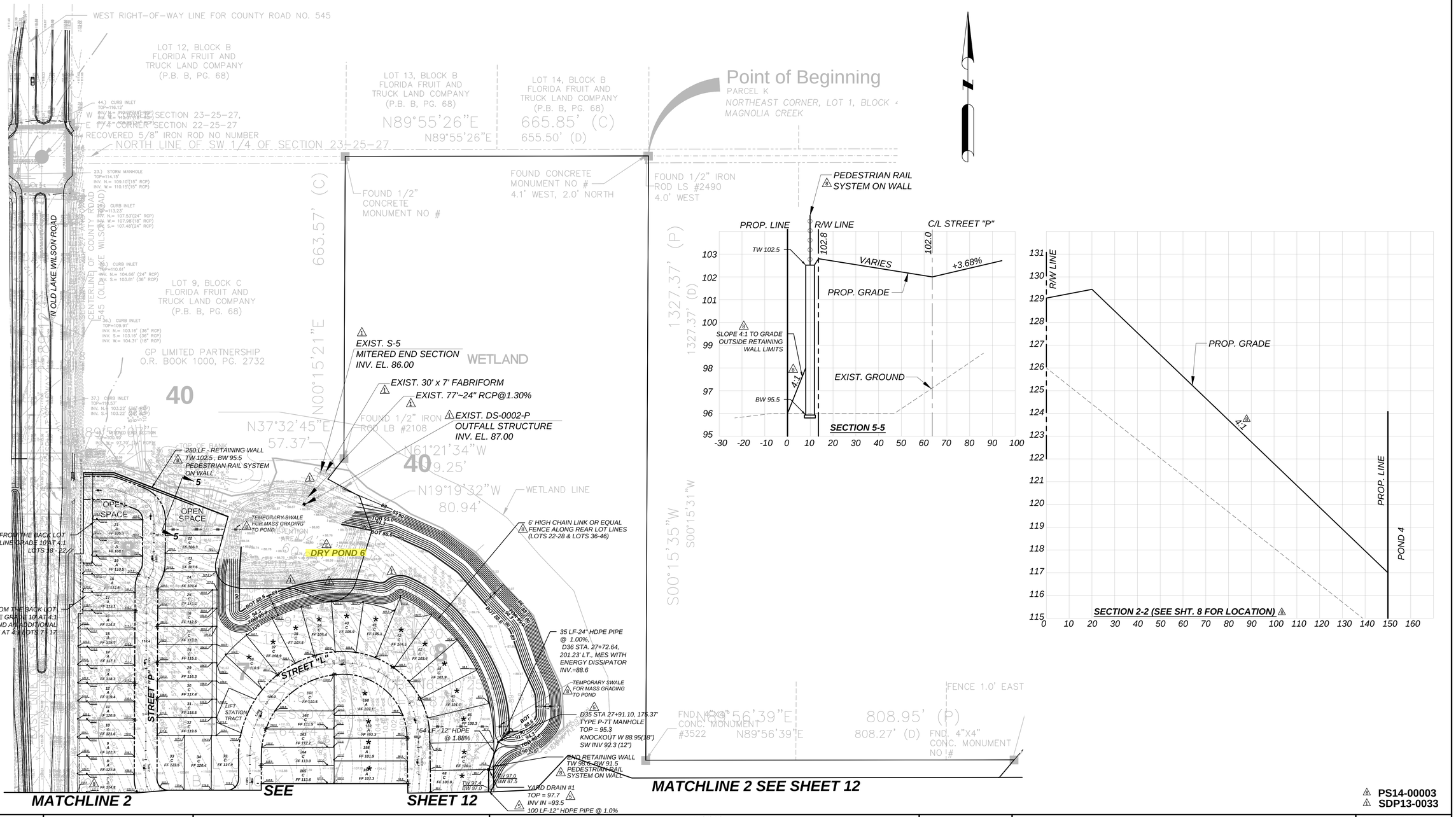
DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

OVERALL SITE PLAN

REUNION WEST

OSCEOLA COUNTY, FLORIDA

DATE:	MAY 2013
PROJECT NO.:	EHO-7
DRAWN BY:	DRB
CHECKED BY:	DMS
SCALE:	1"=250'
SHEET:	3 OF18



PS14-00003
SDP13-0033

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DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
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Certification of Authorization #27471

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Contractor_____ Engineer_____

Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			06-10-14	DRB	REV. PER NEW LOT LAYOUT 6
			01-20-14	DRB	ADD SOUTH PARCEL
			11-07-13	DSE	REV. PER OWNERSHIP ISSUE 4
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS 5	08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY 1
09-03-14	LGK	REV. PER SFWMD COMMENTS 3	06-28-13	DSE	REV. PER SFWMD COMMENTS

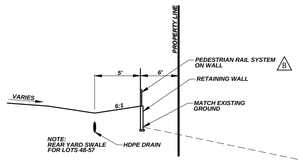
DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

MASS GRADING PLAN EAST 1

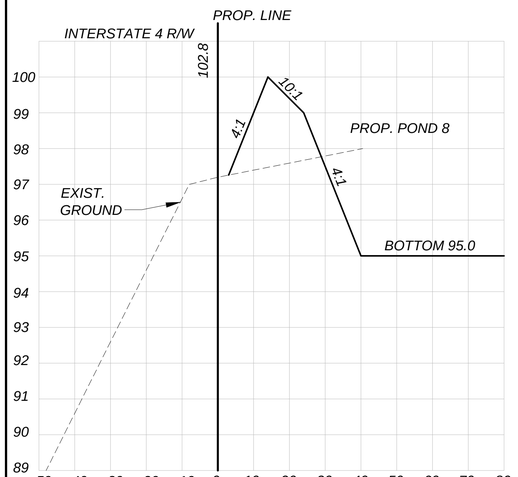
REUNION WEST

OSCEOLA COUNTY, FLORIDA

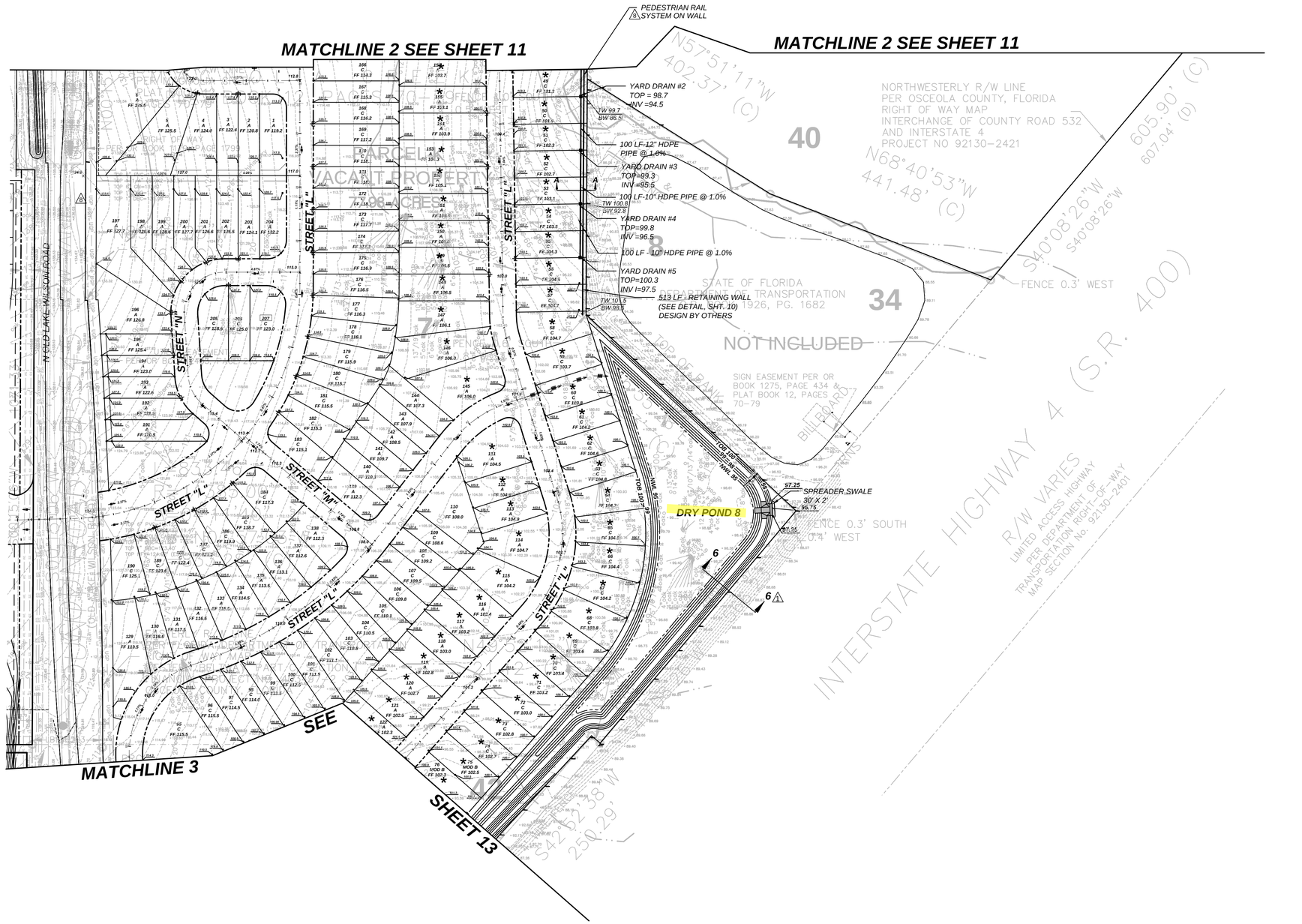
DATE: MAY 2013
PROJECT NO.: EHO-7
DRAWN BY: DRB
CHECKED BY: DMS
SCALE: 1"=100'
SHEET: 11 OF18



SECTION A-A



⚠1 **SECTION 6-6**



⚠6 **PS14-00003**
⚠1 **SDP13-0033**

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

I hereby state that these "As-Builts" were furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Builts" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor_____ Engineer_____
Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			09-03-14	LGK	REV. PER SFWMD COMMENTS ⚠1
			06-10-14	DRB	REV. PER NEW LOT LAYOUT ⚠6
			01-20-14	DRB	ADD SOUTH PARCEL
			08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY ⚠1
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS ⚠6	06-28-13	DSE	REV. PER SFWMD COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

MASS GRADING PLAN EAST 2

REUNION WEST

OSCEOLA COUNTY, FLORIDA

DATE: MAY 2013
PROJECT NO.: EHO-7
DRAWN BY: DRB
CHECKED BY: DMS
SCALE: 1"=100'
SHEET: 12 OF18

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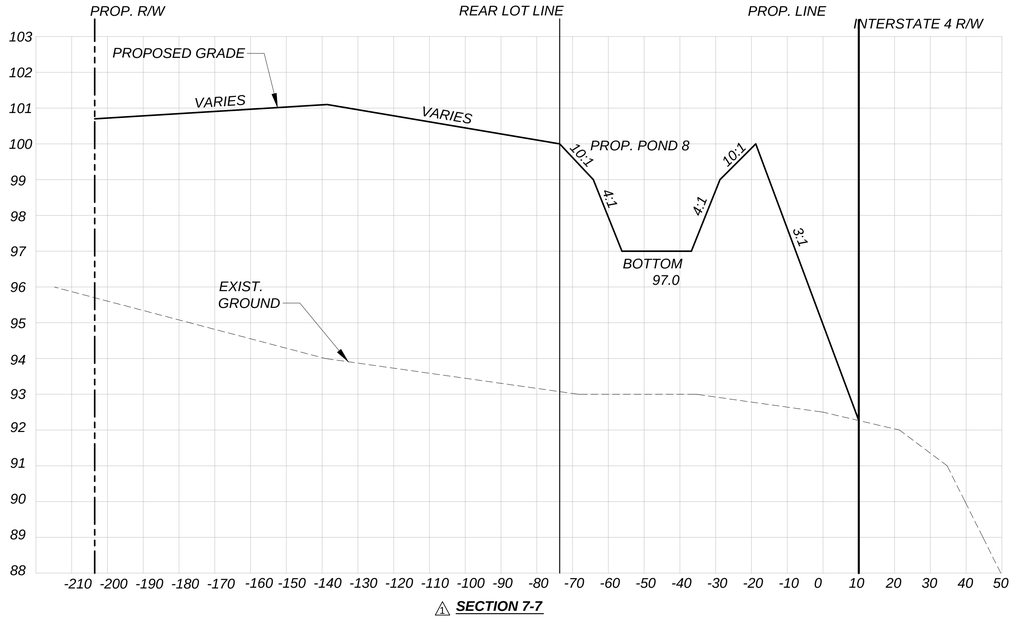
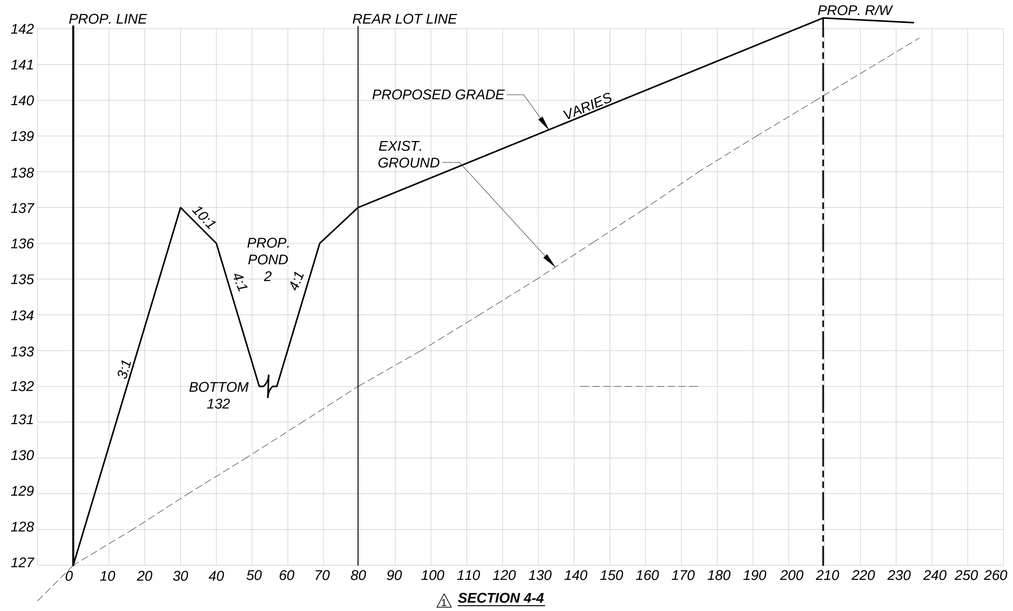
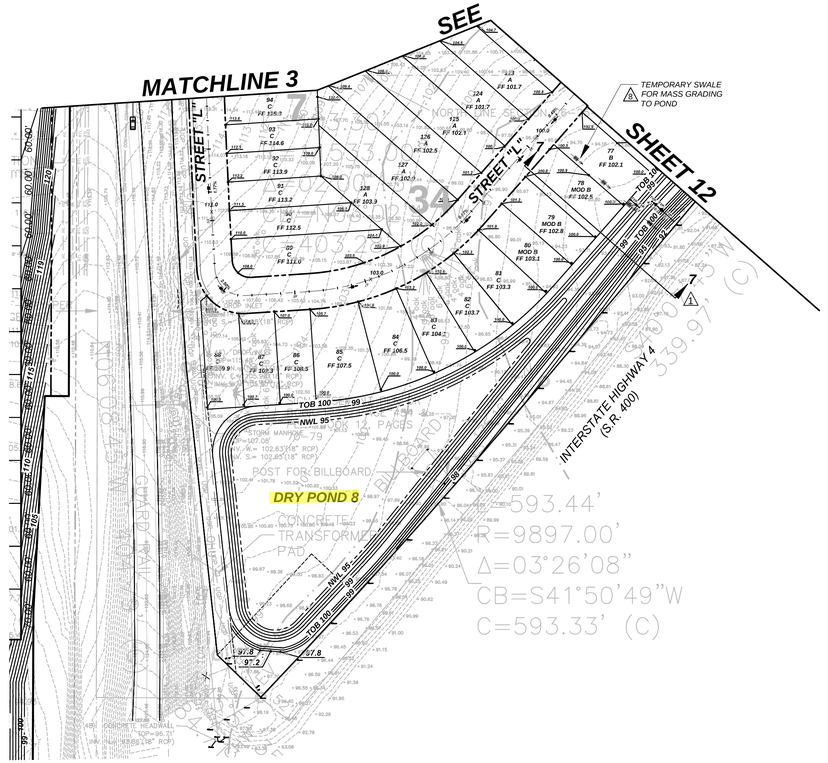


⚠1 **SECTION 7-7**



⚠1 **SECTION 4-4**



⚠6 **PS14-00003** ⚠1 **SDP13-0033**

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

I hereby state that these "As-Builts" were furnished to me by the contractor listed below. I, or an employee under my direct supervision have reviewed these "As-Builts" and believe them to be in compliance with my knowledge of what was actually constructed. This statement is based upon site observations of the construction.

Contractor_____ Engineer _____
Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			06-10-14	DRB	REV. PER NEW LOT LAYOUT ⚠6
			01-20-14	DRB	ADD SOUTH PARCEL
			11-07-13	DSE	REV. PER OWNERSHIP ISSUE ⚠2
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS ⚠5	08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY ⚠1
09-03-14	LGK	REV. PER SFWMD COMMENTS ⚠4	06-28-13	DSE	REV. PER SFWMD COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

MASS GRADING PLAN EAST 3

REUNION WEST

OSCEOLA COUNTY, FLORIDA

DATE: MAY 2013
PROJECT NO.: EHO-7
DRAWN BY: DRB
CHECKED BY: DMS
SCALE: 1"=100'
SHEET: 13 OF18

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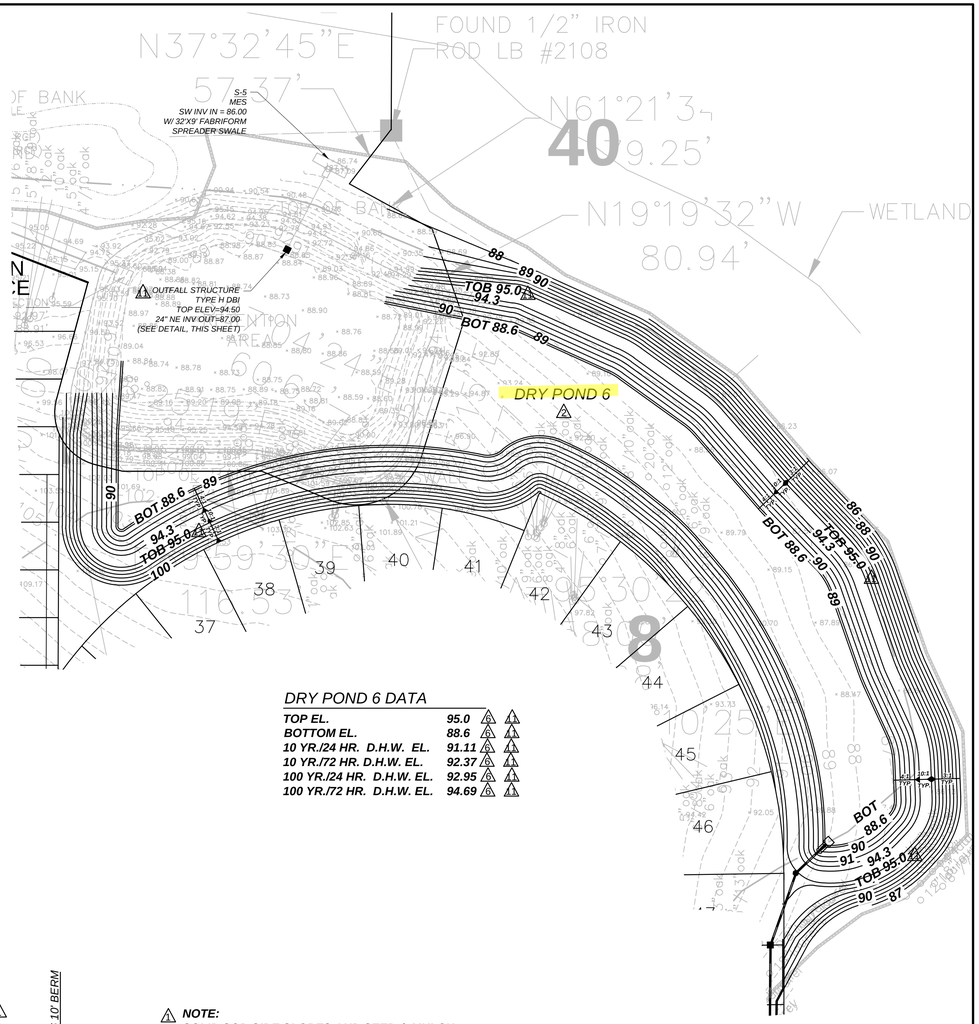
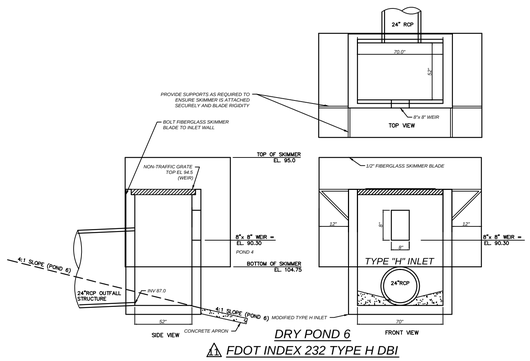


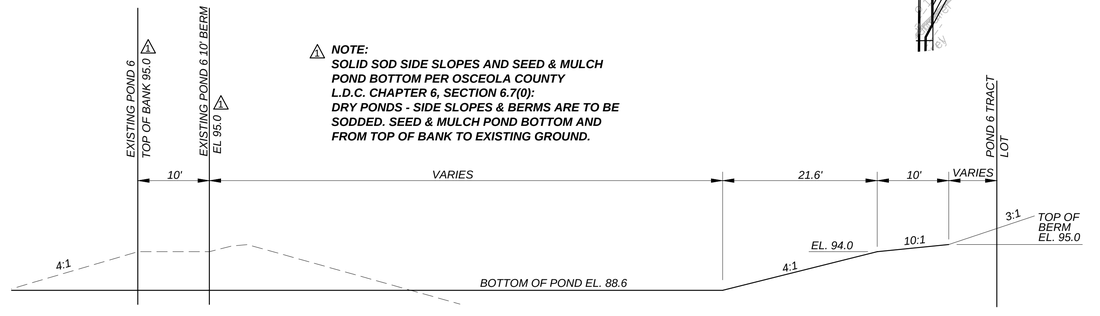
DRY POND 6 DATA

TOP EL.	95.0	1 2
BOTTOM EL.	88.6	1 2
10 YR./24 HR. D.H.W. EL.	91.11	1 2
10 YR./72 HR. D.H.W. EL.	92.37	1 2
100 YR./24 HR. D.H.W. EL.	92.95	1 2
100 YR./72 HR. D.H.W. EL.	94.69	6 1



DRY POND 6

1 FDOT INDEX 232 TYPE H DBI



1 NOTE:
SOLID SOD SIDE SLOPES AND SEED & MULCH POND BOTTOM PER OSCEOLA COUNTY L.D.C. CHAPTER 6, SECTION 6.7(0): DRY PONDS - SIDE SLOPES & BERMS ARE TO BE SODDED. SEED & MULCH POND BOTTOM AND FROM TOP OF BANK TO EXISTING GROUND.

2 DRY POND 6 TYPICAL SECTION

2 PS14-00003
1 SDP13-0033

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

CONTRACTOR "AS-BUILTS"

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Contractor_____ Engineer_____

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REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			06-10-14	DRB	REV. PER NEW LOT LAYOUT 2
			01-20-14	DRB	ADD SOUTH PARCEL
			11-07-13	DSE	REV. PER OWNERSHIP ISSUE 2
03-24-15	DLS	REV PER OWNER 1	08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY 1
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS 2	06-28-13	DSE	REV. PER SFWMD COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

POND 6 SECTIONS & DETAILS

REUNION WEST
OSCEOLA COUNTY, FLORIDA

DATE: MAY 2013
PROJECT NO.: EHO-7
DRAWN BY: DRB
CHECKED BY: DMS
SCALE: 1'=10'
SHEET: 16 OF18

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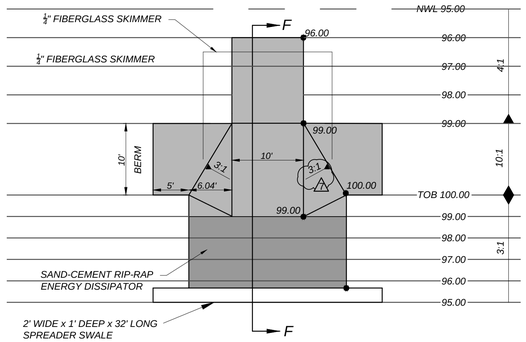
DRY POND 8 DATA

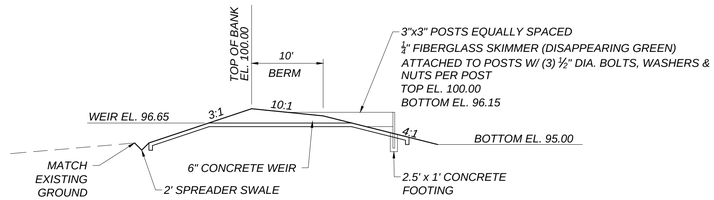
TOP EL.	**100.0**
BOTTOM EL.	**95.0**
D.N.W. EL.	**95.0**
10 YR./24 HR. D.H.W. EL.	**96.5** (6) (1)
10 YR./72 HR. D.H.W. EL.	**96.9** (1)
100 YR./24 HR. D.H.W. EL.	**97.0** (5) (1)
100 YR./72 HR. D.H.W. EL.	**97.8** (6) (1)



PLAN

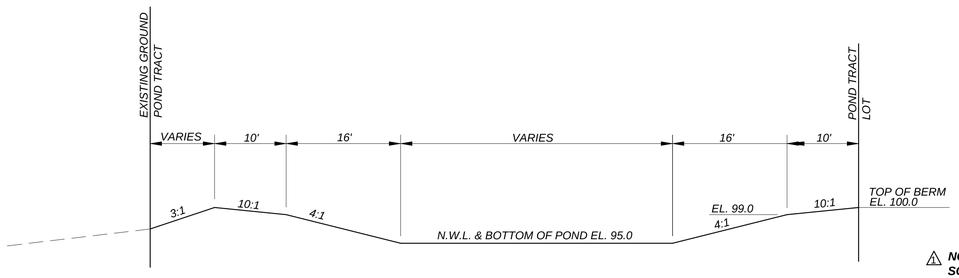
(1) **NOTE:**
SOLID SOD SIDE SLOPES AND SEED & MULCH POND BOTTOM PER OSCEOLA COUNTY L.D.C. CHAPTER 6, SECTION 6.7(0): DRY PONDS - SIDE SLOPES & BERMS ARE TO BE SODDED. SEED & MULCH POND BOTTOM AND FROM TOP OF BANK TO EXISTING GROUND.

(1) **NOTE:**
ALL STRUCTURES SHOWN IN THESE PLANS ARE PERMANENT DRAINAGE STRUCTURES.



SECTION F-F

(1) DRY POND 8 TRAPEZOIDAL WEIR DETAIL



(1) **NOTE:**
SOLID SOD SIDE SLOPES AND SEED & MULCH POND BOTTOM PER OSCEOLA COUNTY L.D.C. CHAPTER 6, SECTION 6.7(0): DRY PONDS - SIDE SLOPES & BERMS ARE TO BE SODDED. SEED & MULCH POND BOTTOM AND FROM TOP OF BANK TO EXISTING GROUND.

(6) **PS14-00003**
(1) **SDP13-0033**

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

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Contractor _____ Engineer _____

Not valid without the signature and the original raised seal of a Florida Registered Engineer.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			09-03-14	LGK	REV. PER SFWMD COMMENTS (1)
			06-10-14	DRB	REV. PER NOEW LOT LAYOUT (6)
			11-07-13	DSE	REV. PER OWNERSHIP ISSUE (2)
03-24-15	DLS	REV PER OWNER (1)	08-23-13	DSE	REV. PER SFWMD AND OSCEOLA COUNTY (1)
10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS (6)	06-28-13	DSE	REV. PER SFWMD COMMENTS

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

PONDS 8 & SW SECTIONS & DETAILS

REUNION WEST

OSCEOLA COUNTY, FLORIDA

DATE: MAY 2013
PROJECT NO.: EHO-7
DRAWN BY: DRB
CHECKED BY: DMS
SCALE: 1'=10'
SHEET: 17 OF18

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NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.

2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.

3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

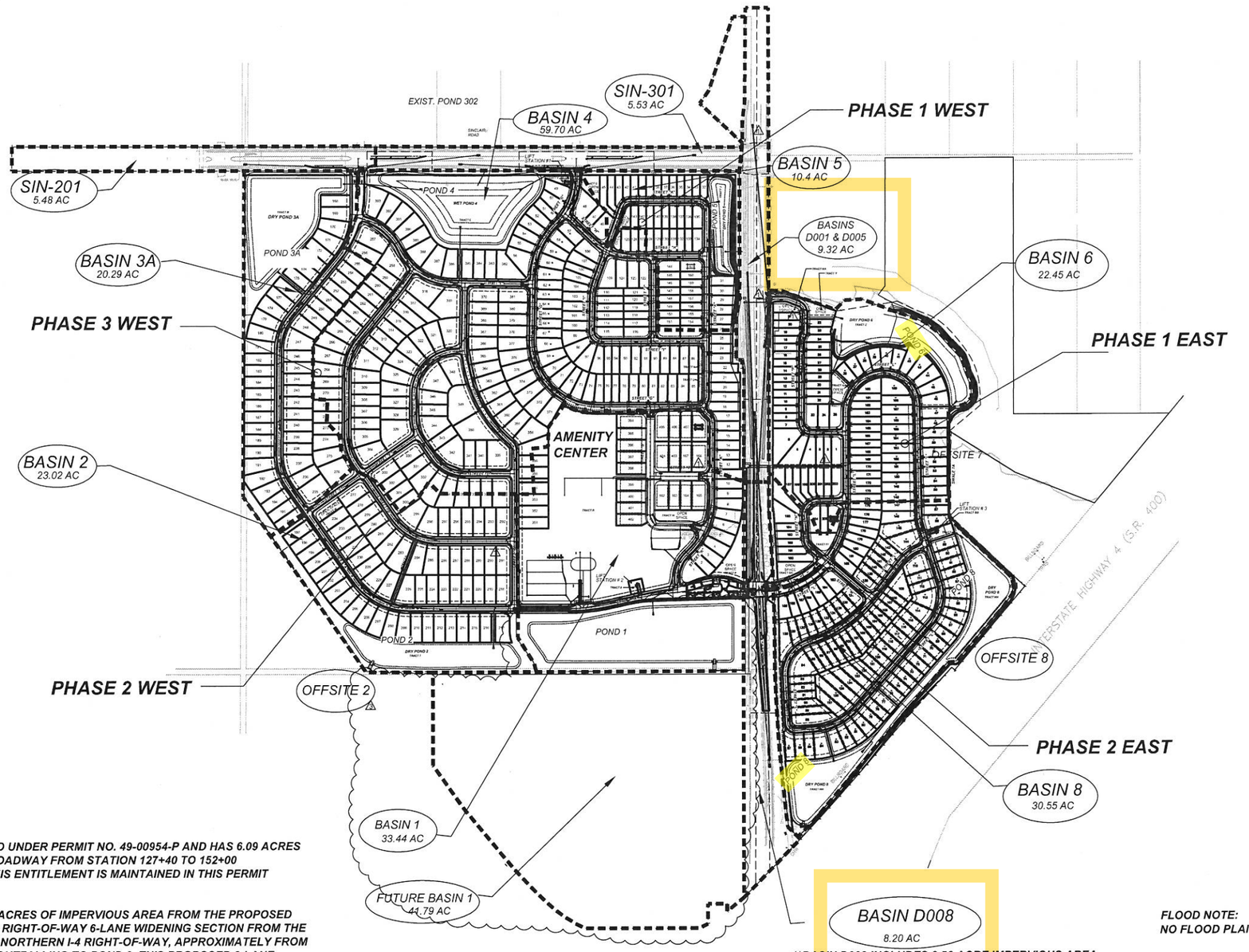
REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Peak Stage and Minimum Elevation Summary

Routing Software used: ICPR

Basin #	10 yr-24 hr	**Min. Road (10 yr-72 hr)**	100 yr-24 hr	1' above 100 yr-24 hr	100 yr-72 hr	**Min. F.F.**
Pond 1	120.02	120.91	121.46	122.46	122.69	122.69
Pond 2	134.22	134.68	134.85	135.85	136.20	136.20
Pond 3A	123.86	124.44	124.81	125.81	125.65	125.81
Pond 4	106.43	108.65	110.34	111.34	112.65	112.65
Pond 5	121.75	122.58	122.90	123.90	124.18	124.18
Pond 6	91.13	92.24	93.59	94.59	94.57	94.59
Pond 8	97.09	97.83	98.13	99.13	99.41	99.41

Note: Min. F.F. is set at the 100 yr-72 hr storm event or 1 ft above the 100 yr-24 hr storm event; whichever is greater.

Min Roadway grade set at 10 yr-72 hr storm event



COUNTY NOTE:
BASIN D001 WAS PERMITTED UNDER PERMIT NO. 49-00954-P AND HAS 6.09 ACRES OF IMPERVIOUS AREA OF ROADWAY FROM STATION 127+40 TO 152+00 OUTFALLING TO POND 6. THIS ENTITLEMENT IS MAINTAINED IN THIS PERMIT MODIFICATION.

BASIN D008 INCLUDES 6.56 ACRES OF IMPERVIOUS AREA FROM THE PROPOSED TYPICAL OSCEOLA COUNTY RIGHT-OF-WAY 6-LANE WIDENING SECTION FROM THE END OF BASIN D001 TO THE NORTHERN I-4 RIGHT-OF-WAY, APPROXIMATELY FROM STATION 127+40 TO 106+60 OUTFALLING TO POND 8. THIS PROPOSED 6-LANE WIDENING SECTION IS SIMILAR TO THE AREA IN BASIN D001 PREVIOUSLY PERMITTED UNDER PERMIT NO. 49-00954-P.

THE LOWEST INLET ELEVATION ALONG OLD LAKE WILSON ROAD ADJACENT TO THESE PONDS IS APPROXIMATELY 109.90'. POND 8 HAS A PEAK STAGE OF 97.09' AND POND 6 A PEAK STAGE OF 91.13' FOR THE 10-YEAR, 24-HOUR STORM.

*****BASIN D008 INCLUDES 6.56 ACRE IMPERVIOUS AREA FOR THE PROPOSED 6-LANE EXPANSION OF OLD LAKE WILSON ROAD***

FLOOD NOTE:
NO FLOOD PLAIN ON OR ADJACENT TO SITE

⚠ ***ACCESS NOTE:***
OWNER GRANTS A BLANKET ACCESS EASEMENT TO THE PROPERTY OWNER (PARCEL ID 27252731600000A0085) FOR INGRESS/EGRESS UNTIL SUCH TIME AS THE RIGHT-OF-WAY IS VACATED AND THE PLAT IS RECORDED.

PS-14-00003
SDP13-0033

DAVE SCHMITT ENGINEERING, INC.
3873 AVALON PARK EAST BLVD.
ORLANDO, FL 32828
407-207-9088 FAX 407-207-9089
Certification of Authorization #27471

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
			02-24-15	JL	REV .PER OWNER ⚠2
			10-08-14	DLS	REV PER OSCEOLA COUNTY COMMENTS ⚠1
			05-05-14	DLS	ADD ADD'L PROPERTY TO SOUTH/ RECONFIGURE WEST SIDE LAYOUT

DAVE M. SCHMITT
FLORIDA REG. NUMBER
48274

POST DEVELOPMENT BASIN MAP

REUNION WEST
OSCEOLA COUNTY, FLORIDA

DATE: MAY 2015
PROJECT NO.: EHO7
DRAWN BY: JL
CHECKED BY: DMS
~~SCALE: 1"= 300'~~
SHEET: 3 OF13 ⚠3

F:\EHO7\Drainage\EHO7 Post Dev map 3-07-16.dwg,3/15/2016 11:15:57 AM

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.
2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.
3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Area, Curve Number, and Tc Summary

BASIN #	AREA (ac)	CN	TC (min)
1	33.44	57	32
2	23.02	64	15
SIN-201	5.48	83	14
SIN-301	5.53	84	14
3A	20.29	58	10
4	59.70	74	14
5	10.40	67	14
6	22.45	61	12
8	30.55	63	12
D001	7.42	89	10
D005-OS	1.90	48	10
D008	8.20	88	10
Future Basin 1	41.79	39	25
TOTAL	270.17		

Notes:
1. Total Site Acerage = 223.84 acres.
2. Offsite wetland area on the East side remaining of 21.33 acres.
3. Offsite Area including Basins SIN-201, SIN-301, D001, D005-OS, and D006-OS of 23.51 acres

NOTES:

1. Basin D001 was permitted under Permit No. 49-00954-P and has 6.09 acres of impervious area of roadway from Station 127+40 to 152+00 outfalling to Pond 6. This entitlement is maintained in this permit mod.
2. Basin D008 includes 6.56 acres of impervious area from the proposed typical Osceola County Right-Of-Way 6-lane widening section from the end of Basin D001 to the northern I-4 Right-Of-Way, approximately from Station 127+40 to 106+60 outfalling to Pond 8. This proposed 6-lane widening section is similar to the area in Basin D001 previously permitted under Permit No. 49-00954-P.
3. The lowest inlet elevation along Old Lake Wilson Road adjacent to these ponds is approximately 109.90'. Pond 8 has a peak stage of 97.09' and Pond 6 a peak stage of 91.13' for the 10 year-24 hour storm.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Basin Impervious Area Calculations

		Areas		Roadways: Internal Road			Other	Sub-total	Pond	Total
Basin #	# Houses	House[1]	Driveways[2]	Length	Cul-de-sac	Area	Area	Impervious	Area	Impervious
		(ac)	(ac)	(ft.)	(#)	(ac)	(ac)	(ac)	(ac)	(ac)
1	26	1.49	0.24	0	0.0	1.95	6.70	10.38	6.57	16.95
2	81	7.44	0.74	0	0.0	1.00	0.76	9.94	2.76	12.70
SIN-201	0	0.00	0.00	0	0.0	2.03	0.36	2.39	0.00	2.39
SIN-301	0	0.00	0.00	0	0.0	2.04	0.36	2.40	0.00	2.40
3A	55	5.05	0.51	0	0.0	0.86	0.27	6.69	3.65	10.34
4	185	16.99	1.70	0	0.0	3.40	11.98	34.07	1.63	35.70
5	57	3.27	0.52	0	0.0	0.48	0.58	4.85	1.03	5.88
6	101	5.80	0.93	0	0.0	1.11	0.40	8.24	1.86	10.10
8	127	7.29	1.17	0	0.0	2.92	0.95	12.33	5.26	17.59
D001	0	0.00	0.00	0	0.0	0.00	6.09	6.09	0.00	6.09
D005-OS	0	0.00	0.00	0	0.0	0.00	0.00	0.00	0.00	0.00
D008	0	0.00	0.00	0	0.0	6.56	0.00	6.56	0.00	6.56

NOTES: 1. Houses were assumed to be 4000, 3,250, or 2,500 sq ft footprint area, depending on location.
2. Driveways were assumed to be 400 sqft.
3. Other Impervious Area in Basin 1 assumes 6.7 ac of impervious area for Pool, Building Soccer Field, Clubhouse & Parking Lot
4. Basins D001, D002-P, D005-OS, D006-OS have been permitted under Permit No. 49-00954-P
5. Basin D001 Includes 6.09 acres of paving for future 6 lane right-of-way, as permitted under 49-00954-P
6. Basin 4 houses and all impervious area were assumed the avg. of 2500 sq ft. and 4000 sq ft.

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Water Quality Calculations

For Wet Ponds, The district requries a Treatment Volume of either 1 inch of runoff or 2.5 inches times the imperivous area, whichever is greater.

Because Lake Okeechobee is an impaired water body and the treatment volume required is an additional 150% of the previously mentioned WQ volume.

For Dry Ponds, The district requries a Treatment Volume equal to 50 percent of the Wet Pond.

To provide the water quality volume necessary to meet pre-development phosphorous loading 4 inches over the drainage area must be retained for basins using dry ponds.

To provide the water quality volume necessary to meet pre-development phosphorous loading 0.85 inches over the drainage area must be retained plus wet detention with 21 day resident time for basins with wet detention.

Basin	Dry Ponds	Area	Impervious Area	Water Quality 1 in x area	Water Quality 2.5 in x imp	Normal W.Q. Required	Dry Retention 50% Credit	Impaired Water Body 150% Additional WQ Vol. Ac-ft	**Required stormwater runoff retention	**Required stormwater runoff retention	Governing Volume	Volume Provided
#	#	(ac)	(ac)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(inch)	(ac-ft)	(ac-ft)	(ac-ft)
2	Pond 2	23.02	9.94	1.92	2.07	2.07	1.04	1.55	0.75	1.44	2.07	4.12
3A	Pond 3A	20.29	6.69	1.69	1.39	1.69	0.85	1.27	0.75	1.27	1.69	2.83
5	Pond 5	10.40	4.85	0.87	1.01	1.01	0.51	0.76	0.75	0.65	1.01	2.08
6	Pond 6	22.45	8.24	1.87	1.72	1.87	0.94	1.40	0.75	1.40	1.87	3.46
8	Pond 8	38.75	18.89	3.23	3.93	3.93	1.97	2.95	0.75	2.42	3.93	5.12
1	Pond 1	33.44	10.38	2.79	2.16	2.79	1.39	2.09	1.25	3.48	3.48	15.22

Basin	Wet Ponds	Area	Impervious Area	Water Quality 1 in x area	2.5 in x imp	Normal W.Q. Required	Dry Retention 50%	Impaired Water Body 150% Additional WQ Vol. Ac-ft	**Required stormwater runoff retention	**Required stormwater runoff retention	Governing Volume	Volume Provided
#	#	(ac)	(ac)	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)		(inch)	(ac-ft)	(ac-ft)	(ac-ft)
SIN-201	Pond 4											
SIN-301	Pond 4	59.70	40.49	4.98	8.44	8.44	N/A	12.65	1.50	7.46	12.65	12.70
4	Pond 4											

Notes:

From Sinclair Road Pond 201 Revision Stormwater Calculations (June 27, 2003), required treatment volume = 9.94 ac-ft for Pond 4

** From UCF Stormwater Academy Nutrient Loading Worksheet

REUNION WEST
POST-DEVELOPMENT STORMWATER ANALYSIS
Stage - Storage Calculations

Dry Pond 6

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
88.60	1.87	0.00	0
89.00	1.94	0.76	0.76
90.00	2.13	2.04	2.80
91.00	2.31	2.22	5.02
92.00	2.5	2.41	7.42
93.00	2.7	2.60	10.02
94.00	2.89	2.80	12.82
95.00	3.34	3.12	15.93

Required Treatment Volume =	1.87	Ac-ft
Water Quality Elev. at or above =	89.58	feet
1/2 TV =	0.94	Ac-ft
Elevation at which 1/2 TV has recovered =	89.09	feet
Water Quality Elev. Set at =	90.3	feet
Provided Treatment Volume =	3.46	Ac-ft

Dry Pond 8

ELEVATION (feet)	AREA (acres)	STORAGE (ac-ft)	CUM STORAGE (ac-ft)
95.00	2.82	0.00	0
96.00	3.12	2.97	2.97
97.00	3.51	3.32	6.29
98.00	3.89	3.70	9.99
99.00	4.26	4.08	14.06
100.00	5.26	4.76	18.82

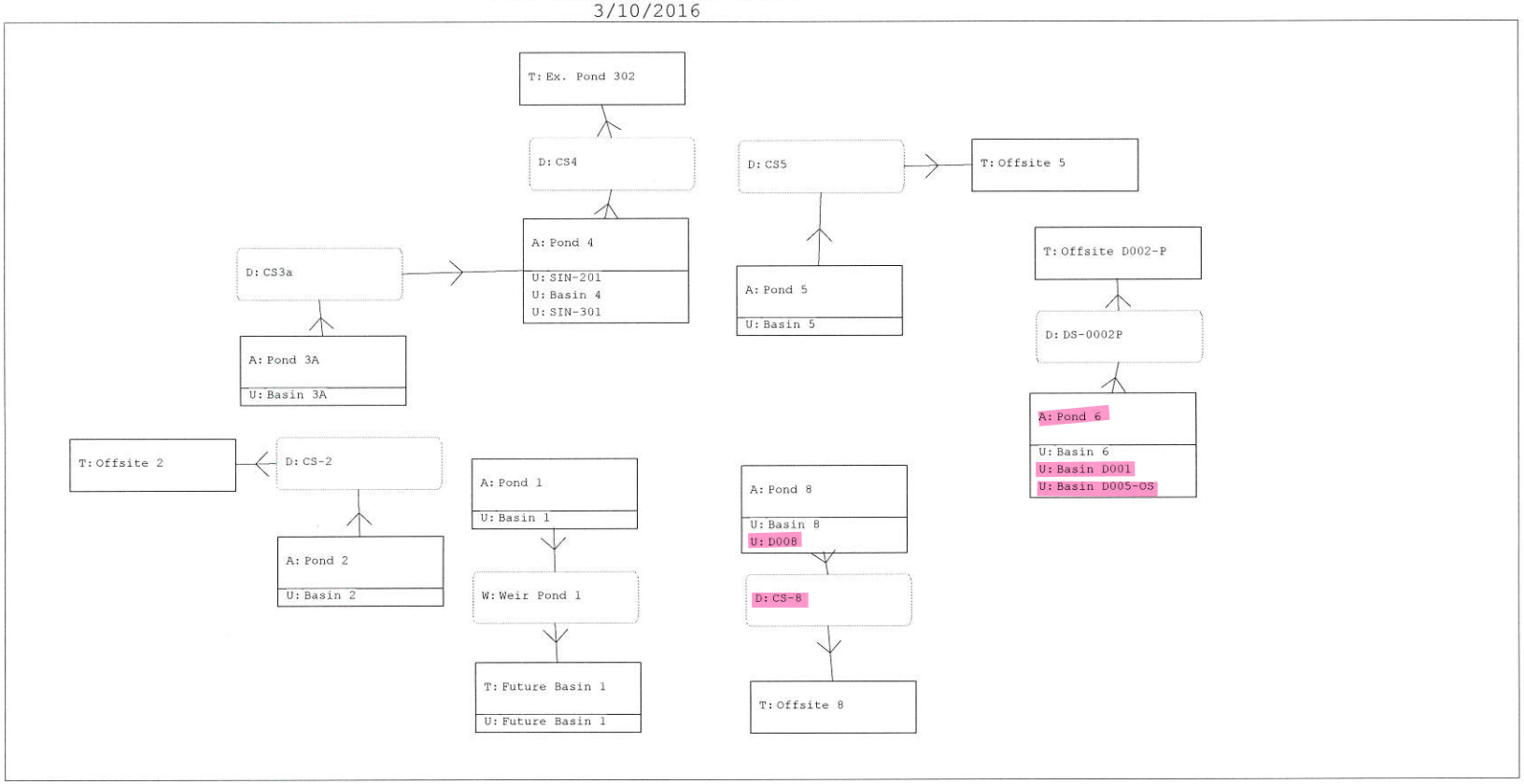
Required Treatment Volume =	3.93	Ac-ft
Water Quality Elev. at or above =	96.29	
1/2 TV =	1.97	Ac-ft
Elevation at which 1/2 TV has recovered =	95.66	feet
Water Quality Elev. Set at =	96.65	feet
Provided Treatment Volume =	5.12	Ac-ft

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Nodes
A Stage/Area
V Stage/Volume
T Time/Stage
M Manhole

Basins
O Overland Flow
U SCS Unit CN
S SBUH CN
Y SCS Unit GA
Z SBUH GA

Links
P Pipe
W Weir
C Channel
D Drop Structure
B Bridge
R Rating Curve
H Breach
E Percolation
F Filter
X Exfil Trench



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Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc.

EHO-7
POST-DEVELOPMENT (revised)
3/10/2016

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
Ex. Pond 302	BASE	100Y-24H	24.00	90.000	90.000	0.0002	0	17.76	12.237	0.00	0.000
Ex. Pond 302	BASE	100Y-72H	24.00	90.000	90.000	0.0002	0	62.80	19.276	0.00	0.000
Ex. Pond 302	BASE	10Y-24H	24.00	90.000	90.000	0.0002	0	23.59	3.980	0.00	0.000
Ex. Pond 302	BASE	10Y-72H	24.00	90.000	90.000	0.0002	0	64.39	7.987	0.00	0.000
Future Basin 1	BASE	100Y-24H	30.00	93.000	96.000	0.0001	0	12.25	26.035	0.00	0.000
Future Basin 1	BASE	100Y-72H	60.00	96.000	96.000	-0.0007	0	60.17	63.677	0.00	0.000
Future Basin 1	BASE	10Y-24H	30.00	93.000	96.000	0.0001	0	12.50	2.928	0.00	0.000
Future Basin 1	BASE	10Y-72H	60.00	96.000	96.000	-0.0007	0	60.17	22.386	0.00	0.000
Offsite 2	BASE	100Y-24H	0.00	128.000	128.010	0.0000	0	13.83	7.868	0.00	0.000
Offsite 2	BASE	100Y-72H	0.00	128.000	128.010	0.0000	0	61.05	14.680	0.00	0.000
Offsite 2	BASE	10Y-24H	0.00	128.000	128.010	0.0000	0	0.00	0.000	0.00	0.000
Offsite 2	BASE	10Y-72H	0.00	128.000	128.010	0.0000	0	62.11	4.533	0.00	0.000
Offsite 5	BASE	100Y-24H	0.00	112.000	112.010	0.0000	0	14.80	2.649	0.00	0.000
Offsite 5	BASE	100Y-72H	0.00	112.000	112.010	0.0000	0	60.69	11.415	0.00	0.000
Offsite 5	BASE	10Y-24H	0.00	112.000	112.010	0.0000	0	0.00	0.000	0.00	0.000
Offsite 5	BASE	10Y-72H	0.00	112.000	112.010	0.0000	0	62.88	1.491	0.00	0.000
Offsite 8	BASE	100Y-24H	0.00	93.000	93.010	0.0000	0	14.67	10.137	0.00	0.000
Offsite 8	BASE	100Y-72H	0.00	93.000	93.010	0.0000	0	61.27	18.191	0.00	0.000
Offsite 8	BASE	10Y-24H	0.00	93.000	93.010	0.0000	0	22.72	2.114	0.00	0.000
Offsite 8	BASE	10Y-72H	0.00	93.000	93.010	0.0000	0	62.10	7.854	0.00	0.000
Offsite D002-P	BASE	100Y-24H	0.00	88.600	88.600	0.0000	0	17.67	4.691	0.00	0.000
Offsite D002-P	BASE	100Y-72H	0.00	88.600	88.600	0.0000	0	64.11	6.410	0.00	0.000
Offsite D002-P	BASE	10Y-24H	0.00	88.600	88.600	0.0000	0	22.71	1.667	0.00	0.000
Offsite D002-P	BASE	10Y-72H	0.00	88.600	88.600	0.0000	0	64.09	3.962	0.00	0.000
Pond 1	BASE	100Y-24H	26.75	121.460	128.000	0.0011	195434	12.25	56.495	0.00	0.000
Pond 1	BASE	100Y-72H	74.58	122.692	128.000	0.0014	207005	60.17	81.105	0.00	0.000
Pond 1	BASE	10Y-24H	26.75	120.023	128.000	0.0005	182290	12.25	19.716	0.00	0.000
Pond 1	BASE	10Y-72H	74.58	120.911	128.000	0.0009	190415	60.17	41.873	0.00	0.000
Pond 2	BASE	100Y-24H	13.83	134.852	137.000	0.0017	90749	12.00	64.110	13.83	7.868
Pond 2	BASE	100Y-72H	61.05	136.196	137.000	0.0017	103768	60.00	87.825	61.05	14.680
Pond 2	BASE	10Y-24H	25.25	134.215	137.000	0.0011	85755	12.25	26.373	0.00	0.000
Pond 2	BASE	10Y-72H	62.11	134.682	137.000	0.0015	89418	60.08	49.095	62.11	4.533
Pond 3A	BASE	100Y-24H	24.14	124.810	129.000	0.0008	150182	12.00	57.663	24.14	0.854
Pond 3A	BASE	100Y-72H	72.10	125.645	129.000	0.0011	156362	60.00	79.343	72.10	1.266
Pond 3A	BASE	10Y-24H	25.00	123.858	129.000	0.0005	142086	12.00	21.040	0.00	0.000

F:\EHO7\Drainage\ICPR-Final\Post\EHO7- Curve Extrapolation.ICP

NUTRIENT LOADING CALCULATIONS

Basin: 6, D001, D005-OS, D006-OS
Drains to: Pond 6

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	22.45	0.026	0.58				0.58
A Soils			-				-
(to represent existing condition)			-				-
Highway (Max 50% Imp), A Soils	16.23	0.710	11.52				11.52
Total	38.68		12.11				12.11

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	19.11	0.25	4.78	Dry-Ret.	0.75"	90.00%	0.48
Highway (Max 50% Imp), A Soils	16.23	0.710	11.52	Dry-Ret.	0.75"	90.00%	1.15
Dry Retention (model as open space)	3.34	0.004	0.01	Dry-Ret.	0.75"	90.00%	0.00
Total	38.68		16.31		***		1.63

* Table 11.7-3 (attached)
** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)
*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (1.63 kg/yr < 12.11 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

NUTRIENT LOADING CALCULATIONS

Basin: 8
Drains to: Pond 8

Pre-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
Agricultural - Pasture	30.55	0.026	0.79				0.79
A Soils			-				-
(to represent existing condition)			-				-
Total	30.55		0.79				0.79

* Table 11.7-3 (attached)

Post-Development Nutrient Generation

Land Use	Area ac. ***	Loading* kg./ac.-yr.	Total Loading kg./yr.	Treatment	Req'd Retention Over Basin Area	**Pollutant Removal Efficiency	Outflow Mass Loading (kg./yr.)
SF Residential, 40% max imp. A Soils	25.29	0.25	6.32	Dry-Ret.	0.75"	90.00%	0.63
Dry Retention (model as open space)	5.26	0.004	0.02	Dry-Ret.	0.75"	90.00%	0.00
Total	30.55		6.34		***		0.63

* Table 11.7-3 (attached)

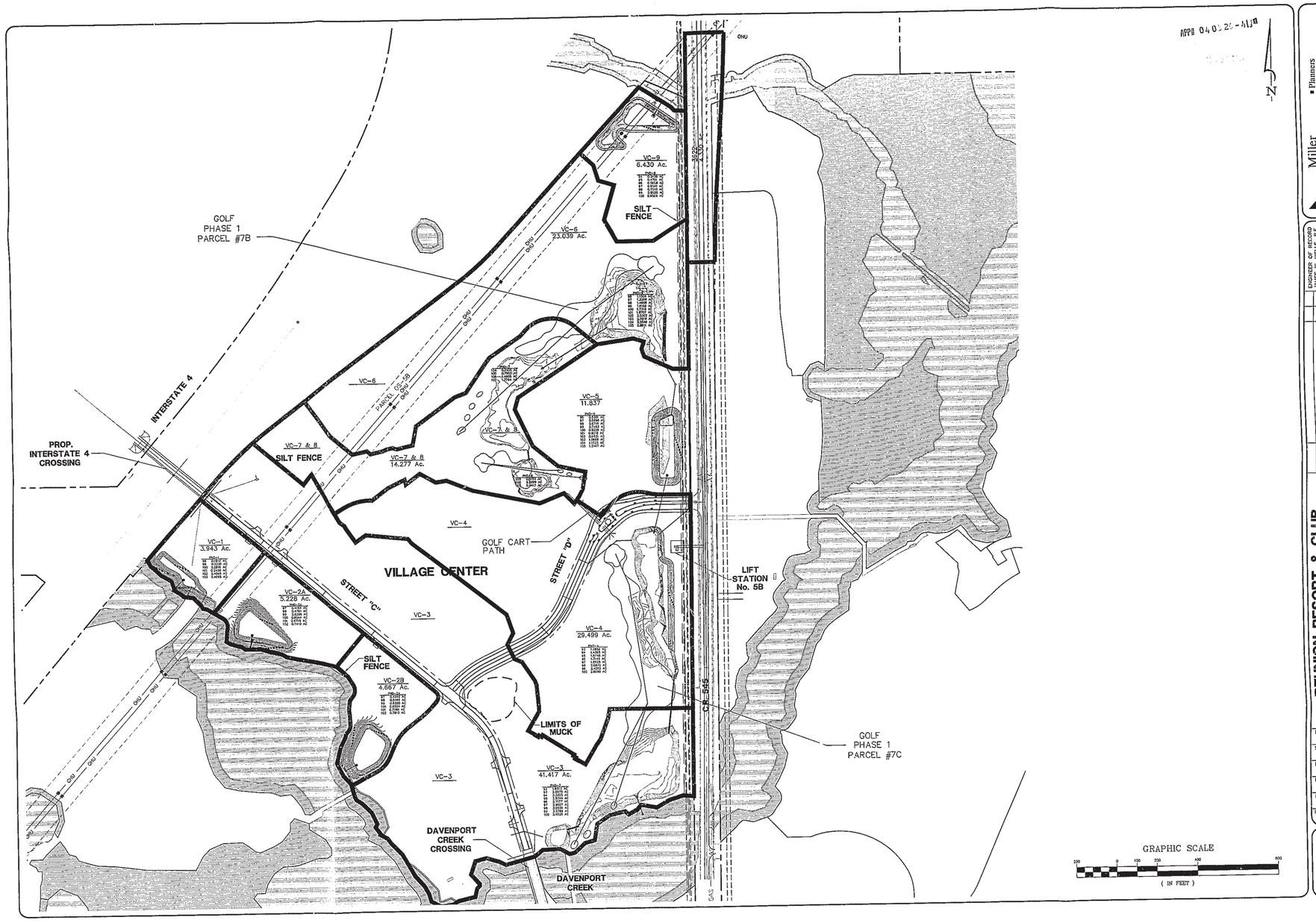
** Table 11.7-14 & 11.7-22 & Mean Annual Mass Removal Efficiencies (attached)

*** Minimum water quality required is not less than the required water quality for impaired water bodies

***Phosphorus Removal so Post Less than or Equal to Pre (0.63 kg/yr < 0.79 kg/yr) - OK

No Additional Treatment Needed for Dry Retention System

SFWMD PERMIT NO. 49-102283-P (APPLICATION 191004-1965)



APPR 04 01 20 - MJB

Miller Einhouse Rymer & Associates, Inc.
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■ Engineers
■ Landscape Architects
230 East Monument Ave., Suite B
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ENGINEER OF RECORD
JAMES W. WELLS, P.E.
FLORIDA REG. #20394

DATE	DESCRIPTION	INIT.	CHK BY
7/6/05	ADDED PARK, RAMS AND POND CENTERLINES	BMM	BMM

REUNION RESORT & CLUB
VILLAGE CENTER
PHASE 1 INFRASTRUCTURE
OSCEOLA COUNTY, FLORIDA

POST DEVELOPMENT BASIN MAP

DATE: 4/28/2003
SCALE: 1"=200'
PROJECT NO.: 0110.02
DRAWN BY: BMM
DESIGNED BY: BMM
CHECKED BY: BMM

SHEET NO.
1.0

Miller Einhouse Rymer & Associates, Inc.
■ Planners
■ Engineers
■ Landscape Architects

ENGINEER OF RECORD
JAMES N. WELLS P.E.
REG. #50394

NO.	DESCRIPTION	DATE	CHK BY	APP'D BY
		4/9/03		

REUNION RESORT & CLUB
VILLAGE CENTER
PHASE 1 INFRASTRUCTURE
OSCEOLA COUNTY, FLORIDA

POST DEVELOPMENT BASIN MAP

DATE:	4/28/2003
SCALE:	1"=200'
PROJECT NO.:	0110.02
DRAWN BY:	BMM
DESIGNED BY:	BMM
CHECKED BY:	BMM

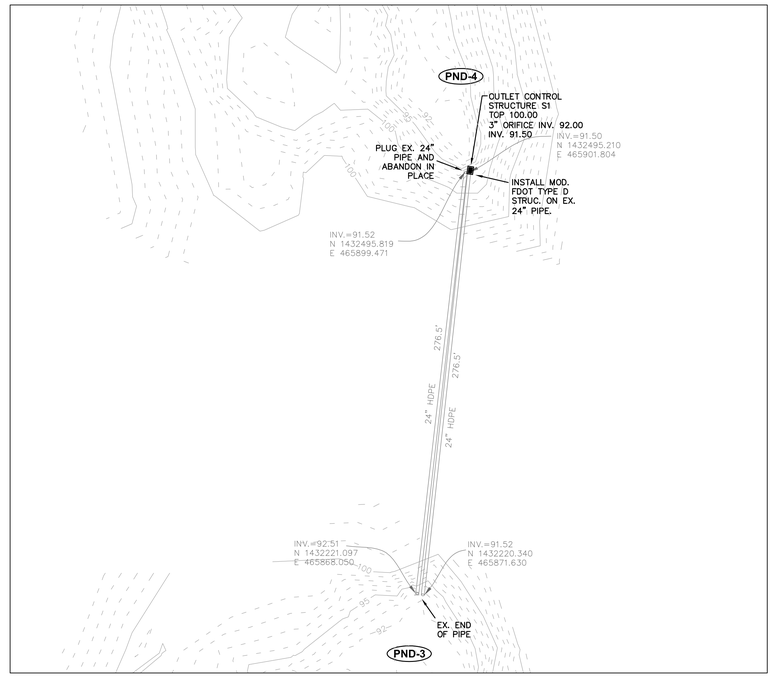
SHEET NO.
1.0

DRAINAGE BASIN/NODE MAP

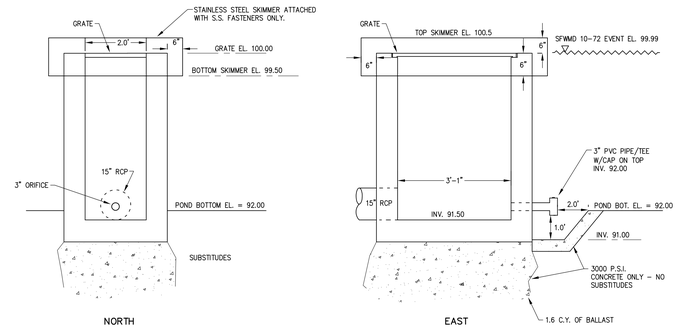
GRAPHIC SCALE

150 0 75 150 300

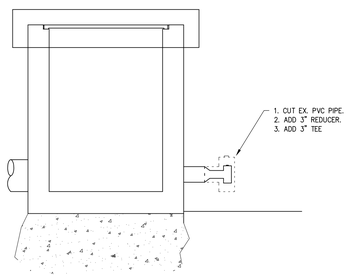
(IN FEET)
1 INCH = 150' FT.



OUTLET CONTROL STRUCTURE S1
PLAN



OUTLET CONTROL STRUCTURE S1
DETAIL



OUTLET CONTROL STRUCTURES CS-3, CS-5 & CS-9
MODIFICATION DETAIL

REPRODUCTION OF THIS PLAN IS INVALID UNLESS CONTAINING ORIGINAL SIGNATURE AND EMBOSSED WITH ENGINEER'S SEAL, AS PER CHAPTER 21H-23.002 FLORIDA ADMINISTRATIVE CODE.

REV.	DATE	BY	COMMENTS
1	01/23/2020	AB	SFWMD COMMENTS

PREPARED FOR:
REUNION RESORT

DRAINAGE PLAN

REUNION RESORT VILLAGE CENTER
OSCEOLA COUNTY, FL.

Abney Bolchoz Jr, PE
5753 DOGWOOD DRIVE
OKEECHOBEE, FL. 34974
PH. 321-350-4406
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ABNEY COREY BOLCHOZ JR, P.E.
FLORIDA CERT.#59259

DATE

PROJECT #:	1601
DRAWN:	ACB
APPROVED:	ACB
DATE:	07/01/2019
SCALE:	
SHEET NAME:	**MOD-1**
SHEET #:	**1 OF 1**

		Areas (ac.)								Volumetric Calculations (ac-ft)					Retention Pond Calculations			
Basin	pond #	D.A. (drain.)	pond	roofs**	adj. D.A	I. A. (imperv.)	adj. P.A.[1] (pervious)	adj. I.A	adj. I.A%	0.75" x D.A.	adj. I.A%	Vol.	x 1.5[2]	Req'd. Vol.	W.Q. Stage (ft.)	Outlet elev. (ft.)	Actual Vol. (ac-ft)	T.O.B (ft.)
VC-3A	3	32.49	3.45		29.04	22.74	6.30	22.74	78%	2.03	3.55	3.55	5.33	6.85	94.40	98.60	18.68	99.40
VC-3B		15.29		1.82	13.47	7.54	7.75	5.72	42%	0.96	1.01	1.01	1.52					
VC-4A	4	17.93	3.94		13.99	12.55	1.44	12.55	90%	1.12	1.96	1.96	2.94	3.65	95.92	100.00	11.09	105.00
VC-4B		6.95		2.66	4.29	4.53	2.42	1.87	44%	0.43	0.47	0.47	0.71					
VC-5	5/6*	11.69	1.09		10.60	8.77	1.83	8.77	83%	0.73	1.37	1.37	2.05	5.47	98.60	104.64	22.98	105.50
VC-6		20.84	3.33		17.51	14.59	2.92	14.59	83%	1.30	2.28	2.28	3.42					
VC-7/8A	7/8*	8.86	2.50		6.36	6.20	0.16	6.20	98%	0.55	0.97	0.97	1.45	2.44	106.28	105.90	1.74	108.00
VC-7/8B		9.87		1.06	8.81	4.82	5.05	3.76	43%	0.62	0.66	0.66	0.99					
													Req'd. Vol	**18.4**		**Prov. Vol**	**54.5**	
VC-9	9	2.38	0.69		1.69	1.79	-0.10	1.79	106%	0.15	0.28	0.28	0.42	0.42	96.52	98.50	1.40	99.50
Total		**126.3**				**83.5**		**78.0**										

Summary of Discharge Rates

	Node	
	Dav-3	330
10-72 Prop. Mod.	2.96	0.32
10- 72 #040526-4	1.32	0.97

A routing summary of the peak stages for the 10 year 72 hour and 100 year 72 hour events is provided below:

Summary of Peak Stages

	Elevation NGVD29						
	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8	Pond 9
Top of Bank	99.00	105.00	105.50	105.50	108.00	108.00	99.00
Min. Fin. Floor Elev.	113.50	117.50	104.75	105.25			105.25
10-72 Prop. Mod.	98.74	99.99	103.23	103.23	106.87	106.87	98.56
10- 72 #040526-4	98.43	98.45	102.22	102.24	106.52	106.35	98.86
10-72 Prop. Mod.	100.75	101.72	104.94	105.25	107.21	107.21	98.85
100- 72 #040526-4	99.92	100.27	104.38	104.75	106.93	106.93	99.66

9.0 Construction Schedule and Certification Information

The Construction Schedule is as follows:

1. Hold Pre-Construction Conference on-site with Contractor to discuss project and Environmental Protection measures to be implemented.
2. Install Erosion Control measures.
3. Installation of drainage structure.
4. Removal of Erosion Control Measures once pervious areas have been stabilized with vegetation or other suitable measures.
5. Final inspection.
6. As-built Survey.
7. Certification of s.w.m.s.

Basin	Pervious Area			Impervious Area			Total Area		
	(ac)	%	CN	(ac)	%	CN	(ac)	%	CN
VC-3A	9.75	30%	39.0	22.74	70%	98.0	32.49	100%	80.3
VC-3B	7.75	51%	39.0	7.54	49%	98.0	15.29	100%	68.1
VC-4A	5.38	30%	39.0	12.55	70%	98.0	17.93	100%	80.3
VC-4B	2.42	35%	39.0	4.53	65%	98.0	6.95	100%	77.5
VC-5	2.92	25%	39.0	8.77	75%	98.0	11.69	100%	83.3
VC-6	6.25	30%	39.0	14.59	70%	98.0	20.84	100%	80.3
VC-7/8A	2.66	30%	39.0	6.20	70%	98.0	8.86	100%	80.3
VC-7/8B	5.05	51%	39.0	4.82	49%	98.0	9.87	100%	67.8
VC-9	0.60	25%	39.0	1.79	75%	98.0	2.38	100%	83.3
Total							**126.30**		

Pond-3

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
91.00	0.00	1.2900	0.000	0.000
92.00	0.00	1.9000	1.595	1.595
93.00	1.00	2.1300	2.015	3.610
94.00	2.00	2.3700	2.250	5.860
95.00	3.00	2.5300	2.450	8.310
96.00	4.00	2.7000	2.615	10.925
97.00	5.00	2.9100	2.805	13.730
98.00	6.00	3.1200	3.015	16.745
99.00	7.00	3.3200	3.220	19.965

Pond-4

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
92.00	0.00	0.3800	0.000	0.000
93.00	0.00	0.8000	0.590	0.590
94.00	1.00	0.9800	0.890	1.480
95.00	2.00	1.1400	1.060	2.540
96.00	3.00	1.2900	1.215	3.755
97.00	4.00	1.4600	1.375	5.130
98.00	5.00	1.7700	1.615	6.745
99.00	6.00	2.1600	1.965	8.710
100.00	7.00	2.6000	2.380	11.090
101.00	8.00	2.8400	2.720	13.810
102.00	9.00	3.0500	2.945	16.755
103.00	10.00	3.3000	3.175	19.930
104.00	11.00	3.6000	3.450	23.380
105.00	12.00	3.9400	3.770	27.150

Pond-5

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
96.00	0.00	0.2200	0.000	0.000
97.00	1.00	0.3200	0.270	0.270
98.00	2.00	0.3900	0.355	0.625
99.00	3.00	0.4600	0.425	1.050
100.00	4.00	0.5300	0.495	1.545
101.00	5.00	0.6000	0.565	2.110
102.00	6.00	0.6700	0.635	2.745
103.00	7.00	0.7400	0.705	3.450
104.00	8.00	0.8100	0.775	4.225
105.00	9.00	1.0600	0.935	5.160
105.50	9.50	1.0900	0.538	5.698

Pond-6

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
95.00	0.00	0.5900	0.000	0.000
96.00	96.00	1.1500	0.870	0.870
97.00	97.00	1.3900	1.270	2.140
98.00	98.00	1.5600	1.475	3.615
99.00	99.00	1.7100	1.635	5.250
100.00	100.00	1.8700	1.790	7.040
101.00	101.00	2.0500	1.960	9.000
102.00	102.00	2.2600	2.155	11.155
103.00	103.00	2.5500	2.405	13.560
104.00	104.00	2.8300	2.690	16.250
105.00	105.00	3.1300	2.980	19.230
105.50	105.50	3.3300	1.615	20.845

Pond-7

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
104.00	0.00	0.1700	0.000	0.000
105.00	9.00	0.7700	0.470	0.470
106.00	10.00	1.4700	1.120	1.590
107.00	11.00	1.7600	1.615	3.205
108.00	12.00	2.0300	1.895	5.100

Pond-8

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
105.00	0.00	0.2300	0.000	0.000
106.00	106.00	0.3600	0.295	0.295
107.00	107.00	0.4200	0.390	0.685
108.00	108.00	0.4700	0.445	1.130

Pond-9

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
95.00	0.00	0.0700	0.000	0.000
96.00	2.00	0.3500	0.210	0.210
97.00	3.00	0.4500	0.400	0.610
98.00	4.00	0.5400	0.495	1.105
99.00	5.00	0.6400	0.590	1.695
99.50	5.50	0.6900	0.333	2.028

Outlet Control Structure Data

		Orifice		Outlet	
Pond #	Top El.	size (in.)	invert elev	size (in.)	invert elev
3	99.05	3	91.10	24	91.10
4	100.00	3	92.00	24	91.50
5	104.64	3	95.39	36	94.94
9	99.77	3	95.17	18	94.87

The impervious areas were assumed to be unchanged from ERP 040526-4. See the area and CN calculations for the individual drainage basins below:

8.0 Routing Summary

A routing summary of the peak discharge rates for the 10 year 72 hour event is provided below:

Abney C. Bolchoz Jr., P.E.
5753 Dogwood Dr.
Orlando, Fl. 32807
Office (321) 300-4406

Drainage Calculations for ERP 040526-4 Modification

Project: Reunion Resort Village Center
Osceola County, FL
Date: September 13, 2019
Project #: 1601

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Appendix Items

1. 10 year 72 hour ICPR Results
2. 100 year 72 hour ICPR Results

Attachments Items

3. 040526-4 Post Development Drainage Basin Map
4. Proposed modification Drainage Plan/Basin Map

1.0 Executive Summary

Environmental Resource Permit 040526-4 for the "Reunion Resort and Club Village Center" in Reunion East is proposed to be modified to resolve discrepancies of the s.w.m.s' in the permit and actual field conditions.

There are two systems proposed to be modified, pond 9 and interconnected ponds 3,4,5,6,7,8 and 9. Both systems have separate discharges into Davenport Creek.

An additional outlet control structure is proposed for pond 4. The outlet structures in ponds 3, 5 and 9 will be modified to have 3" orifices per the permit conditions.

2.0 General Information

According to ERP 040526-4 the subject property has 145.7 acres. The proposed modification is for a total of 126.30 acres.

Drainage Basins VC-3,4,5,6,7,8 and 9 are included in this proposed permit modification.

Drainage Basins VC-1 and VC-2 are not included in this modification

The subject properties are located in Zone "X" per the FEMA Flood Map.

The Vertical Datum for this report is NGVD 1929.

3.0 Permit History

The subject properties were permitted under various ERP's : 000522-5, 020913-3,030507-10, 040526-4, 041222-280, 060713-5, 160412-3, 171127-3.

The modification 060713-5 appears to be incomplete based on as-built conditions.

Modifications 160412-3 and 171127-3 are for properties located in drainage basins VC-1,2,3,4,6,7,8, however the were no proposed changes to the existing s.w.m.s.'.

4.0 Existing Drainage Patterns

According to the permitted drainage calculations (ERP 040526-4) the drainage runoff from the subject properties discharge to Davenport Creek.

The drainage runoff from pond 9 flow to the north via Node 330, which is an existing pond per ERP 040526-4. The drainage runoff from the interconnected ponds 3,4,5,6,7,8,9 discharge to the south via Node Dav 1/Dav 3. Dav 1 represents the 100 year 72 hour

event tailwater elevation of 96.00 while Dav-3 represents the normal tailwater elevation of 92.00

The proposed modification will not alter the drainage patterns. Some minor changes to the drainage basins are proposed. See drainage basin maps for ERP 040526-4 and the proposed modification in the Appendix.

5.0 Water Qualitative Calculations

The proposed modification does not change the function of the dry detention systems and only minor changes were made to update the drainage basin and stage storage calculations for pond 9 and interconnected ponds 3,4,5,6,7,8. Both systems are restricted to a zero discharge criteria into Davenport Creek.

The discharge elevations for the outlet control structures exceed by a significant margin the stage elevations required for treatment volume, which was the case for ERP 040526-4.

6.0 Water Quantitative Criteria

According to ERP 040526-4 the subject properties are restricted to zero discharge to Davenport Creek.

7.0 Water Quantitative Calculations

An asbuilt of ponds 3,4,5,6,7,8 and 9 and their corresponding outlet control structures were performed. This information as well as the most up to date basin information was used to create an ICPR model for the 10 year 72 hour and 100 year 24 hour storm events. The proposed design includes adding a control structure to pond 4 as well as retrofitting only the orifice size to 3” for the outlet control structures for ponds, 3, 5 and 9 I conformance with ERP 040526-4. See Drainage Plan attached.

See stage storage and outlet control structure information below.

Pond-3

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
91.00	0.00	1.2900	0.000	0.000
92.00	0.00	1.9000	1.595	1.595
93.00	1.00	2.1300	2.015	3.610
94.00	2.00	2.3700	2.250	5.860
95.00	3.00	2.5300	2.450	8.310
96.00	4.00	2.7000	2.615	10.925
97.00	5.00	2.9100	2.805	13.730
98.00	6.00	3.1200	3.015	16.745
99.00	7.00	3.3200	3.220	19.965

Pond-4

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
92.00	0.00	0.3800	0.000	0.000
93.00	0.00	0.8000	0.590	0.590
94.00	1.00	0.9800	0.890	1.480
95.00	2.00	1.1400	1.060	2.540
96.00	3.00	1.2900	1.215	3.755
97.00	4.00	1.4600	1.375	5.130
98.00	5.00	1.7700	1.615	6.745
99.00	6.00	2.1600	1.965	8.710
100.00	7.00	2.6000	2.380	11.090
101.00	8.00	2.8400	2.720	13.810
102.00	9.00	3.0500	2.945	16.755
103.00	10.00	3.3000	3.175	19.930
104.00	11.00	3.6000	3.450	23.380
105.00	12.00	3.9400	3.770	27.150

Pond-5

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
96.00	0.00	0.2200	0.000	0.000
97.00	1.00	0.3200	0.270	0.270
98.00	2.00	0.3900	0.355	0.625
99.00	3.00	0.4600	0.425	1.050
100.00	4.00	0.5300	0.495	1.545
101.00	5.00	0.6000	0.565	2.110
102.00	6.00	0.6700	0.635	2.745
103.00	7.00	0.7400	0.705	3.450
104.00	8.00	0.8100	0.775	4.225
105.00	9.00	1.0600	0.935	5.160
105.50	9.50	1.0900	0.538	5.698

Pond-6

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
95.00	0.00	0.5900	0.000	0.000
96.00	96.00	1.1500	0.870	0.870
97.00	97.00	1.3900	1.270	2.140
98.00	98.00	1.5600	1.475	3.615
99.00	99.00	1.7100	1.635	5.250
100.00	100.00	1.8700	1.790	7.040
101.00	101.00	2.0500	1.960	9.000
102.00	102.00	2.2600	2.155	11.155
103.00	103.00	2.5500	2.405	13.560
104.00	104.00	2.8300	2.690	16.250
105.00	105.00	3.1300	2.980	19.230
105.50	105.50	3.3300	1.615	20.845

Pond-7

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
104.00	0.00	0.1700	0.000	0.000
105.00	9.00	0.7700	0.470	0.470
106.00	10.00	1.4700	1.120	1.590
107.00	11.00	1.7600	1.615	3.205
108.00	12.00	2.0300	1.895	5.100

Pond-8

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
105.00	0.00	0.2300	0.000	0.000
106.00	106.00	0.3600	0.295	0.295
107.00	107.00	0.4200	0.390	0.685
108.00	108.00	0.4700	0.445	1.130

Pond-9

NGVD Elevation	Depth (ft)	Surface Area (ac)	Incr. Volume (ac-ft)	Volume (ac-ft)
95.00	0.00	0.0700	0.000	0.000
96.00	2.00	0.3500	0.210	0.210
97.00	3.00	0.4500	0.400	0.610
98.00	4.00	0.5400	0.495	1.105
99.00	5.00	0.6400	0.590	1.695
99.50	5.50	0.6900	0.333	2.028

Outlet Control Structure Data

		Orifice		Outlet	
Pond #	Top El.	size (in.)	invert elev	size (in.)	invert elev
3	99.05	3	91.10	24	91.10
4	100.00	3	92.00	24	91.50
5	104.64	3	95.39	36	94.94
9	99.77	3	95.17	18	94.87

8.0 Routing Summary

A routing summary of the peak discharge rates for the 10 year 72 hour event is provided below:

Summary of Discharge Rates

	Node	
	Dav-3	330
10-72 Prop. Mod.	2.96	0.32
10- 72 #040526-4	1.32	0.97

A routing summary of the peak stages for the 10 year 72 hour and 100 year 72 hour events is provided below:

Summary of Peak Stages

	Elevation NGVD29						
	Pond 3	Pond 4	Pond 5	Pond 6	Pond 7	Pond 8	Pond 9
Top of Bank	99.00	105.00	105.50	105.50	108.00	108.00	99.00
Min. Fin. Floor Elev.	113.50	117.50	104.75	105.25			105.25
10-72 Prop. Mod.	98.74	99.99	103.23	103.23	106.87	106.87	98.56
10- 72 #040526-4	98.43	98.45	102.22	102.24	106.52	106.35	98.86
10-72 Prop. Mod.	100.75	101.72	104.94	105.25	107.21	107.21	98.85
100- 72 #040526-4	99.92	100.27	104.38	104.75	106.93	106.93	99.66

9.0 Construction Schedule and Certification Information

The Construction Schedule is as follows:

1. Hold Pre-Construction Conference on-site with Contractor to discuss project and Environmental Protection measures to be implemented.

2. Install Erosion Control measures.

3. Installation of drainage structure.

4. Removal of Erosion Control Measures once pervious areas have been stabilized with vegetation or other suitable measures.

5. Final inspection.

6. As-built Survey.

7. Certification of s.w.m.s.

10 year 72 hour event

==========
==== Basins ==========
==========

Name: ON-SITE VC-1 Node: POND 9 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 2.380 Time Shift(hrs): 0.00
Curve Number: 83.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC 7/8 A Node: POND 7 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 8.860 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC 7/8 B Node: POND 7 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 9.870 Time Shift(hrs): 0.00
Curve Number: 70.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-3 A Node: POND 3 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Sfwmd72 Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 32.490 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-3 B Node: POND 3 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 15.290 Time Shift(hrs): 0.00
Curve Number: 68.00 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-4 A Node: POND 4 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 17.930 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-4 B Node: POND 4 Status: Onsite
Group: BASE Type: Santa Barbara CN

```
          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
                Area(ac): 6.950                   Time Shift(hrs): 0.00
           Curve Number: 77.40                 Time Increment(min): 1.00
                DCIA(%): 0.00                Max Allowable Q(cfs): 999999.000


-------------------------------------------------------------------------------------------------
         Name: VC-5                      Node: POND 5                 Status: Onsite
        Group: BASE                      Type: Santa Barbara CN

          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
                Area(ac): 11.690                  Time Shift(hrs): 0.00
           Curve Number: 83.25                 Time Increment(min): 1.00
                DCIA(%): 0.00                Max Allowable Q(cfs): 999999.000


-------------------------------------------------------------------------------------------------
         Name: VC-6                      Node: POND 6                 Status: Onsite
        Group: BASE                      Type: Santa Barbara CN

          Rainfall File: Flmod               Storm Duration(hrs): 0.00
    Rainfall Amount(in): 0.000                 Time of Conc(min): 10.00
                Area(ac): 20.840                  Time Shift(hrs): 0.00
           Curve Number: 80.30                 Time Increment(min): 1.00
                DCIA(%): 0.00                Max Allowable Q(cfs): 999999.000


=================================================================================================
==== Nodes ======================================================================================
=================================================================================================

      Name: DAV-1/3              Base Flow(cfs): 0.000          Init Stage(ft): 92.000
     Group: BASE                                                Warn Stage(ft): 100.000
      Type: Time/Stage

Permit 040526-4 Davenport Creek tailwater for 10-24 event
Node Dav-1 stage is same as Dav-3 except stage is 96 due to tailwater for 100-24 storm

      Time(hrs)       Stage(ft)
--------------- ---------------
           0.00          92.000
         100.00          92.000

-------------------------------------------------------------------------------------------------
      Name: Node 330             Base Flow(cfs): 0.000          Init Stage(ft): 89.700
     Group: BASE                                                Warn Stage(ft): 98.000
      Type: Stage/Area

Permit 040526-4

      Stage(ft)        Area(ac)
--------------- ---------------
         89.700          0.1000
         91.000          0.2000
         92.000          0.9000
         95.000          3.8000
         98.000          9.5000

-------------------------------------------------------------------------------------------------
      Name: POND 3               Base Flow(cfs): 0.000          Init Stage(ft): 91.000
     Group: BASE                                                Warn Stage(ft): 99.000
      Type: Stage/Area



      Stage(ft)        Area(ac)
--------------- ---------------
         91.000          1.2900
         92.000          1.9000
         93.000          2.1300
         94.000          2.3700
         95.000          2.5300
         96.000          2.7000
```

97.000	2.9100
98.000	3.1200
99.000	3.3200

Name: POND 4 Base Flow(cfs): 0.000 Init Stage(ft): 92.000
Group: BASE Warn Stage(ft): 105.000
Type: Stage/Area

Stage(ft)	Area(ac)
92.000	0.3800
93.000	0.8000
94.000	0.9800
95.000	1.1400
96.000	1.2900
97.000	1.4600
98.000	1.7700
99.000	2.1600
100.000	2.6000
101.000	2.8400
102.000	3.0500
103.000	3.3000
104.000	3.6000
105.000	3.9400

Name: POND 5 Base Flow(cfs): 0.000 Init Stage(ft): 96.000
Group: BASE Warn Stage(ft): 107.000
Type: Stage/Area

Stage(ft)	Area(ac)
96.000	0.2200
97.000	0.3200
98.000	0.3900
99.000	0.4600
100.000	0.5300
101.000	0.6000
102.000	0.6700
103.000	0.7400
104.000	0.8100
105.000	1.0600
106.000	1.1300
107.000	1.2200

Name: POND 6 Base Flow(cfs): 0.000 Init Stage(ft): 95.000
Group: BASE Warn Stage(ft): 105.000
Type: Stage/Area

Stage(ft)	Area(ac)
95.000	0.5900
96.000	1.1500
97.000	1.3900
98.000	1.5600
99.000	1.7100
100.000	1.8700
101.000	2.0500
102.000	2.2600
103.000	2.5500
104.000	2.8300
105.000	3.1300

Name: Pond 7 Base Flow(cfs): 0.000 Init Stage(ft): 104.000
Group: BASE Warn Stage(ft): 107.000
Type: Stage/Area

Stage(ft)	Area(ac)
104.000	0.1700
105.000	0.7700
106.000	1.4700
107.000	1.7600

Name: Pond 8 Base Flow(cfs): 0.000 Init Stage(ft): 105.000
Group: BASE Warn Stage(ft): 108.000
Type: Stage/Area

Stage(ft)	Area(ac)
105.000	0.2300
106.000	0.3600
107.000	0.4200
108.000	0.4700

Name: POND 9 Base Flow(cfs): 0.000 Init Stage(ft): 95.000
Group: BASE Warn Stage(ft): 99.500
Type: Stage/Area

Stage(ft)	Area(ac)
95.000	0.0700
96.000	0.3500
97.000	0.4500
98.000	0.5400
99.000	0.6400
99.500	0.6900

==========
==== Cross Sections ====
==========

Name: XSEC-1 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	109.900	0.000000
52.000	105.900	0.000000
107.000	109.900	0.000000

==========
==== Pipes ====
==========

Name: PND6-PND5 From Node: POND 6 Length(ft): 338.00
Group: BASE To Node: POND 5 Count: 1
Friction Equation: Automatic

	UPSTREAM	DOWNSTREAM	
Geometry:	Circular	Circular	Solution Algorithm: Most Restrictive
Span(in):	24.00	24.00	Flow: Both
Rise(in):	24.00	24.00	Entrance Loss Coef: 0.70
Invert(ft):	95.760	94.940	Exit Loss Coef: 0.70
Manning's N:	0.013000	0.013000	Bend Loss Coef: 0.00
Top Clip(in):	0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in):	0.000	0.000	Inlet Ctrl Spec: Use dc
			Stabilizer Option: None

Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

```
        Name: PND8-PND7           From Node: Pond 8             Length(ft): 60.00
       Group: BASE                  To Node: Pond 7                  Count: 2
                                                          Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                 Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                               Flow: Both
    Span(in): 24.00          24.00                      Entrance Loss Coef: 0.70
    Rise(in): 24.00          24.00                          Exit Loss Coef: 0.70
  Invert(ft): 105.100        105.530                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                     Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                         Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                      Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


================================================================================
==== Drop Structures ===========================================================
================================================================================

        Name: CS-3                From Node: POND 3             Length(ft): 93.00
       Group: BASE                  To Node: DAV-1/3                 Count: 1

              UPSTREAM       DOWNSTREAM                  Friction Equation: Automatic
    Geometry: Circular       Circular                   Solution Algorithm: Most Restrictive
    Span(in): 24.00          24.00                                  Flow: Both
    Rise(in): 24.00          24.00                      Entrance Loss Coef: 0.500
  Invert(ft): 91.100         90.960                         Exit Loss Coef: 1.000
 Manning's N: 0.013000       0.013000                     Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                         Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                           Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 3 for Drop Structure CS-3 ***
                                                                          TABLE
                 Count: 1                      Bottom Clip(in): 0.000
                  Type: Horizontal                Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Rectangular           Orifice Disc Coef: 0.600

              Span(in): 49.00                       Invert(ft): 98.600
              Rise(in): 36.00                  Control Elev(ft): 98.600

*** Weir 2 of 3 for Drop Structure CS-3 ***
                                                                          TABLE
                 Count: 1                      Bottom Clip(in): 0.000
                  Type: Vertical: Mavis           Top Clip(in): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Circular              Orifice Disc Coef: 0.600

              Span(in): 3.00                        Invert(ft): 91.000
              Rise(in): 3.00                   Control Elev(ft): 91.000

*** Weir 3 of 3 for Drop Structure CS-3 ***
                                                                          TABLE
                 Count: 1                      Bottom Clip(ft): 0.000
                  Type: Vertical: Fread           Top Clip(ft): 0.000
                  Flow: Both                   Weir Disc Coef: 3.200
              Geometry: Trapezoidal           Orifice Disc Coef: 0.600

       Bottom Width(ft): 100.00                     Invert(ft): 99.500
       Left Sd Slp(h/v): 3.00                  Control Elev(ft): 99.500
      Right Sd Slp(h/v): 3.00            Struct Opening Dim(ft): 9999.00


--------------------------------------------------------------------------------------------------
```

Name: CS-4 From Node: POND 4 Length(ft): 277.00
Group: BASE To Node: POND 3 Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	91.510	92.510
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.700
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular: Smooth tapered inlet throat

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure CS-4 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 92.000
Rise(in): 3.00 Control Elev(ft): 92.000

*** Weir 2 of 2 for Drop Structure CS-4 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 37.00 Invert(ft): 100.000
Rise(in): 24.00 Control Elev(ft): 100.000

Name: CS-5 From Node: POND 5 Length(ft): 269.00
Group: BASE To Node: POND 4 Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	94.940	93.780
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 1.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure CS-5 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 66.00 Invert(ft): 104.640
Rise(in): 48.00 Control Elev(ft): 104.640

*** Weir 2 of 2 for Drop Structure CS-5 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 95.390
Rise(in): 3.00 Control Elev(ft): 95.390

Name: CS-9 From Node: POND 9 Length(ft): 45.00
Group: BASE To Node: Node 330 Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.000
Invert(ft):	94.870	94.430	Exit Loss Coef:	1.000
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 49.00 Invert(ft): 98.500
Rise(in): 37.00 Control Elev(ft): 98.500

*** Weir 2 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 95.170
Rise(in): 3.00 Control Elev(ft): 95.170

*** Weir 3 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(ft): 0.000
Type: Vertical: Fread Top Clip(ft): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Trapezoidal Orifice Disc Coef: 0.600

Bottom Width(ft): 160.00 Invert(ft): 99.700
Left Sd Slp(h/v): 3.00 Control Elev(ft): 99.700
Right Sd Slp(h/v): 3.00 Struct Opening Dim(ft): 9999.00

Name: Pnd6-Pnd9 From Node: POND 9 Length(ft): 1230.00
Group: BASE To Node: POND 6 Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	24.00	24.00	Flow:	Both
Rise(in):	24.00	24.00	Entrance Loss Coef:	0.000
Invert(ft):	99.200	94.110	Exit Loss Coef:	1.000
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Pnd6-Pnd9 ***

TABLE

```
                Count: 1                      Bottom Clip(ft): 0.000
                 Type: Vertical: Fread          Top Clip(ft): 0.000
                 Flow: Both                   Weir Disc Coef: 3.200
             Geometry: Trapezoidal          Orifice Disc Coef: 0.600

      Bottom Width(ft): 30.00                       Invert(ft): 103.000
      Left Sd Slp(h/v): 5.00                 Control Elev(ft): 103.000
     Right Sd Slp(h/v): 5.00           Struct Opening Dim(ft): 9999.00


================================================================================================
==== Weirs =====================================================================================
================================================================================================

       Name: PND7-PND6           From Node: Pond 7
      Group: BASE                  To Node: POND 6
       Flow: Both                    Count: 1
       Type: Vertical: Fread      Geometry: Irregular

                     XSec: XSEC-1
                Invert(ft): 105.900
      Control Elevation(ft): 105.900
     Struct Opening Dim(ft): 9999.00
                                       TABLE
            Bottom Clip(ft): 0.000
               Top Clip(ft): 0.000
          Weir Discharge Coef: 3.200
     Orifice Discharge Coef: 0.600



================================================================================================
==== Hydrology Simulations =====================================================================
================================================================================================

         Name: 100YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-24HR.R32


      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 8.50

Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.00

------------------------------------------------------------------------------------------------------
         Name: 100YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-72HR.R32


      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 11.50

Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.00

------------------------------------------------------------------------------------------------------
         Name: 10YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-24HR.R32


      Override Defaults: Yes
    Storm Duration(hrs): 24.00
          Rainfall File: Flmod
    Rainfall Amount(in): 5.50

Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.00
```

```
---------------------------------------------------------------------------------------------------
         Name: 10YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-72HR.R32



      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 7.60

Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.00

===================================================================================================
==== Routing Simulations ==========================================================================
===================================================================================================

         Name: 100YR-24HR          Hydrology Sim: 100YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-24HR.I32



      Execute: No          Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 24.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000

Group           Run
--------------- -----
BASE            Yes


---------------------------------------------------------------------------------------------------
         Name: 100YR-72HR          Hydrology Sim: 100YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-72HR.I32



      Execute: No          Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 72.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.000

Group           Run
--------------- -----
BASE            Yes


---------------------------------------------------------------------------------------------------
         Name: 10YR-24HR           Hydrology Sim: 10YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-24HR.I32



      Execute: No          Restart: No            Patch: No
  Alternative: No
```

```
        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 24.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000

Group           Run
--------------- -----
BASE            Yes


--------------------------------------------------------------------------------------------------------
         Name: 10YR-72HR           Hydrology Sim: 10YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-72HR.I32


      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 72.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.000

Group           Run
--------------- -----
BASE            Yes
```

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
DAV-1/3	BASE	10YR-72HR	0.00	92.00	100.00	0.0000	0	72.00	2.96	0.00	0.00
Node 330	BASE	10YR-72HR	72.00	91.76	98.00	0.0002	31950	72.00	1.08	0.00	0.00
POND 3	BASE	10YR-72HR	72.00	98.74	99.00	0.0058	142350	60.00	138.11	72.00	2.96
POND 4	BASE	10YR-72HR	72.00	99.99	105.00	0.0054	113066	60.00	75.79	59.77	0.30
POND 5	BASE	10YR-72HR	72.00	103.23	107.00	0.0067	32967	60.00	30.07	67.20	0.43
POND 6	BASE	10YR-72HR	72.00	103.23	105.00	0.0061	113952	60.00	89.08	60.88	1.81
Pond 7	BASE	10YR-72HR	60.17	106.87	107.00	0.0022	75084	60.00	46.81	60.17	31.27
Pond 8	BASE	10YR-72HR	60.17	106.87	108.00	0.0021	18032	0.00	0.00	60.75	1.80
POND 9	BASE	10YR-72HR	72.00	98.56	99.50	0.0020	25958	60.00	7.55	64.12	0.32

100 year 72 hour event

==========
==== Basins ==========
==========

Name: ON-SITE VC-1 Node: POND 9 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 2.380 Time Shift(hrs): 0.00
Curve Number: 83.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC 7/8 A Node: POND 7 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 8.860 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC 7/8 B Node: POND 7 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 9.870 Time Shift(hrs): 0.00
Curve Number: 70.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-3 A Node: POND 3 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Sfwmd72 Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 32.490 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-3 B Node: POND 3 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 15.290 Time Shift(hrs): 0.00
Curve Number: 68.00 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-4 A Node: POND 4 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod Storm Duration(hrs): 0.00
Rainfall Amount(in): 0.000 Time of Conc(min): 10.00
Area(ac): 17.930 Time Shift(hrs): 0.00
Curve Number: 80.30 Time Increment(min): 1.00
DCIA(%): 0.00 Max Allowable Q(cfs): 999999.000

Name: VC-4 B Node: POND 4 Status: Onsite
Group: BASE Type: Santa Barbara CN

Rainfall File: Flmod
Rainfall Amount(in): 0.000
Area(ac): 6.950
Curve Number: 77.40
DCIA(%): 0.00
Storm Duration(hrs): 0.00
Time of Conc(min): 10.00
Time Shift(hrs): 0.00
Time Increment(min): 1.00
Max Allowable Q(cfs): 999999.000

Name: VC-5
Group: BASE
Node: POND 5
Type: Santa Barbara CN
Status: Onsite

Rainfall File: Flmod
Rainfall Amount(in): 0.000
Area(ac): 11.690
Curve Number: 83.25
DCIA(%): 0.00
Storm Duration(hrs): 0.00
Time of Conc(min): 10.00
Time Shift(hrs): 0.00
Time Increment(min): 1.00
Max Allowable Q(cfs): 999999.000

Name: VC-6
Group: BASE
Node: POND 6
Type: Santa Barbara CN
Status: Onsite

Rainfall File: Flmod
Rainfall Amount(in): 0.000
Area(ac): 20.840
Curve Number: 80.30
DCIA(%): 0.00
Storm Duration(hrs): 0.00
Time of Conc(min): 10.00
Time Shift(hrs): 0.00
Time Increment(min): 1.00
Max Allowable Q(cfs): 999999.000

==========
==== Nodes ==========
==========

Name: DAV-1/3
Group: BASE
Type: Time/Stage
Base Flow(cfs): 0.000
Init Stage(ft): 92.000
Warn Stage(ft): 100.000

Permit 040526-4 Davenport Creek tailwater for 10-24 event
Node Dav-1 stage is same as Dav-3 except stage is 96 due to tailwater for 100-24 storm

Time(hrs)	Stage(ft)
0.00	96.000
100.00	96.000

Name: Node 330
Group: BASE
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 89.700
Warn Stage(ft): 98.000

Permit 040526-4

Stage(ft)	Area(ac)
89.700	0.1000
91.000	0.2000
92.000	0.9000
95.000	3.8000
98.000	9.5000

Name: POND 3
Group: BASE
Type: Stage/Area
Base Flow(cfs): 0.000
Init Stage(ft): 91.000
Warn Stage(ft): 99.000

Stage(ft)	Area(ac)
91.000	1.2900
92.000	1.9000
93.000	2.1300
94.000	2.3700
95.000	2.5300
96.000	2.7000

97.000	2.9100
98.000	3.1200
99.000	3.3200

Name: POND 4 Base Flow(cfs): 0.000 Init Stage(ft): 92.000
Group: BASE Warn Stage(ft): 105.000
Type: Stage/Area

Stage(ft)	Area(ac)
92.000	0.3800
93.000	0.8000
94.000	0.9800
95.000	1.1400
96.000	1.2900
97.000	1.4600
98.000	1.7700
99.000	2.1600
100.000	2.6000
101.000	2.8400
102.000	3.0500
103.000	3.3000
104.000	3.6000
105.000	3.9400

Name: POND 5 Base Flow(cfs): 0.000 Init Stage(ft): 96.000
Group: BASE Warn Stage(ft): 107.000
Type: Stage/Area

Stage(ft)	Area(ac)
96.000	0.2200
97.000	0.3200
98.000	0.3900
99.000	0.4600
100.000	0.5300
101.000	0.6000
102.000	0.6700
103.000	0.7400
104.000	0.8100
105.000	1.0600
106.000	1.1300
107.000	1.2200

Name: POND 6 Base Flow(cfs): 0.000 Init Stage(ft): 95.000
Group: BASE Warn Stage(ft): 105.000
Type: Stage/Area

Stage(ft)	Area(ac)
95.000	0.5900
96.000	1.1500
97.000	1.3900
98.000	1.5600
99.000	1.7100
100.000	1.8700
101.000	2.0500
102.000	2.2600
103.000	2.5500
104.000	2.8300
105.000	3.1300

Name: Pond 7 Base Flow(cfs): 0.000 Init Stage(ft): 104.000
Group: BASE Warn Stage(ft): 107.000
Type: Stage/Area

Stage(ft)	Area(ac)
104.000	0.1700
105.000	0.7700
106.000	1.4700
107.000	1.7600

Name: Pond 8 Base Flow(cfs): 0.000 Init Stage(ft): 105.000
Group: BASE Warn Stage(ft): 108.000
Type: Stage/Area

Stage(ft)	Area(ac)
105.000	0.2300
106.000	0.3600
107.000	0.4200
108.000	0.4700

Name: POND 9 Base Flow(cfs): 0.000 Init Stage(ft): 95.000
Group: BASE Warn Stage(ft): 99.500
Type: Stage/Area

Stage(ft)	Area(ac)
95.000	0.0700
96.000	0.3500
97.000	0.4500
98.000	0.5400
99.000	0.6400
99.500	0.6900

==========
==== Cross Sections ====
==========

Name: XSEC-1 Group: BASE
Encroachment: No

Station(ft)	Elevation(ft)	Manning's N
0.000	109.900	0.000000
52.000	105.900	0.000000
107.000	109.900	0.000000

==========
==== Pipes ====
==========

Name: PND6-PND5 From Node: POND 6 Length(ft): 338.00
Group: BASE To Node: POND 5 Count: 1
Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.70
Exit Loss Coef: 0.70
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	95.760	94.940
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

```
        Name: PND8-PND7          From Node: Pond 8             Length(ft): 60.00
       Group: BASE                 To Node: Pond 7                  Count: 2
                                                          Friction Equation: Automatic
              UPSTREAM       DOWNSTREAM                 Solution Algorithm: Most Restrictive
    Geometry: Circular       Circular                               Flow: Both
    Span(in): 24.00          24.00                      Entrance Loss Coef: 0.70
    Rise(in): 24.00          24.00                          Exit Loss Coef: 0.70
  Invert(ft): 105.100        105.530                        Bend Loss Coef: 0.00
 Manning's N: 0.013000       0.013000                     Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                         Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                      Stabilizer Option: None


Upstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope

Downstream FHWA Inlet Edge Description:
Circular CMP: Mitered to slope


================================================================================
==== Drop Structures ===========================================================
================================================================================

        Name: CS-3               From Node: POND 3             Length(ft): 93.00
       Group: BASE                 To Node: DAV-1/3                 Count: 1

              UPSTREAM       DOWNSTREAM                  Friction Equation: Automatic
    Geometry: Circular       Circular                   Solution Algorithm: Most Restrictive
    Span(in): 24.00          24.00                                  Flow: Both
    Rise(in): 24.00          24.00                      Entrance Loss Coef: 0.500
  Invert(ft): 91.100         90.960                         Exit Loss Coef: 1.000
 Manning's N: 0.013000       0.013000                     Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000          0.000                         Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000          0.000                           Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall


*** Weir 1 of 3 for Drop Structure CS-3 ***                                    TABLE
                 Count: 1                    Bottom Clip(in): 0.000
                  Type: Horizontal              Top Clip(in): 0.000
                  Flow: Both                 Weir Disc Coef: 3.200
              Geometry: Rectangular         Orifice Disc Coef: 0.600

              Span(in): 49.00                      Invert(ft): 98.600
              Rise(in): 36.00               Control Elev(ft): 98.600

*** Weir 2 of 3 for Drop Structure CS-3 ***                                    TABLE
                 Count: 1                    Bottom Clip(in): 0.000
                  Type: Vertical: Mavis         Top Clip(in): 0.000
                  Flow: Both                 Weir Disc Coef: 3.200
              Geometry: Circular            Orifice Disc Coef: 0.600

              Span(in): 3.00                       Invert(ft): 91.000
              Rise(in): 3.00                Control Elev(ft): 91.000

*** Weir 3 of 3 for Drop Structure CS-3 ***                                    TABLE
                 Count: 1                    Bottom Clip(ft): 0.000
                  Type: Vertical: Fread         Top Clip(ft): 0.000
                  Flow: Both                 Weir Disc Coef: 3.200
              Geometry: Trapezoidal         Orifice Disc Coef: 0.600

       Bottom Width(ft): 100.00                    Invert(ft): 99.500
       Left Sd Slp(h/v): 3.00                Control Elev(ft): 99.500
      Right Sd Slp(h/v): 3.00          Struct Opening Dim(ft): 9999.00
```

Name: CS-4 From Node: POND 4 Length(ft): 277.00
Group: BASE To Node: POND 3 Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	24.00	24.00
Rise(in):	24.00	24.00
Invert(ft):	91.510	92.510
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.700
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular: Smooth tapered inlet throat

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure CS-4 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 92.000
Rise(in): 3.00 Control Elev(ft): 92.000

*** Weir 2 of 2 for Drop Structure CS-4 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 37.00 Invert(ft): 100.000
Rise(in): 24.00 Control Elev(ft): 100.000

Name: CS-5 From Node: POND 5 Length(ft): 269.00
Group: BASE To Node: POND 4 Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	36.00	36.00
Rise(in):	36.00	36.00
Invert(ft):	94.940	93.780
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Automatic
Solution Algorithm: Most Restrictive
Flow: Both
Entrance Loss Coef: 0.500
Exit Loss Coef: 1.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Solution Incs: 10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 2 for Drop Structure CS-5 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 66.00 Invert(ft): 104.640
Rise(in): 48.00 Control Elev(ft): 104.640

*** Weir 2 of 2 for Drop Structure CS-5 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 95.390
Rise(in): 3.00 Control Elev(ft): 95.390

Name: CS-9 From Node: POND 9 Length(ft): 45.00
Group: BASE To Node: Node 330 Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	18.00	18.00	Flow:	Both
Rise(in):	18.00	18.00	Entrance Loss Coef:	0.000
Invert(ft):	94.870	94.430	Exit Loss Coef:	1.000
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Horizontal Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Rectangular Orifice Disc Coef: 0.600

Span(in): 49.00 Invert(ft): 98.500
Rise(in): 37.00 Control Elev(ft): 98.500

*** Weir 2 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(in): 0.000
Type: Vertical: Mavis Top Clip(in): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Circular Orifice Disc Coef: 0.600

Span(in): 3.00 Invert(ft): 95.170
Rise(in): 3.00 Control Elev(ft): 95.170

*** Weir 3 of 3 for Drop Structure CS-9 ***

TABLE

Count: 1 Bottom Clip(ft): 0.000
Type: Vertical: Fread Top Clip(ft): 0.000
Flow: Both Weir Disc Coef: 3.200
Geometry: Trapezoidal Orifice Disc Coef: 0.600

Bottom Width(ft): 160.00 Invert(ft): 99.700
Left Sd Slp(h/v): 3.00 Control Elev(ft): 99.700
Right Sd Slp(h/v): 3.00 Struct Opening Dim(ft): 9999.00

Name: Pnd6-Pnd9 From Node: POND 9 Length(ft): 1230.00
Group: BASE To Node: POND 6 Count: 1

	UPSTREAM	DOWNSTREAM		
			Friction Equation:	Automatic
Geometry:	Circular	Circular	Solution Algorithm:	Most Restrictive
Span(in):	24.00	24.00	Flow:	Both
Rise(in):	24.00	24.00	Entrance Loss Coef:	0.000
Invert(ft):	99.200	94.110	Exit Loss Coef:	1.000
Manning's N:	0.013000	0.013000	Outlet Ctrl Spec:	Use dc or tw
Top Clip(in):	0.000	0.000	Inlet Ctrl Spec:	Use dc
Bot Clip(in):	0.000	0.000	Solution Incs:	10

Upstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:
Circular Concrete: Square edge w/ headwall

*** Weir 1 of 1 for Drop Structure Pnd6-Pnd9 ***

TABLE

Count: 1 | Bottom Clip(ft): 0.000
Type: Vertical: Fread | Top Clip(ft): 0.000
Flow: Both | Weir Disc Coef: 3.200
Geometry: Trapezoidal | Orifice Disc Coef: 0.600

Bottom Width(ft): 30.00 | Invert(ft): 103.000
Left Sd Slp(h/v): 5.00 | Control Elev(ft): 103.000
Right Sd Slp(h/v): 5.00 | Struct Opening Dim(ft): 9999.00

==========
==== Weirs ==========
==========

Name: PND7-PND6 | From Node: Pond 7
Group: BASE | To Node: POND 6
Flow: Both | Count: 1
Type: Vertical: Fread | Geometry: Irregular

XSec: XSEC-1
Invert(ft): 105.900
Control Elevation(ft): 105.900
Struct Opening Dim(ft): 9999.00

TABLE

Bottom Clip(ft): 0.000
Top Clip(ft): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

==========
==== Hydrology Simulations ==========
==========

Name: 100YR-24HR
Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-24HR.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 8.50

Time(hrs)	Print Inc(min)
24.000	15.00

Name: 100YR-72HR
Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-72HR.R32

Override Defaults: Yes
Storm Duration(hrs): 72.00
Rainfall File: Sfwmd72
Rainfall Amount(in): 11.50

Time(hrs)	Print Inc(min)
72.000	15.00

Name: 10YR-24HR
Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-24HR.R32

Override Defaults: Yes
Storm Duration(hrs): 24.00
Rainfall File: Flmod
Rainfall Amount(in): 5.50

Time(hrs)	Print Inc(min)
24.000	15.00

```
---------------------------------------------------------------------------------------------------
         Name: 10YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-72HR.R32


      Override Defaults: Yes
    Storm Duration(hrs): 72.00
          Rainfall File: Sfwmd72
    Rainfall Amount(in): 7.60

Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.00

===================================================================================================
==== Routing Simulations ==========================================================================
===================================================================================================

         Name: 100YR-24HR          Hydrology Sim: 100YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-24HR.I32


      Execute: No          Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 24.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000

Group           Run
--------------- -----
BASE            Yes


---------------------------------------------------------------------------------------------------
         Name: 100YR-72HR          Hydrology Sim: 100YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\100YR-72HR.I32


      Execute: Yes         Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 72.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.000

Group           Run
--------------- -----
BASE            Yes


---------------------------------------------------------------------------------------------------
         Name: 10YR-24HR           Hydrology Sim: 10YR-24HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-24HR.I32


      Execute: No          Restart: No            Patch: No
  Alternative: No
```

```
        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 24.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
24.000          15.000

Group           Run
--------------- -----
BASE            Yes


-----------------------------------------------------------------------------------------------
         Name: 10YR-72HR           Hydrology Sim: 10YR-72HR
     Filename: F:\Projects civil\2016 Projects\1601 CR545 analysis\VC Certification\ICPR model\10YR-72HR.I32


      Execute: No          Restart: No            Patch: No
  Alternative: No

        Max Delta Z(ft): 1.00                    Delta Z Factor: 0.50000
    Time Step Optimizer: 10.000
        Start Time(hrs): 0.000                    End Time(hrs): 72.00
     Min Calc Time(sec): 2.0000               Max Calc Time(sec): 5.0000
        Boundary Stages:                         Boundary Flows:


Time(hrs)       Print Inc(min)
--------------- ---------------
72.000          15.000

Group           Run
--------------- -----
BASE            Yes
```

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
DAV-1/3	BASE	100YR-72HR	0.00	96.00	100.00	4.0000	0	61.15	33.58	0.00	0.00
Node 330	BASE	100YR-72HR	72.00	95.09	98.00	0.0013	173259	62.03	9.84	0.00	0.00
POND 3	BASE	100YR-72HR	61.15	100.75	99.00	0.0073	159832	60.00	227.55	61.15	33.58
POND 4	BASE	100YR-72HR	64.09	101.72	105.00	0.0057	130279	60.00	122.44	66.46	14.31
POND 5	BASE	100YR-72HR	61.72	104.94	107.00	0.0082	45502	60.00	52.61	61.71	10.26
POND 6	BASE	100YR-72HR	62.24	105.25	105.00	0.0078	139652	60.00	164.51	62.41	5.91
Pond 7	BASE	100YR-72HR	60.10	107.21	107.00	0.0027	79383	60.00	82.45	60.10	66.85
Pond 8	BASE	100YR-72HR	60.10	107.21	108.00	0.0025	18779	0.00	0.00	60.29	3.88
POND 9	BASE	100YR-72HR	62.03	98.85	99.50	0.0028	27228	60.00	11.97	61.86	0.89

SFWMD PERMIT NO. 49-000792-S (APPLICATION NO. 020204-8)

FINANCIAL PROJECT ID	SHEET NO.
242523-1-52-01	32

SPECIAL DITCH MED
+00.00 EL 96.30
+00.00 EL 96.50
+93.00 EL 95.50
+07.32 EL 96.50
+79.91 EL 96.50
+95.00 EL 95.35
S-401
S-8
S-406
S-409
FL 92.30
FL 91.35
18" PIPE
FL 91.30
2-7'X4' RCBC
FL 91.40
18" PIPE
FL 91.30
FL 90.60
100
90
80
110
120
130
140
150
+50 EL 88.90
+50 EL 88.60
S-59
30
+00 EL 88.50
42" RCP
FL 84.10
EXIST FL 85.14
+00 EL 83.00
+50 EL 84.46
S-507
+00 EL 80.00
FL 78.40
EXISTING GROUND LINE
SCALE: 1" = 400' H
1" = 10' V
SPECIAL DITCH MED
+13.92 EL 77.70
31
2-42" RCP
EXIST FL 73.62
FUTURE WESTERN BELTWAY INTERCHANGE
DA-408.20 AC
DA-114.10 AC
DA-193.10 AC
℄ SURVEY & ℄ CONST SR 400 (I-4)
POND F-4-A (BY OTHERS)
POND F-4-B (BY OTHERS)
POND F-7 (BY OTHERS)
POND G-1 (BY OTHERS)
POND F-2-B (BY OTHERS)
POND 5B (2.90 AC)
CR 545
PI STA 131+74.56
℄ SURVEY & ℄ CONST SR 400 (I-4)
Δ=00°00'40" LT
S-58
S-57
S-53
S-52
S-55
S-56
S-54
S-51
S-50
S-500
S-501
S-502
S-503
S-504
S-505
S-506
S-507
S-508
S-509
S-510
S-511
S-512
S-513
S-514
WETLAND #9
WETLAND #8
WETLAND #10
400'
MATCH LINE STA 100+00
MATCH LINE STA 160+00
S-7
S-401
S-402
S-403
S-404
S-405
S-406
S-407
S-408
S-409
S-8
S-9
POND 4
29
30
31
32
33
℄ SURVEY & ℄ CONST SR 40 (I-4) STA 119+82.87
℄ SURVEY CR 545 STA 20+00.00
SEC 27-25-27
SEC 26-25-27
SEC 23-25-27
SEC 26-25-27

LEGEND
- DRAINAGE BASIN DIVIDE
- FLOW ARROW
- WETLAND #XX

SCANNED 08/19/2011 PL

JLY 29, 1999
J:\V\026403\DRAIN\DRMPRD3.DGN

REVISIONS													
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

URS
315 E. ROBINSON STREET, SUITE 245
ORLANDO, FL 32801-1975
PH (407) 422-0353 FAX (407) 423-2695
NO. 000002

DRAINAGE MAP

FDEP PERMIT NO. 187636-001

STRUCTURE NO.	STATION	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		25 YR FREQ.	50 YR FREQ.	50 YR FREQ.	100 YR FREQ.								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	FREQUENCY		DISCHARGE	STAGE	FREQUENCY	
S-812	251+60 RAMP A	201 CFS	96.5 FT	249 CFS	96.1 FT					399 CFS	98.6 FT	0.2	500
CD-1-B	105+00 (I-4 WB)	201 CFS	95.1 FT	249 CFS	95.6 FT					399 CFS	97.4 FT	0.2	500
S-902	610+00 (CR 545)	211 CFS	93.2 FT	261 CFS	94.0 FT					419 CFS	96.3 FT	0.2	500
S-716A	65+00 (W.BELT)	77 CFS	101.4 FT	85 CFS	101.5 FT					145 CFS	103.8 FT	0.2	500
S-119A	96+50 (W.BELT)	20 CFS	111.6 FT	22 CFS	111.7 FT					37 CFS	112.0 FT	0.2	500
S-714A	128+50 (W.BELT)	51 CFS	104.6 FT	58 CFS	104.9 FT					99 CFS	107.5 FT	0.2	500
S-905	627+73 (CR 545)	19 CFS	97.6 FT	22 CFS	98.2 FT					28 CFS	99.8 FT	0.2	500
S-801	134+00 (I-4)	62 CFS	88.8 FT	71 CFS	89.7 FT					96 CFS	92.0 FT	0.2	500

NOTE: The hydraulic data is shown for informational purposes only, to indicate the flood discharges and water surface elevations which may be anticipated in any given year. This data was generated using highly variable factors determined by a study of the watershed. Many judgements and assumptions are required to establish these factors. The resultant hydraulic data is sensitive to changes, particularly of antecedent conditions, urbanization, channelization, and land use. Users of this data are cautioned against the assumption of precision which can not be attained. Discharges are in CFS and stages are in FT, NAVD, 1988.

