Florida Department of Transportation

US 301 (SR 35) PD&E Study

Pond Siting Report

FINAL

FDOT Office
District Five

Authors
Inwood Consulting Engineers, Inc.

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The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. §327 and a Memorandum of Understanding dated December 14, 2016 and executed by the Federal Highway Administration and FDOT.

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Pond Siting Report
US 301 Project Development and Environment Study
FM No. 430132-1-22-01

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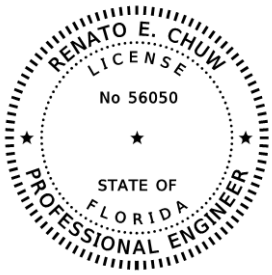
The Pond Siting Report includes a summary of data collection efforts and design analysis of pond sites for the US 301 PD&E Study from CR 470 to SR 44. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of civil engineering as applied through design standards and criteria set forth by the federal, state, and local regulatory agencies as well as professional judgment and experience.



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Date: December 8, 2017

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Executive Summary

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) study for an approximate 8.0 mile portion of US 301 between CR 470 East and SR 44 in Sumter County. The proposed improvements consist of widening US 301 from two (2) to four (4) lanes. The project is located within the Withlacoochee River South watershed (Walled Sink, Outlet River, Shady Brook and Little Jones Creek sub-basins).

The purpose of this Draft Pond Siting Report is to discuss, analyze, and identify the stormwater management plan for the proposed roadway improvements based on environmental, hydrology and hydraulics, and economic factors. Stormwater management for water quality treatment and runoff attenuation will be provided using dry detention and wet detention ponds. The design of the drainage and stormwater facilities will comply with the standards set forth by the FDOT Drainage Manual and the Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (ERP) manual.

Alternative pond sites have been identified along the project limits. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. The total pond cost estimate found in this report is a budget tool used by the Department to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition.

Please note that the volumetric analysis of the pond sites is performed with preliminary data, reasonable engineering judgment, and assumptions. Pond sites and configurations may change during final design as more detailed information on SHWT, Wetland hydrologic information, and final roadway profile become available. Please refer to **Table 1** for a **Summary of Recommended Stormwater & Floodplain Compensation Pond Sites**.

Table 1 – Summary of Recommended Stormwater & Floodplain Compensation Pond Sites

Basin	Preferred Pond Alternative	Pond Access Easement Area (ac)	Pond Right-of-Way Area (ac)	Total Required Right-of-Way Area (ac)	Hazardous Materials & Contamination Potential	Cost ($)
1	Pond 1B	0.00	1.02	1.02	None	$447,514
2	Pond 2A	0.00	1.93	1.93	None	$437,896
3	Pond 3B	0.26	2.48	2.74	None	$790,044
4	Pond 4B	0.00	2.16	2.16	Medium	$415,756
5/19	Pond 19A	0.76	7.17	7.93	High	$906,468
13	Pond 13C	0.00	3.18	3.18	Low	$485,211
14	Pond 14C	0.30	2.10	2.40	None	$420,340
15	Pond 15B	0.00	1.60	1.60	None	$291,528
16	Pond 16A	0.00	1.27	1.27	None	$270,236
17	Pond 17B	0.61	5.36	5.97	Medium	$893,200
20	Pond 20C	0.00	1.88	1.88	None	$271,527
21	Pond 21A	0.00	3.40	3.40	None	$348,252
22	Pond 22C	0.00	2.91	2.91	None	$400,766
23	Pond 23A-1 & 23A-2	0.00	3.58	3.58	None	$772,765
---	FPC 1	0.00	0.56	0.56	None	$113,314
---	FPC 4	0.00	2.25	2.25	None	$328,937
---	FPC 5	0.00	5.17	5.17	None	$565,703
---	FPC 6	0.00	0.56	0.56	None	$107,581
---	FPC 7	0.00	1.26	1.26	None	$206,826
			Totals:	**51.36**		**$8,473,864**

Note: A stormwater pond is not anticipated for Basin 18, located between stations 612+93 and 640+78, due to the minor roadway improvements. Preferred stormwater pond alternatives and floodplain compensation pond sites are listed for the preferred roadway alignment alternative (Alternative 2).

1.0 Project Description

FDOT is conducting a Project Development and Environment (PD&E) study for an approximately 8.0 mile portion of US 301 between CR 470 East and SR 44 in Sumter County. Within these limits, US 301 (SR 35) travels through the cities of Coleman and Wildwood. While mostly a north-south route, US 301 travels in an east-west direction through the City of Coleman where it has the local road name Warm Springs Avenue. The Florida's Turnpike (SR 91) crosses US 301 with an interchange to the south of the northern project limit, and I-75 runs parallel to the study corridor on the west of US 301 through Sumter County.

The PD&E study will analyze design alternatives that widen US 301; improve the US 301 interchange at Florida's Turnpike; and consider a new corridor for US 301 south of the City of Coleman. The improvements will seek to provide additional capacity for future traffic growth. US 301 is projected to carry more than 14,000 vehicles per day by 2022 and increase to more than 24,000 per day by 2042. Based on existing 2014 conditions analysis, US 301 carried up to 9,600 vehicles per day on a 2-lane segment south of the Turnpike operating with a Level of Service of D.

Within the project limits, US 301 begins as a two-lane undivided roadway at CR 470 East with turn lanes at some intersections; makes a sharp 90° turn through the City of Coleman (Warm Springs Avenue/Commercial Street) and then curves to the north at CR 468. It then continues north as an undivided roadway until it reaches the Florida's Turnpike interchange where a median is added. North of the interchange the roadway is a four-lane divided, rural typical section facility. It has a short urban curb and gutter section approaching SR 44.

The purpose of this project is to increase the capacity of US 301, to respond to future travel demand from the intersection of CR 470 East, north through the City of Coleman, to SR 44 in the City of Wildwood. The project will also improve safety and provide multi-modal facilities for pedestrian and bicyclists, and evaluate improvements to the US 301 interchange with the Florida's Turnpike.

This study will evaluate all viable alternatives to widen US 301 on the existing project corridor as well as a potential realignment for US 301 from near CR 525 to CR 468 to minimize potential environmental impacts to the City of Coleman. **Figure 1-1** shows the study corridor and potential realignment (truck route) area.

Figure 1-1 | Project Location Map

1.1 Roadway Study Segments

The study corridor has been broken down into six general roadway segments based on changes in roadway characteristics and adjacent land uses. These segments, shown on **Figure 1-2**, will be referred to as follows:

Segment 1 – South of CR 470 East to Shady Brook Drive

Segment 1 extends north from south of CR 470 E (MP 14.53) to Shady Brook Drive (MP 14.83), and is approximately 0.3 miles in length. It includes open drainage to roadside swales and consists of a three-lane typical section including one travel lane in each direction and a center left turn lane. This segment of the corridor is classified as a Rural Principal Arterial Other and has an existing speed limit of 50 mph. Shady Brook Resort and Golf Club is a significant use adjacent to this segment.

Segment 2 – Shady Brook Drive to CR 525 East

Segment 2 extends north from Shady Brook Drive (MP 14.83) to CR 525 E (MP 16.991), including the Shady Brook Bridge, and is approximately 2.2 miles in length. The segment includes open drainage to roadside swales and is a two-lane rural typical section. It has a posted speed of 55 mph and is classified as a Rural Principal Arterial Other. Shady Brook Park is a significant land use located along the segment.

Segment 3 – CR 525 East to Stokes Street

Segment 3 extends from CR 525 East (MP 16.991) to Stokes Street (MP 18.706) and is classified as a Rural Principal Arterial Other with posted speeds ranging between 35 and 45 mph. It is approximately 1.7 miles in length and is a two lane rural roadway. It follows Warm Springs Avenue as it runs east-west through the City of Coleman. There are numerous homes and businesses with relatively small setbacks from the roadway along this segment. Most of the segment has a sidewalk on one side of the roadway.

Segment 4 – Stokes Street to Florida's Turnpike

Segment 4 extends east from Stokes Street (MP 18.706) to Florida's Turnpike (MP 21.663) and is approximately 3.0 miles in length. It consists of two 12-foot travel lanes (one in each direction) and a five foot paved shoulder on either side of the roadway. This segment also includes open drainage to roadside swales and is classified as a Rural Principal Arterial Other with posted speeds of 55 mph between Stokes Street and the northbound entrance to Florida's Turnpike (SR 91), where it reduces to 45 mph. The existing and future land use context of the corridor is mostly auto oriented development. The segment is influenced by the CR 468 curve and the development that is occurring near the CR 468 intersection at the Village of Fenney.

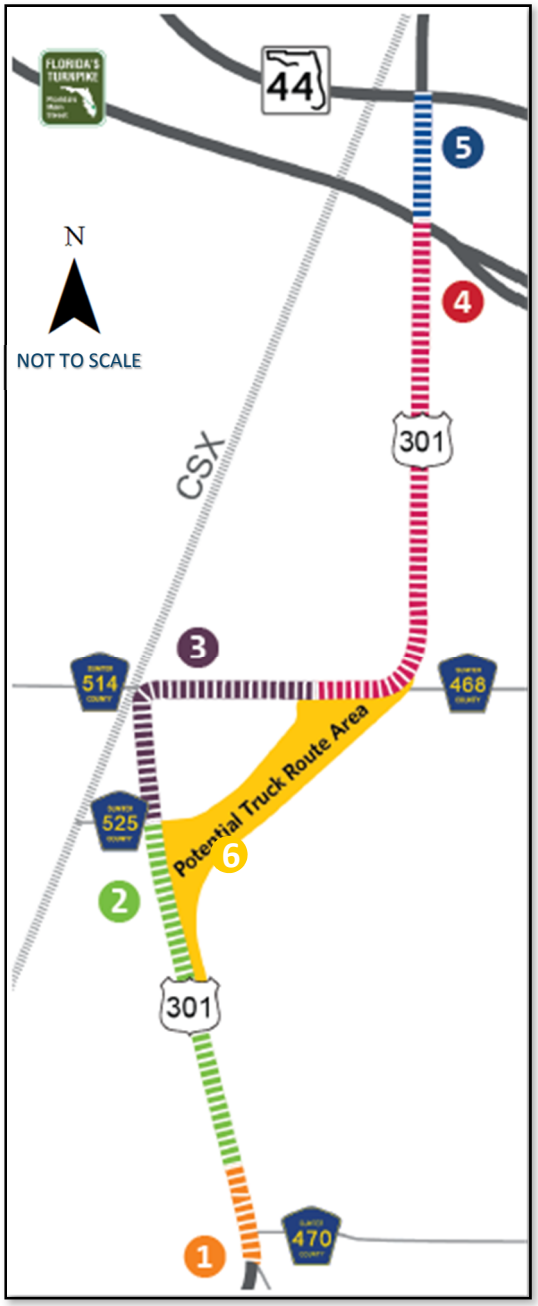
Segment 5 – North of Florida's Turnpike to SR 44

Segment 5 extends north from Florida's Turnpike (MP 21.663) to just south of SR 44 (MP 22.395) and is approximately 0.7 miles in length. It is classified as an Urban Principal Arterial with posted speeds ranging between 40 and 45 mph. In contrast to Segments 1 through 4, Segment 5 is already predominantly a four-lane divided roadway. The northern portion of the segment (north of Spring Lake Road) has a closed drainage system with an outside curb and gutter. South of Spring Lake Road the segment includes open drainage to roadside swales. This segment of the roadway is within the City of Wildwood and approximately half of the segment has adjacent urban development.

Segment 6 – Truck Route/ US 301 Realignment

The truck route will require a new roadway alignment (approximately 1.5 miles) and construction over current non-roadway property linking CR 525 East to CR 468. While the area for the route is currently largely undeveloped, both ends of this segment have impending development that is currently in the permitting process. The Villages Industrial Park (formerly Wade Industrial Park) and Monarch Ranch are planned for the CR 525 East area while the CR 468 area will be home to the Village of Fenney.

Figure 1-2 | US 301 Existing Roadway Segments



1.2 Recommended Typical Sections

As a result of the typical section evaluation, three (3) typical sections as shown in **Figures 1-3, 1-4** and **1-5** were carried forward to the segment analysis.

A 45 mph urban typical section with four travel lanes separated by a 28-foot raised median with five foot sidewalks and seven foot buffered shoulders on each side is under consideration for Segment 3 of this project. **Figure 1-3** illustrates the proposed urban typical section.

A 45 mph urban typical section with four travel lanes separated by a 28-foot raised median seven foot buffered shoulders and six foot sidewalks on each side is under consideration for Segment 5 of this project. **Figure 1-4** illustrates the proposed urban typical section.

A 55 mph suburban typical section with four travel lanes separated by a 22-foot raised median with four foot paved inside shoulders, seven foot buffered shoulder, and five foot sidewalks on each side is under consideration for Segments 1, 2, 4, and 6 of this project. **Figure 1-5** illustrates the proposed suburban typical section.

