CENTRAL FLORIDA EXPRESSWAY AUTHORITY

LOCATION HYDRAULIC REPORT

Poinciana Parkway Extension (SR 538)
(Poinciana Parkway to County Road 532)
Project Development and Environment (PD&E) Study
Osceola and Polk Counties, Florida

CFX Project Number: 599-224

May 2019

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

PROFESSIONAL ENGINEER CERTIFICATION

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

PROJECT: Poinciana Parkway Extension PD&E Study from Poinciana Parkway to CR 532
Project ID: 599-224
Osceola and Polk Counties, Florida

PROJECT DOCUMENT: Location Hydraulic Report

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

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Certificate of Authorization No. **26123**

This report provides the results of a summary of data collection efforts, and limited calculation for the existing and the proposed cross drain and floodplain evaluations prepared for the conceptual analyses for the Location Hydraulic Report for the Project Development and Environment Study for Poinciana Parkway (From Poinciana Parkway to CR 532). I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of hydrologic analysis and hydraulic engineering as applied through professional judgment and experience. This document is for planning purposes only and is not to replace any effort required for final design.

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

FLORIDA REGISTERED ENGINEER:
Jennifer Nunn, State of Florida, Professional Engineer, License No. 70709
This item has been electronically signed and sealed by:

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Executive Summary

The Balmoral Group has subcontracted with Kimley-Horn to provide Project Development and Environment (PD&E) drainage design services for the Central Florida Expressway Authority (CFX) for the new roadway alignment of Poinciana Parkway Extension creating approximately 2.9 to 3.6 miles of new limited access highway. The Poinciana Parkway Extension is a proposed tolled expressway improvement project that includes extending Poinciana Parkway, from the northern end of the existing bridge over the Reedy Creek Mitigation Bank to CR 532 (Osceola Polk Line Road). There are four potential alignments currently being analyzed. The study area includes portions of Osceola and Polk Counties.

The project horizontal datum is Florida State Plane East Zone (NAD 1983), and the vertical datum is NAVD'88, which is 0.932 ft. below NGVD'29 (0.00 ft. NGVD'29 = -0.932 ft. NAVD'88). The project is located within the Kissimmee River Watershed in South Florida Water Management District (SFWMD), and more specifically within the Reedy Creek Above Lake Russell basin (WBID 3170C). The project site is within Township 25 South, Range 27 East (Sections 36); Township 25 South, Range 28 East (Sections 31); Township 26 South, Range 27 East (Sections 1, 12, 13); and Township 26 South, Range 28 East (Sections 6, 7, 8, 17, 18).

The project limits are within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Panel No's. 12097C0040G, 12097C0045G, 12097C0225G for Osceola County, Florida (effective date 6/2013), and Panel Nos. 12105C0125H, 12105C0230H, 12105C0235H for Polk County, Florida (effective date 12/2016). The major floodplain impacts are associated with Reedy Creek's surrounding wetlands. The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) depicts Zone X, Zone AE, and Zone A are present along the corridor. Zone X is an area of minimal flood hazard and was not evaluated for floodplain impacts. Zone AE has established Base Flood Elevation (BFE) that has been approved by FEMA and ranges from 66 to 90.4 ft. NAVD within the study area. Zone A has an identified area of inundation resulting from the 100-year storm event, but no BFE has been established. Reedy Creek is a FEMA-designated regulatory floodway, but the corridors analyzed do not cross the floodway.

Proposed Cross drains for the three alternatives were evaluated. **Table 1** summarizes the cross drains.

Floodplain impacts are not expected to occur within the contributing areas for cross drains CD-4-02 and CD-5-02. There is some encroachment of the proposed roadway on the existing 100-year floodplain for cross drains CD-1-01, CD-1-02, CD-1-03, CD-1-04, CD-1-05, CD-1-06, CD-1-07, CD-1-08, CD-4-01, CD-4-05A, CD-4-05B, CD-4-06, CD-5-01, CD-5-05A, CD-5-05B, CD-5-06, and CD-5B-05B. There are proposed bridges at CD-4-04 and CD-5-04, which are anticipated to avoid floodplain impacts. As noted in the Pond Siting Report, these impacts will be mitigated by routing this volume to the project's proposed stormwater management facilities.

The proposed cross drains within the project limits were analyzed hydraulically using Federal Highway Administration's (FHWA) HY-8 (Version 7.50). Flow rates were calculated using the Rational Method for cross drains unless otherwise noted. Cross Drains CD-1-03, CD-1-04, CD-1-05, CD-1-07, CD-1-08, CD-4-05A, CD-4-05B, CD-4-06, CD-5-05A, CD-5-05B, CD-5-06, and CD-5B-05B also included additional upstream contribution flow from available plan or upstream cross drain. Cross drains CD-1-01, CD-1-02, CD-4-01, CD-4-02, CD-4-03, CD-5-01, CD-5-02, and CD-5-03 use existing flow rates from a permitted Flood Study as input flows for HY-8. Generally, the proposed cross drain inverts are estimated from LiDAR and

overtopping elevations are assumed 5-ft above the culvert crown. It is assumed that the design team will perform a detailed analysis for the proposed cross drain design.

Table 1 – Proposed Cross Drains

Cross Drain		Pipe Size	Flow Direction
Alternative 1A	CD-1-01	(9) 38”x60”	East
	CD-1-02	(4) 60”	Southeast
	CD-1-03	6’x3’	Southeast
	CD-1-04	(5) 48”	Northeast
	CD-1-05	(3) 36”	North
	CD-1-06	(2) 36”	North
	CD-1-07	(5) 36”	North
	CD-1-08	(2) 38”x60”	North
Alternative 4A	CD-4-01	(7) 38”x60”	East
	CD-4-02	10’x3’ & 48”	Southeast
	CD-4-03	(3) 8’x4’	Southeast
	CD-4-04	BRIDGE	East
	CD-4-05A	(6) 36”	Northeast
	CD-4-05B	(6) 36”	Northeast
	CD-4-06	(2) 38”x60”	North
Alternative 5A	CD-5-01	(7) 38”x60”	East
	CD-5-02	10’x3’ & 48”	Southeast
	CD-5-03	(3) 8’x4’	Southeast
	CD-5-04	BRIDGE	Northeast
	CD-5-05A	(4) 36”	Northeast
	CD-5-05B	(6) 36”	Northeast
	CD-5-06	(2) 38”x60”	North
Alternative 5A Without Ronald Reagan Parkway Slip Ramps	CD-5-01	(6) 38”x60”	East
	CD-5-02	10’x3’ & 48”	Southeast
	CD-5-03	(3) 8’x4’	Southeast
	CD-5-04	BRIDGE	Northeast
	CD-5-05B	(6) 36”	Northeast
	CD-5B-05B	(2) 38”x60”	Northeast

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1 Introduction

The Balmoral Group has subcontracted with Kimley-Horn to provide Project Development and Environment (PD&E) drainage design services for the Central Florida Expressway Authority (CFX) for the new roadway alignment of Poinciana Parkway Extension creating approximately 2.9 to 3.6 miles of new limited access highway. The Poinciana Parkway Extension is a proposed tolled expressway improvement project that includes extending Poinciana Parkway, from the northern end of the existing bridge over the Reedy Creek Mitigation Bank to CR 532 (Osceola Polk Line Road). There are four potential alignments currently being analyzed. The study area includes portions of Osceola and Polk Counties. The proposed typical section consists of 330 feet of right-of-way with two 12-foot lanes in each direction, 4-foot inside and 12-foot outside paved shoulders with a median (that can accommodate additional lanes and/or a potential multimodal corridor). Pond sizing assumed a fully paved median creating a total width of 164-feet of impervious area along the mainline. The project horizontal datum is Florida State Plane East Zone (NAD 1983), and the vertical datum is NAVD'88, which is 0.932 ft. below NGVD'29 (0.00 ft. NGVD'29 = -0.932 ft. NAVD'88). The project is located within the Kissimmee River Watershed in South Florida Water Management District (SFWMD), and more specifically within the Reedy Creek Above Lake Russell basin (WBID 3170C). The project site is within Township 25 South, Range 27 East (Sections 36); Township 25 South, Range 28 East (Sections 31); Township 26 South, Range 27 East (Sections 1, 12, 13); and Township 26 South, Range 28 East (Sections 6, 7, 8, 17, 18). See **Figure 1** in **Appendix A** for the Project Location Map.

The project limits are within the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) Panel No's. 12097C0040G, 12097C0045G, 12097C0225G for Osceola County, Florida (effective date 6/2013), and Panel Nos. 12105C0125H, 12105C0230H, 12105C0235H for Polk County, Florida (effective date 12/2016). The major floodplain impacts are associated with Reedy Creek's surrounding wetlands. Only flood zones Zone X, Zone AE, and Zone A are present along the corridor. Zone X is an area of minimal flood hazard and was not evaluated for floodplain impacts. Zone AE has an established Base Flood Elevation (BFE) that has been approved by FEMA and ranges from 90.4 to 66 ft. NAVD within the study area. Zone A has an identified area of inundation resulting from the 100-year storm event, but no BFE has been established. Reedy Creek is a FEMA-designated regulatory floodway, but the corridors analyzed do not cross the floodway. The FEMA Floodplain Map is included in **Appendix A**, **Figure 5**.

Based on the field visit on March 18, 2019, a resident complained that there were fallen tree obstructions and maintenance needed on the upstream channel which discharges to the existing 10'x3' concrete box culvert under US 17-92. No other known roadway flooding or documented flooding issues were available. The resident complaint was documented in the field report (See **Appendix C**).

The project is located within the Kissimmee River Watershed within the jurisdiction of SFWMD, and more specifically within the Reedy Creek Above Lake Russell basin (WBID 3170C). Reedy Creek is not designated as an impaired water body, according to FDEP Comprehensive Verified List (8/2018). However, Reedy Creek is located within the Kissimmee River Total Maximum Daily Load (TMDL) Basin and the Lake Okeechobee Basin Management Action Plan (BMAP), which are impaired for nutrients. The existing basins are open basins, which discharge to interconnected wetlands that flow from west to east or south to north towards Reedy Creek and the Reedy Creek Mitigation Bank. The ultimate outfall of the project study area is the Kissimmee River, which flows to Lake Okeechobee.

Contributing areas were delineated by utilizing CatchmentSIM (CSIM) software to review where topographic ridges occur, reviewing existing permits and plans, a field review of the project area, and reviewing surveyed drainage information. Relevant permit information is contained within **Appendix B**. A site visit to verify pipe sizes, review conditions, and review cross drain locations was conducted on March 18th of 2019. Field measurements, aerial imagery, Google Earth, LiDAR, and existing Environmental Resource Permit (ERP) information were used to determine the pipe size, length, inverts, and condition of existing upstream and downstream culvert. Proposed pipe locations were determined from field review, LiDAR, and available information including FEMA floodplains, USGS topographic information, and permits for upstream or downstream culverts. Generally, proposed pipes were located where there are existing open channels or depressional areas. Proposed cross drain inverts are estimated from LiDAR and overtopping elevations are assumed 5-ft above the culvert crown.

The existing peak flows through the cross drains were calculated using the FDOT Rational Method or permit information from upstream or downstream culverts. FHWAs HY-8 (Version 7.5) software was used to determine peak stages associated with these flows and the point at which overtopping would occur**.** **Section 3.0 Cross Drain Analysis Methodology** of the report details the methods used for the input parameters.

2 Purpose

The purpose of this Location Hydraulics Report is to assess locations of off-site runoff towards the potential Poinciana Parkway Extension alternatives analyzed within the PD&E Study. The intent of the Poinciana Parkway Extension PD&E Study is to develop a proposed improvement strategy that is technically sound, environmentally sensitive, and publicly acceptable. The need for the project is to provide system linkage, multi-modalism, and meet social demands. Analysis within this report is to provide estimated quantity and capacity to accommodate off-site runoff needs.

3 Cross Drain Analysis Methodology

The proposed cross drains along the new alignment will be designed to allow the offsite flow to follow the pre-development conditions. The existing basins are open basins, which discharge to interconnected wetlands that flow from west to east or south to north towards Reedy Creek and the Reedy Creek Mitigation Bank. The ultimate outfall of the project study area is the Kissimmee River, which flows to Lake Okeechobee. Refer to **Appendix A** for cross drain basin maps.

The Rational Method was employed in this area to calculate discharge rates for the design, base, and greatest flood years with the exception of CD-1-01, CD-1-02, CD-4-01, CD-4-02, CD-4-03, CD-5-01, CD-5-02, and CD-5-03 which used permitted discharge rates within the Old Kissimmee Road Flood Study, Southwest Florida Water Management District (SWFWMD) ERP 43023879. The intensity for each storm event was calculated from the FDOT Intensity-Duration-Frequency (IDF) Equations for Zone 8 provided in the FDOT Hydrology Handbook if time of concentration was less than or equal to 180 minutes. If more than 180 minutes intensities were attained directly from the IDF curve for Zone 8. Time of concentration was calculated for the basins, with an average time of concentration of approximately 62 minutes. Discharge rates for the 500-year event were estimated by plotting the calculated discharge rates for the 25-year, 50-year, and 100-year event on a log-log graph of frequency vs. flow. **Table 2** provides the

required storm events to be analyzed for each cross drain, per the FDOT Drainage Manual and Culvert Handbook requirements.

Table 2– Storm Frequency Criteria

Storm Event Frequency	Reason
10-year	General Roadside Ditch Culverts Pedestrian and Trail Bridges
25-year	Design Flood Event (20-year project of AADT < 1,500)
50-year*	Design Flood Event (20-year projection of AADT > 1,500)
100-year	Base Flood Event
500-year	Greatest Flood Event

* This is the design storm for this project.

Calculated discharge rates were entered in the HY-8 v7.50 (HY-8) software program. The tailwater was assumed to be constant and utilized the more reasonable value from the Base Flood Elevation (BFE) within a FEMA Flood Zone AE, the crown of pipe at the downstream end, previously identified tailwater elevation, or SHWT information obtained from the field review. The location, pipe length, and pipe inverts for each cross drain were found using LiDAR to approximate the existing ground elevation at proposed right of way edge for each alternative. Currently, proposed vertical profiles have not been developed for the alternatives, so it was assumed that the overtopping elevation along the Poinciana Parkway Extension mainline was 5 feet above the tailwater elevation. The overtopping elevation along the side streets (US-17/92) was estimated similarly.

If the 500-year discharge did not result in overtopping then the 500-year discharge and stage was entered in the Flood Data Box as the Greatest Flood. If a storm event of lower frequency than the 500-year discharge resulted in overtopping, then the frequency of the storm event was calculated using the log-log discharge estimate. This result was recorded as the Overtopping Flood within the Flood Data Box. The Flood Data Box is included in **Section 6**

Conclusion of this report.

4 Existing Conditions

4.1 Previously Permitted Information

Existing drainage basin locations and previously permitted cross drains located upstream and downstream of the project were used to determine the sizing and flow for the proposed cross drains. The Balmoral Group's (TBG) site visit on March 18th of 2019 and the SFWMD and SWFWMD ERPs along Poinciana Parkway to CR 532 verified the location and sizing of previously permitted cross drains. The pertinent cross drains found within the project boundaries were verified.

Table 3 provides a list of SFWMD and SWFWMD ERPs as well as FDOT Record Drawings reviewed for cross drain information and locations along the Poinciana Parkway Extension project limits.

Table 3 - Existing Plans within Poinciana Parkway Extension Project Limits

Permit Number	Application Number	Project Name	Plans show pertinent Cross Drain?
8331	20093	OAK HILLS ESTATES	No
8331	20100	PROVIDENCE PARCEL N-27	No
8331	20092	EAGLES ROOST PIER	No
23879	49092	SANDY RIDGE	Yes
23879	49093	SANDY RIDGE PH 2	No
28810	56390	WOODLANDS AT LOUGHMAN PARK	No
30664	58727	LOUGHMAN CROSSING AT COUNTY ROAD 54	No
071212-21	53-00204-P	PROVIDENCE PARCEL N-27	No
090506-11	53-00002-M	REEDY CREEK MITIGATION BANK SCHEDULE A	No
091230-27	53-00207-P	NATURES PRESERVE	No
091230-35	53-00207-P	NATURES PRESERVE	No
101022-10	53-00207-P	SERENO (A/K/A NATURES PRESERVE)	No

Permit Number	Application Number	Project Name	Plans show pertinent Cross Drain?
110110-4	53-00216-P	POINCIANA PARKWAY SECTION 1	No
110211-2	53-00002-M	REEDY CREEK MITIGATION BANK	No
111128-10	53-00204-P	PROVIDENCE N-7	No
111128-11	53-00204-P	PROVIDENCE N2 - N3	No
111128-14	53-00204-P	PROVIDENCE N-6	No
111128-15	53-00204-P	PROVIDENCE N-4	No
111128-7	53-00204-P	PROVIDENCE N-8	No
111128-9	53-00204-P	PROVIDENCE N-12	No
120618-9	53-00283-P	NEW DESTINY CHURCH	No
120815-19	53-00204-P	PROVIDENCE N-10A	No
120815-20	53-00204-P	PROVIDENCE N-8	No
120815-21	53-00204-P	PROVIDENCE N2 - N3	No
121002-21	53-00204-P	PROVIDENCE N-27	No
121002-22	53-00204-P	PROVIDENCE - PHASE 2 MASS GRADING AND COLLECTOR ROAD	No
121002-23	53-00204-P	PROVIDENCE N-6	No
121002-24	53-00204-P	PROVIDENCE N-8	No
121002-28	53-00204-P	PROVIDENCE N-12	No
121002-29	53-00204-P	PROVIDENCE N2 - N3	No
121002-30	53-00204-P	PROVIDENCE N-4	No
121002-31	53-00204-P	PROVIDENCE N-26	No

Permit Number	Application Number	Project Name	Plans show pertinent Cross Drain?
121113-45	49-00094-S-66	POINCIANA PARKWAY SECTION 2	No
49-00311-S-02	000712-15	21 PALMS RV RESORT	No
49-00846-P	160418-5	G5 CHURCH F/K/A KRISTEN LAKE PROPERTIES	No
53-00002-M	010710-19	REEDY CREEK MITIGATION BANK (WESTON RESERVE)	No
53-00002-M	010910-14	REEDY CREEK MITIGATION BANK (FDOT CONTRACT NUMBER C-12324)	No
53-00002-M	011221-16	REEDY CREEK MITIGATION BANK/PETERBILT OF CENTRAL FLORIDA	No
53-00002-M	030527-24	REEDY CREEK MITIGATION BANK (STILLWATER CROSSINGS)	No
53-00002-M	030617-23	FDOT TURNPIKE DISTRICT WESTERN BELTWAY PART C	No
53-00002-M	030626-26	REEDY CREEK MITIGATION BANK	No
53-00002-M	030805-10	REEDY CREEK MITIGATION BANK (SR 408 WIDENING I-4 HIAWASSEE)	No
53-00002-M	031001-21	REEDY CREEK MITIGATION BANK (CYPRESS WOODS)	No
53-00002-M	040914-22	REEDY CREEK MITIGATION BANK	No
53-00002-M	050411-31	REEDY CREEK MITIGATION BANK (ALL PHASES)	No
53-00002-M	050608-17	REEDY CREEK MITIGATION BANK	No
53-00002-M	050810-27	REEDY CREEK MITIGATION BANK PHASES I & II	No
53-00196-P	020702-14	SANDY RIDGE	No
53-00204-P	040220-40	PROVIDENCE VILLAGE (FKA OAKHILLS)	No
53-00204-P	040806-25	PROVIDENCE VILLAGE (FKA OAKHILLS)	No
53-00204-P	041206-18	PROVIDENCE N2-3	No
53-00204-P	050209-16	PROVIDENCE PHASE 2 MASS GRADING	No
53-00204-P	070601-14	PROVIDENCE - PHASE 2 (MASS GRADING AND COLLECTOR ROAD)	No
53-00204-P	070713-13	PROVIDENCE - PHASE 2 PARCEL N26	No
53-00204-P-03	071207-18	PROVIDENCE WATER PRODUCTION FACILITY	No
53-00206-P	041007-18	KINNY HARMON ROAD PAVING	No

Permit Number	Application Number	Project Name	Plans show pertinent Cross Drain?
53-00206-P	050613-21	NATURES PRESERVE	No
53-00206-P	050613-3	KINNEY HARMON ROAD STA 47 + 20 TO STA 62 + 60	No
53-00207-P	040624-11	NATURES PRESERVE	No
53-00207-P	050613-21	NATURES PRESERVE	No
53-00207-P	060627-11	NATURES PRESERVE	No
53-00207-P	070119-12	NATURES PRESERVE VILLAGE 1	No
53-00216-P	060117-17	POINCIANA PARKWAY SECTION 1	No
53-00261-P	060501-20	TIVOLI RESERVE TOWNHOMES	No
120815-17	53-00204-P	PROVIDENCE N-7	No
121113-44	53-00216-P	POINCIANA PARKWAY SECTION 1	No
121002-20	53-00204-P	PROVIDENCE N - 10 A	No
120815-18	53-00204-P	PROVIDENCE N-6	No
101214-33	53-00216-P	POINCIANA PARKWAY SECTION 1	No
121002-25	53-00204-P	PROVIDENCE N-7	No
120815-22	53-00204-P	PROVIDENCE N4	No
981106-1	53-00002-M	REEDY CREEK MITIGATION BANK	No
111222-15	53-00207-P	NATURES PRESERVE	No
120823-15	53-00204-P	PROVIDENCE PARCEL N-27	No
111128-8	53-00204-P	PROVIDENCE 10-A	No
120823-14	53-00204-P	PROVIDENCE - PHASE 2 PARCEL N26	No
110601-12	53-00002-M	REEDY CREEK MITIGATION BANK	No
120815-16	53-00204-P	PROVIDENCE N-12	No
091202-5	53-00204-P	PROVIDENCE VILLAGE (FKA OAKHILLS)	No
120816-12	53-00204-P	PROVIDENCE - PHASE 2 (MASS GRADING AND COLLECTOR ROAD)	No
091202-6	53-00204-P	PROVIDENCE - PHASE 2 MASS GRADING AND COLLECTOR ROAD	No
111222-16	53-00207-P	NATURES PRESERVE	No
141002-7	53-00216-P	POINCIANA PARKWAY	No
141003-2	53-00002-M	REEDY CREEK MITIGATION BANK PHASE III	No
141231-9	53-00204-P	PROVIDENCE - PHASE 2 MASS GRADING AND COLLECTOR ROAD	No
141014-11	53-00002-M	REEDY CREEK MITIGATION BANK	No
160211-11	53-00216-P	POINCIANA PARKWAY SECTION 1	No
160126-21	53-00204-P	PROVIDENCE N-26	No
160126-20	53-00204-P	PROVIDENCE PHASE 2 MASS GRADING AND COLLECTOR ROAD	No
160126-22	53-00204-P	PROVIDENCE N-27	No

Permit Number	Application Number	Project Name	Plans show pertinent Cross Drain?
160523-4	53-00323-P	FOX RUN	No
160817-30	53-00316-P	SERENO VILLAGE IV	No
160126-29	53-00204-P	PROVIDENCE N-12	No
160126-28	53-00204-P	PROVIDENCE N - 10 A	No
160126-27	53-00204-P	PROVIDENCE N-8	No
160126-26	53-00204-P	PROVIDENCE N-4	No
160818-11	49-00094-S-66	POINCIANA PARKWAY SEGMENT 4	No
160126-25	53-00204-P	PROVIDENCE N-6	No
160126-24	53-00204-P	PROVIDENCE N2 - N3	No
160126-23	53-00204-P	PROVIDENCE N-7	No
141010-12	53-00216-P	POINCIANA PARKWAY SECTION 1	Yes
160311-12	53-00204-P	PROVIDENCE PARCEL N-26	No
160113-5	53-00216-P	POINCIANA PARKWAY SECTION 1	No

Plan sheets showing pertinent cross drains within the project vicinity are included in **Appendix B**.

4.2 Cross Drains

TBG's field review and thorough permit review resulted in the discovery of pertinent cross drains along South Orange Blossom Trail (US 17/92) and Ronald Reagan Parkway. Field review notes are located in **Appendix C**. Below provides an overview of these cross drains including the overtopping location analyzed within HY-8. The direction of flow is determined from LiDAR data and previously permitted data. See **Figures 10** through **Figure 14**, **Appendix A**, for cross drain location exhibits.

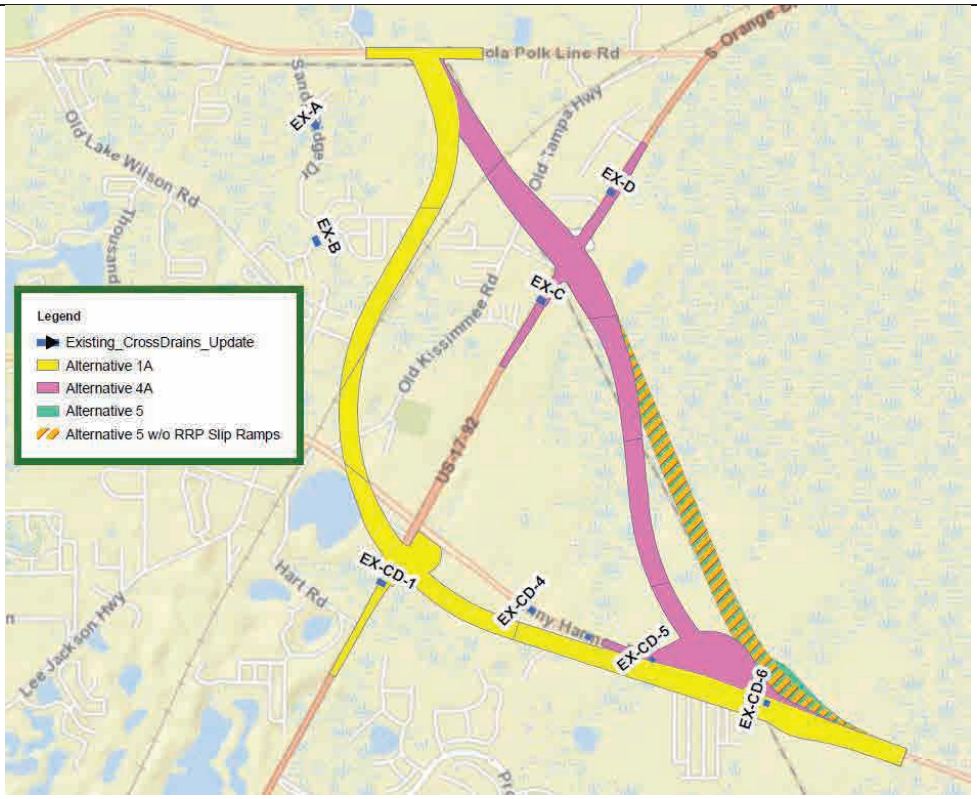


Plate 1- Existing Cross Drains Relative to Proposed Alternatives

Table 4- Existing Cross Drain Summary

Existing Cross Drain ID	Proposed Cross Drain ID	Station	Size	Flow Direction	US Invert	DS Invert	Pipe Length	Overtopping Location	Overtopping Elevation
					(FT, NAVD'88)		(LF)		(FT)
EX-A1	*CD-1-01*	N/A*	6-29"x45" Pipes	East	N/A*	N/A*	N/A*	Sandy Ridge Drive	N/A*
EX-A2	*CD-4-01, CD-5-01*	N/A*	6-29"x45" Pipes	East	N/A*	N/A*	N/A*	Sandy Ridge Drive	N/A*
EX-B	*CD-1-02*	N/A*	2-60" Pipes	Southeast	N/A*	N/A*	N/A*	Royal Ridge Drive	N/A*
EX-CD-1	*CD-1-03*	493+00	6'x3' CBC	Southeast	90.07	89.97	88.00	Ronald Reagan Parkway	**94.27**
EX-CD-4	*CD-1-04, CD-1-05*	129+45	(2) 24" Pipes	Northeast	84.37	84.17	169.00	Ronald Reagan Parkway	**92.07**
EX-CD-4A	*CD-1-06*	140+74	24" Pipe	North	81.87	81.07	88.00	Ronald Reagan Parkway	**83.27**
EX-CD-5	*CD-1-07, CD-4-05A, CD-4-05B, CD-5-05A, CD-5-05B*	152+55	2-24" Pipes	North	80.37	80.27	81.00	Ronald Reagan Parkway	**85.77**
EX-CD-6	*CD-1-08, CD-4-06, CD-5-06, CD-5B-05B*	174+64	2-24"x38" Pipes	North	73.71	73.47	103.00	Ronald Reagan Parkway	**79.77**
EX-C	*CD-4-02, CD-5-02*	N/A*	10'x3' CBC	Southeast	N/A*	N/A*	N/A*	US 17/92	N/A*
EX-D	*CD-4-03, CD-5-03*	N/A*	3-8'x4' CBC	North	N/A*	N/A*	N/A*	US 17/92	N/A*

* Information not provided within Permitted Data

4.2.1 Cross Drain EX-A1 & EX-A2 (EX-A)

EX-A is located approximately 600 feet North of Sandy Ridge Drive and Ridgebrook Court. This cross drain is included in SFWMD Permit Application 020702-14 and SWFWMD Permit Application 43023879. Refer to **Appendix B** for EX-A within these associated plans. The cross drain consists of six 29 inch by 45 inch RCP.

See **Figure 10** in **Appendix A** showing the EX-A location and surrounding topography. **Plate 2** shows the condition of EX-A.

Plate 2 - EX-A is Upstream of Proposed Cross Drains CD-1-01, CD-4-01, & CD-5-01

4.2.2 Cross Drain EX-B

EX-B is located approximately 330 feet Northeast of Royal Ridge Drive and Hammock Court. This cross drain is included in SFWMD Permit Application 020702-14 and SWFWMD Permit Application 43023879. Refer to **Appendix B** for EX-B within these associated plans. The cross drains are two 60 inch RCP's.

See **Figure 11** in **Appendix A** showing the EX-B location and surrounding topography. **Plate 3** shows the condition of EX-B.

Plate 3 - Inlet Structure for EX-B is Upstream of Proposed Cross Drain CD-1-02

4.2.3 Cross Drain EX-CD-1

EX-CD-1 is located approximately 1,225 feet Southwest of Ronald Reagan Parkway and US 17/92. This cross drain is included in SFWMD Permit Application 141010-12. Refer to **Appendix B** for EX-CD-1 within these associated plans. The cross drain is a 6 feet by 3 feet CBC.

See **Figure 12** in **Appendix A** showing the EX-CD-1 location and surrounding topography. Refer to **Appendix B** for the full calculations and HY-8 input and output for EX-CD-1. **Plate 4** shows the condition of EX-CD-1.

Plate 4 – EX-CD-1 is in Place with Proposed Cross Drain CD-1-03

4.2.4 Cross Drain EX-CD-4

EX-CD-4 is located approximately 2,540 feet Southeast of Ronald Reagan Parkway and US 17/92. This cross drain is included in SFWMD Permit Application 141010-12. Refer to **Appendix B** for EX-CD-4 within these associated plans. The cross drains are two 24 inch RCP's.

See **Figure 13** in **Appendix A** showing the EX-CD-4 location and surrounding topography. Refer to **Appendix B** for the full calculations and HY-8 input and output for EX-CD-4. **Plate 5** shows the condition of EX-CD-4.

Plate 5 – EX-CD-4 is in Place with Proposed Cross Drains CD-1-04 & CD-1-05

4.2.5 Cross Drain EX-CD-4A

EX-CD-4A is located approximately 3,650 feet Southeast of Ronald Reagan Parkway and US 17/92. This cross drain is included in SFWMD Permit Application 141010-12. Refer to **Appendix B** for EX-CD-4A within these associated plans. The cross drain is a 24 inch RCP.

See Figure 13 in Appendix A showing the EX-CD-4A location and surrounding topography. Refer to **Appendix B** for the full calculations and HY-8 input and output for EX-CD-4A. **Plate 6** shows the condition of EX-CD-4A.

Plate 6 - EX-CD-4A is in Place with Proposed Cross Drain CD-1-06

4.2.6 Cross Drain EX-CD-5

EX-CD-5 is located approximately 4,800 feet Southeast of Ronald Reagan Parkway and US 17/92. This cross drain is included in SFWMD Permit Application 141010-12. Refer to **Appendix B** for EX-CD-5 within these associated plans. The cross drains are two 24 inch RCP's.

See **Figure 13** in **Appendix A** showing the EX-CD-5 location and surrounding topography. Refer to **Appendix B** for the full calculations and HY-8 input and output for EX-CD-5. **Plate 7** shows the condition of EX-CD-5.

Plate 7 - EX-CD-5 is in Place with Proposed Cross Drains CD-1-07, CD-4-05A, & CD-5-05A and Upstream of Cross Drains CD-4-05B, CD-5-05B

4.2.7 Cross Drain EX-CD-6

EX-CD-6 is located approximately 7,000 feet Southeast of Ronald Reagan Parkway and US 17/92. This cross drain is included in SFWMD Permit Application 141010-12. Refer to **Appendix B** for EX-CD-6 within these associated plans. The cross drains are two 24 inch by 38 inch RCP's.

See **Figure 13** in **Appendix A** showing the EX-CD-6 location and surrounding topography. Refer to **Appendix B** for the full calculations and HY-8 input and output for EX-CD-6. **Plate 8** shows the condition of EX-CD-6.

Plate 8 - EX-CD-6 is in Place with Proposed Cross Drains CD-1-08, CD-4-06, CD-5-06, & CD-5B-05B

4.2.8 Cross Drain EX-C

EX-C is located approximately 630 feet Northeast of Parker Road and US 17/92. This cross drain is included in US 17/US 92 FDOT Straight Line Diagram (Polk Co). Refer to **Appendix B** for EX-C within these associated plans. The cross drain is a 10 feet by 3 feet concrete box culvert.

See **Figure 14** in **Appendix A** showing the EX-C location and surrounding topography. **Plate 9** shows the condition of EX-C.

Plate 9 - EX-C is in Place with Proposed Cross Drains CD-4-02 & CD-5-02

4.2.9 Cross Drain EX-D

EX-D is located approximately 290 feet Northeast of Ronald Reagan Parkway and US 17/92. This cross drain is included in US 17/US 92 FDOT Straight Line Diagram (Osceola Co). Refer to **Appendix B** for EX-D within these associated plans. The cross drains are three 8 feet by 4 feet CBC.

See **Figure 14** in **Appendix A** for a GIS exhibit showing EX-D's location and surrounding topography. **Plate 10** shows the condition of EX-D.

Plate 10 – EX-D is in Place with Proposed Cross Drains CD-4-03, CD-5-03

5 Proposed Conditions

5.1 Roadway Impacts

Potential floodplain impacts as a result of the construction of the Poinciana Parkway Extension from CR 532 (Osceola Polk County Line Road) to the existing Poinciana Parkway Bridge over the Reedy Creek Mitigation Bank were reviewed along the contributing basin for each cross drain. Any floodplain impacts associated with the proposed bridge over Reedy Creek Mitigation Bank will be handled during the design phase through a bridge hydraulics analysis.

Encroachment of the proposed roadway on the existing 100-year floodplain at cross drain locations and along the corridor will be mitigated by routing this volume to the project's proposed stormwater management facilities. This is further described in the Pond Siting Report, prepared by The Balmoral Group (2019). This document serves to address the proposed offsite conveyance required to maintain existing drainage patterns through the proposed alternatives.

5.2 Proposed Cross Culverts

The proposed cross drains are estimated to allow the offsite flow to mimic the existing conditions. Detailed evaluation of the upstream and downstream condition was performed to determine existing cross drains, flows, and patterns in order to determine the best available information to estimate a size for the proposed cross drains. Each proposed cross drain will be analyzed during the design phase for their respective hydraulic adequacy. There are eight (8) proposed cross drains for Alternative 1A, seven (7) proposed cross drains for Alternative 4A, seven (7) proposed cross drains for Alternative 5A, and six (6) proposed cross drains for Alternative 5A without Ronald Reagan Parkway slip ramps.

Please see **Appendix D** for proposed calculations, assumptions, and HY-8 results.

5.2.1 Cross Drains Along Alternative 1A

Alternative 1A begins at the existing Poinciana Parkway Bridge over Reedy Creek where it runs west and along Ronald Reagan Parkway until it reaches US 17/92. This segment was recently widened for the future Poinciana Parkway and permitted in 2014. The alternative also proposes to widen US 17/92 for the future interchange. There are several small cross drains along Ronald Reagan Parkway to convey water north to Reedy Creek, and one box culvert along US 17/92 that conveys water southeast toward wetlands. Cross drains along this segment were sized to not significantly increase the design high water (DHW) for the 50-year storm event at these locations from the permitted condition, under SFWMD ERP 141010-12. The methodology used to design proposed cross drains along this segment differ from the permitted approach, which used a velocity method of 6 feet per second through the cross drain. The proposed methodology utilized the Rational Method to estimate design flows for the upstream basin and adds any permitted discharge from the surrounding permitted developments. Only the 25-year/24-hour discharge rates were found within the permit documents. In lieu of performing detailed modeling these flows are considered the best available information. Detailed calculations which account for inflow and storage within the upstream basin are recommended during the design phase.

Due to the difference in methodologies, additional conveyance was determined to be required for the proposed cross drains that parallel Ronald Reagan Parkway despite the existing cross drain sizes. It is recommended to perform modeling during the design phase to account for storage within the upstream contributing basin to more accurately estimate the design flows. Proposed roadway profile modifications

can also be considered as part of the design phase; for this analysis, a roadway overtopping elevation of 5-feet over the crown of the proposed culvert is assumed.

The alternative then bridges over US 17/92 and shifts north, bridging over Lake Locke, CR 54 (Ronald Reagan Parkway), and the railroad, where there is not significant offsite runoff requiring conveyance under the alternative. From there the alternative runs parallel to the railroad before turning north to intersect CR 532 (Osceola Polk County Line Road). Within this segment there are two large wetland sloughs that flow east towards Reedy Creek, and a 24-inch cross drain on CR 532 west of the proposed intersection, which conveys runoff south. These wetlands have been modeled in ICPR within the Old Kissimmee Road Flood Study for a FEMA LORM for the Sandy Ridge Subdivision under SWFWMD ERP 43023879. The cross drains along this segment only analyzed the 100-year peak flow rate and demonstrate no significant increase in the 100-year stage. The model results are considered the best available data although the ICPR input data was not available to compare against the existing conditions.

The DHW of the proposed cross drains were reviewed against the DEM to verify the proposed stages do not encroach upon adjacent property. A comparison of the proposed 100-year stage to the upstream established BFE is provided in **Table 5**. The DHW inundation over the DEM is presented in **Figure 6B** in **Appendix A**.

Table 5 – Alternative 1A Proposed Cross Drains

Cross Drain	Pipe Size	Flow Direction	Difference (100 YR DHW – ZONE AE BFE) FT NAVD 88
CD-1-01	(9) 38”x60”	East	0.11
CD-1-02	(4) 60”	Southeast	0.15
CD-1-03	6’x3’	Southeast	-
CD-1-04	(5) 48”	Northeast	0.95
CD-1-05	(3) 36”	North	0.13
CD-1-06	(2) 36”	North	-0.82
CD-1-07	(5) 36”	North	-
CD-1-08	(2) 38”x60”	North	-

5.2.2 Cross Drains Along Alternative 4A

Alternative 4A begins at the existing Poinciana Parkway Bridge over Reedy Creek where it runs west along Ronald Reagan Parkway for approximately 1,800-feet until it shifts north towards the Reedy Creek and the Upper Lakes Basin Watershed. This alternative includes an interchange with Ronald Reagan Parkway to connect the Poinciana Parkway Extension to CR 54. This segment was recently widened for the future Poinciana Parkway and permitted in 2014. There are several small cross drains along Ronald Reagan Parkway to convey water north to Reedy Creek. Cross drains along this segment were sized to not significantly increase the design high water (DHW) for the 50-year storm event at these locations

from the permitted condition, under SFWMD ERP 141010-12. The methodology used to design proposed cross drains along this segment differ from the permitted approach, which used a velocity method of 6 feet per second through the cross drain. The proposed methodology utilized the Rational Method to estimate design flows for the upstream basin and adds any permitted discharge from the surrounding permitted developments. Only the 25-year/24-hour discharge rates were found within the permit documents. In lieu of performing detailed modeling these flows are considered the best available information. Detailed calculations which account for inflow and storage within the upstream basin are recommended during the design phase.

Due to the difference in methodologies, additional conveyance was determined to be required for the proposed cross drains that parallel Ronald Reagan Parkway despite the existing cross drain sizes. It is recommended to perform modeling during the design phase to account for storage within the upstream contributing basin to more accurately estimate the design flows. Proposed roadway profile modifications can also be considered as part of the design phase; for this analysis, a roadway overtopping elevation of 5-feet over the crown of the proposed culvert is assumed.

The alternative proposes a 3,267-ft bridge over the Reedy Creek and Upper Lakes Basin Watershed conservation area. Hydraulic analysis was not performed for this bridge.

The alternative then shifts northwest to intersect US 17/92 and CR 532 (Osceola Polk County Line Road). The alternative proposes to widen both of these existing roads for the proposed interchanges with the Poinciana Parkway Extension. Within this segment there are two large wetland sloughs that flow east towards Reedy Creek, and a 24-inch cross drain on CR 532 west of the proposed intersection, which conveys runoff south. These wetlands have been modeled in ICPR within the Old Kissimmee Road Flood Study for a FEMA LOMR for the Sandy Ridge Subdivision under SWFWMD ERP 43023879, and includes the US 17/92 existing cross drains at the proposed interchange. The cross drains along this segment only analyzed the 100-year peak flow rate and demonstrate no significant increase in the 100-year stage. The model results are considered the best available data although the ICPR input data was not available to compare against the existing conditions.

For CD-4-02, the permitted model flows were inserted into HY-8 with an extended box culvert matching the existing size (10’ x 3’). The analysis resulted in substantial roadway overtopping of US 17/92. Residents during the field review commented that there was roadway flooding in this area. For the purposes of this analysis, which is based off of preliminary information, an additional 48-inch culvert was proposed as part of the HY-8 analysis to mitigate flooding issues in this area and reduce roadway overtopping. Further coordination with CFX and FDOT is warranted to determine a reasonable solution since this culvert is being extended in FDOT R/W primarily due to the widening of US 17/92, where from the initial findings there appears to be a known area of concern.

The DHW of the proposed cross drains were reviewed against the DEM to verify the proposed stages do not encroach upon adjacent property. A comparison of the proposed 100-year stage to the upstream established BFE is provided in **Table 6**. The DHW inundation over the DEM is presented in **Figure 7B** in **Appendix A**.

Table 6 – Alternative 4A Proposed Cross Drains

Cross Drain	Pipe Size	Flow Direction	Difference (100 YR DHW – ZONE AE BFE) FT NAVD 88
CD-4-01	(7) 38”x60”	East	0.8
CD-4-02	10’x3’ & 48”	Southeast	-
CD-4-03	(3) 8’x4’	Southeast	-
CD-4-04	BRIDGE	East	-
CD-4-05A	(6) 36”	Northeast	-
CD-4-05B	(6) 36”	Northeast	-
CD-4-06	(2) 38”x60”	North	-

5.2.3 Cross Drains Along Alternative 5A

Alternative 5A begins at the existing Poinciana Parkway Bridge over Reedy Creek where it runs west along Ronald Reagan Parkway for approximately 300-feet until it shifts northwest towards the Reedy Creek and the Upper Lakes Basin Watershed. This alternative includes an interchange with Ronald Reagan Parkway to connect the Poinciana Parkway Extension to CR 54. This segment was recently widened for the future Poinciana Parkway and permitted in 2014. There are several small cross drains along Ronald Reagan Parkway to convey water north to Reedy Creek. Cross drains along this segment were sized to not significantly increase the design high water (DHW) for the 50-year storm event at these locations from the permitted condition, under SFWMD ERP 141010-12. The methodology used to design proposed cross drains along this segment differ from the permitted approach, which used a velocity method of 6 feet per second through the cross drain. The proposed methodology utilized the Rational Method to estimate design flows for the upstream basin and adds any permitted discharge from the surrounding permitted developments. Only the 25-year/24-hour discharge rates were found within the permit documents. In lieu of performing detailed modeling these flows are considered the best available information. Detailed calculations which account for inflow and storage within the upstream basin are recommended during the design phase.

Due to the difference in methodologies, additional conveyance was determined to be required for the proposed cross drains that parallel Ronald Reagan Parkway despite the existing cross drain sizes. It is recommended to perform modeling during the design phase to account for storage within the upstream contributing basin to more accurately estimate the design flows. Proposed roadway profile modifications can also be considered as part of the design phase; for this analysis, a roadway overtopping elevation of 5-feet over the crown of the proposed culvert is assumed.

The alternative proposes a 3,272-ft bridge over the Reedy Creek and Upper Lakes Basin Watershed conservation area. Hydraulic analysis was not performed for this bridge.

The alternative continues northwest intersecting US 17/92 and CR 532 (Osceola Polk County Line Road). The alternative proposes to widen both of these existing roads for the proposed interchanges with the Poinciana Parkway Extension. Within this segment there are two large wetland sloughs that flow east towards Reedy Creek, and a 24-inch cross drain on CR 532 west of the proposed intersection, which conveys runoff south. These wetlands have been modeled in ICPR within the Old Kissimmee Road Flood Study for a FEMA LORM for the Sandy Ridge Subdivision under SWFWMD ERP 43023879, and include the US 17/92 existing cross drains at the proposed interchange. The cross drains along this segment only analyzed the 100-year peak flow rate and demonstrate no significant increase in the 100-year stage. The model results are considered the best available data although the ICPR input data was not available to compare against the existing conditions.

For CD-5-02, the permitted model flows were inserted into HY-8 with an extended box culvert matching the existing size (10' x 3'). The analysis resulted in substantial roadway overtopping of US 17/92. Residents during the field review commented that there was roadway flooding in this area. For the purposes of this analysis, which is based off of preliminary information, an additional 48-inch culvert was proposed as part of the HY-8 analysis to mitigate flooding issues in this area and reduce roadway overtopping. Further coordination with CFX and FDOT is warranted to determine a reasonable solution since this culvert is being extended in FDOT R/W primarily due to the widening of US 17/92, where from the initial findings there appears to be a known area of concern.

The DHW of the proposed cross drains were reviewed against the DEM to verify the proposed stages do not encroach upon adjacent property. A comparison of the proposed 100-year stage to the upstream established BFE is provided in **Table 7**. The DHW inundation over the DEM is presented in **Figure 8B** in **Appendix A**.

Table 7 – Alternative 5A Proposed Cross Drains

Cross Drain	Pipe Size	Flow Direction	Difference (100 YR DHW – ZONE AE BFE) FT NAVD 88
CD-5-01	(7) 38"x60"	East	0.8
CD-5-02	10'x3' & 48"	Southeast	-
CD-5-03	(3) 8'x4'	Southeast	-
CD-5-04	BRIDGE	Northeast	-
CD-5-05A	(4) 36"	Northeast	-
CD-5-05B	(6) 36"	Northeast	-
CD-5-06	(2) 38"x60"	North	-

5.2.4 Cross Drains Along Alternative 5A without Ronald Reagan Parkway Slip Ramps

Alternative 5A begins at the existing Poinciana Parkway Bridge over Reedy Creek where it runs west along Ronald Reagan Parkway for approximately 300-feet until it shifts northwest towards the Reedy Creek and the Upper Lakes Basin Watershed.

The alternative proposes a 3,272-ft bridge over the Reedy Creek and Upper Lakes Basin Watershed conservation area. Hydraulic analysis was not performed for this bridge.

The alternative continues northwest intersecting US 17/92 and CR 532 (Osceola Polk County Line Road). The alternative proposes to widen both of these existing roads for the proposed interchanges with the Poinciana Parkway Extension alternative. Within this segment there are two large wetland sloughs that flow east towards Reedy Creek, and a 24-inch cross drain on CR 532 west of the proposed intersection, which conveys runoff south. These wetlands have been modeled in ICPR within the Old Kissimmee Road Flood Study for a FEMA LORM for the Sandy Ridge Subdivision under SWFWMD ERP 43023879, and include the US 17/92 existing cross drains at the proposed interchange. The cross drains along this segment only analyzed the 100-year peak flow rate and demonstrate no significant increase in the 100-year stage. The model results are considered the best available data although the ICPR input data was not available to compare against the existing conditions.

For CD-5-02, the permitted model flows were inserted into HY-8 with an extended box culvert matching the existing size (10’ x 3’). The analysis resulted in substantial roadway overtopping of US 17/92. Residents during the field review commented that there was roadway flooding in this area. For the purposes of this analysis, which is based off of preliminary information, an additional 48-inch culvert was proposed as part of the HY-8 analysis to mitigate flooding issues in this area and reduce roadway overtopping. Further coordination with CFX and FDOT is warranted to determine a reasonable solution since this culvert is being extended in FDOT R/W primarily due to the widening of US 17/92, where from the initial findings there appears to be a known area of concern.

The DHW of the proposed cross drains were reviewed against the DEM to verify the proposed stages do not encroach upon adjacent property. The DHW inundation over the DEM is presented in **Figure 9B** in **Appendix A**.

Table 8 – Alternative 5A without Ronald Reagan Parkway Slip Ramps Proposed Cross Drains

Cross Drain	Pipe Size	Flow Direction
CD-5-01	(7) 38”x60”	East
CD-5-02	10’x3’ & 48”	Southeast
CD-5-03	(3) 8’x4’	Southeast
CD-5-04	BRIDGE	Northeast
CD-5-05B	(6) 36”	Northeast
CD-5B-05B	(2) 38”x60”	Northeast

6 Conclusion

In summary, the hydraulic structures proposed along the new alignment will be designed to cause no adverse increase in flood stages and flood limits. These changes will not result in any adverse impacts in the natural and beneficial floodplain values or any changes in flood risk or damage.

Additional right-of-way is anticipated for offsite floodplain compensation sites to mitigate for impacts to the floodplain on a cup-for-cup basis and a determination to the best location for compensation should be performed during the design phase. Refer to the Pond Siting Report for additional information.

Therefore, it has been determined that the encroachment type for this study is classified as “minimal.”

During the design phase, the HY-8 models from this Location Hydraulics Analysis should be updated to include surveyed cross drain information to show the hydraulic improvement and prove there will be no adverse impacts. Additional modeling may be required to account for upstream basin storage. It is expected that cross drain flows will decrease because on-site runoff will no longer contribute to the volume through the cross drains. Tailwater assumptions will also be confirmed during design with seasonal high water table input from geotechnical investigation and normal water levels within adjacent wetlands. The proposed cross drains will be finalized during the design phase. There shall be no adverse impacts due to the extension or incorporation of cross drains along the Poinciana Parkway Extension improvements.

Table 9 – Alternative 1A Flood Data Box

STRUCTURE NO.	Cross Drain Size	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		2% PROB	50 YR FREQ	1% PROB	100 YR FREQ								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	PROB %	FREQ YR	DISCHARGE	STAGE	PROB %	FREQ YR
CD-1-01	9-38"x60" Pipes	--	--	554.47	83.11	--	--	--	--	--	--	--	--
CD-1-02	4-60" Pipes	--	--	153.47	85.15	--	--	--	--	--	--	--	--
CD-1-03	6'x3' CBC	124.79	94.08	137.19	94.55	--	--	--	--	182.18	96.20	0.2%	500
CD-1-04	5-48" Pipes	415.35	91.09	442.33	91.35	--	--	--	--	552.29	92.73	0.2%	500
CD-1-05	3-36" Pipes	109.50	89.79	115.06	89.93	--	--	--	--	135.92	90.65	0.2%	500
CD-1-06	2-36" Pipes	114.59	87.20	118.37	87.48	126.70	88.07	0.4%	268	--	--	--	--
CD-1-07	5-36" Pipes	264.98	86.36	294.19	87.24	329.73	88.37	0.6%	176	--	--	--	--
CD-1-08	2-38"x60" Pipes	106.69	76.98	119.51	77.22	--	--	--	--	165.91	78.28	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 (CFS) AND STAGES ARE IN FEET, NAVD 88.

Table 10 – Alternative 4A Flood Data Box

STRUCTURE NO.	Cross Drain Size	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		2% PROB	50 YR FREQ	1% PROB	100 YR FREQ								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	PROB %	FREQ YR	DISCHARGE	STAGE	PROB %	FREQ YR
CD-4-01	7-38"x60" Pipes	--	--	584.05	81.30	--	--	--	--	--	--	--	--
CD-4-02	10'x3' CBC 48" Pipe	--	--	158.85	73.74	--	--	--	--	--	--	--	--
CD-4-03	3-8'x4' CBC (Bridge Culvert #920001)	--	--	613.05	68.71	--	--	--	--	--	--	--	--
CD-4-04	3,267-ft of New Bridge	BRIDGE											
CD-4-05A	6-36" Pipes	276.49	86.06	305.84	86.86	355.95	88.37	0.4%	226	--	--	--	--
CD-4-05B	6-36" Pipes	302.16	84.04	335.55	84.78	424.03	87.00	0.3%	353	--	--	--	--
CD-4-06	2-38"x60" Pipes	109.72	77.08	121.35	77.32	--	--	--	--	166.07	78.43	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 (CFS) AND STAGES ARE IN FEET, NAVD 88.

Table 11 - Alternative 5A Flood Data Box

STRUCTURE NO.	Cross Drain Size	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		2% PROB	50 YR FREQ	1% PROB	100 YR FREQ								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	PROB %	FREQ YR	DISCHARGE	STAGE	PROB %	FREQ YR
CD-5-01	7-38"x60" Pipes	--	--	584.05	81.30	--	--	--	--	--	--	--	--
CD-5-02	10'x3' CBC 48" Pipe	--	--	158.85	73.74	--	--	--	--	--	--	--	--
CD-5-03	3-8'x4' CBC (Bridge Culvert #920001)	--	--	613.05	68.71	--	--	--	--	--	--	--	--
CD-5-04	3,272-ft of New Bridge	BRIDGE											
CD-5-05A	4-36" Pipes	276.39	86.75	303.37	87.66	323.23	88.37	0.7%	135	--	--	--	--
CD-5-05B	6-36" Pipes	355.42	85.54	394.84	86.51	413.09	87.00	0.8%	120	--	--	--	--
CD-5-06	2-38"x60" Pipes	110.32	77.58	110.32	77.58	--	--	--	--	172.55	79.75	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 (CFS) AND STAGES ARE IN FEET, NAVD 88.

Table 12 – Alternative 5A without RRP Slip Ramps Flood Data Box

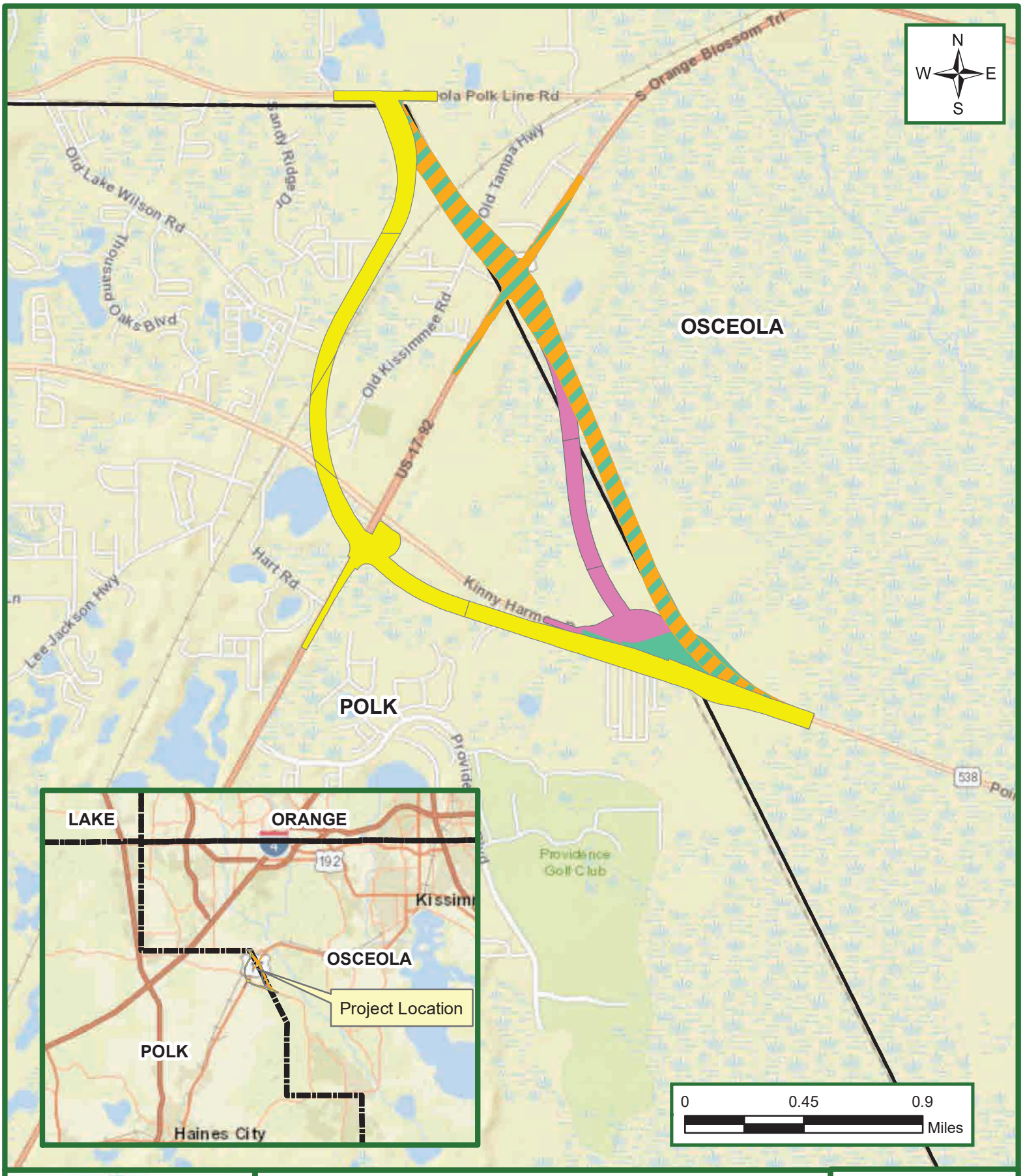
STRUCTURE NO.	Cross Drain Size	DESIGN FLOOD		BASE FLOOD		OVERTOPPING FLOOD				GREATEST FLOOD			
		2% PROB	50 YR FREQ	1% PROB	100 YR FREQ								
		DISCHARGE	STAGE	DISCHARGE	STAGE	DISCHARGE	STAGE	PROB %	FREQ YR	DISCHARGE	STAGE	PROB %	FREQ YR
CD-5-01	7-38"x60" Pipes	--	--	584.05	81.30	--	--	--	--	--	--	--	--
CD-5-02	10'x3' CBC 48" Pipe	--	--	158.85	73.74	--	--	--	--	--	--	--	--
CD-5-03	3-8'x4' CBC (Bridge Culvert #920001)	--	--	613.05	68.71	--	--	--	--	--	--	--	--
CD-5-04	3,272-ft of New Bridge	BRIDGE											
CD-5-05B	6-36" Pipes	355.42	85.54	394.84	86.51	413.09	87.00	0.8%	120	--	--	--	--
CD-5B-05B	2-38"x60" Pipes	134.26	77.33	145.21	77.55	--	--	--	--	195.45	78.76	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 (CFS) AND STAGES ARE IN FEET, NAVD 88.

7 References

- Florida Department of Transportation. (2015). Drainage Manual: IDF Curves and Rainfall Distributions.
- Florida Department of Transportation. (2019). Drainage Design Guide.
- Florida Department of Transportation. (2019). Drainage Manual.
- The Balmoral Group. (2019). Pond Siting Report, Poinciana Parkway Extension (From Poinciana Parkway to CR 532).