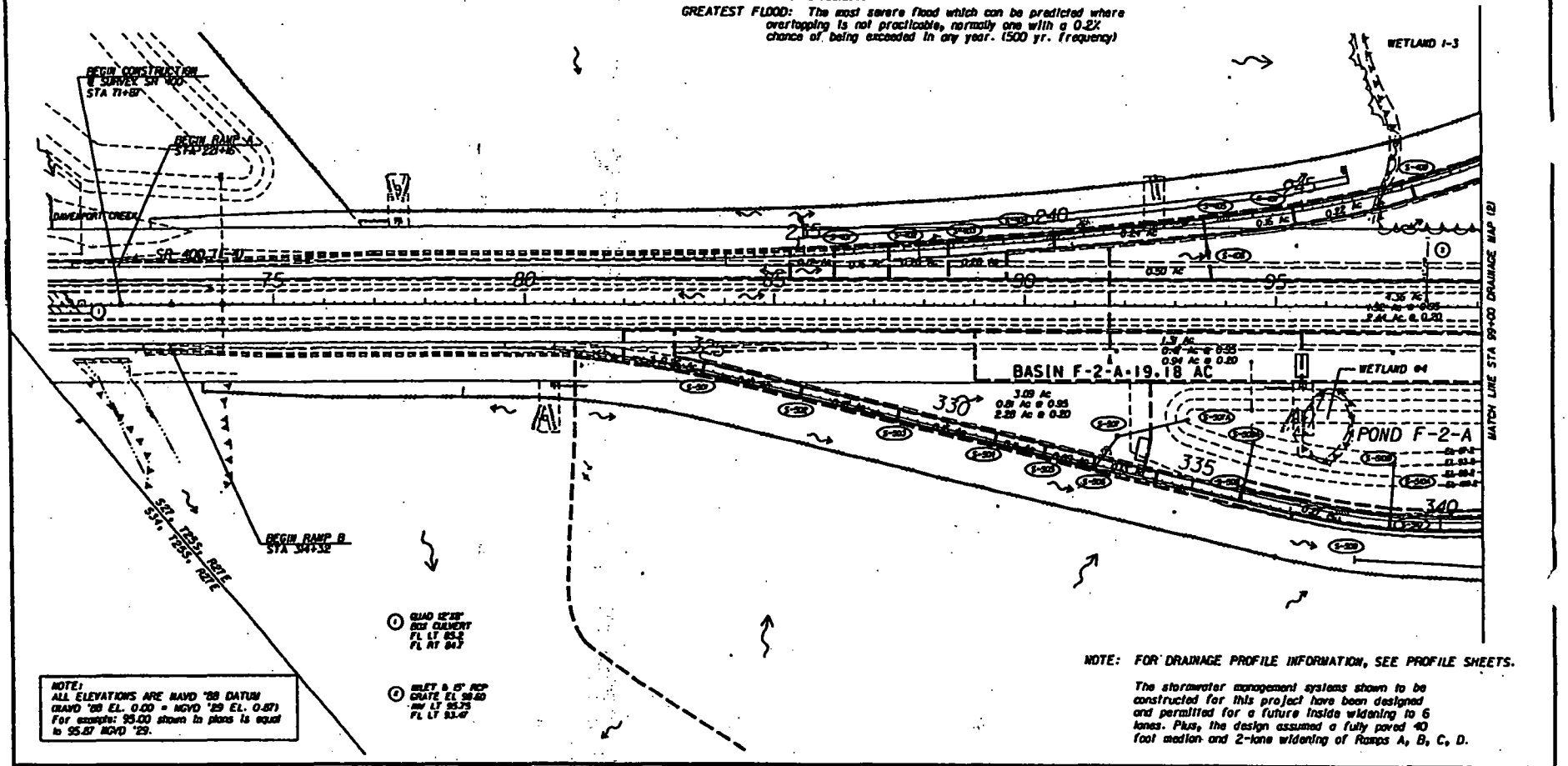
DEFINITIONS:

DESIGN FLOOD: The flood selected by FDOT to be utilized to assure a standard level of hydraulic performance

BASE FLOOD: The flood having a 1% chance of being exceeded in any year. (100 yr. frequency)

OVERTOPPING FLOOD: The flood where flow occurs (A) over the highway (B) over a watershed divide or (C) thru emergency relief structures.

GREATEST FLOOD: The most severe flood which can be predicted where overtopping is not practicable, normally one with a 0.2% chance of being exceeded in any year. (500 yr. frequency)



NOTE: FOR DRAINAGE PROFILE INFORMATION, SEE PROFILE SHEETS.

The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.

NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.

REVISIONS

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS Corporation Southern
7650 West Courtney Campbell Causeway
Tampa, FL 33607-1462
No. 00000002

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	OSCEOLA	403497-2-52-01

DRAINAGE MAP (1)

SHEET NO. 3

Figure 2

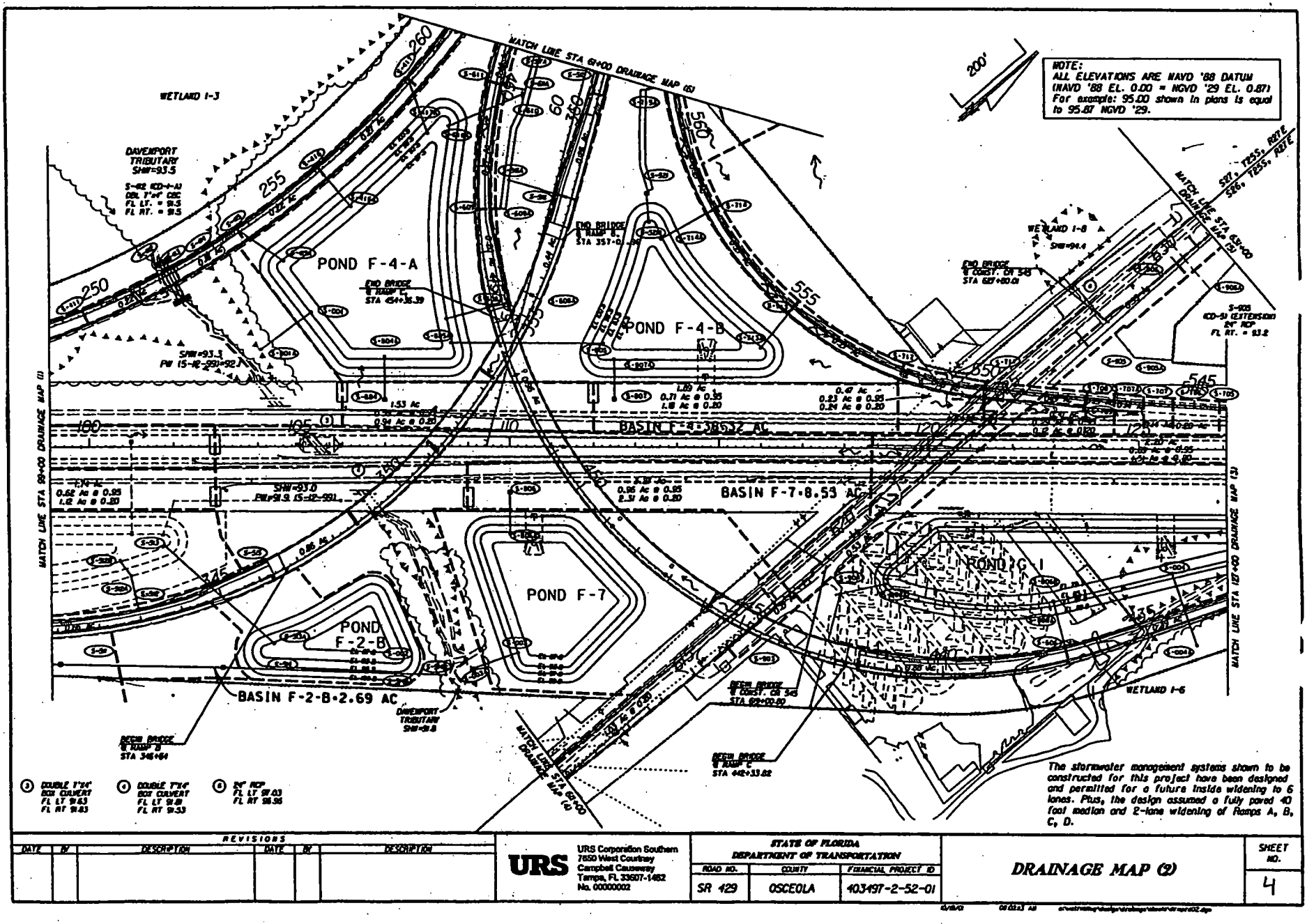

NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
WETLAND I-3
DAVENPORT TRIBUTARY SHW=93.5
POND F-4-A
POND F-4-B
POND F-7
POND F-2-B
POND F-1
BASIN F-4-3.53 AC
BASIN F-7-8.53 AC
BASIN F-2-B-2.69 AC
WETLAND I-8
WETLAND I-6
MATCH LINE STA 61+00 DRAINAGE MAP (5)
MATCH LINE STA 59+00 DRAINAGE MAP (1)
MATCH LINE STA 107+00 DRAINAGE MAP (3)
MATCH LINE STA 82+00 DRAINAGE MAP (4)
200'
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO. | COUNTY | FINANCIAL PROJECT ID
SR 429 | OSCEOLA | 403497-2-52-01
DRAINAGE MAP (2)
SHEET NO. 4

Figure 3

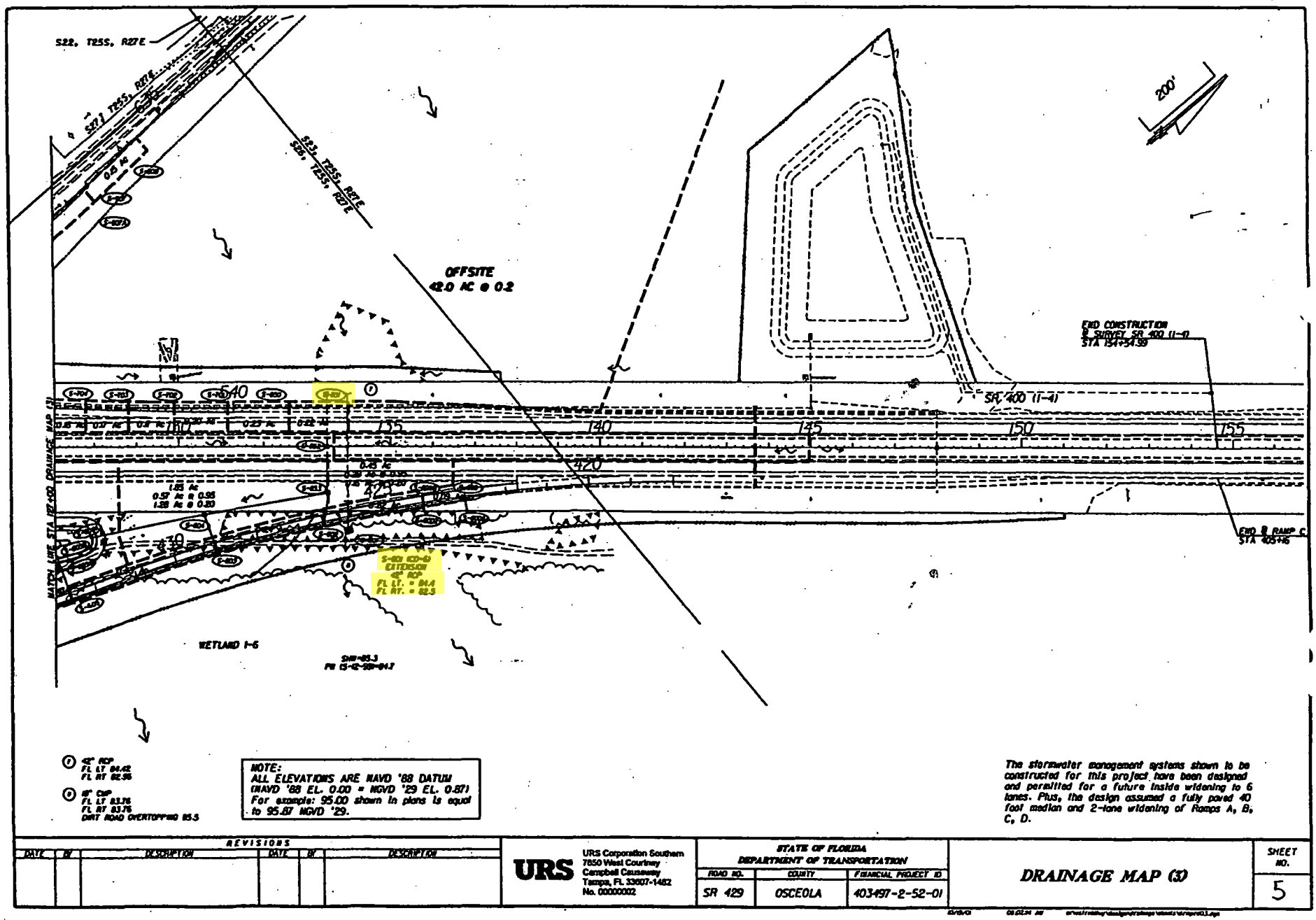
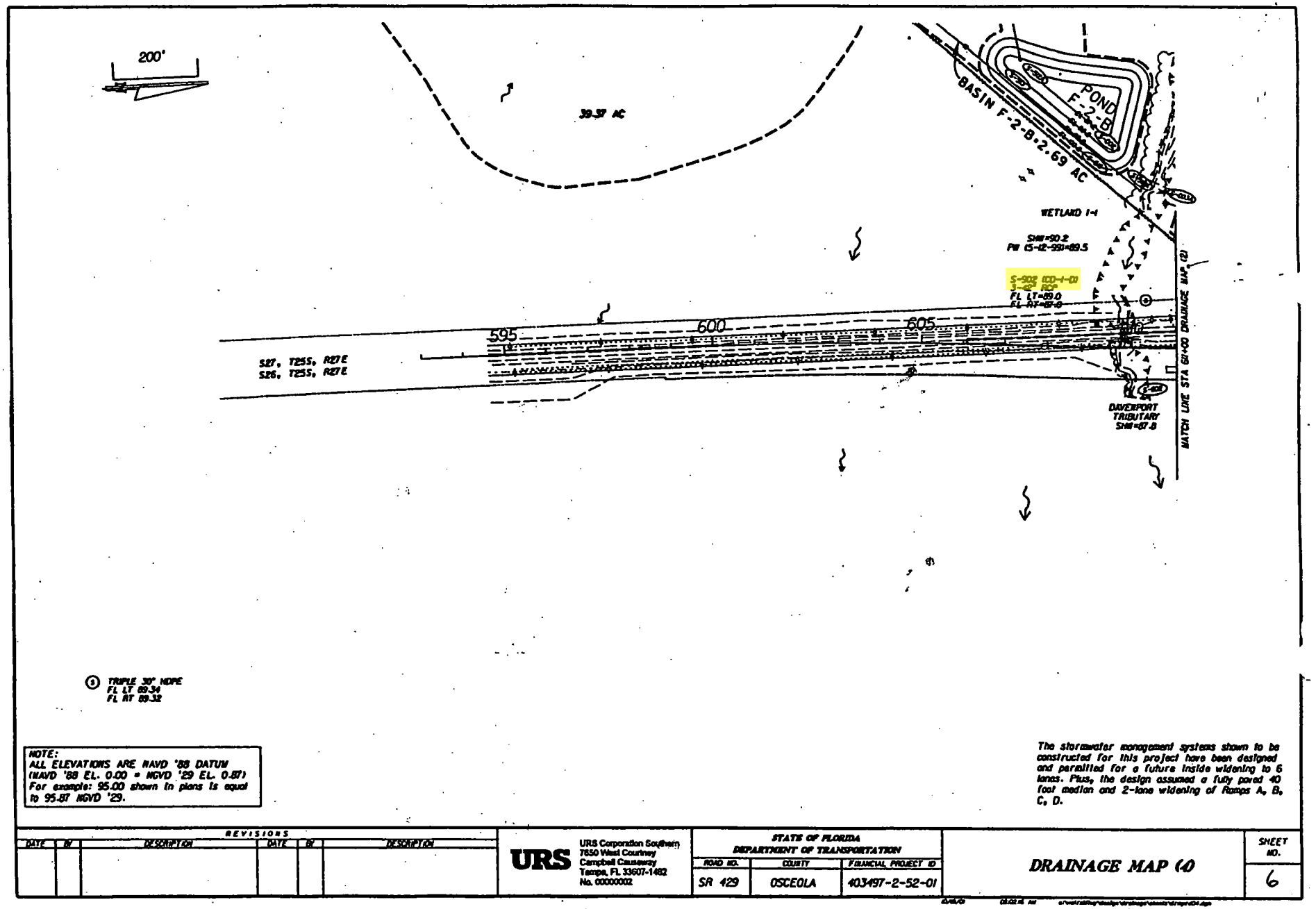

S22, T25S, R27E
S23, T25S, R27E
S26, T25S, R27E
OFFSITE
42.0 AC @ 0.2
SR 400 (I-4)
END CONSTRUCTION
@ SURVEY SR 400 (I-4)
STA 154+54.99
END @ RAMP C
STA 405+16
WETLAND I-6
200'
NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE
BY
DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
DRAINAGE MAP (3)
SHEET NO.
5

Figure 4


200'
39.37 AC
BASIN F-2-B 2.69 AC
POND F-2-B
WETLAND 1-1
595
600
605
S27, T25S, R27E
S26, T25S, R27E
DAVENPORT TRIBUTARY
MATCH LINE STA 61+00 DRAINAGE MAP (2)
TRIPLE 30" HDPE
FL LT 89.34
FL RT 89.32
NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE
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DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
DRAINAGE MAP (2)
SHEET NO.
6

Figure 5

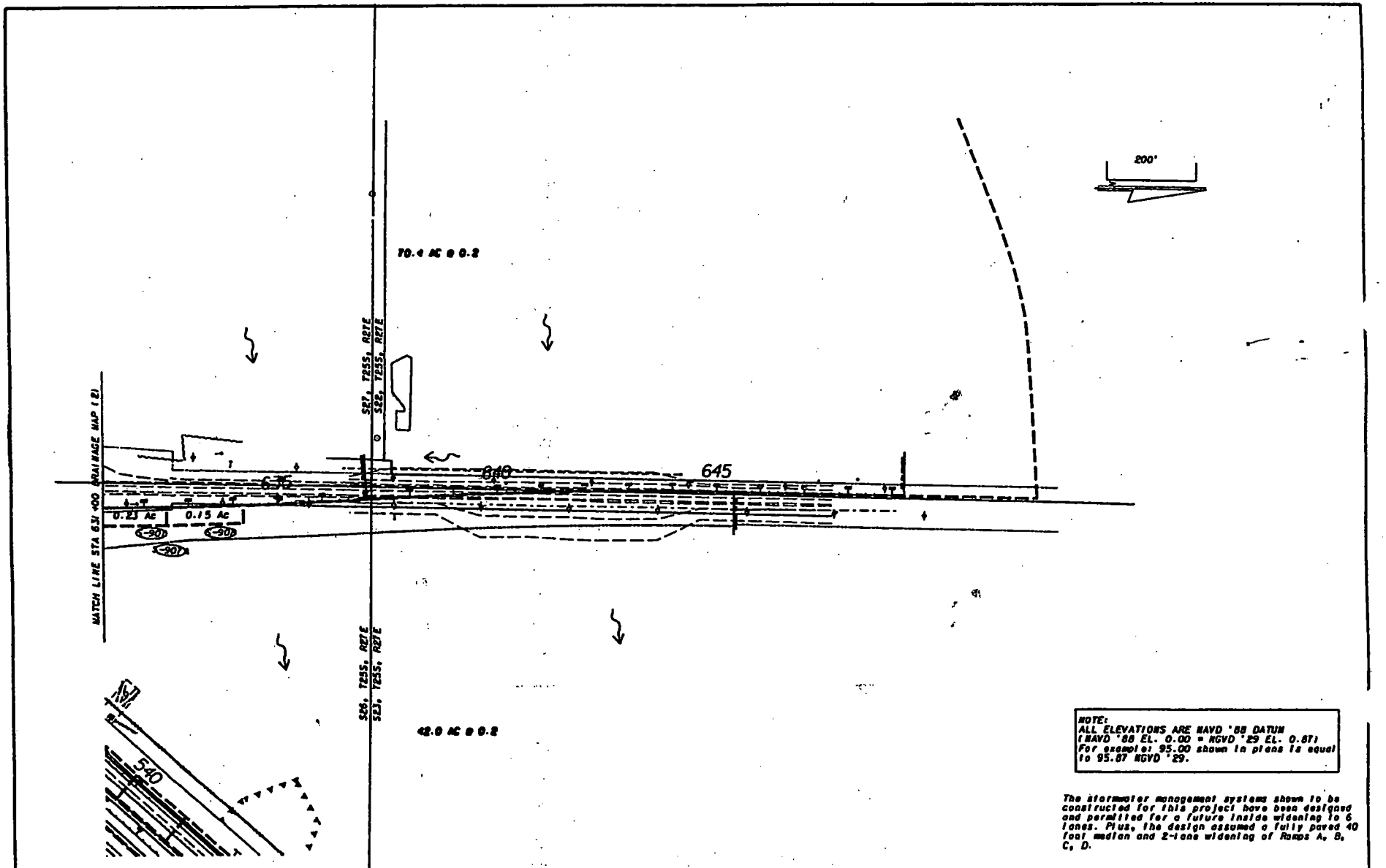

200'
70.4 AC @ 0.2
SEC. T25S., R31E
SEC. T25S., R31E
MATCH LINE STA 631+00 DRAINAGE MAP (2)
635
640
645
0.23 Ac
0.15 Ac
90'
90'
90'
SEC. T25S., R31E
SEC. T25S., R31E
42.9 AC @ 0.2
540
NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE
BY
DESCRIPTION
DATE
BY
DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
DRAINAGE MAP (S)
SHEET NO.
7

Figure 6

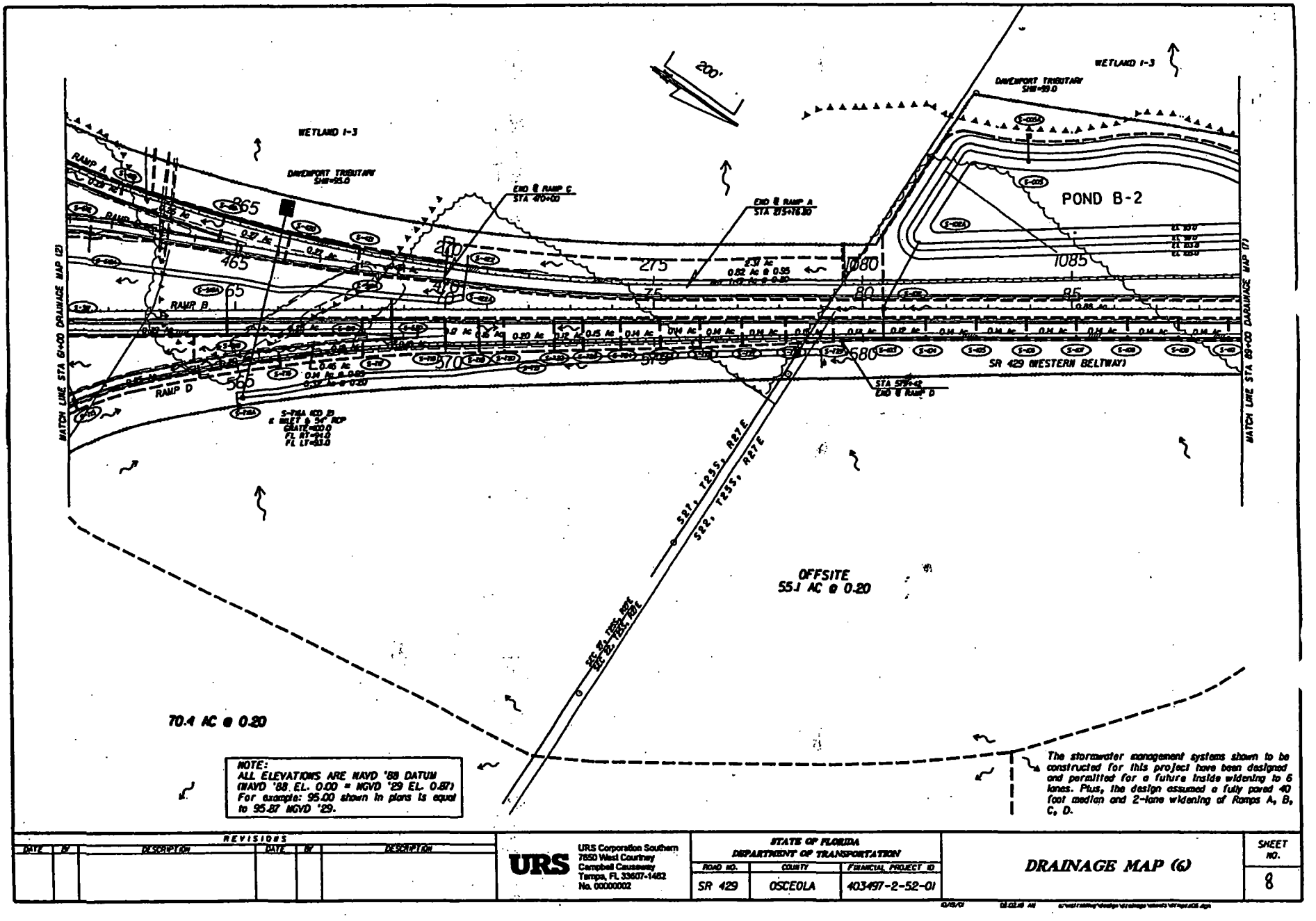

WETLAND I-3
DAVENPORT TRIBUTARY
SWH=55.0
RAMP A
RAMP B
RAMP C
RAMP D
END @ RAMP C
STA 410+00
END @ RAMP A
STA 275+16.30
POND B-2
SR 429 (WESTERN BELTWAY)
STA 579+42
END @ RAMP D
MATCH LINE STA 61+00 DRAINAGE MAP (2)
MATCH LINE STA 69+00 DRAINAGE MAP (7)
S21, T25S, R27E
S22, T25S, R27E
SEC 21, T25S, R27E
SEC 22, T25S, R27E
OFFSITE
55.1 AC @ 0.20
70.4 AC @ 0.20
NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE
BY
DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
DRAINAGE MAP (6)
SHEET NO.
8

Figure 7

Project Name:	**Western Beltway Part C, Sect. 1 Basin F-4**	Application/File No.	**187636-001**
Location:	**S.R. 429 ramps A, B, C, & D north of I-4 and westbound I-4.**	County:	**Osceola**
Latitude:	**N 28 16 54**	Longitude:	**W 81 35 39**
Section: 27 Township: 25S Range: 27E		USGS Quad:	**Intercession City, Fla.**
WMD Boundaries:	**SFWMD**	Drainage Basin:	**Unnamed tributary of Davenport Creek**
Applicant:	**FDOT, Turnpike District**		
Engineer of Record:	**John K. Saunders, P.E. No. 45371**		
Type of Permit:	**Individual**	Other DEP Permits:	**N/A**
Modification?	**No**	"Extension" By Renewal?	**No**
Proposed Permit Expiration Date:			
Wetland Impacts?	**Yes**		
Receiving Water Body:	**Davenport Creek Tributary**	Receiving Waters:	Class I Class II **Class III** OFW
Special Basin Criteria:	**N/A**		
Rainfall (Inch)(Storm#1):	**12.23" (25yr/72hr)**	Rainfall (Inch)(Storm#2):	**N/A**
Site Description - Existing:	**Basin F-4 includes S.R. 429 ramps A, B, C, & D north of I-4 up to Sta. 80+50 S.R. 429, and west bound I-4 from Sta. 85+00 to 93+60 and Sta. 106+00 to 119+00. Existing land use includes westbound I-4, pasture land, and wetland.**		
Site Description - Proposed:	**Basin F-4 includes S.R. 429 ramps A, B, C, & D north of I-4 up to Sta. 80+50 S.R. 429, and west bound I-4 from Sta. 85+00 to 93+60 and Sta. 106+00 to 119+00. Total basin area =36.32 acres. Pavement area = 14.13 acres. The basin contains two interconnected wet detention ponds F-4A and F-4B that operate as a single pond.**		

Project Name: **Western Beltway Part C, Sect. 1**
Basin F-4

Application/File No. **187636-001**

PRE-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin F-4**

	AREA acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	0.67	29,185	98
Water Surface:	0.00	0	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	0.67	29,185	98.0
% DCIA: 0%		% imperv:	2%
Pervious Area:	35.65	1,552,914	48
Total Drainage Area:	36.32	1,582,099	
Composite CN:			48.9
Ground Storage (inches):	10.44		
Time of Concentration (minutes):	25.2		
SCS Peaking Factor:	323		

POST-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin F-4**

	AREA acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	14.13	615,503	98
Water Surface:	4.57	199,069	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	18.70	814,572	98.5
% DCIA: 0%		% imperv:	51%
Pervious Area:	17.62	767,527	48
Total Drainage Area:	36.32	1,582,099	
Composite CN:			74.0
Ground Storage (inches):	3.51		
Time of Concentration (minutes):	27.6		
SCS Peaking Factor:	323		

Conversion Factors

43560 sqft/acre

Project Name: **Western Beltway Part C, Sect. 1** Application/File No. **187636-001**

Basin F-4

POLLUTION ABATEMENT VOLUME CALCULATION (SFWMD)

Basin/Watershed:

1.0	**36.32**	**3.03**	acre-ft	(drainage area)	
2.5	**14.13**	**2.94**	acre-ft	(% of impervious area)	**Note: Impervious Area does not include pond area, as per SFWMD B.O.R. Section 5.2.2 (c)**
Greater of the above:		**3.03**	acre-ft or	131,842 cf	
PAV if wet detention:		3.03	acre-ft or	131,842 cf	
PAV if dry detention:		2.27	acre-ft or	98,881 cf	
PAV if retention:		1.51	acre-ft or	65,921 cf	
PAV calculated by applicant:		**3.03**	acre-ft or	131,842 cf	
PAV provided:		**3.36**	acre-ft or	146,514 cf	

Pond Information:

Length (ft):	**990**	Width (ft):	**201**	ft
Bottom:	**87.5**	ft NGVD		
Berm Elev:	**98.5**	ft NGVD		
Berm Width (ft):	**20**			
Side Slopes: horizontal:vertical	**4:1**			
Storage Available (ac-ft)	**26.95**	Total Storage (ac-ft)	**49.96**	
SHGWT:	**95.7**	ft NGVD		
Kh (ft/day)	**Not Applicable**			

Stage-Storage:

		AREA		Storage	
	Stage (ft)	ft 2	acre	ft 3	acre -ft
Bottom	**87.5**	135,036	**3.10**	0	**0.00**
Control	**93.5**	199,069	**4.57**	1,002,316	**23.01**
W.Q.	**94.2**	219,542	**5.04**	1,148,830	**26.37**
DHW25Yr	**97.1**	245,689	**5.64**	1,823,415	**41.86**
T.O.B.	**98.5**	258,311	**5.93**	2,176,214	**49.96**
B.O.B.	**100.5**	322,344	**7.40**	2,756,869	**63.29**

Project Name: **Western Beltway Part C, Sect. 1** Application/File No. **187636-001**
Basin F-4

Does the Wet Retention/Detention Area meet the dimensional criteria
(as measured at or from the Control Elevation):

a) Area - 0.5 acre minimum	**YES**
b) Width - 100 ft min for linear areas in excess of 200 feet length. Irregula shaped areas may have narrower reaches but shall average at least 100 feet.	**YES**
c) Depth - minimum shallow, littoral area shall be the lesser of 20% of the retention/detention area or 2.5% of the total area (including side slopes) plus the basin contributing area.	**YES**
d) Side slopes: no steeper than 4:1 from tob to min depth of 2-ft below C.E equivalent substitute. Side slopes shall be topsoiled, and stabilized through seeding or planting from 2-ft below to 1-ft above the CE to promote vegetative growth.	**YES**
e) Alternative side slopes for golf course (n/a for Department projects)	**N/A**
f) Bulkheads shall be allowed for no more than 40% of the shoreline lengtl but compensating littoral zone must be provided based on appropriate maximum allowable side slope including local government requirements.	**YES**

Discharge Structure: **Drop Structure with V-notch sized for water quality and attenuation,**
Overflow weir set above 25-year high water.
Top / grate elevation set 1.0 above Overflow weir.

V-Notch Angle (degrees) :	**122**	V-notch Invert (ft. NGVD):	**93.5**	
V- Notch side slope (Hor:Vert) :	**1.8**	Rise (inches):	**9.72**	

Note: V-notch angle set by bleeddown requirements.
Note: V-notch rise set by 25-year discharge requirements.
Note: ICPR model calls for v-notch rise in feet.

Weir Crest Elev (Ft. NGVD):	**97.5**	Top of Structure (Ft. NGVD):	**98.5**	
Weir Geometry:	**4.08' notch weir @ 50 year High Water.**			
Skimmer Blade:				
Top Elev (Ft. NGVD):	**98.5**	Bottom Elev (FT. NGVD):	**93.0**	6" below Control
Outfall Pipe diameter (inches):	**30**	Invert Elevation (Ft. NGVD):	**92.5**	
Tail Water (Ft. NGVD):	**93.3**	**(Seasonal High Water in outfall)**		

Maximum Stage Elevations:

Design Storm #1:		Design Storm #2:	
Pre-development Discharge (cfs):	**89**	Pre-development Discharge (cfs):	**N/A**
Post-development Discharge (cfs):	**6.8**	Post-development Discharge (cfs):	**N/A**
Max. Stage (ft. NGVD)	**97.1**	Max. Stage (ft. NGVD)	**N/A**

Project Name: **Western Beltway Part C, Sect. 1** Application/File No. **187636-001**
Basin F-4

V-Notch Sizing Calculations
Treatment Volume Depth
(SFWMD criteria)

Discharge of 1/2-inch of the detention volume in 24 hours.

Applicant has set invert of V-notch at: 93.50 ft NAVD

Weir set at: 94.20 ft NAVD

1/2-inch of PAV = 1.513 ac-ft (dependent on if drainage area or impervious driven)

1/2-inch of PAV stage = 93.89 ft NAVD

Depth (h) at 1/2-inch of PAV = 0.385 ft

Average flow rate, Q, required to drawdown 1/2-inch of PAV in 24 hours is:

Qavg = 0.763 cfs

Find the area, A, of the orifice:

C = 0.6
g = 32.2 ft/sec^2

A = Q/(C*(2gh)^0.5) = N/A ft^2

D = (4*A/pi)^0.5 = N/A ft = N/A inches

V-Notch Angle: **122** **degrees**

Area of V-Notch: **127.3** **in^2** **0.884** **ft^2**

Flow line elevation = **N/A** **ft +** **N/A** **/2 =** **N/A** **ft**

Q =2.5 tan (degrees/2) H^2.5
Q @ PAV= **1.849** **cfs**
Q @ 1/2 inch PAV= **0.415** **cfs**

Project Name:	**Western Beltway Part C, Sect. 1 Basin G-1**	Application/File No.	**187636-001**
Location:	**East of CR 545 and between I-4 and Ramp C**	County:	**Osceola**
Latitude:	**N 28 17 07**	Longitude:	**W 81 35 18**
Section: 26 Township: 25S Range: 27E		USGS Quad:	**Intercession City, Fla.**
WMD Boundaries:	**SFWMD**	Drainage Basin:	**Unnamed tributary of Davenport Creek**
Applicant:	**FDOT, Turnpike District**		
Engineer of Record:	**John K. Saunders, P.E. No. 45371**		
Type of Permit:	**Individual**	Other DEP Permits:	**N/A**
Modification?	**No**	"Extension" By Renewal?	**No**
Proposed Permit Expiration Date:			
Wetland Impacts?	**Yes**		
Receiving Water Body:	**Davenport Creek Tributary**	Receiving Waters:	Class I Class II **Class III** OFW
Special Basin Criteria:	**N/A**		
Rainfall (Inch)(Storm#1):	**12.23" (25yr/72hr)**	Rainfall (Inch)(Storm#2):	**N/A**
Site Description - Existing:	**Basin G-1 includes eastbound and westbound I-4, CR545, an existing RV Park with stormwater pond, and existing pasture land and wetlands.**		
Site Description - Proposed:	**Basin G-1 includes eastbound and westbound I-4 from Sta.118+50 to 134+00 BL SR400, CR545 between Sta 616+00 to 623+00, Ramp C between Sta. 426+40 to 446+00, and Ramp D from Sta.539+57 to 552+00 and the pond site in the Ramp C infield. Total basin area = 20.34 acres. Pavement area = 8.24 acres.**		

Project Name: **Western Beltway Part C, Sect. 1**
Basin G-1

Application/File No. **187636-001**

PRE-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin G-1**

	AREA acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	8.83	384,635	98
Water Surface:	0.00	0	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	8.83	384,635	98.0
% DCIA: 0%		% imperv:	43%
Pervious Area:	11.51	501,376	55.6
Total Drainage Area:	20.34	886,010	
Composite CN:			74.0
Ground Storage (inches):	3.51		
Time of Concentration (minutes):	23.7		
SCS Peaking Factor:	323		

POST-DEVELOPMENT CONDITIONS

Basin/Watershed: **Basin G-1**

	AREA acres	sq ft	CN
Impervious Acreage			
Buildings:	0.00	0	98
Pavement:	8.24	358,934	98
Water Surface:	2.58	112,385	100
Miscellaneous:	0.00	0	98
Total Impervious Acreage:	10.82	471,319	98.5
% DCIA: 0%		% imperv:	53%
Pervious Area:	9.52	414,691	48
Total Drainage Area:	20.34	886,010	
Composite CN:			74.9
Ground Storage (inches):	3.36		
Time of Concentration (minutes):	10		
SCS Peaking Factor:	323		

Conversion Factors

43560 sqft/acre

Project Name: **Western Beltway Part C, Sect. 1**
Basin G-1

Application/File No. **187636-001**

POLLUTION ABATEMENT VOLUME CALCULATION (SFWMD)

Basin/Watershed:

1.0	**20.34**	**1.70**	acre-ft	(drainage area)		
2.5	**8.24**	**1.72**	acre-ft	(% of impervious area)		**Note: Impervious Area does not include pond area, as per SFWMD B.O.R. Section 5.2.2 (c)**
Greater of the above:		**1.72**	acre-ft or	74,778	cf	
PAV if wet detention:		1.72	acre-ft or	74,778	cf	
PAV if dry detention:		1.29	acre-ft or	56,084	cf	
PAV if retention:		0.86	acre-ft or	37,389	cf	
PAV calculated by applicant:		**1.72**	acre-ft or	74,778	cf	
PAV provided:		**1.81**	acre-ft or	78,974	cf	

Pond Information:

Length (ft):	**890**	Width (ft):	**124**	ft
Bottom:	**79.3** ft NGVD			
Berm Elev:	**87.8** ft NGVD			
Berm Width (ft):	**20**			
Side Slopes: horizontal:vertical	**4:1**			
Storage Available (ac-ft)	**6.87**	Total Storage (ac-ft)	**19.05**	
SHGWT:	**87.1** ft NGVD			
Kh (ft/day)	**Not Applicable**			

Stage-Storage:

		AREA		Storage	
	Stage (ft)	ft 2	acre	ft 3	acre -ft
Bottom	**79.3**	66,647	**1.53**	0	**0.00**
Control	**85.3**	110,207	**2.53**	530,561	**12.18**
W.Q.	**86.0**	115,434	**2.65**	609,535	**13.99**
DHW25Yr	**88.2**	132,471	**3.04**	882,230	**20.25**
T.O.B.	**87.8**	129,373	**2.97**	829,862	**19.05**
B.O.B.	**89.8**	169,884	**3.90**	1,129,119	**25.92**

Project Name: **Western Beltway Part C, Sect. 1** Application/File No. **187636-001**
Basin G-1

Does the Wet Retention/Detention Area meet the dimensional criteria
(as measured at or from the Control Elevation):

a) Area - 0.5 acre minimum	**YES**
b) Width - 100 ft min for linear areas in excess of 200 feet length. Irregular shaped areas may have narrower reaches but shall average at least 100 feet.	**YES**
c) Depth - minimum shallow, littoral area shall be the lesser of 20% of the retention/detention area or 2.5% of the total area (including side slopes) plus the basin contributing area.	**YES**
d) Side slopes: no steeper than 4:1 from tob to min depth of 2-ft below C.E equivalent substitute. Side slopes shall be topsoiled, and stabilized through seeding or planting from 2-ft below to 1-ft above the CE to promote vegetative growth.	**YES**
e) Alternative side slopes for golf course (n/a for Department projects)	**N/A**
f) Bulkheads shall be allowed for no more than 40% of the shoreline length but compensating littoral zone must be provided based on appropriate maximum allowable side slope including local government requirements.	**YES**

Discharge Structure: **Drop Structure with V-notch sized for water quality and attenuation,**
Overflow weir set above 25-year high water.
Top / grate elevation set 1.0 above Overflow weir.

V-Notch Angle (degrees) :	**90.0**	V-notch Invert (ft. NGVD):	**85.3**
V- Notch side slope (Hor:Vert) :	**1.0**	Rise (inches):	**21.0**

Note: V-notch angle set by bleeddown requirements.
Note: V-notch rise set by 25-year discharge requirements.
Note: ICPR model calls for v-notch rise in feet.

Weir Crest Elev (Ft. NGVD):	**88.5**	Top of Structure (Ft. NGVD):	**89.5**

Weir Geometry: **4.08' notch weir @ 50 year High Water.**

Skimmer Blade:

Top Elev (Ft. NGVD):	**89.5**	Bottom Elev (FT. NGVD):	**84.8**	6" below Control

Outfall Pipe diameter (inches):	**30**	Invert Elevation (Ft. NGVD):	**84.3**

Tail Water (Ft. NGVD): **85.3** **(Seasonal High Water in outfall)**

Maximum Stage Elevations:

Design Storm #1:		Design Storm #2:	
Pre-development Discharge (cfs):	**79.6**	Pre-development Discharge (cfs):	**N/A**
Post-development Discharge (cfs):	**16.3**	Post-development Discharge (cfs):	**N/A**
Max. Stage (ft. NGVD)	**88.2**	Max. Stage (ft. NGVD)	**N/A**

Conversion Factors

43560 sqft/acre

Project Name: **Western Beltway Part C, Sect. 1** Application/File No. **187636-001**

Basin G-1

V-Notch Sizing Calculations
Treatment Volume Depth
(SFWMD criteria)

Discharge of 1/2-inch of the detention volume in 24 hours.

Applicant has set invert of V-notch at: 85.30 ft NAVD

Weir set at: 86.00 ft NAVD

1/2-inch of PAV = 0.848 ac-ft (dependent on if drainage area or impervious driven)

1/2-inch of PAV stage = 85.67 ft NAVD

Depth (h) at 1/2-inch of PAV = 0.373 ft

Average flow rate, Q, required to drawdown 1/2-inch of PAV in 24 hours is:

Qavg = 0.427 cfs

Find the area, A, of the orifice:

C = 0.6
g = 32.2 ft/sec^2

A = Q/(C*(2gh)^0.5) = N/A ft^2

D = (4*A/pi)^0.5 = N/A ft = N/A inches

V-Notch Angle: **90** **degrees**

Area of V-Notch: **70.6** **in^2** **0.490** **ft^2**

Flow line elevation = **N/A** **ft +** **N/A** **/2 =** **N/A** **ft**

Q =2.5 tan (degrees/2) H^2.5
Q @ PAV= **1.025** **cfs**
Q @ 1/2 inch PAV= **0.212** **cfs**

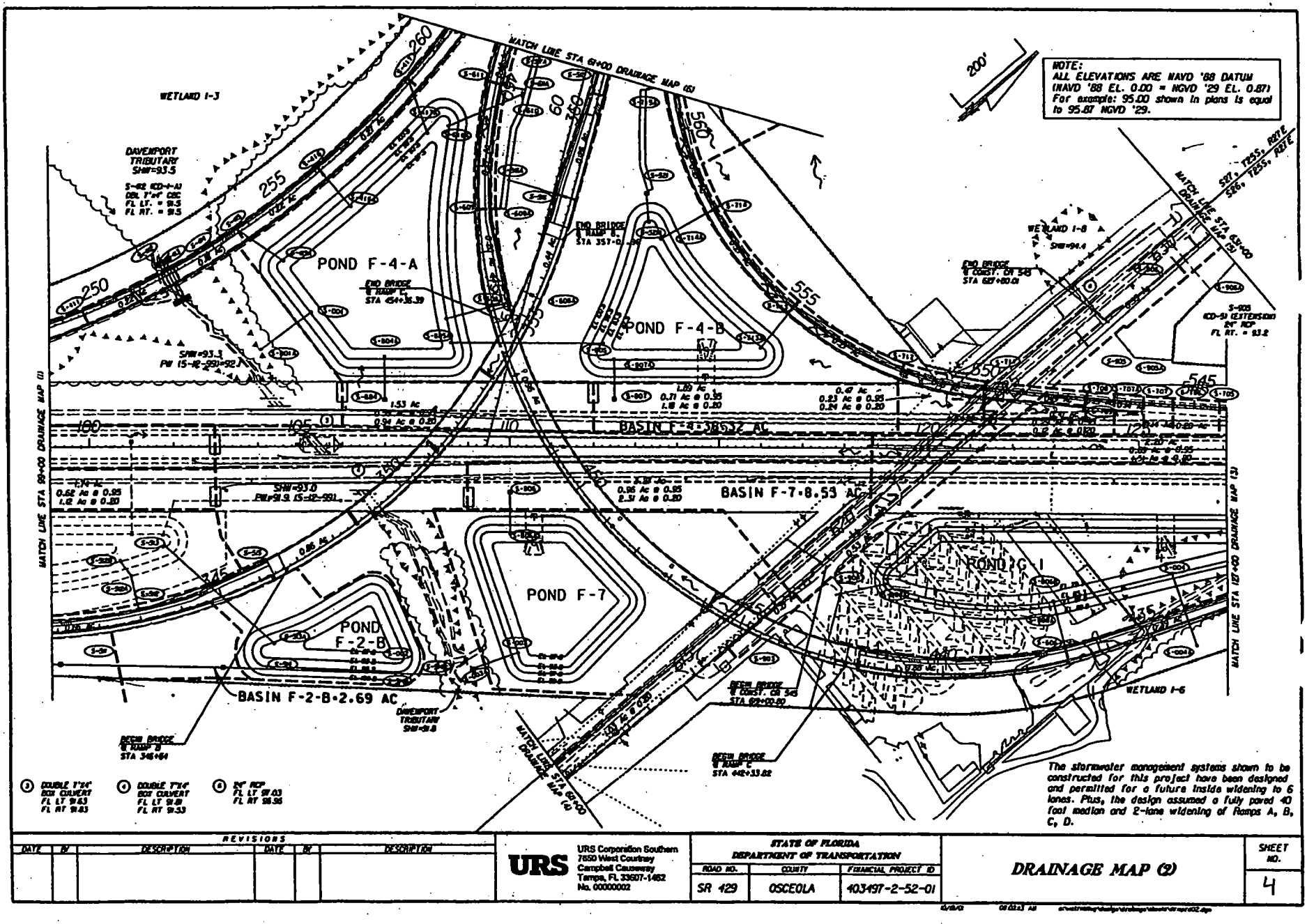

NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
WETLAND I-3
DAVENPORT TRIBUTARY SHW=93.5
POND F-4-A
POND F-4-B
POND F-7
POND F-2-B
POND F-1
BASIN F-4-3.53 AC
BASIN F-7-8.53 AC
BASIN F-2-B-2.69 AC
WETLAND I-8
WETLAND I-6
MATCH LINE STA 61+00 DRAINAGE MAP (5)
MATCH LINE STA 59+00 DRAINAGE MAP (1)
MATCH LINE STA 107+00 DRAINAGE MAP (3)
MATCH LINE STA 82+00 DRAINAGE MAP (4)
200'
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE | BY | DESCRIPTION | DATE | BY | DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO. | COUNTY | FINANCIAL PROJECT ID
SR 429 | OSCEOLA | 403497-2-52-01
DRAINAGE MAP (2)
SHEET NO. 4

Figure 3

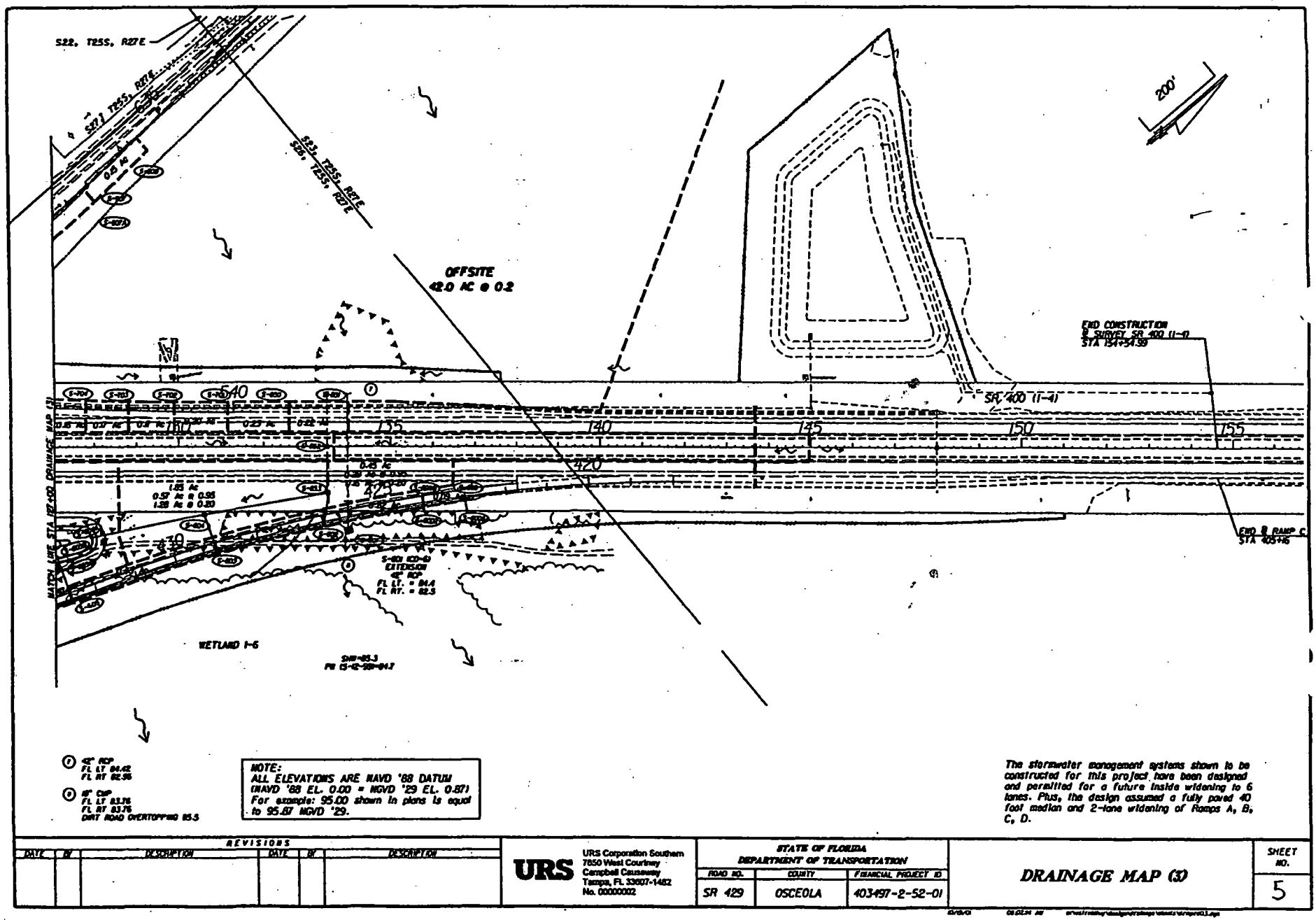

S22, T25S, R27E
S23, T25S, R27E
S26, T25S, R27E
OFFSITE
42.0 AC @ 0.2
SR 400 (I-4)
END CONSTRUCTION
@ SURVEY SR 400 (I-4)
STA 154+54.99
END @ RAMP C
STA 405+16
200'
WETLAND I-6
MATCH LINE STA 167+00 DRAINAGE MAP (4)
NOTE:
ALL ELEVATIONS ARE NAVD '88 DATUM
(NAVD '88 EL. 0.00 = NGVD '29 EL. 0.87)
For example: 95.00 shown in plans is equal to 95.87 NGVD '29.
The stormwater management systems shown to be constructed for this project have been designed and permitted for a future inside widening to 6 lanes. Plus, the design assumed a fully paved 40 foot median and 2-lane widening of Ramps A, B, C, D.
REVISIONS
DATE
BY
DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1462
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
DRAINAGE MAP (3)
SHEET NO.
5

Figure 4

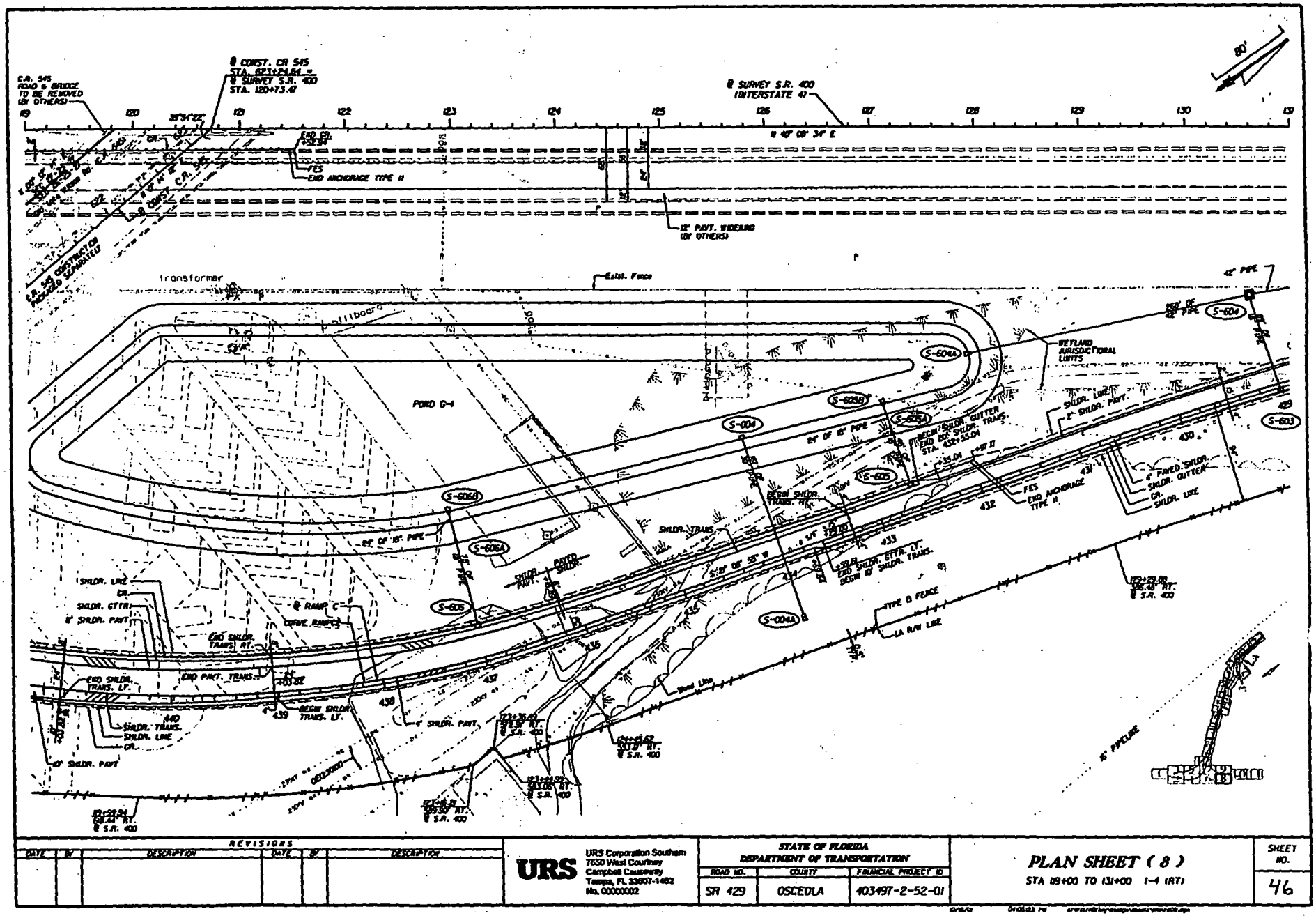
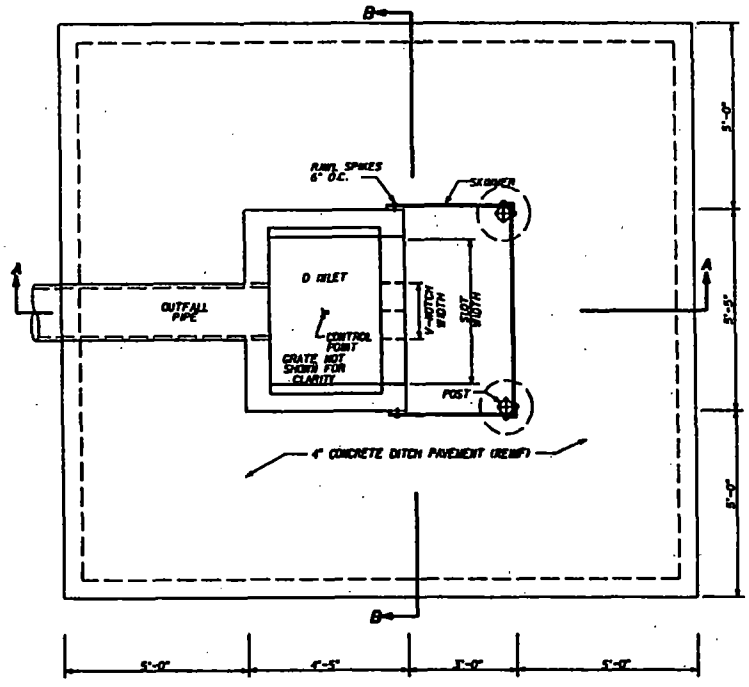
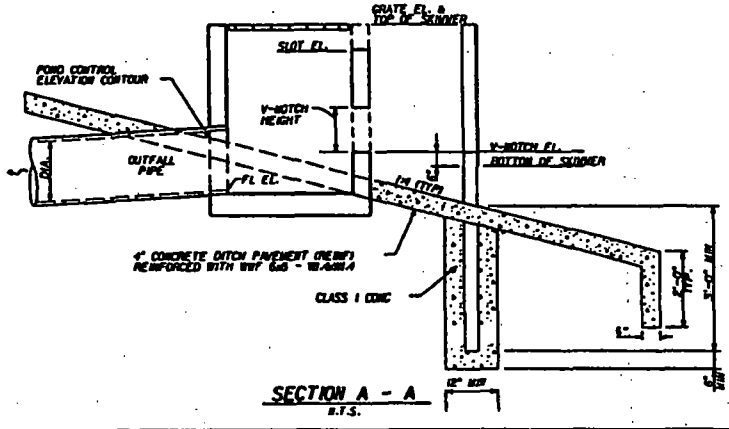

REVISIONS
DATE
BY
DESCRIPTION
URS
URS Corporation Southern
7650 West Courtney
Campbell Causeway
Tampa, FL 33607-1452
No. 00000002
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
ROAD NO.
COUNTY
FINANCIAL PROJECT ID
SR 429
OSCEOLA
403497-2-52-01
PLAN SHEET (8)
STA 119+00 TO 131+00 I-4 (RT)
SHEET NO.
46

Figure 19



PLAN VIEW
N.T.S.



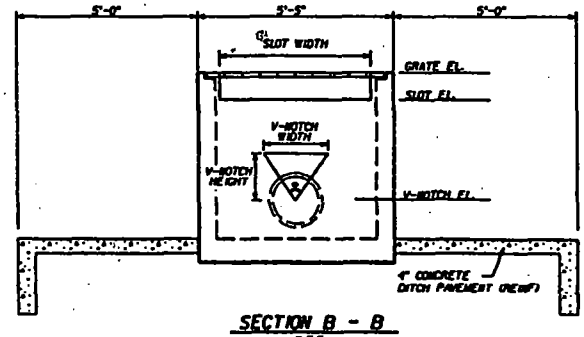
SECTION A - A
N.T.S.

WET POND CONTROL DETAIL TABLE

STRUC. NO.	POND	GRATE ELEV. (FT NAVD)	SLOT ELEV. (FT NAVD)	V-NOTCH ELEV. (FT NAVD)	OUTFALL PIPE F.I. (FT NAVD)	V-NOTCH THETA (DEGREES)	V-NOTCH HEIGHT (FEET)	V-NOTCH WIDTH (FEET)	SLOT WIDTH (FEET)	OUTFALL PIPE DIA. (INCH)	CONC DITCH PVMT (SY)
P-S-002	F-2-A	97.0	94.0	NOTE 7	92.2	NOTE 7	NOTE 7	NOTE 7	1.0	24	N.A.
P-S-001	F-4-A	98.5	97.5	93.5	92.5	172	0.91	8.58	4.08	30	N.A.
P-S-003	F-7	97.0	96.0	93.0	92.0	90	0.50	1.00	4.08	24	N.A.
P-S-004	C-1	89.5	88.5	85.3	84.3	90	1.75	3.50	4.08	30	N.A.
P-S-005	B-2	103.0	102.0	99.0	98.5	119	0.50	1.70	4.08	24	N.A.
P-S-006	B-3-A	106.0	105.0	101.0	100.5	126	0.70	2.75	4.08	30	N.A.
P-S-009	B-6-A	102.0	101.0	99.5	98.5	115	1.50	4.71	4.08	18	N.A.
P-S-007	B-4	106.0	105.0	103.0	100.0	62	1.80	1.32	4.08	24	N.A.

NOTES:

1. POND CONTROL STRUCTURES ARE MODIFIED TYPE D DITCH BOTTOM INLET. FOR ADDITIONAL DETAILS OF TYPE D INLET SEE INDEX 232.
2. SKIMMER TO BE CONSTRUCTED OF 3/16" FIBERGLASS STRUCTURAL GRADE.
3. POSTS TO BE 4" x 4" STW (RECYCLED PLASTIC) OR 3" DIA. SCHEDULE 40 ALUMINUM PIPE.
4. SKIMMER TO BE ATTACHED TO INLET WITH 1/4" COATED RAIL SPIKES 6" ON CENTER.
5. SKIMMER TO BE ATTACHED TO POSTS WITH 1/4" DIA. STAINLESS STEEL BOLT NUT AND WASHER ASSEMBLY AT 6" ON CENTER.
6. COST OF INLET, SKIMMER, POSTS, FASTENERS, CONCRETE BACKFILL, TO BE INCLUDED IN THE CONTRACT UNIT PRICE FOR INLET (SPECIAL) EACH. DITCH PAVEMENT PAID FOR SEPARATELY AS CONCRETE DITCH PAVEMENT 4" REINF., SY.
7. STRUCTURE S-002 IS AN EXISTING POND CONTROL STRUCTURE. MODIFY BLEED DOWN ORIFICE FROM 3.5" TO 5.0" DIAMETER. NO CHANGE TO 7'-0" WEIR SLOT AT EL. 94.0. COST OF ORIFICE MODIFICATION TO BE PAID FOR AS MODIFY INLET, EACH.



SECTION B - B
N.T.S.
SKIMMER NOT SHOWN FOR CLARITY

WET POND CONTROL DETAILS

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

URS
URS Corporation Southern
7650 West Courtney Campbell Causeway
Tampa, FL 33607-1462
No. 00000002

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 429	OSCEOLA	403497-2-52-01

DRAINAGE DETAILS (1)

SHEET NO. 204A

Figure 35

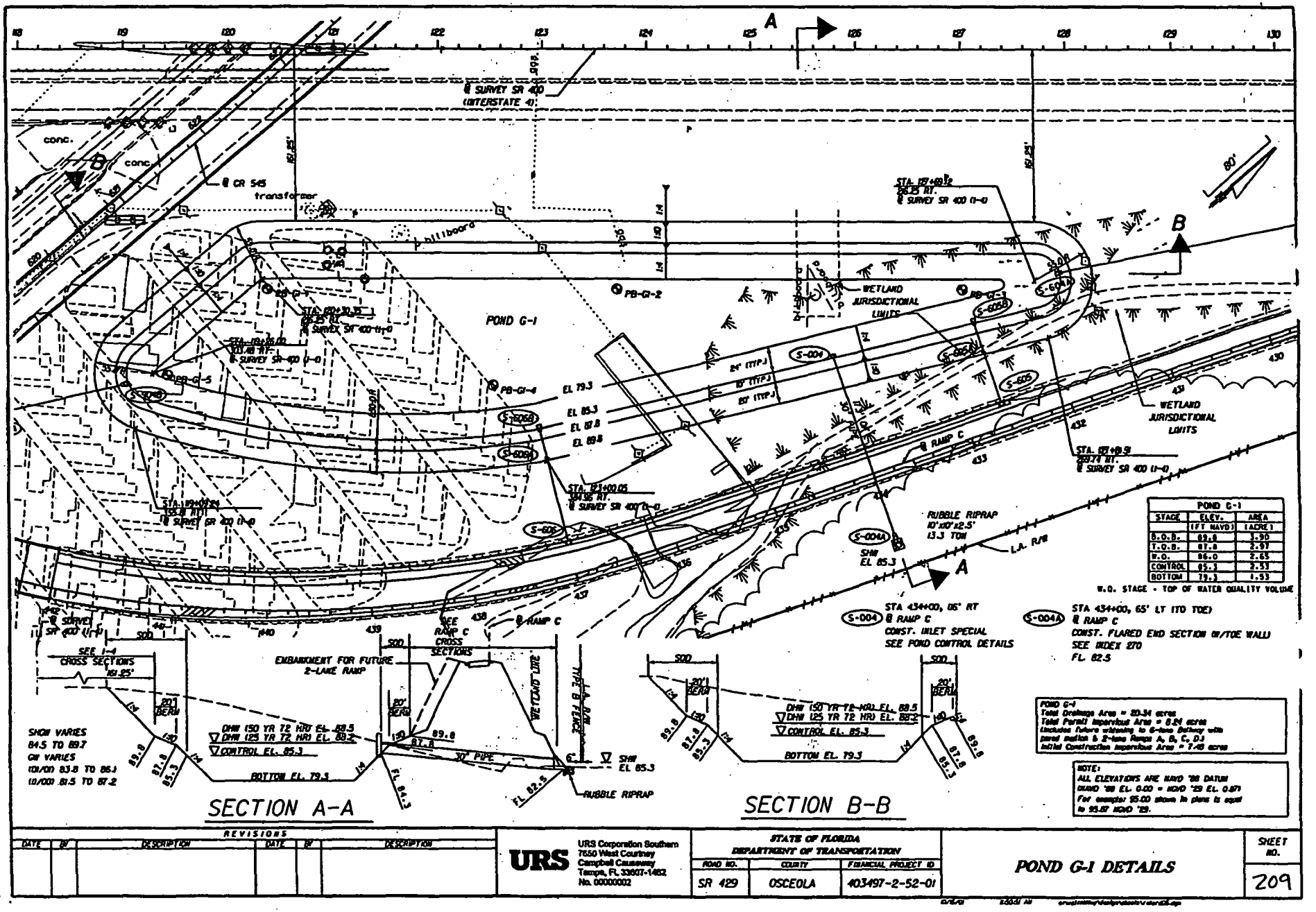

POND G-1
SECTION A-A
SECTION B-B
POND G-1
STAGE | ELEV. (FT NAVD) | AREA (ACRE)
B.O.B. 89.8 3.90
T.O.B. 87.8 2.97
W.Q. 86.0 2.65
CONTROL 85.3 2.51
BOTTOM 79.3 1.53
W.Q. STAGE - TOP OF WATER QUALITY VOLUME
S-004 @ RAMP C CONST. INLET SPECIAL SEE POND CONTROL DETAILS
S-004A STA 434+00, 65' LT (TO TOE) @ RAMP C CONST. FLARED END SECTION W/TOE WALL SEE INDEX 270 FL 82.5
POND G-1 Total Drainage Area = 20.34 acres Total Permit Impervious Area = 8.24 acres Includes future widening to 6-lane Beltway with panel median & 2-lane Ramps A, B, C, D3 Initial Construction Impervious Area = 7.48 acres
NOTE: ALL ELEVATIONS ARE NAVD '88 DATUM OUPO '88 EL. 0.00 = NGVD '29 EL. 0.87
REVISIONS
DATE | BY | DESCRIPTION
URS Corporation Southern 7650 West Courtney Campbell Causeway Tampa, FL 33607-1462 No. 00000002
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD NO. | COUNTY | FINANCIAL PROJECT ID
SR 429 | OSCEOLA | 403497-2-52-01
POND G-1 DETAILS
SHEET NO. 209

Figure 43

FDEP PERMIT NO. 0187636-003-EI (I-4 BTU) PROJECT

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

EX_BSNF2A
TOTAL AREA: 18.11 AC.
IMPERVIOUS AREA: 6.79 AC.
PERVIOUS AREA: 9.74 AC.
WATER SURFACE: 1.58 AC.
CN: 48.00
DCIA: 8.37 AC.
NDCIA: 9.74 AC.
Tc: 20.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF2B
TOTAL AREA: 2.69 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 1.99 AC.
WATER SURFACE: 0.70 AC.
CN: 48.00
DCIA: 0.70 AC.
NDCIA: 1.99 AC.
Tc: 10.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4A
TOTAL AREA: 26.39 AC.
IMPERVIOUS AREA: 10.48 AC.
PERVIOUS AREA: 12.80 AC.
WATER SURFACE: 3.11 AC.
CN: 48.00
DCIA: 13.59 AC.
NDCIA: 12.80 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4B
TOTAL AREA: 9.72 AC.
IMPERVIOUS AREA: 3.65 AC.
PERVIOUS AREA: 4.61 AC.
WATER SURFACE: 1.46 AC.
CN: 48.00
DCIA: 5.11 AC.
NDCIA: 4.61 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

UNTREATED BASINS:

EX_BSNF7
TOTAL AREA: 8.37 AC.
IMPERVIOUS AREA: 1.04 AC.
PERVIOUS AREA: 5.59 AC.
WATER SURFACE: 1.74 AC.
CN: 48.00
DCIA: 2.78 AC.
NDCIA: 5.59 AC.
Tc: 10.90 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNG1
TOTAL AREA: 20.43 AC.
IMPERVIOUS AREA: 8.37 AC.
PERVIOUS AREA: 9.53 AC.
WATER SURFACE: 2.53 AC.
CN: 48.00
DCIA: 10.90 AC.
NDCIA: 9.53 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_S405
TOTAL AREA: 1.05 AC.
IMPERVIOUS AREA: 0.29 AC.
PERVIOUS AREA: 0.76 AC.
WATER SURFACE: 0.00 AC.
CN: 61.81
DCIA: 0.00 AC.
NDCIA: 1.05 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_BSNOLW
TOTAL AREA: 3.20 AC.
IMPERVIOUS AREA: 1.46 AC.
PERVIOUS AREA: 1.74 AC.
WATER SURFACE: 0.00 AC.
CN: 71.36
DCIA: 0.00 AC.
NDCIA: 3.20 AC.
Tc: 10 MIN (CALCULATED)

0 100 400
Feet

℄ CONST. SR 429
℄ RAMP D1_429
℄ CONST OLD LAKE WILSON RD.
℄ CONST. SR 400 (I-4)
℄ RAMP C_429
℄ RAMP A3_429
℄ CONST WB GUL
℄ CONST WB XL
℄ CONST EB GUL
℄ CONST EB XL
℄ RAMP B2_429
℄ RAMP B1_429
EXIST. POND F-4-A
EXIST. POND F-4-B
EXIST. POND F-2-A
EXIST. POND F-2-B
EXIST. POND F-7
EXIST. POND G-1
DAVENPORT CREEK TRIBUTARY
CD-16
CD-5
CD-17
CD-6
GOLDEN BEAR DR.
TRADITION BLVD
WHITEMARSH WAY
OLD LAKE WILSON RD.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

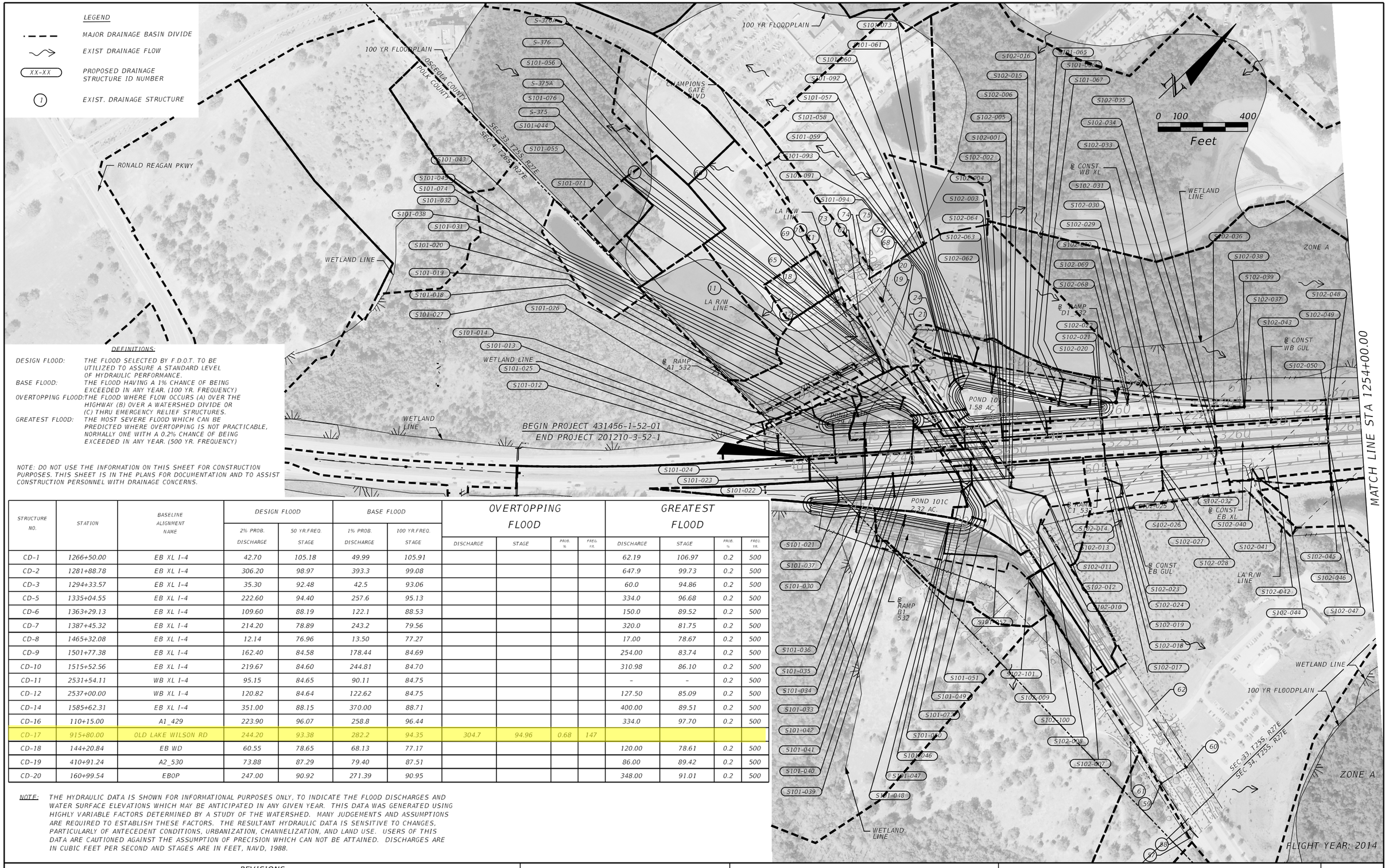
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL EXISTING BASIN MAP

SHEET NO.

mlaos 3/19/2018 8:05:33 AM c:\pwworking\aecom_na\mlaos\dms31135\OUTFALL_2C_PRE_BASIN_MAP.DGN



DEFINITIONS:

DESIGN FLOOD: THE FLOOD SELECTED BY F.D.O.T. TO BE UTILIZED TO ASSURE A STANDARD LEVEL OF HYDRAULIC PERFORMANCE.

BASE FLOOD: THE FLOOD HAVING A 1% CHANCE OF BEING EXCEEDED IN ANY YEAR. (100 YR. FREQUENCY)

OVERTOPPING FLOOD: THE FLOOD WHERE FLOW OCCURS (A) OVER THE HIGHWAY (B) OVER A WATERSHED DIVIDE OR (C) THRU EMERGENCY RELIEF STRUCTURES.

GREATEST FLOOD: THE MOST SEVERE FLOOD WHICH CAN BE PREDICTED WHERE OVERTOPPING IS NOT PRACTICABLE, NORMALLY ONE WITH A 0.2% CHANCE OF BEING EXCEEDED IN ANY YEAR. (500 YR. FREQUENCY)

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

STRUCTURE NO.	STATION	BASELINE ALIGNMENT NAME	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
			2% PROB. DISCHARGE	50 YR.FREQ. STAGE	1% PROB. DISCHARGE	100 YR.FREQ. STAGE	DISCHARGE	STAGE	PROB. %	FREQ. YR.	DISCHARGE	STAGE	PROB. %	FREQ. YR.
CD-1	1266+50.00	EB XL I-4	42.70	105.18	49.99	105.91					62.19	106.97	0.2	500
CD-2	1281+88.78	EB XL I-4	306.20	98.97	393.3	99.08					647.9	99.73	0.2	500
CD-3	1294+33.57	EB XL I-4	35.30	92.48	42.5	93.06					60.0	94.86	0.2	500
CD-5	1335+04.55	EB XL I-4	222.60	94.40	257.6	95.13					334.0	96.68	0.2	500
CD-6	1363+29.13	EB XL I-4	109.60	88.19	122.1	88.53					150.0	89.52	0.2	500
CD-7	1387+45.32	EB XL I-4	214.20	78.89	243.2	79.56					320.0	81.75	0.2	500
CD-8	1465+32.08	EB XL I-4	12.14	76.96	13.50	77.27					17.00	78.67	0.2	500
CD-9	1501+77.38	EB XL I-4	162.40	84.58	178.44	84.69					254.00	83.74	0.2	500
CD-10	1515+52.56	EB XL I-4	219.67	84.60	244.81	84.70					310.98	86.10	0.2	500
CD-11	2531+54.11	WB XL I-4	95.15	84.65	90.11	84.75					-	-	0.2	500
CD-12	2537+00.00	WB XL I-4	120.82	84.64	122.62	84.75					127.50	85.09	0.2	500
CD-14	1585+62.31	EB XL I-4	351.00	88.15	370.00	88.71					400.00	89.51	0.2	500
CD-16	110+15.00	A1_429	223.90	96.07	258.8	96.44					334.0	97.70	0.2	500
CD-17	915+80.00	OLD LAKE WILSON RD	244.20	93.38	282.2	94.35	304.7	94.96	0.68	147				
CD-18	144+20.84	EB WD	60.55	78.65	68.13	77.17					120.00	78.61	0.2	500
CD-19	410+91.24	A2_530	73.88	87.29	79.40	87.51					86.00	89.42	0.2	500
CD-20	160+99.54	EBOP	247.00	90.92	271.39	90.95					348.00	91.01	0.2	500

NOTE: THE HYDRAULIC DATA IS SHOWN FOR INFORMATIONAL PURPOSES ONLY, TO INDICATE THE FLOOD DISCHARGES AND WATER SURFACE ELEVATIONS WHICH MAY BE ANTICIPATED IN ANY GIVEN YEAR. THIS DATA WAS GENERATED USING HIGHLY VARIABLE FACTORS DETERMINED BY A STUDY OF THE WATERSHED. MANY JUDGEMENTS AND ASSUMPTIONS ARE REQUIRED TO ESTABLISH THESE FACTORS. THE RESULTANT HYDRAULIC DATA IS SENSITIVE TO CHANGES, PARTICULARLY OF ANTECEDENT CONDITIONS, URBANIZATION, CHANNELIZATION, AND LAND USE. USERS OF THIS DATA ARE CAUTIONED AGAINST THE ASSUMPTION OF PRECISION WHICH CAN NOT BE ATTAINED. DISCHARGES ARE IN CUBIC FEET PER SECOND AND STAGES ARE IN FEET, NAVD, 1988.

REVISIONS

DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM TECHNICAL SERVICES, Inc.
150 North Orange Avenue, Suite 200
Orlando, FL, 32801
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Certificate of Authorization No. 8115
www.aecom.com

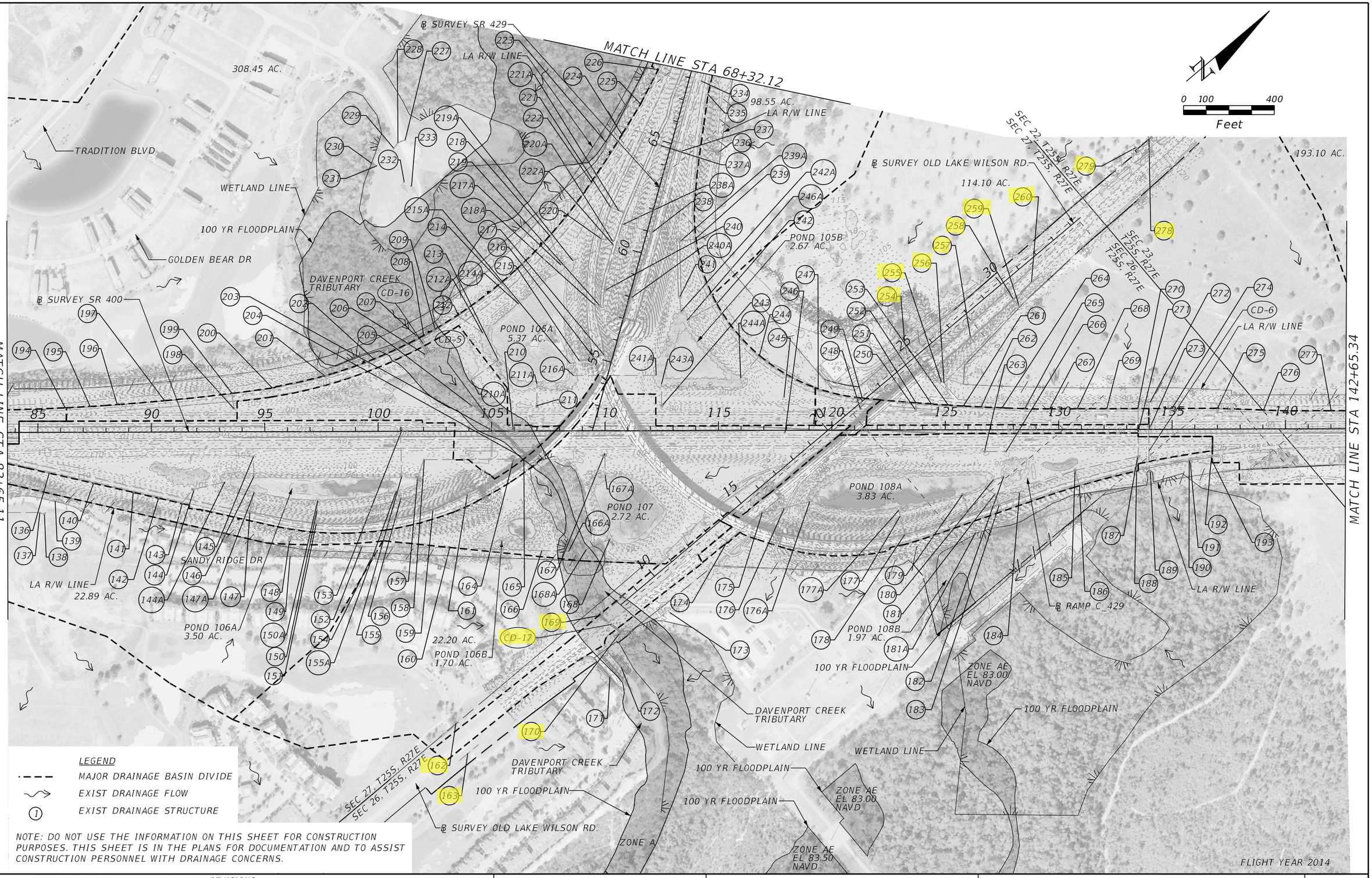
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DRAINAGE MAP (1)
PROPOSED CONDITION

SHEET NO. 4

PRELIMINARY: NOT FOR CONSTRUCTION



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DRAINAGE MAP (3) EXISTING CONDITION

SHEET NO. 7

PRELIMINARY: NOT FOR CONSTRUCTION

robert.martini 3/27/2018 2:10:44 PM c:\pwworking\aecom_na\rmartini\dms28215\DRMPRD03.dgn

MATCH LINE STA 703+00.00

MATCH LINE STA 1313+00.00

MATCH LINE STA 1372+00.00

0 100 400

Feet

℄ RAMP A1_429

LA R/W LINE

100 YR FLOODPLAIN

DAVENPORT CREEK TRIBUTARY

WETLAND LINE

308.45 AC.

TRADITION BLVD

GOLDEN BEAR DR

℄ CONST. SR 429

98.55 AC.

114.10 AC.

193.10 AC.

SEC 22, T25S, R27E

SEC 27, T25S, R27E

℄ CONST OLD LAKE WILSON RD.

POND 105A 5.60 AC.

POND 106A 3.48 AC.

POND 106B 1.70 AC.

POND 107 2.72 AC.

POND 108A 3.98 AC.

POND 108B 1.97 AC.

POND 105B 3.10 AC.

22.89 AC.

22.20 AC.

SANDY RIDGE DR

℄ RAMP A2_429

℄ RAMP B1_429

℄ RAMP B2_429

℄ CONST EB XL

℄ CONST WB XL

℄ CONST EB GUL

℄ CONST WB GUL

℄ RAMP C_429

℄ RAMP A3_429

LA R/W LINE

ZONE A

ZONE AE EL 83.00 NAVD

ZONE AE EL 83.50 NAVD

FLIGHT YEAR 2014

LEGEND

- PROPOSED MAJOR CROSS DRAIN
- MAJOR DRAINAGE BASIN DIVIDE
- EXIST DRAINAGE FLOW
- XX-XX — PROPOSED DRAINAGE STRUCTURE ID NUMBER
- (1) — EXISTING DRAINAGE STRUCTURE

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DRAINAGE MAP (3) PROPOSED CONDITION

SHEET NO. 8

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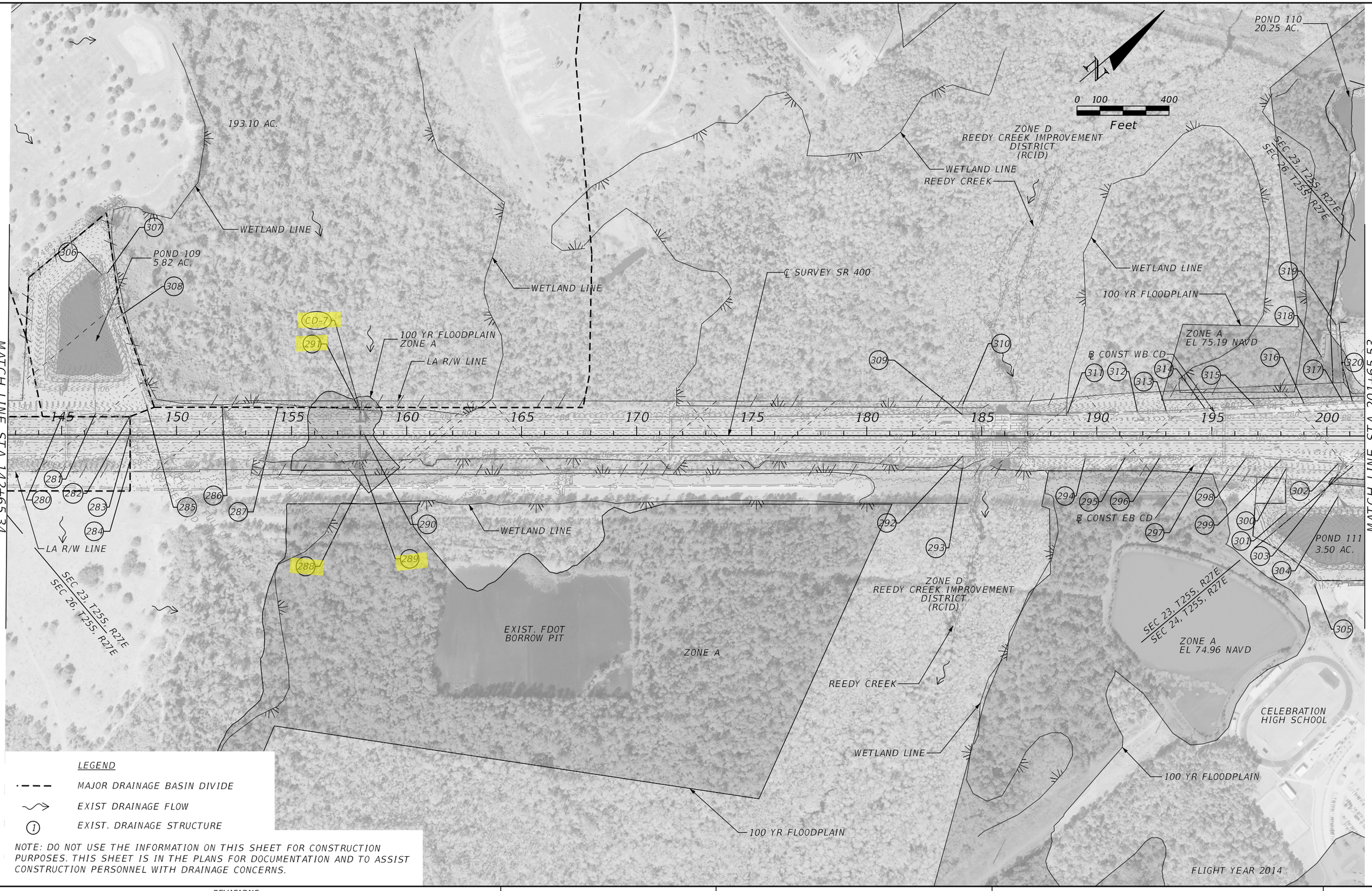

LEGEND

- MAJOR DRAINAGE BASIN DIVIDE
- EXIST DRAINAGE FLOW
- (1) EXIST. DRAINAGE STRUCTURE

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM TECHNICAL SERVICES, Inc.
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DRAINAGE MAP (4)
EXISTING CONDITION

SHEET NO. 9

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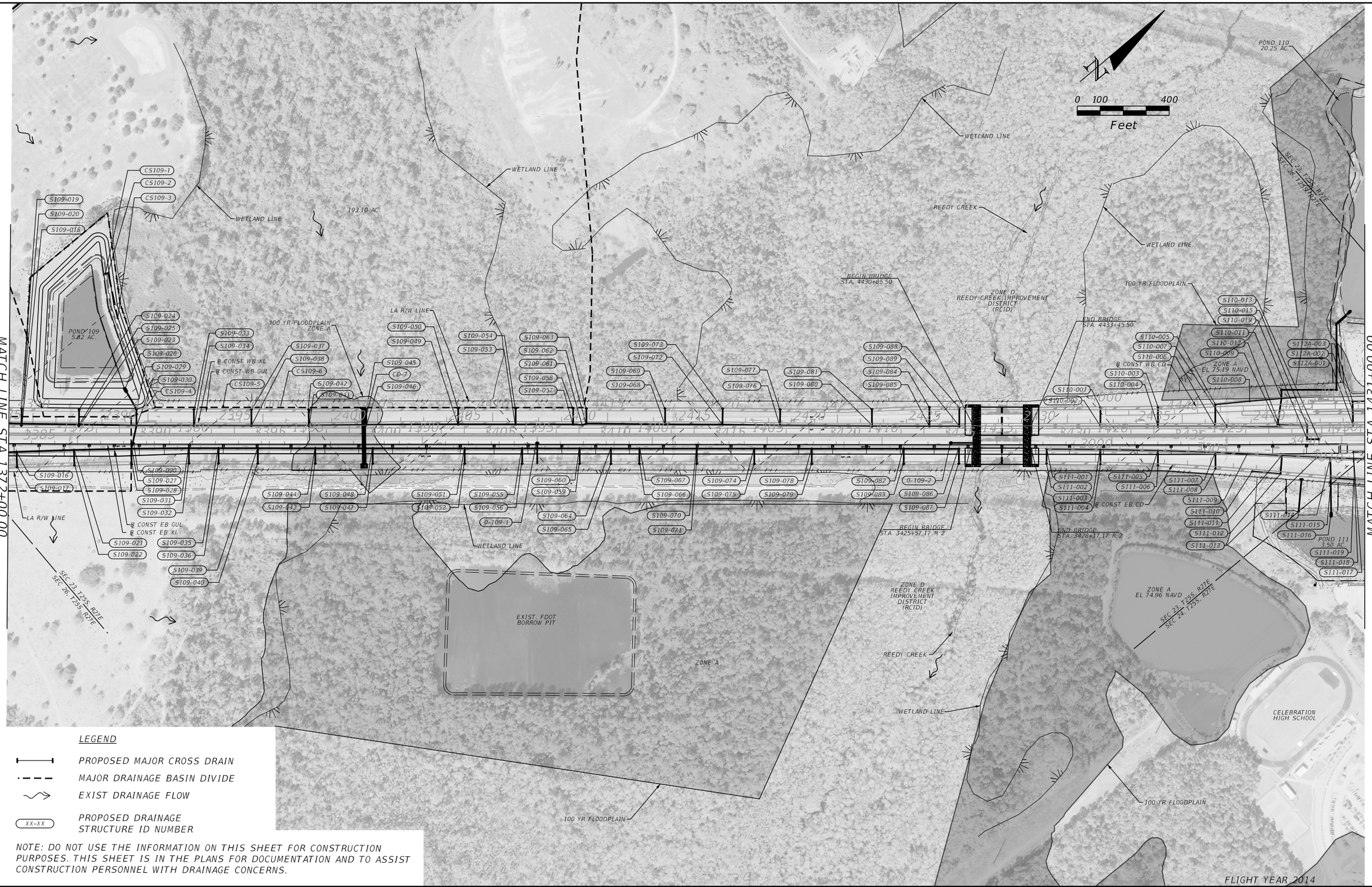

LEGEND

- PROPOSED MAJOR CROSS DRAIN
- MAJOR DRAINAGE BASIN DIVIDE
- EXIST DRAINAGE FLOW
- XX-XX — PROPOSED DRAINAGE STRUCTURE ID NUMBER

NOTE: DO NOT USE THE INFORMATION ON THIS SHEET FOR CONSTRUCTION PURPOSES. THIS SHEET IS IN THE PLANS FOR DOCUMENTATION AND TO ASSIST CONSTRUCTION PERSONNEL WITH DRAINAGE CONCERNS.

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM TECHNICAL SERVICES, Inc.
150 North Orange Avenue, Suite 200
Orlando, FL, 32801
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www.aecom.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DRAINAGE MAP (4)
PROPOSED CONDITION

SHEET NO. 10

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246A END PIPE
INV 92.54 NE (18" CMP/RCP)

246 UNKNOWN
INV UNKNOWN

247 GUTTER INLET
TOP ELEV 101.69
INV 97.08 SW (18" HDPE)

248 CATCH BASIN
TOP ELEV 96.79
INV 93.00 NW (18" RCP)

249 GUTTER INLET
TOP ELEV 97.92
INV 92.76 NE (18" RCP)
INV 96.79 SE (18" RCP)

250 CATCH BASIN
TOP ELEV 94.86
INV 90.17 NW (18" RCP)

251 GUTTER INLET
TOP ELEV 93.94
INV 89.40 NE (18" RCP)
INV 89.52 SE (18" RCP)
INV 89.47 SW (18" RCP)

252 GUTTER INLET
TOP ELEV 93.19
INV 88.54 NE (18" RCP)
INV 88.62 SW (18" RCP)

253 GUTTER INLET
TOP ELEV 92.37
INV 87.41 NE (24" RCP)
INV 87.95 SW (18" RCP)

254 ENDWALL
TOP ELEV 97.24
INV 94.17 SW (24" RCP)

255 ENDWALL
TOP ELEV 96.25
INV 92.98 NW (24" RCP)

256 ENDWALL
TOP ELEV 95.86
INV 92.97 N (18" RCP)

257 GUTTER INLET
TOP ELEV 119.55
INV 115.65 E (18" RCP)

258 GUTTER INLET
TOP ELEV 114.21
INV 108.70 N (18" RCP)
INV 104.87 E (18" RCP)
INV 105.02 W (18" RCP)

259 MANHOLE
TOP ELEV 106.19
INV 101.69 S (18" RCP)
INV 101.64 W (18" RCP)

260 GUTTER INLET
TOP ELEV 113.52
INV 109.09 S (18" RCP)

261 GUTTER INLET
TOP ELEV 92.23
INV 87.17 NE (24" RCP)

262 GUTTER INLET
TOP ELEV 91.69
INV 86.70 NE (24" RCP)
INV 86.85 SW (24" RCP)

263 MES
INV 89.58 NE (24" CMP)

264 GUTTER INLET
TOP ELEV 91.25
INV 86.38 NE (24" RCP)
INV 86.40 SW (24" RCP)

265 GUTTER INLET
TOP ELEV 91.51
INV 86.22 NE (24" RCP)
INV 86.26 SW (24" RCP)

266 MES
INV 88.97 SW (24" CMP)

267 GUTTER INLET
TOP ELEV 91.33
INV 85.87 NE (24" RCP)
INV 85.73 SW (24" RCP)

268 GUTTER INLET
TOP ELEV 91.25
INV 85.37 NE (30" RCP)
INV 85.43 SW (24" RCP)

269 GUTTER INLET
TOP ELEV 90.75
INV 85.03 NE (30" RCP)
INV 85.06 SW (30" RCP)

270 GUTTER INLET
TOP ELEV 90.36
INV 85.18 SE (24" RCP)
INV 84.57 SW (30" RCP)
INV 85.27 NW (24" RCP CAPPED)

271 CATCH BASIN
TOP ELEV 88.39
INV 84.16 SE (24" RCP)
INV 84.25 NW (24" RCP)

272 ENDWALL
TOP ELEV 89.09
INV 84.39 SE (42" RCP)

273 CATCH BASIN
TOP ELEV 88.47
INV 84.23 SE (42" RCP)
INV 84.23 NW (42" RCP)

274 GUTTER INLET
TOP ELEV 89.76
INV 85.96 NE (18" RCP)

275 GUTTER INLET
TOP ELEV 89.23
INV 85.48 NE (18" RCP)
INV 85.65 SW (18" RCP)

276 GUTTER INLET
TOP ELEV 89.08
INV 84.73 NE (18" RCP)
INV 85.03 SW (18" RCP)

277 GUTTER INLET
TOP ELEV 88.30
INV 84.05 NE (18" RCP)
INV 84.09 SW (18" RCP)

278 UNKNOWN
INV UNKNOWN

279 UNKNOWN
INV UNKNOWN

280 GUTTER INLET
TOP ELEV 87.11
INV 82.67 NE (18" RCP)
INV 82.61 SW (18" RCP)

281 MANHOLE
TOP ELEV 84.64
FLOOR ELEV 77.38

282 GUTTER INLET
TOP ELEV 84.11
INV 78.26 SE (24" RCP)
INV 77.97 SW (18" RCP)

283 CATCH BASIN
TOP ELEV 82.57
FLOOR ELEV 78.57 (UNKNOWN)

284 CATCH BASIN
TOP ELEV UNKNOWN

285 MANHOLE
TOP ELEV 82.81
INV 74.75 NE (24" RCP)
INV 74.80 NW (24" RCP)

286 MANHOLE
TOP ELEV 78.00
INV 73.88 NE (24" RCP)
INV 73.82 SW (24" RCP)

287 MES
INV 73.61 SW (24" RCP)

288 UNKNOWN
INV UNKNOWN

289 ENDWALL
TOP ELEV 77.80
INV 73.04 NW (42" RCP)
INV 72.99 NW (42" RCP)

290 CATCH BASIN
TOP ELEV 77.77
INV 74.49 SW (18" RCP)

291 ENDWALL
TOP ELEV 78.92
INV 74.24 SE (42" RCP)
INV 74.01 SE (42" RCP)

292 GUTTER INLET
TOP ELEV 81.10
INV 76.83 SE (18" RCP)

293 ENDWALL
INV 71.03 NW (18" RCP)

294 GUTTER INET
TOP ELEV 79.99
INV 76.03 NE (18" RCP)

295 GUTTER INET
TOP ELEV 79.99
INV 75.65 NE (24" RCP)
INV 75.92 SW (18" RCP)

296 GUTTER INET
TOP ELEV 79.34
INV 75.63 NE (24" RCP)
INV 75.78 SW (24" RCP)

297 GUTTER INET
TOP ELEV 79.32
INV 75.39 NE (24" RCP)
INV 75.48 SW (24" RCP)

298 GUTTER INET
TOP ELEV 79.53
INV 75.23 NE (24" RCP)
INV 75.29 SW (24" RCP)

299 GUTTER INET
TOP ELEV 79.05
INV 75.11 NE (24" RCP)
INV 75.05 SW (24" RCP)

300 MES
INV 74.49 SE (24" RCP)

301 OVERFLOW STRUCTURE
TOP ELEV 77.05
INV 74.51 NW (24" RCP)

302 GUTTER INET
TOP ELEV 78.64
INV 74.61 SE (24" RCP)
INV 74.65 SW (24" RCP)

303 MANHOLE
TOP ELEV 79.44
SE PIPE RECESSED
INV 70.48 NW (24" RCP)

304 MANHOLE
TOP ELEV 77.10
INV 65.29 SE (24" RCP)
INV 65.97 NW (24" RCP)

305 STRUCTURE UNKNOWN
INV UNKNOWN

306 OVERFLOW STRUCTURE
TOP ELEV 85.12
INV 76.04 NE (24" RCP)
INV 82.03 SW (8" PVC)

307 MANHOLE
TOP ELEV
INV 76.21 SE (24" RCP)
INV 76.15 SW (24" RCP)

308 MANHOLE
TOP ELEV 87.11
INV 75.76 SE (24" RCP)
INV 75.91 NW (24" RCP)

309 GUTTER INET
TOP ELEV 80.78
INV 76.66 NW (18" RCP)

310 ENDWALL
INV 70.04 SE (18" RCP)

311 GUTTER INET
TOP ELEV 80.39
INV 77.35 NE (18" RCP)

312 GUTTER INET
TOP ELEV 79.45
INV 75.96 NE (18" RCP)
INV 76.04 SW (18" RCP)

313 GUTTER INET
TOP ELEV 79.47
INV 75.66 NE (18" RCP)
INV 75.76 SW (18" RCP)

314 GUTTER INET
TOP ELEV 79.27
INV 74.91 NE (24" RCP)
INV 75.34 SW (18" RCP)

315 GUTTER INET
TOP ELEV 79.25
INV 74.54 NE (24" RCP)
INV 74.57 SW (24" RCP)

316 GUTTER INET
TOP ELEV 79.32
INV 74.43 NE (24" RCP)
INV 74.36 SW (24" RCP)

317 MANHOLE
TOP ELEV 80.08
INV 72.92 NE (24" RCP)
INV 72.81 SW (24" RCP)
INV 63.95 NW (UNKNOWN)

318 STRUCTURE UNKNOWN
INV UNKNOWN

319 MANHOLE
TOP ELEV 76.97
FLOOR ELEV 63.18

320 GUTTER INET
TOP ELEV 79.19
INV 73.65 NE (24" RCP)
INV 73.56 SW (24" RCP)

321 GUTTER INLET
TOP ELEV 79.24
INV 74.05 NE (18" RCP)
INV 73.80 SE (24" RCP)
INV 73.68 SW (24" RCP)

322 CATCH BASIN
TOP ELEV 78.61
INV 74.32 NW (24" RCP)

323 GUTTER INLET
TOP ELEV 79.86
INV 74.34 SW (18" RCP)

324 MES
INV 75.69 NW (18" RCP)

325 CATCH BASIN
TOP ELEV 79.80
INV 76.16 SE (18" RCP)

326 UNKNOWN
INV UNKNOWN

327 UNKNOWN
INV UNKNOWN

328 CATCH BASIN
TOP ELEV 78.30
INV 74.55 NE (24" RCP)

329 MES
INV 80.54 NE (24" RCP)

330 SKIMMER
INV UNKNOWN

331 MES
INV 73.27 SW (24" RCP)

332 MES
INV 82.02 SW (24" RCP)

333 MES
INV 74.09 NE (36" RCP)

334 GUTTER INLET
TOP ELEV 89.02
INV 81.85 NE (18" RCP)

335 MES
INV 81.36 SE (18" RCP)

336 MES
INV 74.12 SW (36" RCP)

337 GUTTER INLET
TOP ELEV 96.84
INV 85.55 N (18" RCP)

338 ENDWALL
INV 75.47 S (18" RCP)

339 MES
INV 74.24 NE (36" RCP)

340 GUTTER INLET
TOP ELEV 112.68
INV 108.24 NE (18" CMP)

341 MES
INV 74.51 NE (18" CMP)

342 GUTTER INLET
TOP ELEV 106.23
INV 100.83 NE (18" CMP)

343 MES
INV 74.54 SW (18" CMP)

344 CONC SPILLWAY

345 MES
INV 75.69 SW (18" CMP)

346 MANHOLE
INV UNKNOWN

347 MES
INV 74.21 SW (36" RCP)

348 CONC SPILLWAY

349 GUTTER INLET
TOP ELEV 98.39
INV 93.24 NE (18" CMP)

350 MES
INV 75.50 SW (18" CMP)

351 MES
INV 75.35 SE (24" RCP)

352 MES
INV 73.37 NE (48" RCP)

353 CATCH BASIN
TOP ELEV 79.57
INV 75.38 NW (24" RCP)

354 GUTTER INLET
TOP ELEV 97.85
INV 92.05 NE (18" CMP)

354 GUTTER INLET
TOP ELEV 97.85
INV 92.05 NE (18" CMP)

355 GUTTER INLET
TOP ELEV 108.49
INV 102.04 NE (18" CMP)

356 MES
INV 73.51 SW (48" RCP)

357 MES
INV 75.58 SW (18" CMP)

358 MES
INV 75.62 SW (18" CMP)

359 MANHOLE
INV UNKNOWN

360 MES
INV 73.14 NE (48" RCP)

361 STRUCTURE BURIED
INV UNKNOWN

362 MES
INV 73.19 SW (48" RCP)

363 MES
INV 75.64 E (24" RCP)

364 OVERFLOW STRUCTURE
INV UNKNOWN

365 MANHOLE
TOP ELEV 82.66
INV 68.10 NE (36" RCP)
INV 67.62 SW (UNKNOWN)

366 GUTTER INLET
GRATE ELEV 80.42
INV 74.85 NE (24" RCP)
INV 74.89 NW (24" RCP)

367 MES
INV 74.57 SE (24" RCP)

368 STRUCTURE BURIED
INV UNKNOWN

369 GUTTER INLET
TOP ELEV 79.47
INV 75.30 SW (24" RCP)

370 CATCH BASIN
TOP ELEV 82.37
INV 69.73 SW (UNKNOWN)
INV 69.76 NW (UNKNOWN)

371 CATCH BASIN
TOP ELEV 77.36
INV 69.34 NE (UNKNOWN)
INV 69.22 SE (UNKNOWN)

372 CATCH BASIN
TOP ELEV 77.70
INV 69.88 NE (UNKNOWN)
INV 70.74 SW (UNKNOWN)

373 CATCH BASIN
TOP ELEV 78.23
INV 71.22 NE (18" RCP)
INV 70.86 NW (30" RCP)

374 MANHOLE
TOP ELEV 82.60
INV 70.30 SE (30" RCP)
INV 68.82 SW (36" RCP)
INV 70.28 NW (18" RCP)

375 CATCH BASIN
TOP ELEV 79.15
INV 72.76 SE (18" RCP)

376 CATCH BASIN
TOP ELEV 77.95
INV 71.46 NE (18" RCP)
INV 71.30 SW (18" RCP)

377 ENDWALL
INV 74.44 NW (4'X7' BOX CULVERT)
INV 74.46 NW (4'X7' BOX CULVERT)

378 END TREATMENT
INV UNKNOWN

379 ENDWALL
INV 74.13 SE (4'X7' BOX CULVERT)
INV 74.14 SE (4'X7' BOX CULVERT)

380 UNKNOWN
INV UNKNOWN

381 GUTTER INLET
TOP ELEV 80.63
INV 76.27 NE (18" RCP)

382 CATCH BASIN
TOP ELEV 77.70
INV 71.84 SW (18" RCP)

383 CATCH BASIN
TOP ELEV 76.94
INV 71.55 SW (UNKNOWN)

384 END TREATMENT
INV UNKNOWN

385 MANHOLE
TOP ELEV 81.24
FLOOR ELEV 68.50

386 GUTTER INLET
TOP ELEV 82.23
INV 75.51 SE (24" RCP)
INV 75.71 SW (18" RCP)

387 MES
INV 76.30 NW (24" RCP)

388 MANHOLE
TOP ELEV 84.14
INV 76.14 NE (24" RCP)
INV 76.21 SE (24" RCP)

389 GUTTER INLET
TOP ELEV 81.91
INV 78.33 NE (24" RCP)

390 MANHOLE
TOP ELEV 79.89
INV 74.93 NE (24" RCP)
INV 74.93 NW (UNKNOWN)

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

AECOM TECHNICAL SERVICES, Inc.
150 North Orange Avenue, Suite 200
Orlando, FL, 32801
T 407.843.6552 F 407.839.1789
Certificate of Authorization No. 8115
www.aecom.com

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

EXISTING DRAINAGE STRUCTURES (3)

SHEET NO. 23

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CS105-2

CONST. CD MES (1:4)
STA. 4350+38.83, 131.65' LT
INDEX NO. 272
FL 91.67 AH

℄ RAMP A1_429

LA R/W LINE

MAINTENANCE BERM

PB105A-2

PB105A-3

PB105A-1

CS105-1

CS105-2

CONST. 24" PIPE

POND 105A
NWL = 93.50'
AREA = 5.60 AC.
DHW = 97.25 (25YR/72HR)

30' R

2157.42' R

933.48' R

1025.88' R

24" PIPE

1:15

1:4

100.50

99.50

93.50

84.50

99.50

100.50

93.50

84.50

1:4

1:15

MAINTENANCE BERM

℄ CONST. WB GUL

℄ CONST. WB XL

℄ CONST. EB XL

℄ RAMP A3_429

4350

4355

2345

2350

1335

1340

435

300

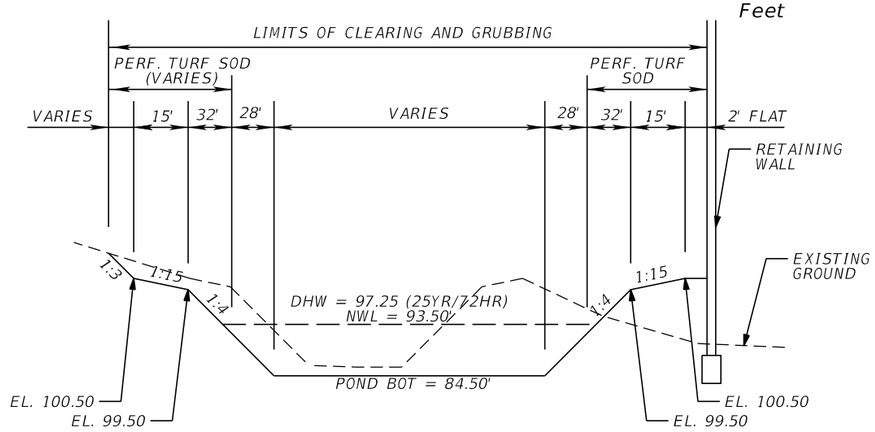
130

60

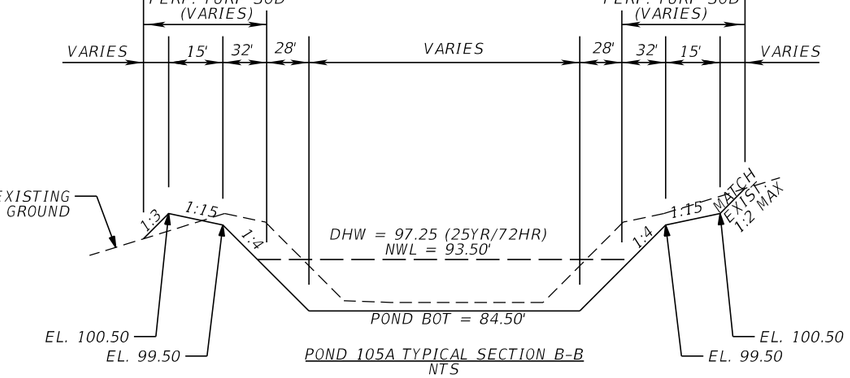
LEGEND

ESHW = ESTIMATED SEASONAL HIGH WATER
DHW = DESIGN HIGH WATER
= APPROXIMATE BORING LOCATION

0 20 100
Feet



POND 105A TYPICAL SECTION A-A
NTS



POND 105A TYPICAL SECTION B-B
NTS

REFERENCE POINT	℄ CONST. GWBI4	OFFSET (FT)	SIDE
1	4349+83.26	259.32	LT
2	4349+88.61	301.85	LT
3	4351+52.06	426.04	LT
4	4354+77.39	716.55	LT
5	4355+29.27	691.55	LT
6	4355+01.24	522.82	LT
7	4354+92.99	301.65	LT
8	4355+28.66	104.70	LT
9	4354+99.80	66.50	LT
10	4351+50.74	66.50	LT
11	4351+27.24	77.85	LT

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

POND DETAIL
POND 105A

SHEET NO. 430

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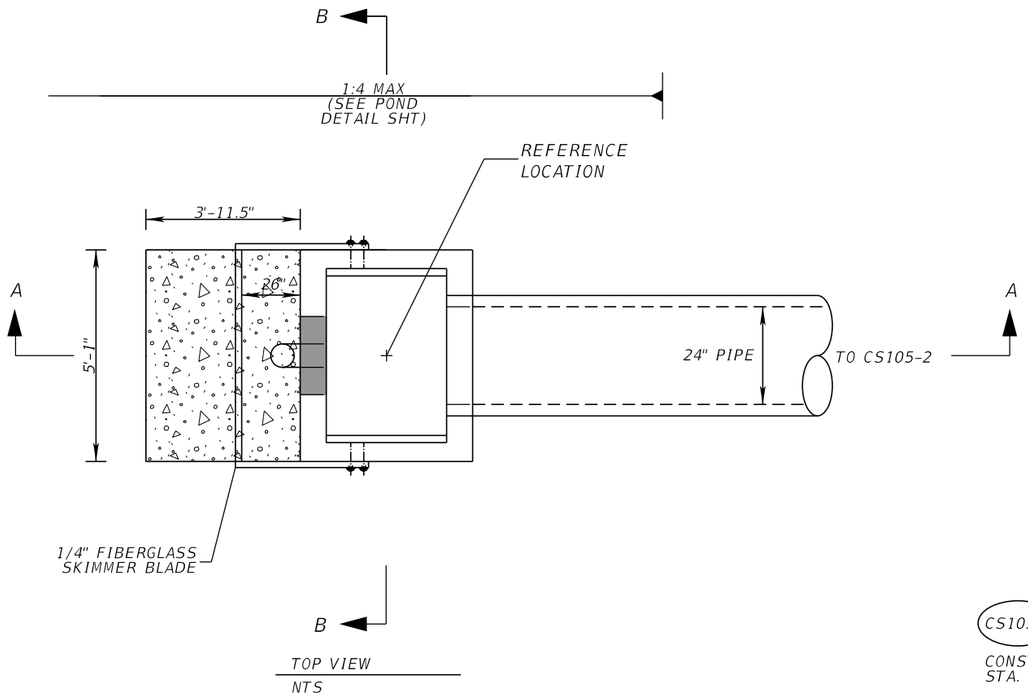


TOP VIEW
NTS

CS105-1

CONST. DBI TYPE D-MOD
STA. 4350+86.98, 167.21' LT

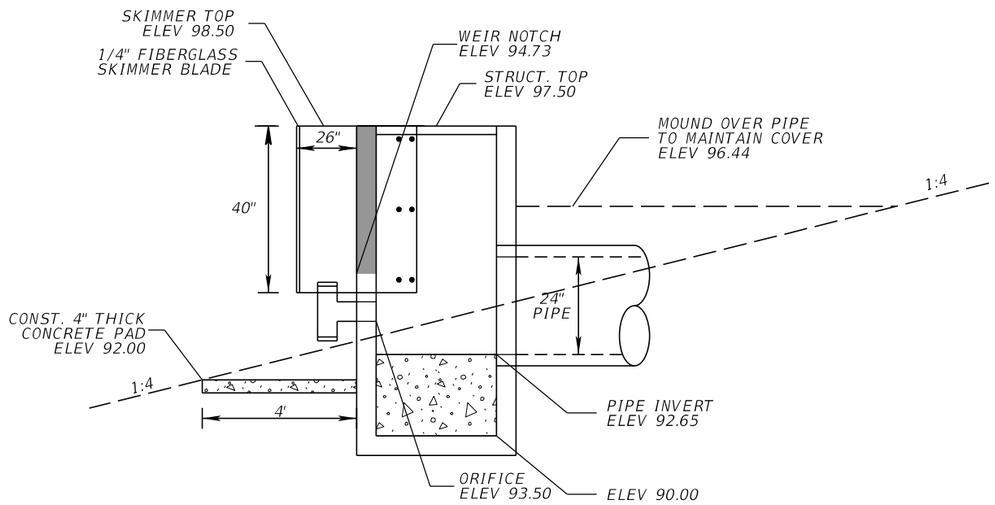
NOTE:
1. CONTRACTOR SHALL CUT A STAINLESS STEEL PLATE TO DIMENSION AS SHOWN ON TABLE. USE 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

2. SKIMMER ATTACHMENT NOTE: SKIMMER TO BE ATTACHED TO BACK OF STRUCTURE USING 3/8" STAINLESS STEEL STUD TYPE EXPANSION ANCHOR WITH NUT AND WASHER. EMBEDDED DEPTH TO BE 2-1/2". ANCHORS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE ENGINEER.

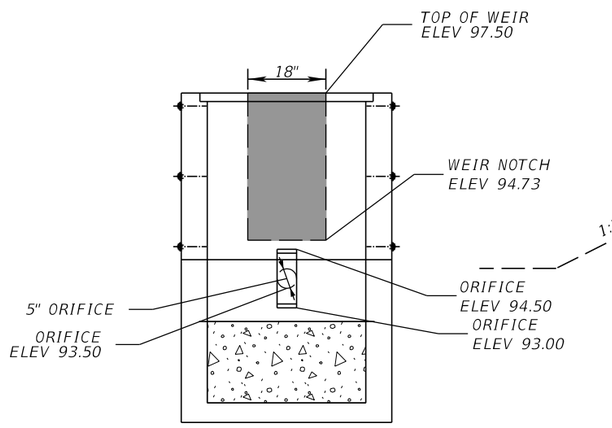
3. MOUNTING STRAPS SHALL BE 1/4" THICK BENT STAINLESS STEEL PLATES WITH DRILLED HOLES.