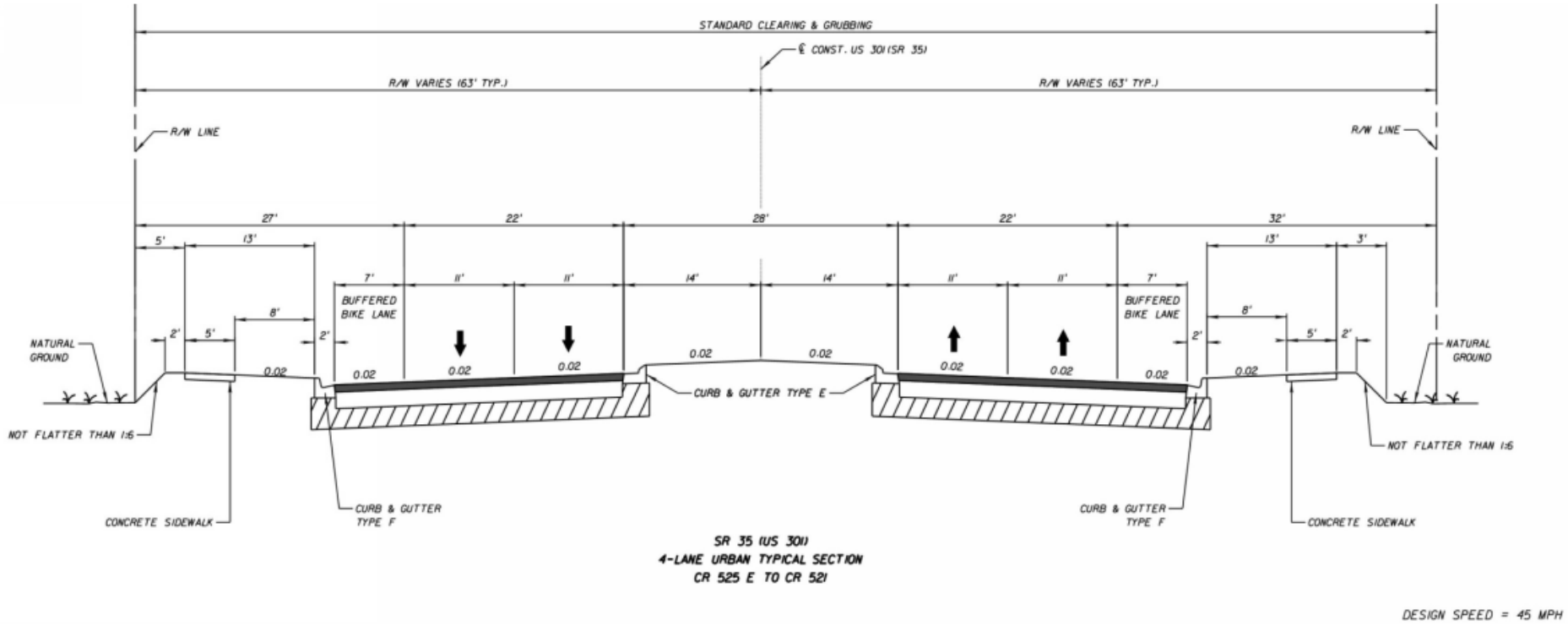


Figure 1-3 | Recommended Urban Typical Section – Coleman

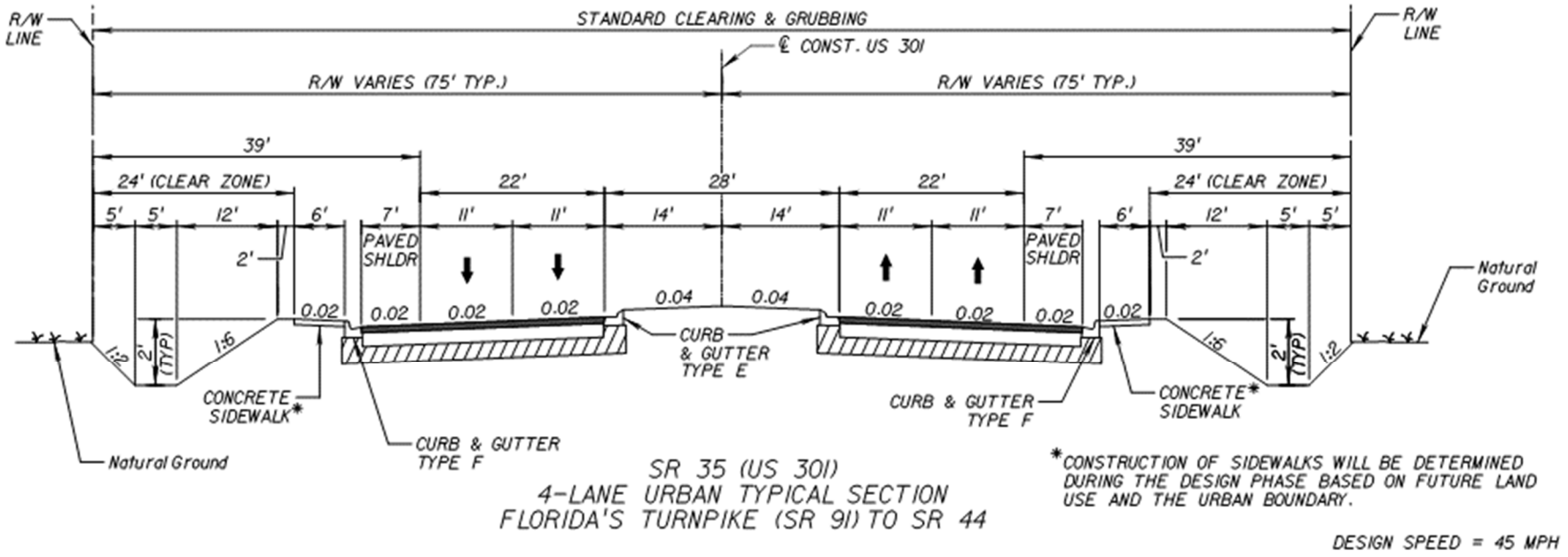


Figure 1-4 | Recommended Urban Typical Section – Segment 5

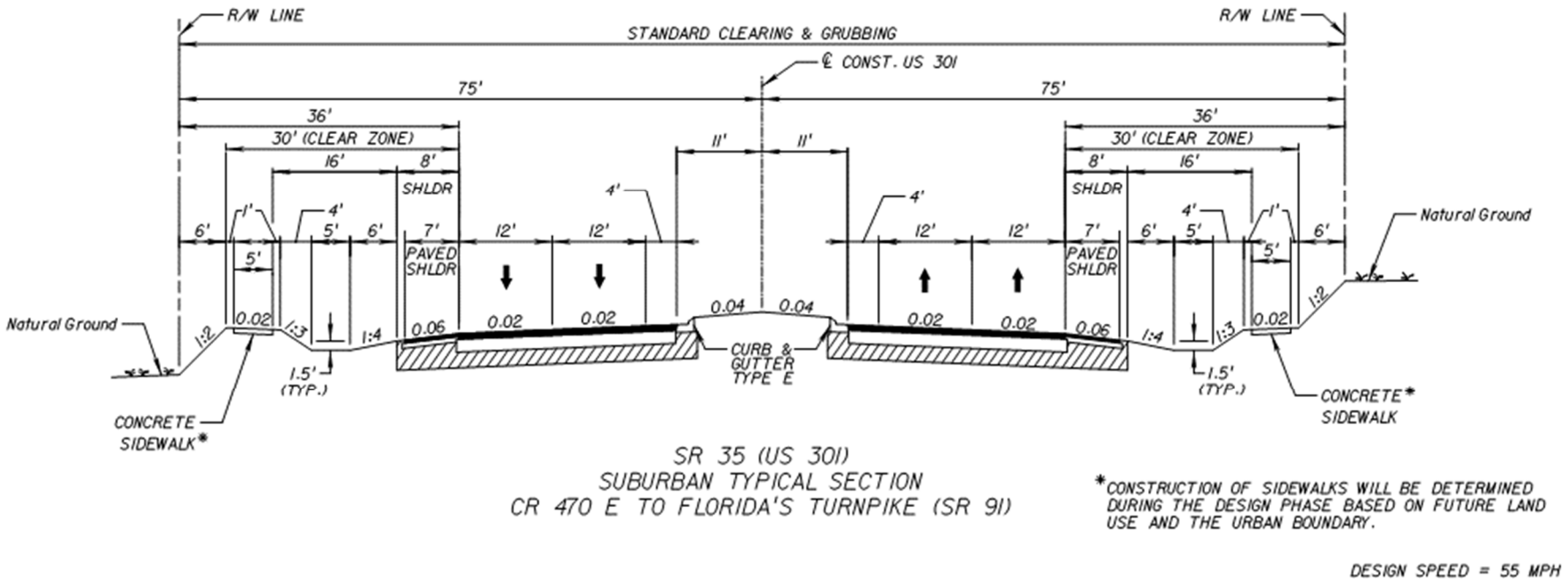


Figure 1-5 | Recommended Suburban Typical Section

2.0 Design Criteria

The design of the stormwater management facilities for the project is governed by the rules set forth by the SWFWMD and FDOT. Water treatment and attenuation requirements will comply with the guidelines as defined in Chapter 62-330 of the Florida Administrative Code (F.A.C) and the SWFWMD Environmental Resource Permit Applicant's Handbook (Volume II).

Wet detention and dry retention ponds will provide for water quality improvements as well as water quantity attenuation for the project runoff. The stormwater ponds are designed and sized for the most conservative typical section for each segment. Please refer to the sections below for the water quality, water quantity, and detention pond facilities configuration criterion used for the project.

2.1 SWFWMD Criteria

- **Water Quality**:
  - Wet Detention Ponds: Treatment will be provided for one inch (1") over the Directly Connected Impervious Areas (DCIA) for alterations to existing public roadway projects.
    - An outfall control structure shall be designed to drawdown the system's treatment volume in no less than 120 hours (5 days) with no more than one half the total volume being discharged within the first 60 hours (2.5 days). Only that volume which drains below the overflow elevation within 36 hours may be counted as part of the volume required for water quantity storage.
  - Dry Retention Ponds: Treatment will be provided for one-half inch (0.5") over DCIA for alterations to existing public roadway projects.
    - The entire treatment volume is to be infiltrated within 72 hours after a storm event.

  The project traverses five (5) Waterbody IDs (WBID): 1344 Little Jones Creek, 1351 Lake Panasoffkee Drain, 1351C Lake Panasoffkee Drain, 1356 Shady Brook, and 1359D Walled Sink Drain, none of which are impaired according to the current FDEP 303(d) list of impaired water bodies. Therefore, a pre versus post pollutant loading analysis is not required. In addition, Shady Brook is considered an Outstanding Florida Water (OFW). Direct discharges to this waterbody will require an additional 50% water quality treatment.

- **Water Quantity**:
  - For a project or portion of a project located within an open drainage basin, the allowable discharge is:
    - Historic discharge, which is the peak rate at which runoff leaves the parcel of land by gravity under existing site conditions, or the legally allowable discharge at the time of permit application; or
    - Amounts determined in previous District permit actions relevant to the project.

  Offsite discharges and peak stages for the existing and proposed conditions shall be computed using the SWFWMD's 25-year/24-hour rainfall maps and the Natural Resources Conservation Service (NRCS) Type II Florida Modified 24-hour rainfall distribution with and antecedent moisture condition II.

- For a project or portion of a project located within a closed drainage basin, the required retention volume shall be:
  - The post development runoff volume less the pre-development runoff volume

The runoff volume is computed using the SWFWMD's 100-year/24-hour rainfall map and the NRCS type II Florida Modified 24-hour rainfall distribution with and antecedent moisture condition II. The total post development volume leaving the site shall be no more than the total pre-development volume leaving the site for the design 100-year storm. The rate of runoff leaving the site shall not cause adverse offsite impacts. Maintenance of pre-development offsite low flow may be required in hydrologically sensitive areas.

- **Detention/Retention Pond Configuration**:
  - Littoral Zone – Manmade wet detention systems shall include a minimum of 35 percent littoral zone, concentrated at the outfall and shall be no deeper than 3.5 feet below the design overflow elevation.
  - Width - The proposed ponds shall have a 100 feet minimum width for linear areas in excess of 200 feet length. Area and width requirements will be waived for projects to be operated by single owner entities, or entities with full time maintenance staffs (i.e. FDOT).
  - Depth – The detention facility shall not be excavated to a depth that breaches the aquitard such that it would allow for lesser quality water to pass, either way, between the two systems. In those geographical areas of the district where there is not an aquitard present, the depth of the pond shall not be excavated to within two feet of the underlying limestone which is part of a drinking water aquifer.
  - Side Slopes – All retention and detention facilities should have stabilized side slopes no steeper than 1V:4H out to a depth of two feet below the control elevation, unless for purposes of public safety, side slopes designed or permitted steeper than 1V:4H will require a six foot chain link fence or other protection sufficient to prevent accidental incursion into the retention or detention area.
  - For wet detention systems, the bottom elevation of the pond must be at least one foot below the control elevation.
  - Maintenance Access – Perimeter maintenance and operation easements, with a minimum width of 20 feet and slopes no steeper than 1V:4H, should be provided landward of the control elevation water line. Widths less than 20 feet are allowed when it can be demonstrated that equipment can enter and preform the necessary maintenance for the system.
  - Karst Areas: Portions of the project are located within a Sensitive Karst Area (SKA), therefore, stormwater management ponds shall not be excavated through a confining layer as it would allow polluted water to drain into the Florida Aquifer. If no confining layer is present, the stormwater management ponds should not be excavated to within two (2) feet of the underlying limestone layer. Geotechnical analysis will be required for the ponds which should look for sinkhole indicators (i.e. 100% loss of circulations).

2.2 FDOT Criteria

- **Water Quality**: That which is specified in Section 2.1.

- **Water Quantity**: Critical Duration as defined by Rule 14-86 F.A.C.
  - Open Basins
    - Ponds shall be sizes such that the post development discharge rate does not exceed the pre-development discharge rate for the critical duration (1-hour through 3-day) storm.
  - Closed Basins
    - Ponds shall be sizes such that the post development discharge rate (or volume) does not exceed the pre-development discharge rate (or volume) for the critical duration (1-hour through 10-day) storm.

- **Detention/Retention Pond Configuration**:
  - Maintenance Berm: Provide a minimum 20 feet of horizontal clearance between the top edge of the control elevation and the right-of-way line. Provide at least 15 feet adjacent to the pond at a slope of 1:8 or flatter. Create the inside edge of the maintenance berm to have a minimum radius of 30 feet and be a minimum of one foot above the maximum design stage elevation.
  - Freeboard: Provide at least one foot of clearance between the maximum design stage of the pond and the inside edge of the berm. For linear treatment swales, the minimum freeboard is 0.5 foot.
  - Side Slopes: Provide a slope of 1V:4H or flatter. Install fences around ponds only when a documented maintenance need for restricted access has been demonstrated (Section 5.4.4.2 from the FDOT Drainage Manual) or when pond side slopes above the normal water level are steeper than 1V:4H and are unavoidable. A design variation is required to install fences around stormwater management facilities.
  - Permanent (Normal) Pool Depth: For facilities designed to be wet, provide a minimum permanent pool depth of six feet to minimize aquatic growth.

3.0 Data Collection

The design team collected and reviewed data from the following sources:

- FDOT Drainage Design Guidelines, January 2017
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel Nos. 12119C0143D, 1211C0139D, 12119C0137D, 12119C0141D, 12119C0133D, 12119C0131D for Sumter County, Effective Date 9/27/2013
- United States Geological Survey (USGS) Quadrangle Maps
- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Soils Survey of Sumter County, Florida, 1990
- FDOT Straight Line Diagrams (SLD's) of road inventory for US 301 (SR 35)
- Field Reconnaissance (February 2016)
- Flooding Evaluation Technical Memorandum, ICON Consultant Group, Inc. (December 21, 2016)

4.0 Existing Drainage Conditions

4.1 Topography & Hydrologic Features

The topography of the project area is relatively flat, however roadway elevations on US 301 range between 72 feet and 52 feet NAVD 88. Please refer to the **USGS Quadrangle Map**, **Figure 3** in **Appendix A**. The project area traverses five (5) WBIDs: 1344 – Little Jones Creek, 1351 – Lake Panasoffkee Drain, 1351C – Lake Panasoffkee Drain, 1356 – Shady Brook, and 1359D – Walled Sink Ditch. Please refer to the **WBID Map**, **Figure 7** in **Appendix A**. There are fourteen (14) existing cross drains and one (1) bridge within the project limits allowing for conveyance of offsite and onsite runoff to flow beneath US 301 toward Lake Panasoffkee and the Withlacoochee River. The size and geometry of all cross drains and bridges have been verified from the FDOT SLD's, 1-foot LiDAR contours, existing plans, as well as during field reconnaissance. Please refer to **Table 2** for a **Summary of Existing Cross Drains and Bridges**.

Table 2 – Summary Existing Cross Drains and Bridges

Structure No.	FDOT Milepost	Station	Description	Remarks
CD-01	14.601	-	Double 7' x 6' CBC	
CD-02	15.282	132+36	Single 24" RCP	
Bridge-1	15.621 - 15.643	150+18 – 151+12	116.2' Bridge	Shady Brook
CD-03	16.355	190+21	Single 24" RCP	
CD-04	16.577	201+95	Double 24" RCP	
CD-05	17.203	10026+41	Single 15" RCP	
CD-06	17.375	10035+49	Single 24" RCP	
CD-07	18.481	10092+84	Single 24" RCP	
CD-08	18.990	10118+73	Single 30" RCP	
CD-09	19.334	10138+20	Single 2' x 2' CBC	
CD-10	19.533	409+80	Single 30" RCP	
CD-11	20.457	540+60	Single 36" RCP	
CD-12	20.907	564+49	Single 36" RCP	
CD-13	21.529	-	Double 8' x 5' CBC	
CD-14	21.971	-	Single 9' x 3' CBC	

4.2 Soils Data and Geotechnical Investigations

The soil survey of Sumter County, Florida (dated 1990) published by the USDA NRCS has been reviewed within the project vicinity. USDA Soil Survey Geographic database (SSURGO) data was also obtained from SWFWMD to create a soils map for the project limits using GIS ArcMap. SSURGO data was compared to the soil survey by USDA NRCS and found no deviation. The soil survey map for the project vicinity is illustrated in **Figures 4A** and **4B** of **Appendix A**.

The soils encountered along the project limits are mostly Hydrologic Soil Group (HSG) A, A/D, B/D, C/D and D. Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission. Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission. If a soil is assigned to a dual HSG, the first letter is for drained areas and the second is for un-drained areas. Only the soils that in their natural condition are in group D are assigned to dual classes. According to the Soil Survey, there are 41 different soil types located along the project limits. **Table 3 – USDA NRCS Soil Survey Information: Sumter County** summarizes and lists the soil types and relevant information. The ground water depth varies from +2' to greater than 6' along the project.