Appendix A
Figures



The Balmoral Group
165 Lincoln Avenue
Winter Park, Florida 32789

FIGURE 1
PROJECT LOCATION MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

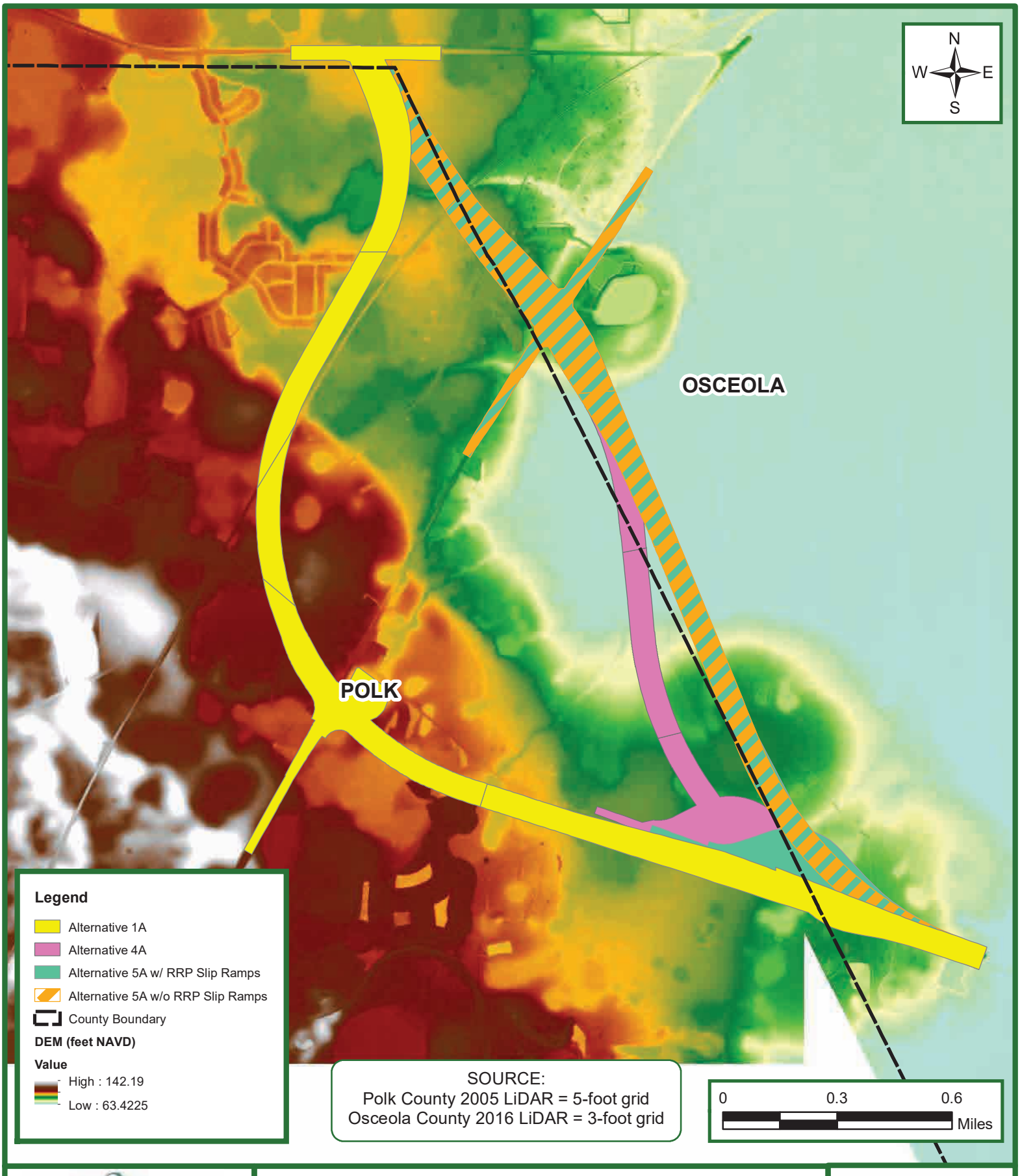


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FIGURE 2
DIGITIAL ELEVATION MODEL (DEM) MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

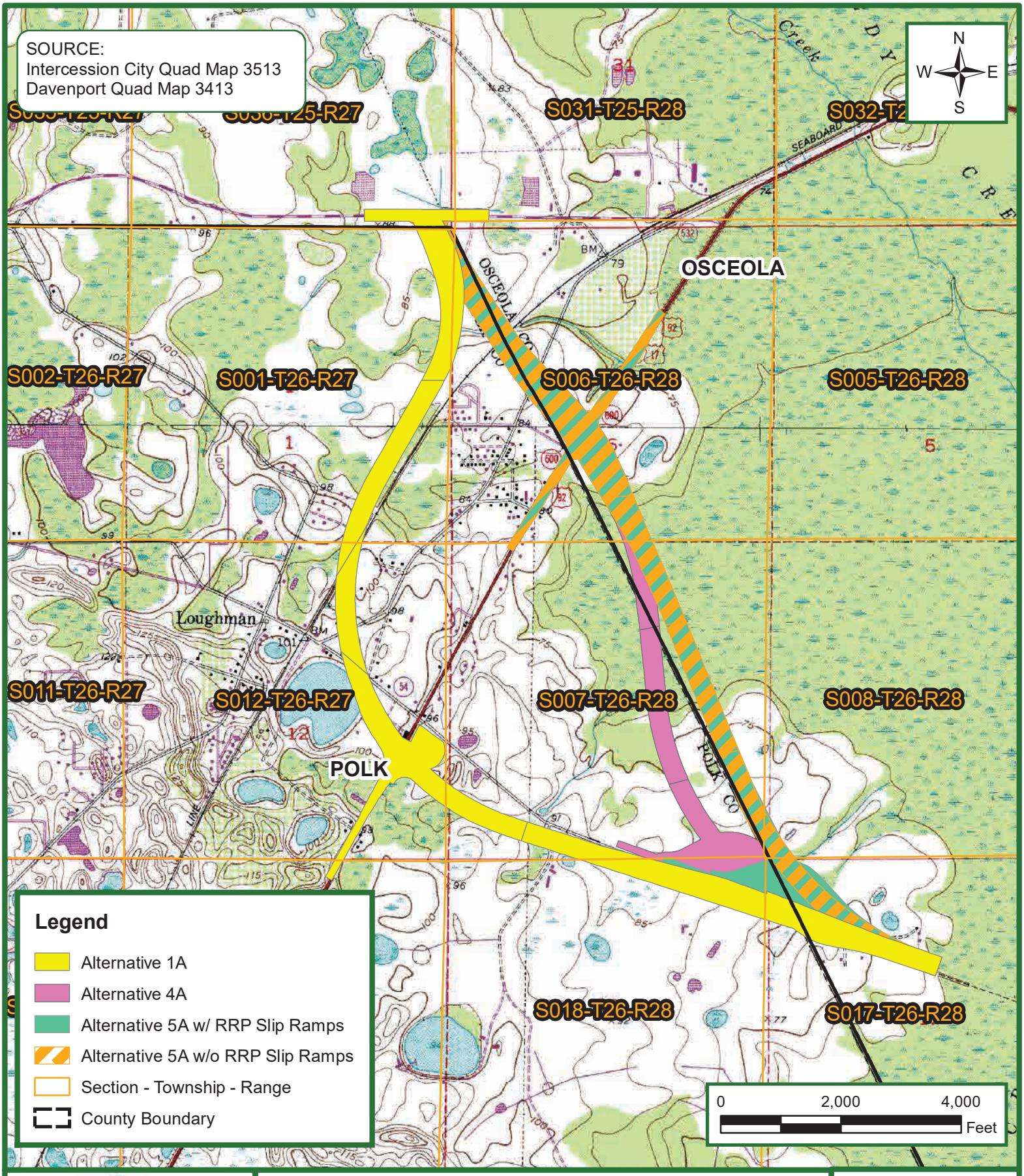

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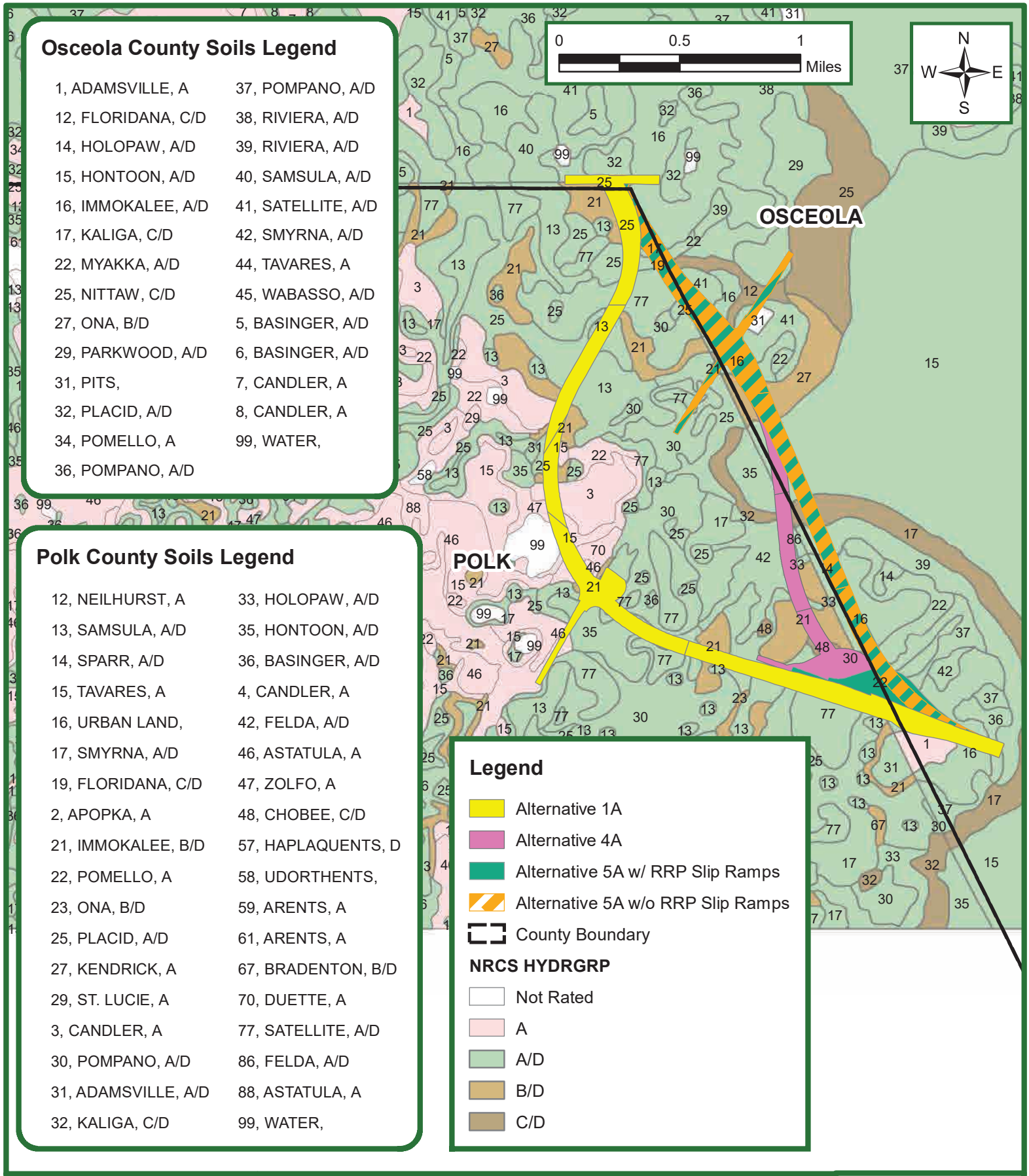
FIGURE 3
USGS QUAD MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



Osceola County Soils Legend

1, ADAMSVILLE, A	37, POMPANO, A/D
12, FLORIDANA, C/D	38, RIVIERA, A/D
14, HOLOPAW, A/D	39, RIVIERA, A/D
15, HONTOON, A/D	40, SAMSULA, A/D
16, IMMOKALEE, A/D	41, SATELLITE, A/D
17, KALIGA, C/D	42, SMYRNA, A/D
22, MYAKKA, A/D	44, TAVARES, A
25, NITTAW, C/D	45, WABASSO, A/D
27, ONA, B/D	5, BASINGER, A/D
29, PARKWOOD, A/D	6, BASINGER, A/D
31, PITS,	7, CANDLER, A
32, PLACID, A/D	8, CANDLER, A
34, POMELLO, A	99, WATER,
36, POMPANO, A/D	

Polk County Soils Legend

12, NEILHURST, A	33, HOLOPAW, A/D
13, SAMSULA, A/D	35, HONTOON, A/D
14, SPARR, A/D	36, BASINGER, A/D
15, TAVARES, A	4, CANDLER, A
16, URBAN LAND,	42, FELDA, A/D
17, SMYRNA, A/D	46, ASTATULA, A
19, FLORIDANA, C/D	47, ZOLFO, A
2, APOPKA, A	48, CHOBEE, C/D
21, IMMOKALEE, B/D	57, HAPLAQUENTS, D
22, POMELLO, A	58, UDORTHENTS,
23, ONA, B/D	59, ARENTS, A
25, PLACID, A/D	61, ARENTS, A
27, KENDRICK, A	67, BRADENTON, B/D
29, ST. LUCIE, A	70, DUETTE, A
3, CANDLER, A	77, SATELLITE, A/D
30, POMPANO, A/D	86, FELDA, A/D
31, ADAMSVILLE, A/D	88, ASTATULA, A
32, KALIGA, C/D	99, WATER,

Legend

- Alternative 1A
- Alternative 4A
- Alternative 5A w/ RRP Slip Ramps
- Alternative 5A w/o RRP Slip Ramps
- County Boundary

NRCS HYDRGRP

- Not Rated
- A
- A/D
- B/D
- C/D

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FIGURE 4
NRCS SOILS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

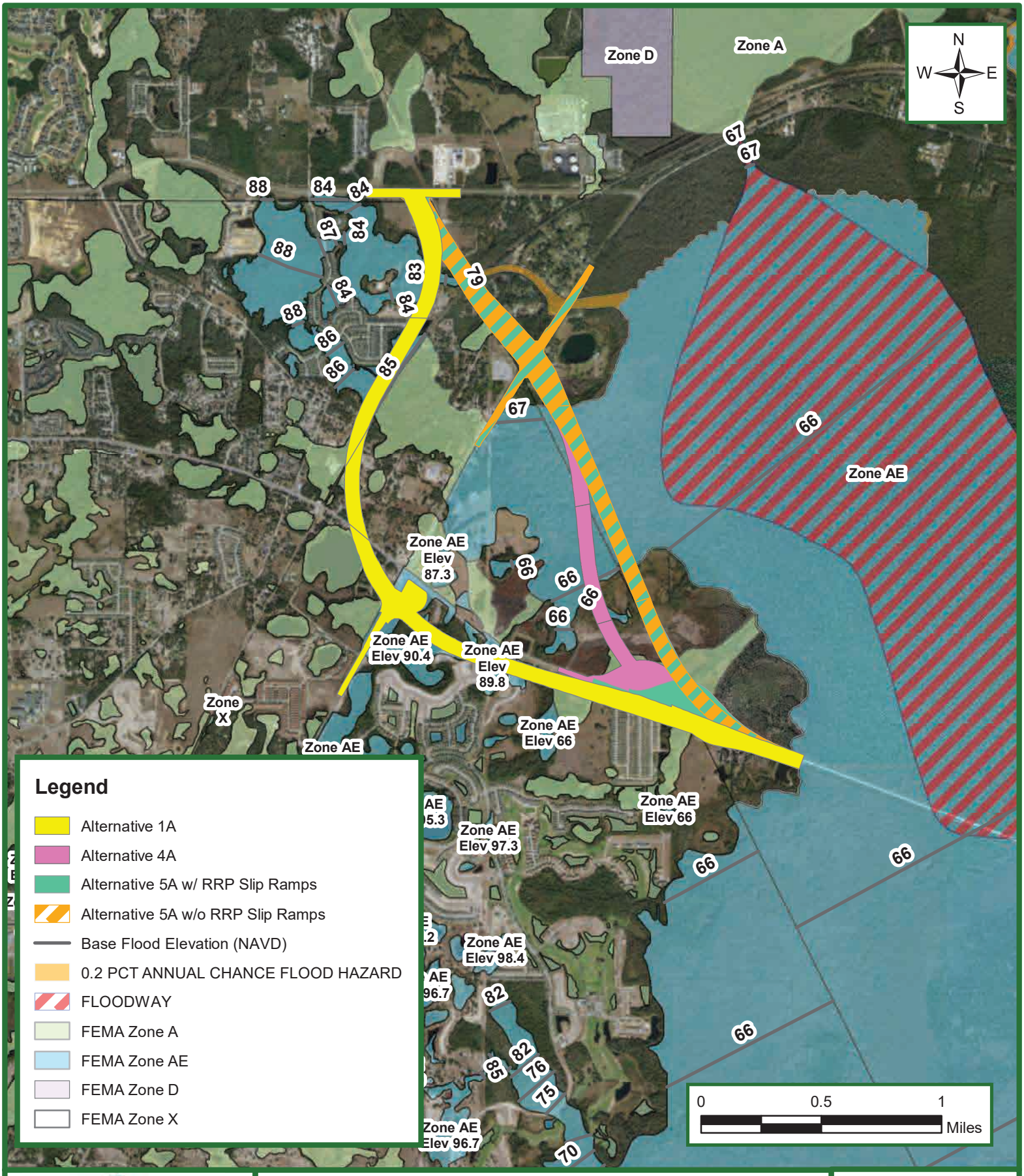

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FIGURE 5
FEMA FLOODPLAIN MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCEOLA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

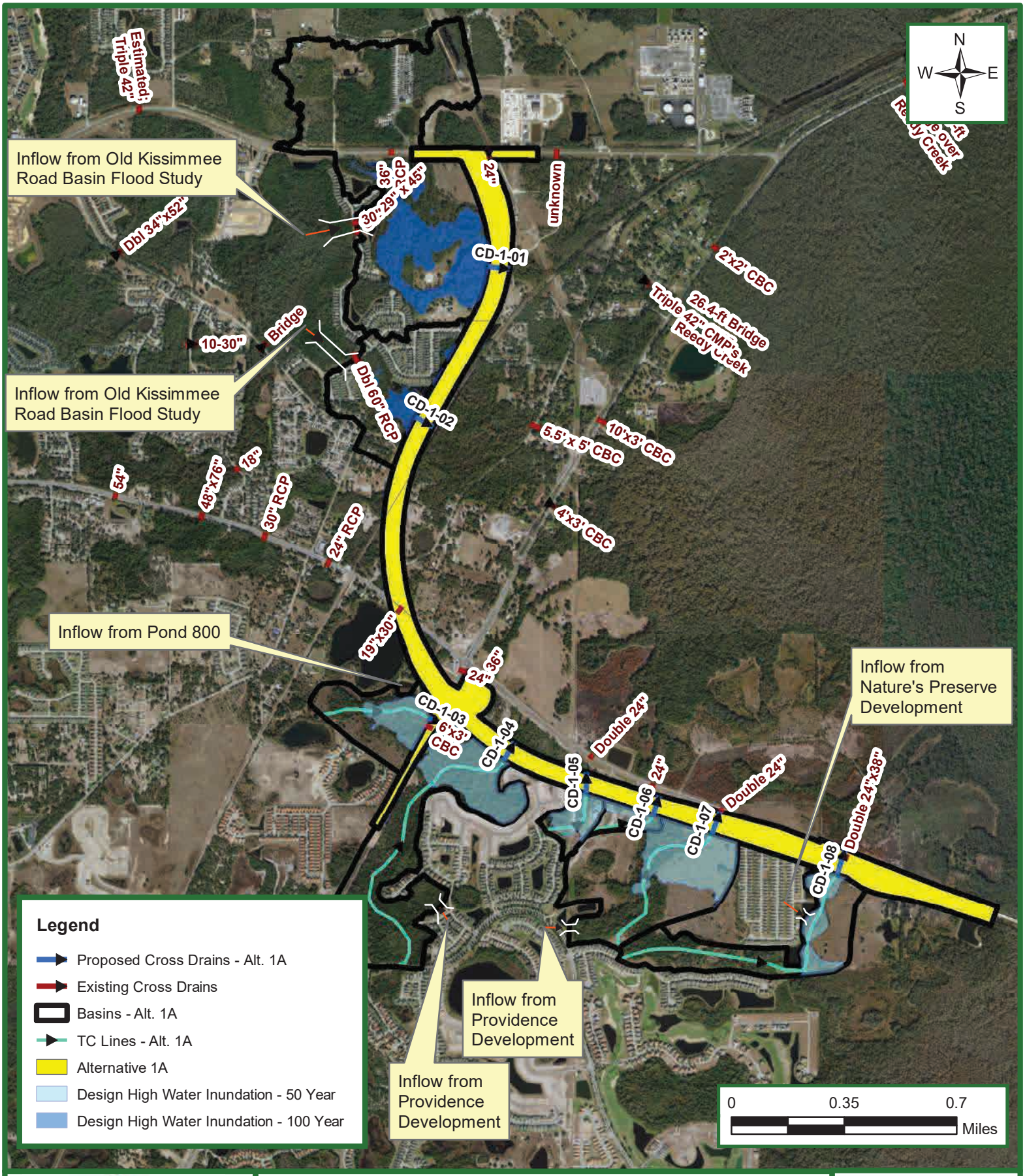

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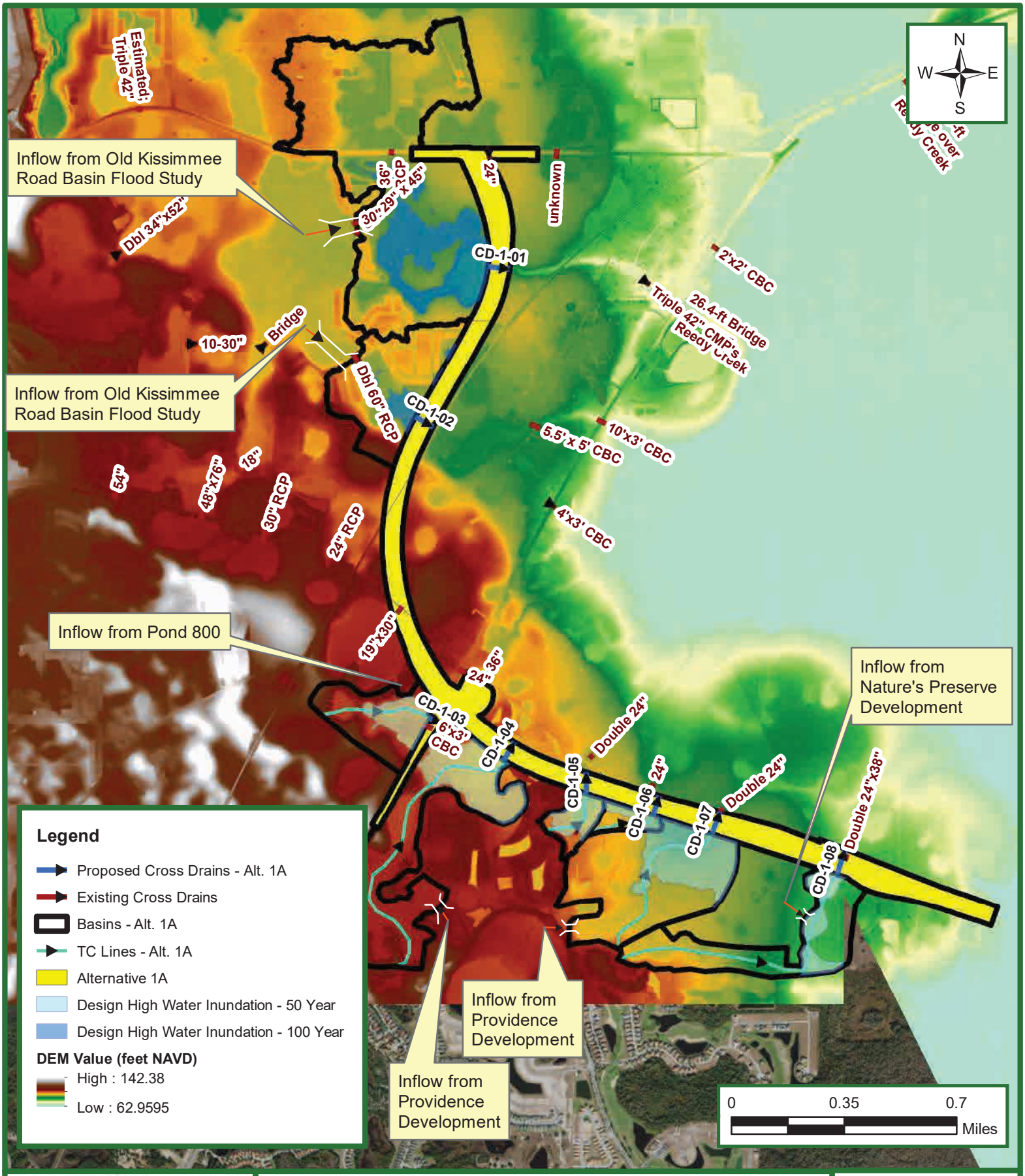
FIGURE 6A
ALTERNATIVE 1A MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCEOLA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY



The Balmoral Group
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FIGURE 6B
ALTERNATIVE 1A MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

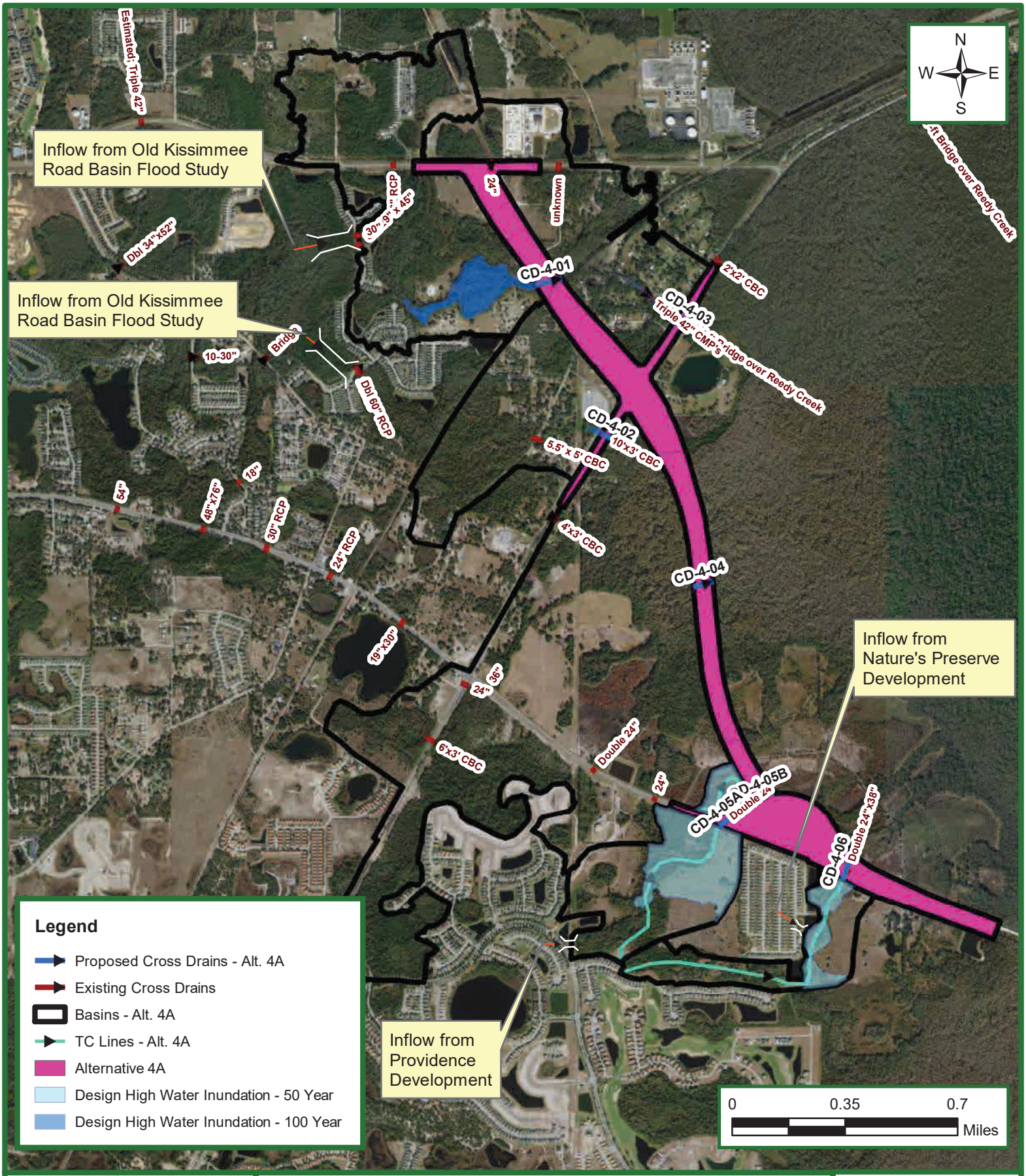

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FIGURE 7A
ALTERNATIVE 4A MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

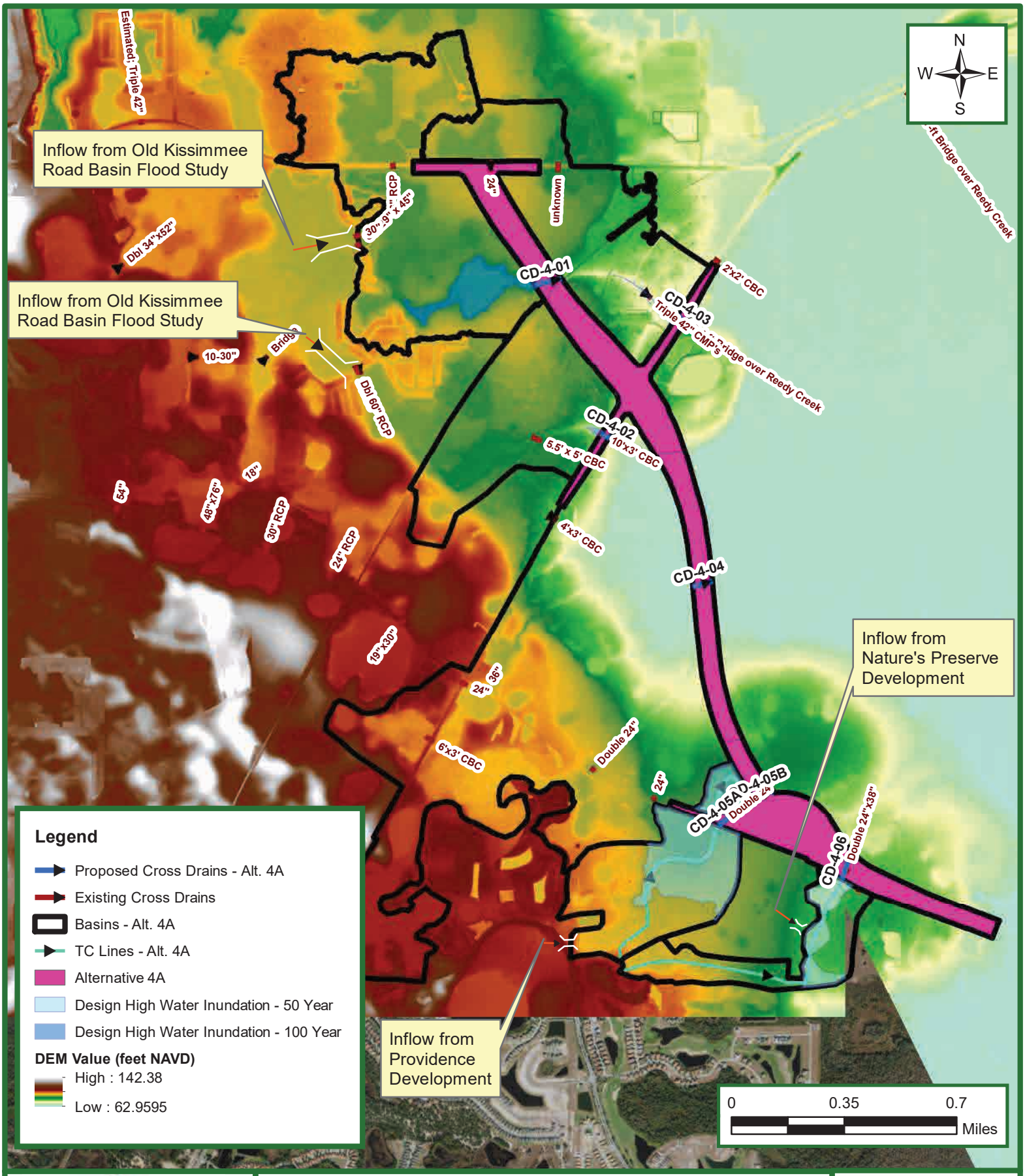

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FIGURE 7B
ALTERNATIVE 4A MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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FIGURE 8A
ALTERNATIVE 5 MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

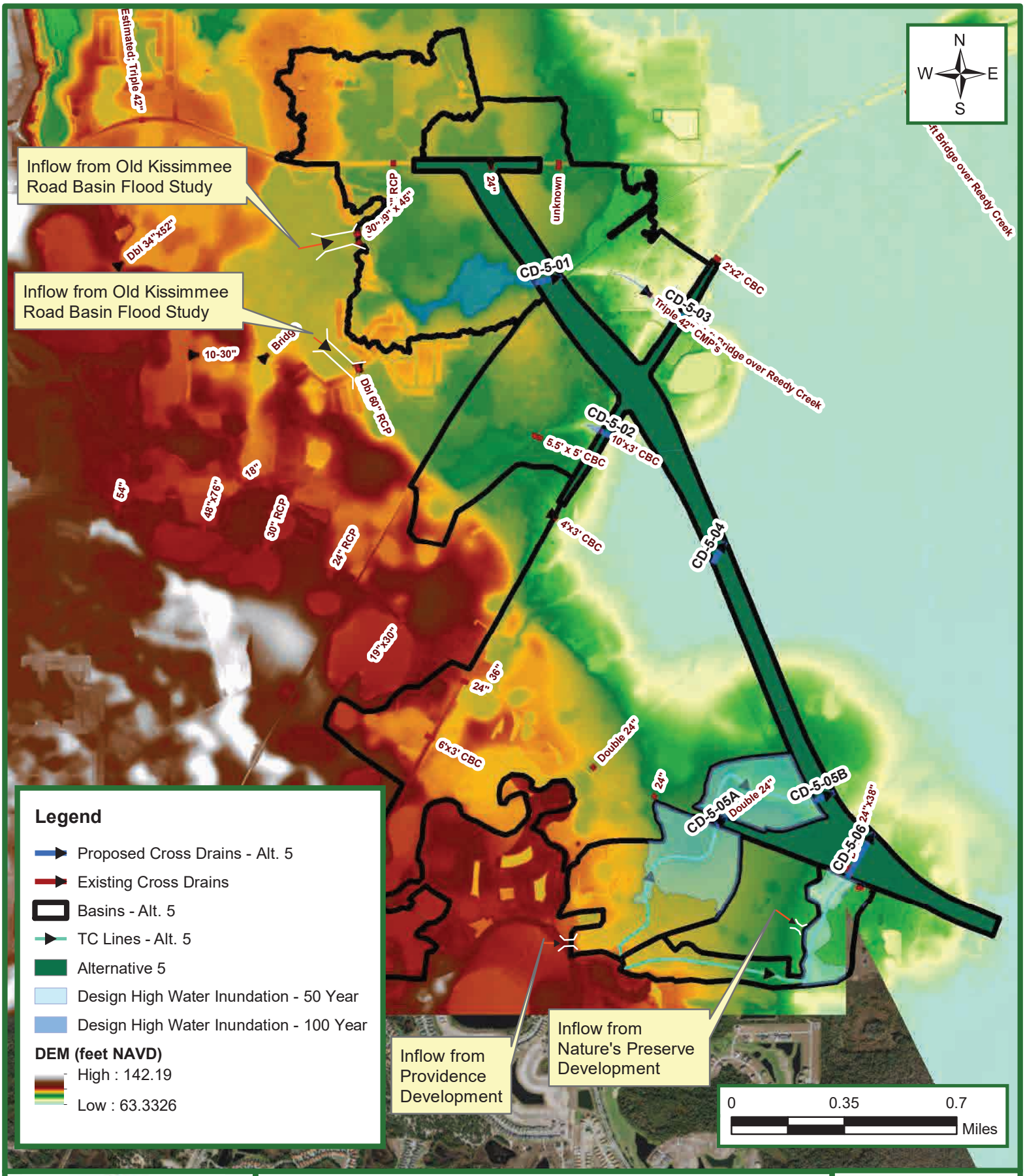

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FIGURE 8B
ALTERNATIVE 5 MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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FIGURE 9A
ALTERNATIVE 5 (w/o RRP Slip Ramps) MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCEOLA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

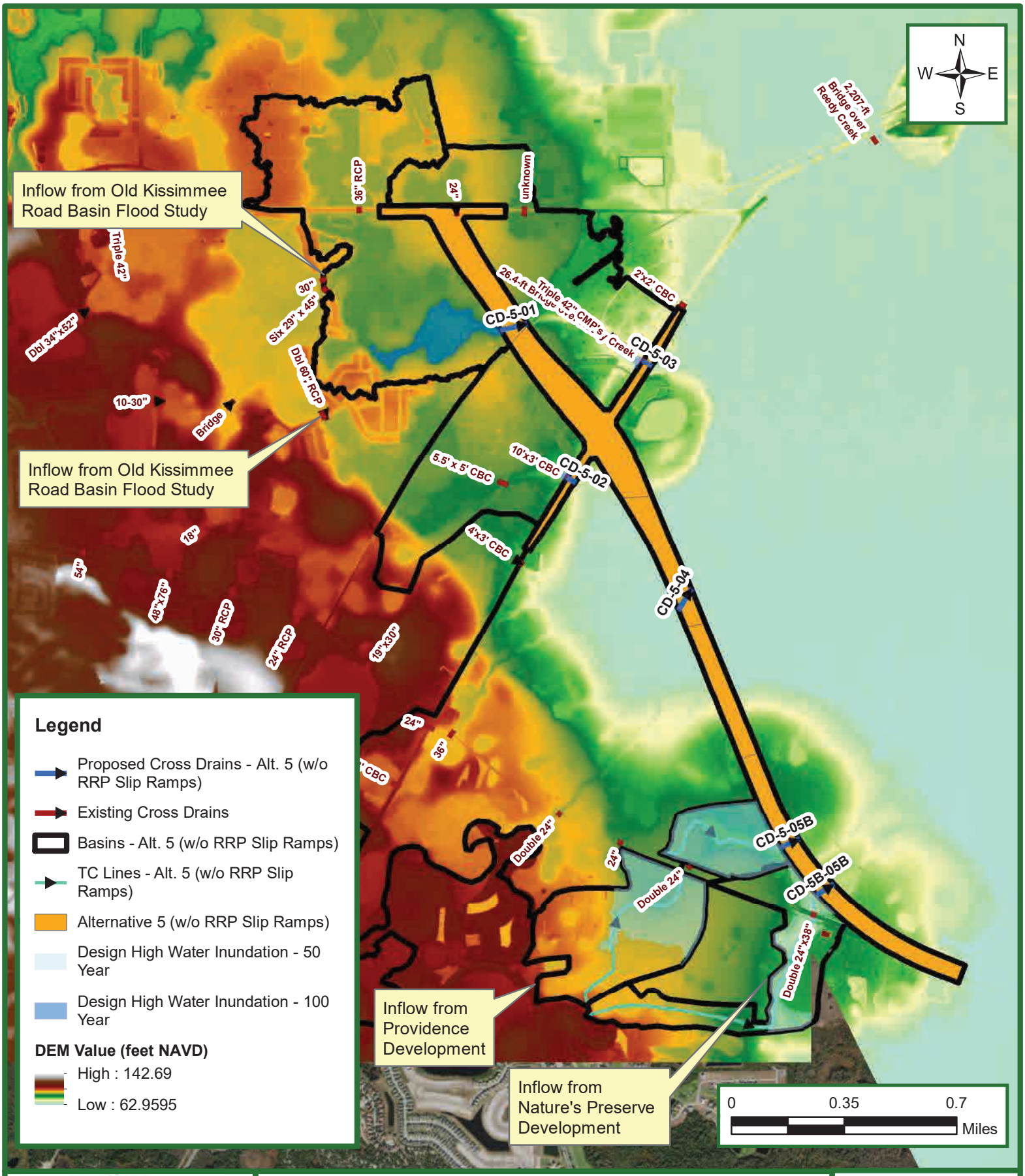

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FIGURE 9B
ALTERNATIVE 5 (w/o RRP Slip Ramps) MAP

POINCIANA PARKWAY EXTENSION
FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

FIGURE 10
EXISTING CROSS DRAINS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

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CENTRAL FLORIDA EXPRESSWAY AUTHORITY

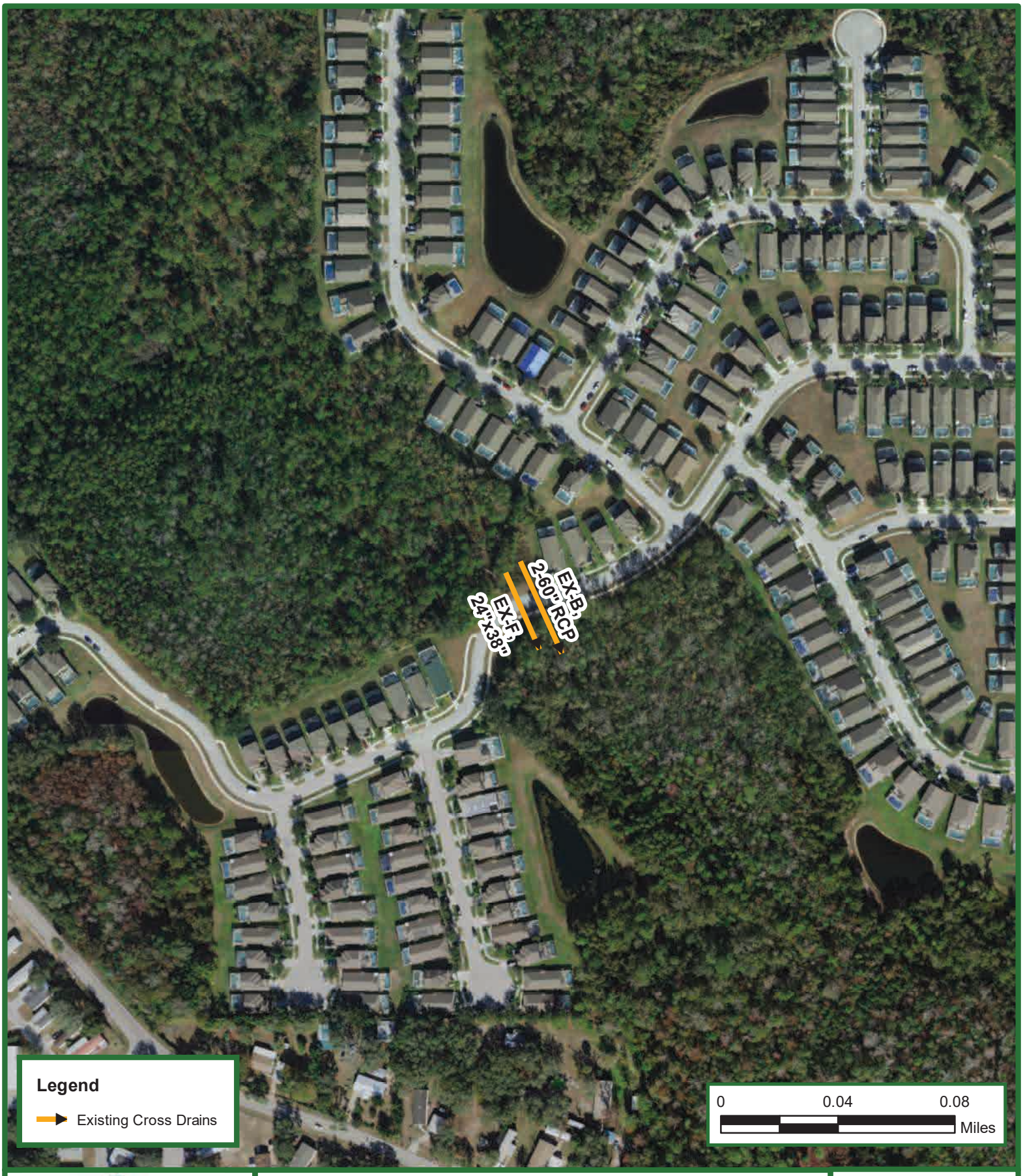

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FIGURE 11
EXISTING CROSS DRAINS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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FIGURE 12
EXISTING CROSS DRAINS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

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FIGURE 13
EXISTING CROSS DRAINS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCEOLA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

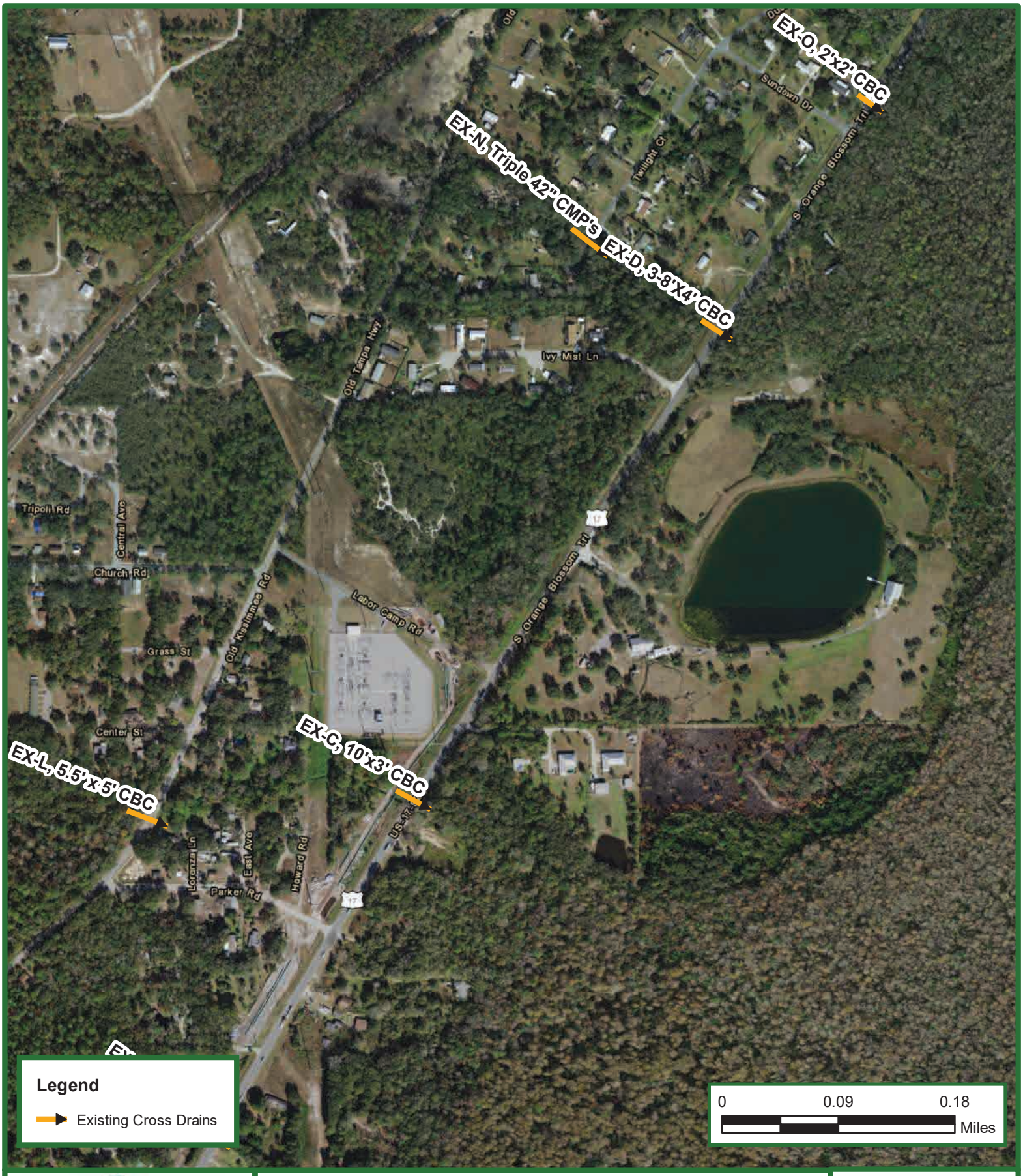

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FIGURE 14
EXISTING CROSS DRAINS MAP

POINCIANA PARKWAY EXTENSION

FROM POINCIANA PARKWAY TO CR 532
CFX PD&E Location Hydraulics Report Study
POLK & OSCELOA COUNTY, FLORIDA

CENTRAL FLORIDA EXPRESSWAY AUTHORITY

Appendix B
Existing Documents

Sandy Ridge

SWFWMD ERP 43023879.000

DONALD W. McINTOSH
ASSOCIATES, INC.

Sandy Ridge

Polk County, Florida

Old Kissimmee Road Basin
Flood Study

June 28, 2002

CIVIL ENGINEERS

LAND PLANNERS

SURVEYORS

PREPARED BY:

DONALD W. McINTOSH ASSOCIATES, INC.
Certificate of Authorization No. 68

43 0 23 8 79 . 000

2200 Park Ave. North

Winter Park, FL

32789-2355

Fax 407-644-8318

407-644-4068

7/2/02

Thomas McCann, PE
Fla. Reg. No. 25348

DOCUMENTS INCLUDED HEREIN WHICH HAVE BEEN PREPARED BY PROFESSIONALS OTHER THAN DONALD W. McINTOSH ASSOCIATES, INC. ARE NOT COVERED UNDER THE ABOVE REGISTERED ENGINEER'S SIGNATURE AND SEAL.

http://www.dwma.com

County levels are more than one foot higher than those in the Osceola mapping (nearly adjacent points in the same water body). An interpolated value from the Polk County map of el. 67.9 ft has been used for both outfalls east of Hwy.17-92 in this study. Since this level is nearly 20 feet below the anticipated stages in the project area it is not considered as a major factor and no attempt has been made to further refine or vary the tailwater stage with respect to time.

2.2.1.3 Initialization and Base Flow

Initial water surface elevations are set for all nodes in the model. The program will start flows based on these elevations. Initial stages for stormwater ponds are set at normal water control levels. Initial stages in wetland areas have generally been set at the ground level of the cross section to the next basin. Extensive field biological surveys have been performed around the development site in support of environmental permitting requirements. These studies establish wetland seasonal high water levels. Base flow rates have been introduced to the appropriate wetland nodes in an attempt to sustain the seasonal high water elevations. This steady base flow effects stages in the wetland and prevents model drawdown during the simulation period before the onset of storm runoff. All storm hydrographs have been lagged 12.0 hours to allow the steady flow enough time to reach downstream areas and stabilize levels. This is a trial-and-error method to approximate normal wet-season conditions in the wetlands.

2.2.2 Links

Link or reach data requirements for ICPR are specific to the type of link being used. Link types in this model include channels, pipes, drop structures, weirs, and orifices. Typical data requirements include invert elevations, structure dimensions, condition, and friction factors.

Field surveys have been conducted for reach data at critical locations (flow constrictions, road crossings, culverts, etc.). Topographic cross sections have taken at many locations along the main channel flow ways to facilitate weir and channel calculations.

2.2.2.1 Culverts

Surveyed information included structure geometry (road crown, number of pipes, length, span, rise, type, material, invert elevations); condition of pipe (bent or broken, rusted, etc.) as well as depth of any deposition. Top of road profiles have typically been extended 100± feet from centerline of structure. Flow line profiles are also extended upstream and downstream of culverts.

2.2.2.2 Cross Sections

Surveys of cross sections for ditches and natural areas have been extended beyond the estimated 100-year flood levels. These cross sections have been used for both open channel and weir configurations.

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Section 4 - Results

4.1 Existing Conditions

4.1.1 Study Area

The Existing Flood Plain Map of Exhibit 7 delineates the base flood extents in the study area. The levels for basin areas around the proposed project are summarized in the following table:

Table 4-1 Existing Flood Stages

West1	89.25
West2	89.18
West3	89.04
West4	88.99
South1	92.37
South2	88.91
South5	86.63
East1	84.88
East2	84.80
East3	84.78
East4	84.70

The west-to-east flowage through the project area is 377and 95 cfs at the north and south locations, respectively.

4.1.2 Upstream Conditions

The currently computed levels for the upstream Thousand Oaks project may be compared with that project's previous design levels. Node N-5 is the adjacent upstream basin to the detailed study area. There are no significant differences between the two routings as illustrated in the following table:

Table 4-2 Thousand Oaks Routings

N-1	95.43	95.53
N-2	98.53	97.51
N-3	98.51	97.01
N-4	94.20	93.61
N-5	91.45	91.71

These results should be expected since the basic modeling data for this upstream area is the unchanged. The most important fact illustrated here is that the dynamic tailwater stages in the wetlands on the north side of Old Lake Wilson Road do not affect the adjacent existing development.

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4.2. Proposed Conditions

4.2.1 Subdivision Area

The peak flood staging around the perimeter of the proposed project is given in the following table with comparison to the existing case:

Table 4-3 Proposed Flood Levels

Basin	100-Yr. Level (ft)	Flood Level Diff. (ft)
West1	89.21	-0.04
West2	89.13	-0.05
West3	88.98	-0.06
West4	88.94	-0.05
South1	93.28	+0.91
South2	88.71	-0.2
South5	86.09	-0.54
East1	84.82	-0.06
East2	84.78	-0.02
East3	84.76	-0.02
East4	84.66	-0.04

The only basin with an increased stage is *South1*, wholly contained within the proposed development. The fact that the external peak stages are reduced from the existing case is attributable mainly to the conveyance improvements provided by major culvert piping through the project. This factor offsets the limited flood plain encroachments in rear-lot filling.

4.2.2 Offsite Impacts

Since there are no peak flood stage increases around the project's perimeter then it should follow that there are no adverse impacts throughout the basin as a result of the project.

4.3 Summary

This first phase of the study has defined the existing 100-year flood event for the project area and surrounding properties within the basin. Together with the topographic surveys of the project area the computed stage elevations have been drafted into a detailed flood map.

The second phase of the study effort focused on evaluating the effects of the proposed Sandy Ridge subdivision on the surrounding floodplain. The project's design incorporates conveyance facilities through the site to accommodate the existing flood flows. The Results of improved hydraulics of the proposed culverts offset any effects of the development's minor floodplain fill. The net result is that flood stages are held, or reduced, in all areas around the project, insuring that there will be no flood impacts to up or downstream properties.

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EAST5WET

RRNORTH1 & RRNORTH2

17-92NE

17-92SE

RRSOUTH

1"=2000

N

BASIN BOUNDS

DETAILED STUDY BASIN

SUBBASIN BOUNDS

FLORIDA

SITE

POLK COUNTY

S.W.F.W.M.D. RECEIVED MAY 2002

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

DESCRIPTION	BY	DATE
REVISIONS		

DONALD W. McINTOSH ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS
2200 PARK AVENUE NORTH, WINTER PARK, FLORIDA 32789 (407) 644-4068

DRAWN BY: ZDF
CHECKED BY:
JOB NO. 20165
SCALE 1" = 2000'
SHEET OF
DATE 5/13/02

OLD KISSIMMEE ROAD BASIN STUDY
POLK COUNTY, FLORIDA

BASIN QUADRANGLE MAP

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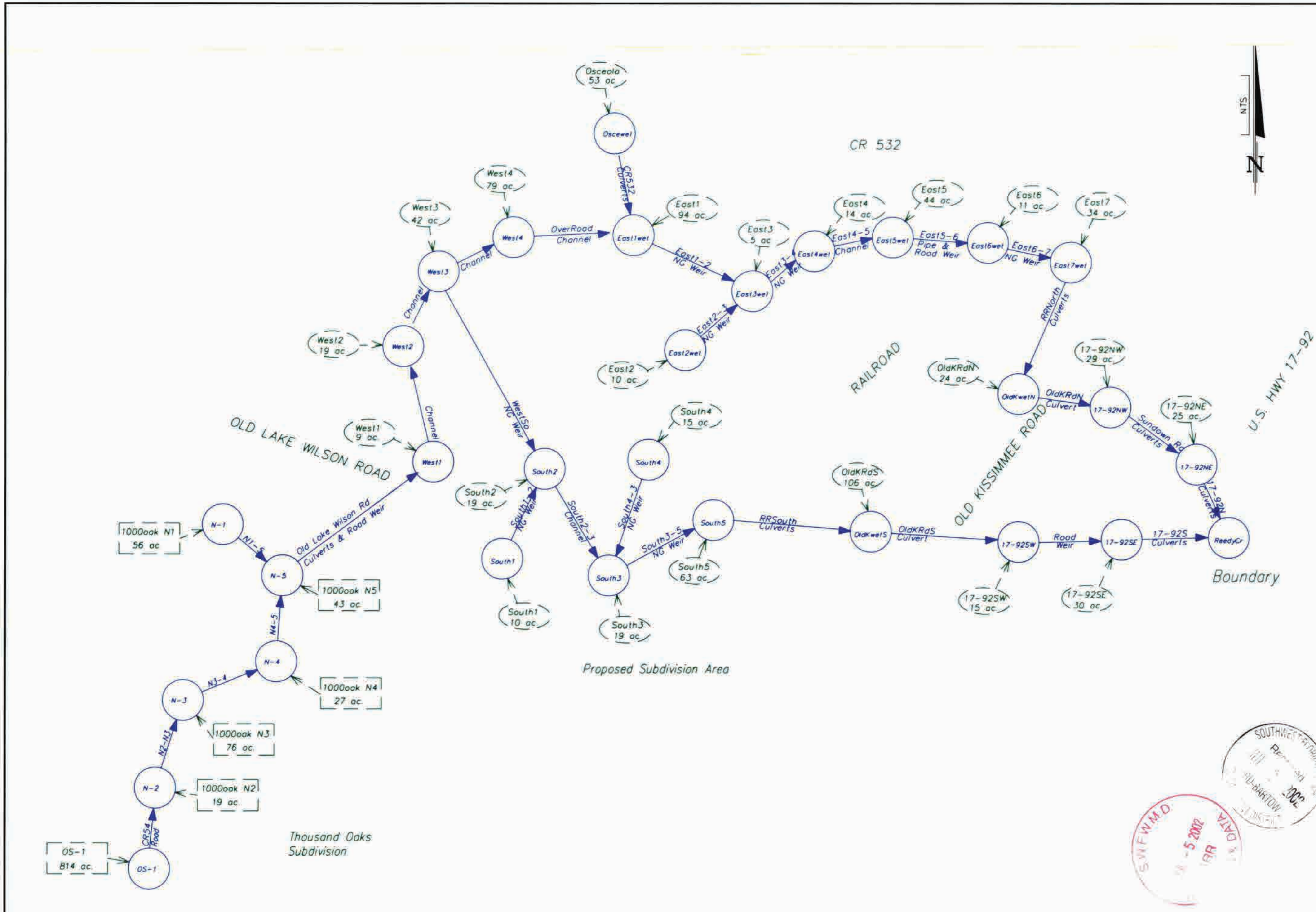
EXHIBIT 1



DATE	BY	DESCRIPTION

REVISIONS

DONALD W. McINTOSH ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS
2200 PARK AVENUE NORTH, WINTER PARK, FLORIDA 32789 (407) 644-4068

DRAWN BY: ZDF	JOB NO. 20165	SCALE NTS	SHEET ___	DATE 5/14/02
CHECKED BY: ___			OF ___	

OLD KISSIMMEE ROAD BASIN STUDY

POLK COUNTY, FLORIDA

EXISTING ICPR NODAL DIAGRAM

F:\PROJ2000\20165\ENGCALC\STORM\FLOODSTUDY\EXISTNODEDIAG.DWG

EXHIBIT 6

SHT	OF
1	1

PROJECT KEEWIN - SR 532 (POLK COUNTY)
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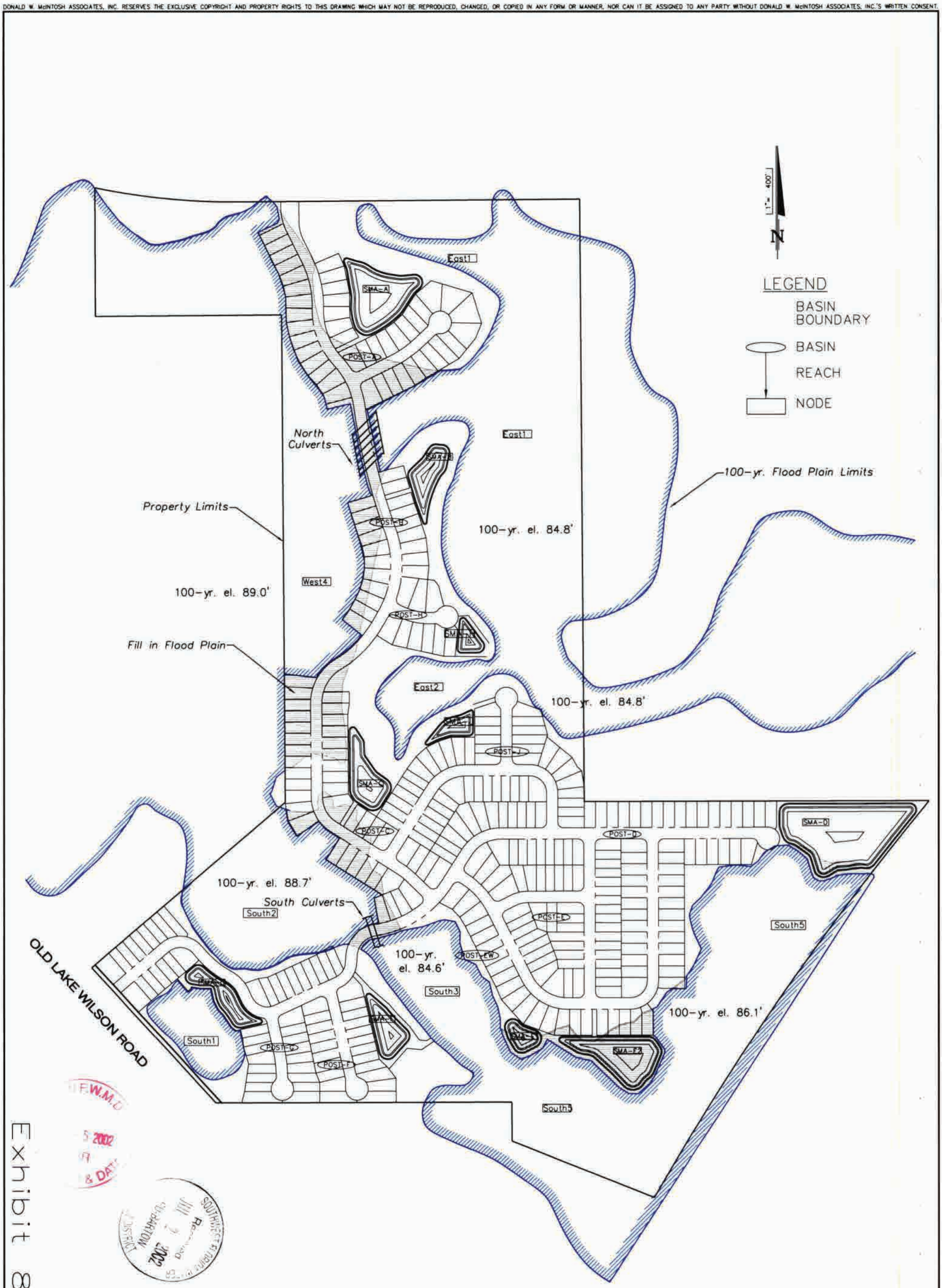
DWG FILE NAME POSTBASINS.DWG
XREF FILE NAME

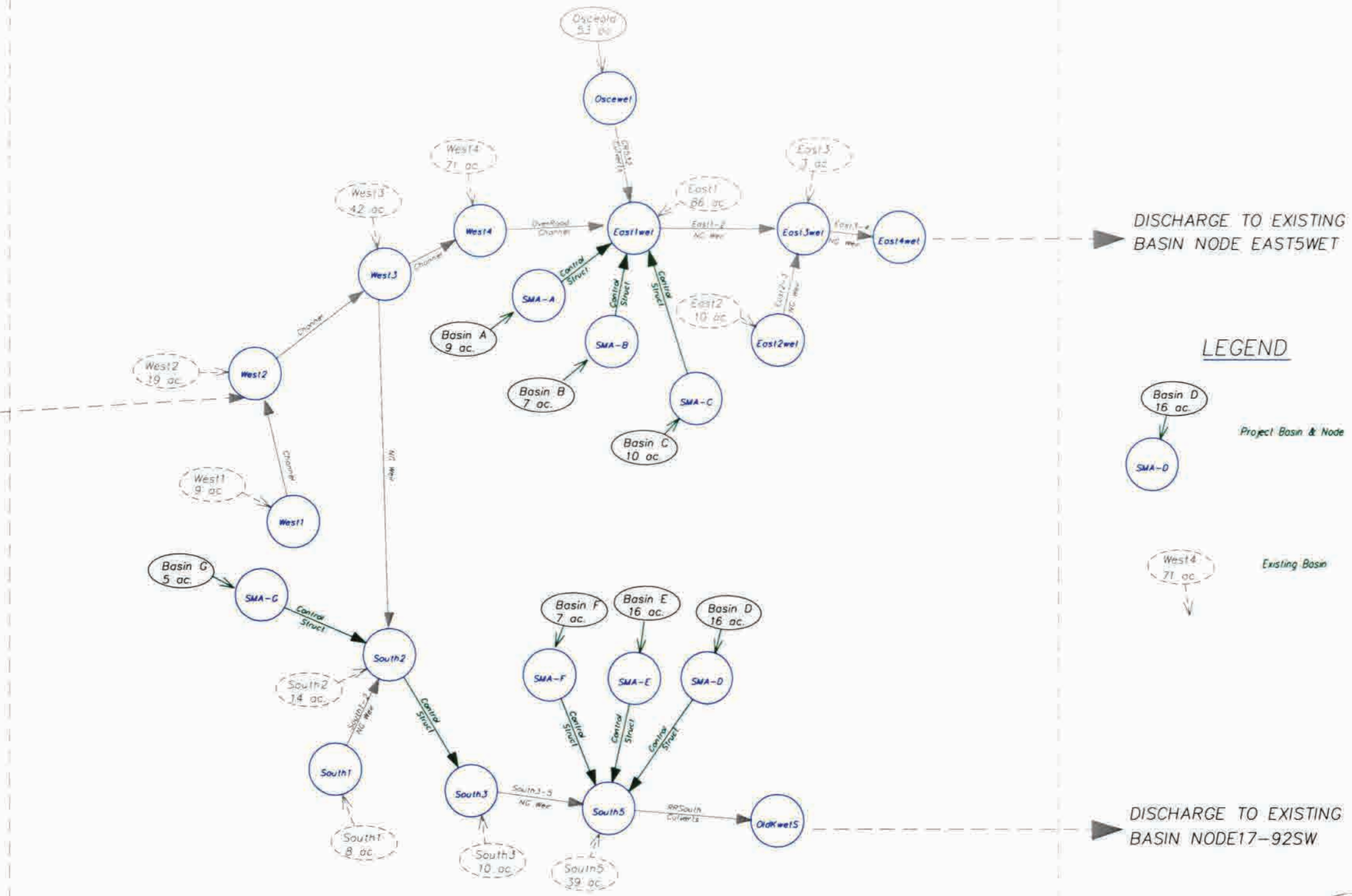


DRAWING	OLD KISSIMMEE ROAD BASIN	DONALD W. McINTOSH ASSOCIATES, INC.	DONALD W. McINTOSH ASSOCIATES, INC. CERTIFICATE OF AUTHORIZATION NO. 88
Ex9-SubPlan.DWG	POLK COUNTY, FLORIDA	ENGINEERS PLANNERS SURVEYORS	
SHEET 1 OF 1	SUBDIVISION PLAN	2200 PARK AVENUE NORTH, WINTER PARK, FLORIDA 32789 (407) 644-4068	

DRAWN BY	DESIGNED BY	CHECKED BY	DATE	SCALE	JOB NUMBER
JCN	JCN		XXX	1"= 400'	20165

NO.	DATE	DESCRIPTION	DWN
REVISIONS			

DATE:



DONALD W. McINTOSH ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS
2200 PARK AVENUE NORTH, WINTER PARK, FLORIDA 32789 (407) 644-4068

DRAWN BY: ZDF	JOB NO. 20165	SCALE NTS	SHEET OF	DATE 5/14/02
CHECKED BY:				

DATE	BY	DESCRIPTION
		REVISIONS

OLD KISSIMMEE ROAD BASIN STUDY

POLK COUNTY, FLORIDA

DEVELOPED ICPR NODAL DIAGRAM

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
RECEIVED
2002
BARTOW

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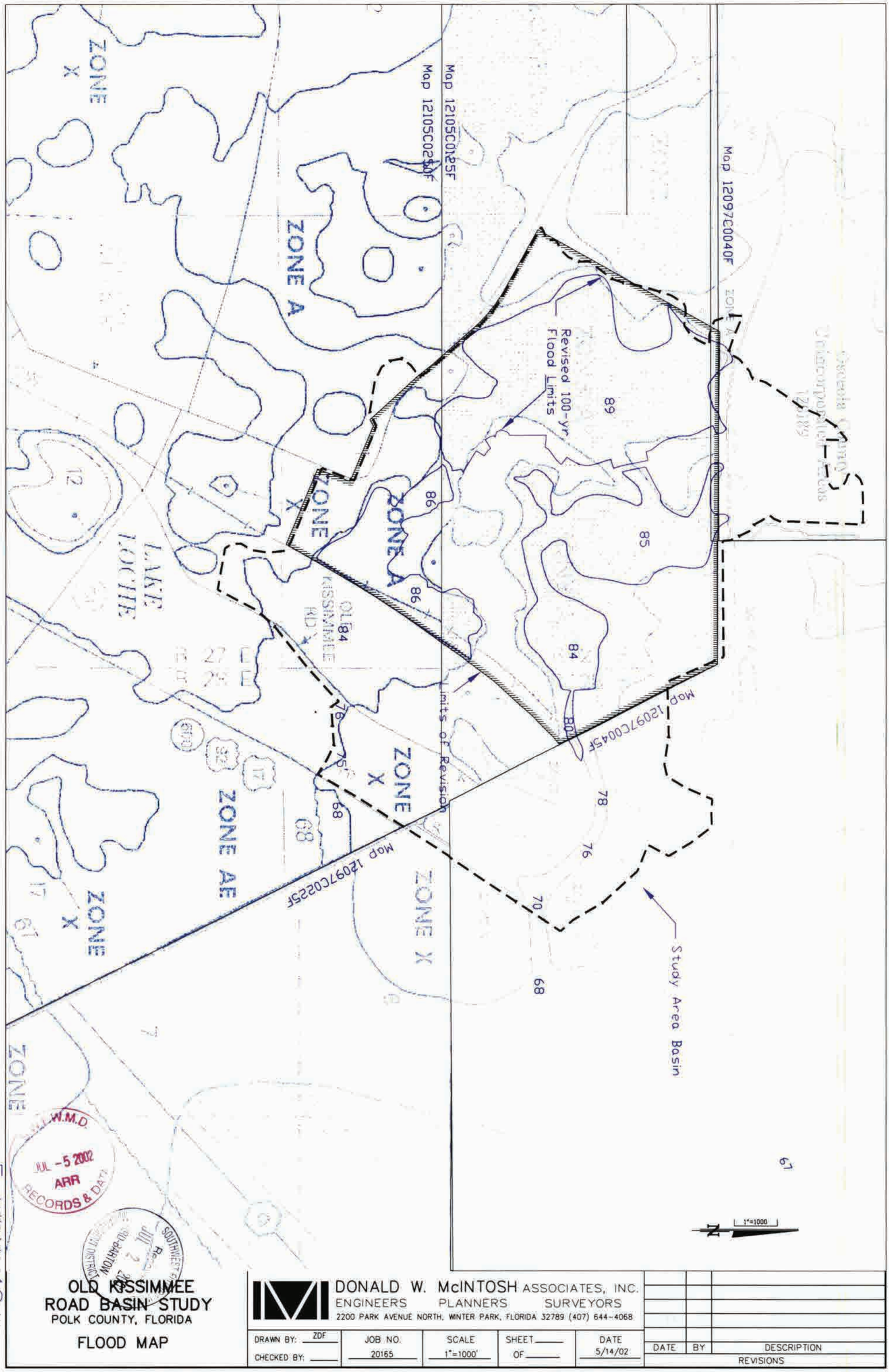
EXHIBIT 9