4. FASTEN MOUNTING STRAP IN WITH 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

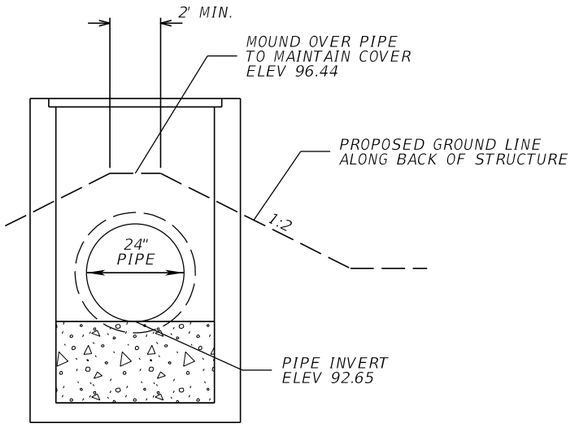
5. ALL CONTROL STRUCTURES SHALL HAVE STEEL RECTICULAR GRATES.



SECTION A-A
NTS



FRONT VIEW
NTS



BACK VIEW
NTS

SECTION B-B
NTS

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

CONTROL STRUCTURE DETAIL
POND 105A

SHEET NO. 431

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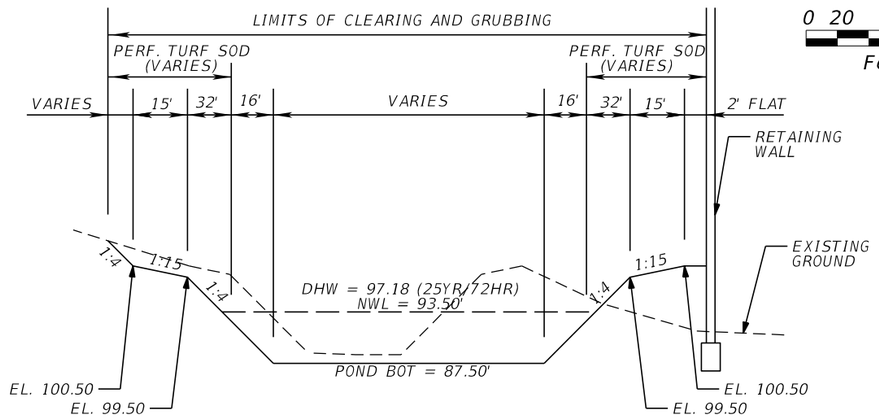
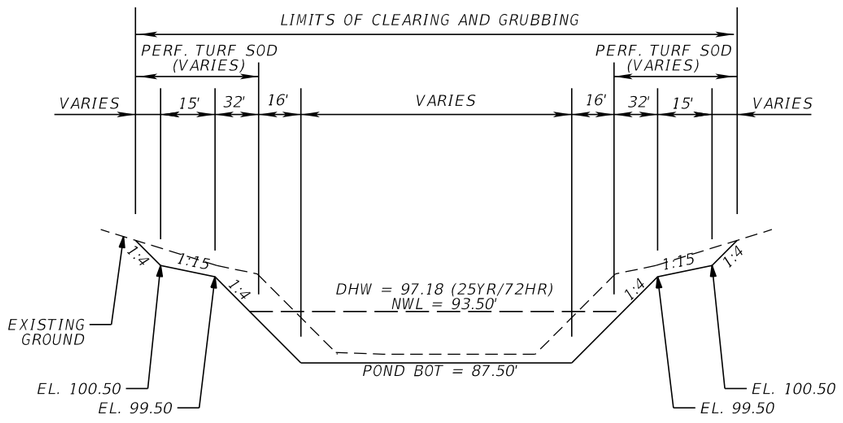
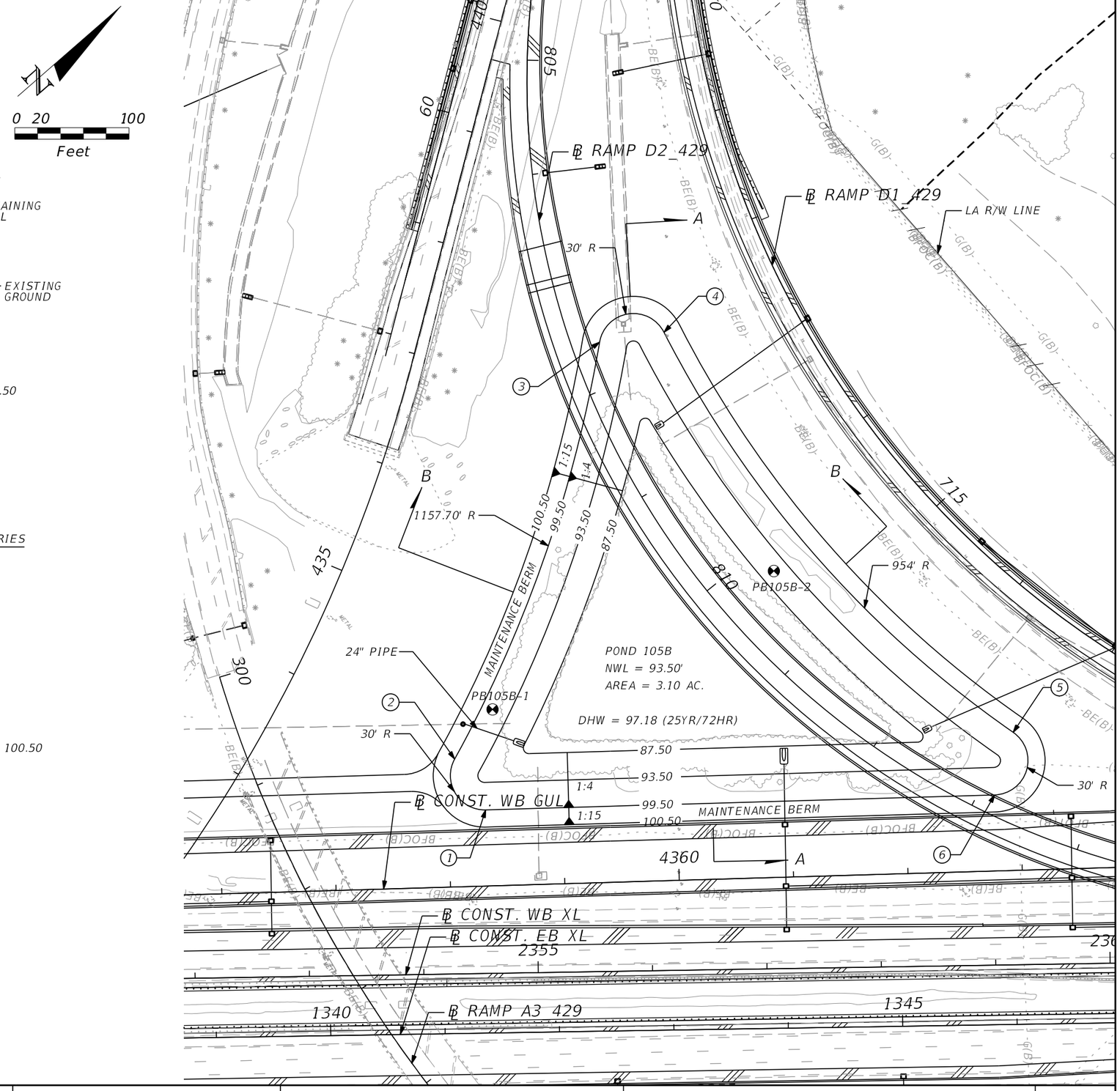


POND 105B TYPICAL SECTION A-A
NTS



POND 105B TYPICAL SECTION B-B
NTS



REFERENCE POINT	℄ CONST. GWBI4	OFFSET (FT)	SIDE
1	4358+32.76	66.50	LT
2	4358+06.89	111.70	LT
3	4359+44.24	472.15	LT
4	4360+00.77	479.14	LT
5	4362+95.61	120.62	LT
6	4362+77.78	66.50	LT

LEGEND

ESHW = ESTIMATED SEASONAL HIGH WATER
DHW = DESIGN HIGH WATER
⊠ = APPROXIMATE BORING LOCATION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

POND DETAIL
POND 105B

SHEET NO. 432

PRELIMINARY: NOT FOR CONSTRUCTION

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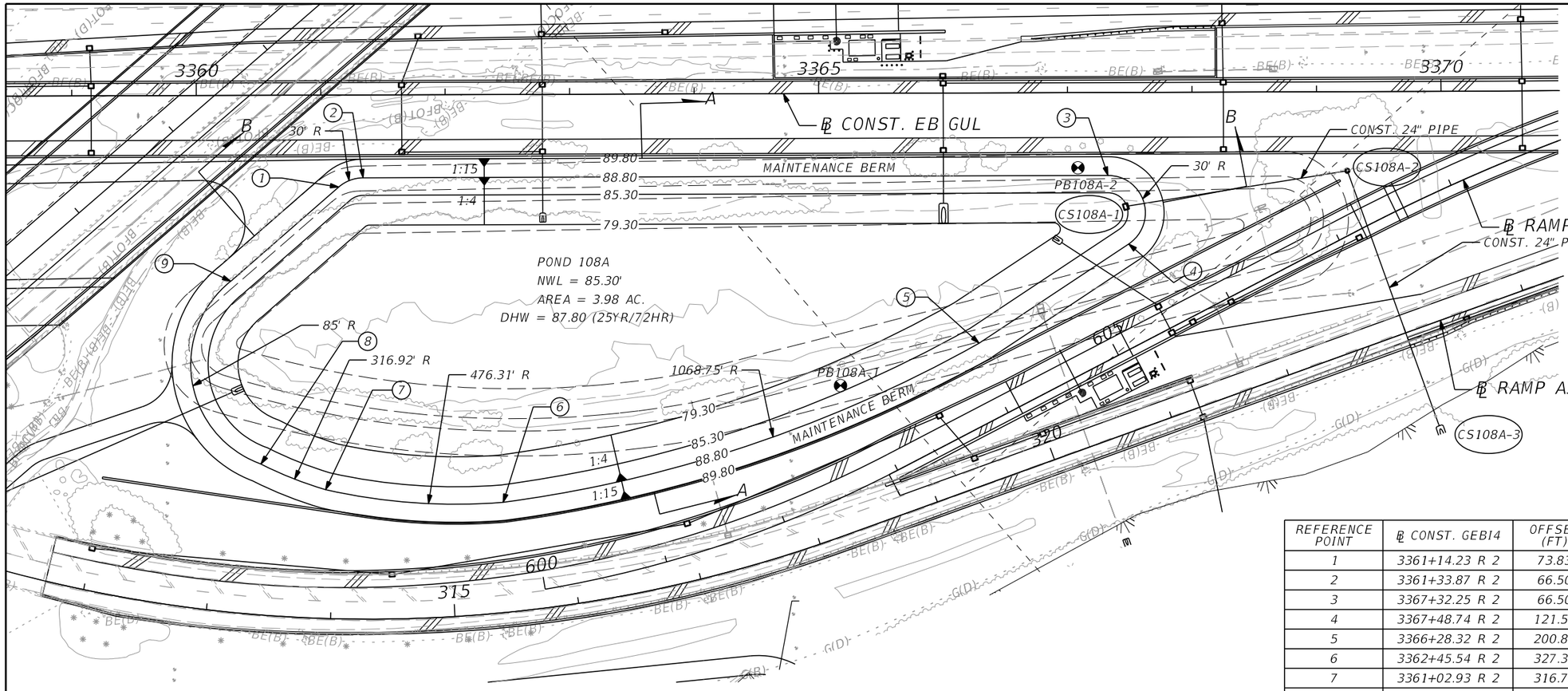


0 20 100
Feet

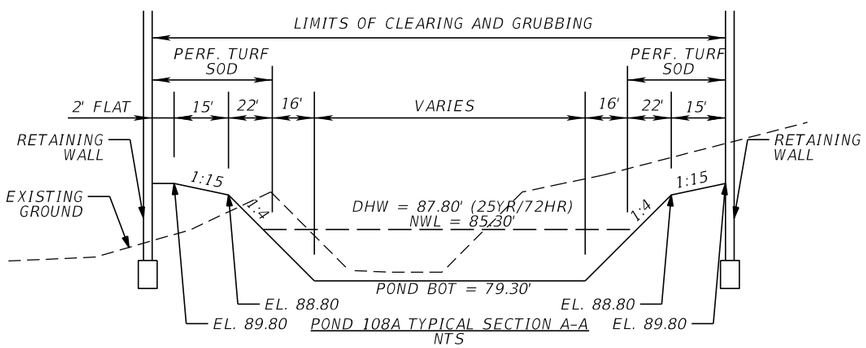
CS108A-2

CONST. MANHOLE P-8
STA. 3369+24.56, 63.45' RT
INDEX NO. 272
FL 82.50 LT

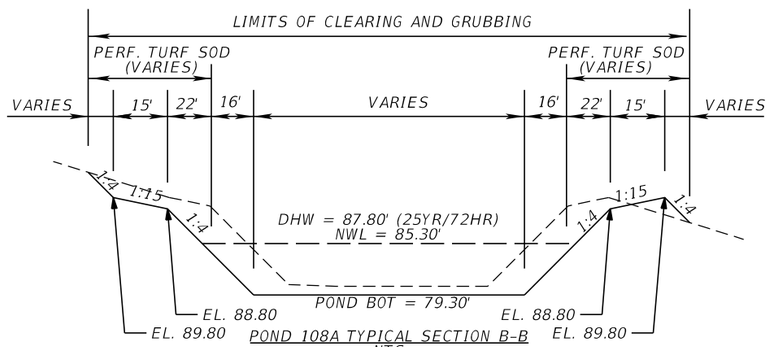
CS108A-3

CONST. CD MES (1:4)
STA. 3369+97.46, 269.31' RT
INDEX NO. 272
FL 82.50 LT

REFERENCE POINT	℄ CONST. GEBI4	OFFSET (FT)	SIDE
1	3361+14.23 R 2	73.83	RT
2	3361+33.87 R 2	66.50	RT
3	3367+32.25 R 2	66.50	RT
4	3367+48.74 R 2	121.56	RT
5	3366+28.32 R 2	200.80	RT
6	3362+45.54 R 2	327.30	RT
7	3361+02.93 R 2	316.70	RT
8	3360+51.06 R 2	295.96	RT
9	3360+27.21 R 2	149.15	RT



POND 108A TYPICAL SECTION A-A
NTS



POND 108A TYPICAL SECTION B-B
NTS

LEGEND

ESHW = ESTIMATED SEASONAL HIGH WATER
DHW = DESIGN HIGH WATER
☢ = APPROXIMATE BORING LOCATION

PRELIMINARY; NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

POND DETAIL
POND 108A

SHEET NO. 436

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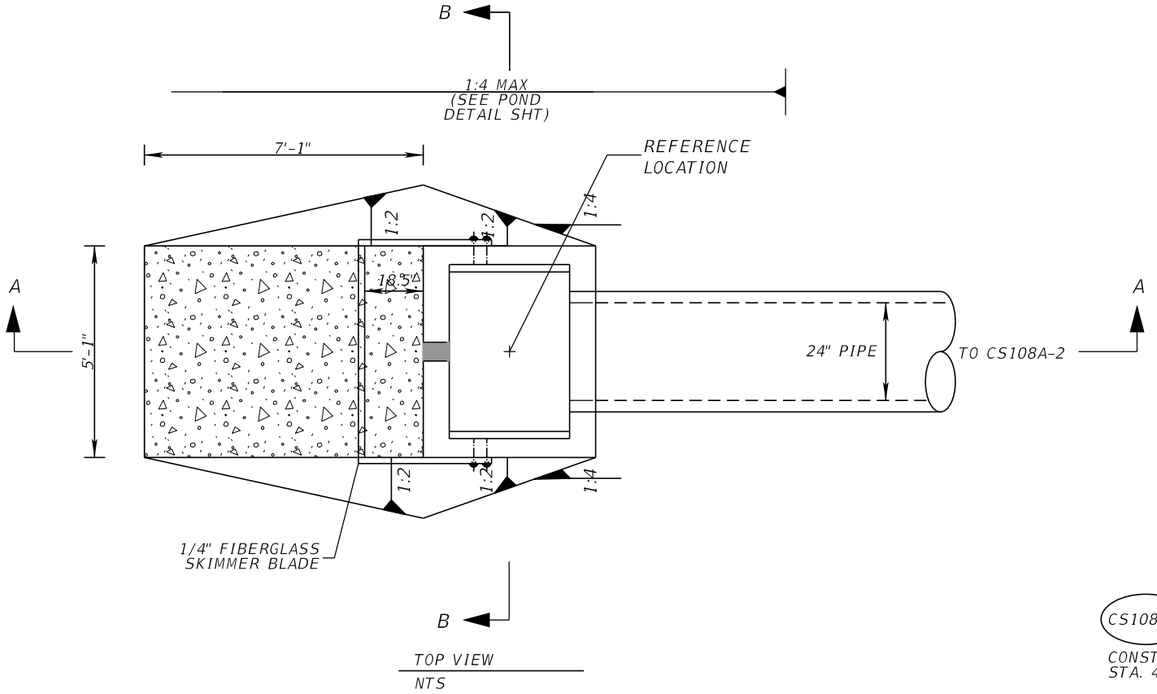


TOP VIEW
NTS

CS108A-1

CONST. DBI TYPE D-MOD
STA. 4372+77.08, 314.53' RT.

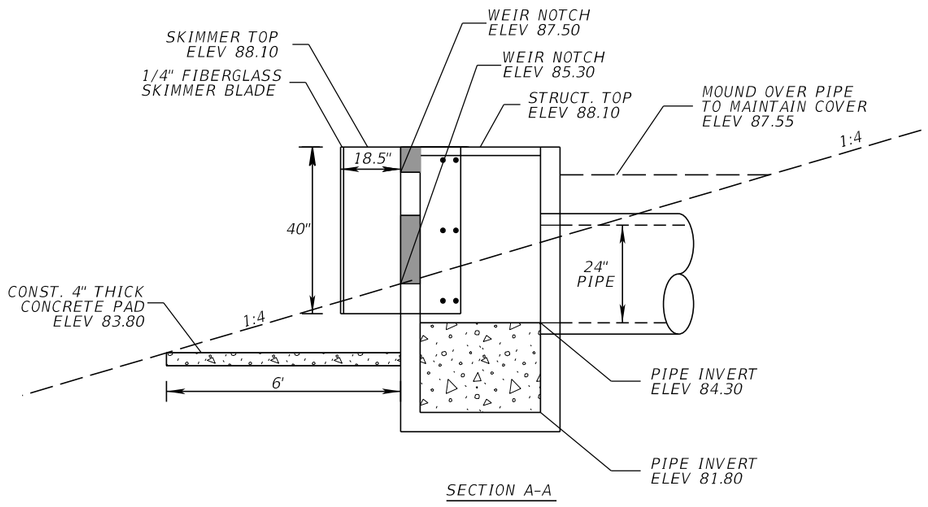
NOTE:
1. CONTRACTOR SHALL CUT A STAINLESS STEEL PLATE TO DIMENSION AS SHOWN ON TABLE. USE 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

2. SKIMMER ATTACHMENT NOTE: SKIMMER TO BE ATTACHED TO BACK OF STRUCTURE USING 3/8" STAINLESS STEEL STUD TYPE EXPANSION ANCHOR WITH NUT AND WASHER. EMBEDDED DEPTH TO BE 2-1/2". ANCHORS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE ENGINEER.

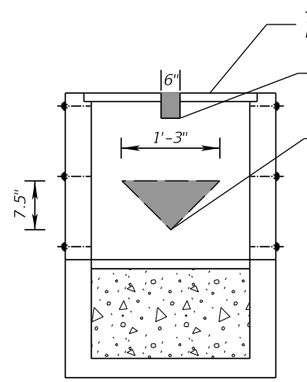
3. MOUNTING STRAPS SHALL BE 1/4" THICK BENT STAINLESS STEEL PLATES WITH DRILLED HOLES.

4. FASTEN MOUNTING STRAP IN WITH 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

5. ALL CONTROL STRUCTURES SHALL HAVE STEEL RECTICULAR GRATES.

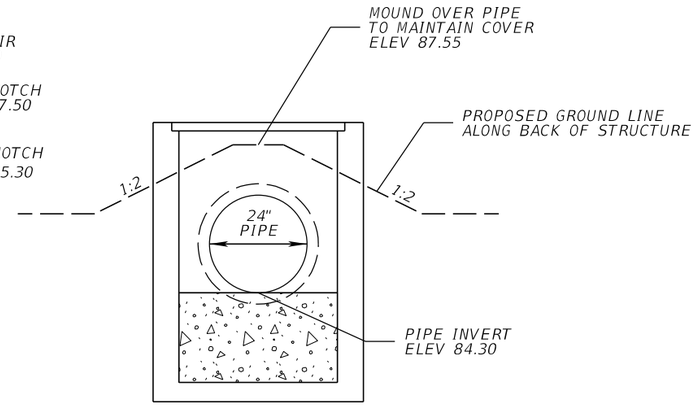


SECTION A-A
NTS



FRONT VIEW
NTS

SECTION B-B
NTS



BACK VIEW
NTS

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

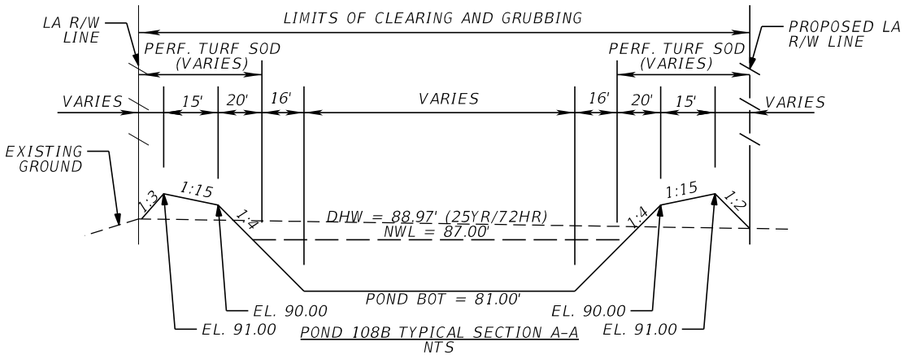
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

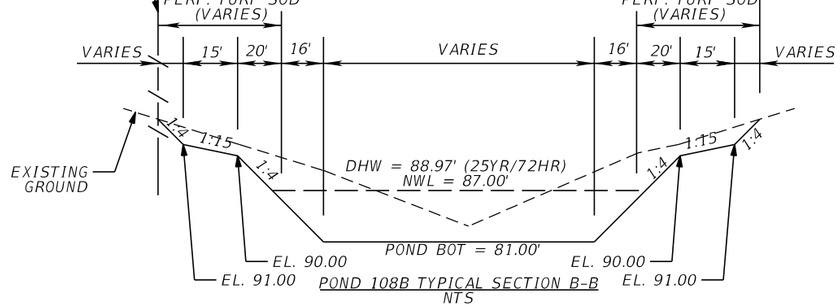
CONTROL STRUCTURE DETAIL
POND 108A

SHEET NO. 437

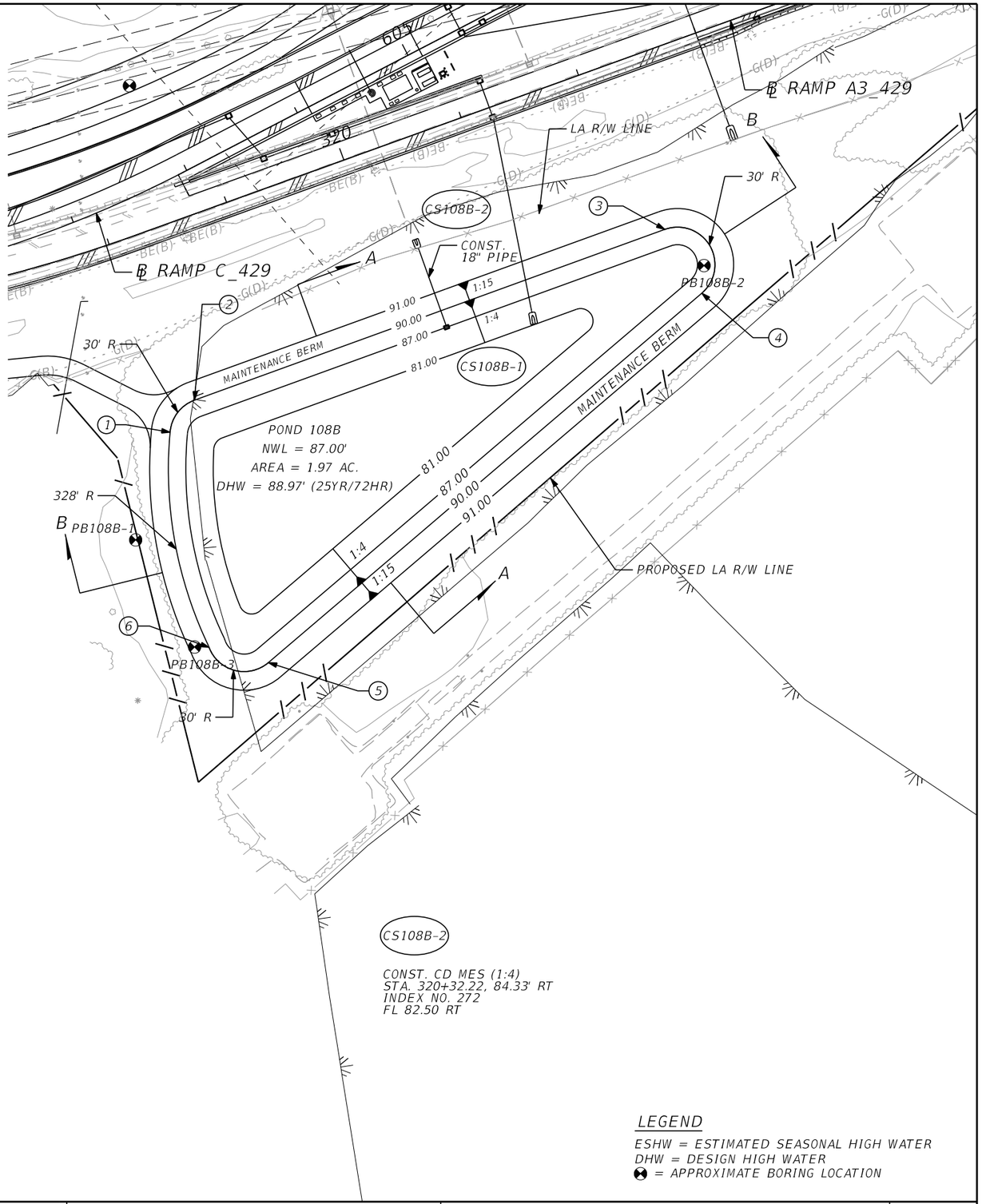
PRELIMINARY: NOT FOR CONSTRUCTION



POND 108B TYPICAL SECTION A-A
NTS



POND 108B TYPICAL SECTION B-B
NTS



REFERENCE POINT	℄ RAMP A3_429	OFFSET (FT)	SIDE
1	317+97.79	158.25	RT
2	318+22.12	140.38	RT
3	322+23.22	139.70	RT
4	322+33.83	197.78	RT
5	318+09.38	358.43	RT
6	317+77.82	330.47	RT

LEGEND

ESHW = ESTIMATED SEASONAL HIGH WATER
DHW = DESIGN HIGH WATER
☢ = APPROXIMATE BORING LOCATION

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

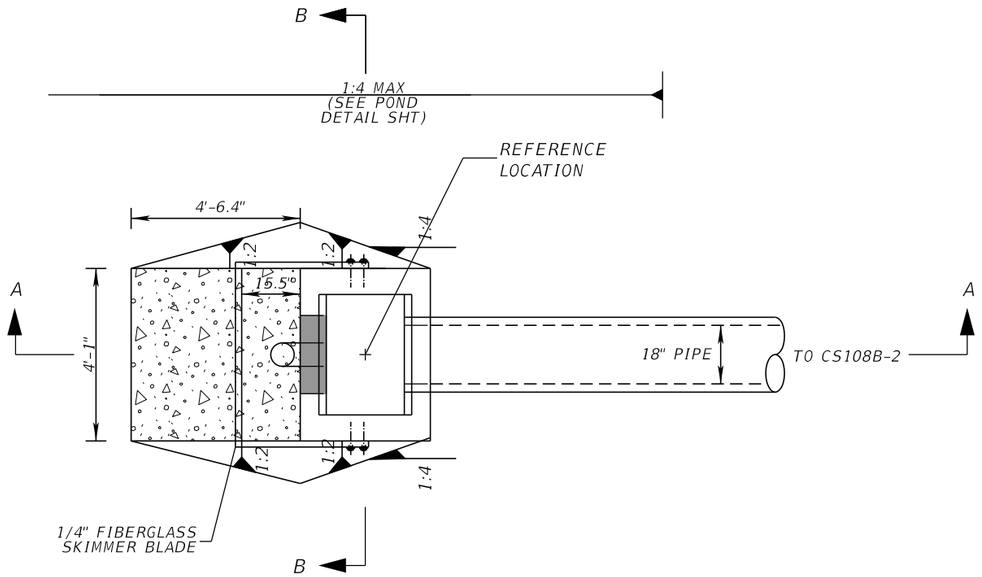
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

POND DETAIL
POND 108B

SHEET NO. 438

robert.martini 3/27/2018 10:43:14 AM c:\pwworking\aecom_na\rmartini\dms28215\DRDTRD02_POND108B_A.DGN



TOP VIEW
NTS

CS108B-1

CONST. DBI TYPE C-MOD
STA. 4373+00.96, 651.79' RT.

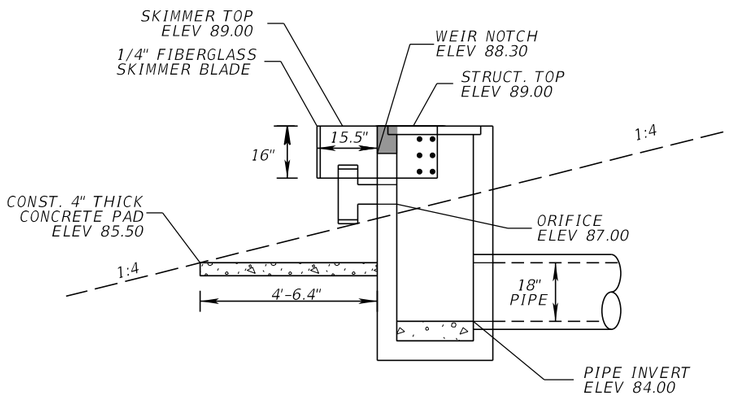
NOTE:
1. CONTRACTOR SHALL CUT A STAINLESS STEEL PLATE TO DIMENSION AS SHOWN ON TABLE. USE 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

2. SKIMMER ATTACHMENT NOTE: SKIMMER TO BE ATTACHED TO BACK OF STRUCTURE USING 3/8" STAINLESS STEEL STUD TYPE EXPANSION ANCHOR WITH NUT AND WASHER. EMBEDDED DEPTH TO BE 2-1/2". ANCHORS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS OR AS DIRECTED BY THE ENGINEER.

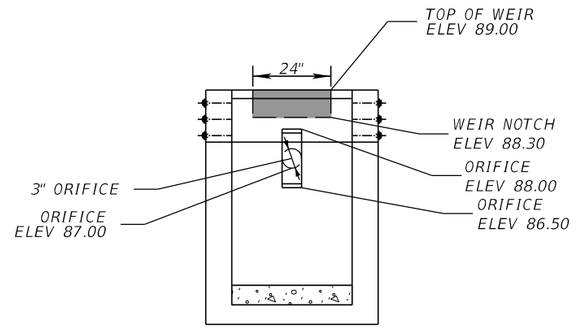
3. MOUNTING STRAPS SHALL BE 1/4" THICK BENT STAINLESS STEEL PLATES WITH DRILLED HOLES.

4. FASTEN MOUNTING STRAP IN WITH 1/2" X 4" EXPAN. STAINLESS STEEL ANCHOR BOLT.

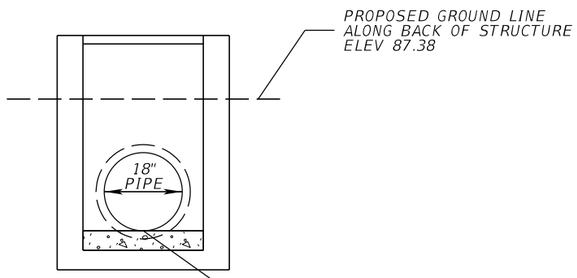
5. ALL CONTROL STRUCTURES SHALL HAVE STEEL RECTICULAR GRATES.



SECTION A-A
NTS



FRONT VIEW
NTS



BACK VIEW
NTS

SECTION B-B
NTS

PRELIMINARY: NOT FOR CONSTRUCTION

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

CONTROL STRUCTURE DETAIL
POND 108B

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OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

BSN105
TOTAL AREA: 54.07 AC.
IMPERVIOUS AREA: 28.75 AC.
PERVIOUS AREA: 19.73 AC.
WATER SURFACE: 5.59 AC.
CN: 55.19
DCIA: 34.34 AC.
NDCIA: 19.73 AC.
Tc (105A): 18.67 MIN (CALCULATED)
Tc (105B): 27.84 MIN (CALCULATED)

BSN106
TOTAL AREA: 21.38 AC.
IMPERVIOUS AREA: 11.84 AC.
PERVIOUS AREA: 6.90 AC.
WATER SURFACE: 2.64 AC.
CN: 56.83
DCIA: 14.48 AC.
NDCIA: 6.90 AC.
Tc: 20.89 MIN (CALCULATED)

BSN1060FF
TOTAL AREA: 4.25 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 4.25 AC.
WATER SURFACE: 0.00 AC.
CN: 49.00
DCIA: 0.00 AC.
NDCIA: 4.25 AC.
Tc: 38.07 MIN (CALCULATED)

BSN107
TOTAL AREA: 7.30 AC.
IMPERVIOUS AREA: 2.92 AC.
PERVIOUS AREA: 2.64 AC.
WATER SURFACE: 1.74 AC.
CN: 49.00
DCIA: 4.66 AC.
NDCIA: 2.64 AC.
Tc: 15.45 MIN (CALCULATED)

BSN108A
TOTAL AREA: 17.83 AC.
IMPERVIOUS AREA: 11.00 AC.
PERVIOUS AREA: 4.01 AC.
WATER SURFACE: 2.82 AC.
CN: 58.17
DCIA: 13.82 AC.
NDCIA: 4.01 AC.
Tc: 24.69 MIN (CALCULATED)

BSN108B
TOTAL AREA: 8.35 AC.
IMPERVIOUS AREA: 2.39 AC.
PERVIOUS AREA: 4.80 AC.
WATER SURFACE: 1.16 AC.
CN: 49.00
DCIA: 3.55 AC.
NDCIA: 4.80 AC.
Tc: 16.36 MIN (CALCULATED)

UNTREATED BASIN:

BSN0LW
TOTAL AREA: 3.08 AC.
IMPERVIOUS AREA: 3.08 AC.
PERVIOUS AREA: 0.00 AC.
WATER SURFACE: 0.00 AC.
CN: 98.00
DCIA: 0.00 AC.
NDCIA: 3.08 AC.
Tc: 13.02 MIN (CALCULATED)

0 100 400
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL PROPOSED BASIN MAP

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DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN108A			**DATE**
POND/NODE DESIGNATION:	PR_PND108A	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	2.82	282.00
			TOTALS	**2.82**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	11.00	1078.00
			TOTALS	**11.00**	

Existing Pond G-1; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Gravel (Rail Corridor)		A	76	0.96	72.66
Gravel (Rail Corridor)		D	91	0.26	23.66
Open Land (Grass Cover 50% - 70%)		A	49	2.79	136.71
Open Land (Grass Cover 50% - 70%)		D	84		0.00
			TOTALS	**4.01**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**13.82**	**TOTAL BASIN AREA**	**17.83**	**COMPOSITE CN**	**58.17**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**233.38**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	-5.72	33.12	**49.20**
Osceola County	10 yr/72 hr	7.84	-5.72	24.69	**36.68**
SFWMD	25 yr/72 hr	9.80	-5.72	22.91	**34.03**
RCID	50 yr/72 hr	12.91	-5.72	23.69	**35.18**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN108B			**DATE**
POND/NODE DESIGNATION:	PR_PND108B	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	1.16	116.00
			TOTALS	**1.16**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	2.39	234.22
			TOTALS	**2.39**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Gravel (Rail Corridor)		A	76		0.00
Gravel (Rail Corridor)		D	91		0.00
Open Land (Grass Cover 50% - 70%)		A	49	4.80	235.20
Open Land (Grass Cover 50% - 70%)		D	84		0.00
			TOTALS	**4.80**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**3.55**	**TOTAL BASIN AREA**	**8.35**	**COMPOSITE CN**	**49.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**70.11**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	4.26	2.98	**2.07**
Osceola County	10 yr/72 hr	7.84	4.26	4.34	**3.02**
SFWMD	25 yr/72 hr	9.80	4.26	6.06	**4.22**
RCID	50 yr/72 hr	12.91	4.26	8.91	**6.20**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	3/19/2018

Water Quality

Total Basin Area =	17.83	ac
Pond Area at NWL =	2.82	ac
Paved Area (Treated) =	11.00	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	1.49	Ac-Ft
B.	2.5	" Times Treated Paved Area =	2.29	Ac-Ft
		Required PAV =	**2.29**	Ac-Ft

Existing Pond G-1; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
89.80	Outside Berm	3.98				14.49
			3.67	1.00	3.67	
88.80	Inside Berm	3.36				10.82
			3.28	1.00	3.28	
87.80	(ATT)	3.21				7.53
			3.18	0.30	0.95	
87.50	(PAV)	3.16				6.58
			2.99	2.20	6.58	
85.30	(NWL)	2.82				0.00
79.30	Pond Bottom	1.87				

Provided PAV = 6.58 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 0.63 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 5.95 Ac-Ft

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108B	**CHECKED BY:**	REC	3/19/2018

Water Quality

Total Basin Area =	8.35	ac
Pond Area at NWL =	1.16	ac
Paved Area (Treated) =	2.39	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	0.70	Ac-Ft
B.	2.5	" Times Treated Paved Area =	0.50	Ac-Ft
		Required PAV =	**0.70**	Ac-Ft

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
91.00	Outside Berm	1.97				5.79
			1.75	1.00	1.75	
90.00	Inside Berm	1.53				4.04
			1.47	1.00	1.47	
89.00	(ATT)	1.41				2.57
			1.36	0.70	0.95	
88.30	(PAV)	1.32				1.61
			1.24	1.30	1.61	
87.00	(NWL)	1.16				0.00
81.00	Pond Bottom	0.58				

Provided PAV = 1.61 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 0.30 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 1.31 Ac-Ft

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	3/19/2018

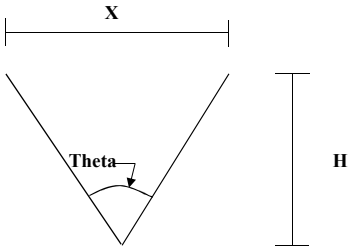
WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

V-notch Design

Theta = 2*atan(0.492*Vdet/H^2.5)

X = tan(theta/2)*(H)*(2)



Vdet =	0.63	Ac-Ft
H =	0.624	ft
Theta =	90.0	deg
X =	1.25	ft

NOTE:
Vdet = Maximum design discharge: 1/2 inch of the detention volume in 24 hrs
(Refer to Pond Calculations for determination of **Vdet**)

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	MOL	10/3/2018
POND/NODE DESIGNATION:	PR_PND108B	**CHECKED BY:**	REC	10/3/2018

WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

Orifice Design:

Pond Control Elevation:	87.00	ft			
Req'd Bleed down in 1st 24 hrs:	0.30	ac-ft	=	0.15	cfs
PAV elevation:	88.30	ft			

Orifice Type: **Circular**

$Q = 4.8*A*H^{1/2}$

H = PAV - Control Elev 1.30

$A = \pi*D^2/4$

$D = [4*Q/\pi*4.8*H^{1/2}]^{1/2}$

D =	0.19	ft	≈	2.25	in

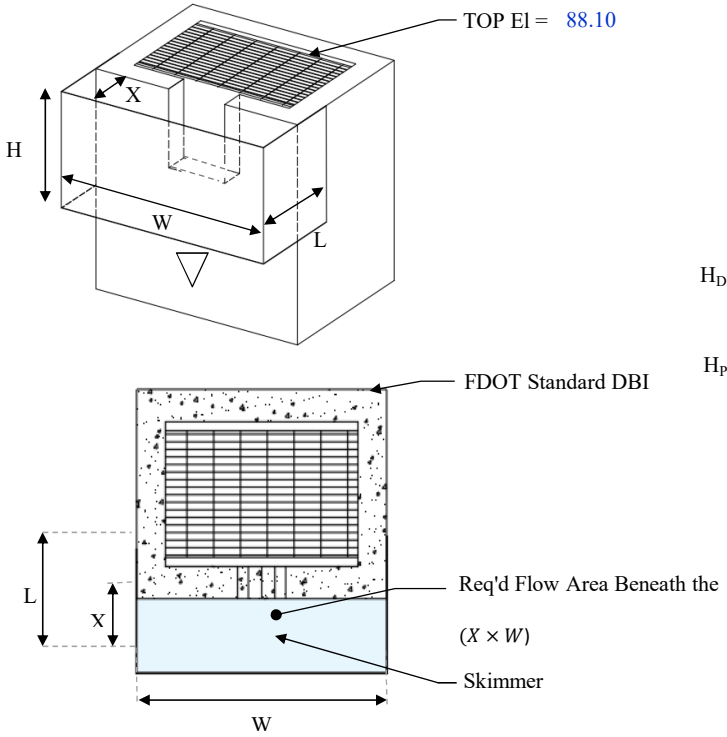
Note: Orifice sizing based on SFWMD criteria and methodology

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	03/12/2018

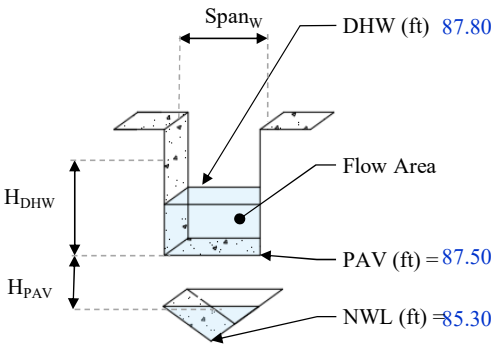
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H_{DHW} (ft) = 0.30
H_{PAV} (ft) = 2.20
$Span_W$ (ft) = 0.50
$Span_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 0.15 ft^2

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft^2

Total Area = **0.15** ft^2

Skimmer Dimensions:

FDOT DBI Type = D
Length "**L**" (In.) = 31.00
Height "**H**" (In.) = 40.00
Width "**W**" (In.) = 65.00
Standoff "**X**" (In.) = 18.50

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**0.15**	ft^2
Req'd Flow Area Beneath the Skimmer =	**0.45**	ft^2
Flow Area Beneath Skimmer =	**8.35**	ft^2

Design Checks:

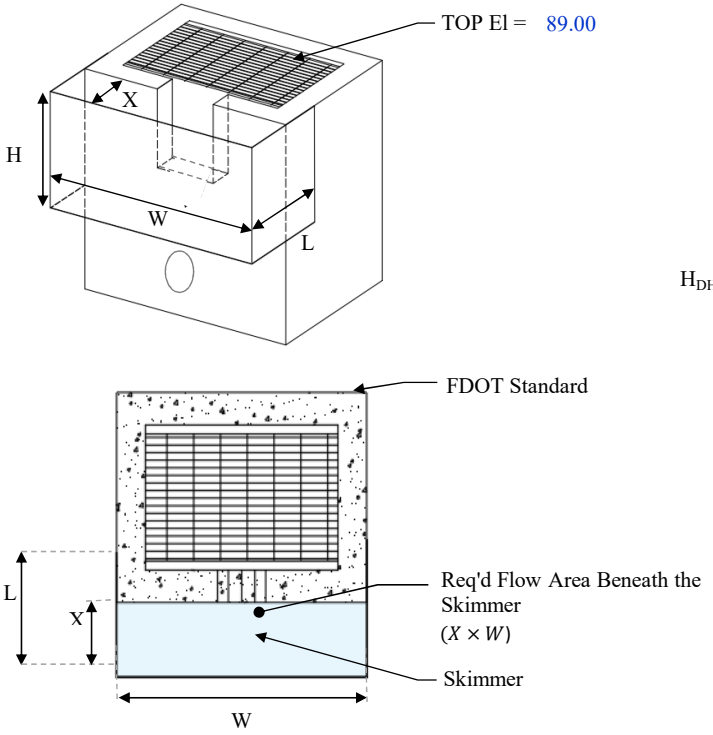
Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood consulting engineers
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_POND108B	**CHECKED BY:**	REC	03/12/2018

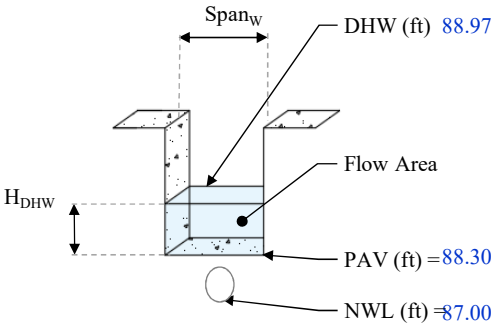
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H_{DHW} (ft) = 0.67
H_{PAV} (ft) = 1.30
$Span_W$ (ft) = 2.00
$Span_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 1.34 ft²

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft²

Total Area = **1.34** ft²

Skimmer Dimensions:

FDOT DBI Type = C
Length "**L**" (In.) = 28.00
Height "**H**" (In.) = 16.00
Width "**W**" (In.) = 53.00
Standoff "**X**" (In.) = 15.50

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**1.34**	ft²
Req'd Flow Area Beneath the Skimmer =	**4.02**	ft²
Flow Area Beneath Skimmer =	**5.70**	ft²

Design Checks:

Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

BSN105
TOTAL AREA: 54.07 AC.
IMPERVIOUS AREA: 28.75 AC.
PERVIOUS AREA: 19.73 AC.
WATER SURFACE: 5.59 AC.
CN: 55.19
DCIA: 34.34 AC.
NDCIA: 19.73 AC.
Tc (105A): 18.67 MIN (CALCULATED)
Tc (105B): 27.84 MIN (CALCULATED)

BSN106
TOTAL AREA: 21.38 AC.
IMPERVIOUS AREA: 11.84 AC.
PERVIOUS AREA: 6.90 AC.
WATER SURFACE: 2.64 AC.
CN: 56.83
DCIA: 14.48 AC.
NDCIA: 6.90 AC.
Tc: 20.89 MIN (CALCULATED)

BSN106OFF
TOTAL AREA: 4.25 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 4.25 AC.
WATER SURFACE: 0.00 AC.
CN: 49.00
DCIA: 0.00 AC.
NDCIA: 4.25 AC.
Tc: 38.07 MIN (CALCULATED)

BSN107
TOTAL AREA: 7.30 AC.
IMPERVIOUS AREA: 2.92 AC.
PERVIOUS AREA: 2.64 AC.
WATER SURFACE: 1.74 AC.
CN: 49.00
DCIA: 4.66 AC.
NDCIA: 2.64 AC.
Tc: 15.45 MIN (CALCULATED)

BSN108A
TOTAL AREA: 17.83 AC.
IMPERVIOUS AREA: 11.00 AC.
PERVIOUS AREA: 4.01 AC.
WATER SURFACE: 2.82 AC.
CN: 58.17
DCIA: 13.82 AC.
NDCIA: 4.01 AC.
Tc: 24.69 MIN (CALCULATED)

BSN108B
TOTAL AREA: 8.35 AC.
IMPERVIOUS AREA: 2.39 AC.
PERVIOUS AREA: 4.80 AC.
WATER SURFACE: 1.16 AC.
CN: 49.00
DCIA: 3.55 AC.
NDCIA: 4.80 AC.
Tc: 16.36 MIN (CALCULATED)

UNTREATED BASIN:

BSN0LW
TOTAL AREA: 3.08 AC.
IMPERVIOUS AREA: 3.08 AC.
PERVIOUS AREA: 0.00 AC.
WATER SURFACE: 0.00 AC.
CN: 98.00
DCIA: 0.00 AC.
NDCIA: 3.08 AC.
Tc: 13.02 MIN (CALCULATED)

0 100 400
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL PROPOSED BASIN MAP

SHEET NO.

mlaos 3/19/2018 8:03:47 AM c:\pwworking\aecom_na\mlaos\dms31135\OUTFALL_2C_POST_BASIN_MAP.DGN

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105			**DATE**
POND/NODE DESIGNATION:	PR_PND105A & B	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	5.59	559.00
			TOTALS	**5.59**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	28.75	2817.50
			TOTALS	**28.75**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	16.24	795.76
Open Land (Grass Cover 50% - 70%)		D	84	3.49	293.16
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**19.73**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**34.34**	**TOTAL BASIN AREA**	**54.07**	**COMPOSITE CN**	**55.19**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.59**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.11	4.23	**19.08**
Osceola County	10 yr/72 hr	7.84	2.11	5.78	**26.03**
SFWMD	25 yr/72 hr	9.80	2.11	7.66	**34.50**
RCID	50 yr/72 hr	12.91	2.11	10.68	**48.14**

DAVENPORT CREEK TRIBUTARY (POND 105A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105A			**DATE**
POND/NODE DESIGNATION:	PR_PND105A	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	3.83	383.00
			TOTALS	**3.83**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	24.38	2389.34
			TOTALS	**24.38**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	13.78	675.22
Open Land (Grass Cover 50% - 70%)		D	84	3.49	293.16
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**17.27**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**28.21**	**TOTAL BASIN AREA**	**45.48**	**COMPOSITE CN**	**56.07**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.25**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.16	4.20	**15.91**
Osceola County	10 yr/72 hr	7.84	2.16	5.74	**21.74**
SFWMD	25 yr/72 hr	9.80	2.16	7.61	**28.86**
RCID	50 yr/72 hr	12.91	2.16	10.64	**40.32**

DAVENPORT CREEK TRIBUTARY (POND 105B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105B			**DATE**
POND/NODE DESIGNATION:	PR_PND105B	**MADE BY:**	MOL	10/5/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	10/5/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	1.76	176.00
			TOTALS	**1.76**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	4.37	428.16
Proposed Roadway (Treated)			98	2.00	196.00
			TOTALS	**6.37**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	2.46	120.54
Open Land (Grass Cover 50% - 70%)		A	49	3.31	162.19
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**5.77**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**8.13**	**TOTAL BASIN AREA**	**13.90**	**COMPOSITE CN**	**49.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**77.91**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.84	3.75	**4.34**
Osceola County	10 yr/72 hr	7.84	2.84	5.23	**6.06**
SFWMD	25 yr/72 hr	9.80	2.84	7.06	**8.18**
RCID	50 yr/72 hr	12.91	2.84	10.04	**11.63**

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

Water Quality

Total Basin Area =	59.38	ac
Pond Area at NWL =	5.59	ac
Paved Area (Treated) =	26.38	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	4.95	Ac-Ft
B.	2.5	" Times Treated Paved Area =	5.50	Ac-Ft
		Required PAV =	**5.50**	Ac-Ft

Existing Pond F-4-A & B; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations Pond 105A

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	5.61				31.45
			5.26	1.00	5.26	
99.50	Inside Berm	4.90				26.19
			4.81	1.00	4.81	
98.50	(ATT)	4.72				21.38
			4.39	3.77	16.55	
94.73	(PAV)	4.05				4.83
			3.94	1.23	4.83	
93.50	(NWL)	3.83				0.00
84.50	Pond Bottom	2.44				

Provided PAV = 4.83 ac-ft.

Stage Storage Calculations Pond 105B

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	3.09				15.75
			2.82	1.00	2.82	
99.50	Inside Berm	2.55				12.93
			2.48	1.00	2.48	
98.50	(ATT)	2.42				10.45
			2.17	3.77	8.19	
94.73	(PAV)	1.92				2.26
			1.84	1.23	2.26	
93.50	(NWL)	1.76				0.00
84.50	Pond Bottom	1.07				

Provided PAV = 2.26 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 2.24 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 2.59 Ac-Ft

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	8.70				47.20
			8.08	1.00	8.08	
99.50	Inside Berm	7.45				39.12
			7.30	1.00	7.30	
98.50	(ATT)	7.14				31.83
			6.56	3.77	24.73	
94.73	(PAV)	5.97				7.09
			5.78	1.23	7.09	
93.50	(NWL)	5.59				0.00
84.50	Pond Bottom	3.51				

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

Orifice Design:

Pond Control Elevation:	93.50	ft			
Req'd Bleed down in 1st 24 hrs:	2.02	ac-ft	=	1.02	cfs
PAV elevation:	94.73	ft			

Orifice Type: **Circular**

$Q = 4.8*A*H^{1/2}$

H = PAV - Control Elev 1.23

$A = \pi*D^2/4$

$D = [4*Q/\pi*4.8*H^{1/2}]^{1/2}$

D = 0.49 ft ≈ 5.93 in

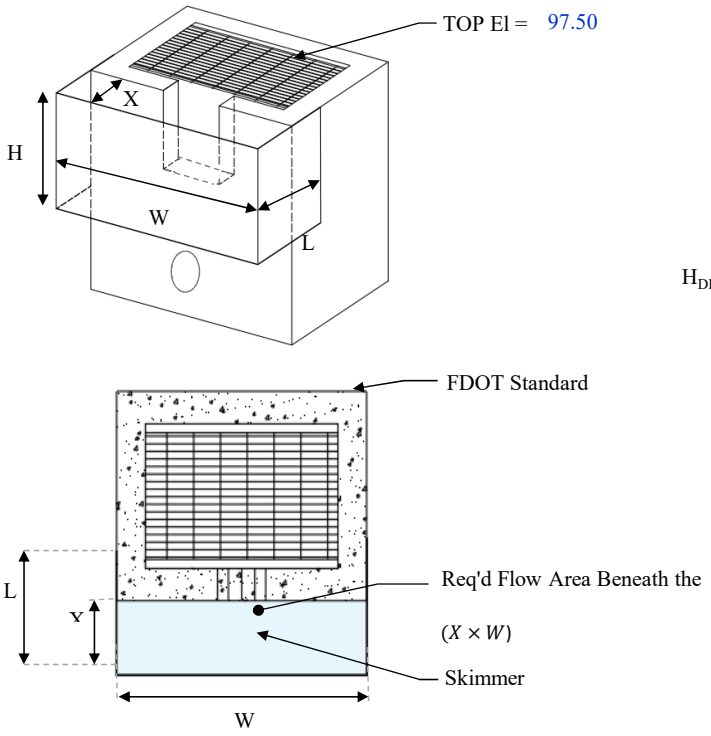
Note: Orifice sizing based on SFWMD criteria and methodology

DAVENPORT CREEK TRIBUTARY (POND 105A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105A	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	03/12/2018

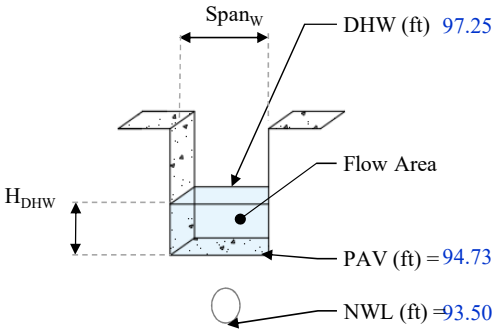
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H$_{DHW}$ (ft) = 2.52
H$_{PAV}$ (ft) = 1.23
Span$_W$ (ft) = 1.50
Span$_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 3.78 ft^2

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft^2

Total Area = **3.78** ft^2

Skimmer Dimensions:

FDOT DBI Type = D
Length "**L**" (In.) = 31.00
Height "**H**" (In.) = 40.00
Width "**W**" (In.) = 65.00
Standoff "**X**" (In.) = 26.00

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**3.78**	ft^2
Req'd Flow Area Beneath the Skimmer =	**11.35**	ft^2
Flow Area Beneath Skimmer =	**11.74**	ft^2

Design Checks:

Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

PONDS 3.3
Nitrogen and Phosphorus Loading Calculator
Version 3.3.113
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Devo Seereeram, Ph.D., P.E.

Data Section 1: Project Data

Node Text: Davenport Creek Outfall Tributary (2)

Project Name: I-4 Beyond the Ultimate - Segment 1

Project Description: FDOT District 5

Project Number: FPID: 431456-1-52-01

Engineer: Jose N. Pereira, P.E.

Supervising Engineer: Dustin Perkins, P.E.

Date: 08-21-2018

End Data Section 1

Data Section 2: Single Basin or Multibasin Pond

Node: Pre vs Post - Treated

Description: Davenport Creek Tributary (2) - Treated

Analysis Type: Predevelopment vs. Postdevelopment
Pond Type: Wet Pond With Pretreatment
Analyze For: Nitrogen and Phosphorus

Climate Data:

Climate zone = 2 - Central Florida
Average annual rainfall depth (inches) = 49.5

Predevelopment Loading Method: Event Mean Concencentration (EMC)

Predevelopment Basins:

Predevelopment Basin Input Parameters					
Basin	Basin ID	Basin Area (acres)	Curve Number	DCIA (%)	Land Use
1	EX_BSNF2A	18.11	48.00	46.22	Highway
2	EX_BSNF2B	2.69	48.00	26.02	Highway
3	EX_BSNF4A	26.39	48.00	51.50	Highway
4	EX_BSNF4B	9.72	48.00	52.57	Highway
Total		56.91	48	48.79816	

Predevelopment Basin Intermediate Parameters						
Basin	Nitrogen Conc. (mg/l)	Phosphorus Conc. (mg/l)	Runoff Coef.	Annual Runoff Volume (ac-ft/yr)	Annual Nitrogen Load (kg/yr)	Annual Phosphorus Load (kg/yr)
1	1.37	0.17	0.3814136	28.49303	48.14952	5.974758
2	1.37	0.17	0.22056	2.447389	4.135769	0.5131977
3	1.37	0.17	0.4232	46.06902	77.85066	9.660301
4	1.37	0.17	0.43176	17.31142	29.25405	3.630065
Total	1.37	0.17	0.4017864	94.32086	159.39	19.77832

Predevelopment Non-Runoff Contributing Area (acres):
Predevelopment Total Area (acres):

Postdevelopment Basins:

Postdevelopment Basin Input Parameters					
Basin	Basin ID	Basin Area (acres)	Curve Number	DCIA (%)	Land Use
1	BSN105	54.07	55.19	63.51	Highway
2	BSN106	21.38	56.83	67.73	Highway
3	BSN106OFF	4.25	49.00	0.00	Highway
Total		79.7	55.29986	61.25537	

Postdevelopment Basin Intermediate Parameters						
Basin	Nitrogen Conc. (mg/l)	Phosphorus Conc. (mg/l)	Runoff Coef.	Annual Runoff Volume (ac-ft/yr)	Annual Nitrogen Load (kg/yr)	Annual Phosphorus Load (kg/yr)
1	1.37	0.17	0.5222053	116.472	196.8226	24.42324
2	1.37	0.17	0.556392	49.0696	82.92125	10.2895
3	1.37	0.17	0.014	0.2454375	0.4147575	5.146626E-02
Total	1.37	0.17	0.5042759	165.787	280.1586	34.76421

Postdevelopment Non-Runoff Contributing Area (acres):
Postdevelopment Total Area (acres):

Wet Pond Input Data:

Residence Time (days) =
Anoxic Depth Reduction Factor = 1.0

Note to users in St. Johns River Water Management District:

In SJRWMD, the current removal efficiency limit is 64.5% for a permanent pool volume that provides for a WET SEASON residence time of 21 days. If the WET SEASON residence time is 14 days, then the removal efficiency would be 61.5%.

Also note that the Residence Time entered in the Wet Pond input data in this module is the ANNUAL residence time, not the WET SEASON residence time.

Treatment Train Summary Results:

Required Treatment Train Removal Efficiencies			
Parameter	Req. Total Removal Efficiency (%)	Available Wet Pond Efficiency (%)	Required Pretreatment Efficiency (%)
Nitrogen	43.10723		
Phosphorus	43.10723		

Required Permanent Pool Volume of Wet Pond (ac-ft) =
Estimated Anoxic Depth of Wet Pond (ft) =

Required Design Efficiency of Dry Pond (%) =
Required Retention Depth of Dry Pond (inches) =
Required Retention Volume of Dry Pond (ac-ft) =

Wet Pond Properties:

Annual Runoff Reaching Wet Pond (ac-ft) =
Required Permanent Pool Volume (ac-ft) =
Yearly Phosphorus Load (kg/yr) =
Wet Pond Phorphorus Removal Efficiency (%) =
Annual Mass of Unremoved Phosphorus (kg/yr) =
Mean Phosphorus Concentration in Pond (µg/l) =
Estimated Chlorophyll-a Concentration (mg/m³) =
Estimated Sechi Disk Depth (ft) =
Estimated Anoxic Depth (ft) =

Discharge Summary:

Annual Runoff Volume (ac-ft)		
Annual Discharge Volume (ac-ft)		
Annual Mass of Discharged Nitrogen (kg/yr)		
Annual Mass of Discharged Phosphorus (kg/yr)		
Nitrogen Concentration in Discharge (mg/l)		

Phosphorus Concentration in Discharge (mg/l)

Predevelopment
94.32086
94.32086
159.39
19.77832
1.37

0.17

Postdevelopment

165.787

Achieved Efficiencies:

Achieved Nitrogen Removal Efficiency (%) =
Achieved Phosphorus Removal Efficiency (%) =

End Data Section 2

Data Section 3: Single Basin or Multibasin Pond

Node: Pre vs Post - Untreated

Description: Davenport Creek Tributary (2) - Untreated

Analysis Type: Predevelopment vs. Postdevelopment
Pond Type: Wet Pond With Pretreatment
Analyze For: Nitrogen and Phosphorus

Climate Data:

Climate zone = 2 - Central Florida
Average annual rainfall depth (inches) = 49.5

Predevelopment Loading Method: Event Mean Concencentration (EMC)

Predevelopment Basins:

Predevelopment Basin Input Parameters					
Basin	Basin ID	Basin Area (acres)	Curve Number	DCIA (%)	Land Use
1	EX_BSNF7	8.37	48.00	33.21	Highway
2	EX_BSNG1	20.43	48.00	53.35	Highway
3	EX_S405	1.05	61.81	0.00	Highway
4	EX_BSNOLW	3.20	71.36	0.00	Highway
Total		33.05	50.70053	41.38905	

Predevelopment Basin Intermediate Parameters						
Basin	Nitrogen Conc. (mg/l)	Phosphorus Conc. (mg/l)	Runoff Coef.	Annual Runoff Volume (ac-ft/yr)	Annual Nitrogen Load (kg/yr)	Annual Phosphorus Load (kg/yr)
1	1.37	0.17	0.2776948	9.58776	16.20207	2.010476
2	1.37	0.17	0.438	36.9119	62.37632	7.740127
3	1.37	0.17	0.034344	0.1487524	0.2513722	3.119218E-02
4	1.37	0.17	0.062984	0.8313888	1.404939	0.1743355
Total	1.37	0.17	0.3482679	47.4798	80.2347	9.95613

Predevelopment Non-Runoff Contributing Area (acres):
Predevelopment Total Area (acres):

Postdevelopment Basins:

Postdevelopment Basin Input Parameters					
Basin	Basin ID	Basin Area (acres)	Curve Number	DCIA (%)	Land Use
1	BSN107	7.30	49.00	63.84	Highway
2	BSN108A	17.83	58.17	77.51	Highway
3	BSN108B	8.35	49.00	42.51	Highway
4	BSNOLW	3.08	98.00	0.00	Highway
Total		36.56001	57.60012	60.25693	

Postdevelopment Basin Intermediate Parameters						
Basin	Nitrogen Conc. (mg/l)	Phosphorus Conc. (mg/l)	Runoff Coef.	Annual Runoff Volume (ac-ft/yr)	Annual Nitrogen Load (kg/yr)	Annual Phosphorus Load (kg/yr)
1	1.37	0.17	0.5217056	15.70986	26.54762	3.294231
2	1.37	0.17	0.633846	46.61858	78.77934	9.775539
3	1.37	0.17	0.35248	12.14073	20.51626	2.545813
4	1.37	0.17	0.595	7.559475	12.77453	1.585161
Total	1.37	0.17	0.5439203	82.02864	138.6178	17.20074

Postdevelopment Non-Runoff Contributing Area (acres):
Postdevelopment Total Area (acres):

Wet Pond Input Data:

Residence Time (days) =
Anoxic Depth Reduction Factor = 1.0

Note to users in St. Johns River Water Management District:

In SJRWMD, the current removal efficiency limit is 64.5% for a permanent pool volume that provides for a WET SEASON residence time of 21 days. If the WET SEASON residence time is 14 days, then the removal efficiency would be 61.5%.

Also note that the Residence Time entered in the Wet Pond input data in this module is the ANNUAL residence time, not the WET SEASON residence time.

Treatment Train Summary Results:

Required Treatment Train Removal Efficiencies			
Parameter	Req. Total Removal Efficiency (%)	Available Wet Pond Efficiency (%)	Required Pretreatment Efficiency (%)
Nitrogen	42.11804		
Phosphorus	42.11802		

Required Permanent Pool Volume of Wet Pond (ac-ft) =
Estimated Anoxic Depth of Wet Pond (ft) =

Required Design Efficiency of Dry Pond (%) =
Required Retention Depth of Dry Pond (inches) =
Required Retention Volume of Dry Pond (ac-ft) =

Wet Pond Properties:

Annual Runoff Reaching Wet Pond (ac-ft) =
Required Permanent Pool Volume (ac-ft) =
Yearly Phosphorus Load (kg/yr) =
Wet Pond Phorphorus Removal Efficiency (%) =
Annual Mass of Unremoved Phosphorus (kg/yr) =
Mean Phosphorus Concentration in Pond (µg/l) =
Estimated Chlorophyll-a Concentration (mg/m³) =
Estimated Sechi Disk Depth (ft) =
Estimated Anoxic Depth (ft) =

Discharge Summary:

	Predevelopment	Postdevelopment
Annual Runoff Volume (ac-ft)	47.4798	82.02864
Annual Discharge Volume (ac-ft)	47.4798	
Annual Mass of Discharged Nitrogen (kg/yr)	80.2347	
Annual Mass of Discharged Phosphorus (kg/yr)	9.95613	
Nitrogen Concentration in Discharge (mg/l)	1.37	
Phosphorus Concentration in Discharge (mg/l)	0.17	

Achieved Efficiencies:

Achieved Nitrogen Removal Efficiency (%) =
Achieved Phosphorus Removal Efficiency (%) =

End Data Section 3

FINAL CONCEPT

STORMWATER MANAGEMENT REPORT

I-4 (SR 400) Beyond the Ultimate Concept

Osceola County, Florida

Financial Project ID No.:
431456-1-52-01

Prepared for:

FLORIDA DEPARTMENT OF TRANSPORTATION

Prepared by:

AECOM Technical Services, Inc.
150 North Orange Avenue, Suite 200
Orlando, FL 32801

March 2018

3.0 EXISTING CONDITIONS

3.1 Cross Drains

Existing Cross Drains have been analyzed using historic offsite basins as they were defined on November 12, 1986 when the Florida Administrative Code 14-86 was established. Historic plans and calculations were referenced in development of the basin areas and can be found in **Appendix H**. Due to the interconnectivity of many of the drainage basins, some of the cross drains were incorporated into larger basin models to evaluate the hydraulics. Runoff methodology and software used to perform the analysis was selected based on the contributing basin characteristics, previous/historic analysis performed, and overall connectivity to other systems in the area. The calculations for the cross drains can be found in **Appendix C**.

Existing Cross Drains beneath any portion of roadway that is proposed to be reconstructed will be replaced. Existing Cross Drains within the project area that are under existing roadway to remain shall remain. Existing Drains extensions are not proposed for this project. Please refer to **Exhibit 9** for the general location of the cross drains and **Table 2** for the existing cross drain information.

Table 2 – Existing Cross Drain Summary

Structure NO.	Station	Baseline Alignment Name	Contributing Basin	Size
CD-1	1266+35.66	EB XL I-4	Davenport Creek Basin	2 - 48”
CD-2	1282+19.61	EB XL I-4	Davenport Creek Basin	2 - 9’x7’
CD-3	1294+33.57	EB XL I-4	Davenport Creek Basin	36”
CD-4	1300+26.11	EB XL I-4	Davenport Creek Basin	4 - 12’x8’
CD-5	1334+51.97	EB XL I-4	Davenport Creek Tributary	2 - 7’x4’
CD-6	1363+31.65	EB XL I-4	Offsite Area	42”
CD-7	1387+31.93	EB XL I-4	Offsite Area	2 - 42”
CD-8	1465+31.58	EB XL I-4	Equalizer	2 - 4’x7’
CD-9	1501+51.93	EB XL I-4	Offsite Area and BSN116-120	4’x16’
CD-10	524+78.48	B1_417	Offsite Area	10 - 36”
CD-11	1516+35.10	EB XL I-4	Offsite Area	10 - 48”
CD-12C	327+01.10	A1_417	Offsite Area and BSN 116	2 - 4’x7’
CD-12	333+62.51	A1_417	Offsite Area and BSN 116	2 - 4’x7’
CD-14	1586+40.62	EB XL I-4	C-2 Canal	2 - 5’x7’
CD-15	622+93.70	B1_530	Onsite Area	18”

3.1.4 CD-4

The existing CD-4 is a quadruple (4) twelve (12) foot by eight (8) foot bridge culvert at station 1300+26.11 EB XL I-4 Express lanes. Davenport Creek is a regulatory floodway, and a no-rise certification will be provided. The bridge culvert was constructed in 1960 and spans Davenport Creek. A GeoHECRAS model was developed, version 1.4.0.14483, for Davenport Creek with information provided by FEMA. The Bridge Hydraulics Report for Davenport Creek includes the details and results of this model. This overall model was used to calibrate the pre-development discharge rates and elevations for CD-4. Model Results for the additional storm-events as well as additional cross-drain calculations are included in the Bridge Hydraulics Report.

3.1.5 CD-5

The existing condition of CD-5 includes two (2) seven (7) foot by four (4) foot concrete box culverts at station 1334+51.97 EB XL I-4. The existing culvert information was obtained from the design survey. In the I-4 Six Laning SFWMD permit number 49-000792-S, CD-5 is named S-29, and in the DEP permit No. 49-187636001 for the SR 429 project, it is CD-1-B. It was assumed that the pipe was flowing full and the tailwater would remain constant throughout the events. The tailwater elevation is the headwater elevation computed for the existing CD-17. The roadway elevation, at this location in the downstream end, is around 97.00 ft which is higher than the crown of pipe (tailwater) elevation. The crest length is 2000 ft, the crest elevation is 100.00 NAVD and the top width is 170 ft. The cross drain was analyzed using the HY-8 software, version 7.40.

3.1.6 CD-6

The existing condition of CD-6 includes a single forty-two (42) inch pipe at station 1363+31.65 EB XL I-4. The existing culvert information was obtained from the design survey. In the I-4 Six Laning SFWMD permit number 49-000792-S, CD-6 is named S-30. It was assumed that the pipe was flowing full and the tailwater would remain constant throughout the events. Since the pipe is flowing full, the tailwater elevation is assumed to be the downstream invert elevation + the pipe diameter in order to get to the crown of pipe elevation. The roadway elevation, at this location in the downstream end, is around 90.00 ft which is higher than the crown of pipe (tailwater) elevation. The crest length is 2000 ft, the crest elevation is 92.00 NAVD and the top width is 262 ft. The cross drain was analyzed using the HY-8 software, version 7.40.

3.1.7 CD-7

The existing condition of CD-7 includes two (2) forty-two (42) inch pipes at station 1387+31.93 EB XL I-4. The existing culvert information was obtained from the design survey. In the I-4 Six Laning SFWMD permit number 49-000792-S, CD-7 is named S-31. It was assumed that the pipe was flowing full and the tailwater would remain constant throughout the events. Since the pipe is flowing full, the tailwater elevation is assumed to be the downstream invert elevation + the pipe diameter in order to get to the crown of pipe elevation. The roadway elevation, at this location in the downstream end, is around 81.00 ft which is higher than the crown of pipe (tailwater) elevation. The crest length is 1000 ft, the crest elevation is 81.53 NAVD and the top width is 161 ft. The cross drain was analyzed using the HY-8 software, version 7.40.

year elevations WB and EB of I-4 were used. The elevation WB of I-4 is elevation 98, and the elevation EB is elevation 96.20. These elevations are higher than the pavement on the WB and EB lanes of I-4; however, the elevations were used per the FEMA Flood Insurance Study and the HEC-2 model provided. Per discussion with South Florida Water Management District (SFWMD) floodplain compensation can be provided in Pond 103. SFWMD Permitted calculations for the I-4 Six Laning showed that Basin 3 would impact 1.55 ac-ft of floodplains, and Pond 3 provided adequate floodplain compensation.

3.2.5 Davenport Creek Tributary

There is one area of impact associated with the Davenport Creek Tributary, which include a series of cross drains, under Ramp A, I-4, and Old Lake Wilson Road. The first cross drain is existing CD-16, which is a dual seven (7) foot by four (4) foot CBC which flow east under Ramp A to the Davenport Creek Tributary. Per FEMA FIRM panel No. 12097C0040G the flood zone in the vicinity of the impacts is Zone A. To calculate the impacts, the 100-year elevation for the cross drain analysis was used along the I-4 widening, Ramp A, and Old Lake Wilson Road sections. The second is associated with CD-5, which is dual 7'x4' CBC which flows east under I-4. The third impact area is associated with CD-17, which is the existing triple forty-two (42) inch pipe under Old Lake Wilson Road. Per discussion with South Florida Water Management District (SFWMD) floodplain compensation can be provided in the expanded interchange ponds. SFWMD Permitted calculations for the I-4 Six Laning demonstrated that the interchange ponds would provide 38.08 ac-ft of floodplain compensation which was more than the 27.32 ac-ft of floodplain impacts.

3.2.6 Reedy Creek

In the exist. condition this is a single 42" pipe. In the proposed condition it is a dual 42". This is a typo.

There is one area of impact associated with the Reedy Creek, existing CD-6, which is a dual forty-two (42) inch pipe which flows east under I-4 to Reedy Creek. Per FEMA FIRM panel No. 12097C0040G the flood zone in the vicinity of the impacts is Zone A; however, this area is under the jurisdiction of Reedy Creek Improvement District (RCID). To calculate the impacts, the 100-year elevation from the RCID Master Drainage Plan Update was used along the I-4 widening sections. The impacts calculated were minimal and will be compensated through the regrading of Reedy Creek per the replacement of the bridge. The bridge spans over Reedy Creek which flows east to the Reedy Creek Swamp. SFWMD Permitted calculations for the I-4 Six Laning verified that there were no floodplain impacts per the revised roadway design to incorporate a 1:2 tie in slope with the addition of guardrail.

3.2.7 SR400 (I-4) Eastbound, West of World Drive Interchange

The area adjacent to LT and RT (EB) I-4 from approximately station 1418+00 to 1439+00 is designated by Reedy Creek Development District (RCID) as part of the 100-year floodplain. 100-year floodplain elevations were taken from the RCID UNET Computer model (Updated in December 2009). These areas are located east of SR 400 (I-4) bridge over Reedy Creek south and north of the SR 400 (I-4).

3.2.8 World Drive Eastbound, North of SR 400 (I-4)

The area northwest of SR 400 (I-4)/World Drive Interchange is designated by Reedy Creek Development District (RCID) as part of the 100-year floodplain. 100-year floodplain elevation was taken at cross section in river mile 3.29 from the RCID UNET Computer model (Updated in December 2009), which was developed in order to establish 100-year floodplain elevations for the areas within RCID. This area is located east of SR 400 (I-4) bridge over Reedy Creek.

Table 4 – Proposed Cross Drain Summary

Structure NO.	Station	Baseline Alignment Name	Contributing Basin	Size
CD-1	1266+50.00	EB XL I-4	Davenport Creek Basin	2 - 48”
CD-2	1281+88.78	EB XL I-4	Davenport Creek Basin	2 - 9’x7’
CD-3	1294+33.57	EB XL I-4	Davenport Creek Basin	36”
CD-4	1300+26.27	EB XL I-4	Davenport Creek Basin	4 - 14’x8’
CD-5	1335+04.55	EB XL I-4	Davenport Creek Tributary	2 - 7’x4’
CD-6	1363+29.13	EB XL I-4	Offsite Area	2 - 42”
CD-7	1387+45.32	EB XL I-4	Offsite Area	3 - 42”
CD-8	1465+32.08	EB XL I-4	Equalizer	2 - 4’x7’
CD-9	1501+77.38	EB XL I-4	Offsite Area and BSN116-120	3 - 4’x7’
CD-10	1515+52.56	EB XL I-4	Offsite Area	10 - 36”
CD-11	2531+54.11	WB XL I-4	Offsite Area	10 - 48”
CD-12	2537+00.00	WB XL I-4	Offsite Area and BSN116	2 - 4’x7’
CD-14	1585+62.31	EB XL I-4	C-2 Canal	2 - 5’X7’
CD-16	110+15.00	A1_429	Davenport Creek Tributary	2 - 7’X4’
CD-17	915+80.00	OLD LAKE WILSON RD	Davenport Creek Tributary	3 - 42”
CD-18	144+20.84	EB WD	Offsite and Onsite Area	2 - 4’X7’
CD-19	410+91.24	A2_530	Offsite Area	2 - 42”
CD-20	160+99.54	EBOP	Offsite Area	54”

4.1.1 CD-1

The proposed CD-1 is a double forty-eight (48) inch culvert at 1266+50 EB XL I-4, slightly northeast of the existing cross drain location.

The overall ICPR-3 Model discussed in Section 3.1.1 was modified to represent post-development conditions. This ICPR-3 model was used to compute post-development discharge rates and TW elevations for CD-1. The proposed peak flow rates through this culvert are less than existing rates, because portions of the I-4 roadway that drain towards the upstream end of CD-1 in the existing condition are directed to Pond 102 in the proposed condition. Pond 102 discharges towards the downstream end of CD-1. Although

4.3.3.2 Pond 103

Pond 103 has been designed to maintain the previously permitted control elevation (normal water level) which was documented in SFWMD Permit No. 49-00792-S. The pond location remains unchanged from the existing condition, but the pond has been expanded to maximize the footprint within the R/W. The flow path through the pond has been maximized by locating all inflows into Pond 103 and the control structure in Pond 103 at opposite ends. Pond 103 discharges to Davenport Creek upstream of the proposed quadruple 14'X8' Bridge Culvert as in the existing condition. The pond has been designed to meet pre/post discharge for the design storm (10yr/72hr) event.

4.3.4 Davenport Creek Tributary Outfall

The Davenport Creek Tributary Outfall (Davenport Creek Tributary) is defined in the post condition by Pond 104 control structures that discharge into Davenport Creek Tributaries on the east side of SR 400 (I-4). The outfalls consist of basin BSN104. The post-development analysis of this outfall is included in **Appendix C** of this report.

4.3.4.1 BSN104

Basin BSN104 consists of contributing areas from portions of SR 429 general use lanes eastbound and westbound. Basin 104 was previously permitted for the ultimate widening of SR 429. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in Pond 104.

4.3.4.2 Pond 104

Pond 104 has been designed to maintain the previously permitted control elevation (normal water level) which was documented in DEP Permit No. 49-187636001. The pond location remains unchanged from the existing condition, no modifications are proposed to the existing Pond B2. The pond discharges to a wetland system upstream of the SR 400 interchange; the existing control structure for existing Pond B2 will not be modified. The pond has been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

4.3.5 Davenport Creek Tributary Outfall (2)

The Davenport Creek Tributary Outfall (Davenport Creek Tributary) is defined in the post condition by Ponds 105A & B, 106A & B, 107, and 108A & B control structures that discharge into Davenport Creek Tributaries on the west, and east side of SR 400 (I-4). The outfalls consist of basins BSN105, BSN106, BSN107, BSN108A & 108B. The post-development analysis of this outfall is included in **Appendix C** of this report.

4.3.5.1 BSN105

Basin BSN105 consists of contributing areas from portions of SR 400 (I-4) general use and express lanes eastbound and westbound. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in Pond 105A & B.

4.3.5.2 BSN106

Basin BSN106 consists of contributing areas from portions of SR 400 (I-4) general use and express lanes eastbound and westbound. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in interconnected Ponds 106A and 106B.

4.3.5.3 BSN107

Basin BSN107 consists of contributing areas from portions of SR 400 (I-4) general use and express lanes eastbound and westbound. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in Pond 107.

4.3.5.4 BSN108A-B

Basin BSN108 consists of contributing areas from portions of SR 400 (I-4) general use and express lanes eastbound and westbound. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in Ponds 108A and 108B.

4.3.5.5 BSNOLW

Basin BSNOLW consists of contributing northbound and eastbound lanes from Old Lake Wilson Road south of the SR 429 interchange. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin discharges untreated to the proposed cross drain under Old Lake Wilson Road.

4.3.5.6 Pond 105 A-B

Ponds 105A and 105B have been designed to maintain the previously permitted control elevation (normal water level) which was documented in DEP Permit No. 49-187636001. The pond location remains unchanged from the existing condition, but the ponds have been expanded to maximize the footprint within the interchange. The ponds are interconnected via a 48" pipe. The control structure is located in Pond 105A and will discharge to the Davenport Creek Tributary upstream of the dual 7'x4' CBC, as in the existing condition. The pond has been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

4.3.5.7 Pond 106 A-B

Ponds 106A and 106B have been designed to maintain the previously permitted control elevation (normal water level) which was documented in DEP Permit No. 49-187636001. The pond location remains unchanged from the existing condition, but the ponds have been expanded to maximize the footprint within the R/W. The ponds are interconnected via a 48" pipe. The control structure is located in Pond 106B and will discharge to the Davenport Creek Tributary downstream of the dual 7'x4' CBC. The ponds have been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

4.3.5.8 Pond 107

Pond 107 has been designed to maintain the previously permitted control elevation (normal water level) which was documented in DEP Permit No. 49-187636001. The pond location remains unchanged from the existing condition, no modifications are proposed to the existing Pond F7. The pond discharges downstream of the dual 7'X4' CBC; the existing control structure for existing Pond F7 will not be modified. The pond has been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

4.3.5.9 Pond 108 A-B

Pond 108A has been designed to maintain the previously permitted control elevation (normal water level) which was documented in DEP Permit No. 49-187636001. The pond location remains unchanged from the existing condition, but the pond has been expanded to maximize the footprint within the R/W. The outfall location for Pond 108A was revised in order to avoid any pipes under the proposed toll plaza. The pond has been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

Pond 108B is a new wet detention pond designed to treat and attenuate portions of the ramps to SR 429. Additional R/W has been acquired by the Florida Department of Transportation (FDOT). The outfall location for Pond 108B will be to the same location as the existing outfall for Pond 108A, which is an existing ditch within the FDOT R/W. The pond has been designed to meet pre/post discharge for the design storm (25yr/72hr) event.

4.3.6 Reedy Creek Outfall

The Reedy Creek Outfall (Reedy Creek) is defined in the post condition by the Pond 109 control structure that discharges into the ditch on the west side of SR 400 (I-4), northeast to the wetlands, ultimately discharging to Reedy Creek. The outfall consists of one basin, Basin BSN109. Basin BSN109 is drained through Pond 109 prior to discharging into the existing ditch as in the pre-development condition. The post-development analysis of this outfall is included in **Appendix C** of this report.

4.3.6.1 BSN109

Basin BSN109 consists of contributing areas from portions of SR 400 (I-4) general use and express lanes eastbound and westbound. The exact limits of the contributing roadways are depicted in the proposed basin maps included in **Appendix C** of this report. The entire basin is treated and attenuated in Pond 109.

4.3.6.2 Pond 109

Pond 109 has been designed to maintain the previously permitted control elevation (normal water level) which was documented in SFWMD Permit No. 49-00792-S. The pond location remains unchanged from the existing condition, but the pond has been expanded to maximize the footprint within the R/W. The flow path through the pond has been maximized by locating all inflows into Pond 109 and the control structure in Pond 109 at opposite ends. The location of the inlet for the control structure has been revised; however, the existing pipes will remain, and the pond will discharge to the same location as in the existing condition. The pond has been designed to meet pre/post discharge for the design storm (10yr/72hr) event.

DAVENPORT CREEK TRIBUTARY OUTFALL

PRE-DEVELOPMENT

Historic

EX_BSNF4

Total Basin Area (ac.)	36.32
Curve Number	48.92

Pre

EX_PNDF4A

Total Basin Area (ac.)	26.39
Curve Number	48.00

EX_PNDF4B

Total Basin Area (ac.)	9.72
Curve Number	48.00

Total Pre-Basin Summary

Peak Discharge (cfs)

25yr/72hr	59.92
50yr/72hr	98.16

25yr/72hr	5.34
50yr/72hr	6.73

POST-DEVELOPMENT

BSN105A

Basin Area (ac.)	45.48
Curve Number	56.07

BSN105B

Basin Area (ac.)	13.90
Curve Number	49.00

Peak Discharge (cfs)

25yr/72hr	20.99
50yr/72hr	31.18

WATER QUALITY SUMMARY (Wet Detention Ponds)

Required Pollution Abatement Volume (PAV)	5.50	ac-ft
Provided PAV	4.83	ac-ft
Pond Control Elevation	93.50	ft, NAVD
PAV Elevation	94.73	ft, NAVD

POND SUMMARY

POND 105A

Pond Control Elevation (NWL)	93.50	ft, NAVD
Average Estimated Seasonal High Water Elevation	95.70	ft, NAVD
Inside Berm Elevation	99.50	ft, NAVD
Design High Water Elevation (25yr/72h)	97.43	ft, NAVD
Freeboard Provided	2.07	ft

POND 105B

Pond Control Elevation (NWL)	93.50	ft, NAVD
Average Estimated Seasonal High Water Elevation	95.70	ft, NAVD
Inside Berm Elevation	99.50	ft, NAVD
Design High Water Elevation (25yr/72h)	97.52	ft, NAVD
Freeboard Provided	1.98	ft

PAVEMENT SUMMARY

Total Existing Pavement	10.48	ac.
Existing Untreated Pavement	0.00	ac.
Existing Treated Pavement	10.48	ac.

Total Proposed Pavement	30.75	ac.
Proposed Untreated Pavement	0.00	ac.
Proposed Treated Pavement	30.75	ac.

WATER QUANTITY CALCULATIONS

Water Quantity Estimate, Based on SCS Runoff Volume for RCID 50-Year/ 72-Hour

Post V(R):		Pre V(R):		Exist Pond Att Vol:	
BSN105A	40.32 ac-ft	EX_BSNF4A	20.84 ac-ft	EX_PONDF4A	12.46 ac-ft
BSN105B	11.63 ac-ft	EX_BSNF4B	7.75 ac-ft	EX_PONDF4B	6.14 ac-ft
TOTAL:	51.95 ac-ft		28.59 ac-ft		18.60 ac-ft

Storage Required = Post V(R) - Pre V(R) + Exist Pond Att Vol = **41.96 ac-ft.**

Storage Provided = Att. Vol.(PND105A&B) **31.83 ac-ft.**

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

EX_BSNF2A
TOTAL AREA: 18.11 AC.
IMPERVIOUS AREA: 6.79 AC.
PERVIOUS AREA: 9.74 AC.
WATER SURFACE: 1.58 AC.
CN: 48.00
DCIA: 8.37 AC.
NDCIA: 9.74 AC.
Tc: 20.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF2B
TOTAL AREA: 2.69 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 1.99 AC.
WATER SURFACE: 0.70 AC.
CN: 48.00
DCIA: 0.70 AC.
NDCIA: 1.99 AC.
Tc: 10.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4A
TOTAL AREA: 26.39 AC.
IMPERVIOUS AREA: 10.48 AC.
PERVIOUS AREA: 12.80 AC.
WATER SURFACE: 3.11 AC.
CN: 48.00
DCIA: 13.59 AC.
NDCIA: 12.80 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4B
TOTAL AREA: 9.72 AC.
IMPERVIOUS AREA: 3.65 AC.
PERVIOUS AREA: 4.61 AC.
WATER SURFACE: 1.46 AC.
CN: 48.00
DCIA: 5.11 AC.
NDCIA: 4.61 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

UNTREATED BASINS:

EX_BSNF7
TOTAL AREA: 8.37 AC.
IMPERVIOUS AREA: 1.04 AC.
PERVIOUS AREA: 5.59 AC.
WATER SURFACE: 1.74 AC.
CN: 48.00
DCIA: 2.78 AC.
NDCIA: 5.59 AC.
Tc: 10.90 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNG1
TOTAL AREA: 20.43 AC.
IMPERVIOUS AREA: 8.37 AC.
PERVIOUS AREA: 9.53 AC.
WATER SURFACE: 2.53 AC.
CN: 48.00
DCIA: 10.90 AC.
NDCIA: 9.53 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_S405
TOTAL AREA: 1.05 AC.
IMPERVIOUS AREA: 0.29 AC.
PERVIOUS AREA: 0.76 AC.
WATER SURFACE: 0.00 AC.
CN: 61.81
DCIA: 0.00 AC.
NDCIA: 1.05 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_BSNOLW
TOTAL AREA: 3.20 AC.
IMPERVIOUS AREA: 1.46 AC.
PERVIOUS AREA: 1.74 AC.
WATER SURFACE: 0.00 AC.
CN: 71.36
DCIA: 0.00 AC.
NDCIA: 3.20 AC.
Tc: 10 MIN (CALCULATED)

0 100 400
Feet

℄ CONST. SR 429
℄ RAMP D1_429
℄ CONST OLD LAKE WILSON RD.
℄ CONST. SR 400 (I-4)
℄ RAMP C_429
℄ RAMP A3_429
℄ CONST WB GUL
℄ CONST WB XL
℄ CONST EB GUL
℄ CONST EB XL
℄ RAMP B2_429
℄ RAMP B1_429
EXIST. POND F-4-A
EXIST. POND F-4-B
EXIST. POND F-2-A
EXIST. POND F-2-B
EXIST. POND F-7
EXIST. POND G-1
CD-16
CD-5
CD-6
CD-17
DAVENPORT CREEK TRIBUTARY
GOLDEN BEAR DR.
TRADITION BLVD
WHITEMARSH WAY
OLD LAKE WILSON RD.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL EXISTING BASIN MAP

SHEET NO.

mlaos 3/19/2018 8:05:33 AM c:\pwworking\aecom_na\mlaos\dms31135\OUTFALL_2C_PRE_BASIN_MAP.DGN

DAVENPORT CREEK TRIBUTARY OUTFALL (POND F4)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	EX_BSNF4			**DATE**
POND/NODE DESIGNATION:	Wetland_F4	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	HISTORIC	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	N/A	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)			98		
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)			98	0.67	65.66
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.67**	
EXISTING PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	48	35.65	1711.20
Open Land (Grass Cover 50% - 70%)		D	84		0.00
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**35.65**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**0.00**	**TOTAL BASIN AREA**	**36.32**	**COMPOSITE CN**	**48.92**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**48.92**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	10.44	1.16	**3.52**
Osceola County	10 yr/72 hr	7.84	10.44	2.04	**6.18**
SFWMD	25 yr/72 hr	9.80	10.44	3.28	**9.92**
RCID	50 yr/72 hr	12.91	10.44	5.51	**16.67**

DAVENPORT CREEK TRIBUTARY (POND F4A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	EX_BSNF4A			**DATE**
POND/NODE DESIGNATION:	EX_PNDF4A	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	N/A	N/A	100	3.11	311.00
			TOTALS	**3.11**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)			98		
Existing Roadway (Treated)			98	10.48	1027.04
			TOTALS	**10.48**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)			98		0.00
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
EXISTING PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	48	12.80	614.40
Open Land (Grass Cover 50% - 70%)		D	84		0.00
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**12.80**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**13.59**	**TOTAL BASIN AREA**	**26.39**	**COMPOSITE CN**	**48.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**73.98**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	3.52	3.35	**7.37**
Osceola County	10 yr/72 hr	7.84	3.52	4.78	**10.51**
SFWMD	25 yr/72 hr	9.80	3.52	6.56	**14.43**
RCID	50 yr/72 hr	12.91	3.52	9.48	**20.84**

DAVENPORT CREEK TRIBUTARY (POND F4B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	EX_BSNF4B			**DATE**
POND/NODE DESIGNATION:	EX_PNDF4B	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	N/A	N/A	100	1.46	146.00
			TOTALS	**1.46**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)			98		
Existing Roadway (Treated)			98	3.65	357.70
			TOTALS	**3.65**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)			98		0.00
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
EXISTING PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	48	4.61	221.28
Open Land (Grass Cover 50% - 70%)		D	84		0.00
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**4.61**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**5.11**	**TOTAL BASIN AREA**	**9.72**	**COMPOSITE CN**	**48.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**74.59**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	3.41	3.41	**2.76**
Osceola County	10 yr/72 hr	7.84	3.41	4.85	**3.93**
SFWMD	25 yr/72 hr	9.80	3.41	6.64	**5.38**
RCID	50 yr/72 hr	12.91	3.41	9.56	**7.75**

DAVENPORT CREEK TRIBUTARY (POND F4A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	EX_BSNF4A	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	EX_PNDF4A	**CHECKED BY:**	REC	3/19/2018

Existing Pond F-4-A & B; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	4.73				26.12
			4.31	2.00	8.62	
98.50	Inside Berm	3.89				17.50
			3.79	1.33	5.04	
97.17	(ATT)	3.68				12.46
			3.45	2.97	10.25	
94.20	(PAV)	3.22				2.22
			3.16	0.70	2.22	
93.50	(NWL)	3.11				0.00
87.50	Pond Bottom	2.00				

Provided PAV = **2.22** **ac-ft.**

DAVENPORT CREEK TRIBUTARY (POND F4B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	EX_BSNF4B	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION:	EX_PNDF4B	**CHECKED BY:**	REC	2/20/2018

Existing Pond F-4-A & B; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	2.67				13.46
			2.36	2.00	4.71	
98.50	Inside Berm	2.04				8.75
			1.96	1.33	2.61	
97.17	(ATT)	1.89				6.14
			1.71	2.97	5.09	
94.20	(PAV)	1.54				1.05
			1.50	0.70	1.05	
93.50	(NWL)	1.46				0.00
87.50	Pond Bottom	3.58				

Provided PAV = 1.05 ac-ft.

DAVENPORT CREEK TRIBUTARY OUTFALL

PRE-DEVELOPMENT

Historic

EX_BSNG1

Total Basin Area (ac.)	20.34
Curve Number	74.05

Pre

EX_BSNG1

Total Basin Area (ac.)	20.43
Curve Number	48.00

Total Pre-Basin Summary

Peak Discharge (cfs)

25yr/72hr	61.25
50yr/72hr	85.55

25yr/72hr	12.51
50yr/72hr	16.51

POST-DEVELOPMENT

BSN108A

Basin Area (ac.)	17.83
Curve Number	58.17

BSN108B

Basin Area (ac.)	8.35
Curve Number	49.00

Peak Discharge (cfs)

25yr/72hr	6.88
50yr/72hr	19.27

WATER QUALITY SUMMARY (Wet Detention Ponds)

POND 108A

Required Pollution Abatement Volume (PAV)	2.29	ac-ft
Provided PAV	6.58	ac-ft
Pond Control Elevation	85.30	ft, NAVD
PAV Elevation	87.50	ft, NAVD

POND 108B

Required Pollution Abatement Volume (PAV)	0.70	ac-ft
Provided PAV	1.61	ac-ft
Pond Control Elevation	87.00	ft, NAVD
PAV Elevation	88.30	ft, NAVD

POND SUMMARY

POND 108A

Pond Control Elevation (NWL)	85.30	ft, NAVD
Average Estimated Seasonal High Water Elevation	86.90	ft, NAVD
Inside Berm Elevation	88.80	ft, NAVD
Design High Water Elevation (25yr/72h)	87.87	ft, NAVD
Freeboard Provided	0.93	ft

POND 108B

Pond Control Elevation (NWL)	87.00	ft, NAVD
Average Estimated Seasonal High Water Elevation	87.50	ft, NAVD
Inside Berm Elevation	90.00	ft, NAVD
Design High Water Elevation (25yr/72h)	89.05	ft, NAVD
Freeboard Provided	0.95	ft

PAVEMENT SUMMARY

Total Existing Pavement	8.37	ac.
Existing Untreated Pavement	0.00	ac.
Existing Treated Pavement	8.37	ac.

Total Proposed Pavement	13.39	ac.
Proposed Untreated Pavement	0.00	ac.
Proposed Treated Pavement	13.39	ac.

WATER QUANTITY CALCULATIONS

Water Quantity Estimate, Based on SCS Runoff Volume for RCID 50-Year/ 72-Hour

Post V(R):		Pre V(R):		Exist Pond Att Vol:	
BSN108A	35.18 ac-ft	EX_BSNG1	16.37 ac-ft	EX_PNDG1	6.72 ac-ft
BSN108B	6.20 ac-ft				
TOTAL:	41.38 ac-ft		16.37 ac-ft		6.72 ac-ft

Storage Required = Post V(R) - Pre V(R) + Exist Pond Att Vol = **31.73 ac-ft.**

Storage Provided = Att. Vol.(PND108A&B) **10.10 ac-ft.**

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

EX_BSNF2A
TOTAL AREA: 18.11 AC.
IMPERVIOUS AREA: 6.79 AC.
PERVIOUS AREA: 9.74 AC.
WATER SURFACE: 1.58 AC.
CN: 48.00
DCIA: 8.37 AC.
NDCIA: 9.74 AC.
Tc: 20.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF2B
TOTAL AREA: 2.69 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 1.99 AC.
WATER SURFACE: 0.70 AC.
CN: 48.00
DCIA: 0.70 AC.
NDCIA: 1.99 AC.
Tc: 10.00 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4A
TOTAL AREA: 26.39 AC.
IMPERVIOUS AREA: 10.48 AC.
PERVIOUS AREA: 12.80 AC.
WATER SURFACE: 3.11 AC.
CN: 48.00
DCIA: 13.59 AC.
NDCIA: 12.80 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNF4B
TOTAL AREA: 9.72 AC.
IMPERVIOUS AREA: 3.65 AC.
PERVIOUS AREA: 4.61 AC.
WATER SURFACE: 1.46 AC.
CN: 48.00
DCIA: 5.11 AC.
NDCIA: 4.61 AC.
Tc: 27.60 MIN (PERMITTED),
DEP APP #: 49-187636001

UNTREATED BASINS:

EX_BSNF7
TOTAL AREA: 8.37 AC.
IMPERVIOUS AREA: 1.04 AC.
PERVIOUS AREA: 5.59 AC.
WATER SURFACE: 1.74 AC.
CN: 48.00
DCIA: 2.78 AC.
NDCIA: 5.59 AC.
Tc: 10.90 MIN (PERMITTED),
DEP APP #: 49-187636001

EX_BSNG1
TOTAL AREA: 20.43 AC.
IMPERVIOUS AREA: 8.37 AC.
PERVIOUS AREA: 9.53 AC.
WATER SURFACE: 2.53 AC.
CN: 48.00
DCIA: 10.90 AC.
NDCIA: 9.53 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_S405
TOTAL AREA: 1.05 AC.
IMPERVIOUS AREA: 0.29 AC.
PERVIOUS AREA: 0.76 AC.
WATER SURFACE: 0.00 AC.
CN: 61.81
DCIA: 0.00 AC.
NDCIA: 1.05 AC.
Tc: 10 MIN (PERMITTED)
DEP APP #: 49-187636001

EX_BSNOLW
TOTAL AREA: 3.20 AC.
IMPERVIOUS AREA: 1.46 AC.
PERVIOUS AREA: 1.74 AC.
WATER SURFACE: 0.00 AC.
CN: 71.36
DCIA: 0.00 AC.
NDCIA: 3.20 AC.
Tc: 10 MIN (CALCULATED)

0 100 400
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL EXISTING BASIN MAP

SHEET NO.

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DAVENPORT CREEK TRIBUTARY

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	EX_BSNG1			
POND/NODE DESIGNATION:	Wetland_G1	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	HISTORIC	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	N/A	N/A	100	0.00	0.00
			TOTALS	**0.00**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)			98		
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)			98	8.83	865.34
Existing Roadway (Treated)			98		0.00
			TOTALS	**8.83**	
EXISTING PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	48	8.75	420.00
Open Land (Grass Cover 50% - 70%)		D	80	2.76	220.80
			TOTALS	**11.51**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**0.00**	**TOTAL BASIN AREA**	**20.34**	**COMPOSITE CN**	**74.05**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**74.05**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	3.50	3.36	**5.69**
Osceola County	10 yr/72 hr	7.84	3.50	4.79	**8.12**
SFWMD	25 yr/72 hr	9.80	3.50	6.57	**11.13**
RCID	50 yr/72 hr	12.91	3.50	9.49	**16.08**

DAVENPORT CREEK TRIBUTARY (POND G1)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	EX_BSNG1			
POND/NODE DESIGNATION:	EX_PNDG1	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	PRE	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
EXISTING WATER SURFACE					
Existing Pond NWL	N/A	N/A	100	2.53	253.00
			TOTALS	**2.53**	
EXISTING DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Existing Roadway (Untreated)			98		
Existing Roadway (Treated)			98	8.37	820.26
			TOTALS	**8.37**	
EXISTING NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Existing Roadway (Untreated)			98		0.00
Existing Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
EXISTING PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	48	9.53	457.44
Open Land (Grass Cover 50% - 70%)		D	84		0.00
			TOTALS	**9.53**	

ICPR DATA

* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**10.90**	**TOTAL BASIN AREA**	**20.43**	**COMPOSITE CN**	**48.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**74.92**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	3.35	3.45	**5.87**
Osceola County	10 yr/72 hr	7.84	3.35	4.89	**8.32**
SFWMD	25 yr/72 hr	9.80	3.35	6.68	**11.38**
RCID	50 yr/72 hr	12.91	3.35	9.61	**16.37**

DAVENPORT CREEK TRIBUTARY (POND G1)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	EX_BSNG1	**MADE BY:**	MOL	7/30/2018
POND/NODE DESIGNATION:	EX_PNDG1	**CHECKED BY:**	REC	7/30/2018

Existing Pond G-1; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
89.80	Outside Berm	3.90				13.06
			3.44	1.00	3.44	
88.80	Inside Berm	2.97				9.63
			2.91	1.00	2.91	
87.80	(ATT)	2.84				6.72
			2.73	1.80	4.92	
86.00	(PAV)	2.62				1.80
			2.57	0.70	1.80	
85.30	(NWL)	2.53				0.00
79.30	Pond Bottom	1.59				

Provided PAV = 1.80 ac-ft.

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

BSN105
TOTAL AREA: 54.07 AC.
IMPERVIOUS AREA: 28.75 AC.
PERVIOUS AREA: 19.73 AC.
WATER SURFACE: 5.59 AC.
CN: 55.19
DCIA: 34.34 AC.
NDCIA: 19.73 AC.
Tc (105A): 18.67 MIN (CALCULATED)
Tc (105B): 27.84 MIN (CALCULATED)

BSN106
TOTAL AREA: 21.38 AC.
IMPERVIOUS AREA: 11.84 AC.
PERVIOUS AREA: 6.90 AC.
WATER SURFACE: 2.64 AC.
CN: 56.83
DCIA: 14.48 AC.
NDCIA: 6.90 AC.
Tc: 20.89 MIN (CALCULATED)

BSN106OFF
TOTAL AREA: 4.25 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 4.25 AC.
WATER SURFACE: 0.00 AC.
CN: 49.00
DCIA: 0.00 AC.
NDCIA: 4.25 AC.
Tc: 38.07 MIN (CALCULATED)

BSN107
TOTAL AREA: 7.30 AC.
IMPERVIOUS AREA: 2.92 AC.
PERVIOUS AREA: 2.64 AC.
WATER SURFACE: 1.74 AC.
CN: 49.00
DCIA: 4.66 AC.
NDCIA: 2.64 AC.
Tc: 15.45 MIN (CALCULATED)

BSN108A
TOTAL AREA: 17.83 AC.
IMPERVIOUS AREA: 11.00 AC.
PERVIOUS AREA: 4.01 AC.
WATER SURFACE: 2.82 AC.
CN: 58.17
DCIA: 13.82 AC.
NDCIA: 4.01 AC.
Tc: 24.69 MIN (CALCULATED)

BSN108B
TOTAL AREA: 8.35 AC.
IMPERVIOUS AREA: 2.39 AC.
PERVIOUS AREA: 4.80 AC.
WATER SURFACE: 1.16 AC.
CN: 49.00
DCIA: 3.55 AC.
NDCIA: 4.80 AC.
Tc: 16.36 MIN (CALCULATED)

UNTREATED BASIN:

BSN0LW
TOTAL AREA: 3.08 AC.
IMPERVIOUS AREA: 3.08 AC.
PERVIOUS AREA: 0.00 AC.
WATER SURFACE: 0.00 AC.
CN: 98.00
DCIA: 0.00 AC.
NDCIA: 3.08 AC.
Tc: 13.02 MIN (CALCULATED)

0 100 400
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL PROPOSED BASIN MAP

SHEET NO.

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DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105			**DATE**
POND/NODE DESIGNATION:	PR_PND105A & B	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	5.59	559.00
			TOTALS	**5.59**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	28.75	2817.50
			TOTALS	**28.75**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	16.24	795.76
Open Land (Grass Cover 50% - 70%)		D	84	3.49	293.16
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**19.73**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**34.34**	**TOTAL BASIN AREA**	**54.07**	**COMPOSITE CN**	**55.19**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.59**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.11	4.23	**19.08**
Osceola County	10 yr/72 hr	7.84	2.11	5.78	**26.03**
SFWMD	25 yr/72 hr	9.80	2.11	7.66	**34.50**
RCID	50 yr/72 hr	12.91	2.11	10.68	**48.14**

DAVENPORT CREEK TRIBUTARY (POND 105A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105A			**DATE**
POND/NODE DESIGNATION:	PR_PND105A	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	3.83	383.00
			TOTALS	**3.83**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	24.38	2389.34
			TOTALS	**24.38**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	13.78	675.22
Open Land (Grass Cover 50% - 70%)		D	84	3.49	293.16
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**17.27**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**28.21**	**TOTAL BASIN AREA**	**45.48**	**COMPOSITE CN**	**56.07**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**82.25**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.16	4.20	**15.91**
Osceola County	10 yr/72 hr	7.84	2.16	5.74	**21.74**
SFWMD	25 yr/72 hr	9.80	2.16	7.61	**28.86**
RCID	50 yr/72 hr	12.91	2.16	10.64	**40.32**

DAVENPORT CREEK TRIBUTARY (POND 105B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN105B			**DATE**
POND/NODE DESIGNATION:	PR_PND105B	**MADE BY:**	MOL	10/5/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	10/5/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	1.76	176.00
			TOTALS	**1.76**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	4.37	428.16
Proposed Roadway (Treated)			98	2.00	196.00
			TOTALS	**6.37**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Open Land (Grass Cover 50% - 70%)		A	49	2.46	120.54
Open Land (Grass Cover 50% - 70%)		A	49	3.31	162.19
SR 429 DEP PERMIT NO. 49-187636001; EXISTING POND F-4-A & B			**TOTALS**	**5.77**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**8.13**	**TOTAL BASIN AREA**	**13.90**	**COMPOSITE CN**	**49.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**77.91**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	2.84	3.75	**4.34**
Osceola County	10 yr/72 hr	7.84	2.84	5.23	**6.06**
SFWMD	25 yr/72 hr	9.80	2.84	7.06	**8.18**
RCID	50 yr/72 hr	12.91	2.84	10.04	**11.63**

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

Water Quality

Total Basin Area =	59.38	ac
Pond Area at NWL =	5.59	ac
Paved Area (Treated) =	26.38	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	4.95	Ac-Ft
B.	2.5	" Times Treated Paved Area =	5.50	Ac-Ft
		Required PAV =	**5.50**	Ac-Ft

Existing Pond F-4-A & B; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations Pond 105A

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	5.61				31.45
			5.26	1.00	5.26	
99.50	Inside Berm	4.90				26.19
			4.81	1.00	4.81	
98.50	(ATT)	4.72				21.38
			4.39	3.77	16.55	
94.73	(PAV)	4.05				4.83
			3.94	1.23	4.83	
93.50	(NWL)	3.83				0.00
84.50	Pond Bottom	2.44				

Provided PAV = 4.83 ac-ft.

Stage Storage Calculations Pond 105B

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	3.09				15.75
			2.82	1.00	2.82	
99.50	Inside Berm	2.55				12.93
			2.48	1.00	2.48	
98.50	(ATT)	2.42				10.45
			2.17	3.77	8.19	
94.73	(PAV)	1.92				2.26
			1.84	1.23	2.26	
93.50	(NWL)	1.76				0.00
84.50	Pond Bottom	1.07				

Provided PAV = 2.26 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 2.24 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 2.59 Ac-Ft

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
100.50	Outside Berm	8.70				47.20
			8.08	1.00	8.08	
99.50	Inside Berm	7.45				39.12
			7.30	1.00	7.30	
98.50	(ATT)	7.14				31.83
			6.56	3.77	24.73	
94.73	(PAV)	5.97				7.09
			5.78	1.23	7.09	
93.50	(NWL)	5.59				0.00
84.50	Pond Bottom	3.51				

DAVENPORT CREEK TRIBUTARY (POND 105A & B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105	**MADE BY:**	MOL	2/20/2018
POND/NODE DESIGNATION	PR_PND105A&B	**CHECKED BY:**	REC	2/20/2018

WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

Orifice Design:

Pond Control Elevation:	93.50	ft			
Req'd Bleed down in 1st 24 hrs:	2.02	ac-ft	=	1.02	cfs
PAV elevation:	94.73	ft			

Orifice Type: **Circular**

$Q = 4.8*A*H^{1/2}$

H = PAV - Control Elev 1.23

$A = \pi*D^2/4$

$D = [4*Q/\pi*4.8*H^{1/2}]^{1/2}$

D = 0.49 ft ≈ 5.93 in

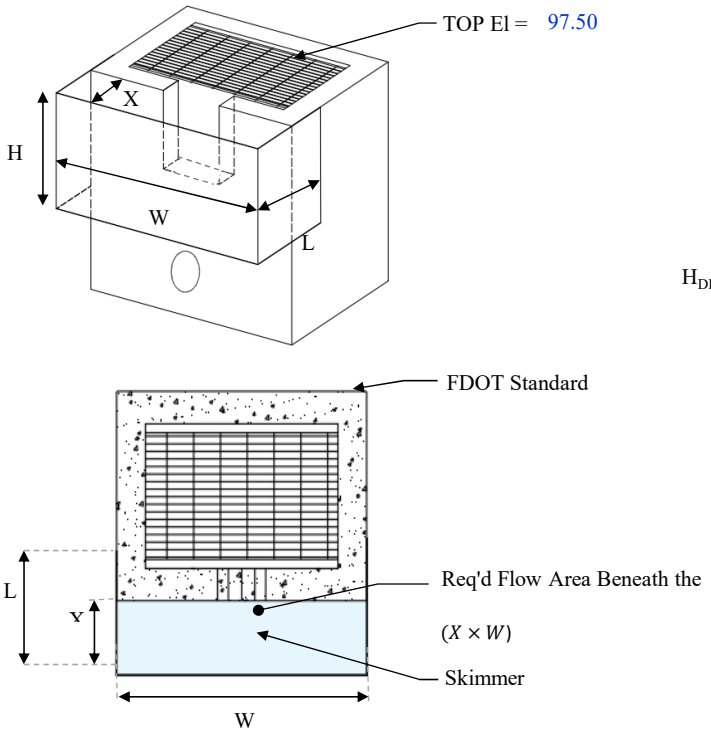
Note: Orifice sizing based on SFWMD criteria and methodology

DAVENPORT CREEK TRIBUTARY (POND 105A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN105A	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_PND105A&B	**CHECKED BY:**	REC	03/12/2018

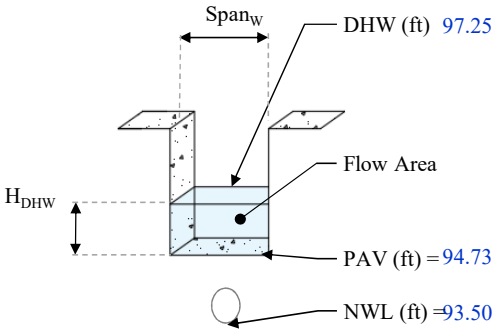
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H$_{DHW}$ (ft) = 2.52
H$_{PAV}$ (ft) = 1.23
Span$_W$ (ft) = 1.50
Span$_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 3.78 ft^2

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft^2

Total Area = **3.78** ft^2

Skimmer Dimensions:

FDOT DBI Type = D
Length "**L**" (In.) = 31.00
Height "**H**" (In.) = 40.00
Width "**W**" (In.) = 65.00
Standoff "**X**" (In.) = 26.00

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**3.78**	ft^2
Req'd Flow Area Beneath the Skimmer =	**11.35**	ft^2
Flow Area Beneath Skimmer =	**11.74**	ft^2

Design Checks:

Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

OUTFALL 2: DAVENPORT CREEK TRIBUTARY

TREATED BASINS:

BSN105
TOTAL AREA: 54.07 AC.
IMPERVIOUS AREA: 28.75 AC.
PERVIOUS AREA: 19.73 AC.
WATER SURFACE: 5.59 AC.
CN: 55.19
DCIA: 34.34 AC.
NDCIA: 19.73 AC.
Tc (105A): 18.67 MIN (CALCULATED)
Tc (105B): 27.84 MIN (CALCULATED)

BSN106
TOTAL AREA: 21.38 AC.
IMPERVIOUS AREA: 11.84 AC.
PERVIOUS AREA: 6.90 AC.
WATER SURFACE: 2.64 AC.
CN: 56.83
DCIA: 14.48 AC.
NDCIA: 6.90 AC.
Tc: 20.89 MIN (CALCULATED)

BSN1060FF
TOTAL AREA: 4.25 AC.
IMPERVIOUS AREA: 0.00 AC.
PERVIOUS AREA: 4.25 AC.
WATER SURFACE: 0.00 AC.
CN: 49.00
DCIA: 0.00 AC.
NDCIA: 4.25 AC.
Tc: 38.07 MIN (CALCULATED)

BSN107
TOTAL AREA: 7.30 AC.
IMPERVIOUS AREA: 2.92 AC.
PERVIOUS AREA: 2.64 AC.
WATER SURFACE: 1.74 AC.
CN: 49.00
DCIA: 4.66 AC.
NDCIA: 2.64 AC.
Tc: 15.45 MIN (CALCULATED)

BSN108A
TOTAL AREA: 17.83 AC.
IMPERVIOUS AREA: 11.00 AC.
PERVIOUS AREA: 4.01 AC.
WATER SURFACE: 2.82 AC.
CN: 58.17
DCIA: 13.82 AC.
NDCIA: 4.01 AC.
Tc: 24.69 MIN (CALCULATED)

BSN108B
TOTAL AREA: 8.35 AC.
IMPERVIOUS AREA: 2.39 AC.
PERVIOUS AREA: 4.80 AC.
WATER SURFACE: 1.16 AC.
CN: 49.00
DCIA: 3.55 AC.
NDCIA: 4.80 AC.
Tc: 16.36 MIN (CALCULATED)

UNTREATED BASIN:

BSN0LW
TOTAL AREA: 3.08 AC.
IMPERVIOUS AREA: 3.08 AC.
PERVIOUS AREA: 0.00 AC.
WATER SURFACE: 0.00 AC.
CN: 98.00
DCIA: 0.00 AC.
NDCIA: 3.08 AC.
Tc: 13.02 MIN (CALCULATED)

0 100 400
Feet

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-52-01

DC TRIBUTARY OUTFALL PROPOSED BASIN MAP

SHEET NO.