Table 3 – USDA NRCS Soil Survey Information: Sumter County

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
4	Candler Sand, 0 to 5 Percent Slopes	>6.0	---	A	0-8	SP, SP-SM	A-3
					8-50	SP, SP-SM	A-3
					50-80	SP-SM	A-3, A-2-4
6	Kendrick Fine Sand, 0 to 5 Percent Slopes	>6.0	---	A	0-33	SP-SM, SM	A-3, A-2-4
					33-68	SC, SM-SC	A-2-6, A-2-4
					68-80	SC	A-2-6, A-6
8	Lake Fine Sand, 0 to 5 Percent Slopes	>6.0	---	A	0-80	SP-SM	A-3, A-2-4
9	Paisley Fine Sand, Bouldery Subsurface	0.5-1.5	Jun-Nov	B/D	0-16	SP-SM, SM	A-2-4, A-3
					16-25	SC	A-6, A-7
					25-80	CH, CL	A-7
10	Sparr Fine Sand, 0 to 5 Percent Slopes	1.5-3.5	Jul-Oct	A/D	0-9	SP-SM, SM	A-3, A-2-4
					9-45	SP-SM, SM	A-3, A-2-4
					45-51	SM-SC, SC, SM	A-2-4
					51-80	SC, SM-SC	A-2, A-4, A-6, A-7
11	Millhopper Sand, 0 to 5 Percent Slopes	3.5-6.0	Aug-Oct	A	0-50	SP-SM, SM	A-3, A-2-4
					50-80	SM, SM-SC, SC	A-2-4, A-2-6, A-4, A-6
13	Tavares Fine Sand, 0 to 5 Percent Slopes	3.5-6.0	Jun-Dec	A	0-8	SP, SP-SM	A-3
					8-80	SP, SP-SM	A-3
15	Adamsville Fine Sand, Bouldery Subsurface	2.0-3.5	Jun-Nov	A	0-5	SP-SM	A-3, A-2-4
					5-80	SP-SM, SP	A-3, A-2-4

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
17	Sumterville-Mabel-Tavares Association, Bouldery Subsurface, 0 to 5 Percent Slopes	1.5-3.0	Jul-Oct	C/D	0-7	SP-SM, SM	A-3, A-2-4
					7-25	SP-SM, SM	A-3, A-2-4
					25-80	CL, CH	A-2-6, A-4, A-6
21	EauGallie Fine Sand, Bouldery Subsurface	0.5-1.5	Jun-Oct	A/D	0-8	SP	A-3
					8-25	SP	A-3
					25-36	SP-SM, SM	A-3, A-2-4
					36-57	SP, SP-SM	A-3, A-2-4
					57-80	SM, SM-SC, SC	A-2-4, A-2-6
22	Smyrna-Smyrna, Wet, Fine Sand, 0 to 2 Percent Slopes	0.5-1.5	Jul-Oct	A/D	0-15	SP, SP-SM	A-3, A-2-4
					15-28	SM, SP-SM	A-3, A-2-4
					28-80	SP, SP-SM	A-3
23	Ona Fine Sand	0.5-1.5	Jun-Nov	B/D	0-9	SP-SM, SP	A-3
					9-20	SP-SM, SM	A-3, A-2-4
					20-80	SP-SM, SP	A-3
24	Basinger Fine Sand	0-1.0	Jun-Feb	A/D	0-8	SP	A-3
					8-27	SP, SP-SM	A-3, A-2-4
					27-45	SP, SP-SM	A-3, A-2-4
					45-80	SP, SP-SM	A-3, A-2-4
25	Kanapaha Sand, Bouldery Subsurface	0.5-1.5	Jul-Sep	A/D	0-3	SP-SM	A-3, A-2-4
					3-55	SP-SM	A-3, A-2-4
					55-80	SC, SM-SC	A-2-4, A-4, A-6
26	Wabasso Fine Sand, Bouldery Subsurface	0-1.0	Jun-Oct	B/D	0-4	SP-SM	A-3, A-2-4
					4-15	SP-SM	A-3, A-2-4
					15-21	SP-SM, SM	A-2-4, A-3
					21-60	SC, CL, CH	A-7, A-6, A-2-6, A-2-7
					60-80	SM-SC, SC, SM	A-6, A-4, A-2-4, A-2-6
27	Sumterville Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	1.5-3.0	Jul-Oct	C/D	0-9	SP-SM, SM	A-3, A-2-4
					9-29	SP-SM, SM	A-3, A-2-4
					29-80	CL, CH	A-7
29	Nittaw Muck, Frequently Flooded	0-1.0	Jun-Nov	C/D	0-5	PT	---
					5-12	SP-SM, SM	A-3, A-2-4
					12-65	CH, CL	A-7
					65-80	SP, SP-SM, SM, SM-SC	A-3, A-2-4
30	Placid Fine Sand, Depressional	0-1.0	Jun-Mar	A/D	0-16	SP, SP-SM, SM	A-3, A-2-4
					16-80	SP, SP-SM, SM	A-3, A-2-4
32	Pompano Fine Sand	0-1.0	Jun-Nov	A/D	0-80	SP, SP-SM	A-3, A-2-4

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
33	Sparr Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	1.5-3.5	Jul-Oct	A/D	0-8	SP-SM	A-3, A-2-4
					8-46	SP-SM	A-3, A-2-4
					46-58	SM, SC, SM-SC	A-2-4
					58-80	SC, SM-SC	A-2-4, A-2-6, A-2, A-6
34	Tarrytown Sandy Clay Loam, Bouldery Subsurface	1.0-2.0	Jul-Sep	C/D	0-7	SM	A-2-4
					7-14	SC, CH, CL	A-4, A-6, A-7
					14-50	SC, CL, SM-SC, CL-ML	A-4
					50-80	SP-SM, SP	A-3, A-2-4
36	Floridana Mucky Fine Sand, Depressional	0-1.0	Jun-Feb	C/D	0-12	SP-SM, SM	A-3, A-2-4
					12-25	SP, SP-SM	A-3
					25-80	SM-SC, SC	A-2-4, A-2-6
37	Astatula Fine Sand, 0 to 8 Percent Slopes	>6.0	---	A	0-5	SP, SP-SM	A-3
					5-80	SP, SP-SM	A-3
39	Mabel Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	1.5-3.0	Jul-Sep	D	0-16	SP-SM, SP, SM	A-2-4, A-3
					16-24	SC, CL, CH	A-6, A-7, A-2
					24-30	CH, MH	A-7
					30-80	SC, CS, CL	A-6, A-7
40	Millhopper Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	3.5-6.0	Aug-Oct	A	0-7	SP-SM	A-3, A-2-4
					7-45	SP-SM	A-3, A-2-4
					45-80	SM, SM-SC, SC	A-2-4, A-4, A-2-6, A-6
42	Adamsville Fine Sand	2.0-3.5	Jun-Nov	A	0-8	SP-SM	A-3, A-2-4
					8-80	SP-SM, SP	A-3, A-2-4
43	Basinger Fine Sand, Depressional, 0 to 1 Percent Slopes	0-1.0	Jun-Feb	A/D	0-6	SP	A-3
					6-15	SP, SP-SM	A-3, A-2-4
					15-30	SP, SP-SM	A-3, A-2-4
					30-80	SP, SP-SM	A-3, A-2-4
44	Oldsmar Fine Sand, Bouldery Subsurface	0.5-1.5	Jun-Oct	A/D	0-31	SP, SP-SM	A-3
					31-48	SP-SM, SM	A-2-4, A-3
					48-80	SM-SC, SC	A-2, A-4, A-6, A-7
45	Electra Fine Sand, Bouldery Subsurface	2.0-3.5	Jul-Oct	A	0-3	SP, SP-SM	A-3
					3-35	SP, SP-SM	A-3
					35-40	SP-SM, SM	A-3, A-2-4
					40-46	SP, SP-SM	A-3
					46-80	SC, SM-SC	A-2, A-4, A-6
46	Ft. Green Fine Sand, Bouldery Subsurface	0.5-1.5	Jun-Jan	C/D	0-28	SP-SM, SM	A-3, A-2-4
					28-38	SC, SM-SC, SM	A-2-6, A-6, A-2-4, A-4
					38-58	SC	A-2-6, A-6, A-4, A-7-6
					58-80	SC, SM-SC, SM	A-2-6, A-6, A-2-4, A-4

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Soil Classification		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
47	Okeelanta Muck, Frequently Flooded	0-1.0	Jan-Dec	A/D	0-19	PT	A-8
					19-80	SP, SP-SM, SM	A-3, A-2-4
49	Terra Ceia Muck, 0 to 1 Percent Slopes, Frequently Flooded	0-0.5	Jan-Dec	A/D	0-80	PT	A-8
50	Immokalee Sand	0.5-1.5	Jun-Nov	B/D	0-5	SP, SP-SM	A-3
					5-34	SP, SP-SM	A-3
					34-46	SP-SM, SM	A-3, A-2-4
					46-80	SP, SP-SM	A-3
51	Pits-Dumps Complex	---	---	---	---	---	---
53	Tavares Fine Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	3.5-6.0	Jun-Dec	A	0-7	SP, SP-SM	A-3
					7-80	SP, SP-SM	A-3
54	Monteocha Fine Sand, Depressional	+2-0	Jun-Feb	D	0-11	SP-SM, SM	A-3, A-2-4
					11-65	SP, SP-SM, SM	A-3, A-2-4
					65-80	SM, SM-SC, SC	A-2-4, A-2-6
55	Pomello Fine Sand, 0 to 5 Percent Slopes	2.0-3.5	Jul-Nov	A	0-40	SP, SP-SM	A-3
					40-56	SP-SM, SM	A-3, A-2-4
					56-80	SP, SP-SM	A-3
56	Wabasso Fine Sand, Depressional	+1-1.0	Jun-Feb	C/D	0-17	SP-SM, SM	A-3, A-2-4
					17-33	SM	A-2-4
					33-60	SM, SM-SC, SC	A-2-4, A-2-6, A-6, A-4
					60-80	SM, SC, SM-SC	A-2-4, A-2-6, A-6, A-4
58	Paisley Fine Sand, Depressional	0-1.0	Jun-Feb	C/D	0-13	SP-SM	A-2-4, A-3
					13-80	CH, CL	A-7
62	Urban Land	---	---	---	---	---	---
65	Candler Sand, Bouldery Subsurface, 0 to 5 Percent Slopes	>6.0	---	A	0-3	SP, SP-SM	A-3
					3-65	SP, SP-SM	A-3
					65-80	SP-SM	A-3, A-2-4

Seasonal High Ground water table: Depth is referenced below existing grade, except where indicated as "+".

Portions of the project are located within a Sensitive Karst Area (SKA), therefore, stormwater management ponds shall not be excavated through a confining layer as it would allow polluted water to drain into the Florida Aquifer. If no confining layer is present, the stormwater management ponds should not be excavated to within two (2) feet of the underlying limestone layer. Geotechnical analysis will be required for the ponds which should look for sinkhole indicators (i.e. 100% loss of circulations). Please refer to **Figure 8 – Karst Map** in **Appendix 1** and to the pond descriptions in **Section 5.3 Stormwater Pond Evaluation** to determine which ponds are located within the SKA.

4.2.1 Contamination Screening

A total of 74 preliminary pond alternative locations (and 19 associated easements) were investigated for sites that may present the potential for finding petroleum contamination or hazardous materials and therefore may impact the proposed improvements for this project. Of the pond sites investigated, the following risk rankings have been applied: Three (3) "High" ranking sites (Ponds 1C, 12C/23C, and 19A), ten (10) "Medium" ranking sites (Ponds 4B, 5A, 5B, 5C, 7C, 8A, 8B, 8C, 8D and 17B), fifteen (15) "Low" ranking sites (Ponds 2B, 3A, 3B, 4A, 4C, 9A, 9C, 12A, 12B, 13B, 13C, 14A, 14B, 23A, and 23B), and the remaining forty-six (46) sites ranked "No" for potential contamination concerns.

The sites, business operations and/or facilities identified, to date, and the risk rankings given to them are preliminary. It should be understood that these risk rankings may change pending receipt of information which indicates a discharge occurred on-site or in nearby surrounding areas. Variables that may change the risk ranking include a facility's non-compliance to environmental regulations, new discharges to the soil or groundwater, and modifications to current permits. Should any of these variables change, additional assessment of the facilities should be conducted.

For any sites with a risk ranking of "Medium" or "High", Level II field screening should be conducted if it is determined during the project's design that its construction activities could be within their vicinity. Please refer to **Appendix H - Contamination Screening Evaluation Report** for further information.

4.3 Environmental Characteristics

4.3.1 Land Use Data

The project corridor is a mixture of residential, commercial, agricultural, pasture, upland forest and wetlands. Please see **Figures 5A** and **5B** for the **Land Use Map** in **Appendix A**. The widening of US 301 from north of CR 470 to SR 44 does not alter the existing or future land uses in the area.

4.3.2 Cultural Features

Cultural features preserve and enhance the cultural nature of a community and include parks, schools, churches and other religious institutions. Also included are historic sites, archaeologically significant sites and neighborhood gathering places. Community services include facilities that provide necessary services such as fire stations, police stations, public and private schools, hospitals, cemeteries, public buildings, and civic facilities. As a result of the cultural resource assessment survey of the proposed pond locations, five newly recorded archeological sites were recorded within five of the pond sites and the boundaries of one previously recorded site were expanded within one pond site. Please refer to **Appendix F - Cultural Resource Assessment Survey Addendum** for further information.

4.3.3 Natural and Biological Features

The proposed project has potential to involve several State and/or Federally listed protected wildlife species. These species and their anticipated involvement are identified in the Wildlife and Habitat Report located in **Appendix G – Natural Resources Evaluation Report**.

The project corridor was evaluated for the presence of potentially-occurring species. It was determined that four protected species could potentially occur within the project area, the gopher tortoise, the Florida burrowing owl, the wood stork and the Southeastern American Kestrel. The likelihood of each species occurring within the project corridor was evaluated based on historic ranges, literature review, aerial photography interpretation to identify suitable habitat, and field investigations.

The identification of wetlands has been investigated and is included within the **Natural Resources Evaluation Report** located in **Appendix G**. It is likely that this project will impact wetlands regulated by the State and Federal Governments. Pond alternative recommendations will be based on avoidance of wetland impacts whenever possible.

4.4 Floodplains/Floodways

According to the Federal Emergency Management Agency (FEMA) the relevant Flood Insurance Rate Map (FIRM) panel numbers are 12119C0231D, 12119C0143D, 12119C0139D, 12119C0137D, 12119C0141D, 12119C0133D and 12119C0131D for Polk County, dated September 27, 2013. According to the FEMA FIRMs, much of the project is within Zone X of the 100-year floodplain, which are determined to be outside the 0.2% annual chance of flooding. However, portions of the project will impact small pockets of the 100-year floodplain which lie within Zone A. These areas are associated with small depressional areas or wetlands and have a 1% probability of flooding every year, and where predicted flood water elevations have not been established. There are no federally regulated floodways within the project limits. Please refer to **Figure 6**, **Appendix A** for the **FEMA FIRM Map**.

4.4.1 Flooding History and Maintenance Concern

The City of Coleman was contacted to discuss any flooding history and maintenance concerns. During a site visit, Inwood staff met with the Mayor of Coleman (Milton Hill) and the President of the Coleman City Council (Richard Huff) to discuss flooding issues on Florida Avenue between Commercial Street and Mulberry Street, north of US 301. Storm water flows from a highpoint in the topography to the east, along Florida Avenue and collects in both the roadway and the open portion of the adjacent parcel, covering this entire area. Mr. Hill and Mr. Huff also reported flood waters rising high enough to enter some surrounding buildings and seeping into a nearby septic tank. Mr. Hill and Mr. Huff said flooding has reached US 301 during times of heavy rain, overtopping the road and flowing into a storm sewer system installed on the south side of the road. Mr. Hill and Mr. Huff then identified this storm sewer infrastructure installed by FDOT at the intersection of Commercial Street and Warm Springs Avenue (US 301) which consisted of one DBI and two grate inlets. This system outfalls into a ditch along the East side of the nearby CSX railway which flows south. These locations are shown in **Figure 4-1**.

For further discussions about mitigation alternatives to alleviate this flooding concern, please refer to the Location Hydraulics Report prepared for this study, which discusses the Preliminary Flooding Evaluation Report prepared by ICON Consulting Group (December 2016).