F:\PR 0\20165\ENGCALC\STORM\FLOODSTUDY\REDO.DWG



OLD KISSIMMEE ROAD BASIN STUDY
POLK COUNTY, FLORIDA

FLOOD MAP

DONALD W. McINTOSH ASSOCIATES, INC.
ENGINEERS PLANNERS SURVEYORS
2200 PARK AVENUE NORTH, WINTER PARK, FLORIDA 32789 (407) 644-4068

DRAWN BY: ZDF	JOB NO. 20165	SCALE 1"=1000'	SHEET ____ OF ____	DATE 5/14/02
CHECKED BY: ____				

DATE	BY	DESCRIPTION
		REVISIONS

EXHIBIT APPENDIX B. Page 10 of 237

Project Basin 100-Yr. Node Maximums

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) (1)

Proposed Subdivision on Total Basin

********** Node Maximum Conditions - 100-24 **********

(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 (cfs)	Max Inflow	Max Time Outflow (cfs)	Max Outflow
SMA-A	DEVELOP	26.61	87.71	89.50	0.0114	55808.03	23.50	22.99	26.61	2.03
SMA-B	DEVELOP	24.52	87.76	88.50	0.0163	25736.60	23.50	16.96	24.52	6.46
SMA-C	DEVELOP	24.33	89.61	90.50	-0.0083	29990.28	23.50	23.15	24.33	11.42
SMA-D	DEVELOP	30.26	87.52	89.50	0.0097	116430.66	23.50	39.56	30.26	1.86
SMA-E1	DEVELOP	0.00	86.00	88.50	0.0000	9147.60	0.00	0.00	0.00	0.00
SMA-E2	DEVELOP	47.21	85.44	88.50	0.0001	42584.41	0.00	0.00	49.08	0.04
SMA-F	DEVELOP	24.41	90.52	91.00	0.0095	23847.14	23.50	19.55	24.41	8.59
SMA-G	DEVELOP	24.25	93.16	94.50	-0.0022	19276.01	23.50	15.26	23.52	14.00
SMA-H	DEVELOP	24.94	87.16	88.00	0.0111	8983.38	23.50	4.45	24.94	1.00
SMA-J	DEVELOP	24.88	88.19	89.00	0.0114	10771.20	23.50	5.61	24.88	1.43
N-1	1000OAKS	24.74	95.53	0.00	0.0065	848827.42	24.00	169.13	24.74	115.65
N-2	1000OAKS	28.22	97.51	0.00	0.0173	411123.10	28.11	400.97	28.22	400.83
N-3	1000OAKS	31.66	97.01	0.00	0.0122	1611431.36	28.20	417.13	31.66	326.05
N-4	1000OAKS	31.79	93.61	0.00	-0.0168	393885.45	31.60	329.82	31.79	329.70
N-5	1000OAKS	31.84	91.71	0.00	-0.1285	363838.10	31.65	345.25	31.83	345.01
OS-1	1000OAKS	28.12	101.71	0.00	-0.0498	1217417.43	26.00	610.69	28.12	396.79
17-92NE	EXIST	36.06	69.56	0.00	-0.0241	101835.79	35.96	613.10	36.06	613.05
17-92NW	EXIST	36.00	75.43	0.00	0.0084	232643.73	35.88	610.30	36.00	610.28
17-92SE	EXIST	44.88	74.20	0.00	0.0294	37089.54	25.00	161.60	44.88	158.85
17-92SW	EXIST	44.76	75.82	0.00	0.0026	104318.24	44.60	158.85	44.73	158.85

EAST1WET	EXIST	34.31	84.82	0.00	0.0030	1582610.54	31.39	507.55	34.31	690.05
EAST2WET	EXIST	34.31	84.74	5.00	0.0016	396710.72	24.50	53.81	25.27	47.56
EAST3WET	EXIST	32.86	84.76	0.00	0.0496	78102.61	34.31	738.48	32.86	928.77
EAST4WET	EXIST	34.31	84.66	0.00	-0.0177	154131.26	32.86	935.97	34.31	535.79
EAST5WET	EXIST	34.56	83.95	0.00	0.0019	1295451.80	34.31	562.95	34.56	554.47
EAST6WET	EXIST	35.62	80.25	0.00	0.0038	53392.55	34.56	561.68	34.65	561.42
EAST7WET	EXIST	35.94	79.69	0.00	0.0064	767996.58	34.00	587.94	35.94	584.05
OLDKWETN	EXIST	35.95	77.80	0.00	0.0040	122616.50	35.88	607.03	35.94	607.03
OLDKWETS	EXIST	44.60	83.78	0.00	0.0037	2178216.40	26.00	263.75	44.60	158.85
OLWRDS	EXIST	32.29	89.46	0.00	0.0076	168567.48	31.83	345.01	31.89	344.61
OSCEOWET	EXIST	30.43	84.98	0.00	0.0028	668336.66	27.01	48.32	30.73	29.60
REEDYCR	EXIST	0.00	67.90	0.00	0.0000	1435.00	36.30	763.80	0.00	0.00
SOUTH1	EXIST	24.40	93.28	0.00	0.0040	99263.26	24.00	26.30	24.40	18.89
SOUTH2	EXIST	34.68	88.71	0.00	0.0026	365885.76	34.10	138.80	34.68	138.06
SOUTH3	EXIST	36.38	86.40	0.00	0.0021	213452.75	34.65	148.85	34.81	147.66
SOUTH5	EXIST	38.56	86.09	0.00	0.0042	1671209.88	25.02	228.67	38.56	153.47
WEST1WET	EXIST	33.16	89.21	0.00	0.0082	299525.35	31.88	349.81	32.01	348.09
WEST2WET	EXIST	33.60	89.13	0.00	0.0062	935499.77	31.98	359.80	32.37	353.66
WEST3WET	EXIST	34.30	88.98	0.00	0.0054	1997704.07	32.16	386.86	33.12	372.11
WEST4WET	EXIST	34.46	88.94	0.00	0.0041	2584296.33	26.53	393.38	34.47	351.15

Project Basin 100-Yr. Reach Maximums

Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.20) (1)
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Proposed Subdivision on Total Basin

********** Link Maximum Conditions - 100-24 **********

(Time units - hours)

Link Name	Group Name	Max Time Flow	Max Flow (cfs)	Max Delta Q (cfs)	Max Time U/S Stage	Max US Stage (ft)	Max Time D/S Stage	Max DS Stage (ft)
CS-E1	BASE	0.00	0.00	0.00	0.00	86.00	47.21	85.44
OLDKNRD	BASE	35.95	332.65	1.30	35.95	77.80	36.00	75.43
S2-3	BASE	34.68	138.06	30.06	34.68	88.71	36.38	86.40
SOUTH1-2	BASE	24.40	18.89	0.22	24.40	93.28	34.68	88.71
SUNDROAD	BASE	36.00	280.71	1.47	36.00	75.43	36.06	69.56
WESTEAST	BASE	34.47	351.15	80.28	34.46	88.94	34.31	84.82
CS-A	DEVELOP	26.61	2.03	0.01	26.61	87.71	34.31	84.82
CS-B	DEVELOP	24.52	6.46	0.10	24.52	87.76	34.31	84.82
CS-C	DEVELOP	24.33	11.42	-0.05	24.33	89.61	34.31	84.74
CS-D	DEVELOP	30.26	1.86	0.01	30.26	87.52	38.56	86.09
CS-E2	DEVELOP	49.08	0.04	-0.00	47.21	85.44	38.56	86.09
CS-F	DEVELOP	24.41	8.59	-0.03	24.41	90.52	36.38	86.40
CS-G	DEVELOP	24.25	18.70	-0.09	24.25	93.16	34.68	88.71
CS-H	DEVELOP	24.94	1.00	0.01	24.94	87.16	34.31	84.82
CS-J	DEVELOP	24.88	1.43	0.01	24.88	88.19	34.31	84.74
SOUTHG-1	DEVELOP	0.00	0.00	-0.13	24.25	93.16	24.40	93.28
CR232	1000OAKS	30.73	29.60	0.10	30.43	84.98	34.31	84.82
[illegible]-N5	1000OAKS	24.74	115.65	1.96	24.74	95.53	31.84	91.71
[illegible]2	1000OAKS	29.27	1.13	-0.06	28.22	97.51	31.66	97.01
N-2	1000OAKS	46.57	2.81	2.08	28.22	97.51	31.66	97.01

N2-N3	1000OAKS	28.22	397.99	4.49	28.22	97.51	31.66	97.01
N3	1000OAKS	31.66	326.05	3.55	31.66	97.01	31.51	95.04
N4	1000OAKS	37.36	11.54	9.60	31.79	93.61	31.84	91.71
N4-N5	1000OAKS	31.79	318.53	2.17	31.79	93.61	31.84	91.71
OLWRD	1000OAKS	24.85	125.80	92.41	31.84	91.71	32.29	89.46
SR54	1000OAKS	28.12	396.79	39.73	28.12	101.71	28.03	99.02
17-92N	EXIST	36.06	613.05	160.27	36.06	69.56	0.00	67.90
17-92S	EXIST	44.88	158.85	-26.95	44.88	74.20	25.13	72.29
17-92SE	EXIST	44.73	158.85	0.49	44.76	75.82	44.88	74.20
CR54ROAD	EXIST	0.00	0.00	0.00	28.12	101.71	28.22	97.51
E-RDPIPE	EXIST	34.56	124.09	0.21	34.56	83.95	33.72	80.73
EAST1-3	EXIST	34.31	690.05	207.74	34.31	84.82	32.86	84.76
EAST2-3	EXIST	25.27	47.56	40.77	34.31	84.74	32.86	84.76
EAST3-4	EXIST	32.86	928.77	455.49	32.86	84.76	34.31	84.66
EAST4CH	EXIST	34.31	535.79	-9.41	34.31	84.66	34.56	83.95
EAST5-6	EXIST	34.56	430.39	0.94	34.56	83.95	35.62	80.25
EAST6-7	EXIST	34.65	561.42	1.14	35.62	80.25	35.94	79.69
OLDKRDN	EXIST	23.83	284.19	22.22	35.95	77.80	36.00	75.43
OLDKRDS	EXIST	44.60	158.85	26.74	44.60	83.78	43.19	81.09
OLWROADW	EXIST	31.84	219.92	3.33	31.84	91.71	32.29	89.46
RRNORTH1	EXIST	35.94	350.10	14.06	35.94	79.69	35.95	77.80
RRNORTH2	EXIST	35.94	233.95	9.40	35.94	79.69	35.95	77.80
RRSOUTH	EXIST	38.56	153.47	22.43	38.56	86.09	37.81	83.83
SOUTH3-5	EXIST	34.81	147.66	0.57	36.38	86.40	38.56	86.09
SUNDOWN	EXIST	36.00	329.57	21.19	36.00	75.43	19.26	71.10
WEST1	EXIST	31.89	344.61	3.66	32.29	89.46	33.16	89.21
WEST2	EXIST	32.01	348.09	9.69	33.16	89.21	33.60	89.13
WEST3	EXIST	32.37	353.66	5.15	33.60	89.13	34.30	88.98
WEST4	EXIST	31.53	283.70	12.14	34.30	88.98	34.46	88.94
WESTSO	EXIST	34.14	95.74	0.30	34.30	88.98	34.68	88.71

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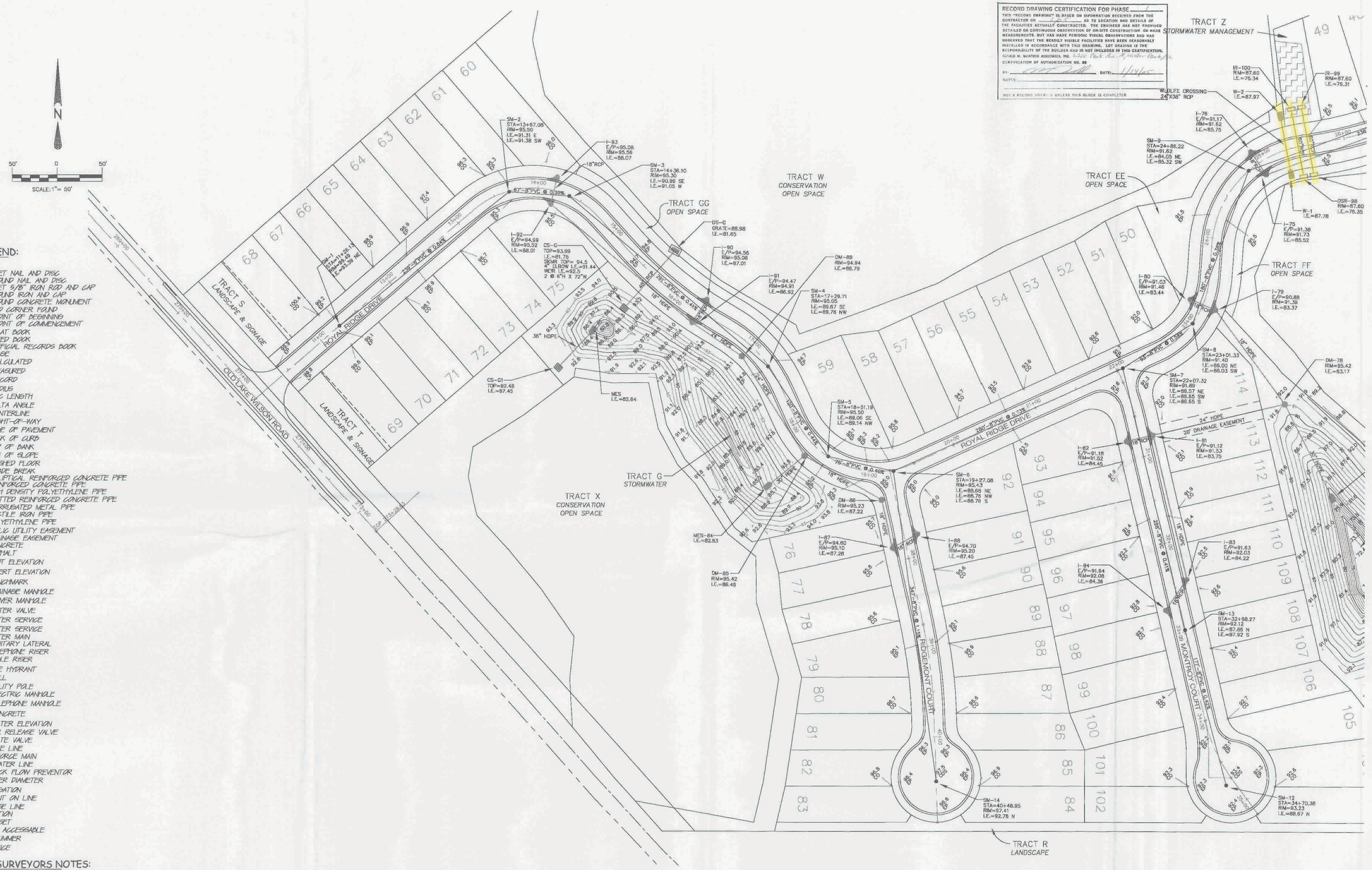


SEE SHEET 2

RECORD DRAWING CERTIFICATION FOR PHASE 1

THIS "RECORD DRAWING" IS BASED ON INFORMATION RECEIVED FROM THE CONTRACTOR ON 4-26-04 AS TO LOCATION AND DETAILS OF THE FACILITIES ACTUALLY CONSTRUCTED. THE ENGINEER HAS NOT PROVIDED DETAILED OR CONTINUOUS OBSERVATION OF ON-SITE CONSTRUCTION OR MADE MEASUREMENTS, BUT HAS MADE PERIODIC VISUAL OBSERVATIONS AND HAS OBSERVED THAT THE READILY VISIBLE FACILITIES HAVE BEEN REASONABLY INSTALLED IN ACCORDANCE WITH THIS DRAWING. LOT GRADING IS THE RESPONSIBILITY OF THE BUILDER AND IS NOT INCLUDED IN THIS CERTIFICATION.

DONALD W. McINTOSH ASSOCIATES, INC. 2900 Park Ave. N. Winter Park, FL
CERTIFICATION OF AUTHORIZATION NO. 88

BY: [signature] DATE: 11/4/05

NOTE:

NOT A RECORD DRAWING UNLESS THIS BLOCK IS COMPLETED

REVISIONS:	DATE
1. ADD WATER & SEWER SERVICES	3-22-04
2. ADD AS-BUILT DEFICIENCIES	6-02-04
3. ADD WATER CONNECTION DETAILS	7-14-04
4. ADD WEIR & ELBOW SIZES & EP HIGH POINTS	12-21-04
5. RE-SHOOT TOP OF POND E	1-10-05

LEGEND:

- ▲ = SET NAIL AND DISC
- △ = FOUND NAIL AND DISC
- ● = SET 5/8" IRON ROD AND CAP
- ○ = FOUND IRON AND CAP
- □ = FOUND CONCRETE MONUMENT
- NCF = NO CORNER FOUND
- POB = POINT OF BEGINNING
- POC = POINT OF COMMENCEMENT
- P.B. = PLAT BOOK
- D.B. = DEED BOOK
- OR = OFFICIAL RECORDS BOOK
- PG = PAGE
- (C) = CALCULATED
- (M) = MEASURED
- (R) = RECORD
- R = RADIUS
- L = ARC LENGTH
- D = DELTA ANGLE
- C/L = CENTERLINE
- R/W = RIGHT-OF-WAY
- E/P = EDGE OF PAVEMENT
- B/C = BACK OF CURB
- TOB = TOP OF BANK
- TOE = TOE OF SLOPE
- FF = FINISHED FLOOR
- GB = GRADE BREAK
- ERCP = ELLIPTICAL REINFORCED CONCRETE PIPE
- RCP = REINFORCED CONCRETE PIPE
- HDPE = HIGH DENSITY POLYETHYLENE PIPE
- SRCP = SLOTTED REINFORCED CONCRETE PIPE
- CMP = CORRUGATED METAL PIPE
- DIP = DUCTILE IRON PIPE
- PVC = POLYETHYLENE PIPE
- PUE = PUBLIC UTILITY EASEMENT
- DE = DRAINAGE EASEMENT
- CONC = CONCRETE
- ASP = ASPHALT
- = SPOT ELEVATION
- I.E. = INVERT ELEVATION
- = BENCHMARK
- = DRAINAGE MANHOLE
- = SEWER MANHOLE
- = WATER VALVE
- = WATER SERVICE
- WS = WATER SERVICE
- WM = WATER MAIN
- = SANITARY LATERAL
- = TELEPHONE RISER
- = CABLE RISER
- = FIRE HYDRANT
- = WELL
- = UTILITY POLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CONCRETE
- WE = WATER ELEVATION
- ARV = AIR RELEASE VALVE
- GV = GATE VALVE
- F/L = FIRE LINE
- F/M = FORCE MAIN
- W/L = WATER LINE
- BFP = BACK FLOW PREVENTOR
- OD = OUTER DIAMETER
- IRR = IRRIGATION
- P/L = POINT ON LINE
- RE = RELEASE LINE
- STA = STATION
- O/S = OFFSET
- N/A = NOT ACCESSABLE
- SKMR = SKIMMER
- ORF = ORIFICE

SURVEYORS NOTES:

1. THIS MAP IS NOT A CERTIFICATION OF TITLE, ZONING, SETBACKS OR FREEDOM OF ENCUMBRANCES AND WAS PREPARED WITHOUT BENEFIT OF ABSTRACT OF TITLE AND ALL MATTERS OF TITLE SHOULD BE REFERRED TO AN ATTORNEY AT LAW.
2. PARCEL IS SUBJECT TO EASEMENTS, RESTRICTIONS, RESERVATIONS AND RIGHTS OF WAY OF RECORD. (RECORDED, UNRECORDED, WRITTEN AND UNWRITTEN).
3. UNDERGROUND AND ABOVE GROUND IMPROVEMENTS WERE NOT LOCATED. UNLESS OTHERWISE SHOWN.
4. SURVEY BASED ON DESCRIPTION PROVIDED BY THE CLIENT.
5. THIS SURVEY WAS NOT INTENDED TO DELINEATE OR DEFINE ANY WETLANDS, ENVIRONMENTALLY SENSITIVE AREAS, WILDLIFE HABITATS OR JURISDICTIONAL LINES OF ANY FEDERAL, STATE, REGIONAL OR LOCAL AGENCY, BOARD, COMMISSION OR OTHER ENTITY.
6. ELEVATIONS SHOWN HEREON ARE BASED UPON POLK COUNTY BENCHMARK #67012402. A RAILROAD SPIKE IN UTILITY POLE ON THE WEST SIDE OF OLD LAKE WILSON ROAD AT FLORIDA AVENUE, POLK COUNTY, FLORIDA. ELEVATION: 105.27.
7. BEARINGS ARE BASED ON THE NORTH LINE OF SECTION 1, TOWNSHIP 26 SOUTH, RANGE 27 EAST, BEING THE SOUTHERLY RIGHT-OF-WAY LINE OF CR #532 AND THE NORTH LINE OF POLK COUNTY, AS BEARING N89°30'48"E.
8. ALL SHEETS MUST BE TOGETHER, NEITHER IS FULL AND COMPLETE WITHOUT THE OTHER.

ALL ELEVATIONS SHOWN HEREON ARE TO TOP OF PIPE.
ALL DIMENSIONS SHOWN HEREON ARE FROM C/L OF PIPE.
ALL DIMENSIONS SHOWN HEREON ARE FROM C/L OF MANHOLE.
GATE VALVE ELEVATIONS ARE TO TOP OF NUT.
FIRE HYDRANT ELEVATIONS ARE TO BOTTOM OF FLANGE.
STATION AND OFFSET DIMENSIONS ARE FROM CENTERLINE OF 50' RIGHT-OF-WAY.
SEE SHEET 4 FOR AS-BUILT LOCATION TABLE OF HORIZONTAL TIES.

THIS MAP IS NOT VALID WITHOUT THE ORIGINAL SIGNATURE AND RAISED SEAL OF THE FLORIDA LICENSED SURVEYOR AND MAPPER. UNLESS IT BEARS THE SIGNATURE AND ORIGINAL RAISED SEAL OF THE LAND SURVEYOR LISTED, THIS DRAWING IS NOT VALID AND IS FOR INFORMATIONAL PURPOSES ONLY. DIMENSIONS OF IMPROVEMENTS SHOWN SHOULD NOT BE USED TO RECONSTRUCT BOUNDARY LINES.

DONALD A. NAVIGATO CERTIFICATE NO. 6116 STATE OF FLORIDA

DATE SIGNED: No. 6116
FOR THE FIRM
STATE OF

DONALD A. NAVIGATO, P.S.M.
PROFESSIONAL SURVEYOR & MAPPER
FLORIDA REGISTRATION NO. 6116

File of Record
Permit No. 436238790.000

Southwest Florida Water Management District
JAN 18 2005
RECEIVED
SRD-Bartow

☑ INSPECTION CONDUCTED BY DISTRICT
☐ INSPECTION NOT CONDUCTED BY DISTRICT
RIGHT RESERVED FOR FUTURE INSPECTION

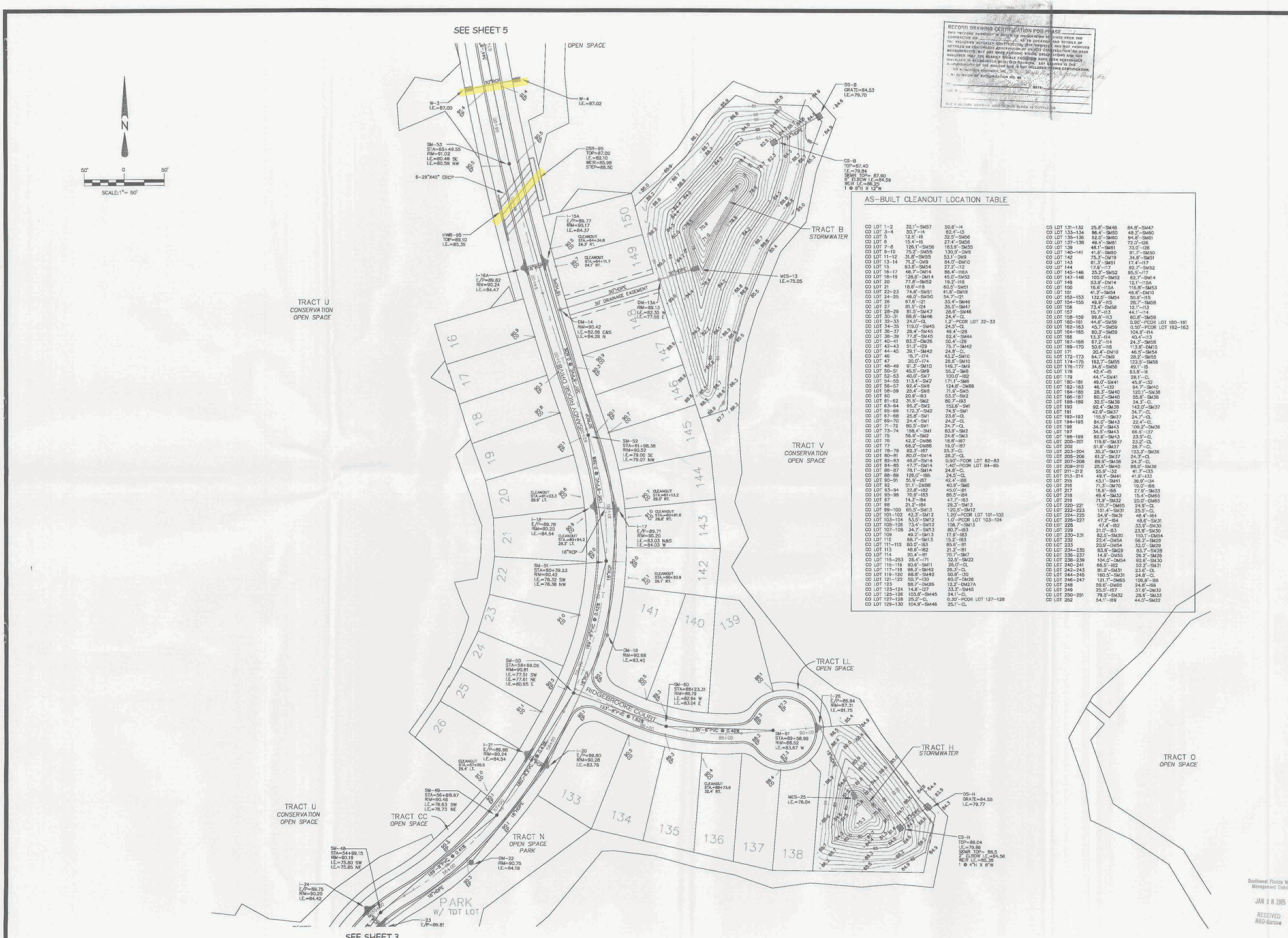
DATE OF LAST FIELD WORK: 6-01-04
FIELD BOOK & PAGE: 6-15

JON M. HALL COMPANY
ON-SITE CONSTRUCTION SERVICES
P.O. BOX 1952 * WINTER PARK, FL. 32790
OFFICE (407) 302-2933 (FAX) 302-2297

TITLE: STORM & SANITARY AS-BUILTS

FOR: DONALD W. McINTOSH & ASSOCIATES, INC.
SANDY RIDGE
POLK COUNTY, FLA.

SCALE:	1"= 50'
CHECKED BY:	DAN
DRAWN BY:	DAN
DATE:	3-8-04
S-T-R	1-26-27
PROJECT NO:	03-008
SHEET	1 OF 5



AS-BUILT CLEANOUT LOCATION TABLE

CO LOT 1-2	32.1'-SM57	50.6'-I4
CO LOT 3-4	50.7'-I4	62.4'-I3
CO LOT 5	12.5'-I6	32.5'-SM56
CO LOT 6	15.4'-I6	27.4'-SM56
CO LOT 7-8	126.1'-SM56	163.9'-SM55
CO LOT 9-10	75.2'-SM55	130.5'-DM9
CO LOT 11-12	31.8'-SM55	53.1'-DM9
CO LOT 13-14	71.2'-DM9	84.0'-DM10
CO LOT 15	63.8'-SM54	27.2'-I12
CO LOT 16-17	46.7'-DM14	86.4'-I16A
CO LOT 18-19	128.5'-DM14	45.0'-SM52
CO LOT 20	77.8'-SM52	19.2'-I18
CO LOT 21	18.6'-I18	60.5'-SM51
CO LOT 22-23	74.8'-SM51	41.6'-DM19
CO LOT 24-25	46.0'-SM50	54.7'-I21
CO LOT 26	67.6'-I21	33.4'-SM49
CO LOT 27	81.5'-I24	35.5'-SM47
CO LOT 28-29	81.5'-SM47	28.6'-SM46
CO LOT 30-31	88.8'-SM46	24.4'-CL
CO LOT 32-33	24.0'-CL	1.2'-PCOR LOT 32-33
CO LOT 34-35	119.0'-SM45	24.5'-CL
CO LOT 36-37	26.4'-SM45	49.4'-I28
CO LOT 38-39	77.8'-SM45	62.4'-SM44
CO LOT 40-41	83.3'-DM26	50.4'-I29
CO LOT 42-43	51.2'-I29	75.7'-SM42
CO LOT 44-45	39.1'-SM42	24.8'-CL
CO LOT 46	16.7'-I74	43.2'-SM10
CO LOT 47	20.0'-I74	29.6'-SM10
CO LOT 48-49	91.3'-SM10	149.7'-SM9
CO LOT 50-51	45.5'-SM9	55.2'-SM8
CO LOT 52-53	40.0'-SM7	100.0'-I82
CO LOT 54-55	113.4'-SM7	171.1'-SM6
CO LOT 56-57	92.4'-SM6	124.8'-DM86
CO LOT 58-59	25.4'-SM6	71.9'-SM5
CO LOT 60	20.9'-I93	53.2'-SM2
CO LOT 61-62	31.5'-SM2	80.7'-I93
CO LOT 63-64	95.2'-SM2	152.6'-SM1
CO LOT 65-66	172.3'-SM2	74.5'-SM1
CO LOT 67-68	25.8'-SM1	23.8'-CL
CO LOT 69-70	24.4'-SM1	24.2'-CL
CO LOT 71-72	80.5'-SM1	24.7'-CL
CO LOT 73-74	158.4'-SM1	83.9'-SM2
CO LOT 75	56.9'-SM2	24.8'-SM3
CO LOT 76	42.2'-DM86	18.8'-I87
CO LOT 77	68.2'-DM86	19.0'-I87
CO LOT 78-79	82.3'-I87	25.3'-CL
CO LOT 80-81	80.0'-SM14	26.2'-CL
CO LOT 82-83	49.0'-SM14	0.90'-PCOR LOT 82-83
CO LOT 84-85	47.7'-SM14	1.40'-PCOR LOT 84-85
CO LOT 86-87	78.1'-SM14	24.8'-CL
CO LOT 88-89	126.0'-I88	24.5'-CL
CO LOT 90-91	51.9'-I87	42.4'-I88
CO LOT 92	51.1'-DM86	40.9'-SM6
CO LOT 93-94	22.8'-I82	45.0'-I81
CO LOT 95-96	70.9'-I83	86.5'-I84
CO LOT 97	14.3'-I84	47.7'-I83
CO LOT 98	21.2'-I84	29.3'-SM13
CO LOT 99-100	65.5'-SM13	120.5'-SM12
CO LOT 101-102	42.3'-SM12	1.20'-PCOR LOT 101-102
CO LOT 103-104	53.5'-SM12	1.0'-PCOR LOT 103-104
CO LOT 105-106	73.4'-SM12	108.7'-SM13
CO LOT 107-108	34.7'-SM13	80.7'-I83
CO LOT 109	49.2'-SM13	17.9'-I83
CO LOT 110	68.7'-SM13	15.2'-I83
CO LOT 111-112	80.0'-I83	85.6'-I81
CO LOT 113	48.6'-I82	21.2'-I81
CO LOT 114	20.4'-I81	70.7'-SM7
CO LOT 115-253	26.4'-I71	32.5'-SM22
CO LOT 115-116	90.6'-SM11	26.0'-CL
CO LOT 117-118	98.3'-SM42	26.3'-CL
CO LOT 119-120	88.8'-SM42	50.8'-I30
CO LOT 121-122	50.7'-I30	60.0'-DM26
CO LOT 123	68.7'-DM26	12.2'-DM27A
CO LOT 123-124	14.8'-I27	33.3'-SM45
CO LOT 125-126	103.8'-SM45	24.1'-CL
CO LOT 127-128	25.2'-CL	0.30'-PCOR LOT 127-128
CO LOT 129-130	104.9'-SM46	25.1'-CL
CO LOT 131-132	25.8'-SM46	84.8'-SM47
CO LOT 133-134	86.4'-SM50	48.2'-SM60
CO LOT 135-136	62.0'-SM60	94.8'-SM61
CO LOT 137-138	49.4'-SM61	72.0'-I26
CO LOT 139	48.1'-SM61	73.0'-I26
CO LOT 140-141	41.6'-SM60	91.7'-SM50
CO LOT 142	75.3'-DM19	34.9'-SM51
CO LOT 143	61.3'-SM51	17.4'-I17
CO LOT 144	17.6'-I17	92.7'-SM52
CO LOT 145-146	25.2'-SM52	95.5'-I17
CO LOT 147-148	100.0'-SM52	62.7'-DM14
CO LOT 149	53.9'-DM14	12.1'-I15A
CO LOT 150	16.6'-I15A	116.8'-SM53
CO LOT 151	41.2'-SM54	46.6'-DM10
CO LOT 152-153	132.5'-SM54	50.9'-I15
CO LOT 154-155	49.9'-I15	28.7'-SM58
CO LOT 156	73.4'-SM58	12.1'-I13
CO LOT 157	15.7'-I13	44.1'-I14
CO LOT 158-159	99.8'-I13	60.8'-SM59
CO LOT 160-161	44.6'-SM59	0.90'-PCOR LOT 160-161
CO LOT 162-163	45.7'-SM59	0.50'-PCOR LOT 162-163
CO LOT 164-165	60.3'-SM59	104.9'-I14
CO LOT 166	13.3'-I14	40.4'-I13
CO LOT 167-168	67.2'-I14	24.3'-SM58
CO LOT 169-170	50.6'-I16	113.8'-DM10
CO LOT 171	20.4'-DM10	46.5'-SM54
CO LOT 172-173	64.7'-DM9	28.2'-SM55
CO LOT 174-175	162.7'-SM55	122.5'-SM56
CO LOT 176-177	34.8'-SM56	49.1'-I5
CO LOT 178	42.4'-I5	63.8'-I6
CO LOT 179	44.1'-SM41	28.1'-CL
CO LOT 180-181	49.0'-SM41	45.9'-I32
CO LOT 182-183	46.1'-I32	94.7'-SM40
CO LOT 184-185	28.3'-SM40	120.1'-SM38
CO LOT 186-187	60.2'-SM40	55.8'-SM38
CO LOT 188-189	30.5'-SM38	24.3'-CL
CO LOT 190	92.4'-SM38	142.0'-SM37
CO LOT 191	42.9'-SM37	34.7'-CL
CO LOT 192-193	115.5'-SM37	24.7'-CL
CO LOT 194-195	84.0'-SM43	22.4'-CL
CO LOT 196	34.2'-SM43	109.2'-DM36
CO LOT 197	34.5'-SM43	66.5'-I37
CO LOT 198-199	82.6'-SM43	23.5'-CL
CO LOT 200-201	119.6'-SM37	23.2'-CL
CO LOT 202	51.6'-SM37	28.7'-CL
CO LOT 203-204	35.2'-SM37	103.3'-SM36
CO LOT 205-206	61.2'-SM37	24.3'-CL
CO LOT 207-208	89.9'-SM38	24.3'-CL
CO LOT 209-210	25.6'-SM40	98.0'-SM38
CO LOT 211-212	55.9'-I32	41.7'-I33
CO LOT 213-214	49.1'-SM41	41.9'-I33
CO LOT 215	43.1'-SM41	36.9'-I34
CO LOT 216	71.3'-DM70	19.0'-I68
CO LOT 217	16.6'-I68	27.9'-SM33
CO LOT 218	49.4'-SM32	15.4'-DM65
CO LOT 219	71.9'-SM32	20.0'-DM65
CO LOT 220-221	101.7'-DM65	24.9'-CL
CO LOT 222-223	151.4'-SM31	25.5'-CL
CO LOT 224-225	54.9'-SM31	48.4'-I64
CO LOT 226-227	47.2'-I64	48.6'-SM31
CO LOT 228	47.4'-I62	33.9'-SM30
CO LOT 229	21.0'-I63	23.8'-SM30
CO LOT 230-231	82.5'-SM30	110.1'-DM54
CO LOT 232	22.4'-DM54	56.2'-SM29
CO LOT 233	20.9'-DM54	32.0'-SM29
CO LOT 234-235	83.8'-SM29	83.7'-SM28
CO LOT 236-237	14.9'-DM55	26.2'-SM28
CO LOT 238-239	104.0'-DM54	92.6'-SM30
CO LOT 240-241	66.5'-I62	52.2'-SM31
CO LOT 242-243	81.0'-SM31	23.6'-CL
CO LOT 244-245	160.5'-SM31	24.8'-CL
CO LOT 246-247	121.7'-DM65	106.8'-I66
CO LOT 248	59.6'-DM65	24.8'-I66
CO LOT 249	25.5'-I67	37.6'-DM32
CO LOT 250-251	79.0'-SM32	28.6'-SM33
CO LOT 252	54.1'-I69	44.0'-SM22

REVISIONS:

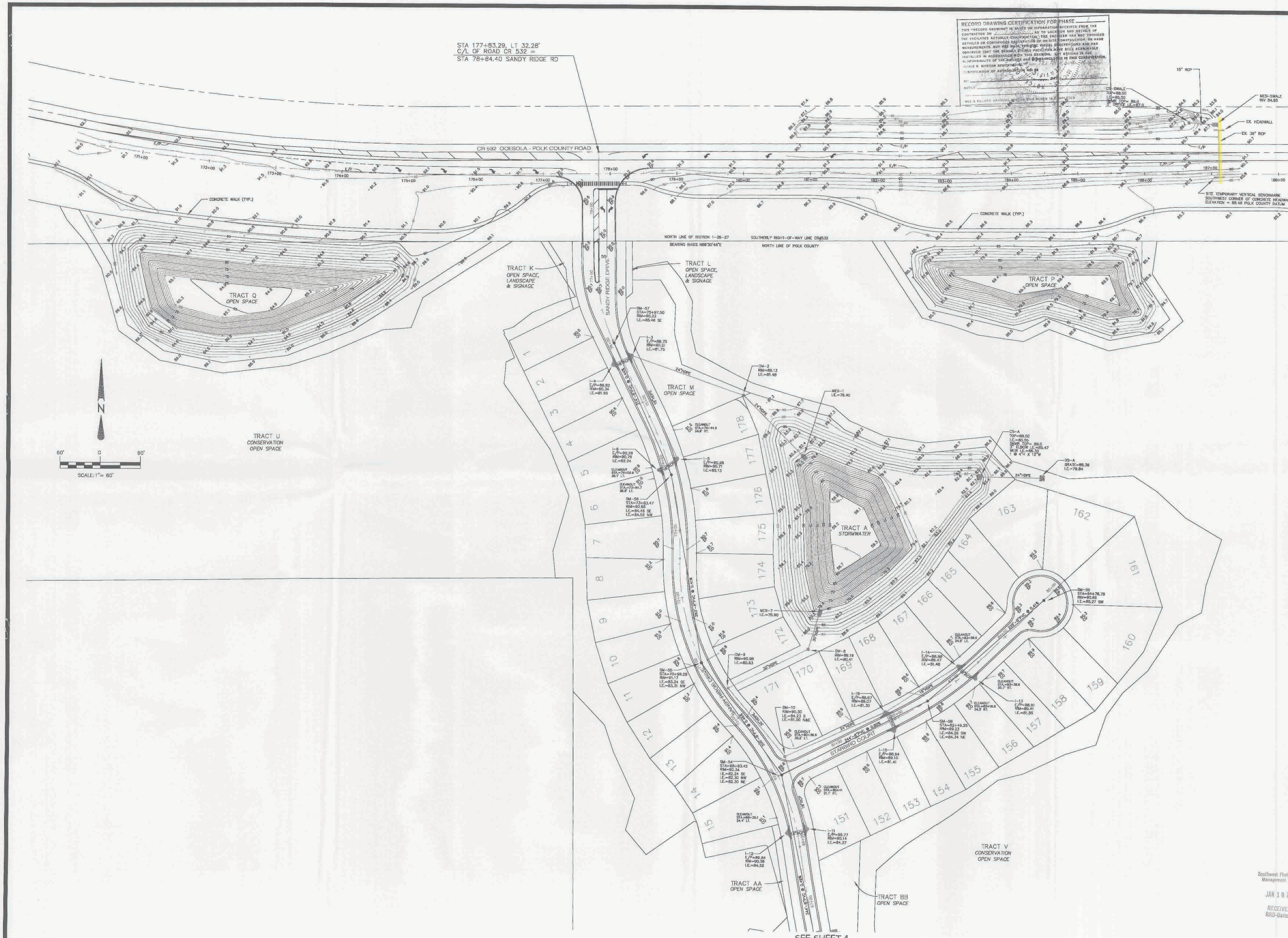
		DATE
1.	ADD WATER & SEWER SERVICES	3-22-04
2.	ADD AS-BUILT DEFICIENCIES	6-02-04
3.	ADD WATER CONNECTION DETAILS	7-14-04
4.	ADD WEIR & ELBOW SIZES & EP HIGH POINTS	12-21-04
5.	RE-SHOOT TOP OF POND E	1-10-05

JON M. HALL COMPANY
ON-SITE CONSTRUCTION SERVICES
P.O. BOX 1952 * WINTER PARK, FL. 32790
OFFICE (407) 302-2933 (FAX) 302-2297

TITLE: STORM & SANITARY AS-BUILTS

FOR: DONALD W. McINTOSH & ASSOCIATES, INC.
SANDY RIDGE
POLK COUNTY, FLA.

SCALE: 1"=50'
CHECKED BY: DAN
DRAWN BY: DAN
DATE: 03-08-04
S-T-R: 1-26-27
PROJECT NO: 03-008
SHEET 4 of 6



REVISIONS:

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3. ADD WATER CONNECTION DETAILS	7-14-04
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5. RE-SHOOT TOP OF POND E	1-10-05

JON M. HALL COMPANY
ON-SITE CONSTRUCTION SERVICES
P.O. BOX 1952 * WINTER PARK, FL. 32790
OFFICE (407) 302-2933 (FAX) 302-2297

TITLE: STORM & SANITARY AS-BUILTS

FOR: DONALD W. McINTOSH & ASSOCIATES, INC.
SANDY RIDGE
POLK COUNTY, FLA.

SCALE: 1"=60'

CHECKED BY:	DRAWN BY:
DAN	DAN

DATE: 03-08-04

S-T-R: 1-26-27

PROJECT NO: 03-008

SHEET 5 of 6

SWFWMD ENGINEERING WORKSHEET

PERMIT NO. SANDY RIDGE

PERMIT NAME: 43023879.000

			D	O	E1/E2	O	F	O	TOTALS
	BASIN NO. - POND NO.	O or C							→
POND DATA	POND BOTTOM ELEVATION		58.00		58.00		71.50		
	SEASONAL HIGH WATER ELEVATION		84.10		85.10		86.30		
	CONTROL DEVICE ELEVATION		85.50		85.25		87.50		
	DESIGN LOW WATER ELEVATION		85.83		86.00		88.29		
	WEIR INVERT ELEVATION		86.00		86.45		88.60		
	DESIGN HIGH WATER ELEVATION		87.69		88.22		90.11		
	TOP OF BANK ELEVATION		89.00		89.00		92.00		
	AREA AT TOP OF BANK (Ac.)		3.38		1.96		0.74		→
	VOLUME AT DHW (Ac.-Ft.)		n/a		n/a		n/a		
	VOLUME AT TOB (Ac.-Ft.)		10.62		5.88		2.46		
QUANTITY	25YR/24HR DISCHARGE RATES — WEIR WIDTH (FT)		1.00'		2 x 3'		4'		
	PRE-DEVELOPED (CFS)		→		→		→		
	POST-DEVELOPED (CFS)		10.62		18.11		7.52		
	100YR/24HR RETENTION VOLUMES — PROVIDED (Ac.-Ft.)		n/a		n/a		n/a		
	REQUIRED (Ac.-Ft.)		n/a		n/a		n/a		
QUALITY	TREATMENT AREA	OFW? Y OR N	14.84	N	17.88	N	5.68	N	
	TREATMENT VOL. REQUIRED (Ac.-Ft.)		1.24		1.49		0.47		
	TREATMENT VOL. PROVIDED (Ac.-Ft.)		1.39		1.59		0.48		
	METHOD OF TREATMENT		WET DET		WET DET		WET DET		
	CONTROL DEVICE TYPE		ORIFICE		ORIFICE		ORIFICE		
	CONTROL DEVICE DIMENSIONS		3.5" DIA		2.7" DIA		1.4" DIA		
	RECOVERY TIME (Hrs.)		>60/120		>60/120		>60/120		
100-YEAR FLOODPLAIN	ENCROACHMENT (Ac.-Ft.)		→		→		→		→
	COMPENSATION (Ac.-Ft.)		0		0		0		→
	COMPENSATION TYPE		SIM		SIM		SIM		→
	ENCROACHMENT RESULT (feet)		→		→		→		→

COMMENTS:

William A. Hartmann 11/1/02

Michael Long 11/1/02

SWFWMD ENGINEERING WORKSHEET

PERMIT NO. 43023879.000

PERMIT NAME: SANDY RIDGE

Section		BASIN NO. - POND NO. / O or C	G. (O)	H. (O)	J. (O)	TOTALS
						9
POND DATA		POND BOTTOM ELEVATION	82.50	78.50	79.50	
POND DATA		SEASONAL HIGH WATER ELEVATION	~~92.40~~ 91.50 WH	83.20	84.50	
POND DATA		CONTROL DEVICE ELEVATION	91.50	84.50	85.50	
POND DATA		DESIGN LOW WATER ELEVATION	91.78	85.07	86.34	
POND DATA		WEIR INVERT ELEVATION	92.50	85.34	86.60	
POND DATA		DESIGN HIGH WATER ELEVATION	93.11	86.96	88.26	
POND DATA		TOP OF BANK ELEVATION	94.50	88.50	89.50	
POND DATA		AREA AT TOP OF BANK (Ac.)	0.76	0.33	0.39	1.48ac
POND DATA		VOLUME AT DHW (Ac.-Ft.)	n/a	n/a	n/a	
POND DATA		VOLUME AT TOB (Ac.-Ft.)	1.82	0.90	1.02	
QUANTITY	25YR/24HR DISCHARGE RATES	WEIR WIDTH (FT)	2 X 6'	0.66	1.00'	
QUANTITY	25YR/24HR DISCHARGE RATES	PRE-DEVELOPED (CFS)	→	→	→	
QUANTITY	25YR/24HR DISCHARGE RATES	POST-DEVELOPED (CFS)	10.58	1.02	1.52	
QUANTITY	100YR/24HR RETENTION VOLUMES	PROVIDED (Ac.-Ft.)	n/a	n/a	n/a	
QUANTITY	100YR/24HR RETENTION VOLUMES	REQUIRED (Ac.-Ft.)	n/a	n/a	n/a	
QUALITY		TREATMENT AREA / OFW? Y OR N	5.53 / N	1.67 / N	2.20 / N	
QUALITY		TREATMENT VOL. REQUIRED (Ac.-Ft.)	0.46	0.14	0.19	
QUALITY		TREATMENT VOL. PROVIDED (Ac.-Ft.)	1.18	0.14	0.19	
QUALITY		METHOD OF TREATMENT	WET DET	WET DET	WET DET	
QUALITY		CONTROL DEVICE TYPE	ORIFICE	ORIFICE	ORIFICE	
QUALITY		CONTROL DEVICE DIMENSIONS	3" DIA	0.8" DIA	0.8" DIA	
QUALITY		RECOVERY TIME (Hrs.)	>60/120	>60/120	>60/120	
100-YEAR FLOODPLAIN		ENCROACHMENT (Ac.-Ft.)	→	→	→	→
100-YEAR FLOODPLAIN		COMPENSATION (Ac.-Ft.)	0	0	0	→
100-YEAR FLOODPLAIN		COMPENSATION TYPE	SM	SM	SM	→
100-YEAR FLOODPLAIN		ENCROACHMENT RESULT (feet)	→	→	→	→

COMMENTS:

William A. Hartmann 11/1/02

Pond G. SHWL interp'd betw. boring Wet-1A (92.4) - Wet-2A (88.6
= 90.5 (assumed 91.5 which =
average gnd contour in the swm pond

[signature] 11/1/02

42.00-045 (Rev 03/01)

1215

Ronald Reagan Parkway (CR 54) from West of Lake Wilson Road to US 17/92

SWFWMD ERP 44028086.000

Basin 800 extends along the project corridor from Station 325+72 to Station 351+35 and also includes portions of US 17/92 from Station 491+79 to Station 515+53. This basin is further divided into three (3) subbasins: Basin 800-1, Basin 800-2 and Basin 800-3.

Basin 800-1 extends from Station 329+10 to Station 325+72 for the eastbound side of the roadway. The roadway stormwater runoff from this basin discharges directly into Cross Drain CD-6 without treatment and attenuation. The amount of impervious area that contributes to CD-6 has been limited. We have reduced this area so that the proposed discharge into Lake Locke matches the existing condition. This satisfies the criteria for discharging into a closed basin such as Lake Locke.

Basin 800-2 extends from Station 325+72 to the intersection of County Road 54 and US17/92, excluding the area covered by Basin 800-1. Basin 800-2 also includes the roadway area along US 17/92 between Stations 1491+79 and 1503+57. The roadway stormwater runoff from this basin discharges into Pond 800 for treatment and attenuation. Pond 800 discharges into an existing wetland west of US 17/92 and adjacent to Pond 800.

Basin 800-3 extends from the intersection of CR 54 and US 17/92 at Station 1503+57 to Station 515+53 at US 17/92. The roadway stormwater runoff from this basin discharges into an existing ditch west of the roadway corridor of US 17/92 at the end of the project limits and will not be treated. The limits of this basin are shown in Figures 4-5 and 4-6.

Pre-development versus Post-development discharges associated with each basin described above is summarized in Table 4-1. Supporting documentation is included in Appendix 3 through 5.

POLK COUNTY
TRANSPORTATION DEPARTMENT ENGINEERING DIVISION
330 WEST CHURCH STREET - P.O. BOX 9005, DRAWER TS02
BARTOW, FLORIDA 33831-9005
(863) 534-6700

PREPARED BY:
RS&H
Reynolds, Smith and Hills, Inc.
1715 N. Westshore Boulevard, Suite 500
Tampa, Florida 33607-3999
813-289-5550
FL Cert No. EB0005620
Architectural, Engineering, Planning and Environmental Services

REVISION	DATE	BY

RONALD REAGAN PARKWAY FROM WEST OF LAKE WILSON TO US17-US92

BASIN 800 POST-DEVELOPMENT

DRAWING # Figure 4-6 SHEET

RECEIVED MAR 4 2005 Bartow

Table 4-2 Summary of Pre vs. Post Development Discharges

Basin Name	Qpre 25yr/24hr	Qpost (cfs) 25yr/24hr	Difference (cfs)	% Difference (cfs)
Basin 600	38.42	34.66	3.76	0.10
Basin 700	64.61	59.04	5.57	0.09
Basin 800	38.51	35.54	2.97	0.08

4.3 Offsite Basins Description

Offsite basins have been delineated and are illustrated in the drainage maps of the construction plans. The existing flow patterns for these basins will not be altered. Below is a description of the offsite areas.

Between approximately Station 230+00 to 250+00 on the north side of the roadway, there is a total of 8.67 acres from Robins Rest subdivision that flows south into Lake Thomas. There is an additional 1.06 acres on the south side of the road from Station 230+00 to Station 235+00 that discharges into Cross Drain CD-1. This stormwater runoff also discharges into Lake Thomas.

Between Station 255+00 and Station 258+00, there is a total of 2.67 acres of land designated as orange grove that discharges into the roadside ditch on the north side of the roadway. This offsite basin is collected with a ditch bottom inlet and discharges south into an existing wetland through a series of proposed pipes.

OSB1 is located approximately at Station 233+00 on the south side of the roadway. It consists of grass area on the Robins rest subdivision. This offsite area is collected with a ditch bottom inlet and discharges into cross drain CD-1.

Providence N2-3 (2005 Modification)
SFWMD ERP App. 041206-18

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
STANDARD GENERAL PERMIT NO. 53-00204-P
DATE ISSUED: June 3, 2005

Form #0941
08/95

PERMITTEE: APPLIED BUILDING DEVELOPMENT CO -
OAKHILLS INC
8000 THE ESPLANADE
ORLANDO, FL 32836

PROJECT DESCRIPTION: Modification for construction and operation of a surface water management system to serve a 47.54 acre residential project known as Providence N2-3.

PROJECT LOCATION: POLK COUNTY, SEC 12,13 TWP 26S RGE 27E
SEC 7,18 TWP 26S RGE 28E

PERMIT DURATION: See Special Condition No:1. See attached Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 041206-18, dated December 6, 2004. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40 , Florida Administrative Code (F.A.C.).

Based on the information provided, District rules have been adhered to and an Environmental Resource General Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 6).
3. the attached 15 Special Conditions (See Pages : 5 - 6 of 6) and .
4. the attached 13 Exhibit(s).

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 3rd day of June, 2005, in accordance with Section 120.60(3), Florida Statutes.

BY: _____
Thomas P. Genovese
Service Center Director
Orlando Service Center

Certified mail number 7004 2890 0003 3422 1359

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. the effective date of the local government's comprehensive plan amendment.
2. the effective date of the local government development order.
3. the date on which the District issues the conceptual approval, or
4. the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For a noticed general permit issued pursuant to Chapter 40-E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. the Governing Board takes action on an application for extension of an individual permit, or
2. staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a petition with a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific authority 373.044, 373.113 F.S. Law Implemented 373.413, 373.416, 373.419, 373.426 F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4/20/94, 10-3-95

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and

GENERAL CONDITIONS

maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of

GENERAL CONDITIONS

ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The conceptual phase of this permit shall expire on June 3, 2007.
The construction phase of this permit shall expire on June 3, 2010.

2. Operation of the surface water management system shall be the responsibility of PROVIDENCE COMMUNITY ASSOCIATION INC.

3. Discharge Facilities:

Basin: Pond 8, Structure: 1

1-4.75" dia. CIRCULAR ORIFICE with invert at elev. 95.5' NGVD.
338 LF of 54" dia. REINFORCED CONCRETE PIPE culvert.
1-49" W X 78" L drop inlet with crest at elev. 96.56' NGVD.

Receiving body : Existing wetland
Control elev : 95.5 feet NGVD.

Basin: Pond 9, Structure: 1

1-6" dia. CIRCULAR ORIFICE with invert at elev. 95.5' NGVD.
426 LF of 42" dia. REINFORCED CONCRETE PIPE culvert.
1-49" W X 78" L drop inlet with crest at elev. 96.53' NGVD.

Receiving body : Existing wetland
Control elev : 95.5 feet NGVD.

Basin: Pond 7, Structure: 1

1-48" WIDE SHARP CRESTED weir with crest at elev. 96.2' NGVD.
375 LF of 36" dia. REINFORCED CONCRETE PIPE culvert.
1-37" W X 49" L drop inlet with crest at elev. 97.36' NGVD.

Receiving body : Pond 8
Control elev : 96.2 feet NGVD.

Basin: Pond 7, Structure: 2

1-15" W X 4" H RECTANGULAR NOTCH with invert at elev. 96.2' NGVD.

Receiving body : Pond 8
Control elev : 96.2 feet NGVD.

Basin: Pond 11

1-30" WIDE BROAD CRESTED weir with crest at elev. 93' NGVD.

Receiving body : Existing wetland
Control elev : 92 feet NGVD.

4. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

5. Facilities other than those stated herein shall not be constructed without an approved modification of this

SPECIAL CONDITIONS

permit.

6. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

7. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

8. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

9. Minimum building floor elevation: BASIN: Pond 8 - 99.80 feet NGVD. BASIN: Pond 9 - 100.30 feet NGVD. BASIN: Pond 7 - 100.40 feet NGVD. BASIN: Pond 11 - 98.80 feet NGVD.

10. Minimum road crown elevation: Basin: Pond 8 - 98.20 feet NGVD. Basin: Pond 9 - 98.70 feet NGVD. Basin: Pond 7 - 99.00 feet NGVD. Basin: Pond 11 - 97.30 feet NGVD.

11. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized duri construction. The selected sediment control measure shall be installed landward of the upland buffe zones around all protected wetlands and shall be properly "trenched" etc. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

12. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands.

13. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

14. A maintenance and monitoring program shall be implemented in accordance with the Conceptual Permit, Application No. 040220-40.

15. All special conditions and exhibits previously stipulated by permit number 53-00204-P remain in effect unless otherwise revised and shall apply to this modification.

Last Date For Agency Action: 06-JUN-2005

GENERAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Providence N2-3

Permit No.: 53-00204-P

Application No.: 041206-18

Application Type: Environmental Resource (General Permit Modification)

Location: Polk County, S12,13/T26S/R27E
S7,18/T26S/R28E

Permittee: Applied Building Development Co - Oakhills Inc

Operating Entity: Providence Community Association Inc

Project Area: 47.54 acres

Project Land Use: Residential

Drainage Basin: REEDY CREEK

Receiving Body: Existing master system **Class:** CLASS III

Special Drainage District: NA

Total Acres Wetland Onsite:	25.59
Total Acres Wetland Preserved Onsite:	25.18
Total Acres Impacted Onsite:	.41
Total Acres Presv/Mit Compensation Onsite:	25.18

Conservation Easement To District: No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

Modification of an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 47.54 acre residential project known as Providence N2-3. Staff recommends approval with conditions.

EXHIBIT 2a

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located east of US 17-92 on the north side of Oakhill Boulevard in the Providence development.

There are permitted surface water management facilities serving the project area. The site contains upland areas being mass graded, the master water management system under construction, and the adjacent wetlands.

Portions of Wetlands 3, 4, 4A, and 8 are located within the project area of Providence N2 and N3. This application includes a 0.41 acre impact to Wetland 8 which is a slight increase to the 0.34 acre conceptually approved impact. In addition, a buffer impact to Wetland 4 will result in a 0.16 acre secondary impact. These revised impact and mitigation calculations are documented in the Providence Impact and Mitigation Ledger. (See Exhibit No. 12)

PROPOSED PROJECT:

Construction proposed consists of the surface water management system serving this phase of residential development. The water management system consists of inlets and culverts directing runoff to the existing master system currently under construction.

The project is partially located in the Southwest Florida Water Management District, with only 47.54 acres located in South Florida Water Management District. The portion of the project in the District contains three wet detention ponds, Ponds 7, 8, and 9, previously permitted for construction and one new dry retention pond, Pond 11, being added in conjunction with this modification.

The Basin 9 (Pond 9) area was reduced by approximately 2.2 acres that became Basin 11 (Pond 11). The bleeder orifices in Ponds 8 and 9 were increased from 3 inch diameter orifices to 4.75 and 6.0 inch diameter orifices respectively in order to meet the recovery requirement.

LAND USE:

Construction:
Project:

	This Phase	Total Project	
Building Coverage	15.80	15.80	acres
Pavement	5.61	5.61	acres
Pervious	20.66	20.66	acres
Water Mgnt Acreage	5.47	5.47	acres
Total:	**47.54**	**47.54**	

WATER QUANTITY :

Discharge Rate :

Discharges are to the existing master water management system that provides attenuation upstream of Reedy Creek Swamp. Discharges are consistent with the conceptual approval.

EXHIBIT 24

Discharge Storm Frequency : 25 YEAR-1 DAY Design Rainfall : 9 inches

Finished Floors :

Building Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 13.5 inches

Basin	Peak Stage (ft, NGVD)	Proposed Min. Finished Floors (ft, NGVD)	FEMA Elevation (ft, NGVD)
Pond 8	97.9	99.8	N/A
Pond 9	98.3	100.3	N/A
Pond 7	98.6	100.4	N/A
Pond 11	94.3	98.8	N/A

Road Design :

Road Storm Frequency : 25 YEAR-1 DAY Design Rainfall: 9 inches

Basin	Peak Stage (ft, NGVD)	Proposed Min. Road Crown (ft, NGVD)
Pond 8	97.6	98.2
Pond 9	97.85	98.7
Pond 7	98.2	99
Pond 11	94.1	97.3

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NGVD)	WSWT Ctrl Elev (ft, NGVD)	Method Of Determination
Pond 8	17.00	95.5	95.50	Previously Permitted
Pond 9	21.73	95.5	95.50	Previously Permitted
Pond 7	6.51	96.2	96.20	Previously Permitted
Pond 11	2.20	92	92.00	Previously Permitted

Receiving Body :

Basin	Str.#	Receiving Body
Pond 8	1	Existing wetland
Pond 9	1	Existing wetland
Pond 7	1	Pond 8
Pond 7	2	Pond 8
Pond 11	1	Existing wetland

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NGVD)

Culverts:

Basin	Str#	Count	Type	Width	Length	Dia.
Pond 7	1	1	Reinforced Concrete Pipe		375'	36"
Pond 8	1	1	Reinforced Concrete Pipe		338'	54"
Pond 9	1	1	Reinforced Concrete Pipe		426'	42"

Inlets:

Basin	Str#	Count	Type	Width	Length	Dia.	Crest Elev.

EXHIBIT 2d

Discharge Structures:

Inlets:

Pond 7	1	1	Inlet	37"	49"	97.36
Pond 8	1	1	Inlet	49"	78"	96.56
Pond 9	1	1	Inlet	49"	78"	96.53

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Pond 11	1	1	Broad Crested	30"				93 (crest)
Pond 7	1	1	Sharp Crested	48"				96.2 (crest)

Water Quality Structures:

Note: The units for all the elevation values of structures are (ft, NGVD)

Bleeders:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Invert Angle	Invert Elev.
Pond 7	2	1	Rectangular Notch	15"	4"				96.2
Pond 8	1	1	Circular Orifice				4.75 "		95.5
Pond 9	1	1	Circular Orifice				6"		95.5

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. Water quality treatment for the first inch of runoff is provided in the wet detention ponds.

Basin	Treatment Method			Vol Req.d (ac-ft)	Vol Prov'd (ac-ft)
Pond 8	Treatment	Wet Detention	1.69 acres	1.79	1.79
Pond 9	Treatment	Wet Detention	2.5 acres	2.6	2.6
Pond 7	Treatment	Wet Detention	1.1 acres	.57	.57
Pond 11	Treatment	Dry Retention	.16 acres	.18	.18

WETLANDS:

Portions of Wetlands 3, 4, 4A, and 8 are located within the project area of Providence N2 and N3. This application includes a 0.41 acre impact to Wetland 8 which is a slight increase to the 0.34 acre conceptually approved impact. In addition, a buffer impact to Wetland 4 will result in a 0.16 acre secondary impact. These revised impacts and mitigation calculation are documented in the Providence Impact and Mitigation Ledger.

EXHIBIT 2d

Wetland Inventory :

CONSTRUCTION NEW -Providence N2 and N3

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
W4b	OFF	630	Secondary	.16							.000	.000
W3	ON	630	Preservation	18.37								
W4A	ON	630	Preservation	3.17								
W4a	ON	630	Preservation	1.95								
W8	ON	630	Preservation	1.69								
W8I	ON	630	Direct	.41							.000	.00J
			Total:	25.75								.00

Fluccs Code	Description
630	Wetland Forested Mixed

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

EXHIBIT 9c

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that existing permitted wells may be used as a source for irrigation water for the project. Water Use Permit No. 53-00165-W will require a modification to reflect the change in irrigation use.

The applicant has indicated that dewatering is not required for construction of this project. Construction dewatering Permit No. 53-00205-W was approved on March 2, 2005 for construction the lakes under the first phase of development approved on November 11, 2004.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation, unless the work qualifies for a No-Notice Short-Term Dewatering permit pursuant to Chapter 40E-20.302(3) or is exempt pursuant to Section 40E-2.051, FAC.

Historical/Archaeological Resources:

No information has been received that indicates the presence of archaeological or historical resources or that the proposed activities could cause adverse impacts to archaeological or historical resources.

DCA/CZM Consistency Review:

The District has not received a finding of inconsistency from the Florida Department of Environmental Protection or other commenting agencies regarding the provisions of the federal Coastal Zone Management Plan.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

Marc S. Ady

DATE: 6/2/05

SURFACE WATER MANAGEMENT:

Edward W. Yarun, P.E.

DATE: 6/2/05

MASTER DRAINAGE PLAN

PROVIDENCE M2-3

C301

MATCHLINE SEE SHEET C302

EXHIBIT 3

MASTER DRAINAGE PLAN
C302
MATCHLINE SEE SHEET C301
DRAINAGE BASIN DATA
SOIL BORING DATA

EXHIBIT 4

C405

PROVIDENCE N2-3

PAVING, GRADING & DRAINAGE PLAN

MATCHLINE SEE SHEET 408 SFWMD

MATCHLINE SEE SHEET 407 SFWMD

MATCHLINE SEE SHEET 409 SFWMD

MATCHLINE SEE SHEET 406

EXHIBIT 5

C406

PROVIDENCE N2-3

PAVING, GRADING & DRAINAGE PLAN

MATCHLINE SEE SHEET 407

MATCHLINE SEE SHEET 405

EXHIBIT 6

PROVIDENCE N2-3

PAVING, GRADING & DRAINAGE PLAN

MATCHLINE SEE SHEET 408

MATCHLINE SEE SHEET 405

MATCHLINE SEE SHEET 406

EXHIBIT

PAVING, GRADING & DRAINAGE PLAN

PROVIDENCE N.J.