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DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN108A			**DATE**
POND/NODE DESIGNATION:	PR_PND108A	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	2.82	282.00
			TOTALS	**2.82**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	11.00	1078.00
			TOTALS	**11.00**	

Existing Pond G-1; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Gravel (Rail Corridor)		A	76	0.96	72.66
Gravel (Rail Corridor)		D	91	0.26	23.66
Open Land (Grass Cover 50% - 70%)		A	49	2.79	136.71
Open Land (Grass Cover 50% - 70%)		D	84		0.00
			TOTALS	**4.01**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**13.82**	**TOTAL BASIN AREA**	**17.83**	**COMPOSITE CN**	**58.17**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**233.38**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	-5.72	33.12	**49.20**
Osceola County	10 yr/72 hr	7.84	-5.72	24.69	**36.68**
SFWMD	25 yr/72 hr	9.80	-5.72	22.91	**34.03**
RCID	50 yr/72 hr	12.91	-5.72	23.69	**35.18**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			
BASIN DESIGNATION:	BSN108B			**DATE**
POND/NODE DESIGNATION:	PR_PND108B	**MADE BY:**	MOL	3/19/2018
BASIN ANALYSIS (PRE/POST):	POST	**CHECKED BY:**	REC	3/19/2018

SFWMD SANTA BARBARA WORKSHEET

LAND-USE DESCRIPTION	SOIL NAME	SOIL GROUP	CN	AREA (ac)	PRODUCT
WATER SURFACE					
Pond NWL	N/A	N/A	100	1.16	116.00
			TOTALS	**1.16**	
DIRECTLY CONNECTED IMPERVIOUS AREA (DCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98	2.39	234.22
			TOTALS	**2.39**	
NON-DIRECTLY CONNECTED IMPERVIOUS AREA (NDCIA)					
Proposed Roadway (Untreated)			98		0.00
Proposed Roadway (Treated)			98		0.00
			TOTALS	**0.00**	
PERVIOUS AREAS					
Gravel (Rail Corridor)		A	76		0.00
Gravel (Rail Corridor)		D	91		0.00
Open Land (Grass Cover 50% - 70%)		A	49	4.80	235.20
Open Land (Grass Cover 50% - 70%)		D	84		0.00
			TOTALS	**4.80**	

ICPR DATA					
* BASED ON TOTAL DRAINAGE AREA		* BASED ON TOTAL DRAINAGE AREA		* BASED ON NDCIA AND PERVIOUS AREAS	
TOTAL DCIA	**3.55**	**TOTAL BASIN AREA**	**8.35**	**COMPOSITE CN**	**49.00**

ESTIMATE OF RUNOFF VOLUME

PROCEDURE TO DETERMINE RUNOFF VOLUME IS BASED ON THE SCS EQUATION AND IS AS FOLLOWS:

1) DETERMINE SOIL STORAGE - S ----------> S = (1000 / CN) - 10 (inches)

2) DETERMINE RUNOFF - R ----------> R = (P - 0.2*S)^2 / (P + 0.8*S) (inches)

P = rainfall in inches

3) DETERMINE RUNOFF VOLUME - V(R) ----------> V(R) = (R / 12)*BASIN AREA (acres-feet)

CALCULATION TABLE

			BASED ON TOTAL DRAINAGE AREA		
			COMPOSITE CN		**70.11**
Agency	**Design Storm Frequency**	**P (in)**	**S (in)**	**R (in)**	**V(R) (ac-ft)**
FDOT	10 yr/24 hr	6.20	4.26	2.98	**2.07**
Osceola County	10 yr/72 hr	7.84	4.26	4.34	**3.02**
SFWMD	25 yr/72 hr	9.80	4.26	6.06	**4.22**
RCID	50 yr/72 hr	12.91	4.26	8.91	**6.20**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	3/19/2018

Water Quality

Total Basin Area =	17.83	ac
Pond Area at NWL =	2.82	ac
Paved Area (Treated) =	11.00	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	1.49	Ac-Ft
B.	2.5	" Times Treated Paved Area =	2.29	Ac-Ft
		Required PAV =	**2.29**	Ac-Ft

Existing Pond G-1; SR 429 DEP Permit No. 49-187636001. The plans were developed in NAVD, therefore no conversion factors were used for the information shown below. The pond will be modified to accommodate the I-4 BTU

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
89.80	Outside Berm	3.98				14.49
			3.67	1.00	3.67	
88.80	Inside Berm	3.36				10.82
			3.28	1.00	3.28	
87.80	(ATT)	3.21				7.53
			3.18	0.30	0.95	
87.50	(PAV)	3.16				6.58
			2.99	2.20	6.58	
85.30	(NWL)	2.82				0.00
79.30	Pond Bottom	1.87				

Provided PAV = 6.58 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 0.63 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 5.95 Ac-Ft

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)

PROJECT TITLE:	I-4 Beyond the Ultimate			
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108B	**CHECKED BY:**	REC	3/19/2018

Water Quality

Total Basin Area =	8.35	ac
Pond Area at NWL =	1.16	ac
Paved Area (Treated) =	2.39	ac
Paved Area (Untreated) =	0.00	

A.	1.0	" Over Total Basin Area =	0.70	Ac-Ft
B.	2.5	" Times Treated Paved Area =	0.50	Ac-Ft
		Required PAV =	**0.70**	Ac-Ft

Stage Storage Calculations

ELEV. (ft)		AREA (ac)	AVG AREA (ac)	Delta D (ft)	Delta storage (ac-ft)	Sum Storage (ac-ft)
91.00	Outside Berm	1.97				5.79
			1.75	1.00	1.75	
90.00	Inside Berm	1.53				4.04
			1.47	1.00	1.47	
89.00	(ATT)	1.41				2.57
			1.36	0.70	0.95	
88.30	(PAV)	1.32				1.61
			1.24	1.30	1.61	
87.00	(NWL)	1.16				0.00
81.00	Pond Bottom	0.58				

Provided PAV = 1.61 ac-ft.

Bleed Down Volume in the 1st 24hrs

1/2" of the required detention volume = 0.5"(Total Site -Water Surface)(1ft/12in) = 0.30 Ac-Ft

Volume Remaining in Pond after Bleed Down = PAV - Bleed Down Volume = 1.31 Ac-Ft

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	MOL	3/19/2018
POND/NODE DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	3/19/2018

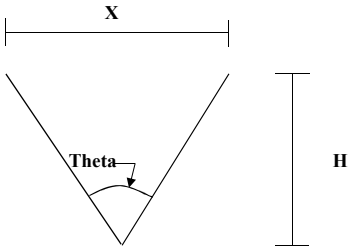
WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

V-notch Design

Theta = 2*atan(0.492*Vdet/H^2.5)

X = tan(theta/2)*(H)*(2)



Vdet =	0.63	Ac-Ft
H =	0.624	ft
Theta =	90.0	deg
X =	1.25	ft

NOTE:
Vdet = Maximum design discharge: 1/2 inch of the detention volume in 24 hrs
(Refer to Pond Calculations for determination of **Vdet**)

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	MOL	10/3/2018
POND/NODE DESIGNATION:	PR_PND108B	**CHECKED BY:**	REC	10/3/2018

WATER QUALITY CONTROL DEVICE

Pond Bleed Down Design:

Orifice Design:

Pond Control Elevation:	87.00	ft			
Req'd Bleed down in 1st 24 hrs:	0.30	ac-ft	=	0.15	cfs
PAV elevation:	88.30	ft			

Orifice Type: **Circular**

$Q = 4.8*A*H^{1/2}$

H = PAV - Control Elev 1.30

$A = \pi*D^2/4$

$D = [4*Q/\pi*4.8*H^{1/2}]^{1/2}$

D =	0.19	ft	≈	2.25	in

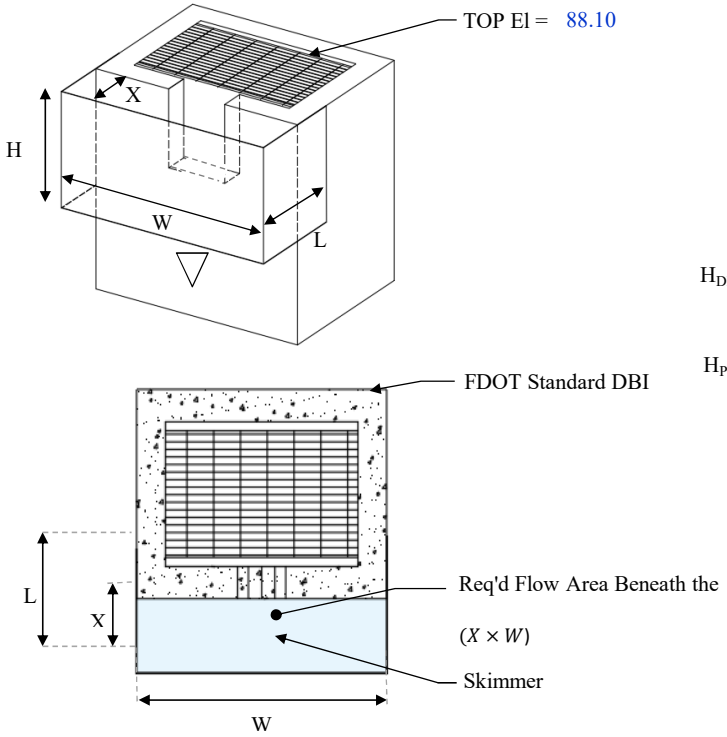
Note: Orifice sizing based on SFWMD criteria and methodology

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108A)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108A	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_PND108A	**CHECKED BY:**	REC	03/12/2018

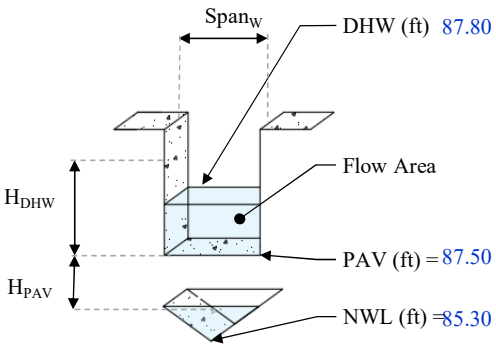
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H_{DHW} (ft) = 0.30
H_{PAV} (ft) = 2.20
$Span_W$ (ft) = 0.50
$Span_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 0.15 ft^2

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft^2

Total Area = **0.15** ft^2

Skimmer Dimensions:

FDOT DBI Type = D
Length "**L**" (In.) = 31.00
Height "**H**" (In.) = 40.00
Width "**W**" (In.) = 65.00
Standoff "**X**" (In.) = 18.50

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**0.15**	ft^2
Req'd Flow Area Beneath the Skimmer =	**0.45**	ft^2
Flow Area Beneath Skimmer =	**8.35**	ft^2

Design Checks:

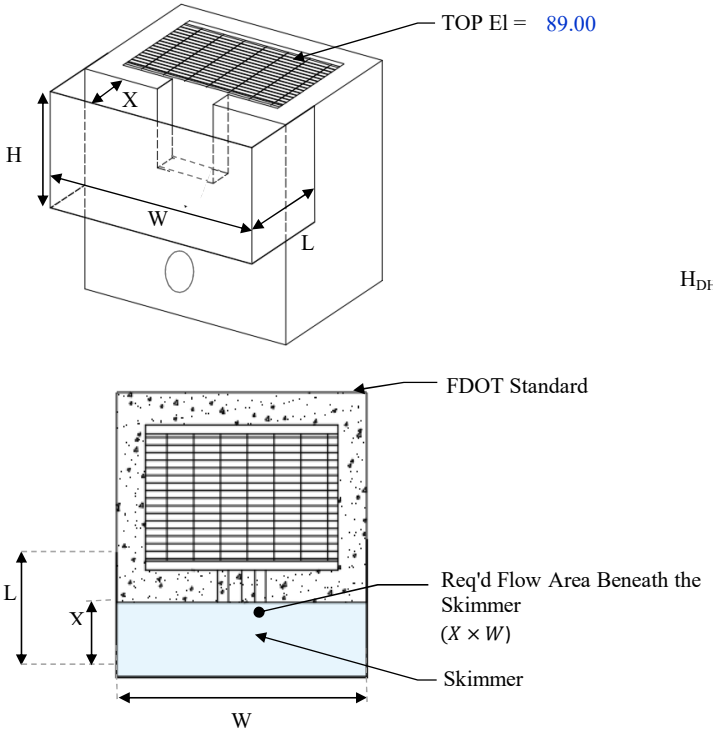
Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

DAVENPORT CREEK TRIBUTARY OUTFALL (POND 108B)				
PROJECT TITLE:	I-4 Beyond the Ultimate	FDOT		Inwood consulting engineers
PROJECT NUMBER:	431456-1-52-01			**DATE**
BASIN DESIGNATION:	BSN108B	**MADE BY:**	SVC	19-Mar-18
POND DESIGNATION:	PR_POND108B	**CHECKED BY:**	REC	03/12/2018

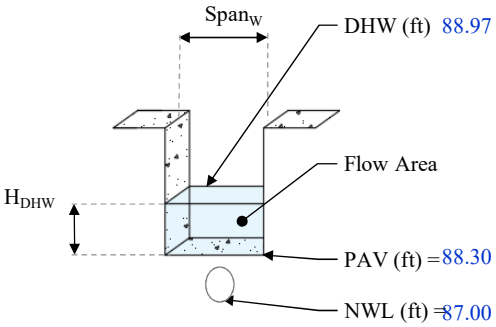
Skimmer Check (FDOT Index 240):

Design Note 2 Check: Flow Area Beneath the Skimmer must be 3 times larger than the Area of Weir

Skimmer Dimension Diagram:



Flow Area Calculations:



H_{DHW} (ft) = 0.67
H_{PAV} (ft) = 1.30
$Span_W$ (ft) = 2.00
$Span_{VNotch}$ (ft) = 0.00

Area over PAV

$H_{DHW} \times Span_W$ = 1.34 ft²

Area thru V-Notch

$\left(\frac{1}{2} \times H_{PAV} \times \frac{Span_{VNotch}}{2}\right) \times 2$ = 0.00 ft²

Total Area = **1.34** ft²

Skimmer Dimensions:

FDOT DBI Type = C
Length "**L**" (In.) = 28.00
Height "**H**" (In.) = 16.00
Width "**W**" (In.) = 53.00
Standoff "**X**" (In.) = 15.50

Notes:
1. Width Based upon C.I.P Construction wall thickness (8").

Flow Area of Weir =	**1.34**	ft²
Req'd Flow Area Beneath the Skimmer =	**4.02**	ft²
Flow Area Beneath Skimmer =	**5.70**	ft²

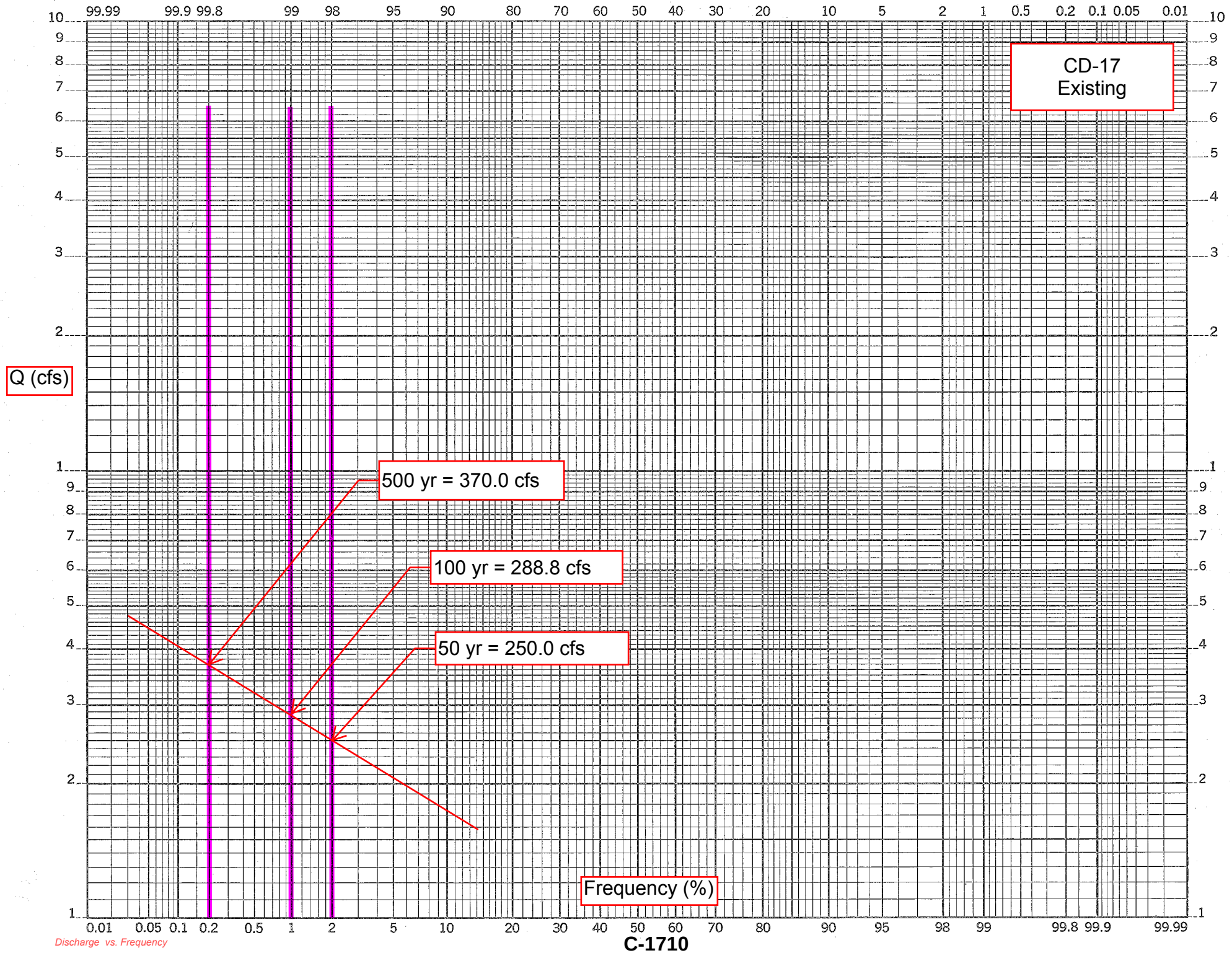
Design Checks:

Flow Area Beneath the Skimmer is 3 times greater than area of Weir : **YES**

C.2.7
CD-17

Prepared By:

FDOT


probability x 2 log cycles
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
CD-17
Existing
Q (cfs)
500 yr = 370.0 cfs
100 yr = 288.8 cfs
50 yr = 250.0 cfs
Frequency (%)
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Discharge vs. Frequency
C-1710

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 250 cfs

Design Flow: 288.8 cfs

Maximum Flow: 370 cfs

Table 37 - Summary of Culvert Flows at Crossing: EX. CD-17

Headwater Elevation (ft)	Total Discharge (cfs)	EX CD17 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
93.45	250.00	250.00	0.00	1
93.73	262.00	262.00	0.00	1
94.00	274.00	273.36	0.16	35
94.07	286.00	275.84	9.79	8
94.08	288.80	276.23	12.04	4
94.14	310.00	278.17	31.52	6
94.17	322.00	279.57	41.85	4
94.20	334.00	280.90	52.66	4
94.23	346.00	282.15	63.53	4
94.25	358.00	283.25	74.50	4
94.27	370.00	284.21	85.60	4
94.00	273.19	273.19	0.00	Overtopping

Rating Curve Plot for Crossing: EX. CD-17

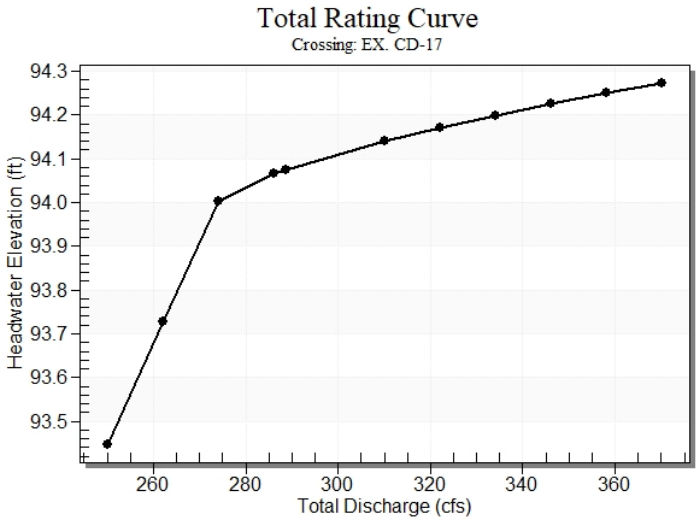


Table 38 - Culvert Summary Table: EX CD17

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
250.00	250.00	93.45	5.306	5.408	7-M2c	3.500	2.844	2.844	1.800	9.953	0.000
262.00	262.00	93.73	5.593	5.688	7-M2c	3.500	2.904	2.904	1.800	10.235	0.000
274.00	273.36	94.00	5.878	5.964	7-M2c	3.500	2.957	2.957	1.800	10.509	0.000
286.00	275.84	94.07	5.943	6.025	7-M2c	3.500	2.968	2.968	1.800	10.570	0.000
288.80	276.23	94.08	5.953	6.034	7-M2c	3.500	2.970	2.970	1.800	10.579	0.000
310.00	278.17	94.14	6.003	6.102	7-M2c	3.500	2.978	2.978	1.800	10.627	0.000
322.00	279.57	94.17	6.040	6.132	7-M2c	3.500	2.985	2.985	1.800	10.662	0.000
334.00	280.90	94.20	6.075	6.159	7-M2c	3.500	2.990	2.990	1.800	10.695	0.000
346.00	282.15	94.23	6.109	6.186	7-M2c	3.500	2.996	2.996	1.800	10.727	0.000
358.00	283.25	94.25	6.138	6.210	7-M2c	3.500	3.001	3.001	1.800	10.754	0.000
370.00	284.21	94.27	6.164	6.234	7-M2c	3.500	3.005	3.005	1.800	10.779	0.000

****
****
****

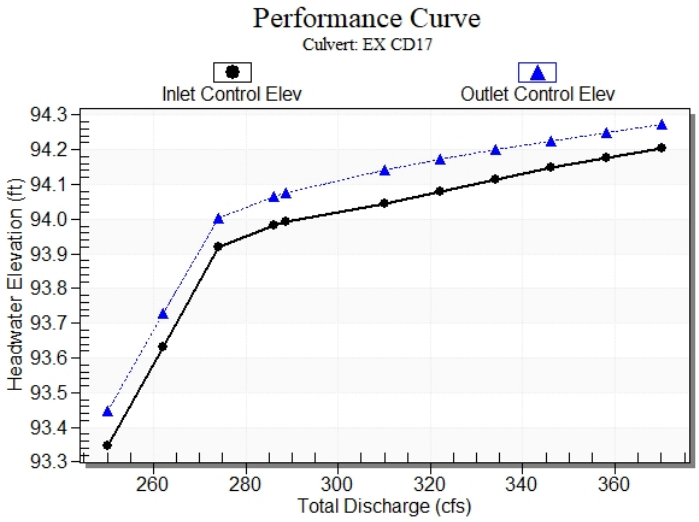
Straight Culvert

Inlet Elevation (invert): 88.04 ft,
Outlet Elevation (invert): 87.79 ft

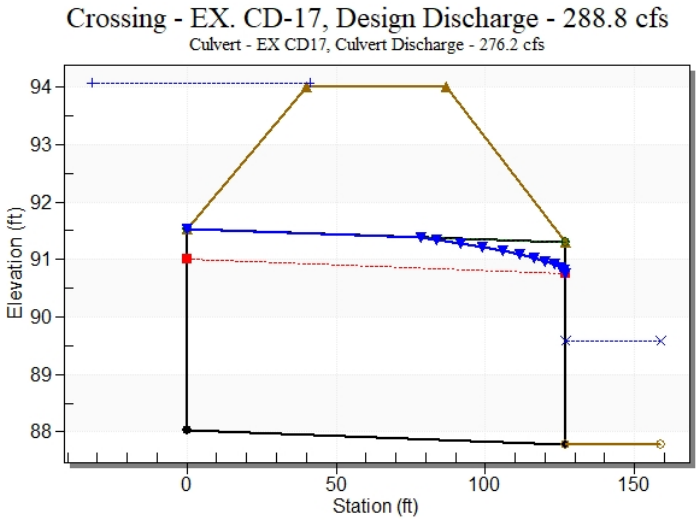
Culvert Length: 127.00 ft,
Culvert Slope: 0.0020

****
****
****

Culvert Performance Curve Plot: EX CD17



Water Surface Profile Plot for Culvert: EX CD17



S

Inlet Station: 0.00 ft
Inlet Elevation: 88.04 ft
Outlet Station: 127.00 ft
Outlet Elevation: 87.79 ft
Number of Barrels: 3

Culvert Data Summary - EX CD17

Barrel Shape: Circular
Barrel Diameter: 3.50 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge with Headwall
Inlet Depression: NONE

Table 39 - Downstream Channel Rating Curve (Crossing: EX. CD-17)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
250.00	89.59	1.80
262.00	89.59	1.80
274.00	89.59	1.80
286.00	89.59	1.80
288.80	89.59	1.80
310.00	89.59	1.80
322.00	89.59	1.80
334.00	89.59	1.80
346.00	89.59	1.80
358.00	89.59	1.80
370.00	89.59	1.80

Tailwater Channel Data - EX. CD-17

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 89.59 ft

Roadway Data for Crossing: EX. CD-17

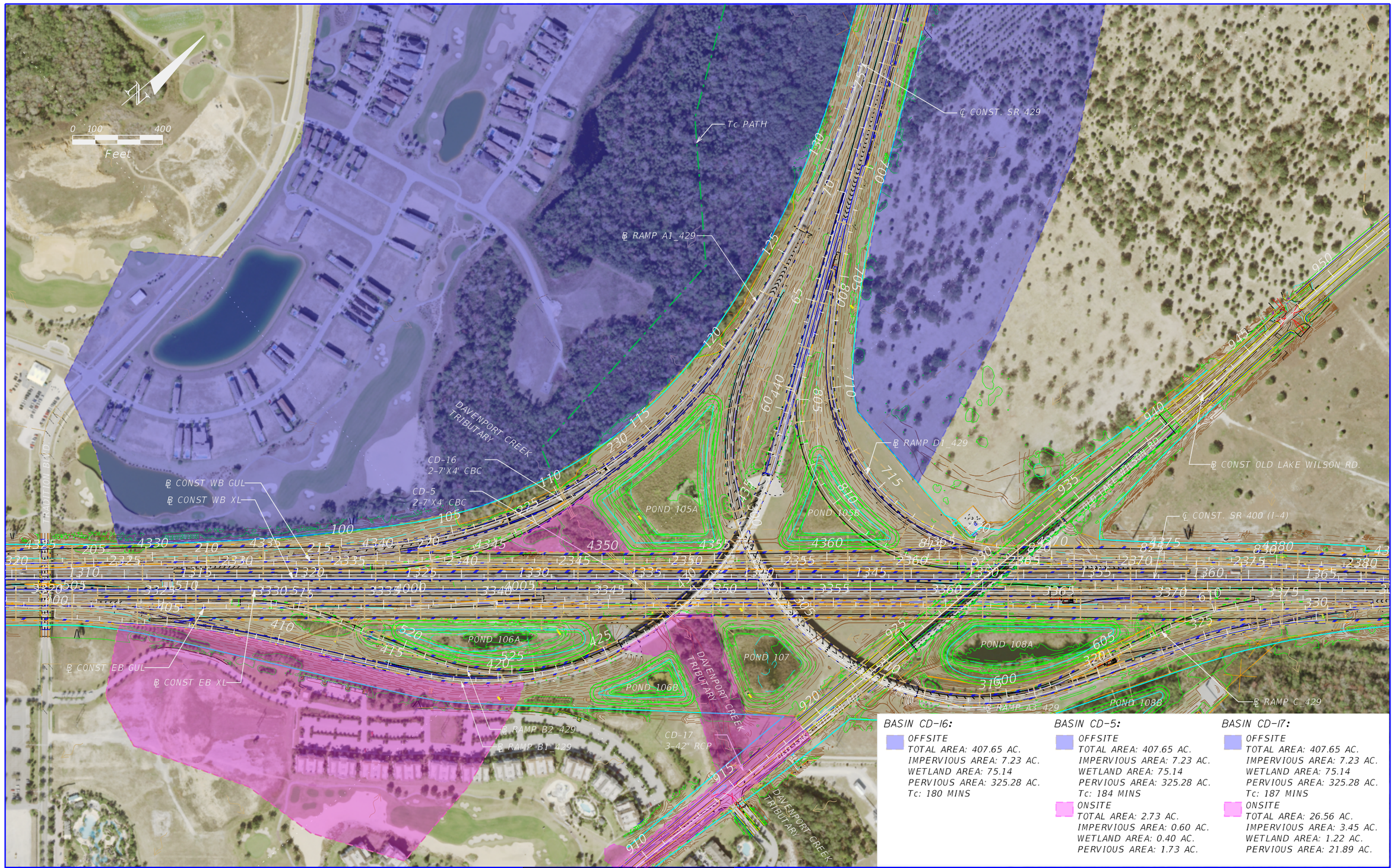
Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 200.00 ft

Crest Elevation: 94.00 ft

Roadway Surface: Paved

Roadway Top Width: 47.00 ft



BASIN CD-16:

- OFFSITE
  - TOTAL AREA: 407.65 AC.
  - IMPERVIOUS AREA: 7.23 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 180 MINS

BASIN CD-5:

- OFFSITE
  - TOTAL AREA: 407.65 AC.
  - IMPERVIOUS AREA: 7.23 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 184 MINS
- ONSITE
  - TOTAL AREA: 2.73 AC.
  - IMPERVIOUS AREA: 0.60 AC.
  - WETLAND AREA: 0.40 AC.
  - PERVIOUS AREA: 1.73 AC.

BASIN CD-17:

- OFFSITE
  - TOTAL AREA: 407.65 AC.
  - IMPERVIOUS AREA: 7.23 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 187 MINS
- ONSITE
  - TOTAL AREA: 26.56 AC.
  - IMPERVIOUS AREA: 3.45 AC.
  - WETLAND AREA: 1.22 AC.
  - PERVIOUS AREA: 21.89 AC.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

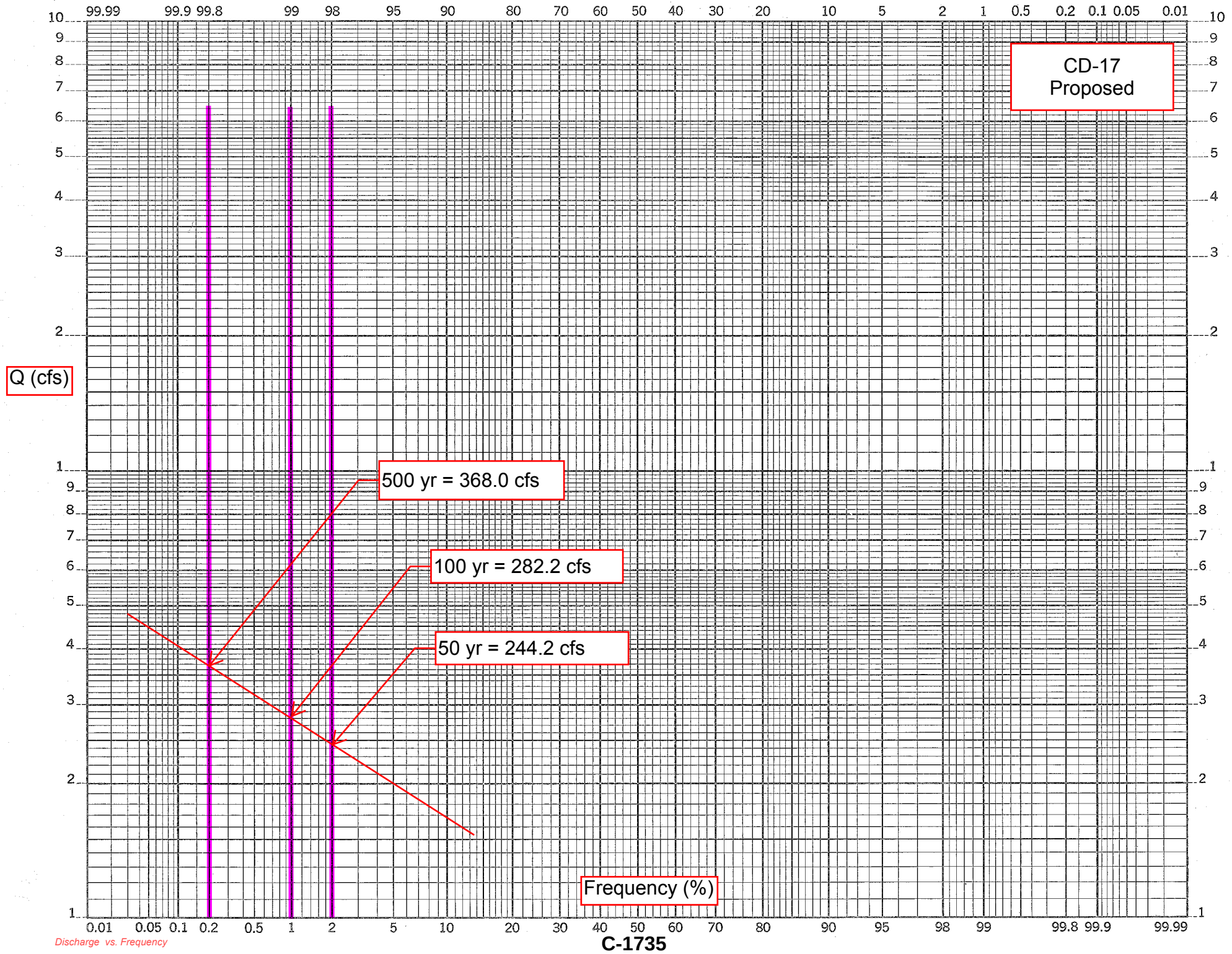
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-32-01

CD-5 CD-16 & CD-17 PROPOSED BASIN MAP

SHEET NO.

mlaos 2/20/2018 1:14:33 PM c:\pwworking\aecom_na\mlaos\dms31135\SEGC_CD-6_POST_BASIN_MAP_OFFSITE.DGN


probability x 2 log cycles
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
CD-17
Proposed
Q (cfs)
500 yr = 368.0 cfs
100 yr = 282.2 cfs
50 yr = 244.2 cfs
Frequency (%)
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99
Discharge vs. Frequency
C-1735

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 244.2 cfs

Design Flow: 282.2 cfs

Maximum Flow: 368 cfs

Table 40 - Summary of Culvert Flows at Crossing: PR. CD-17

Headwater Elevation (ft)	Total Discharge (cfs)	PR CD17 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
93.38	244.20	244.20	0.00	1
93.71	256.58	256.58	0.00	1
94.01	268.96	268.96	0.00	1
94.33	281.34	281.34	0.00	1
94.35	282.20	282.20	0.00	1
94.97	306.10	305.12	0.64	28
95.03	318.48	307.47	10.48	7
95.07	330.86	309.10	21.45	6
95.10	343.24	310.35	32.53	5
95.14	355.62	311.46	43.53	4
95.16	368.00	312.51	55.01	4
94.96	304.69	304.69	0.00	Overtopping

Rating Curve Plot for Crossing: PR. CD-17

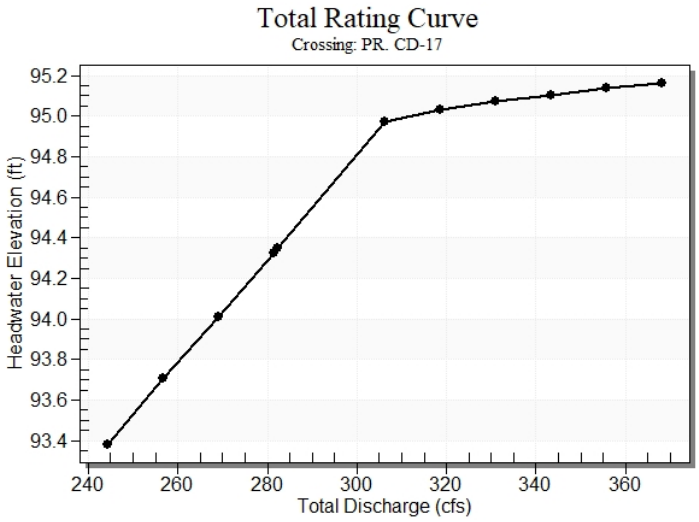


Table 41 - Culvert Summary Table: PR CD17

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
244.20	244.20	93.38	5.173	5.343	7-M2c	3.500	2.813	2.813	1.840	9.820	0.000
256.58	256.58	93.71	5.462	5.669	7-M2c	3.500	2.877	2.877	1.840	10.107	0.000
268.96	268.96	94.01	5.766	5.972	7-M2c	3.500	2.937	2.937	1.840	10.402	0.000
281.34	281.34	94.33	6.087	6.287	7-M2c	3.500	2.992	2.992	1.840	10.707	0.000
282.20	282.20	94.35	6.110	6.306	7-M2c	3.500	2.996	2.996	1.840	10.728	0.000
306.10	305.12	94.97	6.749	6.931	7-M2c	3.500	3.087	3.087	1.840	11.321	0.000
318.48	307.47	95.03	6.818	6.988	7-M2c	3.500	3.096	3.096	1.840	11.384	0.000
330.86	309.10	95.07	6.866	7.030	7-M2c	3.500	3.102	3.102	1.840	11.428	0.000
343.24	310.35	95.10	6.903	7.065	7-M2c	3.500	3.106	3.106	1.840	11.462	0.000
355.62	311.46	95.14	6.936	7.096	7-M2c	3.500	3.110	3.110	1.840	11.492	0.000
368.00	312.51	95.16	6.967	7.125	7-M2c	3.500	3.114	3.114	1.840	11.521	0.000

****
****
****

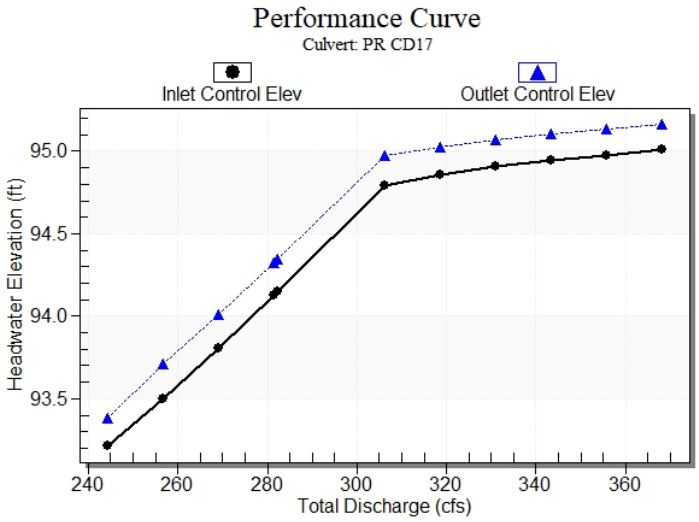
Straight Culvert

Inlet Elevation (invert): 88.04 ft,
Outlet Elevation (invert): 87.74 ft

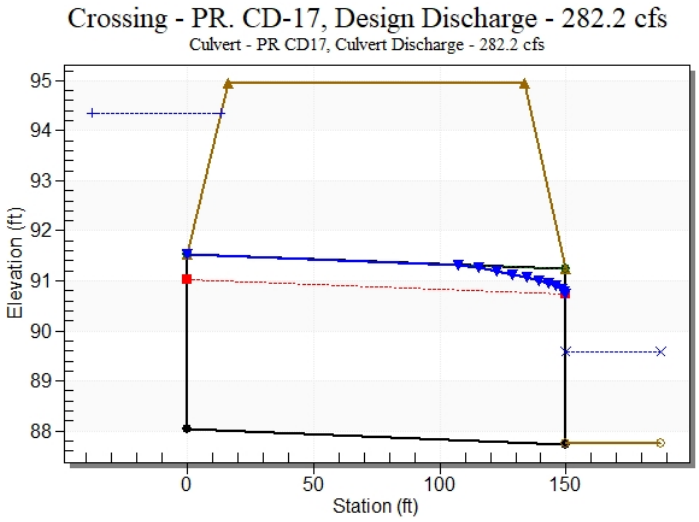
Culvert Length: 149.90 ft,
Culvert Slope: 0.0020

****
****
****

Culvert Performance Curve Plot: PR CD17



Water Surface Profile Plot for Culvert: PR CD17



S

Inlet Station: 0.00 ft
Inlet Elevation: 88.04 ft
Outlet Station: 149.90 ft
Outlet Elevation: 87.74 ft
Number of Barrels: 3

Culvert Data Summary - PR CD17

Barrel Shape: Circular
Barrel Diameter: 3.50 ft
Barrel Material: Concrete
Embedment: 0.00 in
Barrel Manning's n: 0.0120
Culvert Type: Straight
Inlet Configuration: Square Edge with Headwall
Inlet Depression: NONE

Table 42 - Downstream Channel Rating Curve (Crossing: PR. CD-17)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)
244.20	89.59	1.84
256.58	89.59	1.84
268.96	89.59	1.84
281.34	89.59	1.84
282.20	89.59	1.84
306.10	89.59	1.84
318.48	89.59	1.84
330.86	89.59	1.84
343.24	89.59	1.84
355.62	89.59	1.84
368.00	89.59	1.84

Tailwater Channel Data - PR. CD-17

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 89.59 ft

Roadway Data for Crossing: PR. CD-17

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 200.00 ft

Crest Elevation: 94.96 ft

Roadway Surface: Paved

Roadway Top Width: 117.00 ft

Project:	I-4 Beyond the Ultimate	Design By: MOL	Date: 3/19/2018
FDIP No.:	431456-1	Check by: REC	Date: 2/20/2018
Subject:	CD-17 Culvert Hydrological Analysis (Existing & Proposed)		

Existing Culvert

Note: The existing culvert information was obtained from the existing survey. In DEP number 49-187636001, CD-17 is named CD-1D. The tailwater elevation used matches the ICPR routing done with the permitted calculations for the SR 429 plans. The roadway elevation, at this location in the downstream end, is around 94.00 ft which is higher than the crown of pipe (tailwater) elevation. The crest length is 200 ft, the crest elevation is 94.00 NAVD and the top width is 47 ft. In the proposed condition the crest elevation is 94.96 NAVD and the top width is 117 ft.

Method used: *Rational Formula*

Existing culvert information:

Culvert span:	*3.5 ft*		Culvert rise:	*3.5 ft*
No of culverts:	*3*		Material:	*CBC*
Exist culvert length:	*127.0 ft*			
Avge flowline elev upstream:	*88.04*	(Navd)		
Avge flowline elev downstream:	*87.79*	(Navd)		
Longitudinal slope:	0.00197		=	*0.1969%*
Tailwater:	*(see below)*			
Area of culvert (A):	36.75 sq ft			

Estimate existing drainage area:

	Runoff coeff	Sta From	Sta To	Sta at Culvert	Area (Ac)	Slope (s) (ft/ft)	Tc (Note 1) (mins)
Total	0.25	4328+64.79	4363+37.00	915+80.00	447.80		
Elev		130.00		94.00		0.0064	187
Imp	0.95				11.75		
Wetland	0.40				77.06		
Perv	0.20				358.99		

Note 1: See Tc calculations.

Estimate existing drainage discharge:

Frequency (yr)	rainfall (i) (in/hr)	Storm Frequency Factor (X_T)	Q = CiA X_T (Rational Formula) cu ft/s	Normal Depth (Dn) (ft)	Tailwater Existing (Note 2) (Navd)	HW Stage Existing (Note 3) (Navd)
50	1.83	1.20	250.0			*93.45*
100	2.03	1.25	288.8			*94.08*
500			*370.0*			*94.27*

Note 1: Q_{500} has been extrapolated from Discharge vs Frequency graph

Note 2: D_n estimated from std channel geometry with side slopes 6 and 4, bott width 5' and long slope 0.05%. TW = Dn + Invert

Note 3: Values obtained from HY 8 model of existing pipe

Project:	I-4 Beyond the Ultimate	Design By: MOL	Date: 3/19/2018
FDIP No.:	431456-1	Check by: REC	Date: 2/20/2018
Subject:	CD-17 Culvert Hydrological Analysis (Existing & Proposed)		

Proposed Culvert Replacement

Note: Culvert replacement span and rise to match existing

Proposed Information

	Length	Invert (Navd)
Upstream:		88.04
Downstream:		87.74
Total length of proposed culvert:	149.9 ft	

Estimate proposed drainage area:

	Runoff coeff	Sta From	Sta To	Area Note 1 (Ac)	Slope (s) (ft/ft)	Tc (Note 1) (mins)
Total	0.25	4328+64.79	4363+37.00	436.94		
Elev					0.0064	187
Perv	0.20			348.90		
Wetland	0.40			76.76		
Impv	0.95			11.28		

Note 1: See Tc Calculations

Estimate proposed discharge:

Frequency (yr)	rainfall (i) (in/hr)	Factor (Rational Formula)	Q = CiA (Rational Formula) (cu ft/s)	Normal Depth (Dn) (ft)	Tailwater Proposed (Note 2) (Navd)	HW Stage Proposed (Note 3) (Navd)
50	1.8	1.20	244.2			93.38
100	2.0	1.25	282.2			94.35
500			368.0			95.16

Note 1: Q_{500} has been extrapolated from Discharge vs Frequency graph

Note 2: D_n estimated from std channel geometry with side slopes 6 and 4, bott width 5' and long slope 0.05%. TW = Dn + Invert

Note 3: Values obtained from HY 8 model of proposed extension pipe

Flood Hydraulic Data Comparison

Frequency (yr)	Existing HW stage	Proposed HW Stage
50	93.45	93.38
100	94.08	94.35
500	94.27	95.16

Overtopping		
	Existing	Proposed
Elev (Navd)	94.00	94.96
Q* (cfs)	273.2	304.7
Freq (Yr)	91	147

* From HY 8 culvert analysis and Discharge vs Frequency graph

0 100 400
Feet

Tc PATH

℄ CONST. SR 429

℄ RAMP A1_429

DAVENPORT CREEK TRIBUTARY

CD-16
2-7'X4' CBC

CD-5
2-7'X4' CBC

℄ CONST WB GUL

℄ CONST WB XL

℄ CONST EB GUL

℄ CONST EB XL

℄ RAMP B2_429

℄ RAMP B1_429

CD-17
3-42" RCP

POND F-1-A

POND F-1-B

POND F-2-A

POND F-2-B

POND F-7

POND G-1

℄ RAMP D1_429

℄ CONST OLD LAKE WILSON RD.

℄ CONST. SR 400 (I-4)

℄ RAMP A3_429

℄ RAMP C_429

TRADITION BLVD

BASIN CD-16:
- OFFSITE
  - TOTAL AREA: 407 AC.
  - IMPERVIOUS AREA: 6.58 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 180 MINS

BASIN CD-5:
- OFFSITE
  - TOTAL AREA: 407 AC.
  - IMPERVIOUS AREA: 6.58 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 184 MINS
- ONSITE
  - TOTAL AREA: 12.89 AC.
  - IMPERVIOUS AREA: 2.00 AC.
  - WETLAND AREA: 0.40 AC.
  - PERVIOUS AREA: 10.49 AC.

BASIN CD-17:
- OFFSITE
  - TOTAL AREA: 407 AC.
  - IMPERVIOUS AREA: 6.58 AC.
  - WETLAND AREA: 75.14
  - PERVIOUS AREA: 325.28 AC.
  - Tc: 187 MINS
- ONSITE
  - TOTAL AREA: 27.91 AC.
  - IMPERVIOUS AREA: 3.17 AC.
  - WETLAND AREA: 1.52 AC.
  - PERVIOUS AREA: 23.22 AC.

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

ENGINEER OF RECORD
Renato E. Chuw, PE
PE No. 56050
Inwood Consulting Engineers, Inc.
Certificate of Authorization No. 7074
3000 Dovera Drive, Suite 200, Oviedo, Florida 32765
P 407.971.8850

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 400	OSCEOLA	431456-1-32-01

EX CD-5, CD-16 & CD-17 EXISTING BASIN MAP

SHEET NO.

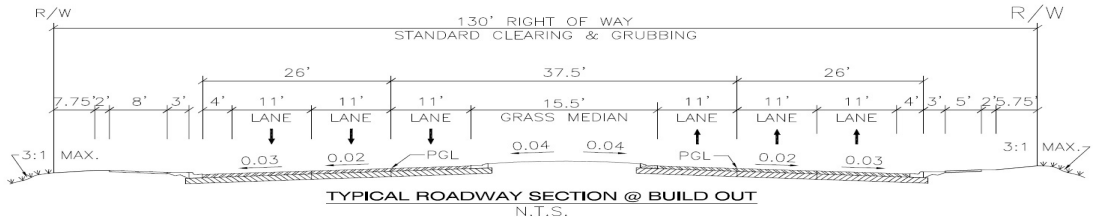
mlaos 2/20/2018 1:14:10 PM c:\pwworking\aecom_na\mlaos\dms31135\SEGC_CD-6_PRE_BASIN_MAP_OFFSITE.DGN

SFWMD PERMIT NO. 49-00954-P (APPLICATION NO. 090515-5)

Old Lake Wilson Road Widening

Stormwater Worksheets

----------PROPOSED TYPICAL SECTION----------



TYPICAL ROADWAY SECTION @ BUILD OUT

N.T.S.

	No.	Width		
* 11' Travel Lane	7	77	ft	
4' Bicycle Lane	2	8	ft	
2' Type F C&G	2	4	ft	
16" Type A C&G	2	2.67	ft	
5' Conc Walk	1	5	ft	
8' Conc Walk	1	10	ft	
	Σ =	106.67	ft	

Total Right-of-Way Width = 130 ft

Total Impervious Area = 106.67 ft ----> 82%

Total Pervious Area = 23.33 ft ----> 18%

* Includes Pavement Width for Turn Lanes averaged throughout the Proposed Section

----------POST DEVELOPMENT DRAINAGE BASINS----------

Weighted Post-Development - CN_{post}

Basin D001 (ROW-Sta: 127+40 to 152+00)

Drainage/Project Area: **7.42** **ac**

Description	Area (ac)	CN	A*CN
Imp. Surface	6.09	98	596.35
Surf Water	0.00	100	0.00
Open Space	1.33	48	63.90
Σ =	7.42	Σ =	660.25

Proposed 130' R/W Area
-
Assumes 82% Imp. Area
Less Old Pavement Area

CN_{post} = **89** * Rounded to Whole Number

Basin D002-P (Future Dry Retention Pond Site)

Drainage/Project Area: **1.71** **ac**

Description	Area (ac)	CN	A*CN
Imp. Surface	0.00	98	0.00
Surf Water (Dry Pond)	0.63	48	30.33
Open Space	1.08	48	51.99
Σ =	1.71	Σ =	82.32

Proposed Pond Site

CN_{post} = **48** * Rounded to Whole Number

Basin D005-OS (Offsite)

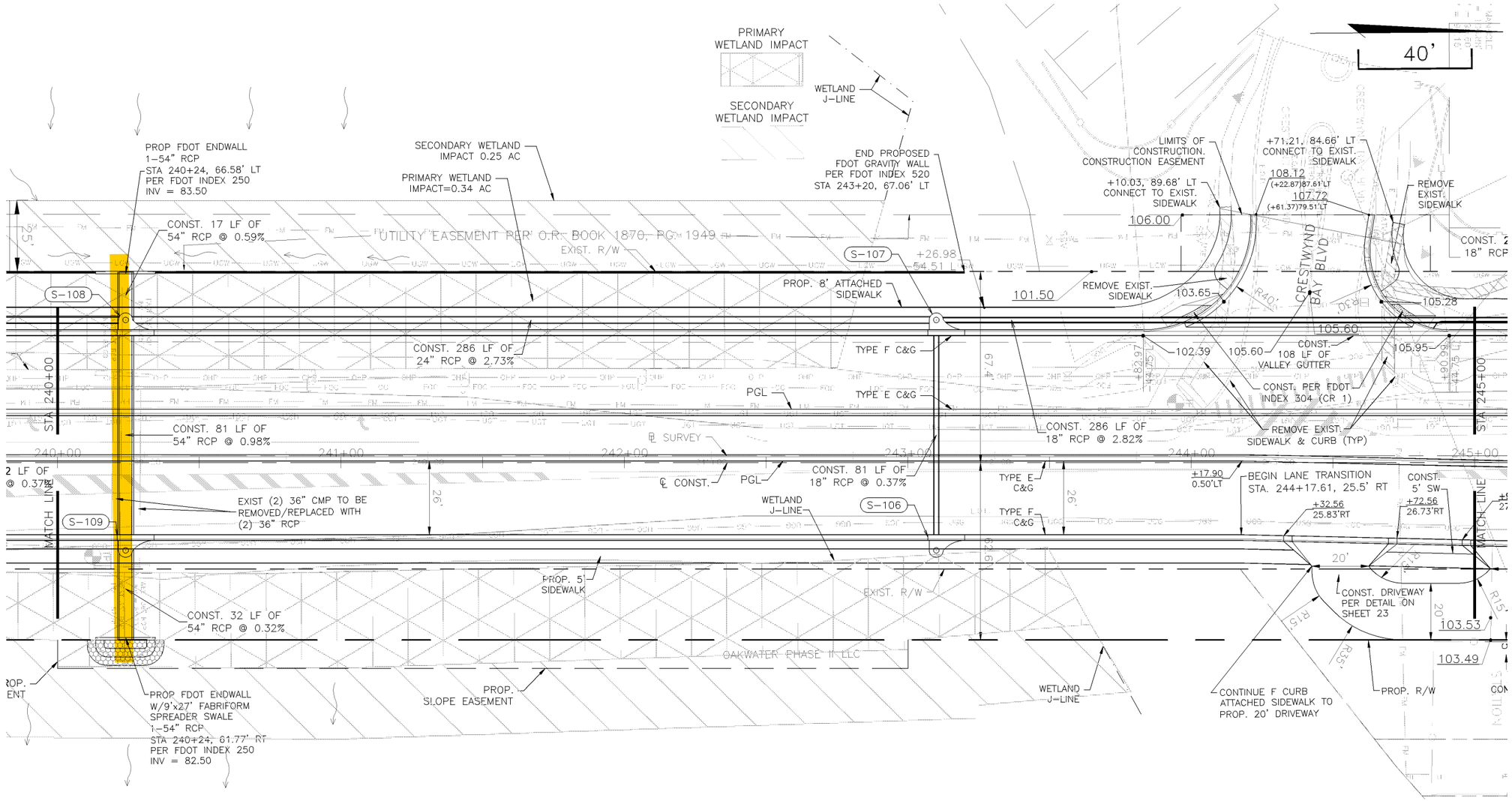
Drainage/Project Area: **1.90** **ac**

Description	Area (ac)	CN	A*CN
Imp. Surface	0.00	98	0.00
Surf Water	0.00	100	0.00
Open Space	1.90	48	91.20
Σ =	1.90	Σ =	91.20

Offsite Area Contribution

Undeveloped Area
(To be Routed through D002-P)

CN_{post} = **48** * Rounded to Whole Number



* SEE SHEET 52 FOR PROFILE VIEW

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REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
07/27/09	KH	⚠ PER 90% COMMENTS						

	NAME	DATE		NAME	DATE
DESIGNED BY	HWA	06/15/09	DRAWN BY	HWA	06/15/09
CHECKED BY	SDH	06/15/09	CHECKED BY	SDH	06/15/09
SUPERVISED BY	SHAWN D. HINDLE, P.E. # 48165				

OSCEOLA COUNTY
FLORIDA

HANSON, WALTER & ASSOCIATES
HWA
ENG. CERT. OF AUTHOR #3265

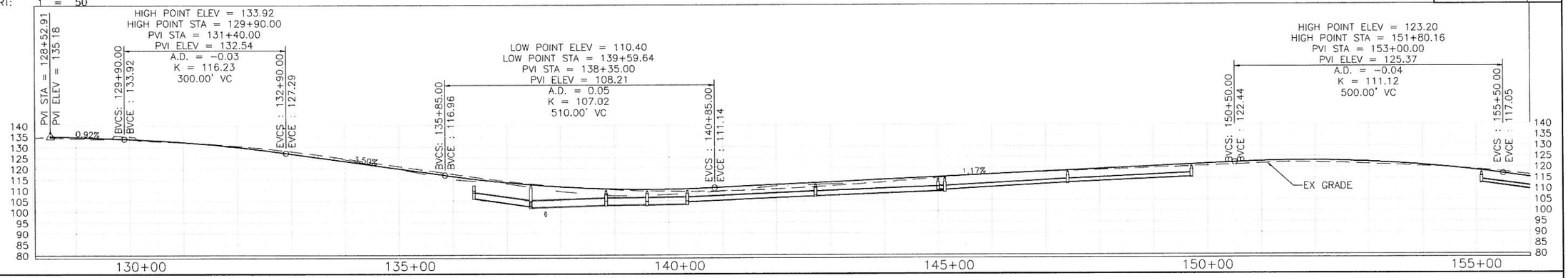
OLD LAKE WILSON ROAD WIDENING
PLAN & PROFILE
STA. 240+00 TO 245+00

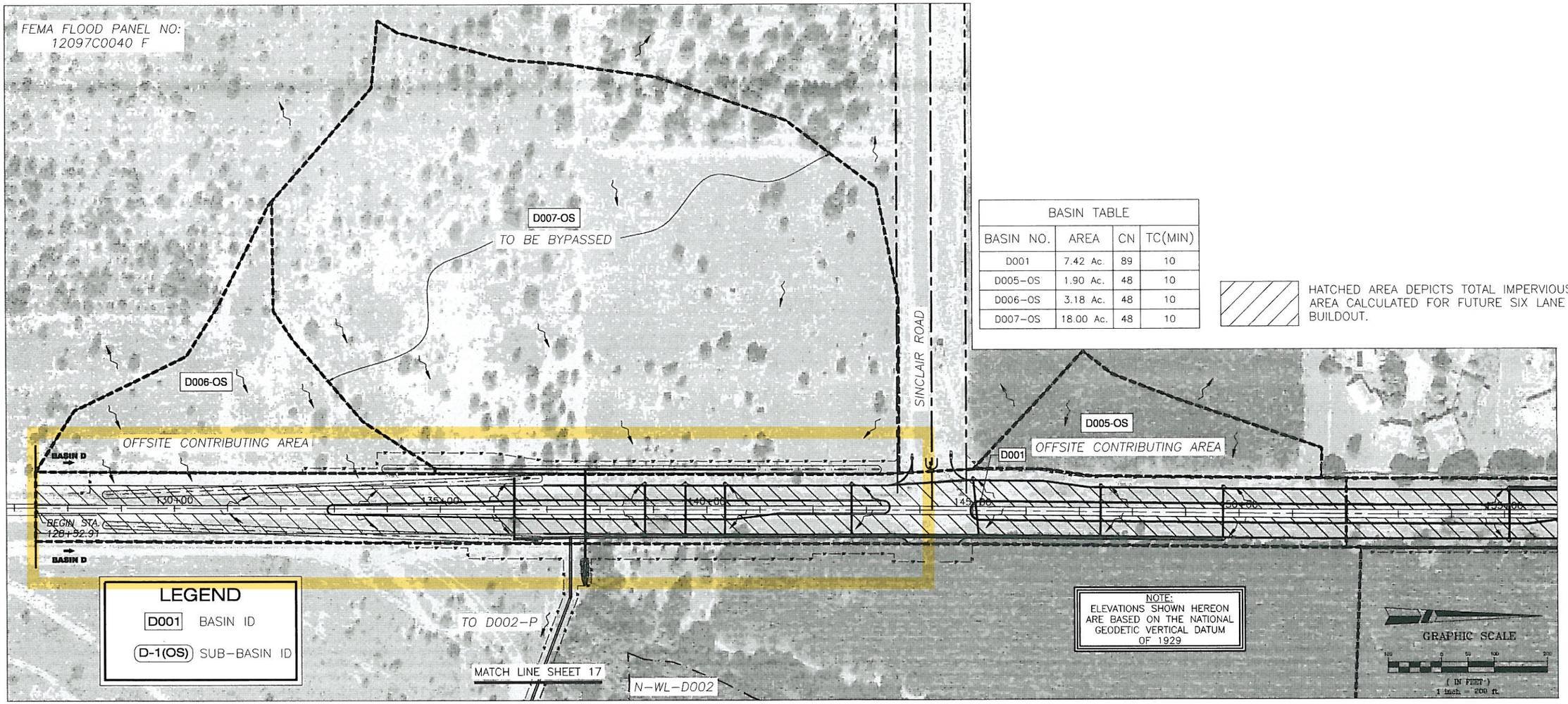
G:\1136\ENGINEERING\CADD\PLANS\s1136_046-056_PLAN-PROF3_11x17.dwg • Oct 14, 2009-11:24am • plotted by khaslam

SCALES:
HORZ. 1" = 200'
VERT: 1" = 50'

NOTE: DRAWING NOT INTENDED FOR CONSTRUCTION PURPOSES

HWA# 1136	SHEET NO. 11





BASIN TABLE			
BASIN NO.	AREA	CN	TC(MIN)
D001	7.42 Ac.	89	10
D005-OS	1.90 Ac.	48	10
D006-OS	3.18 Ac.	48	10
D007-OS	18.00 Ac.	48	10

HATCHED AREA DEPICTS TOTAL IMPERVIOUS AREA CALCULATED FOR FUTURE SIX LANE BUILDOUT.

THESE DOCUMENTS AND THEIR CONTENTS ARE THE PROPERTY OF HANSON, WALTER & ASSOCIATES, INC., AND ARE ISSUED ONLY FOR THE SPECIFIC PROJECT NOTED ON THESE DRAWINGS. ANY REVISIONS OR MODIFICATIONS OF THESE DOCUMENTS WITHOUT THE EXPRESSED WRITTEN CONSENT OF HANSON, WALTER & ASSOCIATES, INC. IS PROHIBITED BY LAW

REVISIONS								
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAME	DATE		NAME	DATE
DESIGNED BY	HWA	05/13/09	DRAWN BY	HWA	05/13/09
CHECKED BY	SDH	05/13/09	CHECKED BY	SDH	05/13/09
SUPERVISED BY	SHAWN HINDLE, P.E.				

OSCEOLA COUNTY
FLORIDA

HANSON, WALTER & ASSOCIATES
HWA
ENG CERT OF AUTHOR #3265

OLD LAKE WILSON ROAD WIDENING
BASIN D
STA. 130+00 – 156+00

G:\1136\ENGINEERING\CADD\PLANS\Design\s1136_011-018_Basin Map_11x17.dwg • May 12, 2009 - 8:43am • plotted by mewberry

APPENDIX C

ACCESS AGREEMENTS AND OTHER SUPPORTING DOCUMENTS

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BEG. PERMIT NUMBER:

49-01107-P

APPLICATION NUMBER:

020802-13

49-01107-P ERP 020802-13
MAGNOLIA CREEK-C.R.545 CART TUNNEL
S23,26,27,28,33,34,35/T25/R27

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ORLANDO SERVICE CENTER 1707 Orlando Central Parkway, Suite 200, Orlando, FL 32809
(407) 858-6100 • FL WATS 1-800-250-4250 • Suncom 358-6100 • Fax (407) 858-6121 • www.sfwmd.gov/org/exo/orlsc/index.html

CON 24-06

Environmental Resource Regulation
Application No.: 020802-13

September 4, 2002

HERMAN J HEIDRICH & SONS A FLORIDA PARTNERSHIP
1227 EAST LAKE COLONY DRIVE
MAITLAND, FL 32751

GINN COMPANY THE
5401 S KIRKMAN ROAD SUITE 500
ORLANDO, FL 32819

Dear Permittee:

SUBJECT: PERMIT NO.: 49-01107-P
Project : MAGNOLIA CREEK - CR 545 CART TUNNELS
Location: Osceola County, S23,26,27,28,33,34,35/T25S/R27E

District staff has reviewed the information submitted August 2, 2002, for the proposed golf cart crossings under C.R. 545, connecting previously permitted portions of the development.

Based on that information, District staff has determined that the proposed activities are in compliance with the original environmental resource permit and appropriate provisions of FAC Rule 40E-4.331(2)(b). Therefore, these changes have been recorded in our files.

Please understand that your permit remains subject to the General Conditions and all other Special Conditions not modified and as originally issued.

Should you have any questions concerning this matter, please contact this office.

Sincerely,

Edward W. Yaun, P.E.
Sr Supv Engineer
Orlando Service Center

EY/md

c: Miller Einhouse Rymer And Associates Inc
Osceola County Engineer
Professional Engineering Consultants Inc

JCT 615
622603

GOVERNING BOARD
Trudi K. Williams, *Chair*
Lennart E. Lindahl, *Vice-Chair*
Pamela Brooks-Thomas
Michael Collins
Hugh M. English
Gerardo B. Fernández
Patrick J. Gleason, Ph.D., P.G.
Nicolás J. Gutiérrez, Jr., Esq.
Harkley R. Thornton

EXECUTIVE OFFICE
Henry Dean, *Executive Director*

DISTRICT HEADQUARTERS: 3301 Gun Club Road, P.O. Box 24680, West Palm Beach, FL 33416-4680 • (561) 686-8800 • FL WATS 1-800-432-2045

bc: Mark S. Daron, P.E.
Shannon Carte-
Environmental Resource Compliance- 4720
Permit File - 4240

PERMIT APPLICATION ROUTING
Regulation Department

Application Number: 020802-13 Permit Number: 49-01107-P

Related Application Number:

Applicant: HERMAN J HEIDRICH & SONS A FLORIDA PARTNERSHIP

Project: MAGNOLIA CREEK - C.R. 545 CART TUNNELS

County: Osceola Permit Type: ERP-LTR-MOD Land Use Type: COM

30 Day Deadline: 9/01/02

No Fee Required:

Fee Received: $100.00 Fee Due: $

(Do Not Issue Permit)

		DATE RECEIVED	DATE OUT
PROCESSED BY:	Janet Santamaria	8/02/02	8/9/02
ROUTE TO:			
Mark Daron	(Ed Yaun)	08/02	08/09
Shannon Carter			
BACK-UP			
LINDA MCCAFFERTY			
RIGHT-OF-WAY	LAURA LYTHGOE HOWARD EHMKE		

COMMENTS:

FOR RIM USE ONLY

Application Submittal Included:
Application Form: 5 Plans: 5 Aerials: 5 Engineer Reports: 5 Adjacent Property Owners Lists: 5

PEC
PROFESSIONAL ENGINEERING CONSULTANTS, INC.

APP# 020802-13-

August 2, 2002

GIN-002
1-1.0
1-5.0

Mr. Ed Yaun, P.E.
Senior Supervisor Engineer
South Florida Water Management District
Orlando Service Center
1707 Orlando Central Parkway
Orlando, FL 32809

RECEIVED
AUG 0 2 2002
ORLANDO SERVICE CENTER

Re: **Magnolia Creek - C.R. 545 Cart Tunnels**
Environmental Resource Permit (ERP) No. 49-01107-P
Letter Modification

Dear Mr. Yaun,

On behalf of the The Ginn Company, we respectfully request a letter modification for the above referenced project. The proposed project incorporates the construction of two (2) golf cart tunnels crossing C.R. 545. As depicted on the enclosed plans, the proposed modification to C.R. 545 is to match the existing two-lane roadway with its original horizontal alignment but with a new vertical alignment in order to accommodate the inclusion of the golf cart crossings.

A copy of review comments is attached to indicate the awareness of this proposed golf cart tunnels by Osceola County.

We trust that the enclosed information will enable you to perform your review. If you have any questions or need any additional information, please do not hesitate to contact me directly at 407.422.8062, ext. 120

Respectfully,

Y.F. Steve Young, P.E.
Associate/Project Engineer

ORIGINAL SUBMITTAL
AUG 0 2 2002
ORLANDO SERVICE CENTER

Attachments

K:\LD\Gin-02\005.ltr.wpd

February 26, 2002

RECEIVED

AUG 0 2 2002

ORLANDO SERVICE CENTER

Mr. Marty Pawlikouski
PEC
200 E. Robinson Street
Orlando, FL 32801

SUBJ: CR 545 - Magnolia Creek
Golf Cart Tunnels

APP# 020802-13-■

Dear Mr. Pawlikouski:

I have looked at the plans you provided and I have some preliminary comments for your consideration as follows:

1. Proposed ROW shall be 130'.
2. VHB developed a preliminary cross section with 24' / 2 lanes per direction, with 4' shoulders and curb & gutter, 3' utility strip, 5' sidewalk and 2.75' blend adjacent to ROW.
   This information will allow to position a center of the roadway from the ROW.
   Please note that other direction includes a 10' bike path (instead of 5' sidewalk).
3. Your typical section should show 12' lanes (not 11'). [1]
4. Finish south end to show the first access on east side and all turn lanes. Finish the intersection with CR532. [2]
5. [3] Combination of vertical curve over south tunnel and horizontal curvature will not achieve "good design appearance". Show horizontal curvature data.
6. Combine ultimate 4LD design and ½ section 2LU design on one sheet to indicate correlation.
7. Water, electricity and gas lines are shown, please label them on drawing and show detail of their spacing and distances (also from ROW lines).
8. Show all access points existing, future, to be removed, temporary etc. Plus horizontal alignment data.
9. At north tunnel sheet - reference URS FDOT ¢ 403497-5-52-01 (Station 66 + 60 ±). Coordinate changes with URS (Don Lepic of our office can provide more details). It is suggested URS alignment with shoulders to STA 71 + 50 ± (but, please coordinate with Ray Stangle and VHB).
10. Road ROW requires full fill (as shown) and reference to future fill at golf course.
11. We have to resolve the ROW dedication containing the utility

Engineering Department
Chris Crowe, P.E.
Department Director/
County Engineer
(407) 343-2600
Fax - (407) 343-2623

Traffic
Donald E. Lepic, P.E.
Assistant County Engineer

Development
Miro Poss, P.E.
Assistant County Engineer

Transportation
Raymond C. Stangle, II, P.E.
Assistant County Engineer

Drainage
Richard W. Earp, P.E.
Assistant County Engineer

Irv Chance
Construction & Inspection

Dan Jones
Property Acquisition Manager/
Special Roads Project
Coordinator

W192 Coordinator
Buddy Fam[illegible]us
(407) 390 - 1700
Fax -(407) 390 -9089

Osceola County

1 Courthouse Square
Suite 1100
Kissimmee, FL 34741-5488

easements possible relocation (We want the utilities to respond).

12. Safety of gas line under tunnel shall be answered (by gas company).

I hope these hints will help you in your process. Please call me at 407-343-2600, if you have any questions.

Sincerely,

Miro Poss, P.E.
Assistant County Engineer

MP/j (Pawlikouski MagnoliaGolf)

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ORLANDO SERVICE CENTER 1707 Orlando Central Parkway, Suite 200, Orlando, FL 32809
(407) 858-6100 • FL WATS 1-800-250-4250 • Suncom 358-6100 • Fax (407) 858-6121 • www.sfwmd.gov/org/exo/orlsc/index.html

(receipt)

Receipt No. 0000052972 - 0001

Refer to Application: 020802-13
Project Name : MAGNOLIA CREEK - CR 545 CART TUNNELS

ORIGINAL SUBMITTAL

PROFESSIONAL ENGINEERING CONSULTANTS INC
200 EAST ROBINSON STREET SUITE 1560
ORLANDO, FL 32801

AUG 0 2 2002

ORLANDO SERVICE CENTER

RECEIPT OF PERMIT APPLICATION

REVENUE ACCOUNT CODE	TYPE OF APPLICATION	FEE AMOUNT
4615	ERP GENERAL PERMIT COMPLIANCE LETTER MOD - MOD	$100.00

ITEM	TRANS TYPE	DATE RECEIVED	CHECK NO	AMOUNT RECEIVED
1	PAYMENT MADE BY APPLICANT	08/02/2002	13457	$100.00
			BALANCE DUE	$0.00

PROCESSED BY : ALEE
DATE : August 9, 2002
BRANCH OFFICE : ORL

c: Applicant
Accounting
Control
File

GOVERNING BOARD

Trudi K. Williams, *Chair*
Lennart E. Lindahl, *Vice-Chair*
Pamela Brooks-Thomas
Michael Collins
Hugh M. English
Gerardo B. Fernández
Patrick J. Gleason, Ph.D., P.G.
Nicolás J. Gutierrez, Jr., Esq.
Harkley R. Thornton

EXECUTIVE OFFICE

Henry Dean, *Executive Director*

DISTRICT HEADQUARTERS: 3301 Gun Club Road, P.O. Box 24680, West Palm Beach, FL 33416-4680 • (561) 686-8800 • FL WATS 1-800-432-2045

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BACK-UP MATERIAL

PERMIT NUMBER:

49-01107-8

APPLICATION NUMBER:

020802-13

PROFESSIONAL ENGINEERING CONSULTANTS, INC.
EOLA PARK CENTRE
200 E. ROBINSON STREET, SUITE 1560
ORLANDO, FL 32801

13457

FIRST UNION NATIONAL BANK
63-751-631

THE SUM OF 100 DOLLARS 00 CTS

DATE
August 2, 2002

AMOUNT
$100.00

Details on back. Security Features Included.

PAY TO THE ORDER OF

South Florida Water Management District
Orlando Service Center
1707 Orlando Central Parkway
Orlando, FL 32809

TWO SIGNATURES REQUIRED ABOVE $250.00
AUTHORIZED SIGNATURE
Carolyn Madden

⑈00013457⑈ ⑆063107513⑆ 2140000559574⑈

Admin info Query screens rEports Spec func Hot keys Main menu

DATS_REV_ADMIN_ South Florida Water Management District Page 1 of 2
HSARTAMA REVIEWER ADMINISTRATIVE INFORMATION 09-AUG-2002

— Administrative Information —

App No: 000522-5
Issuing Agency: SFWMD
Permit No: 49-01107-P
Project Name: MAGNOLIA CREEK MULTI-USE
App Status: COMPLETE
Actual Permit File: IND
Location: ORLANDO
Project City:
Comments: RELATED EW NO 010220-22
Active Mod:

Board Date: 10-MAY-2001
Legal Board Date: 10-MAY-2001
Legal Comp Date: 20-FEB-2001
Final Action Date: 10-MAY-2001
Permit Duration: YEARS
Expiration Date:
Water Body: DAVENPORT C
Project Acreage: 2129.40

Create Permit No: B=NEW PHASE
WU Basin Renewal:

— Application/Permit Type —

Permit Desc: ENVIRONMENTAL RESOURCE PERMIT
App Type: INDIVIDUAL
App Purpose: CO NEW - CA NEW
App Kind: NEW
Letter Type:

Press [NEXT BLOCK] for next page...
CANNOT JPDATE PERMIT NO. IF FINAL ACTION DATE HAS BEEN ENTERED
Count: 1

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APP# 020802-13

Admin info Query screens rEports Spec func Hot keys Main menu

PATS_REV_ADMIN_ South Florida Water Management District Page 1 of 2
HSANTAMA REVIEWER ADMINISTRATIVE INFORMATION 09-AUG-2002

— Administrative Information ————————————————————

App No: 000522-5
Issuing Agency: SFWMD
Permit No: 49-01107-P
Project Name: MAGNOLIA CREEK MULTI-USE
App Status: COMPLETE

ε ard Date: 10-MAY-2001
Legal Board Date: 10-MAY-2001
Legal Comp Date: 20-FEB-2001
Final Action Date: 10-MAY-2001
Permit Duration: YEARS

— Timeline Dates ————— Waiver ——— Early ————— NRM ————————

Waiver Date	Expire Date	Board Flag	Received Date

30 Day Deadline: 22-MAR-2001 Dflt Date: 21-MAY-2001 Board Date: 10-MAY-2001

——Reviewers————————————————————————————————

First Name	Last Name	Rev Typ	Cplx Lvl	Rev Deemed Compl Date	Reviewer To Supv	Supervisor Compl Date
MARK	DARON	SWM		22-MAR-2001		
SHANNON	CARTER	ENV	1	22-MAR-2001		

Date District received the request to waive the application
Count: *1

<Replace>

Admin info Query screens rEports Spec func Hct keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION

09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

Relevant Parties Information

Assoc. Type: ENGR Priority: 1
Salutation:
First Name: REINARDO
Last Name: MALAVE
Company: BOWYER SINGLETON & ASSOCIATES INC
Address: 520 SOUTH MAGNOLIA AVENUE
:
City: ORLANDO
State: FL Zip: 32801
Phone: (407)843-5120

Permit Issued To:

Email:
Country: UNITED STATES OF AMERICA
Fax No: (407)649-8664

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: 4 ^ v

<List><Replace>

Admin info Query screens rEports Spec func Hot keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION

09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

— Relevant Parties Information ———————— ————————————————

Assoc. Type: APPL Priority: 1 Permit Issued To: 1
Salutation:
First Name: FRANCIS A
Last Name: HEIDRICH JR Email:
Company: HERMAN J HEIDRICH & SONS A FLORIDA PARTNERSHIP
Address: 1227 EAST LAKE COLONY DRIVE
:
City: MAITLAND
State: FL Zip: 32751 Country: UNITED STATES OF AMERICA
Phone: (407)830-8088 Fax No: (407)650-2624

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: 2 ^ v

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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION

09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

— Relevant Parties Information ———————————————————

Assoc. Type: APPL Priority: 2 Permit Issued To: 2
Salutation:
First Name: JAMES
Last Name: COOPER Email:
Company: GINN COMPANY THE
Address: 5401 S KIRKMAN ROAD
: SUITE 500
City: ORLANDO
State: FL Zip: 32819 Country: UNITED STATES OF AMERICA
Phone: (407)248-7785 Fax No: (407)248-9821

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: 3 ^ v
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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION

09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

— Relevant Parties Information ———————————————

Assoc. Type: AGNT Priority: 1 Permit Issued To:
Salutation:
First Name: H DOUGLAS
Last Name: MILLER Email:
Company: MILLER EINHOUSE RYMER AND ASSOCIATES INC
Address: 500 WINDERLEY PLACE
: SUITE 222
City: MAITLAND
State: FL Zip: 32751 Country: UNITED STATES OF AMERICA
Phone: (407)838-8041 Fax No: (407)838-8047

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: 1
v

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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION
09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

— Relevant Parties Information

Assoc. Type: OPER Priority: 1 Permit Issued To:
Salutation:
First Name:
Last Name:
Email:
Company: MAGNOLIA CREEK MASTER ASSOCIATION
Address:
:
City:
State: FL Zip:
Country: UNITED STATES OF AMERICA
Phone:
Fax No:

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: *6
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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_POC_S
HSANTAMA

South Florida Water Management District
RELEVANT PARTIES INFORMATION

09-AUG-2002

Application Number	Permit Number	Issuing Agency
000522-5	49-01107-P	SFWMD

— Relevant Parties Information ———————————————

Assoc. Type: IRCT Priority: 1 Permit Issued To:
Salutation:
First Name:
Last Name:
Company: GINN-NORTHSHORE LLC Email:
Address: 12 PALM HARBOR OFFICE PARK DRIVE UNIT B
:
City: PALM COAST
State: FL Zip: 32137
Phone: (904)446-8446 Country: UNITED STATES OF AMERICA
Fax No:

Type of Relevant Party (OWNER,APPLICANT,CONSULTANT, etc.) - LOV
Count: 5 ^ v

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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_FEE_CODES_ South Florida Water Management District
HSANTAMA A P P L I C A T I O N F E E C O D E S 09-AUG-2002

— Administrative Information ——— Permit App ———

App Number	Permit Number	Agency	Type	Type	Kind	Purpose	Ltr
000522-5	49-01107-P	SFWMD	ERP	IND	NEW	CONCAN	

Fee Code	Eff Date	Fee Due	Valid?	Exempt /Manual	Total Amount Paid: Fee	Total Amount Paid: Application
PS1B	08-NOV-1999	10000.00	Y		10000.00	10000.00

——————————Fee Receipt Information——————————

——Relevant Party——

Receipt	Type	Company/First Name	Last Name	Amt Pd
43738	IRCT	GINN-NORTHSHORE LLC		10000.00

Item No.	Trans Type	Amount Received	Date Received	Payment Method	Check No	Credited Application	Note
1	PAYMT	10000.00	22-MAY-2000	CHECK	1987		

Print Receipt=[CTRL-P] ——————————————————————————————

Enter the Permit Type for this Application - LOV
Count: *1

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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_APP_CNTY_S
HSANTAMA

South Florida Water Management District
COUNTY INFORMATION FOR THIS APPLICATION

09-AUG-2002

App Number	Permit Number	Agency	County	Priority
000522-5	49-01107-P	SFWMD	OSCEOLA	1

— Section, Township & Range

Section	Township	Range	Land Grant
23,26,27,28,33,34,35	25	27	

The primary key for a record in the table
Count: *1

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Admin info Query screens rEports Spec func Hot keys Main menu

PATS_LAND_USE_S
HSANTAMA

South Florida Water Management District
LAND / WATER USE INFORMATION

09-AUG-2002

Application Number	Permit Number	Agency
000522-5	01107-P	SFWMD

Permit Type	App Type	App Kind	App Purpose	Letter Type
ERP	IND	NEW	CONCAN	

— Application Landuse Information

Description	Priority
COMMERCIAL	1

Description for landuse (Agricultural, Citrus, Residential - LOV
Count: *1

<Replace>

Admin info Query screens rEports Spec func Hot keys Main menu

PATS_AP_LETTERS_S South Florida Water Management District
HSANTAMA APPLICATION LETTERS INFORMATION 09-AUG-2002

Application Number	Permit Number	App Status	Agency
000522-5	49-01107-P	COMPLETE	SFWMD

Default Date: 21-MAY-2001 Board Date: 10-MAY-2001 30 Day Deadline: 22-MAR-2001

Application Letters

Letter Type	Date Sent	Response Date	Certified Mail #	Date Received
USA	22-MAY-2000	26-MAY-2000		
RAI	21-JUN-2000	23-AUG-2000		
EXT	23-AUG-2000	26-OCT-2000		
RAI	21-NOV-2000	22-DEC-2000		
RAI	19-JAN-2001	07-FEB-2001		
RAI	19-JAN-2001	20-FEB-2001		
PCC	11-APR-2001	13-APR-2001		

[PF1] [8] - To change the Board Date
[PF1] [1] - To print current letter.[PF1] [2] - To change Legal Completion Date.
Application final - No letter changes will be allowed.
Count: *1

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SOUTH FLORIDA WATER
MANAGEMENT DISTRICT

MAPS FOR

PERMIT NUMBER:

49-01107-P

APPLICATION NUMBER:

020802-13

_____OF_____
BOX #

SITE CIVIL CONSTRUCTION PLANS

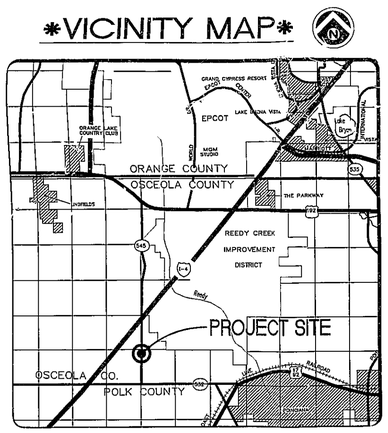
FOR

MAGNOLIA CREEK - C.R. 545 CART TUNNELS
(CON/SPAN BRIDGE SYSTEMS)

OSCEOLA COUNTY, FLORIDA

JULY 2002

VICINITY MAP



INDEX

SHEET No.	DESCRIPTION
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2	GENERAL NOTES
3-7	PLAN AND PROFILE
8-13	SECTIONS - STA 02+00 TO STA 29+00
14-21	SECTIONS - STA 48+00 TO STA 83+00
22	OSCEOLA COUNTY SIGNING AND STRIPING DETAILS
23	F.D.O.T. STANDARD DETAILS
24-27	CON/SPAN BRIDGE SYSTEM No. 1 DETAILS
28-31	CON/SPAN BRIDGE SYSTEM No. 2 DETAILS

PREPARED FOR:

GINN-LA ORLANDO, L.P.

215 CELEBRATION PLACE, SUITE 200
CELEBRATION, FLORIDA 34747
(321) 939-4700

UTILITY SERVICE PROVIDERS:

WATER & SEWER - CITY OF KISSIMMEE
DEPARTMENT OF WATER RESOURCES
101 N. CHURCH STREET
KISSIMMEE, FLORIDA 34741
407.518.2160

TELEPHONE - SPRINT FLORIDA, INC
33 N. MAIN STREET
WINTER GARDEN, FLORIDA 34787
407.814.5380

ELECTRIC - FLORIDA POWER CORPORATION
3250 BONNETT CREEK ROAD
P.O. BOX 10,000
LAKE BUENA VISTA, FLORIDA 32830
407.827.1250

CABLE - TIME WARNER COMMUNICATION
3767 ALL AMERICAN BOULEVARD
ORLANDO, FLORIDA 32810
407.532.8605

GAS - PEOPLES GAS SYSTEM, INC.
600 W. ROBINSON STREET
ORLANDO, FLORIDA 32802
407.425.4651

PEC PROFESSIONAL ENGINEERING CONSULTANTS, INC.
engineers planners surveyors
Suite 1560 Eola Park Centre 200 East Robinson Street, Orlando, Florida 32801 407/422-8062

L:\BTEAM\GIN002--YFS\CONSTR\GIN2COV.dwg 07/20/2002 02:50:56 PM EDT

DEFINITION: WHEN USED IN THESE GENERAL NOTES, THE WORD "OWNER" SHALL HAVE THE INDICATED MEANING, GINN-LA ORLANDO, L.P. 215 CELEBRATION PLACE, STE 200, CELEBRATION, FLORIDA 34747; 321.939.4700

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND IN-HAND BEFORE BEGINNING CONSTRUCTION.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SATISFYING ALL REQUIREMENTS OF REGULATORY AGENCY PERMITS REGARDING CONSTRUCTION AND MAINTENANCE ACTIVITIES AND CONDITIONS STATED THEREIN.

3. THE LOCATION OF ALL EXISTING UTILITY SERVICES, FACILITIES, AND STRUCTURAL FEATURES SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST AVAILABLE INFORMATION AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF THE INFORMATION PROVIDED. ANY INACCURACY OR OMISSION IN SUCH INFORMATION SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY TO PROTECT SUCH EXISTING FEATURES FROM DAMAGE OR UNSCHEDULED INTERRUPTION OF SERVICES. SHOULD A DISCREPANCY ARISE BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS, WHICH WOULD APPRECIABLY AFFECT THE EXECUTION OF THESE PLANS, THE CONTRACTOR WILL HALT CONSTRUCTION AND NOTIFY THE ENGINEER IMMEDIATELY.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND VERIFYING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION, AND FOR NOTIFYING THE VARIOUS UTILITY COMPANIES TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION, DISRUPTION OF SERVICE, OR CLARIFICATION OF ACTIVITY REGARDING SAID UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THESE PLANS OR FIELD LOCATED. PRIVATE UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY COMPANY AND THE CONTRACTOR SHALL COOPERATE WITH THE UTILITY COMPANY DURING RELOCATION OPERATIONS. ANY DELAY OR INCONVENIENCE BY THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL INSPECTION CRITERIA AND SCHEDULES, AND FOR SIGNING FOR SAID INSPECTIONS.

6. ALL WORK AND MATERIALS FURNISHED SHALL BE IN REASONABLE CONFORMITY WITH THE LINES, GRADES, PROFILES, CROSS-SECTIONS, DIMENSIONS, MATERIAL REQUIREMENTS, AND TESTING REQUIREMENTS SPECIFIED IN THE CONTRACT, PLANS OR SPECIFICATIONS.

7. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS CONTROLLING POLLUTION OF THE ENVIRONMENT. MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO CONTROL EROSION AND SEDIMENT RUN-OFF FROM THE SITE DURING CONSTRUCTION. SUCH METHODS SHALL BE IN ACCORDANCE WITH THE CURRENT FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS.

8. THE CONTRACTOR SHALL INSURE THAT PROPER SOIL DENSITIES ARE ACHIEVED FOR THE PLACEMENT OF ALL HEADWALL/ENDWALL FOOTINGS, AND IN GENERAL, THE SUPPORT REQUIRED FOR ANY STRUCTURE (PHYSICAL OR EARTHEN) DESCRIBED IN THESE PLANS. IT WILL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT SUFFICIENT SOILS TESTING HAS BEEN PERFORMED PRIOR TO CONSTRUCTION.

9. ALL SOIL STRIPPINGS, DELETERIOUS AND UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR UNLESS OTHERWISE DIRECTED BY THE OWNER OR SPECIFIED ELSEWHERE IN THE PLANS FOR SELECT DISPOSAL. IN NO CASE WILL BURIAL OF DISPOSABLE MATERIALS BE ALLOWED WITHIN THE PAVEMENT AREAS, BUILDING PAD AREAS, POND OR SWALE BERMS OR EMBANKMENTS, OR IN REAR YARDS ADJACENT TO PONDS OR LAKES. CLEARING AND GRUBBING SHALL BE IN ACCORDANCE WITH OSCEOLA COUNTY, FLORIDA STANDARDS.

10. THE CONTRACTOR SHALL NOT EXCAVATE, REMOVE, OR OTHERWISE DISTURB ANY MATERIALS, STRUCTURE, OR PART OF A STRUCTURE WHICH IS LOCATED OUTSIDE THE LINES, GRADES, OR GRADING SECTIONS ESTABLISHED FOR THIS PROJECT EXCEPT WHERE SUCH EXCAVATION OR REMOVAL IS PROVIDED FOR IN THE CONTRACT, PLANS, OR SPECIFICATIONS.

11. THE CONTRACTOR SHALL EXAMINE THE SITE FOR ALL CONDITIONS WHICH MAY AFFECT HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND ASSUMING THAT NO EXISTING UTILITY, DRAINAGE SYSTEM STRUCTURE, OR PHYSICAL STRUCTURE IS WITHIN THE LIMITS OF WORK. THE OWNER AND THE ENGINEER ASSUME NO RESPONSIBILITY FOR SUBSURFACE CONDITIONS OR FOR THE CONTRACTOR'S FAILURE TO IDENTIFY, LOCATE, AND PROTECT EXISTING FACILITIES.

12. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE POLICIES ESTABLISHED BY OSCEOLA COUNTY, FLORIDA FOR PRESERVATION OF ALL PUBLIC AND PRIVATE PROPERTY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE AND INJURY TO PROPERTY OF ANY CHARACTER, DURING THE PROSECUTION OF THE WORK, RESULTING FROM ANY ACT, OMISSION, NEGLECT, OR MISCONDUCT IN HIS MANNER OR METHOD OF EXECUTING THE WORK, OR AT ANY TIME DUE TO DEFECTIVE WORK OR MATERIALS.

13. BURNING WILL NOT BE ALLOWED UNLESS THE APPROPRIATE PERMIT AND/OR APPROVAL IS OBTAINED FROM THE GOVERNMENTAL ENTITY HAVING JURISDICTION OVER THE BURNING ACTIVITIES AT THE LOCATION WHERE THE PROPOSED ACTIVITY IS REQUESTED.

14. A GEOTECHNICAL ENGINEER WILL BE PROVIDED BY THE OWNER TO MAKE DETERMINATIONS ON THE SUITABILITY OF MATERIAL ACQUIRED FROM EXCAVATIONS OR BORROW OPERATIONS AND TO DETERMINE FILL SUITABILITY AND CONTROL FOR EMBANKMENT OPERATIONS OR THE STOCKPILING OF SURPLUS SOIL. THE CONTRACTOR WILL COOPERATE WITH THE GEOTECHNICAL ENGINEER AS REQUIRED TO DO THE WORK.

15. THE CONTRACTOR IS REQUIRED TO REVIEW THE PROJECT PLANS AND CONSULT WITH THE GEOTECHNICAL ENGINEER, TO BE RECOGNIZED BY OWNER, IN MANAGING THE EXCAVATION, STAGING, PLACEMENT AND COMPACTION OF SOILS MATERIALS.

16. IN ALL AREAS WHICH REQUIRE FILL MATERIAL, THE CONTRACTOR WILL STRIP OR OTHERWISE REMOVE ALL VEGETATION AND OTHER DELETERIOUS MATERIAL BEFORE EMBANKMENT IS STARTED. IMMEDIATELY PRIOR TO THE PLACING OF FILL MATERIALS, THE ENTIRE AREA UPON WHICH FILL IS TO PLACED WILL BE SCARIFIED IN A DIRECTION APPROXIMATELY PARALLEL TO THE AXIS OF FILL, UNLESS DIRECTED OTHERWISE BY THE GEOTECHNICAL ENGINEER.

17. ALL FILL EMBANKMENT AND GRADED AREAS SHALL BE PROTECTED AGAINST EROSION BY METHODS STATED IN "SECTION 104," F.D.O.T. STANDARD SPECIFICATIONS FOR BRIDGE AND ROAD CONSTRUCTION/MAL. SIDE SLOPES MAY BE SEEDED AND MULCHED PROVIDED THAT THE MULCH MATERIAL IS DISC HARROWED AND THE SIDE SLOPES ARE NEITHER GREATER THAN 3:1 NOR PART OF A DRAINAGE CONVEYANCE. ALL RIGHT-OF-WAYS ARE TO BE SODDED.

18. UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER AND PRIOR TO THE PLACEMENT OF FILL, THE AREA TO BE FILLED WILL BE PROOF ROLLED UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER. ANY AREA SHOWING SIGNS OF PUMPING, WEAVING OR OTHER FORMS OF INSTABILITY SHALL BE SELECTIVELY REMOVED AND REPLACED WITH COMPACTED SELECT FILL.

19. ALL POND AND SWALE SIDE SLOPES AND BOTTOMS ARE TO BE SODDED UP TO THE TOP OF BANK ELEVATIONS PER OSCEOLA COUNTY LAND DEVELOPMENT CODE.

20. SEEDING, MULCHING AND SODDING SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. ALL FILL SIDE SLOPE AREAS WILL BE GRASSED AND MAINTAINED BY THE CONTRACTOR ACCORDING TO THE CONTRACT. ALL DISTURBED AREAS OUTSIDE THE EXCAVATION AND FILL LIMITS WILL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN THEIR CONDITION PRIOR TO CONSTRUCTION.

21. THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL NEWLY PLANTED GRASSES OR VEGETATION AND RETENTION/DETENTION FACILITIES UNTIL THE WORK HAS BEEN ACCEPTED BY THE OWNER/COUNTY.

22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF EMBANKMENTS AND SHALL REPLACE ANY PORTION, WHICH IN THE OPINION OF THE ENGINEER, HAS BECOME DISPLACED DUE TO EROSION OR DUE TO CARELESSNESS OR NEGLIGENCE ON THE PART OF THE CONTRACTOR.

23. THE CONTRACTOR SHALL EXAMINE THE SITE, REVIEW THE PLANS, AND INDEPENDENTLY DETERMINE THE VOLUME OF EXCAVATION AND EMBANKMENT REQUIRED TO PERFORM THE WORK.

24. THE CONTRACTOR SHALL COMPLY WITH ALL LEGAL LOAD RESTRICTIONS WHEN HAULING MATERIALS OR EQUIPMENT BEYOND THE LIMITS OF THE WORK. A SPECIAL PERMIT WILL NOT RELIEVE THE CONTRACTOR FROM ANY LIABILITY FOR DAMAGE OR INJURY WHICH MAY RESULT FROM HAULING EQUIPMENT OR MATERIAL.

25. AS-BUILT DRAWINGS SHALL BE KEPT BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER UPON PROJECT COMPLETION, PRIOR TO FINAL CERTIFICATION OF COMPLETION BY THE ENGINEER. (SEE AS-BUILT NOTES FOR SPECIFICS).

26. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL FURNISH, ERECT AND MAINTAIN ALL BARRICADES, WARNING SIGNS, AND MARKERS FOR HAZARDS AND THE CONTROL OF TRAFFIC IN REASONABLE CONFORMITY WITH THE U.S. DEPARTMENT OF TRANSPORTATION MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, OR AS DIRECTED BY OSCEOLA COUNTY, FLORIDA ENGINEERING DEPARTMENT. SUCH AS TO EFFECTIVELY PREVENT ACCIDENTS IN ALL PLACES WHERE WORK CAUSES OBSTRUCTION TO THE NORMAL TRAFFIC OR CONSTITUTES IN ANY WAY A HAZARD TO THE PUBLIC.

27. THE CONTRACTOR SHALL COMPLY WITH OSCEOLA COUNTY, FLORIDA CONSTRUCTION SPECIFICATIONS FOR STRIPPING, CLEARING, GRUBBING, GRADING, BACK FILLING AND EMBANKMENT PREPARATION WITHIN ALL DESIGNED ROADWAY RIGHT-OF-WAY SECTIONS.

28. ALL FILL PLACED WITHIN PROPOSED ROAD RIGHT-OF-WAY SHALL BE COMPACTED TO 95% MAXIMUM DENSITY, AASHTO T-180.

29. ALL MANHOLES, INLETS, AND JUNCTION BOX STRUCTURES SHALL BE PRE-CAST AND IN ACCORDANCE WITH ASTM C-478 UNLESS SPECIFIED ELSEWHERE.

30. ALL PAVEMENT AND CURB RETURNS RADII DIMENSIONS SHOWN ARE TO THE EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.

31. THE CONTRACTOR SHALL INSTALL DROP CURBS AND HANDICAP ACCESS RAMPS AT ALL INTERSECTIONS OF THE SIDEWALK WITH THE PROPOSED PAVEMENT.

32. SPOT ELEVATIONS SHOWN IN PLAN VIEWS ARE PROPOSED EDGE OF PAVEMENT'S FINISHED GRADE ELEVATIONS.

33. MITERED-END SECTIONS AND U-TYPE ENDWALLS ARE LOCATED WITH COORDINATES AT THE CENTER OF THE OUTFALL END.

34. ALL INLET AND MANHOLE OFFSET DISTANCES SHOWN ARE MEASURED TO THE CENTERLINE OF THE STRUCTURE.

35. THE CONTRACTOR SHALL LOCATE AND VERIFY THE DEPTHS AND LOCATIONS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF WORK, PRIOR TO ORDERING ANY STRUCTURES.

36. INSTALLATION OF SILT FENCES AND TURBIDITY BARRIERS SHALL BE IN ACCORDANCE WITH F.D.O.T. ROADWAY AND TRAFFIC DESIGN STANDARDS.

37. ALL EXPOSED EARTH ADJACENT TO STORM DRAINAGE STRUCTURES SHALL BE SODDED UP TO A MINIMUM OF 5' SUCH AS BOTTOM INLETS, MANHOLES, MITERED-END SECTIONS, AND OUTFALL STRUCTURES.

38. ALL UTILITIES' CROSSINGS, VALVES AND SERVICES SHALL BE APPROPRIATELY MARKED ON THE CURB BY A "W" FOR WATER, "S" FOR SEWER AND "R" FOR RECLAIM.

39. ALL UTILITIES SHALL HAVE A MINIMUM OF 36" OF COVER.

40. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SURVEY MONUMENTATION. DISTURBED MONUMENTATION SHALL BE RESTORED BY FLORIDA LICENSED SURVEYOR SELECTED BY THE OWNER AT THE CONTRACTOR'S EXPENSE.

41. WORK REQUIRED, BUT NOT SPECIFIED BY THE PLANS OR CONTRACT DOCUMENTS, SHALL BE IN ACCORDANCE WITH THE STANDARDS SPECIFIED BY OSCEOLA COUNTY, FLORIDA.

SOIL COMPACTION TEST

1. SOIL COMPACTION TEST SHALL BE REQUIRED AT MAXIMUM INTERVALS OF THREE HUNDRED (300) FEET OF WATER AND SEWER PIPE USING ONE (1) FOOT LIFTS FROM THE SPRINGLINE OF THE PIPE TO GRADE. SOIL COMPACTION TESTS AROUND MANHOLE STRUCTURES SHALL BE REQUIRED EVERY ONE HUNDRED (100) S.F. OF BACKFILL USING ONE (1) FOOT LIFTS FROM BASE TO GRADE.

LEGEND

- EXISTING CONTOUR
- 100 PROPOSED POND (TOB)
- PROPOSED ROADWAY CENTERLINE
- PROPOSED EDGE-OF-PAVEMENT
- PROPOSED SIDEWALK
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- PROPOSED BUILDING SETBACK LINE
- FH 4" PROPOSED WATERLINE W/ FIRE HYDRANT
- PROPOSED SANITARY LINE W/ MH
- PROPOSED STORM DRAINAGE LINE W/ NODE
- PROPOSED SILT BARRIER
- SOIL DIVIDE, SEE SOILS LEGEND

PRE-CONSTRUCTION CONFERENCE

IT SHALL BE REQUIRED THAT A PRE-CONSTRUCTION CONFERENCE BETWEEN THE DEVELOPER/OWNER, HIS ENGINEER, HIS CONTRACTOR, & ALL UTILITIES' AGENCIES AND OSCEOLA COUNTY BE HELD AT LEAST FORTY-EIGHT (48) HOURS BEFORE COMMENCEMENT OF CONSTRUCTION, UNLESS WAIVED BY THE OSCEOLA COUNTY ENGINEER. ALL PROJECTS INVOLVING PUBLIC FACILITIES SHALL BE REQUIRED TO BE PRECEDED BY A PRE-CONSTRUCTION CONFERENCE. ALL OTHERS SHALL BE AS DEEMED NECESSARY BY THE CITY OR THE DEVELOPER/OWNER.

START OF CONSTRUCTION

THE COUNTY ENGINEER SHALL BE NOTIFIED AT LEAST SEVEN (7) DAYS IN ADVANCE OF THE PROPOSED DATE OF THE BEGINNING OF CONSTRUCTION. ANYTIME THAT WORK IS TO STOP FOR A PERIOD OF TIME IN EXCESS OF FIVE (5) WORKING DAYS, OTHER THAN STOPPAGE BEYOND THE CONTRACTOR'S CONTROL, AND HOLIDAYS, THE COUNTY ENGINEER SHALL BE NOTIFIED IN WRITING OF SUCH INTERRUPTION. THE COUNTY APPROVED ENGINEERING PLANS AND ALL REVISIONS SHALL BE READILY ACCESSIBLE TO COUNTY PERSONNEL DURING ALL PERIODS OF ACTIVITY. NO ACTIVITY SHALL BE PERMITTED WITHOUT THESE DOCUMENTS ON SITE EXCEPT FOR CONNECTION PERMITS.

FINAL INSPECTION

THE COUNTY SHALL BE NOTIFIED WHEN THE PROJECT IS COMPLETE UPON RECEIVING AT LEAST A TWENTY-FOUR (24) HOUR PRIOR REQUEST, EXCLUDING WEEKENDS AND HOLIDAYS, FOR FINAL INSPECTION OF THE COMPLETED WORK. THE COUNTY'S REPRESENTATIVES, TOGETHER WITH THE REPRESENTATIVES OF OTHER INTERESTED AGENCIES SHALL PERFORM THE FINAL INSPECTION: AS-BUILT/RECORD DRAWINGS, REMAINDER OF INSPECTION FEES, PAYMENT OF RE-TEST FEES, RECORDED PLAT, ITEMIZED CONSTRUCTION COSTS, AND ENGINEER'S CERTIFICATIONS.

EROSION CONTROL PLAN

AN EROSION CONTROL PLAN SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE COUNTY ENGINEER FOR APPROVAL PRIOR TO THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL EXECUTE ALL MEASURES NECESSARY TO LIMIT THE TRANSPORT OF SEDIMENT BEYOND THE LIMITS OF THE PROJECT TO THE VOLUME AND AMOUNT AS THAT ARE EXISTING PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THIS CONDITION WILL BE SATISFIED FOR THE TOTAL ANTICIPATED CONSTRUCTION PERIOD. PROVISION MUST BE MADE TO PRESERVE THE INTEGRITY AND CAPACITY OF CHECK WEIRS, SEDIMENT BASINS, SLOPE DRAINS, GRADING PATTERNS, ETC. REQUIRED TO MEET THIS PROVISION THROUGHOUT THE LIFE OF THE CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE HAY BALES, SILT BARRIERS, TEMPORARY GRASSING, ETC. AS REQUIRED TO FULLY COMPLY WITH THE INTENT OF THIS SPECIFICATION.

1. STOCKPILING MATERIAL

   NO EXCAVATED MATERIAL SHALL BE STOCKPILED IN SUCH A MANNER AS TO DIRECT RUNOFF DIRECTLY OFF THE PROJECT SITE OR INTO ANY ADJACENT WATER BODY OR STORMWATER COLLECTION FACILITY.

2. EXPOSED AREA LIMITATION

   THE SURFACE AREA OF OPEN, RAW ERODABLE SOIL EXPOSED BY CLEARING AND GRUBBING OPERATIONS OR EXCAVATION AND FILLING OPERATIONS SHALL BE CONTROLLED, SO THAT THIS OPERATION WILL NOT SIGNIFICANTLY AFFECT OFFSITE DEPOSIT OF SEDIMENTS.

3. INLET PROTECTION

   INLETS AND CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT LADEN STORMWATER RUNOFF UNTIL THE COMPLETION OF ALL CONSTRUCTION OPERATIONS THAT MAY CONTRIBUTE SEDIMENT TO THE INLET.

4. TEMPORARY SEEDING

   AREAS OPENED BY CONSTRUCTION OPERATIONS THAT ARE NOT ANTICIPATED TO BE DRESSED OR RECEIVE FINAL GRASSING TREATMENT WITHIN THIRTY (30) DAYS SHALL BE SEEDED WITH A QUICK GROWING GRASS SPECIES WHICH WILL PROVIDE AN EARLY COVER, DURING THE SEASON IN WHICH IT IS PLANTED. TEMPORARY SEEDING SHALL BE CONTROLLED SO AS TO NOT ALTER OR COMPETE WITH PERMANENT GRASSING. THE RATE OF SEEDING SHALL BE 30 POUNDS PER ACRE.

5. TEMPORARY SEEDING AND MULCHING

   SLOPES STEEPER THAN 6:1 THAT FALL WITHIN THE CATEGORY ESTABLISHED IN 4 ABOVE, SHALL ADDITIONALLY RECEIVE MULCHING OF APPROXIMATELY TWO (2) INCHES, LOOSE MEASURE, OF MULCH MATERIAL CUT INTO THE SOIL OF THE SEEDED AREA TO A DEPTH OF FOUR (4) INCHES.

6. TEMPORARY GRASSING

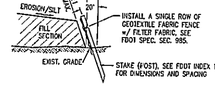
   THE SEEDED OR SEEDED AND MULCHED AREA(S) SHALL BE ROLLED AND WATERED AS REQUIRED TO ASSURE OPTIMUM GROWING CONDITIONS FOR THE ESTABLISHMENT OF A GOOD GRASS COVER.

7. TEMPORARY RE-GRASSING

   IF, AFTER 14 DAYS, THE TEMPORARY GRASSED AREAS HAVE NOT ATTAINED A MINIMUM OF 75% GOOD GRASS COVER, THE AREA WILL BE REWORKED AND ADDITIONAL SEEDS APPLIED TO ESTABLISH THE DESIRED VEGETATION COVER.

8. MAINTENANCE

   ALL FEATURES OF THE PROJECT SHALL BE CONSTRUCTED TO PREVENT EROSION AND SEDIMENT AND SHALL BE MAINTAINED DURING THE LIFE OF THE CONSTRUCTION SO AS TO FUNCTION PROPERLY WITHOUT THE TRANSPORT OF SEDIMENTS OUTSIDE THE LIMITS OF THE PROJECT.



NOTE: TEMPORARY SILT FENCES AND STAKED SILT BARRIERS, SHALL BE IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATION, SEC. 104.6, 104.7 AND SEC. 985.

THE CONTRACTOR SHALL PREPARE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE EPA NPDES (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM) REGULATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR MUST ALSO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) FORM TO EPA, REGION IV (ATLANTA) 48 HOURS PRIOR TO CONSTRUCTION.

UNDER PROVISIONS OF THE CLEAN WATER ACT, OPERATOR(S) OF CONSTRUCTION SITES, PURSUANT TO CONDITIONS OF THE NPDES PERMIT, MUST SUBMIT A NOI TO OBTAIN COVERAGE UNDER THE NPDES STORM WATER CONSTRUCTION GENERAL PERMIT.

NOI'S MUST BE SENT TO THE FOLLOWING ADDRESS,
STORM WATER NOTICE OF INTENT (4203)
USEPA
401 M. STREET, SW
WASHINGTON, D.C. 20406

STAKED SILT BARRIER
NTS

AS-BUILT NOTES

AS-BUILT DRAWINGS SHALL BE PREPARED BY AND CERTIFIED BY A REGISTERED SURVEYOR, AND SHALL BE PROVIDED TO THE PROJECT ENGINEER UPON COMPLETION OF THE PROJECT SITE IMPROVEMENTS. AS-BUILT DRAWINGS SHALL REFLECT ANY CHANGES TO THE IMPROVEMENTS MADE DURING CONSTRUCTION. BOTH THE ORIGINAL DESIGN AND REVISED AS-BUILT DATA, AS APPLICABLE, MUST BE CLEARLY SHOWN. THE AS-BUILT DRAWINGS MUST BE CLEARLY LABELED AS "AS-BUILT" OR "RECORD" DRAWING. THE FOLLOWING INFORMATION, AT A MINIMUM, SHALL BE CERTIFIED ON THE AS-BUILT DRAWINGS

WATER DISTRIBUTION SYSTEM:

A. LOCATION AND DIMENSIONS OF PIPES, VALVES, FITTINGS, AND OTHER ASSOCIATED FACILITIES.

DRAINAGE SYSTEM:

A. DIMENSIONS AND ELEVATIONS OF ALL DISCHARGE STRUCTURES INCLUDING ALL WEIRS, SLOTS, GATES, PIPES, AND SKIMMERS;

B. LOCATIONS, DIMENSIONS, AND ELEVATIONS OF ALL INFILTRATION, EXFILTRATION, OR UNDERDRAIN SYSTEMS INCLUDING CLEANOUTS, PIPES, CONNECTIONS TO CONTROL STRUCTURES, AND POINTS OF DISCHARGE TO THE RECEIVING WATERS;

C. DIMENSIONS, ELEVATIONS, CONTOURS, OR CROSS-SECTIONS OF ALL STORMWATER TREATMENT POND STORAGE AREAS SUFFICIENT TO DETERMINE STAGE-STORAGE RELATIONSHIPS OF THE STORAGE AREA, AND SIZE AND DEPTH AND VOLUME BELOW THE CONTROL WATER ELEVATION FOR NORMALLY WET SYSTEMS;

D. DIMENSIONS, ELEVATIONS, CONTOURS, FINAL GRADES, OR CROSS-SECTIONS OF THE DRAINAGE SYSTEM IMPROVEMENTS TO DETERMINE FLOW DIRECTIONS AND CONVEYANCE OF RUNOFF TO THE TREATMENT SYSTEM;

E. DIMENSIONS, ELEVATIONS, CONTOURS, FINAL GRADES, OR CROSS-SECTIONS OF ALL CONVEYANCE SYSTEMS UTILIZED TO CONVEY OFF-SITE RUNOFF AROUND THE SYSTEM;

F. EXISTING WATER ELEVATION OF SURFACE WATERS AND THE DATE DETERMINED; AND

G. ELEVATION AND LOCATION OF BENCHMARK(S) FOR THE SURVEY.

REV.	DATE	DESCRIPTION	APP'D BY
			NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

R. LYNN DATTERSON, P.E. 45904

PEC / PROFESSIONAL ENGINEERING CONSULTANTS, INC.
engineers planners surveyors
Board of Professional Engineer Certificate No. 3506
Suite 200, Bay Hill Executive Centre 7380 Chancellor Drive Orlando, Florida 32809
Tel (407) 422-6062 Fax (407) 910-1401

MAGNOLIA CREEK - CR 545 CART TUNNELS

GENERAL NOTES

OSCEOLA COUNTY S.26 & 35 T.25S R.27E

D.SIGNED BY:	YFS
DRAWN BY:	YFS
CHECKED BY:	MSP
APPROVED BY:	MSP
PROJ. No.	GIN-002
DATE	JUL. 02

SHEET 2

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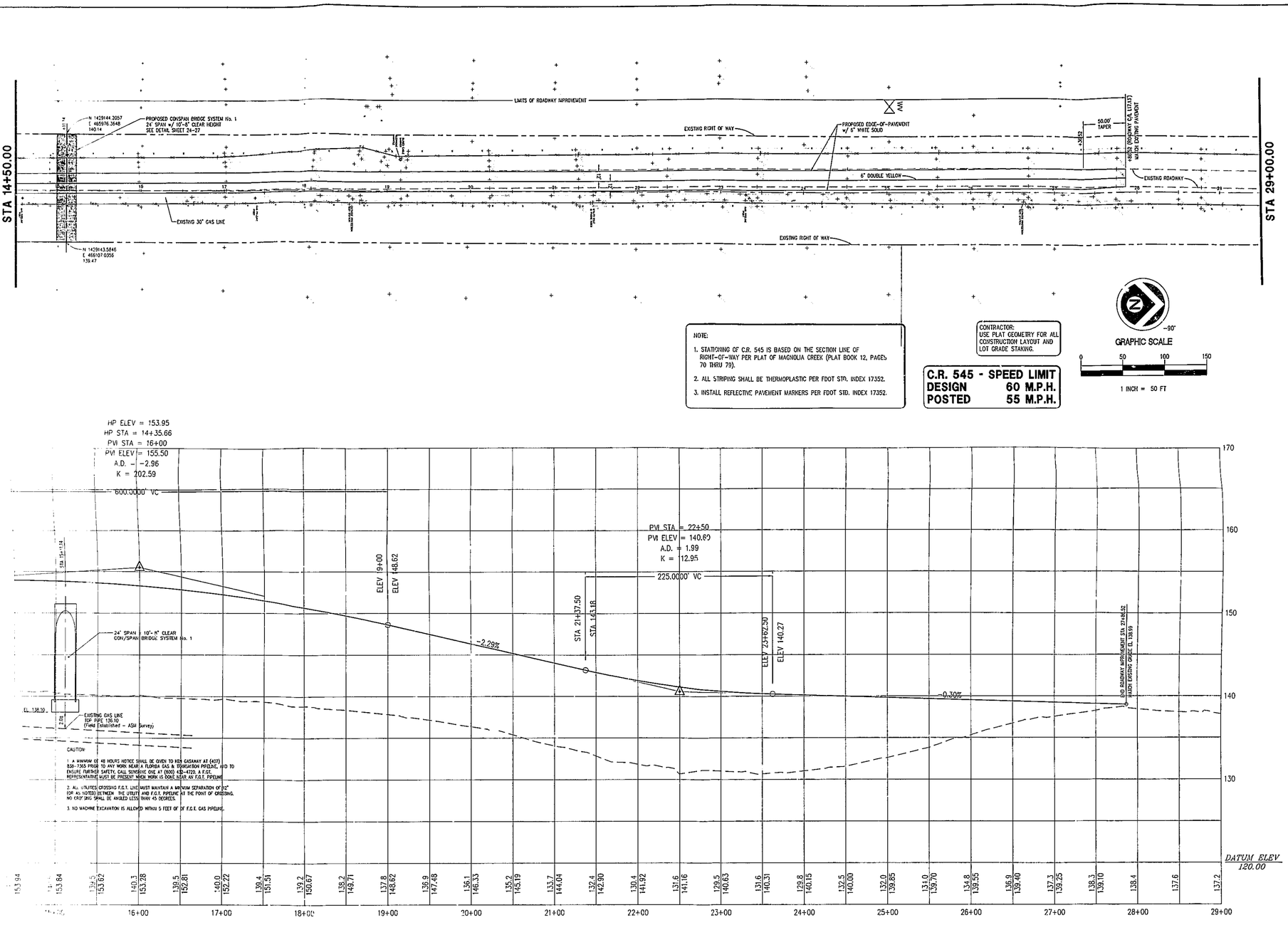


NOTE:

1. STATIONING OF C.R. 545 IS BASED ON THE SECTION LINE OF RIGHT-OF-WAY PER PLAT OF MAGNOLIA CREEK (PLAT BOOK 12, PAGES 70 THRU 79).
2. ALL STRIPING SHALL BE THERMOPLASTIC PER FDOT STD. INDEX 17352.
3. INSTALL REFLECTIVE PAVEMENT MARKERS PER FDOT STD. INDEX 17352.

CONTRACTOR:
USE PLAT GEOMETRY FOR ALL CONSTRUCTION LAYOUT AND LOT GRADE STAKING.

C.R. 545 - SPEED LIMIT
DESIGN 60 M.P.H.
POSTED 55 M.P.H.