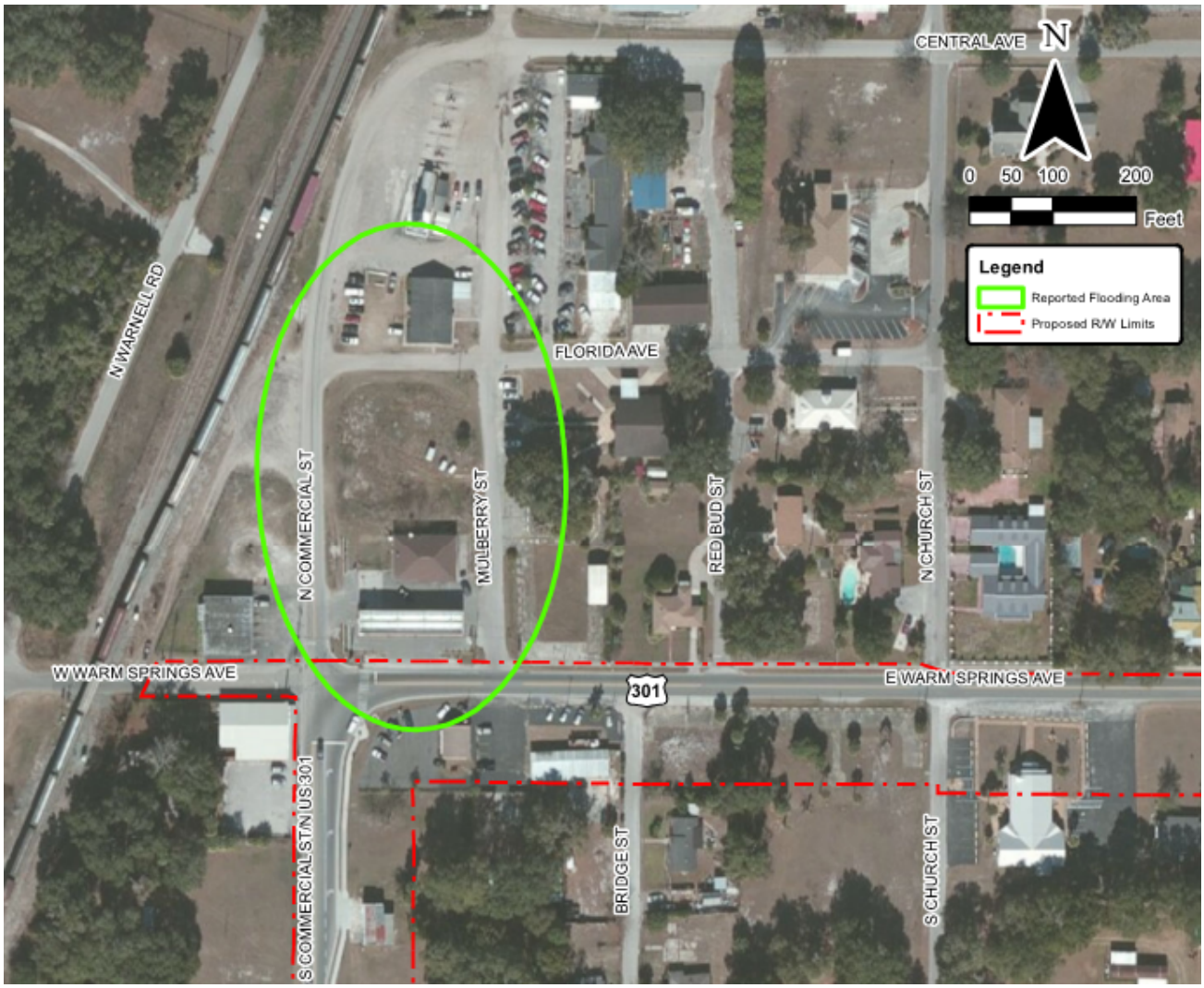


Figure 4-1 | Reported Flooding Location Map

4.5 Existing Drainage Permits

There are currently, three (3) SWFWMD permits which cover portions of US 301 within the project limits. The section below briefly describes the permitted condition, the impacts to the permit associated with the proposed improvements and the action necessary to mitigate for the impacts.

4.5.1 Permit No. 22044.001

This permit involves the milling and resurfacing of US 301 from CR 468 to SR 91. No formal water quality treatment or water quantity attenuation was provided for US 301 with this permit. The proposed roadway improvements to US 301 will not impact this permit.

4.5.2 Permit No. 16854.000

This permit involves the US 301 bridge replacement over Shady Brook. No formal water quality treatment or water quantity attenuation was provided for US 301 with this permit. The proposed roadway improvements to US 301 will not impact this permit.

4.5.3 Permit No. 32972.016

This permit involves the construction of the Wildwood Springs residential development of the Village of Fenney. Stormwater treatment ponds for the residential development have been approved with this permit. These ponds provide a joint use opportunity, further discussed in **Section 5.4 – Environmental Look Arounds (ELAs)**. The proposed roadway improvements to US 301 will not impact this permit.

4.6 Existing Drainage Basins

4.6.1 Basin 1

Basin 1 begins 681 feet south of station 100+00 and continues north to a high point in that roadway at station 117+45. Stormwater runoff from US 301 between the beginning of the basin and CD-01, 273 feet south of station 100+00, is collected in roadside swales and conveyed north to CD-01 where it then flows west. Stormwater runoff from the west side of US 301 between CD-01 and station 117+45, sheet flows off the roadway, across the adjacent golf course and into nearby wetlands. Stormwater runoff from the east side of US 301 between CD-01 and station 117+45 is collected in roadside swales and conveyed south to CD-01. This basin is considered an open basin.

4.6.2 Basin 2

Basin 2 begins at a high point in the roadway at station 117+45 and continues north to the bridge over Shady Brook at station 150+69. Stormwater runoff from US 301 is collected in roadside swales and conveyed north to station 126+05 on the west side of the roadway and station 129+05 on the east side of the roadway where it then sheet flows into the adjacent wetlands. Stormwater runoff from the remainder of the basin sheets flows directly into the adjacent wetlands. A 24" RCP cross drain (CD-02) at station 132+36 allows stormwater runoff to flow west underneath US 301 and into the adjacent wetlands associated with Shady Brook. This basin is considered an open basin.

4.6.3 Basin 3

Basin 3 begins at the bridge over Shady Brook at station 150+69 and continues north to a high point in the roadway at station 179+19. Stormwater runoff from US 301 is collected in roadside swales and conveyed south from station 173+46 on the west side of the roadway and station 172+46 on the east side of the roadway where it then sheet flows into the adjacent wetlands associated with Shady Brook. Roadway stormwater runoff between station 173+46 and station 176+86 on the west side of the roadway and station 172+46 and station 177+06 on the east side of the roadway, sheet flows off the roadway into adjacent depressional areas where it infiltrates into the ground. Stormwater runoff from the remainder of the basin is collected in roadside swales and conveyed south to the same adjacent depressional areas. The majority of this basin is considered an open basin, however the portion between stations 172+46 and 179+19 would be consider closed.

4.6.4 Basin 4

Basin 4 begins at a high point in the roadway at station 179+19 and continues north to station 196+64, the point at which offsite runoff divides between CD-03 and CD-04. Stormwater runoff from US 301 is collected in roadside swales and conveyed north to CD-03 at station 190+21, where it is discharged west towards a series of ditches that eventually outfall to an existing series of wetlands. Stormwater runoff from the remainder of the basin sheet flows off the roadway and flows overland to CD-03. This basin is considered an open basin.

4.6.5 Basin 5

Basin 5 begins at station 196+64, the point at which offsite runoff divides between CD-03 and CD-04 and continues north to the intersection of US 301 and County Road 525 East at station 222+61. Stormwater runoff on the west side of the roadway is collected in roadside swales and conveyed to CD-04 at station 201+95 where it discharges west to an adjacent wetland. Between station 196+64 and station 204+86 on the east side of the roadway, stormwater runoff is collected in roadside swales and conveyed to CD-04. Stormwater runoff from the east side of the roadway in the remainder of the basin sheet flows off of the roadway into adjacent depressional areas where it infiltrates into the ground. Both the adjacent wetland and these depressional areas do not have an outfall, therefore, this basin is considered a closed basin.

4.6.6 Basin 6

Basin 6 begins at the intersection of US 301 and County Road 525 East at station 10014+12 and continues north to the intersection of US 301 and Anderson Road at station 10031+24, a high point in the roadway. Stormwater runoff on the east side of the roadway is collected in roadside swales and conveyed to CD-05 at station 10026+41 where it discharges east to an adjacent wetland. Between station 10014+12 and station 10022+22 on the west side of the roadway, stormwater runoff sheet flows off of the roadway into an adjacent wetland. When this wetland reaches its maximum retaining volume, it backflows north through roadside swales to CD-05. Stormwater runoff from the west side of the roadway in the remainder of the basin is collected in roadside swales and conveyed south to CD-05. This wetland has a pop-over elevation of 56.00 ft to the east leading to a series of ditches and wetlands which eventually drain to Shady Brook, therefore, this is considered an open basin.

4.6.7 Basin 7

Basin 7 begins at the intersection of US 301 and Anderson Road at station 10031+24, a high point in the roadway, and continues north to another high point in the roadway at station 10042+34. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-06 at station 10035+49 where it discharges east to an adjacent wetland. This wetland drains to the southeast through a series of ditches and wetlands which eventually drain to Shady Brook, therefore, this is considered an open basin.

4.6.8 Basin 8

Basin 8 begins at a high point in the roadway at station 10042+34 and continues north to the intersection of US 301 and Warm Springs Avenue at station 10052+38. The basin then continues east from the intersection to a high point in the roadway at station 10062+09. Stormwater runoff from the east side of the roadway between station 10042+34 and the intersection of US 301 and Clark Avenue at station 10048+99 sheet flows across the roadway

into an adjacent depressional area to the west. This depressional area has a pop-over elevation of 61.00 ft to the northwest leading to a ditch alongside the CSX Railway. Stormwater runoff from the west side of the roadway between station 10042+34 and station 10051+39 sheet flows off of the roadway to the same depressional area to the west. Between the intersection of US 301 and Clark Avenue at station 10048+99 and station 10053+55, stormwater runoff from the east side of the roadway is collected through a storm sewer system consisting of curb and gutter, grate inlets and a ditch bottom inlet that discharges west along Warm Springs Avenue into the same ditch along the CSX Railway. Stormwater runoff from the remainder of the basin sheet flows west along the roadway into the storm sewer system inlets at the intersection of US 301 and Warm Springs Avenue.

Flooding has been reported in this basin. Storm water flows from a highpoint in the topography to the east, along Florida Avenue (north of US 301) and collects in both the roadway and the open portion of the adjacent parcel, between Commercial Street and Mulberry Street. Flooding has reportedly reached US 301 during times of heavy rain, has flowed overtop of it and into the storm sewer system. For further information, please refer to **Section 4.4.1**. This is considered an open basin.

4.6.9 Basin 9

Basin 9 begins at a high point in the roadway at station 10062+09 and continues east to another high point in the roadway at station 10077+36. Stormwater runoff from both sides of the roadway sheet flows along and across the roadway into adjacent wetlands to the south. These wetlands drain to the south through pop-over elevations of 56.00 and 57.00 ft to a series of ditches and wetlands which eventually drain to Shady Brook, therefore, this is considered an open basin.

4.6.10 Basin 10

Basin 10 begins at a high point in the roadway at station 10077+36 and continues east to the intersection of US 301 (Warm Springs Avenue) and Stokes Street at station 10105+04, another high point in the roadway. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-07 at station 10092+84, which discharges south to the adjacent wetland. Roadway swales on the north side of the roadway discharge to CD-07 through a ditch bottom inlet on the upstream end. The adjacent wetland does not have an outfall, therefore, this basin is considered a closed basin.

4.6.11 Basin 11

Basin 11 begins at the intersection of US 301 (Warm Springs Avenue) and Stokes Street at station 10105+04, a high point in the roadway and continues east, then northeast to another high point in the roadway at station 10124+41, the point at which runoff divides between CD-08 and CD-09. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-08 at station 10118+73, which discharges south to the adjacent wetland. The adjacent wetland does not have an outfall, therefore, this basin is considered a closed basin.

4.6.12 Basin 12

Basin 12 begins at a high point in the roadway at station 10124+41, the point at which runoff divides between CD-08 and CD-09, and continues northeast, then north to station 10143+90, the point at which offsite runoff divides

between CD-09 and CD-10. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-09 at station 10138+20, which discharges west to the adjacent depressional area where it infiltrates into the ground. The adjacent depressional area does not have an outfall, therefore, this basin is considered a closed basin.

4.6.13 Basin 13

Basin 13 begins at station 401+79 and continues north to a high point in the roadway at station 502+54. Stormwater runoff from the east side of the roadway is collected in roadside swales and conveyed to CD-10 at station 409+80, which discharges west to the adjacent depressional area where it infiltrates into the ground. Between station 401+79 and station 414+00 on the west side of the roadway, stormwater runoff is collected in roadside swales and conveyed to CD-10. Between station 414+00 and station 502+54 on the west side of the roadway, stormwater runoff sheet flows off of the roadway into the adjacent depressional area where it infiltrates into the ground. The adjacent depressional areas do not have an outfall, therefore, this basin is considered a closed basin.

4.6.14 Basin 14

Basin 14 begins at a high point in the roadway at station 502+54 and continues north to another high point in the roadway at station 542+19 just north of CD-11. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-11 at station 540+60. CD-11 acts as an equalizer between the two wetlands on each side of US 301. These wetlands do not have an outfall, therefore, this basin is considered a closed basin.

4.6.15 Basin 15

Basin 15 begins at a high point in the roadway at station 542+19 and continues north to another high point in the roadway at station 578+35. Stormwater runoff from both sides of the roadway is collected in roadside swales and conveyed to CD-12 at station 564+49, which discharges east to an adjacent wetland. This wetland outfalls to the east at a pop-over elevation of 57.00 ft to a series of existing wetlands and ditches, therefore, this basin is considered an open basin.

4.6.16 Basin 16

Basin 16 begins at a high point in the roadway at station 578+35 and continues north to CD-13, 49 feet north of station 596+90. Stormwater runoff from the east side of US 301 is collected in roadside swales and conveyed to CD-13 which discharges west to a series of existing interconnected wetlands. Stormwater runoff from the west side of the roadway is collected in roadside swales and conveyed north to station 588+69, where it then sheet flows into an adjacent wetland. This wetland discharges to the northwest at a pop-over elevation of 58.00 ft to the same series of existing wetlands. Stormwater runoff from the west side of the roadway for the remainder of the basin is collected in roadside swales and conveyed to CD-13. This is considered an open basin.

4.6.17 Basin 17

Basin 17 begins at CD-13, 49 feet north of station 596+90, and continues 1604 feet north to the end of the project's roadway improvements. Basin 17 also includes all lanes of Florida's Turnpike (including the on and off ramps) between Turnpike station 1016+05 and station 1053+25. Stormwater runoff from both sides of US 301 between

CD-13 and the intersection of US 301 and Florida's Turnpike, 789 feet north of station 596+90, is collected in roadside swales and conveyed to CD-13, which discharges west to a series of existing interconnected wetlands. Stormwater runoff from the southbound lanes of Florida's Turnpike sheet flow to the south off of the roadway to the adjacent wetlands. Stormwater runoff collected in the depressional areas between the southbound roadway and ramps (between stations 1029+00 and 1040+50 and stations 1041+40 and 1052+00) is discharged south through cross drains beneath the on and off ramps to the adjacent wetlands.

Stormwater runoff from the northbound lanes of Florida's Turnpike between stations 1016+05 and 1027+00 sheet flows to the north off of the roadway into an adjacent wetland. Stormwater runoff collected in the depressional area between the northbound lanes and the northbound on ramp (between stations 1027+00 and 1040+80) flows to the north off of the roadway and is conveyed through a cross drain beneath the on ramp to the roadside swales along the west side of US 301 where it is discharged to CD-14, 2380 feet north of station 596+90. Stormwater runoff from the northbound lanes of Florida's Turnpike between stations 1040+80 and 1053+25, the northbound off ramp and the east side of US 301 between 789 and 1029 feet north of station 596+90 sheet flows off of the roadway where it is conveyed through a cross drain beneath the off ramp into an adjacent wetland. Stormwater water runoff from the west side of US 301 between 789 and 1604 feet north of station 596+90 is collected in roadside swales and conveyed north to CD-14. Stormwater runoff from the east side of US 301 for the remainder of the basin is collected in grate inlets, ditch bottom inlets and roadside swales and conveyed to CD-14. This is considered an open basin.

4.6.18 Basin 18

Basin 18 begins 1604 feet north of station 596+90 and ends at the intersection of US 301 and State Road 44, 4388 feet north of station 596+90. Stormwater runoff from the east side of US 301 between the start of the basin and the intersection of US 301 and Spring Lake Road, 3469 feet north of station 596+90 is collected in grate inlets, ditch bottom inlets and roadside swales and conveyed to CD-14, 2380 feet north of station 596+60, which discharges west under US 301 to a series of ditches and existing wetlands. Stormwater water runoff from the west side of US 301 between the start of the basin and the intersection of US 301 and Spring Lake Road is collected in roadside swales and conveyed to CD-14. Stormwater runoff from the remainder of the basin is collected in curb inlets and conveyed south where it is discharged to an adjacent wetland. This is considered an open basin.