MATCHLINE SEE SHEET C409

MATCHLINE SEE SHEET C407

MATCHLINE SEE SHEET C405

EXHIBIT C

C409
PAVING, GRADING & DRAINAGE PLAN
PROVIDENCE N2-3
MATCHLINE SEE SHEET C408
MATCHLINE SEE SHEET C405
EXHIBIT

REVISED DRAINAGE CALCULATIONS
SOUTH FLORIDA WATER MANAGEMENT
RESPONSE TO LETTER DATED MARCH 10, 2005
APPLICATION NO. 041206-18
Permit No. 53-00204-P

FOR

PROVIDENCE N2-3

Prepared For:

APPLIED BUILDING DEVELOPMENT COMPANY – OAKHILLS, INC.
800 The Esplanade
Orlando, Florida 32836

Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC
4305 Highland Park Boulevard
Lakeland, Florida 33813

MARCH, 2004

Project No: 049853002

REVISED PROJECT DESCRIPTION – *"PROVIDENCE N2-3"*

I. BACKGROUND

The proposed project is a residential subdivision to be known as "PROVIDENCE N2-3", which is a phase of the overall Oak Hills P.U.D. 89-10. The project contains ±120 acres and proposes 405 homes. The first phase of this PUD was a boulevard extension for the Oak Hills development which extended the boulevard 9,710 feet.

II. EXISTING CONDITIONS

The existing site is used for agriculture and cattle grazing. The surrounding area is also owned by the applicant and is part of the overall Oak Hills P.U.D. 89-10. The project area consists of six (6) pre development drainage basins (714,729-732, and 734-735), which reside in both the South West Florida Water Management District (SWFWMD) and the South Florida Water Management District (SFWMD). Basins 729-732 and 734-735 drain from the west to the wetlands located to the east of the project area. The wetlands of Gain Lake (Basin 714) drain to the north and discharge into the same wetlands to the east of the project area. The jurisdictional lines for the wetlands within the vicinity of the project have been staked by an environmental scientist and surveyed by a professional land surveyor. SCS Soil survey for Polk County indicates the soils within the project area to be #15 Tavares, #46 Astatula, #77 Satellite, #30 Pompano, #13 Samsula, #21 Immokalee, and #36Hontoon (see Exhibit 2). Several soil borings which determined the Seasonal High Water Table (SHWT) were performed by Universal Engineering Sciences, Inc. in the roadway and areas of proposed retention ponds (see Exhibit 3). The pre-development runoff from the project area drains by overland flow to the east to a series of existing ditches that drain into a system of connected existing wetlands referred to as (Wetlands #4B, 6, 7A, and 7B), and denoted by five boundary nodes. Wetland #4B is represented by node 923, wetland #6 by node 924, wetland #7B by node 922, and wetland #7A by nodes 920 and 921 (see Appendix A).

Methodology

The existing runoff rate was determined by using the Interconnected Channel and Pond Routing (ICPR) computer modeling software for model that was previously used to establish flood elevations currently shown on FEMA panel #12105C0250 F (See Exhibit 4). The curve numbers (CN) for each basin were calculated based on soil and current surface conditions. Times of concentration were determined based on the longest hydraulic path per basin. The sum of the discharge to the wetland system from the pre-

development basins was taken as our maximum allowable post-development discharge. Please see Appendix A for existing conditions calculations.

III. WATER QUANTITY, PROPOSED CONDITIONS

Attenuation

The proposed storm-water management design was based on matching the allowable discharge rate for the 25YR 24HR storm for the entire project area. The post-development runoff will be conveyed via a curb and gutter road section to storm pipes that outfall to one (1) of eight (8) retention ponds (N23-2, N23-4 – N23-9, and N23-11) which are then routed through sharp crested rectangular weirs into spreader swales that discharge to the wetlands to the north and east of the project area. The ponds RD-1, RD-2, RD-3A and RD-3B were permitted during the boulevard extension phase of the Oak Hills P.U.D. The basin areas and pond geometry of Ponds N23-2 (formerly RD-2) and RD-3A and RD-3B (formerly RD-3) have been adjusted to accommodate drainage from the proposed subdivision basins. Pond RD-1 and N23-2 will discharge through control structures with a sharp crested rectangular weir into a 30 foot wide spreader swale and then discharge in the wetlands to the north. The Ponds RD-3A and RD-3B will discharge through control structures with a sharp crested rectangular weir into a 30 foot wide spreader swale and then discharge into Wetland #7A to the east. Ponds N23-5 and N23-6 will discharge through control structures with a sharp crested rectangular weir to Wetland #3. Discharge from Wetland #3 travels by overland flow to existing ditches which empty into Wetlands #4B and #6. Pond N23-4 is routed through a control structure with an 18 inch outfall pipe to Pond N23-9. Pond N23-9 then discharges through a control structure with a sharp crested rectangular weir to a 30 foot spreader swale and then discharges to Wetlands #4B and #6. Discharge from Pond N23-7 travels through a control structure to pond N23-8. Pond N23-8 then discharges through a control structure with a sharp crested rectangular weir to 30 foot spreader swale and the discharge to Wetland #7A. Pond N23-11 is a Dry Pond designed for treatment volume only and discharges through a weir into the Wetland #3. Any pre-development run-off that originally discharged from Gain Lake and other areas west of the proposed project area has been routed through culverts crossing to the east following the historic flow pattern for the site, where possible.

Methodology

The developed runoff rate was determined by using the Interconnected Channel and Pond Routing (ICPR) computer modeling software based upon user-specified hydrology information which was routed through the proposed system based upon user-specified stage-area and structure information. The curve numbers

(CN) for each basin (N23-2, N23-4 through N23-9, and N23-11) were calculated based on soil type and impervious areas. The developed runoff also assumes a 10 minute time of concentration. The proposed discharge rate leaving the project area at N23-2, N23-4 through N23-9, N23-11, AND BAS-3 is cumulatively less than the allowable discharge to the wetland system to the east. Please see Appendix B for proposed conditions calculations.

Tail water

The proposed model was incorporated into the existing flood ICPR model. Tail water conditions based on the established flood elevations were used for the proposed conditions.

ALLOWABLE 25-YEAR DISCHARGE FOR DEVELOPED AREA (CFS)	PROPOSED 25-YEAR DISCHARGE FOR DEVELOPED AREA (CFS)
(Node 923) Wetland 4B – 79.07cfs	(Node 923) Wetland 4B – 78.99 cfs
(Node 924) Wetland 6 – 177.91 cfs	(Node 924) Wetland 6 – 174.07 cfs
(Nodes 920 & 921) Wetland 7A – 208.83 cfs	(Nodes 920 & 921) Wetland 7A – 146.47 cfs
(Node 922) Wetland 7B – 26.97 cfs	(Node 922) Wetland 7B – 26.13 cfs
Summation – 492.78 cfs	Summation –425.66 cfs

IV. WATER QUALITY, PROPOSED CONDITIONS

Onsite Treatment

Onsite runoff from the project area will be treated by wet detention, alternate III, permanent pool systems in nine lakes each treating their respective drainage basin. Bleed-down rectangular notches are provided in all the treatment lakes to provide the required 24-hour drawdown fluctuation depth for the first ½" of runoff. A dry treatment pond will be used to treat basin N23-11. Please see Appendix C for treatment calculations.

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

MARK E. WILSON, P.E. #47615
DEAN L. PAQUET, P.E. #59916
Kimley-Horn and Associates, Inc.
4305 Highland Park Boulevard
Lakeland, Florida 33813
CA 00000696

DATE: 3-31-05

Name: N23-8OUT Base Flow(cfs): 0.000 Init Stage(ft): 93.500
Group: BASE Warn Stage(ft): 0.000
Type: Stage/Area

Stage(ft)	Area(ac)
86.350	0.0003
94.500	0.0003

Name: N23-9OUT Base Flow(cfs): 0.000 Init Stage(ft): 93.000
Group: BASE Warn Stage(ft): 0.000
Type: Stage/Area

Stage(ft)	Area(ac)
89.000	0.0003
94.000	0.0003

Name: SSWALE-8 Base Flow(cfs): 0.000 Init Stage(ft): 92.000
Group: BASE Warn Stage(ft): 0.000
Type: Stage/Area

Stage(ft)	Area(ac)
92.000	0.0028
93.000	0.0166

Name: SSWALE-9 Base Flow(cfs): 0.000 Init Stage(ft): 91.500
Group: BASE Warn Stage(ft): 0.000
Type: Stage/Area

Stage(ft)	Area(ac)
91.500	0.0028
92.500	0.0166

Name: N23-8D From Node: N23-8 Length(ft): 338.00
Group: BASE To Node: N23-8OUT Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	54.00	54.00
Rise(in):	54.00	54.00
Invert(ft):	88.020	86.350
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.380
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

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 N23-8D ***

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): 4.75 Invert(ft): 95.500
Rise(in): 4.75 Control Elev(ft): 95.500

*** Weir 2 of 2 for Drop Structure N23-8D ***

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): 78.00 Invert(ft): 96.560
Rise(in): 49.00 Control Elev(ft): 96.560

Name: N23-9D From Node: N23-9 Length(ft): 426.00
Group: BASE To Node: N23-9OUT Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	42.00	42.00
Rise(in):	42.00	42.00
Invert(ft):	89.500	89.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.980
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

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 N23-9D ***

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): 6.00 Invert(ft): 95.500
Rise(in): 6.00 Control Elev(ft): 95.500

Name: N23-8D | From Node: N23-8 | Length(ft): 338.00
Group: BASE | To Node: N23-8OUT | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	54.00	54.00
Rise(in):	54.00	54.00
Invert(ft):	88.020	86.350
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.380
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

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 N23-8D ***

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): 4.75 | Invert(ft): 95.500
Rise(in): 4.75 | Control Elev(ft): 95.500

*** Weir 2 of 2 for Drop Structure N23-8D ***

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): 78.00 | Invert(ft): 96.560
Rise(in): 49.00 | Control Elev(ft): 96.560

Name: N23-9D | From Node: N23-9 | Length(ft): 426.00
Group: BASE | To Node: N23-9OUT | Count: 1

	UPSTREAM	DOWNSTREAM
Geometry:	Circular	Circular
Span(in):	42.00	42.00
Rise(in):	42.00	42.00
Invert(ft):	89.500	89.000
Manning's N:	0.013000	0.013000
Top Clip(in):	0.000	0.000
Bot Clip(in):	0.000	0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.980
Exit Loss Coef: 0.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn

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 N23-9D ***

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): 6.00 | Invert(ft): 95.500
Rise(in): 6.00 | Control Elev(ft): 95.500

*** Weir 2 of 2 for Drop Structure N23-9D ***

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):	78.00	Invert(ft):	96.530
Rise(in):	49.00	Control Elev(ft):	96.530

Name: N23-8B1 From Node: N23-8OUT
Group: BASE To Node: SSWALE-8
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 60.00
Rise(in): 10.00
Invert(ft): 93.500
Control Elevation(ft): 0.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: N23-8B2 From Node: N23-8OUT
Group: BASE To Node: SSWALE-8
Flow: Both Count: 2
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 42.00
Rise(in): 10.00
Invert(ft): 93.500
Control Elevation(ft): 93.500
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: N23-8BGRATE From Node: N23-8OUT
Group: BASE To Node: SSWALE-8
Flow: Both Count: 1
Type: Horizontal Geometry: Rectangular

Span(in): 79.00
Rise(in): 49.00
Invert(ft): 94.500
Control Elevation(ft): 94.500
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: N23-9B1 From Node: N23-9OUT
Group: BASE To Node: SSWALE-9
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 60.00
Rise(in): 10.00
Invert(ft): 93.000
Control Elevation(ft): 93.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: N23-9B2 From Node: N23-90UT
Group: BASE To Node: SSWALE-9
Flow: Both Count: 2
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 42.00
Rise(in): 10.00
Invert(ft): 93.000
Control Elevation(ft): 93.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: N23-9BGRATE From Node: N23-90UT
Group: BASE To Node: SSWALE-9
Flow: Both Count: 1
Type: Horizontal Geometry: Rectangular

Span(in): 78.00
Rise(in): 49.00
Invert(ft): 94.000
Control Elevation(ft): 94.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: SSWALE-W4 From Node: SSWALE-9
Group: BASE To Node: 734
Flow: Both Count: 1
Type: Horizontal Geometry: Rectangular

Span(in): 720.00
Rise(in): 999.00
Invert(ft): 92.500
Control Elevation(ft): 92.500
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

Name: SSWALE-W8 From Node: SSWALE-8
Group: BASE To Node: 731
Flow: Both Count: 1
Type: Vertical: Mavis Geometry: Rectangular

Span(in): 720.00
Rise(in): 999.00
Invert(ft): 93.000
Control Elevation(ft): 93.000
TABLE
Bottom Clip(in): 0.000
Top Clip(in): 0.000

Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

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
714	BASE	25YR24HR	17.85	96.031	98.000	0.0004	1170389	12.00	253.454	18.56	14.289
729	BASE	25YR24HR	13.27	97.698	99.000	0.1127	1397137	17.55	576.232	13.27	251.869
730	BASE	25YR24HR	17.85	95.982	97.000	0.0005	115910	12.25	44.348	17.75	16.372
731	BASE	25YR24HR	12.35	91.102	93.000	-0.0073	61741	12.23	130.072	12.35	121.666
732	BASE	25YR24HR	12.54	90.558	91.500	-0.0013	101955	12.00	43.147	12.54	26.134
733	BASE	25YR24HR	13.33	89.224	90.000	0.0003	161753	12.25	33.157	13.28	9.318
734	BASE	25YR24HR	14.65	90.682	91.000	-0.0109	367897	12.66	258.217	14.65	230.022
735	BASE	25YR24HR	14.62	91.022	93.000	0.0002	1810468	12.47	449.212	14.61	227.189
920	BASE	25YR24HR	0.00	67.000	0.000	0.0000	0	13.02	24.802	0.00	0.000
921	BASE	25YR24HR	0.00	67.000	0.000	0.0000	1853	12.35	121.666	0.00	0.000
922	BASE	25YR24HR	0.00	67.000	0.000	0.0000	2770	12.54	26.134	0.00	0.000
923	BASE	25YR24HR	0.00	67.000	0.000	0.0000	63	14.65	78.989	0.00	0.000
924	BASE	25YR24HR	0.00	67.000	0.000	0.0000	0	14.63	174.068	0.00	0.000
BAS-3	BASE	25YR24HR	12.81	98.098	98.000	0.0039	111977	12.21	59.036	12.77	35.237
JUNCTION	BASE	25YR24HR	18.00	94.712	0.000	0.0003	9360	17.75	16.372	18.00	16.372
N23-11	BASE	25YR24HR	12.18	94.120	95.000	0.0007	9875	12.00	12.585	12.18	9.476
N23-2	BASE	25YR24HR	12.36	98.994	99.000	0.0005	79535	12.00	84.315	12.33	44.481
N23-4	BASE	25YR24HR	13.17	99.372	100.000	0.0004	124784	12.00	65.976	14.35	7.345
N23-5	BASE	25YR24HR	12.20	100.529	100.500	0.0005	40586	12.00	67.868	12.20	49.113
N23-5OUT	BASE	25YR24HR	12.20	99.273	0.000	0.0029	113	12.20	49.113	12.20	49.113
N23-6	BASE	25YR24HR	12.59	101.023	101.000	0.0006	55936	12.00	57.256	12.59	16.158
N23-6OUT	BASE	25YR24HR	12.59	98.645	0.000	0.0020	113	12.59	16.158	12.59	16.158
N23-7	BASE	25YR24HR	12.46	98.182	98.500	0.0006	54490	12.00	47.234	12.66	19.613
N23-8	BASE	25YR24HR	12.25	97.638	97.500	0.0004	85226	12.00	101.615	12.25	76.526
N23-8OUT	BASE	25YR24HR	12.25	95.024	0.000	0.0008	113	12.25	76.526	12.25	76.526
N23-9	BASE	25YR24HR	12.40	97.847	97.500	0.0005	124085	12.00	130.309	12.40	64.579
N23-9OUT	BASE	25YR24HR	12.40	94.397	0.000	0.0008	113	12.40	64.579	12.40	64.579
RD-1	BASE	25YR24HR	12.54	100.705	0.000	0.0005	18708	12.00	12.700	12.54	4.416
RD-3A	BASE	25YR24HR	12.39	96.991	0.000	0.0003	40695	12.00	25.173	12.39	12.625
RD-3B	BASE	25YR24HR	12.74	92.315	0.000	0.0002	54595	12.19	18.743	12.74	12.387
SSWALE-2	BASE	25YR24HR	12.59	98.235	0.000	0.0022	582	12.33	44.481	12.33	44.422
SSWALE-3	BASE	25YR24HR	12.74	91.255	0.000	0.0010	438	12....	12.387	12.74	12.387
SSWALE-5	BASE	25YR24HR	12.33	97.771	0.000	0.0232	592	12.20	49.113	12.21	49.080
SSWALE-6	BASE	25YR24HR	13.26	97.701	0.000	0.2494	722	12.59	16.158	17.55	493.678
SSWALE-8	BASE	25YR24HR	12.25	93.542	0.000	0.0013	1047	12.25	76.526	12.25	76.526
SSWALE-9	BASE	25YR24HR	12.40	92.671	0.000	0.0020	824	12.40	64.579	12.40	64.579
SSWALE-WL	BASE	25YR24HR	18.01	89.694	0.000	0.0001	7481	18.00	16.372	18.01	16.372
SW-1	BASE	25YR24HR	12.55	98.628	0.000	0.0009	400	12.54	4.416	12.55	4.416

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
DITCH	BASE	25YR24HR	18.00	16.372	0.007	18.00	94.712	18.00	89.957
DITCH-W	BASE	25YR24HR	18.01	16.372	0.005	18.01	89.694	0.00	67.000
N23-11	BASE	25YR24HR	12.18	9.476	0.005	12.18	94.120	14.62	91.022
N23-2S<	BASE	25YR24HR	12.33	41.646	0.020	12.36	98.994	12.59	98.235
N23-2SW-2B	BASE	25YR24HR	12.25	2.851	0.073	12.36	98.994	12.59	98.235
N23-4D	BASE	25YR24HR	14.15	7.345	0.018	13.11	99.372	12.40	97.847
N23-5B	BASE	25YR24HR	12.20	18.679	0.007	12.20	99.273	12.33	97.771
N23-5BGRATE	BASE	25YR24HR	12.20	30.434	0.030	12.20	99.273	12.33	97.771
N23-5D	BASE	25YR24HR	12.20	49.113	0.034	12.20	100.529	12.20	99.273
N23-6B	BASE	25YR24HR	12.59	13.666	0.005	12.59	98.645	13.26	97.701
N23-6BGRATE	BASE	25YR24HR	12.59	2.470	0.003	12.59	98.645	13.26	97.701
N23-6D	BASE	25YR24HR	12.59	16.158	0.041	12.59	101.023	12.59	98.645
N23-7D	BASE	25YR24HR	12.66	19.613	0.686	12.46	98.182	12.25	97.638
N23-8B1	BASE	25YR24HR	12.25	21.098	0.013	12.25	95.024	12.25	93.542
N23-8B2	BASE	25YR24HR	12.25	29.537	0.018	12.25	95.024	12.25	93.542
N23-8BGRATE	BASE	25YR24HR	12.25	25.891	0.027	12.25	95.024	12.25	93.542
N23-8D	BASE	25YR24HR	12.25	76.526	0.040	12.25	97.638	12.25	95.024
N23-9B1	BASE	25YR24HR	12.40	19.851	0.014	12.40	94.397	12.40	92.671
N23-9B2	BASE	25YR24HR	12.40	27.791	0.020	12.40	94.397	12.40	92.671
N23-9BGRATE	BASE	25YR24HR	12.40	16.937	0.027	12.40	94.397	12.40	92.671
N23-9D	BASE	25YR24HR	12.40	64.579	0.040	12.40	97.847	12.40	94.397
OUT-3	BASE	25YR24HR	12.74	12.387	0.003	12.74	91.255	0.00	67.000
R-BAS-3	BASE	25YR24HR	12.77	35.237	-17.286	12.81	98.098	13.27	97.698
RD-1SW-1A	BASE	25YR24HR	12.54	3.396	0.002	12.54	100.705	12.55	98.628
RD-1SW-1B	BASE	25YR24HR	12.54	1.020	0.000	12.54	100.705	12.55	98.628
RD-3W1	BASE	25YR24HR	12.74	1.744	0.000	12.74	92.315	12.74	91.255
RD-3W2	BASE	25YR24HR	12.74	10.643	0.003	12.74	92.315	12.74	91.255
RD-3WA1	BASE	25YR24HR	12.39	12.625	0.006	12.39	96.991	12.74	92.315
SSWALE-729	BASE	25YR24HR	12.21	49.080	-22.425	12.33	97.771	13.27	97.698
SSWALE-729-2	BASE	25YR24HR	17.55	493.678	487.929	13.26	97.701	13.27	97.698
SSWALE-W2	BASE	25YR24HR	12.33	44.422	0.022	12.59	98.235	12.81	98.098
SSWALE-W4	BASE	25YR24HR	12.40	64.579	0.040	12.40	92.671	14.65	90.682
SSWALE-W8	BASE	25YR24HR	12.25	76.526	0.040	12.25	93.542	12.35	91.102
SW-1729	BASE	25YR24HR	12.55	4.416	0.002	12.55	98.628	13.27	97.698

PROVIDENCE N2-3

TREATMENT BASIN - N23-8

A. DESIGN POOL VOLUME REQUIRED

1. Drainage area serviced, A = 17.00 acres
2. Impervious area, I = 8.58 acres
3. Treatment Volume, the greater of:

4. a) 1-inch runoff volume Vt

Vt = (A)(1 in)(1 ft/12 in)
Vt = A/12
Vt = 1.42 acre-ft

5. b) 2 1/2-inch times the Imervious area (I)

Vt = (I)(2.5 in)(1 ft/12 in)
5A. Vt = 1.79 acre-ft

6. c) Upstream 1/2 treatment volume for Cascading System, Vus

Vus = 0.00 acre-ft

VT = 1.79 acre-ft

B. MINIMUM LAKE AREA REQUIRED, (LAr) (Based upon no more than a 18-in lake rise from treatmen volume)

1. Drainage Area Serviced, A = 17.00 acres
2. Required Treatment Volume V = 1.79 acre-ft

3. Minimum Lake Area Required, LAr
LAr = V / [(18 in) x (1 ft/12 in)]
LAr = 0.667V
LAr = 1.19 acres

4. Fluctuation Depth, FD
Stormwater Lake Area provided, LA = 1.69 acres
Fluctuation Depth, FD = VT/(LA)
FD = 1.06 feet

C. MINIMUM LAKE AREA REQUIRED (based upon no more than a 10-in lake rise from 1/2-in runoff)

1. Drainage Area Serviced, A = 17.00 acres
2. Stormwater Lake Area @ CWL LA = 1.69 acres
3. Littoral area, the lesser of:

a) 20% of the stormwater lake surface area at CWL

LZ = 0.20 * LA
LZ = 0.34 acres

b) 2.5% of the total tributary drainage basin

LZ = 0.025 * A
LZ = 0.43 acres

LZ = 0.34 acre

TREATMENT BASIN - N23-8

WATER QUALITY DRAWDOWN CALCULATIONS

The outfall weir shall be designed to discharge 1/2" of runoff volume in no less than 24 hours.

Lake Area = 1.69 acres
1/2 of Treatment Vol. 0.89 acre-ft. = 38,941 cubic feet
Fluctuation Depth = 1.06 feet

Trial weir Diameter = 0.396 feet Weir Area: 0.1232
4.75 Inches

Delta T = 1 hour

Time Hours	Head Feet	Volume Remaining	Q cfs	Incremental Volume
0.0	0.86	38,941	0.55	1,980
1.0	0.83	36,961	0.54	1,949
2.0	0.81	35,013	0.53	1,917
3.0	0.78	33,095	0.52	1,886
4.0	0.75	31,209	0.52	1,855
5.0	0.73	29,354	0.51	1,824
6.0	0.70	27,530	0.50	1,792
7.0	0.68	25,738	0.49	1,761
8.0	0.66	23,977	0.48	1,730
9.0	0.63	22,247	0.47	1,699
10.0	0.61	20,548	0.46	1,668
11.0	0.59	18,880	0.45	1,636
12.0	0.57	17,244	0.45	1,605
13.0	0.54	15,639	0.44	1,574
14.0	0.52	14,065	0.43	1,543
15.0	0.50	12,523	0.42	1,511
16.0	0.48	11,012	0.41	1,480
17.0	0.46	9,532	0.40	1,449
18.0	0.44	8,083	0.39	1,417
19.0	0.42	6,666	0.39	1,386
20.0	0.40	5,280	0.38	1,355
21.0	0.38	3,925	0.37	1,323
22.0	0.37	2,601	0.36	1,292
23.0	0.35	1,309	0.35	1,261
24.0	0.33	48	0.34	1,229

Percent Discharged in 24 Hours 103.03%

PROVIDENCE N2-3
TREATMENT BASIN - N23-9

A. DESIGN POOL VOLUME REQUIRED

1. Drainage area serviced, A = 23.24 acres
2. Impervious area, I = 12.41 acres
3. Treatment Volume, the greater of:

4. a) 1-inch runoff volume Vt

Vt = (A)(1 in)(1 ft/12 in)
Vt = A/12
Vt = 1.94 acre-ft

5.

b) 2 1/2-inch times the Impervious area (I)

Vt = (1)(2.5 in)(1 ft/12 in)

5A. Vt = 2.59 acre-ft

6. c) Upstream 1/2 treatment volume for Cascading System, Vut

Vut = 0.00 acre-ft

VT = 2.59 acre-ft

B. MINIMUM LAKE AREA REQUIRED, (LAr) (Based upon no more than a 18-in lake rise from treatmen volume)

1. Drainage Area Serviced. A = 23.24 acres
2. Required Treatment Volume V = 2.59 acre-ft

3. Minimum Lake Area Required, LAr
LAr = V / ((18 in) x (1 ft/12 in))
LAr = 0.667V
LAr = 1.72 acres

4. Fluctuation Depth, FD
Stormwater Lake Area provided. LA = 2.5 acres
Fluctuation Depth, FD = VT/(LA)
FD = 1.03 feet

C. MINIMUM LAKE AREA REQUIRED (based upon no more than a 12-in lake rise from 1/2-in runoff)

1. Drainage Area Serviced. A = 23.24 acres
2. Stormwater Lake Area @ CWL LA = 2.50 acres
3. Littoral area, the lesser of:

a) 20% of the stormwater lake surface area at CWL

LZ = 0.20 * LA
LZ = 0.50 acres

b) 2.5% of the total tributary drainage basin

LZ = 0.025 * A
LZ = 0.58 acres

LZ = 0.50 acre

TREATMENT BASIN - N23-9
WATER QUALITY DRAWDOWN CALCULATIONS

The outfall weir shall be designed to discharge 1/2" of runoff volume in no less than 24 hours.

Lake Area = 2.50 acres
1/2 of Treatment Vol. 1.29 acre-ft = 56,310 cubic feet
Fluctuation Depth = 1.03 feet

Trial weir Diameter = 0.500 feet Weir Area: 0.1963
6.00 Inches

Delta T = 1 hour

Time Hours	Head Feet	Volume Remaining	Q cfs	Incremental Volume
0.0	0.75	56,310	0.84	3,014
1.0	0.76	53,296	0.82	2,960
2.0	0.73	50,336	0.81	2,907
3.0	0.70	47,429	0.79	2,853
4.0	0.68	44,576	0.78	2,799
5.0	0.65	41,777	0.76	2,745
6.0	0.63	39,032	0.75	2,692
7.0	0.60	36,340	0.73	2,638
8.0	0.58	33,702	0.72	2,584
9.0	0.55	31,117	0.70	2,531
10.0	0.53	28,587	0.69	2,477
11.0	0.51	26,110	0.67	2,423
12.0	0.48	23,687	0.66	2,369
13.0	0.46	21,318	0.64	2,315
14.0	0.44	19,002	0.63	2,262
15.0	0.42	16,741	0.61	2,208
16.0	0.40	14,533	0.60	2,154
17.0	0.38	12,379	0.58	2,100
18.0	0.36	10,279	0.57	2,046
19.0	0.34	8,232	0.55	1,992
20.0	0.32	6,240	0.54	1,938
21.0	0.31	4,302	0.52	1,885
22.0	0.29	2,417	0.51	1,831
23.0	0.27	587	0.49	1,777
24.0	0.26	(1,190)	0.48	1,723

Percent Discharged in 24 Hours 105.17%

Table 1

Basin ID	Basin Area (ac.)	Pond ID	Season W.T. (ft.)	Control El. (ft.)
N-6	22.0	PN4-1	100.0	100.0
N-7	16.0	PN4-1	100.0	100.0
N-8	15.0	PN8-1	99.0	99.0
N10A	5.50	PN10A	96.0	96.0
N10B	35.0	PN10-2	85.0	85.0
N11-1	20.0	PN11-1	94.0	94.0
N11-2	20.0	PN11-2	89.0	89.0
N11-3	15.0	PN11-3	89.0	89.0
N11-4	30.0	PN11-4	78.0	78.0
N11-5	10.0	PN11-5	78.0	78.0
N11-6	9.0	PN11-6	75.0	75.0
N12-1	15.0	PN12-1	90.0	90.0
N12-2	6.0	PN12-2	90.0	90.0
N12-3	22.0	PN12-3	90.0	90.0
N12-4	18.0	PN12-4	82.0	82.0
N13-1	15.0	PN13-1	90.0	90.0
N14-1	16.0	PN14-1	89.0	89.0
N14-2	15.0	PN14-2	70.0	70.0
N14-3	12.0	PN14-3	68.0	68.0
N16-1	10.0	PN16-1	100.0	100.0
N16-2	31.0	PN16-2	95.0	95.0
N17	10.0	PN17-1	100.0	100.0
N17-2	15.0	PN17-2	95.0	95.0
N17-3	25.0	PN17-3	92.0	92.0
N18	60.0	PN18-1	100.0	100.0
N19-1	5.0	PN19-1	94.0	94.0
N19-2	23.0	PN19-2	94.0	94.0
N2-2	16.50	PN2-2	97.0	97.0
N2-4	16.0	PN2-4	98.0	98.0
N2-5	11.0	PN2-5	98.50	98.50
N2-6	11.0	PN2-6	99.0	99.0
N2-7	7.0	PN2-7	96.0	96.0
N2-8	17.0	PN2-8	95.5	95.5
N2-9	22.0	PN2-9	95.5	95.5
N20	35.0	PN20-1	94.0	94.0
N21-1	48.0	PN21-1	83.0	83.0
N21-2	5.0	PN21-2	67.0	67.0
N21-3	7.0	PN21-3	67.0	67.0
N22-1	10.0	PN22-1	91.0	91.0
N22-2	15.0	PN22-2	89.0	89.0

EXHIBIT 2a

Table 1

N22-3	25.0	PN22-3	87.0	87.0
N23-1	10.0	PN23-1	89.0	89.0
N23-2	15.0	PN23-2	84.0	84.0
N23-3	10.0	PN23-3	84.0	84.0
N23-4	10.0	PN23-4	70.0	70.0
N23-5	10.0	PN23-5	72.0	72.0
N24-1	10.0	PN24-1	84.0	84.0
N24-2	35.0	PN24-2	84.0	84.0
N25-1	20.0	PN25-1	79.0	79.0
N25-2	15.0	PN25-2	75.0	75.0
N25-3	10.0	PN25-3	73.0	73.0
N26-1	8.0	NP26-1	89.5	89.5
N26-2	22.0	PN26-2	92.0	92.0
N27	15.0	PN27	92.0	92.0
N29	20.0	PN29-1	97.0	97.0
N30	22.0	PN30-1	89.0	89.0
N30-1	5.0	PN30-1	89.0	89.0
N30-2	15.0	PN30-2	84.0	84.0
N31	14.0	PN31-1	89.0	89.0
N32-1	10.0	PN32-1	99.0	99.0
N32-2	17.0	PN32-2	100.0	100.0
N32-3	5.0	PN32-3	100.0	100.0
N4-2	5.0	PN4-2	104.0	104.0
N4-3	5.0	PN4-3	98.0	98.0
RD-3A	5.63	RD-3A	96.0	96.0
RD-3B	2.00	RD-3B	91.50	91.50
RD-4	6.73	RD-4	98.0	98.0
RD-5	3.05	RD-5	100.0	100.0
RD-6	5.47	RD 6	98.0	98.0
RD-7	15.0	RD-7	94.0	94.0
RD-8	15.0	RD 8	88.0	88.0

EXHIBIT 7 b

Table 2

Pond ID	Pond Control Area (ac.)	W.Q. Req'd (a-f)	W.Q. Prov. (a-f)	Control El. (ft.)
PN4-1	3.0	1.83	1.83	100.0
PN8-1	0.60	1.25	1.25	99.0
PN10A	0.80	0.46	0.46	96.0
PN10-2	4.50	2.92	2.92	85.0
PN11-1	0.80	1.67	1.67	94.0
PN11-2	0.80	1.67	1.67	89.0
PN11-3	1.50	1.25	1.25	89.0
PN11-4	2.50	2.50	2.50	78.0
PN11-5	1.0	0.83	0.83	78.0
PN11-6	1.50	0.75	0.75	75.0
PN12-1	1.20	1.25	1.25	90.0
PN12-2	0.60	0.50	0.50	90.0
PN12-3	1.50	1.83	1.83	90.0
PN12-4	1.0	1.50	1.50	82.0
PN13-1	1.50	1.25	1.25	90.0
PN14-1	0.50	1.33	1.33	89.0
PN14-2	1.70	1.25	1.25	70.0
PN14-3	1.50	0.99	0.99	68.0
PN16-1	0.50	0.83	0.83	100.0
PN16-2	2.0	2.58	2.58	95.0
PN17-1	1.0	0.83	0.83	100.0
PN17-2	1.0	1.25	1.25	95.0
PN17-3	1.50	2.08	2.08	92.0
PN18-1	3.0	5.0	5.0	100.0
PN19-1	0.50	0.42	0.42	94.0
PN19-2	3.50	1.92	1.92	94.0
PN2-2	1.60	1.37	1.37	97.0
PN2-4	2.70	1.33	1.33	98.0
PN2-5	0.80	0.92	0.92	98.50
PN2-6	1.10	0.92	0.92	99.0
PN2-7	1.10	0.58	0.58	96.0
PN2-8	1.70	1.42	1.42	95.5
PN2-9	2.50	1.83	1.83	95.5
PN20-1	1.80	2.92	2.92	94.0
PN21-1	3.50	4.0	4.0	83.0
PN21-2	1.0	0.42	0.42	67.0
PN21-3	1.0	0.58	0.58	67.0
PN22-1	1.0	0.83	0.83	91.0
PN22-2	3.0	1.25	1.25	89.0

EXHIBIT 3a

Table 2

PN22-3	5.0	2.08	2.08	87.0
PN23-1	1.0	0.83	0.83	89.0
PN23-2	1.50	1.25	1.25	84.0
PN23-3	0.50	0.83	0.83	84.0
PN23-4	1.0	0.83	0.83	70.0
PN23-5	1.0	0.83	0.83	72.0
PN24-1	2.50	1.50	1.50	84.0
PN24-2	2.50	2.92	2.92	84.0
PN25-1	2.0	1.67	1.67	79.0
PN25-2	2.50	1.25	1.25	75.0
PN25-3	2.0	0.83	0.83	73.0
NP26-1	0.30	0.67	0.67	89.5
PN26-2	1.0	1.83	1.83	92.0
PN27	0.80	1.25	1.25	92.0
PN29-1	2.50	1.67	1.67	97.0
PN30-1	0.50	1.83	1.83	89.0
PN30-2	1.50	1.25	1.25	84.0
PN31-1	0.70	1.17	1.17	89.0
PN32-1	2.0	0.83	0.83	99.0
PN32-2	2.0	1.42	1.42	100.0
PN32-3	0.50	0.42	0.42	100.0
PN4-2	0.50	0.42	0.42	104.0
PN4-3	1.0	0.42	0.42	98.0
RD-3A	0.05	0.47	0.47	96.0
RD-3B	1.10	0.17	0.17	91.50
RD-4	1.91	0.56	0.56	98.0
RD-5	0.50	0.25	0.25	100.0
RD-6	1.66	0.46	0.46	98.0
RD-7	2.13	1.25	1.25	94.0
RD-8	1.65	1.25	1.25	88.0

EXHIBIT 36

Revised 9/17/04

Table 3 Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	100yr/72hr Max Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Min road elv. ft.	Min Floor elevation ft.	Max Outflow cfs
PN10-2	BASE	PROP25YR24HR	13.22	87.290	89.000	88.165	303259	12.00	90.00	91.00	18.793
PN10A	BASE	PROP25YR24HR	12.69	97.758	99.000	98.207	57826	12.00	100.00	101.00	6.372
PN11-1	BASE	PROP25YR24HR	12.31	96.798	97.000	96.870	75470	12.00	98.00	99.00	62.724
PN11-2	BASE	PROP25YR24HR	12.45	92.352	93.000	92.833	80066	12.00	94.00	95.00	43.517
PN11-3	BASE	PROP25YR24HR	12.61	91.426	93.000	91.946	104975	12.00	94.00	95.00	21.573
PN11-4	BASE	PROP25YR24HR	12.68	80.871	82.000	81.459	187076	12.00	83.00	84.00	36.091
PN11-5	BASE	PROP25YR24HR	24.50	81.967	82.000	81.590	86760	12.00	83.00	84.00	0.052
PN11-6	BASE	PROP25YR24HR	12.86	76.691	78.000	77.234	102169	12.00	79.00	80.00	7.384
PN12-1	BASE	PROP25YR24HR	12.75	92.722	93.000	92.941	111557	12.00	94.00	95.00	14.491
PN12-2	BASE	PROP25YR24HR	12.61	92.216	93.000	92.651	48660	12.00	94.00	95.00	8.617
PN12-3	BASE	PROP25YR24HR	12.50	92.851	93.000	92.933	127444	12.00	94.00	95.00	39.962
PN22-4	BASE	PROP25YR24HR	12.57	85.342	86.000	85.561	94515	12.00	87.00	88.00	28.701
PN13-1	BASE	PROP25YR24HR	12.72	92.410	93.000	92.998	117840	12.00	94.00	95.00	16.113
PN14-1	BASE	PROP25YR24HR	12.19	91.626	92.000	91.998	40846	12.00	93.00	94.00	62.505
PN14-2	BASE	PROP25YR24HR	13.00	72.332	73.000	72.991	131615	12.00	74.00	75.00	9.873
PN14-3	BASE	PROP25YR24HR	12.92	70.253	72.000	70.988	102245	12.00	73.00	74.00	9.012
PN16-1	BASE	PROP25YR24HR	12.39	102.888	103.000	102.982	42745	12.00	104.00	105.00	25.486
PN16-2	BASE	PROP25YR24HR	12.49	97.931	98.000	97.921	172231	12.00	99.00	100.00	58.904
PN17-1	BASE	PROP25YR24HR	12.62	102.298	103.000	102.759	76934	12.00	104.00	105.00	14.222
PN17-2	BASE	PROP25YR24HR	12.53	97.936	98.000	97.973	86196	12.00	99.00	100.00	25.755
PN17-3	BASE	PROP25YR24HR	12.54	95.379	96.000	95.881	120535	12.00	97.00	98.00	42.156
PN18-1	BASE	PROP25YR24HR	12.28	102.839	103.000	102.966	213136	12.00	104.00	105.00	199.749
PN19-1	BASE	PROP25YR24HR	12.45	96.083	97.000	96.381	36900	12.00	98.00	99.00	10.846
PN19-2	BASE	PROP25YR24HR	13.14	95.865	97.000	96.589	248262	12.00	98.00	99.00	13.354
PN2-2	BASE	PROP25YR24HR	12.70	99.449	100.000	99.964	82144	12.00	101.00	102.00	16.787
PN2-4	BASE	PROP25YR24HR	12.75	99.983	101.000	100.901	126250	12.00	102.00	103.00	15.294
PN2-5	BASE	PROP25YR24HR	12.35	100.926	101.500	101.361	41893	12.00	102.50	103.50	30.921
PN2-6	BASE	PROP25YR24HR	12.32	100.987	101.000	100.869	59166	12.00	102.00	103.00	33.667
PN2-7	BASE	PROP25YR24HR	12.64	97.978	99.500	98.664	54072	12.00	100.50	101.50	9.317
PN2-8	BASE	PROP25YR24HR	12.46	98.103	98.500	98.455	65392	12.00	100.50	101.50	36.230
PN2-9	BASE	PROP25YR24HR	12.33	97.480	97.500	97.479	123565	12.00	98.50	99.50	55.966
PN20-1	BASE	PROP25YR24HR	12.47	97.601	98.000	97.544	145076	12.00	99.00	100.00	70.986
PN21-1	BASE	PROP25YR24HR	12.43	85.640	87.000	86.041	253086	12.00	88.00	89.00	110.940
PN21-2	BASE	PROP25YR24HR	12.98	68.495	70.000	69.022	65271	12.00	71.00	72.00	3.378
PN21-3	BASE	PROP25YR24HR	12.72	68.844	70.000	69.349	70333	12.00	71.00	72.00	7.473
PN22-1	BASE	PROP25YR24HR	12.62	93.298	94.000	93.759	76934	12.00	95.00	96.00	14.219
PN22-2	BASE	PROP25YR24HR	23.89	91.107	92.000	91.492	222443	12.00	93.00	94.00	1.864
PN22-3	BASE	PROP25YR24HR	13.30	88.614	91.000	89.297	305676	12.00	92.00	93.00	12.950
PN23-1	BASE	PROP25YR24HR	12.72	91.409	92.000	91.987	78540	12.00	93.00	94.00	10.743
PN23-2	BASE	PROP25YR24HR	12.89	86.508	87.000	86.955	119960	12.00	88.00	89.00	11.887
PN23-3	BASE	PROP25YR24HR	12.47	86.841	87.000	86.972	42406	12.00	88.00	89.00	20.560
PN23-4	BASE	PROP25YR24HR	12.61	72.298	73.000	72.817	76931	12.00	74.00	75.00	14.235
PN23-5	BASE	PROP25YR24HR	22.61	74.298	75.000	74.773	76931	12.00	76.00	77.00	14.236
PN24-1	BASE	PROP25YR24HR	13.18	86.031	87.000	86.673	182625	12.00	88.00	89.00	10.080
PN24-2	BASE	PROP25YR24HR	12.62	72.861	73.000	72.961	212736	12.00	74.00	75.00	49.718
PN25-1	BASE	PROP25YR24HR	12.82	81.481	82.000	81.961	159162	12.00	83.00	84.00	17.333
PN25-2	BASE	PROP25YR24HR	13.17	76.759	78.000	77.428	172788	12.00	79.00	80.00	8.504
PN25-3	BASE	PROP25YR24HR	13.36	74.539	76.000	75.142	131826	12.00	77.00	78.00	5.104
PN26-1	BASE	PROP25YR24HR	12.17	91.926	92.000	92.157	23636	12.00	93.00	94.00	32.739
PN26-2	BASE	PROP25YR24HR	12.28	95.083	96.000	95.499	77134	12.00	97.00	98.00	72.963
PN27	BASE	PROP25YR24HR	12.48	95.250	96.000	95.720	63161	12.00	97.00	98.00	28.427
PN29-1	BASE	PROP25YR24HR	12.91	99.128	100.000	99.783	186145	12.00	101.00	102.00	15.372
PN30-1	BASE	PROP25YR24HR	12.09	91.571	92.000	91.813	40449	12.00	93.00	94.00	126.216
PN30-2	BASE	PROP25YR24HR	12.72	86.411	87.000	86.988	117853	12.00	88.00	89.00	16.050
PN31-1	BASE	PROP25YR24HR	12.34	91.749	92.000	91.920	62423	12.00	93.00	94.00	41.077
PN32-1	BASE	PROP25YR24HR	13.72	100.574	102.000	101.219	132849	12.00	103.00	104.00	4.212
PN32-2	BASE	PROP25YR24HR	12.90	102.227	103.000	102.911	151807	12.00	104.00	105.00	13.089
PN32-3	BASE	PROP25YR24HR	12.53	102.209	103.000	102.800	37870	12.00	104.00	105.00	8.547
PN4-1	BASE	PROP25YR24HR	12.71	102.948	103.000	102.945	254744	12.00	104.00	105.00	41.992
PN4-2	BASE	PROP25YR24HR	12.53	106.209	107.000	106.999	37821	12.00	108.00	109.00	8.547
PN4-3	BASE	PROP25YR24HR	13.58	99.505	100.500	100.459	69788	12.00	101.50	102.50	2.331

APPENDIX EXHIBIT 4

PND-1	BASE	PROP25YR24HR	12.25	101.483	102.000	101.734	58589	12.00	103.00	104.00	53.069
RD-3A	BASE	PROP25YR24HR	12.39	96.991	98.000	97.216	40694	12.00	98.00	99.00	12.622
RD-3B	BASE	PROP25YR24HR	12.74	92.315	93.000	92.491	54595	12.19	94.00	95.00	12.386
RD-4	BASE	PROP25YR24HR	25.00	99.929	101.000	100.033	91604	12.00	100.00	101.00	0.000
RD-5	BASE	PROP25YR24HR	12.77	100.224	103.000	100.460	22431	12.00	101.00	102.00	16.788
RD-6	BASE	PROP25YR24HR	12.51	98.884	99.500	99.008	76493	12.00	100.00	101.00	9.567
RD-7	BASE	PROP25YR24HR	12.88	96.071	97.500	97.431	104478	12.00	97.00	98.00	11.910
RD-8	BASE	PROP25YR24HR	12.60	90.028	90.500	90.451	83809	12.00	91.00	92.00	21.658

EXHIBIT H-6

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BACK-UP MATERIAL

PERMIT NUMBER:

53-00204-P

APPLICATION NUMBER:

041206-18

DRAINAGE CALCULATIONS
SOUTHWEST FLORIDA WATER MANAGEMENT DISTICT
SOUTH FLORIDA WATER MANAGEMENT

FOR

PROVIDENCE N2-3

Prepared For:

APPLIED BUILDING DEVELOPMENT COMPANY – OAKHILLS, INC.
800 The Esplanade
Orlando, Florida 32836

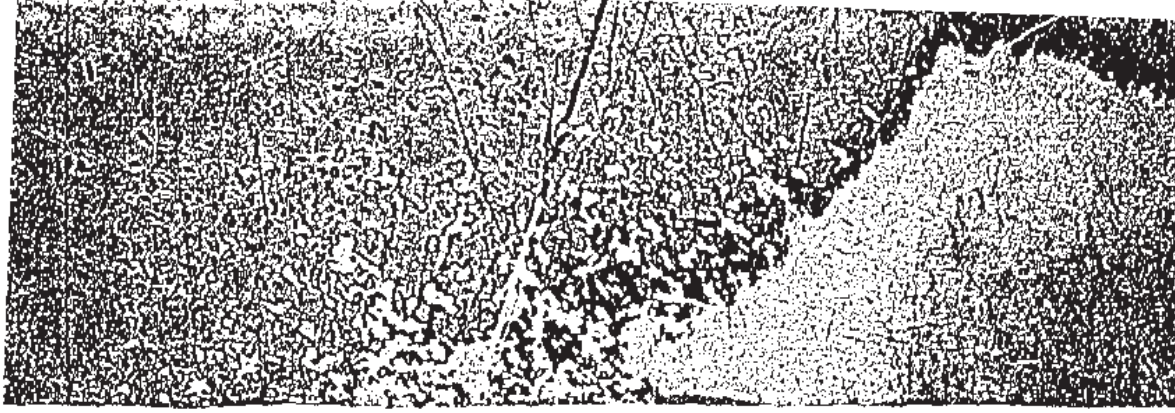
Prepared By:

KIMLEY-HORN AND ASSOCIATES, INC
4305 Highland Park Boulevard
Lakeland, Florida 33813

JULY, 2004

Project No: 049853002

TABLE OF CONTENTS



PROJECT DESCRIPTION – *"PROVIDENCE N2-3"*

I. BACKGROUND

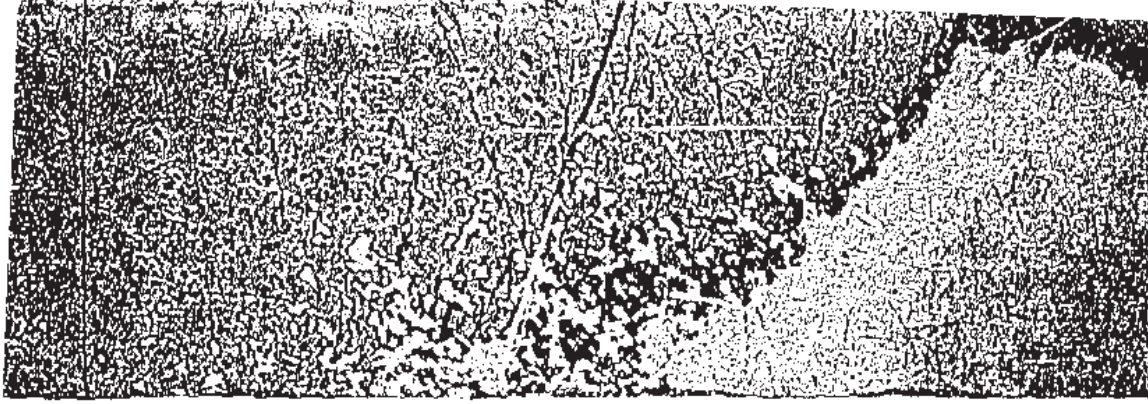
The proposed project is a residential subdivision to be known as "PROVIDENCE N2-3", which is a phase of the overall Oak Hills P.U.D. 89-10. The project contains ±120 acres and proposes 405 homes. The first phase of this PUD was a boulevard extension for the Oak Hills development which extended the boulevard 9,710 feet.

II. EXISTING CONDITIONS

The existing site is used for agriculture and cattle grazing. The surrounding area is also owned by the applicant and is part of the overall Oak Hills P.U.D. 89-10. The project area consists of six (6) pre development drainage basins (714,729-732, and 734-735), which reside in both the South West Florida Water Management District (SWFWMD) and the South Florida Water Management District (SFWMD). Basins 729-732 and 734-735 drain from the west to the wetlands located to the east of the project area. The wetlands of Gain Lake (Basin 714) drain to the north and discharge into the same wetlands to the east of the project area. The jurisdictional lines for the wetlands within the vicinity of the project have been staked by an environmental scientist and surveyed by a professional land surveyor. SCS Soil survey for Polk County indicates the soils within the project area to be #15 Tavares, #46 Astatula, #77 Satellite, #30 Pompano, #34 Samsula, #21 Immokalee, and #36Hontoon (see Exhibit 2). Several soil borings which determined the Seasonal High Water Table (SHWT) were performed by Universal Engineering Sciences, Inc. in the roadway and areas of proposed retention ponds (see Exhibit 3). The pre-development runoff from the project area drains by overland flow to the east to a series of existing ditches that drain into one (1) of four (4) existing wetlands (Wetlands #4B, 6, 7A, and 7B) denoted by five boundary nodes. Wetland #3 resides in basin 735. Wetland #4B is represented by node 923, wetland #6 by node 924, wetland #7B by node 922, and wetland #7A by nodes 920 and 921 (see Appendix A).

Methodology

The existing runoff rate was determined by using the Interconnected Channel and Pond Routing (ICPR) computer modeling software for model that was previously used to establish flood elevations currently shown on FEMA panel #12105C0250 F (See Exhibit 4). The curve numbers (CN) for each basin were calculated based on soil and current surface conditions. Times of concentration were determined based on the longest hydraulic path per basin. The pre-development discharge rates from the project area to the



wetlands to the east are 255.73 cfs to nodes 920 and 921, 29.80 cfs to node 922, 79.42 cfs to node 923, and 192.09 cfs to node 924. The inflows to the wetlands north of the project are 345.62 cfs and 635.95 cfs to nodes 729 and 735 respectively. Please see Appendix A for existing conditions calculations.

III. WATER QUANTITY, PROPOSED CONDITIONS

Attenuation

The proposed storm-water management design was based on matching the allowable discharge rate for the 25YR 24HR storm for the entire project area. The post-development runoff will be conveyed via a curb and gutter road section to storm pipes that outfall to one (1) of eight (8) retention ponds (N23-2, N23-4 – N23-9, and N23-11) which are then routed through sharp crested rectangular weirs into spreader swales that discharge to the wetlands to the north and east of the project area. The ponds RD-1, RD-2, RD-3A and RD-3B were permitted during the boulevard extension phase of the Oak Hills P.U.D. The basin areas and pond geometry of Ponds N23-2 (formerly RD-2) and RD-3A and RD-3B (formerly RD-3) have been adjusted to accommodate drainage from the proposed subdivision basins. Pond RD-1 and N23-2 will discharge through control structures with a sharp crested rectangular weir into a 30 foot wide spreader swale and then discharge in the wetlands to the north. The Ponds RD-3A and RD-3B will discharge through control structures with a sharp crested rectangular weir into a 30 foot wide spreader swale and then discharge into Wetland #7A to the east. Ponds N23-5 and N23-6 will discharge through control structures with a sharp crested rectangular weir to Wetland #3. Discharge from Wetland #3 travels by overland flow to existing ditches which empty into Wetlands #4B and #6. Pond N23-4 is routed through a control structure with an 18 inch outfall pipe to Pond N23-9. Pond N23-9 then discharges through a control structure with a sharp crested rectangular weir to a 30 foot spreader swale and then discharges to Wetlands #4B and #6. Discharge from Pond N23-7 travels through a control structure to pond N23-8. Pond N23-8 then discharges through a control structure with a sharp crested rectangular weir to 30 foot spreader swale and the discharge to Wetland #7A. Pond N23-11 is a Dry Pond designed for treatment volume only and discharges through a weir into the Wetland #3. Any pre-development run-off that originally discharged from Gain Lake and other areas west of the proposed project area has been routed through culverts crossing to the east following the historic flow pattern for the site, where possible.

Methodology

The developed runoff rate was determined by using the Interconnected Channel and Pond Routing (ICPR) computer modeling software based upon user-specified hydrology information which was routed through

the proposed system based upon user-specified stage-area and structure information. The curve numbers (CN) for each basin (N23-2, N23-4 through N23-9, and N23-11) were calculated based on soil type and impervious areas. The developed runoff also assumes a 10 minute time of concentration. The proposed discharge rate leaving the project area at N23-2, N23-4 through N23-9, N23-11, AND BAS-3 is cumulatively and individually less than the allowable discharge. Please see Appendix B for proposed conditions calculations.

Tail water

The proposed model was incorporated into the existing flood ICPR model. Tail water conditions based on the established flood elevations were used for the proposed conditions.

ALLOWABLE 25- YEAR DISCHARGE FOR DEVELOPED AREA (CFS)	PROPOSED 25-YEAR DISCHARGE FOR DEVELOPED AREA (CFS)
(Node 735) Wetland 3 – 635.95 cfs	(Node 735) Wetland 3 – 536.74 cfs
(Node 923) Wetland 4B – 79.42 cfs	(Node 923) Wetland 4B – 79.23 cfs
(Node 924) Wetland 6 – 192.09 cfs	(Node 924) Wetland 6 – 184.22 cfs
(Nodes 920 & 921) Wetland 7A – 255.73 cfs	(Nodes 920 & 921) Wetland 7A – 132.42 cfs
(Node 922) Wetland 7B – 29.80 cfs	(Node 922) Wetland 7B – 28.85 cfs

IV. WATER QUALITY, PROPOSED CONDITIONS

Onsite Treatment

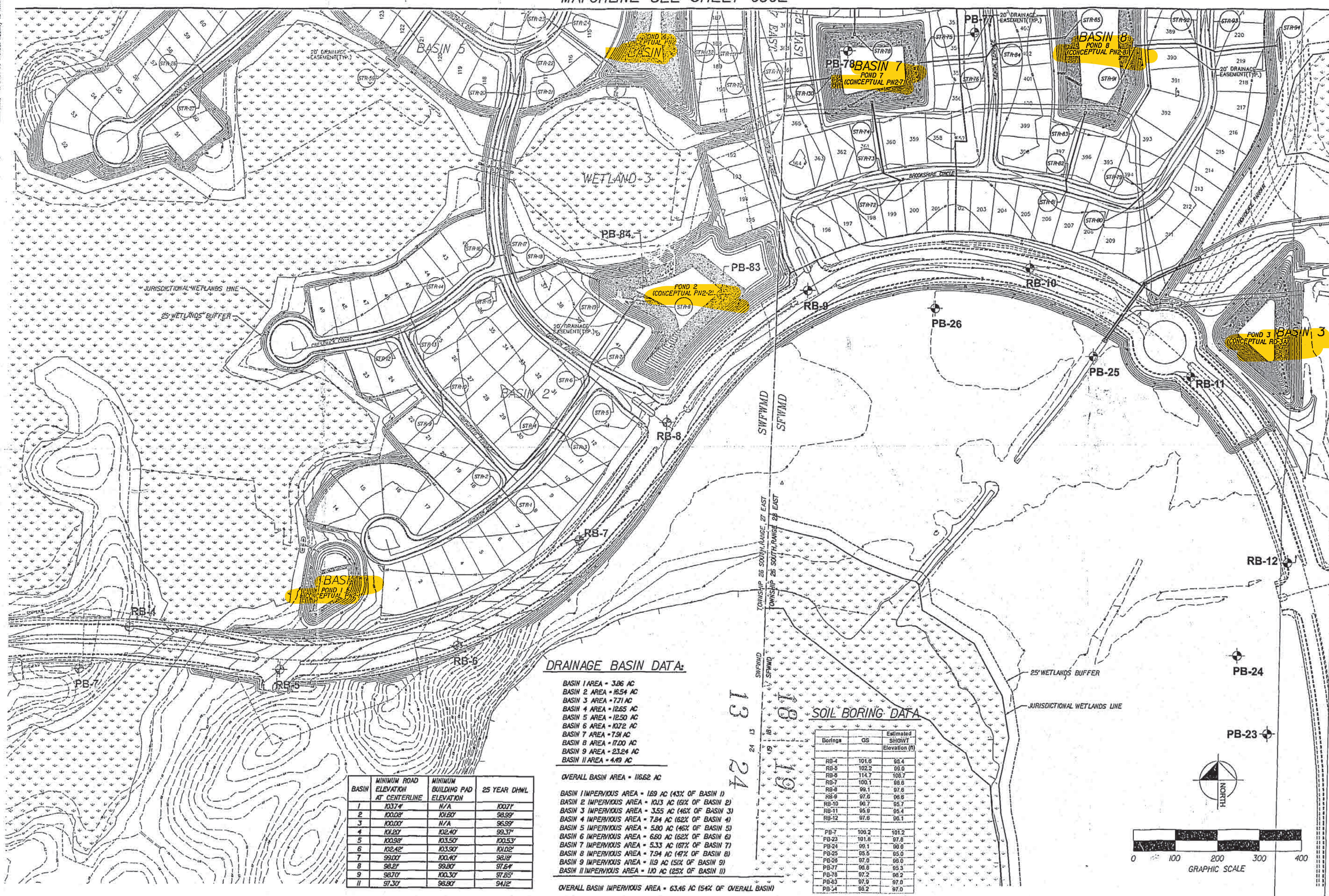
Onsite runoff from the project area will be treated by wet detention, alternate III, permanent pool systems in nine lakes each treating their respective drainage basin. Bleed-down rectangular notches are provided in all the treatment lakes to provide the required 24-hour drawdown fluctuation depth for the first ½" of runoff. A dry treatment pond will be used to treat basin N23-11. Please see Appendix C for treatment calculations.