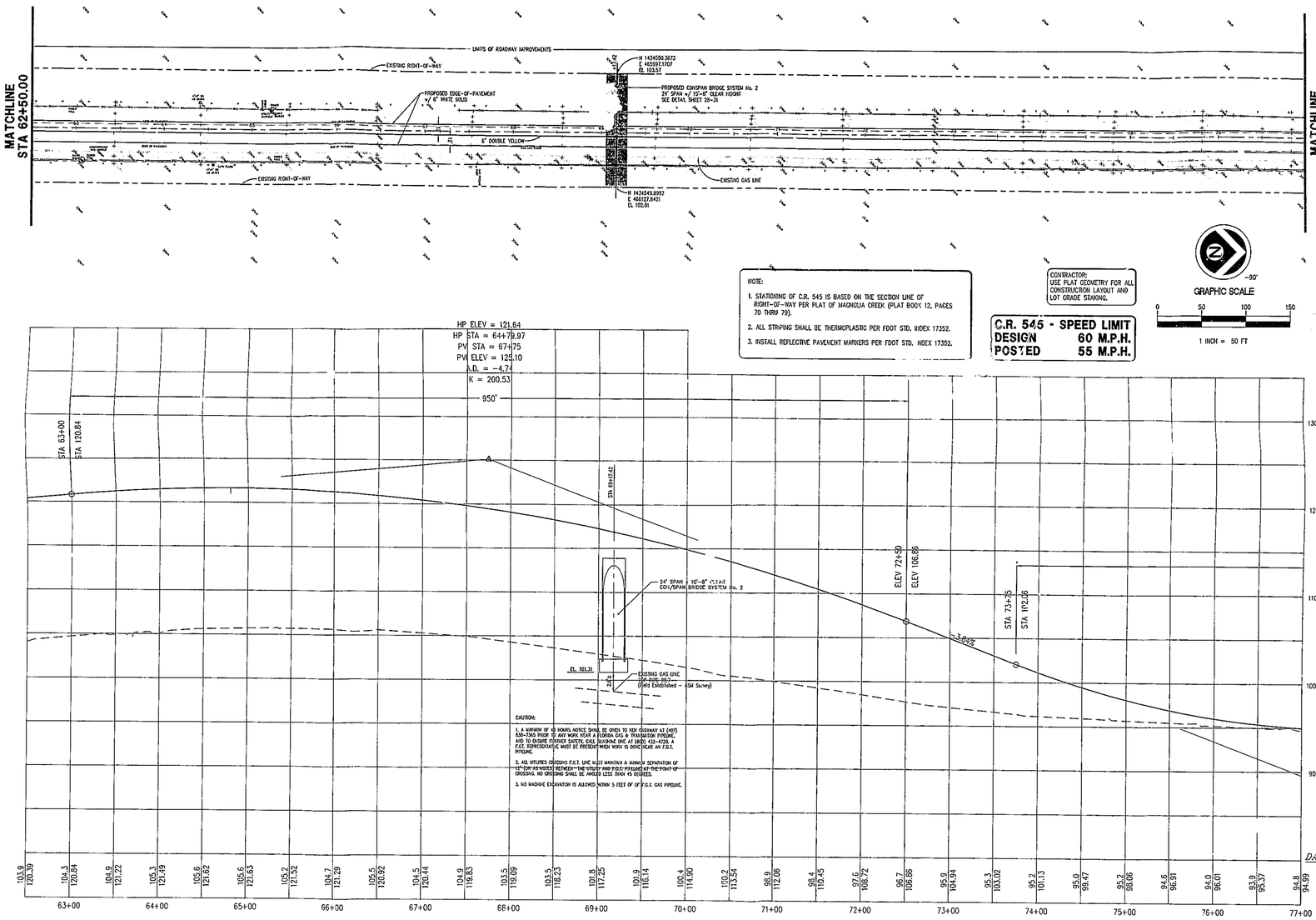
-90°

GRAPHIC SCALE
0 50 100 150
1 INCH = 50 FT

CAUTION

1. A MINIMUM OF 48 HOURS NOTICE SHALL BE GIVEN TO KEN CASAWAY AT (407) 838-7365 PRIOR TO ANY WORK NEAR A FLORIDA GAS & EVANGATION PIPELINE, AND TO ENSURE FURTHER SAFETY, CALL SUNSHINE ONE AT (800) 432-4770. A F.G.T. REPRESENTATIVE MUST BE PRESENT WHEN WORK IS DONE NEAR AN F.G.T. PIPELINE
2. ALL UTILITIES CROSSING F.G.T. LINES MUST MAINTAIN A MINIMUM SEPARATION OF 12" (OR AS NOTED) BETWEEN THE UTILITY AND F.G.T. PIPELINE AT THE POINT OF CROSSING. NO CROSSING SHALL BE ANGLED LESS THAN 45 DEGREES.
3. NO MACHINE EXCAVATION IS ALLOWED WITHIN 5 FEET OF 24" F.G.T. GAS PIPELINE.

| STA | | |



REV.	DATE	DESCRIPTION	APP'D BY

NOT FOR CONSTRUCTION UNLESS SIGNED AND SEALED

R. CRAIG SATTERSHA, P.E. 18004

PEC / PROFESSIONAL ENGINEERING CONSULTANTS, INC.
engineers planners surveyors
Board of Professional Engineer Certificate No. 3556
Suite 1500, Citrix Park Centre 200 East Robinson Street Orlando, Florida 32801
Tel (407) 422-0662 Fax (407) 422-0531 pec@pecorlando.com

MAGNOLIA CREEK - CR 545 CART TUNNELS

PLAN AND PROFILE

STA 62+50 - STA 77+00

OSCEOLA COUNTY S 26,35 T 25S R 27E

KISSIMMEE

DESIGNED BY:	YFS
DRAWN BY:	YFS
CHECKED BY:	MJP
APPROVED BY:	MJP
FDOT No.	CR545-02
DATE	MAY 2002
SHEET	6
6	

L:\BTEAM\GIN002--YFS\CONSTR\GIN2FP1.dwg 08/02/2002 09:32:14 AM EDT

OSCEOLA COUNTY FLORIDA

MAGNOLIA CREEK BRIDGE #1

Designed	RD
Drawn	MGS
Checked	KCV
Date	11/12/01
ACS Project No.	8097
Sheet No.	26

CONSPAN® BRIDGE SYSTEMS
3100 Research Blvd. P.O. Box 20266 Dayton, Ohio 45420-0266
Offices
Dayton, OH (800) 526-3939 (937) 254-2233 (937) 254-8363 fax
Charlotte, NC (704) 548-8420 (704) 548-8556 fax
Sacramento, CA (916) 787-8701 (916) 787-8723 fax

Supplied Locally by:
HANSON CONCRETE
VENICE, FL
941-493-9709

NOTICE
The design and information shown on this drawing is provided as a service to the purchaser for use in the design and construction of the project in conjunction with CON/SPAN® bridges. Systems incorporated. Any unauthorized use or reproduction of this information is strictly prohibited. ©CON/SPAN® Bridge Systems Incorporated.
If discrepancies between the supplied information and actual field conditions are encountered on site work progresses, these discrepancies must be reported to CON/SPAN® Bridge Systems Incorporated immediately for re-evaluation of the design. CON/SPAN® Bridge Systems Incorporated accepts no liability for designs based on inaccurate information supplied by others.
The CON/SPAN® Arch Culvert and segments are protected by one or more of the following U.S. Patent Numbers 4995761, 4623731, 5730530, 6654775, 6393812

No.	Date	Description	By
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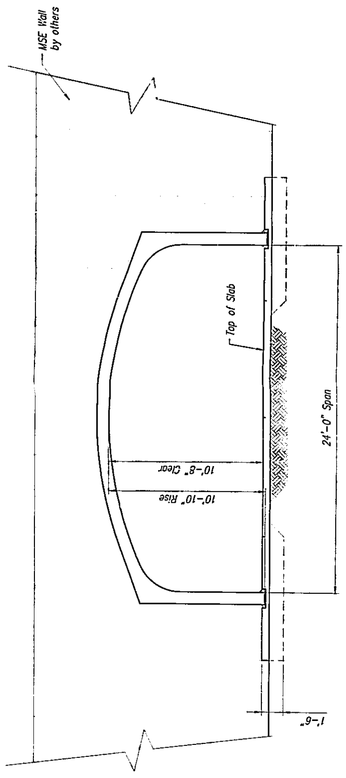
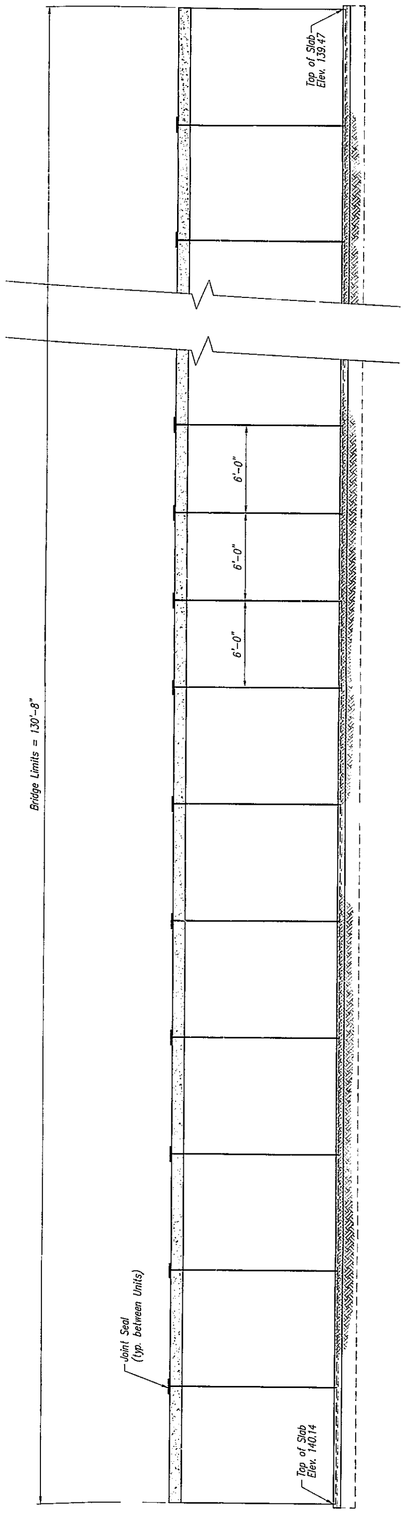
REVISIONS



TYPICAL END ELEVATION



SECTION

OSCEOLA COUNTY FLORIDA

MAGNOLIA CREEK BRIDGE #2

Designed	RD
Drawn	WCS
Checked	ADV
Date	11/12/01
Job No. / Invent No.	8668
Sheet No.	30

CONSPAN® BRIDGE SYSTEMS

Offices
3102 Bassetts Blvd. P.O. Box 20286 Dayton, OH 45420-0286
Dayton, OH (800) 526-3999 (937) 254-8363 fax
Charlotte, NC (704) 548-6420 (704) 548-8598 fax
Sacramento, CA (916) 387-8701 (916) 387-8123 fax

941-493-9709

Supplied Locally by
HANSON CONCRETE
VENICE, FL

NOTICE
The design and schematics shown on this drawing is provided as a service to the project owner, engineer and contractor by CON/SPAN® Bridge Systems Incorporated. It's use intended for use in the design and construction of the project in conformation with CON/SPAN® Bridge Systems Incorporated. Any unauthorized use or reproduction of this schematic is strictly prohibited. ©CON/SPAN® Bridge Systems Incorporated

It is appropriate where the required environmental and design related documents are present, that as site work progresses, field determinations be reported to CON/SPAN® Bridge Systems Incorporated immediately for re-evaluation of the design. CON/SPAN® Bridge Systems Incorporated accepts no liability for designs based on inaccurate information supplied by others.

The CON/SPAN® Arch Culvert and each of its mirror of the Extradosed U.S. Patent Numbers 4993812, 4721020, 4651715, 4651716, 4623284

No.	Date	Description	By
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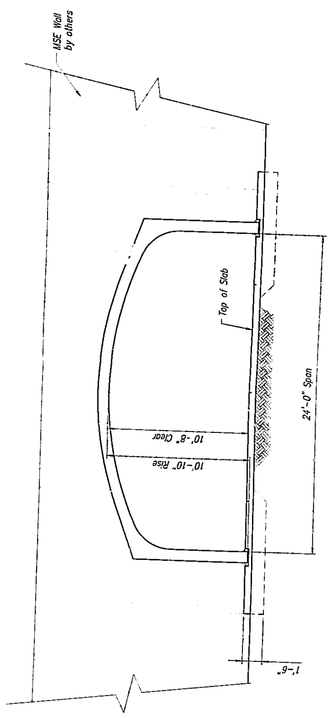
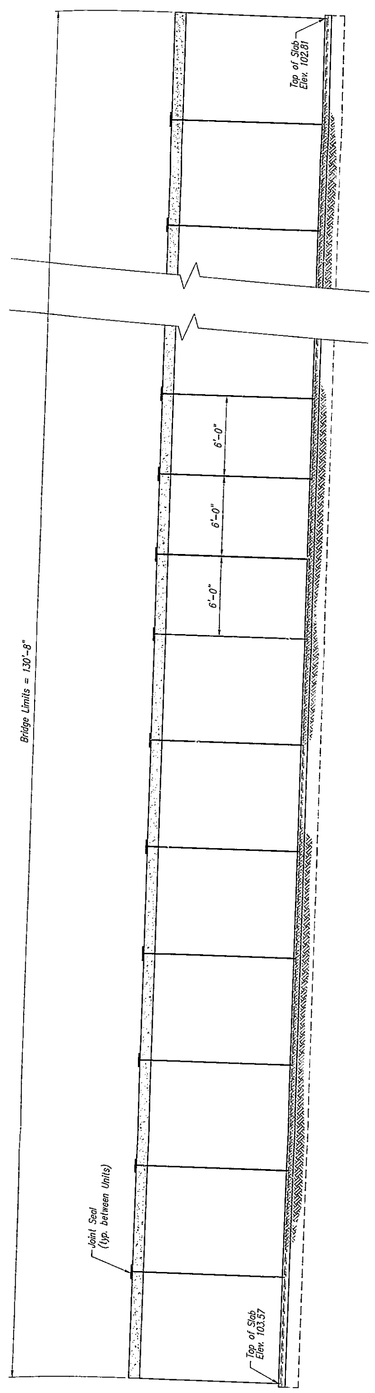


TYPICAL END ELEVATION



SECTION B 7/8

OSCEOLA COUNTY FACILITATION OF PUBLIC INFRASTRUCTURE AGREEMENT FOR ROADWAY IMPROVEMENTS OF COUNTY ROAD 545 (BRIDGE)

THIS FACILITATION OF PUBLIC INFRASTRUCTURE AGREEMENT (hereinafter referred to as the "Agreement"), is made and entered into this ____ day of _____, 2003, by and between GINN–LA Orlando Ltd., LLLP, a Georgia limited liability limited partnership ("Ginn-LA") whose address is 215 Celebration Place, Suite 200, Celebration, Florida, 34747 (sometimes referred to as "Owner"), and OSCEOLA COUNTY, a political subdivision of the State of Florida, whose address for the purposes of this Agreement is 1 Courthouse Square, Kissimmee, Florida 34741 (hereinafter referred to as the "County").

WITNESSETH:

WHEREAS, Owner controls the fee simple title to certain real property located in Osceola County, Florida, and more particularly described on Exhibit "A" attached hereto (hereinafter referred to as the "Property) which Property is subject to that certain Development Order for Reunion Resort & Club of Orlando Development of Regional Impact as amended (hereinafter referred to as the "Project").

WHEREAS, notwithstanding the terms of the Development Order for the Project, the County and the Owner agree that the Owner has requested that the County cooperate with the construction of certain improvements as follows:

(i) South County Road 545 Improvements. Owner intends to construct a bridge over CR 545 (sometimes referred to as "Old Lake Wilson Road") to serve the Project and this improvement may be referred to as the "Roadway Improvements."

WHEREAS, the Owner and the County each warrant and represent to each other that they have full power and authority to enter into this Agreement; they have taken all necessary actions and obtained all necessary approvals to enter into this Agreement; this Agreement has been duly executed and delivered by them and constitutes the legal, valid and binding obligations of them, and this Agreement and the performance of the terms and conditions of this Agreement do not conflict with, and is not prohibited or limited by any agreement, contract or instrument to which they are a party or by which they are bound, or any statute, law, ordinance, rule and regulations applicable to them or by which they are bound; and

WHEREAS, the parties hereto have negotiated the terms, conditions and provisions of this Agreement at arm's length, have each made certain representations and have determined to rely upon the respective promises and covenants set forth herein.

LARRY WHALEY 25P
OSCEOLA COUNTY, FLORIDA
CLERK OF CIRCUIT COURT

CL 2003227512 OR 2393/825
HGP Date 12/02/2003 Time 10:14:18

NOW, THEREFORE, the Owner and the County in consideration of the promises and the benefits to them respectively, the rights and obligations of the parties as set forth in the commitments, covenants, promises, agreements and conditions of this Agreement, and other good and valuable consideration exchanged between the parties, the receipt and sufficiency of which are hereby acknowledged, do hereby agree as follows:

Section 1. Recitals. The foregoing recitals are true and correct and are incorporated herein by this reference and form a material part of this Agreement upon which the parties have relied.

Section 2. Notice of Intent to Construct Roadway Improvements. Owner shall separately notify the County of its intent to commence design, permitting and thereafter, construction of the Roadway Improvements (the "Owner Notice") provided the County enters into this Agreement. The Owner shall have the right to commence the design, permitting and construction of the Roadway Improvements in the manner set forth in this Agreement.

Section 3. Design Contract for Roadway Improvements. In order to accomplish the Roadway Improvements by the timeframes set forth in that schedule labeled Exhibit B, which is attached hereto and incorporated herein, the Owner shall enter into a contract or contracts (hereinafter referred to as the "Design Contract"), with a qualified engineer or engineering firm (hereinafter referred to as the "Design Engineer"), said firm shall be qualified to design roadway in accordance with Osceola County and Florida Department of Transportation criteria, for the design and permitting of the Roadway Improvements with the following terms and conditions:

(a) The Design Contract: (i) shall set forth the full scope of work to be performed by the Design Engineer in connection with the right-of-way surveying, the design, permitting and construction of the applicable individual component of the Roadway Improvements, (ii) shall provide for the completion of the design of the applicable Roadway Improvements in accordance with Section 4 herein below and the permitting of the applicable Roadway Improvements in accordance with Section 5 hereinbelow, (iii) shall provide that all plans and permits prepared or obtained pursuant to the Design Contract shall be the property of the County, and (iv) shall meet all other applicable requirements of the County.

(b) The Owner shall award and enter into such other contracts for the design and permitting of the Road Improvements with such other contractors, subcontractors, suppliers and professional service providers as shall be reasonably necessary to complete the roadway design in substantial conformity with the approved plans and specifications.

(c) The Design Contract shall include coverage of both the County and the Owner by means of warranties, guaranties, liabilities, indemnifications, covenants, bonds and insurance that are reasonably acceptable to the County and the Owner and typically run to a party to a road improvement design contract. Said warranties, guaranties, liabilities, indemnifications, covenants, bonds and insurance being in a form, in an amount and with a copy reasonably satisfactory to the County, as provided in the provisions attached hereto as Exhibit "C". The County shall be deemed a third-party beneficiary to the Design Contract.

(d) In the event of default or breach by Owner or Owner's inability to perform, the Design Contract shall provide that the County may, but shall not be required to, assume the contractual position of Owner and exercise all rights and privileges governed by the Design Contract and upon request by the County, Owner shall cause all of the rights and privileges to be assigned to the County.

Section 4. Design of Roadway Improvements. The design of the Roadway Improvements shall comply with the requirements of the County's Engineer including, but not limited to, limited traffic and transportation studies, geotechnical studies, typical cross sections, design standards, median cuts, turn lanes, acceleration and deceleration lanes, intersection improvements, utility relocation, traffic control devices and drainage retention facilities. The design of the Roadway Improvements shall take into account (a) the topography and conditions of the property, (b) conditions and limitations resulting from any environmentally sensitive or protected lands adjacent thereto and (c) the drainage retention facilities for the applicable Roadway Improvements, including, but not limited to, any relocation, modification or expansion of existing facilities and shall be designed so as to minimize, consistent with sound and generally accepted engineering and safety standards as set forth in the FDOT Green Book, the amount of the property required for same and so as not to unreasonably interfere with the contemplated development of private property. The Design Engineer shall provide all preliminary designs, working drawings and other information to the County's Engineer as reasonably requested and shall fully participate in the County's public involvement programs for major projects, if applicable.

Section 5. Permits Approvals and Easements for Roadway Improvements.

5.1 Permits and Approvals. Owner, through the Design Engineer, shall also be responsible for obtaining all necessary licenses, permits and approvals for the construction of the Roadway Improvements (the "Permits and Approvals") in accordance with the final plans approved by the County and all other governmental agencies having jurisdiction over the proposed Roadway Improvements Improvements (the "Approved Plans"). Owner shall cause the Design Engineer to diligently pursue and obtain the Permits and Approvals as soon as reasonably possible after acknowledgment of the Approved Plans for the individual components of the Roadway Improvements by the County.

5.2 Right-of-Way Utilization Permit. The County and the Owner acknowledge that for the Owner to construct the Roadway Improvements in accordance with the Approved Plans in the County's right-of-way that a right-of-way utilization permit will be necessary. In addition, Owner must provide the County with written documentation demonstrating that all companies with utilities that are located within the right-of-way have acknowledged and have accepted the Roadway Improvements, and Owner must provide the County with a utility relocation plan addressing all utilities and relocation costs for the County's approval. Once all information has been provided to the County as set forth herein, including the performance bonds required in Section 6.1 and 6.2, the County agrees to grant to Owner a right-of-way utilization permit to allow construction in that area of the County's right-of-way as shown as needed by the Approved Plans.

5.3 Maintenance Easement for Bridge Inside the Right-of-Way. It is the understanding of the parties that the Owner will maintain the bridge being placed through the County's right-of-way as part of the Roadway Improvements. The County agrees to grant to the Owner an easement to allow permanent placement of the bridge on the condition Owner provides maintenance on the bridge and agrees to maintain a minimum of $5,000,000.00 liability insurance, naming the County as an additional insured, to cover any losses or claims relative to the Roadway Improvements, and further provided that Owner agrees to defend and indemnify the County ("Bridge Maintenance Easement"). Further, County shall retain the right to perform maintenance on the bridge itself to the extent maintenance is necessary on such bridge to ensure safety and viability of the County's road facilities located in the County's right-of-way.

5.4 Maintenance Easement for Bridge Outside the Right-of-Way. It is the understanding of the parties that Owner will maintain those portions, if any, of the bridge being placed outside of the County's right-of-way in conjunction with the Roadway Improvements. The Owner agrees to grant to the County an easement to allow the County the right of ingress and egress to perform maintenance on those portions of the bridge located outside the right-of-way, if any, in the event the Owner fails to adequately perform such maintenance.

5.5 Timing on Conveyance of Easements. The County and the Owner agree that the easements as set forth in Sections 5.2 through 5.4 above shall be prepared, fully executed and recorded in the Public Records of Osceola County, Florida within ninety (90) days of the Approved Plans becoming final and shall be in a form acceptable to the County.

5.6 Bridge Pier Guardrail. Owner shall post a performance bond, or other form of surety acceptable to the County, for the cost of installation of a guardrail along the bridge pier on the east side of County Road 545. The guardrail shall be installed by the Owner at such time as deemed necessary by the County in accordance with the standards and procedures set forth in Section 4 above. Upon installation of the guardrail the performance bond shall be released and terminated.

Section 6. Construction of Roadway Improvements. Owner shall be responsible for the selection of: (a) the construction contractor to serve as the general contractor and construction manager (the "Contractor") for the construction of the Roadway Improvements, and (b) such other consultants including, but not limited to, surveyors, environmental consultants and other consultants and subcontractors, as Owner deems reasonably necessary to properly complete construction of the Roadway Improvements. The final selection and employment of the Contractor and such other consultants shall be at the Owner's sole discretion. Owner shall enter into a written contract with the Contractor (the "Construction Contract"). The Construction Contract: (i) shall set forth the full scope of work to be performed by the Contractor in construction of the Roadway Improvements in accordance with the Permits and Approvals and Approved Plans; (ii) shall provide that the County right-of-way shall not be subject to any construction or other liens as a result of the construction of the Roadway Improvements and that Contractor shall indemnify the County and Owner from and against all loss, cost or damage caused by the imposition of such lien; (iii) shall require Contractor to agree not to permit the utilization of hazardous or toxic substances in constructing the Roadway Improvements except as would be used in the normal course of such construction; (iv) shall require Contractor to carry a public liability insurance, builder's risk insurance, worker's compensation coverage and such other coverages and in such amounts as is reasonably requested by Owner and in accordance with the provisions of Exhibit "D" attached hereto, considering the nature of the Project. Such policies shall name the County as an additional insured. In addition, the Contractor shall agree that in the event of a default or breach by Owner under the Construction Contract or Owner's inability to otherwise perform under the Construction Contract, the County may elect to assume (by written notice to the Contractor) the contractual position of Owner and to exercise all Owner's rights and privileges under the Construction Contract. The County shall be deemed a third-party beneficiary to the Construction Contract. Owner shall provide to the County a Maintenance Bond in the amount of 15% of the cost of the Roadway Improvements for a period of one (1) year from the date of completion of the Roadway Improvements.

Section 7. Completion of Construction Documentation. Owner shall be responsible for the payment of the Roadway Improvements costs. Upon completion of construction of the Roadway Improvements in substantial conformity with the Permits, Approvals and Approved Plans and written acceptance thereof by the County Engineer, Owner shall provide written notice of the same to the County along with the following information (the "Completion Notice"):

(a) "As-built" drawings and certifications by the Design Engineer and Contractor that the Roadway Improvements have been constructed and completed in substantial conformity with the Permits and Approvals and Approved Plans; and

(b) A contractor's final affidavit and lien waiver evidencing the payment in full of the Contractor and all sub-contractors providing labor or materials for the construction of the Roadway Improvements.

(c) The 15% Maintenance Bond in a form acceptable to the County as referenced in Section 6.

Section 8. Compliance with Laws and Regulations. In performing pursuant to this Agreement, each party hereto shall abide by the respective statutes, ordinances, rules and regulations pertaining to, or regulating, the acts of such party, including, but not limited to, those now in effect and hereafter adopted.

Section 9. Notices.

(a) Except as otherwise provided in this Agreement, whenever either party desires to give notice to the other, notice shall be sent to:

For the County:
County Manager Osceola County Services Building
County Manager
1 Courthouse Square, Suite 4700
Kissimmee, Florida 34741

With copies to:
County Engineer, Chris Crowe, P.E.
1 Courthouse Square, Suite 1100
Kissimmee, Florida 34741

For the Owner:
GINN - LA Orlando Ltd., LLLP
c/o R. Randolph Lyon
The GINN Development Company
215 Celebration Place, Suite 200
Celebration, Florida 34747

With copies to:
Paul H. Chipok, Esq.
Gray, Harris & Robinson, P.A.
301 East Pine Street, Suite 1400
Post Office Box 3068
Orlando, Florida 32802-3068

(b) Any of the parties may change, by written notice as provided herein, the addresses or persons for receipt of notices. Each such notice shall be deemed delivered on the date delivered if by personal delivery or on the date of transmission with confirmed answer back if by telecopy, or on the date upon which the return receipt is signed or delivery is refused or notice is designated by the postal authorities as not deliverable, as the case may be, if mailed or date of delivery by overnight delivery services as evidenced by a service receipt.

Section 10. Counterparts. This Agreement may be executed in any number of counterparts each of which, when executed and delivered, shall be an original, but all counterparts shall together constitute one and the same instrument.

Section 11. Entire Agreement. This Agreement constitutes the entire agreement of the parties with respect to the subject matter hereof, and may not be modified or amended except by a written instrument equal in dignity herewith and executed by the parties to be bound thereby. This Agreement is solely for the benefit of the parties hereto, and their successors and assigns, and no right, nor any cause of action shall accrue to or for the benefit of any third party.

Section 12. Binding Effect; Assignment. This Agreement shall be binding upon and inure to the benefit of the successors in interest, transferees and assigns of the parties. Owner shall have a right to assign or partially assign to the Reunion Community Development District, Owner's obligation to design and construct the Roadway Improvements by delivery to the County of a written Assignment of the obligation executed by Owner and acknowledged by the Reunion Community Development District.

Section 13. County's Obligation. This Agreement shall not be deemed to pledge the credit of the County nor to make the County a co-venturer or partner of the Owner.

Section 14. Failure to Complete Roadway Improvements. Should the Owner fail to complete construction of the Roadway Improvements and obtain final acceptance of said improvements from the County in the manner and as provided herein, the County reserves the right to declare this Agreement void, in addition to any other rights and remedies available under Florida law.

Section 15. Applicable Law/Venue/Remedies/Waiver of Jury Trial.

(a) This Agreement shall be construed, controlled and interpreted according to the laws of the State of Florida.

(b) Venue for any proceeding arising under this Agreement shall be in the Ninth Judicial Circuit in and for Osceola County, Florida as to State actions and the United States District Court for the Middle District of Florida as to Federal actions.

(c) In the event of a dispute between any of the parties hereto regarding the subject matter of this Agreement, they each agree to submit same to non-binding mediation and shall cooperate in good faith in appointing a qualified mediator and in attending and participating in mediation of such dispute. Each party shall pay their own attorney's and consultant fees and costs incurred in connection with any such mediation and shall split equally all fees and costs of the mediator. In the event that such dispute

cannot be resolved by mediation, then the parties hereto shall have all rights and remedies available under Florida law in connection with the enforcement of the terms and conditions of this Agreement. Each party shall be responsible for its own attorney's fees and costs in the event of such dispute.

(d) By their execution hereof, each party hereto hereby knowingly, voluntary and intentionally agrees to waive its right to jury trial in connection with any dispute arising from this Agreement.

Section 16. Time is of the Essence. Time is hereby declared of the essence as to the lawful performance of all duties and obligations set forth in this Agreement.

Section 17. Non-Waiver. No consent or waiver, expressed or implied, by either party, to or of any breach or default of the other party, with regard to the performance by said other party of its obligations under this Agreement shall be deemed or construed to constitute consent or waiver to, or of, any other breach or default in the performance of that party, of the same of any other objection of performance incumbent upon that party. Failure on the party of either party to complain of any act or failure to act on the part of the other party in default, irrespective of how long the failure continues, shall not constitute a waiver by that party of its rights and any remedies that exist under this Agreement, at law or in equity.

Section 18. Construction.

(a) This Agreement shall not be construed against either party on the basis of it being the drafter of the Agreement. The parties agree that both herein played an equal party in reciprocity in drafting this Agreement.

(b) Capitalized terms contained herein shall have no more force nor effect than uncapitalized terms.

(c) 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 or construction of meaning of this Agreement.

Section 19. Severability. If any provision of this Agreement, or its application to any person, entity or circumstances is specifically held to be invalid or unenforceable by a Court of competent jurisdiction, the remainder of this Agreement and the application of the provisions hereof to other persons, entities or circumstances shall not be affected thereby and, to that end, this Agreement shall continue to be enforced to the greatest extent possible consistent with law and the public interest including, but not limited to, the expenditure of public funds for lawful purposes.

Section 20. Further Assurances. The Owner agrees to sign any other and further instruments and documents, consistent herewith, as may be necessary and

proper in order to give complete effect to the benefits deriving from the terms and conditions of this Agreement.

Section 21. Curative Periods. No default as to any provision of this Agreement on the part of any of the parties hereto shall be claimed or charged by any party against any other until notice thereof has been given to all parties in writing, and such default remains uncured for a period of ten (10) days after such notice.

Section 22. Exhibits. The Exhibits attached hereto are incorporated into this Agreement and are a part of the Agreement upon which the parties have relied.

Section 23. Reasonable Approval. In those instances in this Agreement in which a party's approval, consent or satisfaction is required, then it shall be implied that such action shall be exercised in a reasonable manner and within a reasonable time frame.

Section 24. Interpretation. This Agreement shall not operate as a development order or permit or a development approval of any type. No waiver of fulfillment of any condition or development arising from the County Comprehensive Plan or the Land Development Code of the County is intended and none shall be implied from the terms of this Agreement, unless specifically referenced herein.

Section 25. Effective Date. This Agreement shall take effect on the date that this Agreement is fully executed by the parties (the "Effective Date").

IN WITNESS WHEREOF, the parties have executed this Agreement on the dates set forth below.

OWNER:

GINN - LA ORLANDO Ltd., LLLP, a Georgia limited liability limited partnership

By: GINN-Orlando GP, LLC, a Georgia limited liability company, its General Partner

Adele M. Moscaritolo
Witness Signature

Adele M. Moscaritolo
Printed Name

Xabier Guerricagoitia
Witness Signature

XABIER GUERRICAGOITIA
Printed Name

By: R. Randolph Lyon Jr.
Name: R. RANDOLPH LYON JR.
Its: SR. VICE-PRESIDENT

Dated: 16th OCTOBER 2003

STATE OF FLORIDA
COUNTY OF Osceola

The foregoing instrument was acknowledged before me this 16th day of October, 2003, by R. Randolph Lyon, Jr., as Sr. Vice President of GINN-Orlando GP, LLC, a Georgia limited liability company, its General Partner, for GINN - LA ORLANDO Ltd., LLLP, a Georgia limited liability limited partnership. He/She is personally known to me or produced _____ as identification.

Elaine C James
My Commission CC901505
Expires February 23, 2004

Elaine C James
(Print Name) Elaine C. James
NOTARY PUBLIC, STATE OF FLORIDA
Commission Number: _____
My Commission Expires: _____

OSCEOLA COUNTY, FLORIDA, a Political subdivision of the State of Florida

Witness Signature

By: _____

DELORES T. WHALEY
Printed Name

Name: Paul Owen

Its: Chairman

Witness Signature

Dated: 11.17.03

Marilyn J. Kirne
Printed Name

ATTEST:

As County Clerk for Osceola County

Name: Tammy Ross

APPROVED AS FORM AND LEGALITY for the use and reliance by Osceola County, Florida, only.

Dated: 11.17.03

By: _____

STATE OF FLORIDA
COUNTY OF Osceola

Personally appeared before me, the undersigned authority, Paul Owen Chairman and Tammy Ross, personally known to me to be the Chairman & Deputy Clerk of Osceola County, Florida, and acknowledges before me that he/she executed the foregoing instrument on behalf of Osceola County, as its true and act and deed, and that they were duly authorized to do so.

Witness my hand and official seal this 20th day of November, 2003.

Debra A. Davis
(Print Name) Debra A. Davis
NOTARY PUBLIC – STATE OF FLORIDA
Commission No.: DD 154196
Commission Expires: 11/18/2006

DEBRA A. DAVIS
Notary Public, State of Florida
My comm. exp. Nov. 18, 2006
Comm. No. DD 154196

CL 2002191105 OR 2142/595

EXHIBIT "A"

CL 2003227512 OR 2393/836

DESCRIPTION: (OVERALL P.U.D. BOUNDARY)

A portion of Lot 1, Block 3, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, and A portion of Lots 9, 10, 11, and 12, Block C, Florida Fruit and Truck Land Company Subdivision being a portion of the West ½ of the West ½ of the southwest ¼ of Section 22, Township 25 South, Range 27 East, Osceola County, Florida being more particularly described as follows:

Begin at a Northeasterly corner of Lot 1, Block 3 of said Magnolia Creek said corner being the North $\frac{1}{4}$ corner of Section 27, Township 25 South, Range 27 East, Osceola County, Florida; thence run S 00°12'22" W, a distance of 1326.57 feet; thence run S 89°58'38" E, a distance of 992.54 feet to a point on the westerly right of way of Interstate 4 (State Road 400), said point being on a non-tangent curve, concave southwesterly, having a radius of 3982.00 feet and a central angle of 04°39'35"; and a chord bearing of S 16°24'27" E, thence run 323.84 feet along the arc of said curve and said right of way line to the point of compound curvature with a curve, concave northwesterly, having a radius of 2006.00 feet and a central angle of 46°34'57"; thence run southwesterly, along the arc of said curve, a distance of 1630.91 feet to the point of compound curvature with a curve, concave northwesterly, having a radius of 9906.00 feet and a central angle of 07°38'08"; thence run southwesterly, along the arc of said curve, a distance of 1320.13 feet to a point; thence run S 40°08'26" W, a distance of 505.22 feet; thence run N 89°58'57" W, a distance of 889.31 feet; thence run S 00°12'29" W, a distance of 370.75 feet; thence run S 70°07'18" E, a distance of 187.79 feet; thence run S 89°58'57" E, a distance of 310.95 feet; thence run S 49°51'34" E, a distance of 58.10 feet; thence run S 40°08'26" W, a distance of 3179.37 feet; thence departing said right of way line run N 00°06'57" E, a distance of 246.89 feet; thence run N 89°57'27" W, a distance of 665.03 feet; thence run N 00°06'23" E, a distance of 663.43 feet; thence run N 89°58'08" W, a distance of 664.27 feet; thence run S 00°05'43" W, a distance of 576.61 feet; thence run N 89°56'47" W, a distance of 375.00 feet; thence run S 44°55'32" E, a distance of 343.31 feet; thence run N 71°45'45" W, a distance of 643.72 feet; thence run N 72°33'01" W, a distance of 439.95 feet; thence run N 18°20'04" E, a distance of 86.87 feet; thence run N 71°22'55" W, a distance of 39.44 feet; thence run N 00°05'44" E, a distance of 391.54 feet; thence run S 89°58'08" E, a distance of 509.70 feet; thence run N 00°05'04" E, a distance of 1326.35 feet; thence run N 89°59'28" W, a distance of 651.83 feet; thence run N 00°18'42" E, a distance of 1322.08 feet; thence run N 89°48'47" E, a distance of 1324.10 feet; thence run N 00°04'57" E, a distance of 2618.32 feet; thence run S 89°53'52" E, a distance of 1360.52 feet; thence run N 00°35'44" W, a distance of 1377.27 feet to the Northwesterly corner of said Lot 1, Block 3; thence run N 89°56'40" W, a distance of 11.33 feet to the Southwest corner of Section 22, Township 25 South, Range 27 East and a recovered 5" x 5" Concrete Monument (Jones, Wood, & Gentry); thence run N 00°13'04" E , a distance of 2657.91 feet; thence run S 89°42'36" E, a distance of 214.51 feet; to a non-tangent curve concave Southwest, having a radius of 350.00 feet, and a central angle of 16°44'31", Thence on a chord bearing of S 47°01'09" E, run Southerly along the arc of said curve a distance of 102.27 feet; Thence run S

38°38'54" E, a distance of 599.99 feet, to the East line of the West 1/2, of the West 1/2 of the Southwest 1/4 of Section 22, Township 25 South, Range 27 East, Thence run S 00°13'27" W, along said East line 95.60 feet; Thence leaving said East line run S 38°38'54", E a distance of 114.05 feet to a non-tangent curve, concave to the Southeast, having a radius of 2895.72 feet, and a central angle of 2°10'15", Thence on a chord bearing of S 40°56'42" W run Southerly along the arc of said curve, 109.71 feet, to said East line; Thence run S 00°13'26" W, along said East line, a distance of 1851.86 feet, to the Southeast corner of said Lot 12; thence run S 89°56'40" E, a distance of 1996.39 feet, to the POINT OF BEGINNING.

Containing 699.94 acres more or less.

TOGETHER WITH

A portion of Lots 1, 2, and 3, Block 1, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, and a portion of Block D of Florida Fruit and Truck Land Plat, being a portion of Section 33 Township 25 South Range 27 East, Osceola County, Florida, being more particularly described as follows:

Begin at the Southeast corner of Lot 1, Block 1 of said Magnolia Creek, said point being on the Northerly right of way line of County Road 532; thence along said right of way line run N 89°54'48" W, a distance of 2586.10 feet; thence run N 89°53'57" W, a distance of 2074.96 feet to the point of curvature of a curve, concave northeasterly, having a radius of 2764.93 feet and a central angle of 11°02'00"; thence run northwesterly, along the arc of said curve, a distance of 532.44 feet to the point of tangency thereof; thence run N 78°51'57" W, a distance of 51.20 feet; thence run N 78°51'57" W, a distance of 947.84 feet; thence run N 74°34'36" W, a distance of 200.56 feet; thence run N 78°51'57" W, a distance of 348.29 feet to the Easterly right of way line of Interstate Highway 4 (State Road 400); thence along said right of way run N 30°59'17" E, a distance of 117.43 feet to the point of curvature of a curve, concave southeasterly, having a radius of 5635.58 feet and a central angle of 08°13'10"; thence run northeasterly, along the arc of said curve, a distance of 808.47 feet to a point; thence run S 89°55'31" E, a distance of 279.31 feet; thence run N 40°06'30" E, a distance of 260.92 feet; thence run S 89°53'49" E, a distance of 350.25 feet; thence run N 00°07'04" E, a distance of 375.18 feet; thence run S 41°18'16" W, a distance of 15.00 feet; thence run N 48°41'44" W, a distance of 10.00 feet; thence run N 41°18'16" E, a distance of 26.43 feet; thence run N 00°07'04" E, a distance of 62.00 feet; thence run N 69°17'20" W, a distance of 50.00 feet; thence run N 20°42'40" E, a distance of 10.00 feet; thence run S 69°17'20" E, a distance of 50.00 feet; thence run N 41°18'16" E, a distance of 62.00 feet; thence run N 00°07'04" E, a distance of 26.43 feet; thence run S 89°52'56" E, a distance of 10.00 feet; thence run S 00°07'04" W, a distance of 15.00 feet; thence run N 41°18'16" E, a distance of 114.89 feet; thence run N 00°07'04" E, a distance of 343.07 feet; thence run N 39°00'29" E, a distance of 23.89 feet; thence run N 00°07'04" E, a distance of 108.75 feet; thence run N 40°08'26" E, a distance of 3835.37 feet; thence run S 49°51'34" E, a distance of 18.00 feet; thence run N 42°53'19" E, a distance of 250.29

feet; thence run N 40°08'26" E, a distance of 340.00 feet to a point on a curve, concave southeasterly, having a radius of 1906.00 feet and a central angle of 13°01'53"; thence run 433.50 feet along the arc of said curve to the point of tangency thereof; thence run N 53°10'19" E, a distance of 1160.02 feet to the point of curvature of a curve, concave northwesterly, having a radius of 1453.00 feet and a central angle of 10°40'19"; thence run northeasterly, along the arc of said curve, a distance of 270.64 feet to the point of tangency thereof; thence run N 42i°30'00" E, a distance of 1102.93 feet; thence run N 42°30'00" E, a distance of 300.44 feet to the Westerly right of way line of County Road 545; thence along said right of way line run S 00°12'04" W, a distance of 203.18 feet; thence run S 00°12'19" W, a distance of 105.47 feet; thence run S 00°12'19" W, a distance of 2562.04 feet; thence run S 00°12'39" W, a distance of 2660.63 feet; thence run S 00°16'21" W, a distance of 1148.90 feet; thence run S 00°16'21" W, a distance of 1301.51 feet to the POINT OF BEGINNING.

Containing 672.6361 acres more or less.

TOGETHER WITH

Lot 3, and a portion of Lots 1 and 2, Block 2, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, being more particularly described as follows:

BEGIN at a point at the Southeast corner of Lot 3, Block 2 of said Magnolia Creek, said point being on the Northerly right of way line of County Road 532, and being a non-tangent curve, concave northwesterly, having a radius of 1810.08 feet and a central angle of 21°05'10"; thence on a chord bearing of S 79°28'51" W and along said right of way, run 666.15 feet along the arc of said curve to the point of tangency thereof; thence run N 89°58'34" W, a distance of 12.49 feet; thence departing said right of way line run N 00°26'04" E, a distance of 463.41 feet; thence run N 89°59'34" W, a distance of 663.76 feet; thence run S 00°23'38" W, a distance of 463.21 feet to the said right of way line; thence run N 89°58'34" W, a distance of 1326.86 feet; thence departing said right of way line run N 00°18'46" E, a distance of 462.81 feet; thence run N 89°59'34" W, a distance of 601.77 feet to the Easterly right of way line of County Road 545 thence along said right of way line run N 00°16'21" E, a distance of 861.37 feet; thence run N 00°16'21" E, a distance of 1126.24 feet; thence run N 00°12'39" E, a distance of 2660.71 feet; thence run N 00°12'19" E, a distance of 1491.43 feet; thence run S 89°47'41" E, a distance of 4.60 feet to a point on a non-tangent curve, concave Easterly, having a radius of 11385.00 feet and a central angle of 04°22'52"; thence on a chord bearing of N 02°19'15" E, thence run 870.56 feet along the arc of said curve, to a point on a non-tangent curve, concave Westerly, having a radius of 10074.00 feet and a central angle of 01°20'50", thence run on a chord bearing of N 03°58'25" E, thence run along the arc of said curve, a distance of 236.90 feet, to a point on a non-tangent curve, concave Westerly, having a radius of 10074.00 feet, and a central angle of 02°47'47", thence run on a chord bearing of N 03°58'25" E, run northerly along the arc of said curve, a distance of 491.42 feet to a point the Southeasterly right of way line of Interstate 4 (State Road 400); thence along said right of way line run N 42°29'32" E, along the south right of way of Interstate Highway 4, (State Road 4, a distance of 307.44 feet, thence run S 89°52'23"E,

a distance of 328.76 feet, thence run N 00°10'47" E, a distance of 388.71 feet; thence run S 89°49'13"E, a distance of 80.60 feet; thence run N 00°10'47"E, a distance of 60.00 feet; thence run N 89°49'13" W, a distance of 67.77 feet to a point on a non-tangent curve, concave Northwesterly, having a radius of 3906.00 feet, and a central angle of 03°36'32", thence on a chord bearing of N 22°56'14" E, run along the arc of said curve 246.03 feet; thence leaving said rigth of way line, run S 00°10'09" W, a distance of 1897.64 feet; thence run S 89°54'13" E, a distance of 1666.80 feet; thence run S 00°06'57" W, a distance of 1331.67 feet; thence run S 89°56'59" E, a distance of 1326.84 feet; thence run S 00°06'28" W, a distance of 1330.53 feet; thence run S 00°36'14" W, a distance of 2657.79 feet; thence run S 89°57'42" W, a distance of 659.58 feet; thence run S 00°21'16" W, a distance of 617.40 feet; thence run S 00°21'16" W, a distance of 1715.50 feet to the POINT OF BEGINNING.

Containing 627.1422 acres more or less

TOGETHER WITH

A portion of Lot 1, Block 4, Magnolia Creek, according tot the Plat thereof as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida being more particularly described as follows:

Begin at the Northeast corner of said Lot 1, Block 4; thence run S 00°15'31" W, a distance of 1327.37 feet; thence run N 89°56'39" E, a distance of 809.27 feet to the Northwesterly right of way line of Interstate 4 (State Road 400); thence along said right of way line run S 40°08'26" W, a distance of 607.04 feet; thence departing said right of way line run N 68°40'55" W, a distance of 441.48 feet; thence run N 57°51'13" W, a distance of 402.37 feet; thence run S 00°15'59" W, a distance of 439.41 feet; thence run S 46°55'30" E, a distance of 535.33 feet to said right of way line; thence along said right of way line run S 40°08'26" W, a distance of 565.09 feet; thence run N 49°51'58" W, a distance of 21.00 feet; thence run S 42°52'55" W, a distance of 250.29 feet; thence run S 40°08'02" W, a distance of 339.99 feet to a point on a non-tangent curve, concave northwesterly, having a radius of 9897.00 feet and a central angle of 03°26'07"; thence on a chord bearing of S 41°51'06" W, run 593.39 feet along the arc of said curve to a point; thence departing said right of way line run N 45°51'18" W, a distance of 84.71 feet; thence run N 06°08'28" W, a distance of 120.61 feet; thence run N 06°08'28" W, a distance of 284.18 feet to a point on a non-tangent curve, concave easterly, having a radius of 11533.00 feet and a central angle of 02°00'13"; thence on a chord bearing of N 03°02'30" W, run 403.30 feet along the arc of said curve to a point of reverse curvature with a curve concave westerly, having a radius of 11385.00 feet and a central angle of 04°11'40"; thence on a chord bearing of N 01°56'46" W, run 833.46 feet along the arc of said curve to a point; thence run N 89°44'46" W, a distance of 2.49 feet; thence run N 00°13'54" E, a distance of 1162.67 feet; thence run N 89°56'03" E, a distance of 599.81 feet; thence run N 00°15'21" E, a distance of 663.57 feet; thence run N 89°55'26" E, a distance of 665.50 feet to the POINT OF BEGINNING.

Containing 77.9236 acres MORE OR LESS.

CL 2002191105 OR 2142/599

TOGETHER WITH

CL 2003227512 OR 2393/840

Lot 1, Block 5, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida.

Containing 0.3635 acres more or less.

Total area containing 2,078.00 acres more or less.

EXHIBIT "B"

SCHEDULE OF ROADWAY IMPROVEMENTS

Roadway Element	Anticipated Completion
Bridge across CR 545	June 2004

EXHIBIT "C"

ARTICLE 1.00 – INDEMNIFICATION

(1) The Consultant shall be, and agrees to be and remain, liable for any and all damages, losses, and expenses incurred by the Owner or the County caused by the errors, omissions, negligence, or delay(s) of the Consultant or by any subconsultant(s) and/or subcontractor(s) engaged by the Consultant in providing, performing and furnishing services, work and materials pursuant to this Agreement, and for any and all damages, losses and expenses to the County arising out of the Consultant's performance of any of his obligations contained in this Agreement and Amendment(s) thereto.

(2) To the fullest extent permitted by law, the Consultant shall be liable and agrees to be liable for and shall indemnify, defend and hold the Owner and the County, their respective officers, directors, agents and employees, harmless for any and all claims, suits, judgments or damages, losses and expenses including court costs, expert witness and professional consultation services, and attorneys' fees arising out of the Consultant's errors, omissions, negligence, or delay(s), or those of any and all subconsultants and/or subcontractors engaged by the Consultant during the providing, performing and furnishing of services, work and materials pursuant to this Agreement and any and all Amendment(s) thereto. The Consultant shall not be liable to nor indemnify the Owner or the County for any portion of damages arising out of the gross negligence of the County, its employees, agents or representatives. Notwithstanding anything in this Article 1.00 to the contrary, the aggregate liability of Consultant under this Article 1.00 for the indemnification of Owner and County, their respective officers, directors, agents and employees, shall not exceed the greater of (a) the price for the work to be paid to Consultant under this Agreement, or (b) Ten Million Dollars ($10,000,000.00).

ARTICLE 2.00 – INSURANCE COVERAGES

2.01 GENERAL REQUIREMENTS

(1) The Consultant shall obtain and maintain such insurance as will protect him from: (a) claims under worker's compensation laws, disability benefit laws, or other similar employee benefit laws: (b) claims for damages because of bodily injury, occupational sickness or disease or death of his employees, including claims insured by usual personal injury liability coverage; (c) claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, including claims insured by usual personal injury liability coverage; and (d) from claims for injury to or destruction of tangible property, including loss of use resulting therefrom; any or all of which claims may arise out of, or result from, the services, work and operations carried out pursuant to and under the requirements of this Agreement, whether such services, work and operations be by the Consultant, his employees, or by any subconsultant(s),

subcontractor(s), or anyone employed by or under the supervision of any of them, or for whose acts any of them may be legally liable.

(2) The insurance protection set forth hereinafter shall be obtained and written for not less than the limits of liability specified hereinafter, or as required by law, whichever is greater. All policies shall be underwritten by companies legally registered and authorized to do business in the State of Florida.

(3) The Consultant shall require, and shall be responsible for ensuring, throughout the time this Agreement is in effect, that any and all of his subconsultants and/or subcontractors obtain and maintain, until the completion of that subconsultant's and/or subcontractor's work, such of the insurance coverages described in Paragraph 2.02 as are required by law to be provided on behalf of their employees and others.

(4) The Consultant shall obtain, have and maintain during the entire period of this Agreement all such insurance policies as are set forth and required herein.

2.02 CONSULTANT REQUIRED TO FILE INSURANCE CERTIFICATE(S)

(1) The Consultant, within fourteen (14) calendar days from execution of this Agreement, shall submit to the Owner and County all such insurance certificates and related documentation as are required under this Agreement. Failure of the Consultant to submit such certificates and documents within the required time shall be considered cause for the Owner to cancel this Agreement and rescind its actions to engage the Consultant. Before the Owner shall provide the Consultant with written Notice to Proceed, and before the Consultant shall commence any service or work pursuant to the requirements of this Agreement, the Consultant shall obtain and maintain insurance coverages of the types and to the limits specified hereinafter, and the Consultant shall have submitted to the Owner and County certificates of all such insurance coverages as provided above.

(2) All such insurance certificates shall be in a form and underwritten by an insurance company(s) acceptable to the Owner and County and licensed in the State of Florida.

(3) Each Certificate of Insurance shall be submitted to the Owner and County in triplicate.

(4) Each Certificate of Insurance shall specifically include all of the following:

(a) The name and type of policy and coverages provided;

(b) The amount of limit applicable to each coverage provided;

(c) The date of expiration of coverage;

(d) The designation of the Owner and Osceola County Board of County Commissioners as an additional insured and a certificate holder to the extent of their interests under the Agreement. (This requirement may be excepted for professional liability insurance and for worker's compensation insurance); and

(e) A specific reference to this Agreement and the Project to which it pertains. (This requirement may be excepted for professional liability insurance).

(5) The following clause must appear on the Certificate of Insurance and the present Cancellation Clause appearing on the Certificate of Insurance must be "X'd" out and be initialed by the Agent of the Insurer: "Cancellation – Should any of the above described policies be canceled before the stated expiration date thereof, insurer will not cancel same until at least thirty (30) days prior written notice (by regular mail) has been given to the below named certificate holder. This prior notice provision is a part of each of the descried policies."

(6) Each Certificate of Insurance shall be accompanied by documentation that is acceptable to the Owner and County establishing that the insurance agent and/or agency issuing the Certificate of Insurance has been duly authorized, in writing, to do so by and on behalf of the insurance company underwriting the insurance coverage(s) indicated on each Certificate of Insurance. Further, each Certificate of Insurance shall include a waiver of subrogation in favor of Owner, County, and their respective officers, directors, employees and agents.

(7) If the initial, or any subsequently issued, Certificate of Insurance expires prior to the completion of the work or termination of this Agreement, the Consultant shall furnish to the Owner and County triplicate renewal or replacement Certificate(s) of Insurance not later than thirty (30) calendar days prior to the date of their expiration. Failure of the Consultant to provide the Owner and County with such renewal certificate(s) shall be considered justification for the Owner to terminate this Agreement.

2.03 INSURANCE COVERAGES REQUIRED

The Consultant shall obtain and maintain the following insurance coverages on an "occurrence" basis as provided hereinbefore, and in the type, amounts, and in conformance with the following minimum requirements:

(1) Worker's compensation coverage for all employees as may be required by applicable state and federal laws. In addition, the policy must include the following:

(a) Employer's liability with a minimum limit per accident in accordance with statutory requirements, or a minimum limit of $100,000.00 for each accident, whichever limit is greater.

(b) Notice of Cancellation and/or Restriction – the policy must be endorsed to provide the Owner and County with thirty (30) days prior written notice of cancellation and/or restriction.

(2) Comprehensive general liability coverage which shall remain in effect until one (1) year after completion of work and must include the following:

(a) Minimum limits of $100,000.00 per occurrence and $300,000.00 aggregate for bodily injury liability and a minimum limit of $100,000.00 for property damage liability or a minimum combined single limit of $300,000.00.

(b) Contractual coverage applicable to this specified Agreement, including any hold harmless, and/or such indemnification agreement.

(c) Such additional requirements as are set forth in Article 2.00 and Paragraphs 2.01 and 2.02 hereinabove.

(3) Comprehensive automobile liability coverage must be afforded on a form no more restrictive than the latest edition of the County's Comprehensive Automobile Liability Policy on file with the Office of Risk Management and must include the following:

(a) A minimum combined single limit of $1,000,000.00, aggregate amount.

(b) Such additional requirements as are set forth in Article 2.00 and Paragraphs 2.01 and 2.02 hereinabove.

(c) Should the professional liability insurance policy issued pursuant to the above requirements and limits be written so as to provide an applicable deductible amount, or other exclusion or limitation as to the amount of coverage to be provided within the minimum coverage limits set forth above, the Owner shall hold the Consultant responsible and liable for any such differences of the amount of coverage provided by the insurance policy.

EXHIBIT "D"

ARTICLE 3.00 – INSURANCE

3.01 CONTRACTOR'S LIABILITY INSURANCE

(1) The Contractor shall purchase and maintain at all times during the term of this Agreement such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract Documents, whether such operations be by himself or by any subcontractor or sub-subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

(a) Claims under workers' or workmen's compensation, disability benefit and other similar employee benefit act;

(b) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

(c) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

(d) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;

(e) Claims for damages, other than to the work itself, because of injury to employment of such person by the Contractor or by any other person, or destruction of tangible property, including loss of use resulting therefrom; and

(f) Claims for damages because of bodily injury or the death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

(2) The insurance required by Subparagraph (1) of Paragraph 3.01 shall be written for not less than any limits of liability specified in the Contract Document or required by law, whichever is greater.

(3) The insurance required by Subparagraph (1) of Paragraph 3.01 shall include contractual liability insurance applicable to the Contractor's indemnity obligations.

(4) Certificates of Insurance acceptable to the Owner shall be submitted to the County contact person prior to Contractor commencement of the work. These

Certificates shall contain a provision that coverages afforded under the policies will not be canceled until at least thirty (30) days prior written notice has been given to the Owner and the County. In the event an insurance company sends notice that any insurance policy is to be canceled, the Contractor will, prior to the date set for cancellation in said notice, purchase and maintain complete coverage under the same terms and conditions of the prior policy. If the Contractor fails to obtain a policy, the Owner may, but is not required to, purchase such policy and charge all costs associated therewith to the Contractor by use of a unilateral change order issued by Owner. If the Owner is damaged by the Contractor's failure to obtain or maintain such insurance, then the Contractor shall pay all damage costs reasonably attributed thereto.

(5) The Contractor shall furnish the Owner and the County with satisfactory proof (Certificate of Insurance) of carriage of the insurance required. Certificates of Insurance shall show as "additional insureds" the Owner and Osceola County, Florida, as their interests appear. The Contractor shall furnish Certificates of Insurance in triplicate form, with the Project's name and Project's Owner's name stated on the Certificate, which shall be submitted prior to the beginning of onsite operations. All applicable policies of insurance shall contain a waiver of subrogation in favor of Owner and County, and their respective agents, directors, officers and employees.

(6) Within thirty (30) days of providing Certificates of Insurance, Contractor shall provide to Owner copies of the insurance policies evidenced by the Certificates of Insurance.

(7) The Contractor's liability insurance shall be in companies acceptable to the Owner and County, and shall contain provisions satisfactory to the Owner and County.

(8) Contractors Liability Insurance Limit Requirements – The contractors liability insurance limit requirements for the insurance listed below are as follows:

(a)	Worker's compensation Employer's liability	Statutory Limits $100,000
(b)	Contractor's public liability endorsed to include "XU" coverage:	$1,000,000
	(i) Bodily injury on an occurrence basis	$100,000 - $500,000
	(ii) Property damage on an occurrence basis	$500,000 - $500,000

(c)	Automobile public liability:		
	(i)	Bodily injury on an occurrence basis	$250,000 - $500,000
	(ii)	Property damage	$100,000 - $100,000
(d)	Excess umbrella liability		$5,000,000

(9) All umbrella insurance shall be noted to be "following form" and shall be no more restrictive than is required of underlying coverage.

(10) The Owner shall be notified thirty (30) days prior to expiration, cancellation or reduction in coverage of any insurance policy.

3.03 PROPERTY INSURANCE

(1) The Contractor shall purchase and maintain builders risk insurance upon the entire work at the site to the full insurable value thereof. This insurance shall insure against the perils of extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, vandalism, flood, earthquake, sink holes, and malicious mischief.

(2) The Contractor shall purchase and maintain general liability insurance to protect Owner against any claims arising during or from this project.

(3) Any loss insured under Subparagraph (1) of Paragraph 3.03 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear, subject to the requirements of Subparagraph (6) of Paragraph 3.03. The Contractor shall pay each affected subcontractor a just share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each subcontractor to make payments to his sub-subcontractors in similar manner.

(4) If the Contractor requests in writing that insurance for risks other than those described in Subparagraph (1) of Paragraph 3.03 or other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

(5) The Owner, the County, and Contractor waive all rights against (a) each other and the subcontractors, sub-subcontractors, agents and employees of the other, and (b) separate contractors, if any, and their subcontractors, sub-subcontractors,

agents and employees for damages to the extent covered by insurance obtained pursuant to this Paragraph 3.03 or any other property insurance applicable to the work, except such rights as they may have to the proceeds of such insurance. The Owner or the Contractor, as appropriate, shall require of the separate contractors, subcontractors, and sub-subcontractors by appropriate agreements, written where legally required for validity, similar waivers each in favor of all other parties enumerated in this Subparagraph (5) of Paragraph 3.03.

(6) If the Owner finds it necessary to use a portion or portions of the work prior to substantial completion thereof, such use shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. This insurance shall not be canceled or lapsed on account of such partial use. Consent of the Contractor to use shall not be unreasonably withheld.

LARRY WHALEY 28P
OSCEOLA COUNTY, FLORIDA
CLERK OF CIRCUIT COURT

CL 2003155605 OR 2323/166
BIW Date 08/25/2003 Time 09:04:22

OSCEOLA COUNTY FACILITATION OF PUBLIC INFRASTRUCTURE AGREEMENT FOR ROADWAY IMPROVEMENTS OF COUNTY ROAD 545

THIS FACILITATION OF PUBLIC INFRASTRUCTURE AGREEMENT (hereinafter referred to as the "Agreement"), is made and entered into this 3rd day of July, 2003, by and between GINN-LA Orlando Ltd., LLLP, a Georgia limited liability limited partnership ("Ginn-LA") whose address is 215 Celebration Place, Suite 200, Celebration, Florida, 34747 (sometimes referred to as "Owner"), and OSCEOLA COUNTY, a political subdivision of the State of Florida, whose address for the purposes of this Agreement is 1 Courthouse Square, Kissimmee, Florida 34741 (hereinafter referred to as the "County").

WITNESSETH:

WHEREAS, Owner controls the fee simple title to certain real property located in Osceola County, Florida, and more particularly described on Exhibit "A" attached hereto (hereinafter referred to as the "Property) which Property is subject to that certain Development Order for Reunion Resort & Club of Orlando Development of Regional Impact as amended (hereinafter referred to as the "Project").

WHEREAS, notwithstanding the terms of the Development Order for the Project, the County and the Owner agree that the Owner has requested that the County cooperate with the construction of certain improvements as follows:

(i) South County Road 545 Improvements. Owner intends to construct two golf cart tunnels over CR 545 (sometimes referred to as "Old Lake Wilson Road") to serve the Project. The installation of the golf cart tunnels creates the need to: 1) fill the right-of-way to support a new two lane roadway segment for 5,700 linear feet over the golf cart tunnels; and 2) re-construct two 12' wide travel lanes with 10' wide shoulders; and 3) align the new two lane roadway pavement to match future bridge construction by FDOT. Collectively, these improvements may be referred to as the "Roadway Improvements."

(ii) Additional Fill and Ancillary Improvements. Due to the fact that the construction of the Roadway Improvements requires the modification of the vertical alignment of County Road 545 the Owner, at no cost to the County, shall be responsible for the following improvements that are necessary to accommodate the future six-lane roadway for County Road

545: 1) fill the existing 130' wide right-of-way to match the proposed typical cross-section approved by the Board of County Commissioners as shown in the Preliminary Engineering Report for Old Lake Wilson Road, prepared by VHB, Inc.; and 2) design, furnish and install all necessary embankment to allow for the construction of the future six-lane roadway and sidewalks within the existing 130' wide right-of-way; and 3) design, furnish and install all necessary embankment outside of the existing 130' wide right-of-way to support the right-of-way embankment, and furnish and install retaining walls with fencing along the right-of-way, where embankment cannot be placed outside of the right-of-way; and 4) provide for the placement of the embankment and/or retaining walls and fencing with the associated ancillary construction, including drainage and sod. Collectively, these improvements may be referred to as the "Additional Fill and Ancillary Improvements."

WHEREAS, the Owner and the County each warrant and represent to each other that they have full power and authority to enter into this Agreement; they have taken all necessary actions and obtained all necessary approvals to enter into this Agreement; this Agreement has been duly executed and delivered by them and constitutes the legal, valid and binding obligations of them, and this Agreement and the performance of the terms and conditions of this Agreement do not conflict with, and is not prohibited or limited by any agreement, contract or instrument to which they are a party or by which they are bound, or any statute, law, ordinance, rule and regulations applicable to them or by which they are bound; and

WHEREAS, the parties hereto have negotiated the terms, conditions and provisions of this Agreement at arm's length, have each made certain representations and have determined to rely upon the respective promises and covenants set forth herein.

NOW, THEREFORE, the Owner and the County in consideration of the promises and the benefits to them respectively, the rights and obligations of the parties as set forth in the commitments, covenants, promises, agreements and conditions of this Agreement, and other good and valuable consideration exchanged between the parties, the receipt and sufficiency of which are hereby acknowledged, do hereby agree as follows:

Section 1. Recitals. The foregoing recitals are true and correct and are incorporated herein by this reference and form a material part of this Agreement upon which the parties have relied.

Section 2. Notice of Intent to Construct Roadway Improvements. Owner shall separately notify the County of its intent to commence design, permitting and thereafter, construction of the Roadway Improvements (the "Owner Notice") provided the County enters into this Agreement. The Owner shall have the right to commence

the design, permitting and construction of the Roadway Improvements in the manner set forth in this Agreement.

Section 3. Design Contract for Roadway Improvements and Additional Fill and Ancillary Improvements. In order to accomplish the Roadway Improvements and Additional Fill and Ancillary Improvements by the timeframes set forth in that schedule labeled Exhibit B, which is attached hereto and incorporated herein, the Owner shall enter into a contract or contracts (hereinafter referred to as the "Design Contract"), with a qualified engineer or engineering firm (hereinafter referred to as the "Design Engineer"), said firm shall be qualified to design roadway in accordance with Osceola County and Florida Department of Transportation criteria, for the design and permitting of the Roadway Improvements and Additional Fill and Ancillary Improvements with the following terms and conditions:

(a) The Design Contract: (i) shall set forth the full scope of work to be performed by the Design Engineer in connection with the right-of-way surveying, the design, permitting and construction of the applicable individual component of the Roadway Improvements and Additional Fill and Ancillary Improvements, (ii) shall provide for the completion of the design of the applicable Roadway Improvements and Additional Fill and Ancillary Improvements in accordance with Section 4 herein below and the permitting of the applicable Roadway Improvements and Additional Fill and Ancillary Improvements in accordance with Section 5 hereinbelow, (iii) shall provide that all plans and permits prepared or obtained pursuant to the Design Contract shall be the property of the County, and (iv) shall meet all other applicable requirements of the County.

(b) The Owner shall award and enter into such other contracts for the design and permitting of the Road Improvements and Additional Fill and Ancillary Improvements with such other contractors, subcontractors, suppliers and professional service providers as shall be reasonably necessary to complete the roadway design in substantial conformity with the approved plans and specifications.

(c) The Design Contract shall include coverage of both the County and the Owner by means of warranties, guaranties, liabilities, indemnifications, covenants, bonds and insurance that are reasonably acceptable to the County and the Owner and typically run to a party to a road improvement design contract. Said warranties, guaranties, liabilities, indemnifications, covenants, bonds and insurance being in a form, in an amount and with a copy reasonably satisfactory to the County, as provided in the provisions attached hereto as Exhibit "C". The County shall be deemed a third-party beneficiary to the Design Contract.

(d) In the event of default or breach by Owner or Owner's inability to perform, the Design Contract shall provide that the County may, but shall not be

required to, assume the contractual position of Owner and exercise all rights and privileges governed by the Design Contract and upon request by the County, Owner shall cause all of the rights and privileges to be assigned to the County.

Section 4. Design of Roadway Improvements and Additional Fill and Ancillary Improvements. The design of the Roadway Improvements and Additional Fill and Ancillary Improvements shall comply with the requirements of the County's Engineer including, but not limited to, limited traffic and transportation studies, geotechnical studies, typical cross sections, design standards, median cuts, turn lanes, acceleration and deceleration lanes, intersection improvements, utility relocation, traffic control devices and drainage retention facilities. The design of the Roadway Improvements and Additional Fill and Ancillary Improvements shall take into account (a) the topography and conditions of the property, (b) conditions and limitations resulting from any environmentally sensitive or protected lands adjacent thereto and (c) the drainage retention facilities for the applicable Roadway Improvements and Additional Fill and Ancillary Improvements, including, but not limited to, any relocation, modification or expansion of existing facilities and shall be designed so as to minimize, consistent with sound and generally accepted engineering and safety standards as set forth in the FDOT Green Book, the amount of the property required for same and so as not to unreasonably interfere with the contemplated development of private property. The Design Engineer shall provide all preliminary designs, working drawings and other information to the County's Engineer as reasonably requested and shall fully participate in the County's public involvement programs for major projects, if applicable.

Section 5. Permits Approvals and Easements for Roadway Improvements.

5.1 Permits and Approvals. Owner, through the Design Engineer, shall also be responsible for obtaining all necessary licenses, permits and approvals for the construction of the Roadway Improvements (the "Permits and Approvals") in accordance with the final plans approved by the County and all other governmental agencies having jurisdiction over the proposed Roadway Improvements and Additional Fill and Ancillary Improvements (the "Approved Plans"). Owner shall cause the Design Engineer to diligently pursue and obtain the Permits and Approvals as soon as reasonably possible after acknowledgment of the Approved Plans for the individual components of the Roadway Improvements by the County.

5.2 Right-of-Way Utilization Permit. The County and the Owner acknowledge that for the Owner to construct the Roadway Improvements and Additional Fill and Ancillary Improvements in accordance with the Approved Plans in the County's right-of-way that a right-of-way utilization permit will be necessary. Prior to receiving the right-of-way utilization permit Owner, through the Design Engineer, will resolve all technical comments presented to Professional Engineering Consultants, Inc. in the County's letter dated February 10, 2003. In addition, Owner must provide the County with written documentation demonstrating that all companies with utilities that are located within the right-of-way have acknowledged and have accepted the Roadway Improvements, and Owner must provide the County with a utility relocation plan

addressing all utilities and relocation costs for the County's approval. Once all information has been provided to the County as set forth herein, including the performance bonds required in Section 6.1 and 6.2, the County agrees to grant to Owner a right-of-way utilization permit to allow construction in that area of the County's right-of-way as shown as needed by the Approved Plans.

5.3 Easement for Bypass Lane. The County and the Owner acknowledge that construction of the Roadway Improvements will require the creation and utilization of a bypass lane or lanes to facilitate the uninterrupted flow of traffic during the construction process (Bypass Lanes). It is anticipated that the Bypass Lane will need to be placed outside of the County's existing right-of-way. Accordingly, the Owner agrees to grant to the County a temporary Bypass Lane easement to accommodate the placement of the Bypass Lane for the uninterrupted flow of public traffic during the construction process on the Owner's Property as evidenced as necessary by the Approved Plans. The easement for temporary by-pass lanes will provide for temporary ingress/egress, drainage, and maintenance easements over the temporary by-pass lanes under construction by Owner. The temporary Bypass Lane easement shall automatically expire by its own terms once the County has accepted the completed Roadway Improvements for maintenance and the public traffic has been transferred from the temporary ByPass Lane to the completed Roadway Improvements.

5.4 Side Slope Easements. The County and the Owner acknowledge that construction of the Roadway Improvements and Additional Fill and Ancillary Improvements will require the execution of a side slope easement agreement. Accordingly, the Owner agrees to grant to the County an easement for placement and maintenance of the Side Slope area as designated on the Approved Plans.

5.5 Drainage Easement. To the extent and amount the Approved Plans require drainage from the Road Improvements and Additional Fill and Ancillary Improvements area within the County's right-of-way (for the storm water drainage systems and storm water management facilities for the future six-laning of Old Lake Wilson Road) to outfall onto the Owner's Property, the Owner agrees to grant to the County a nonexclusive, permanent Drainage Easement.

5.6 Maintenance Easement for Tunnels Inside the Right-of-Way. It is the understanding of the parties that the Owner will maintain the golf cart tunnels being placed through the County's right-of-way as part of the Roadway Improvements. The County agrees to grant to the Owner an easement to allow permanent placement of the tunnels on the condition Owner provides maintenance on the tunnels and agrees to maintain a minimum of $5,000,000.00 liability insurance, naming the County as an additional insured, to cover any losses or claims relative to the Roadway Improvements and Additional Fill and Ancillary Improvements, and further provided that Owner agrees to defend and indemnify the County ("Tunnel Maintenance Easement"). Further, County shall retain the right to perform maintenance on the tunnels itself to the extent maintenance is necessary on such tunnels to ensure safety and viability of the County's road facilities located in the County's right-of-way.

5.7 Maintenance Easement for Tunnels Outside the Right-of-Way. It is the understanding of the parties that Owner will maintain those portions, if any, of the golf cart tunnels being placed outside of the County's right-of-way in conjunction with the Roadway Improvements. The Owner agrees to grant to the County an easement to allow the County the right of ingress and egress to perform maintenance on those portions of the tunnels located outside the right-of-way, if any, in the event the Owner fails to adequately perform such maintenance.

5.8 Sidewalk Easement. It is the understanding of the parties that Owner will provide the County sufficient non-exclusive easements for the right of the public to access the sidewalks constructed along the Old Lake Wilson Road right-of-way within the Roadway Improvement area boundaries and the golf cart tunnels as are shown on the Approved Pans.

5.9 Timing on Conveyance of Easements. The County and the Owner agree that the easements as set forth in Sections 5.2 through 5.10 above shall be prepared, fully executed and recorded in the Public Records of Osceola County, Florida within ninety (90) days of the Approved Plans becoming final and shall be in a form acceptable to the County.

COPY

Section 6. Construction of Roadway Improvements.

6.1 Roadway Improvements. Owner shall be responsible for the selection of: (a) the construction contractor to serve as the general contractor and construction manager (the "Contractor") for the construction of the Roadway Improvements, and (b) such other consultants including, but not limited to, surveyors, environmental consultants and other consultants and subcontractors, as Owner deems reasonably necessary to properly complete construction of the Roadway Improvements. The final selection and employment of the Contractor and such other consultants shall be at the Owner's sole discretion. Owner shall enter into a written contract with the Contractor (the "Construction Contract"). The Construction Contract: (i) shall set forth the full scope of work to be performed by the Contractor in construction of the Roadway Improvements in accordance with the Permits and Approvals and Approved Plans; (ii) shall provide that the County right-of-way shall not be subject to any construction or other liens as a result of the construction of the Roadway Improvements and that Contractor shall indemnify the County and Owner from and against all loss, cost or damage caused by the imposition of such lien; (iii) shall require Contractor to agree not to permit the utilization of hazardous or toxic substances in constructing the Roadway Improvements except as would be used in the normal course of such construction; (iv) shall require Contractor to carry a public liability insurance, builder's risk insurance, worker's compensation coverage and such other coverages and in such amounts as is reasonably requested by Owner and in accordance with the provisions of Exhibit "D" attached hereto, considering the nature of the Project. Such policies shall name the County as an additional insured. In addition, the Contractor shall agree that in the event

of a default or breach by Owner under the Construction Contract or Owner's inability to otherwise perform under the Construction Contract, the County may elect to assume (by written notice to the Contractor) the contractual position of Owner and to exercise all Owner's rights and privileges under the Construction Contract. The County shall be deemed a third-party beneficiary to the Construction Contract. Owner shall provide to the County a Performance Bond in the amount of 115% of the cost of the applicable individual component of the Roadway Improvements prior to beginning construction. The Performance Bond shall be in a form reasonably acceptable to the County and consistent with the County's approved form. Owner shall also provide to the County a Maintenance Bond in the amount of 15% of the cost of the Roadway Improvements for a period of one (1) year from the date of completion of the Roadway Improvements.

6.2 Additional Fill and Additional Fill and Ancillary Improvements. The parties acknowledge and agree that at the time of construction of the Roadway Improvements only fill necessary to accommodate a two lane facility over the tunnel construction will be required. Accordingly, Owner and the County agree that the Owner shall have until December 2005 to complete installation of the Additional Fill and Ancillary Improvements necessary to accommodate a six lane facility within the 130' right-of-way. The Additional Fill and Ancillary Improvements shall be required to meet the same construction requirements set forth in Section 6.1 above for the Roadway Improvements. The Owner shall post a letter of credit or other form of assurance acceptable to the County in an amount sufficient to complete the Additional Fill and Ancillary Improvements work. Such letter of credit or assurance shall enable the County to complete the Additional Fill and Ancillary Improvements work in the event such work is not timely completed by the Owner.

Section 7. Completion of Construction Documentation. Owner shall be responsible for the payment of the Roadway Improvements costs. Upon completion of construction of the Roadway Improvements in substantial conformity with the Permits, Approvals and Approved Plans and written acceptance thereof by the County Engineer, Owner shall provide written notice of the same to the County along with the following information (the "Completion Notice"):

(a) "As-built" drawings and certifications by the Design Engineer and Contractor that the Roadway Improvements have been constructed and completed in substantial conformity with the Permits and Approvals and Approved Plans; and

(b) A contractor's final affidavit and lien waiver evidencing the payment in full of the Contractor and all sub-contractors providing labor or materials for the construction of the Roadway Improvements.

(c) The 15% Maintenance Bond in a form acceptable to the County as referenced in Section 6.

The County and the Owner agree that the above documentation may be submitted separately for the Roadway Improvements and the Additional Fill.

Section 8. Compliance with Laws and Regulations. In performing pursuant to this Agreement, each party hereto shall abide by the respective statutes, ordinances, rules and regulations pertaining to, or regulating, the acts of such party, including, but not limited to, those now in effect and hereafter adopted.

Section 9. Notices.

(a) Except as otherwise provided in this Agreement, whenever either party desires to give notice to the other, notice shall be sent to:

For the County:
County Manager Osceola County Services Building
County Manager
1 Courthouse Square, Suite 4700
Kissimmee, Florida 34741

With copies to:
County Engineer, Chris Crowe, P.E.
1 Courthouse Square, Suite 1100
Kissimmee, Florida 34741

For the Owner:
GINN - LA Orlando Ltd., LLLP
c/o R. Randolph Lyon
The GINN Development Company
215 Celebration Place, Suite 200
Celebration, Florida 34747

With copies to:
Paul H. Chipok, Esq.
Gray, Harris & Robinson, P.A.
301 East Pine Street, Suite 1400
Post Office Box 3068
Orlando, Florida 32802-3068

(b) Any of the parties may change, by written notice as provided herein, the addresses or persons for receipt of notices. Each such notice shall be deemed delivered on the date delivered if by personal delivery or on the date of transmission with confirmed answer back if by telecopy, or on the date upon which the return receipt is signed or delivery is refused or notice is designated by the postal authorities as not deliverable, as the case may be, if mailed or date of delivery by overnight delivery services as evidenced by a service receipt.

Section 10. Counterparts. This Agreement may be executed in any number of counterparts each of which, when executed and delivered, shall be an original, but all counterparts shall together constitute one and the same instrument.

COPY

Section 11. Entire Agreement. This Agreement constitutes the entire agreement of the parties with respect to the subject matter hereof, and may not be modified or amended except by a written instrument equal in dignity herewith and executed by the parties to be bound thereby. This Agreement is solely for the benefit of the parties hereto, and their successors and assigns, and no right, nor any cause of action shall accrue to or for the benefit of any third party.

Section 12. Binding Effect; Assignment. This Agreement shall be binding upon and inure to the benefit of the successors in interest, transferees and assigns of the parties. Owner shall have a right to assign or partially assign to the Reunion Community Development District, Owner's obligation to design and construct the Roadway Improvements and Additional Fill and Ancillary Improvements by delivery to the County of a written Assignment of the obligation executed by Owner and acknowledged by the Reunion Community Development District.

Section 13. County's Obligation. This Agreement shall not be deemed to pledge the credit of the County nor to make the County a co-venturer or partner of the Owner.

Section 14. Failure to Complete Roadway Improvements. Should the Owner fail to complete construction of the Roadway Improvements and Additional Fill and Ancillary Improvements and obtain final acceptance of said improvements from the County in the manner and as provided herein, the County reserves the right to declare this Agreement void, in addition to any other rights and remedies available under Florida law.

Section 15. Applicable Law/Venue/Remedies/Waiver of Jury Trial.

(a) This Agreement shall be construed, controlled and interpreted according to the laws of the State of Florida.

(b) Venue for any proceeding arising under this Agreement shall be in the Ninth Judicial Circuit in and for Osceola County, Florida as to State actions and the United States District Court for the Middle District of Florida as to Federal actions.

(c) In the event of a dispute between any of the parties hereto regarding the subject matter of this Agreement, they each agree to submit same to non-binding mediation and shall cooperate in good faith in appointing a qualified mediator and in attending and participating in mediation of such dispute. Each party shall pay their own attorney's and consultant fees and costs incurred in connection with any such mediation and shall split equally all fees and costs of the mediator. In the event that such dispute cannot be resolved by mediation, then the parties hereto shall have all rights and remedies available under Florida law in connection with the

enforcement of the terms and conditions of this Agreement. Each party shall be responsible for its own attorney's fees and costs in the event of such dispute.

(d) By their execution hereof, each party hereto hereby knowingly, voluntary and intentionally agrees to waive its right to jury trial in connection with any dispute arising from this Agreement.

Section 16. Time is of the Essence. Time is hereby declared of the essence as to the lawful performance of all duties and obligations set forth in this Agreement.

Section 17. Non-Waiver. No consent or waiver, expressed or implied, by either party, to or of any breach or default of the other party, with regard to the performance by said other party of its obligations under this Agreement shall be deemed or construed to constitute consent or waiver to, or of, any other breach or default in the performance of that party, of the same of any other objection of performance incumbent upon that party. Failure on the party of either party to complain of any act or failure to act on the part of the other party in default, irrespective of how long the failure continues, shall not constitute a waiver by that party of its rights and any remedies that exist under this Agreement, at law or in equity.

COPY

Section 18. Construction.

(a) This Agreement shall not be construed against either party on the basis of it being the drafter of the Agreement. The parties agree that both herein played an equal party in reciprocity in drafting this Agreement.

(b) Capitalized terms contained herein shall have no more force nor effect than uncapitalized terms.

(c) 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 or construction of meaning of this Agreement.

Section 19. Severability. If any provision of this Agreement, or its application to any person, entity or circumstances is specifically held to be invalid or unenforceable by a Court of competent jurisdiction, the remainder of this Agreement and the application of the provisions hereof to other persons, entities or circumstances shall not be affected thereby and, to that end, this Agreement shall continue to be enforced to the greatest extent possible consistent with law and the public interest including, but not limited to, the expenditure of public funds for lawful purposes.

Section 20. Further Assurances. The Owner agrees to sign any other and further instruments and documents, consistent herewith, as may be necessary and proper in order to give complete effect to the benefits deriving from the terms and conditions of this Agreement.

Section 21. Curative Periods. No default as to any provision of this Agreement on the part of any of the parties hereto shall be claimed or charged by any party against any other until notice thereof has been given to all parties in writing, and such default remains uncured for a period of ten (10) days after such notice.

Section 22. Exhibits. The Exhibits attached hereto are incorporated into this Agreement and are a part of the Agreement upon which the parties have relied.

Section 23. Reasonable Approval. In those instances in this Agreement in which a party's approval, consent or satisfaction is required, then it shall be implied that such action shall be exercised in a reasonable manner and within a reasonable time frame.

Section 24. Interpretation. This Agreement shall not operate as a development order or permit or a development approval of any type. No waiver of fulfillment of any condition or development arising from the County Comprehensive Plan or the Land Development Code of the County is intended and none shall be implied from the terms of this Agreement, unless specifically referenced herein.

Section 25. Effective Date. This Agreement shall take effect on the date that this Agreement is fully executed by the parties (the "Effective Date").

COPY

IN WITNESS WHEREOF, the parties have executed this Agreement on the dates set forth below.

OWNER:

GINN - LA ORLANDO Ltd., LLLP, a Georgia limited liability limited partnership

By: GINN-Orlando GP, LLC, a Georgia limited liability company, its General Partner

Amy Zolnier
Witness Signature

Amy Zolnier
Printed Name

Witness Signature

Maritza Arias
Printed Name

By: R. Randolph Lyon Jr.
Name: R. RANDOLPH LYON JR.
Its: VICE-PRESIDENT

Dated: 03 JULY 2003

COPY

STATE OF FLORIDA
COUNTY OF Osceola

The foregoing instrument was acknowledged before me this 3rd day of July, 2003, by R. Randolph Lyon, JR, as Vice President of GINN-Orlando GP, LLC, a Georgia limited liability company, its General Partner, for GINN - LA ORLANDO Ltd., LLLP, a Georgia limited liability limited partnership. He/She is personally known to me or produced _____ as identification.

(Print Name) Maritza Arias
NOTARY PUBLIC, STATE OF FLORIDA
Commission Number: DD 011490
My Commission Expires: 3/22/2005

MARITZA ARIAS
NOTARY PUBLIC - STATE OF FLORIDA
COMMISSION # DD011490
EXPIRES 3/22/2005
BONDED THRU 1-888-NOTARY1

OSCEOLA COUNTY, FLORIDA, a Political subdivision of the State of Florida

Witness Signature

By: _____

PAULA CARPENTER
Printed Name

Name: Paul Owen

Its: Chairman

Witness Signature

Dated: July 07, 2003

Marilyn J. Kinne
Printed Name

ATTEST:

Tammy Ross
As County Clerk for Osceola County
Name: Tammy Ross

APPROVED AS FORM AND LEGALITY for the use and reliance by Osceola County, Florida, only.

Dated: _____

By: _____

STATE OF FLORIDA
COUNTY OF Osceola

Personally appeared before me, the undersigned authority, Paul Owen and Tammy Ross, personally known to me to be the _____, of Osceola County, Florida, and acknowledges before me that he/she executed the foregoing instrument on behalf of Osceola County, as its true and act and deed, and that they were duly authorized to do so.

Witness my hand and official seal this 10 day of July, 2003.

TEENA L. JENKINS
Notary Public, State of Florida
My comm. exp. Dec. 19, 2003
Comm. No. CC896883

(Print Name) _____
NOTARY PUBLIC – STATE OF FLORIDA
Commission No.: _____
Commission Expires: _____

COPY

EXHIBIT "A"

LEGAL DESCRIPTION

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DESCRIPTION: (OVERALL P.U.D. BOUNDARY)

A portion of Lot 1, Block 3, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, and A portion of Lots 9, 10, 11, and 12, Block C, Florida Fruit and Truck Land Company Subdivision being a portion of the West ½ of the West ½ of the southwest ¼ of Section 22, Township 25 South, Range 27 East, Osceola County, Florida being more particularly described as follows:

Begin at a Northeasterly corner of Lot 1, Block 3 of said Magnolia Creek said corner being the North $\frac{1}{4}$ corner of Section 27, Township 25 South, Range 27 East, Osceola County, Florida; thence run S 00°12'22" W, a distance of 1326.57 feet; thence run S 89°58'38" E, a distance of 992.54 feet to a point on the westerly right of way of Interstate 4 (State Road 400), said point being on a non-tangent curve, concave southwesterly, having a radius of 3982.00 feet and a central angle of 04°39'35"; and a chord bearing of S 16°24'27" E, thence run 323.84 feet along the arc of said curve and said right of way line to the point of compound curvature with a curve, concave northwesterly, having a radius of 2006.00 feet and a central angle of 46°34'57"; thence run southwesterly, along the arc of said curve, a distance of 1630.91 feet to the point of compound curvature with a curve, concave northwesterly, having a radius of 9906.00 feet and a central angle of 07°38'08"; thence run southwesterly, along the arc of said curve, a distance of 1320.13 feet to a point; thence run S 40°08'26" W, a distance of 505.22 feet; thence run N 89°58'57" W, a distance of 889.31 feet; thence run S 00°12'29" W, a distance of 370.75 feet; thence run S 70°07'18" E, a distance of 187.79 feet; thence run S 89°58'57" E, a distance of 310.95 feet; thence run S 49°51'34" E, a distance of 58.10 feet; thence run S 40°08'26" W, a distance of 3179.37 feet; thence departing said right of way line run N 00°06'57" E, a distance of 246.89 feet; thence run N 89°57'27" W, a distance of 665.03 feet; thence run N 00°06'23" E, a distance of 663.43 feet; thence run N 89°58'08" W, a distance of 664.27 feet; thence run S 00°05'43" W, a distance of 576.61 feet; thence run N 89°56'47" W, a distance of 375.00 feet; thence run S 44°55'32" E, a distance of 343.31 feet; thence run N 71°45'45" W, a distance of 643.72 feet; thence run N 72°33'01" W, a distance of 439.95 feet; thence run N 18°20'04" E, a distance of 86.87 feet; thence run N 71°22'55" W, a distance of 39.44 feet; thence run N 00°05'44" E, a distance of 391.54 feet; thence run S 89°58'08" E, a distance of 509.70 feet; thence run N 00°05'04" E, a distance of 1326.35 feet; thence run N 89°59'28" W, a distance of 651.83 feet; thence run N 00°18'42" E, a distance of 1322.08 feet; thence run N 89°48'47" E, a distance of 1324.10 feet; thence run N 00°04'57" E, a distance of 2618.32 feet; thence run S 89°53'52" E, a distance of 1360.52 feet; thence run N 00°35'44" W, a distance of 1377.27 feet to the Northwesterly corner of said Lot 1, Block 3; thence run N 89°56'40" W, a distance of 11.33 feet to the Southwest corner of Section 22, Township 25 South, Range 27 East and a recovered 5" x 5" Concrete Monument (Jones, Wood, & Gentry); thence run N 00°13'04" E , a distance of 2657.91 feet; thence run S 89°42'36" E, a distance of 214.51 feet; to a non-tangent curve concave Southwest, having a radius of 350.00 feet, and a central angle of 16°44'31", Thence on a chord bearing of S 47°01'09" E, run Southerly along the arc of said curve a distance of 102.27 feet; Thence run S

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38°38'54" E, a distance of 599.99 feet, to the East line of the West 1/2, of the West 1/2 of the Southwest 1/4 of Section 22, Township 25 South, Range 27 East, Thence run S 00°13'27" W, along said East line 95.60 feet; Thence leaving said East line run S 38°38'54", E a distance of 114.05 feet to a non-tangent curve, concave to the Southeast, having a radius of 2895.72 feet, and a central angle of 2°10'15", Thence on a chord bearing of S 40°56'42" W run Southerly along the arc of said curve, 109.71 feet, to said East line; Thence run S 00°13'26" W, along said East line, a distance of 1851.86 feet, to the Southeast corner of said Lot 12; thence run S 89°56'40" E, a distance of 1996.39 feet, to the POINT OF BEGINNING.

Containing 699.94 acres more or less.

TOGETHER WITH

A portion of Lots 1, 2, and 3, Block 1, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, and a portion of Block D of Florida Fruit and Truck Land Plat, being a portion of Section 33 Township 25 South Range 27 East, Osceola County, Florida, being more particularly described as follows:

Begin at the Southeast corner of Lot 1, Block 1 of said Magnolia Creek, said point being on the Northerly right of way line of County Road 532; thence along said right of way line run N 89°54'48" W, a distance of 2586.10 feet; thence run N 89°53'57" W, a distance of 2074.96 feet to the point of curvature of a curve, concave northeasterly, having a radius of 2764.93 feet and a central angle of 11°02'00"; thence run northwesterly, along the arc of said curve, a distance of 532.44 feet to the point of tangency thereof; thence run N 78°51'57" W, a distance of 51.20 feet; thence run N 78°51'57" W, a distance of 947.84 feet; thence run N 74°34'36" W, a distance of 200.56 feet; thence run N 78°51'57" W, a distance of 348.29 feet to the Easterly right of way line of Interstate Highway 4 (State Road 400); thence along said right of way run N 30°59'17" E, a distance of 117.43 feet to the point of curvature of a curve, concave southeasterly, having a radius of 5635.58 feet and a central angle of 08°13'10"; thence run northeasterly, along the arc of said curve, a distance of 808.47 feet to a point; thence run S 89°55'31" E, a distance of 279.31 feet; thence run N 40°06'30" E, a distance of 260.92 feet; thence run S 89°53'49" E, a distance of 350.25 feet; thence run N 00°07'04" E, a distance of 375.18 feet; thence run S 41°18'16" W, a distance of 15.00 feet; thence run N 48°41'44" W, a distance of 10.00 feet; thence run N 41°18'16" E, a distance of 26.43 feet; thence run N 00°07'04" E, a distance of 62.00 feet; thence run N 69°17'20" W, a distance of 50.00 feet; thence run N 20°42'40" E, a distance of 10.00 feet; thence run S 69°17'20" E, a distance of 50.00 feet; thence run N 41°18'16" E, a distance of 62.00 feet; thence run N 00°07'04" E, a distance of 26.43 feet; thence run S 89°52'56" E, a distance of 10.00 feet; thence run S 00°07'04" W, a distance of 15.00 feet; thence run N 41°18'16" E, a distance of 114.89 feet; thence run N 00°07'04" E, a distance of 343.07 feet; thence run N 39°00'29" E, a distance of 23.89 feet; thence run N 00°07'04" E, a distance of 108.75 feet; thence run N 40°08'26" E, a distance of 3835.37 feet; thence run S 49°51'34" E, a distance of 18.00 feet; thence run N 42°53'19" E, a distance of 250.29

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feet; thence run N 40°08'26" E, a distance of 340.00 feet to a point on a curve, concave southeasterly, having a radius of 1906.00 feet and a central angle of 13°01'53"; thence run 433.50 feet along the arc of said curve to the point of tangency thereof; thence run N 53°10'19" E, a distance of 1160.02 feet to the point of curvature of a curve, concave northwesterly, having a radius of 1453.00 feet and a central angle of 10°40'19"; thence run northeasterly, along the arc of said curve, a distance of 270.64 feet to the point of tangency thereof; thence run N 42i°30'00" E, a distance of 1102.93 feet; thence run N 42°30'00" E, a distance of 300.44 feet to the Westerly right of way line of County Road 545; thence along said right of way line run S 00°12'04" W, a distance of 203.18 feet; thence run S 00°12'19" W, a distance of 105.47 feet; thence run S 00°12'19" W, a distance of 2562.04 feet; thence run S 00°12'39" W, a distance of 2660.63 feet; thence run S 00°16'21" W, a distance of 1148.90 feet; thence run S 00°16'21" W, a distance of 1301.51 feet to the POINT OF BEGINNING.

Containing 672.6361 acres more or less.

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TOGETHER WITH

Lot 3, and a portion of Lots 1 and 2, Block 2, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida, being more particularly described as follows:

BEGIN at a point at the Southeast corner of Lot 3, Block 2 of said Magnolia Creek, said point being on the Northerly right of way line of County Road 532, and being a non-tangent curve, concave northwesterly, having a radius of 1810.08 feet and a central angle of 21°05'10"; thence on a chord bearing of S 79°28'51" W and along said right of way, run 666.15 feet along the arc of said curve to the point of tangency thereof; thence run N 89°58'34" W, a distance of 12.49 feet; thence departing said right of way line run N 00°26'04" E, a distance of 463.41 feet; thence run N 89°59'34" W, a distance of 663.76 feet; thence run S 00°23'38" W, a distance of 463.21 feet to the said right of way line; thence run N 89°58'34" W, a distance of 1326.86 feet; thence departing said right of way line run N 00°18'46" E, a distance of 462.81 feet; thence run N 89°59'34" W, a distance of 601.77 feet to the Easterly right of way line of County Road 545 thence along said right of way line run N 00°16'21" E, a distance of 861.37 feet; thence run N 00°16'21" E, a distance of 1126.24 feet; thence run N 00°12'39" E, a distance of 2660.71 feet; thence run N 00°12'19" E, a distance of 1491.43 feet; thence run S 89°47'41" E, a distance of 4.60 feet to a point on a non-tangent curve, concave Easterly, having a radius of 11385.00 feet and a central angle of 04°22'52"; thence on a chord bearing of N 02°19'15" E, thence run 870.56 feet along the arc of said curve, to a point on a non-tangent curve, concave Westerly, having a radius of 10074.00 feet and a central angle of 01°20'50", thence run on a chord bearing of N 03°58'25" E, thence run along the arc of said curve, a distance of 236.90 feet, to a point on a non-tangent curve, concave Westerly, having a radius of 10074.00 feet, and a central angle of 02°47'47", thence run on a chord bearing of N 03°58'25" E, run northerly along the arc of said curve, a distance of 491.42 feet to a point the Southeasterly right of way line of Interstate 4 (State Road 400); thence along said right of way line run N 42°29'32" E, along the south right of way of Interstate Highway 4, (State Road 4, a distance of 307.44 feet, thence run S 89°52'23"E,

a distance of 328.76 feet, thence run N 00°10'47" E, a distance of 388.71 feet; thence run S 89°49'13"E, a distance of 80.60 feet; thence run N 00°10'47"E, a distance of 60.00 feet; thence run N 89°49'13" W, a distance of 67.77 feet to a point on a non-tangent curve, concave Northwesterly, having a radius of 3906.00 feet, and a central angle of 03°36'32", thence on a chord bearing of N 22°56'14" E, run along the arc of said curve 246.03 feet; thence leaving said rigth of way line, run S 00°10'09" W, a distance of 1897.64 feet; thence run S 89°54'13" E, a distance of 1666.80 feet; thence run S 00°06'57" W, a distance of 1331.67 feet; thence run S 89°56'59" E, a distance of 1326.84 feet; thence run S 00°06'28" W, a distance of 1330.53 feet; thence run S 00°36'14" W, a distance of 2657.79 feet; thence run S 89°57'42" W, a distance of 659.58 feet; thence run S 00°21'16" W, a distance of 617.40 feet; thence run S 00°21'16" W, a distance of 1715.50 feet to the POINT OF BEGINNING.

Containing 627.1422 acres more or less

TOGETHER WITH

A portion of Lot 1, Block 4, Magnolia Creek, according tot the Plat thereof as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida being more particularly described as follows:

Begin at the Northeast corner of said Lot 1, Block 4; thence run S 00°15'31" W, a distance of 1327.37 feet; thence run N 89°56'39" E, a distance of 809.27 feet to the Northwesterly right of way line of Interstate 4 (State Road 400); thence along said right of way line run S 40°08'26" W, a distance of 607.04 feet; thence departing said right of way line run N 68°40'55" W, a distance of 441.48 feet; thence run N 57°51'13" W, a distance of 402.37 feet; thence run S 00°15'59" W, a distance of 439.41 feet; thence run S 46°55'30" E, a distance of 535.33 feet to said right of way line; thence along said right of way line run S 40°08'26" W, a distance of 565.09 feet; thence run N 49°51'58" W, a distance of 21.00 feet; thence run S 42°52'55" W, a distance of 250.29 feet; thence run S 40°08'02" W, a distance of 339.99 feet to a point on a non-tangent curve, concave northwesterly, having a radius of 9897.00 feet and a central angle of 03°26'07"; thence on a chord bearing of S 41°51'06" W, run 593.39 feet along the arc of said curve to a point; thence departing said right of way line run N 45°51'18" W, a distance of 84.71 feet; thence run N 06°08'28" W, a distance of 120.61 feet; thence run N 06°08'28" W, a distance of 284.18 feet to a point on a non-tangent curve, concave easterly, having a radius of 11533.00 feet and a central angle of 02°00'13"; thence on a chord bearing of N 03°02'30" W, run 403.30 feet along the arc of said curve to a point of reverse curvature with a curve concave westerly, having a radius of 11385.00 feet and a central angle of 04°11'40"; thence on a chord bearing of N 01°56'46" W, run 833.46 feet along the arc of said curve to a point; thence run N 89°44'46" W, a distance of 2.49 feet; thence run N 00°13'54" E, a distance of 1162.67 feet; thence run N 89°56'03" E, a distance of 599.81 feet; thence run N 00°15'21" E, a distance of 663.57 feet; thence run N 89°55'26" E, a distance of 665.50 feet to the POINT OF BEGINNING.

Containing 77.9236 acres MORE OR LESS.

COPY

TOGETHER WITH

Lot 1, Block 5, Magnolia Creek, according to the Plat thereof, as recorded in Plat Book 12, Pages 70 through 79 of the public records of Osceola County, Florida.

Containing 0.3635 acres more or less.

Total area containing 2,078.00 acres more or less.

COPY

EXHIBIT "B"

SCHEDULE OF ROADWAY IMPROVEMENTS

Roadway Element	Anticipated Completion
CR 545 from I-4 to CR 532	December 2003
Addition Fill Placement	December 2005

COPY

EXHIBIT "C"

ARTICLE 1.00 – INDEMNIFICATION

(1) The Consultant shall be, and agrees to be and remain, liable for any and all damages, losses, and expenses incurred by the Owner or the County caused by the errors, omissions, negligence, or delay(s) of the Consultant or by any subconsultant(s) and/or subcontractor(s) engaged by the Consultant in providing, performing and furnishing services, work and materials pursuant to this Agreement, and for any and all damages, losses and expenses to the County arising out of the Consultant's performance of any of his obligations contained in this Agreement and Amendment(s) thereto.

(2) To the fullest extent permitted by law, the Consultant shall be liable and agrees to be liable for and shall indemnify, defend and hold the Owner and the County, their respective officers, directors, agents and employees, harmless for any and all claims, suits, judgments or damages, losses and expenses including court costs, expert witness and professional consultation services, and attorneys' fees arising out of the Consultant's errors, omissions, negligence, or delay(s), or those of any and all subconsultants and/or subcontractors engaged by the Consultant during the providing, performing and furnishing of services, work and materials pursuant to this Agreement and any and all Amendment(s) thereto. The Consultant shall not be liable to nor indemnify the Owner or the County for any portion of damages arising out of the gross negligence of the County, its employees, agents or representatives. Notwithstanding anything in this Article 1.00 to the contrary, the aggregate liability of Consultant under this Article 1.00 for the indemnification of Owner and County, their respective officers, directors, agents and employees, shall not exceed the greater of (a) the price for the work to be paid to Consultant under this Agreement, or (b) Ten Million Dollars ($10,000,000.00).

ARTICLE 2.00 – INSURANCE COVERAGES

2.01 GENERAL REQUIREMENTS

(1) The Consultant shall obtain and maintain such insurance as will protect him from: (a) claims under worker's compensation laws, disability benefit laws, or other similar employee benefit laws: (b) claims for damages because of bodily injury, occupational sickness or disease or death of his employees, including claims insured by usual personal injury liability coverage; (c) claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees, including claims insured by usual personal injury liability coverage; and (d) from claims for injury to or destruction of tangible property, including loss of use resulting therefrom; any or all of which claims may arise out of, or result from, the services, work and operations carried out pursuant to and under the requirements of this Agreement, whether such services, work and operations be by the Consultant, his employees, or by any subconsultant(s),

subcontractor(s), or anyone employed by or under the supervision of any of them, or for whose acts any of them may be legally liable.

(2) The insurance protection set forth hereinafter shall be obtained and written for not less than the limits of liability specified hereinafter, or as required by law, whichever is greater. All policies shall be underwritten by companies legally registered and authorized to do business in the State of Florida.

(3) The Consultant shall require, and shall be responsible for ensuring, throughout the time this Agreement is in effect, that any and all of his subconsultants and/or subcontractors obtain and maintain, until the completion of that subconsultant's and/or subcontractor's work, such of the insurance coverages described in Paragraph 2.02 as are required by law to be provided on behalf of their employees and others.

(4) The Consultant shall obtain, have and maintain during the entire period of this Agreement all such insurance policies as are set forth and required herein.

2.02 CONSULTANT REQUIRED TO FILE INSURANCE CERTIFICATE(S)

(1) The Consultant, within fourteen (14) calendar days from execution of this Agreement, shall submit to the Owner and County all such insurance certificates and related documentation as are required under this Agreement. Failure of the Consultant to submit such certificates and documents within the required time shall be considered cause for the Owner to cancel this Agreement and rescind its actions to engage the Consultant. Before the Owner shall provide the Consultant with written Notice to Proceed, and before the Consultant shall commence any service or work pursuant to the requirements of this Agreement, the Consultant shall obtain and maintain insurance coverages of the types and to the limits specified hereinafter, and the Consultant shall have submitted to the Owner and County certificates of all such insurance coverages as provided above.

(2) All such insurance certificates shall be in a form and underwritten by an insurance company(s) acceptable to the Owner and County and licensed in the State of Florida.

(3) Each Certificate of Insurance shall be submitted to the Owner and County in triplicate.

(4) Each Certificate of Insurance shall specifically include all of the following:

(a) The name and type of policy and coverages provided;

(b) The amount of limit applicable to each coverage provided;

(c) The date of expiration of coverage;

(d) The designation of the Owner and Osceola County Board of County Commissioners as an additional insured and a certificate holder to the extent of their interests under the Agreement. (This requirement may be excepted for professional liability insurance and for worker's compensation insurance); and

(e) A specific reference to this Agreement and the Project to which it pertains. (This requirement may be excepted for professional liability insurance).

(5) The following clause must appear on the Certificate of Insurance and the present Cancellation Clause appearing on the Certificate of Insurance must be "X'd" out and be initialed by the Agent of the Insurer: "Cancellation – Should any of the above described policies be canceled before the stated expiration date thereof, insurer will not cancel same until at least thirty (30) days prior written notice (by regular mail) has been given to the below named certificate holder. This prior notice provision is a part of each of the descried policies."

(6) Each Certificate of Insurance shall be accompanied by documentation that is acceptable to the Owner and County establishing that the insurance agent and/or agency issuing the Certificate of Insurance has been duly authorized, in writing, to do so by and on behalf of the insurance company underwriting the insurance coverage(s) indicated on each Certificate of Insurance. Further, each Certificate of Insurance shall include a waiver of subrogation in favor of Owner, County, and their respective officers, directors, employees and agents.

(7) If the initial, or any subsequently issued, Certificate of Insurance expires prior to the completion of the work or termination of this Agreement, the Consultant shall furnish to the Owner and County triplicate renewal or replacement Certificate(s) of Insurance not later than thirty (30) calendar days prior to the date of their expiration. Failure of the Consultant to provide the Owner and County with such renewal certificate(s) shall be considered justification for the Owner to terminate this Agreement.

2.03 INSURANCE COVERAGES REQUIRED

The Consultant shall obtain and maintain the following insurance coverages on an "occurrence" basis as provided hereinbefore, and in the type, amounts, and in conformance with the following minimum requirements:

(1) Worker's compensation coverage for all employees as may be required by applicable state and federal laws. In addition, the policy must include the following:

(a) Employer's liability with a minimum limit per accident in accordance with statutory requirements, or a minimum limit of $100,000.00 for each accident, whichever limit is greater.

(b) Notice of Cancellation and/or Restriction – the policy must be endorsed to provide the Owner and County with thirty (30) days prior written notice of cancellation and/or restriction.

(2) Comprehensive general liability coverage which shall remain in effect until one (1) year after completion of work and must include the following:

(a) Minimum limits of $100,000.00 per occurrence and $300,000.00 aggregate for bodily injury liability and a minimum limit of $100,000.00 for property damage liability or a minimum combined single limit of $300,000.00.

(b) Contractual coverage applicable to this specified Agreement, including any hold harmless, and/or such indemnification agreement.

(c) Such additional requirements as are set forth in Article 2.00 and Paragraphs 2.01 and 2.02 hereinabove.

(3) Comprehensive automobile liability coverage must be afforded on a form no more restrictive than the latest edition of the County's Comprehensive Automobile Liability Policy on file with the Office of Risk Management and must include the following:

(a) A minimum combined single limit of $1,000,000.00, aggregate amount.

(b) Such additional requirements as are set forth in Article 2.00 and Paragraphs 2.01 and 2.02 hereinabove.

(c) Should the professional liability insurance policy issued pursuant to the above requirements and limits be written so as to provide an applicable deductible amount, or other exclusion or limitation as to the amount of coverage to be provided within the minimum coverage limits set forth above, the Owner shall hold the Consultant responsible and liable for any such differences of the amount of coverage provided by the insurance policy.

COPY

EXHIBIT "D"

ARTICLE 3.00 – INSURANCE

3.01 CONTRACTOR'S LIABILITY INSURANCE

(1) The Contractor shall purchase and maintain at all times during the term of this Agreement such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract Documents, whether such operations be by himself or by any subcontractor or sub-subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

(a) Claims under workers' or workmen's compensation, disability benefit and other similar employee benefit act;

(b) Claims for damages because of bodily injury, occupational sickness or disease, or death of his employees;

(c) Claims for damages because of bodily injury, sickness or disease, or death of any person other than his employees;

(d) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;

(e) Claims for damages, other than to the work itself, because of injury to employment of such person by the Contractor or by any other person, or destruction of tangible property, including loss of use resulting therefrom; and

(f) Claims for damages because of bodily injury or the death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

(2) The insurance required by Subparagraph (1) of Paragraph 3.01 shall be written for not less than any limits of liability specified in the Contract Document or required by law, whichever is greater.

(3) The insurance required by Subparagraph (1) of Paragraph 3.01 shall include contractual liability insurance applicable to the Contractor's indemnity obligations.

(4) Certificates of Insurance acceptable to the Owner shall be submitted to the County contact person prior to Contractor commencement of the work. These

Certificates shall contain a provision that coverages afforded under the policies will not be canceled until at least thirty (30) days prior written notice has been given to the Owner and the County. In the event an insurance company sends notice that any insurance policy is to be canceled, the Contractor will, prior to the date set for cancellation in said notice, purchase and maintain complete coverage under the same terms and conditions of the prior policy. If the Contractor fails to obtain a policy, the Owner may, but is not required to, purchase such policy and charge all costs associated therewith to the Contractor by use of a unilateral change order issued by Owner. If the Owner is damaged by the Contractor's failure to obtain or maintain such insurance, then the Contractor shall pay all damage costs reasonably attributed thereto.

(5) The Contractor shall furnish the Owner and the County with satisfactory proof (Certificate of Insurance) of carriage of the insurance required. Certificates of Insurance shall show as "additional insureds" the Owner and Osceola County, Florida, as their interests appear. The Contractor shall furnish Certificates of Insurance in triplicate form, with the Project's name and Project's Owner's name stated on the Certificate, which shall be submitted prior to the beginning of onsite operations. All applicable policies of insurance shall contain a waiver of subrogation in favor of Owner and County, and their respective agents, directors, officers and employees.

(6) Within thirty (30) days of providing Certificates of Insurance, Contractor shall provide to Owner copies of the insurance policies evidenced by the Certificates of Insurance.

(7) The Contractor's liability insurance shall be in companies acceptable to the Owner and County, and shall contain provisions satisfactory to the Owner and County.

(8) Contractors Liability Insurance Limit Requirements – The contractors liability insurance limit requirements for the insurance listed below are as follows:

(a)	Worker's compensation Employer's liability	Statutory Limits $100,000
(b)	Contractor's public liability endorsed to include "XU" coverage:	$1,000,000
	(i) Bodily injury on an occurrence basis	$100,000 - $500,000
	(ii) Property damage on an occurrence basis	$500,000 - $500,000

COPY

(c) Automobile public liability:

(i)	Bodily injury on an occurrence basis	$250,000 - $500,000
(ii)	Property damage	$100,000 - $100,000
(d)	Excess umbrella liability	$5,000,000

(9) All umbrella insurance shall be noted to be "following form" and shall be no more restrictive than is required of underlying coverage.

(10) The Owner shall be notified thirty (30) days prior to expiration, cancellation or reduction in coverage of any insurance policy.

3.03 PROPERTY INSURANCE

(1) The Contractor shall purchase and maintain builders risk insurance upon the entire work at the site to the full insurable value thereof. This insurance shall insure against the perils of extended coverage and shall include "all risk" insurance for physical loss or damage including, without duplication of coverage, vandalism, flood, earthquake, sink holes, and malicious mischief. If any damages are not covered under the all risk insurance, the Contractor, at his cost, shall effect and maintain similar property insurance on portions of the work stored offsite or in transit when such portions of the work are to be included in an application for payment under Paragraph ___.

(2) The Contractor shall purchase and maintain general liability insurance to protect Owner against any claims arising during or from this project.

(3) Any loss insured under Subparagraph (1) of Paragraph 3.03 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear, subject to the requirements of Subparagraph (6) of Paragraph 3.03. The Contractor shall pay each affected subcontractor a just share of any insurance monies received by the Contractor, and by appropriate agreement, written where legally required for validity, shall require each subcontractor to make payments to his sub-subcontractors in similar manner.

(4) If the Contractor requests in writing that insurance for risks other than those described in Subparagraph (1) of Paragraph 3.03 or other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

(5) The Owner, the County, and Contractor waive all rights against (a) each other and the subcontractors, sub-subcontractors, agents and employees of the other, and (b) separate contractors, if any, and their subcontractors, sub-subcontractors,

agents and employees for damages to the extent covered by insurance obtained pursuant to this Paragraph 3.03 or any other property insurance applicable to the work, except such rights as they may have to the proceeds of such insurance. The Owner or the Contractor, as appropriate, shall require of the separate contractors, subcontractors, and sub-subcontractors by appropriate agreements, written where legally required for validity, similar waivers each in favor of all other parties enumerated in this Subparagraph (5) of Paragraph 3.03.

(6) If the Owner finds it necessary to use a portion or portions of the work prior to substantial completion thereof, such use shall not commence prior to a time mutually agreed to by the Owner and Contractor and to which the insurance company or companies providing the property insurance have consented by endorsement to the policy or policies. This insurance shall not be canceled or lapsed on account of such partial use. Consent of the Contractor to use shall not be unreasonably withheld.

COPY

MEMORANDUM OF UNDERSTANDING BETWEEN STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION AND OSCEOLA COUNTY

THIS AGREEMENT is made and entered into this 1st day of April, 2003, by and between the STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, an agency of the State of Florida, hereinafter referred to as the "DEPARTMENT" and OSCEOLA COUNTY, a political subdivision of the State of Florida, hereinafter referred to as the "COUNTY".

LARRY WHALEY 42P
OSCEOLA COUNTY, FLORIDA
CLERK OF CIRCUIT COURT
CL 2003074002 OR 2241/2298
TTR Date 05/01/2003 Time 12:27:42

WITNESSETH:

WHEREAS, the DEPARTMENT intends to plan, design, permit and construct the Western Beltway Part C, State Road 429 (SR 429), Sections 1 and 2A (Financial Project Numbers 403497-2-52-01 and 403497-3-52-01), and County Road 545 in the vicinity of Interstate 4 and State Road 429 (Financial Project Number 403497-5-52-01), hereinafter referred to as the "PROJECT", located generally between Interstate 4 and United States Highway 192 in northwest Osceola County; and

WHEREAS, the PROJECT is a critical transportation improvement to the State, the region and locally in Osceola County, and

WHEREAS, the COUNTY has the responsibility and authority to plan, construct and maintain the County Road System within Osceola County; and

WHEREAS, to ensure the most effective utilization of public resources, it is necessary to establish this Agreement to coordinate the PROJECT with the COUNTY; and

WHEREAS, it is the intent of the parties to cooperate and coordinate their efforts and resources to minimize the costs of right-of-way, maintenance and other matters as the DEPARTMENT improves the transportation facilities; and

WHEREAS, the DEPARTMENT has a need to acquire properties from the COUNTY to construct the PROJECT; and

WHEREAS, the properties to be acquired pursuant to this Agreement have been determined by the parties to be necessary and required for the accomplishment of the PROJECT; and

WHEREAS, the PROJECT referred to herein has been determined by the parties to serve a public purpose, and benefit the public health, safety and welfare; and

NOW, THEREFORE, in consideration of the mutual covenants, agreements and promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties, the DEPARTMENT and COUNTY mutually agree as follows:

Section 1. Recitals. The above recitals are true and correct to the best of the parties' knowledge and form a material part of this Agreement upon which the parties have relied.

Section 2. Purpose/Necessity. The purpose of this Agreement is to set forth the relationship between the DEPARTMENT and COUNTY with respect to the general responsibilities of the parties regarding conveyance of the property and maintenance of specific roadway improvements described in the attached Exhibit "A" – Right-Of-Way Conveyances/Maintenance Responsibility.

Section 3. Right-of-Way Conveyances.

(a) The DEPARTMENT and the COUNTY hereby agree to perform the specific tasks set forth in Exhibit "A".

(b) Reference to the "Parcel" numbers in Exhibit "A" shall mean the numbered parcels depicted on the official Right of Way Map(s) approved by the DEPARTMENT for the

PROJECT.

(c) All conveyances shall be by means of public purpose quitclaim deed.

Section 4. Maintenance Responsibilities.

(a) The DEPARTMENT and the COUNTY hereby agree to perform the specific tasks set forth in Exhibit "A".

(b) Costs of maintenance shall be borne by the party to which the responsibility has been designated in Exhibit "A".

Section 5. Notices. All notices provided for herein shall be in writing and mailed by registered or certified mail, or hand delivered to the addresses shown below, which addresses may be changed by any party upon proper written notice to the others as is provided below:

DEPARTMENT
Nancy A. Clements, P. E.
Director of Planning & Production
Florida's Turnpike Enterprise
Milepost 263, Florida's Turnpike
Bldg. 5315, Turkey Lake Service Plaza
Ocoee, Florida 34761

COUNTY
Chris Crowe, P. E.
County Engineer
Engineering Division
1 Courthouse Square, Suite 1100
Kissimmee, Florida 34741

Section 6. Effect. This instrument constitutes the entire Agreement between the parties and includes all previous discussions, understandings and agreements, verbal or written, between the parties relating to the subject matter of this Agreement. Provision of this Agreement cannot be waived by any party unless said waiver is expressly set forth in writing and duly signed by all parties. This Agreement shall be governed by the laws of the State of Florida, and it shall become effective immediately upon execution by the parties hereto.

Section 7. Assignment. This Agreement shall be binding on the parties hereunder and their representatives and successors. No party shall assign this Agreement or the rights and obligations hereunder to any other party without the prior written consent of all parties hereto.

Section 8. Modifications, Amendments, or Alterations. It is understood by both parties that modification or amendment to this Agreement may be necessary upon final completion and acceptance of the PROJECT. No modification, amendment, or alteration in the terms or conditions contained herein shall be effective unless contained in a written document executed with the same formality and of equal dignity herewith.

Section 9. Indemnification.

(a) Each party is responsible for all personal injury and property damages attributable to the negligent acts or omissions of that party and the officers, employees and agents thereof.

(b) The parties further agree that nothing contained herein shall be construed or interpreted as denying to any party any remedy or defense available to such party under the laws of the State of Florida; the consent of the State of Florida or its agents and agencies to be sued; or a waiver of sovereign immunity of the State of Florida beyond the waiver provided in Section 768.28, Florida Statutes.

Section 10. Counterparts. This Agreement may be executed in any number of counterparts, each of which, when executed and delivered, shall be deemed an original, but all counterparts shall together constitute one and the same instrument.

IN WITNESS WHEREOF, the COUNTY and the DEPARTMENT have executed this Agreement for the purposes herein expressed on the date and year first above written.

OSCEOLA COUNTY, FLORIDA
By: Board of County Commissioners

By: _____
Paul Owen, Osceola County Chairman

As authorized for execution by
The Board of County Commissioners at
their March 17, 2003,
regular meeting.

ATTEST:

By: _____
Paula Carpenter, Clerk to the Board of
County Commissioners, Osceola County

Date: _____

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

By: _____
James L. Ely, D.P.A, Executive Director
Florida's Turnpike Enterprise

Turnpike Legal Review:

_____

EXHIBIT "A"
RIGHT-OF-WAY CONVEYANCES/MAINTENANCE RESPONSIBILITY

DEPARTMENT Temporary Access

The COUNTY shall permit the DEPARTMENT to enter upon those areas of COUNTY rights-of-way indicated on Exhibits "A1", "A2", "A3" and "A4" for the purposes of constructing the PROJECT. Permission to enter, for purposes of permanent construction improvements, shall commence upon execution by both parties of this Agreement and shall end upon completion of the PROJECT satisfactory to both parties and acceptance of the completed PROJECT by the DEPARTMENT. All transportation improvements within the indicated areas shall be owned and maintained by the COUNTY. The DEPARTMENT shall retain all limited access rights indicated on the attached exhibits.