4.6.19 Basin 19

Basin 19 begins at the intersection of US 301 and County Road 525 East at Truck Route station 300+00 and ends at station 320+68. This basin consists of the proposed roadway for the Truck Route Alternative. Stormwater runoff in this basin collects in existing depressional areas and wetlands, which are connected through a series of ditches and other wetlands eventually draining to Shady Brook, therefore, this is considered an open basin.

4.6.20 Basin 20

Basin 20 begins at Truck Route station 320+68 and ends at station 340+35. This basin consists of the proposed roadway for the Truck Route Alternative. Stormwater runoff in this basin collects in existing depressional areas and wetlands, which are connected through a series of ditches and other wetlands eventually draining to Shady Brook, therefore, this is considered an open basin.

4.6.21 Basin 21

Basin 21 begins at Truck Route station 340+35 and ends at station 372+74. This basin consists of the proposed roadway for the Truck Route Alternative. Stormwater runoff in this basin collects in existing depressional areas and wetlands, which are connected through a series of ditches and other wetlands eventually draining to Shady Brook, therefore, this is considered an open basin.

4.6.22 Basin 22

Basin 22 begins at Truck Route station 372+74 and ends at station 385+47. This basin consists of the proposed roadway for the Truck Route Alternative. Stormwater runoff in this basin collects in existing depressional areas and wetlands, which do not have an outfall therefore, this is considered a closed basin.

4.6.23 Basin 23

Basin 23 begins at Truck Route station 385+47 and ends at Stokes Street at station 401+79. This basin consists of the proposed roadway for the Truck Route Alternative. Stormwater runoff in this basin collects in existing depressional areas and wetlands, which do not have an outfall therefore, this is considered a closed basin.

5.0 Proposed Drainage Conditions

The stormwater runoff from the project limits will be collected and conveyed in roadside ditches to the proposed offsite dry retention and wet detention ponds. The ponds will discharge at or near the same cross drains that carry the roadway runoff in the existing condition. The proposed ponds have been sized to achieve the required water quality treatment and water quantity attenuation.

5.1 Proposed Ponds

There are currently twenty-three (23) drainage basins within the project limits. Three (3) pond alternatives for each basin have been analyzed, with the exception of Basin 18, where the proposed roadway improvements are minor, consisting of safety related improvements and therefore, stormwater pond alternatives have not been considered. The ponds were sized on the assumption that offsite runoff would be drained through the pond site alternative toward its historical path. Also, for contingency purposes, the ponds were upsized by twenty percent (20%). In Segments 1, 2, 4, and 6 the ponds were sized to accommodate four (4) 12-foot travel lanes, 4-foot inside shoulders and 7-foot buffered shoulders, and 6-foot sidewalks on each side of the roadway, as specified in the Suburban Typical Section. In Segment 3 of the project, the ponds were sized to accommodate four (4) 11-foot travel lanes, 7-foot buffered shoulders and 5-foot sidewalks on each side of the roadway, as specified in the Urban Typical Section. Ponds sized for Basin 17 also include accommodation for the proposed widening of Florida's Turnpike; this includes four (4) 12-foot travel lanes and 12-foot inside and 10-foot outside shoulders for both northbound and southbound roadways. Segment 5 of the project is anticipated to have minor safety related roadway improvements; therefore, no pond alternatives have been analyzed for this segment.

The onsite roadway basin areas draining to the ponds were determined to be the areas within the proposed right-of-way limits. The limits of the proposed basins begin and end at the same locations as the existing condition with the exception of Basins 11, 12 and 13, where the limits were adjusted slightly to have a common station between the left and right side of the roadway. The location of the outfall in the proposed condition is the same as the existing condition. Please refer to the Basin Maps in **Appendix B** for the pond locations.

The ponds have been properly sized to accommodate the increased attenuation volume due to the proposed increase in impervious area within the basin. **Table 4 – Summary of Proposed Drainage Basins** provides a summary of the proposed basin limits.

Table 4 – Summary of Proposed Drainage Basins

Basin Name	Segment Number	Alignment Alternative	From Station	To Station
Basin 1	1	1 & 2	97+26*	117+45
Basin 2	2	1 & 2	117+45	150+69
Basin 3	2	1 & 2	150+69	179+19
Basin 4	2	1 & 2	179+19	196+64
Basin 5	2	1 & 2	196+64	222+61
Basin 6	3	1	10014+12	10031+24
Basin 7	3	1	10031+24	10042+34
Basin 8	3	1	10042+34	10062+09

Basin Name	Segment Number	Alignment Alternative	From Station	To Station
Basin 9	3	1	10062+09	10077+36
Basin 10	3	1	10077+36	10105+04
Basin 11	4	1	10105+04	10124+41
Basin 12	4	1	10124+41	10143+90
Basin 13	4	1 & 2	401+79	502+54
Basin 14	4	1 & 2	502+54	542+19
Basin 15	4	1 & 2	542+19	578+35
Basin 16	4	1 & 2	578+35	597+39*
Basin 17	4	1 & 2	597+39*	612+93*
Basin 18	5	1 & 2	612+93*	640+78*
Basin 19	6	2	300+00	320+68
Basin 20	6	2	320+68	340+35
Basin 21	6	2	340+35	372+74
Basin 22	6	2	372+74	385+47
Basin 23	6	2	385+47	401+79
*Approximate station value extrapolated from beginning or end of station chain.				

5.2 Methodology of Pond Determination

The pond sizing analysis assumes that all ponds will be designed using wet detention and dry retention pond design criteria. The report focuses on the preliminary estimate of required pond volumes necessary for each roadway drainage basin. A 20% upsize in the required pond right-of-way area has been applied for all the ponds to account for preliminary parameters such as the estimated seasonal high water elevations, ground elevations and potential natural contouring of the ponds. The following parameters were considered in the sizing of potential pond sites:

- Hydrologic and hydraulic factors such as existing ground elevations, soil types, estimated seasonal high water (ESHW), stormwater conveyance feasibility, allowable hydraulics grade line (HGL);
- Environmental resource impacts including wetlands and threatened or endangered species;
- Floodplain Impacts;
- Major utility conflict potential;
- Parcel descriptions and land usage;
- Impacts to cultural resources

The possibility of dry linear swales within the right of way for Segments 1, 2, 4, and 6 should be further explored during the design phase of the project. Dry linear swales should be viable as long as sufficient separation between the ESHW table and the bottom of the linear swale is maintained to allow for proper recovery of the volume to meet SWFWMD and FDOT guidelines. In addition, linear swales may be viable in areas where the Hydrologic Soil Group (HSG) is Type A. Another consideration for linear swales includes investigating if offsite runoff can hydraulically commingle with onsite runoff of if a bypass offsite system is required. For right of way estimates and funding purposes, this report focuses on the conservative assumption that offsite ponds will be required.

5.3 Stormwater Pond Evaluation

5.3.1 Basin 1

Basin 1 is located between 681 feet south of station 100+00 and station 117+45 within the Withlacoochee River South watershed. Basin 1 is considered an open basin because the surrounding area drains to CD-1, 273 feet south of station 100+00, and continues to drain west to the wetlands surrounding Shady Brook. This basin is located within WBID 1359D and WBID 1351C which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 1. Two (2) of the alternatives are offsite wet detention ponds and one (1) is an offsite dry retention pond. All the pond site alternatives in this basin are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 1B.

5.3.1.1 Pond 1A

Pond 1A will serve as the treatment and attenuation pond for Basin 1. Pond 1A is located east of US 301 at approximately station 103+40 (RT.). This pond site sits within one (1) parcel (J12-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 1A consists of Millhopper (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 3.5 to 6.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 66.00 feet NAVD. With the data compiled it was determined that Pond 1A will be a wet pond with the normal water/control elevation set at elevation 62.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.27 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-01.

5.3.1.2 Pond 1B

Pond 1B will serve as the treatment and attenuation pond for Basin 1. Pond 1B is located east of US 301 at approximately station 109+21 (RT.). This pond site sits within one (1) parcel (J12-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 1B consists of Candler (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be greater than 6.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 66.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 1B was estimated to be at approximately 59.30 feet NAVD. With the data compiled it was determined that Pond 1B will be a dry pond with the pond bottom set at elevation 62.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.02 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-01.

5.3.1.3 Pond 1C

Pond 1C will serve as the treatment and attenuation pond for Basin 1. Pond 1C is located west of US 301 at approximately station 110+01 (LT.). This pond site sits within one (1) parcel (J12-006). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 1C consists of Sumterville (HSG

C/D) and Oldsmar (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.0 feet and 0.5 to 1.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 1C will be a wet pond with the normal water/control elevation set at elevation 62.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.59 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-01.

5.3.2 Basin 2

Basin 2 is located between stations 117+45 and 150+69 within the Withlacoochee River South watershed. Basin 2 is considered an open basin because the surrounding area drains to the wetlands surrounding Shady Brook. This basin is located within WBID 1351C and WBID 1356 which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 2. All the pond site alternatives in this basin are within the SKA. All of the alternatives are offsite wet detention ponds. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 2A.

5.3.2.1 Pond 2A

Pond 2A will serve as the treatment and attenuation pond for Basin 2. Pond 2A is located west of US 301 at approximately station 145+14 (LT.). This pond site sits within one (1) parcel (J12-019). The pond site has no impacts to wetlands and has impacts approximately 0.27 acres to the floodplain. According to Sumter County Soil Survey, Pond 2A consists of Paisley (HSG B/D) and Terra Ceia (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 0.0 to 0.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 54.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 2A was estimated to be at approximately 50.60 feet NAVD. With the data compiled it was determined that Pond 2A will be a wet pond with the normal water/control elevation set at elevation 48.00 feet. Pond 2A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.93 acres of area for treatment and attenuation. This pond will have a direct discharge to Shady Brook which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.2.2 Pond 2B

Pond 2B will serve as the treatment and attenuation pond for Basin 2. Pond 2B is located east of US 301 at approximately station 144+43 (RT.). This pond site sits within one (1) parcel (J12-013). The pond site has approximately 0.32 acres of impacts to wetlands and no impacts to the floodplain. According to Sumter County Soil Survey, Pond 2B consists of Paisley (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 55.00 feet NAVD. With the data compiled it was determined that Pond 2B will be a wet pond with the normal water/control elevation set at elevation 49.00 feet. Pond 2B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 3.20

acres of area for treatment and attenuation. This pond will have a direct discharge to Shady Brook which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.2.3 Pond 2C

Pond 2C will serve as the treatment and attenuation pond for Basin 2. Pond 2C is located west of US 301 at approximately station 139+53 (LT.). This pond site sits within one (1) parcel (J12-022). The pond site has approximately 1.52 acres of impacts to wetlands and no impacts to the floodplain. According to Sumter County Soil Survey, Pond 2C consists of Paisley (HSG B/D), Terra Ceia (HSG A/D) and Oldsmar (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet, 0.0 to 0.5 feet and 0.5 to 1.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 48.00 feet NAVD. With the data compiled it was determined that Pond 2C will be a wet pond with the normal water/control elevation set at elevation 44.00 feet. Pond 2C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.65 acres of area for treatment and attenuation and a 0.31 acre access easement (total of 2.96 acres). This pond will have a direct discharge to Shady Brook which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.3 Basin 3

Basin 3 is located between stations 150+69 and 179+19 within the Withlacoochee River South watershed. Basin 3 is considered an open basin because the surrounding area drains to the wetlands surrounding Shady Brook. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 3. All the alternatives are offsite wet detention ponds. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 3B.

5.3.3.1 Pond 3A

Pond 3A will serve as the treatment and attenuation pond for Basin 3. Pond 3A is located west of US 301 at approximately station 155+96 (LT.). This pond site sits within three (3) parcels (J01-027, J01-024 and J01-068). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 3A consists of Sumterville (HSG C/D) and Millhopper (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.0 feet and 3.5 to 6.0 feet below existing ground respectively. This pond site is not located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 3A will be a wet pond with the normal water/control elevation set at elevation 48.25 feet. Pond 3A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 3.47 acres of area for treatment and attenuation. This pond will discharge to the US 301 right-of-way where it will be conveyed to Shady Brook, which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.3.2 Pond 3B

Pond 3B will serve as the treatment and attenuation pond for Basin 3. Pond 3B is located east of US 301 at approximately station 152+97 (RT.). This pond site sits within one (1) parcel (J01-067). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 3B consists of Paisley (HSG B/D), Sumterville (HSG C/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet, 1.5 to 3.0 feet and 1.5 to 3.5 feet below existing ground respectively. This pond site is located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 53.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 3B was estimated to be at approximately 47.60 feet NAVD. With the data compiled it was determined that Pond 3B will be a wet pond with the normal water/control elevation set at elevation 47.50 feet. Preliminary pond sizing calculations indicate that this pond requires 2.48 acres of area for treatment and attenuation and a 0.26 acre access easement (total of 2.74 acres). This pond will discharge to the US 301 right-of-way where it will be conveyed to Shady Brook, which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.3.3 Pond 3C

Pond 3C will serve as the treatment and attenuation pond for Basin 3. Pond 3C is located east of US 301 at approximately station 152+69 (RT.). This pond site sits within one (1) parcel (J12-004). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 3C consists of Paisley (HSG B/D), Sumterville (HSG C/D) and Oldsmar (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet, 1.5 to 3.0 feet and 0.5 to 1.5 feet below existing ground respectively. This pond site is located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 55.00 feet NAVD. With the data compiled it was determined that Pond 3C will be a wet pond with the normal water/control elevation set at elevation 48.00 feet. Pond 3C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.33 acres of area for treatment and attenuation. This pond will discharge to the US 301 right-of-way where it will be conveyed to Shady Brook, which is an Outstanding Florida Water (OFW), therefore, an additional 50% treatment volume is required.

5.3.4 Basin 4

Basin 4 is located between stations 179+19 and 196+64 within the Withlacoochee River South watershed. Basin 4 is considered an open basin because the surrounding area drains to CD-03 and continues to drain west to a series of ditches that eventually outfall to an existing series of wetlands. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 4. All of the alternatives are offsite wet detention ponds. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 4B.

5.3.4.1 Pond 4A

Pond 4A will serve as the treatment and attenuation pond for Basin 4. Pond 4A is located east of US 301 at approximately station 185+02 (RT.). This pond site sits within one (1) parcel (J01-011). The pond site has no

impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 4A consists of Adamsville (HSG A), Ona (HSG B/D) and Tavares (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet, 0.5 to 1.5 feet and 3.5 to 6.0 feet below existing ground respectively. This pond site is not located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 4A will be a wet pond with the normal water/control elevation set at elevation 55.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.21 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-03.

5.3.4.2 Pond 4B

Pond 4B will serve as the treatment and attenuation pond for Basin 4. Pond 4B is located east of US 301 at approximately station 190+65 (RT.). This pond site sits within two (2) parcels (J01-006 and J01-011). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 4B consists of Adamsville (HSG A) and Ona (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet and 0.5 to 1.5 feet below existing ground respectively. This pond site is located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 4B was estimated to be at approximately 52.90 feet NAVD. With the data compiled it was determined that Pond 4B will be a wet pond with the normal water/control elevation set at elevation 55.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.16 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-03.

5.3.4.3 Pond 4C

Pond 4C will serve as the treatment and attenuation pond for Basin 4. Pond 4C is located west of US 301 at approximately station 184+65 (LT.). This pond site sits within two (2) parcels (J01-008 and J01-029). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 4C consists of Adamsville (HSG A) and Tavares (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet and 3.5 to 6.0 feet below existing ground respectively. This pond site is not located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 4C will be a wet pond with the normal water/control elevation set at elevation 54.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.19 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-03.

5.3.5 Basin 5

Basin 5 is located between stations 196+64 and 222+61 within the Withlacoochee River South watershed. Basin 5 is considered a closed basin because the surrounding area drains to CD-04 where it discharges to an adjacent wetland that does not have an outfall. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 5. All of the alternatives are offsite wet detention ponds. The particulars of the alternatives are discussed in the following

sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 5B.