THIS IS TO CERTIFY THAT THE ENCLOSED ENGINEERING CALCULATIONS WEF

PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

MARK E. WILSON, P.E. #47615
DEAN L. PAQUET, P.E. #59916
Kimley-Horn and Associates, Inc.
4305 Highland Park Boulevard
Lakeland, Florida 33813
CA 00000696

DATE: 7-28-04



BASIN	MINIMUM ROAD ELEVATION AT CENTERLINE	MINIMUM BUILDING PAD ELEVATION	25 YEAR DHWL
1	103.74'	N/A	100.71'
2	100.08'	101.60'	98.99'
3	100.00'	N/A	96.99'
4	101.20'	102.40'	99.37'
5	100.98'	103.50'	100.53'
6	102.42'	103.90'	101.02'
7	99.00'	100.40'	98.18'
8	98.21'	99.80'	97.64'
9	98.70'	100.30'	97.85'
11	97.30'	98.80'	94.12'

DRAINAGE BASIN DATA:

BASIN 1 AREA = 3.86 AC
BASIN 2 AREA = 16.54 AC
BASIN 3 AREA = 7.71 AC
BASIN 4 AREA = 12.65 AC
BASIN 5 AREA = 12.50 AC
BASIN 6 AREA = 10.72 AC
BASIN 7 AREA = 7.91 AC
BASIN 8 AREA = 17.00 AC
BASIN 9 AREA = 23.24 AC
BASIN 11 AREA = 4.49 AC

OVERALL BASIN AREA = 116.62 AC

BASIN 1 IMPERVIOUS AREA = 1.69 AC (43% OF BASIN 1)
BASIN 2 IMPERVIOUS AREA = 10.13 AC (61% OF BASIN 2)
BASIN 3 IMPERVIOUS AREA = 3.55 AC (46% OF BASIN 3)
BASIN 4 IMPERVIOUS AREA = 7.84 AC (62% OF BASIN 4)
BASIN 5 IMPERVIOUS AREA = 5.80 AC (46% OF BASIN 5)
BASIN 6 IMPERVIOUS AREA = 6.60 AC (62% OF BASIN 6)
BASIN 7 IMPERVIOUS AREA = 5.33 AC (67% OF BASIN 7)
BASIN 8 IMPERVIOUS AREA = 7.94 AC (47% OF BASIN 8)
BASIN 9 IMPERVIOUS AREA = 11.9 AC (51% OF BASIN 9)
BASIN 11 IMPERVIOUS AREA = 1.10 AC (25% OF BASIN 11)

OVERALL BASIN IMPERVIOUS AREA = 63.46 AC (54% OF OVERALL BASIN)

SOIL BORING DATA

Borings	GS	Estimated SHGWT Elevation (ft)
RB-4	101.6	98.4
RB-5	102.2	99.0
RB-6	114.7	108.7
RB-7	100.1	98.6
RB-8	99.1	97.6
RB-9	97.6	96.6
RB-10	96.7	95.7
RB-11	95.9	95.4
RB-12	97.6	96.1
PB-7	106.2	101.2
PB-23	101.8	97.8
PB-24	99.1	98.6
PB-25	95.5	95.0
PB-26	97.0	96.0
PB-77	96.8	95.3
PB-78	97.2	96.2
PB-83	97.9	97.0
PB-84	98.2	97.0

No.	REVISIONS	DATE	BY
4	REV. PER SFWMD LETTER (3-10-05)	03-30-05	DLP
3	REV. PER SWFWMD & SFWMD	01-18-05	DLP
2	REV. PER COUNTY COMMENTS 6-15-04	10-22-04	DLP
1	UPDATED PERIMETER SIDE SLOPES	8-25-04	DLP

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DAN L. PAQUET, P.E.
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FLA. CERT. NO. 59916
DATE: APR 0 6 2005

SCALE AS NOTED
DESIGNED BY DLP
DRAWN BY NHS
CHECKED BY DLP

SHEET TITLE:
MASTER DRAINAGE PLAN

PROJECT NAME:
PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER
C301

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SOIL BORING DATA

Borings	GS	Estimated SHGWT Elevation (ft)
PB-72	93.7	91.7
PB-73	93.1	92.6
PB-74	95.1	93.6
PB-75	95.2	93.7
PB-76	96.9	95.4
PB-79	97.6	96.6
PB-80	99.8	97.8
PB-81	99.5	98.5
PB-82	100.7	98.7

BASIN	MINIMUM ROAD ELEVATION AT CENTERLINE	MINIMUM BUILDING PAD ELEVATION	25 YEAR DHWL
1	103.74'	N/A	100.71'
2	100.08'	101.60'	98.99'
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BASIN 6 IMPERVIOUS AREA = 6.60 AC (62% OF BASIN 6)
BASIN 7 IMPERVIOUS AREA = 5.33 AC (67% OF BASIN 7)
BASIN 8 IMPERVIOUS AREA = 7.94 AC (47% OF BASIN 8)
BASIN 9 IMPERVIOUS AREA = 11.9 AC (51% OF BASIN 9)
BASIN 11 IMPERVIOUS AREA = 1.10 AC (25% OF BASIN 11)

OVERALL BASIN IMPERVIOUS AREA = 63.46 AC (54% OF OVERALL BASIN)

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2	REV. PER COUNTY COMMENTS 6-16-04	10-22-04	DLP
1	UPDATED PERIMETER SIDE SLOPES	8-25-04	DLP

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SHEET TITLE: MASTER DRAINAGE PLAN

PROJECT NAME: PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER C302

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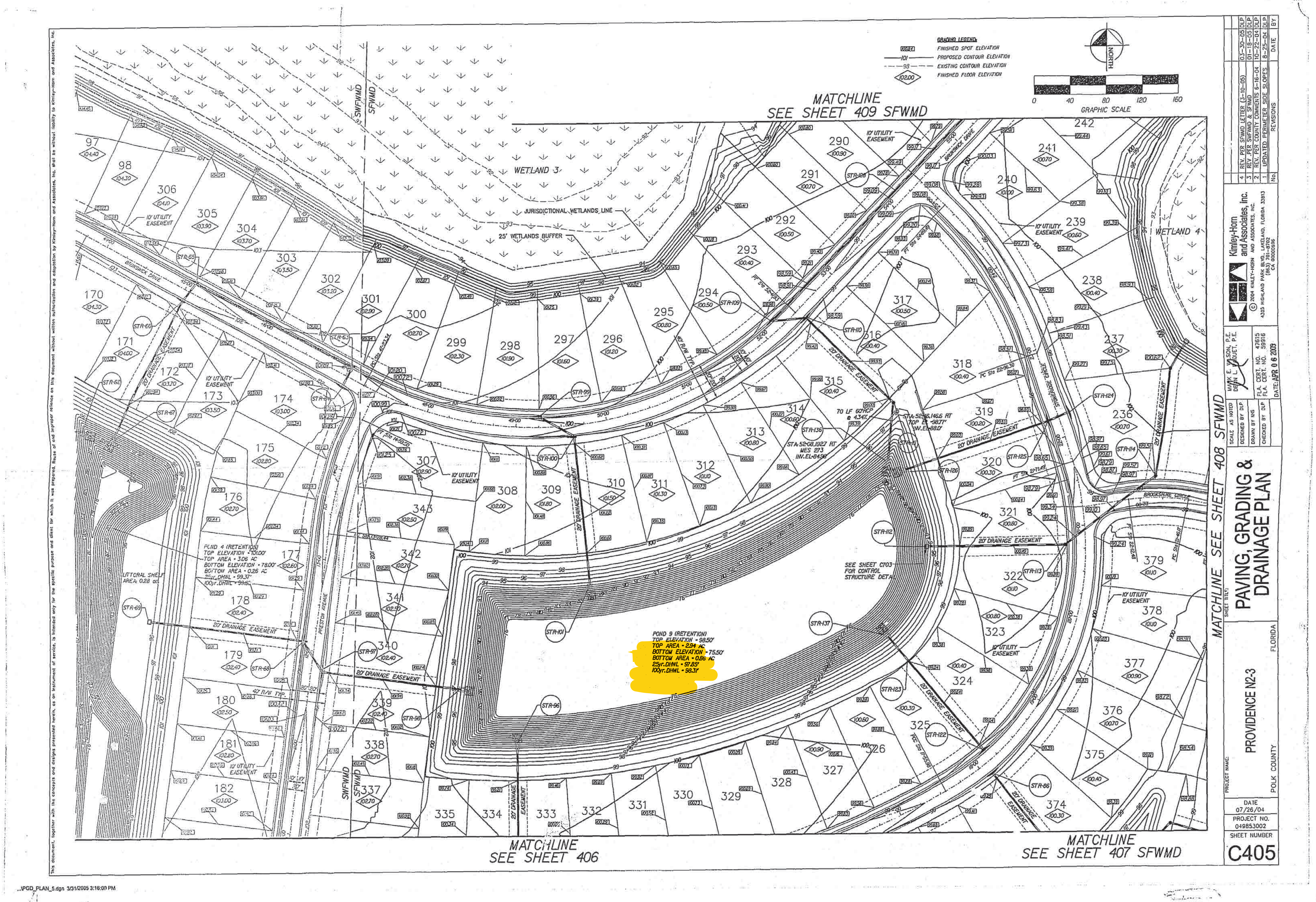
GRADING LEGEND
FINISHED SPOT ELEVATION
PROPOSED CONTOUR ELEVATION
EXISTING CONTOUR ELEVATION
FINISHED FLOOR ELEVATION
NORTH
0 40 80 120 160
GRAPHIC SCALE
MATCHLINE
SEE SHEET 409 SFWMD
MATCHLINE SEE SHEET 408 SFWMD
MATCHLINE
SEE SHEET 406
MATCHLINE
SEE SHEET 407 SFWMD
WETLAND 3
WETLAND 4
JURISDICTIONAL WETLANDS LINE
25' WETLANDS BUFFER
SFWMD
10' UTILITY EASEMENT
20' DRAINAGE EASEMENT
PRESTON AVENUE
BRUNSWICK DRIVE
POND 4 (RETENTION)
TOP ELEVATION = 101.00'
TOP AREA = 3.06 AC
BOTTOM ELEVATION = 78.00'
BOTTOM AREA = 0.26 AC
LITTORAL SHELF AREA 0.28 ac
POND 9 (RETENTION)
TOP ELEVATION = 98.50'
TOP AREA = 2.94 AC
BOTTOM ELEVATION = 75.50'
BOTTOM AREA = 0.86 AC
25yr.DHWL = 97.85'
100yr.DHWL = 98.31'
SEE SHEET C703 FOR CONTROL STRUCTURE DETAIL
70 LF 60"RCP @ 4.34%
STA. 52+08.1927 RT
MES 273
INV. EL=84.50
40' R/W TYP.
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4 REV. PER SFWMD LETTER (3-10-05) 03-30-05 DLP
3 REV. PER SFWMD & SFWMD 01-18-05 DLP
2 REV. PER COUNTY COMMENTS 6-16-04 10-22-04 DLP
1 UPDATED PERIMETER SIDE SLOPES 8-25-04 DLP
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FLA. CERT. NO. 59916
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SCALE AS NOTED
DESIGNED BY DLP
DRAWN BY NHS
CHECKED BY DLP
SHEET TITLE:
PAVING, GRADING & DRAINAGE PLAN
PROJECT NAME:
PROVIDENCE N2-3
POLK COUNTY
FLORIDA
DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER
C405
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MATCHLINE
SEE SHEET 405

MATCHLINE SFWMD
SEE SHEET 407

POND 4 (RETENTION)
TOP ELEVATION = 101.00'
TOP AREA = 3.06 AC
BOTTOM ELEVATION = 78.00'
BOTTOM AREA = 0.25 AC
25yr.DHWL = 99.37'
100yr.DHWL = 99.67'

POND 7 (RETENTION)
TOP ELEVATION = 99.50'
TOP AREA = 1.35 AC
BOTTOM ELEVATION = 76.50'
BOTTOM AREA = 0.23 AC
25yr.DHWL = 98.08'
100yr.DHWL = 98.60'

SEE FIG.5 ON SHEET C702 FOR CONTROL STRUCTURE DETAIL

POND 8 (RETENTION)
TOP ELEVATION = 98.50'
TOP AREA = 2.06 AC
BOTTOM ELEVATION = 75.50'
BOTTOM AREA = 0.33 AC
25yr.DHWL = 97.63'
100yr.DHWL = 97.85

RESHAPE WITH NO.3)
POND 2 (RETENTION)
TOP ELEVATION = 100.00'
TOP AREA = 1.95 AC
BOTTOM ELEVATION = 77.00'
BOTTOM AREA = 0.30 AC
25yr.DHWL = 99.00'
100yr.DHWL = 99.32'

SPREADER SWALE (SEE SHEET C701 FOR SPREADER SWALE DETAIL)
SEE SHEET C701 FOR WEIR DETAILS

LITTORAL SHELF AREA 0.29 ac.

JURISDICTIONAL WETLANDS LINE
25' WETLANDS BUFFER
WETLAND 8A

STONERIDGE CIRCLE
BROOKSHIRE CIRCLE
KENDALL TERRACE
FOREST AVENUE
SFWMD CANAL

GRADING LEGEND
- 100.44 — FINISHED SPOT ELEVATION
- 101 — PROPOSED CONTOUR ELEVATION
- 99 — EXISTING CONTOUR ELEVATION
- 102.00 — FINISHED FLOOR ELEVATION

NORTH
0 40 80 120 160
GRAPHIC SCALE

No	REVISIONS	DATE	BY
4	REV. PER SFWMD LETTER (3-10-05)	03-30-05	DLP
3	REV. PER SHERWD & SFWMD	01-18-05	DLP
2	REV. PER COUNTY COMMENTS 6-16-04	10-22-04	DLP
1	UPDATED PERIMETER SIDE SLOPES	8-25-04	DLP

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FLA. CERT. NO. 59916
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SCALE: AS NOTED
DESIGNED BY: DLP
DRAWN BY: NHS
CHECKED BY: DLP

SHEET TITLE: PAVING, GRADING & DRAINAGE PLAN

PROJECT NAME: PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER C406

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MATCHLINE SEE SHEET 405

MATCHLINE SEE SHEET 406

MATCHLINE SEE SHEET 408

20' DRAINAGE EASEMENT

10' UTILITY EASEMENT

40' R/W

STR-87 STR-89 STR-88 STR-35 STR-94 STR-92 STR-91 STR-93 STR-79 STR-80

385 386 387 388 389 390 391 392 393 394 395 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225

SEE SHEET C703 FOR CONTROL STRUCTURE DETAIL

SEE SHEET C703 FOR BUBBLER STRUCTURE DETAIL

SEE TABLE ION SHEET C702 FOR SPREADER SWA. INFO.

GRADE SWALE TO PROVIDE POSITIVE DRAINAGE TO WETLAND

25' WETLANDS BUFFER

JURISDICTIONAL WETLANDS LINE

C/L INV.= 92.5 +/-

WETLAND 7

WETLAND 8
FEMA BASE FLOOD
100yr.EL= 92

POND 8 (RETENTION)
TOP ELEVATION = 98.50'
TOP AREA = 2.06 AC
BOTTOM ELEVATION = 75.50'
BOTTOM AREA = 0.33 AC
25yr.DHWL = 91.64'
100yr.DHWL = 92.63'

POND 3B
CONSTRUCTED WITH
BOULEVARD EXTENSION

BROOKSHIRE DRIVE

FUTURE PROVIDENCE PARKWAY

144' LF OF DUAL 24" PIPE @ 0.42%

INSTALL 3' X 3' JUNCTION BOX

(2) 24" MES - INV. = 93.00

PIPE SIZE BREAK

PC Sta 12+06.51

PT Sta 13+10.10

PC Sta 11+84.90

PT Sta 10+57.83

NORTH

0 40 80 120 160

GRAPHIC SCALE

GRADING LEGEND

00.24 FINISHED SPOT ELEVATION

101 PROPOSED CONTOUR ELEVATION

98 EXISTING CONTOUR ELEVATION

102.00 FINISHED FLOOR ELEVATION

SFWMD AREA

No.	REVISIONS	DATE	BY
4	REV. PER SFWMD LETTER (3-10-05)	03-30-05	DLP
3	REV. PER SWFWMD & SFWMD	01-18-05	DLP
2	REV. PER COUNTY COMMENTS 6-16-04	10-22-04	DLP
1	UPDATED PERIMETER SIDE SLOPES	8-25-04	DLP

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SCALE AS NOTED
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DRAWN BY JWS
CHECKED BY DLP

SHEET TITLE:
PAVING, GRADING & DRAINAGE PLAN

PROJECT NAME:
PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE
07/26/04
PROJECT NO.
049853002
SHEET NUMBER
C407

\PGD_PLAN_7.dgn 3/31/2005 3:53:33 PM

MATCHLINE
SEE SHEET C409

WETLAND &
FEMA BASE FLOOD
100yr. EL= 91

SEE TABLE 10N
SHEET C702 FOR
SPREADER SWALE
INFO.

SEE SHEET C703
FOR BUBBLER
STRUCTURE
DETAIL

STR-118

JURISDICTIONAL WETLANDS LINE

25' WETLANDS BUFFER

MATCHLINE
SEE SHEET C405

10' UTILITY
EASEMENT

BROADMOORE CIRCLE

STR-128

STR-129

STR-127

10' UTILITY
EASEMENT

40' R/W

MATCHLINE
SEE SHEET C407

NORTH

0 40 80 120 160
GRAPHIC SCALE

GRADING LEGEND
- 00.00 — FINISHED SPOT ELEVATION
- 101 — PROPOSED CONTOUR ELEVATION
- 98 — EXISTING CONTOUR ELEVATION
- 02.00 — FINISHED FLOOR ELEVATION

SFWMD AREA

No	REVISIONS	DATE	BY
1	UPDATED PERMIT BDRY, SDPES	8-25-04	RLP
2	REV. PER COMMENTS 8-16-04	10-22-04	DLP
3	REV. PER SFWMD & SFWMD	01-18-05	DLP
4	REV. PER SFWMD LETTER (J-10-05)	03-30-05	DLP

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DATE: OCTOBER 06, 2004

SCALE: AS NOTED
DESIGNED BY: DLP
DRAWN BY: NKS
CHECKED BY: DLP

SHEET TITLE: PAVING, GRADING & DRAINAGE PLAN

PROJECT NAME: PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE: 07/26/04
PROJECT NO.: 049853002
SHEET NUMBER: C408

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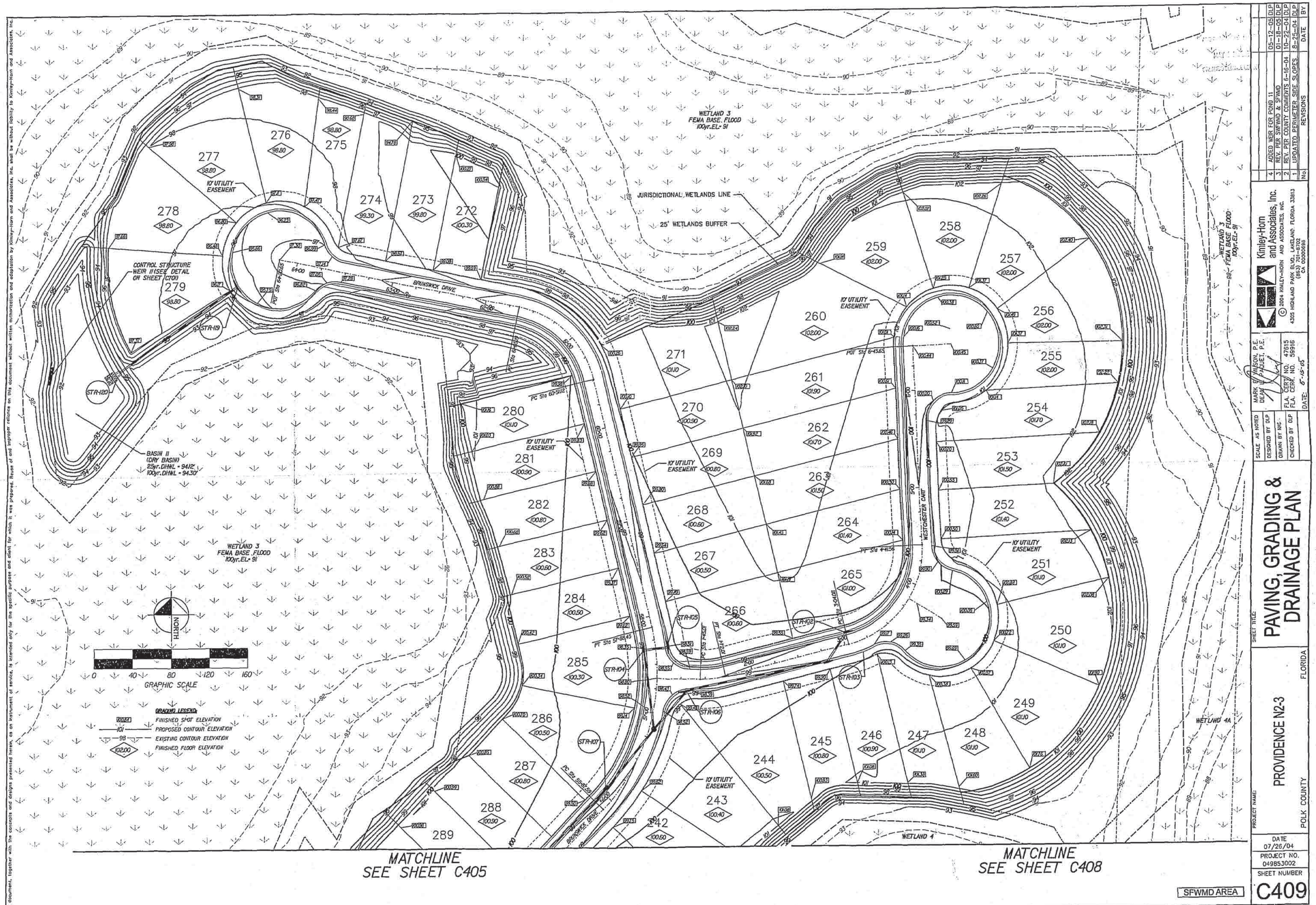

NO.	REVISIONS	DATE	BY
4	ADDED WEIR FOR POND 11	05-12-05	DLP
3	REV. PER SFWMD & SWMD	01-18-05	DLP
2	REVISED PER SFWMD	8-25-04	DLP
1	UPDATED PERIMETER SITE SURVEY	6-16-04	DLP

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4305 HIGHLAND PARK BLVD., LAKELAND, FLORIDA 33813
(863) 701-8702
CA 00000696

SCALE AS NOTED
DESIGNED BY DLP
DRAWN BY MRS
CHECKED BY DLP

MARK G. WILSON, P.E.
DEAN W. PADUET, P.E.
FLA. CERT. NO. 47515
FLA. CERT. NO. 59916
DATE: 6-16-05

SHEET TITLE
PAVING, GRADING & DRAINAGE PLAN

PROJECT NAME
PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE
07/26/04
PROJECT NO.
049853002
SHEET NUMBER
C409

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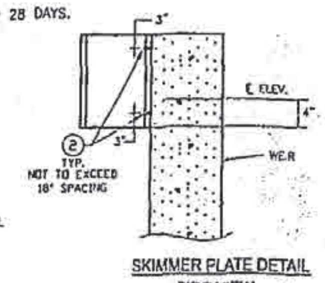
NOTES:

1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF AT LEAST 4000 P.S.I. @ 28 DAYS.
2. ALL STEEL TO HAVE A MINIMUM 3" CLEARANCE UNLESS OTHERWISE NOTED.
3. STEEL REINFORCEMENT SHALL MEET ASTM SPECIFICATIONS (A-615).
4. 3/4" CHAMFER ALL EXPOSED EDGES.

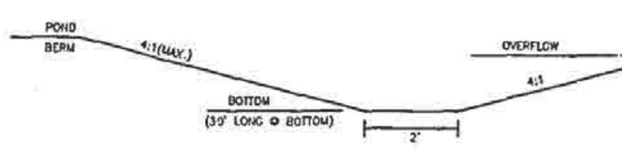
① 1/4" THICK ALUMINUM FABRICATED SKIMMER PLATE WITH OPEN TOP AND BOTTOM.

② 3/8" DIAMETER STAINLESS STEEL EXPANSION ANCHORS. 3" LONG (MIN.) WITH STAINLESS STEEL WASHERS.



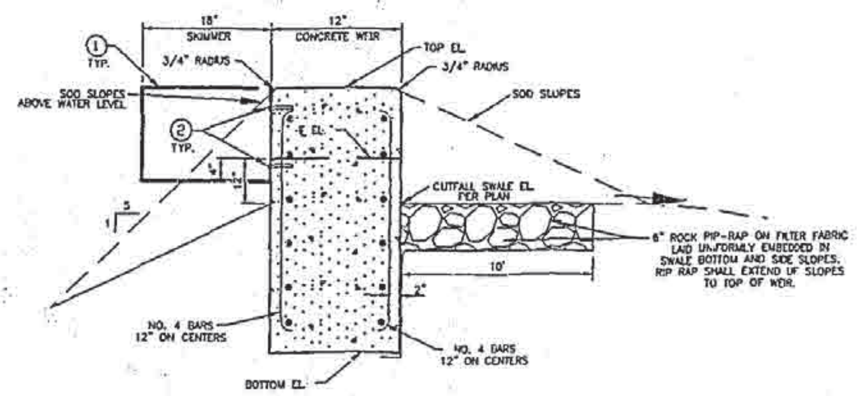
SKIMMER PLATE DETAIL
SIDE VIEW

	POND 1	POND 2
BOTTOM	97.50'	96.00'
OVERFLOW	98.50'	97.00'



SPREADER SWALE DETAIL

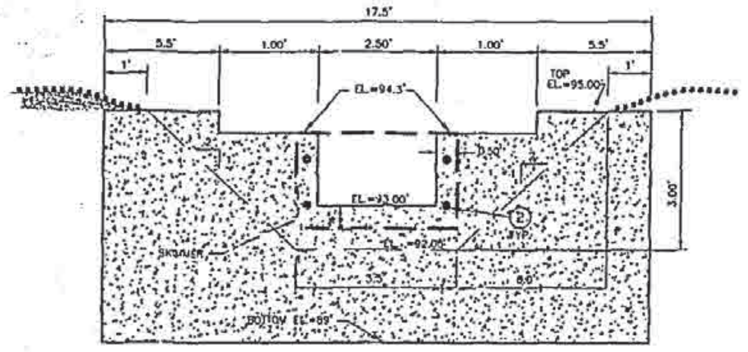
N.T.S.



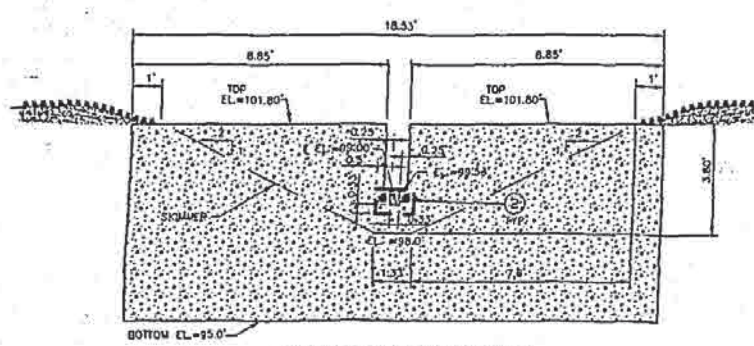
SECTION

CONCRETE WEIR DETAIL

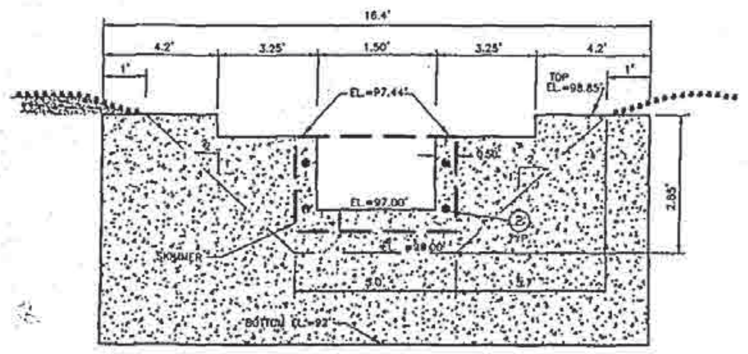
N.T.S.



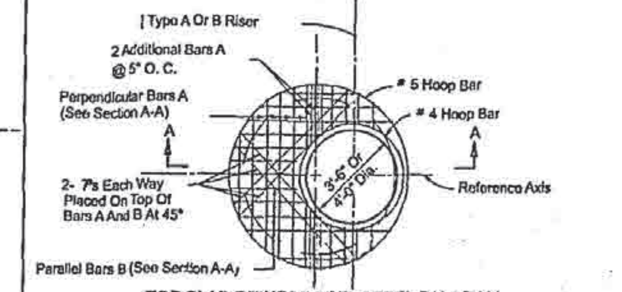
CONTROL STRUCTURE POND 11
PLAN
N.T.S.



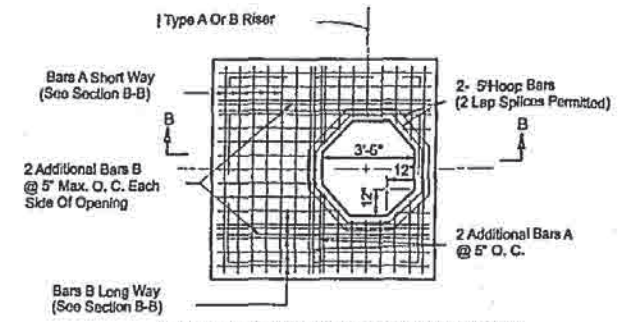
CONTROL STRUCTURE POND 1
PLAN
N.T.S.



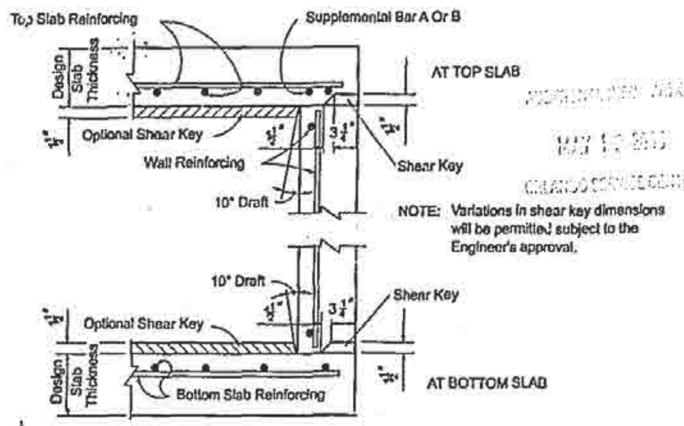
CONTROL STRUCTURE POND 2
PLAN
N.T.S.



TOP SLAB REINFORCING STEEL DIAGRAM

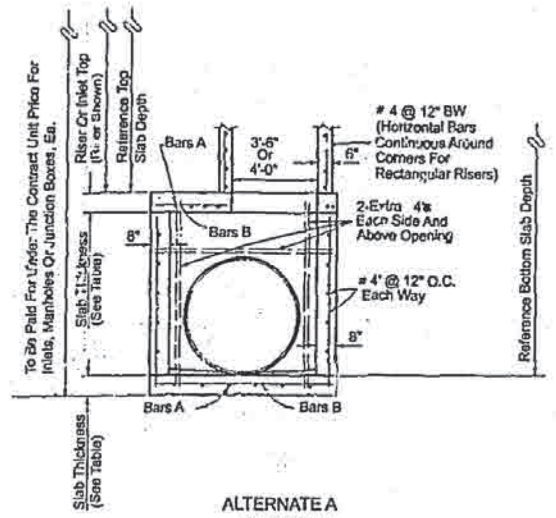


TOP SLAB REINFORCING STEEL DIAGRAM



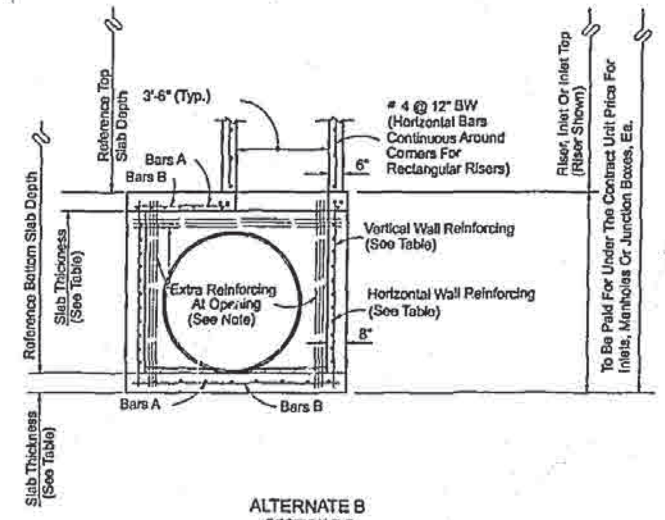
NOTE: Variations in shear key dimensions will be permitted subject to the Engineer's approval.

SLAB TO WALL DETAILS FOR PRECAST ALTERNATE WITH 8" WALLS



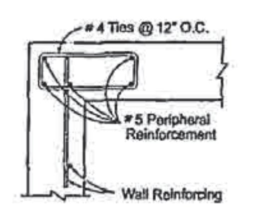
ALTERNATE A
SECTION A-A

* NOTE: When the inside diameter of a round structure is not more than 1'-6" larger than the opening in the riser or top slab, the top of the structure or riser shall be constructed according to the "Special Top Slab" details on this sheet.

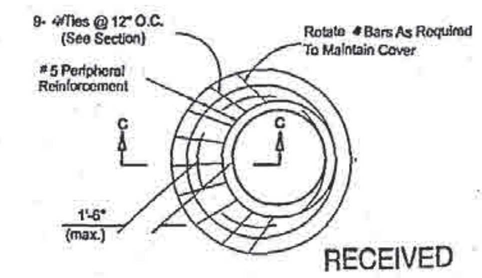


ALTERNATE B
SECTION B-B

NOTE: Provide extra reinforcing each side of each opening at 3" maximum spacing equal to half the area of vertical reinforcement removed by the opening and provide the same area of reinforcement above each opening at 3" maximum spacing as removed by the opening.



SECTION C-C

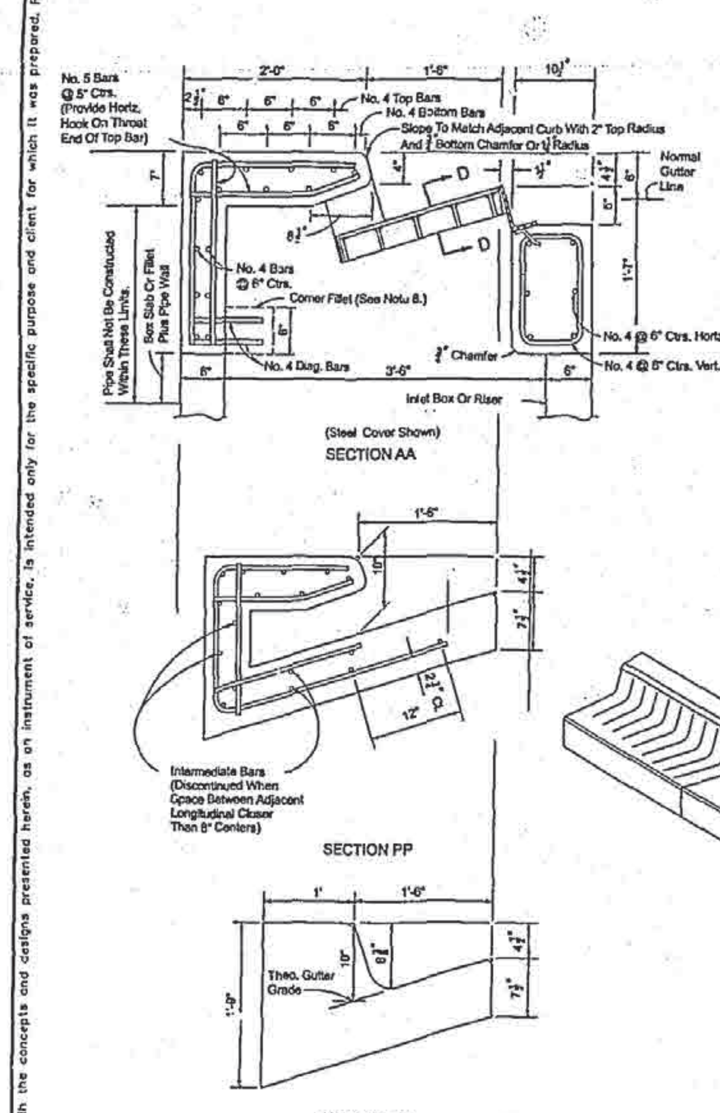


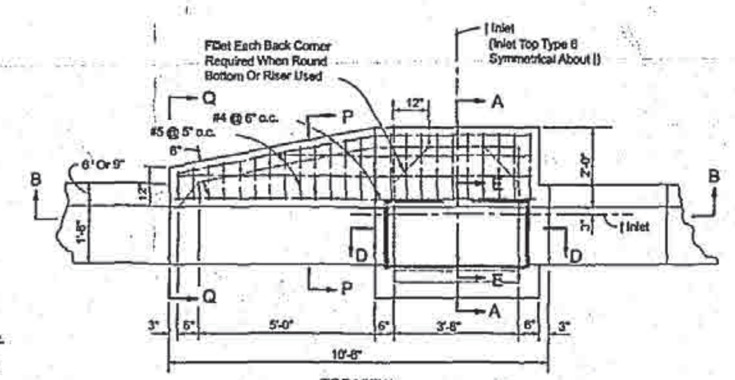
SPECIAL TOP SLAB *

RECEIVED
MAY 13 2005
ORLANDO SERVICE CENTER

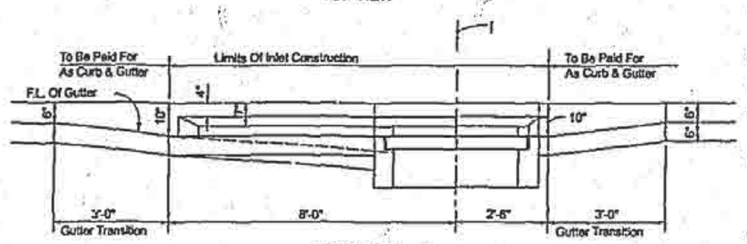
GENERAL NOTES

1. Standard structure bottoms 4'-0" diameter and smaller (Alt. A) and 3'-6" square (Alt. B) are designated Type P. Larger standard structure bottoms are designated Type J. Risers are permitted for all structures.
2. Walls of circular structures (Alternate A) constructed in place may be of non-reinforced concrete or brick or reinforced concrete. Precast and rectangular structures (Alternate B) shall be constructed of reinforced concrete only.
3. Wall thickness and reinforcement are for either reinforced cast-in-place or precast concrete units except that precast circular units may be furnished with walls in accordance with either A.S.T.M. C-478 (up to 96" diameter) or A.S.T.M. C-76, Class ---, B Wall, modified where the elliptical steel cage area is placed in the center one-third of the wall.
4. Top and floor slab thickness and reinforcement are for precast and cast in place construction. Top and floor slabs shall be of Class --- concrete. Concrete as specified in A.S.T.M. C-478 (4000 psi) may be used in lieu of Class -- and Class --- concrete in precast items manufactured in plants which are under the 'Standard Operating Procedures' for the inspection of precast drainage products.
5. All reinforcement shall be A.S.T.M. A615, Grade 60 or 65 KSI welded wire fabric, either smooth or deformed.
6. Structure bottoms may be used in conjunction with curb inlet tops Types 1, 2, 3, 4, 5, 6, 9, and 10, and any manhole or junction box unless otherwise shown in the plans or other standard drawings. Alt. B structure bottoms may be used in conjunction with curb inlet Types 7 & 8, or any ditch bottom inlet unless otherwise shown in the plans or other standard drawings.
7. Rectangular structures may be rotated as directed by the Engineer in order to facilitate connections between the structure walls and storm sewer pipes.
8. Except when ACI hooks are specifically required, reinforcement top and slab shall be straight embedment.
9. All steel bars shall have 1½" minimum cover unless otherwise shown except for precast circular units manufactured under ASTM C-76 or ASTM C-478, Horizontal steel in rectangular structures shall be lapped a minimum of 24 bar diameters at corners.
10. The corner fillets shown are necessary for rectangular structures used with circular risers and inlet throats and used on skew with rectangular risers, inlet and inlet throats. Fillets will be required in lieu of the bottom slab of the Alt. B riser when used with the Alt. A box. Each fillet shall be reinforced with 2-#5 bars.
11. Inlet throats, riser or manhole tops shall be secured to structures as shown on Index No. 201.
12. Structures with depths over 14' are to be checked for floatation by designer of project drainage.
13. Units larger than specified standard may be substituted at the contractor's option when these units will not cause or increase the severity of utility conflicts. Such larger units shall be furnished at no additional cost to the Department. Larger Alternate A units cannot replace Alternate B units without approval of the Engineer. This note applies to this Index only.
14. For manhole and junction box tops, for frames and covers, and, for supplementary details see Index No. 201.





TOP VIEW

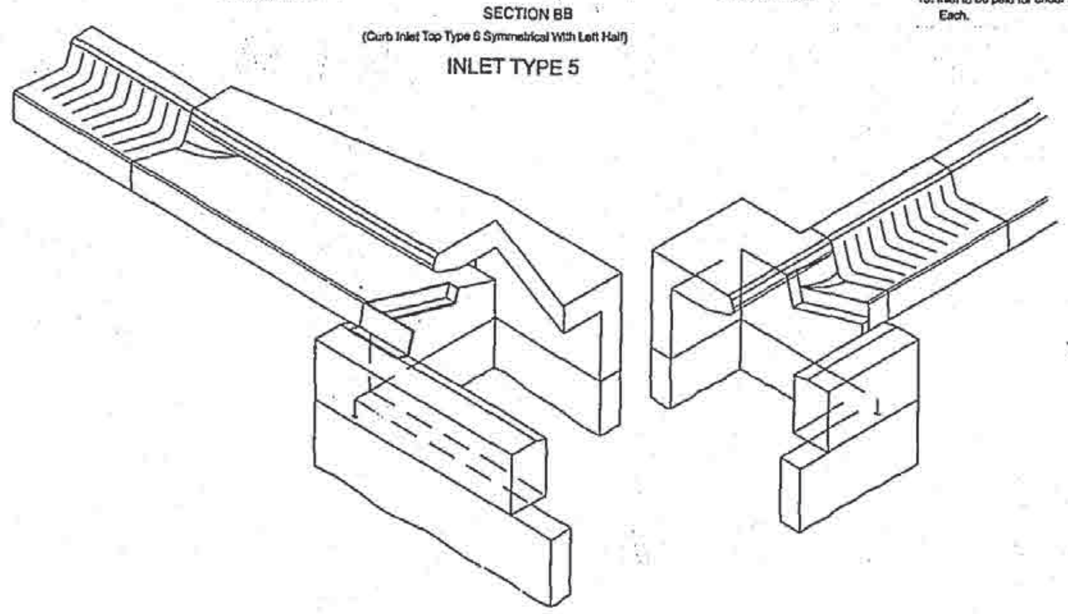


SECTION BB
(Curb Inlet Top Type 5 Symmetrical With Left Half)

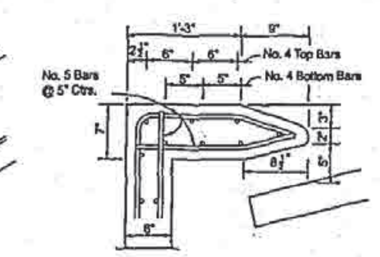
INLET TYPE 5

GENERAL NOTES

1. The finished grade and slope of the inlet tops are to conform with the finished cross slope and grade of the proposed sidewalk and/or parkway.
2. When inlets are to be constructed on a curve, refer to the plans to determine the radius and, where necessary, modify the inlet details accordingly. Bend steel when necessary.
3. All reinforcing steel shall have 1½" minimum cover unless otherwise shown. Inlet tops shall be either cast-in-place or precast concrete.
4. Precasting of this inlet top will be permitted. Precast units shall conform to the dimensions shown or in accordance with approved shop drawings. Request for shop drawing approval shall be directed to the State Drainage Engineer.
5. Concrete meeting the requirements of A.S.T.M. C 478 (4,000 P.S.I.) may be used in lieu of Class - concrete for precast units, manufactured in plants which are under the Standard Operating Procedures for the Inspection of precast drainage products.
6. The corner fillets shown for rectangular throats are necessary only when throats are to be used in conjunction with circular inlet bottoms or when used on skew with rectangular inlet boxes.
7. For inlet bottoms see Index No. 200.
8. These inlet tops are designed for use with standard curb and gutter Type E and Type F. Locate outside of pedestrian crosswalk where practical.
9. See Index 201 for supplemental details.
10. All steel used for frame and cover shall meet the requirements of ASTM A-36.
11. Either cast iron covers or steel covers may be used. Iron covers shall be Class No. 30 castings in accordance with ASTM A-48.
12. When Alternate "G" Cover is specified in plans either the cast iron cover and galvanized steel frame or the the galvanized steel cover and frame must be used. Covers are to be grouted in accordance with the grouting detail shown on sheet 2 of 2, in lieu of tack welding.
13. Inlet to be paid for under the contract unit price for Inlets (Curb) (Type), Each.



SKETCHS SHOWING FRAME SEAT AND THROAT RECESS



TOP MODIFICATION FOR TYPE E CURB

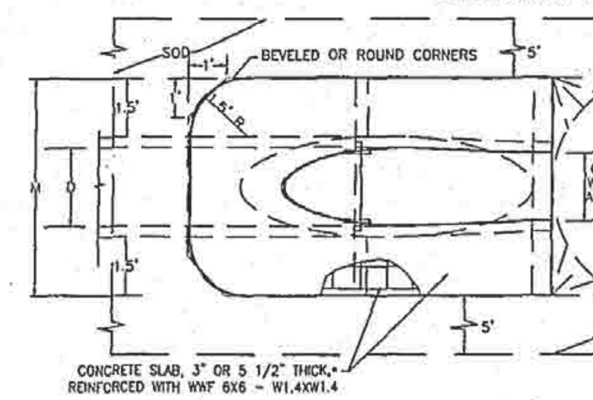
DIMENSIONS AND QUANTITIES

	D	X	A	B	C	E	F	G	M Single Pipe	M Double Pipe	M Triple Pipe	M Quad. Pipe	N	5½" Concrete Slab (CY) ◪ Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe	Sodding (SQ. YDS.) Single Pipe	Double Pipe	Triple Pipe	Quad. Pipe
2:1 Slope	15"	2'-7"	1.92'	2.18'	4.10'	2.08'	5'	1.22'	4.63'	7.21'	9.79'	12.37'	1.19'	0.38	0.58	0.77	0.96	21	24	27	30
	18"	2'-10"	1.97'	2.74'	4.71'	2.86'	6'	1.41'	4.92'	7.75'	10.58'	13.42'	1.21'	0.44	0.65	0.87	1.09	22	25	29	31
	24"	3'-5"	2.06'	3.85'	5.91'	3.56'	7'	1.73'	5.50'	8.92'	12.33'	15.75'	1.25'	0.54	0.83	1.12	1.42	24	28	32	35
	30"	4'-3"	2.15'	4.95'	7.10'	4.56'	8'	2.00'	6.08'	10.33'	14.58'	18.83'	1.29'	0.68	1.09	1.50	1.91	26	31	35	40
	36"	5'-1"	2.25'	6.08'	8.33'	5.58'	9'	2.24'	6.67'	11.75'	16.83'	21.92'	1.33'	0.81	1.38	1.95	2.51	28	34	39	45
	42"	6'-0"	2.34'	7.21'	9.55'	6.56'	10'	2.45'	7.25'	13.25'	19.25'	25.25'	1.38'	0.97	1.70	2.45	3.19	30	37	43	50
	48"	6'-9"	2.43'	8.33'	10.76'	7.58'	11'	2.65'	7.83'	14.58'	21.33'	28.08'	1.42'	1.13	2.04	2.93	3.84	32	39	47	54
	54"	7'-8"	2.52'	9.44'	11.96'	8.98'	12'	2.83'	8.42'	16.08'	23.75'	31.42'	1.46'	1.31	2.44	3.58	4.72	34	42	51	59
	60"	8'-6"	2.62'	10.56'	13.18'	9.56'	14'	3.00'	9.00'	17.50'	26.00'	34.50'	1.50'	1.51	2.89	4.28	5.68	36	45	55	64
	66"	9'-2"	2.71'	11.68'	14.39'	10.56'	15'	3.18'	9.58'	18.75'	27.92'	37.08'	1.54'	1.68	3.25	4.84	6.43	38	48	58	68
	72"	10'-0"	2.80'	12.80'	15.60'	11.56'	16'	3.30'	10.16'	20.16'	30.16'	40.16'	1.56'	1.89	3.74	5.59	7.45	40	51	62	73
4:1 Slope	15"	2'-7"	2.27'	4.09'	6.36'	4.03'	8'	1.22'	4.63'	7.21'	9.79'	12.37'	1.19'	0.57	0.87	1.15	1.44	23	26	29	32
	18"	2'-10"	2.36'	5.12'	7.48'	5.03'	9'	1.41'	4.92'	7.75'	10.58'	13.42'	1.21'	0.66	0.99	1.31	1.65	25	28	31	35
	24"	3'-5"	2.53'	7.18' △	9.71'	7.03' △	11'	1.73'	5.50'	8.92'	12.33'	15.75'	1.25'	0.85	1.30	1.75	2.20	28	32	36	40
	30"	4'-3"	2.70'	9.25'	11.93'	9.03'	13'	2.00'	6.08'	10.33'	14.58'	18.83'	1.29'	1.10	1.74	2.39	3.05	31	36	41	46
	36"	5'-1"	2.87'	11.31' ◇	14.18'	11.03' ◇	15'	2.24'	6.67'	11.75'	16.83'	21.92'	1.33'	1.32	2.21	3.08	3.96	34	40	46	52
	42"	6'-0"	3.05'	13.37'	16.42'	13.03'	17'	2.45'	7.25'	13.25'	19.25'	25.25'	1.38'	1.58	2.76	3.91	5.09	38	44	51	58
	48"	6'-9"	3.22'	15.43'	18.65'	15.03'	19'	2.65'	7.83'	14.58'	21.33'	28.08'	1.42'	1.85	3.30	4.73	6.17	41	48	56	63
	54"	7'-8"	3.39'	17.49'	20.88'	17.03'	21'	2.83'	8.42'	16.08'	23.75'	31.42'	1.46'	2.14	3.95	5.77	7.58	44	52	61	69
	60"	8'-6"	3.56'	19.55'	23.11'	19.03'	23'	3.00'	9.00'	17.50'	26.00'	34.50'	1.50'	2.45	4.66	6.87	9.07	47	56	66	75
	66"	9'-2"	3.73'	21.62'	25.35'	21.03'	25'	3.18'	9.58'	18.75'	27.92'	37.08'	1.54'	2.88	5.54	8.18	10.84	49	59	69	80
	72"	10'-0"	3.91'	23.68'	27.59'	23.03'	27'	3.30'	10.16'	20.16'	30.16'	40.16'	1.56'	3.54	6.61	9.87	13.13	52	63	74	85

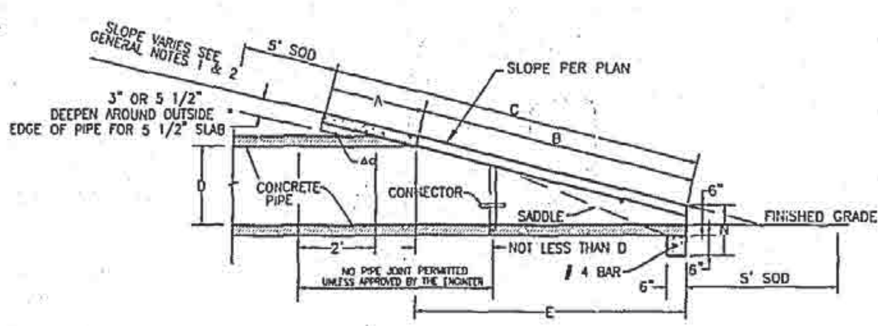
◪ SEE GENERAL NOTE 3.
SEE SHEET 5 OF 6
FOR 3" SLAB QUANT.

	B	E	
△	6.42' △	6.25'	DIMENSIONS PERMITTED TO ALLOW USE OF 8' STANDARD PIPE LENGTHS
◇	10.40' ◇	10.10'	DIMENSIONS PERMITTED TO ALLOW USE OF 12' STANDARD PIPE LENGTHS
△ ◇			CONCRETE SLAB SHALL BE DEEPENED TO FORM BRIDGE ACROSS CROWN PIPE. SEE SECTION BELOW.

NOTE: (1) DIMENSIONS IN "SIDE DRAIN" TABLE ABOVE TO BE UTILIZED EXCLUSIVELY UNLESS INDICATED OTHERWISE.
(2) GRATING OVER PIPE END OPENING TO BE USED ONLY WHERE NOTED ON PLANS.
(3) OVAL PIPE DIMENSIONS – SEE APPROPRIATE F.D.O.T. INDEX (LATEST EDITIONS).
(4) MITERED ENDS TO BE CONSTRUCTED WITH "WELL ROUNDED" ENTRY.



TOP VIEW – SINGLE PIPE



SECTION

MITERED END SECTION

N.T.S.

No.	REVISIONS	DATE	BY
2	ADDED WEIR FOR POND 11	5-12-05	DLP
1	REV. PER SWFWMD LETTER (2-24-05)	3-16-05	DLP

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(863) 701-8702
CA 00000696

MARK E. WILSON, P.E. FLA. CERT. NO. 47615
DEAN L. PAQUET, P.E. FLA. CERT. NO. 59916
DATE: 5-12-05

SCALE AS NOTED
DESIGNED BY DLP
DRAWN BY NHS
CHECKED BY DLP

SHEET TITLE: WEIR AND DRAINAGE DETAILS

PROJECT NAME: PROVIDENCE N2-3
POLK COUNTY, FLORIDA

DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER C701

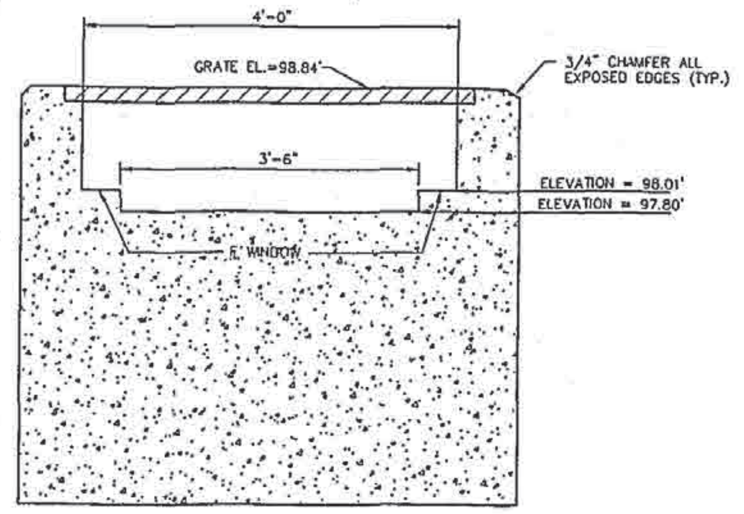


FIG. 1
CONTROL STRUCTURE STR-69

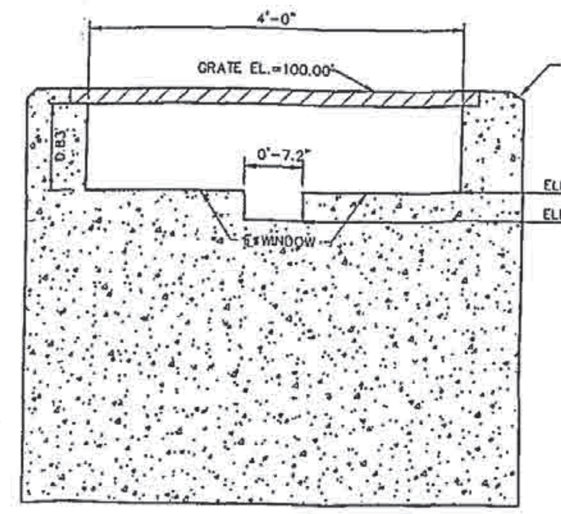


FIG. 2
CONTROL STRUCTURE STR-58

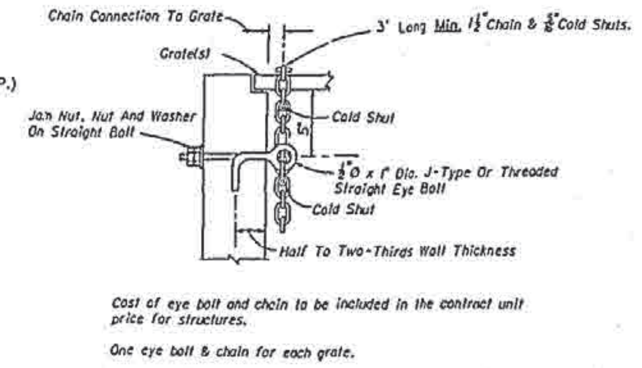


FIG. 3
EYE BOLT AND CHAIN FOR LOCKING GRATES TO STRUCTURES

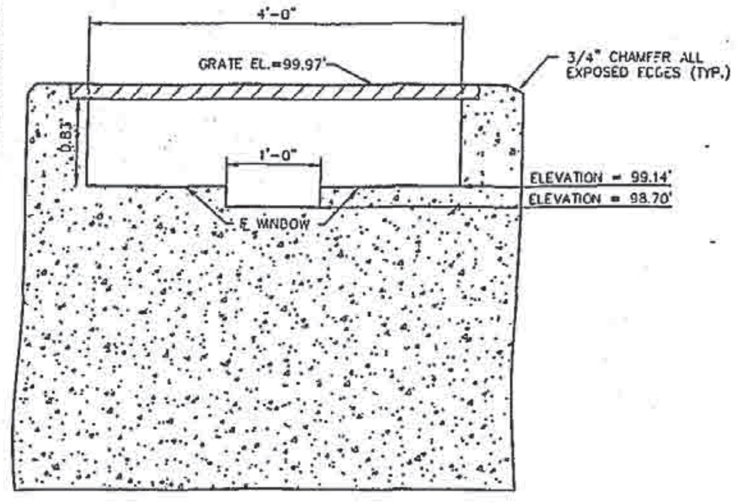


FIG. 4
CONTROL STRUCTURE STR-43

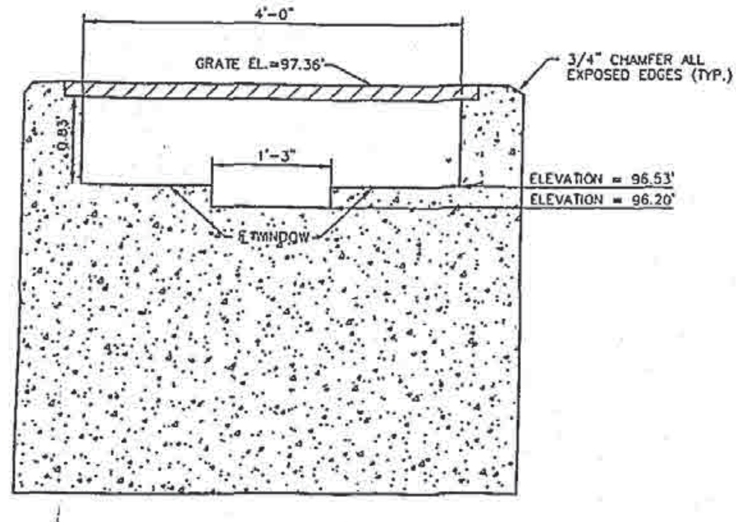


FIG. 5
CONTROL STRUCTURE STR-75

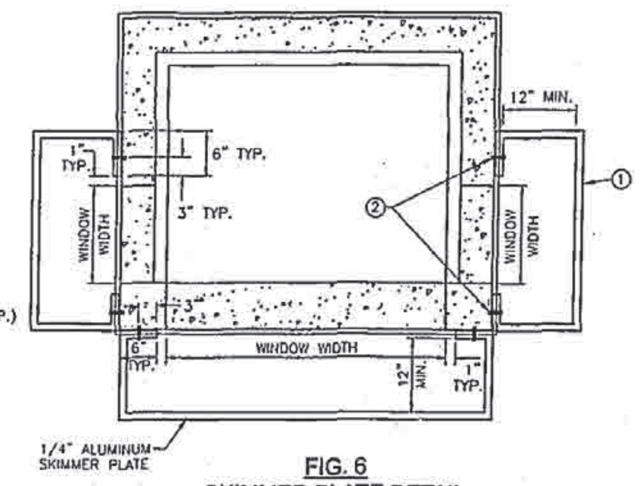


FIG. 6
SKIMMER PLATE DETAIL
TOP VIEW

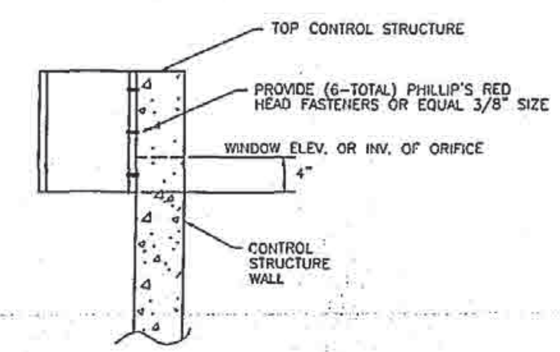


FIG. 7
SKIMMER PLATE DETAIL
SIDE VIEW

STRUCTURE TABLE													
CONTROL STRUCTURE NO.	TOP OF STRUCTURE/ GRATE	FLOWLINE WINDOW ELEV.	RECTANGULAR WEIR SIZE (SLOT) (WINDOWS)				NOTCH ELEV. OR INV.	NOTCH WIDTH OR DIA.	PIPE SIZE/TYPE	OUTFALL PIPE INVERT	SKIMMER? YES/NO	SPECIAL COMMENT
			FRONT	REAR	SIDES	TOTAL						
STR-69 (RECORD DATA)	98.84	98.01	4.00'X.83'			4.00'X.83'	97.80'	3.5'	18" RCP	94.74'	YES	SEE SKETCH FOR CONTROL STRUCTURE THIS DWG.
STR-58 (RECORD DATA)	100.00'	99.17'	4.00'X.83'		(2) 3.00'X0.83'	10.00'X0.83'	98.50'	0.6'	48" RCP	92.75'	YES	SEE SKETCH FOR CONTROL STRUCTURE THIS DWG.
STR-59 (RECORD DATA)	98.50'	97.50'	4.00'X.83'			4.00'X.83'			48" RCP	92.00'	NO	**BUBBLER
STR-43 (RECORD DATA)	99.97'	99.14'	4.00'X.83'		1.00'X0.83'	5.00'X0.83'	98.70'	1.0'	24" RCP	95.84'	YES	SEE SKETCH FOR CONTROL STRUCTURE THIS DWG.
STR-56 (RECORD DATA)	98.50'	97.50'	4.00'X.83'			4.00'X.83'			24" RCP	95.11'	NO	**BUBBLER
STR-75 (RECORD DATA)	97.36'	96.53'	4.00'X0.83'			4.00'X0.83'	96.20'	1.25'	36" RCP	91.76'	YES	SEE SKETCH FOR CONTROL STRUCTURE THIS DWG.
STR-91 (RECORD DATA)	96.56'	N/A					95.50'	4.75"	54" RCP	8[illegible]	YES	SEE C703 FOR CONTROL STRUCTURE DETAIL
STR-94 (RECORD DATA)	94.50	93.50	6.00'X.83'		(2) 3.50'X0.83	13.0'X0.83'			54" RCP	87.36'	NO	**BUBBLER - USE DOUBLE GRATE CONTROL STR. (SEE SHEET C703 FOR DETAIL)
STR-112 (RECORD DATA)	96.53'	N/A					95.50'	6.00"	42" RCP	89.50'	YES	SEE C703 FOR CONTROL STRUCTURE DETAIL
STR-116 (RECORD DATA)	94.00'	93.00'	6.00'X.83'		(2) 3.50'X0.83	13.0'X0.83'			42" RCP	89.00'	NO	**BUBBLER - USE DOUBLE GRATE CONTROL STR. (SEE SHEET C703 FOR DETAIL)

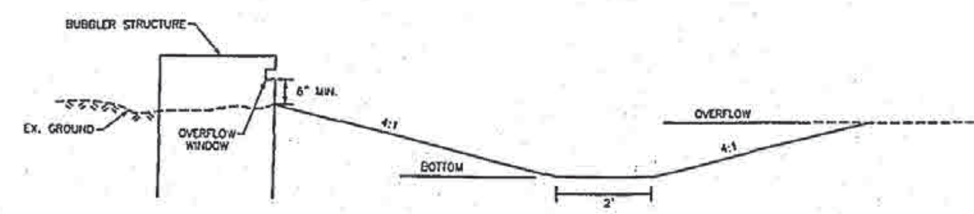
1) 1/4" THICK ALUMINUM FABRICATED SKIMMER PLATE WITH OPEN TOP AND BOTTOM

2) 3/8" DIAMETER STAINLESS STEEL EXPANSION ANCHORS, 3" LONG (MIN.) WITH STAINLESS STEEL WASHERS AND NUTS. THREE REQUIRED EACH SIDE OF SKIMMER.

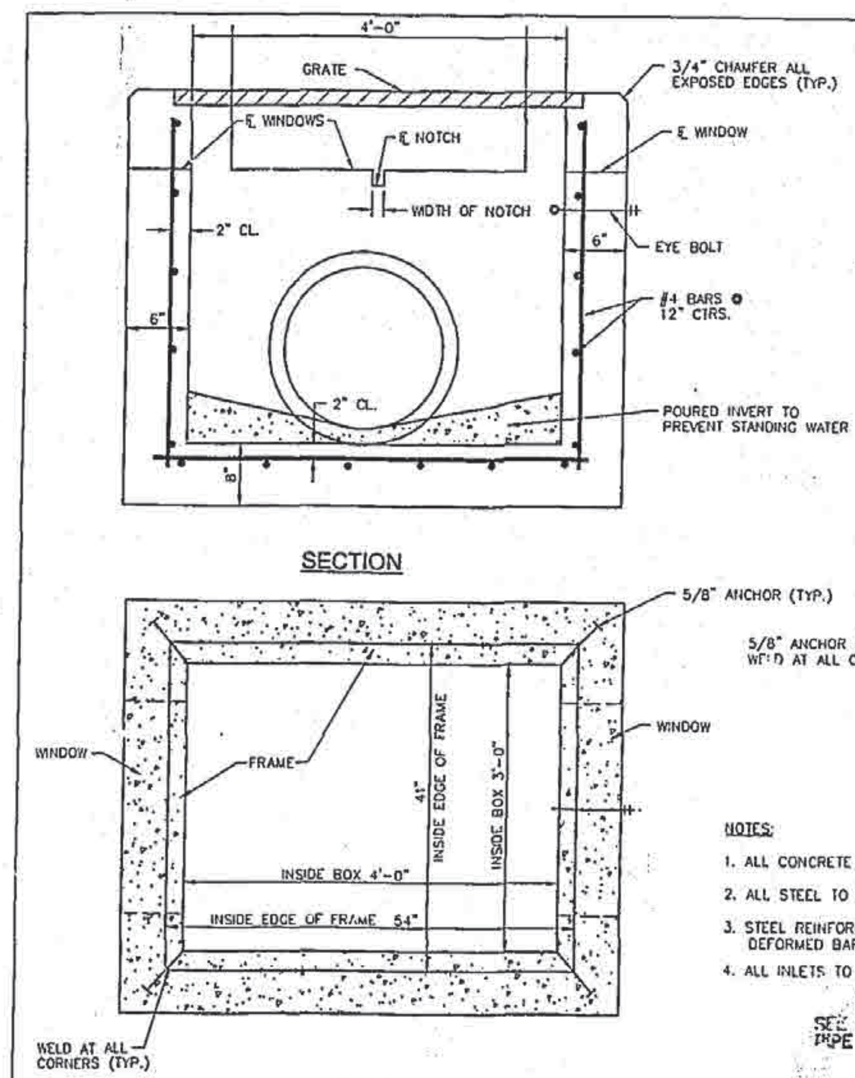
**ALL BUBBLER BOXES SHALL HAVE AN INSIDE BOTTOM ELEVATION 18" BELOW PIPE INVERT. THE CONTRACTOR IS REQUIRED TO PROTECT THESE SUMPS AND PIPES FROM DEBRIS AND SILTATION. ALL PIPES AND SUMPS SHALL BE FREE OF DEBRIS AND SILTATION AT FINAL PROJECT ACCEPTANCE. DO NOT POUR INVERTS IN BUBBLER BOXES.

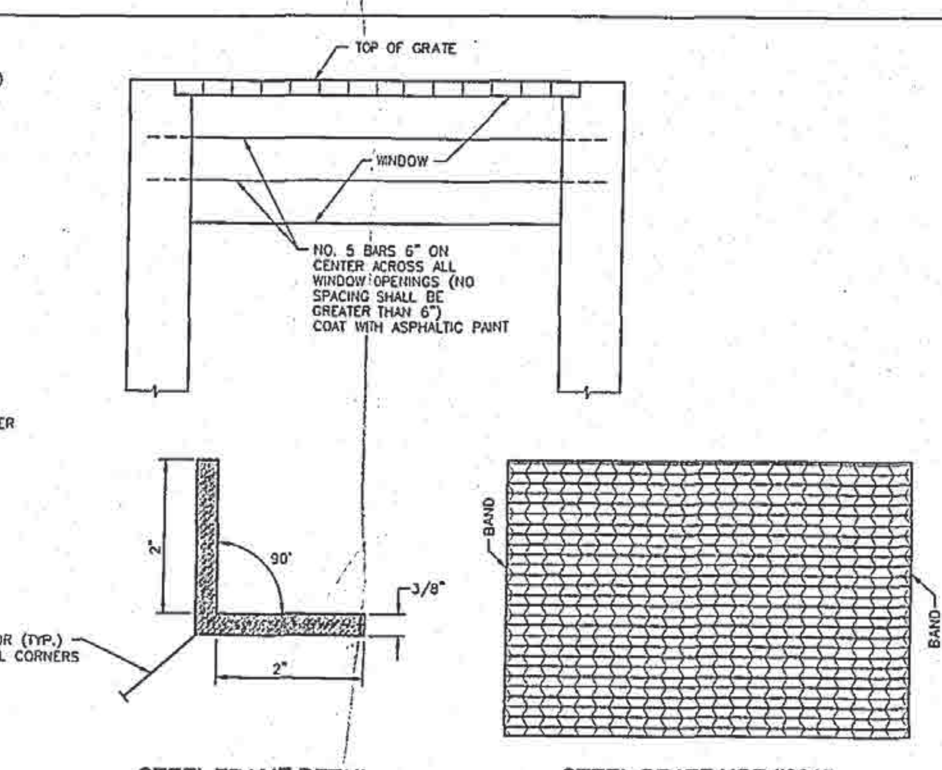
TABLE 1: CONTROL STRUCTURE SUMMARY

	OVERFLOW	BOTTOM	LENGTH
POND 5	97.00'	96.00'	30'
POND 6	97.00'	96.00'	30'
POND 8	93.00'	92.00'	60'
POND 9	92.50'	91.50'	60'



SPREADER SWALE DETAIL
N.T.S.





STEEL FRAME DETAIL
(ALL FOUR SIDES WELDED TOGETHER)
APPLY ASPHALTIC PAINT

STEEL GRATE USF #6615
(52-11/16" x 40" x 2")
APPLY ASPHALTIC PAINT

NOTES:

1. ALL CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF AT LEAST 4000 P.S.I. @ 28 DAYS.
2. ALL STEEL TO HAVE A MINIMUM 2" CLEARANCE UNLESS OTHERWISE NOTED.
3. STEEL REINFORCEMENT SHALL MEET ASTM SPECIFICATIONS (A-615), DEFORMED BARS.
4. ALL INLETS TO HAVE FIELD POURED INVERTS TO ELIMINATE STANDING WATER.