COUNTY Rights-of-Way

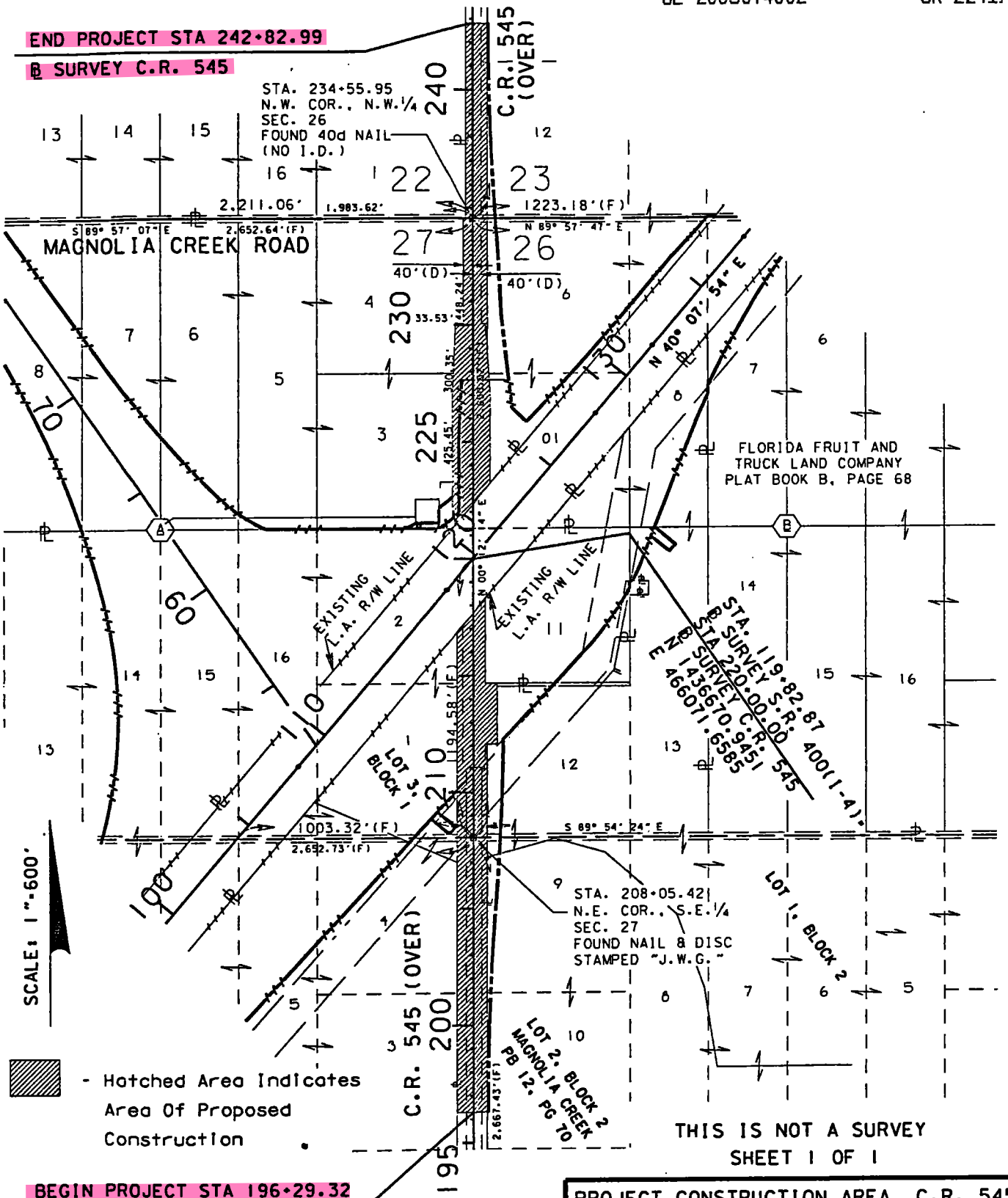
Upon completion of the PROJECT satisfactory to both parties and acceptance of the completed PROJECT by the DEPARTMENT, the DEPARTMENT shall convey to the COUNTY the ten tracts of right-of-way indicated on Exhibits "B1", "B2", "B3", "B4" and "B5" by means of Quitclaim Deed. All transportation improvements within the indicated areas, including Bridge Number 924179 (CR 545), shall be owned and maintained by the COUNTY. The COUNTY shall assume all responsibility for the road and the right-of-way including all curbs, culverts and drainage structures within the right-of-way at the time of transfer. The DEPARTMENT shall retain all limited access rights indicated on the attached exhibits.

DEPARTMENT Rights-of-Way

The COUNTY shall convey to the DEPARTMENT fee simple limited access right-of-way, as indicated by Parcel 113 on Exhibit "C1", by means of Quitclaim Deed for the purposes of construction of the PROJECT. Said parcel shall be in DEPARTMENT ownership 30 days prior to the DEPARTMENT'S Right-of-Way Certification Date, as may be amended, for the PROJECT. The DEPARTMENT shall be responsible for ownership and maintenance of improvements within said parcel. The DEPARTMENT shall assume all responsibility for the road and the right-of-way including all curbs, culverts and drainage structures within the right-of-way at the time of transfer.

EXHIBIT "A1"

CL 2003074002 OR 2241/2304

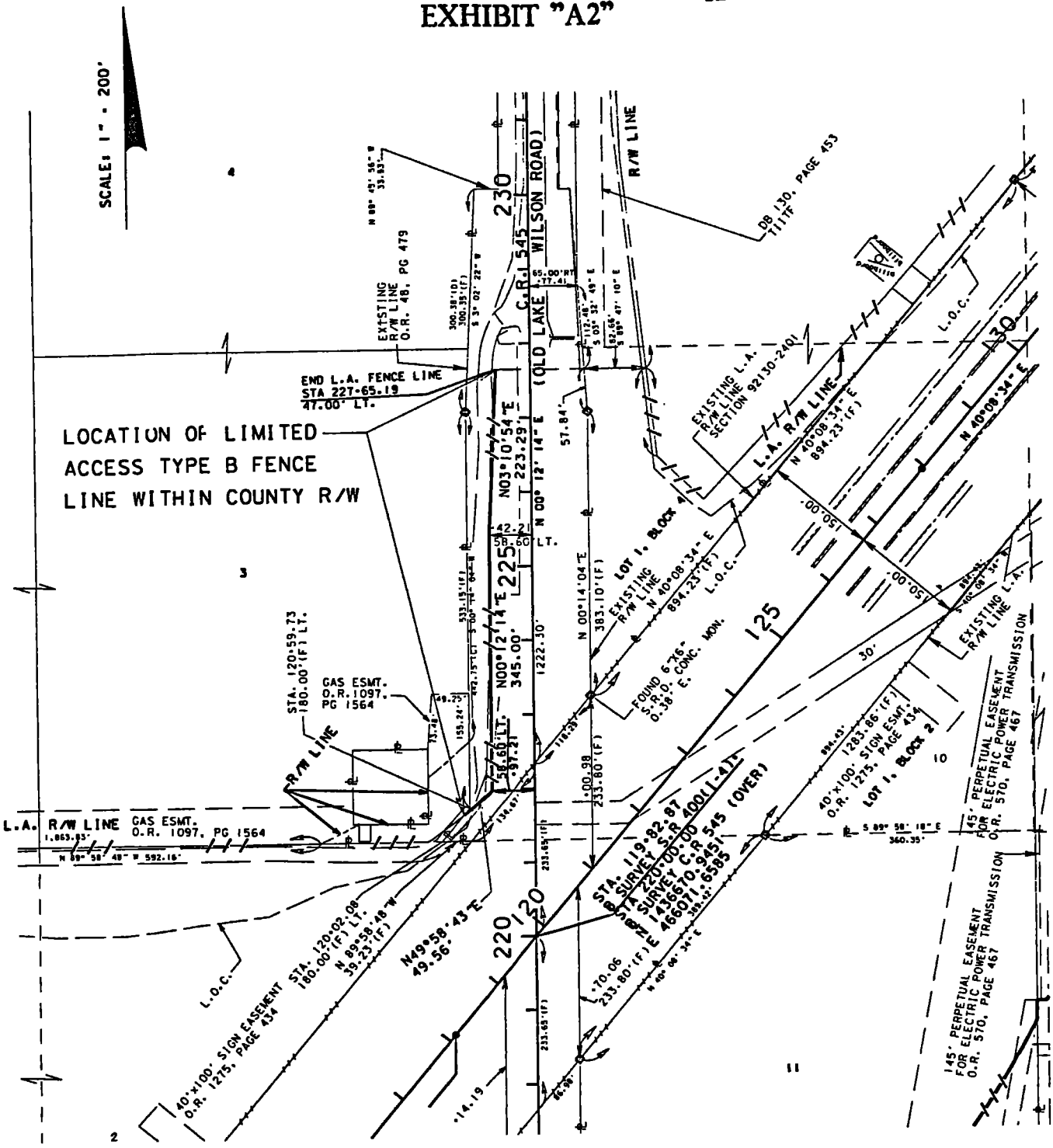


THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP: F.P. No. 403497-2

PROJECT CONSTRUCTION AREA, C.R. 545	
F. P. No.:	403497-2
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

CL 2003074002 OR 2241/2305

EXHIBIT "A2"



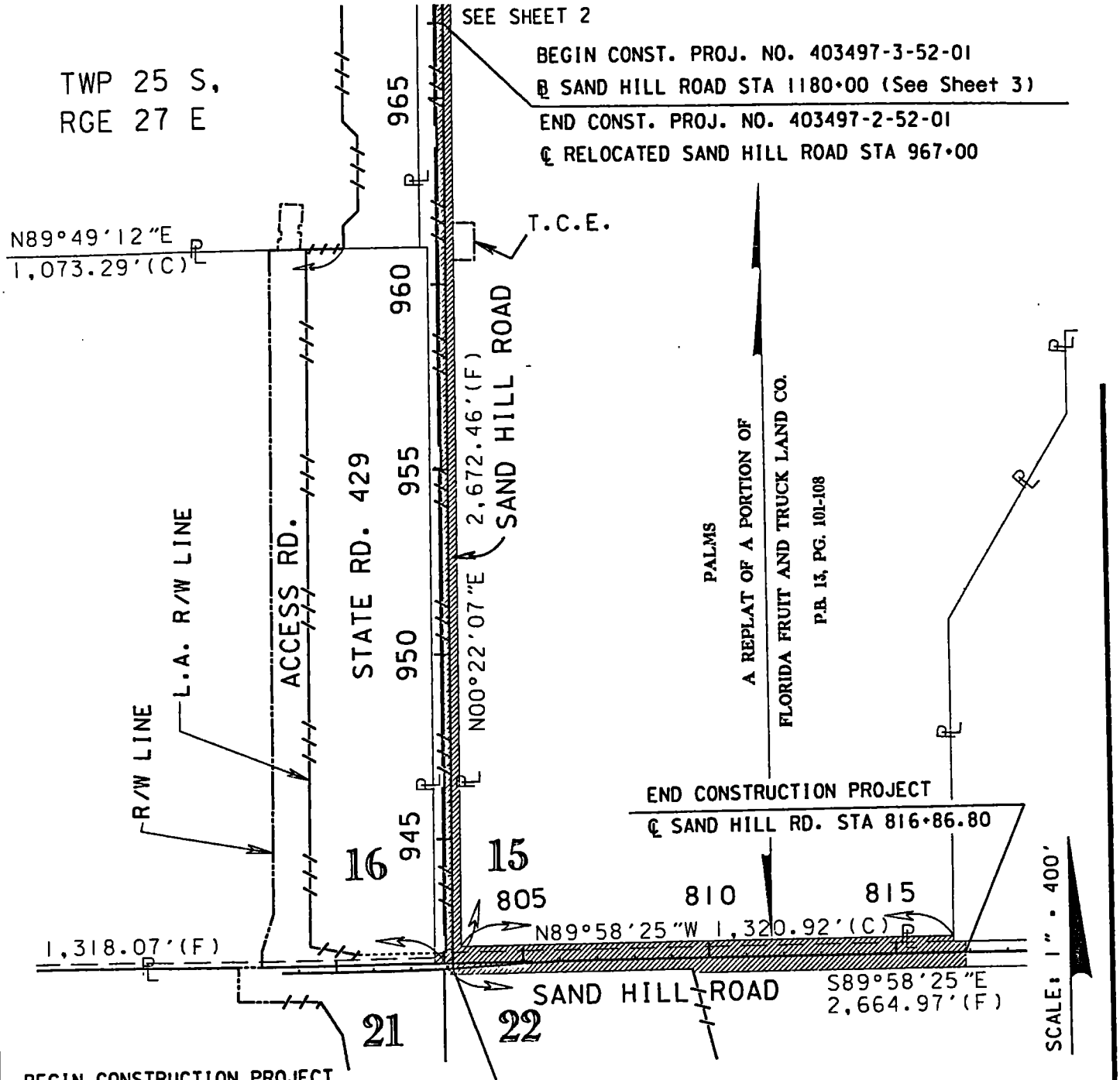
THIS IS NOT A SURVEY
SHEET 1 OF 1

SKETCH OF TYPE "B" FENCE LINE, C.R. 545	
F.P. No.:	403497-2
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. No. 403497-2

CL 2003074002 OR 2241/2306

EXHIBIT "A3"



THIS IS NOT A SURVEY

SHEET 1 OF 2

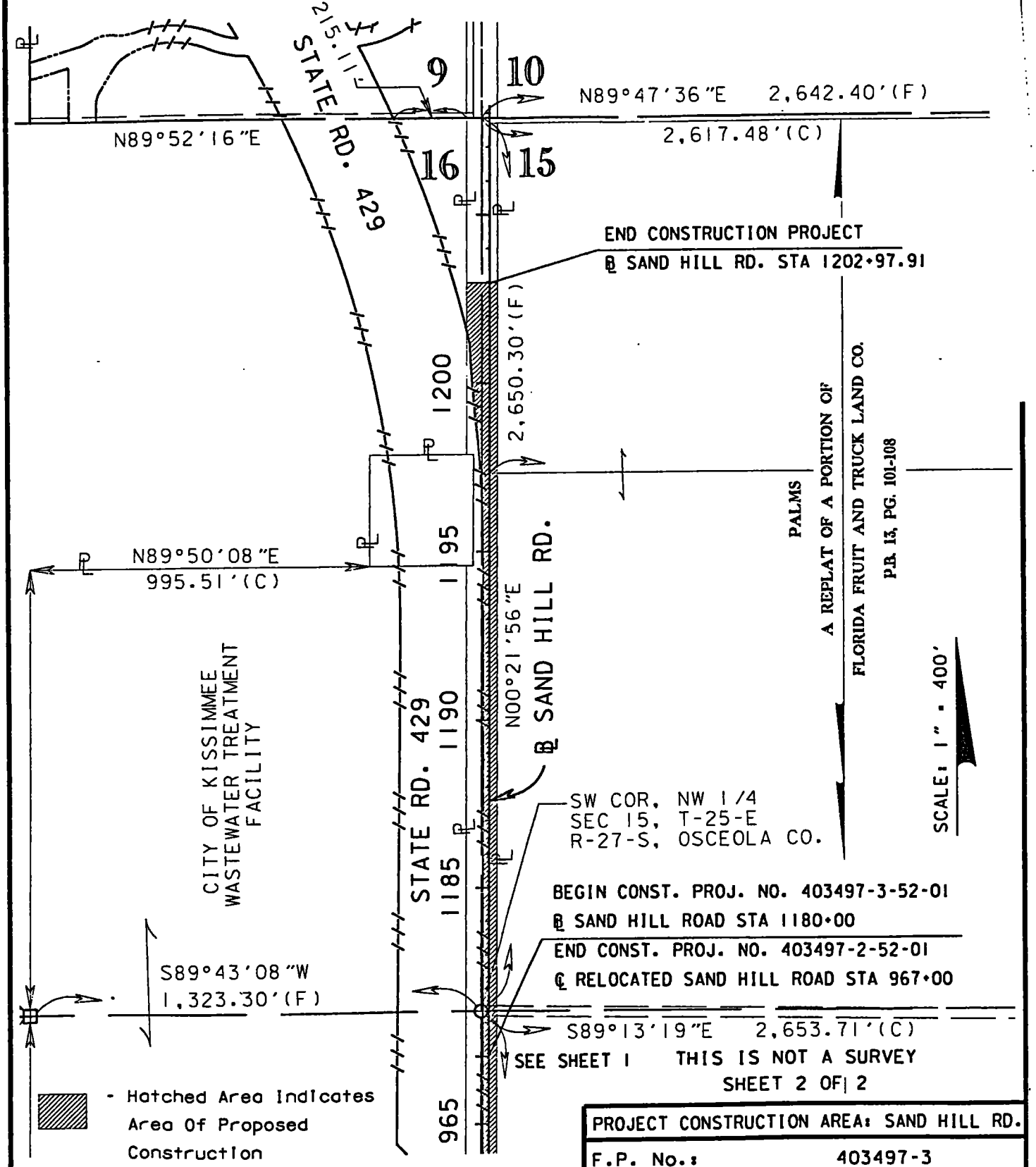
- Hatched Area Indicates Area Of Proposed Construction

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. No. 403497-3

PROJECT CONSTRUCTION AREA: SAND HILL RD.	
F.P. No.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "A3"

CL 2003074002 OR 2241/2307



SEE SHEET 1 THIS IS NOT A SURVEY

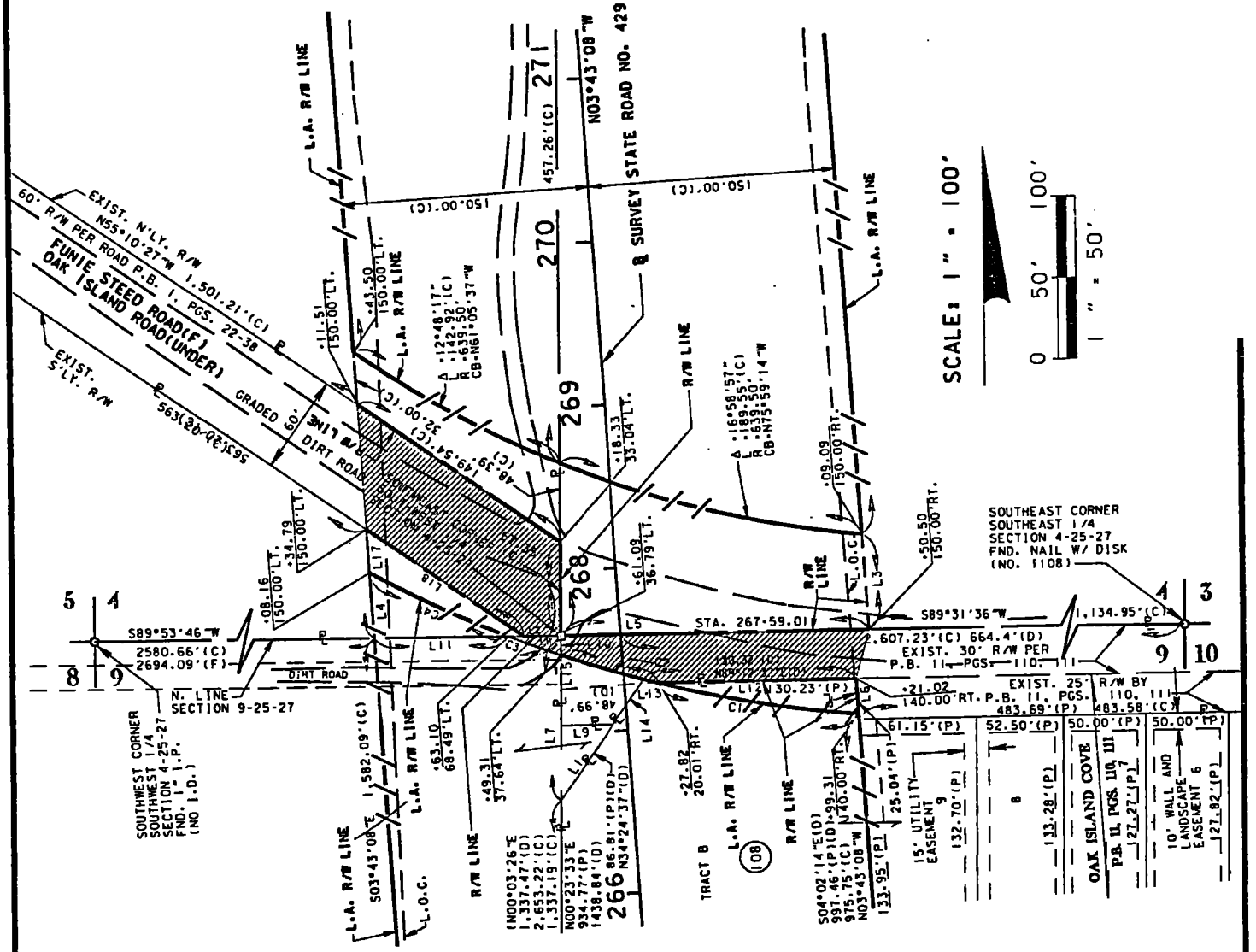
SHEET 2 OF 2

- Hatched Area Indicates Area Of Proposed Construction

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. No. 403497-3

PROJECT CONSTRUCTION AREA: SAND HILL RD.	
F.P. No.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "A4"



LINE TABLE

LINE	BEARING	DISTANCE
L1	S34°44'31"W	56.21'(C)
L2	S89°53'46"W	22.53'(C)
L3	N03°43'08"W	58.59'(C)
L4	N03°43'08"W	39.91'(C)
L5	S89°31'36"W	187.09'(C)
L6	N03°43'08"W	21.71'(C)
L7	N00°23'33"E	89.12'(C)
L8	N89°53'46"E	31.76'(C)
L9	N89°31'36"E	31.72'(C)
L10	N00°23'33"E	11.81'(C)
L11	N89°53'46"E	81.67'(C)
L12	N89°31'36"E	120.18'(C)
L13	N89°31'36"E	10.06'(C)
L14	N34°44'31"E	30.60'(C)
L15	N00°23'33"E	43.19'(C)
L16	S89°53'46"W	9.23'(C)
L17	N03°43'08"W	26.63'(C)
L18	S55°10'27"E	115.99'(C)

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P.No.: 403497-3

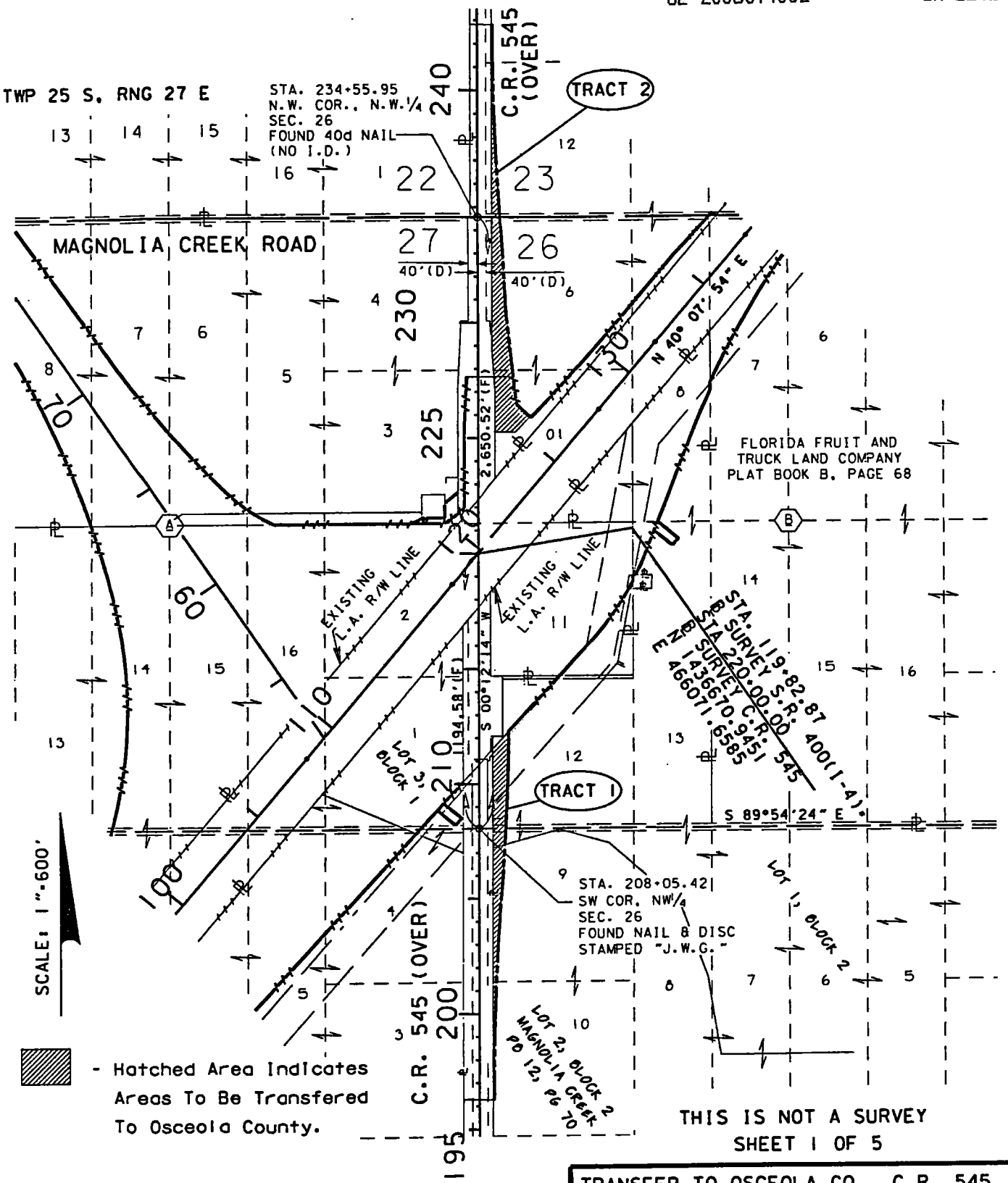
THIS IS NOT A SURVEY

SHEET 1 OF 1

PROJECT CONSTRUCTION AREA: FUNIE STEED / OAK ISLAND ROAD	
F.P. No.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "B1"

CL 2003074002 OR 2241/2309



▨ - Hatched Area Indicates Areas To Be Transfered To Osceola County.

THIS IS NOT A SURVEY

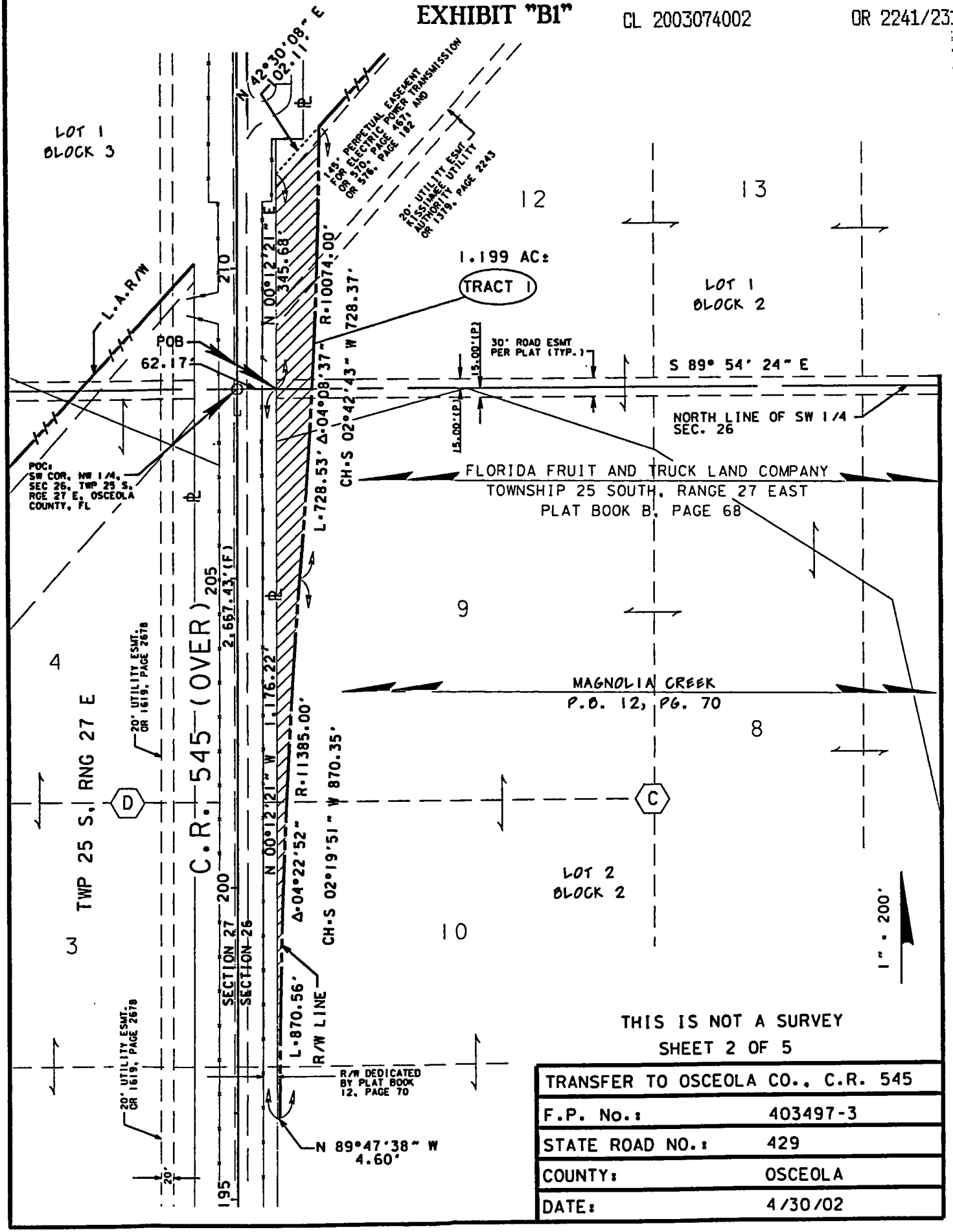
SHEET 1 OF 5

TRANSFER TO OSCEOLA CO., C.R. 545	
F. P. No.:	403497-2
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP: F.P. No. 403497-2

EXHIBIT "B1"

CL 2003074002 OR 2241/2310



THIS IS NOT A SURVEY

SHEET 2 OF 5

TRANSFER TO OSCEOLA CO., C.R. 545	
F.P. No.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "B1"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

C.R. 545 Right of Way

TRACT 1

A portion of Northwest ¼ of Section 26 and the Southwest ¼ of Section 26, Township 25 South, Range 27 East, Osceola County, Florida, also being a portion of Lot 1, Block 2, and Lot 2, Block 2 of Magnolia Creek subdivision, A Replat Of A Portion of Florida Fruit And Land Company subdivision, as per map or plat thereof recorded in plat book 12, page 70 of the public records of Osceola County, Florida, being more particularly described as follows:

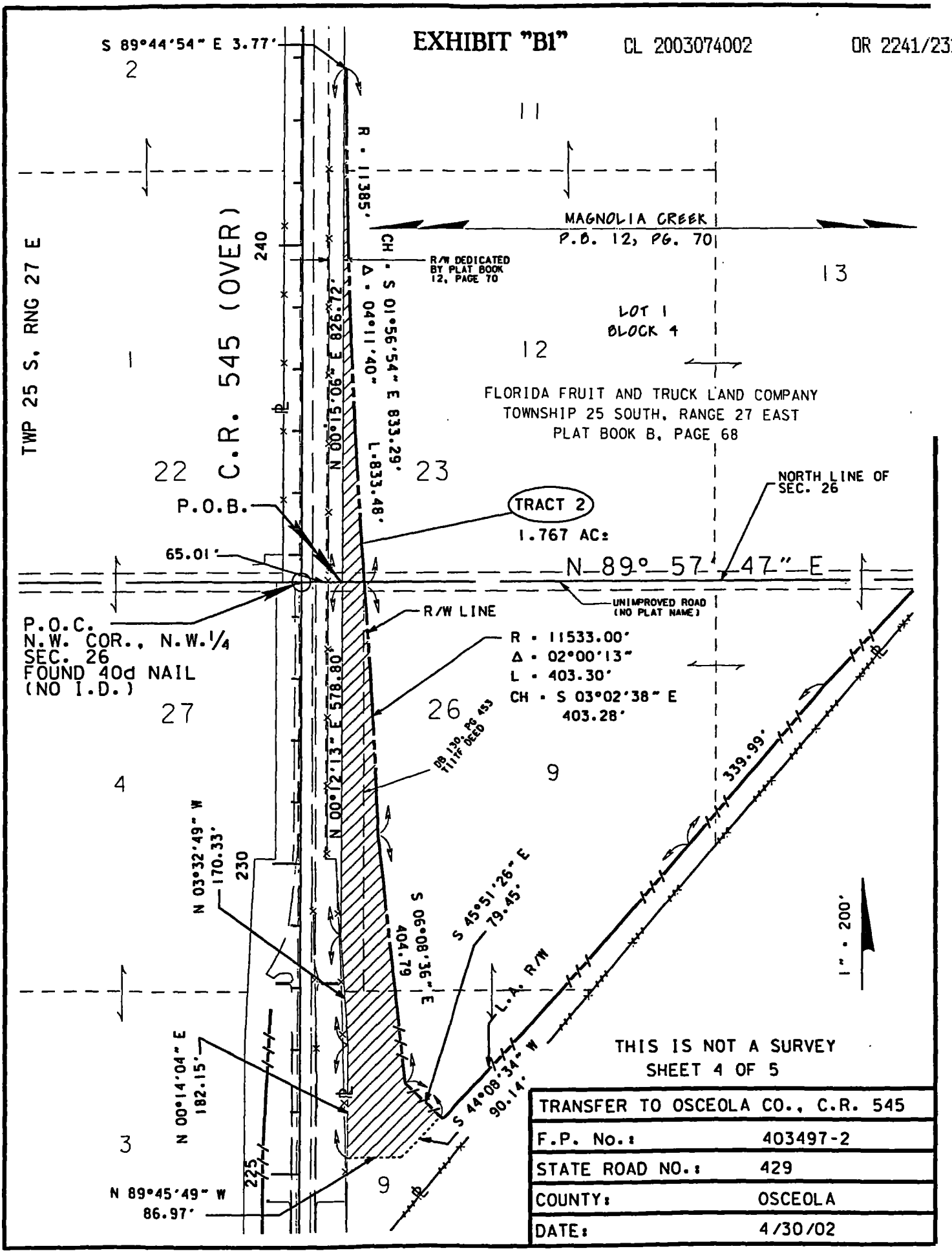
Commence at a nail with a disc stamped "J.W.G." at the Southwest corner of the Northwest Quarter of Section 26, Township 25 South, Range 27 East of Osceola County, Florida; thence South 89°54'24" East along the South line of said Quarter a distance of 62.17 feet to the East right-of-way line of County Road 545 (OLD LAKE WILSON ROAD) as dedicated by said recorded plat of Magnolia Creek, said point being the POINT OF BEGINNING; thence North 00°12'21" East along said East right of way line a distance of 345.68 feet; thence North 42°30'08" East a distance of 102.11 feet to a point on a non-tangent curve concave to the West; thence Southerly along said curve having a radius of 10074.00 feet, through a central angle of 04°08'37", for an arc distance of 728.53 feet, said curve having a chord length of 728.37 feet bearing South 02°42'43" West to a point on a non-tangent curve to the East; thence Southerly along said curve with a radius of 11385.00 feet, through a central angle of 04°22'52", for an arc distance of 870.56 feet, said curve having a chord length of 870.35 feet bearing South 02°19'51" West; thence North 89°47'38" West a distance of 4.60 feet to a point on said East right of way line of County Road 545; thence North 00°12'21" East a distance of 1176.22 feet to the POINT OF BEGINNING.

Containing 1.199 acres more or less

EXHIBIT "B1"

CL 2003074002

OR 2241/2312



THIS IS NOT A SURVEY

SHEET 4 OF 5

TRANSFER TO OSCEOLA CO., C.R. 545	
F.P. No.:	403497-2
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "B1"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

C.R. 545 Right of Way

TRACT 2

A portion of Southwest ¼ of Section 23 and the Northwest ¼ of Section 26, Township 25 South, Range 27 East, Osceola County, Florida, also being a portion of Lot 1, Block 4 of Magnolia Creek subdivision, A Replat Of A Portion of Florida Fruit And Land Company subdivision, as per map or plat thereof recorded in plat book 12, page 70 of the public records of Osceola County, Florida, being more particularly described as follows:

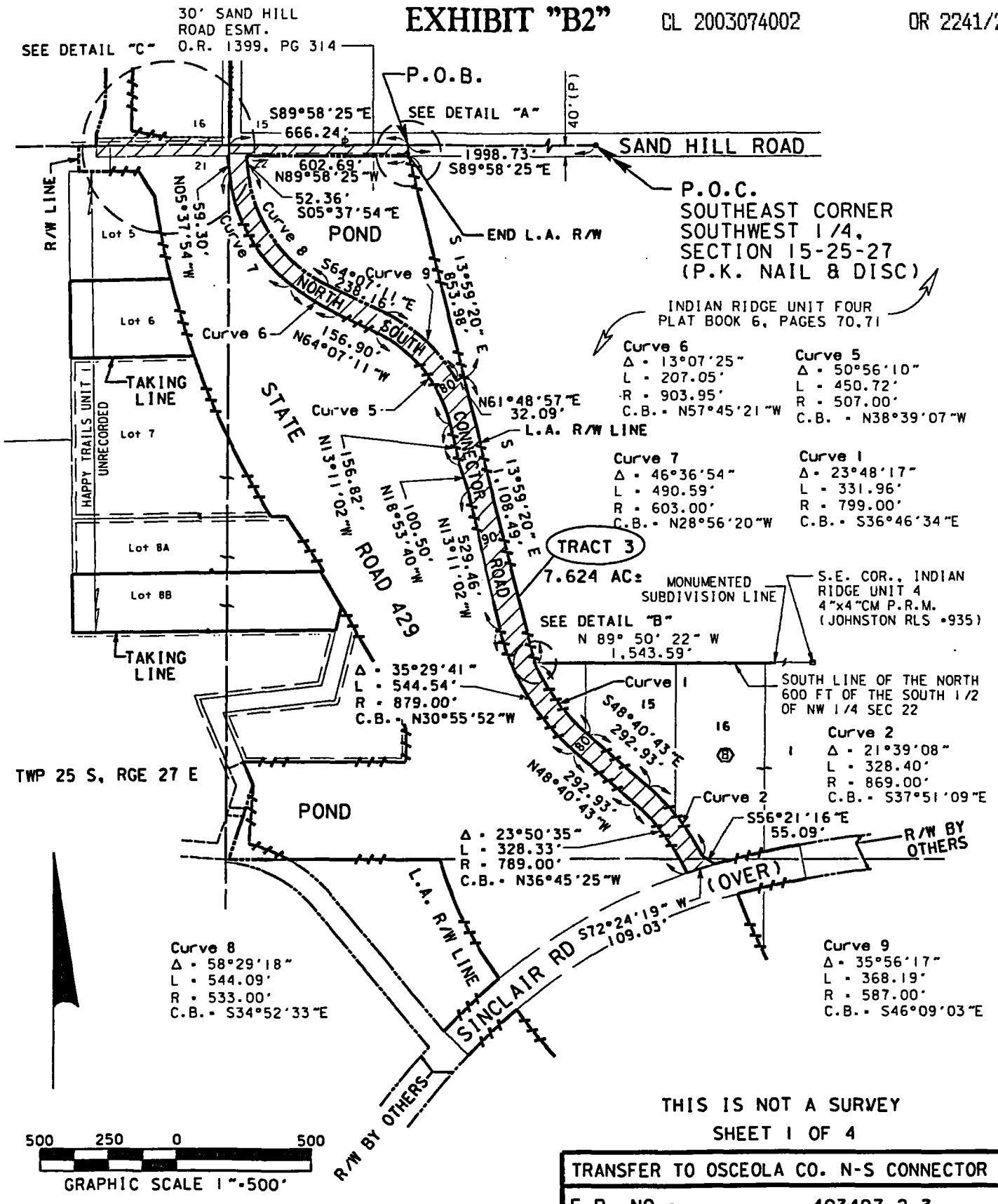
Commence at a 40d nail (No. ID) at the Northwest corner of the Northwest Quarter of Section 26, Township 25 South, Range 27 East and run thence North 89°57'47" East along the North line of said section 26 a distance of 65.01 feet to a point on the East right of way line of County Road 545 (OLD LAKE WILSON ROAD) as dedicated by said recorded plat of Magnolia Creek, said point being the POINT OF BEGINNING; thence North 00°15'06" East along said East right of way line a distance of 826.72 feet; thence leaving said right of way line and run South 89°44'54" East 3.77 feet to a point on a non-tangent curve concave to the East; thence Southerly along said curve with a radius of 11385.00 feet, through a central angle of 04°11'40", for an arc distance of 833.48 feet, said curve having a chord length of 833.29 feet bearing South 01°56'54" East to a point of reverse curve to the right; thence Southerly along said curve with a radius of 11533.00 feet, through a central angle of 02°00'13", for an arc distance of 403.30 feet, said curve having a chord length of 403.28 feet bearing South 03°02'38" East; thence South 06°08'36" East, 404.79 feet; thence South 45°51'26" East, 79.45'; thence south 44°08'34" West, 90.14'; thence North 89°45'49" West 86.97 feet to a point on the aforementioned East right of way line of County Road 545 (OLD LAKE WILSON ROAD); thence North 00°14'04" East along said East right of way line a distance of 182.15 feet; thence North 03°32'49" West along said right of way line a distance of 170.33 feet; thence North 00°12'13" East along said right of way line 578.80 feet to the POINT OF BEGINNING.

Containing 1.767 Acres, more or less.

EXHIBIT "B2"

CL 2003074002

OR 2241/2314



THIS IS NOT A SURVEY

SHEET 1 OF 4

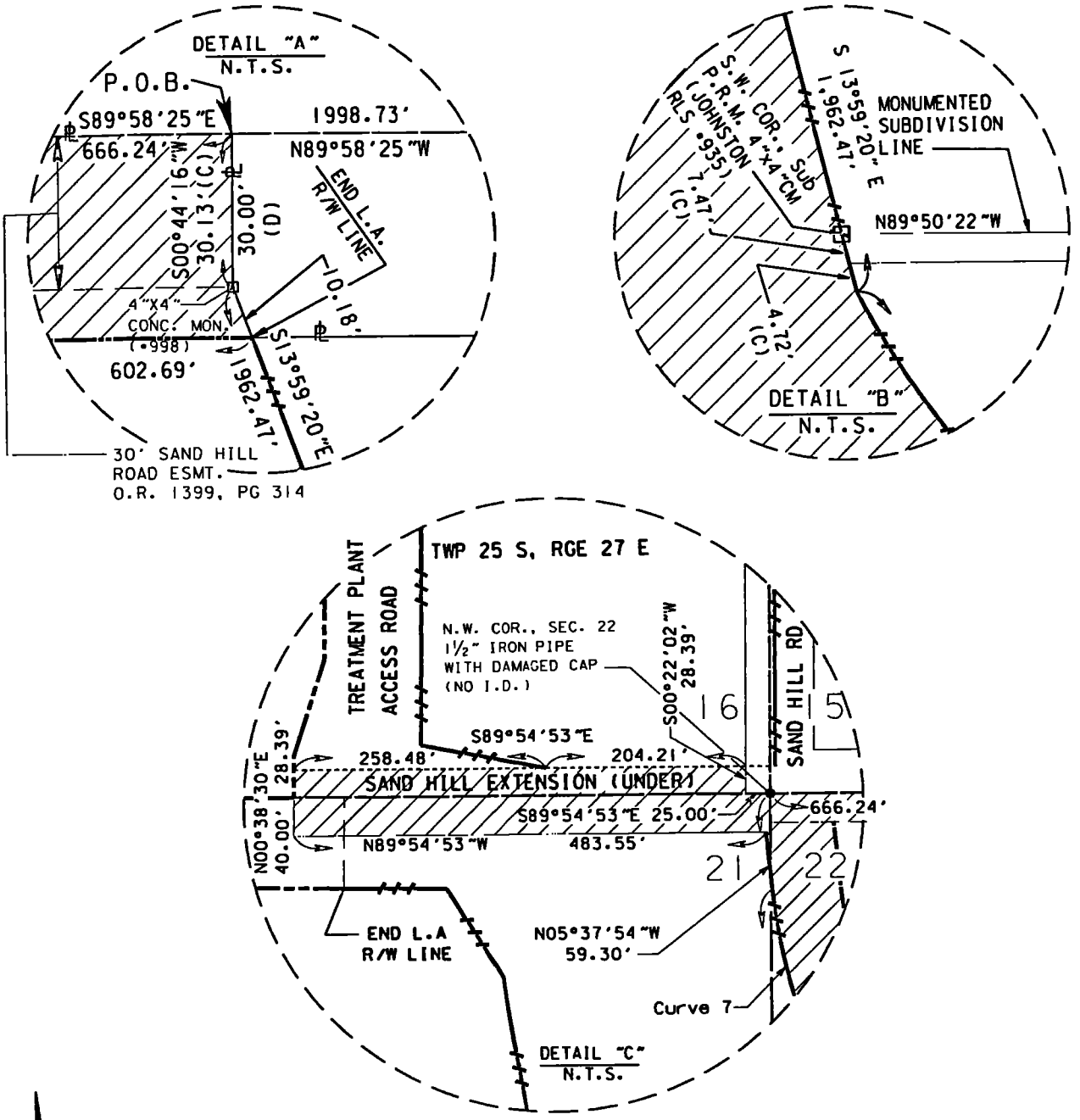
THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. No. 403497-2,3

TRANSFER TO OSCEOLA CO. N-S CONNECTOR	
F.P. NO.:	403497-2,3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	02/05/03

EXHIBIT "B2"

CL 2003074002

OR 2241/2315



THIS IS NOT A SURVEY

SHEET 2 OF 4

TRANSFER TO OSCEOLA CO. N-S CONNECTOR	
F.P. NO.:	403497-2,3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	02/05/03

EXHIBIT "B2"

PREPARED BY: John K. Hazlip, P.S.M.
DATE: February 5, 2003

North-South Connector Road

TRACT 3

A portion of the Southeast ¼ of Section 16, the Northwest ¼ of Section 22 and the Northeast ¼ of Section 21, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a PK nail and disc marking the Southeast corner of the Southwest 1/4 of Section 15, Township 25 South, Range 27 East, thence run North 89°58'25" West along the South line of said Section 15 a distance of 1998.73 feet; to the **POINT OF BEGINNING**; thence leaving said South line of Section 15 and run South 00°44'16" West, 30.13 feet to a concrete monument (Id # 998) lying on the South line of the 30 feet Sand Hill Road Easement (Official Records 1399, Page 314, Osceola County); thence continue South 13°59'20" East, 10.18 feet to the Northerly end of an East limited access right of way line of State Road 429 (FP ID 403497-2); thence run North 89°58'25 West, along a line 10.00 feet South of and parallel with said South line of the 30 feet Sand Hill Road Easement a distance of 602.69 feet; thence South 5°37'54 East, 52.36 feet to a point of curvature concave to the Northeast; thence Southeasterly along said curve with a radius of 533.00 feet, through a central angle of 58°29'18", for an arc length of 544.09 feet, said curve having a chord bearing South 34°52'33" East; thence South 64° 07' 11 East, 238.16 feet to a point of curvature concave to the Southwest; thence Southeasterly along said curve having a radius of 587.00 feet, through a central angle of 35°56'17", for an arc length of 368.19 feet, said curve having a chord bearing South 46°09'03" East; thence North 61°48'57" East; 32.09 feet to a point on the aforementioned East limited Access right of way line; thence Southerly along said East limited access right of way line the following five (5) calls: South 13°59'20 East, 1108.49 feet to a non-tangent curve concave to the Northeast; thence Southeasterly along said curve with a radius of 799.00 feet, through a central angle of 23°48'17", for an arc length of 331.96 feet, said curve having a chord bearing South 36°46'34" East; thence South 48°40'43" East, 292.93 feet to a point of curvature concave to the Southwest; thence Southeasterly along said curve with a radius of 869.00 feet, through a central angle of 21°39'08", for an arc length of 328.40 feet, said curve having a chord bearing South 37°51'09" East; thence South 56°21'16" East, 55.09 feet to a point on the North right of way line of the realigned Sinclair Road and the end of said East limited access right of way line; thence South 72°24'19" West along said North right of way line of Sinclair Road a distance of 109.03 feet to a point lying on a non-tangent curve concave to the Southwest; thence Northwesterly along said curve with a radius of 789.00 feet, through a central angle of 23°50'35", for an arc length of 328.33 feet, said curve having a chord bearing North 36°45'25" West; thence North 48°40'43" West, 292.93 feet to a point of curvature concave to the Northeast; thence Northwesterly along said curve with a radius of 879.00 feet, through a central angle of 35°29'41", for an arc length of 544.54 feet, said curve having a chord bearing North 30°55'52" West; thence North 13°11'02" West, 529.46 feet; thence North 18°53'40" West, 100.50 feet; thence North 13°11'02" West, 156.82 feet to a point of curvature concave to the Southwest; thence Northwesterly along said curve with a radius of 507.00 feet, through a central angle of 50°56'10", for an arc length of 450.72 feet, said curve having a chord bearing North 38°39'07" West; thence North 64°07'11"

West, 156.90 feet to a point of curvature concave to the Northeast; thence Northwesterly along said curve with a radius of 903.95 feet, through a central angle of 13°07'25", for an arc length of 207.05 feet, said curve having a chord bearing North 57°45'21" West to a point of compound curvature concave to the Northeast; thence Northwesterly along said curve with a radius of 603.00 feet, through a central angle of 46°36'54", for an arc length of 490.59 feet, said curve having a chord bearing North 28°56'20" West; thence North 05°37'54" West, 59.30 feet; thence North 89°54'53" West, 483.55 feet; thence North 00°38'30" East; 40.00 feet to a point on the North line of the Northeast 1/4 of the aforementioned Section 21; thence continue North 00°38'30" East 28.39 feet; thence South 89°54'53" East along a line 28.39 feet North of and parallel to said North line of the Northeast 1/4 of Section 21 a distance of 462.69 feet to a point on the West right of way line of Sand Hill Road; thence South 00°22'02" West along the said West right of way line a distance of 28.39 feet to a point on said North line of Section 21; thence South 89°54'53" East along said North line of Section 21 a distance of 25.00 feet to the Northwest corner of Section 22; thence South 89°58'25" East along the North line of said Section 22 a distance of 666.24 feet to the **POINT OF BEGINNING.**

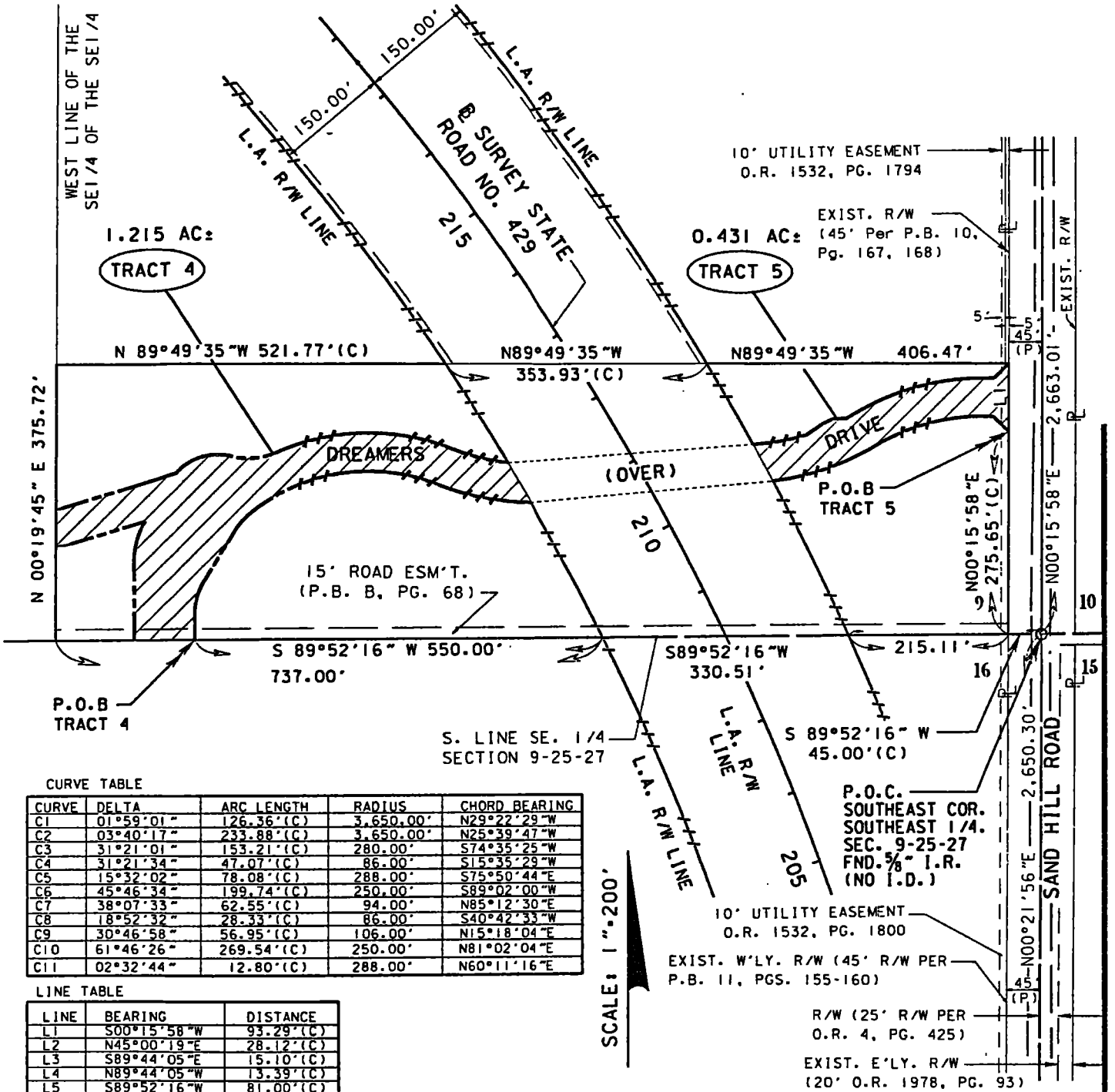
Containing 7.624 acres, more or less.

Reserving for the Florida Department of Transportation the above described East limited access line and all rights of ingress, egress, light, air and view between the above described property and State Road 429.

CL 2003074002 OR 2241/2317

EXHIBIT "B3"

CL 2003074002 OR 2241/2318



CURVE TABLE

CURVE	DELTA	ARC LENGTH	RADIUS	CHORD BEARING
C1	01°59'01"	126.36'(C)	3,650.00'	N29°22'29"W
C2	03°40'17"	233.88'(C)	3,650.00'	N25°39'47"W
C3	31°21'01"	153.21'(C)	280.00'	S74°35'25"W
C4	31°21'34"	47.07'(C)	86.00'	S15°35'29"W
C5	15°32'02"	78.08'(C)	288.00'	S75°50'44"E
C6	45°46'34"	199.74'(C)	250.00'	S89°02'00"W
C7	38°07'33"	62.55'(C)	94.00'	N85°12'30"E
C8	18°52'32"	28.33'(C)	86.00'	S40°42'33"W
C9	30°46'58"	56.95'(C)	106.00'	N15°18'04"E
C10	61°46'26"	269.54'(C)	250.00'	N81°02'04"E
C11	02°32'44"	12.80'(C)	288.00'	N60°11'16"E

LINE TABLE

LINE	BEARING	DISTANCE
L1	S00°15'58"W	93.29'(C)
L2	N45°00'19"E	28.12'(C)
L3	S89°44'05"E	15.10'(C)
L4	N89°44'05"W	13.39'(C)
L5	S89°52'16"W	81.00'(C)
L6	S00°05'18"E	34.70'(C)
L7	N85°00'00"E	13.00'(C)
L8	N45°00'00"W	30.28'(C)
L9	N87°39'23"E	18.10'(C)
L10	N65°17'32"E	14.46'(C)
L11	N55°23'35"E	27.96'(C)

- Hatched Area Indicates Areas To Be Transfered To Osceola County.

THIS IS NOT A SURVEY

SHEET 1 OF 5

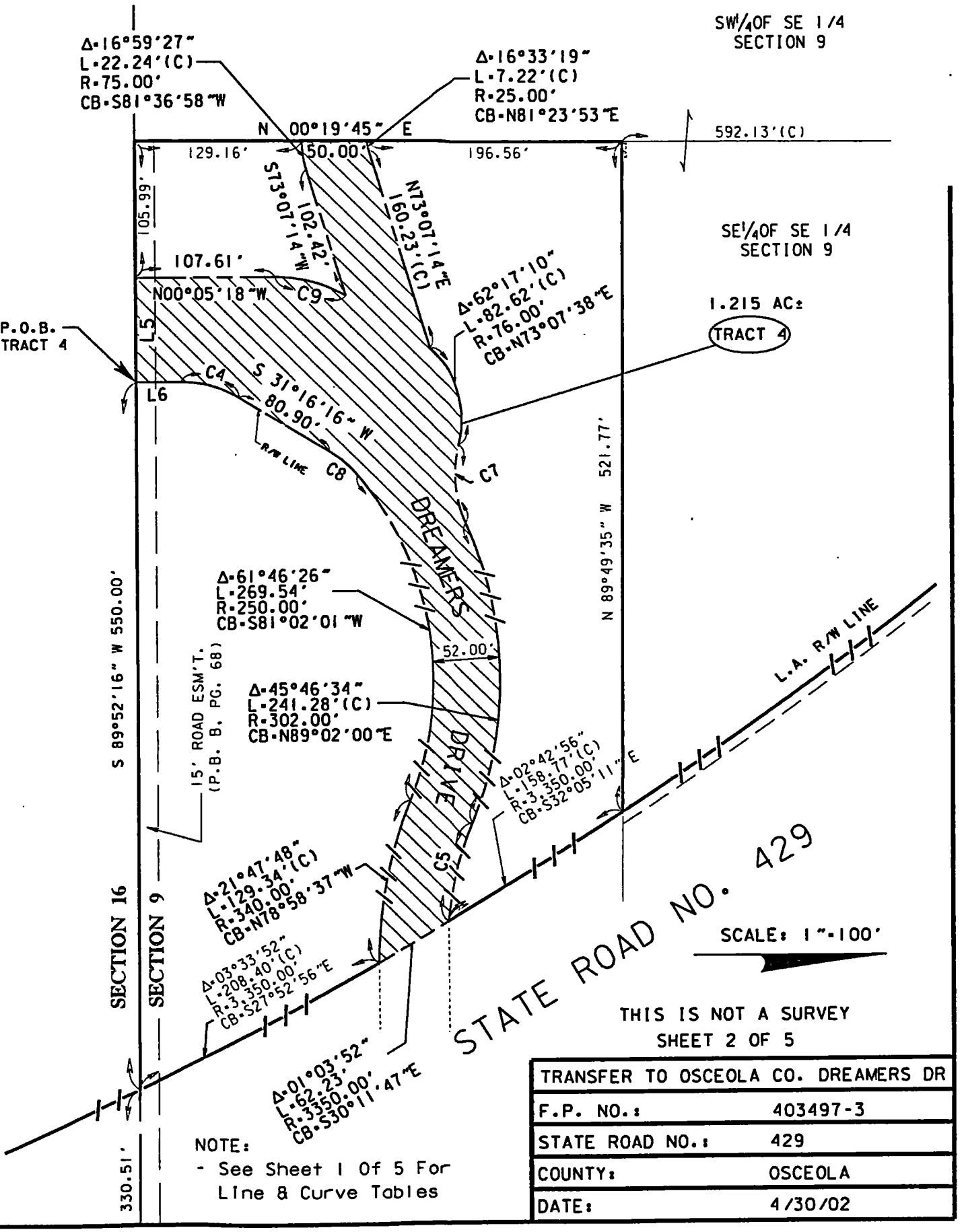
THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. NO. 403497-3

TRANSFER TO OSCEOLA CO. DREAMERS DR	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

EXHIBIT "B3"

CL 2003074002

OR 2241/2319



SCALE: 1"=100'

THIS IS NOT A SURVEY

SHEET 2 OF 5

NOTE:
- See Sheet 1 Of 5 For Line & Curve Tables

TRANSFER TO OSCEOLA CO. DREAMERS DR	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Dreamers Drive West

TRACT 4

A Tract of land located in the Southeast ¼ of the Southeast ¼ of Section 9, Township 25 South, Range 27 East, Osceola County, Florida and being a portion of that parcel of land recorded in Official Records Book 1540, Page 666 of the Public Record of Osceola County, Florida, being more particularly described as follows:

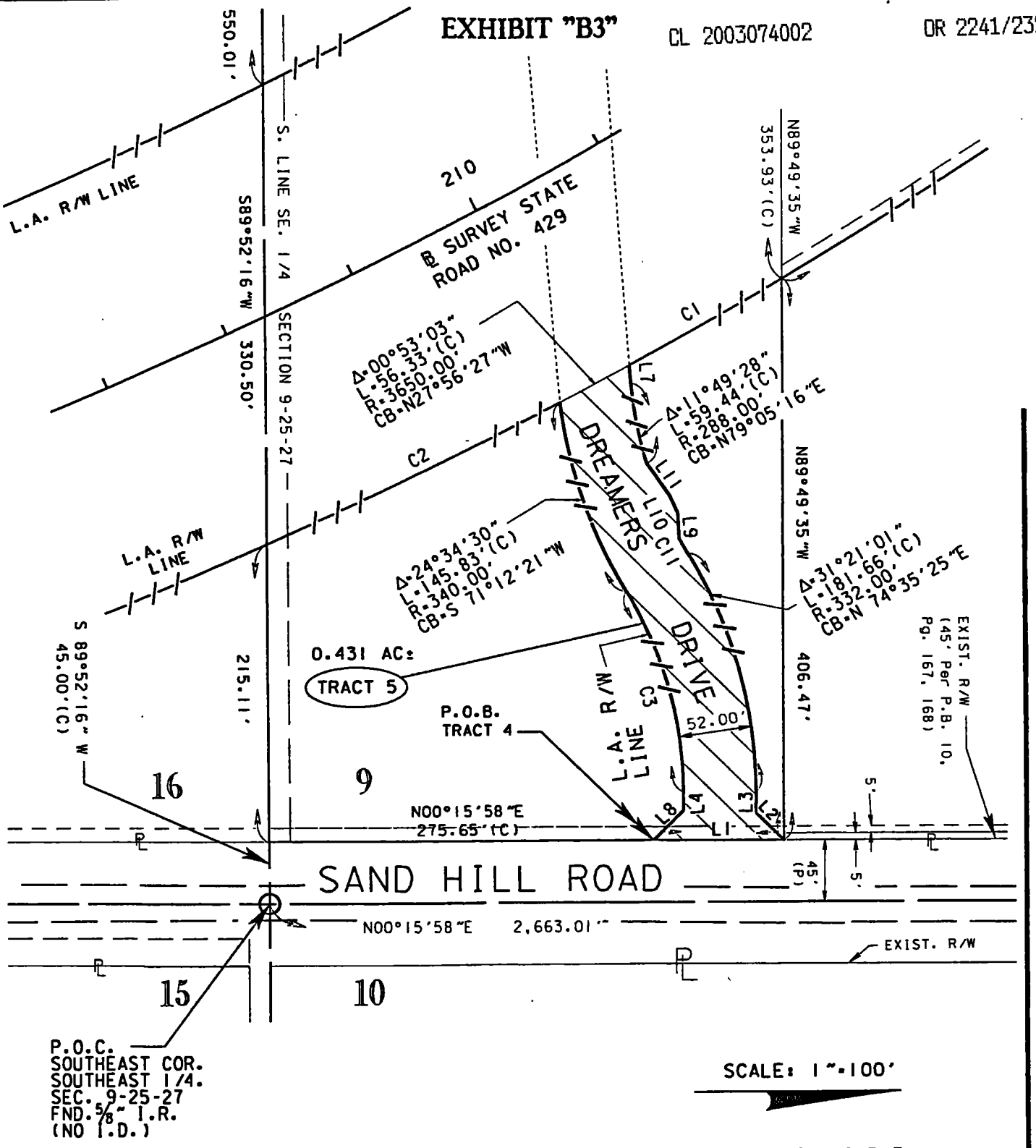
Commence at a 5/8 inch iron rod marking the Southeast corner of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida and run thence South 89°52'16" West along the South line of said Section 9, a distance of 45.00 feet to a point lying on the West right of way boundary of Sand Hill Road; thence continue South 89°52'16" West along said South line of Section 9, a distance of 215.11 feet to a point on the East right of way boundary of State Road 429; thence continue South 89°52'16" West along said South line of Section 9, a distance of 330.51 feet to a point on the West right of way boundary of State Road 429; thence continue South 89°52'16" West along said South line of Section 9, a distance of 550.00 feet to the POINT OF BEGINNING; thence continue South 89°52'16" West along said South line of Section 9, a distance of 81.00 feet; thence leaving said south line and run North 00°05'18" West, 107.61 feet to a point of curve to the right; thence Northerly along said curve with a radius of 106.00 feet, through a central angle of 30°46'58", for an arc distance of 56.95 feet, said curve having a chord bearing North 15°18'04" East; thence South 73°07'14" West, 102.42 feet to a point of curve to the right; thence Westerly along said curve with a radius of 75.00 feet, through a central angle of 16°59'27", for an arc distance of 22.24 feet, said curve having a chord bearing South 81°36'58" West to a point on the West line of the Southeast ¼ of the Southeast ¼ of said Section 9; thence North 00°19'45" East along said West line a distance of 50.00 feet to a point lying on a non-tangent curve concave to the North; thence leaving said West line and run Easterly along said curve with a radius of 25.00 feet, through a central angle of 16°33'19", for an arc distance of 7.22 feet, said curve having a chord bearing North 81°23'53" East; thence North 73°07'14" East, 160.23 feet to a non-tangent curve concave to the South; thence Easterly along said curve with a radius of 76.00 feet, through a central angle of 62°17'10", for an arc distance of 82.62 feet, said curve having a chord bearing North 73°07'38" East to a point of reverse curve; thence Easterly along said curve to the left with a radius of 94.00 feet, through a central angle of 38°07'33", for an arc distance of 62.55 feet, said curve having a chord bearing North 85°12'30" East to a point of reverse curve; thence Easterly along said curve to the right with a radius of 302.00 feet, through a central angle of 45°46'34", for an arc distance of 241.28 feet, said curve having a chord bearing North 89°02'00" East to a point of reverse curve; thence Easterly along said curve to the left with a radius of 288.00 feet, through a central angle of 15°32'02", for an arc distance of 78.08 feet, said curve having a chord bearing South 75°50'44" East to a point on the aforementioned West right of way boundary of State Road 429, said boundary being a non-tangent curve concave to the Southwesterly; thence Southeasterly along said West right of way curve with a radius of 3350.00 feet, through a central angle of 01°03'52", for an arc length of 62.23 feet, said curve having a chord bearing South 30°11'47" East; thence leaving said West right of way curve and run Westerly along a non-tangent curve concave to the North with a radius of 340.00 feet, through a central angle of 21°47'48", for an arc distance of 129.34 feet, said curve having a chord bearing North 78°58'37" West to a point of reverse curve; thence Westerly along said curve to the left with a radius of 250.00 feet, through a central angle of 61°46'26", for an arc distance of 269.54 feet, said curve having a chord bearing South 81°02'04" West to a curve to the left; thence Southwesterly along said curve with a radius of 86.00 feet, through a central angle of 18°52'32", for an arc distance of 28.33 feet, said curve having a chord bearing South 40°42'33" West; thence South 31°16'16" West, 80.90 feet to a point of curve to the left; thence Southerly along said curve with a radius of 86.00 feet, through a central angle of 31°21"34", for an arc distance of 47.07 feet, said curve having a chord bearing South 15°35"29" West; thence South 00°05'18" East, 34.70 feet to the POINT OF BEGINNING.

Containing 1.215 acres, more or less.

EXHIBIT "B3"

CL 2003074002

OR 2241/2321



SCALE: 1"=100'

THIS IS NOT A SURVEY

SHEET 4 OF 5

TRANSFER TO OSCEOLA CO. DREAMERS DR	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

NOTE:
- See Sheet 1 Of 5 For Line & Curve Tables

EXHIBIT "B3"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Dreamers Drive East

TRACT 5

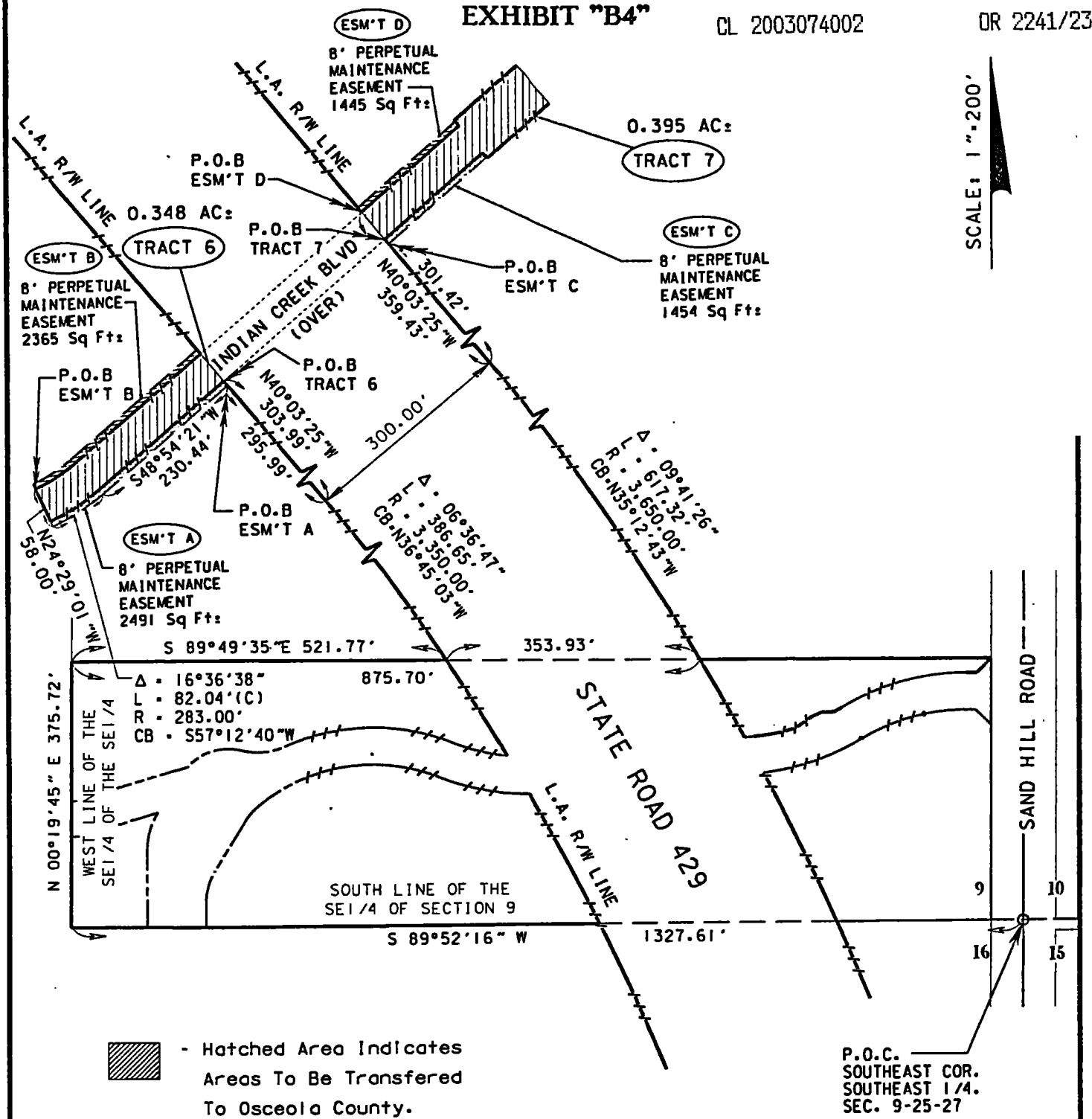
A Tract of land located in the Southeast ¼ of the Southeast ¼ of Section 9, Township 25 South, Range 27 East, Osceola County, Florida and being a portion of that parcel of land recorded in Official Records Book 1540, Page 666 of the Public Record of Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8 inch iron rod marking the Southeast corner of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida and run thence South 89°52'16" West along the South line of said Section 9, a distance of 45.00 feet to a point lying on the West right of way boundary of Sand Hill Road; thence North 00°15'58" East along said West right of way boundary, a distance of 275.65 feet to the POINT OF BEGINNING; thence leaving said West right of way boundary and run North 45°00'00" West, a distance of 30.28 feet; thence North 89°44'05" West, 13.39 feet to a point lying on a curve concave to the South; thence Westerly along said curve with a radius of 280.00 feet, through a central angle of 31°21'01", for an arc distance of 153.21 feet, said curve having a chord bearing South 74°35'25" West to a point of reverse curve; thence Westerly along said curve with a radius of 340.00 feet, through a central angle of 24°34'30", for an arc distance of 145.83 feet, said curve having a chord bearing South 71°12'21" West to a point on the East right of way boundary of State Road 429, said boundary being a non-tangent curve concave to the Southwesterly; thence Northwesterly along said curve with a radius of 3650.00 feet, through a central angle of 00°53'03", for an arc distance of 56.33 feet, said curve having a chord bearing North 27°56'27" West; thence leaving said right of way and run North 85°00'00" East, 13.00 feet to a point of curve to the left; thence Easterly along said curve with a radius of 288.00 feet, through a central angle of 11°49'28", for an arc distance of 59.44 feet, said curve having a chord bearing North 79°05'16" East; thence North 55°23'35" East, 27.96 feet; thence North 65°17'32" East, 14.46 feet; thence North 87°39'23" East, 18.10 feet to a point lying on a non-tangent curve concave to the North; thence Easterly along said curve with a radius of 288.00 feet, through a central angle of 02°32'44", for an arc distance of 12.80 feet, said curve having a chord bearing North 60°11'16" East to a point of reverse curve to the Right; thence Easterly along said curve with a radius of 332.00 feet, through a central angle of 31°21'01", for an arc distance of 181.66 feet, said curve having a chord bearing North 74°35'25" East; thence South 89°44'05" East, 15.10 feet; thence North 45°00'19" East, 28.12 feet to a point lying on the aforementioned East right of way boundary of State Road 429; thence South 00°15'58" West along said East right of way boundary a distance of 93.29 feet to the POINT OF BEGINNING.

Containing 0.431 acres, more or less.

EXHIBIT "B4"

CL 2003074002 OR 2241/2323



- Hatched Area Indicates Areas To Be Transfered To Osceola County.

P.O.C.
SOUTHEAST COR.
SOUTHEAST 1/4.
SEC. 9-25-27

THIS IS NOT A SURVEY

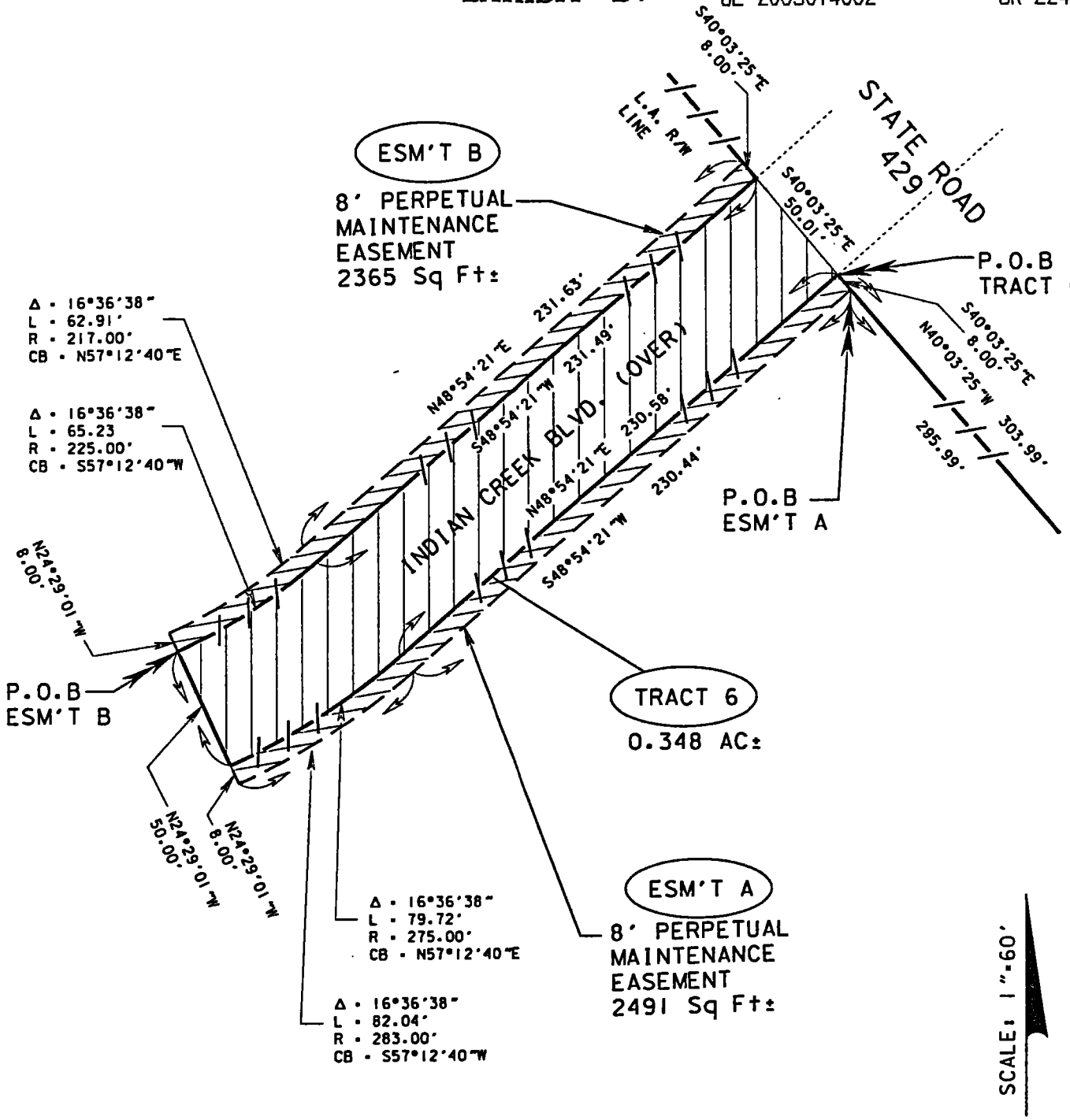
SHEET 1 OF 9

TRANSFER TO OSCEOLA CO. INDIAN CREEK BLVD	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. NO: 403497-3

EXHIBIT "B4"

CL 2003074002 OR 2241/2324



THIS IS NOT A SURVEY

SHEET 2 OF 9

TRANSFER TO OSCEOLA CO. DREAMERS DR	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. NO. 403497-3

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

TRACT 6

A portion of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast 1/4 of said Section 9; thence South 89°52'16" West along the South line of the Southeast 1/4 of said Section 9, a distance of 1,327.61 feet; thence departing said South line of the Southeast 1/4 of said Section 9, run North 00°19'45" East 375.72 feet; thence South 89°49'35" East 521.77 feet to a point lying on the West right of way line of State Road 429, said right of way also being a curve concave Southwesterly, having a radius of 3,350.00 feet and a central angle of 06°36'47"; thence, from a chord bearing of North 36°45'03" West run Northwesterly along the arc of said right of way curve a distance of 386.65 feet to the point of tangency; thence North 40°03'25"West along said West right of way line a distance of 303.99 feet to the **POINT OF BEGINNING**; thence leaving said West right of way line and run South 48°54'21"West, 230.58 feet to a point on a curve concave Northwesterly, having a radius of 275.00 feet and a central of 16°36'38"; thence from a chord bearing of South 57°12'40" West run Southwesterly along the arc of said curve a distance of 79.72 feet; thence North 24°29'01" West, 50.00 feet to a point on a curve concave Northwesterly, having a radius of 225.00 feet and a central angle of 16°36'38"; thence from a chord bearing of North 57°12'40" East run Northeasterly along the arc of said curve a distance of 65.23 feet to the point of tangency; thence North 48°54'21" East, 231.49 feet to a point lying on the aforementioned West right of way line of State Road 429; thence South 40°03'25"East along said West right of way line a distance of 50.01 feet to the **POINT OF BEGINNING.**

Containing 0.348 acres, more or less.

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

EASEMENT "A"

A portion of the Southeast ¼ of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast ¼ of said Section 9; thence South 89°52'16" West along the South line of the Southeast ¼ of said Section 9, a distance of 1,327.61 feet; thence departing said South line of the Southeast ¼ of said Section 9, run North 00°19'45" East along the West line of the Southeast ¼ of the Southeast ¼ of said Section 9 a distance of 375.72 feet; thence South 89°49'35" East, 521.77 feet to a point lying on the West right of way line of State Road 429, said right of way also being a curve concave Southwesterly, having a radius of 3,350.00 feet and a central angle of 06°36'47"; thence, from a chord bearing of North 36°45'03" West run Northwesterly along the arc of said right of way curve a distance of 386.65 feet to the point of tangency; thence North 40°03'25"West along said West right of way line a distance of 295.99 feet to the **POINT OF BEGINNING**; thence South 48°54'21"West, 230.44 feet to a point on a curve concave Northwesterly, having a radius of 283.00 feet and a central of 16°36'38"; thence from a chord bearing of South 57°12'40" West run Southwesterly along the arc of said curve a distance of 82.04 feet; thence North 24°29'01" West, 8.00 feet to non-tangent intersection with a curve concave Northwesterly, having a radius of 275.00 feet and a central angle of 16°36'38"; thence from a chord bearing of North 57°12'40" East run Northeasterly along the arc of said curve a distance of 79.72 feet to the point of tangency; thence North 48°54'21" East, 230.58 feet; thence South 40°03'25"East along said West right of way line a distance of 8.00 feet to the **POINT OF BEGINNING.**

Containing 2491 square feet, more or less.

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

EASEMENT "B"

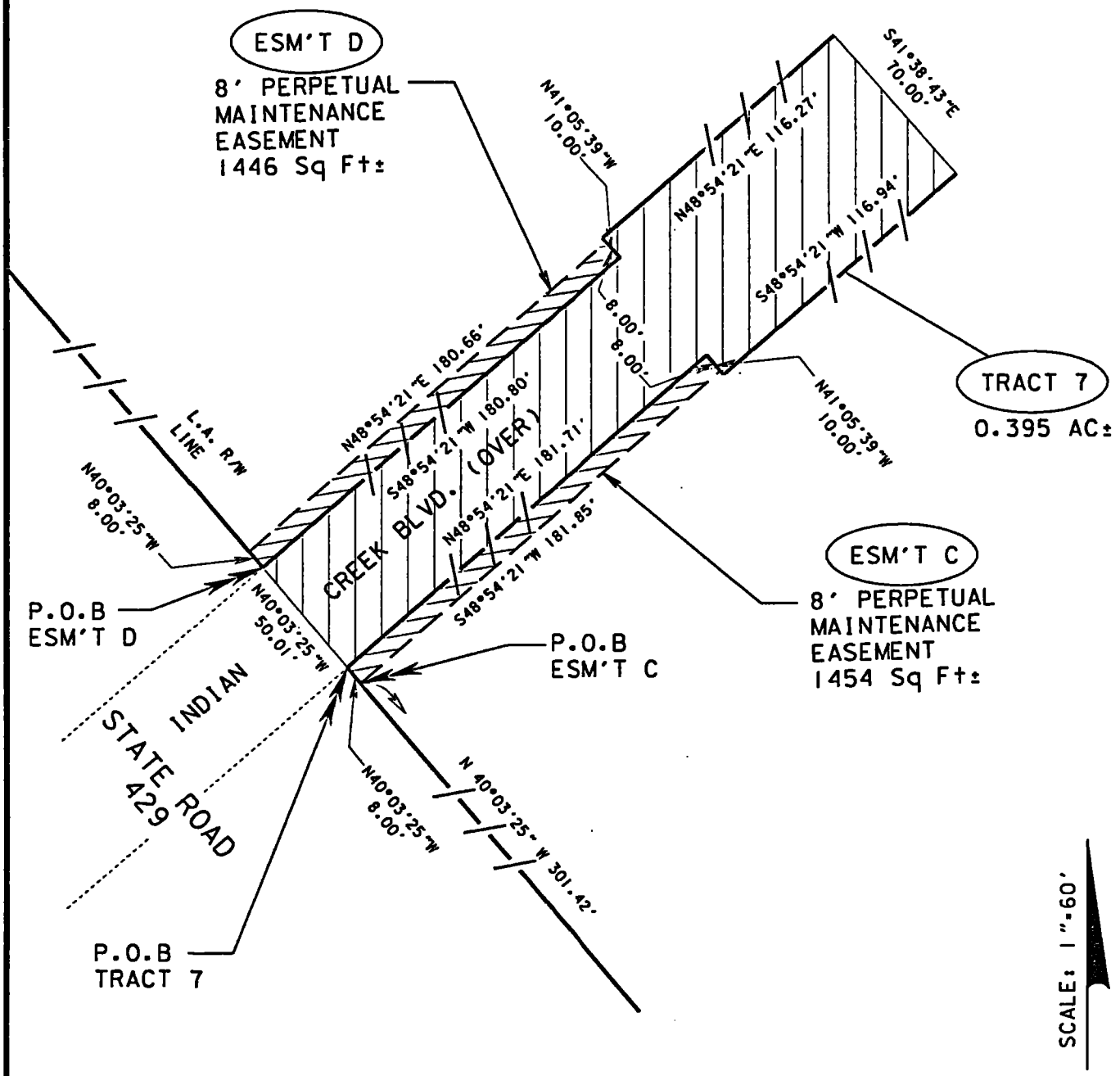
A portion of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast 1/4 of said Section 9; thence South 89°52'16"West along the South line of the Southeast 1/4 of said Section 9, a distance of 1,327.61 feet; thence, departing said South line of the Southeast 1/4 of said Section 9, run North 00°19'45"East along the West line of the Southeast ¼ of the Southeast ¼ of said Section 9 a distance of 375.72 feet; thence South 89°49'35"East, 521.77 feet to a point the West right of way line of State Road 429, said right of way also being a curve concave Southwesterly, having a radius of 3,350.00 feet and a central angle of 06°36'47"; thence, from a chord bearing of North 36°45'03" West, run Northwesterly along the arc of said curve a distance of 386.65 feet to the point of tangency; thence North 40°03'25" West along said West right of way line a distance of 295.99 feet; thence South 48°54'21"West, 230.44 feet to a point on a curve concave Northwesterly, having a radius of 283.00 feet and a central of 16°36'38"; thence from a chord bearing of South 57°12'40" West run Southwesterly along the arc of said curve a distance of 82.04 feet; thence North 24°29'01" West, 58.00 feet to the **POINT OF BEGINNING**; thence continue North 24°29'01"West, 8.00 feet to a non-tangent intersection with a curve concave Northwesterly, having a radius of 217.00 feet and a central angle of 16°36'38"; thence from a chord bearing of North 57°12'40" East run Northeasterly along the arc of said curve a distance of 62.91 feet to the point of tangency; thence North 48°54'21"East, 231.63 feet to said State Road 429 Westerly right of way; thence South 40°03'25" East along said Westerly right of way a distance of 8.00 feet; thence South 48°54'21"West, 231.49 feet to the point of curvature of a curve concave Northwesterly, having a radius of 225.00 feet and a central angle of 16°36'38"; thence, from a chord bearing of South 57°12'40"West, run Southwesterly along the arc of said curve a distance of 65.23 feet to the **POINT OF BEGINNING.**

Containing 2365 square feet, more or less.

EXHIBIT "B4"

CL 2003074002 OR 2241/2328



THIS IS NOT A SURVEY

SHEET 6 OF 9

TRANSFER TO OSCEOLA CO. DREAMERS DR	
F.P. NO.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	4/30/02

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. NO. 403497-3

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

TRACT 7

A portion of the Southeast ¼ of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast ¼ of said Section 9; thence South 89°52'16" West along the South line of the Southeast ¼ of said Section 9 a distance of 1,327.61 feet; thence departing said South line of the Southeast ¼ of said Section 9 and run North 00°19'45" East along the West line of the Southeast ¼ of the Southeast ¼ of said Section 9 a distance of 375.72 feet; thence South 89°49'35"East 875.70 feet to a point on the East right of way of State Road 429, said right of way also being a non-tangent curve concave Southwesterly, having a radius of 3,650.00 feet and a central angle of 09°41'26"; thence, from a chord bearing of North 35°12'43" West, run Northwesterly along the arc of said curve a distance of 617.32 feet to the point of tangency; thence North 40°03'25" West along said East right of way a distance of 309.42 feet to the **POINT OF BEGINNING**; thence continue North 40°03'25" West, 50.01 feet; thence North 48°54'21" East, 180.80 feet; thence North 41°05'39" West, 10.00 feet; North 48°54'21" East, 116.27 feet; thence South 41°38'43" East, 70.00 feet; thence South 48°54'21" West, 116.94 feet; thence North 41°05'39" West, 10.00 feet; thence South 48°54'21" West 181.71 feet to the **POINT OF BEGINNING.**

Containing 0.395 acres, more or less.

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

EASEMENT "C"

A portion of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast 1/4 of said Section 9; thence South 89°52'16" West along the South line of the Southeast 1/4 of said Section 9, a distance of 1,327.61 feet; thence, departing said South line of the Southeast 1/4 of said Section 9, run North 00°19'45" East along the West line of the Southeast ¼ of the Southeast ¼ of said Section 9 a distance of 375.72 feet; thence South 89°49'35"East, 875.70 feet to a point lying on the East right of way line of State Road 429, said point also lying on a non-tangent curve concave Southwesterly, having a radius of 3,650.00 feet and a central angle of 09°41'26"; thence, from a chord bearing of North 35°12'43" West, run Northwesterly along the arc of said curve a distance of 617.32 feet to the point of tangency; thence North 40°03'25" West along said East right of way line a distance of 301.42 feet to the **POINT OF BEGINNING**; thence continue North 40°03'25" West, 8.00 feet; thence North 48°54'21" East, 181.71 feet; thence South 41°05'39"East, 8.00 feet; thence South 48°54'21" West, 181.85 feet to the **POINT OF BEGINNING.**

Containing 1454 square feet, more or less.

EXHIBIT "B4"

PREPARED BY: John K. Hazlip
DATE: April 30, 2002

Indian Creek Boulevard

EASEMENT "D"

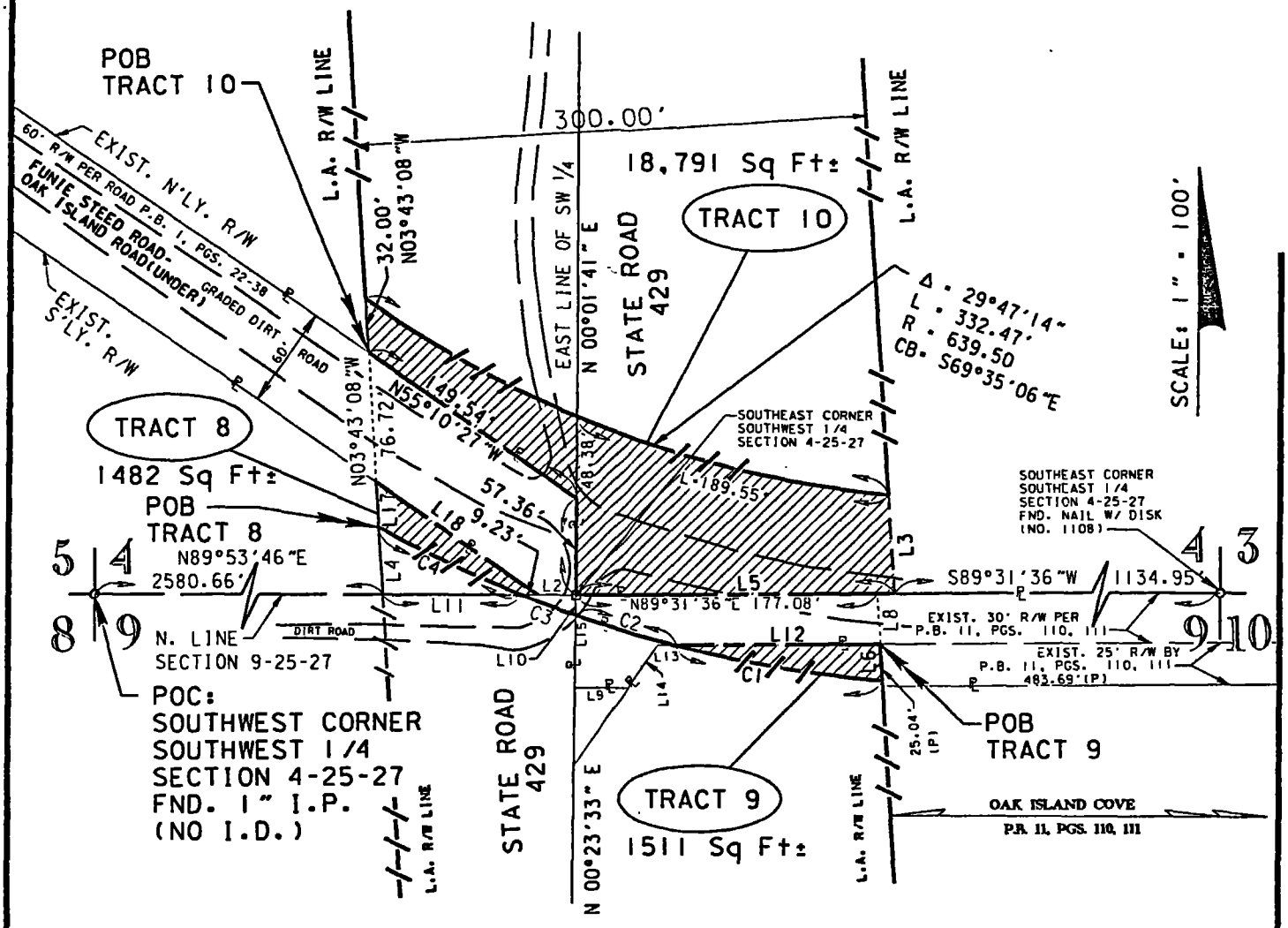
A portion of the Southeast 1/4 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

Commence at a 5/8" iron rod (no I.D.) marking the Southeast corner of the Southeast 1/4 of said Section 9; thence South 89°52'16" West along the South line of the Southeast 1/4 of said Section 9, a distance of 1,327.61 feet; thence, departing said South line of the Southeast 1/4 of said Section 9, run North 00°19'45" East along the West line of the Southeast ¼ of the Southeast ¼ of said Section 9 a distance of 375.72 feet; thence South 89°49'35"East, 875.70 feet to the East right of way line of State Road 429, said point also lying on a non-tangent curve concave Southwesterly, having a radius of 3,650.00 feet and a central angle of 09°41'26"; thence, from a chord bearing of North 35°12'43" West, run Northwesterly along the arc of said curve a distance of 617.32 feet to the point of tangency; thence North 40°03'25" West along said East right of way line a distance of 359.43 feet to the **POINT OF BEGINNING**; thence continue North 40°03'25" West, 8.00 feet; thence North 48°54'21" East, 180.66 feet; thence South 41°05'39" East, 8.00 feet; thence South 48°54'21" West, 180.80 feet to the **POINT OF BEGINNING.**

Containing 1446 square feet, more or less.

EXHIBIT "B5"

CL 2003074002 OR 2241/2332



- Hatched Area Indicates Areas To Be Transfered To Osceola County.

LINE TABLE

LINE	BEARING	DISTANCE
L1	S34°44'31"W	56.21'(C)
L2	S89°53'46"W	22.53'(C)
L3	S03°43'08"E	58.59'(C)
L4	N03°43'08"W	39.91'(C)
L5	S89°31'36"W	187.09'(C)
L6	S03°43'08"E	21.71'(C)
L7	N00°23'33"E	89.12'(C)
L8	S03°43'08"E	30.05'(C)
L9	N89°31'36"E	31.72'(C)
L10	N00°23'33"E	11.81'(C)
L11	N89°53'46"E	81.67'(C)
L12	N89°31'36"E	120.18'(C)
L13	N89°31'36"E	10.06'(C)
L14	N34°44'31"E	30.60'(C)
L15	N00°23'33"E	43.19'(C)
L16	S89°53'46"W	9.23'(C)
L17	N03°43'08"W	26.63'(C)
L18	S55°10'27"E	115.99'(C)

CURVE TABLE

LINE	DELTA	RADIUS	LENGTH	CHORD BEARING
C1	09°26'19"	749.50'	123.47'(C)	N80°21'08"W
C2	04°42'17"	749.50'	61.54'(C)	N73°16'50"W
C3	02°34'59"	749.50'	33.79'(C)	N69°38'12"W
C4	07°07'29"	749.50'	93.20'(C)	N64°46'58"W

THIS IS NOT A SURVEY

SHEET 1 OF 4

THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P.NO.: 403497-3

TRANSFER TO OSCEOLA COUNTY, FUNIE STEED ROAD (OAK ISLAND ROAD)	
F.P. No.:	403497-3
STATE ROAD NO.:	429
COUNTY:	OSCEOLA
DATE:	10/03/02

PREPARED BY: John K. Hazlip
DATE: October 3, 2002

FUNIE STEED ROAD
(OAK ISLAND ROAD)

TRACT 8

A portion of the Southwest ¼ of Section 4, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

COMMENCE at a 1" iron pipe (no I.D.) marking the Southwest corner of said Section 4; thence run North 89°53'46" East along the South line of the Southwest ¼ of said Section 4 a distance of 2,580.66 feet to a point lying on the West right of way line of State Road 429; thence leaving said South line of Section 4, run North 03°43'08" West along said West right of way line a distance of 39.91 feet to the **POINT OF BEGINNING**; thence continue North 03°43'08" West along said West right of way line, 26.63 feet to a point lying on the existing Southerly right of way line of Funie Steed Road (Oak Island Road), a 60.00 feet right of way as now established per Road Plat Book 1 on pages, 22 through 38 of the public records of Osceola County, Florida; thence leaving said West right of way line of State Road 429 and run South 55°10'27" East along said Southerly right of way line of Funie Steed Road, a distance of 115.99 feet to an intersection with the aforementioned South line of the Southwest ¼ of Section 4; thence leaving said Southerly right of way line of Funie Steed Road and run South 89°53'46" West along said South line of the Southwest ¼ of Section 4 a distance of 9.23 feet to a point on a non-tangent curve concave Northeasterly; thence Northwesterly along said curve with a radius of 749.50 feet, through a central angle of 07°07'29", for an arc distance of 93.20 feet, said curve having a chord bearing North 64°46'58" West to the **POINT OF BEGINNING.**

Containing 1,482 square feet, more or less.

PREPARED BY: John K. Hazlip
DATE: October 3, 2002

FUNIE STEED ROAD
(OAK ISLAND ROAD)

TRACT 9

A portion of the Northeast ¼ of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

COMMENCE at a 1" iron pipe (no I.D.) marking the Southwest corner of said Section 4; thence run North 89°53'46" East along the South line of the Southwest ¼ of said Section 4 a distance of 2,694.09 feet to the Southeast corner of the Southwest ¼ of said Section 4, said corner lying on the existing North right of way line of Funie Steed Road (Oak Island Road); thence North 89°31'36" East along said existing North right of way line and the South line of the Southeast ¼ of said Section 4 a distance of 177.08'; thence leaving said South line, run South 03°43'08" East, 30.05 feet to the intersection of the South right of way line of said Funie Steed Road and the East right of way line of State Road 429 for the **POINT OF BEGINNING**; thence continue South 03°43'08" East along said East right of way line of State Road 429 a distance of 21.71 feet; thence leaving said East right of way line and run Westerly along a non-tangent curve concave to the North, with a radius of 749.50 feet, through a central angle of 09°26'19", for an arc distance of 123.47, said curve having a chord bearing North 80°21'08" West to a point lying on the existing Southerly right of way line of Funie Steed Road (Oak Island Road) as contained on the plat of Oak Island Cove, as per plat book 11, pages 110 and 111 of the public records of Osceola County, Florida; thence North 89°31'36" East along said existing Southerly right of way line a distance of 120.18 feet to the **POINT OF BEGINNING.**

Containing 1,511 square feet, more or less.

PREPARED BY: John K. Hazlip
DATE: October 3, 2002

FUNIE STEED ROAD
(OAK ISLAND ROAD)

TRACT 10

A portion of the South ½ of Section 4, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

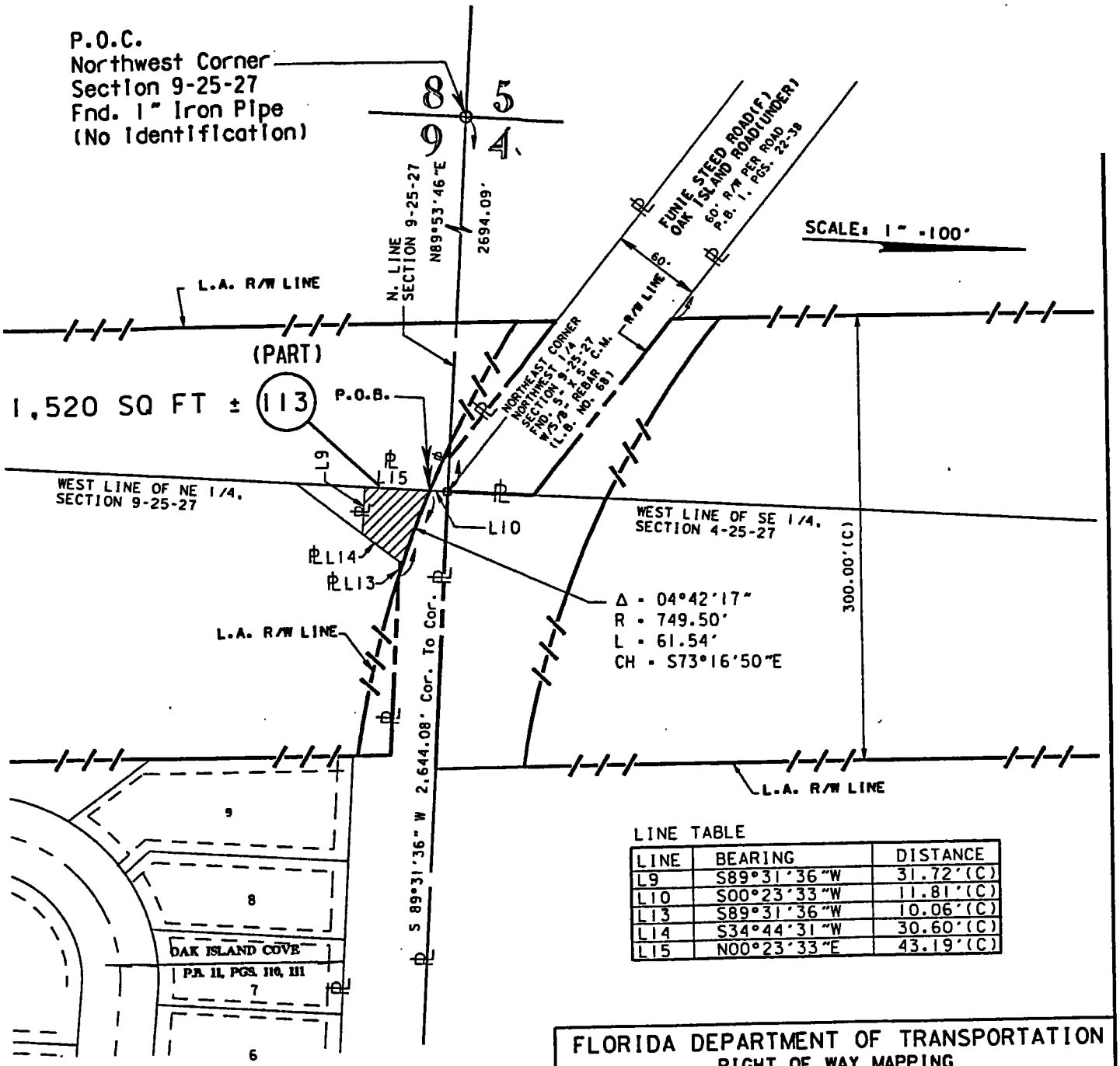
COMMENCE at a 1" iron pipe (no I.D.) marking the Southwest corner of said Section 4; thence run North 89°53'46" East along the South line of the Southwest ¼ of said Section 4 a distance of 2,580.66 feet to a point lying on the West right of way line of State Road 429; thence leaving said South line of Section 4 and run North 03°43'08" West along said West right of way line and a projection thereof, a distance of 143.26 feet to the existing North right of way line of Funie Steed Road (Oak Island Road), a 60 feet right of way as now established per Road Plat Book 1, pages 22 through 38 of the public records of Osceola County, Florida for the **POINT OF BEGINNING**; thence continue North 03°43'08" West along said West right of way line of State Road 429 a distance of 32.00 feet to a non-tangent curve concave to the Northeasterly; thence Southeasterly along said curve with a radius of 639.50 feet, through a central angle of 29°47'14", for an arc distance of 332.47 feet, said curve having a chord bearing South 69°35'06" East to the East right of way line of said State Road 429; thence South 03°43'08" East along said East right of way line a distance of 58.59 feet to the aforementioned existing North right of way line of Funie Steed Road as contained on the plat of Oak Island Cove, as per plat book 11, pages 110 and 111 of the public records of Osceola County, Florida; thence leaving said East right of way line of State Road 429 and run South 89°31'36" West along said existing North right of way line of Funie Steed Road a distance of 187.09 feet to the West line of the Southeast ¼ of said Section 4; thence North 00°01'41" East along said existing North right of way line and said West line of the Southeast ¼ of Section 4 a distance of 57.36 feet; thence North 55°10'27" West along said existing North right of way line a distance of 149.54 feet to the **POINT OF BEGINNING.**

Containing 18,791 square feet, more or less.

PARENT TRACT N/A
TAKE AREA 4.071 AC±
REMNANT N/A

EXHIBIT "C1"

CL 2003074002 OR 2241/2336



LINE TABLE

LINE	BEARING	DISTANCE
L9	S89°31'36"W	31.72'(C)
L10	S00°23'33"W	11.81'(C)
L13	S89°31'36"W	10.06'(C)
L14	S34°44'31"W	30.60'(C)
L15	N00°23'33"E	43.19'(C)

▨ - Hatched Area Indicates Areas To Be Transfered To Osceola County.

NOTE:
- THIS IS NOT A SURVEY.
- THE RIGHT OF WAY DATA SHOWN ON THIS SKETCH WAS DERIVED FROM FLORIDA DEPARTMENT OF TRANSPORTATION R/W MAP F.P. NO. 403497-3

FLORIDA DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY MAPPING

SKETCH OF DESCRIPTION

STATE ROAD NO. 429 OSCEOLA COUNTY

	BY	DATE
PRELIM	JKH	4-30-02
FINAL	JKH	4-30-02
CHECKED	JRG	5-3-02

PARCEL 113 (PART)

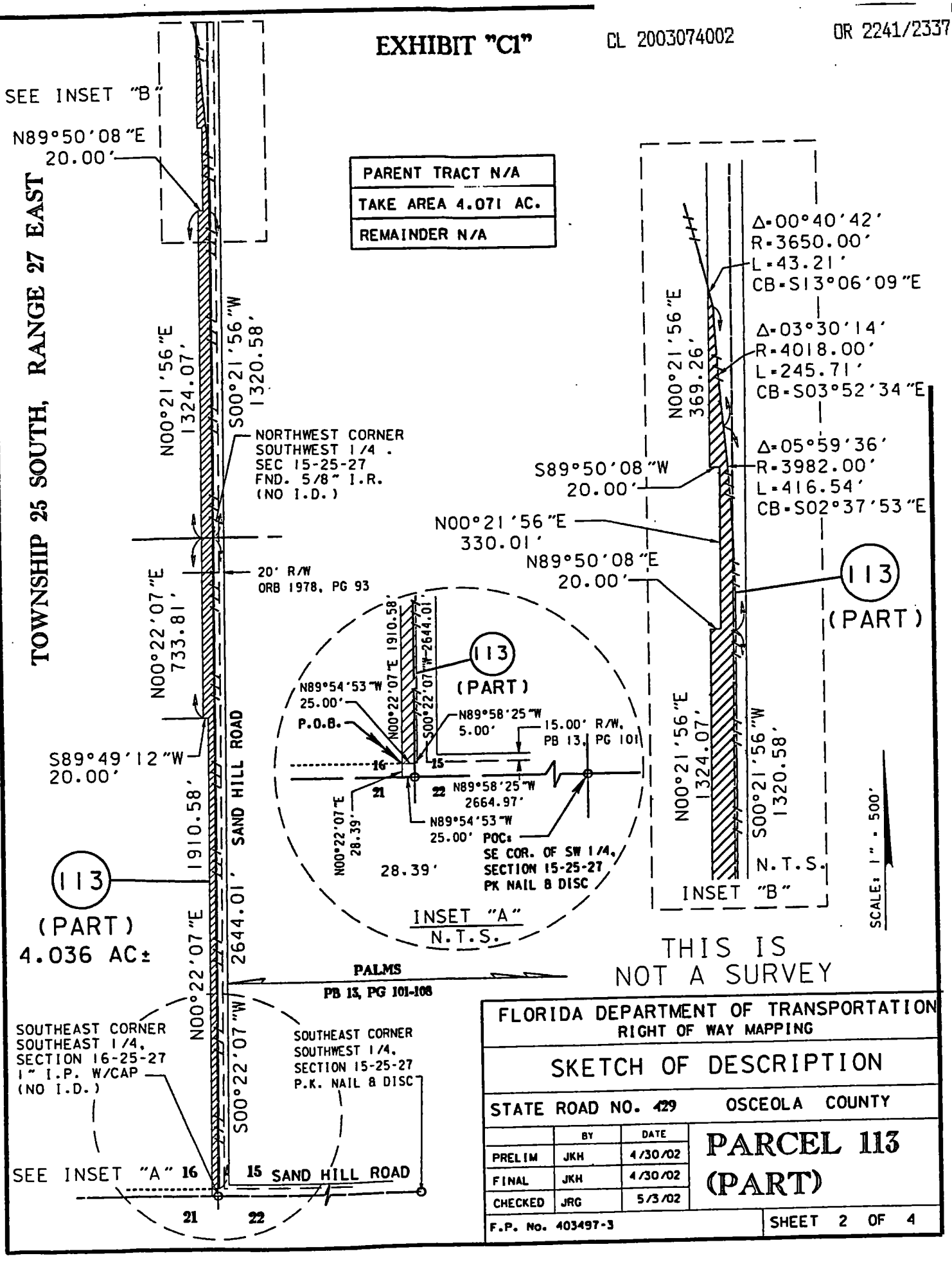
F.P. No. 403497-3

SHEET 1 OF 4

EXHIBIT "C1"

CL 2003074002

OR 2241/2337



FLORIDA DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY MAPPING

SKETCH OF DESCRIPTION

STATE ROAD NO. 429 OSCEOLA COUNTY

	BY	DATE
PRELIM	JKH	4/30/02
FINAL	JKH	4/30/02
CHECKED	JRG	5/3/02

PARCEL 113
(PART)

F.P. No. 403497-3

SHEET 2 OF 4

EXHIBIT "C1"

PREPARED BY: John K. Hazlip
DATE: November 27, 2001

PARCEL NO. 113
F.P. NO.: 403497-3
STATE ROAD NO.: 429
COUNTY: OSCEOLA

FEE SIMPLE LIMITED ACCESS RIGHT-OF-WAY

That part of Sand Hill Road Right of Way lying in the West ½ of Section 15, and the East ½ of Section 16, Township 25 South, Range 27 East, Osccola County, Florida, being more particularly described as follows:

Commence at a PK nail and disc marking the Southeast corner of the Southwest 1/4 of Section 15, Township 25 South, Range 27 East, thence run North 89°58'25" West a distance of 2,664.97 feet to a 1 inch iron pipe with cap (no I.D.) marking the Southwest corner of the Southwest ¼ of said Section 15; thence run North 89°54'53" West along the South line of the East ½ of said Section 16, a distance of 25.00 feet to a point lying on the Westerly right of way line of Sand Hill Road; thence leaving said South line run North 00°22'07" East along said Westerly right of way line a distance of 28.39 feet to the **POINT OF BEGINNING**; thence continue along the Westerly right of way line of Sand Hill Road the following 8 calls; North 00°22'07" East 1910.58 feet; thence South 89°49'12" West 20.00 feet; thence North 00°22'07" East 733.81 feet to a point on the North line of the Southeast ¼ of said Section 16; thence North 00°21'56" East 1324.07 feet; thence North 89°50'08" East 20.00 feet; thence North 00°21'56" East 330.01 feet; thence South 89°50'08" W 20.00 feet; thence North 00°21'56" East 369.26 feet to a point on a non tangent curve to the right with a radius of 3650.00 feet and a central angle of 00°40'42"; thence departing said West right of way of Sand Hill Road from a chord bearing of South 13°06'09" East, run along the arc of said curve a distance of 43.21 feet to a point on a non tangent curve to the left having a radius of 4018.00 feet and a central angle of 03°30'14"; thence from a chord bearing of South 03'52'34" East run along the arc of said curve a distance of 245.71 feet to a point of reverse curvature to the right having a radius of 3982.00 feet and a central angle of 5°59'36"; thence from a chord bearing of South 02°37'53" East run along the arc of said curve a distance of 416.54 feet; thence South 00°21'56" West 1320.58 feet to a point lying on the North line of the Southwest ¼ of said Section 15; thence South 00°22'07" West 2644.01 feet; thence North 89°58'25" West 5.00 feet to a point lying on the West line of the Southwest ¼ of said Section 15; thence leaving said West line and run North 89°54'53" West 25.00 feet to the **POINT OF BEGINNING.**

Containing 4.036 acres, more or less.

And:

FEE SIMPLE LIMITED ACCESS RIGHT-OF-WAY

A portion of Funie Steed Road (also known as Oak Island Road) lying in the North 1/2 of Section 9, Township 25 South, Range 27 East, Osceola County, Florida, being more particularly described as follows:

COMMENCE at a 1" iron pipe (no I.D.) marking the Northwest corner of said Section 9; thence run North 89°53'46"East along the North line of said Section 9 a distance of 2,694.09 feet to a 5" x 5" Concrete Monument marking the Northeast corner of the Northwest ¼ of said Section 9; thence run South 00°23'33" West a distance of 11.81 feet to the **POINT OF BEGINNING;** said point being on a non-tangent curve to the left having a radius of 749.50 feet and a central angle of 04°42'17"; thence from a chord bearing of South 73°16'50" East run along the arc of said curve 61.54 feet; thence run South 89°31'36" West a distance of 10.06 feet; thence run South 34°44'31" West a distance of 30.60 feet; thence run South 89°31'36" West a distance of 31.72 feet; thence run North 00°23'33" East a distance of 43.19 feet to the **POINT OF BEGINNING;**

Containing 1,520 square feet, more or less.

Together with all rights of ingress, egress, light, air and view between the grantor's remaining property and any facility constructed on the above described property.

Containing a total aggregate area of 4.071 Acres, more or less.

EIGHTH AMENDED AND RESTATED DEVELOPMENT ORDER
Revised July 18 , 2018

REUNION RESORT & CLUB OF ORLANDO
DEVELOPMENT OF REGIONAL IMPACT

Osceola County, Florida

WHEREAS, on July 8, 1992, the Board of County Commissioners of Osceola County ("Osceola County" or the "County") issued an Amended Development Order for Magnolia Creek (formerly known as Osceola Pointe) Development of Regional Impact ("DRI"); and

WHEREAS, an Amended Development Order was issued by the County on November 23, 1993 (the "First Amended Development Order"); and

WHEREAS, the First Amended Development Order was superseded by an Amended Development Order executed March 14, 1994 (the "Second Amended Development Order"), and

WHEREAS, the Second Amended Development Order was amended pursuant to a First Amendment to the Amended Development Order for Magnolia Creek Development of Regional Impact dated February 5, 1996, recorded in Official Records Book 1 323, Page I, of the Records (the "First Amendment"). and further amended by a Notice or Correction to the First Amended Development Order for Magnolia Creek Development of Regional Impact, recorded in Official Records Book 1328, Page 1008, of the Records (the "Notice of Correction") and further amended by a Second Amendment to the Amended Development Order for Magnolia Creek Development of Regional Impact, dated July 12, 1999, recorded in Official Records Book 1660, Page 12, of the Records (the "Second Amendment") (which Second Amended Development Order and subsequent amendments are collectively referred to herein as the "Prior Development Orders"); and

WHEREAS, the Prior Development Orders were amended, replaced and superseded in their entirety by a Third Amended and Restated Development Order revised November 3, 2000 and recorded in Official Records Book 1829, Page 858 el. seq. (hereinafter the "Third DO"); and

WEIEREAS, the Third Amended DO was amended, replaced and superseded in its entirety by a Fourth Amended and Restated Development Order dated "revised March l, 2001" and recorded in Official Records Book 1875, Page 2683 el. seq. (hereinafter the "Fourth DO"); and

WHEREAS, the Fourth DO was amended, replaced and superseded in its entirety by a Fifth Amended and Restated Development Order dated "revised December l, 2001", approved by the Osceola County Board of County Commissioners on December 17, 2001 and recorded in Official Records Book 2027, Page 1301 et. seq. (hereinafter "Fifth DO"); and

WHEREAS, the Fifth DO was amended, replaced and superseded in its entirety by a Sixth Development Order dated "Revised August 5, 2002", and recorded in Official Records Book 2142, page 562 et. seq. (hereafter the "Sixth DO"); and

WHEREAS, the Sixth DO was amended, replaced and superseded in its entirety by a Seventh Development Order dated "Revised November 24, 2003", and recorded in Official Records Book 2429, page 1053 et. seq. (hereafter the "Seventh DO"); and

WHEREAS, all of the Property which is subject to the Seventh DO is now owned by LRA Orlando LLC, a Florida limited liability company and Reunion West Development Partners, LLC, a Florida limited liability company (hereinafter "Developer"); and

WHEREAS, through the Fifth DO, the name of the proposed development changed from Magnolia Creek to Reunion Resort & Club of Orlando; and

WHEREAS, the Developer desires to further modify the Seventh DO; and

WHEREAS, this modification is pursuant to the provisions of Section 380.06(19), Florida Statutes (FS), and has been reviewed by the applicable agencies; and

WHEREAS, the Developer, the Florida Department of Economic Opportunities ("DEO"), the County and the East Central Florida Regional Planning Council ("ECFRPC") agree that this amendment is best documented through a new Eighth Amended and Restated Development Order (referred to herein as the "Development Order" or the "DO") which shall supersede the Seventh DO.

NOW THEREFORE, it is hereby ordered and resolved by the Board of County Commissioners of Osceola County. Florida that the Amended and Restated Development Order is approved pursuant to Section 380.06, Florida Statutes, subject to the terms and conditions listed herein.

1. FINDINGS OF FACT

1.1. Herman J. Heidrich and Sons (hereinafter referred to as "Heidrich") filed an Application for Development Approval pursuant to Chapter 380.06, Florida Statutes. for a DRI called Reunion Resort & Club of Orlando formerly known as Magnolia Creek formerly known as Osceola Pointe (the "Project"), relating to real property located in Osceola County, Florida, which Application for Development Approval was approved by the County and incorporated in the First Amended Development Order, as subsequently amended as hereinabove provided.