5.3.5.1 Pond 5A

Pond 5A will serve as the treatment and attenuation pond for Basin 5. Pond 5A is located east of US 301 at approximately station 205+83 (RT.). This pond site sits within one (1) parcel (F36-054). The pond site impacts approximately 0.28 acres to wetlands and approximately 0.72 acres to the floodplain. This pond site is located within the SKA. According to Sumter County Soil Survey, Pond 5A consists of Adamsville (HSG A), Basinger (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet, 0.0 to 1.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 59.00 feet NAVD. With the data compiled it was determined that Pond 5A will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond requires 5.21 acres of area for treatment and attenuation and a 0.25 acre access easement (total of 5.46 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-04.

5.3.5.2 Pond 5B

Pond 5B will serve as the treatment and attenuation pond for Basin 5. Pond 5B is located east of US 301 at approximately station 220+00 (RT.). This pond site sits within one (1) parcel (J01-003). The pond site has no impacts to wetlands and approximately 0.69 acres of impacts to the floodplain. According to Sumter County Soil Survey, Pond 5B consists of Adamsville (HSG A) and Basinger (HSG A/D). The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet and 0.0 to 1.0 feet below existing ground respectively. This pond site is located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 5B will be a wet pond with the normal water/control elevation set at elevation 54.25 feet. Preliminary pond sizing calculations indicate that this pond requires 3.09 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-04.

5.3.5.3 Pond 5C

Pond 5C will serve as the treatment and attenuation pond for Basin 5. Pond 5C is located west of US 301 at approximately station 197+56 (LT.). This pond site sits within one (1) parcel (J01-031). The pond site impacts approximately 0.33 acres to wetlands and approximately 0.56 acres to the floodplain. According to Sumter County Soil Survey, Pond 5C consists of Adamsville (HSG A) and Basinger (HSG A/D). The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet and 0.0 to 1.0 feet below existing ground respectively. This pond site is not located within the SKA. According to LIDAR data obtained for this pond site, the existing ground is at approximately 55.00 feet NAVD. With the data compiled it was determined that Pond 5C will be a wet pond with the normal water/control elevation set at elevation 54.00 feet. Preliminary pond sizing calculations indicate that this pond requires 5.58 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-04.

5.3.6 Basin 6

Basin 6 is located between stations 10014+12 and 10031+24 within the Withlacoochee River South watershed. Basin 6 is considered an open basin because the surrounding area drains to CD-05 where it discharges to an adjacent wetland that outfalls across a pop-over elevation to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 6. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 6B.

5.3.6.1 Pond 6A

Pond 6A will serve as the treatment and attenuation pond for Basin 6. Pond 6A is located east of US 301 at approximately station 10018+22 (RT.). This pond site sits within one (1) parcel (F36-062). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 6A consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 6A will be a wet pond with the normal water/control elevation set at elevation 56.50 feet. Preliminary pond sizing calculations indicate that this pond requires 2.30 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-05.

5.3.6.2 Pond 6B

Pond 6B will serve as the treatment and attenuation pond for Basin 6. Pond 6B is located east of US 301 at approximately station 10023+15 (RT.). This pond site sits within one (1) parcel (F36-062). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 6B consists of Paisley (HSG A), Basinger (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet, 0.0 to 1.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 6B will be a wet pond with the normal water/control elevation set at elevation 56.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.29 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-05.

5.3.6.3 Pond 6C

Pond 6C will serve as the treatment and attenuation pond for Basin 6. Pond 6C is located east of US 301 at approximately station 10018+01 (RT.). This pond site sits within one (1) parcel (F36-062). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 6C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 6C will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond

requires 2.01 acres of area for treatment and attenuation and a 0.54 acre access easement (total of 2.55 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-05.

5.3.7 Basin 7

Basin 7 is located between stations 10031+24 and 10042+34 within the Withlacoochee River South watershed. Basin 7 is considered an open basin because the surrounding area drains to CD-06 where it discharges to an adjacent wetland that outfalls across a pop-over elevation to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1356 and WBID 1351 which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 7. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 7B.

5.3.7.1 Pond 7A

Pond 7A will serve as the treatment and attenuation pond for Basin 7. Pond 7A is located east of US 301 at approximately station 10036+82 (RT.). This pond site sits within two (2) parcels (F36-041 and F36-098). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 7A consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 7A will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Pond 7A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.37 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-06.

5.3.7.2 Pond 7B

Pond 7B will serve as the treatment and attenuation pond for Basin 7. Pond 7B is located east of US 301 at approximately station 10031+13 (RT.). This pond site sits within one (1) parcel (F36-042). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 7B consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 59.00 feet NAVD. With the data compiled it was determined that Pond 7B will be a wet pond with the normal water/control elevation set at elevation 57.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.24 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-06.

5.3.7.3 Pond 7C

Pond 7C will serve as the treatment and attenuation pond for Basin 7. Pond 7C is located west of US 301 at approximately station 10036+80 (LT.). This pond site sits within one (1) parcel (F35-001). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 7C consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing

ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 61.00 feet NAVD. With the data compiled it was determined that Pond 7C will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.83 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-06.

5.3.8 Basin 8

Basin 8 is located between stations 10042+34 and 10062+09 within the Withlacoochee River South watershed. Basin 8 is considered an open basin because the surrounding area drains to an adjacent depressional area that outfalls across a pop-over elevation to a ditch along the CSX Railway. This basin is located within WBID 1344 and WBID 1351 which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are four (4) alternatives being considered for Basin 8. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 8A.

5.3.8.1 Pond 8A

Pond 8A will serve as the treatment and attenuation pond for Basin 8. Pond 8A is located west of US 301 at approximately station 10047+28 (LT.). This pond site sits within two (2) parcels (F35C005 and F35C015). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 8A consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 61.00 feet NAVD. With the data compiled it was determined that Pond 8A will be a wet pond with the normal water/control elevation set at elevation 59.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.43 acres of area for treatment and attenuation. This pond will outfall to the ditch along the CSX Railway.

5.3.8.2 Pond 8B

Pond 8B will serve as the treatment and attenuation pond for Basin 8. Pond 8B is located west of US 301 at approximately station 10043+86 (LT.). This pond site sits within two (2) parcels (F35C009 and F35C013). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 8B consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 8B will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.16 acres of area for treatment and attenuation. This pond will outfall to the ditch along the CSX Railway.

5.3.8.3 Pond 8C

Pond 8C will serve as the treatment and attenuation pond for Basin 8. Pond 8C is located west of US 301 at approximately station 10045+23 (LT.). This pond site sits within three (3) parcels (F35C006, F35C008, and F35C017). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey,

Pond 8C consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 8C will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.14 acres of area for treatment and attenuation. This pond will outfall to the ditch along the CSX Railway.

5.3.8.4 Pond 8D

Pond 8D will serve as the treatment and attenuation pond for Basin 8, in addition to providing relief for flooding that has been reported in this basin. This alternative also provides an option for regional stormwater opportunities to meet the Environmental Look Around (ELA) directive from FDOT. Storm water flows from a highpoint in the topography to the east, along Florida Avenue (north of US 301) and collects in both the roadway and the open portion of the adjacent parcel, between Commercial Street and Mulberry Street. Flooding has reportedly reached US 301 during times of heavy rain, overtopping the road and flowing into the storm sewer system. For further information, please refer to **Section 4.4.1**. The method for calculating flooding relief is described as follows: The total area generating the flooding was delineated based on one-foot LIDAR contours and an amount of total runoff generated was calculated based on this area. This additional runoff was added to the required pre vs. post attenuation volume for Basin 8 of US 301 and Pond 8D was sized accordingly.

Pond 8D is located west of US 301 at approximately station 10045+23 (LT.). This pond site sits within seven (7) parcels (F35C004, F35C005, F35C006, F35C007, F35C008, F35C015 and F35C017). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 8D consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 61.00 feet NAVD. With the data compiled it was determined that Pond 8D will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Preliminary pond sizing calculations indicate that this pond requires 4.19 acres of area for treatment and attenuation. This pond will outfall to the ditch along the CSX Railway.

5.3.9 Basin 9

Basin 9 is located between stations 10062+09 and 10077+36 within the Withlacoochee River South watershed. Basin 9 is considered an open basin because the surrounding area drains south to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1344 and WBID 1356 which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. Two (2) of the alternatives are offsite wet detention ponds and one (1) is an offsite dry retention pond. All of the pond site alternatives are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 9B.

5.3.9.1 Pond 9A

Pond 9A will serve as the treatment and attenuation pond for Basin 9. Pond 9A is located south of US 301 at approximately station 10070+47 (RT.). This pond site sits within one (1) parcel (F36-016). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 9A consists of Tavares (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 3.5 to 6.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 9A will be a wet pond with the normal water/control elevation set at elevation 60.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.39 acres of area for treatment and attenuation and a 0.29 acre access easement (total of 1.68 acres). This pond will outfall to the adjacent series of wetlands and ditches.

5.3.9.2 Pond 9B

Pond 9B will serve as the treatment and attenuation pond for Basin 9. Pond 9B is located south of US 301 at approximately station 10065+15 (RT.). This pond site sits within one (1) parcel (F36-075). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 9B consists of Tavares (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 3.5 to 6.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 61.00 feet NAVD. With the data compiled it was determined that Pond 9B will be a dry pond with the pond bottom set at elevation 59.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.37 acres of area for treatment and attenuation and a 0.65 acre access easement (total of 2.02 acres). This pond will outfall to the adjacent series of wetlands and ditches.

5.3.9.3 Pond 9C

Pond 9C will serve as the treatment and attenuation pond for Basin 9. Pond 9C is located south of US 301 at approximately station 10068+38 (RT.). This pond site sits within one (1) parcel (F36-018). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 9C consists of Tavares (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 3.5 to 6.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 9C will be a wet pond with the normal water/control elevation set at elevation 60.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.21 acres of area for treatment and attenuation and a 0.22 acre access easement (total of 1.43 acres). This pond will outfall to the adjacent series of wetlands and ditches.

5.3.10 Basin 10

Basin 10 is located between stations 10077+36 and 10105+04 within the Withlacoochee River South watershed. Basin 10 is considered a closed basin because the surrounding area drains to CD-07 where it discharges to an adjacent wetland that does not have an outfall. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 10. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the

alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 10B.

5.3.10.1 Pond 10A

Pond 10A will serve as the treatment and attenuation pond for Basin 10. Pond 10A is located 630 feet south of US 301 at approximately station 10095+00 (RT.). This pond site sits within one (1) parcel (F36-083). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 10A consists of Tarrytown (HSG C/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 10A will be a wet pond with the normal water/control elevation set at elevation 56.50 feet. Preliminary pond sizing calculations indicate that this pond requires 2.19 acres of area for treatment and attenuation and a 1.18 acre access easement (total of 3.37 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-07.

5.3.10.2 Pond 10B

Pond 10B will serve as the treatment and attenuation pond for Basin 10. Pond 10B is located south of US 301 at approximately station 10089+00 (RT.). This pond site sits within one (1) parcel (F36-003). The pond site has no impacts to wetlands however does impact 0.14 acres of the floodplain. According to Sumter County Soil Survey, Pond 10B consists of Tarrytown (HSG C/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 59.00 feet NAVD. With the data compiled it was determined that Pond 10B will be a wet pond with the normal water/control elevation set at elevation 56.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.96 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-07.

5.3.10.3 Pond 10C

Pond 10C will serve as the treatment and attenuation pond for Basin 10. Pond 10C is located 965 feet south of US 301 at approximately station 10086+50 (RT.). This pond site sits within one (1) parcel (F36-002). The pond site has no impacts to wetlands or floodplain. According to Sumter County Soil Survey, Pond 10C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 10C will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond requires 2.25 acres of area for treatment and attenuation and a 1.04 acre access easement (total of 3.29 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-07.

5.3.11 Basin 11

Basin 11 is located between stations 10105+04 and 10124+41 within the Withlacoochee River South watershed. Basin 11 is considered a closed basin because the surrounding area drains to CD-08 where it discharges to an adjacent wetland that does not have an outfall. This basin is located within WBID 1344 and WBID 1356 which are

not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 11. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 11B.

5.3.11.1Pond 11A

Pond 11A will serve as the treatment and attenuation pond for Basin 11. Pond 11A is located north of US 301 at approximately station 10116+00 (LT.). This pond site sits within one (1) parcel (G30-029). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 11A consists of EauGallie (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 65.00 feet NAVD. With the data compiled it was determined that Pond 11A will be a wet pond with the normal water/control elevation set at elevation 61.00 feet. Pond11A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.84 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-08.

5.3.11.2Pond 11B

Pond 11B will serve as the treatment and attenuation pond for Basin 11. Pond 11B is located south of US 301 at approximately station 10117+00 (RT.). This pond site sits within one (1) parcel (G31-027). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 11B consists of Sumterville (HSG C/D), and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.0 feet, and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 11B will be a wet pond with the normal water/control elevation set at elevation 58.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.78 acres of area for treatment and attenuation and a 0.19 acre access easement (total of 1.97 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-08.

5.3.11.3Pond 11C

Pond 11C will serve as the treatment and attenuation pond for Basin 11. Pond 11C is located south of US 301 at approximately station 10117+00 (RT.). This pond site sits within one (1) parcel (G31-040). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 11C consists of Sumterville (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 65.00 feet NAVD. With the data compiled it was determined that Pond 11C will be a wet pond with the normal water/control elevation set at elevation 59.75 feet. Pond 11C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.70 acres of area for treatment and

attenuation and a 0.43 acre access easement (total of 2.13 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-08.

5.3.12 Basin 12

Basin 12 is located between stations 10124+41 and 10143+90 within the Withlacoochee River South watershed. Basin 12 is considered a closed basin because the surrounding area drains to CD-09 where it discharges to an adjacent depressional area that does not have an outfall. This basin is located within WBID 1344 and WBID 1356 which are not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. This basin is exclusive for the alternative alignment through the City of Coleman. There are three (3) alternatives being considered for Basin 12. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 12B.

5.3.12.1Pond 12A

Pond 12A will serve as the treatment and attenuation pond for Basin 12. Pond 12A is located southeast of US 301 at approximately station 10131+00 (RT.). This pond site sits within one (1) parcel (G30-030). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 12A consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 12A will be a wet pond with the normal water/control elevation set at elevation 61.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.73 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-09.

5.3.12.2Pond 12B

Pond 12B will serve as the treatment and attenuation pond for Basin 12. Pond 12B is located southeast of US 301 at approximately station 10132+00 (RT.). This pond site sits within one (1) parcel (G30-036). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 12B consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 12B will be a wet pond with the normal water/control elevation set at elevation 61.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.48 acres of area for treatment and attenuation and a 0.30 acre access easement (total of 1.76 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-09.

5.3.12.3Pond 12C

Pond 12C will serve as the treatment and attenuation pond for Basin 12. Pond 12C is located west of US 301 at approximately station 10140+00 (LT.). This pond site sits within one (1) parcel (G30-022). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 12C consists of Adamsville (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet below

existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 12C will be a wet pond with the normal water/control elevation set at elevation 60.75 feet. Preliminary pond sizing calculations indicate that this pond requires 1.44 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-09.

5.3.13 Basin 13

Basin 13 is located between stations 401+79 and 502+54 within the Withlacoochee River South watershed. Basin 13 is considered a closed basin because the surrounding area drains to CD-10 where it discharges to an adjacent depressional area that does not have an outfall. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 13. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 13C.

5.3.13.1Pond 13A

Pond 13A will serve as the treatment and attenuation pond for Basin 13. Pond 13A is located west of US 301 at approximately station 414+00 (LT.). This pond site sits within one (1) parcel (G30-013). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 13A consists of Adamsville (HSG A), Ft. Green (HSG C/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet, 0.5 to 1.5 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 62.00 feet NAVD. With the data compiled it was determined that Pond 13A will be a wet pond with the normal water/control elevation set at elevation 60.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.19 acres of area for treatment and attenuation and a 0.54 acre access easement (total of 2.73 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-10.