SEE PAVING, DRAINAGE AND GRADING PLANS FOR PIPE SIZES, LOCATIONS AND INVERT ELEVATIONS

FIG 9.
SMALL CONTROL STRUCTURE

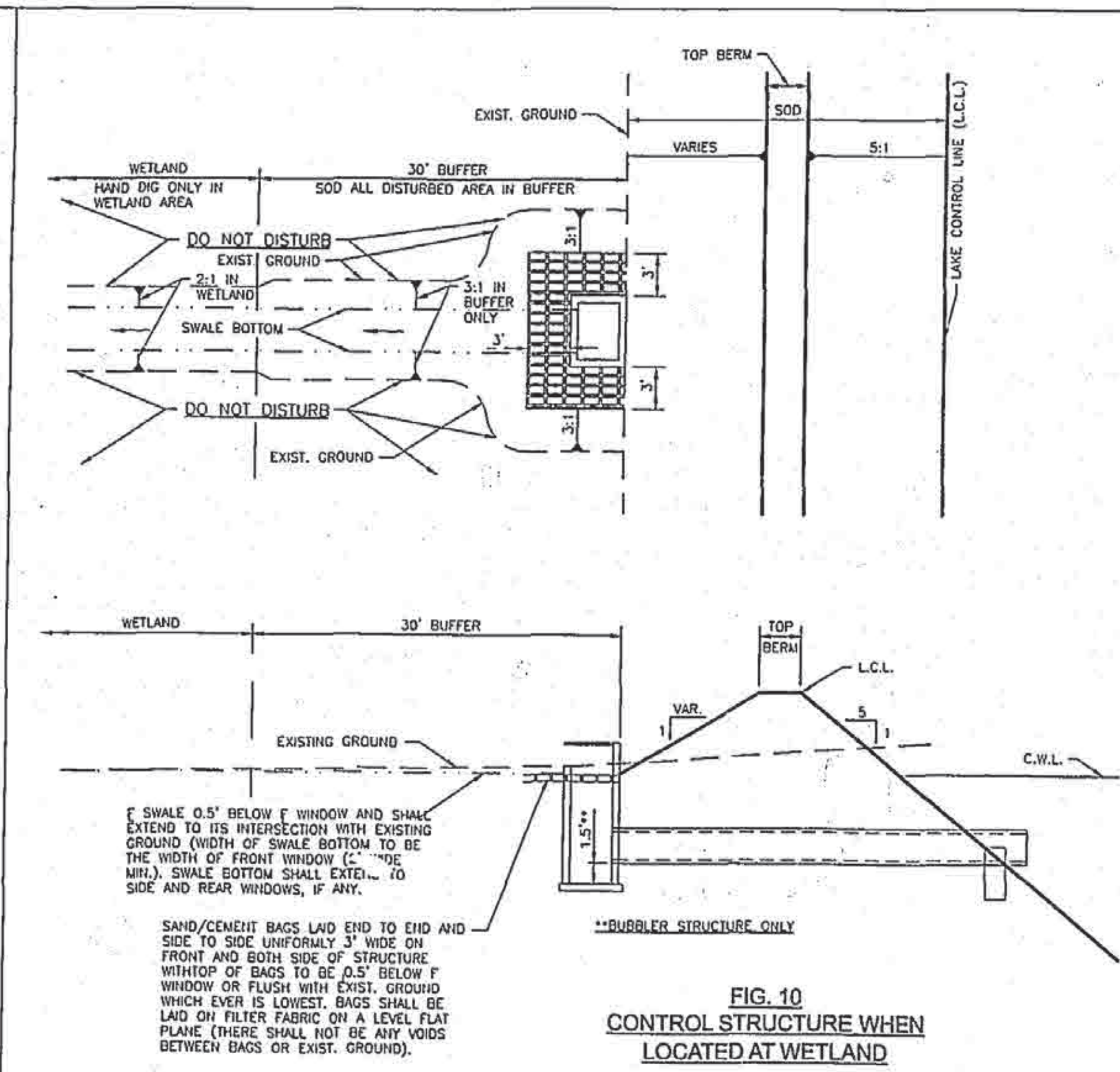


FIG. 10
CONTROL STRUCTURE WHEN LOCATED AT WETLAND

No.	REVISIONS	DATE	BY
1	REV. PER SFWMD LETTER (3-10-05)	03-30-05	
1	REV. PER SWFWMD & SFWMD	01-18-05	

Kimley-Horn and Associates, Inc.

4305 HIGHLAND PARK BLVD., LAKELAND, FLORIDA 33813
(863) 701-8702
CA 00000696

MARK E. WILSON, P.E.
DEAN L. PAQUET, P.E.
FLA. CERT. NO. 47615
FLA. CERT. NO. 59916
DATE: APR 0 6 2005

SCALE AS NOTED
DESIGNED BY DLP
DRAWN BY NHS
CHECKED BY DLP

SHEET TITLE:
SMALL CONTROL STRUCTURE DETAILS

PROJECT NAME:
PROVIDENCE N2-3
POLK COUNTY FLORIDA

DATE 07/26/04
PROJECT NO. 049853002
SHEET NUMBER
C702

\CONSTRDETAIL-SMALL CS.dgn 3/31/2005 2:15:22 PM

Providence N2-3

SFWMD ERP App. 040220-40

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 53-00204-P
DATE ISSUED: NOVEMBER 10, 2004

FORM 40E-1 (R)
Rev. 08/95

ERMITTEE: APPLIED BUILDING DEVELOPMENT COMPANY OAKHILLS INC
(PROVIDENCE VILLAGE (FKA OAKHILLS))
8000 THE ESPLANADE,
ORLANDO, FL 32836

ROJECT DESCRIPTION: CONSTRUCTION AND OPERATION OF A SURFACE WATER MANAGEMENT SYSTEM AND MASS GRADING OF THE 660 ACRE FIRST PHASE OF THE PROJECT KNOWN AS PROVIDENCE VILLAGE AND CONCEPTUAL APPROVAL OF THE BALANCE OF THE 1750 DEVELOPMENT.

ROJECT LOCATION: POLK COUNTY, SECTION 13 TWP 26S RGE 27E
SECTION 18,19 TWP 26S RGE 28E

ERMIT DURATION: See Special Condition No:1. See attached Rule 40E-4.321, Florida Administrative Code.

s Permit is issued pursuant to Application No. 040220-40, date February 4, 2004. Permittee agrees to hold and save the th Florida Water Management District and its successors harmless from any and all damages, claims or liabilities which may arise reason of the construction, operation, maintenance or use of activities authorized by this Permit. This Permit is issued under the visions of Chapter 373, Part IV Florida Statutes (F.S.), and the Operating Agreement Concerning Regulation Under Part IV, apter 373 F.S., between South Florida Water Management District and the Department of Environmental Protection. Issuance his Permit constitutes certification of compliance with state water quality standards where neccessary pursuant to Section 401, blic Law 92-500, 33 USC Section 1341, unless this Permit is issued pursuant to the net improvement provisions of Subsections .414(1)(b), F.S., or as otherwise stated herein.

s Permit may be transferred pursuant to the appropriate provisions of Chapter 373, F.S, and Sections 40E-1.6107(1) and (2), and E-4.351(1), (2), and (4), Florida Administrative Code (F.A.C.). This Permit may be revoked, suspended, or modified at any time rsuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.351(1), (2), and (4), F.A.C.

s Permit shall be subject to the General Conditions set forth in Rule 40E-4.381, F.A.C., unless waived or modified by the verning Board. The Application, and the Environmental Resource Permit Staff Review Summary of the Application, including conditions, and all plans and specifications incorporated by reference, are a part of this Permit. All activities authorized by s Permit shall be implemented as set forth in the plans, specifications, and performance criteria as set forth and incorporated he Environmental Resource Permit Staff Review Summary. Within 30 days after completion of construction of the permitted vity, the Permittee shall submit a written statement of completion and certification by a registered professional engineer or other propriate individual, pursuant to the appropriate provisions of Chapter 373, F.S. and Sections 40E-4.361 and 40E-4.381, F.A.C.

he event the property is sold or otherwise conveyed, the Permittee will remain liable for compliance with this Permit until transfer pproved by the District pursuant to Rule 40E-1.6107, F.A.C.

PECIAL AND GENERAL CONDITIONS ARE AS FOLLOWS:

SEE PAGES 2 - 4 OF 7 (23 SPECIAL CONDITIONS).
SEE PAGES 5 - 7 OF 7 (19 GENERAL CONDITIONS).

FILED WITH THE CLERK OF THE SOUTH FLORIDA WATER MANAGEMENT DISTRICT

On ORIGINAL SIGNED BY:
By ELIZABETH VEGUILLA
DEPUTY CLERK

SOUTH FLORIDA WATER MANAGEMENT DISTRICT, BY ITS GOVERNING BOARD

By ORIGINAL SIGNED BY:
GARRETT WALLACE
ACTING DISTRICT CLERK

SPECIAL CONDITIONS

1. The conceptual phase of this permit shall expire on November 11, 2006. The construction phase of this permit shall expire on November 11, 2009.

2. Operation of the surface water management system shall be the responsibility of PROVIDENCE COMMUNITY ASSOCIATION INC. Within one year of permit issuance or concurrent with the engineering certification of construction completion, whichever comes first, the permittee shall submit a copy of the recorded deed restrictions (or declaration of condominium, if applicable), a copy of the filed articles of incorporation, and a copy of the certificate of incorporation for the association.

3. Discharge Facilities: See Exhibit 6

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

11. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

12. Minimum building floor elevation: See Table 3, Exhibit 4

13. Minimum road crown elevation: See Table 3, Exhibit 4

14. Grass seed, sod or mulch shall be installed and maintained on exposed areas within 48 hours of completing final grade, and at other times as necessary, to prevent erosion, sedimentation or turbid discharge into adjacent waters and/or wetlands.

15. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or U.S. Fish and Wildlife Service for

appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.

16. Prior to the commencement of construction resulting in wetland impacts and in accordance with the work schedule in Exhibit No. 32, the permittee shall submit two certified copies of the recorded conservation easement for the mitigation area and associated buffers. The data should also be supplied in a digital CAD (.dxf) or GIS (ESRI Coverage) format. The files should be in the Florida State Plane coordinate system, East Zone (3601) with a data datum of NAD83, HARN with the map units in feet. This data should reside on a CD or floppy disk and be submitted to the District's Environmental Resource Compliance Division in the service area office where the application was submitted.
The recorded easement shall be in substantial conformance with Exhibit 31. Any proposed modifications to the approved form must receive prior written consent from the District. The easement must be free of encumbrances or interests in the easement which the District determines are contrary to the intent of the easement. In the event it is later determined that there are encumbrances or interests in the easement which the District determines are contrary to the intent of the easement, the permittee shall be required to provide release or subordination of such encumbrances or interests.

17. The wetland conservation areas and upland buffer zones and/or upland preservation areas may in no way be altered from their natural or permitted state. Activities prohibited within the conservation areas include, but are not limited to: construction or placing of buildings on or above the ground; dumping or placing soil or other substances such as trash; removal or destruction of trees, shrubs, or other vegetation - with the exception of exotic vegetation removal; excavation, dredging, or removal of soil materials; diking or fencing; and any other activities detrimental to drainage, flood control, water conservation, erosion control, or fish and wildlife habitat conservation or preservation.

18. A maintenance program shall be implemented in accordance with Exhibit No. 30 for the preserved wetland areas on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 10% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.

19. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands. Buffers shall be staked and roped and District environmental staff notified for inspection prior to clearing.

20. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

21. A monitoring program shall be implemented in accordance with Exhibit Nos. 30 and 32. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff.

22. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands or upland buffer zones.

3. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss construction methods and sequencing (include all relevant resource/permitting issues - type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, construction dewatering, ownership documentation for eminent domain authority, coordination with other entities on adjacent construction projects, wetland/buffer protection methods, endangered species protection) with the permittee and contractors. The permittee shall contact the Orlando Service Center to schedule the pre-construction meeting.

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

40E-4.321 Duration of Permits

(1) Unless revoked or otherwise modified the duration of an environmental resource permit issued under this chapter or Chapter 40E-40, F.A.C. is as follows:

(a) For a conceptual approval, two years from the date of issuance or the date specified as a condition of the permit, unless within that period an application for an individual or standard general permit is filed for any portion of the project. If an application for an environmental resource permit is filed, then the conceptual approval remains valid until final action is taken on the environmental resource permit application. If the application is granted, then the conceptual approval is valid for an additional two years from the date of issuance of the permit. Conceptual approvals which have no individual or standard general environmental resource permit applications filed for a period of two years shall expire automatically at the end of the two year period.

(b) For a conceptual approval filed concurrently with a development of regional impact (DRI) application for development approval (ADA) and a local government comprehensive plan amendment, the duration of the conceptual approval shall be two years from whichever one of the following occurs at the latest date:

1. the effective date of the local government's comprehensive plan amendment.
2. the effective date of the local government development order.
3. the date on which the District issues the conceptual approval, or
4. the latest date of the resolution of any Chapter 120.57, F.A.C., administrative proceeding or other legal appeals.

(c) For an individual or standard general environmental resource permit, five years from the date of issuance or such amount of time as made a condition of the permit.

(d) For a noticed general permit issued pursuant to chapter 40-E-400, F.A.C., five years from the date the notice of intent to use the permit is provided to the District.

(2)(a) Unless prescribed by special permit condition, permits expire automatically according to the timeframes indicated in this rule. If application for extension is made in writing pursuant to subsection (3), the permit shall remain in full force and effect until:

1. the Governing Board takes action on an application for extension of an individual permit, or
2. staff takes action on an application for extension of a standard general permit.

(b) Installation of the project outfall structure shall not constitute a vesting of the permit.

(3) The permit extension shall be issued provided that a permittee files a written request with the District showing good cause prior to the expiration of the permit. For the purpose of this rule, good cause shall mean a set of extenuating circumstances outside of the control of the permittee. Requests for extensions, which shall include documentation of the extenuating circumstances and how they have delayed this project, will not be accepted more than 180 days prior to the expiration date.

(4) Substantial modifications to Conceptual Approvals will extend the duration of the Conceptual Approval for two years from the date of issuance of the modification. For the purposes of this section, the term "substantial modification" shall mean a modification which is reasonably expected to lead to substantially different water resource or environmental impacts which require a detailed review.

(5) Substantial modifications to individual or standard general environmental resource permits issued pursuant to a permit application extend the duration of the permit for three years from the date of issuance of the modification. Individual or standard general environmental resource permit modifications do not extend the duration of a conceptual approval.

(6) Permit modifications issued pursuant to subsection 40E-4.331(2)(b), F.A.C. (letter modifications) do not extend the duration of a permit.

(7) Failure to complete construction or alteration of the surface water management system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization in order to continue construction unless a permit extension is granted.

Specific authority 373.044, 373.113 F.S. Law implemented 373.413, 373.416, 373.419, 373.425 F.S. History—New 9-3-81, Amended 1-31-82, 12-1-82, Formerly 16K-4.07(4), Amended 7-1-86, 4/20/94, Amended 7-1-86, 4/20/94, 10-3-95

NOTICE OF RIGHTS

Section 120.569(1), Fla. Stat. (1999), requires that "each notice shall inform the recipient of any administrative hear judicial review that is available under this section, s. 120.57, or s. 120.68; shall indicate the procedure which mu followed to obtain the hearing or judicial review, and shall state the time limits which apply." Please note that this Not Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicat appropriate remedy. You may wish to consult an attorney regarding your legal rights.

Petition for Administrative Proceedings

1. A person whose substantial interests are affected by the South Florida Water Management District's (SFWMD) action has the right to request an administrative hearing on that action. The affected person may request either a formal or an informal hearing, as set forth below. A point of entry into administrative proceedings is governed by Rules 28-106.111 and 40E-1.511, Fla. Admin. Code, (also published as an exception to the Uniform Rules of Procedure as Rule 40E-0.109), as set forth below. Petitions are deemed filed upon receipt of the original documents by the SFWMD Clerk.

a. Formal Administrative Hearing: If a genuine issue(s) of material fact is in dispute, the affected person seeking a formal hearing on a SFWMD decision which does or may determine their substantial interests shall file a petition for hearing pursuant to Sections 120.569 and 120.57(1), Fla. Stat. or for mediation pursuant to Section 120.573, Fla. Stat. within 21 days, except as provided in subsections c. and d. below, of either written notice through mail or posting or publication of notice that the SFWMD has or intends to take final agency action. Petitions must substantially comply with the requirements of Rule 28-106.201(2), Fla. Admin. Code, a copy of the which is attached to this Notice of Rights.

b. Informal Administrative Hearing: If there are no issues of material fact in dispute, the affected person seeking an informal hearing on a SFWMD decision which does or may determine their substantial interests shall file a petition for hearing pursuant to Sections 120.569 and 120.57(2), Fla. Stat. or for mediation pursuant to Section 120.573, Fla. Stat. within 21 days, except as provided in subsections c. and d. below, of either written notice through mail or posting or publication of notice that the SFWMD has or intends to take final agency action. Petitions must substantially comply with the requirements of Rule 28-106.301(2), Fla. Admin. Code, a copy of the which is attached to this Notice of Rights.

c. Administrative Complaint and Order: If a Respondent objects to a SFWMD Administrative Complaint and Order, pursuant to Section 373.119, Fla. Stat. (1997), the person named in the Administrative Complaint and Order may file a petition for a hearing no later than 14 days after the date such order is served. Petitions must substantially comply with the requirements of either subsection a. or b. above.

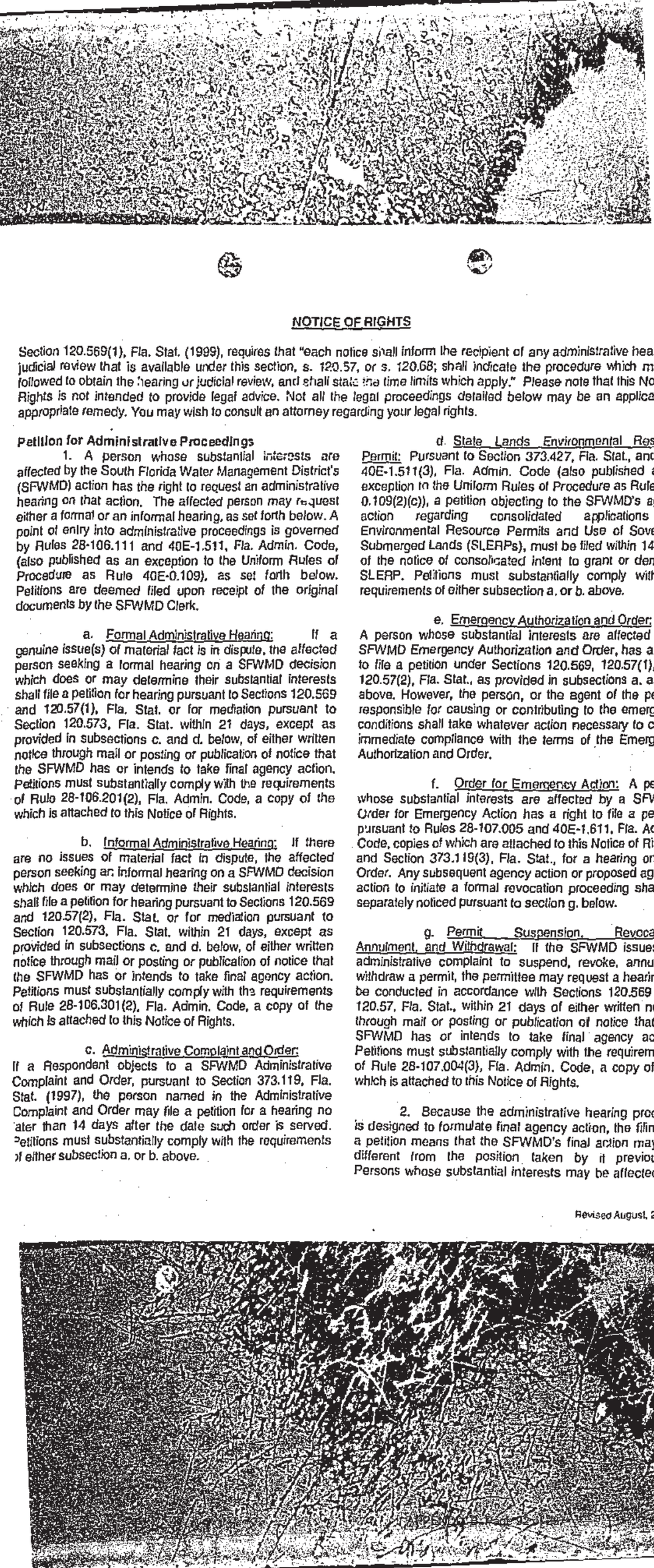
d. State Lands Environmental Reso Permit: Pursuant to Section 373.427, Fla. Stat., and 40E-1.511(3), Fla. Admin. Code (also published as exception to the Uniform Rules of Procedure as Rule 0.109(2)(c)), a petition objecting to the SFWMD's age action regarding consolidated applications Environmental Resource Permits and Use of Sover Submerged Lands (SLERPs), must be filed within 14 d of the notice of consolidated intent to grant or deny SLERP. Petitions must substantially comply with requirements of either subsection a. or b. above.

e. Emergency Authorization and Order: A person whose substantial interests are affected by SFWMD Emergency Authorization and Order, has a ri to file a petition under Sections 120.569, 120.57(1), a 120.57(2), Fla. Stat., as provided in subsections a. and above. However, the person, or the agent of the pers responsible for causing or contributing to the emergen conditions shall take whatever action necessary to caus immediate compliance with the terms of the Emergen Authorization and Order.

f. Order for Emergency Action: A perso whose substantial interests are affected by a SFWM Order for Emergency Action has a right to file a petitio pursuant to Rules 28-107.005 and 40E-1.611, Fla. Admi Code, copies of which are attached to this Notice of Right and Section 373.119(3), Fla. Stat., for a hearing on th Order. Any subsequent agency action or proposed agenc action to initiate a formal revocation proceeding shall b separately noticed pursuant to section g. below.

g. Permit Suspension, Revocation Annulment, and Withdrawal: If the SFWMD issues a administrative complaint to suspend, revoke, annul, o withdraw a permit, the permittee may request a hearing t be conducted in accordance with Sections 120.569 an 120.57, Fla. Stat., within 21 days of either written notic through mail or posting or publication of notice that th SFWMD has or intends to take final agency action Petitions must substantially comply with the requirement of Rule 28-107.004(3), Fla. Admin. Code, a copy of th which is attached to this Notice of Rights.

2. Because the administrative hearing process is designed to formulate final agency action, the filing o a petition means that the SFWMD's final action may be different from the position taken by it previously Persons whose substantial interests may be affected by



any such final decision of the SFWMD shall have, pursuant to Rule 40E-1.511(2), Fla. Admin. Code (also published as an exception to the Uniform Rules of Procedure as *Rule 40E-0.109(2)(c)*), an additional 21 days from the date of receipt of notice of said decision to request an administrative hearing. However, the scope of the administrative hearing shall be limited to the substantial deviation.

3. Pursuant to Rule 40E-1.511(4), Fla. Admin. Code, substantially affected persons entitled to a hearing pursuant to Section 120.57(1), Fla. Stat., may waive their right to such a hearing and request an informal hearing before the Governing Board pursuant to Section 120.57(2), Fla. Stat., which may be granted at the option of the Governing Board.

4. Pursuant to Rule 28-106.111(3), Fla. Admin. Code, persons may file with the SFWMD a request for extension of time for filing a petition. The SFWMD, for good cause shown, may grant the extension. The request for extension must contain a certificate that the petitioner has consulted with all other parties, if any, concerning the extension and that the SFWMD and all other parties agree to the extension.

CIRCUIT COURT

5. Pursuant to Section 373.617, Fla. Stat., any substantially affected person who claims that final agency action of the SFWMD relating to permit decisions constitutes an unconstitutional taking of property without just compensation may seek judicial review of the action in circuit court by filing a civil action in the circuit court in the judicial circuit in which the affected property is located within 90 days of the rendering of the SFWMD's final agency action.

6. Pursuant to Section 403.412, Fla. Stat., any citizen of Florida may bring an action for injunctive relief against the SFWMD to compel the SFWMD to enforce the laws of Chapter 373, Fla. Stat., and Title 40E, Fla. Admin. Code. The complaining party must file with the SFWMD Clerk a verified complaint setting forth the facts upon which the complaint is based and the manner in which the complaining party is affected. If the SFWMD does not take appropriate action on the complaint within 30 days of receipt, the complaining party may then file a civil suit for injunctive relief in the 15th Judicial Circuit in and for Palm Beach County or circuit court in the county where the cause of action allegedly occurred.

7. Pursuant to Section 373.433, Fla. Stat., a private citizen of Florida may file suit in circuit court to require the abatement of any stormwater management system, dam, impoundment, reservoir, appurtenant work or works that violate the provisions of Chapter 373, Fla. Stat.

DISTRICT COURT OF APPEAL

8. Pursuant to Section 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

LAND AND WATER ADJUDICATORY COMMISSION

9. A party to a "proceeding below" may seek review by the Land and Water Adjudicatory Commission (FLAWAC) of SFWMD's final agency action to determine if such action is consistent with the provisions and purposes of Chapter 373, Fla. Stat. Pursuant to Section 373.114, Fla. Stat., and Rules 42-2.013 and 42-2.0132, Fla. Admin. Code, a request for review of (a) an order or rule of the SFWMD must be filed with FLAWAC within 20 days after rendition of the order or adoption of the rule sought to be reviewed; (b) an order of the Department of Environmental Protection (DEP) requiring amendment or repeal of a SFWMD rule must be filed with FLAWAC within 30 days of rendition of the DEP's order, and (c) a SFWMD order rendered pursuant to a formal administrative hearing under Section 120.57(1), Fla. Stat., must be filed no later than 20 days after rendition of the SFWMD's final order. Simultaneous with filing, a copy of the request for review must be served on the DEP Secretary, any person named in the SFWMD or DEP final order, and all parties to the proceeding below. A copy of Rule 42-2.013, Fla. Admin. Code is attached to this Notice of Rights.

PRIVATE PROPERTY RIGHTS PROTECTION ACT

10. A property owner who alleges a specific action of the SFWMD has inordinately burdened an existing use of the real property, or a vested right to a specific use of the real property, may file a claim in the circuit court where the real property is located within 1 year of the SFWMD action pursuant to the procedures set forth in Subsection 70.001(4)(a), Fla. Stat.

LAND USE AND ENVIRONMENTAL DISPUTE RESOLUTION

11. A property owner who alleges that a SFWMD development order (as that term is defined in Section 70.51(2)(a), Fla. Stat. to include permits) or SFWMD enforcement action is unreasonable, or unfairly burdens the use of the real property, may file a request for relief with the SFWMD within 30 days of receipt of the SFWMD's order or notice of agency action pursuant to the procedures set forth in Subsections 70.51(4) and (6), Fla. Stat.

MEDIATION

12. A person whose substantial interests are, or may be, affected by the SFWMD's action may choose mediation as an alternative remedy under Section 120.573, Fla. Stat. Pursuant to Rule 28-106.111(2), Fla. Admin. Code, the petition for mediation shall be filed within 21 days of either written notice through mail or posting or

publication of notice that the SFWMD has or intends to take final agency action. Choosing mediation will not affect the right to an administrative hearing if mediation does not result in settlement.

Pursuant to Rule 28-106.402, Fla. Admin. Code, the contents of the petition for mediation shall contain the following information:

(1) the name, address, and telephone number of the person requesting mediation and that person's representative, if any;

(2) a statement of the preliminary agency action;

(3) an explanation of how the person's substantial interests will be affected by the agency determination; and

(4) a statement of relief sought.

As provided in Section 120.573, Fla. Stat. (1997), the timely agreement of all the parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57, Fla. Stat., for requesting and holding an administrative hearing. Unless otherwise agreed by the parties, the mediation must be concluded within 60 days of the execution of the agreement. If mediation results in settlement of the dispute, the SFWMD must enter a final order incorporating the agreement of the parties. Persons whose substantial interest will be affected by such a modified agency decision have a right to petition for hearing within 21 days of receipt of the final order in accordance with the requirements of Sections 120.569 and 120.57, Fla. Stat., and SFWMD Rule 28-106.201(2), Fla. Admin. Code. If mediation terminates without settlement of the dispute, the SFWMD shall notify all parties in writing that the administrative hearing process under Sections 120.569 and 120.57, Fla. Stat., remain available for disposition of the dispute, and the notice will specify the deadlines that then will apply for challenging the agency action.

VARIANCES AND WAIVERS

13. A person who is subject to regulation pursuant to a SFWMD rule and believes the application of that rule will create a substantial hardship or will violate principles of fairness (as those terms are defined in Subsection 120.542(2), Fla. Stat.) and can demonstrate that the purpose of the underlying statute will be or has been achieved by other means, may file a petition with the SFWMD Clerk requesting a variance from or waiver of the SFWMD rule. Applying for a variance or waiver does not substitute or extend the time for filing a petition for an administrative hearing or exercising any other right that a person may have concerning the SFWMD's action. Pursuant to Rule 28-104.002(2), Fla. Admin. Code, the petition must include the following information:

(a) the caption shall read:
Petition for (Variance from) or (Waiver of) Rule (Citation)

(b) The name, address, telephone number and any facsimile number of the petitioner;

(c) The name, address telephone num and any facsimile number of the attorney or qualif representative of the petitioner, (if any);

(d) the applicable rule or portion of the rule;

(e) the citation to the statue the rule implementing;

(f) the type of action requested;

(g) the specific facts that demonstrate substantial hardship or violation of principals of fairne that wo justify a waiver or variance for the petitioner;

(h) the reason why the variance or the waiv requested would serve the purposes of the underlyi statute; and

(i) a statement of whether the variance waiver is permanent or temporary. If the variance waiver is temporary, the petition shall include the dat indicating the duration of the requested variance or waive

A person requesting an emergency variance from waiver of a SFWMD rule must clearly so state in th caption of the petition. In addition to the requirements Section 120.542(5), Fla. Stat. pursuant to Rule 2 104.004(2), Fla. Admin. Code, the petition must als include:

a) the specific facts that make the situation a emergency; and

b) the specific facts to show that the petitioner wi suffer immediate adverse effect unless the variance o waiver is issued by the SFWMD more expeditiously tha the applicable timeframes set forth in Section 120.542, Fla Stat.

WAIVER OF RIGHTS

14. Failure to observe the relevant tim frames prescribed above will constitute a waiver of suc right.

28-106.201 INITIATION OF PROCEEDINGS
(INVOLVING DISPUTED ISSUES OF MATERIAL FACT)

(2) All petitions filed under these rules shall contain:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number o the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding, and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and

(f) A demand for relief.

28-106.301 INITIATION OF PROCEEDINGS
(NOT INVOLVING DISPUTED ISSUES OF MATERIAL FACT)

(2) All petitions filed under these rules shall contain:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding, and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A concise statement of the ultimate facts alleged, as well as the rules and statutes which entitle the petitioner to relief; and

(e) A demand for relief.

28-107.004 SUSPENSION, REVOCATION, ANNULMENT, OR WITHDRAWAL

(3) Requests for hearing filed in accordance with this rule shall include:

(a) The name and address of the party making the request, for purposes of service;

(b) A statement that the party is requesting a hearing involving disputed issues of material fact, or a hearing not involving disputed issues of material fact; and

(c) A reference to the notice, order to show cause, administrative complaint, or other communication that the party has received from the agency.

42-2.013 REQUEST FOR REVIEW PURSUANT TO SECTION 373.114 OR 373.217

(1) In any proceeding arising under Chapter 373, F.S., review by the Florida Land and Water Adjudicatory Commission may be initiated by the Department or a party by filing a request for such review with the Secretary of the Commission and serving a copy on any person named in the rule or order, and on all parties to the proceeding which resulted in the order sought to be reviewed. A certificate of service showing completion of service as required by this subsection shall be a requirement for a determination of sufficiency under Rule 42-2.0132. Failure to file the request with the Commission within the time period provided in Rule 42-2.0132 shall result in dismissal of the request for review.

(2) The request for review shall identify the rule or order requested to be reviewed, the proceeding in which the rule or order was entered and the nature of the rule or order. A copy of the rule or order sought to be reviewed shall be attached. The request for review shall state with particularity:

(a) How the order or rule conflicts with the requirements, provisions and purposes of Chapter 373, F.S., or rules duly adopted thereunder;

(b) How the rule or order sought to be reviewed affects the interests of the party seeking review;

(c) The oral or written statement, sworn or unsworn which was submitted to the agency concerning the matter to be reviewed and the date and location of the statement if the individual or entity requesting the review has not participated in a proceeding previously instituted pursuant to Chapter 120, F.S., on the order for which review is sought;

(d) If review of an order is being sought, whether and how the activity authorized by the order would substantially affect natural resources of statewide or regional significance, or whether the order raises issues of policy, statutory interpretation, or rule interpretation that have regional or statewide significance from a standpoint of agency precedent, and all the factual bases in the record which the petitioner claims support such determination(s); and

(e) The action requested to be taken by the Commission as a result of the review, whether to rescind or modify the order, or remand the proceeding to the water management district for further action, or to require the water management district to initiate rulemaking to adopt, amend or repeal a rule.

28-107.005 EMERGENCY ACTION

(1) If the agency finds that immediate serious danger to the public health, safety, or welfare requires emergency action, the agency shall summarily suspend, limit, or restrict a license.

(2) the 14-day notice requirement of Section 120.569(2)(b), F. S., does not apply and shall not be construed to prevent a hearing at the earliest time practicable upon request of an aggrieved party.

(3) Unless otherwise provided by law, within 20 days after emergency action taken pursuant to paragraph (1) of this rule, the agency shall initiate a formal suspension or revocation proceeding in compliance with Sections 120.569, 120.57, and 120.60, F.S.

40E-1.611 EMERGENCY ACTION

(1) An emergency exists when immediate action is necessary to protect public health, safety or welfare; the health of animals, fish or aquatic life; the works of the District; a public water supply, or recreational, commercial, industrial, agricultural or other reasonable uses of land and water resources.

(2) The Executive Director may employ the resources of the District to take whatever remedial action necessary to alleviate the emergency condition without the issuance of an emergency order, or in the event an emergency order has been issued, after the expiration of the requisite time for compliance with that order.

Last Date For Agency Action: 11-NOV-2004

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Providence Village (f/k/a Oakhills)

Permit No.: 53-00204-P

Application No.: 040220-40

Application Type: Environmental Resource (Conceptual Approval And New Construction/Operation)

Location: Polk County, S13/T26S/R27E
S18,19/T26S/R28E

Permittee : Applied Building Development Company Oakhills Inc

Operating Entity : Providence Community Association Inc

Project Area: 1750 acres

Project Land Use: Residential

Drainage Basin: REEDY CREEK

Receiving Body: Existing wetlands adjacent to Reedy Creek Swamp **Class:** CLASS III

DRAFT
Subject to Governing Board Approval

Special Drainage District: NA

Total Acres Wetland Onsite:	514.38
Total Acres Wetland Preserved Onsite:	508.64
Total Acres Impacted Onsite :	5.74
Total Acres Presv/Mit Compensation Onsite:	508.64

Conservation Easement To District : Yes
Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system and mass grading of the 660 acre first phase of residential development, and conceptual approval of the balance of the 1750 acre portion of the project located within SFWMD. Staff recommends approval with conditions.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

Providence Village is a 2,215 acre Development of Regional Impact located in northern Polk County approximately one mile south of the Polk-Osceola County Line. The project site is bordered on the north by S.R. 54 (Kinney-Harmon Road), on the east by Reedy Creek Swamp, on the south by Standard Sand and Silica and undeveloped land, and on the west by U.S. 17/92. The western-most portion of the project site lies within the Southwest Florida Water Management District. Exhibit 1 shows the District boundary in relation to the project.

This project was previously permitted as Oak Hills Estates (Permit No. 53-00130-S); however the conceptual approval has expired. There are no permitted surface water management facilities within the SFWMD portion of the project area. The site contains undeveloped uplands and wetlands.

The conceptual project site contains approximately 514.38 acres of wetlands and 24.01 acres of surface waters. The proposed conceptual design will result in 5.74 acres of wetland impacts and 13.84 acres of surface water impacts. Of these conceptual impacts, 2.33 acres of wetland impacts and 5.16 acres of surface water impacts will be incurred by the Phase I development. Wetland impacts were limited to the smaller degraded systems, and for necessary roadway crossings that were targeted for areas with existing field roads. Compensatory mitigation for the wetland impacts will be provided through on-site wetland preservation.

PROPOSED PROJECT:

Construction proposed consists of the surface water management serving the 560 acre first phase of development and conceptual approval for the balance of the 1750 acre Providence Village project.

The 1750 acres is the portion of Providence Village that is located in the District. There are approximately 465 acres of the project located within the Southwest Florida Water Management District. Portions of the development in SWFWMD have been approved under Permit Nos. 44008331.010 and 49008331.003 and construction of the roads and water management system partially completed.

The water management system for the first phase of development consists of inlets and culverts directing runoff to 34 wet detention ponds for water quality treatment and attenuation prior to discharge to existing wetlands adjacent to Reedy Creek Swamp. Construction in the first phase is limited to the water management system, the entrance boulevard extension, and mass grading of future residential areas. Mass graded areas will be seeded and mulched or sodded upon completion of final grade. (See Special Conditions) Table 1, Exhibit 2 lists the project drainage basins, pond identification, average wet season water table and the control elevation. Table 2, Exhibit 3 lists the pond area at control elevation, water quality treatment volume required, provided and the control elevation. Table 3, Exhibit 4 lists the design storm peak stages, minimum road elevation, minimum finish floor elevation, and the peak discharge.

There are portions of four basins containing 10.25 acres which are located in the SWFWMD but drain to ponds in the SFWMD portion of the project. This mimics existing drainage patterns and this area receives full treatment in the proposed water management system.

The conceptual design of the water management system consists of inlets and culverts directing runoff to wet detention ponds, existing wetlands, and Reedy Creek Swamp.

LAND USE:

Construction:
Project:

	This Phase	Total Project	
uilding Coverage	.00	220.00	acres
avement	9.00	225.00	acres
ervious	411.00	583.00	acres
reserved	175.00	617.00	acres
Vater Mgnt Acreage	65.00	105.00	acres
Total:	**660.00**	**1750.00**	

VATER QUANTITY :

Discharge Rate :

As shown in Table 3, Exhibit 4, the proposed project discharge is within the allowable limit for the area (pre US Post Development Analysis). The ponds discharge to existing wetlands adjacent to Reedy Creek Swamp.

Discharge Storm Frequency : 25 YEAR-1 DAY Design Rainfall : 9 inches

Finished Floors :

As shown in Table 3, Exhibit 4 and the attached exhibits, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Building Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 13.5 inches

Road Design :

As shown in Table 3, Exhibit 4 and the attached exhibits, minimum road center lines have been set at or above the calculated design storm flood elevation.

Road Storm Frequency : 25 YEAR-1 DAY Design Rainfall: 9 inches

Flood Plain/Compensating Storage:

The proposed project results in approximately 0.24 acre feet of encroachment into the 100 floodplain. Compensating storage is provided in the amount of 0.86 acre feet between the control eleavtion of 88.0' NGVD and flood elevation of 90.0' NGVD

Displaced Volume	Compensating Volume	100-Year Stage Elevation
.24 ac-ft	.86 ac-ft	90 ft-NGVD

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. Water quality treatment for the first inch of runoff is provided in wet detention ponds. Water quality treatment volume required and provided is shown on Table 2, Exhibit 3 for each basin.

WETLANDS:

The project site contains 514.38 acres of forested and herbaceous wetlands. The majority of these wetlands are part of the Reedy Creek Swamp, which lies along the eastern property boundary.

are several large wetland systems scattered throughout the project site that limit accessibility to upland areas that can be used for development. This results in the need for wetland impacts to provide roadway crossings to access these upland parcels. These roadway crossings have been aligned with existing field roads to minimize wetland impacts to the greatest extent practicable. Wetland impacts are also proposed to several small, isolated wetlands that are scattered throughout the property. The majority of the wetlands have been degraded due to agricultural practices including cattle grazing and significant ditching throughout the project site. The network of ditches has compromised the hydrology of the smaller systems scattered throughout the property.

The conceptually approved wetland impacts will be conducted during each phase of construction, as necessary. Approximately 2.33 acres of these wetland impacts will be incurred by the mass grading of the Phase I project area, approved in this application. Compensatory mitigation will be provided through on-site wetland preservation as discussed under the "Mitigation Proposal" section of the staff report.

The applicant used the Uniform Wetland Assessment Methodology (UMAM) to determine the value of the 5.74 acres of wetland impact and the 508.64 acres of wetland preservation (Exhibit 29). Using UMAM, the wetland impacts were calculated to have a value of 4.02 Units of Functional Loss. The 508.64 acres of wetland preservation was assessed to have a value sufficient to offset 10.17 Units of Functional Gain. The applicant will record a conservation easement over the preservation areas with each phase of development, and the preservation areas will be maintained in perpetuity. The goal of these measures is to ensure that the preserved wetlands retain their current assessed value. Using UMAM to assess the wetland impact and preservation areas, it was determined that 508.64 acres of wetland preservation more than adequately offset the 5.74 acres of wetland impacts.

PHASE I WETLAND IMPACTS:
Wetland impacts associated with the Phase I mass grading include 2.33 acres to wetlands W-1, W-2, W-4B and small portions of W-8 and W-29B. Wetlands W-1, W-2 and W-4B lie along the northern property boundary and have been previously impacted by construction of Kinney Harmon Road. The wetlands exhibit signs of hydrologic stress and subsequent encroachment of nuisance species. The surrounding uplands are proposed for commercial use. Due to the small size, mediocre condition and scattered locations of these wetlands, it is not likely that they would sustain viable wetland habitat and function in the post-development condition surrounded by commercial land uses.

The partial impacts to W-8 and W-29 are proposed for roadway crossings. The Development of Regional Impact requirements include a secondary access point to the project site. The main access to the project site is from U.S. 17/92 along the western property boundary. The secondary access road is planned to extend from Kinney-Harmon Road southward into the project site. The geometry of this access road requires a partial impact to the western edge of W-8. The roadway crossing of W-29 has been aligned with an existing field road to minimize wetland impacts. There are existing culverts under the field road, and this hydrologic connection will be maintained via box culverts under the roadway in the post-development condition.

Mitigation Proposal:

The Uniform Mitigation Assessment Method (UMAM) was used to evaluate the wetland impacts and the wetland preservation areas proposed for use as mitigation. Approximately 98.9% of all on-site wetlands are slated for preservation. The 508.64 acres of wetland preservation were assessed to have a value sufficient to offset 10.31 Units of Functional Loss.

The Phase I mass grading will result in 2.33 acres of wetland impacts, which were assessed using UMAM to have a value of 1.57 Units of Functional Loss. The five wetland impacts are to small wetlands that have been degraded over the years by agricultural uses including cattle grazing and ditching. The 125.28 acres of wetland preservation that fall within the Phase I project limits were assessed to have a value

sufficient to offset 2.64 Units of Functional Loss. The Phase I wetland preservation will be placed under a conservation easement pursuant to this application.

The remaining 383.36 acres of wetland preservation within the conceptual project area will be placed under conservation easement with future phases of development and as needed to offset additional approved conceptual wetland impacts. Using UMAM to assess the wetland impact and preservation areas, it is determined that 508.64 acres of wetland preservation more than adequately offset the 5.74 acres of wetland impacts. The applicant wishes to reserve the right to apply any excess mitigation value of the preservation areas to mitigate future impacts, if needed.

Cumulative Impact Assessment:

Pursuant to Sections 4.2.7 and 4.2.8 of the Basis of Review, protective measures have been incorporated into the project design to prevent secondary and cumulative impacts to the natural resources of the project site. Specifically, the conceptual permit has been designed to consider future impacts associated with the development of the project. The site plan and proposed roadway network have been designed to minimize wetland impacts to the greatest extent practicable. An average 25-foot upland buffer will be provided adjacent to the wetlands to prevent future encroachment into these protected areas.

Secondary impacts will be incurred in those areas where partial impacts are proposed (i.e. roadway crossings). These secondary impacts have been quantified, and were considered within the functional analysis for the mitigation plan. Additionally, the remaining portions of these wetlands will be subject to the monitoring and maintenance plan, which controls the presence and abundance of nuisance and exotic species.

The post-development hydrology of the preserved wetlands will be maintained in the pre-development condition through discharge of treated stormwater via spreader swales. The gradient criteria have been met and no adverse impacts to wetland hydrology are anticipated.

The project also includes protective measures to prevent cumulative impacts to wetland-dependent species. The majority of the on-site wetlands are contiguous with the Reedy Creek Swamp, and lie immediately adjacent to the Reedy Creek Mitigation Bank. The proposed mitigation plan consists of preservation of more than 98.5% of the on-site wetlands. These areas and the associated upland buffers will be placed under a conservation easement. This will ensure long-term preservation of essential habitat for listed species located on the project site as well as in the adjacent areas of the Reedy Creek Swamp. Project development is not anticipated to result in secondary or cumulative impacts to wetlands or other surface waters within the Reedy Creek Drainage Basin.

Monitoring/Maintenance:

The applicant will implement a monitoring and maintenance plan in accordance with Exhibit 30. The maintenance plan will be conducted in perpetuity to ensure that conservation areas are free from invasive exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the date of permit issuance) immediately following a maintenance activity. Nuisance and exotic plant species shall constitute no more than 10% of total cover between maintenance activities.

Wetland Inventory :

CONCEPTUAL NEW -PROVIDENCE VILLAGE ONSITE

Pre-Development		Post-Development			
	Total Existing	Impacted	Undisturbed	Enhanced Preserved	Restored/ Created
Fresh Water Forested	473.79	3.89		469.90	
Fresh Water Herbaceous	40.59	1.85		38.74	
Total:	514.38	5.74		508.64	

Wetland Inventory :

CONSTRUCTION NEW -PROVIDENCE VILLAGE PHASE 1 ONSITE

Pre-Development		Post-Development			
	Total Existing	Impacted	Undisturbed	Enhanced Preserved	Restored/ Created
Fresh Water Forested	27.96	.28		27.68	
Fresh Water Herbaceous	99.65	2.05		97.60	
Total:	127.61	2.33		125.28	

Endangered Species:

The following wetland dependent species were documented to occur on the 1,750 acre project site: Florida sandhill crane, wood stork, little blue heron, and white ibis. No nests or rookeries of the wading birds were identified on the property and adverse impacts to these species are not anticipated due to the significant wetland preservation proposed in the project design. Preservation and management of the vast majority of the onsite wetlands is expected to continue this site's use by listed, wetland-dependant species

The site does contain listed upland species including gopher tortoises, sand skinks, and scrub jays. The gopher tortoise is a state listed "Species of Special Concern". The applicant has applied for a standard on-site relocation permit from the Florida Fish & Wildlife Conservation Commission, as required by the recorded Development Order. The sand skink is a federally protected species, and was documented to occur on the project site in scattered patches. The project development will result in incidental take to portions of the occupied sand skink habitat. The applicant is coordinating with the U.S. Fish & Wildlife Service to procure a Biological Opinion for this impact. The scrub-jay was documented within the western portion of the project site, which falls under the jurisdiction of the Southwest Florida Water Management District. An 80.90 acre preserve has been set aside as preservation for the scrub-jay, gopher tortoise and sand skink, as required by the Development Order.

The project site does contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. There is potential for continued use of the site by such species. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

Species	Potential Occurence	Use Types

Species	Potential Occurence	Use Types
Florida Scrub Jay	Observed	
Gopher Tortoises	Observed Active Burrows	
Herons	Observed	
Sand Skink	Observed Sign	
Sandhill Cranes	Observed	
White Ibis	Observed	
Woodstork	Observed	

LEGAL ISSUES:

The 125.28 acres of wetland preservation and associated upland buffers that lie within the Phase I project boundaries will be placed under a conservation easement pursuant to this application. The conservation easement will be in substantial conformance with Exhibit 31.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that existing permitted wells may be used for irrigation water for the this phase of the project. Future development areas will be irrigated from three existing permitted wells under Permit No. 53-00165-W. The existing permit will require modification to reflect the change in irrigation use.

The applicant has indicated that dewatering is required for construction of this project. No construction dewatering shall commence until a dewatering permit has been obtained from the District in accordance with General Condition No. 13 of this permit.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation, unless the work qualifies for a No-Notice Short-Term Dewatering permit pursuant to Chapter 40E-20.302(3) or is exempt pursuant to Section 40E-2.051, FAC.

Potable Water Supplier:

Polk County Utilities

Waste Water System/Supplier:

Polk County Utilities

Right-Of-Way Permit Status:

A Right-of-Way Permit is not required for this project.

DRI Status:

This project is a DRI (SFWMD ID No. 90-333). The original Development Order for this DRI was issued by Polk County on October 18, 1990.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources or that the proposed activities could cause adverse impacts to archaeological or historical resources.

DCA/CZM Consistency Review:

The District has not received a finding of inconsistency from the Florida Department of Environmental Protection or other commenting agencies regarding the provisions of the federal Coastal Zone Management Plan.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF RECOMMENDATION:

The Staff recommends that the following be issued :

Construction and operation of a surface water management system and mass grading of the 660 acre first phase of the project known as Providence Village and conceptual approval of the balance of the 1750 development.

Based on the information provided, District rules have been adhered to.

Staff recommendation is for approval subject to the attached General and Special Conditions.

DRAFT Subject to Governing Board Approval

STAFF REVIEW:

NATURAL RESOURCE MANAGEMENT DIVISION APPROVAL

ENVIRONMENTAL EVALUATION	SUPERVISOR
JENNIFER STOUT	for Marc S. Ady

DIVISION DIRECTOR :

Robert G. Robbins

DATE: 10-11-04

SURFACE WATER MANAGEMENT DIVISION APPROVAL

ENGINEERING EVALUATION	SUPERVISOR
Alan L. Leavens	for Edward W. Yaun, P.E.

DIVISION DIRECTOR :

Anthony M. Waterhouse, P.E.

DATE: 10/22/04

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity

approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

GENERAL CONDITIONS

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The conceptual phase of this permit shall expire on November 11, 2006. The construction phase of this permit shall expire on November 11, 2008.

2. Operation of the surface water management system shall be the responsibility of PROVIDENCE COMMUNITY ASSOCIATION INC. Within one year of permit issuance or concurrent with the engineering certification of construction completion, whichever comes first, the permittee shall submit a copy of the recorded deed restrictions (or declaration of condominium, if applicable), a copy of the filed articles of incorporation, and a copy of the certificate of incorporation for the association.

3. Discharge Facilities: See Exhibit 8

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.

8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

11. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

12. Minimum building floor elevation: See Table 3, Exhibit 4

13. Minimum road crown elevation: See Table 3, Exhibit 4

14. Grass seed, sod or mulch shall be installed and maintained on exposed areas within 48 hours of completing final grade, and at other times as necessary, to prevent erosion, sedimentation or turbid discharge into adjacent waters and/or wetlands.

15. Endangered species, threatened species and/or species of special concern have been observed onsite and/or the project contains suitable habitat for these species. It shall be the permittee's responsibility to coordinate with the Florida Fish and Wildlife Conservation Commission and/or the U.S. Fish and Wildlife Service for appropriate guidance, recommendations and/or necessary permits to avoid impacts to listed species.

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conservation easement for the mitigation area and associated buffers. The data should also be supplied in a digital CAD (.dxf) or GIS (ESRI Coverage) format. The files should be in the Florida State Plane coordinate system, East Zone (3601) with a data datum of NAD83, HARN with the map units in feet. This data should reside on a CD or floppy disk and be submitted to the District's Environmental Resource Compliance Division in the service area office where the application was submitted.

The recorded easement shall be in substantial conformance with Exhibit 31. Any proposed modifications to the approved form must receive prior written consent from the District. The easement must be free of encumbrances or interests in the easement which the District determines are contrary to the intent of the easement. In the event it is later determined that there are encumbrances or interests in the easement which the District determines are contrary to the intent of the easement, the permittee shall be required to provide release or subordination of such encumbrances or interests.

17. The wetland conservation areas and upland buffer zones and/or upland preservation areas may in no way be altered from their natural or permitted state. Activities prohibited within the conservation areas include, but are not limited to: construction or placing of buildings on or above the ground; dumping or placing soil or other substances such as trash; removal or destruction of trees, shrubs, or other vegetation - with the exception of exotic vegetation removal; excavation, dredging, or removal of soil materials; diking or fencing; and any other activities detrimental to drainage, flood control, water conservation, erosion control, or fish and wildlife habitat conservation or preservation.

18. A maintenance program shall be implemented in accordance with Exhibit No. 30 for the preserved wetland areas on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 10% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.

19. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands. Buffers shall be staked and roped and District environmental staff notified for inspection prior to clearing..

20. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

21. A monitoring program shall be implemented in accordance with Exhibit Nos. 30 and 32. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff.

22. Silt screens, hay bales, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

23. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss construction methods and sequencing [include all relevant resource/permitting issues - type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, construction dewatering, ownership documentation for eminent domain authority, coordination with other entities on adjacent construction projects, wetland/buffer protection methods, endangered species protection] with the permittee and contractors. The permittee shall contact the Orlando Service Center to schedule the pre-construction meeting.

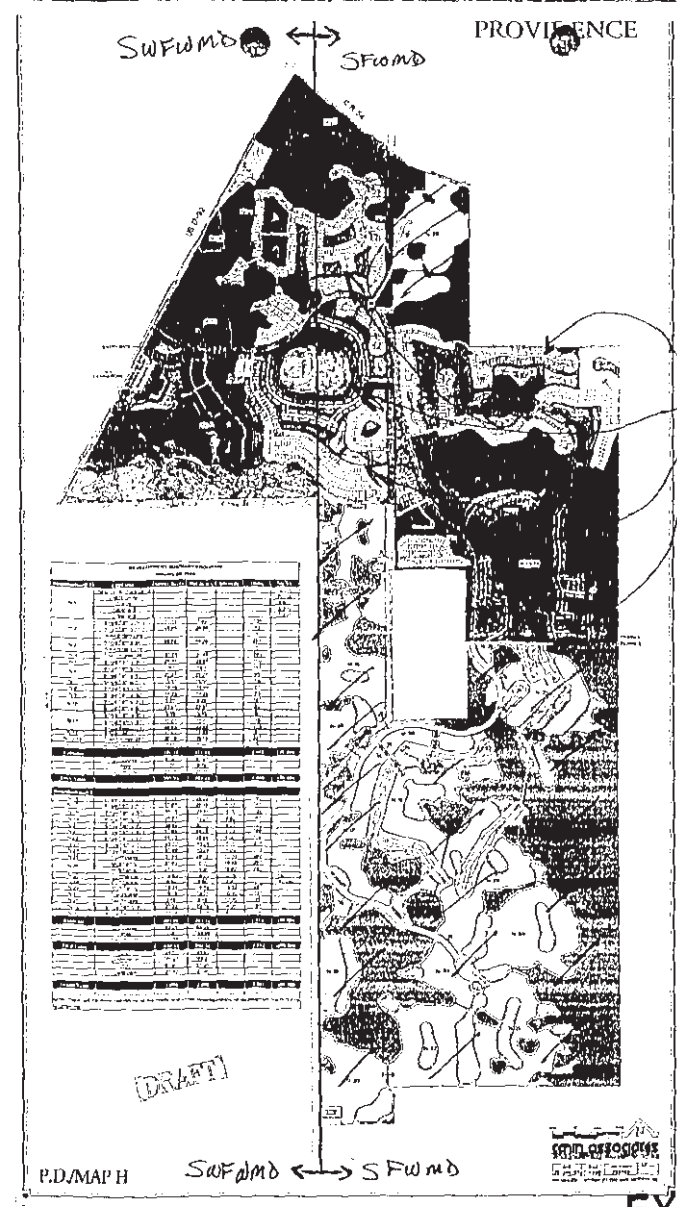

SWFWMD
SFWMD
PROVIDENCE
PHASE I
CONSTRUCTION
DRAFT
P.D./MAP H
SWFWMD
SFWMD

EXHIBIT 1

Table 1

Basin ID	Basin Area (ac.)	Pond ID	Season W.T. (ft.)	Control El. (ft.)
N-6	27.0	PN4-1	100.0	100.0
N-7	16.0	PN4-1	100.0	100.0
N 8	15.0	PN8-1	99.0	99.0
N10A	5.50	PN10A	96.0	96.0
N10B	35.0	PN10-2	85.0	85.0
N11-1	20.0	PN11-1	94.0	94.0
N11-2	20.0	PN11-2	89.0	89.0
N11-3	15.0	PN11-3	89.0	89.0
N11-4	30.0	PN11-4	78.0	78.0
N11-5	10.0	PN11-5	78.0	78.0
N11-6	9.0	PN11-6	75.0	75.0
N12-1	15.0	PN12-1	90.0	90.0
N12-2	6.0	PN12-2	90.0	90.0
N12-3	22.0	PN12-3	90.0	90.0
N12-4	18.0	PN12-4	82.0	82.0
N13-1	15.0	PN13-1	90.0	90.0
N14-1	16.0	PN14-1	89.0	89.0
N14-2	15.0	PN14-2	70.0	70.0
N14-3	12.0	PN14-3	68.0	68.0
N16-1	10.0	PN16-1	100.0	100.0
N16-2	31.0	PN16-2	95.0	95.0
N17	10.0	PN17-1	100.0	100.0
N17-2	15.0	PN17-2	95.0	95.0
N17-3	25.0	PN17-3	92.0	92.0
N18	60.0	PN18-1	100.0	100.0
N19-1	5.0	PN19-1	94.0	94.0
N19-2	23.0	PN19-2	94.0	94.0
N2-2	16.50	PN2-2	97.0	97.0
N2-4	16.0	PN2-4	98.0	98.0
N2-5	11.0	PN2-5	98.50	98.50
N2 6	11.0	PN2-6	99.0	99.0
N2-7	7.0	PN2-7	96.0	96.0
N2-8	17.0	PN2-8	95.5	95.5
N2-9	22.0	PN2-9	95.5	95.5
N20	35.0	PN20-1	94.0	94.0
N21-1	48.0	PN21-1	83.0	83.0
N21-2	5.0	PN21-2	67.0	67.0
N21-3	7.0	PN21-3	67.0	67.0
N22-1	10.0	PN22-1	91.0	91.0
N22-2	15.0	PN22-2	89.0	89.0

EXHIBIT 1 a

Table 1

N22-3	25.0	PN22-3	87.0	87.0
N23-1	10.0	PN23-1	89.0	89.0
N23-2	15.0	PN23-2	84.0	84.0
N23-3	10.0	PN23-3	84.0	84.0
N23-4	10.0	PN23 4	70.0	70.0
N23-5	10.0	PN23-5	72.0	72.0
N24-1	18.0	PN24-1	84.0	84.0
N24-2	35.0	PN24-2	84.0	84.0
N25-1	20.0	PN25-1	79.0	79.0
N25-2	15.0	PN25-2	75.0	75.0
N25-3	10.0	PN25-3	73.0	73.0
N26-1	8.0	NP26-1	89.5	89.5
N26-2	22.0	PN26-2	92.0	92.0
N27	15.0	PN27	92.0	92.0
N29	20.0	PN29-1	97.0	97.0
N30	22.0	PN30-1	89.0	89.0
N30-1	5.0	PN30-1	89.0	89.0
N30-2	15.0	PN30-2	84.0	84.0
N31	14.0	PN31-1	89.0	89.0
N32-1	10.0	PN32-1	99.0	99.0
N32-2	17.0	PN32-2	100.0	100.0
N32-3	5.0	PN32-3	100.0	100.0
N4-2	5.0	PN4-2	104.0	104.0
N4-3	5.0	PN4-3	98.0	98.0
RD-3A	5.63	RD-3A	96.0	96.0
RD-3B	2.08	RD-38	91.50	91.50
RD-4	6.73	RD-4	98.0	98.0
RD-5	3.05	RD-5	100.0	100.0
RD 6	5.47	RD-6	98.0	98.0
RD-7	15.0	RD-7	94.0	94.0
RD-8	15.0	RD-8	88.0	88.0

EXHIBIT 26

Table 2

Pond ID	Pond Control Area (ac.)	W.Q. Req'd (a-f)	W.Q. Prov. (a-f)	Control El. (ft.)
PN4-1	3.0	1.83	1.83	100.0
PN8-1	0.60	1.25	1.25	99.0
PN10A	0.80	0.46	0.46	96.0
PN10-2	4.50	2.92	2.92	85.0
PN11-1	0.80	1.67	1.67	94.0
PN11-2	0.80	1.67	1.67	89.0
PN11-3	1.50	1.25	1.25	89.0
PN11-4	2.50	2.50	2.50	78.0
PN11-5	1.0	0.83	0.83	78.0
PN11-6	1.50	0.75	0.75	75.0
PN12-1	1.20	1.25	1.25	90.0
PN12-2	0.60	0.50	0.50	90.0
PN12-3	1.50	1.83	1.83	90.0
PN12-4	1.0	1.50	1.50	82.0
PN13-1	1.50	1.25	1.25	90.0
PN14-1	0.50	1.33	1.33	89.0
PN14-2	1.70	1.25	1.25	70.0
PN14-3	1.50	0.99	0.99	68.0
PN16-1	0.50	0.83	0.83	100.0
PN16-2	2.0	2.58	2.58	95.0
PN17-1	1.0	0.83	0.83	100.0
PN17-2	1.0	1.25	1.25	95.0
PN17-3	1.50	2.08	2.08	92.0
PN18-1	3.0	5.0	5.0	100.0
PN19-1	0.50	0.42	0.42	94.0
PN19-2	3.50	1.92	1.92	94.0
PN2-2	1.60	1.37	1.37	92.0
PN2-4	2.70	1.33	1.33	98.0
PN2-5	0.80	0.92	0.92	98.50
PN2-6	1.10	0.92	0.92	99.0
PN2-7	1.10	0.58	0.58	96.0
PN2-8	1.70	1.42	1.42	95.5
PN2-9	2.50	1.83	1.83	95.5
PN20-1	1.80	2.92	2.92	94.0
PN21-1	3.50	4.0	4.0	83.0
PN21-2	1.0	0.42	0.42	67.0
PN21-3	1.0	0.58	0.58	67.0
PN22-1	1.0	0.83	0.83	91.0
PN22-2	3.0	1.25	1.25	89.0

EXHIBIT 3

Table 2

	PN27-3	5.0	2.08	2.08	87.0
	PN23-1	1.0	0.83	0.83	89.0
	PN23-2	1.50	1.25	1.25	84.0
	PN23-3	0.50	0.83	0.83	84.0
	PN23-4	1.0	0.83	0.83	70.0
	PN23-5	1.0	0.83	0.83	72.0
	PN24-1	2.50	1.50	1.50	84.0
	PN24-2	2.50	2.92	2.92	84.0
	PN25-1	2.0	1.67	1.67	79.0
	PN25-2	2.50	1.25	1.25	75.0
	PN25-3	2.0	0.83	0.83	73.0
	NP26-1	0.30	0.67	0.67	89.5
	PN26-2	1.0	1.83	1.83	92.0
	PN27	0.80	1.25	1.25	92.0
	PN29-1	1.50	1.67	1.67	97.0
	PN30-1	0.50	1.83	1.83	89.0
	PN30-2	1.50	1.25	1.25	84.0
	PN31-1	0.70	1.17	1.17	89.0
	PN32-1	2.0	0.83	0.83	99.0
	PN32-2	2.0	1.42	1.42	100.0
	PN32-3	0.50	0.42	0.42	100.0
X	PN4-2	0.50	0.42	0.42	104.0
X	PN4-3	1.0	0.42	0.42	98.0
X	RD-3A	0.85	0.47	0.47	96.0
X	RD-3B	1.18	0.17	0.17	91.50
X	RD-4	1.91	0.56	0.56	98.0
X	RD-5	0.50	0.25	0.25	100.0
X	RD-6	1.66	0.46	0.46	98.0
X	RD-7	2.13	1.25	1.25	94.0
X	RD-8	1.66	1.25	1.25	88.0