1.2. A Notice of Proposed Change ("NOPC') was filed on February 8, 2018 by Developer. The NOPC adds additional 41.00acres of property into the DRI, which the revised description is more particularly described in Exhibit "A" attached to and by this reference incorporated in this Development Order and hereafter referred to as the "Property", modifies the "Master Plan" of the proposed development of the Property, which creates no new offsite impacts; and seeks such other modifications as are reflected herein. The additional 41.00acres of property being brought into the Project is owned by Reunion West II, LLC which is a subsidiary of the Developer and the Developer hereby acknowledges that the subject 41.00 acres of Property shall be subject to the terms and conditions of the Development Order.

1.3. The Developer has the authority to file the NOPC and obtain this DO with respect to the Property in accordance with Section 380.06, Florida Statutes.

1.4. The proposed development consists of the following:

1.4.1. Total Acreage: Two thousand two hundred sixty seven point one nine one (2,267.191) acres more or less.

1.4.2. Total Project Size:

Residential D.U.s Resort (Single-Family & Multi Family)	6,233
Hotel Rooms	1,574
Office	140,000 Sq. ft.
Retail	484,000 Sq. ft.
Golf	54 holes

1.4.3. This DO adds to the land that is subject to the DRI and this DO, more specifically the 41.0 acres of property referenced in Section 1.2 above. As there is no proposed increase to the development program's density or intensity, no additional public facilities impacts will result from the inclusion of the 41.0 acres of property and the other minor changes proposed by the NOPC.

1.4.4. A public hearing pursuant to Section 380.06(19), F.S., was advertised on August 10, 2018 and a duly noticed public hearing was conducted on August 20, 2018 by the Osceola County Board of County Commissioners. All interested parties and members of the public were afforded the opportunity to participate.

1.4.5. Based on the NOPC submitted and testimony and comments received the County finds that the changes set forth in the NOPC do not constitute a substantial deviation to the Project.

1.4.6. The development permitted by this DO is consistent with the achievement of the goals, objectives and policies of the State Comprehensive Plan. The development permitted by this DO is also consistent with the applicable Osceola County Comprehensive Plan, and the applicable County land development regulations.

1.5. A Golf Course Environmental Management Plan has been promulgated by Developer for the Property and approved by the County.

1.6. In lieu of reserving a school and park site within the Project and in satisfaction of such obligation, the Developer has previously donated Five Hundred Thousand Dollars ($500,000) to the Osceola County School District to be used for the purchase of an off-site school site, in exchange for school impact fee credits in the amount of the donation.

1.7. Developer has provided substantial evidence indicating ample affordable housing is available to serve the Project at least through the first half of the Project. In order to assess the housing situation for future development and to ensure that an adequate supply of housing continues to exist or is provided during the life of the Project, prior to the start of Trip Phase 2, the Developer shall recalculate the demand for affordable housing based upon actual employees hired up to that point and estimated employees for the remainder of the Project. The Developer shall also re-inventory the available housing supply. Both analyses shall use methodologies that are directed for use in the review of DRI type development by the ECFRPC at the time of analysis. The Developer shall be responsible for mitigating any deficiencies. Mitigation shall reflect any cumulative surplus housing provided by the applicant as well as cumulative unmitigated demand.

1.8. To satisfy County right-of-way requirements, the Developer has dedicated to the County right-of-way from the Property abutting CR 545.

1.9. The Developer has demonstrated reliance on this DO by having substantially proceeded with the development approved herein.

1.10. An archeological review by a professional S.O.P.A. certified archeologist did not indicate the presence of any significant cultural artifacts or features at the Fort Davenport Archeological Site (80544).

1.11. Developer has provided a traffic study to the Osceola County Engineering Department which establishes that a two (2) lane road connection to existing Goodman Road is sufficient to serve projected traffic needs of the Project through buildout.

2. CONCLUSIONS OF LAW

2.1. Osceola County is the governing body having jurisdiction over the review and approval of the NOPC, pursuant to Chapter 380, FS, and is authorized and empowered to issue this DO.

2.2. The Property does not lie within an area of Critical Concern.

2.3. The development permitted by this DO is consistent with the County's applicable Comprehensive Plan and land development regulations effective as of the date of this DO.

2.4. The development permitted by this DO is consistent with the ECFRPC Strategic Regional Policy Plan and the State Comprehensive Plan.

2.5. The provisions of this DO shall not be construed as a waiver of, or an exception to, any local, state or federal law or regulation.

2.6. The impacts of the development of the Project, as conditioned by this DO, are adequately addressed pursuant to the requirements of Chapter 380, FS, and the changes as approved by the County do not constitute a substantial deviation to the Seventh DO, or create new or additional local impacts.

2.7. This DO shall supersede all prior development orders and amendments relating thereto.

NOW, THEREFORE, having made the aforementioned Findings of Fact and Conclusions of Law, the DRI is hereby approved, subject to the following terms and conditions of development:

3. CONDITIONS OF APPROVAL

3.1 General Conditions.

The definitions contained in Chapter 380, Florida Statutes, and Chapter 9J-28, FAC, shall govern and apply to this DO.

3.2. Binding Effect.

This DO shall be binding upon the Developer, its assignees, or successors in interest, including any entity that may assume any of the responsibilities imposed on the Developer by this DO. The purchaser of individual lots or parcels of land in the Project other than Developer shall not be deemed the Developer unless specifically designated as such by Developer. Reference herein to any reviewing agency shall be construed to mean any agency that may in the future be created or designated as a successor in interest to, or that otherwise will possess any of the powers and duties of the reviewing agency with respect to the implementation and administration of the Project and this DO.

3.3. Development Summary.

The approved development for the Property consists or the following:

LAND USE ANALYSIS DY UNIT COUNT - SQUARE FOOTAGE - NUMBER OF HOLES	
Land Use Designation	**Units/Square Feet/Holes**
Resort Multi-Family [1]	4,433 Units
Resort Single Family	1,800 Units
Hotel	1,574 Rooms
Office	140,000 sq. Ft.
Retail	484,000 sq. Ft.
Golf	54 Holes

4. CONDITIONS OF APPROVAL

4.1. Application for Development Approval.

The Project shall be developed in accordance with the information. data, plans and commitments contained in the ADA unless otherwise directed by the conditions enumerated herein. For the purpose of this DO, the "ADA" shall consist of the following items:

4.1.l. Magnolia Creek DRI Application for Development Approval dated August, 1992;

4.1.2. First Response to Requests for Additional Information dated December, 1992; and

4.1.3. Second/Final Response to Requests for Additional Information dated March 1993.

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[1]Resort Multi-family may include timeshare units. A timeshare unit may include, but is not required to include, a lock-out unit. A lock-out unit is defined as a timeshare unit that enables a portion or the unit to be locked out and utilized us a separate unit with independent means of ingress and egress from the main portion of the timeshare unit. Should the Developer choose the flexibility of offering lock-out units on timeshare units, then each separate portion of the lock-out unit with separate access will be counted as a separate unit. In order to construct and utilize a lockout unit, prior to commencement of construction of the particular timeshare unit containing the lock-out unit, the Developer shall declare that the timeshare unit shall contain a lock-out unit. For example, based on the assumption all Resort Multi-family units are utilized as timeshare units and all are offering lock-out units, then the maximum allowed will be 2217 timeshare units with 2216 lock-out units. In order for the lock-out units to be counted for anything less than a unit, a study, with methodology approved by the County and processed as a Notice of Proposed Change pursuant to Section 380.06, Florida Statutes, will need to be provided to Osceola County demonstrating impacts are less.

4.1.4. NOPCs submitted in support of the Prior Development Orders, the Third DO, the Fourth DO, the Fifth DO, the Sixth DO and the Seventh DO as supplemented by Developer's responses to agencies in connection therewith.

4.1.5. NOPC dated November XX, 2017.

4.2. Master Development Plan Summary.

The Project shall be developed in accordance with the Master Development Plan, attached as Exhibit "B" ("**Map H**" or "**Revised Master Plan**"), and shall consist of no more than a total of the following uses, plus any "Supporting Uses", as hereinafter defined:

6,233	resort residential units
1,574	hotel rooms
140,000	square feet of office use on 48 acres
484,000	square feet of retail use
3	18 Hole Golf Course

LAND USE ANALYSIS BY ACREAGE	
Predominant Uses as Depicted on Map H - Master Development Plan	Totals
Residential (l)	870.90
Mixed Use Development (2)	707.31
Commercial (3)	9.89
Resort (4)	22.53
Sheriff & Fire (S)	2.03
Wetland Conservation	432.42
Upland Preservation (6)	155.86
Buffers	54.86
Open Space	.36

NOTES:

l) Uses allowed in Residential Land use as Depicted an Map H include: Resort Single Family, Resort Multi-Family, Golf Resort Support Services und Neighborhood Convenience Commercial.

2)Uses allowed in Mixed Use Land use as Depicted on Map H include: Resort Single Family, Resort Multi-Family, Hotels, Business Park, Office Retail, Golf, Golf and Resort Support Services, Conference Facilities, Support Commercial and Neighborhood Commercial.

3)Uses allowed In Commercial Land Use as Depicted on Map H include: Office, Commercial, Resort Support Services, Golf and Neighborhood Convenience Commercial.

4) Uses in Resort Land Use as Depicted on Map H Include: Hotels, Resort Multi-Family, Resort Single Family, Golf, Resort Support Services and Neighborhood Convenience Commercial

5) Note: If County does not exercise its option over the parcel, then the Use reverts to Residential

6)Upland Preservation includes: Scrub Preservation, Sand Pine Preservation, Sand Skink Habitat Preservation, Passive Parks, Equestrian Trails and Other Upland Preservation as described in the Habitat Management Plan.

4.3 Supporting Uses.

"**Supporting Uses**" may include, but are not limited to: school and child care facilities; public support facilities; places of worship; utility substations and other facilities serving the Project; government buildings such as libraries, post offices, law enforcement substations, fire stations; parks; facilities to house housekeeping, laundry, warehouses, grounds maintenance, golf maintenance, support vehicle maintenance and storage, transit vehicle storage, and similar resort operations support uses. Supporting Uses may be located on any portion of the Property where development is otherwise permitted pursuant to this DO and shall be designed to primarily facilitate activities interior to the Project.

4.4 Phasing Summary.

The Project, including three (3) golf courses and other "Supporting Uses" shall be developed on the Property in a single phase. ("**Development Phase**" Project buildout is projected to be completed by December 31, 2023.)

4.5 Exchange of Land Uses.

4.5.1 The Developer may exchange one type of land use for another, in accordance with the trip exchange matrix included herein as Exhibit "C", without having to undergo further DRI review provided that the change does not result in a net increase in total and peak hour traffic generation and all other applicable level of service standards are met. The Developer shall provide 30 days prior notice to the County, ECFRPC and the Florida Department of Economic Opportunities("DEO") when such an exchange is proposed. The proposed exchange shall not be subject to additional regional or state review provided that the following constraints are demonstrated to have been met:

4.5.1.(a) The trip generation rates, which are included as part of this DO, shall be used to evaluate the exchange. These rates shall be revised as appropriate to remain current with the latest edition of the Institute of Traffic Engineers' Trip Generation manual or County approved rates.

4.5.1.(b) The size or the change, both individually and cumulatively since the last review by the County and DEO, shall not exceed the substantial deviation thresholds of subparagraphs 380.06(19)(b)l -14, Florida Statutes;

4.5.l.(c) Changes in the development program that are made through this exchange shall be reported individually and cumulatively in the next DRI biennial report;

4.5.1.(d) Mobile homes may not be exchanged for other uses under this exchange as other concerns, such as hurricane evacuation, will apply; and

4.5. l.(e) No additional demand on affordable housing shall be created.

4.5.2 The cumulative effects of such exchanges shall be considered should a later change cause the Project to undergo additional regional review. Land use exchanges which meet the above criteria are not exempted from complying with the Concept Plan or conditions of PD approval. However, to allow development flexibility, uses within each parcel submitted as a SDP (Site Development Plan) may vary by fifteen percent (15%) (e.g. number of dwelling units) from

the revised Map H and PD Concept Plan without requiring a PD amendment application. These changes must be reported as a part of each required Biennial Report so as to assure that the approved total development program is not exceeded.

4.6 Archaeological.

In the event of discovery of artifacts of historical or archaeological significance during project construction, the developer shall stop construction at the site of discovery and notify the Osceola County Planning Department and the Division of Historical, Resources of the Florida Department of State (Compliance and Review Section, Bureau of Archaeological Research). From the date of notification, construction shall be suspended within a one hundred (100) foot radius of the site of discovery for a period of up to one hundred twenty (120) days to allow evaluation of the site.

4.7 Magnolia Creek Habitat Management Plan.

4.7.1 A management plan for areas of wetlands, uplands, scrub and wildlife habitats which are to be preserved was provided along with the Fourth NOPC Application package that was submitted to the East Central Florida Regional Planning Council on June 29, 2000, as Exhibit "D" to the Third DO (the "**HMP**"). The HMP has been reviewed by representatives of the Florida Fish and Wildlife Conservation Commission ("**FFWCC**"), the ECFRPC, DCA and the League of Environmental Organization and has been approved by the FFWCC and the Technical Review Committee of Osceola County ("**TRC**") to ensure compliance with Osceola County policy. The HMP is hereby incorporated in and deemed to be a part of this DO and is enforceable as a condition thereof.

4.7.2 A management plan addressing the specific management criteria and allowed uses within the scrub, xeric oak and wetland buffers has also been approved by the County.

4.8 Wetlands.

4.8.1. Unavoidable losses of viable wetlands shall be mitigated through the demonstrably successful restoration or creation of wetlands within the same watershed as the loss, or through the preservation of wetlands or uplands, if such preservation is judged to be acceptable and more desirable than creation or restoration of wetlands by the South Florida Water Management District ("**SFWMD**"). Wetlands to be created or uplands to be retained as mitigation shall be located continuously with one or more major habitat areas to be preserved so as to provide a continuity or expansion of natural habitat areas. Stormwater ponds, lakes or other open waterbodies shall not be acceptable for wetland mitigation unless a mitigation plan incorporating such areas as mitigation is approved by the SFWMD. However, littoral zones created around stormwater ponds and lakes may qualify as created wetlands for mitigation purposes if the other criteria of this condition are met. If adherence to this condition prevents the developer from complying with the rules and regulations of any jurisdictional wetland regulatory agency, then those rules and regulations of that agency shall govern in resolving that conflict.

4.8.2. Developmental uses of wetlands and their upland buffers, and any other areas designated for conservation or preservation pursuant to the HMP, shall be limited by conservation easements (acceptable to the transferee thereof) conveyed to the SFWMD or FFWCC or other entity that is acceptable to the County and DEO. Said easements to be approved by Osceola

County. Such easements or other transfers shall be recorded in the public records of Osceola County upon recordation of a plat containing the wetlands, upland buffers and/or other areas to be conserved or preserved, prior to development of the area subdivided by such plat. Notice of such recording, including an exhibit depicting the areas subject to the recording, shall be included in the appropriate Biennial Report.

4.8.2.(a) The recorded conservation easements for all of the upland preservation areas will be submitted to Osceola County prior to the release of any Construction plans.

4.8.2.(b) The recorded conservation easements for the wetland areas will be submitted to Osceola County as the adjacent development parcels are platted.

4.8.3. Alterations and refinements to the exact wetland impacts and locations may occur over the course of the development process as long as such alterations and refinements are consistent with permits issued from time to time by the applicable state and federal agencies. Developer shall provide a copy of any permit application seeking to modify wetland impacts to the County at the time of submission to the permitting agencies. Once a modification to an existing permit or a new permit is approved, the Developer shall notify the County, DEO and the ECFRPC in the next Biennial Report. In any subsequent amendment to the DO, the change in any wetland impact area based on a permit modification or new permit will be incorporated into a revised Map H.

4.8.4. The use of wetlands and upland wetland buffers subject to conservation easements shall be limited to boardwalks and nature trails (and, in upland buffers, pervious picnic areas and trails for bicycles, jogging, equestrian use and golf carts). Such improvements must be located so as to minimize harm to any of the protected plant or animal species for which these areas have been set aside to protect. In addition, roadways and other crossings identified on Map H and otherwise permitted by the appropriate agencies having wetland jurisdiction, are allowed in these areas. No landscape maintenance beyond the removal of exotic and nuisance plants is allowed within these areas because such areas are to be retained in their natural state. Nothing in the language of any conservation easement shall preclude the Developer (or other entity designated by the Developer) from performing maintenance or management of lands subject to a conservation easement as tong as these activities are consistent with the HMP and preserve the native communities in their natural condition.

4.8.5. Buffer areas of native transitional and/or upland vegetation shall be recognized around all wetlands to be retained. Wetland buffers shall be no less than fifty (50) feet adjacent to Davenport Creek Swamp SFWMD jurisdictional wetlands and no less than one hundred (100) feet from the top of bank of Davenport Creek in the areas identified in Exhibit "D". The average and minimum widths of these buffers shall not be applicable to road and walkway crossings depicted in the HMP and Map H - Master Development Plan. Furthermore, the average and minimum width of buffer areas may be altered upon a review of construction plans and the developer's demonstration to Osceola County, to the satisfaction of the SFWMD, in conjunction with review (no approval required) by the FFWCC, that different distances can adequately achieve the following conditions:

4.8.5.(a) The wetland to be buffered will not receive sediment carried by overland runoff from adjacent lands during either construction or post construction periods.

4.8.5.(b) A one hundred (100) foot buffer shall be provided adjacent to the waters edge of Davenport Creek, in the areas depicted by **Exhibit "D",** where all native trees and indigenous vegetation within the first fifty (50) feet shall be preserved and where all native trees and indigenous vegetation shall be preserved in within the next fifty (50) feet, whenever and wherever practical. The second fifty (50) feet may contain some types of "soft" development, e.g. golf course, stormwater ponds, parks, conservation areas, hiking trails, equestrian trails and other similar uses. No invasive exotics species shall be allowed within the one hundred (100) foot buffer and all those existing shall be removed periodically as per a maintenance plan to be included in a management plan as described in Section 4.7.2. The primary purpose of the one hundred (100) foot buffer is to provide for mammalian passage and habitat and shall not be compromised in function.

If adherence to this Section 4.7 prevents the Developer from complying with the rules and regulations of any jurisdictional wetland regulatory agency, then those rules and regulations of that agency shall govern in resolving that conflict.

4.8.6. All wetland buffers shall be delineated with temporary construction fencing or similar barriers prior to construction within adjacent parcels to allow these areas to be maintained with existing native vegetation, the use of pesticides, herbicides or fertilizers shall be prohibited in these buffers and the wetlands they protect unless otherwise approved by DEP and/or SFWMD.

4.8.7. Any shoreline banks created along stormwater ponds designed for standing water and which are greater than five (5) acres in area shall include littoral zones that are planted in, or allowed to be colonized by, native emergent and submergent vegetation. The Developer shall ensure that at least forty percent (40%) to sixty (60%) of the linear distance of created shorelines shall be established with littoral zones, either on littoral slopes or offshore shelves, which include native aquatic species in densities prescribed by SFWMD during permit procedures.

4.8.8. The Developer shall ensure that a minimum of fifty percent (50%) of the land area immediately adjacent to the wetlands associated with the main channel of Davenport Creek, as identified in Exhibit "D" shall be developed with "soft" development. "Soft" development may include golf courses, parks, conservation areas, water retention ponds, hiking trails, equestrian trails and other similar uses.

4.8.9. All specimen size trees (30.6" D.B.H. or greater) within areas to be developed shall be surveyed and shown on all site development plans submitted to the County's DRC for site development approval.

4.8.10. All proposed developments within Reunion DRI boundaries will demonstrate compliance with Osceola County's Land Management Code.

4.8.11. Wetland jurisdictional boundary lines shall be subject to the approval of Osceola County.

4.8.12. Wetland mitigation for wetland impacts shall be preferably on-site first and if not possible then within the watershed basin of Davenport Creek in Osceola County.

4.8.13. No untreated surface water shall be discharged in Davenport Creek, its adjacent wetland edge or tributaries.

4.8.14. All roadway or pedestrian access crossings that cross Davenport Creek, or its tributaries, shall make culvert or bridge-like provisions for large mammals to cross on both sides of the creek or tributary.

4.9 Irrigation.

4.9.1. To minimize grounds irrigation and to promote the retention of native vegetation, Xeriscape principles of landscaping (as defined in subsection 373.185. Florida Statutes) will be emphasized throughout the project. The source of irrigation water will be prioritized to use all available treated effluent first, stormwater second and groundwater as a last resort.

4.10 Stormwater.

4.10.1 The following minimum distances to adjacent wetland areas will be adhered to in project design and construction: Stormwater wet detention ponds/flowways shall be no closer than two hundred (200) feet, and roadways with underdrains shall be no closer than fifty (50) feet; unless one or more of the following conditions are met:

4.10.1.(a) Adverse impacts on affected wetland vegetative communities from excessive drying out due in part to lateral subsurface seepage from the wetland area(s) into the pond(s) during drought or low water periods have been determined not to be an applicable issue of concern by SFWMD; or

4.10. l.(b) SFWMD accepts tests, calculations, impact mitigation/design criteria or other information furnished by the developer through the permitting and Project review processes which demonstrate that deviations from the fifty (50) and two hundred (200) foot distances are appropriate; or

4.10.1.(c) The elevation of the bottoms of the stormwater wet/detention lake/ponds, flowways or roadway underdrains are higher than the ordinary low water elevation in each potentially impacted wetland area.

4.10.2 The Developer, owner or other appropriate entity shall establish and implement an inspection and maintenance program for all components of the surface water management systems for the Project site, to include schedules for the performance of:

4.10.2.(a) Routine maintenance activities (e.g. mowing, trash removal, etc.).

4.10.2.(b) Ongoing educational programs for all groundskeeping and maintenance staff regarding the correct usage of and application rates for fertilizers and chemicals (e.g. herbicides) near the stormwater management facilities, the removal of noxious weeds and

retention of desirable aquatic vegetation, and correct procedures for other maintenance/landscaping-related activities which have the potential for adversely affecting water quality conditions on the project site.

4.10.2.(c) Semi-annual inspections or inspections as required by agency permit requirements of the stormwater management systems on the Project site to ensure that the systems are being properly maintained in keeping with their design, and are capable of accomplishing the level of stormwater storage/treatment for which they were designed and intended.

4.10.3 The developer shall ensure that if one or more Community Development Districts (collectively "**CDD**"), property owners or similar association ("**Association**") are formed to assume drainage system operation and maintenance responsibilities, then this entity shall be created with defined duties and responsibilities regarding the operation and maintenance of the surface water management system, and have sufficient legal authority and power to establish the mandatory collection of fees and/or assessments from all property owners for use in financing the operation, replacement and maintenance of the Project's surface water management system.

4.10.4 Water quality and quantity sampling shall be performed quarterly at the CR 545 crossing of Davenport Creek (the "**Crossing**") by the U.S. Geological Survey, the Developer or a CDD or Association (the "**Responsible Party**"). This sampling shall extend for at least four years following the earlier to occur or:

4.10.4.(a) Project buildout; or

4.10.4.(b) The date on which Developer delivers to the County a declaration that:

4.10.4.(b)(l) The Project is completed; or

4.10.4.(b)(2) No additional construction is planned or contemplated, regardless of the status of Project phasing. However, if project construction should be re-initiated by Developer at any time following the declaration, then the conditions of the sampling programs shall also be applicable.

4.10.4.(c) Collected data shall be furnished to SFWMD and Osceola County.

4.10.4.(d) If storm water quality at the Crossing is found to violate applicable water quality standards, the Responsible Party shall immediately proceed with the development and implementation of an expanded water quality sampling program to determine the source of the problem in coordination with the SFWMD.

4.10.5. The Developer, CDD or a Properly Owner's Association will incorporate additional water quality treatment and/or water management methods into the project's surface water management system to correct or mitigate any degradation below minimum legal water quality standards of the storm water quality at the Crossing, if the measures implemented by the

Responsible Party are found to be ineffective to restore storm water quality at the Crossing to minimum legal water quality standards or to degrade storm water quality/quantity conditions on or downstream of the project site below minimum legal standards.

4.10 Floodplains.

The Project site design and floodplain compensatory storage requirements shall be based on the information contained in the official FEMA Flood Insurance Rate Maps, supplemented by detailed topographical data, until official FEMA acceptance and approval of other floodplain data.

4.11 Potable and Non-Potable Water.

4.12. l. To meet the non-potable irrigation water use demands of the Project, the Project shall use, in order of priority:

4.12.1.(a) all treated wastewater made reasonably available and proximate to the site by the Toho Water Authority (**TWA**) and/or any on-site wastewater treatment plant, up to the entire non-potable irrigation water demand;

4.12.1.(b) treated stormwater;

4.12.l.(c) non-potable quality groundwater; unless prohibited by the DEP, SFWMD, or other regulatory agency.

4.12.2. Developer shall make all reasonable efforts to secure all permits necessary to reuse treated wastewater effluent for irrigation on the Project site as soon as possible. The Developer shall begin effluent reuse on the site when treated effluent flows meet the permit conditions.

4.12.3. Developer will recommend usage of flow conservation devices such as low-flush toilets and low-flow shower heads

4.12.4. No additional wells are proposed for the Project.

4.12.5. Water conservation methods for the Project will be dictated by the adopted TWA Water Conservation Program.

4.12.6. The Developer will propose dry retention areas and swale systems to encourage aquifer recharge.

4.12.7. To promote aquifer recharge, unpaved conveyance non-roadway systems such as grassed swales, pervious pavement, and exfiltration trenches will be used.

4.12.8. Potable water is to be provided by TWA. If an on-site potable water supply system is built, wells less than one thousand two hundred (1,200) feet deep will be limited to a pumping capacity of nine hundred fifty (950) gallons per minute.

4.12.9. If an on-site potable water supply system is built, no pumping over the rated capacity of pumps will occur.

4.12.10. When planning common area landscape, Developer will address the need to include xeric landscape. moisture detectors, drought tolerant plants, and native flora in the design.

4.12.11. The type of industrial uses planned for the Project is not anticipated to produce wastewater with characteristics significantly different from the wastewater that will be generated by the remainder of the Project. In the event that a future industrial user would generate high strength wastewater, that user will be required to utilize pretreatment methods prior to discharging into the wastewater collection system.

4.12.12. Septic tank disposal systems will not be utilized, except on a limited basis for uses such as temporary construction offices or remote restroom facilities within the golf course.

4.12.13. The proposed water transmission and distribution system will be designed to maintain a minimum residual pressure of twenty (20) pounds per square inch during the most critical demand event.

4.13. Transportation.

4.13.1. Project Trips.

For the purpose of the transportation recommendations, the Project shall be divided into and limited to the following "Trip Phases", based upon years and external total average daily trip ends.

Trip Phase/Year	**External Average Daily Trips ADT**	**Cumulative External ADT**
Phase 1 (2016)	33,700	33,700
Phase 2 (2020)	16,880	50,580
Phase 3 (2023)	16,883	67,463

4.13.2. ***Monitoring and Modeling Methodology.*** The Developer has provided sufficient documentation through the NOPC dated June, 2003 to proceed with Trip Phase I without further monitoring/modeling review. Prior to the initiation of Trip Phase 2 and 3 as identified in the preceding paragraph, the Developer shall conduct a monitoring/modeling program. This program shall ascertain the Level of Service (LOS) on facilities where the Project is estimated to contribute an amount of traffic greater than or equal to ten (10) percent of the LOS "C" service volume. The methodology of the monitoring/modeling program shall be agreed upon by the East Central Florida Regional Planning Council (ECFRPC), Osceola County, Orange County, Polk County, the Reedy Creek Improvement District, the Florida Department of Transportation, the Florida Department of Economic Opportunities and the Developer. The depth of each monitoring and modeling effort shall be similar to that required within an Application for Development Approval but shall be consistent with the requirements of Osceola County as it relates to facilities within the county. All studies and monitoring/modeling programs shall be consistent with the ECFRPC's methodology. A passer-by/diverted trip study shall be included as a part of the

monitoring and modeling studies. In the event that all parties cannot come to agreement on the methodology, the ECFRPC, FDOT and Osceola County shall be the final arbiters. Osceola County's decision shall be final as it relates to county facilities, the FDOT's decision shall be final on state facilities and the ECFRPC's decision shall be final as it relates to all other facilities.

4.13.3. The following list of roadways are those within the study area, which were analyzed for full build out of the Project. 'flue facilities to be monitored/modeled for the next phase may include, but shall not be limited to, those segments of the regional roadways within this list and one segment beyond where the Project is estimated to contribute a cumulative amount of traffic greater than or equal to ten percent of the LOS "C" service volume. The analyzed facilities will include signalized intersections and link analyses of collector and higher classified roadways and interchange ramps.

Osceola County, the ECFRPC, FDOT, Orange County, Polk County, RCID and FDEO shall have the right to make reasonable requests for additional information from the Developer to verify adherence to these provisions. The Developer shall supply adequate information toward compliance with these requirements.

Candidate Roadways for Monitoring/Modeling Study

Roadway	**Segment**
Interstate 4	SR 535 to SR 536
	SR 536 to US 192
	US 192 to World Drive Extension
	World Drive Extension to Western Beltway
	Western Beltway to CR 532
	South of CR 532
US 192	Formosa Gardens Boulevard to CR 545 (South)
	CR 545 (South) to East of Reedy Creek
	East of Reedy Creek to World Drive
	World Drive to Interstate 4
CR 545	US 192 to Westgate Boulevard
	Westgate Boulevard to Indian Ridge Trail
	Indian Ridge Trail to Sinclair Road
	Sinclair Road CR 532
	CR 532 to CR 54
CR 532	CR 54 to Legends Boulevard
	Legends Boulevard to Interstate 4
	Interstate 4 to CR 545
	CR 545 US 17-92

US 17-92	S of CR 532 to CR 532
	CR 532 to Old Tampa Highway
	Old Tampa Highway to Poinciana Boulevard
	Poinciana Boulevard to Ham Brown Road

4.13.4 ***Monitoring and Modeling Results/Mitigation***

(a) The Project shall not commence beyond Trip Phase I (an equivalent of 33,700 external daily trips) into Trip Phase 2 when service levels are below the minimum service level adopted in the applicable local government's comprehensive plan during the peak hour and the project contributes, or is projected to contribute with the next phase of traffic, ten percent of the LOS "C" service volume of the roadway or intersection as determined by the monitoring program required in the preceding condition, unless mitigation measures and/or improvements are secured and committed for completion of construction during the phase in which the impacts occur. This provision shall also apply to each subsequent Trip Phase. The schedule of improvements shall be tied to the development level that the improvement is needed within each Trip Phase. The Development Order shall be amended to incorporate these needs and the commensurate trip level by which the improvement is needed to support project development.

(b) For the purposes of this Development Order, adequate "secured and committed" mitigation measures shall include one of the following:

(l) A roadway improvement scheduled for construction within the first three (3) years of the appropriate local government's adopted comprehensive plan capital improvement element (or as otherwise provided in the applicable jurisdiction's capital improvement element); A roadway improvement scheduled for construction within the first three (3) years of the Florida Department of Transportation's five-year Work Program.

(2) A binding financially secured and irrevocable commitment by the Developer or other appropriate persons or entities for the design, engineering, land acquisition and actual construction of the necessary' improvements (with the posting of a cash bond, surety bond, irrevocable letter of credit, escrow account or other security in a form acceptable to the agency of jurisdiction) within the next three years and incorporated by reference into the Development Order.

(3) Any other mitigation option specifically provided the in this Development Order.

(4) Any other mitigation option permitted by law, including a local government development agreement consistent with Chapter 163, F.S., which ameliorates the projected impact and is incorporated into the Development Order by amendment.

These mitigation measures shall occur by the required threshold in order for the project to proceed through the balance of the applicable phase. If the Developer can demonstrate that a portion of a phase does not adversely affect the Regional Roadway network as determined by the

monitoring and modeling tests discussed above, then the Developer may proceed with that portion of the phase (and only that portion).

4.13.5 In the event that a roadway widening is identified which is not compatible with adopted policy of the FDOT (e.g. 8 or 10 laning of a state roadway) or local government (e.g. constrained), the Developer, Osceola County, the ECFRPC and the party having either maintenance or jurisdictional responsibility for the facility shall jointly determine alternate mitigation solutions to provide for the movement of people.

4.13.6 Toward the achievement of the objectives in the two preceding conditions, an agreement(s) among Osceola County, Polk County, the Florida Department of Transportation and the Developer shall be entered into within twelve months of the issuance of a Development Order for this Project by Osceola County. Said agreement(s) shall address and clarify such issues related to equity in the application of collected fees for transportation improvements. Application of fees shall be on a fair-share basis with respect to the improvements to be provided and not solely on the basis of impact fees. However. such an agreement would not alter or waive the provisions and requirements of the other conditions of the Development Order us a mitigative measure for the transportation impacts of the Project. In the event that one of the designated parties to the agreement (other than the Developer) fails to execute said interlocal agreement(s) within the specified time, then the Developer may proceed with the project based upon the monitoring/modeling schedule and all other recommendations specified herein as it affects the non-participating party. Separate agreements may be entered into with one or more parties and the Developer.

4.13.7. If the monitoring/modeling results as set forth hereinabove show that improvements must be made to roadway facilities, and if mitigation is not provided as set forth in these conditions or as otherwise required pursuant to 9J-2.045(7), then prior to any construction of future phases and subject to the provisions of Section 380.06(15)(e), Florida Statutes, the Developer, Osceola County, and to the extent that they have impacted facilities requiring mitigation, Polk County, the City of Kissimmee and FDOT may enter into an agreement which ensures that:

a) a proportionate share payment is made by the Developer to the appropriate entity/(ies) to mitigate project impacts;

b) said proportionate share payment shall be used by the appropriate entity only for the design, engineering, right-of-way purchase, permitting and/or construction of improvement to the segments/intersections for which the payment is made; and

c) said proportionate share payment by the Developer constitutes adequate provision for the public facilities needed with respect (o the road segments to accommodate the impacts of the project through the phase for which the fair share was calculated, as required by Section Florida Statutes. All such proportionate fair share agreements shall be included in this Development Order by amendment pursuant to Section 380.06(19), F.S. The formula to be used to determine proportionate share contribution is as follows:

PROPORTIONATE SHARE FORMULA

Proportionate Share = DRI Trips * Cost SV Increase

Where:

DRI Trips: cumulative number of trips from the proposed development expected to reach the roadway during the peak hour from the complete build out of a Stage or phase being approved

SV Increase: the change in peak-hour maximum service volume of the roadway resulting from construction of the improvement necessary to maintain the adopted level of service

Cost: cost of construction at the time of developer payment of an improvement necessary to maintain the adopted level of service. Construction costs includes all improvement associated costs, including engineering design, right-of-way acquisition, planning, engineering, inspection. and other associated physical development costs directly required and associated with the construction of the improvement, as determined by the governmental agency having maintenance authority over the roadway.

Source: Rule 9J-2.045 (2)(h)FAC

4.13.8 The following state and regionally significant roadway segment is projected to be both significantly impacted by traffic from the Project development and to operate below the adopted level of service standard. Mitigation must be in place prior to the Project exceeding the external daily trip level noted below unless the final results of the monitoring and modeling study proves otherwise. Additional roadway facilities may be added or deleted and the development order amended accordingly based upon the results of each monitoring and modeling study, as necessary.

a) 39,120 external ADT; US 17-92 shall be 4 laned from CR 532 to Old Tampa Highway, including bridge section.

4.13.9 In order to provide safe access and to preserve operational capacity, left and right tum deceleration lanes shall be constructed at all project entrances along CR 545 and CR 532 and within the Project per County standards. Direct parcel access to these roadways shall be in accordance with Map H and otherwise limited to the greatest extent possible.

4.13.10. Developer shall construct or cause to be constructed the following roads in accordance with the schedule set forth below:

4.13.10.(a) West Side Connector. Pursuant to the County Comprehensive Plan, the West Side Connector from Sinclair Road/CR 545 area shall be aligned to a Goodman Road area/CR 532 west of 1-4.

Developer shall design, permit, fund and construct this roadway supporting this development with an alignment approved by the County as follows:

(l) Before commencement of improvements and construction of the West Side Connector roadway, the Developer shall submit buffer alternatives to the County for approval regarding the following two portions of Sinclair Road that impact properties to the west:

(A) Sinclair Road, south of the Office Land Use, running along the western boundary of the DRI, and

(B) Sinclair Road, north of the Tri County Road connection, running along the western boundary of the DRI.

(2) The Developer has provided the County with a professionally prepared study analyzing the potential alternative road connections, one being a public 2 lane road starting at Sinclair Road on the north to Goodman Road on the south, and the other being a public 2 lane road starting at Sinclair Road on the north connecting to Tri County Road on the south. Upon receipt of the study the County reviewed the study's content and determined the Tri County Road connection shall be utilized.

(3) In the event the County requires the Developer to construct the West Side Connector tying into to existing public road system (county collector), then the County and the Developer shall enter into a Construction Agreement. This Agreement will include, but is not limited to, construction and associated costs, further allocation of construction costs and mobility fee credits (if any), for this West Side Connector and also for any improvements to the overall adjacent road network. Construction of on-site and off-site roadway segments will be clarified, timing and responsibility detailed. County's contribution (if any) shall not exceed the maximum amount of TIF (Transportation Impact Fees) or equivalent fee structure collected from the project.

(4) By not later than the date on which Building Permits have been issued for developments on the Project which, in the aggregate total, are projected (pursuant to the Final Engineering Site Development Plans approved by the County for such developments) to account for 33,700 ADT, Developer shall construct a roadway selected by County as set forth in subsection 4.13.10 (f)(2) above. However, in any event this roadway shall be built and operational prior to a total trip generation of 10,000 ADT (as approved by the County) associated with the development located within the Project west of 1-4.

4.13.11. In the interest of safety, and to promote alternative forms of transportation, the Developer shall provide a safe system for cyclist and pedestrian circulation on site. The Developer shall construct a system of viable bikeways to connect all residential neighborhoods with commercial areas, parks, the civic areas and employment areas as well as to each other. Such bikeways will be provided in accordance with the current state recommended standards at the time of implementation. Appropriate signs identifying bike routes shall be installed. A bikeway is defined as any road, path, or way which in some manner is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be with other transportation modes. On-site bicycle systems shall be connected at project entrances with external bicycle systems and shall be designed to ensure a

safe transition between legally designated bicycle zones on the external roadway network and this project's bicycle facilities. The Developer shall consult with the ECFRPC'S or Osceola County's bicycle coordinator and the Osceola County Engineer regarding the provisions for pedestrian and bicycle facilities. The provision of showers and lockers for employees is strongly encouraged at places of employment.

4.13.12. The Developer shall make known to tenants and residents that the Project is served by an existing ridesharing program operated by LYNX. Future transit (when available) and current ridesharing information shall be prominently displayed in all public gathering areas, in employment centers, and in commercial center areas. The Developer shall require that, when employment levels within the Project reach five hundred (500), a part time ridesharing coordinator is appointed or hired for the life of this DO and beyond. The ridesharing coordinator is responsible for coordinating with the area transit provider, conducting ridesharing campaigns within the project, publicity, processing applications, distributing information (including transmit information), etc. When the number of on-site residents who work, in combination with the number of employment opportunities on site within the Project reach the four thousand (4,000) level, this rideshare coordinator shall be a full time position and may be incorporated into the functions of any Transportation Management Association (TMA) if one exists which services the Project area.

4.13.13. The Project will reserve stops for public transit service. and coordinate any shuttle service, when operational, with public transit routes. At a minimum, if the public transit provider and the County agree that projected ridership justifies service, the Developer shall ensure, through financial support if necessary, that at least one public transit route serving the Project is operated on at least a trial basis by the end of Calendar Year 2010, unless Declarant can demonstrate that the cumulative External Average Daily Trips as of such date are less than forty-two thousand one hundred ninety (42,190), in which event implementation of such transit route shall be delayed until the year following attainment of such traffic threshold. The trial service may be operated for up to one year. After the one year trial service, the service may be continued in subsequent years as long as actual ridership meets the minimum ridership necessary to justify the service, as determined by the transit provider and County. The Developers financial contribution in the initial year, or in any subsequent year of operation, shall not exceed a pro-rata share of the total transit subsidy equal to the proportion of the transit capacity used by residents and employees of the Project.

4.13.14. Transit passenger shelters and transit parking bays shall be constructed where necessary to augment and facilitate the operations of off-site transit facilities. The Developer shall work with the public transit provider on the design of bus facilities and amenities, including bus stops, to be located within the Project boundaries. The following minimum transit considerations shall be addressed using the transit provider's guidelines at the time of roadway construction or at the time of service implementation:

- Access and internal collector and arterial road geometrics;
- Developer provision of shelters and pull-out bays along the on-site transit route;
- Signs and lighting;
- Transit schedule and information displays;
- Developer maintenance of transit amenities; Spacing and location of bus stops; and

- Shuttle service coordination with the regional transit network, as applicable.

If additional on site property is necessary for bus stops beyond that which can be accommodated within the existing right-of-way, then this land shall be provided by the developer or its successors.

4.13.15. The Developer shall become an active and financially supportive member of any Transportation Management Association (TMA) which services this area. Mandatory membership by all non-residential entities within the Project shall be required through enforceable covenants or other similar mechanisms. Either through the TMA or individually, the Reunion Resort & Club of Orlando DRI shall provide or require of tenants the following:

4.13.15.(a) Transit and ridesharing studies shall be conducted by employers of more than fifty (50) people to assess travel patterns and commuting needs. This information shall be supplied to the TMA, if one is operational, and the transit provider, and shall be summarized and included in the Annual Report.

4.13.15.(b) Preferential parking (e.g., near building entrances. covered parking, etc.) will be provided by employers to their employees who participate in rideshare programs;

4.13.15.(c) For the benefit of Project residents, at least one park and ride lot shall be provided either on or near site for use as a rideshare lot to lessen the overall impacts on regional roadways. Such lots shall accommodate approximately one hundred (100) vehicles and may be shared with parking for commercial land uses and shall be coordinated with available transit systems. To accomplish timing and location criteria, the Developer will coordinate implementation of this condition with Osceola County, the area transit provider and the Metropolitan Planning Organization;

4.13.15.(d) Promote and encourage variable work hours and flextime participation by on-site employers.

4.13.15.(e) Make known to tenants and residents that the Project area is served by an existing ridesharing program operated by LYNX. Future transit (when available) and current ridesharing information shall be prominently displayed in all public gathering areas, in employment centers and in commercial centers;

4.13.15.(f) The Developer shall ensure that a daycare center is provided on site for the benefit of all employees on site. This daycare center shall be operational as soon as practical, but must be operated prior to exceeding the 33,700 ADT level.

4.13.16. The Developer shall commit to a definite percentage goal toward the reduction in vehicle trips through the promotion of walking, bicycling, ridesharing and transit usage. This shall be encouraged by the Developer and the TMA (if operational) through incentives to tenants and land owners within the Project. The percentage reduction goals shall be as follows:

4.13.16.(a) Reunion Resort & Club of Orlando DRI Variable Work Hour & Flextime Participation Goal:

Phase 1	10% of office employees
Phase 2	15% of office employees
Phase 3	20% of office employees

4.13.16.(b) Reunion Resort & Club of Orlando DRI Overall Peak Hour Traffic Reduction Goal:

Phase 1	10% of peak hour volume
Phase 2	15% of peak hour volume
Phase 3	20% of peak hour volume

4.13.17. Within the context of the Annual Report, the Developer shall present an evaluation of the state or the alternate transportation systems serving the Project. Progress shall be compared to the goals and requirements stated above. Progress for the reporting year shall be documented to include ridership levels, transit route changes, alterations or additions, ridesharing participation, transit amenity construction, park-and-ride lot sites and other efforts which facilitate movement into and around the Project by means other than the single occupant vehicle.

4.13.18. In order to facilitate movement the development plan's street system shall incorporate an interconnected roadway pattern to the extent feasible and consistent with applicable environmental constraints in order to obviate the need to access higher classification roadways for internal access. Furthermore, said roadway system shall be integrated into the surrounding roadway network, as deemed feasible by the County. A roadway system which maintains the desired character of the project and which is sensitive to the natural environment of the site is acceptable. Connections to adjacent projects are encouraged as are donations of right of way to provide transportation corridors through the Project where there is a rational nexus to site generated impacts.

4.13.19. All hotels on, site shall operate or have access to transit shuttles which will service the Orlando International Airport and local tourist attractions. This service shall also be made available to patrons of the resort residential areas.

4.13.20. The applicant for parcel development will construct all access points per County standards, including signalized intersections, as needed and warranted and modify existing intersections as impacted and warranted by the proposed development within the Reunion Resort & Club of Orlando project.

4.14. Recreation and Open Space.

4.15.1. Three (3) 18-hole golf courses and clubhouses will be part of the Project.

4.15.2. The Project will also contain trail systems, buffers, and recreation areas within developed parcels that are not yet quantified.

4.15.3. The needs of special population groups will be considered during the design of parks and recreational facilities.

4.15.4. Developer has provided a Golf Course Environmental Management Plan that establishes the following criteria which shall be followed and compliance reported in the annual report:

4.15.4(a) Pesticides, nematicides, fungicides, herbicides, their rates or applications, types used and the location of all their storage facilities.

4.15.4(b) The educational program(s) for all employees that will handle, or apply, any chemicals to the golf courses.

4.15.4(c) A periodic surface and Florida ground water quality monitoring program approved by Osceola County, inclusive of water quality data collection techniques and times when data will be collected.

4.15.4(d) A stormwater pond surface water quality monitoring program approved by Osceola County, inclusive or water quality data collection techniques and times when data will be collected.

4.15.4.(e) Consistency with the "Best Management Practices for Florida Golf Courses" publication by the University of Florida Second Edition.

4.15. Health Care.

Land designated as commercial, office, or mixed-use development on Map H will be available to accommodate medical or health facilities (except hospitals).

5. PERIOD OF EFFECTIVENESS; ILLEGALITY

5.1. This DO and any subsequent amendment shall be effective on the date it is transmitted by Osceola County to the Developer, the owner of the Property, the Florida Department of Economic Opportunities and the East Central Florida Regional Planning Council. The date of transmission is also "rendition" under Rule 9J-2.025(5), FAC. Under Section 380.07, Florida Statutes, an appeal may be taken within forty-five (45) days after rendition. Any construction activity undertaken by the Developer prior to the expiration of the forty-five (45) day statutory period shall be at the Developer's risk.

5.2. The right to develop this Project, subject to the terms, general provisions, and conditions of this DO, shall terminate December 31, 2023.

5.3. The DO shall be binding upon the Developer and its heirs, assigns and successors in interest. It is understood that any reference to any governmental agency shall be construed to mean any future instrumentality which may be created or designated successor in interest to, or otherwise possesses, any of the powers and duties of any referenced governmental agency in existence on the effective date of this DO.

5.4. In the event that any portion or section of this DO is determined to be invalid, illegal or unconstitutional by a court of competent jurisdiction, such decision shall not void or invalidate the remaining portions of the DO, but such a decision shall have the effect of suspending development activity in the affected portion of the development of regional impact until a corrective amendment is processed and approved in accordance with the requirements of Section 380.06, Florida Statutes.

5.5. The approval granted by this DO shall not be construed to obviate the duty of the Developer to comply with all other applicable local or state permitting procedures.

5.6. LRA Orlando LLC, a Florida limited liability company and Reunion West Development Partners, LLC, a Florida limited liability company , and or their designated successor(s) shall, for purposes of this DO, be deemed the "Developer" of the portion of the Properly owned by LRA Orlando, LLC and Reunion West Development Partners, LLC respectively or their designated successor(s) from time to time.

6. MONITORING PROCEDURES

6.1. Osceola County shall be responsible for enforcing the provisions of this DO.

6.2. The established review and approval process for review of development pursuant to the Osceola County Code, constitutes monitoring procedures for assuring compliance with this DO as specified in Section 380.06(15)(e)1, Florida Statutes. The local official responsible for assuring compliance by the Developer with this DO shall be the County Manager or his designee.

7. RESTRICTIONS ON DOWN ZONING

The Project will not be subject to downzoning, unit density reduction or intensity reduction until Project buildout (December 31, 2023), unless it is demonstrated that substantial changes in the conditions underlying the approval of this DO have occurred, or that this DO was based on substantially inaccurate information provided by the Developer, or that the change is clearly established by Osceola County to be essential to the public health, safety or welfare.

8. MODIFICATIONS TO THE DO

The Developer shall submit, simultaneously, to the County, ECFRPC and DEO any requests for approval of a proposed change to this DO required by law or pursuant to this DO. This submission shall be in a format established by the DEO and shall include as a minimum the precise language which is proposed for deletion or addition to the DO and a statement summarizing all previous changes that have been made to the DO.

9. ANNUAL REPORT REQUIREMENTS

9.1. The Developer or its successors will submit one biennial report (a "**Biennial Report**") for the entire Property on or before November 1 of each required reporting year for the life of the DO. In the event that the Property is sold to one or more other parties for development purposes, then the Developer or its successors shall retain the responsibility for seeing that the Biennial Report is timely submitted and addresses development on the entire Property. Any successor to the Developer of any parcel of the Property shall be bound by this DO and required

to submit to the Developer the information necessary for filing the Biennial Report. Each Biennial Report will be submitted to the County, ECFRPC, DEO, and all affected permitting agencies. The report shall include any information specifically required to be included by the conditions of the DO, as well as the information enumerated below, and shall be presented in a format specified by the DEO. The report to Osceola County shall also include a statement that all persons/agencies listed above have been sent copies of the Biennial Report.

9.2. The Biennial Report shall address the following:

9.2.1. Changes in Map H or in the representations contained in the ADA, or in the phasing for the reporting year and for the next year;

9.2.2. A summary comparison of development activity proposed and actually conducted for the year and a cumulative summary of all development that has occurred under this DO;

9.2.3. Identification of undeveloped tracts of land other than individual single family lots that have been sold to a separate entity or developer;

9.2.4. Identification and intended use of lands purchased, leased or optioned by the Developer adjacent to the Property since this DO was issued;

9.2.5. An assessment of the Developer's and Osceola County's compliance with each condition of approval contained in this DO and the commitments which are contained in the Application for Development Approval and which have been identified by Osceola County, the ECFRPC or the DEO as being significant.

9.2.6. Any known incremental development of regional impact applications for development approval or requests for a substantial deviation determination that were filed during the reporting year, or to be filed the next year;

9.2.7. An indication of a change, if any, in local government jurisdiction for any portion of the development since the DO was issued:

9.2.8. A list of significant local, state and federal permits which have been obtained or which are pending by agency, type of permit, permit number and purpose of each;

9.2.9. A statement that all persons/entities have been sent copies of the Annual Report in conformance with subsections 380.06(15) and (18), Florida Statutes.

9.2.10. A copy of any notice of the adoption of a DO or the subsequent modification of an adopted DO that was recorded by the Developer pursuant to subsection 380.06(15)(f), Florida Statutes.

9.2.11. A map of overall Project development at the same scale as the Revised Master Plan. Graphically depicted on the map shall be, a) the boundaries of all development approved during the reporting period, b) past years and c) development expected to be approved in the coming year. Within each boundary shall be the local approval (application) number and the amount of development approved; e.g. square footage, dwelling units, etc.

9.2.12. A development summary table shall be completed each year to summarize development activity depicted on the map submitted pursuant to Section 9.2.11. above.

9.2.13. The final Biennial Report shall include a statement indicating that all development authorized by the DO has been completed or that no further developments are desired and that all conditions of approval have been satisfied.

9.3. If Osceola County does not receive the Biennial Report or receives notification that the ECFRPC, the DEO or any affected permit agency has not received the report, then Osceola County shall request in writing that the Developer submit the report within thirty (30) days. The failure to submit the report after thirty days may result in the temporary suspension of this DO by Osceola County.

9.4. When completing the development summary table required by Section 9.2.12, Column (l) shall include a total for each land use type by its appropriate unit of measure (e.g., number of dwelling units, square feet). The site development plan ("SDP") file number shall be indicated. Column (2) shall include an aggregate total of ADTs which are assigned to each land use type listed in Column (l) and are consistent with the methodology to be agreed upon prior to submittal of any SDP. This methodology shall be agreed upon by the Developer, Osceola County and the ECFRPC. Column (3) shall include an accounting of the SDPs approved in the previous calendar year. Each individual SDP shall be identified by the file number and amount of development approved. In Column (4) ADTs by land use type and their total shall be indicated for the development in Column (3), consistent with the methodology previously agreed upon by the Developer, Osceola County and the ECFRPC. Column (5) is the total amount of each land use type approved to date for the Project. In Column (6), the balance of each land use type not yet approved for development shall be indicated: this figure is to be adjusted to reflect the most recently approved SDPs. Columns (7) and (8) are to reflect total and annual Certificates of Occupancy. Both the map and the table shall reflect all approved amendments. Notes shall be included to identify those amendments including, but not limited to SDPs which are superseded, amended or voided.

10. RECORDING

Within ten (10) days of the issuance of this DO, the Developer shall cause a notice of the adoption of the DO and any subsequent modification of the DO to be recorded, at the Developer's expense, with the Clerk of the Circuit Court of Osceola County. This notice shall meet the requirements of Section 380.06(15)(f), Florida Statutes. The recording of this notice shall not constitute a lien, cloud, or encumbrance on the Property, or actual or constructive notice of any such lien, cloud or encumbrance. This DO constitutes a land development regulation applicable to the Property.

11. VESTED RIGHTS

The approval of this DO shall not be interpreted to grant the Project vested rights (pursuant to Section 163.3167(8), Florida Statutes), from: (i) the terms of the 1991 Osceola County Comprehensive Plan, as amended; or (ii) the requirements of laws and ordinances to be hereafter adopted by Osceola County, including the Osceola County Land Development Code. Notwithstanding the foregoing, it is hereby agreed and understood that the Property is vested as to

the land uses, densities, and intensities of development set forth in this DO, as well as to the average daily trips set forth in Condition 4.13.1 hereof. It is understood and agreed that the vesting of the Properly for the average daily trips shown in Trip Phases 2 and 3 are conditioned upon the provisions for monitoring, modeling and possible offsite transportation improvements set forth in Section 4.13.2 through 4.13.10 hereof.

BOARD OF OSCEOLA COMMISSIONERS
OF OSCEOLA COUNTY, FLORIDA

_____

ATTEST:

_____
Clerk of the
Board of County Commissioners

STATE OF FLORIDA)
) SS
COUNTY OF OSCEOLA)

On this day before me, a Notary Public duly authorized in State and County aforesaid to take oaths and acknowledgement, personally appeared _____and _____respectively as Chairman and Clerk of the Board of County Commissioners of Osceola County, Florida who (a) the undersigned personally knows, and (b) acknowledged executing the foregoing instrument. No oath was taken.

Date _____day of _____ 2018

_____
Signature of person taking acknowledgement

XXXXXXXXXXXXXXXXXNotary Public, State of Florida
My comm. exp XXXXXXXXXX
Comm. No XXXXXXXXXXXXXXXXX

_____
Name of acknowledgment typed printed or stamped

_____
Title or rank

_____
Serial number, if any

MAGNOLIA CREEK

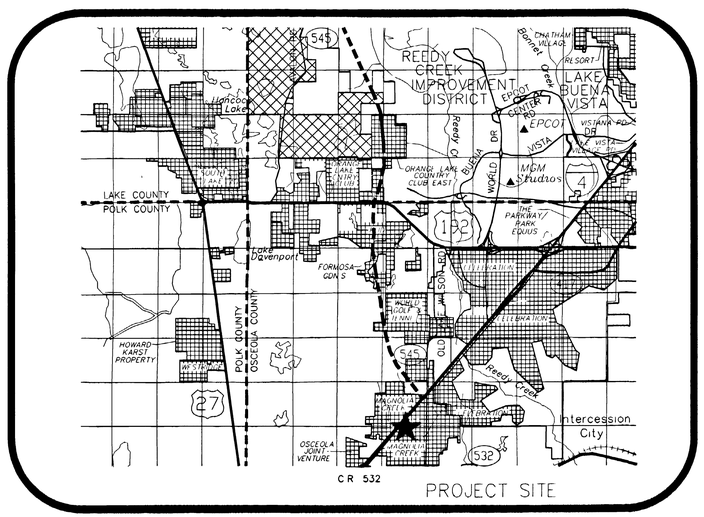
A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO.
PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST
PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA
SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST
OSCEOLA COUNTY, FLORIDA

NOTICE

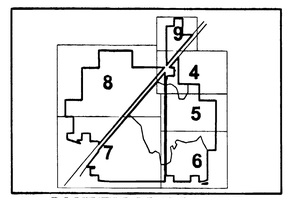
THIS PLAT, AS RECORDED IN ITS GRAPHIC FORM, IS THE OFFICIAL DEPICTION OF THE SUBDIVIDED LANDS DESCRIBED HEREIN AND WILL IN NO CIRCUMSTANCES BE SUPPLANTED IN AUTHORITY BY ANY OTHER GRAPHIC OR DIGITAL FORM OF THE PLAT. THERE MAY BE ADDITIONAL RESTRICTIONS THAT ARE NOT RECORDED ON THIS PLAT THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY.

DECLARATION OF COVENANTS AND RESTRICTIONS

DECLARATION OF COVENANTS AND RESTRICTIONS FOR THIS PLAT ARE FILED IN OFFICIAL RECORDS BOOK _____, PAGES _____ OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA



VICINITY MAP



SHEET KEY MAP

NOTES

1 BEARINGS ARE BASED ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF INTERSTATE 4, HAVING AN ASSUMED BEARING OF N 40°04'38" E, PER PLAT
2 □ DENOTES SET PERMANENT REFERENCE MONUMENT (LB #6393)
3 O DENOTES SET 1/2" IRON ROD & CAP (LB #6393)
4 ◉ DENOTES SET PK NAIL & DISC (LB #6393)
5 ● DENOTES RECOVERED MONUMENTATION – AS NOTED
6 ■ DENOTES RECOVERED CONCRETE MONUMENT – AS NOTED
7 R-O-W DENOTES RIGHT OF WAY
8 FLORIDA FRUIT AND TRUCK LAND REFERS TO THE RECORD PLAT OF FLORIDA FRUIT AND TRUCK LAND COMPANY'S PLAT AS RECORDED IN PLAT BOOK "B" PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA
9 EASEMENTS REFERRED TO AS "PARCELS" IN THEIR RECORDED INSTRUMENTS OF THE PUBLIC RECORDS OF THIS COUNTY DO NOT CONSTITUTE A LOT OR A SUBDIVIDED TRACT BY VIRTUE OF THIS PLAT
10 SEE SHEET 10 OF 10 FOR LOT AND TRACT GEOMETRY DETAIL

AMERICAN SURVEYING & MAPPING
320 EAST SOUTH STREET SUITE 180 ORLANDO FLORIDA 32801
(407) 426-7979

MAGNOLIA CREEK DEDICATION

AS TO: LOT 2 BLOCK 2, LOT 2 BLOCK 1 TRACT D & F BLOCK 1 AND TRACT E & G BLOCK 2

KNOW ALL MEN BY THESE PRESENTS, that the limited partnership named below, being the owner in fee simple of the lands described in the foregoing caption to this plat, does hereby dedicate said lands and plat for the uses and purposes therein expressed and dedicates the RIGHTS OF WAY BEING **RIGHTS OF WAY TRACT D, TRACT E, TRACT F, AND TRACT G** shown hereon to the perpetual use of the public.

IN WITNESS WHEREOF, GINN-LA ORLANDO, L.P., has caused these presents to be signed on AUGUST 16, 2000

GINN-LA ORLANDO, L.P.,
a Georgia limited partnership
By: Ginn-Orlando GP, LLC, a Georgia limited liability company, its general partner

By: _____
James E. Cooper, Vice President

Signed and sealed in the presence of:
Sara McIntosh
PRINTED NAME
Kim McIntosh
Cynthia Perez
PRINTED NAME

STATE OF FLORIDA COUNTY OF ORANGE

THIS IS TO CERTIFY, that on August 16, 2000, before me, an officer duly authorized to take acknowledgments in the state and county aforesaid, personally appeared JAMES E. COOPER, Vice President of Ginn-Orlando GP, LLC, Georgia limited liability company, the General Partner of Ginn-LA Orlando, L.P., a Georgia limited partnership, on behalf of said limited partnership, who executed the foregoing Dedication and he acknowledged the execution thereof to be his free act and deed as such officer thereunto duly authorized and that said Dedication is the act and deed of said limited liability company.

IN WITNESS WHEREOF, I have hereto set my hand and seal on the above date.

Sara McIntosh
NOTARY PUBLIC
My Commission Expires 10/24/03

PLAT BOOK 12 PAGE 70

MAGNOLIA CREEK DEDICATION

AS TO: LOT 1 & 3 BLOCK 1, LOT 1 & 3 BLOCK 2 LOT 1 BLOCK 3, LOT 1 BLOCK 4, LOT 1 BLOCK 5 TRACTS B & H BLOCK 1, TRACTS C & I BLOCK 2 AND TRACT A BLOCK 4 AND TRACT J BLOCK 3

KNOW ALL MEN BY THESE PRESENTS, that the partnership named below, being the owner in fee simple of the lands described in the foregoing caption to this plat, does hereby dedicate said lands and plat for the uses and purposes therein expressed and dedicates the RIGHTS OF WAY BEING **RIGHTS OF WAY TRACT A, TRACT B, TRACT C, TRACT H, AND TRACT I** AND TRACT J shown hereon to the perpetual use of the public.

IN WITNESS WHEREOF, HERMAN J HEIDRICH & SONS has caused these presents to be signed on AUGUST 16, 2000

HERMAN J. HEIDRICH & SONS
A Florida General Partnership

Francis X. Heidrich, Sr.
Francis X. Heidrich, Sr.
Managing General Partner

Signed and sealed in the presence of:
PRINTED NAME Kenneth F. Oswald
Karen Reynolds
PRINTED NAME KAREN REYNOLDS

STATE OF FLORIDA COUNTY OF ORANGE

THIS IS TO CERTIFY, that on August 16, 2000, before me, an officer duly authorized to take acknowledgments in the state and county aforesaid, personally appeared FRANCIS X. HEIDRICH, Sr., as Managing General Partner of Herman J. Heidrich & Sons, a Florida General Partnership, on behalf of the partnership, who executed the foregoing Dedication and he acknowledged the execution thereof to be his free act and deed as Managing General Partner of the partnership thereunto duly authorized, and that said Dedication is the act and deed of said general partnership.

IN WITNESS WHEREOF, I have hereto set my hand and seal on the above date.

Karen Reynolds
NOTARY PUBLIC
My Commission Expires July 23, 2004

CERTIFICATE OF SURVEYOR

KNOW ALL MEN BY THESE PRESENTS, That the undersigned, being a licensed land surveyor registered in the State of Florida, does hereby certify that on August 16, 2000, he completed the survey of the lands as shown in the foregoing plat and said survey was made under his responsible direction and supervision. The survey data complies with all of the requirements of Florida Statutes, Chapter 177. The Permanent Reference Monuments (PRM's) have been placed as shown hereon as required by said Chapter 177. The Permanent Control Points (P.C.P's) have been or will be placed as required by said Chapter 177. The land is located in Sections 23,26,27,28,33,34 & 35, Township 25 South, Range 27 East, Osceola County, Florida

8/16/00
SURVEYOR'S NAME BRETT A MOSCOVITZ DATE
REGISTRATION NUMBER P.L.S. 5011
FLORIDA PROFESSIONAL SURVEYOR
REGISTRATION NUMBER OF LEGAL ENTITY LB 6393
AMERICAN SURVEYING AND MAPPING, INC
320 EAST SOUTH STREET, SUITE 180 ORLANDO FLORIDA 32801

CERTIFICATE OF APPROVAL BY COUNTY SURVEYOR

UPON A REVIEW THIS PLAT CONFORMS TO CHAPTER 177, FLORIDA STATUTES

SURVEYOR'S NAME Bruce E. Dutton SIGNATURE _____

REGISTRATION NUMBER 3916 DATE 30400
FLORIDA PROFESSIONAL SURVEYOR AND MAPPER REPRESENTING OSCEOLA COUNTY

CERTIFICATE OF APPROVAL BY PLANNING COMMISSION

THIS IS TO CERTIFY, That on September 7, 2000 the Osceola County Planning Commission approved the above plat

_____ Chairman

CERTIFICATE OF APPROVAL BOARD OF COUNTY COMMISSIONERS

THIS IS TO CERTIFY that on October 16, 2000 the Board of County Commissioners of Osceola County approved the foregoing

_____
CHAIRMAN OF THE BOARD

CERTIFICATE OF APPROVAL COUNTY ENGINEER

EXAMINED AND APPROVED _____ 10-26-00
COUNTY ENGINEER DATE

CERTIFICATE OF COUNTY CLERK

I HEREBY CERTIFY, That I have examined the foregoing plat and find that it complies in form with all the requirements of Chapter 177, Florida Statutes, & the Osceola County Minimum Land Subdivision Regulations and was filed for record on 10-31-2000 at 11:14 A.M.

File Number 2000163746

LARRY WHALEY
CLERK OF THE CIRCUIT COURT
In and for Osceola County, FL
BY: _____

PLAT BOOK 12 PAGE 71

DEEDS, COVENANTS AND RESTRICTIONS
DEEDS AND RESTRICTIONS FOR THIS PLAT ARE FILED IN OFFICIAL RECORDS BOOK ____, PAGES ____ OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA AND ARE ACCOMPANIED BY DEED COVENANTS

MAGNOLIA CREEK

A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO
PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST
PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA
SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST
OSCEOLA COUNTY, FLORIDA

BLOCK 1

ALL THAT TRACT OR PARCEL OF LAND lying and being in Sections 33, 34 and 27, Township 25 South, Range 27 East, Osceola County, Florida and lying within Florida Fruit & Truck Land Co subdivision as recorded in Plat Book B, Page 68 of the public records of Osceola County, Florida and being more particularly described as follows

COMMENCE at the southeast corner of Section 34, Township 25 South, Range 27 East, Osceola County, Florida, thence run North 00°16'21" West along the easterly line of the southeast 1/4 of said Section 34, a distance of 200 26 feet to a point, thence leave the said east line North 89°54'48" West, a distance of 31 80 feet to the point of intersection of the northerly right of way line of County Road No 532 (200' wide right of way) and the westerly right of way line of County Road No 545 (70' wide right of way) per Florida Department of Transportation right of way map section no 92652-2601 sheet 3 of 5 said point being the TRUE POINT OF BEGINNING, FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence run along and coincident with the northerly right of way line of County Road No 532, being 100 feet north of and parallel with the centerline thereof, North 89°54'48" West, a distance of 2622 25 feet to a point on the easterly line of the southwest 1/4 of said Section 34, thence continue to run along and coincident with the northerly right of way line of County Road No 532 North 89°53'57" West, a distance of 2074 98 feet to the point of curvature of a circular curve concaved northeasterly having a radius of 2764 93 feet and a chord bearing of North 84°22'57" West, thence continue to run northwesterly along the arc of said curve through a central angle of 11°02'00", a distance of 532 44 feet to the point of tangency, thence continue along and coincident with the northerly right of way line of County Road No 532 North 78°51'57" West, a distance of 51 20 feet to a point on the westerly line of the southwest 1/4 of said Section 34, thence leave the northerly right of way line of County Road No 532 and run along and coincident with the westerly line of the southwest 1/4 of said Section 34 North 00°07'05" East, a distance of 400 77 feet to a point; thence leave the westerly line of the southwest 1/4 of said Section 34 and run North 89°53'02" West, a distance of 663 93 feet to a point, thence run North 00°06'35" East, a distance of 537 72 feet to a point, thence run South 89°55'33" East, a distance of 350 00 feet to a point, thence run North 00°06'35" East, a distance of 125 00 feet to a point, thence run North 89°55'33" West, a distance of 628 37 feet to a point on the easterly right of way line of Interstate - 4 (State Road 400) (variable right-of-way width) per Osceola County, Florida right of way map of interchange of County Road 532 and Interstate - 4 Section 92130-2421, thence run along and coincident with the easterly right of way line of Interstate - 4 per Osceola County, Florida right of way map of interchange of County Road 532 and Interstate - 4 Section 92130-2421 North 39°00'29" East, a distance of 1501 06 feet to a point, thence continue to run along and coincident with the easterly right of way line of Interstate - 4 per Osceola County, Florida right of way map of interchange of County Road 532 and Interstate - 4 Section 92130-2421 North 00°07'05" East, a distance of 108 74 feet to a point on the easterly right of way line of Interstate - 4 per Florida Department of Transportation right of way map section no 92130-2401, thence continue to run along and coincident with the easterly right of way line of Interstate - 4 per Florida Department of Transportation right of way map section no 92130-2401 North 40°08'26" East, a distance of 8210 98 feet to a point of intersection of the easterly right of way line of Interstate - 4 per Florida Department of Transportation right of way map section no 92130-2401 and the westerly right of way line of County Road No 545, thence leave the easterly right of way line of Interstate - 4 per Florida Department of Transportation right of way map section no 92130-2401 and run along and coincident with the westerly right of way line of said County Road 545 South 00°14'22" West, a distance of 606 01 feet to a point, thence continue to run along and coincident with the westerly right of way line of County Road No 545 South 89°43'38" East, a distance of 15 00 feet to a point, thence continue to run along and coincident with the westerly right of way line of County Road No 545 South 00°14'22" West a distance of 2991 89 feet to a point, thence continue to run along and coincident with the westerly right of way line of County Road No 545 South 00°42'37" West, a distance of 2639 08 feet to a point, thence continue to run along and coincident with the westerly right of way line of County Road No 545 South 00°15'35" East, a distance of 2450 13 feet to a point, said point being the TRUE POINT OF BEGINNING

Said tract containing 693 21 acres, more or less

TOGETHER WITH

BLOCK 2

ALL THAT TRACT OR PARCEL OF LAND lying and being in Sections 35 and 26, Township 25 South, Range 27 East, Osceola County, Florida and lying within Florida Fruit & Truck Land Co subdivision as recorded in Plat Book B, Page 68 of the public records of Osceola County, Florida and being more particularly described as follows.

COMMENCE at the southeast corner of Section 35, Township 25 South, Range 27 East, Osceola County, Florida, thence run along and coincident with the westerly line of the southwest 1/4 of said Section 35 North 00°16'21" West, a distance of 662 62 feet to a point, thence leave the westerly line of the south west 1/4 of said Section 35 and run South 89°59'34" East, a distance of 33 91 feet to a point on the easterly right-of-way line of County Road No 545 (70' wide right-of-way), said point being the TRUE POINT OF BEGINNING, FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence run along and coincident with the easterly right-of-way line of County Road No 545 North 00°15'35" West a distance of 1987 53 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 North 00°42'38" East, a distance of 2638 77 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 North 00°14'22" East, a distance of 2992 18 feet to a point on the easterly right of way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 thence continue to run along and coincident with the easterly right of way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 South 89°45'38" East a distance of 15 00 feet to a point thence continue to run along and coincident with the easterly right of way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 North 00°14'22" East, a distance of 100 00 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 South 89°45'38" East, a distance of 50 00 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 North 00°14'22" East, a distance of 248 12 feet to a point, thence leave the easterly right-of-way line of County Road No 545 per Florida Department of Transportation right-of-way map Section 92130-2401 and run South 89°52'23" East, a distance of 560 98 feet to a point, thence run North 00°10'47" East, a distance of 368 71 feet to a point, thence run South 89°49'13" East a distance of 80 60 feet to a point, thence run North 00°10'47" East, a distance of 80 00 feet to a point thence run North 89°49'13" West, a distance of 80 60 feet to a point, thence run North 00°10'47" East, a distance of 229 43 feet to a point, thence run North 89°58'14" West, a distance of 360 74 feet to a point on the easterly right-of-way line of Interstate - 4 (State Road 400) (variable right-of-way width) per Florida Department of Transportation right-of-way map Section 92130-2401, thence run along and coincident with the easterly right-of-way line of Interstate - 4 per Florida Department of Transportation right-of-way map Section 92130-2401 North 40°08'26" East, a distance of 1080 09 feet to a point, thence leave the easterly right-of-way line of Interstate - 4 per Florida Department of Transportation right-of-way map Section 92130-2401 and run along and coincident with the westerly line of Lot 7 and Lot 14 Block B and the southerly extension thereof of said Florida Fruit & Truck Land Co Section 26, Township 25 South, Range 27 East Osceola County, Florida South 00°10'09" West, a distance of 2152 54 feet to a point on the south line of the northwest 1/4 of said Section 26 thence run along and coincident with the south line of the northwest 1/4 of said Section 26 South 89°54'13" East, a distance of 1666 80 feet to a point on the northeast corner of the southwest 1/4 of said Section 26 thence run South 00°06'57" West, a distance of 1331 67 feet to a point on the southeast corner of the northeast 1/4 of the southwest 1/4 of said Section 26, thence run South 89°56'59" East, a distance of 1326 84 feet to a point on the northeast corner of the southwest 1/4 of the southeast 1/4 of said Section 26, thence run South 00°06'28" West, a distance of 1330 53 feet to a point on the northeast corner of the northwest 1/4 of the northeast 1/4 of said Section 35, thence run South 00°36'14" West, a distance of 2657 79 feet to a point on the southeast corner of the southwest 1/4 of the northeast 1/4 of said Section 35, thence run South 89°57'42" West, a distance of 659 58 feet to a point on the northeast corner of the northwest 1/4 of the northeast 1/4 of the southeast 1/4 of said Section 35, thence run South 00°21'18" West, a distance of 2332 90 feet to a point on the northerly right-of-way line of County Road No 532 (200' wide right-of-way) per Florida Department of Transportation right-of-way map Section no 92652-2601 and to an arc of a circular curve concaved northerly, having a radius of 1810 08 feet and a chord bearing of South 79°28'51" West, thence run southwesterly along the arc of said curve and the northerly right-of-way line of County Road No 532 through a central angle of 21°23'10", a distance of 666 15 feet to the point of tangency, thence run along and coincident with the northerly right-of-way line of County Road No 532 North 89°58'34" West, a distance of 12 49 feet to a point on the westerly line of the southeast 1/4 of said Section 35, thence run North 00°26'04" East, a distance of 463 41 feet to a point, thence run North 89°59'34" West, a distance of 663 78 feet to the northwest corner of the southeast 1/4 of the southwest 1/4 of said Section 35 and the westerly line of Lot 1, Block C of said Florida Fruit & Truck Land Co Section 35, Township 25 South, Range 27 East Osceola County Florida, thence run South 00°23'36" West, along said westerly line of Lot 1, Block C, a distance of 463 21 feet to a point on the northerly right-of-way line of County Road No 532, thence run along and coincident with the northerly right-of-way line of County Road No 532 North 89°58'34" West, a distance of 1326 88 feet to a point on the easterly line of Lot 12 of said Block C, thence run North 00°18'48" East, a distance of 462 81 feet to a point on the northeast corner of said Lot 12 Block C, thence run along and coincident with the north line of said Lot 12 Block C North 89°59'34" West, a distance of 829 85 feet to a point, said point being the TRUE POINT OF BEGINNING

Said tract containing 639 83 acres, more or less

TOGETHER WITH.

BLOCK 3

ALL THAT TRACT OR PARCEL OF LAND lying and being in Sections 33, 34, 27 and 28, Township 25 South, Range 27 East, Osceola County, Florida and lying within Florida Fruit & Truck Land Co subdivision as recorded in Plat Book B, Page 68 of the public records of Osceola County, Florida and being more particularly described as follows

COMMENCE at the southeast corner of Section 34, Township 25 South, Range 27 East, Osceola County, Florida, thence run along the south line of the southeast 1/4 of said Section 34, North 89°54'55" West, a distance of 2653 98 feet to the south 1/4 corner of said Section 34, thence run along the south line of the southwest 1/4 of said Section 34 North 89°55'29" West, a distance of 2653 91 feet to the southwest corner of said Section 34, thence run North 00°07'05" East, a distance of 2652 83 feet to the west 1/4 corner of said Section 34, thence run North 00°06'57" East along the easterly line of the northeast 1/4 of said Section 33, a distance of 416 43 feet to the westerly right-of-way line of Interstate - 4 (State Road 400) per Florida Department of Transportation right-of-way map Section 92130-2401, said point being the TRUE POINT OF BEGINNING, FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence leave the westerly right-of-way line of Interstate - 4 per Florida Department of Transportation right-of-way map Section 92130-2401 and run along and coincident with the easterly line of the northeast 1/4 of said Section 33 North 00°06'57" East, a distance of 246 89 feet to a point, thence leave the said easterly line of the northeast 1/4 of said Section 33 and run along and coincident with the northerly line of Lot 1, Block A, of said Florida Fruit & Truck Land Co subdivision and the westerly extension thereof, Section 33, North 89°57'27" West, a distance of 665 03 feet to a point on the easterly line of Lot 16 of said Block A, thence run North 00°06'23" East, a distance of 663 43 feet to a point on the northeast corner of said Lot 18 Block A. thence run along and coincident with the northerly line of Lots 15 and 16 of said Block A North 89°58'08" West, a distance of 664 27 feet to a point on the northwest corner of said Lot 15, thence run along and coincident with the westerly line of said Lot 15 South 00°05'43" West, a distance of 576 61 feet to a point, thence leave the westerly line of said Lot 15 and run North 89°58'47" West, a distance of 375 00 feet to a point, thence run South 44°50'32" East, a distance of 415 26 feet to a point on the northerly right-of-way line of Goodman Road (variable wide right-of-way) per Osceola County Road Map Book 1, Page 185, and to an arc of a circular curve concaved southerly, having a radius of 187 35 feet and a chord bearing of North 65°20'13" West, thence run northwesterly along the arc of said curve and the northerly right-of-way line of Goodman Road, through a central angle of 11°53'02", a distance of 38 86 feet to a point, thence continue to run along and coincident with the northerly right-of-way line of Goodman Road North 71°17'02" West, a distance of 289 37 feet to a point, thence continue to run along and coincident with the northerly right-of-way line of Goodman Road North 72°35'28" West, a distance of 439 67 feet to a point, thence continue to run along and coincident with the northerly right-of-way line of Goodman Road North 71°51'15" West, a distance of 349 93 feet to a point, thence continue to run along and coincident with the northerly right-of-way line of Goodman Road North 71°03'34" West a distance of 51 41 feet, thence leave the northerly right-of-way line of Goodman Road and run North 18°20'04" East, a distance of 112 99 feet to a point, thence run North 71°32'56" West, a distance of 39 44 feet to a point, thence run North 00°05'44" East, a distance of 391 54 feet to a point on the northerly line of Lot 11 of aforesaid Block A, thence run along and coincident with Lot 11 of aforesaid Block A South 89°58'08" East, a distance of 508 70 feet to a point on the easterly line of Lots 9 and 10 of said Block A. thence run North 00°05'04" East, a distance of 1328 35 feet to a point on the northeast corner of said Lot 9, thence run along and coincident with the northerly line of said Lot 9 North 89°59'28" West, a distance of 651 83 feet to a point on the easterly line of the unrecorded plat of Happy Trails, thence run along and coincident with the southeasterly line of said Happy Trails North 00°18'42" East, a distance of 1322 08 feet to a point, thence continue to run along and coincident with the southeasterly line of said Happy Trails North 89°48'47" East, a distance of 1324 10 feet to a point, thence continue to run along and coincident with the easterly line of said Happy Trails North 00°04'57" East, a distance of 2618 32 feet to a point, thence continue to run along and coincident with the easterly line of said Happy Trails South 89°53'52" East, a distance of 1380 52 feet to a point, thence continue to run along and coincident with the easterly line of said Happy Trails North 00°35'44" West, a distance of 1377 27 feet to a point on the northerly line of the northwest 1/4 of said Section 27 and being 11 32 feet east of a 5"x5" concrete monument marked with "Jones, Wood and Gentry being the northwest corner of said Section 27, thence leave with the easterly line of said Happy Trails and run along and coincident with the northerly line of the northwest 1/4 of said Section 27 South 89°56'40" East, a distance of 2650 86 feet to a point, thence run along and coincident with the easterly line of the said northwest 1/4 of Section 27 South 00°12'22" West, a distance of 1326 57 feet to a point on the northwest corner of the southwest 1/4 of the northwest 1/4 of said Section 27, thence leave the northwest corner of the southwest 1/4 of the northeast 1/4 of said Section 27 and run South 89°58'38" East, a distance of 2565 99 feet to a point on the westerly right-of-way line of Interstate -4, thence run along and coincident with the westerly right-of-way line of Interstate -4 South 40°08'26" West, a distance of 8145 94 feet to a point, said point being the TRUE point of beginning.

Said tract containing 702 85 acres, more or less

TOGETHER WITH

BLOCK 4

ALL THAT TRACT OR PARCEL OF LAND lying and being in Sections 23 and 26, Township 25 South, Range 27 East, Osceola County, Florida and lying within Florida Fruit & Truck Land Co subdivision as recorded in Plat Book B, Page 68 of the public records of Osceola County, Florida and being more particularly described as follows

COMMENCE at the southeast corner of Section 34, Township 25 South, Range 27 East, Osceola County, Florida, thence run North 89°54'55" West, a distance of 2653 98 feet to the south 1/4 corner of said Section 34, thence run North 89°55'29" West, a distance of 2653 91 feet to the southwest corner of said Section 34 thence run North 00°07'05" East, a distance of 2652 83 feet to the east 1/4 corner of said Section 33, thence run North 00°06'57" East along the easterly line of the northeast 1/4 of said Section 33, a distance of 416 43 feet to the westerly right-of-way line of Interstate - 4 (State Road 400) per Florida Department of Transportation right-of-way map Section 92130-2401, continue thence to run along and coincident with the westerly right-of-way line of Interstate -4 North 40°08'26" East, a distance of 8400 06 feet to a point on the easterly right-of-way line of County Road No 545 per Florida Department of Transportation right-of-way map Section no 92130-2401, said point being the TRUE POINT OF BEGINNING, FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence leave the westerly right-of-way line of Interstate - 4 and run along and coincident with the easterly right-of-way line of County Road No 545 North 00°14'22" East, a distance of 382 20 feet to a point, thence run along and coincident with the easterly right-of-way line of County Road No 545 run North 03°34'29" West, a distance of 300 67 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 North 89°45'40" West, a distance of 15 00 feet to a point, thence continue to run along and coincident with the easterly right-of-way line of County Road No 545 North 00°14'22" East, a distance of 440 07 feet to a point, thence continue to run along and coincident with the easterly nght-of-way line of County Road No 545 North 00°13'54" East, a distance of 1998 83 feet to a point on the northerly line of Lot 10, Block C of Florida Fruit and Truck Land Co subdivision, Section 23, thence leave the easterly right-of-way line of County Road No 545 and run along and coincident with the northerly line of said Lot 10, Block C of Section 23, North 89°56'03" East, a distance of 624 81 feet to a point on the southeast corner of Lot 9 of said Block C, thence run along and coincident with the easterly line of said Lot 9 Block C and the northerly extension thereof North 00°15'21" East, a distance of 663 57 feet to a point on the northerly line of the southwest 1/4 of said Section 23, thence run along and coincident with the northerly line of the southwest 1/4 of said Section 23 North 89°55'26" East, a distance of 665 85 feet to the northeast corner of the northwest 1/4 of the southwest 1/4 of said Section 23, thence leave the northerly line of the southwest 1/4 of said Section 23 and run along and coincident with the easterly line of the northwest 1/4 of the southwest 1/4 of said Section 23 South 00°15'35" West, a distance of 1327 37 feet to the southwest corner of Lot 6 of said Block C, thence leave the southwest corner of said Lot 6, Block C and run along and coincident with the southerly line of Lots 6, 5 and 3 of said Block C North 89°56'39" East, a distance of 808 95 feet to a point on the westerly right-of-way line of Interstate - 4, thence run along and coincident with the westerly right-of-way line of Interstate - 4 South 40°08'26" West, a distance of 3217 69 feet to a point, said point being the TRUE POINT OF BEGINNING

Said tract containing 89 53 acres, more or less

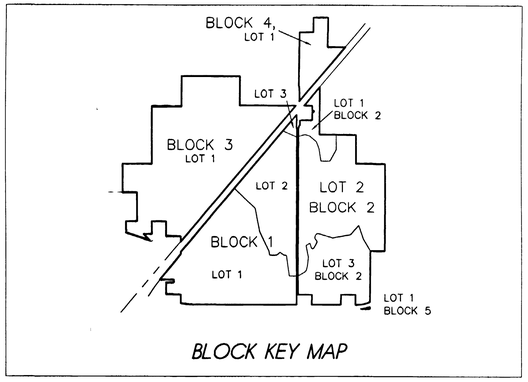
TOGETHER WITH

BLOCK 5

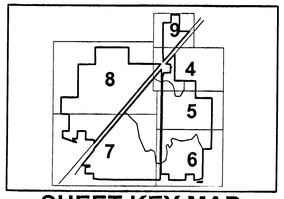
ALL THAT TRACT OR PARCEL OF LAND lying and being a portion of Lot 12, Block D, Florida Fruit & Truck Land Co subdivision as recorded in Plat Book B, Page 68, of the public records of Osceola County, Florida and lying within Section 35, Township 25 South, Range 27 East, Osceola County, Florida and being more particularly described as follows

COMMENCE at the southwest corner of Section 35, Township 25 South, Range 27 East, Osceola County, Florida, thence run South 89°58'40" East, a distance of 2653 16 feet to the south 1/4 corner of said Section 35, thence run South 89°57'45" East along the south line of the southeast 1/4 of said Section 35, a distance of 259 14 feet, thence run North 00°02'15" East, a distance of 15 00 feet to the south line of said Lot 12 and to a point on the southerly right-of-way line of County Road No 532 (200' wide right-of-way) per Florida Department of Transportation right-of-way map Section 92652-2601, said point being the TRUE POINT OF BEGINNING, FROM THE TRUE POINT OF BEGINNING AS THUS ESTABLISHED, thence along the arc of a circular curve concaved northwesterly having a radius of 2010 08 feet through a central angle of 11°51'33" and a chord bearing of North 77°06'14" East, a distance of 416 05 feet to the easterly line of said Lot 12, thence run along and coincident with the easterly line of said Lot 12 South 00°21'18" West, a distance of 93 07 feet to a point on the southeast corner of said Lot 12, thence run along and coincident with the south line of said Lot 12 North 89°57'45" West, a distance of 404 23 feet to a point, said point being the TRUE POINT OF BEGINNING

Said tract containing 0 36 acres, more or less



BLOCK KEY MAP



SHEET KEY MAP

NOTES

1 BEARINGS ARE BASED ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF INTERSTATE 4, HAVING AN ASSUMED BEARING OF N 40 04'38" E, PER PLAT
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8 FLORIDA FRUIT AND TRUCK LAND REFERS TO THE RECORD PLAT OF FLORIDA FRUIT AND TRUCK LAND COMPANY'S PLAT AS RECORDED IN PLAT BOOK "B" PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA
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10 SEE SHEET 10 OF 10 FOR LOT AND TRACT GEOMETRY DETAIL

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ASM
AMERICAN SURVEYING & MAPPING
320 EAST SOUTH STREET SUITE 160 ORLANDO FLORIDA 32801
(407) 426-7979

PLAT BOOK 12 PAGE 72

MAGNOLIA CREEK

A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO. PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST OSCEOLA COUNTY, FLORIDA

DEEDS, COVENANTS AND RESTRICTIONS
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DETAIL "C"
NOT TO SCALE

DETAIL "D"
NOT TO SCALE

DETAIL "E"
NOT TO SCALE

DETAIL "F"
NOT TO SCALE

GOODMAN ROAD RIGHT OF WAY
AS PER OSCEOLA COUNTY ROAD MAP BOOK 1 PAGE 185

LINE TABLE

LINE	BEARING	LENGTH
L1*	S89°45'38"E	50.00'
L2*	N00°14'22"E	100.00
L3*	S89°45'38"E	15.00
L4*	S89°45'38"E	15.00
L5	N00°10'47"E	388.71
L6	N89°49'13"W	80.00
L7	N00°10'47"E	80.00
L8	N89°49'13"W	80.00
L9	N00°10'47"E	229.43
L10*	N90°14'22"E	240.12
L11	N74°37'08"E	320.03
L12	S73°56'21"E	220.31
L13	S48°33'06"E	405.84
L14	S20°18'07"E	338.15
L15	S08°52'24"E	581.78
L16	S89°00'23"W	400.12'
L17	N28°24'06"E	642.75
L18	N00°04'47"E	675.74
L19	S89°54'13"E	895.15
L20	N30°36'53"W	606.11
L21	N18°52'07"W	648.12'
L22	S41°11'01"W	500.92'
L23	S80°12'09"W	839.94
L24	N73°42'09"W	718.75
L25	S58°40'31"W	208.83
L26	S71°21'16"E	536.53
L27	S28°10'55"W	306.51'
L28	N89°51'58"W	326.21
L29	N07°56'31"W	940.67
L30	N85°15'22"W	108.42
L31	N67°13'41"W	22.91
L32	N35°23'18"W	30.13
L33	N13°10'10"W	34.40
L34	N00°22'09"W	38.53
L35	N04°36'19"W	42.43
L36	N32°46'16"W	54.33
L37	N24°15'56"W	920.80
L38	N10°16'04"W	1081.90'
L39	N45°45'08"W	1327.41'
L40	S66°39'16"E	702.26

* R-O-W PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO. 9730-2401

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CH BEARING	CH LENGTH
C1	30.88	45.00	39°18'51"	S44°53'07"W	30.28
C2	373.09	176.00	121°29'18"	S03°49'54"W	307.09
C3	75.39	54.56	79°10'17"	S17°17'37"E	69.49
C4	333.76	1534.38	12°27'44"	S28°31'25"W	113.10
C5	124.19	55.00	129°22'22"	N80°53'31"W	99.44
C6	235.44	40337.37	0°20'03"	N16°02'22"W	235.44
C7	238.19	8116.24	1°40'53"	S06°08'05"W	238.18
C8	377.64	1740.62	12°25'50"	S11°28'29"W	376.90
C9	76.58	108.58	40°24'31"	S37°53'40"W	75.00
C10	304.78	436.58	39°98'71"	N54°22'15"W	298.63
C11	49.12	29.87	94°12'29"	S88°31'28"W	43.77
C12	265.18	397.58	38°12'33"	S60°37'40"W	260.29
C13	84.49	229.96	21°03'01"	S89°19'02"W	84.01

TYPICAL OUTDOOR ADVERTISEMENT EASEMENT SITE
NOT TO SCALE

SHEET KEY MAP

NOTES

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PLAT BOOK 12 PAGE 73

MAGNOLIA CREEK

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SHEET KEY MAP

DETAIL "G"
NOT TO SCALE

DETAIL "H"
NOT TO SCALE

SECTION CORNER RECOVERED 40d NAIL

27-25-27 | 26-25-27 | LOT 4, BLOCK 4

RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT ORDER (ORB 1179, PG 1799)

100' RESERVED RIGHT OF WAY PER DEED BOOK 130, PG 453

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

N89°45'40"W 15.00'

N03°34'29"W 300.67'

N00°14'22"E 382.20'

POINT OF BEGINNING BLOCK 4

N00°14'22"E 440.07'

N 00°12'04" E 527.17'

78.80'

221.87'

254.12'

PARCEL N-2 ORB 1275, PG 434

PARCEL N-3 ORB 1275, PG 434

PARCEL S-4 ORB 1275, PG 434

PARCEL S-7 ORB 1275, PG 434

S40°08'26"W 364.05'

300'

1072.56'

677.40'

N89°58'14"W 360.74'

N40°08'26"E 1080.09'

261.87'

S00°10'09"W 467.00'

826.05'

2152.54'

PARCEL OS-9A ORB 528, PG 16

PARCEL OS-20 ORB 528, PG 16 ORB 578, PG 182

PARCEL OS-20A 15' INGRESS/EGRESS ESMT ORB 1317, PGS 743 & 758

PARCEL OS-6B ORB 528, PG 16 ORB 578, PG 182

PARCEL OS-8 ORB 528, PG 16 ORB 578, PG 182

PARCEL 6 - 30' TEMP CONSTRUCTION ESMT ORB 1187, PG 1234 ORB 1199, PG 1302 ORB 1379, PG 2243

PARCEL 3 - UTILITY EASEMENT ORB 1187, PG 1234 ORB 1199, PG 1302 ORB 1379, PG 2243

PARCEL 2 - 30' TEMP CONSTRUCTION ESMT ORB 1187, PG 1234 ORB 1199, PG 1302 ORB 1379, PG 2243

PARCEL 1 - 20' TEMP INGRESS/EGRESS ESMT ORB 1187, PG 1234 ORB 1199, PG 1302 ORB 1379, PG 2243

PARCEL 4 - GAS METER STATION SITE ORB 1187, PG 1234 ORB 1199, PG 1302 ORB 1379, PG 2243

PARCEL OS-20B 15' INGRESS/EGRESS AND UTILITY EASEMENT ORB 1317, PGS 743 & 758

PARCEL 5 - 20' UTILITY EASEMENT ORB 1187, PG 1234 ORB 1199, PG 1379, PG 2243

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

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RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

30' GAS LINE ESMT PER ORB 30, PG 265 DESC AMBIGUOUS

W LINE OF LOT 7, BLOCK B

40' FLA GAS TRANSMISSION COMPANY PERPETUAL ESMT ORB 1303, PG 1787

35' FLA GAS TRANSMISSION COMPANY TEMP CONSTRUCTION ORB 1303, PG 1787

SEE DETAIL "G" THIS AREA

SEE DETAIL "H" THIS AREA

S89°52'23"E 560.98'

S00°14'22"W 606.06'

658.22'

1029.54'

2991.89'

1283.80'

1326.49'

S00°10'09"W

W LINE OF LOT 14, BLOCK B

RECOVERED 5/8 IRON ROD WITH CAP # 3522 | SET 4"x4" CONCRETE MONUMENT #6393

S89°54'13"E 1666.80'

771.65'

L19

15' R/W

30' R/W

NE CORNER OF THE SW 1/4, SECTION 26
RECOVERED 4X4 CONCRETE MONUMENT # 3522
RECOVERED 2" IRON PIPE IN POURED CONCRETE
16.3' SOUTH, 3.1' WEST

S LINE OF THE NW 1/4 OF SECTION 26

1331.67'

W 1/4 CORNER SECTION 26
E 1/4 CORNER SECTION 27
RECOVERED NAIL AND DISK WITH # 1585
RECOVERED NAIL AND DISK WITH # 966

W LINE SW 1/4 SECTION 26

W LINE NW 1/4 SECTION 26

TRACT "B" R-O-W DEDICATION BY THIS PLAT

TRACT "C" R-O-W DEDICATION BY THIS PLAT

TRACT "D" R-O-W DEDICATION BY THIS PLAT

TRACT "E" R-O-W DEDICATION BY THIS PLAT

100' RESERVED RIGHT OF WAY PER DEED BOOK 104, PG 219

CITY OF ORLANDO OVERHEAD ELECTRIC TRANSMISSION LINE ESMT

RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT ORDER (ORB 1179 PG 1799)

PORTION OF LOT 12, BLOCK B, FLORIDA FRUIT AND TRUCK LAND

TRACT "B" R-O-W DEDICATION BY THIS PLAT 20' UTILITY EASEMENT ORB 1619, PG 2676

W LINE OF NW 1/4 SECTION 26-25-27

LOT 3 BLOCK 1

LOT 2 BLOCK 1

LOT 1 BLOCK 2

LOT 2 BLOCK 2

LOT 2, BLOCK 2

BLOCK "B" FLORIDA FRUIT AND TRUCK LAND PLAT

SHEET 4
SHEET 5
SHEET 8
SHEET 9

NORTH
SCALE 1 INCH = 200 FEET
0 200 400

TYPICAL OUTDOOR ADVERTISEMENT EASEMENT SITE
NOT TO SCALE

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* R-O-W PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

NOTES

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RIGHT OF WAY DETAIL
NOT TO SCALE

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PLAT BOOK 12 PAGE 74

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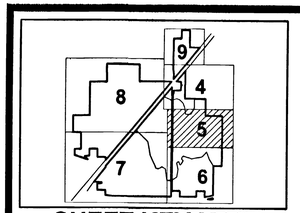
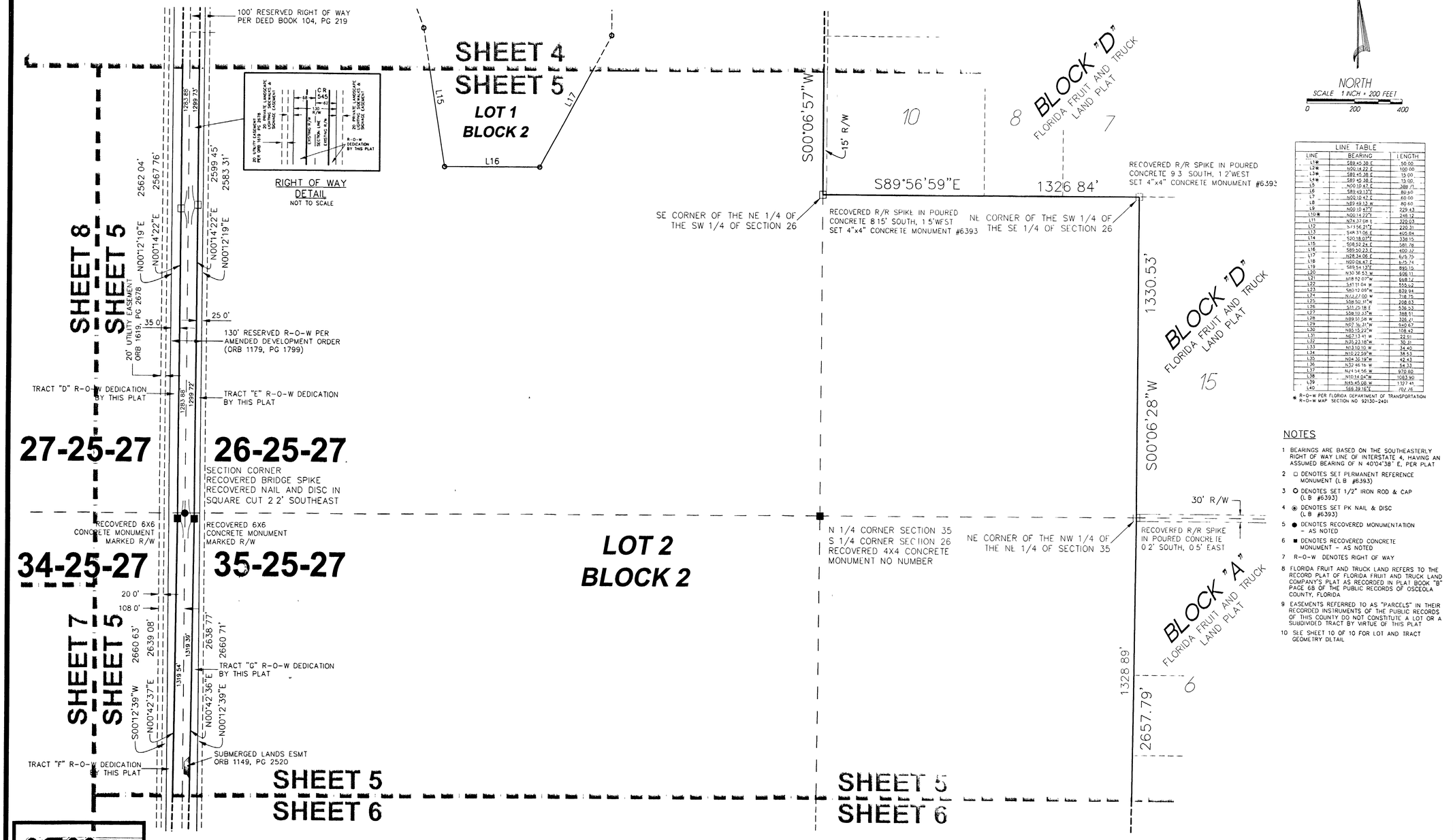


SHEET KEY MAP



NORTH
SCALE 1 INCH = 200 FEET
0 200 400

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L1*	S89°45'38"E	50.00
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PLAT BOOK 12 PAGE 75

MAGNOLIA CREEK

SHEET 6

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TRACT "F" R-O-W DEDICATION BY THIS PLAT

TRACT "G" R-O-W DEDICATION BY THIS PLAT

LOT 2 BLOCK 1

R-O-W PER MONUMENTATION AND PER FLORIDA DEPARTMENT OF TRANSPORTATION MAP, SECTION 9257-150

S00°12'39"W 2660.63'
S00°42'37"W 2639.08'
1319.54'
1319.38'

N00°42'36"E 2638.77'
N00°12'39"E 2660.71'

RIGHT OF WAY DETAIL
NOT TO SCALE

C.R.545
70.00' RIGHT-OF-WAY

LOT 2, BLOCK 2

W 1/4 CORNER OF SECTION 35
E 1/4 CORNER OF SECTION 34
RECOVERED 4X4 CONCRETE MONUMENT RLS #4246 RECOVERED 5/8"IRON ROD AND CAP #2230 1.58'WEST AND 0.68'SOUTH

25' FPC EASEMENT PER ORB 840, PAGE 2546

RECOVERED 6X6 CONCRETE MONUMENT MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT MARKED R/W

WEST R-O-W LINE OF C.R. 545
2450.13'

EAST R-O-W LINE OF C.R. 545
1987.53'

1148.61'
1148.90'
1126.24'

130' RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT ORDER (ORB 1179, PG 1799)

20' UTILITY EASEMENT ORB 1619, PG 2678

621'
108'
24.12'
302.09'
L28
42.36'
346.15'
L27

TRACT "H" R-O-W DEDICATION BY THIS PLAT

TRACT "I" R-O-W DEDICATION BY THIS PLAT

DETAIL "A"
NOT TO SCALE

POINT OF BEGINNING BLOCK 2
W R-O-W LINE OF C.R. 545
E LINE OF SE 1/4 OF SECTION 34
S89°59'34"E 33.91'
W LINE OF SW 1/4 OF SECTION 35
W R-O-W LINE OF C.R. 545
POINT OF BEGINNING BLOCK 1
N89°54'48"W 31.80'
N. R-O-W LINE OF C.R. 532
200.00'
SECTION CORNER POINT OF COMMENCEMENT

SHEET 7
SHEET 6

25' FPC EASEMENT ORB 840, PG 2546

S00°15'35"E
1301.51'
N00°15'35"W
865.37'
839.03'
N00°16'21"E
28.09'

RECOVERED 4X4 CONCRETE MONUMENT # 3533

RECOVERED 4X4 CONCRETE MONUMENT # 3533

601.76'

N89°59'34"W 629.85'
LOT 12, BLOCK "C" FLORIDA FRUIT & TRUCK LAND

POINT OF BEGINNING BLOCK 2
SEE DETAIL "A" FOR THIS AREA

E LINE OF LOT 12, BLOCK "C"

N00°18'46"E 462.81'

RECOVERED 4X4 CONCRETE MONUMENT # 3533

POINT OF BEGINNING BLOCK 1
RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W, S 0.34', W 4.04'
RECOVERED 4X4 CONCRETE MONUMENT WITH #3522, W 3.34'
SET 4X4 CONCRETE MONUMENT #6393

814.21'

35-25-27

POINT OF COMMENCEMENT
SE CORNER SECTION 34-25-27
SW CORNER SECTION 35-25-27
RECOVERED RAILROAD SPIKE NO NUMBER

S89°58'40"E 2653.16'

SOUTH LINE OF THE SE 1/4 OF SECTION 35-25-27

N89°58'34"W 1326.86'

NW CORNER OF THE SE 1/4 OF THE SW 1/4 OF SECTION 35

RECOVERED 4X4 CONCRETE MONUMENT #3533

N89°59'34"W 663.76'

RECOVERED 4X4 CONCRETE MONUMENT # 3533

LOT 1, BLOCK "C" FLORIDA FRUIT & TRUCK LAND

RECOVERED 5/8"IRON ROD NO NUMBER 0.2' NORTH, 0.2' EAST

S00°23'38"W 463.21'

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

463.41'

N00°26'04"E

POINT OF TANGENCY RECOVERED 6X6 CONCRETE MONUMENT

W LINE OF LOT 1, BLOCK "C"

W LINE OF THE SE 1/4 OF SECTION 35

S 1/4 CORNER SECTION 35 RECOVERED RAILROAD SPIKE

N89°58'34"W 12.49'

LOT 3 BLOCK 2

R=1810.08'
Δ=21°05'10"
L=666.15'
CB=S79°28'51"W
C=662.39'

R=2010.08'
Δ=11°51'33"
L=416.05'
CB=N77°05'14"E
C=415.31'

1005.80'

S00°21'16"W 1327.10'

1332.90'

NE CORNER OF THE NW 1/4 OF THE NW 1/4 OF THE SE 1/4 OF SECTION 35

659.58'
15' R/W

S89°57'42"W
RECOVERED 1"IRON PIPE # 3522
RECOVERED 1"IRON PIPE 15.00' SOUTH ON LINE
SET 4"x4" CONCRETE MONUMENT #6393

1328.90'

S00°36'14"W

BLOCK "A"
FLORIDA FRUIT AND TRUCK LAND PLAT

15

30' R/W

SE CORNER OF THE SW 1/4 OF THE NE 1/4 OF SECTION 35
1319.17'
RECOVERED 4X4 CONCRETE MONUMENT #3522 0.5' NORTH, 0.4' WEST
RECOVERED 4X4 CONCRETE MONUMENT #935 8.4'SOUTH, 23.4'WEST
RECOVERED 4X4 CONCRETE MONUMENT NO # 14.4' WEST, 0.6'NORTH

NORTH
SCALE 1 INCH = 200 FEET
0 200 400

RECOVERED 1"IRON PIPE NO NUMBER
RECOVERED 1/4"IRON ROD NO NUMBER 0.6'WEST AND 0.7'NORTH
RECOVERED 5/8"IRON ROD & CAP WITH #966, 1.34'WEST
SET 4"x4" CONCRETE MONUMENT #6393

LOT 1, BLOCK 5

SEE DETAIL "B"
RECOVERED 4X4 CONCRETE MONUMENT WITH BROKEN TOP - 1.8'SOUTH
SET 4"x4" CONCRETE MONUMENT #5011

POINT OF BEGINNING BLOCK 5

N89°57'45"W 404.23'

RECOVERED 4X4 CONCRETE MONUMENT # 935

S00°21'16"W 93.07'

BLOCK "D"
FLORIDA FRUIT AND TRUCK LAND PLAT

8 7 13

SHEET KEY MAP

DETAIL "B"
NOT TO SCALE

LOT 1 BLOCK 5

C R 532

S R-O-W LINE
POINT OF BEGINNING BLOCK 5
259.14'
S89°57'45"E
N00°02'15"E 15.00'
N89°57'45"W 404.23'
15' R-O-W
SE CORNER OF LOT 12
S00°21'16"W 93.07'
E LINE LOT 12
CB=N77°05'14"E
C=415.31'
R=2010.08'
Δ=11°51'33"
L=416.05'
1332.90'
S00°36'14"W
1327.10'
S00°21'16"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CH BEARING	CH LENGTH
C1	30.88	45.00	39°18'51"	S44°53'07"W	30.28
C2	373.09	176.05	121°25'18"	S03°49'54"W	307.09
C3	75.39	54.86	79°10'17"	S17°17'33"E	69.53
C4	333.76	1534.38	12°27'46"	S28°31'25"W	333.10
C5	124.19	55.00	129°22'22"	N80°32'31"W	99.44
C6	235.44	40377.37	0°20'03"	N16°02'22"W	235.44
C7	238.19	8118.24	1°40'54"	S06°09'00"W	238.18
C8	377.64	1740.62	12°25'50"	S11°28'29"W	376.90
C9	76.58	108.58	40°24'33"	S37°53'40"W	75.00
C10	304.78	416.58	39°59'55"	N64°22'15"W	298.63
C11	49.12	29.87	94°12'29"	S88°31'28"W	43.77
C12	265.18	397.58	38°12'53"	S60°31'40"W	260.29
C13	84.49	229.96	21°03'01"	S89°19'02"W	84.01

LINE TABLE		
LINE	BEARING	LENGTH
L1*	S89°45'38"E	50.00
L2*	N00°14'22"E	100.00
L3*	S89°45'38"E	15.00
L4*	S89°45'38"E	15.00
L5	N00°10'47"E	388.71'
L6	S89°49'13"E	80.60'
L7	N00°10'47"E	80.00'
L8	N89°49'13"W	80.60
L9	N00°10'47"E	229.43
L10*	N00°14'22"E	246.12
L11	N74°37'08"E	320.03'
L12	S73°56'21"E	220.31
L13	S48°33.06"E	405.84'
L14	S20°18.07"E	338.15
L15	S08°52'24"E	581.78
L16	S89°50'23"E	400.32'
L17	N28°34.96"E	625.75'
L18	N00°04.47"E	675.74'
L19	S89°54.13"E	895.15
L20	N30°46.53"W	608.11
L21	N18°52.07"W	668.12
L22	S41°11.04"W	555.62
L23	S80°12.09"W	839.94
L24	N73°27.00"W	718.75'
L25	S58°50.31"W	208.83'
L26	S11°25.18"E	536.53'
L27	S26°10.13"W	388.50
L28	N89°51.58"W	326.21
L29	N07°36'31"W	940.67
L30	N85°15.22"W	108.42
L31	N67°13.41"W	22.91
L32	N35°23'18"W	30.31
L33	N13°10'10"W	34.40'
L34	N10°22.59"W	38.53'
L35	N04°36'19"W	42.43
L36	N32°46'16"W	54.33
L37	N24°54.56"W	970.80
L38	N10°14.04"W	1083.90
L39	N45°45.08"W	1327.41'
L40	S66°39.16"E	702.26

* R-O-W PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

NOTES

1. BEARINGS ARE BASED ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF INTERSTATE 4, HAVING AN ASSUMED BEARING OF N 40°04'38" E, PER PLAT
2. □ DENOTES SET PERMANENT REFERENCE MONUMENT (L B #6393)
3. O DENOTES SET 1/2" IRON ROD & CAP (L B #6393)
4. ◉ DENOTES SET PK NAIL & DISC (L B #6393)
5. ● DENOTES RECOVERED MONUMENTATION - AS NOTED
6. ■ DENOTES RECOVERED CONCRETE MONUMENT - AS NOTED
7. R-O-W DENOTES RIGHT OF WAY
8. FLORIDA FRUIT AND TRUCK LAND REFERS TO THE RECORD PLAT OF FLORIDA FRUIT AND TRUCK LAND COMPANY'S PLAT AS RECORDED IN PLAT BOOK "B" PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY FLORIDA
9. EASEMENTS REFERRED TO AS "PARCELS" IN THEIR RECORDED INSTRUMENTS OF THE PUBLIC RECORDS OF THIS COUNTY DO NOT CONSTITUTE A LOT OR A SUBDIVIDED TRACT BY VIRTUE OF THIS PLAT
10. SEE SHEET 10 OF 10 FOR LOT AND TRACT GEOMETRY DETAIL

NOTICE

THIS PLAT, AS RECORDED IN ITS GRAPHIC FORM, IS THE OFFICIAL DEPICTION OF THE SUBDIVIDED LANDS DESCRIBED HEREIN AND WILL IN NO CIRCUMSTANCES BE SUPPLANTED IN AUTHORITY BY ANY OTHER GRAPHIC OR DIGITAL FORM OF THE PLAT. THERE MAY BE ADDITIONAL RESTRICTIONS THAT ARE NOT RECORDED ON THIS PLAT THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY

ASM
AMERICAN SURVEYING & MAPPING
300 EAST ROBINSON STREET SUITE 190 ORLANDO FLORIDA 32801
(407) 426 7979

MAGNOLIA CREEK

A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST OSCEOLA COUNTY, FLORIDA

DEEDS, COVENANTS AND RESTRICTIONS

DEEDS AND RESTRICTIONS FOR THIS PLAT ARE FILED IN OFFICIAL RECORDS BOOK _____ PAGES _____ OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA AND ARE ACCOMPANIED BY DEED COVENANTS.