5.3.13.2Pond 13B

Pond 13B will serve as the treatment and attenuation pond for Basin 13. Pond 13B is located east of US 301 at approximately station 410+00 (RT.). This pond site sits within three (3) parcel (G30-006, G30-009 and G30-050). The pond site impacts approximately 1.58 acres to wetlands and approximately 1.57 acres to the floodplain. According to Sumter County Soil Survey, Pond 13B consists of Pits-Dumps (HSG N/a) soils. The pond site chosen is an existing borrow pit with a normal surface water elevation estimated to be at elevation 54.00 feet. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 13B will be a wet pond with the normal water/control elevation set equivalent to the borrow pit surface water elevation at elevation 54.00 feet. Preliminary pond sizing calculations indicate that this pond requires 2.35 acres of area for treatment and attenuation and a 0.54 acre access easement (total of 2.89 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-10. The existing borrow pit is approximately 80 to 100 feet deep and will need to be filled to an elevation above the

Floridan Aquifer. Additional investigation will need to be performed on this pond to determine if it is a cost-effective alternative should this site become the preferred site.

5.3.13.3 Pond 13C

Pond 13C will serve as the treatment and attenuation pond for Basin 13. Pond 13C is located east of US 301 at approximately station 405+00 (RT.). This pond site sits within one (1) parcel (G30-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 13C consists of Pits-Dumps (HSG N/a) soils. The soil survey does not define the seasonal high water depth in these soils; the seasonal high water depth is estimated to be 3.0 to 6.0 feet below existing ground, based on the surrounding soil types and normal water elevations of nearby borrow pits. According to LIDAR data obtained for this pond site, the existing ground is at approximately 62.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 13C was estimated to be at approximately 60.40 feet NAVD. With the data compiled it was determined that Pond 13C will be a wet pond with the normal water/control elevation set at elevation 59.50 feet. Preliminary pond sizing calculations indicate that this pond requires 3.18 acres of area for treatment and attenuation. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-10.

5.3.14 Basin 14

Basin 14 is located between stations 502+54 and 542+19 within the Withlacoochee River South watershed. Basin 14 is considered a closed basin because the surrounding area drains to CD-11 where it discharges to adjacent wetlands that do not have an outfall. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 14. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 14C.

5.3.14.1 Pond 14A

Pond 14A will serve as the treatment and attenuation pond for Basin 14. Pond 14A is located west of US 301 at approximately station 536+21 (LT.). This pond site sits within one (1) parcel (G19-010). The pond site has no impacts to wetlands and impacts approximately 0.14 acres to the floodplain. According to Sumter County Soil Survey, Pond 14A consists of Wabasso (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 14A will be a wet pond with the normal water/control elevation set at elevation 56.00 feet, approximated by the water elevation of the nearby wetlands. Preliminary pond sizing calculations indicate that this pond requires 2.20 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-11.

5.3.14.2 Pond 14B

Pond 14B will serve as the treatment and attenuation pond for Basin 14. Pond 14B is located west of US 301 at approximately station 541+01 (LT.). This pond site sits within one (1) parcel (G19-003). The pond site has no

impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 14B consists of Wabasso (HSG B/D) and Ft. Green (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.0 to 1.0 feet and 0.5 to 1.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 59.00 feet NAVD. With the data compiled it was determined that Pond 14B will be a wet pond with the normal water/control elevation set at elevation 56.00 feet, approximated by the water elevation of the nearby wetlands. Pond 14B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.67 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-11.

5.3.14.3Pond 14C

Pond 14C will serve as the treatment and attenuation pond for Basin 14. Pond 14C is located east of US 301 at approximately station 535+37 (RT.). This pond site sits within one (1) parcel (G19-001). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 14C consists of Manteocha (HSG A/D) and Ft. Green (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 feet and 0.5 to 1.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 61.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 14C was estimated to be at approximately 54.70 feet NAVD. With the data compiled it was determined that Pond 14C will be a wet pond with the normal water/control elevation set at elevation 56.50 feet, approximated by the water elevation of the nearby wetlands. Preliminary pond sizing calculations indicate that this pond requires 2.10 acres of area for treatment and a 0.30 acre access easement (total of 2.40 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-11.

5.3.15 Basin 15

Basin 15 is located between stations 542+19 and 578+35 within the Withlacoochee River South watershed. Basin 15 is considered an open basin because the surrounding area drains to CD-12 where it discharges to adjacent wetlands that discharge across a pop-over elevation to a series of ditches and wetlands. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 15. All of the alternatives are offsite wet detention ponds and are outside of the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 15B.

5.3.15.1Pond 15A

Pond 15A will serve as the treatment and attenuation pond for Basin 15. Pond 15A is located west of US 301 at approximately station 568+24 (LT.). This pond site sits within one (1) parcel (G19-002). The pond site has no impacts to wetlands and impacts approximately 0.07 acres to the floodplain. According to Sumter County Soil Survey, Pond 15A consists of EauGallie (HSG A/D) and Okeelanta (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 0.0 to 1.0 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 15A will be a wet pond with the normal water/control elevation

set at elevation 56.00 feet, approximated by the water elevation of the nearby wetlands. Pond 15A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.75 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-12.

5.3.15.2Pond 15B

Pond 15B will serve as the treatment and attenuation pond for Basin 15. Pond 15B is located west of US 301 at approximately station 556+96 (LT.). This pond site sits within one (1) parcel (G19-002). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 15B consists of Ft. Green (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 62.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 15B was estimated to be at approximately 61.90 feet NAVD. With the data compiled it was determined that Pond 15B will be a wet pond with the normal water/control elevation set at elevation 56.00 feet, approximated by the water elevation of the nearby wetlands. Pond 15B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.60 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-12.

5.3.15.3Pond 15C

Pond 15C will serve as the treatment and attenuation pond for Basin 15. Pond 15C is located east of US 301 at approximately station 567+39 (RT.). This pond site sits within one (1) parcel (G19-001). The pond site has no impacts to wetlands and impacts approximately 0.02 acres to the floodplain. According to Sumter County Soil Survey, Pond 15C consists of EauGallie (HSG A/D), Ft. Green (HSG C/D) and Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet, 0.5 to 1.5 feet and 1.0 to 2.0 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 15C will be a wet pond with the normal water/control elevation set at elevation 56.00 feet, approximated by the water elevation of the nearby wetlands. Pond 15C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.61 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-12.

5.3.16 Basin 16

Basin 16 is located between station 578+35 and CD-13, 49 feet north of station 596+90 within the Withlacoochee River South watershed. Basin 16 is considered an open basin because the surrounding area drains to CD-13 where it discharges west to a series of existing interconnected wetlands. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 16. All of the alternatives are offsite wet detention ponds and are outside of the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 16A.

5.3.16.1Pond 16A

Pond 16A will serve as the treatment and attenuation pond for Basin 16. Pond 16A is located east of US 301 at approximately station 594+17 (RT.). This pond site sits within one (1) parcel (G18-008). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 16A consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 16A was estimated to be at approximately 54.00 feet NAVD. With the data compiled it was determined that Pond 16A will be a wet pond with the normal water/control elevation set at elevation 54.00 feet, approximated by the water elevation of the nearby wetlands. Preliminary pond sizing calculations indicate that this pond requires 1.27 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-13.

5.3.16.2Pond 16B

Pond 16B will serve as the treatment and attenuation pond for Basin 16. Pond 16B is located west of US 301 at approximately station 590+18 (LT.). This pond site sits within one (1) parcel (G18-052). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 16B consists of EauGallie (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 16B will be a wet pond with the normal water/control elevation set at elevation 54.00 feet, approximated by the water elevation of the nearby wetlands. Pond 16B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.72 acres of area for treatment and a 0.15 acre access easement (total of 1.87 acres). This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-13.

5.3.16.3Pond 16C

Pond 16C will serve as the treatment and attenuation pond for Basin 16. Pond 16C is located east of US 301 at approximately station 589+28 (RT.). This pond site sits within one (1) parcel (G18-008). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 16C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that Pond 16C will be a wet pond with the normal water/control elevation set at elevation 54.00 feet, approximated by the water elevation of the nearby wetlands. Pond 16C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.48 acres of area for treatment. This pond will outfall to the US 301 right-of-way where it will be conveyed to CD-13.

5.3.17 Basin 17

Basin 17 is located between CD-13, 49 feet north of station 596+90, and the end of the project's roadway improvements, 1604 feet north of station 596+90 within the Withlacoochee River South watershed. Basin 17 also includes all lanes of Florida's Turnpike (including the on and off ramps) between Turnpike station 1016+05 and

station 1053+25. Basin 17 is considered an open basin because the surrounding area drains to a series of existing interconnected wetlands. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 17. All of the alternatives are offsite wet detention ponds and are outside of the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 17B.

5.3.17.1Pond 17A

Pond 17A will serve as the treatment and attenuation pond for Basin 17. Pond 17A is located west of US 301 and south of Florida's Turnpike at approximately station 1034+65 (RT.). This pond site sits within one (1) parcel (G18-015). The pond site has no impacts to wetlands and impacts approximately 2.06 acres to the floodplain. According to Sumter County Soil Survey, Pond 17A consists of Paisley (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 17A will be a wet pond with the normal water/control elevation set at elevation 54.00 feet, approximated by the water elevation of the nearby wetlands. Pond 17A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 4.08 acres of area for treatment. This pond will outfall to the surrounding series of interconnected wetlands.

5.3.17.2Pond 17B

Pond 17B will serve as the treatment and attenuation pond for Basin 17. Pond 17B is located east of US 301 and north of Florida's Turnpike at approximately station 1035+25 (LT.). This pond site sits within one (1) parcel (G18-008). The pond site has approximately 0.47 acres of impacts to wetlands and approximately 2.60 acres to the floodplain. According to Sumter County Soil Survey, Pond 17B consists of EauGallie (HSG A/D) and Wabasso (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 0.0 to 1.0 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 17B was estimated to be at approximately 55.90 feet NAVD. With the data compiled it was determined that Pond 17B will be a wet pond with the normal water/control elevation set at elevation 54.50 feet, approximated by the water elevation of the nearby wetlands. Pond 17B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 5.36 acres of area for treatment and a 0.61 acre access easement (total of 5.97 acres). This pond will outfall to the surrounding wetlands.

5.3.17.3Pond 17C

Pond 17C will serve as the treatment and attenuation pond for Basin 17. Pond 17C is located west of US 301 and south of Florida's Turnpike at approximately station 1028+02 (RT.). This pond site sits within one (1) parcel (G18-015). The pond site has no impacts to wetlands and approximately 5.11 acres of impacts to the floodplain. According to Sumter County Soil Survey, Pond 17C consists of Paisley (HSG B/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it

was determined that Pond 17C will be a wet pond with the normal water/control elevation set at elevation 54.00 feet, approximated by the water elevation of the nearby wetlands. Pond 17C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 5.95 acres of area for treatment and a 0.46 acre access easement (total of 6.41 acres). This pond will outfall to the surrounding series of interconnected wetlands.

5.3.18 Basin 18

Basin 18 is located between 1604 feet north of station 596+90 and 4388 feet north of station 596+90 within the Withlacoochee River South watershed. Basin 18 is considered an open basin because the surrounding area drains to CD-14 where it continues to drain west to a series of existing interconnected wetlands. This basin is located within WBID 1344 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are no alternatives being considered for this basin because the proposed roadway improvements for Basin 18 consist of minor safety related improvements.

5.3.19 Basin 19

Basin 19 is located between stations 300+00 and 320+68 along the Truck Route Alternative alignment within the Withlacoochee River South watershed. Basin 19 is considered an open basin because the surrounding area drains to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 19. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. Because of the interface between the beginning of the truck route alternative (Basin 19) and Basin 5, five potential pond combinations have been evaluated. These combinations are 19A, 19B & 5B, 19B & 5C, 19C & 5B, and 19C & 5C. Pond 19A can serve as the treatment and attenuation pond for a combination of Basin 5 and Basin 19, while Ponds 19B and 19C can only treat Basin 19. These two ponds must be evaluated in conjunction with Ponds 5B and 5C in order to accurately account the treatment and attenuation needs for both basins. The preferred alternative for this basin is Pond 19A.

5.3.19.1Pond 19A

Pond 19A will serve as the treatment and attenuation pond for a combination of Basin 5 and Basin 19. Pond 19A is located east of US 301 and south of the Truck Route Alternative at approximately station 308+00 (RT.). This pond site sits within one (1) parcel (F36-054). The pond site impacts approximately 0.28 acres to wetlands and approximately 0.72 acres to the floodplain. According to Sumter County Soil Survey, Pond 19A consists of Adamsville (HSG A), Basinger (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet, 0.0 to 1.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 58.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 19A was estimated to be at approximately 56.00 feet NAVD. With the data compiled it was determined that Pond 19A will be a wet pond with the normal water/control elevation set at elevation 55.00 feet. Pond 19A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond

requires 7.17 acres of area for treatment and attenuation and two access easements totaling 0.76 acres (total of 7.93 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-15.

5.3.19.2Pond 19B

Pond 19B will serve as the treatment and attenuation pond for Basin 19. Pond 19B is located east of US 301 and south of the Truck Route Alternative at approximately station 305+00 (RT.). This pond site sits within one (1) parcel (F36-054). The pond site has no impacts to wetlands and approximately 0.61 acres of impacts to the floodplain. According to Sumter County Soil Survey, Pond 19B consists of Paisley (HSG B/D) and Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 1.0 to 2.0 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 19B will be a wet pond with the normal water/control elevation set at elevation 55.25 feet. Preliminary pond sizing calculations indicate that this pond requires 5.26 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-15.

5.3.19.3Pond 19C

Pond 19C will serve as the treatment and attenuation pond for Basin 19. Pond 19C is located east of US 301 and north of the Truck Route Alternative at approximately station 310+00 (LT.). This pond site sits within one (1) parcel (F36-062). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 19C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 19C will be a wet pond with the normal water/control elevation set at elevation 55.25 feet. Preliminary pond sizing calculations indicate that this pond requires 5.33 acres of area for treatment and attenuation and a 0.27 acre access easement (total of 5.60 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-15.

5.3.20 Basin 20

Basin 20 is located between stations 320+68 and 340+35 along the Truck Route Alternative alignment within the Withlacoochee River South watershed. Basin 20 is considered an open basin because the surrounding area drains to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 20. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 20C.

5.3.20.1Pond 20A

Pond 20A will serve as the treatment and attenuation pond for Basin 20. Pond 20A is located south of US 301 and north of the Truck Route Alternative at approximately station 332+00 (LT.). This pond site sits within one (1) parcel

(F36-059). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 20A consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 20A will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.93 acres of area for treatment and attenuation and a 0.28 acre access easement (total of 2.21 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-16.

5.3.20.2 Pond 20B

Pond 20B will serve as the treatment and attenuation pond for Basin 20. Pond 20B is located south of US 301 and north of the Truck Route Alternative at approximately station 335+00 (LT.). This pond site sits within one (1) parcel (F36-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 20B consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 56.00 feet NAVD. With the data compiled it was determined that Pond 20B will be a wet pond with the normal water/control elevation set at elevation 54.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.93 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-16.

5.3.20.3 Pond 20C

Pond 20C will serve as the treatment and attenuation pond for Basin 20. Pond 20C is located south of US 301 and north of the Truck Route Alternative at approximately station 320+00 (LT.). This pond site sits within one (1) parcel (F36-059). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 20C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 20C was estimated to be at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 20C will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Pond 20C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.88 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-16.

5.3.21 Basin 21

Basin 21 is located between stations 340+35 and 372+74 along the Truck Route Alternative alignment within the Withlacoochee River South watershed. Basin 21 is considered an open basin because the surrounding area drains to a series of ditches and wetlands that eventually drain to Shady Brook. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 21. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and

parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 21A.

5.3.21.1 Pond 21A

Pond 21A will serve as the treatment and attenuation pond for Basin 21. Pond 21A is located south of US 301 and north of the Truck Route Alternative at approximately station 350+00 (RT.). This pond site sits within one (1) parcel (F36-001). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 21A consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 21A was estimated to be at approximately 56.30 feet NAVD. With the data compiled it was determined that Pond 21A will be a wet pond with the normal water/control elevation set at elevation 55.80 feet. Preliminary pond sizing calculations indicate that this pond requires 3.40 acres of area for treatment and attenuation. This pond will outfall through a spreader swale and into an adjacent ditch.

5.3.21.2 Pond 21B

Pond 21B will serve as the treatment and attenuation pond for Basin 21. Pond 21B is located south of US 301 and north of the Truck Route Alternative at approximately station 347+00 (LT.). This pond site sits within one (1) parcel (F36-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 21B consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 21B will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond requires 3.42 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-17.