EXHIBIT 31

Revised 9/17/04

Table 3 Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	100yr/72hr Max Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Min road elv. ft.	Min Floor elevation ft.	Max Outflow cfs
PN10-2	BASE	PROP25YR24HR	13.22	87.290	89.000	88.165	308259	12.00	90.00	91.00	18.793
PN10A	BASE	PROP25YR24HR	12.69	97.758	99.000	98.207	57826	12.00	100.00	101.00	6.372
PN11-1	BASE	PROP25YR24HR	12.31	96.798	97.000	96.870	75470	12.00	98.00	99.00	62.724
PN11-2	BASE	PROP25YR24HR	12.45	92.352	93.000	92.833	80066	12.00	94.00	95.00	43.517
PN11-3	BASE	PROP25YR24HR	12.61	91.426	93.000	91.946	104875	12.00	94.00	95.00	21.573
PN11-4	BASE	PROP25YR24HR	12.68	80.871	82.000	81.459	167076	12.00	83.00	84.00	36.091
PN11-5	BASE	PROP25YR24HR	24.50	81.967	82.000	81.590	86760	12.00	83.00	84.00	0.052
PN11-6	BASE	PROP25YR24HR	12.86	76.691	78.000	77.234	102169	12.00	79.00	80.00	7.384
PN12-1	BASE	PROP25YR24HR	12.75	92.722	93.000	92.941	111557	12.00	94.00	95.00	14.491
PN12-2	BASE	PROP25YR24HR	12.61	92.216	93.000	92.651	48660	12.00	94.00	95.00	8.617
PN12-3	BASE	PROP25YR24HR	12.50	92.851	93.000	92.933	127444	12.00	94.00	95.00	39.962
PN12-4	BASE	PROP25YR24HR	12.57	85.342	86.000	85.861	94515	12.00	87.00	88.00	28.701
PN13-1	BASE	PROP25YR24HR	12.72	92.810	93.000	92.998	117840	12.00	94.00	95.00	16.113
PN14-1	BASE	PROP25YR24HR	12.19	91.626	92.000	91.998	40846	12.00	93.00	94.00	62.505
PN14-2	BASE	PROP25YR24HR	13.00	72.332	73.000	72.991	131615	12.00	74.00	75.00	9.873
PN14-3	BASE	PROP25YR24HR	12.92	70.253	72.000	70.988	102145	12.00	73.00	74.00	9.012
PN16-1	BASE	PROP25YR24HR	12.39	102.888	103.000	102.982	42745	12.00	104.00	105.00	25.486
PN16-2	BASE	PROP25YR24HR	12.49	97.931	98.000	97.921	172231	12.00	99.00	100.00	58.004
PN17-1	BASE	PROP25YR24HR	12.62	102.298	103.000	102.759	76934	12.00	104.00	105.00	14.222
PN17-2	BASE	PROP25YR24HR	12.53	97.936	98.000	97.973	86196	12.00	99.00	100.00	25.755
PN17-3	BASE	PROP25YR24HR	12.54	95.379	96.000	95.881	120535	12.00	97.00	98.00	42.156
PN18-1	BASE	PROP25YR24HR	12.28	102.839	103.000	102.966	213136	12.00	104.00	105.00	199.749
PN19-1	BASE	PROP25YR24HR	12.45	96.083	97.000	96.391	36900	12.00	98.00	99.00	10.846
PN19-2	BASE	PROP25YR24HR	13.14	95.885	97.000	96.589	248262	12.00	98.00	99.00	13.354
PN2-2	BASE	PROP25YR24HR	12.70	99.449	100.000	99.964	82144	12.00	101.00	102.00	16.787
PN2-4	BASE	PROP25YR24HR	12.75	99.983	101.000	100.901	126250	12.00	102.00	103.00	15.294
PN2-5	BASE	PROP25YR24HR	12.35	100.926	101.500	101.361	41893	12.00	102.50	103.50	30.921
PN2-6	BASE	PROP25YR24HR	12.32	100.987	101.000	100.868	59166	12.00	102.00	103.00	33.667
PN2-7	BASE	PROP25YR24HR	12.64	97.978	99.500	98.664	54072	12.00	100.50	101.50	9.317
PN2-8	BASE	PROP25YR24HR	12.46	98.103	98.500	98.455	85392	12.00	100.50	101.50	36.230
PN2-9	BASE	PROP25YR24HR	12.33	97.480	97.500	97.479	123565	12.00	98.50	99.50	65.966
PN20-1	BASE	PROP25YR24HR	12.47	97.601	98.000	97.944	145076	12.00	99.00	100.00	70.986
PN21-1	BASE	PROP25YR24HR	12.43	85.640	87.000	86.041	253086	12.00	88.00	89.00	110.940
PN21-2	BASE	PROP25YR24HR	12.98	68.495	70.000	69.022	65271	12.00	71.00	72.00	3.378
PN21-3	BASE	PROP25YR24HR	12.72	68.844	70.000	69.349	70333	12.00	71.00	72.00	7.473
PN22-1	BASE	PROP25YR24HR	12.62	93.298	94.000	93.759	76934	12.00	95.00	96.00	14.219
PN22-2	BASE	PROP25YR24HR	23.89	91.107	92.000	91.492	222443	12.00	93.00	94.00	1.364
PN22-3	BASE	PROP25YR24HR	13.30	88.614	91.000	89.297	305676	12.00	92.00	93.00	12.950
PN23-1	BASE	PROP25YR24HR	12.72	91.409	92.000	91.987	78540	12.00	93.00	94.00	10.743
PN23-2	BASE	PROP25YR24HR	12.89	86.508	87.000	86.955	119460	12.00	88.00	89.00	11.887
PN23-3	BASE	PROP25YR24HR	12.47	86.841	87.000	86.972	42406	12.00	88.00	89.00	20.560
PN23-4	BASE	PROP25YR24HR	12.61	72.298	73.000	72.817	76931	12.00	74.00	75.00	14.235
PN23-5	BASE	PROP25YR24HR	12.61	74.298	75.000	74.773	76931	12.00	76.00	77.00	14.236
PN24-1	BASE	PROP25YR24HR	13.18	86.031	87.000	86.673	182625	12.00	88.00	89.00	10.080
PN24-2	BASE	PROP25YR24HR	12.62	72.861	73.000	72.961	212736	12.00	74.00	75.00	49.716
PN25-1	BASE	PROP25YR24HR	12.82	81.481	82.000	81.961	159162	12.00	83.00	84.00	17.333
PN25-2	BASE	PROP25YR24HR	13.17	76.759	78.000	77.418	172768	12.00	79.00	80.00	8.504
PN25-3	BASE	PROP25YR24HR	13.36	74.539	76.000	75.142	131826	12.00	77.00	78.00	5.104
PN26-1	BASE	PROP25YR24HR	12.17	91.926	92.000	92.157	23636	12.00	93.00	94.00	32.739
PN26-2	BASE	PROP25YR24HR	12.78	95.083	96.000	95.499	77134	12.00	97.00	98.00	72.963
PN27	BASE	PROP25YR24HR	12.48	95.250	96.000	95.720	63161	12.00	97.00	98.00	28.427
PN29-1	BASE	PROP25YR24HR	12.91	99.128	100.000	99.783	186145	12.00	101.00	102.00	15.372
PN30-1	BASE	PROP25YR24HR	12.09	91.571	92.000	91.813	40449	12.00	93.00	94.00	126.116
PN30-2	BASE	PROP25YR24HR	12.72	86.411	87.000	86.988	117853	12.00	88.00	89.00	16.050
PN31-1	BASE	PROP25YR24HR	12.34	91.749	92.000	91.920	62423	12.00	93.00	94.00	41.077
PN32-1	BASE	PROP25YR24HR	13.72	100.574	102.000	101.219	232840	12.00	103.00	104.00	4.212
PN32-2	BASE	PROP25YR24HR	12.90	102.227	103.000	102.911	151807	12.00	104.00	105.00	13.089
PN32-3	BASE	PROP25YR24HR	12.53	102.209	103.000	102.600	37820	12.00	104.00	105.00	8.547
PN4-1	BASE	PROP25YR24HR	12.71	102.848	103.000	102.945	254744	12.00	104.00	105.00	41.952
PN4-2	BASE	PROP25YR24HR	12.53	106.209	107.000	106.599	37821	12.00	108.00	109.00	8.547
PN4-3	BASE	PROP25YR24HR	13.58	99.505	100.500	100.459	69788	12.00	101.50	102.50	2.331

EXHIBIT 4

EXHIBIT 5

KEYMAP
S.W.F.W.M.D. DISTRICT LINE
S.W.F.W.M.D. DISTRICT LINE
PROVIDENCE (FKA: OAKHILLS)
BASIN EXHIBIT DEVELOPMENT

EXHIBIT 6
PROVIDENCE
(FKA: OAKHILLS)
BASIN EXHIBIT
DEVELOPMENT

EXHIBIT 7

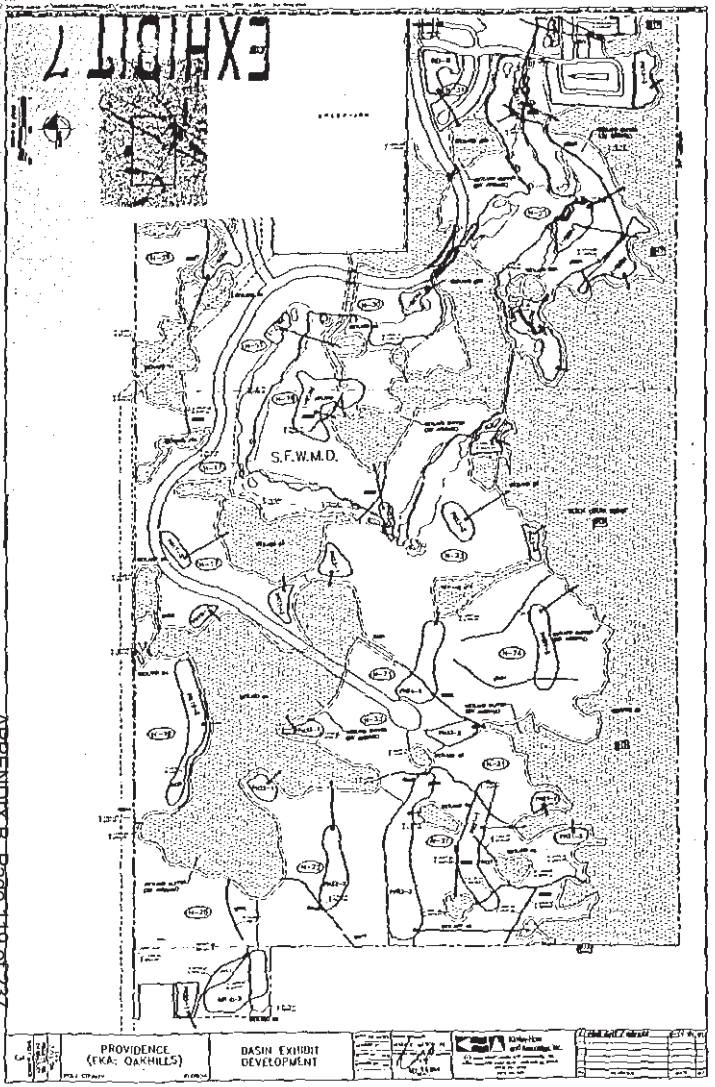


EXHIBIT 83

CONTROL STRUCTURES
(TYPE "C" BOX)
NOT TO SCALE

DETAIL SHEET
DRAINAGE

PROVIDENCE
(FKA: OAKHILLS)

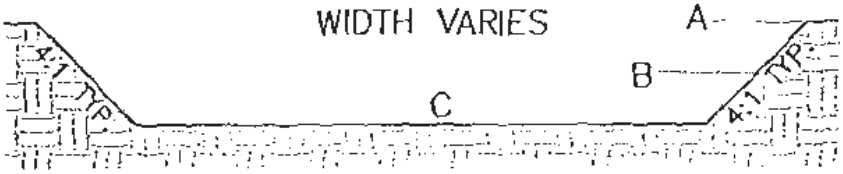
CONTROL STRUCTURE

STRUCTURE #	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"
DS2-2	100.0	98.0	36"	97.5	3'	97.0	93.0	50'	18"	96.0	90.0
DS2-4	101.0	99.0	36"	98.5	3'	98.0	93.0	200'	18"	94.0	93.5
DS2-5	101.5	99.5	72"	99.0	3'	98.5	93.5	150'	24"	97.0	95.0
DS2-6	101.0	100.0	80"	99.5	3'	99.0	94.0	100'	24"	97.0	95.0
DS2-7	99.5	97.0	36"	96.5	3'	96.0	91.0	150'	18"	95.0	94.0
DS2-8	98.5	96.5	36"	96.0	3'	95.5	90.5	100'	30"	94.5	92.0
DS2-9	97.5	96.5	120"	96.0	3'	95.5	90.5	100'	72"	92.5	90.0
DS4-1	103.0	101.0	36"	100.5	3'	100.0	95.0	250'	36"	99.0	95.0
DS4-2	107.0	105.0	24"	104.5	3'	104.0	99.0	100'	18"	103.0	100.0
DS4-3	100.5	99.0	24"	98.5	3'	98.0	93.0	100'	24"	97.0	95.0
DS8-1	102.0	100.0	72"	99.5	3'	99.0	94.0	250'	36"	98.0	95.0
DS10-2	89.0	86.0	48"	85.5	3'	85.0	80.0	50'	36"	84.0	80.0
DS10-A	99.0	97.0	36"	96.5	3'	96.0	91.0	250'	24"	95.0	92.0
DS11-1	97.0	95.0	60"	94.5	3'	94.0	89.0	50'	30"	93.0	90.0
DS11-2	93.0	90.0	60"	89.5	3'	89.0	84.0	50'	24"	88.0	85.0
DS11-3	93.0	90.0	48"	89.5	3'	89.0	84.0	50'	36"	88.0	85.0
DS11-4	82.0	79.0	60"	78.5	3'	78.0	74.0	50'	36"	77.0	75.0
DS11-5	82.0	---	---	---	3'	78.0	74.0	50'	24"	77.0	75.0
DS11-6	78.0	76.0	48"	75.5	3'	75.0	71.0	50'	36"	74.0	72.0
DS12-1	93.0	91.0	24"	90.5	3'	90.0	85.0	50'	24"	89.0	85.0
DS12-2	93.0	91.0	24"	90.5	3'	90.0	85.0	50'	18"	89.0	85.0
DS12-3	93.0	91.0	36"	90.5	3'	90.0	85.0	50'	24"	89.0	85.0
DS12-4	86.0	83.0	30"	82.5	3'	82.0	77.0	50'	24"	81.0	79.0
DS13-1	93.0	91.0	36"	90.5	3'	90.0	85.0	50'	30"	89.0	85.0
DS14-1	92.0	90.0	72"	89.5	3'	89.0	84.0	50'	30"	88.0	85.0
DS14-2	73.0	71.0	24"	70.5	3'	70.0	65.0	50'	24"	69.0	67.0
DS14-3	72.0	69.0	24"	68.5	3'	68.0	63.0	50'	24"	67.0	66.0
DS16-1	103.0	101.0	24"	100.5	3'	100.0	95.0	50'	18"	99.0	95.0
DS16-2	98.0	96.0	48"	95.5	3'	95.0	90.0	50'	36"	94.0	90.0
DS17-1	103.0	101.0	36"	100.5	3'	100.0	95.0	50'	24"	99.0	95.0
DS17-2	98.0	96.0	36"	95.5	3'	95.0	90.0	50'	24"	94.0	90.0

EXHIBIT 8

CONTROL STRUCTURE	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"I"	"J"	"K"
DS17-3	96.0	93.0	48"	92.5	3"	92.0	87.0	50°	36"	91.0	90.0
DS18-1	103.0	101.0	36"	100.5	3"	100.0	95.0	100°	36"	99.0	95.0
DS19-1	97.0	95.0	36"	94.5	3"	94.0	89.0	100°	18"	93.0	90.0
DS19-2	97.0	95.0	60"	94.5	3"	94.0	89.0	100°	36"	93.0	90.0
DS20-1	98.0	95.0	72"	94.5	3"	94.0	89.0	50°	36"	93.0	90.0
DS21-1	87.0	84.0	72"	83.5	3"	83.0	73.0	100°	42"	80.0	78.0
DS21-2	70.0	68.0	36"	67.5	3"	67.0	62.0	100°	24"	66.0	64.0
DS21-3	70.0	68.0	36"	67.5	3"	67.0	62.0	50°	18"	66.0	64.0
DS22-1	94.0	92.0	36"	91.5	3"	91.0	86.0	100°	24"	90.0	85.0
DS22-2	92.0	91.0	72"	90.5	3"	90.0	84.0	100°	36"	89.0	85.0
DS22-3	91.0	88.0	72"	87.5	3"	87.0	82.0	100°	36"	86.0	84.0
DS23-1	92.0	90.0	24"	89.5	3"	89.0	84.0	100°	18"	88.0	85.0
DS23-2	87.0	85.0	24"	84.5	3"	84.0	79.0	100°	18"	83.0	80.0
DS23-3	87.0	85.0	56"	84.5	3"	84.0	79.0	100°	18"	83.0	80.0
DS23-4	73.0	71.0	36"	70.5	3"	70.0	65.0	100°	18"	69.0	65.0
DS23-5	75.0	73.0	36"	72.5	3"	72.0	67.0	100°	18"	71.0	65.0
DS24-1	87.0	85.0	36"	84.5	3"	84.0	79.0	100°	24"	83.0	80.0
DS24-2	73.0	71.0	36"	70.5	3"	70.0	65.0	100°	42"	69.0	65.0
DS25-1	82.0	80.0	36"	79.5	3"	79.0	74.0	50°	36"	78.0	75.0
DS25-2	78.0	76.0	48"	75.5	3"	75.0	70.0	50°	36"	74.0	72.0
DS25-3	76.0	74.0	48"	73.5	3"	73.0	67.0	50°	36"	72.0	70.0
DS26-1	92.0	90.5	72"	90.0	3"	89.5	84.0	50°	30"	83.0	82.0
DS26-2	96.0	93.5	80"	93.0	3"	92.0	79.0	50°	30"	88.0	87.0
DS27	96.0	93.0	60"	92.5	3"	92.0	85.0	150°	24"	90.0	89.5
DS29-1	100.0	98.0	48"	97.5	3"	97.0	90.0	50°	30"	94.0	90.0
DS33-1	92.0	90.0	36"	89.5	3"	89.0	84.0	100°	18"	88.0	85.0
DS33-2	87.0	85.0	36"	84.5	3"	84.0	79.0	100°	24"	83.0	80.0
DS31-1	92.0	90.0	72"	89.5	3"	89.0	84.0	50°	30"	88.0	85.0
DS32-1	102.0	100.0	36"	99.5	3"	99.0	94.0	50°	30"	98.0	95.0
DS32-2	103.0	101.0	36"	100.5	3"	100.0	95.0	50°	30"	99.0	95.0
DS32-3	103.0	101.0	24"	100.5	3"	100.0	95.0	50°	24"	99.0	95.0

EXHIBIT



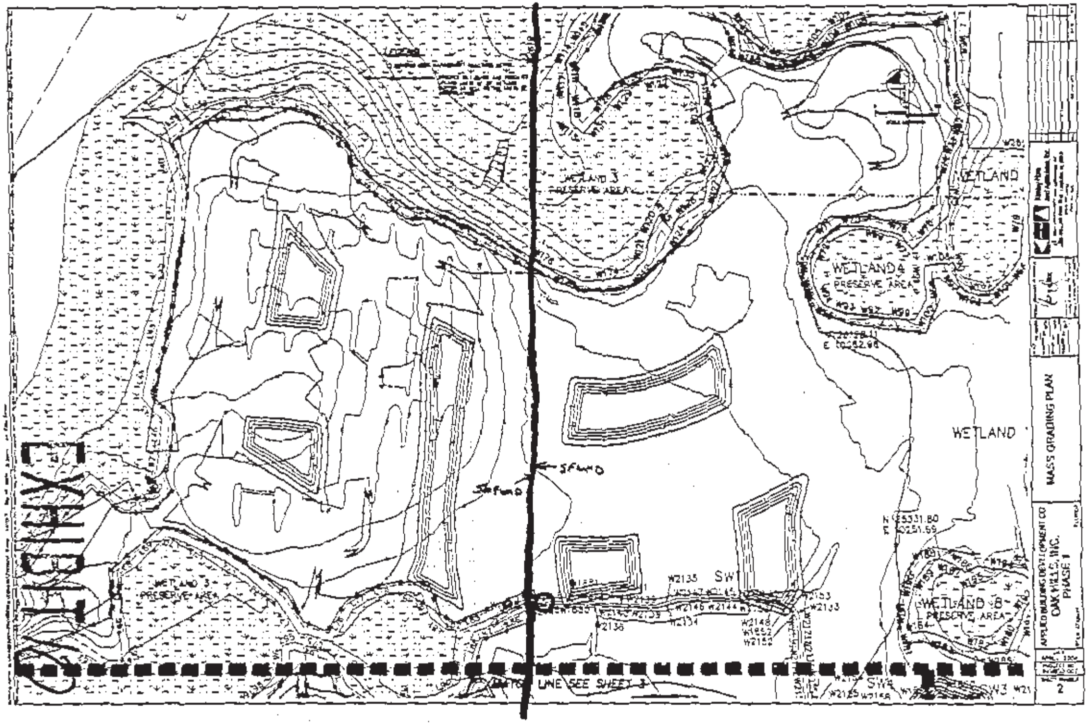
POND TYPICAL

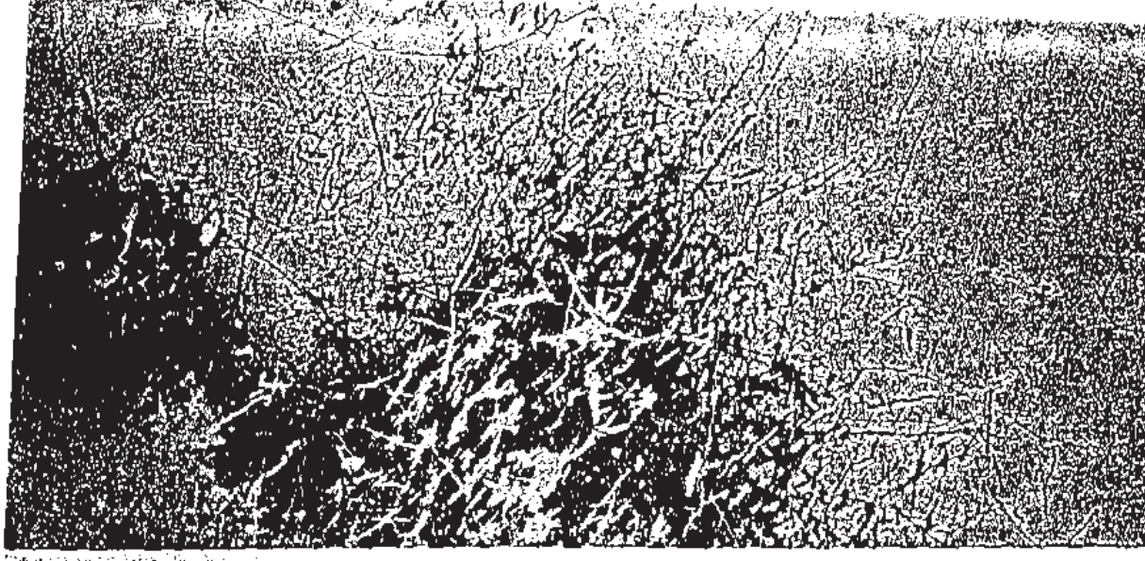
POND #	A	B	C
PN2-2	100.0	97.0	85.0
PN2-4	101.0	98.0	86.0
PN2-5	101.5	98.5	86.5
PN2-6	101.0	99.0	87.0
PN2-7	99.5	96.0	84.0
PN2-8	98.5	95.5	83.5
PN2-9	97.5	95.5	83.5
PN4-1	103.0	100.0	88.0
PN4-2	107.0	104.0	92.0
PN4-3	100.5	98.0	86.0
PN8-1	102.0	99.0	87.0
PN10-2	88.0	85.0	73.0
PN10-A	99.0	96.0	84.0
PN11-1	97.0	94.0	82.0
PN11-2	93.0	87.0	75.0
PN11-3	93.0	89.0	77.0
PN11-4	82.0	78.0	66.0
PN11-5	82.0	78.0	66.0
PN11-6	78.0	75.0	63.0
PN12-1	93.0	90.0	78.0
PN12-2	93.0	90.0	78.0
PN12-3	93.0	90.0	78.0
PN12-4	86.0	82.0	70.0
PN13-1	93.0	90.0	78.0
PN14-1	92.0	89.0	77.0
PN14-2	73.0	70.0	57.0
PN14-3	72.0	68.0	56.0
PN16-1	103.0	100.0	88.0
PN16-2	98.0	95.0	83.0
PN17-1	103.0	100.0	88.0
PN17-2	98.0	95.0	83.0

POND #	A	B	C
PN17-3	96.0	92.0	80.0
PN18-1	103.0	100.0	88.0
PN19-1	97.0	94.0	82.0
PN19-2	97.0	94.0	82.0
PN20-1	98.0	94.0	82.0
PN21-1	87.0	83.0	71.0
PN21-2	70.0	67.0	55.0
PN21-3	70.0	67.0	55.0
PN22-1	94.0	91.0	79.0
PN22-2	92.0	89.0	77.0
PN22-3	91.0	87.0	75.0
PN23-1	92.0	89.0	77.0
PN23-2	87.0	84.0	72.0
PN23-3	87.0	84.0	72.0
PN23-4	73.0	70.0	58.0
PN23-5	75.0	72.0	60.0
PN24-1	87.0	84.0	72.0
PN24-2	73.0	70.0	58.0
PN25-1	82.0	79.0	67.0
PN25-2	78.0	75.0	63.0
PN25-3	76.0	73.0	61.0
PN26-1	92.0	89.5	77.5
PN28-2	96.0	92.0	80.0
PN27	96.0	92.0	80.0
PN29-1	100.0	97.0	85.0
PN33-1	92.0	89.0	77.0
PN33-2	87.0	84.0	72.0
PN31-1	92.0	89.0	77.0
PN32-1	102.0	99.0	87.0
PN32-2	103.0	100.0	88.0
PN32-3	103.0	100.0	88.0

EXHIBIT 8d

EXHIBIT 1
FIGURE 1
FIGURE 2
FIGURE 3
SHEET 1
SHEET 2
SHEET 3
SHEET 4
SHEET 5
SHEET 6
PHASE 1
PHASE 2
S.F.W.M.D. DISTRICT LINE
MASS GRADING KEY MAP
OAK HILLS, INC.
PHASE 1


WETLAND 3
PRESERVE AREA
WETLAND 4
PRESERVE AREA
WETLAND
WETLAND
WETLAND 8
PRESERVE AREA
WETLAND 3
PRESERVE AREA
LINE SEE SHEET 3
MASS GRADING PLAN
OAK HILLS, INC.
PHASE 1



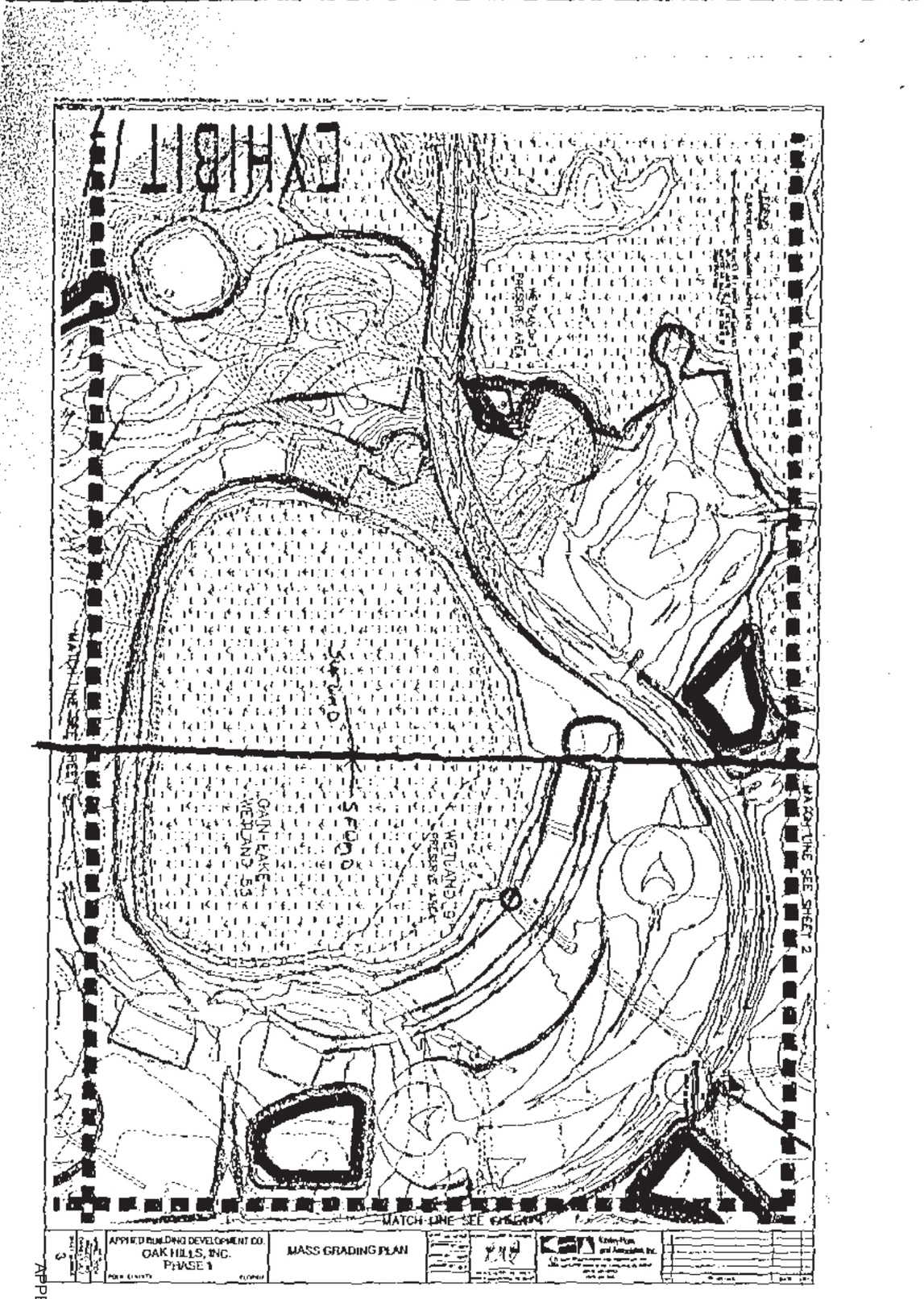
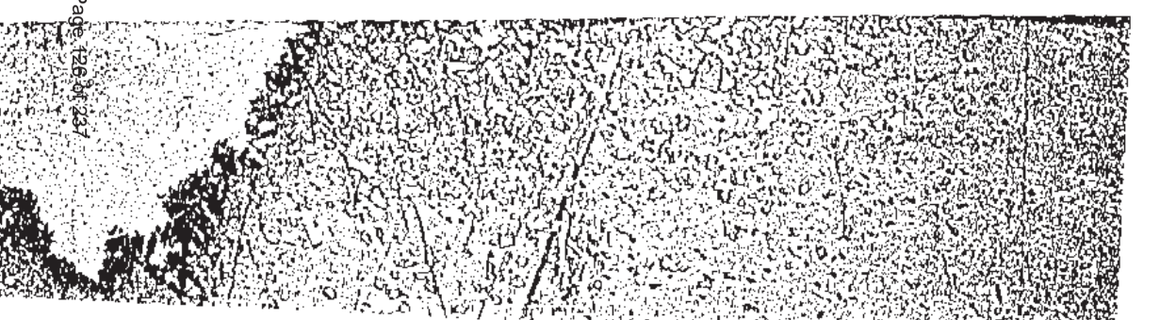


EXHIBIT 7
MATCH LINE SEE SHEET 2
APPLIED BUILDING DEVELOPMENT CO.
OAK HILLS, INC.
PHASE 1
MASS GRADING PLAN



MATCH LINE SEE SHEET 2
WETLAND 'A'
PRESERVE AREA
WETLAND 'B'
PRESERVE AREA
MASS GRADING PLAN
OAK HILLS, INC.
PHASE I

EXHIBIT 1/8
MATCH LINE SEE SHEET 2
MATCH LINE SEE SHEET 1
WETLAND 30' PRESERVE AREA
WETLAND 30' PRESERVE AREA
SW45
MASS GRADING PLAN
OAK HILLS, INC.
PHASE I

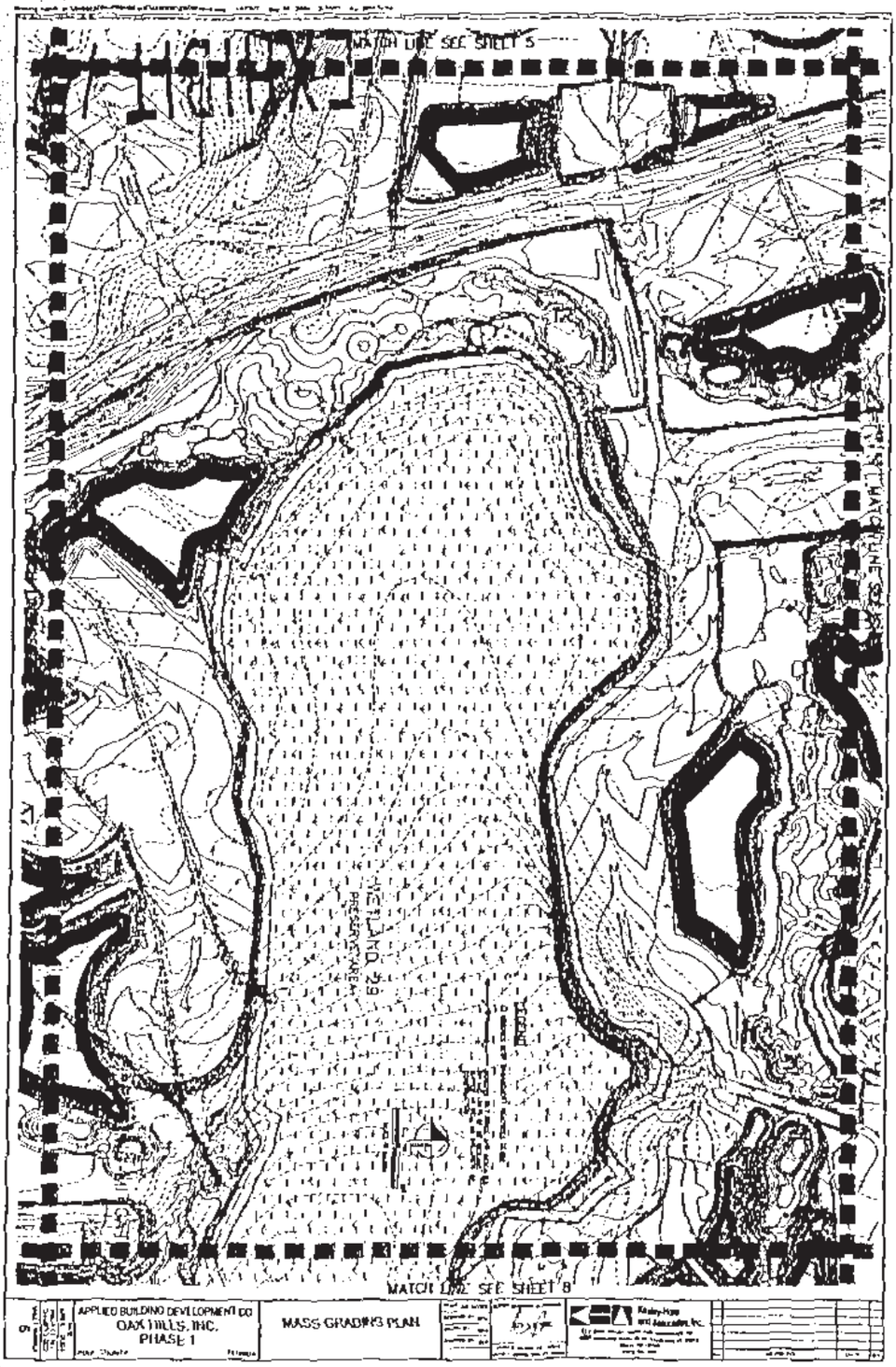

MATCH LINE SEE SHEET 5
WETLAND 29
PRESERVATION AREA
MATCH LINE SEE SHEET 8
APPLIED BUILDING DEVELOPMENT CO
OAK MILLS, INC.
PHASE 1
MASS GRADING PLAN
Kelley-Hope and Associates, Inc.

EXHIBIT 6

EXCEPTION

LEGEND

MASS GRADING PLAN

EXHIBIT 16

MATCHLINE SEE THIS SHEET LEFT
MATCHLINE SEE THIS SHEET RIGHT
PRESERVE AREA
WETLAND 25
WETLAND 28
WETLAND 22
PERMITTED MITIGATION AREA
MASS GRADING PLAN
OAK HILLS, INC.
PHASE 1

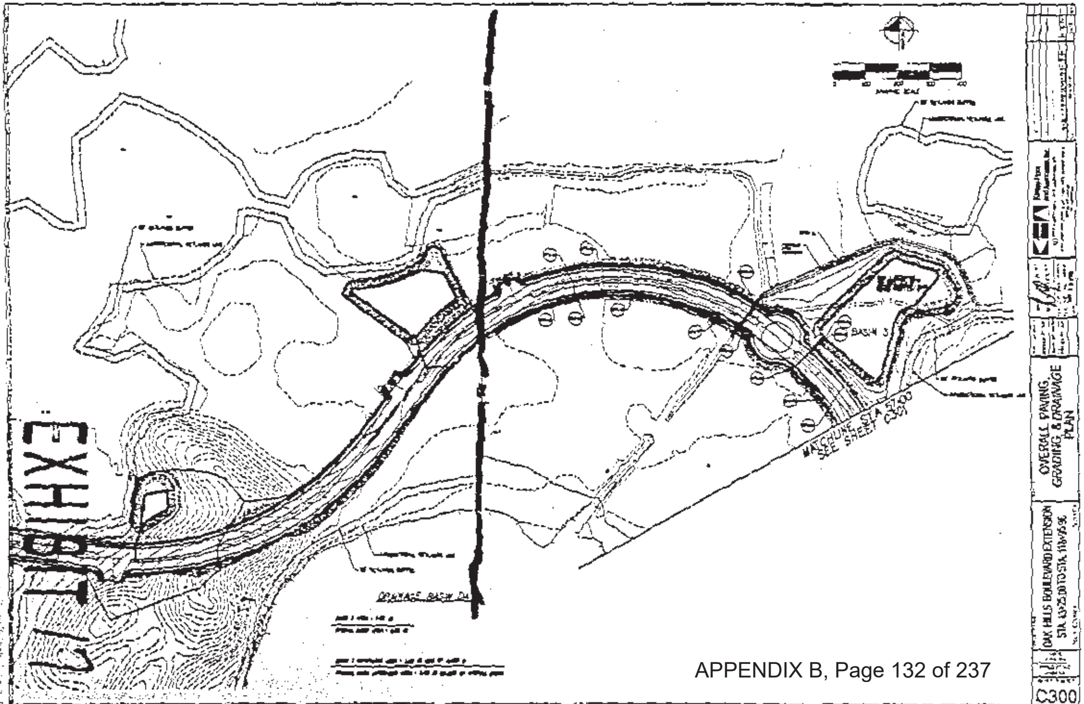


EXHIBIT 17
OVERALL PAVING, GRADING & DRAINAGE PLAN
OAK HILLS BOULEVARD EXTENSION
C300

EXHIBIT 'B'
040220-40
OVERALL PAVING, GRADING & DRAINAGE PLAN
OAK HILLS BOULEVARD EXTENSION
STA 43+50.00 TO STA 119+50.00
C301

EXHIBIT 19

OAK HILLS BOULEVARD EXTENSION
SHEET C302
OVERALL PAVING, GRADING, & DRAINAGE PLAN
DRAINAGE BASIN DATA
BASIN 5
BASIN 7

EXHIBIT 20

MATCHLINE STA 41+00
SEE PHASE 1
MATCHLINE STA 52+00
SEE SHEET C304
OAK HILLS BOULEVARD EXTENSION
STA 40+25.00 TO STA 110+89.96
PAVING, GRADING
& DRAINAGE PLAN
C303

EXHIBIT 21

OAK HILLS BOULEVARD EXTENSION
STA. 10+25.00 TO STA. 19+95.96

PAVING GRADING & DRAINAGE PLAN

C304

EXHIBIT 22

OAK HILLS BOULEVARD EXTENSION
STA 43+25.00 TO STA 118+56.36

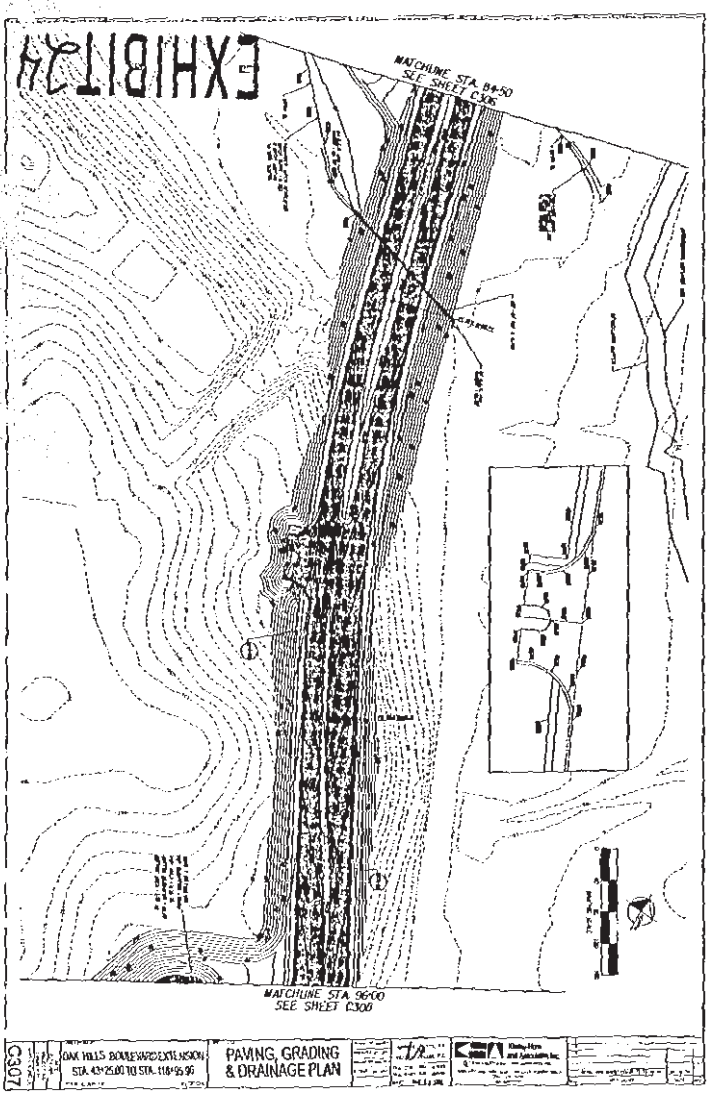
PAVING, GRADING & DRAINAGE PLAN

C305

EXHIBIT 23

APPENDIX B, Page 138 of 237

EXHIBIT 24



C307 | OAK HILLS BOULEVARD EXTENSION STA. 43+25.00 TO STA. 118+55.96 | PAVING, GRADING & DRAINAGE PLAN

EXHIBIT 25
MATCHLINE STA 98+00
SEE SHEET C307
MATCHLINE STA 98+00
SEE SHEET C309
PARK HILLS BOULEVARD EXTENSION
STA 43+25.00 TO STA 118+95.06
PAVING, GRADING
& DRAINAGE PLAN
C308

EXHIBIT 2(a)

MATCHLINE STA 106+00
SEE SHEET C308
MATCHLINE STA 111+00
SEE SHEET C310
PAVING, GRADING & DRAINAGE PLAN
C309

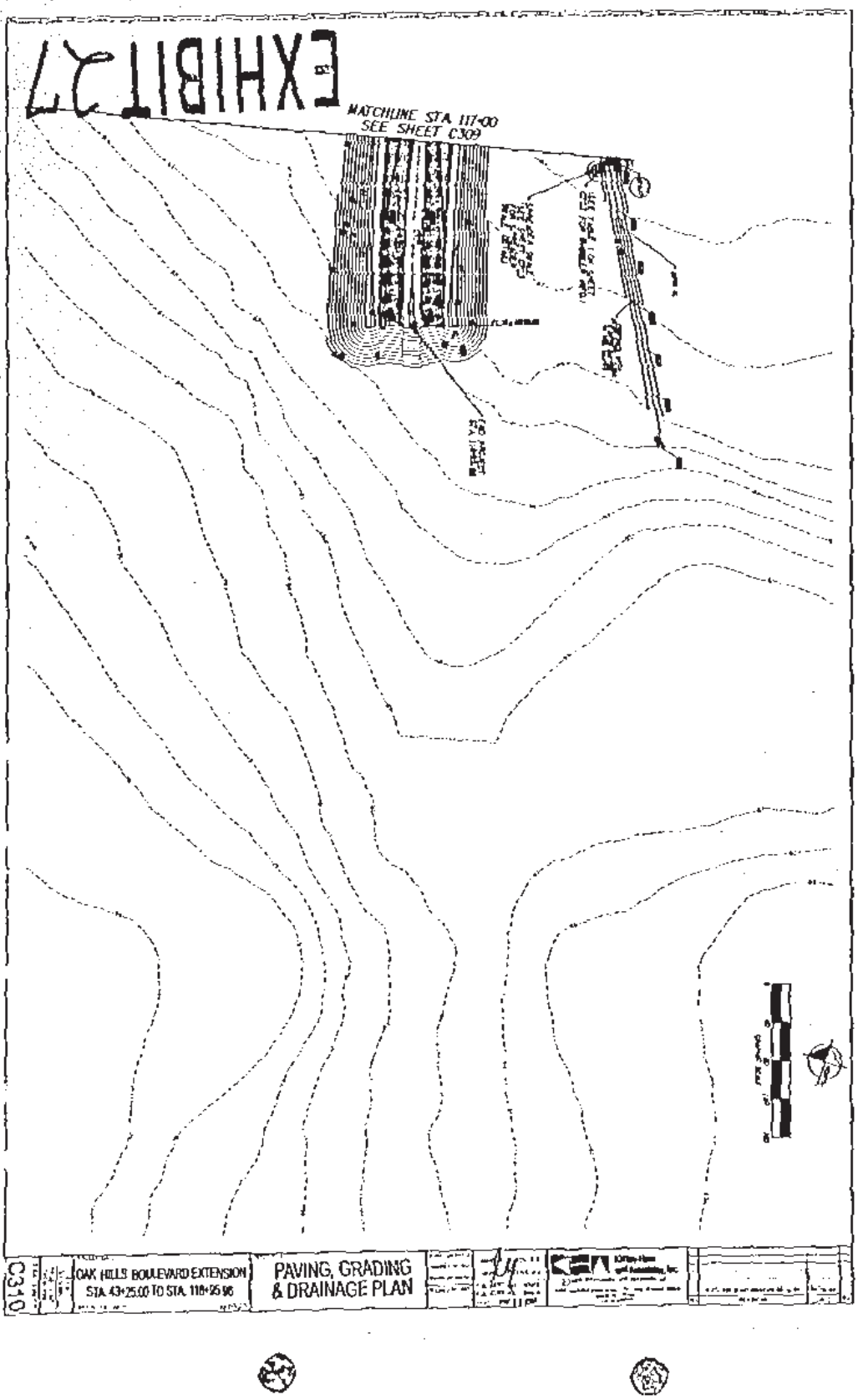


EXHIBIT 37
MATCHLINE STA 117+00
SEE SHEET C309
C310
OAK HILLS BOULEVARD EXTENSION
STA 43+25.00 TO STA 118+25.98
PAVING, GRADING
& DRAINAGE PLAN

APPENDIX B

South Florida Water Management District
Existing / Proposed Environmental Features Information

CNTL NEW PROVIDENCE VILLAGE — ONSITE

Pre - Development					Post - Development					
WETL										
Site Id	Acreage	Quality	Quality Melaleuca	Habitat	Impact Type	Impact Acreage	Undisturbed Acreage	Preserved Acreage	Enhanced Acreage	Restored Acreage
W1	.75	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.75				
W19	1.22	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.22		
W2	.53	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.53				
W23	5.10	GOOD	N	Wetland Forested Mixed	Direct			5.10		
W25	.67	GOOD	N	Wetland Forested Mixed	Direct			.67		
W26	1.80	GOOD	N	Wetland Forested Mixed	Direct			1.80		
W28	1.86	GOOD	N	Wetland Forested Mixed	Direct			1.86		
W29	258.10	GOOD	N	Wetland Forested Mixed	Direct	.07		258.03		
W29A	1.06	FAIR	N	Wetland Forested Mixed	Direct	.30		.76		
W29B	40.61	GOOD	N	Wetland Forested Mixed	Direct	1.45		39.16		
W29D	9.35	GOOD	N	Wetland Forested Mixed	Direct			9.35		
W29G	3.42	GOOD	N	Vegetated Non-Forested Wetlands	Direct			3.42		
W3	18.37	GOOD	N	Wetland Forested Mixed	Direct			18.37		
W30	3.02	GOOD	N	Vegetated Non-Forested Wetlands	Direct			3.02		
W32A	6.92	GOOD	N	Vegetated Non-Forested Wetlands	Direct			6.92		
W36	11.05	GOOD	N	Vegetated Non-Forested Wetlands	Direct			11.05		
W36A	.47	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.47				
W37	.92	GOOD	N	Vegetated Non-Forested Wetlands	Direct			.92		
W39	1.42	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.42		
W4	2.11	GOOD	N	Wetland Forested Mixed	Direct			2.11		
W41	8.56	GOOD	N	Vegetated Non-Forested Wetlands	Direct			8.56		
W43	15.21	GOOD	N	Wetland Forested Mixed	Direct			15.21		
W45	74.57	GOOD	N	Wetland Forested Mixed	Direct	1.45		73.12		

EXHIBIT 28a

CNTL NEW PROVIDENCE VILLAGE — ONSITE

	Pre - Development				Post - Development					
WETL										
Site Id	Acreage	Quality	Quality Melaleuca	Habitat	Impact Type	Impact Acreage	Undisturbed Acreage	Preserved Acreage	Enhanced Acreage	Restored Acreage
W45A	1.76	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.76		
W46	.51	GOOD	N	Wetland Forested Mixed	Direct			.51		
W47	1.17	GOOD	N	Wetland Forested Mixed	Direct			1.17		
W48	1.35	GOOD	N	Wetland Forested Mixed	Direct			1.35		
W49	.98	GOOD	N	Wetland Forested Mixed	Direct			.98		
W4A	3.17	GOOD	N	Wetland Forested Mixed	Direct			3.17		
W4B	.28	FAIR	N	Wetland Forested Mixed	Direct	.28				
W5	.58	GOOD	N	Wetland Forested Mixed	Direct			.58		
W52	.32	GOOD	N	Vegetated Non-Forested Wetlands	Direct			.32		
W54	.23	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.10		.13		
W55	2.10	GOOD	N	Wetland Forested Mixed	Direct			2.10		
W56	1.03	GOOD	N	Wetland Forested Mixed	Direct			1.03		
W6	2.23	GOOD	N	Wetland Forested Mixed	Direct			2.23		
W7	1.97	GOOD	N	Wetland Forested Mixed	Direct			1.97		
W7A	22.85	GOOD	N	Wetland Forested Mixed	Direct			22.85		
W7B	.73	GOOD	N	Wetland Forested Mixed	Direct			.73		
W8	2.10	FAIR	N	Wetland Forested Mixed	Direct	.34		1.76		
W9	3.93	GOOD	N	Wetland Forested Mixed	Direct			3.93		
Total:	514.38					5.74		508.64		

CSTR NEW PROVIDENCE VILLAGE PHASE 1 — ONSITE

	Pre - Development	Post - Development
WETL		

EXHIBIT 286

CSTR NEW PROVIDENCE VILLAGE PHASE 1 ONSITE

	Pre - Development				Post - Development					
WETL										
Site Id	Acreage	Quality	Quality Melaleuca	Habitat	Impact Type	Impact Acreage	Undisturbed Acreage	Preserved Acreage	Enhanced Acreage	Restored Acreage
W1	.75	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.75				
W19	1.22	GOOD	N	Wetland Forested Mixed	Direct			1.22		
W2	.50	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.50				
W23	5.10	GOOD	N	Vegetated Non-Forested Wetlands	Direct			5.10		
W25	.57	GOOD	N	Vegetated Non-Forested Wetlands	Direct			.57		
W26	1.80	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.80		
W28	1.86	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.86		
W29	57.10	GOOD	N	Vegetated Non-Forested Wetlands	Direct	.07		57.03		
W29B	.38	GOOD	N	Vegetated Non-Forested Wetlands	Direct	.38				
W3	18.37	GOOD	N	Wetland Forested Mixed	Direct			18.37		
W4	2.11	GOOD	N	Wetland Forested Mixed	Direct			2.11		
W4A	3.17	GOOD	N	Wetland Forested Mixed	Direct			3.17		
W4B	.29	FAIR	N	Wetland Forested Mixed	Direct	.29				
W5	.58	GOOD	N	Wetland Forested Mixed	Direct			.58		
W6	2.23	GOOD	N	Wetland Forested Mixed	Direct			2.23		
W7	1.97	GOOD	N	Vegetated Non-Forested Wetlands	Direct			1.97		
W7A	22.85	GOOD	N	Vegetated Non-Forested Wetlands	Direct			22.85		
W7B	.73	GOOD	N	Vegetated Non-Forested Wetlands	Direct			.73		
W8	2.10	FAIR	N	Vegetated Non-Forested Wetlands	Direct	.34		1.76		
W9	3.93	GOOD	N	Vegetated Non-Forested Wetlands	Direct			3.93		
Total:	127.61					2.33		125.28		

Providence UMAM Scores

Wetland Impact Areas

	Current	With Impact
Location	7	0
Water Environment	7	0
Community Structure	7	0
	Impact Delta	0.7

Size= 5.74 acres
Functional Loss =4.02

Wetland Preservation Areas

	Current	With Preservation
Location	7	7
Water Environment	7	8
Community Structure	7	0.03
	Mitigation Delta	1.14
	Time Lag	1.25
	Risk	

Relative Functional Gain=0.02
Size= 508.64 acres
Functional Gain=10.17

Monitoring Plan

The wetland preservation mitigation areas will be qualitatively monitored on an annual basis for a period of five years. The monitoring events will occur during September of each year. During each monitoring event, the following information will be collected: date of sampling event, person conducting the sampling event, analytical techniques and/or monitoring methodologies used and results of the monitoring event including photographs, qualitative summary of vegetative cover, wildlife observed, percent cover of nuisance and exotic species and hydrologic notes. Any problems encountered during the monitoring events will be included in the annual reports. Annual reports will be submitted to the District on or before November 30th of each respective year (work schedule below).

Permanent monitoring transects will be established within most of the mitigation areas within the Phase I project area (please refer to Wetland Impact, Preservation and Transect Location sheet within the construction plans prepared by Kimley-Horn & Associates, Inc.). Currently, the following monitoring transects are proposed:

Transect ID	Length
T-3	200-feet
T-8	100-feet
T-7A	200-feet
T-23	100-feet
T-29A	200-feet
T-29B	200-feet
T-29C	200-feet

Although transects are not proposed within all preserved wetlands, each of the remaining wetlands within the Phase I boundaries will be qualitatively monitored, and a photograph and description of each system will be included within the annual monitoring report. A panoramic photograph will be taken at the beginning point of each established transect and of each wetland.

APPENDIX B, Page 3 of 3

Maintenance Plan

A maintenance program shall be implemented for the preserved wetlands and associated upland buffers within the Oak Hills Estates project area on a regular basis to ensure the integrity and viability of the conservation areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation area are free from invasive exotic vegetation (as defined by the Florida Exotic Pest Plan Council at the date of permit issuance) immediately following a maintenance activity and nuisance and exotic plant species shall constitute no more than 10% total cover between maintenance activities.

EXHIBIT 3

DEED OF CONSERVATION EASEMENT

THIS DEED OF CONSERVATION EASEMENT is given this 2nd day of July, 2004, by Applied Building Development Company, (address) 8000 The Esplanade; Orlando, Florida 32836 ("Grantor") to the South Florida Water Management District ("Grantee"). As used herein, the term Grantor shall include any and all heirs, successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term Grantee shall include any successor or assignee of Grantee.

WITNESSETH

WHEREAS, the Grantor is the owner of certain lands situated in Polk County, Florida, and more specifically described in Exhibit A attached hereto and incorporated herein ("Property"); and

WHEREAS, the Grantor desires to construct (name of project) Providence (f.k.a. Oak Hills Estates) ("Project") at a site in Polk County, which is subject to the regulatory jurisdiction of South Florida Water Management District ("District"); and

WHEREAS, District Permit No. 53-00130-S ("Permit") authorizes certain activities which affect surface waters in or of the State of Florida; and

WHEREAS, this Permit requires that the Grantor preserve and/or mitigate wetlands under the District's jurisdiction; and

WHEREAS, the Grantor has developed and proposed as part of the permit conditions a conservation tract and maintenance buffer involving preservation of certain wetland and/or upland systems on the Property; and

WHEREAS, the Grantor, in consideration of the consent granted by the Permit, is agreeable to granting and securing to the Grantee a perpetual conservation easement as defined in Section 704.06, Florida Statutes (2000), over the Property.

NOW, THEREFORE, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, Grantor hereby grants, creates, and establishes a

perpetual conservation easement for and in favor of the Grantee upon the Property which shall run with the land and be binding upon the Grantor, and shall remain in full force and

EXHIBIT 3

effect forever.

The scope, nature, and character of this conservation easement shall be as follows:

1. It is the purpose of this conservation easement to retain land or water areas in their natural, vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetland and/or upland areas included in the conservation easement which are to be enhanced or created pursuant to the Permit shall be retained and maintained in the enhanced or created conditions required by the Permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

a. To enter upon the Property at reasonable times with any necessary equipment or vehicles to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and

b. To enjoin any activity on or use of the Property that is inconsistent with this conservation easement and to enforce the restoration of such areas or features of the Property that may be damaged by any inconsistent activity or use.

2. Except for restoration, creation, enhancement, maintenance and monitoring activities, or surface water management improvements, which are permitted or required by the permit, the following activities are prohibited in or on the Property:

a. Construction or placing of buildings, roads, signs, billboards or other advertising, utilities, or other structures on or above the ground;

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials;

c. Removal or destruction of trees, shrubs, or other vegetation, except for the removal of exotic vegetation in accordance with a District approved maintenance plan;

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface;

EXHIBIT

e. Surface use except for purposes that permit the land or water area to remain in its natural condition;

f. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and fencing;

g. Acts or uses detrimental to such aforementioned retention of land or water areas;

h. Acts or uses which are detrimental to the preservation of any features or aspects of the Property having historical or archaeological significance.

3. Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein and which are not inconsistent with any District rule, criteria, permit and the intent and purposes of this Conservation Easement.

4. Reservation of Riparian Rights. The following rights are specifically reserved to the Grantor, its heirs, successors and assigns:

a. To the extent provided by law, Grantor reserves all riparian rights which are consistent with the purpose of this statutory conservation easement. Notwithstanding, the Grantor specifically reserves the right to conduct limiting vegetation removal and clearing for the purpose of constructing boat docks and adjoining boardwalks. Grantor shall minimize and avoid, to the fullest extent possible, impact to any wetland or buffer areas within the Conservation Easement Area. This reservation does not release the Grantor from the duty of obtaining any necessary federal, state or local government permit authorizations or sovereign land approvals for construction of the docks or boardwalks.

b. Plans for the construction of boardwalks to a boat dock shall be reviewed and approved by the Grantee prior to any construction.

c. Since there are navigable waters immediately adjacent to the conservation area, boats and other similar surface uses are permissible within the navigable areas of the conservation area.

5. No right of access by the general public to any portion of the Property is conveyed by this conservation easement.

6. Grantee shall not be responsible for any costs or liabilities related to the

EXHIB

operation, upkeep or maintenance of the Property.

7. Grantor shall pay any and all real property taxes and assessments levied by competent authority on the Property.

8. Any costs incurred in enforcing, judicially or otherwise, the terms, provisions and restrictions of this conservation easement shall be borne by and recoverable against the nonprevailing party in such proceedings.

9. Enforcement of the terms, provisions and restrictions of this conservation easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor, shall not be deemed or construed to be a waiver of Grantee's rights hereunder.

10. Grantee will hold this conservation easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this conservation easement except to another organization qualified to hold such interests under the applicable state laws.

11. If any provision of this conservation easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this conservation easement shall not be affected thereby, as long as the purpose of the conservation easement is preserved.

12. All notices, consents, approvals or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

13. This conservation easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns or successors-in-interest, which shall be filed in the public records in Polk County.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purpose imposed with this conservation easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor is lawfully seized of said Property in fee simple; that the Property is free and clear of all encumbrances that are inconsistent with the terms of this conservation easement; that Grantor has good right and lawful authority to convey this conservation easement; and that it hereby fully warrants and defends the title to the conservation easement hereby conveyed against the

lawful claims of all persons whomsoever.

IN WITNESS WHEREOF, David Kohn has hereunto set its authorized hand this 6 day of July, 2004.

Signed, sealed and delivered in our presence as witnesses:

Alene S. Rankin

Alene S. Rankin

Print Name:

Edwina S Rehder

EDWINA S REHDER

Print Name:

Apolice Building Development Company

A Florida corporation

By:

Print Name: David Kohn

Title: President

EXHIBIT 3

STATE OF FLORIDA

) ss:

COUNTY OF ~~Polk~~ Orange

On this 6 day of July, 2004 before me, the undersigned notary public, personally appeared David Kuhn, personally known to me to be the person who subscribed to the foregoing instrument and did not take an oath, as the (position) President, of (corporation) Apopka Building Development Company, a Florida corporation, and acknowledged that he executed the same on behalf of said corporation and that he was duly authorized to do so.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

NOTARY PUBLIC, STATE OF FLORIDA

Alene S. Raskin

Print Name: Alene S. Raskin

Alene S. Raskin
MY COMMISSION # CC982665 EXPIRES
February 26, 2005
BONDED THRU TROY FAIN INSURANCE, INC.