SHEET KEY MAP

NORTH
SCALE 1 INCH = 300 FEET
0 300 600

LOT 1 BLOCK 3

LOT 2 BLOCK 1

LOT 1 BLOCK 1

LOT 2 BLOCK 1

BLOCK "A" FLORIDA FRUIT AND TRUCK LAND PLAT

BLOCK "D" FLORIDA FRUIT AND TRUCK LAND PLAT

"CHAMPIONSGATE" VILLAGE PLAT BOOK ____ PAGE

GOODMAN ROAD (GRADED SAND) PER OSCEOLA COUNTY ROAD MAP BOOK H, PAGE 185 (R-O-W VARIES)

GOODMAN ROAD (AS PER OSCEOLA COUNTY ROAD MAP BOOK 1, PAGE 185)

C.R. 545 (70.00' RIGHT-OF-WAY) (COUNTY ASPHALT PAVED ROAD)

C.R. 532 (COUNTY ASPHALT PAVED ROAD)

SHEET 8 SHEET 7

SHEET 7 SHEET 6

SHEET 7 SHEET 6

34-25-27

35-

33-25-27

4-26-27

3-26-27

2-2

SEE DETAIL "F" FOR THIS AREA

SEE DETAIL "I" FOR THIS AREA

POINT OF BEGINNING BLOCK 3

POINT OF BEGINNING BLOCK 1

POINT OF C

SET 4X4 CONCRETE MONUMENT #6393 RECOVERED 4X4 CONCRETE MONUMENT #935 19 4'NORTH, 2.0'WEST

SET 4X4 CONCRETE MONUMENT #6393 RECOVERED AXLE WEST 2.0, NORTH 4.8

RECOVERED 5/8 IRON ROD WITH CAP #4263 SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP #3522 SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 4X4 CONCRETE MONUMENT MARKED R/W

SET 4X4 CONCRETE MONUMENT #5011

RECOVERED 5/8 IRON ROD WITH CAP #3522 NORTH 0.1', WEST 0.1' RECOVERED 4X4 CONCRETE MONUMENT #935 NORTH 0.1', WEST 0.4'

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 2.1' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 0.5' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP # 3522 RECOVERED 5/8 IRON ROD NORTH 0.2', EAST 0.3' RECOVERED 4X4 CONCRETE MONUMENT - SOUTH 0.5', EAST 6.1' SET 4X4 CONCRETE MONUMENT #5011

RECOVERED 5/8 IRON ROD WITH CAP # 3522 SET 4X4 CONCRETE MONUMENT - MARKED R/W

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.1', WEST 1.0 SET 4X4 CONCRETE MONUMENT WITH # 6393

RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT MARKED R/W RECOVERED 4X4 CONCRETE MONUMENT WITH # 3522 SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 1/2 IRON ROD WITH CAP # LB6839 RECOVERED 3/4 IRON PIPE 4.9' NORTH 3.4.9 EAST

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 2.1' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP # LB6839, RECOVERED 4X4 CONCRETE MONUMENT - BROKEN 46.8' SOUTH, 21.4' WEST

RECOVERED 5/8 IRON ROD WITH CAP #4263 RECOVERED 5/8 IRON ROD NORTH 0.2', EAST 0.3' RECOVERED 4X4 CONCRETE MONUMENT - SOUTH 0.5', EAST 6.1' SET 4X4 CONCRETE MONUMENT #5011

RECOVERED 5/8 IRON ROD SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP #3522 RECOVERED 5/8 IRON ROD NORTH 0.1', EAST 0.5' RECOVERED 4X4 CONCRETE MONUMENT WITH # 6393

RECOVERED 5/8 IRON ROD WITH CAP #3522 NORTH 0.1', WEST 0.5' RECOVERED 4X4 CONCRETE MONUMENT WITH # 6393

RECOVERED 5/8 IRON ROD WITH CAP #3522 NORTH 0.1', WEST 0.5' RECOVERED 4X4 CONCRETE MONUMENT WITH # 6393

RECOVERED 5/8 IRON ROD WITH CAP #3522 NORTH 0.1', WEST 0.4' RECOVERED 4X4 CONCRETE MONUMENT #935

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.1', WEST 0.1' RECOVERED 4X4 CONCRETE MONUMENT #935

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 2.1' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 0.5' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 5/8 IRON ROD WITH CAP # 3522 RECOVERED 5/8 IRON ROD NORTH 0.2', EAST 0.3' RECOVERED 4X4 CONCRETE MONUMENT - SOUTH 0.5', EAST 6.1' SET 4X4 CONCRETE MONUMENT #5011

RECOVERED 5/8 IRON ROD WITH CAP # 3522 SET 4X4 CONCRETE MONUMENT - MARKED R/W

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.1', WEST 1.0 SET 4X4 CONCRETE MONUMENT WITH # 6393

RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT MARKED R/W RECOVERED 4X4 CONCRETE MONUMENT WITH # 3522 SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 1/2 IRON ROD WITH CAP # LB6839 RECOVERED 3/4 IRON PIPE 4.9' NORTH 3.4.9 EAST

RECOVERED 5/8 IRON ROD WITH CAP # 3522 NORTH 0.2', EAST 2.1' SET 4X4 CONCRETE MONUMENT #6393

RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT - MARKED R/W

RECOVERED 6X6 CONCRETE MONUMENT MARKED R/W RECOVERED 4X4 CONCRETE MONUMENT WITH # 3522 SET 4X4 CONCRETE MONUMENT #6393

W 1/4 CORNER OF SECTION 35
E 1/4 CORNER OF SECTION 34
RECOVERED 4X4 CONCRETE MONUMENT RLS. #4246 RECOVERED 5/8 IRON ROD AND CAP #2230 1.58' WEST AND 0.68' SOUTH

SW CORNER SECTION 34 RECOVERED 5X5 CONCRETE MONUMENT WITH # 1585

S 1/4 CORNER SECTION 34 RECOVERED 5/8 IRON ROD

W 1/4 CORNER SECTION 34 EAST 1/4 CORNER SECTION 33 RECOVERED 5/8 IRON ROD WITH CAP # LB6839, RECOVERED 4X4 CONCRETE MONUMENT - BROKEN 46.8' SOUTH, 21.4' WEST

PARCEL S-8 ORB 1275 PG 434

PARCEL S-3 ORB 1275 PG 434

PARCEL S-2 ORB 1275 PG 434

PARCEL OS-1

CITY OF ORLANDO OVERHEAD ELECTRIC TRANSMISSION LINE EASEMENT

EASTERLY R-O-W LINE PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

CONSERVATION ESMT (ORB 1452 PG 116)

CITY OF ORLANDO OVERHEAD ELECTRIC TRANSMISSION LINE EASEMENT ORB 528 PAGE 16

R-O-W PER OSCEOLA COUNTY FLORIDA R-O-W MAP OF INTERCHANGE (NO. COUNTY ROAD NO. 532) AND INTERSTATE 4 (SR 400) SECTION NO. 92130-2401

R-O-W PER MONUMENTATION AND FLORIDA DEPARTMENT OF TRANSPORTATION MAP SECTION 9257-150

20' UTILITY EASEMENT PER ORB 2978

SUBMERGED ORB 1149, 1

20' PEC ESMT ORB 840

N R-O-W LINE OF C.R 532 100 N OF AND PARALLEL TO THE CENTERLINE OF C.R 532

E LINE OF THE SW 1/4 OF SECTION 34

EASTERLY LINE OF THE NE 1/4 OF SECTION 33

WEST LINE OF THE SW 1/4 OF SECTION 34

NORTHERLY R-O-W LINE

WEST R-O-W LINE OF C.R 545

EAST R-O-W LINE OF C.R 545

130' RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT AGREEMENT

TYPICAL OUTDOOR ADVERTISEMENT EASEMENT SITE
NOT TO SCALE

DETAIL "F"
NOT TO SCALE

DETAIL "I"
NOT TO SCALE

GOODMAN ROAD RIGHT OF WAY
AS PER OSCEOLA COUNTY ROAD MAP BOOK 1, PAGE 185

LINE TABLE

LINE	BEARING	LENGTH
L1*	S89°45'38"E	50.00
L2*	N00°14'22"E	100.00
L3*	S89°45'38"E	15.00
L4*	S89°45'38"E	15.00
L5	N00°10'47"E	368.71
L6	N89°49'13"E	80.60
L7	N00°10'47"E	60.00
L8	N89°49'13"W	80.60
L9	N00°10'47"E	229.43'
L10*	N00°14'22"E	246.12
L11	N74°37'08"E	320.03
L12	S73°56'21"E	220.31
L13	S48°33'06"E	405.84
L14	S20°18'07"E	338.15
L15	S08°52'24"E	581.78
L16	S89°50'23"E	500.32
L17	N29°34'06"E	625.75
L18	N00°04'47"E	875.74
L19	S89°54'13"E	895.15
L20	N10°35'53"W	606.11
L21	N78°24'07"W	568.12
L22	S41°11'04"W	320.87'
L23	S80°12'09"W	819.94
L24	N15°17'00"W	718.75
L25	S58°10'11"W	208.83
L26	S11°25'18"E	536.53
L27	S58°10'33"W	388.53
L28	N89°31'58"W	326.21
L29	N07°30'31"W	940.67
L30	N89°15'22"W	108.42
L31	N61°13'41"W	22.91
L32	N15°23'18"W	30.31
L33	N13°50'10"W	34.40
L34	N10°22'50"W	38.53
L35	N04°36'19"W	42.43
L36	N32°48'16"W	54.33
L37	N24°54'56"W	970.80
L38	N10°14'04"E	1083.90
L39	N45°45'08"W	1327.41
L40	S66°39'16"E	209.26

* R-O-W PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CH BEARING	CH LENGTH
C1	30.88	45.00	39°18'55"	S44°53'07"W	30.28
C2	373.09	176.00	121°25'18"	S03°49'54"W	307.09
C3	75.39	54.56	79°10'13"	S13°17'33"E	69.53
C4	133.76	1534.38	12°27'46"	S26°31'25"W	133.10
C5	124.19	55.00	129°22'22"	N80°33'31"W	99.44
C6	235.44	40337.37	0°20'03"	N76°07'22"W	235.44
C7	238.19	8116.24	1°40'51"	S06°08'00"W	238.18
C8	372.64	1740.62	12°15'50"	S13°28'28"W	376.90
C9	79.58	108.58	40°24'33"	S21°53'40"W	77.90
C10	304.78	436.58	39°59'55"	N64°22'15"W	298.63
C11	49.12	79.87	94°12'29"	S88°31'28"W	43.77
C12	265.18	397.58	38°12'53"	S60°31'40"W	260.29
C13	84.49	229.96	21°03'01"	S89°19'09"W	84.01

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA	CH BEARING	CH LENGTH
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C4	133.76	1534.38	12°27'46"	S26°31'25"W	133.10
C5	124.19	55.00	129°22'22"	N80°33'31"W	99.44
C6	235.44	40337.37	0°20'03"	N76°07'22"W	235.44
C7	238.19	8116.24	1°40'51"	S06°08'00"W	238.18
C8	372.64	1740.62	12°15'50"	S13°28'28"W	376.90
C9	79.58	108.58	40°24'33"	S21°53'40"W	77.90
C10	304.78	436.58	39°59'55"	N64°22'15"W	298.63
C11	49.12	79.87	94°12'29"	S88°31'28"W	43.77
C12	265.18	397.58	38°12'53"	S60°31'40"W	260.29
C13	84.49	229.96	21°03'01"	S89°19'09"W	84.01

CONSERVATION EASEMENT LINE TABLE

LINE	BEARING	LENGTH
E1	N11°30'13"W	55.94
E2	N11°53'23"W	72.29
E3	N17°37'43"W	70.58
E4	N21°07'13"E	47.41
E5	N21°50'15"E	25.71
E6	N21°50'15"E	13.13'
E7	N04°18'30"E	81.39
E8	N06°50'58"W	55.36
E9	N11°47'47"E	62.03
E10	N25°00'09"E	48.85
E11	N68°53'11"E	36.80'
E12	N17°45'20"E	66.21
E13	N50°29'01"E	45.40
E14	N12°59'00"E	47.24
E15	N18°40'33"W	88.77
E16	N11°27'05"W	80.62
E17	N31°49'21"E	70.49
E18	N35°41'48"E	54.12
E19	N14°28'08"E	89.36
E20	N12°18'58"W	71.87
E21	N07°15'14"W	44.15
E22	N50°24'35"W	39.00'
E23	N24°28'06"E	142.92
E24	S70°43'58"E	121.51
E25	N87°52'04"E	241.01
E26	S81°35'57"E	79.27'
E27	S83°25'14"E	122.54
E28	N47°22'48"E	88.27
E29	N24°40'37"E	42.53
E30	N35°24'35"W	125.10
E31	N10°31'34"W	60.67
E32	S66°01'11"E	60.81
E33	S85°01'55"E	37.33
E34	N72°17'34"E	29.17
E35	N62°01'19"E	28.55
E36	N38°31'00"E	39.51
E37	N22°55'20"E	30.79
E38	N00°31'25"W	52.07
E39	N18°01'03"W	30.64
E40	N29°11'55"W	64.00
E41	N44°57'11"W	33.63'
E42	N57°26'20"W	44.84
E43	N58°10'39"W	55.48
E44	N88°27'43"W	40.45
E45	S79°04'27"W	35.33
E46	S45°54'49"W	32.74
E47	N52°10'42"W	190.79
E48	N84°35'06"E	32.61
E49	N69°45'58"E	48.40
E50	N60°48'34"E	41.30
E51	N58°00'03"E	42.47'
E52	N27°00'48"E	32.26
E53	N09°17'27"E	58.47
E54	N10°29'08"E	106.91
E55	N31°08'34"W	50.67
E56	N15°21'49"W	66.16'
E57	N37°21'05"W	78.10
E58	N70°49'02"W	90.55
E59	S53°11'33"W	78.73
E60	N25°27'15"W	63.89
E61	N09°04'10"E	101.43
E62	N41°20'45"W	73.34
E63	N84°27'04"W	54.42
E64	N30°46'09"E	42.64'
E65	N64°37'48"E	42.90
E66	N34°37'36"E	26.01
E67	N67°22'42"E	38.88
E68	N87°57'16"E	22.12
E69	N49°43'23"E	21.82'
E70	N25°28'45"E	22.34
E71	S59°18'06"E	34.46
E72	S41°26'19"E	77.08
E73	S45°24'10"E	128.28
E74	S20°41'53"E	201.61
E75	S14°16'40"E	156.37
E76	S01°05'16"W	167.78
E77	S26°09'51"E	83.99'
E78	S53°49'32"E	75.75
E79	S48°35'00"E	62.22
E80	S46°22'45"E	34.51
E81	S29°11'55"E	75.81
E82	S18°01'03"E	9.65
E83	N70°16'37"E	59.10
E84	N86°30'25"E	87.36
E85	N83°39'28"E	82.03
E86	S64°48'10"E	123.70
E87	N80°02'21"E	126.27
E88	N68°13'24"E	88.99
E89	N10°21'03"E	69.16
E90	S89°15'44"E	92.95'
E91	N05°32'14"W	85.98
E92	N49°58'43"E	63.82
E93	N52°09'26"E	127.80
E94	S29°18'02"W	61.29
E95	S67°42'08"E	34.97
E96	S20°24'09"E	43.09
E97	S47°47'33"E	40.91
E98	S16°32'38"E	65.80
E99	S59°31'52"E	36.35
E100	S43°51'54"E	49.24
E101	S21°19'48"W	20.45
E102	S32°57'17"E	51.07
E103	S89°15'44"E	31.82
E104	S74°26'27"E	13.89
E105	S46°18'17"E	30.53
E106	S27°13'34"E	36.88
E107	S01°44'35"W	63.60
E108	S41°05'13"W	30.23
E109	S34°50'26"W	44.89
E110	S17°24'19"E	74.08
E111	S41°41'35"E	59.48
E112	S25°43'53"E	61.13
E113	S30°43'56"E	64.55
E114	S42°50'17"E	49.04
E115	S08°16'03"E	35.11'
E116	S26°40'00"E	67.20
E117	S31°44'34"E	49.48
E118	S18°56'03"E	70.02
E119	S10°48'58"W	26.18
E120	S33°00'14"W	14.21
E121	S77°21'59"W	63.37
E122	N67°41'01"W	73.92
E123	N88°32'21"W	91.18
E124	N81°23'27"W	132.50
E125	S63°46'54"W	86.08
E126	S43°05'23"W	55.15
E127	S86°17'39"W	108.27
E128	N61°12'39"W	91.30
E129	S38°09'08"W	29.15
E130	S52°01'02"W	67.64
E131	S48°12'10"W	146.90
E132	S78°31'15"W	292.89
E133	S05°37'00"E	222.28
E134	S12°51'35"E	101.73
E135	S00°21'29"E	189.64
E136	S05°21'29"E	102.48
E137	S00°00'53"E	139.52
E138	S02°10'40"W	12.88
E139	N89°55'27"W	735.88

NOTES

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3 ○ DENOTES SET 1/2" IRON ROD & CAP (L B #6393)

4 ◉ DENOTES SET PK NAIL & DISC (L B #6393)

5 ● DENOTES RECOVERED MONUMENTATION – AS NOTED

6 ■ DENOTES RECOVERED CONCRETE MONUMENT – AS NOTED

7 R-O-W DENOTES RIGHT OF WAY

8 FLORIDA FRUIT AND TRUCK LAND REFERS TO THE RECORD PLAT OF FLORIDA FRUIT AND TRUCK LAND COMPANY'S PLAT AS RECORDED IN PLAT BOOK "B" PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA

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10 SEE SHEET 10 OF 10 FOR LOT AND TRACT GEOMETRY DETAIL

ASM
AMERICAN SURVEYING & MAPPING
320 EAST SOUTH STREET SUITE 160 ORLANDO FLORIDA 32801
(407) 426-7979

NOTICE

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MAGNOLIA CREEK

A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST OSCEOLA COUNTY, FLORIDA

DEEDS, COVENANTS AND RESTRICTIONS

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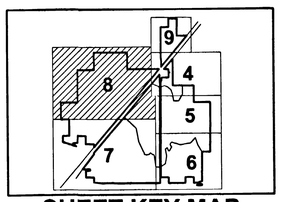
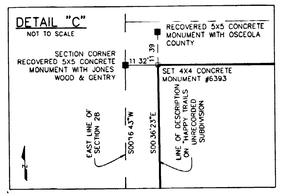
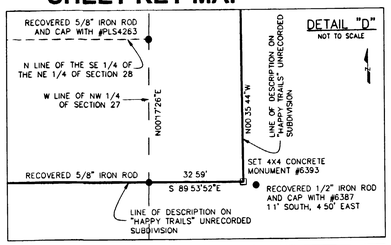
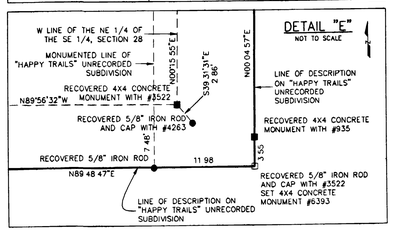


SHEET KEY MAP







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LINE TABLE

LINE	BEARING	LENGTH
L1*	S89°45'38"E	50.00'
L2*	N00°14'22"E	100.00'
L3*	S89°45'38"E	15.00'
L4*	S89°45'38"E	15.00'
L5	N00°10'47"E	388.71'
L6	S89°49'13"E	80.80'
L7	N00°10'47"E	60.00'
L8	N89°49'13"W	80.80'
L9	N00°10'47"E	229.43'
L10*	N00°14'22"E	246.12'
L11	N74°37'08"E	320.03'
L12	S73°58'21"E	220.31'
L13	S46°33'08"E	405.84'
L14	S20°18'07"E	338.15'
L15	S08°50'24"E	581.78'
L16	S89°50'23"E	400.32'
L17	N28°34'05"E	625.75'
L18	N00°04'47"E	675.74'
L19	S89°54'13"E	893.15'
L20	N30°36'53"W	606.11'
L21	N18°52'07"W	668.12'
L22	S41°11'04"W	555.92'
L23	S80°12'09"W	839.84'
L24	N73°27'00"W	718.75'
L25	S58°50'31"W	808.83'
L26	S11°25'18"E	536.53'
L27	S58°10'33"W	388.51'
L28	N89°51'58"W	326.21'
L29	N07°36'31"W	940.67'
L30	N85°15'22"W	108.42'
L31	N67°13'41"W	22.91'
L32	N35°27'19"W	30.21'
L33	N13°10'10"W	34.40'
L34	N10°22'59"W	38.53'
L35	N04°36'19"W	42.43'
L36	N32°46'16"W	54.33'
L37	N24°54'56"W	870.80'
L38	N10°14'04"W	1083.80'
L39	N45°45'08"W	1327.41'
L40	S66°39'16"E	702.26'

* R-O-W PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

MAGNOLIA CREEK

PLAT BOOK 12 PAGE 78

A REPLAT OF A PORTION OF FLORIDA FRUIT & TRUCK LAND CO PLAT OF SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST PLAT BOOK "B", PAGE 68 OF THE PUBLIC RECORDS OF OSCEOLA COUNTY, FLORIDA SECTIONS 23, 26, 27, 28, 33, 34 & 35 TOWNSHIP 25 SOUTH, RANGE 27 EAST OSCEOLA COUNTY, FLORIDA

DEEDS, COVENANTS AND RESTRICTIONS

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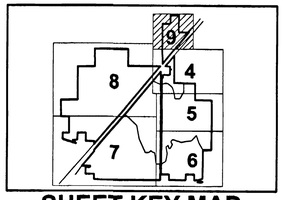
NORTH
SCALE 1 INCH = 200 FEET
0 200 400



SHEET KEY MAP

15' R/W

N89°55'26"E
665.85'
N LINE OF THE SW 1/4 OF SECTION 23

W 1/4 CORNER SECTION 23
RECOVERED 3/8 IRON ROD
WITH NO NUMBER

NE CORNER OF THE NW 1/4 OF THE SW 1/4 OF SECTION 23

BLOCK "C"
FLORIDA FRUIT AND TRUCK LAND PLAT
9

N00°15'21"E
663.57'

624.81'
N89°56'03"E
599.81'

N89°56'03"E
25.00'

NORTHERLY LINE OF LOT 10, BLOCK C, FLORIDA FRUIT AND TRUCK LAND CO

EASTERLY LINE OF THE NW 1/4 OF THE SW 1/4 OF SECTION 23

S00°15'35"W 1327.37'

BLOCK "C"
FLORIDA FRUIT AND TRUCK LAND PLAT
5

6

65' RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT ORDER (ORB 1179, PG 1799)

1990.52'

999.41'

1998.83'

TRACT "A" R-O-W DEDICATION BY THIS PLAT

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

N89°56'39"E
808.95'
RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

3

4

WESTERLY R-O-W LINE

1072.56'

300' HIGHWAY

INTERSTATE

3217.69'

42°27'

PARCEL N-1
ORB 1275, PG 434

OVERHEAD ELECTRIC TRANSMISSION LINES
PARCEL 05-5B
ORB 528, PG 16

EASTERLY R-O-W LINE PER FLORIDA DEPARTMENT OF TRANSPORTATION R-O-W MAP SECTION NO 92130-2401

1072.57'

EASTERLY R-O-W LINE

N00°13'54"E
999.42'

N 00°15'06" E

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

LOT 1
BLOCK 4

22-25-27

23-25-27

SHEET 9

SHEET 4

27-25-27

26-25-27

SECTION CORNER RECOVERED 40d NAIL

N00°14'22"E
440.07'

364.03'

S40°08'26"W
300'

S00°10'09"W
467.00'

145.2

65' RESERVED RIGHT OF WAY PER AMENDED DEVELOPMENT ORDER (ORB 1179, PG 1799)

100' RESERVED RIGHT OF WAY PER DEED BOOK 130, PG 453

4

N89°45'40"W
15.00'

N03°34'29"W
300.67'

N00°14'22"E
382.20'

3

POINT OF BEGINNING
BLOCK 4

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

PARCEL N-2
ORB 1275, PG 434

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

1072.56'

RECOVERED 4X4 CONCRETE MONUMENT WITH #3522

PARCEL 05-9A
ORB 528, PG 16

30' GAS LINE ESMT PER ORB 30, PG 265 DESC AMBIGUOUS

W LINE OF LOT 7, BLOCK B

PARCEL 05-20
ORB 528, PG 16

PARCEL 05-20A
15' ENGRESS/EGRESS ESMT ORB 1317, PGS 743 & 758

N40°08'26"E
1080.09'

826.05'

7

LOT 1
BLOCK 2

TYPICAL OUTDOOR ADVERTISEMENT EASEMENT SITE
NOT TO SCALE

NOTES

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10 SEE SHEET 10 OF 10 FOR LOT AND TRACT GEOMETRY DETAIL

NOTE: EASEMENTS NOT GRAPHICALLY SHOWN

1 A PORTION OF BLOCK 1 IS SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN ORB 547, PG 441

2 A PORTION OF BLOCKS 1 AND 3 ARE SUBJECT TO AN EASEMENT TO CONSTRUCT OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN DB 128 PG 231

3 A PORTION OF BLOCKS 1 AND 3 ARE SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN ORB 53 PG 74

4 A PORTION OF BLOCK 1 IS SUBJECT TO AN EASEMENT TO CONSTRUCT OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN DB 128, PG 391

5 A PORTION OF BLOCK 4 IS SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN ORB 350, PG 203

6 A PORTION OF BLOCK 2 IS SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN ORB 61 PG 348, AND ORB 69, PG 75

7 A PORTION OF BLOCKS 2 AND 5 ARE SUBJECT TO AN EASEMENT TO CONSTRUC OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN ORB 883, PG 261

8 A PORTION OF BLOCK 3 IS SUBJECT TO A DISTRIBUTION EASEMENT IN FAVOR OF FLORIDA POWER CORPORATION AS RECORDED IN ORB 470, PG 276

9 A PORTION OF BLOCKS 4 AND 2 ARE SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A PIPELINE FOR THE TRANSPORTATION OF NATURAL GAS IN FAVOR OF HOUSTON TEXAS GAS AND OIL CORPORATION, AS RECORDED IN ORB 33, PG 18

10 A PORTION OF BLOCKS 4 AND 2 ARE SUBJECT TO AN EASEMENT TO CONSTRUCT OPERATE AND MAINTAIN A PIPELINE FOR THE TRANSPORTATION OF NATURAL GAS IN FAVOR OF HOUSTON TEXAS GAS AND OIL CORPORATION, AS RECORDED IN ORB 38, PG 111 AND ORB 30, PG 265

11 A PORTION OF BLOCK 4 IS SUBJECT TO A FIRE PROTECTION AGREEMENT, AS RECORDED IN ORB 783 PG 175

12 A PORTION OF BLOCK 1 IS SUBJECT TO AN EASEMENT TO CONSTRUCT, OPERATE AND MAINTAIN A POLE LINE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY IN FAVOR OF FLORIDA POWER CORPORATION, AS RECORDED IN DB 128, PG 226

13 ALL OF BLOCK 4 AND A PORTION OF BLOCKS 1, 2, & 3 ARE SUBJECT TO A STIPULATION REGARDING DRAINAGE BY AND BETWEEN REDDY CREEK IMPROVEMENT DISTRICT AND OSCEOLA COUNTY, AS RECORDED IN ORB 268 PG 47

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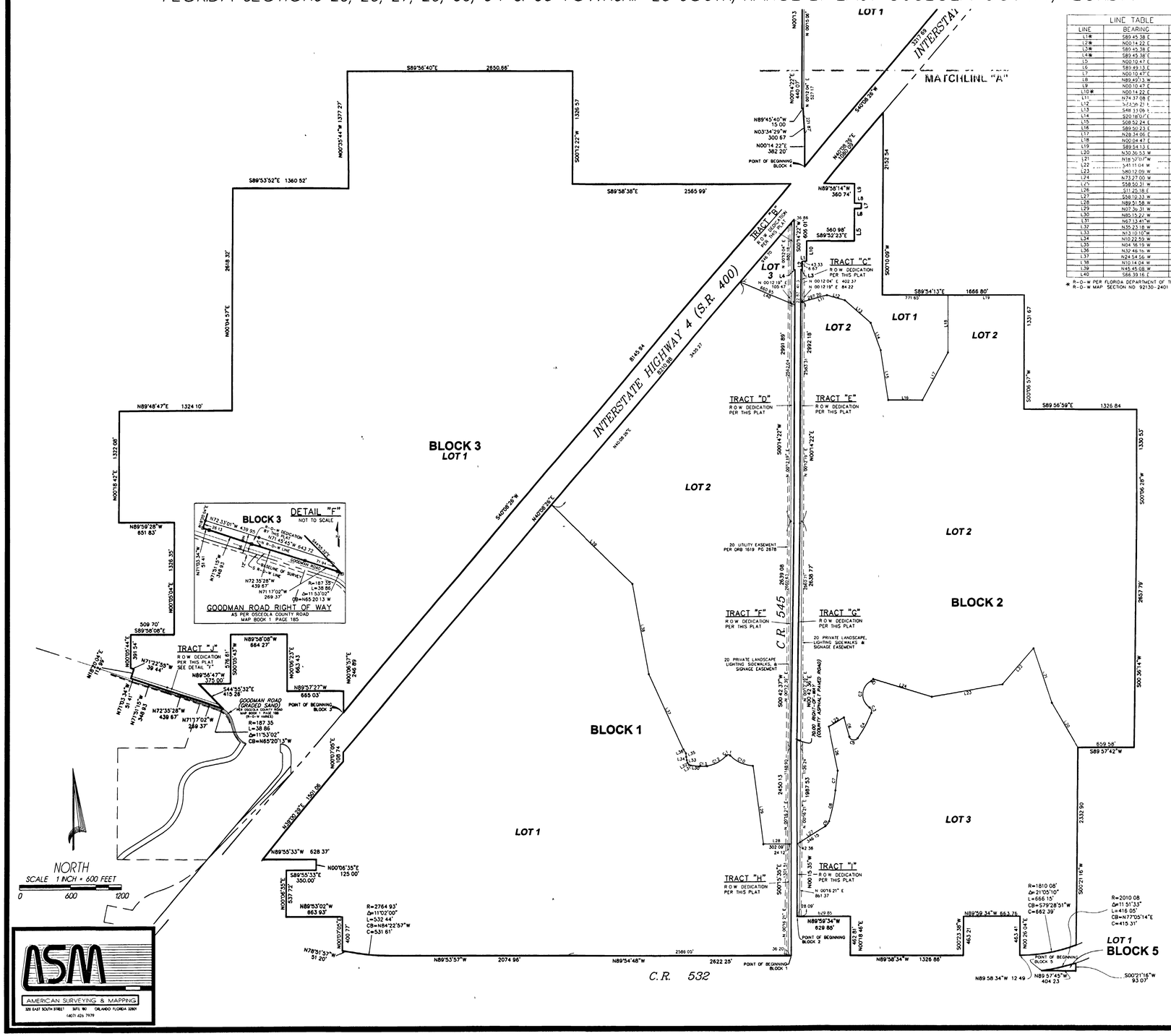

BLOCK 1
BLOCK 2
BLOCK 3
BLOCK 4
BLOCK 5
LOT 1
LOT 2
LOT 3
TRACT "A"
TRACT "B"
TRACT "C"
TRACT "D"
TRACT "E"
TRACT "F"
TRACT "G"
TRACT "H"
TRACT "I"
TRACT "J"
INTERSTATE HIGHWAY 4 (S.R. 400)
INTERSTATE HIGHWAY 4
C.R. 545
C.R. 532
GOODMAN ROAD (GRADED SAND)
GOODMAN ROAD RIGHT OF WAY
AS PER OSCEOLA COUNTY ROAD MAP BOOK 1 PAGE 185
MATCHLINE "A"
R.O.W. DEDICATION PER THIS PLAT
20 UTILITY EASEMENT PER ORB 1619 PG 2676
20 PRIVATE LANDSCAPE, LIGHTING, SIDEWALKS & SIGNAGE EASEMENT
POINT OF BEGINNING BLOCK 1
POINT OF BEGINNING BLOCK 2
POINT OF BEGINNING BLOCK 3
POINT OF BEGINNING BLOCK 4
POINT OF BEGINNING BLOCK 5
S89°56'40"E 2650.66'
N00°35'44"W 1377.27'
S89°53'52"E 1360.52'
N00°04'57"E 2618.32'
N89°48'47"E 1324.10'
N00°08'42"E 1322.08'
N89°59'28"W 651.83'
S89°58'08"E 509.70'
S89°58'38"E 2565.99'
S00°07'22"W 1326.53'
S40°08'26"W 5207.69'
N40°08'26"E 5207.69'
S89°58'14"W 360.74'
560.98' S89°52'23"E
S00°14'29"W 600.01'
S00°10'09"W 2152.54'
S89°54'13"E 1866.80'
771.63'
S00°06'57"W 1331.67'
S89°56'39"E 1326.84'
S00°06'28"W 1330.53'
N89°55'33"W 628.37'
N89°53'03"W 863.93'
N89°54'48"W 2622.25'
N89°53'57"W 2074.96'
N78°51'32"W 51.20'
S89°58'34"W 1326.88'
S89°59'34"W 663.76'
S89°57'45"W 404.23'
N89°58'34"W 12.49'
S89°57'42"W 659.58'
S00°21'16"W 93.07'
N89°55'26"E 665.85'
S00°15'35"W 1327.37'
N89°56'03"E 624.81'
N89°56'39"E 808.93'
N00°13'54"E 1998.83'
N00°15'21"E 663.57'
N89°45'40"W 15.00'
N00°14'22"E 440.07'
S00°13'24"E 1991.52'
S00°15'35"E 1998.83'
S00°15'35"W 1327.37'
S89°58'08"W 664.27'
S00°05'45"W 326.61'
N00°05'54"E 391.54'
N00°06'23"E 663.43'
N00°06'39"E 326.89'
N89°57'27"W 665.03'
S44°35'32"E 415.26'
N89°56'47"W 375.00'
N71°22'29"W 39.48'
N72°35'28"W 439.67'
N71°17'02"W 269.37'
N71°03'54"E 175.94'
N71°03'54"E 351.41'
N71°03'19"E 340.63'
R=187.35'
L=38.86'
Δ=11°53'02"
CB=N65°20'13"W
N72°33'01"W 438.91'
N71°45'57"W 643.72'
N72°35'28"W 459.67'
N71°17'02"W 269.37'
R=187.35'
L=38.86'
Δ=11°53'02"
CB=N65°20'13"W
N00°07'05"E 108.74'
N39°30'39"E 1501.08'
N00°06'35"E 125.00'
S89°55'33"E 350.00'
N00°04'56"E 537.72'
N00°07'05"E 400.77'
R=2764.93'
Δ=11°02'00"
L=532.44'
CB=N84°22'57"W
C=531.61'
R=1810.08'
Δ=21°05'10"
L=666.15'
CB=S79°28'51"W
C=662.39'
R=2010.08'
Δ=11°51'33"
L=416.05'
CB=N77°05'14"E
C=415.31'
N00°15'35"E 1302.09'
N00°13'21"E 1302.09'
N00°14'22"E 1302.09'
N00°15'35"E 1302.09'
N00°06'39"E 1302.09'
N00°07'05"E 1302.09'
N00°06'28"E 1302.09'
N00°21'16"W 2332.90'
S00°07'05"W 2637.79'
S00°36'14"W 2637.79'
S00°15'35"E 2637.79'
S00°14'29"W 2637.77'
S00°13'24"E 2639.08'
S00°10'09"W 2637.77'
S00°07'22"W 2639.08'
S00°06'28

OR BOOK 268 PAGE 47

IN THE CIRCUIT COURT OF THE
NINTH JUDICIAL CIRCUIT IN AND FOR
ORANGE AND OSCEOLA COUNTY,
FLORIDA

IN CHANCERY NO. 66-1061

IN RE:

REEDY CREEK IMPROVEMENT DISTRICT
SUCCESSOR TO REEDY CREEK DRAINAGE DISTRICT

STIPULATION

IT IS HEREBY STIPULATED AND AGREED by and between the Reedy Creek Improvement District (hereinafter called "District") and Osceola County, Florida, a political subdivision of the State of Florida (hereinafter called "County"), that the District, in executing the Plan of Reclamation, and in operating and maintaining the same, will abide by the following stated agreements, and the County agrees to fulfill the agreements provided on its part in this Stipulation:

I. RECEIPT OF SURPLUS WATER ORIGINATING OUTSIDE THE IMPROVEMENT DISTRICT

The District agrees to receive the quantity of flow indicated at the location in Section 14, Township 25 South, Range 27 East, shown in Osceola County in the original Plan of Reclamation of Reedy Creek Drainage District, Plate No. 7, as shown on the attached map. In addition the District agrees to receive drainage waters at the two locations in Sections 2 and 26, Township 25 South, Range 27 East, shown on the attached map in an aggregate quantity not to exceed 13 cubic feet per second per square mile of drainage area from lands located within the watershed of Reedy Creek and Bonnet Creek in Osceola County, as described in Appendix A attached hereto, but outside the boundary of the District, subject to the prior submission to, and review and approval by, the County and the District of completed plans of development and accompanying drainage plans.

II. WATER QUALITY

Water quality standards have been established by the Florida Air and Water Pollution Control Department and said standards have been adopted by a special Air and Water Pollution Control District encompassing all the lands within the District. It is hereby agreed by both parties to this stipulation that water entering the District from adjoining lands beyond the District boundaries must conform to the water quality standards established by the special Air and Water Pollution Control District or such other governmental body as from time to time hereafter may have jurisdiction thereof.

III. WATER SURFACE ELEVATIONS AT DISTRICT INTAKE STRUCTURES

The County Engineer will assist the District in setting water surface elevation at each of the District's intake canals and structures for the admission of outside waters to the District.

IV. FUTURE DEVELOPMENT CAUSING INCREASED RUNOFF OUTSIDE THE DISTRICT

The District will negotiate drainage agreements with the owners of lands (or, at the District's option, with drainage districts, municipalities or other special taxing districts now existing or hereafter created having jurisdiction over such lands; or, at the option of Osceola County, with the County) located outside the District but within the watershed of Reedy Creek or Bonnet Creek in Osceola County who are preparing to develop land areas if such development will cause an increase in storm water runoff beyond 13 cubic feet per second per square mile. The cost of additional facilities and rights of way required to accommodate increased flow from such outside

lands, and the cost of opoerations and maintenance of such facilities, will be borne by the outside land owners or political subdivision as the case may be. In the event a property owner desires to develop lands beyond those shown in the shaded areas on the attached map and such development will channelize waters into the Reedy Creek Improvement District's system of canals, etc., the matter contained in this Stipulation shall be subject to re-negotiation ~~as~~ to such additional lands.

V. JOINT ACTION BY COUNTY AND DISTRICT IN APPROVING DRAINAGE PROGRAMS

The County and District will coordinate closely their engineering review of applications for drainage permits in order that drainage works of the over-all area may be carefully coordinated and that water quality may be maintained to the standards referred to in Article II above.

VI. IMPOUNDED WATERS REGULATED BY DISTRICT

The District will regulate impounded waters so that the same will be released into Reedy Creek at structure S-40 at the rate of normal flow into Reedy Creek, except in unusual storm situations.

DATED at Kissimmee, Osceola County, Florida, this 22nd day of February, 1972.

REEDY CREEK IMPROVEMENT DISTRICT

By: _____
Chairman

Attest: _____
Secretary

OSCEOLA COUNTY

By: _____
Chairman

Attest: _____
Clerk

Attachments: Plat No. 7 of the Plan of Reclamation of Reedy Creek Drainage District
Appendix A

FILED IN THE OFFICE OF CLERK OF CIRCUIT COURT, OSCEOLA COUNTY, FLORIDA
ON THE 11 DAY OF July A. D. 1973 RECORDED AT 10:55 O'
CLOCK A M, IN BOOK 268 OF OFFICIAL RECORDS, PAGE 47
HARRIS G. DANIEL, CLERK By _____ D.C.

APPENDIX D

POND SIZING CALCULATIONS

Patel, Greene & Associates, PLLC

Designed By: J. Rehrl
Date: 3/3/2022
Checked By: M. Holt
Date: 3/3/2022

Subject: PS-20-11842-DG Osceola County Reconstruction of Old Lake Wilson Road
Existing Treatment Summary

PROJECT BASIN	PROJECT STATIONS		NO. FUTURE LANES PERMITTED	PERMITTED % IMPERVIOUS	PROPOSED* % IMPERVIOUS	TREATMENT TYPE	PERMITTED POND NAME	SOURCE** (NOTES)
	FROM	TO						
Basin 1	106+00	131+50	4 lane divided typical section	70%	61%	Dry Detention	Pond 370	SFWMD Permit No. 49-01107-P (Application No. 020913-3)
Basin 2	131+50	146+00	4 lane divided typical section	70%	61%	Dry Detention	Pond 374	SFWMD Permit No. 49-01107-P (Application No. 020913-3)
Basin 3	146+00	170+00	4 lane divided typical section	70%	61%	Dry Retention	Pond 491	SFWMD Permit No. 49-01107-P (Application No. 020913-3)
Basin 4	170+00	183+00	4 lane divided typical section	70%	61%	Dry Retention	Pond 362	SFWMD Permit No. 49-01107-P (Application No. 020913-3)
Basin 5	183+00	197+00	4 lane divided typical section	61%	61%	Wet Detention	Pond 108A (Exist. Pond G1)	SFWMD Permit No. 49-00792-S (I-4 BtU), FDEP Permit No. 49-187636001, FDEP Permit No. 49-187636003
Basin 6	197+00	207+50	4 lane divided typical section	61%	61%	Wet Detention	Pond 105A/105B (Exist. Pond F4A/F4B)	SFWMD Permit No. 49-00792-S (I-4 BtU), FDEP Permit No. 49-187636001, FDEP Permit No. 49-187636003
Basin 7	207+50	219+85	6 lane divided typical section	80%	61%	Dry Retention	Pond 8	SFWMD Permit No. 49-00954-P and SFWMD Permit No. 49-01107-P-33
Basin 8	219+85	229+20	6 lane divided typical section	82%	61%	Dry Retention	Pond 6	SFWMD Permit No. 49-00954-P and SFWMD Permit No. 49-01107-P-33

*Proposed impervious percentage taken from Typical Section A1 since it has the greatest percentage of impervious area
** Source can be WMD Permit number, permitted plans, permit report. Note if in a specific WMD basin like SFWMD special basin

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 5 with proposed BtU Areas per FDEP Permit 187636-003
SMF Name: Pond 108A (FDEP Permit No. 187636-003)

Pre-development Impervious Areas	Total Area (ac)	Notes
Existing Impervious to Pond 108A	8.37	Includes 700 ft or 0.39 acres of impervious of existing Old Lake Wilson Road (CR 545). Information obtained from FDEP Permit No. 187636-003 for Pond G-1.
TOTAL	8.37	
	8.37 ac	

Post-development Impervious Areas	Total Area (ac)	Notes
Existing Impervious to Pond 108A	11.00	Includes 700 ft or 1.28 acres of proposed improvements for Old Lake Wilson Road (CR 545). Information obtained from FDEP Permit No. 187636-003 for Pond G-1.
Additional Impervious from OLW Widening	1.28	Typical Section 2 = 79.5 ft impervious x 700 ft (This is the untreated area of OLW discharging directly to Davenport Creek Tributary: BSNOLW in FDEP Permit No. 187636-003)
	12.28	
	12.28 ac	

TREATMENT CALCULATIONS

Treatment Type (choose)	Wet Detention
Runoff Treatment	2.50 in.
Area to be Treated (choose)	Total Imp. Area

Total Imp. Area	Add'l DCIA	Total R/W
12.28 ac	3.91 ac	20.43 ac

Treatment Volume required	**2.56 ac-ft**
Treatment Volume from existing sources (treatment types must match)*	**0.00 ac-ft**
Total Treatment volume required	**2.56 ac-ft**

*referenced from Existing Treatment and Storage Summary. 0.00 ac-ft if not applicable

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 5 with proposed BtU Areas per FDEP Permit 187636-003

ATTENUATION CALCULATIONS

Will attenuation be necessary? (choose)	Yes
Zone (choose)	Zone 7
Frequency (choose)	25-yr
Time (choose)	72-hr
Precipitation Depth	9.8 in.

Pre-development Conditions

	Pre R/W Area		Total Area
	20.43 ac		20.43 ac
Total Area to be attenuated for (choose)			
Roadway			8.37 ac
Wetland/Water			2.53 ac
Open Space			9.53 ac

CN Calculations

	Area	*CN*	*Weighted CN*
Roadway	8.37 ac	98	40.15
Water Surface	2.53 ac	100	12.38
Open Space	9.53 ac	48	22.39
		CN_{pre} =	74.9

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$

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

S_{pre} =	3.35 in.
Q_{pre} =	6.68 in.
Pre-development runoff volume =	**11.38 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 5 with proposed BtU Areas per FDEP Permit 187636-003

ATTENUATION CALCULATIONS (CONT.)

Post-development Conditions

Post R/W Area		Total Area
22.52 ac		22.52 ac

Includes 20.43 acres from the Pre-Development Conditions plus 2.09 acres from the Old Lake Wilson Basin 5 (untreated in the permit docs)

Total Area to be attenuated for

Roadway	12.28 ac
Wetland/Water	2.82 ac
Open Space Composite	7.42 ac

CN Calculations	*Area*	*CN*	*Weighted CN*
Roadway	12.28 ac	98	58.91
Water Surface	2.82 ac	100	13.80
Open Space	7.42 ac	48	17.43
		CN_{post} =	90.1

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$

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

S_{post} = 1.09 in.
Q_{post} = 8.60 in.
Post-development runoff volume = **16.14 ac-ft**

Attenuation volume required (Post-Pre) **4.76 ac-ft**

Total Treatment + Attenuation **7.32 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 5 with proposed BtU Areas per FDEP Permit 187636-003

Pond 108A

Pond Stage Storage values obtained from FDEP Permit No. 187636-003

Stage NGVD (ft)	Area (ac)	Incremental Volume (ac-ft)	Cumulative Volume (ac-ft)	Description/Comments
89.80	3.98		14.49	Outside Berm
		3.67		
88.80	3.36		10.82	Inside Berm
		3.28		
87.80	3.21		7.53	Top of Attenuation + Treatment
		0.95		
87.50	3.16		6.58	Proposed Weir Elevation from FDEP Permit No. 187636-003
		6.58		
85.30	2.82		0.00	NWL

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6 with proposed BtU Areas per FDEP Permit 187636-003
SMF Name: Ponds 105A and 105B (FDEP Permit 187636-003)

Pre-development Impervious Areas	Total Area (ac)	Notes
Existing Impervious to Ponds F-4-A & F-4-B	14.13	Information obtained from FDEP Permit No. 187636-001 for Ponds F-4-A and F-4-B
TOTAL	14.13	

14.13 ac

Post-development Impervious Areas	Total Area (ac)	Notes
Proposed Impervious to Ponds 105A & 105B	30.75	ation obtained from FDEP Permit No. 187636-003 for BSN105A & BSN105B; Includes 1.92 ac of impervious area from the OLW 4-lane proposed wid
	30.75	

30.75 ac

TREATMENT CALCULATIONS

		Total Imp. Area	Add'l DCIA	Post Total R/W
Treatment Type (choose)	Wet Detention			
Runoff Treatment	2.50 in.	30.75 ac	16.62 ac	59.38 ac
Area to be Treated (choose)	Total Imp. Area			

Treatment Volume required	6.41 ac-ft
Treatment Volume from existing sources (treatment types must match)*	0.00 ac-ft
Total Treatment volume required	6.41 ac-ft

*referenced from Existing Treatment and Storage Summary. 0.00 ac-ft if not applicable

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6 with proposed BtU Areas per FDEP Permit 187636-003

ATTENUATION CALCULATIONS

Will attenuation be necessary? (choose)	Yes
Zone (choose)	Zone 7
Frequency (choose)	25-yr
Time (choose)	72-hr
Precipitation Depth	9.8 in.

Pre-development Conditions

	Pre R/W Area		Total Area
	36.11 ac		36.11 ac
Total Area to be attenuated for (choose)			
Roadway			14.13 ac
Open Space			17.41 ac

CN Calculations

	Area	*CN*	*Weighted CN*
Roadway	14.13 ac	98	38.35
Water Surface	4.57 ac	100	12.66
Open Space	17.41 ac	48	23.14
		CN_{pre} =	74.1

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$

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

S_{pre} = 3.49 in.
Q_{pre} = 6.58 in.
Pre-development runoff volume = **19.80 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6 with proposed BtU Areas per FDEP Permit 187636-003

ATTENUATION CALCULATIONS (CONT.)

Post-development Conditions

	Post R/W Area		Total Area
	59.38 ac		59.38 ac

Total Area to be attenuated for

Roadway	30.75 ac
Open Space Composite	23.04 ac

CN Calculations	*Area*	*CN*	*Weighted CN*
Roadway	30.75 ac	98	50.75
Water Surface	5.59 ac	100	9.41
Open Space	23.04 ac	48	18.62
		CN_{post} =	78.8

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$

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

S_{post} = 2.69 in.
Q_{post} = 7.18 in.
Post-development runoff volume = **35.51 ac-ft**

Attenuation volume required (Post-Pre) **15.70 ac-ft**

Total Treatment + Attenuation **22.11 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6 with proposed BtU Areas per FDEP Permit 187636-003

Ponds 105A & 105B

Pond Stage Storage values obtained from FDEP Permit No. 187636-003

Stage NGVD	Area	Incremental Volume	Cumulative Volume	Description/Comments
(ft)	(ac)	(ac-ft)	(ac-ft)	
100.50	8.70		47.20	Outside Berm
		8.08		
99.50	7.45		39.12	Inside Berm
		7.30		
98.50	7.14		31.83	Top of Attenuation + Treatment
		24.71		
94.73	5.97		7.11	Exist. Weir Elevation FDEP Permit No 187636-003
		7.11		
93.50	5.59		0.00	NWL

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6
SMF Name: Existing Ponds F-4-A & F-4-B

Pre-development Impervious Areas	Total Area (ac)	Notes
Existing Impervious to Ponds F-4-A & F-4-B	14.13	Information obtained from FDEP Permit No. 187636-001 for Ponds F-4-A and F-4-B
TOTAL	14.13	

14.13 ac

Post-development Impervious Areas	Total Area (ac)	Notes
Existing Impervious to Ponds F-4-A & F-4-B	14.13	Information obtained from FDEP Permit No. 187636-001 for Ponds F-4-A and F-4-B
Additional Impervious from OLW Widening	1.92	Typical Section 2 = 79.5 ft impervious x 1,050 ft
	16.05	

16.05 ac

TREATMENT CALCULATIONS

		Total Imp. Area	Add'l DCIA	Total R/W
Treatment Type (choose)	Wet Detention			
Runoff Treatment	2.50 in.	16.05 ac	1.92 ac	39.45 ac
Area to be Treated (choose)	Total Imp. Area			

Treatment Volume required	3.34 ac-ft
Treatment Volume from existing sources (treatment types must match)*	0.00 ac-ft
Total Treatment volume required	3.34 ac-ft

*referenced from Existing Treatment and Storage Summary. 0.00 ac-ft if not applicable

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6

ATTENUATION CALCULATIONS

Will attenuation be necessary? (choose)	Yes
Zone (choose)	Zone 7
Frequency (choose)	25-yr
Time (choose)	72-hr
Precipitation Depth	9.8 in.

Pre-development Conditions

	Pre R/W Area		Total Area (PRE)
	36.32 ac		36.32 ac
Total Area to be attenuated for (choose)			
Roadway			14.13 ac
Open Space			17.62 ac

CN Calculations

	Area	*CN*	*Weighted CN*
Roadway	14.13 ac	98	38.13
Water Surface	4.57 ac	100	12.58
Open Space	17.62 ac	48	23.29
		CN_{pre} =	74.0

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$

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

S_{pre} = 3.51 in.
Q_{pre} = 6.56 in.
Pre-development runoff volume = **19.86 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6

ATTENUATION CALCULATIONS (CONT.)

Post-development Conditions

	Post R/W Area		Total Area (POST)
	39.45 ac		39.45 ac

Total Area to be attenuated for	
Roadway	16.05 ac
Open Space Composite	18.83 ac

CN Calculations	*Area*	*CN*	*Weighted CN*
Roadway	16.05 ac	98	39.87
Water Surface	4.57 ac	100	11.58
Open Space	18.83 ac	48	22.91
		CN_{post} =	74.4

SCS Method for Attenuation Volume:

$$S = \frac{1{,}000}{CN} - 10$$
$$Q = \frac{(P - 0.2S)^2}{P + 0.8S}$$

S_{post} = 3.45 in.
Q_{post} = 6.61 in.
Post-development runoff volume = **21.73 ac-ft**

Attenuation volume required (Post-Pre)	**1.87 ac-ft**
Total Treatment + Attenuation	**5.21 ac-ft**

Patel, Greene & Associates, LLC

Designed By: J. Rehrl
Date: 3/17/2022
Checked By: M. Holt
Date: 3/17/2022

Subject: CR 545 PD&E - Osceola County
Description Pond Sizing Calculations
Basin: Basin 6

Existing Ponds F-4-A & F-4-B

Pond Stage Storage values obtained from FDEP Permit No. 187636-001

Stage NGVD (ft)	Area (ac)	Incremental Volume (ac-ft)	Cumulative Volume (ac-ft)	Description/Comments
100.50	7.40		40.09	Outside Berm
		13.33		
98.50	5.93		26.76	Inside Berm
		7.65		
97.17	5.57		19.12	Top of Attenuation + Treatment
		15.75		
94.20	5.04		3.36	Exist. Weir Elevation FDEP Permit No 187636-001
		3.36		
93.50	4.57		0.00	NWL/Control

APPENDIX E

NUTRIENT LOADING CALCULATIONS

Pre-Development Pond Input Parameters for Nutrient Loading Calculations (BMP TRAINS)

Basin	Permitted Pond Name	Subbasin Description	Subbasin Name	Subbasin Total Area (ac.)	Subbasin Total Area Check	Subbasin Impervious Area (ac.)	Subbasin Water Area (ac.)	Subbasin Pervious Area (ac.)	Total Impervious Area (ac.)	Total Water Area (ac.)	Total Pervious Area (ac.)	Subbasin % Impervious	Subbasin % Water	Subbasin % Pervious	Total % Impervious	Total % Water	Total % Pervious	Total % Check	Total Basin Area (ac.)	Composite CN	Composite CN	Impervious CN	Water CN	Pervious CN	Remarks
1	370	**CR 545**	**3701**	**7.81**	**7.81**	**1.41**	**0.00**	**6.40**	1.64	0.00	37.41	18	0	82	4	0	96	100	39.05	49.65	41.48	98	100	39	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
		Reunion Dev.	3702	17.02	17.02	0.00	0.00	17.02				0	0	100						39.00					
		CR 545	**3703**	**1.28**	**1.28**	**0.23**	**0.00**	**1.05**				18	0	82						49.60					
		Reunion Dev.	3704	12.94	12.94	0.00	0.00	12.94				0.00	0.00	100.0						39.00					
2	374	Reunion Dev.	3741	0.31	0.31	0.00	0.00	0.31	0.68	0.00	3.45	0	0	100	16	0	84	100	4.13	39.00	48.71	98	100	39	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
		CR 545	**3742**	**3.82**	**3.82**	**0.68**	**0.00**	**3.14**				18	0	82						49.50					
3	491	Reunion Dev.	4911	3.23	3.23	0.00	0.00	3.23	1.76	0.00	15.57	0	0	100	10	0	90	100	17.33	39.00	44.99	98	100	39	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5 & 020913-3)
		Reunion Dev.	4912	4.30	4.30	0.00	0.00	4.30				0	0	100						39.00					
		CR 545	**4913**	**9.80**	**9.80**	**1.76**	**0.00**	**8.04**				18	0	82						49.60					
4	362	Reunion Dev.	3620	31.17	31.17	0.00	0.00	31.17	1.06	0.00	89.32	0	0	100	1	0	99	100	90.38	39.00	39.69	98	100	39	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3); SFWMD Permit No. 49-01107-P-17 (Application No. 040526-4); SFWMD Permit No. 49-102283-P (Application No. 191004-1965)
		Reunion Dev.	3621	54.88	54.88	0.00	0.00	54.88				0	0	100						39.00					
		CR 545	**3622**	**4.33**	**4.33**	**1.06**	**0.00**	**3.27**				24	0	76						53.44					
5	G-1/108A	**CR 545**	**G-1**	**2.09**	**2.09**	**0.39**	**0.00**	**1.70**	8.37	2.53	9.53	19	0	81	41	12	47	100	20.43	57.33	74.92	98	100	48	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003
		I-4 Exist		18.34	18.34	7.98	2.53	7.83				382	121	375						76.93					
6	F-4-A & F-4-B	I-4/SR 429 Basin F-4	I-4/SR 429 Basin F-4	36.32	36.32	14.13	4.57	17.62	14.13	4.57	17.62	39	13	49	39	6	49	94	36.32	74.00	74.00	98	100	48	FDEP Permit No. 49-187636001 FDEP Permit No. 49-187636003 In the existing condition, Basins 6 does not discharge to an existing pond.
7	8	**CR 545**	**D008**	**8.20**	**8.20**	**6.56**	**0.00**	**1.64**	6.56	0.00	34.67	80	0	20	16	0	84	100	41.23	88.00	55.96	98	100	48	SFWMD Permit No. 49-00954-P (Application No. 090515-5) & Permit No. 49-01107-P-38 (Application No. 150331-13)
		Reunion Dev.	Basin 8	33.03	33.03	0.00	0.00	33.03				0	0	100						48.00					
8	6	**CR 545**	**D001**	**7.42**	**7.42**	**6.09**	**0.00**	**1.33**	6.09	1.83	14.75	82	0	18	27	2	65	94	22.67	89.04	65.63	98	100	48	SFWMD Permit No. 49-00954-P (Application 090515-5) & Permit No. 49-01107-P-38 (Application No. 150331-13)
		Offsite	D005-OS	1.90	1.90	0.00	0.00	1.90				0	0	100						48.00					
		Offsite	D002-P	1.71	1.71	0.00	0.63	1.08				0	37	63						67.16					
		Offsite	D006-OS	3.18	3.18	0.00	0.00	3.18				0	0	100						48.00					
		Reunion Dev.	Basin 6	8.46	8.46	0.00	1.20	7.26				0	14	86						55.38					

Post-Development Pond Input Parameters for Nutrient Loading Calculations (BMP TRAINS)

Basin	Permitted Pond Name	Subbasin Description	Subbasin Name	Subbasin Total Area (ac.)	Subbasin Total Area Check	Subbasin Impervious Area (ac.)	Subbasin Water Area (ac.)	Subbasin Pervious Area (ac.)	Total Impervious Area (ac.)	Total Water Area (ac.)	Total Pervious Area (ac.)	Subbasin % Impervious	Subbasin % Pervious	Total % Impervious	Total % Water	Total % Pervious	Total % Check	Total Basin Area (ac.)	Composite CN	Composite CN	Impervious CN	Water CN	Pervious CN	Required Treatment Volume[1] (Ac-ft)	Provided Treatment Volume (Ac-ft)	Treatment Depth (ft)	Treatment Depth over Catchment Area (in)	Remarks
1	370	**CR 545**	**3701**	**7.81**	**7.81**	**4.76**	**0.00**	**3.05**	12.49	0.00	26.54	61	39	32	0	68	100	39.03	74.99	57.89	98	100	39	0.74	20.19	15.10	4.64	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
		Reunion Dev.	3702	17.00	17.00	0.85	0.00	16.15				5	95						41.95					1.42				
		CR 545	**3703**	**1.28**	**1.28**	**0.78**	**0.00**	**0.50**				61	39						74.99					0.12				
		Reunion Dev.	3704	12.94	12.94	6.10	0.00	6.84				47.14	52.9						66.81					1.27				
2	374	Reunion Dev.	3741	0.31	0.31	0.02	0.00	0.29	2.34	0.00	1.77	6	94	57	0	43	100	4.11	42.81	72.56	98	100	39	0.03	0.55	1.50	4.38	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3 & 040702-5)
		CR 545	**3742**	**3.80**	**3.80**	**2.32**	**0.00**	**1.48**				61	39						74.99					0.36				
3	491	Reunion Dev.	4911	3.40	3.40	0.17	0.00	3.23	6.38	0.00	11.33	5	95	36	0	64	100	17.71	41.95	60.25	98	100	39	0.20	1.34	1.50	1.02	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5 & 020913-3)
		Reunion Dev.	4912	4.51	4.51	0.23	0.00	4.28				5	95						42.01					0.37				
		CR 545	**4913**	**9.80**	**9.80**	**5.98**	**0.00**	**3.82**				61	39						74.99					0.94				
4	362/9	Reunion Dev.	3620	31.17	31.17	7.37	0.00	23.80	53.90	0.00	36.36	24	76	60	0	40	100	90.26	52.95	74.23	98	100	39	2.60	38.30	3.20	0.43	SFWMD Permit No. 49-01107-P (Application No.'s 000522-5, 020913-3); SFWMD Permit No. 49-01107-P-17 (Application No. 040526-4); SFWMD Permit No. 49-102283-P (Application No. 191004-1965)
		Reunion Dev.	3621	54.76	54.76	43.89	0.00	10.87				80	20						86.29					8.14				
		CR 545	**3622**	**4.33**	**4.33**	**2.64**	**0.00**	**1.69**				61	39						74.99					0.41[2]				
5	G-1/108A	**CR 545**	**CR 545**	**4.18**	**4.18**	**2.56**	**0.00**	**1.62**	12.28	2.82	7.42	61	39	55	13	33	100	22.52	78.62	81.78	98	100	48	2.56	6.56	2.20	1.17	FDEP Permit No. 49-187636001
		I-4 Exist	BSN G-1	18.34	18.34	9.72	2.82	5.80				53	32						82.50									FDEP Permit No. 49-187636003
6	F-4-A & F-4-B	**CR 545**	**CR 545**	**3.13**	**3.13**	**1.92**	**0.00**	**1.21**	16.05	4.57	18.83	61	39	41	12	48	100	39.45	78.67	74.37	98	100	48	3.34	3.36	0.80	0.24	FDEP Permit No. 49-187636001
		I-4 Exist	Basin F-4	36.32	36.32	14.13	4.57	17.62				39	49						74.00									FDEP Permit No. 49-187636003
7	8	**CR 545**	**D008**	**8.20**	**8.20**	**6.56**	**0.00**	**1.64**	18.89	0.00	19.86	80.00	20.0	49	0	51	100	38.75	88.00	68.14	98	100	48	3.93	5.12	1.65	0.51	SFWMD Permit No. 49-00954-P (Application No. 090515-5) & Permit No. 49-01107-P-38 (Application No. 150331-13)
		Reunion Dev.	Basin 8	30.55	30.55	12.33	0.00	18.22				40.36	59.6						62.81									
8	6	**CR 545**	**D001**	**7.42**	**7.42**	**6.09**	**0.00**	**1.33**	14.33	0.00	17.44	82.08	17.9	45	0	55	100	31.77	89.04	66.53	98	100	48	1.87	3.46	1.70	0.64	SFWMD Permit No. 49-00954-P (Application 090515-5) & Permit No. 49-01107-P-38 (Application No. 150331-13)
		Offsite	D005-OS	1.90	1.90	0.00	0.00	1.90				0.00	100.0						48.00									
		Reunion Dev.	Basin 6	22.45	22.45	8.24	0.00	14.21				36.70	63.3						60.66									

1. Water quality calculations within Basins 1-4 were permitted at 70% impervious as documented in Permit No. 49-01107-P. Since the retention volume provided is less than the required retention volume, the impervious area was recalculated at the maximum proposed impervious area of 61% impervious corresponding to Typical Section 2. The results demonstrate the retention volume provided is greater than or equal to the required retention volume.

2. Basin 3622 was not included in the routing calculations for the latest permit modification to Pond 9, SFWMD Permit No. 49-102283-P (Application No. 191004-1965)

3. In the existing condition, Basins 5 and 6 do not discharge to an existing pond.

Complete Report (not including cost) Ver 4.3.2

Project: Pond 362
Date: 8/25/2021 11:34:02 AM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 362
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Undeveloped - Upland Hardwood: TN=1.042 TP=0.346
Area (acres)	92.52
Rational Coefficient (0-1)	0.15
Non DCIA Curve Number	36.43
DCIA Percent (0-100)	18.00
Nitrogen EMC (mg/l)	1.042
Phosphorus EMC (mg/l)	0.346
Runoff Volume (ac-ft/yr)	58.698
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	75.414
Phosphorus Loading (kg/yr)	25.042

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	92.52
Rational Coefficient (0-1)	0.52
Non DCIA Curve Number	70.77

DCIA Percent (0-100)	61.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	203.139
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	380.715
Phosphorus Loading (kg/yr)	50.094

Catchment Number: 1 Name: Pond 362

Project: Pond 362
Date: 8/25/2021

Retention Design

Retention Depth (in)	0.450
Retention Volume (ac-ft)	3.470

Watershed Characteristics

Catchment Area (acres)	92.52
Contributing Area (acres)	92.520
Non-DCIA Curve Number	70.77
DCIA Percent	61.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	80
Provided TN Treatment Efficiency (%)	55
Required TP Treatment Efficiency (%)	50
Provided TP Treatment Efficiency (%)	55

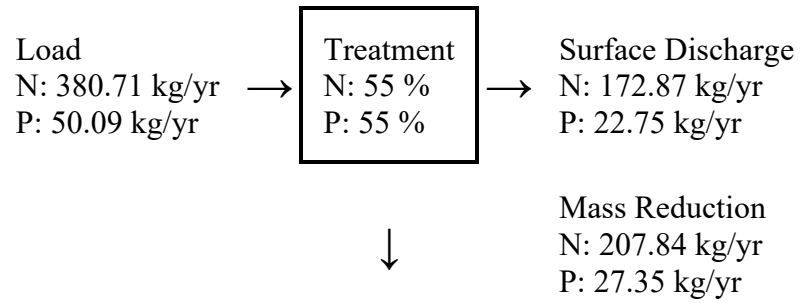
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

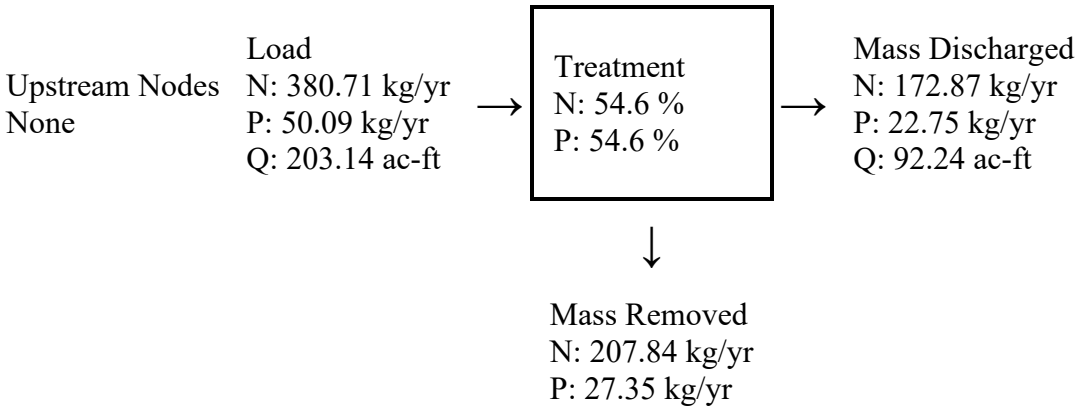
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	207.841
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	27.347
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 362

Analysis Type: Net Improvement

Date:8/25/2021

BMP Types:

Catchment 1 - (Pond 362) Retention

Based on % removal values to the nearest percent

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? **No**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	75.41 kg/yr	
Total N post load	380.71 kg/yr	
Target N load reduction	80 %	
Target N discharge load	75.41 kg/yr	
Percent N load reduction	55 %	
Provided N discharge load	172.87 kg/yr	381.19 lb/yr
Provided N load removed	207.84 kg/yr	458.29 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	25.042 kg/yr	
Total P post load	50.094 kg/yr	
Target P load reduction	50 %	
Target P discharge load	25.042 kg/yr	
Percent P load reduction	55 %	
Provided P discharge load	22.747 kg/yr	50.16 lb/yr
Provided P load removed	27.347 kg/yr	60.301 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Pond 370
Date: 8/25/2021 12:05:14 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 370
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	39.05
Rational Coefficient (0-1)	0.15
Non DCIA Curve Number	41.44
DCIA Percent (0-100)	18.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	25.154
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	47.143
Phosphorus Loading (kg/yr)	6.203

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	39.05
Rational Coefficient (0-1)	0.50
Non DCIA Curve Number	57.11
DCIA Percent (0-100)	61.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520

Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	83.415
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	156.334
Phosphorus Loading (kg/yr)	20.570

Catchment Number: 1 Name: Pond 370

Project: Pond 370
Date: 8/25/2021

Retention Design

Retention Depth (in)	4.640
Retention Volume (ac-ft)	15.099

Watershed Characteristics

Catchment Area (acres)	39.05
Contributing Area (acres)	39.050
Non-DCIA Curve Number	57.11
DCIA Percent	61.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	70
Provided TN Treatment Efficiency (%)	99
Required TP Treatment Efficiency (%)	70
Provided TP Treatment Efficiency (%)	99

Media Mix Information

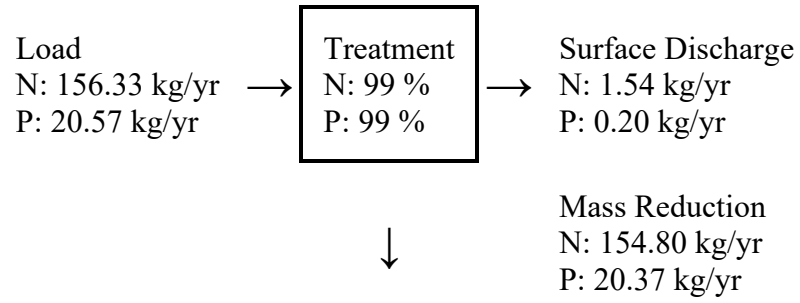
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

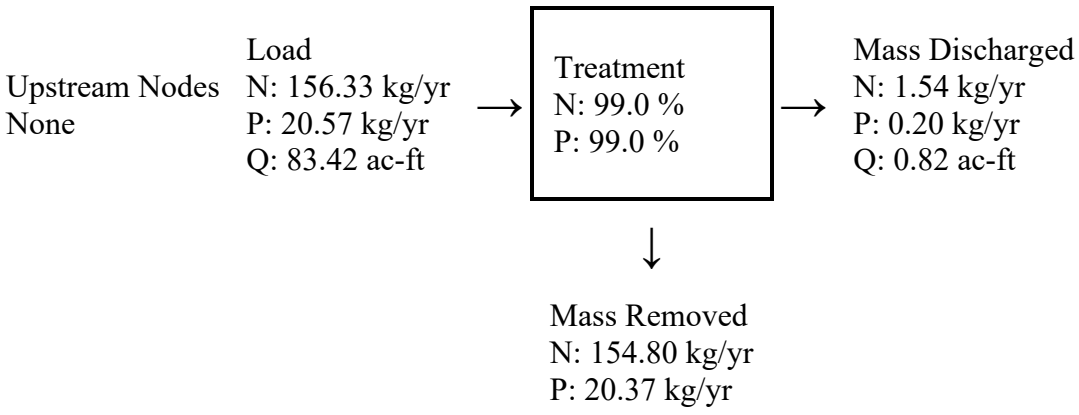
Treatment Rate (MG/yr)	0.000

TN Mass Load (kg/yr)	154.798
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	20.368
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 370

Analysis Type: Net Improvement

Date:8/25/2021

BMP Types:

Catchment 1 - (Pond 370) Retention

Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	47.14 kg/yr	
Total N post load	156.33 kg/yr	
Target N load reduction	70 %	
Target N discharge load	47.14 kg/yr	
Percent N load reduction	99 %	
Provided N discharge load	1.54 kg/yr	3.39 lb/yr
Provided N load removed	154.8 kg/yr	341.33 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	6.203 kg/yr	
Total P post load	20.57 kg/yr	
Target P load reduction	70 %	
Target P discharge load	6.203 kg/yr	
Percent P load reduction	99 %	
Provided P discharge load	.202 kg/yr	.45 lb/yr
Provided P load removed	20.368 kg/yr	44.912 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Pond 374
Date: 8/25/2021 12:09:15 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 374
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	4.13
Rational Coefficient (0-1)	0.16
Non DCIA Curve Number	48.29
DCIA Percent (0-100)	18.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	2.744
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	5.142
Phosphorus Loading (kg/yr)	0.677

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	4.13
Rational Coefficient (0-1)	0.53
Non DCIA Curve Number	77.98
DCIA Percent (0-100)	61.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520

Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	9.318
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	17.463
Phosphorus Loading (kg/yr)	2.298

Catchment Number: 1 Name: Pond 374

Project: Pond 374
Date: 8/25/2021

Retention Design

Retention Depth (in)	1.600
Retention Volume (ac-ft)	0.551

Watershed Characteristics

Catchment Area (acres)	4.13
Contributing Area (acres)	4.130
Non-DCIA Curve Number	77.98
DCIA Percent	61.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	71
Provided TN Treatment Efficiency (%)	89
Required TP Treatment Efficiency (%)	71
Provided TP Treatment Efficiency (%)	89

Media Mix Information

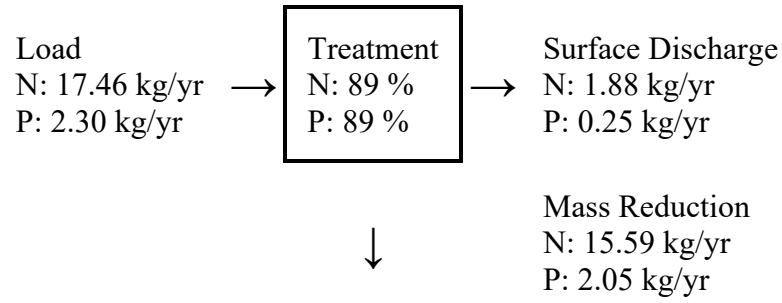
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

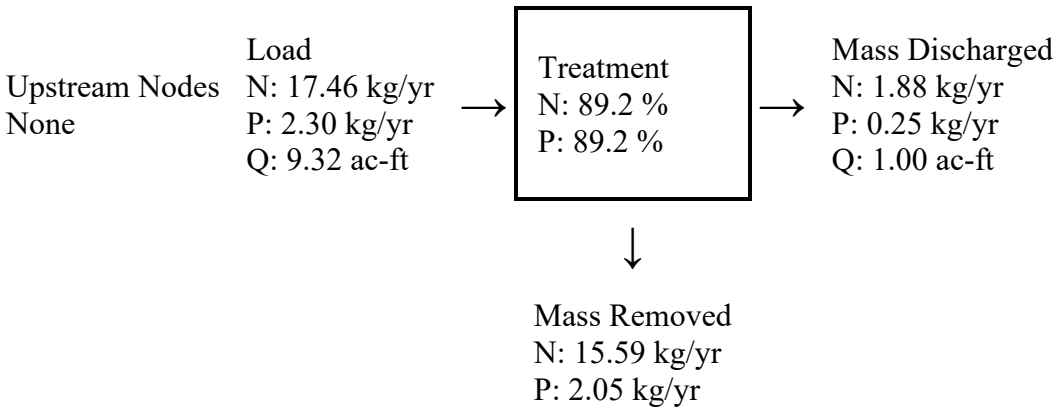
Treatment Rate (MG/yr)	0.000

TN Mass Load (kg/yr)	15.586
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	2.051
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 374

Analysis Type: Net Improvement

Date:8/25/2021

BMP Types:

Catchment 1 - (Pond 374) Retention

Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	5.14 kg/yr	
Total N post load	17.46 kg/yr	
Target N load reduction	71 %	
Target N discharge load	5.14 kg/yr	
Percent N load reduction	89 %	
Provided N discharge load	1.88 kg/yr	4.14 lb/yr
Provided N load removed	15.59 kg/yr	34.37 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	.677 kg/yr	
Total P post load	2.298 kg/yr	
Target P load reduction	71 %	
Target P discharge load	.677 kg/yr	
Percent P load reduction	89 %	
Provided P discharge load	.247 kg/yr	.54 lb/yr
Provided P load removed	2.051 kg/yr	4.522 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Pond 491
Date: 8/25/2021 12:13:47 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 491
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.70
Rational Coefficient (0-1)	0.15
Non DCIA Curve Number	43.27
DCIA Percent (0-100)	18.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	11.484
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	21.523
Phosphorus Loading (kg/yr)	2.832

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	17.70
Rational Coefficient (0-1)	0.51
Non DCIA Curve Number	63.21
DCIA Percent (0-100)	61.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520

Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	38.167
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	71.531
Phosphorus Loading (kg/yr)	9.412

Catchment Number: 1 Name: Pond 491

Project: Pond 491
Date: 8/25/2021

Retention Design

Retention Depth (in)	1.020
Retention Volume (ac-ft)	1.505

Watershed Characteristics

Catchment Area (acres)	17.70
Contributing Area (acres)	17.700
Non-DCIA Curve Number	63.21
DCIA Percent	61.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	70
Provided TN Treatment Efficiency (%)	82
Required TP Treatment Efficiency (%)	70
Provided TP Treatment Efficiency (%)	82

Media Mix Information

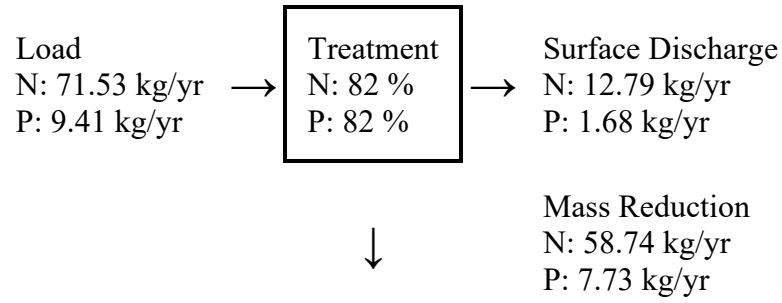
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

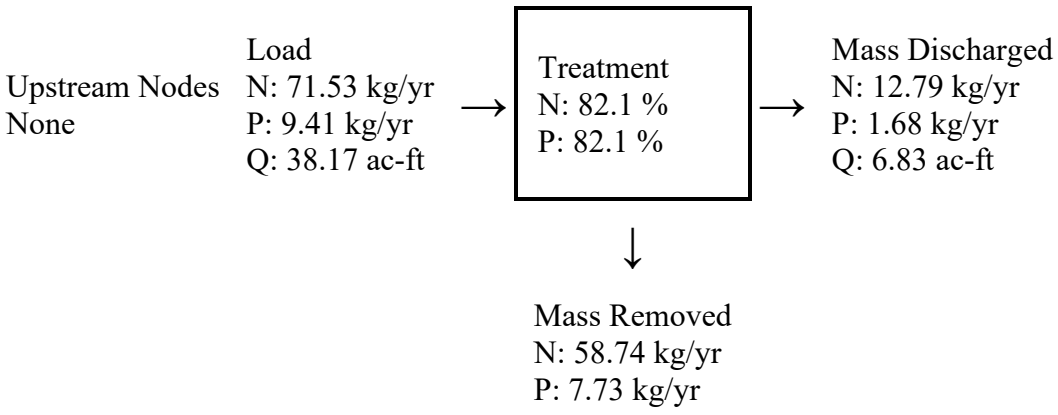
Treatment Rate (MG/yr)	0.000

TN Mass Load (kg/yr)	58.739
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	7.729
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 491

Analysis Type: Net Improvement

Date:8/25/2021

BMP Types:

Catchment 1 - (Pond 491) Retention

Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	21.52 kg/yr	
Total N post load	71.53 kg/yr	
Target N load reduction	70 %	
Target N discharge load	21.52 kg/yr	
Percent N load reduction	82 %	
Provided N discharge load	12.79 kg/yr	28.21 lb/yr
Provided N load removed	58.74 kg/yr	129.52 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	2.832 kg/yr	
Total P post load	9.412 kg/yr	
Target P load reduction	70 %	
Target P discharge load	2.832 kg/yr	
Percent P load reduction	82 %	
Provided P discharge load	1.683 kg/yr	3.71 lb/yr
Provided P load removed	7.729 kg/yr	17.042 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Pond 108A
Date: 3/19/2022 2:21:35 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 108A
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	20.43
Rational Coefficient (0-1)	0.34
Non DCIA Curve Number	48.00
DCIA Percent (0-100)	41.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	29.446
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	55.187
Phosphorus Loading (kg/yr)	7.261

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	22.52
Rational Coefficient (0-1)	0.45
Non DCIA Curve Number	48.00
DCIA Percent (0-100)	55.00
Wet Pond Area (ac)	3.98
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	35.483

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	66.500
Phosphorus Loading (kg/yr)	8.750

Catchment Number: 1 Name: Pond 108A

Project: Pond 108A
Date: 3/19/2022

Wet Detention Design

Permanent Pool Volume (ac-ft)	14.070
Permanent Pool Volume (ac-ft) for 31 days residence	3.014
Annual Residence Time (days)	145
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	22.52
Contributing Area (acres)	18.540
Non-DCIA Curve Number	48.00
DCIA Percent	55.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	17
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	17
Provided TP Treatment Efficiency (%)	77

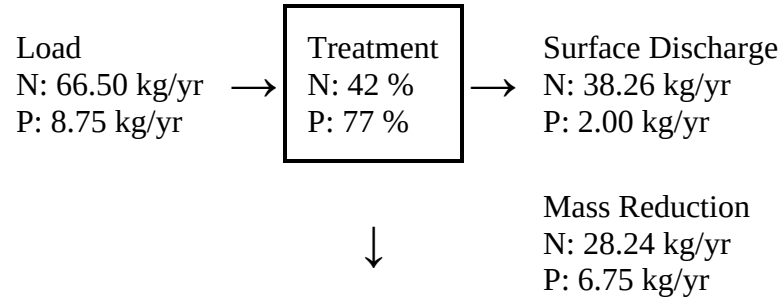
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

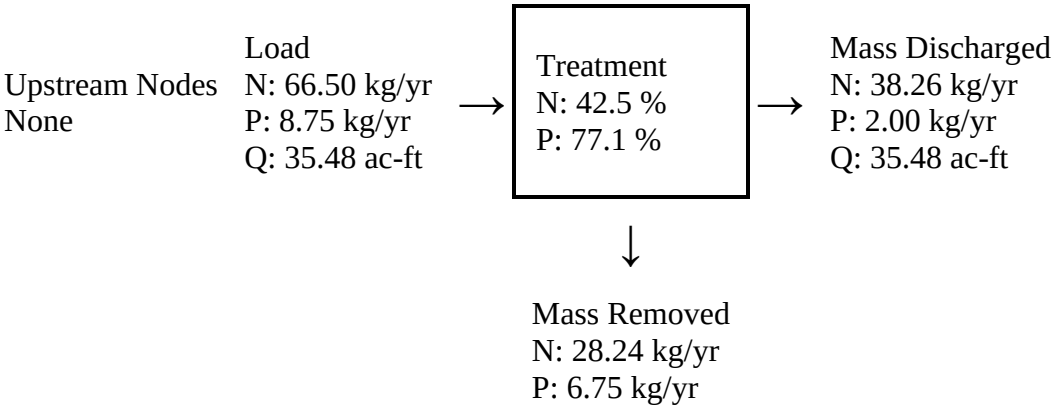
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 108A

Date:3/19/2022

Analysis Type: Net

Routing Summary
Catchment 1 Routed to Outlet

Improvement

BMP Types:

Catchment 1 - (Pond 108A)

Wet Detention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	55.19 kg/yr	
Total N post load	66.5 kg/yr	
Target N load reduction	17 %	
Target N discharge load	55.19 kg/yr	
Percent N load reduction	42 %	
Provided N discharge load	38.26 kg/yr	84.37 lb/yr
Provided N load removed	28.24 kg/yr	62.27 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	7.261 kg/yr	
Total P post load	8.75 kg/yr	
Target P load reduction	17 %	
Target P discharge load	7.261 kg/yr	
Percent P load reduction	77 %	
Provided P discharge load	2.004 kg/yr	4.42 lb/yr
Provided P load removed	6.746 kg/yr	14.876 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Ponds F4A & F4B
Date: 3/18/2022 5:11:02 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	F4A and F4B
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	36.32
Rational Coefficient (0-1)	0.32
Non DCIA Curve Number	48.00
DCIA Percent (0-100)	39.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	49.884
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	93.490
Phosphorus Loading (kg/yr)	12.301

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	39.45
Rational Coefficient (0-1)	0.34
Non DCIA Curve Number	48.00
DCIA Percent (0-100)	41.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	56.860

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	106.565
Phosphorus Loading (kg/yr)	14.022

Catchment Number: 1 Name: F4A and F4B

Project: Ponds F4A & F4B
Date: 3/18/2022

Wet Detention Design

Permanent Pool Volume (ac-ft)	23.010
Permanent Pool Volume (ac-ft) for 31 days residence	4.829
Annual Residence Time (days)	148
Littoral Zone Efficiency Credit	
Wetland Efficiency Credit	

Watershed Characteristics

Catchment Area (acres)	39.45
Contributing Area (acres)	39.450
Non-DCIA Curve Number	48.00
DCIA Percent	41.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	12
Provided TN Treatment Efficiency (%)	42
Required TP Treatment Efficiency (%)	12
Provided TP Treatment Efficiency (%)	77

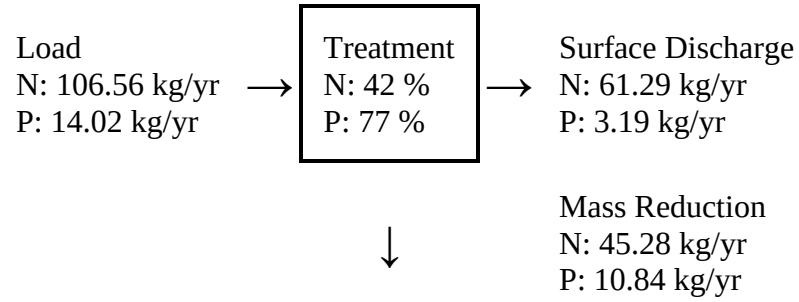
Media Mix Information

Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

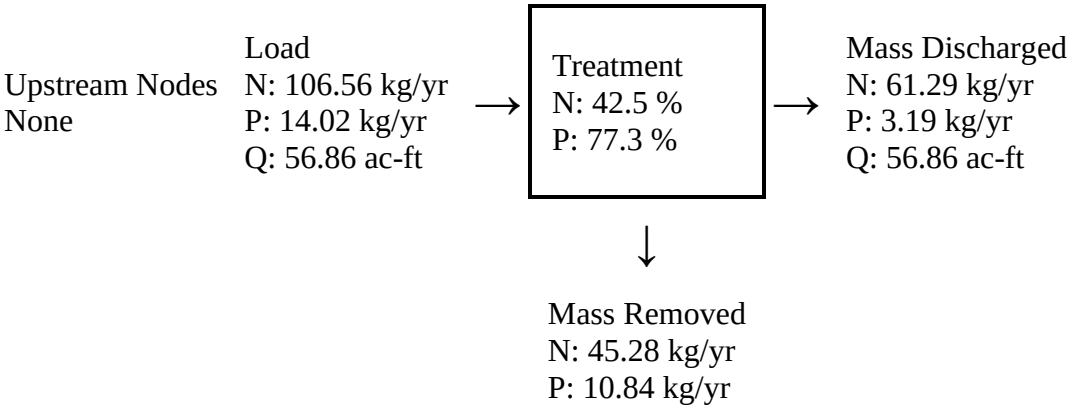
Groundwater Discharge (Stand-Alone)

Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	0.000
TN Concentration (mg/L)	0.000
TP Mass Load (kg/yr)	0.000
TP Concentration (mg/L)	0.000

Load Diagram for Wet Detention (stand-alone)



Load Diagram for Wet Detention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Ponds F4A & F4B

Date:3/18/2022

Analysis Type: Net

Routing Summary
Catchment 1 Routed to Outlet

Improvement

BMP Types:

Catchment 1 - (F4A and F4B) Wet Detention

Based on % removal values to the nearest percent

Total nitrogen target removal met? **Yes**

Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	93.49 kg/yr	
Total N post load	106.56 kg/yr	
Target N load reduction	12 %	
Target N discharge load	93.49 kg/yr	
Percent N load reduction	42 %	
Provided N discharge load	61.29 kg/yr	135.13 lb/yr
Provided N load removed	45.28 kg/yr	99.84 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	12.301 kg/yr	
Total P post load	14.022 kg/yr	
Target P load reduction	12 %	
Target P discharge load	12.301 kg/yr	
Percent P load reduction	77 %	
Provided P discharge load	3.186 kg/yr	7.03 lb/yr
Provided P load removed	10.835 kg/yr	23.892 lb/yr

Complete Report (not including cost) Ver 4.3.2

Project: Pond 8
Date: 3/18/2022 1:51:45 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Pond 8
Rainfall Zone	Florida Zone 2
Annual Mean Rainfall	50.90

Pre-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	33.03
Rational Coefficient (0-1)	0.27
Non DCIA Curve Number	65.90
DCIA Percent (0-100)	29.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	37.320
Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	69.944
Phosphorus Loading (kg/yr)	9.203

Post-Condition Landuse Information

Landuse	Highway: TN=1.520 TP=0.200
Area (acres)	38.75
Rational Coefficient (0-1)	0.43
Non DCIA Curve Number	70.55
DCIA Percent (0-100)	49.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.520
Phosphorus EMC (mg/l)	0.200
Runoff Volume (ac-ft/yr)	70.156

Groundwater N (kg/yr)	0.000
Groundwater P (kg/yr)	0.000
Nitrogen Loading (kg/yr)	131.484
Phosphorus Loading (kg/yr)	17.300

Catchment Number: 1 Name: Pond 8

Project: Pond 8
Date: 3/18/2022

Retention Design

Retention Depth (in)	0.510
Retention Volume (ac-ft)	1.647

Watershed Characteristics

Catchment Area (acres)	38.75
Contributing Area (acres)	38.750
Non-DCIA Curve Number	70.55
DCIA Percent	49.00
Rainfall Zone	Florida Zone 2
Rainfall (in)	50.90

Surface Water Discharge

Required TN Treatment Efficiency (%)	47
Provided TN Treatment Efficiency (%)	65
Required TP Treatment Efficiency (%)	47
Provided TP Treatment Efficiency (%)	65

Media Mix Information

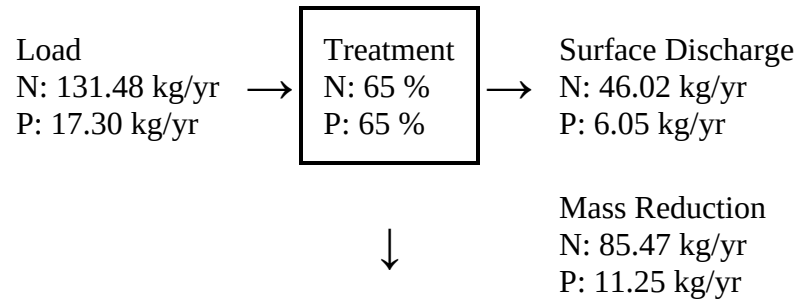
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

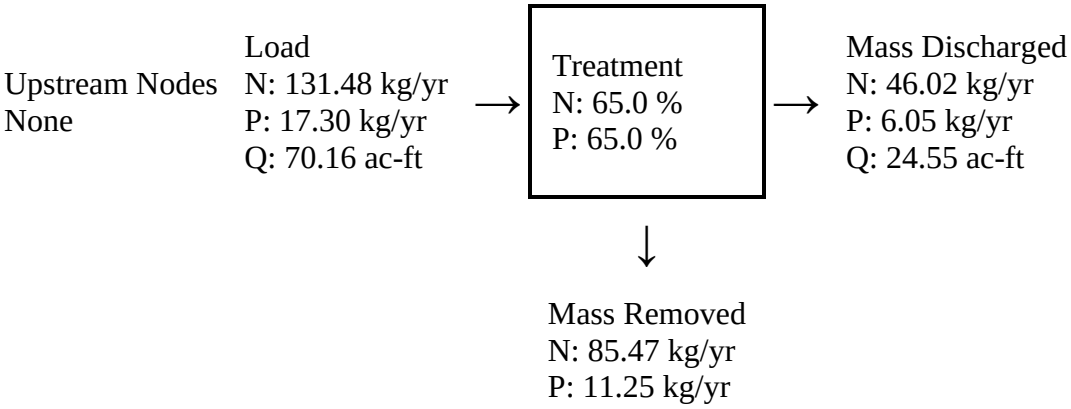
Treatment Rate (MG/yr)	0.000
TN Mass Load (kg/yr)	85.466
TN Concentration (mg/L)	0.000

TP Mass Load (kg/yr)	11.246
TP Concentration (mg/L)	0.000

Load Diagram for Retention (stand-alone)



Load Diagram for Retention (As Used In Routing)



Summary Treatment Report Version: 4.3.2

Project: Pond 8

Date:3/18/2022

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - (Pond 8)

Routing Summary

Catchment 1 Routed to Outlet

Retention
Based on % removal values to
the nearest percent

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	69.94 kg/yr	
Total N post load	131.48 kg/yr	
Target N load reduction	47 %	
Target N discharge load	69.94 kg/yr	
Percent N load reduction	65 %	
Provided N discharge load	46.02 kg/yr	101.47 lb/yr
Provided N load removed	85.47 kg/yr	188.45 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	9.203 kg/yr	
Total P post load	17.3 kg/yr	
Target P load reduction	47 %	
Target P discharge load	9.203 kg/yr	
Percent P load reduction	65 %	
Provided P discharge load	6.055 kg/yr	13.35 lb/yr
Provided P load removed	11.246 kg/yr	24.796 lb/yr

Summary Treatment Report Version: 4.3.2

Project: Pond 6

Analysis Type: Net Improvement

Date:3/18/2022

BMP Types:

Catchment 1 - (Pond 6) Retention

Based on % removal values to the nearest percent

Routing Summary
Catchment 1 Routed to Outlet

Total nitrogen target removal met? **Yes**
Total phosphorus target removal met? **Yes**

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	47.1 kg/yr	
Total N post load	100.35 kg/yr	
Target N load reduction	53 %	
Target N discharge load	47.1 kg/yr	
Percent N load reduction	73 %	
Provided N discharge load	27.08 kg/yr	59.72 lb/yr
Provided N load removed	73.26 kg/yr	161.54 lb/yr

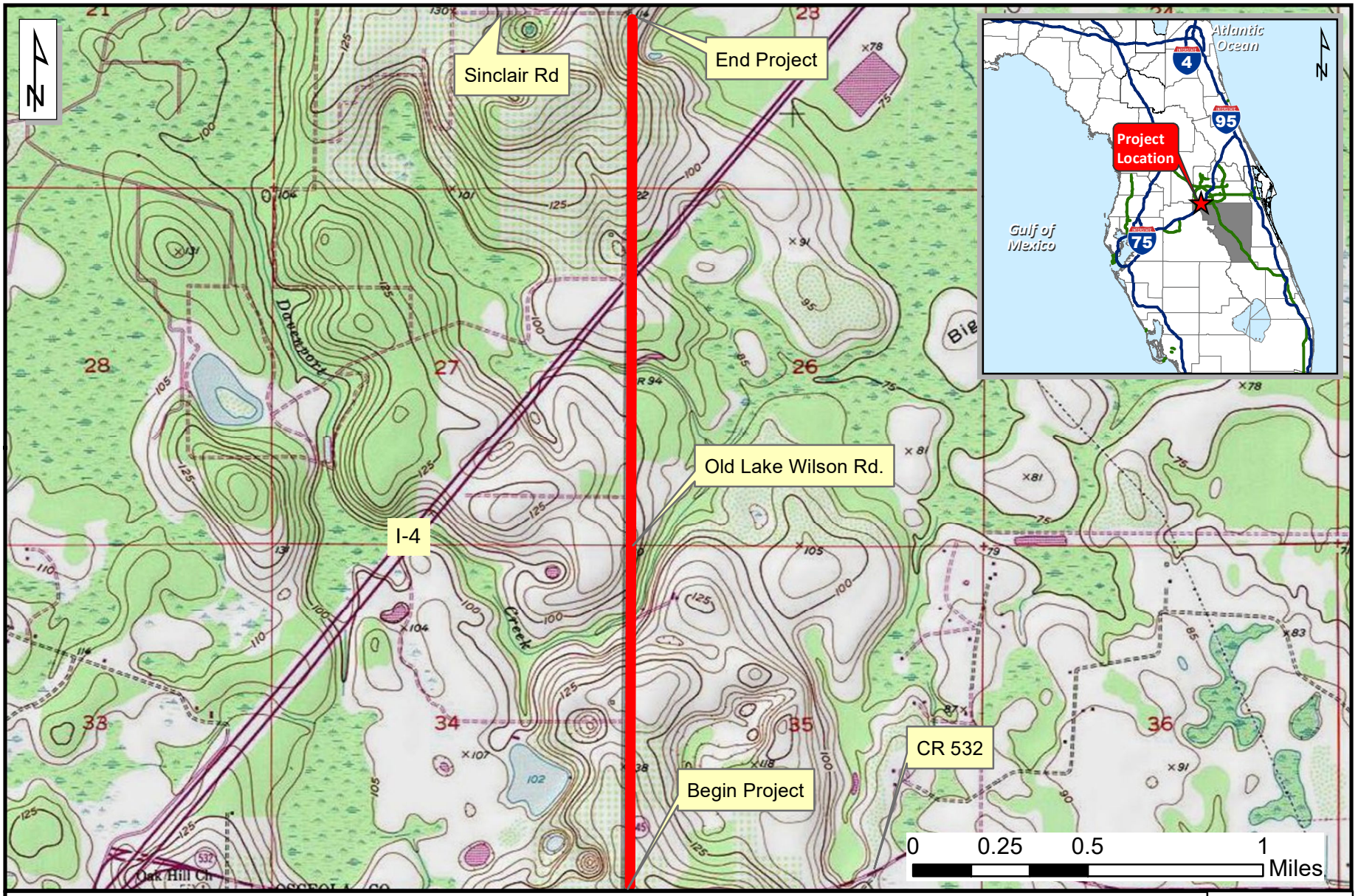
Phosphorus

Surface Water Discharge

Total P pre load	6.197 kg/yr	
Total P post load	13.203 kg/yr	
Target P load reduction	53 %	
Target P discharge load	6.197 kg/yr	
Percent P load reduction	73 %	
Provided P discharge load	3.564 kg/yr	7.86 lb/yr
Provided P load removed	9.64 kg/yr	21.255 lb/yr

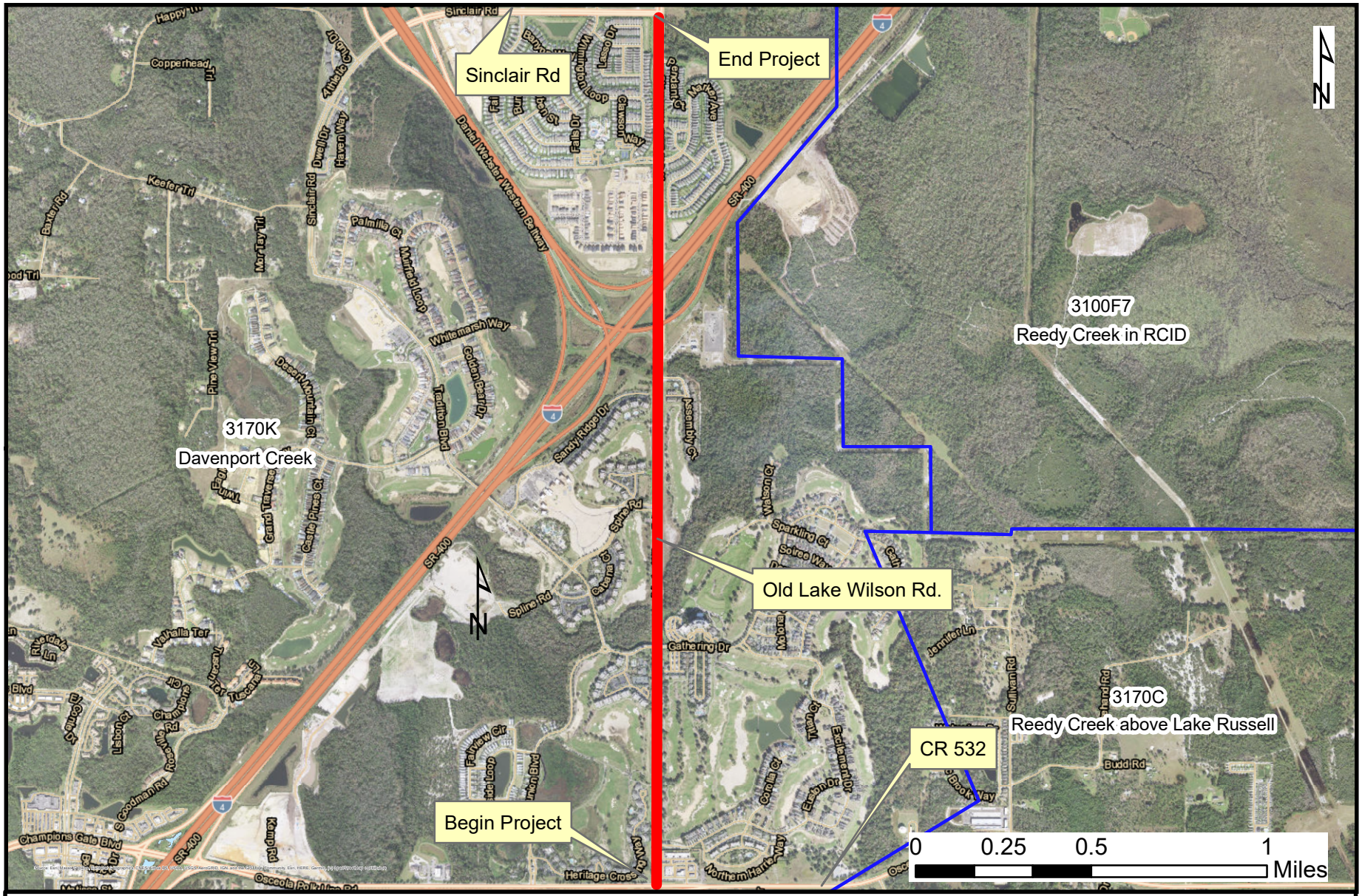
APPENDIX F

EXHIBITS



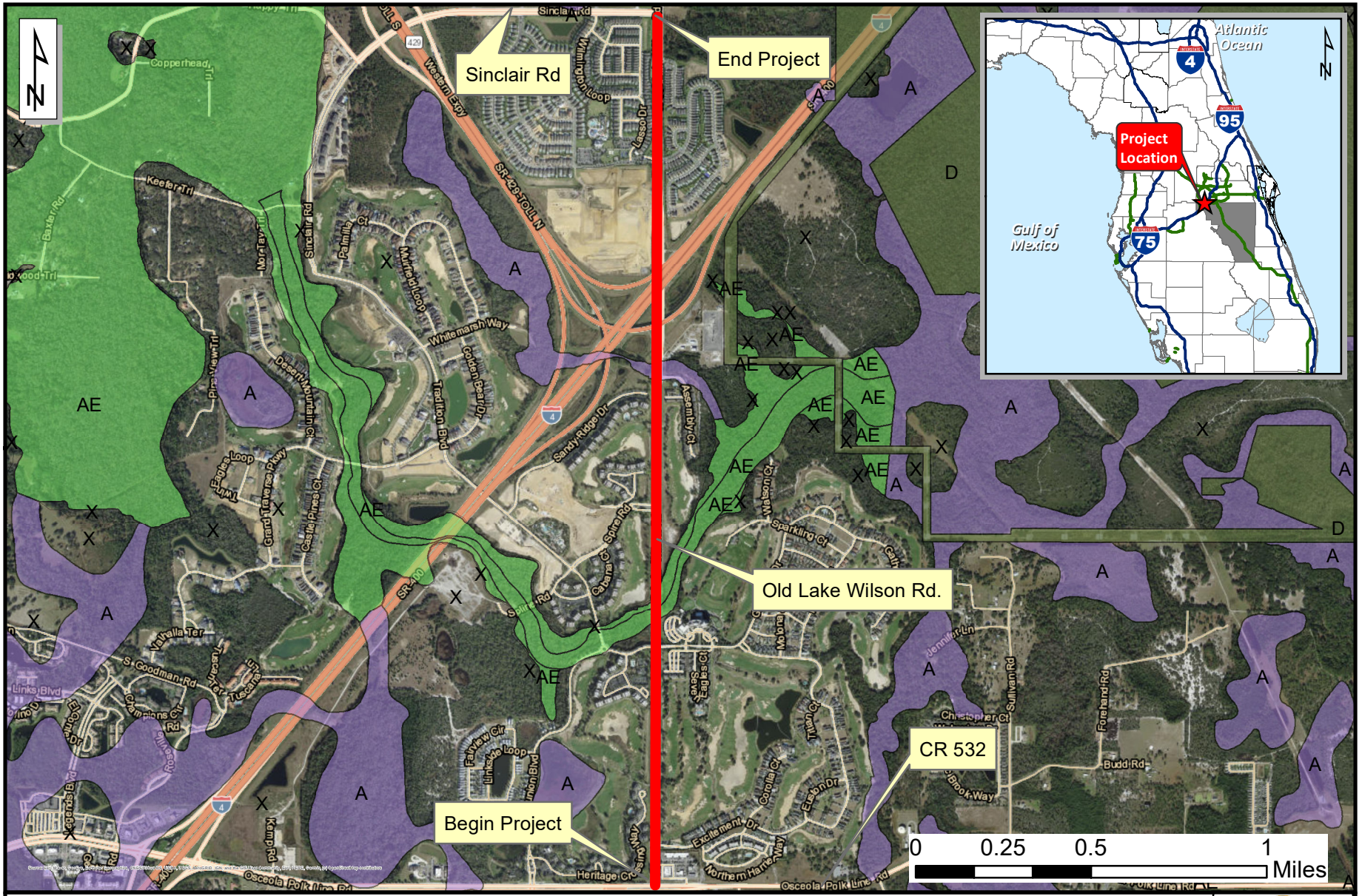
USGS Quad Map

Old Lake Wilson Rd. From CR 532 (Oscola Polk Line Rd.) to South of Sinclair Rd.



Water Body Identification Map

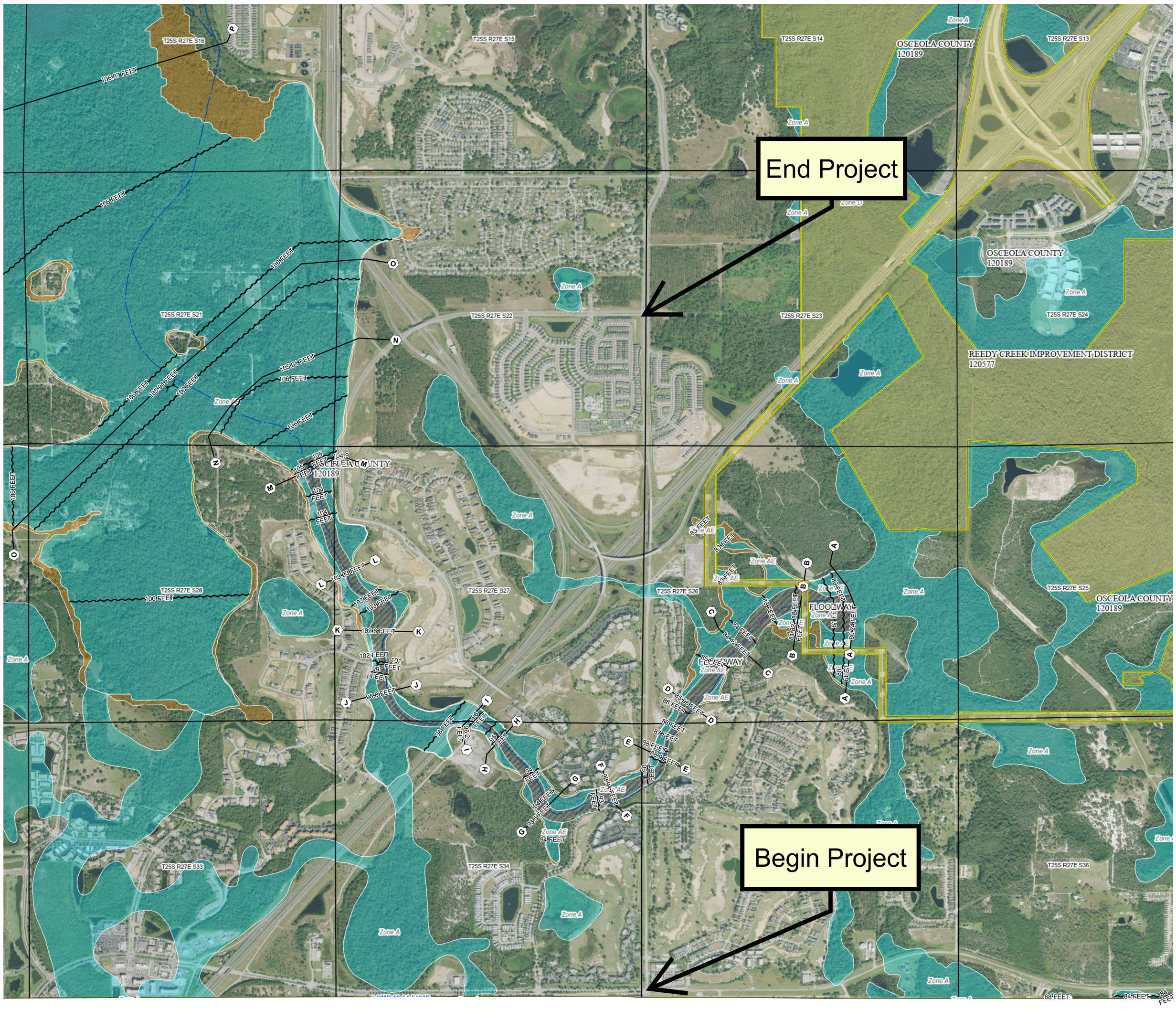
Old Lake Wilson Rd. From CR 532 (Oscola Polk Line Rd.) to South of Sinclair Rd.



Flood Zone Map

Old Lake Wilson Rd. From CR 532 (Oscola Polk Line Rd.) to South of Sinclair Rd.

81°37'30.87"W 28°19'15.04"N



81°33'44.16"W 28°15'3.69"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee See Notes *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **12/10/2020 6:01 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

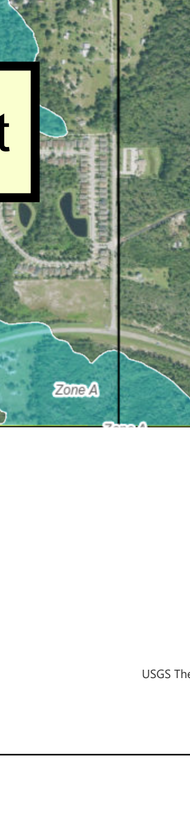
Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 1,000 feet 1:12,000

0 500 1,000 2,000 3,000 4,000 Feet

0 105 210 420 630 840 Meters



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

OSCEOLA COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 40 OF 900

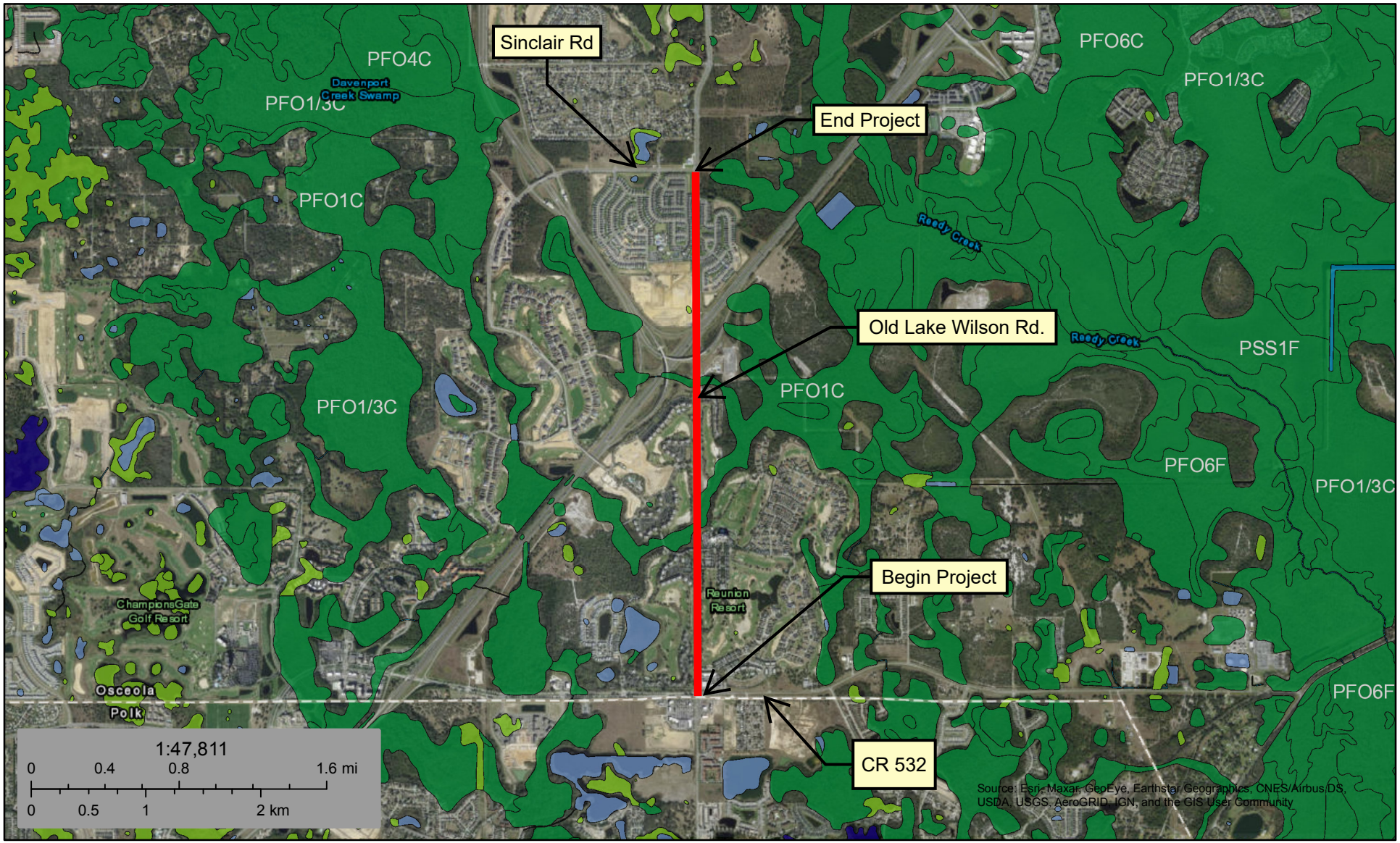
Panel Contains:

COMMUNITY	NUMBER	PANEL
OSCEOLA COUNTY	120189	0040
REEDY CREEK IMPROVEMENT DISTRICT	120577	0040
POLK COUNTY	120261	0040

MAP NUMBER
12097C0040G
EFFECTIVE DATE
June 18, 2013

U.S. Fish and Wildlife Service
National Wetlands Inventory

National Wetlands Inventory

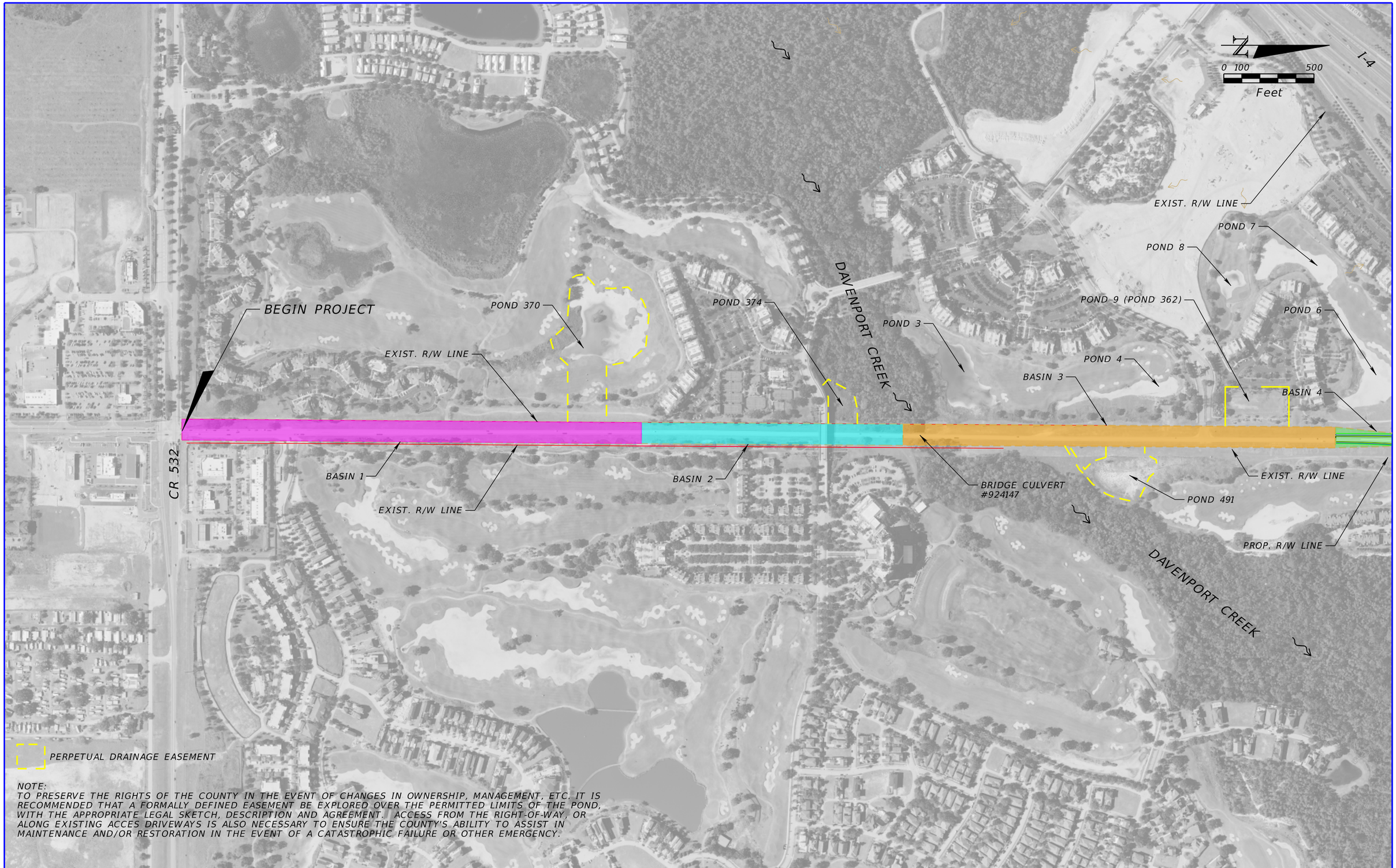


December 11, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

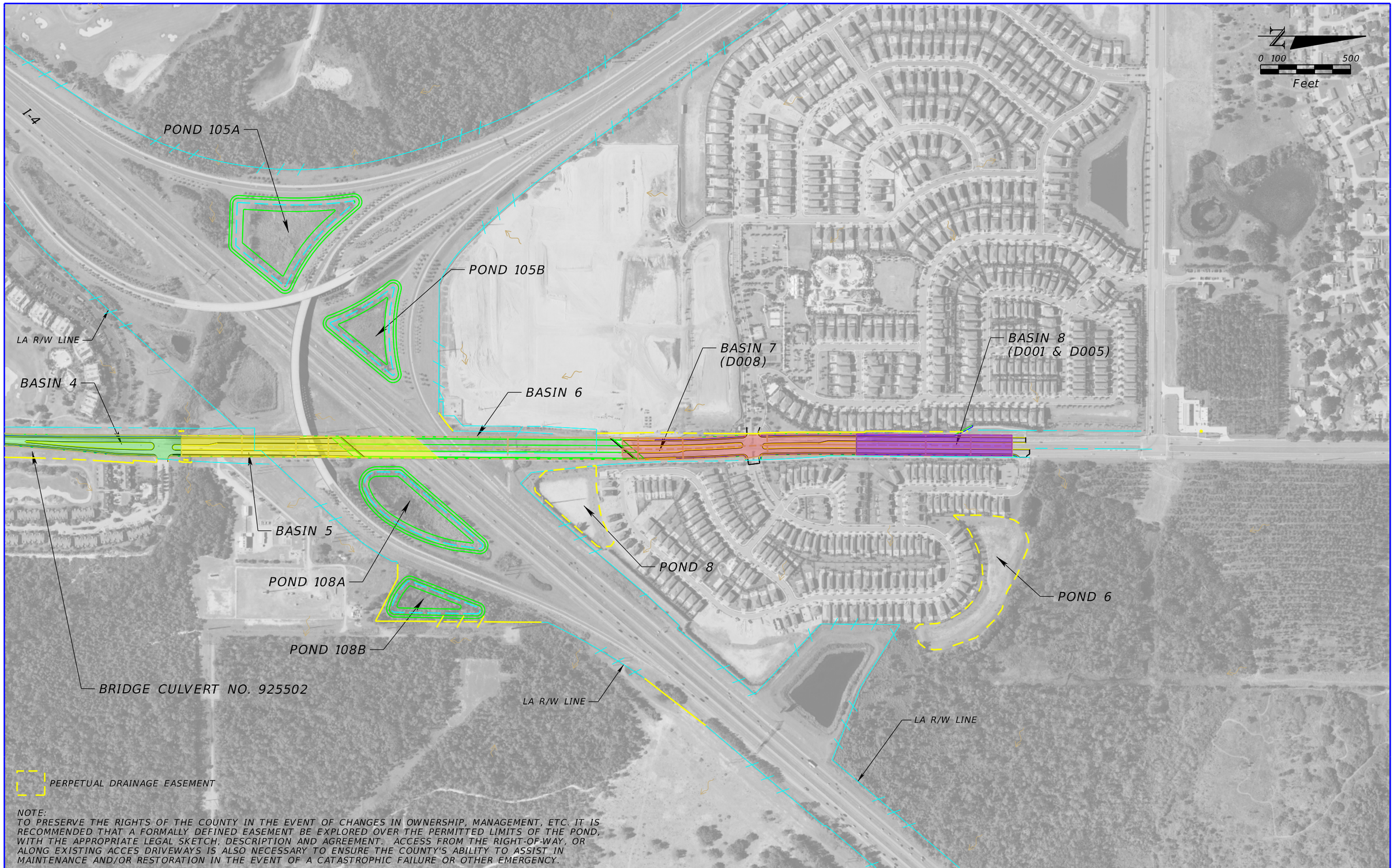


NOTE:
TO PRESERVE THE RIGHTS OF THE COUNTY IN THE EVENT OF CHANGES IN OWNERSHIP, MANAGEMENT, ETC. IT IS RECOMMENDED THAT A FORMALLY DEFINED EASEMENT BE EXPLORED OVER THE PERMITTED LIMITS OF THE POND, WITH THE APPROPRIATE LEGAL SKETCH, DESCRIPTION AND AGREEMENT. ACCESS FROM THE RIGHT-OF-WAY, OR ALONG EXISTING ACCES DRIVEWAYS IS ALSO NECESSARY TO ENSURE THE COUNTY'S ABILITY TO ASSIST IN MAINTENANCE AND/OR RESTORATION IN THE EVENT OF A CATASTROPHIC FAILURE OR OTHER EMERGENCY.

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

OSCEOLA COUNTY BOARD OF COUNTY COMMISSIONERS 1 COURTHOUSE SQUARE, SUITE 2300 KISSIMMEE, FLORIDA 34741	MICHAEL A. HOLT, PE #76111 PATEL, GREENE & ASSOCIATES, LLC 280 W. CANTON AVE. SUITE 400 WINTER PARK, FLORIDA 32789	REVISION	DATE	BY	PERPETUAL DRAINAGE EASEMENT	OLD LAKE WILSON ROAD (CR 545)	PROJECT NO. / SHEET

5/10/2022 2:21:13 PM J:\Osceola County\Projects\Old Lake Wilson Road PD&E\drainage\ORPRRD01_Easements.dgn



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APPENDIX G
VERTCON Datum Conversion

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 28 17 32.640

Longitude: 081 35 42.00

NGVD 29 height: 0.00 FT

Datum shift(NAVD 88 minus NGVD 29): -0.869 feet

Converted to NAVD 88 height: -0.869 feet