My Commission Expires: 2/26/05

South Florida Water Management District
Legal Form Approved
Date: July, 2001

EXHIBIT

South Florida Water Management District

Work Schedule Requirements

Application No : 040220-40

Mitigation Plan ID: PROVIDENCE

Activity	Due Date
RECORDED CONSERVATION EASEMENT	15-FEB-2005
FIRST MONITORING REPORT	30-NOV-2005
SECOND MONITORING REPORT	30-NOV-2006
THIRD MONITORING REPORT	30-NOV-2007
FOURTH MONITORING REPORT	30-NOV-2008
FIFTH MONITORING REPORT	30-NOV-2009

Exhibit No : 32

STAFF REPORT DISTRIBUTION LIST

PROVIDENCE VILLAGE (FKA OAKHILLS)

Application No: 040220-40

Permit No: 53-00204-P

INTERNAL DISTRIBUTION

X Alan L. Leavens - 6850
X JENNIFER STOUT - 6850
X Edward W. Yaun, P.E. - 6850
X Marc S. Ady - 6850
X A. Lee - 6850
X A. Waterhouse - 4220
X ERC Engineering - 6850
X ERC Environmental - 6850
X J. Golden - 4210
X Permit File
X R. Robbins - 4250

GOVERNING BOARD MEMBERS

- Mr. Harkley R. Thornton
- Mr. Hugh English
- Mr. Kevin McCarty
- Mr. Lennart Lindahl
- Mr. Michael Collins
- Mr. Nicolas Gutierrez, Jr.
- Ms. Ireta Bague
- Ms. Pamela Brooks-Thomas
- Ms. Trudi Williams

EXTERNAL DISTRIBUTION

X Permittee - Applied Building Development Company Oakhills Inc
X Engr Consultant - Kimley-Horn And Associates Inc

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 6 - FDEP
X Florida Fish & Wildlife Conservation Commission - Imperiled Species Mgmt Section
X Polk County - Water Resources Dept
X Polk County Engineer
X US Army Corps of Engineers - Tampa Reg Office - CESAJ-RD-WT

OTHER INTERESTED PARTIES

X Sierra Club - Central Florida Group P.O. Box 941692
X Water Management Institute - Michael N. Vanatta

EXHIBIT 33a

STAFF REPORT DISTRIBUTION LIST

ADDRESSES

Applied Building Development Company Oakhills Inc
8000 The Esplanade
Orlando FL 32836

Kimley-Horn And Associates Inc
4305 Highland Park Boulevard
Lakeland FL 33813

Mr. Harkley R. Thornton
Outlook Media
5401 S Kirkman Road, Suite 680
Orlando FL 32819

Mr. Hugh English
Po Box 129
Labelle FL 33975

Mr. Kevin McCarty
Bear Stearns Security Corp.
225 Ne Mizner Blvd, Suite 500
Boca Raton FL 33432

Mr. Lennart Lindahl
Lblh, Inc.
3590 Sw Corporate Pkwy.
Palm City FL 34990

Mr. Michael Collins
Po Box 803
Islamorada FL 33036

Mr. Nicolas Gutierrez, Jr.
Rafferty, Gutierrez & Sanchez-Aballi, Pa
1101 Brickel Ave, Suite 1400
Miami FL 33131

Ms. Irela Bague
Irela Bague And Associates, Inc.
3399 Ponce De Leon Blvd., Second Floor, Suite 500
Coral Gables FL 33139-7281

Ms. Pamela Brooks-Thomas
Ncci, Inc.
901 Peninsula Corporate Circle
Boca Raton FL 33487

Ms. Trudi Williams
Tkw Consulting Engineers, Inc.
5621 Banner Drive
Ft. Myers FL 33912

Div of Recreation and Park - District 6 - FDEP
1800 Wekiwa Circle
Apopka FL 32712

Florida Fish & Wildlife Conservation Commission -
Imperited Species Mgmt Section
620 South Meridian Street
Tallahassee FL 32399-6000

Polk County - Water Resources Dept
Po Box 2019
Bartow FL 33831

Polk County Engineer
Po Box 9005
Bartow FL 33831

US Army Corps of Engineers - Tampa Reg Office -
CESAJ-RD-WT
Po Box 19247
Tampa FL 33606-9247

Sierra Club - Central Florida Group P.O. Box 941692

STAFF REPORT DISTRIBUTION LIST

Maitland FL 32794

Water Management Institute - Michael N. Vanatta
Po Box 6446
Vero Beach FL 32961

EXHIBIT 33

erp_staff_route_sheet

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
STAFF REPORT ROUTE SHEET

APP TYPE: IND ENVIRONMENTAL RESOURCE (CONCEPTUAL APPROVAL AND NEW CONSTRUCTION/OPERATION)

APPLICATION NO: 040220-40

PROJECT NAME: PROVIDENCE VILLAGE (FKA OAKHILLS)

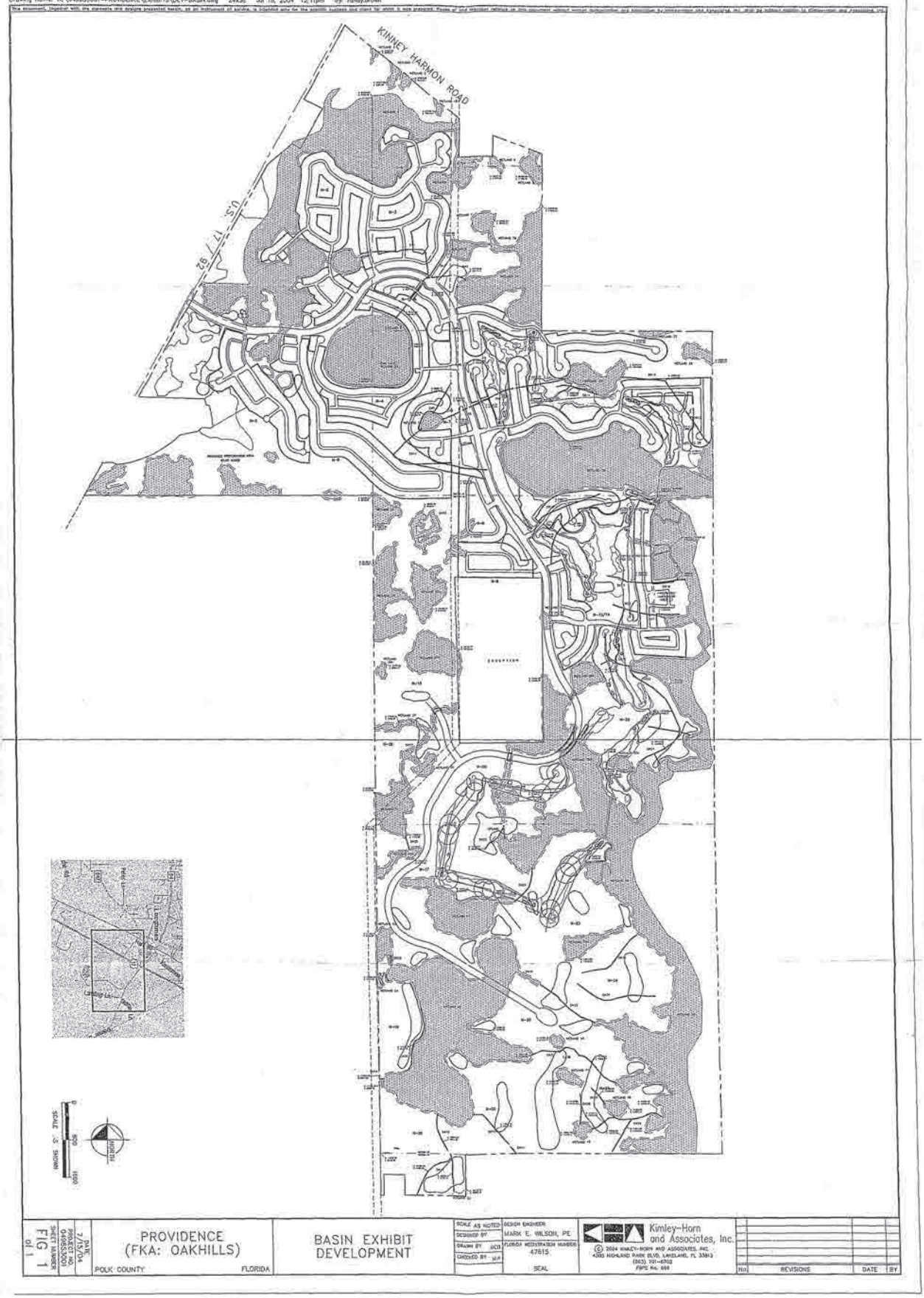
SCHEDULED FOR 14-OCT-2004 **GOVERNING BOARD**

RECEIVED
OCT 0 8 2004
ENV RES REGULATION

	Name	Due Date	Date Signed
ENGINEERING EVAL.	Alan L. Leavens	21-OCT-2004	5/Oct/04
ENVIRONMENTAL EVAL.	JENNIFER STOUT	21-OCT-2004	5-oct-04
SUPERVISOR, SWM	Edward W. Yaun, P.E.	21-OCT-2004	7-Oct-04
SUPERVISOR, NRM	Marc S. Ady	21-OCT-2004	
SERVICE CENTER DIRECTOR:	Thomas P. Genovese	21-OCT-2004	
DIV. DIR., NRM	Robert G. Robbins		10-11-04
DIV. DIR., SWM	Anthony M. Waterhouse		10/22/04

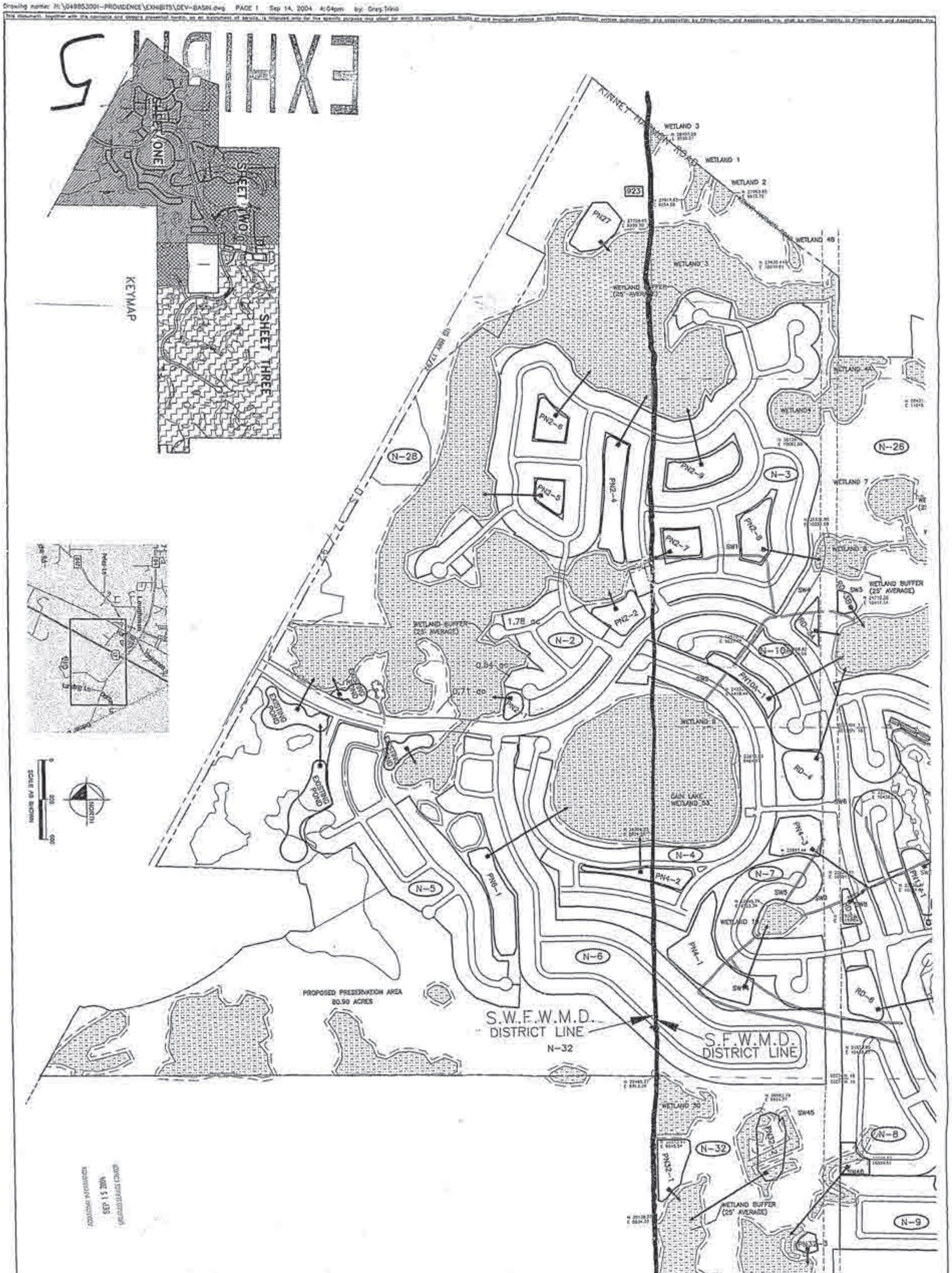
RESOURCE CODES

CONCEPTUAL PERMIT
CONSERVATION EASEMENT
ONSITE WETLAND MITIGATION
SECONDARY IMPACTS
WETLAND IMPACTS
WETLAND, FORESTED/FRESHWATER MARSH
ENDANGERED/THREATENED SPECIES


KINNEY HARMON ROAD
SCALE: 1" = 500'
NORTH
PROVIDENCE
(FKA: OAKHILLS)
POLK COUNTY
FLORIDA
BASIN EXHIBIT
DEVELOPMENT
SCALE AS NOTED
DESIGNED BY
DRAWN BY
CHECKED BY
DESIGN ENGINEER
MARK E. WILSON, PE.
FLORIDA REGISTRATION NUMBER
47615
SEAL
Kimley-Horn and Associates, Inc.
DATE
7/15/04
PROJECT NO.
064955000
SHEET NUMBER
FIG 1
of 1
No.
REVISIONS
DATE
BY

FINAL APPROVED BY GB
WPB

Drawing name: H:\049853001–PROVIDENCE\EXHIBITS\DEV-BASIN.dwg PAGE 1 Sep 14, 2004 4:04pm by: Greg.Trinio



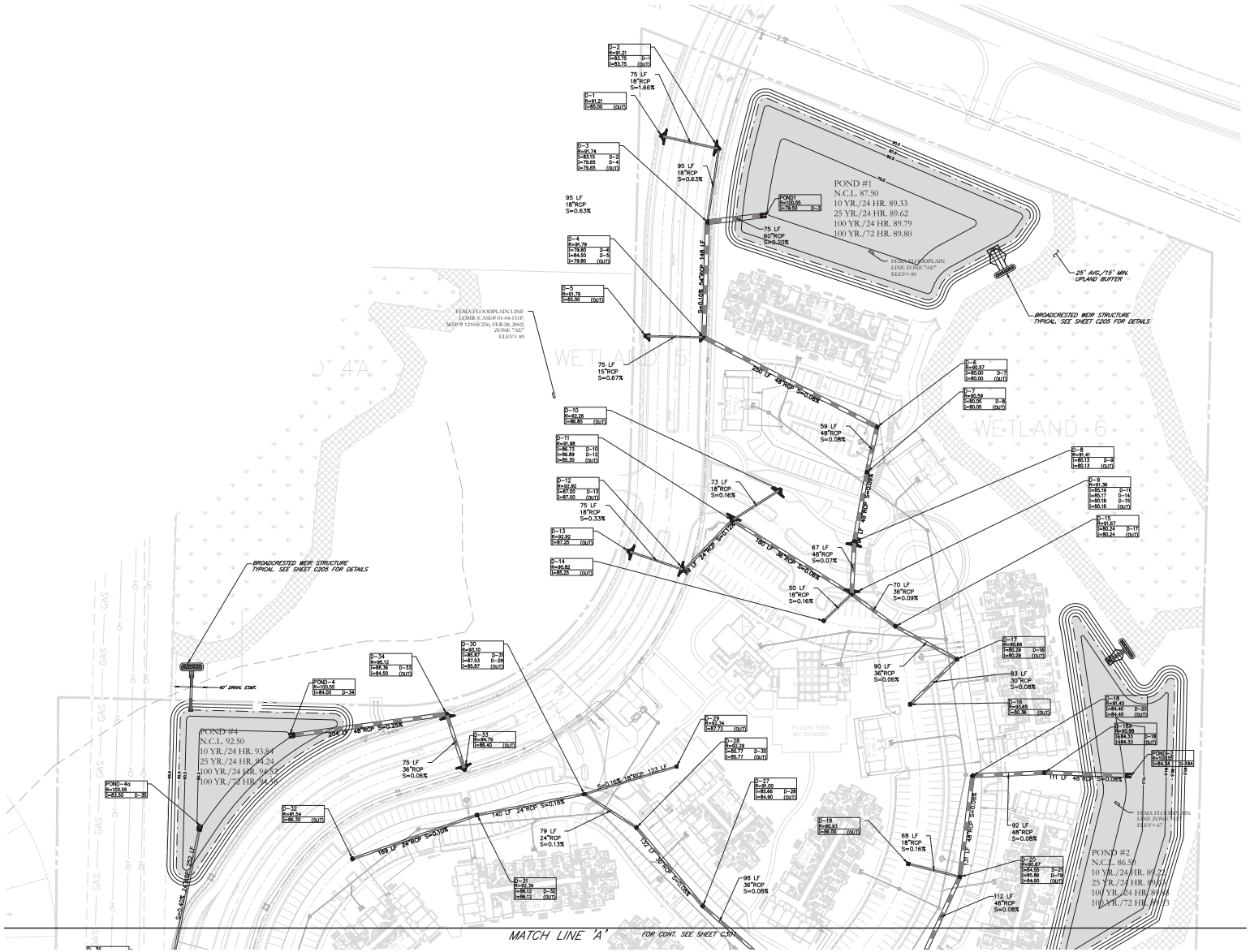
SHEET NUMBER 1	DATE 7/15/04 PROJECT NO. 049853001	PROVIDENCE (FKA: OAKHILLS) POLK COUNTY FLORIDA	BASIN EXHIBIT DEVELOPMENT	SCALE AS NOTED; DESIGN ENGINEER: MARK L. WILSON, PE; FLORIDA REGISTRATION NUMBER: 54815; SEP 14 2004

Kimley-Horn and Associates, Inc.
© 2004 KIMLEY-HORN AND ASSOCIATES, INC. 4430 HIGHLAND PARK BLVD, LAKELAND, FL 33813 (863) 701-8702

No.	REVISIONS	DATE	BY
1	POND BOTT / ORIFICES	9-14-04	GT

Providence N-26

SFWMD ERP App. 160311-12



vhb.com
225 E. Robinson Street
Suite 300
Orlando, FL 32801
407.839.4006
Certificate of Authorization
Number FL #3932

N

60 0 60 120
SCALE IN FEET

PROVIDENCE
Polk County, FL

No.	Revision	Date	Appvd.

Designed by JN | Checked by JLI
Issued for CONST | Date March 18, 2016

Drawing Title
DRAINAGE PLAN

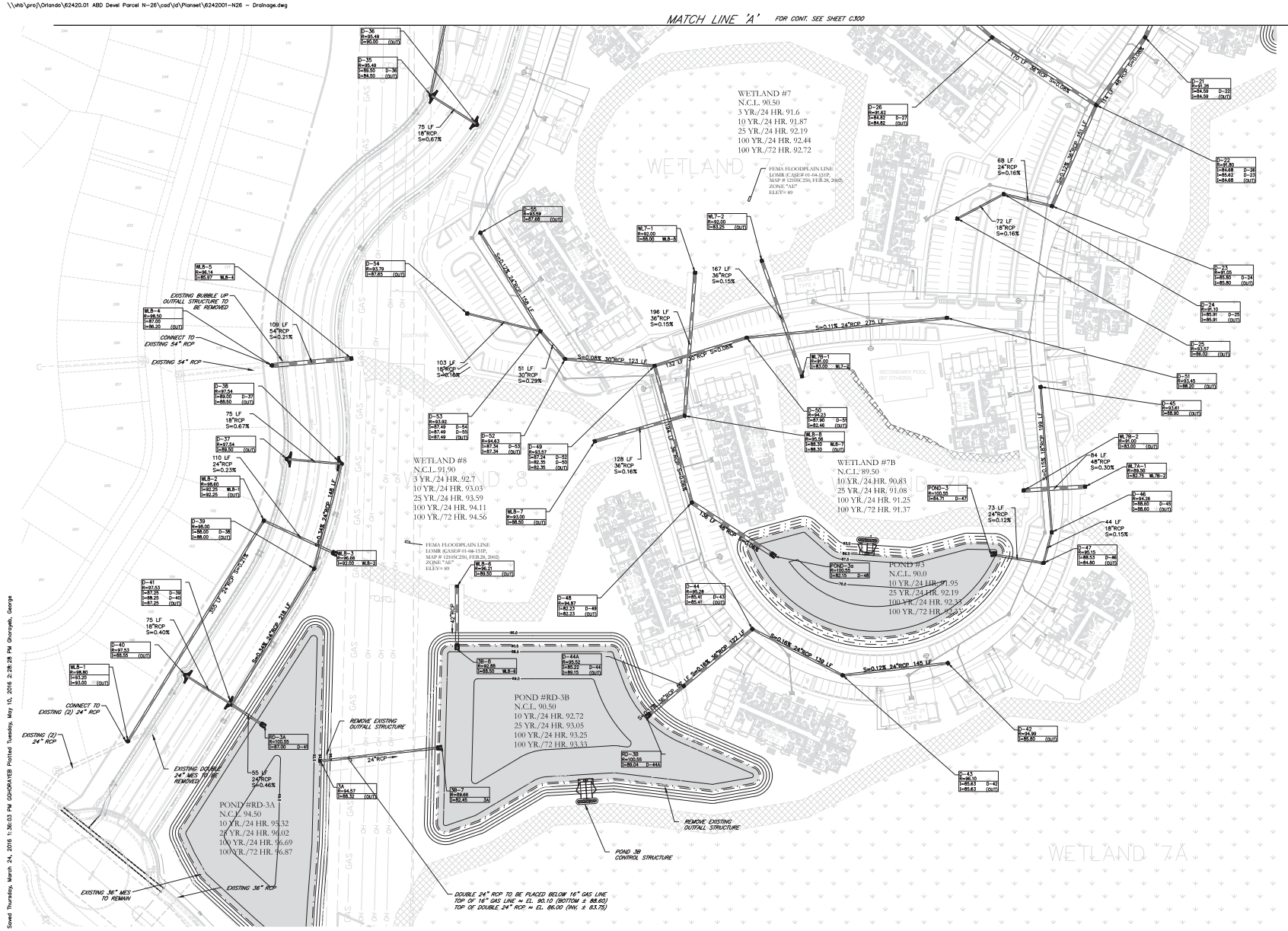
Drawing Number
C300

Sheet of

Joseph F. Kolb
FL PE # 41964

Project Number
62420.01

Saved: Wednesday, May 11, 2016 9:19:09 AM GOHORAYEB Plotted: Wednesday, May 11, 2016 9:34:19 AM Ghorayeb, George



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Certificate of Authorization
Number FL #3932

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60 0 60 120
SCALE IN FEET

PROVIDENCE
Polk County, FL

No.	Revision	Date	Appvd.

Designed by JN | Checked by JLI
Issued for CONST | Date March 18, 2016

Drawing Title
DRAINAGE PLAN

Drawing Number
C301

Sheet of

Joseph F. Kolb
FL PE # 41964

Project Number
62420.01

TABLE 12
Providence N-26

SUMMARY OF ANALYSIS - SFWMD & Polk County Criteria

Onsite Pond Stage Summary

Basin ID	Node ID	Normal Control Stage (ft)	10 Yr. 24 Hr. FLmod Rainfall Distribution (6.5") Stage (ft)	25 Yr. 24 Hr. Flmod Rainfall Distribution (9.0") Stage (ft)	100 Yr. 24 Hr. Flmod Rainfall Distribution (11.0") Stage (ft)	100 Yr. 72 Hr. SFWMD Rainfall Distribution (14.95") Stage (ft)	Minimum Road Elev.-1 (ft)	Minimum FFE_2 (ft)
10	POND 1	87.50	89.33	89.62	89.79	89.80	89.62	90.79
20	POND 2	86.50	89.22	89.63	89.88	89.93	89.63	90.88
30	POND 3	89.50	91.95	92.19	92.33	92.33	92.19	93.33
40	POND 4	92.50	93.84	94.24	94.52	94.58	94.50	95.52
N26-3	W7	90.50	91.87	92.19	92.44	92.72	92.50	93.44
N26-4	W8	91.90	93.03	93.59	94.11	94.56	93.90	95.11
N26-5	W7B	89.50	90.83	91.08	91.25	91.37	91.50	92.25
3A	RD-3A	94.50	95.32	96.02	96.69	96.87	96.50	97.69
3B	RD-3B	90.50	92.72	93.05	93.25	93.33	93.05	94.25

(1) Minimum roadway elevations provided for informational purposes only. Please see construction plans for actual road elevations.
(2) Minimum finished floor elevations provided for informational purposes only. Please see construction plans for actual finished floor elevations.

Peak Flow Summary : Based on 25 Yr. 24 Hr Design Storm Event (flmod Rainfall Distribution - 9")

	Receiving Tailwater Node		
	TW-1	TW-2	TW-4
Pre-Development			
Tailwater Peak Inflow (cfs)	**60.43**	**147.06**	**13.06**
Time of Tailwater Peak Inflow (hr)	12.25	12.59	12.17
Drainage Area contributing to each Tailwater Node (acres)	18.73	158.15	3.6
Post-Development			
Peak Inflow (cfs)	**56.7**	**128.5**	**11.39**
Time of Peak Inflow (hr)	12.54	12.73	12.29
Drianage Area (AC) contributing to Tailwater Node	20.71	157.52	3.18

Note: The tailwater peak inflow in post-development condition is less than pre-development.

Nature's Preserve

SFWMD ERP App. 101022-10

PD - 04 - 06

PROPOSED SINGLE FAMILY RESIDENTIAL PLANNED DEVELOPMENT PROPOSED SHORT TERM RENTAL COMMUNITY

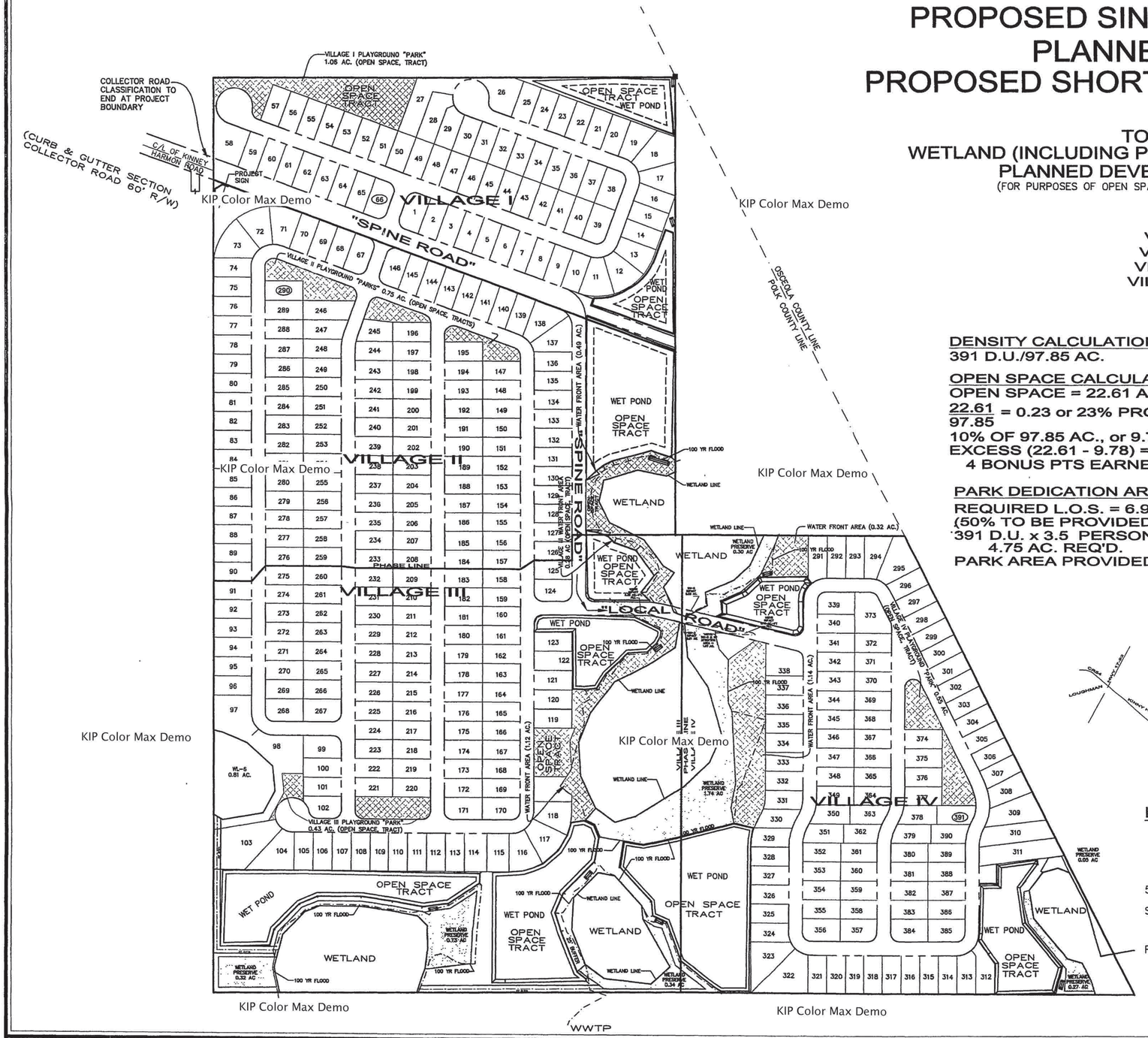
TOTAL LAND AREA = 112.00 ACRES
WETLAND (INCLUDING PRESERVE) AREA = 14.15 ACRES
PLANNED DEVELOPMENT AREA = 97.85 ACRES
(FOR PURPOSES OF OPEN SPACE AND DENSITY CALCULATIONS)

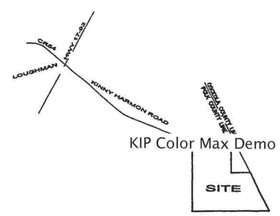
VILLAGE I = 66 LOTS
VILLAGE II = 123 LOTS
VILLAGE III = 101 LOTS
VILLAGE IV = 101 LOTS
TOTAL = 391 LOTS

DENSITY CALCULATION:
391 D.U./97.85 AC. = 4.0 D.U./AC.

OPEN SPACE CALCULATION:
OPEN SPACE = 22.61 AC. (FLOOD PLAINS, WET PONDS & PARKS)
22.61 / 97.85 = 0.23 or 23% PROVIDED
10% OF 97.85 AC., or 9.78 AC. REQUIRED
EXCESS (22.61 - 9.78) = 12.83 AC. PROVIDED
4 BONUS PTS EARNED PER TABLE 4.5 L.D.C.

PARK DEDICATION AREA CALCULATION:
REQUIRED L.O.S. = 6.95 AC./1,000 PERSONS
(50% TO BE PROVIDED ONSITE)
391 D.U. x 3.5 PERSONS/D.U. / 1,000 PERSONS x 6.95 AC. x 0.5 = 4.75 AC. REQ'D.
PARK AREA PROVIDED = 6.14 AC. (WATERFRONT AREAS & VILLAGE PARKS PER PLAN)

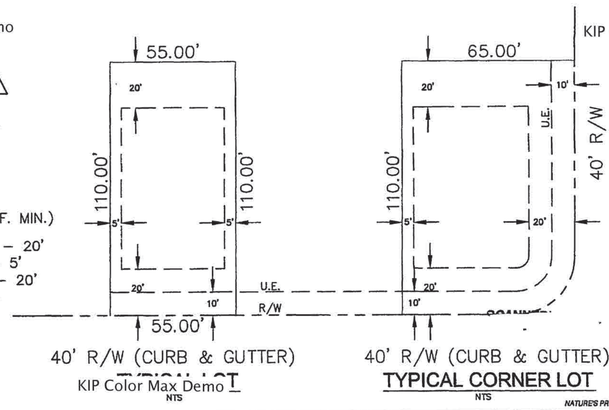




LOCATION MAP
NTS

55' x 110' (6,050 S.F. MIN.)
SETBACKS = FRONT – 20'
SIDE – 5'
REAR – 20'
R/W = 40' (PUBLIC)

ONE PARK BENCH OR PICNIC TABLE W/BENCHES SHALL BE PROVIDED IN EACH PARK.



NTS

NATURE'S PRESERVE

No.	DATE	APPROVED	REVISION	No.	DATE	APPROVED	REVISION
1	12/4/03	KSP	REVISED PER CLIENT COMMENTS	5	2/10/04	KSP	REVISED PER POLK COUNTY COMMENTS
2	12/12/03	KSP	REVISED PER CLIENT COMMENTS	6	2/20/04	KSP	REVISED PER POLK COUNTY COMMENTS
3	12/17/03	KSP	REVISED PER CLIENT COMMENTS	7	7/8/04	KSP	REVISED PER APPROVED PD-CONDITIONS
4	1/21/04	KSP	REVISED PER POLK COUNTY COMMENTS	8	10/6/04	KSP	REVISED PER POLK COUNTY COMMENTS

Morgan - Phillips Engineering Group, LLC
2225 East Edgewood Drive, Suite 5
Lakeland, Florida 33803
(863) 665-4835 (office)
(863) 583-0130 (fax)

Horizontal Scale:	1"= 150'	Filename:	1125PDplan dwg
Vertical Scale:	N/A	View:	SITE
Initial dwg. date:	11/10/03	Designed/Drawn by:	RMS
Current dwg. date:	11/10/03	Checked by:	KSP

NATURE'S PRESERVE
SITE PLAN
POLK COUNTY, FLORIDA

Kendall S. Phillips, P.E. # 16930 — Date 1/15/05

PROJECT No. 1125 — Sheet No. 4 OF 30

B & Z Reprographics, Inc. 863-665-0022 8/3/05 53 09:22 AM
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101022-10

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OCT 22 2010
WATER RESOURCES

No.	DATE	APPROVED	REVISION
1	7/7/04	KSP	REVISED PER QAQC
2	8/25/04	KSP	REVISED PER COUNTY COMMENTS
3	11/1/04	KSP	REVISED PER SFWMD COMMENTS
4	12/6/04	KSP	PER COUNTY COMMENTS

No.	DATE	APPROVED	REVISION
5	5/18/05	KSP	PER POLK COUNTY COUNTY UTIL. COMMENTS

Morgan - Phillips Engineering Group, LLC
2225 East Edgewood Drive, Suite 5
Lakeland, Florida 33803
(863) 665-4835 (office)
(863) 583-0130 (fax)

Horizontal Scale.	1"= 100'	Filename	1125base.dwg
Vertical Scale:	N/A	View:	drain1-100
Initial dwg. date:	6/18/04	Designed/Drawn by:	RMS
Current dwg. date:	6/18/04	Checked by:	KSP

NATURE'S PRESERVE
OVERALL DRAINAGE PLAN
POLK COUNTY, FLORIDA

8/3/05
Kendall S. Phillips, P.E. # 16930 Date

PROJECT No 1125

Sheet No. 5 OF 30

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B & Z Reprographics, Inc. 863-665-0022 8/3/05 52 09:22 AM

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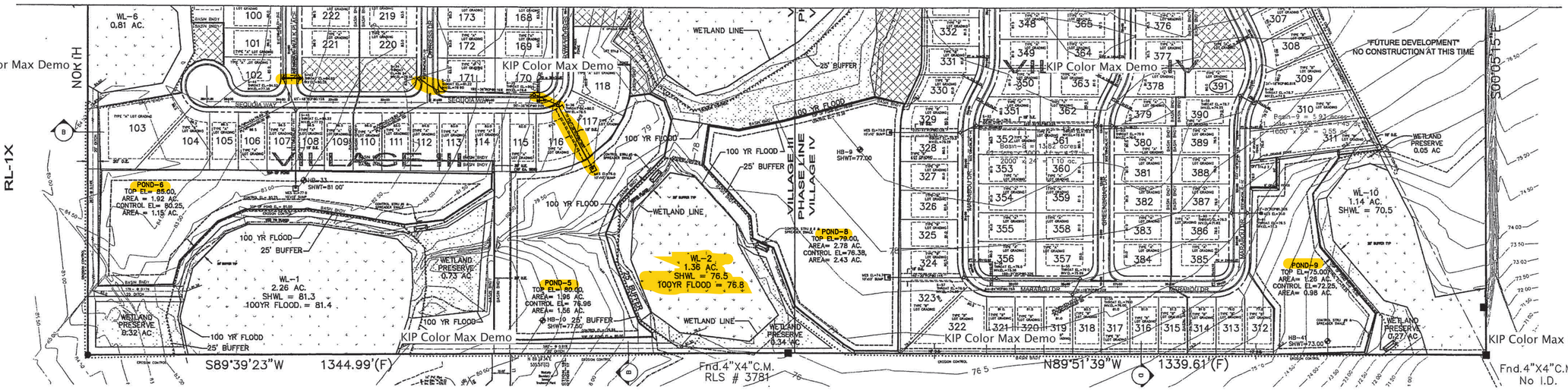
SCALE: 1" = 100'

MATCH LINE



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No.	DATE	APPROVED	REVISION
1	8/25/04	KSP	REVISED PER COUNTY COMMENTS
2	11/1/04	KSP	REVISED PER SFWMD COMMENTS
3	12/6/04	KSP	PER COUNTY COMMENTS

No	DATE	APPROVED	REVISION

Morgan - Phillips Engineering Group, LLC
2225 East Edgewood Drive, Suite 5
Lakeland, Florida 33803
(863) 665-4835 (office)
(863) 583-0130 (fax)

Horizontal Scale:	1"= 100'	Filename	1125base.dwg
Vertical Scale:	N/A	View:	drain2
Initial dwg. date:	6/18/04	Designed/Drawn by:	RMS
Current dwg. date:	6/18/04	Checked by:	KSP

NATURE'S PRESERVE
OVERALL DRAINAGE PLAN
POLK COUNTY, FLORIDA

Kendall S. Phillips, P.E. # 16930 — Date 6/18/04

PROJECT No 1125

Sheet No. 6 OF 30

RECEIVED
OCT 22 2010
WATER RESOURCE REGULATION
101022-10

KIP Color Max Demo

NATURES PRESERVE

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Nature's Preserve

SFWMD ERP App. 040624-11

Last Date For Agency Action: 09-MAR-2005

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Nature'S Preserve

Permit No.: 53-00207-P

Application No.: 040624-11 **Associated File:** 041007-18 ERP

Application Type: Environmental Resource (New Construction/Operation)

Location: Polk County, S17,18/T26S/R28E

Permittee : Phelps Builders Group Ii Inc

Operating Entity : Nature'S Preserve Community Association Inc

Project Area: 122 acres

DRAFT
Subject to Governing
Board Approval

Project Land Use: Residential

Drainage Basin: REEDY CREEK

Receiving Body: Existing wetlands to Reedy Creek swamp **Class:** CLASS III

Special Drainage District: NA

Total Acres Wetland Onsite:	9.85
Total Acres Wetland Preserved Onsite:	9.30
Total Acres Impacted Onsite :	.55
Total Acres Presv/Mit Compensation Onsite:	9.30

Conservation Easement To District : Yes

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 122 acre residential development known as Nature's Preserve. Staff recommends approval with conditions.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located east of US 17-92 off Kinney Harmon Road and along the Polk, Osceola County line.

There are no permitted surface water management facilities within the project area. The site contains improved pasture and existing wetlands. Kinney Harmon Road is an existing dirt road that accesses the site.

This project contains a total of 9.85 acres of wetlands. This includes 9.3 acres of cypress wetlands and two small isolated freshwater marshes totaling 0.55 acres. All of the cypress systems will be preserved and will not incurr any impacts. The two small, isolated marshes will be removed in order to facilitate the construction of interior roadways and lots. Mitigation is not required for these impacts. A conservation easement will be recorded over the remaining wetlands and a maintenance and monitoring plan will be initiated.

PROPOSED PROJECT:

Construction proposed consists of the water management system serving the residential development.

The water management system consists of seven wet and two dry detention ponds discharging to adjacent wetlands, then to the Reedy Creek Swamp.

The project area contains 122 acres. The contributing drainage area includes 90.99 acres, and excludes 9.86 acres of wetlands, 3.21 acres of upland buffers, 7.75 acres of perimeter swales directing off-site runoff around the surface water management system, and 10.19 acres of property located in Osceola County with no development proposed at this time.

There are portions of Ponds 2, 3, and 6 that do not meet dimensional criteria. Therefore, the .27, .37 and .35 acre portions of Ponds 2, 3, and 6 respectively have been excluded from the water quality treatment calculations.

The property is under a contract for purchase between Lawrence W. Gough and David A. Scales, Inc. and Phelps Builders Group II, Inc. Prior to the commencement of construction the applicant shall submit to the District's Orlando Service Center a copy of the warranty deed verifying completion of the sale. (See Special Conditions)

Access to the site is via Kinny Harmon Road, an existing dirt road. A general permit application No. 041007-18 for paving Kinny Harmon Road has been submitted and is being processed concurrently for approval.

LAND USE:

The land use information includes approximately 10.19 acres of owned property located in Osceola County. There is no development proposed at this time, this area is shown as pervious area.

Construction:
Project:

	This Phase	Total Project	
Building Coverage	26.92	26.92	acres
Pavement	8.32	8.32	acres
Pervious	63.73	63.73	acres
Preserved	13.07	13.07	acres
Water Mgnt Acreage	9.96	9.96	acres
Total:	**122.00**	**122.00**	

WATER QUANTITY :

Discharge Rate :

As shown in the table below, the proposed project discharge is within the allowable limit for the area. Discharges are based on the discharge formula utilized in surrounding permitted development.

Discharge Storm Frequency : 25 YEAR-3 DAY Design Rainfall : 10.5 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NGVD)
Pond 1	2.6	Discharge Formula	2.5	80.9
Pond 2 & 3	12.2	Discharge Formula	12.1	83.8
Pond 4	2.2	Discharge Formula	2.1	80.7
Pond 5	4.1	Discharge Formula	4.1	79.6
Pond 6	5.5	Discharge Formula	5.2	84.4
Pond 7	2	Discharge Formula	1.9	79.9
Pond 8	5.5	Discharge Formula	5.4	78.8
Pond 9	2.4	Discharge Formula	2.2	74.7

Finished Floors :

As shown in the following table and the attached exhibits, minimum finished floor elevations have been set at or above the calculated design storm flood elevation.

Building Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 12 inches

Basin	Peak Stage (ft, NGVD)	Proposed Min. Finished Floors (ft, NGVD)	FEMA Elevation (ft, NGVD)
Pond 1	81.4	82.8	N/A
Pond 2 & 3	84.4	84.8	N/A
Pond 4	81.1	83.3	N/A
Pond 5	80	81.8	N/A
Pond 6	84.9	85.3	N/A
Pond 7	80.3	81.8	N/A
Pond 8	79.2	80.8	N/A
Pond 9	74.9	77.3	N/A

Road Design :

As shown in the following table and the attached exhibits, minimum road center lines have been set at or above the calculated design storm flood elevation.

Road Storm Frequency : 25 YEAR-3 DAY Design Rainfall: 10.5 inches

Basin	Peak Stage (ft, NGVD)	Proposed Min. Road Crown (ft, NGVD)
Pond 1	80.9	81.47
Pond 2 & 3	83.8	83.89
Pond 4	80.7	81.4
Pond 5	79.6	80.5
Pond 6	84.4	84.5
Pond 7	79.9	80.06
Pond 8	78.8	79.25
Pond 9	74.7	77.1

Flood Plain/Compensating Storage:

Approximately 1.07 acre feet of encroachment into the 100 year floodplain occur with construction of a roadway crossing of a wetland. Compensating storage in the amount of 1.07 acre feet is provided in a scraped down area adjacent to the wetland between elevation 76.0' and 78.0' NGVD.

Displaced Volume	Compensating Volume	100-Year Stage Elevation
1.07 ac-ft	1.07 ac-ft	78 ft-NGVD

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NGVD)	WSWT Ctrl Elev (ft, NGVD)	Method Of Determination
Pond 1	6.38	76.75	76.75	Wet Season Soil Borings
Pond 2 & 3	30.40	78.83	78.83	Wet Season Soil Borings
Pond 4	5.51	77.5	77.50	Wet Season Soil Borings
Pond 5	10.30	76.96	76.96	Wet Season Soil Borings
Pond 6	13.66	80.25	80.25	Wet Season Soil Borings
Pond 7	4.99	75.96	75.96	Wet Season Soil Borings
Pond 8	13.82	76.38	76.38	Wet Season Soil Borings
Pond 9	5.93	72.25	72.25	Wet Season Soil Borings

Receiving Body :

Basin	Str.#	Receiving Body
Pond 1	1	Existing wetland
Pond 2 & 3	1	Existing wetland
Pond 4	1	Existing wetland
Pond 5	1	Existing wetland
Pond 6	1	Existing wetland
Pond 7	1	Existing wetland
Pond 8	1	Existing wetland

Receiving Body :

Basin	Str.#	Receiving Body
Pond 9	1	Existing wetland

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NGVD)

Culverts:

Basin	Str#	Count	Type	Width	Length	Dia.
Pond 1	1	1	Reinforced Concrete Pipe		950'	15"

Inlets:

Basin	Str#	Count	Type	Width	Length	Dia.	Crest Elev.
Pond 1	1	1	Fdot Mod C Drop Inlet	24"	37"		81

Weirs:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Elev.
Pond 1	1	1	Rectangular Notch	7.75"	7.75"			78.66 (crest)
Pond 2 & 3	1	1	Rectangular Notch	6.75"	42.1"			80.49 (crest)
Pond 4	1	1	Rectangular Notch	2"	30.7"			78.44 (crest)
Pond 5	1	1	Rectangular Notch	5.83"	23.2"			78.07 (crest)
Pond 6	1	1	Rectangular Notch	4.3"	37.3"			81.89 (crest)
Pond 7	1	1	Rectangular Notch	2"	48.5"			77.61 (crest)
Pond 8	1	1	Rectangular Notch	9"	18.8"			77.43 (crest)
Pond 9	1	1	Rectangular Notch	3.2"	24.1"			72.99 (crest)

Water Quality Structures: Note: The units for all the elevation values of structures are (ft, NGVD)

Bleeders:

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Invert Angle	Invert Elev.
Pond 1	1	1	Circular Orifice				3"		76.75
Pond 2 & 3	1	1	Circular Orifice				5"		78.83
Pond 4	1	1	Circular Orifice				3"		77.5
Pond 5	1	1	Circular Orifice				4.92 "		76.96
Pond 6	1	1	Circular Orifice				3.5"		80.25
Pond 7	1	1	Circular Orifice				4"		75.96
Pond 8	1	1	Circular Orifice				6'		76.38
Pond 9	1	1	Circular Orifice				4"		72.25

WATER QUALITY :

No adverse water quality impacts are anticipated as a result of the proposed project. Water quality treatment is provided for the first inch of runoff in seven wet and two dry detention ponds. There are portions of Pond 2 & 3 and Pond 6 that do not meet District dimensional criteria, therefore .27 and .37 acres of Pond 2 & 3 and .35 acres of Pond 6 have been excluded from the water quality treatment calculations.

Basin	Treatment Method		Vol Req.d (ac-ft)	Vol Prov'd (ac-ft)
Pond 1	Treatment	Dry Detention	.57 acres	.4	.4
Pond 2 & 3	Treatment	Wet Detention	1.4 acres	2.45	2.45
Pond 4	Treatment	Wet Detention	.62 acres	.49	.49
Pond 5	Treatment	Wet Detention	1.5 acres	.86	.86

Basin	Treatment Method			Vol Req.d (ac-ft)	Vol Prov'd (ac-ft)
Pond 6	Treatment	Wet Detention	.65 acres	1.16	1.16
Pond 7	Treatment	Dry Detention	.49 acres	.31	.31
Pond 8	Treatment	Wet Detention	1.86 acres	1.15	1.15
Pond 9	Treatment	Wet Detention	.98 acres	.49	.49

WETLANDS:

The project contains 9.3 acres of forested wetlands. These systems are dominated by cypress, but also include wax myrtle, dahoon holly, royal fern and cinnamon fern. The applicant proposes no impacts to these systems and an average 25-foot buffer will be maintained adjacent to the preserved wetlands. In some areas, these buffers were extended to incorporate areas lying below the 100-year flood elevation. These areas will not be placed under Conservation Easement, however, they will be labeled as an "Open Space" tract on the final plat. The preserved wetlands as well as the associated 25-foot upland buffer will be placed under a Conservation Easement. In addition, a maintenance and monitoring program will be initiated.

In addition, there are 0.55 acres of herbaceous wetlands also found on the site. These small, isolated systems (0.35 acre and 0.2 acre) are highly disturbed due to historic cattle activity. These wetlands will be removed to facilitate the construction of interior roadways and lots. Due to the size and location of these herbacous wetlands, no mitigation is required pursuant to Section 4.2.2.1 BOR since they are less than 0.5 acre in size and do not provide habitat for threatened or endangered species.

Wetland Inventory :

CONSTRUCTION NEW -Nature's Preserve

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Flucs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
W1	ON	621	Preservation	2.26			1.00	1.00				
W2	ON	621	Preservation	1.36			1.00	1.00				
W3	ON	621	Preservation	3.20			1.00	1.00				
W4	ON	621	Preservation	1.67			1.00	1.00				
W6	ON	621	Preservation	.81			1.00	1.00				
W8	ON	641	Direct	.35							.000	.000
W9	ON	641	Direct	.20							.000	.000
			Total:	9.85								.00

Fluccs Code	Description
621	Cypress
641	Freshwater Marshes

Endangered Species:

The project site does not contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. No wetland-dependent endangered/threatened species or species of special concern were observed onsite, and submitted information indicates that potential use of the site by such species is minimal. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

LEGAL ISSUES:

In accordance with Exhibit 10, a perpetual maintenance program and a five year monitoring program will be initiated .

A Conservation Easement will be recorded over the 9.3 acres of on-site wetlands and the associated 25-foot upland buffer in accordance with Exhibit 11.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that public water supply will be used as a source for irrigation water for the project. The applicant has indicated that dewatering is required for construction of this project. No construction dewatering shall commence until a dewatering permit is obtained in accordance with General Condition 13. This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation, unless the work qualifies for a No-Notice Short-Term Dewatering permit pursuant to Chapter 40E-20.302(3) or is exempt pursuant to Section 40E-2.051, FAC.

Potable Water Supplier:

Polk County Utilities

Waste Water System/Supplier:

Polk County Utilities

Right-Of-Way Permit Status:

A Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

The District has received correspondence from the Florida Department of State, Division of Historical Resources indicating that the agency has no objections to the issuance of this permit.

DCA/CZM Consistency Review:

The District has not received a finding of inconsistency from the Florida Department of Environmental Protection or other commenting agencies regarding the provisions of the federal Coastal Zone Management Plan.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF RECOMMENDATION:

The Staff recommends that the following be issued :

Construction and operation of a surface water management system to serve a 122 acre residential project known as Nature's Preserve.

Based on the information provided, District rules have been adhered to.

Staff recommendation is for approval subject to the attached General and Special Conditions.

DRAFT
Subject to Governing Board Approval

STAFF REVIEW:

NATURAL RESOURCE MANAGEMENT DIVISION APPROVAL

ENVIRONMENTAL EVALUATION

JENNIFER STOUT

SUPERVISOR

Marc S. Ady

DIVISION DIRECTOR :

for Robert G. Robbins

DATE: 3/3/05

SURFACE WATER MANAGEMENT DIVISION APPROVAL

ENGINEERING EVALUATION

Alan L. Leavens

SUPERVISOR

Edward W. Yaun, P.E.

DIVISION DIRECTOR :

Anthony M. Waterhouse, P.E.

DATE: 3/3/05

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity

GENERAL CONDITIONS

approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

GENERAL CONDITIONS

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on March 9, 2010.

2. Operation of the surface water management system shall be the responsibility of NATURE'S PRESERVE COMMUNITY ASSOCIATION INC. Within one year of permit issuance or concurrent with the engineering certification of construction completion, whichever comes first, the permittee shall submit a copy of the recorded deed restrictions (or declaration of condominium, if applicable), a copy of the filed articles of incorporation, and a copy of the certificate of incorporation for the association.

3. Discharge Facilities:

Basin: Pond 1, Structure: 1

1-7.75" W X 7.75" H RECTANGULAR NOTCH weir with crest at elev. 78.66' NGVD.
1-3" dia. CIRCULAR ORIFICE with invert at elev. 76.75' NGVD.
950 LF of 15" dia. REINFORCED CONCRETE PIPE culvert.
1-24" W X 37" L drop inlet with crest at elev. 81' NGVD.

Receiving body : Existing wetland
Control elev : 76.75 feet NGVD.

Basin: Pond 2 & 3, Structure: 1

1-6.75" W X 42.1" H RECTANGULAR NOTCH weir with crest at elev. 80.49' NGVD.
1-5" dia. CIRCULAR ORIFICE with invert at elev. 78.83' NGVD.

Receiving body : Existing wetland
Control elev : 78.83 feet NGVD.

Basin: Pond 4, Structure: 1

1-2" W X 30.7" H RECTANGULAR NOTCH weir with crest at elev. 78.44' NGVD.
1-3" dia. CIRCULAR ORIFICE with invert at elev. 77.5' NGVD.

Receiving body : Existing wetland
Control elev : 77.5 feet NGVD.

Basin: Pond 5, Structure: 1

1-5.83" W X 23.2" H RECTANGULAR NOTCH weir with crest at elev. 78.07' NGVD.
1-4.92" dia. CIRCULAR ORIFICE with invert at elev. 76.96' NGVD.

Receiving body : Existing wetland
Control elev : 76.96 feet NGVD.

Basin: Pond 6, Structure: 1

1-4.3" W X 37.3" H RECTANGULAR NOTCH weir with crest at elev. 81.89' NGVD.
1-3.5" dia. CIRCULAR ORIFICE with invert at elev. 80.25' NGVD.

Receiving body : Existing wetland
Control elev : 80.25 feet NGVD.

Basin: Pond 7, Structure: 1

SPECIAL CONDITIONS

1-2" W X 48.5" H RECTANGULAR NOTCH weir with crest at elev. 77.61' NGVD.
1-4" dia. CIRCULAR ORIFICE with invert at elev. 75.96' NGVD.

Receiving body : Existing wetland
Control elev : 75.96 feet NGVD.

Basin: Pond 8, Structure: 1

1-9" W X 18.8" H RECTANGULAR NOTCH weir with crest at elev. 77.43' NGVD.
1-6' dia. CIRCULAR ORIFICE with invert at elev. 76.38' NGVD.

Receiving body : Existing wetland
Control elev : 76.38 feet NGVD.

Basin: Pond 9, Structure: 1

1-3.2" W X 24.1" H RECTANGULAR NOTCH weir with crest at elev. 72.99' NGVD.
1-4" dia. CIRCULAR ORIFICE with invert at elev. 72.25' NGVD.

Receiving body : Existing wetland
Control elev : 72.25 feet NGVD.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
7. Lake side slopes shall be no steeper than 4:1 (horizontal:vertical) to a depth of two feet below the control elevation. Side slopes shall be nurtured or planted from 2 feet below to 1 foot above control elevation to insure vegetative growth, unless shown on the plans.
8. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
9. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
10. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
11. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.
12. Minimum building floor elevation: BASIN: Pond 1 - 82.80 feet NGVD. BASIN: Pond 2 & 3 - 84.80 feet NGVD. BASIN: Pond 4 - 83.30 feet NGVD. BASIN: Pond 5 - 81.80 feet NGVD. BASIN: Pond 6 - 85.30 feet NGVD.

SPECIAL CONDITIONS

BASIN: Pond 7 - 81.80 feet NGVD. BASIN: Pond 8 - 80.80 feet NGVD. BASIN: Pond 9 - 77.30 feet NGVD.

13. Minimum road crown elevation: Basin: Pond 1 - 81.47 feet NGVD. Basin: Pond 2 & 3 - 83.89 feet NGVD. Basin: Pond 4 - 81.40 feet NGVD. Basin: Pond 5 - 80.50 feet NGVD. Basin: Pond 6 - 84.50 feet NGVD. Basin: Pond 7 - 80.06 feet NGVD. Basin: Pond 8 - 79.25 feet NGVD. Basin: Pond 9 - 77.10 feet NGVD.

14. Prior to the commencement of construction and pursuant to Subsection 40E-4.101(2), F.A.C., the permittee shall demonstrate ownership of the project area to the District's Environmental Resource Compliance staff located at the Orlando Service Center.

15. A maintenance program shall be implemented in accordance with Exhibit No. 10 for the preserved wetland areas on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 10% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.

16. An average 25' wide, minimum 15', buffer of undisturbed upland vegetation shall be maintained between the proposed development and existing wetlands.

17. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.

18. A monitoring program shall be implemented in accordance with Exhibit No. 12. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff.

19. Prior to the commencement of construction resulting in wetland impacts and in accordance with the work schedule in Exhibit No. 12, the permittee shall submit two certified copies of the recorded conservation easement for the mitigation area and associated buffers. The data should also be supplied in a digital CAD (.dxf) or GIS (ESRI Coverage) format. The files should be in the Florida State Plane coordinate system, East Zone (3601) with a data datum of NAD83, HARN with the map units in feet. This data should reside on a CD or floppy disk and be submitted to the District's Environmental Resource Compliance Division in the service area office where the application was submitted.

    The recorded easement shall be in substantial conformance with Exhibit 11. Any proposed modifications to the approved form must receive prior written consent from the District. The easement must be free of encumbrances or interests in the easement which the District determines are contrary to the intent of the easement. In the event it is later determined that there are encumbrances or interests in the easement which the District determines are contrary to the intent of the easement, the permittee shall be required to provide release or subordination of such encumbrances or interests.

20. Permanent physical markers designating the preserve status of the wetland preservation areas and buffer zones shall be placed at the intersection of the buffer and each lot line. These markers shall be maintained in perpetuity.

21. Silt fencing shall be installed at the limits of construction to protect all of the preserve areas from silt and sediment deposition during the construction of the project. A floating turbidity barrier shall be installed during the construction of the final discharge structure into the adjacent canal/water body. The silt fencing and the turbidity barrier shall be installed in accordance with "Florida Land Development Manual" Chapter 6 "Stormwater and Erosion and Sediment Control Best Management

SPECIAL CONDITIONS

Practices for Developing Areas" and Exhibit Nos. 2-9. The sediment controls shall be installed prior to the commencement of any clearing or construction and the installation must be inspected by the District's Environmental Resource Compliance staff. The silt fencing and turbidity barriers shall remain in place and be maintained in good functional condition until all adjacent construction activities have been completed and all fill slopes have been stabilized. Upon completion of the project and the stabilization of the fill, the permittee shall contact the District's Environmental Resource Compliance staff to inspect the site and approve the removal of the silt fencing and turbidity barriers.

22. Activities associated with the implementation of the mitigation, monitoring and maintenance plan(s) shall be completed in accordance with the work schedule attached as Exhibit No. 12. Any deviation from these time frames will require prior approval from the District's Environmental Resource Compliance staff. Such requests must be made in writing and shall include (1) reason for the change, (2) proposed start/finish and/or completion dates; and (3) progress report on the status of the project development or mitigation effort.

ADDITIONAL INFORMATION

NATURE'S PRESERVE
POLK COUNTY, FLORIDA

NOV 29 2004

ORLANDO SERVICE CENTER

Drainage Calculations

Prepared By:

MORGAN – PHILLIPS ENGINEERING GROUP, LLC
2225 East Edgewood Drive, Suite 5
Lakeland, FL 33803-3634

Kendall S. Phillips, P.E. #16930

Date:

November 2004

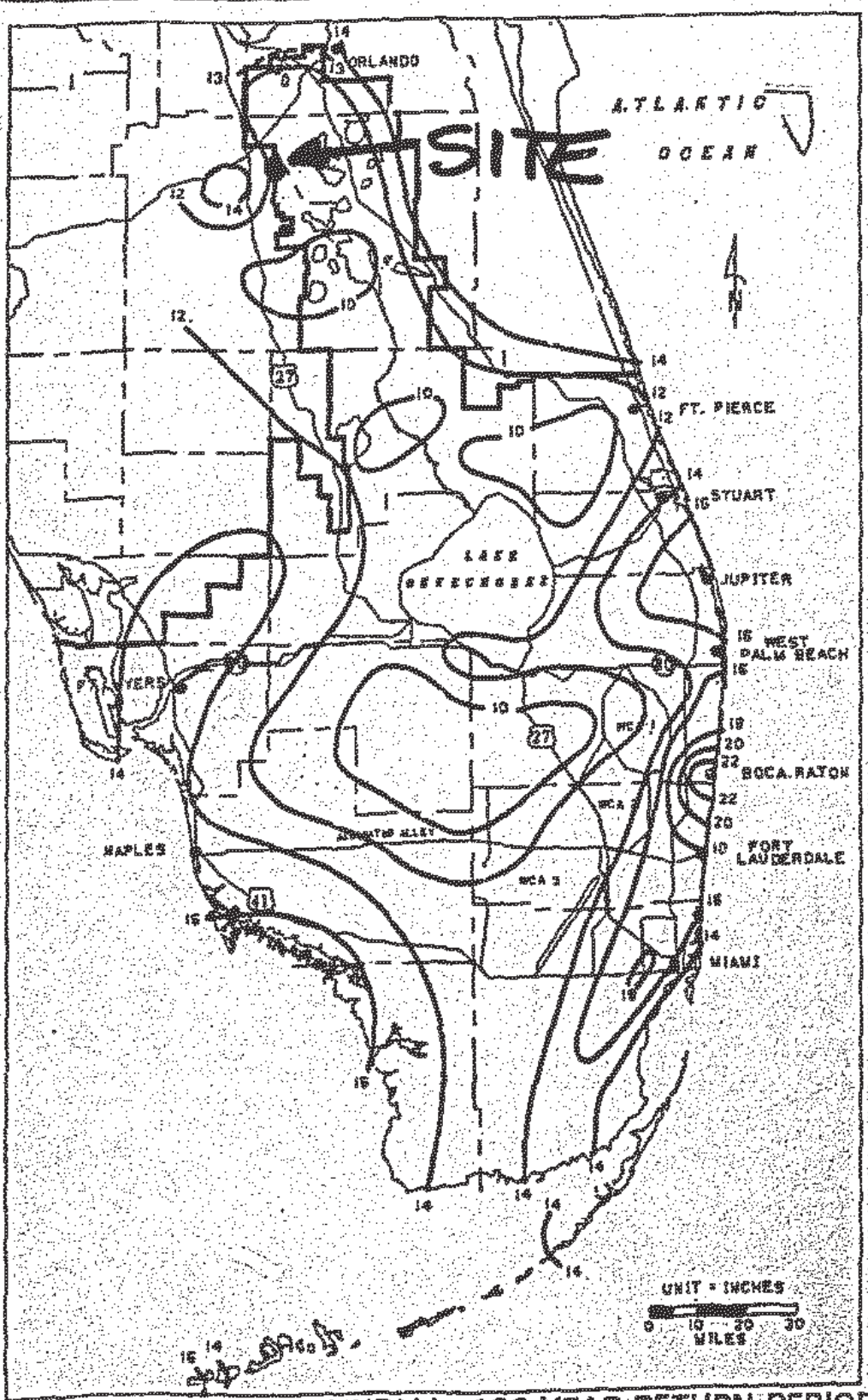
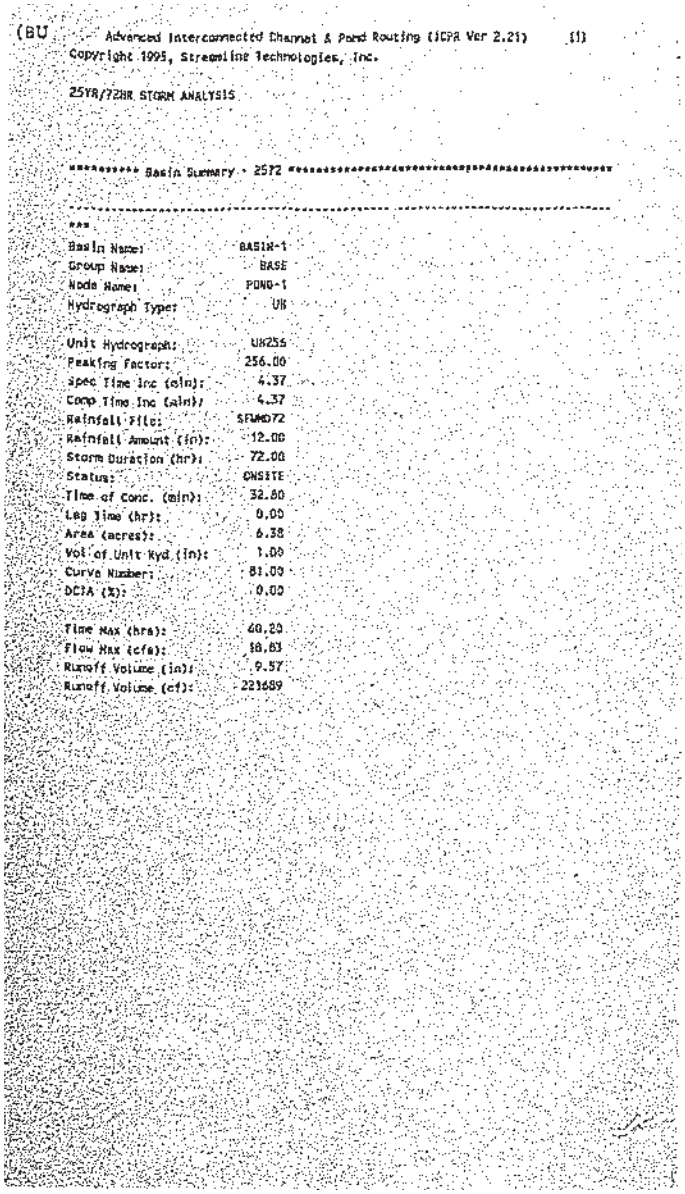


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

C-11

12" RAINFALL



(BU Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.21) [1]
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25YR/72HR STORM ANALYSIS

********** Basin Summary - 2572 **********

Basin Name:	BASIN-1
Group Name:	BASE
Node Name:	POND-1
Hydrograph Type:	UH
Unit Hydrograph:	UH255
Peaking Factor:	256.00
Spec Time Inc (min):	4.37
Comp Time Inc (min):	4.37
Rainfall File:	SFWMD72
Rainfall Amount (in):	12.00
Storm Duration (hr):	72.00
Status:	ONSITE
Time of Conc. (min):	32.80
Lag Time (hr):	0.00
Area (acres):	6.38
Vol of Unit Hyd (in):	1.00
Curve Number:	81.00
DCIA (%):	0.00
Time Max (hrs):	60.20
Flow Max (cfs):	18.83
Runoff Volume (in):	9.57
Runoff Volume (cf):	221689

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25YR/72HR STORM ANALYSIS

********** Node Maximum Conditions - 2572 **********

(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)
POND-1	BASE	62.82	81.40	81.00	0.0308	38660.39	60.17	18.63	62.82	2.71

Advanced Interconnected Channel & Pond Routing (IEPR Ver 2.21) [1]

25YR/72HR STORM ANALYSIS

********** Basin Summary - 2572 **********

Basin Name:	BASIN-3	BASIN-2
Group Name:	BASE	BASE
Node Name:	POND-3	POND-2
Hydrograph Type:	UH	UH
Unit Hydrograph:	UH256	UH256
Peaking Factor:	256.00	256.00
Spec Time Inc (min):	4.68	4.63
Comp Time Inc (min):	4.68	4.63
Rainfall File:	SFWMD72	SFWMD72
Rainfall Amount (in):	12.00	12.00
Storm Duration (hr):	72.00	72.00
Status:	ONSITE	ONSITE
Time of Conc. (min):	35.10	34.79
Lag Time (hr):	0.00	0.00
Area (acres):	20.97	9.43
Vol of Unit Hyd (in):	1.00	1.00
Curve Number:	83.00	85.00
DCIA (%):	0.00	0.00
Time Max (hrs):	60.21	60.22
Flow Max (cfs):	60.34	27.35
Runoff Volume (in):	9.85	9.84
Runoff Volume (cf):	749465	336854

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25YR/72HR STORM ANALYSIS

********** Node Maximum Conditions - 2572 **********

(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)
POND-2	BASE	62.73	84.40	84.00	0.0391	28665.05	60.25	27.04	60.33	12.37
POND-3	BASE	62.75	84.39	84.00	0.0362	122653.12	60.25	71.83	62.75	15.12

25YR/72HR STORM ANALYSIS

********** Basin Summary - 2572 **********

***

Basin Name:	BASIN-4
Group Name:	BASE
Node Name:	POND-4
Hydrograph Type:	SN
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	1.33
Comp Time Inc (min):	1.33
Rainfall File:	SFWMD72
Rainfall Amount (in):	12.00
Storm Duration (hr):	72.00
Status:	ONSITE
Time of Conc. (min):	10.00
Lag Time (hr):	0.00
Area (acres):	5.51
Vol of Unit Hyd (in):	1.00
Curve Number:	85.00
DCIA (%):	0.00
Time Max (hrs):	60.02
Flow Max (cfs):	28.27
Runoff Volume (in):	10.11
Runoff Volume (cf):	202233

(BU Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.21) [1]

25YR/72HR STORM ANALYSIS

********** Node Maximum Conditions - 2572 **********

(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)
POND-4	BASE	61.63	81.10	81.00	0.0416	42219.68	60.00	28.17	61.63	2.60

(8U Advanced Interconnected Channel & Pond Routing (ICPR Ver 2.21) [1]
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25YR/24HR STORM ANALYSIS

********** Basin Summary - 2524 **********

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Basin Name:	BASIN-5
Group Name:	BASE
Node Name:	POND-5
Hydrograph Type:	UH
Unit Hydrograph:	UH256
Peaking Factor:	256.00
Spec Time Inc (min):	4.11
Comp Time Inc (min):	4.11
Rainfall File:	SFWMD72
Rainfall Amount (in):	12.00
Storm Duration (hr):	72.00
Status:	ONSITE
Time of Conc. (min):	30.80
Lag Time (hr):	0.00
Area (acres):	10.30
Vol of Unit Hyd (in):	1.00
Curve Number:	86.00
DCIA (%):	0.00
Time Max (hrs):	60.16
Flow Max (cfs):	32.41
Runoff Volume (in):	10.24
Runoff Volume (cf):	382692

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25YR/72HR STORM ANALYSIS

********** Node Maximum Conditions - 2572 **********

(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)
POND-5	BASE	62.52	80.00	80.00	0.0230	85401.72	60.17	32.37	62.52	5.20