5.3.21.3 Pond 21C

Pond 21C will serve as the treatment and attenuation pond for Basin 21. Pond 21C is located south of US 301 and north of the Truck Route Alternative at approximately station 350+00 (RT.). This pond site sits within one (1) parcel (F36-009). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 21C consists of Tarrytown (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that Pond 21C will be a wet pond with the normal water/control elevation set at elevation 55.50 feet. Preliminary pond sizing calculations indicate that this pond requires 3.68 acres of area for treatment and attenuation and a 0.28 acre access easement (total of 3.96 acres). This pond will outfall through a spreader swale and into an adjacent ditch.

5.3.22 Basin 22

Basin 2 is located between stations 372+74 and 385+47 along the Truck Route Alternative alignment within the Withlacoochee River South watershed. Basin 22 is considered a closed basin because the surrounding area does not have an outfall. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are three (3) alternatives being considered for Basin 22. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 22C.

5.3.22.1 Pond 22A

Pond 22A will serve as the treatment and attenuation pond for Basin 22. Pond 22A is located south of US 301 and north of the Truck Route Alternative at approximately station 372+00 (RT.). This pond site sits within two (2) parcels (G31-040 and G31-020). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 22A consists of Sumterville (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 65.00 feet NAVD. With the data compiled it was determined that Pond 22A will be a wet pond with the normal water/control elevation set at elevation 59.00 feet. Pond 22A will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.77 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-19.

5.3.22.2 Pond 22B

Pond 22B will serve as the treatment and attenuation pond for Basin 22. Pond 22B is located south of US 301 and north of the Truck Route Alternative at approximately station 375+00 (LT.). This pond site sits within one (1) parcel (G31-027). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 21B consists of Floridana (HSG C/D) and Sumterville (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.0 to 1.0 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that Pond 22B will be a wet pond with the normal water/control elevation set at elevation 56.00 feet. Pond 22B will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 3.18 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-19.

5.3.22.3 Pond 22C

Pond 22C will serve as the treatment and attenuation pond for Basin 22. Pond 22C is located south of US 301 and north of the Truck Route Alternative at approximately station 372+00 (LT.). This pond site sits within one (1) parcel (G31-040). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 21C consists of Sumterville (HSG C/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in both of these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. A geotechnical analysis was performed

on the preferred pond sites and the seasonal high water table elevation of Pond 22C was estimated to be at approximately 62.30 feet NAVD. With the data compiled it was determined that Pond 22C will be a wet pond with the normal water/control elevation set at elevation 59.00 feet. Pond 22C will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.91 acres of area for treatment and attenuation. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-19.

5.3.23 Basin 23

Basin 23 is located between stations 385+47 and 401+79 along the Truck Route Alternative alignment within the Withlacoochee River South watershed. Basin 23 is considered a closed basin because the surrounding area does not have an outfall. This basin is located within WBID 1356 which is not impaired for nutrients; therefore, a pollutant loading analysis is not required for this basin. There are four (4) total ponds sited within this basin however, three (3) of the alternatives are being considered to be utilized alongside Pond 23A-2, in order to achieve the necessary amount of storage. All of the alternatives are offsite wet detention ponds and are within the SKA. The particulars of the alternatives are discussed in the following sections. All calculations and parameters for each alternative are located in **Appendix C – Pond Design Calculations**. The preferred alternative for this basin is Pond 23A-1 and Pond 23A-2.

5.3.23.1 Pond 23A-1

Pond 23A-1 in conjunction with Pond 23A-2 will serve as the treatment and attenuation pond for Basin 23. Pond 23A-1 is located south of US 301 and north of the Truck Route Alternative at approximately station 385+00 (LT.). This pond site sits within two (2) parcels (G30-033 & G30-031). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 23A-1 consists of EauGallie (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond site, the existing ground is at approximately 65.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 23A-1 was estimated to be at approximately 62.50 feet NAVD. With the data compiled it was determined that Pond 23A-1 will be a wet pond with the normal water/control elevation set at elevation 60.00 feet. Pond 23A-1 will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 1.28 acres of area and along with Pond 23A-2 (2.30 acres) will provide the required treatment and attenuation volume (total of 3.58 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-20.

5.3.23.2 Pond 23A-2

Pond 23A-2 in conjunction with either Pond 23A-1, Pond 23B, or Pond 23C will serve as the treatment and attenuation pond for Basin 23. Pond 23A-2 is located north of US 301 and north of the Truck Route Alternative at approximately station 386+00 (LT.). This pond site sits within one (1) parcel (G30-030). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 23A-2 consists of EauGallie (HSG A/D) and Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet and 1.5 to 3.5 feet below existing ground respectively. According to LIDAR data obtained for this pond

site, the existing ground is at approximately 65.00 feet NAVD. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of Pond 23A-2 was estimated to be at approximately 62.50 feet NAVD. With the data compiled it was determined that Pond 23A-2 will be a wet pond with the normal water/control elevation set at elevation 60.00 feet. Pond 23A-2 will require the installation of an impermeable liner. Preliminary pond sizing calculations indicate that this pond requires 2.30 acres of area and along with Pond 23A-1, Pond 23B, or Pond 23C will provide the required treatment and attenuation volume. This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-20.

5.3.23.3 Pond 23B

Pond 23B in conjunction with Pond 23A-2 will serve as the treatment and attenuation pond for Basin 23. Pond 23B is located east of US 301 and east of the Truck Route Alternative at approximately station 393+00 (RT.). This pond site sits within one (1) parcel (G30-036). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 23B consists of Sparr (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.5 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 63.50 feet NAVD. With the data compiled it was determined that Pond 23B will be a wet pond with the normal water/control elevation set at elevation 60.00 feet. Preliminary pond sizing calculations indicate that this pond requires 1.80 acres of area (0.23 acres for an easement and 1.57 acres for the pond site) and along with Pond 23A-2 (2.30 acres) will provide the required treatment and attenuation volume (total of 3.87 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-09.

5.3.23.4 Pond 23C

Pond 23C in conjunction with Pond 23A-2 will serve as the treatment and attenuation pond for Basin 23. Pond 23C is located west of US 301 and west of the Truck Route Alternative at approximately station 401+00 (LT.). This pond site sits within one (1) parcel (G30-022). The pond site has no impacts to wetlands or to the floodplain. According to Sumter County Soil Survey, Pond 23C consists of Adamsville (HSG A) soils. The soil survey defines the seasonal high water depth in these soils to be 2.0 to 3.5 feet below existing ground. According to LIDAR data obtained for this pond site, the existing ground is at approximately 64.00 feet NAVD. With the data compiled it was determined that Pond 23C will be a wet pond with the normal water/control elevation set at elevation 60.50 feet. Preliminary pond sizing calculations indicate that this pond requires 1.44 acres of area and along with Pond 23A-2 (2.30 acres) will provide the required treatment and attenuation volume (total of 3.74 acres). This pond will outfall to the Truck Route Alternative right-of-way where it will be conveyed to a proposed cross drain CD-09.

5.3.24 Floodplain Compensation

There are six (6) floodplain compensation sites within the project limits. All of the alternatives are offsite scraped down areas outside of the 100-year floodplain. The particulars of the floodplain compensation sites are discussed in the following sections. All calculations and parameters for each alternative are located in the Location Hydraulics Report.

5.3.24.1 Floodplain Compensation Site 1

Floodplain Compensation Site 1 (FPC-1) is a scraped down area west of US 301 between station 199+77 and station 201+66 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (J01-031). This site partially compensates for roadway impacts to the 100-year floodplain within Basin 5, which totals approximately 0.30 ac-ft of floodplain volume. It is anticipated that there will be no wetland impacts associated with this site. According to Sumter County Soil Survey, Pond FPC-1 consists of Basinger (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.0 to 1.0 feet below existing ground at SHWT Elev. 53.00. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of FPC-1 was estimated to be at approximately 53.00 feet NAVD. This site is outside of the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 54.50. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 54.00 feet NAVD. With the data compiled it was determined that FPC-1 will be a 0.56 acre site which will be scraped down one foot below the existing ground to provide the appropriate compensating volume (0.40 ac-ft).

5.3.24.2 Floodplain Compensation Site 3

Floodplain Compensation Site 3 (FPC-3) is a scraped down area east of US 301 between station 10024+40 and station 10026+39 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (F36-062). This site compensates for roadway impacts to the 100-year floodplain within Basin 6, which totals approximately 0.37 ac-ft of floodplain volume. It is anticipated that there will be no wetland impacts associated with this site. According to the Sumter County Soil Survey, FPC-3 consists of Basinger fine sand (HSG A/D) and Sparr fine sand (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.0 to 1.0 feet and 1.5 to 3.5 feet below existing ground respectively, at SHWT Elev. 55.00. This site is within the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 56.00. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that FPC-3 will be a 0.61 acre site which will be scraped down three feet below the existing ground to provide the appropriate compensating volume (0.40 ac-ft).

5.3.24.3 Floodplain Compensation Site 4

Floodplain Compensation Site 4 (FPC-4) is a scraped down area east of US 301 between station 535+67 and station 541+23 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (G19-001). This site compensates for roadway impacts to the 100-year floodplain within Basin 14, which totals approximately 2.69 ac-ft of floodplain volume. It is anticipated that there will be 0.28 acres of wetland impacts associated with this site. According to the Sumter County Soil Survey, FPC-4 consists of Ft. Green fine sand (HSG C/D) and Monteocha fine sand (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 0.5 to 1.5 feet below and +2.0 feet above existing ground respectively, at SHWT Elev. 56.50. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of FPC-4 was estimated to be at approximately 57.40 feet NAVD. This site is within the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 58.00. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 61.00 feet NAVD. With the data compiled it was determined that FPC-4 will be a 2.25 acre site which will be scraped down five feet below the

existing ground to provide the appropriate compensating volume (2.72 ac-ft). FPC-4 will require the installation of an impermeable liner.

5.3.24.4 Floodplain Compensation Site 5

Floodplain Compensation Site 5 (FPC-5) is a scraped down area east of US 301 between station 567+39 and station 574+51 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (G19-001). This site compensates for roadway impacts to the 100-year floodplain within Basin 15, which totals approximately 4.52 ac-ft of floodplain volume. It is anticipated that there will be 0.51 acres of wetland impacts associated with this site. According to the Sumter County Soil Survey, FPC-5 consists of Tarrytown sandy clay loam (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground at SHWT Elev. 56.00. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of FPC-5 was estimated to be at approximately 55.60 feet NAVD. This site is outside of the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 57.00. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 60.00 feet NAVD. With the data compiled it was determined that FPC-5 will be a 5.17 acre site which will be scraped down four feet below the existing ground to provide the appropriate compensating volume (4.57 ac-ft).

5.3.24.5 Floodplain Compensation Site 6

Floodplain Compensation Site 6 (FPC-6) is a scraped down area east of US 301 between station 583+00 and station 584+00 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (G18-008). This site compensates for roadway impacts to the 100-year floodplain within Basin 16, which totals approximately 0.87 ac-ft of floodplain volume. It is anticipated that there will be no wetland impacts associated with this site. According to the Sumter County Soil Survey, FPC-6 consists of Tarrytown sandy clay loam (HSG C/D) and Monteocha fine sand (HSG A/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 and +2.0 feet below existing ground respectively, at SHWT Elev. 54.00. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of FPC-6 was estimated to be at approximately 54.00 feet NAVD. This site is outside of the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 56.00. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 57.00 feet NAVD. With the data compiled it was determined that FPC-6 will be a 0.56 acre site which will be scraped down three feet below the existing ground to provide the appropriate compensating volume (0.89 ac-ft).

5.3.24.6 Floodplain Compensation Site 7

Floodplain Compensation Site 7 (FPC-7) is a scraped down area east of US 301 between station 591+92 and station 594+17 and is directly adjacent to the 100-year floodplain boundary. This site is located within one parcel (G18-008). This site compensates for roadway impacts to the 100-year floodplain within Basins 16 and 17, which totals approximately 1.79 ac-ft of floodplain volume. It is also anticipated that there will be no wetland impacts associated with this site. According to the Sumter County Soil Survey, FPC-7 consists of Tarrytown sandy clay loam (HSG C/D) soils. The soil survey defines the seasonal high water depth in these soils to be 1.0 to 2.0 feet below existing ground at SHWT Elev. 54.00. A geotechnical analysis was performed on the preferred pond sites and the seasonal high water table elevation of FPC-1 was estimated to be at approximately 53.80 feet NAVD. This site is

outside of the SKA. It was estimated that the 100-year floodplain elevation through this area is at elevation 56.00. According to LIDAR data obtained for this floodplain compensation site, the existing ground is at approximately 58.00 feet NAVD. With the data compiled it was determined that FPC-7 will be a 1.26 acre site which will be scraped down four feet below the existing ground to provide the appropriate compensating volume (2.03 ac-ft).

5.4 Environmental Look Arounds (ELAs)

Environmental Look Arounds (ELAs) provide a unique opportunity to team up with regional stakeholders to explore watershed wide stormwater needs and alternative permitting approaches for the project. Areas of potential cooperation are documented in this report for future follow up as the design moves forward.

The City of Coleman was contacted to discuss any flooding history and maintenance concerns. During a site visit, Inwood staff met with the Mayor of Coleman (Milton Hill) and the President of the Coleman City Council (Richard Huff) to discuss flooding issues on Florida Avenue between Commercial Street and Mulberry Street, north of US 301. The proximity of the flooding to US 301 provides an excellent joint use opportunity. For further information, please refer to **Section 4.4.1** and **Section 5.3.8.4**.

The permitted residential and commercial development Wildwood Springs lies southeast of the intersection of US 301 and State Road 468. The proximity of the planned development to US 301, and the potential impact of the Truck Route Alternative, provide another joint use opportunity. Ponds B-50 and B-55A shown in the drainage calculations of Permit 32972.016 could be reshaped and resized to accommodate stormwater runoff from US 301. For further information, please refer to Permit 32972.016 in **Appendix E – Existing Permits**.

The Villages is in the process of obtaining a Conceptual Permit from SWFWMD (ERP No. 42998.000). The permit covers a large area that includes the parcel east of US 301 and south of Florida's Turnpike. The Conceptual Permit seeks to establish pre-development conditions for future development plans on the site. At this time, no development plans by The Villages have been submitted to the City.

Development along the corridor is beginning to occur on a larger scale between CR 468 and the Florida's Turnpike. Much of it is in the early approval phases and some properties have received permits for mass grading of sites. These locations present opportunities for joint use ponds and they can continue to be coordinated during the local development review process and the US 301 design process. With the PD&E and the PSR we have identified areas that could be stand alone or joint use pond sites and we have made efforts to clear them. The rate of development in the area will continue to result in the pond sites and opportunities evolving. Potential and preferred pond sites have been established and the US 301 project is in the process of obtaining approvals with these established sites. The approval with pond sites that are part of mass grading allows for the opportunity for joint use to be fully explored while also still allowing for other sites to be considered.

6.0 Total Pond Cost Estimate

The total pond cost estimate for each alternative site includes construction costs of the stormwater facility, any costs associated with mitigation of wetland impacts, and preliminary right of way cost estimates which include any administrative costs and legal fees. The preliminary right-of-way cost estimates are a budget tool used by the Department to estimate total acquisition costs associated with each pond site and to budget the appropriate funds for acquisition. Right-of-way cost estimates are not real estate appraisals and do not reflect market value. In addition, FDOT used appraisals that comply with the Uniform Standards of Professional Appraisal Practice (USPAP) for acquisition purposes.

7.0 Conclusions and Recommendations

Potential ponds have been sized and located along the project limits for this PD&E study. The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Please note that the estimated right-of-way areas for the ponds were based on pond sizes determined from preliminary data calculations, reasonable engineering judgment, and assumptions. Pond sizes and configurations may change during final design as more detailed information on SHWT, wetland normal pool elevation, final roadway profile design, etc. become available. Please refer to **Table 5** for **Recommended Stormwater Pond Sizes**.

Table 5 – Recommended Stormwater Pond Sizes

Basin	Pond Name	From Station	To Station	Type (Dry/Wet)	Req'd Treatment + Attenuation (ac-ft)	Provided Treatment + Attenuation (ac-ft)	Pond Right-of-Way Area Including Access (ac)
1	1B	97+26*	117+45	Dry	0.88	1.07	1.02
2	2A	117+45	150+69	Wet	2.76	3.73	1.93
3	3B	150+69	179+19	Wet	3.35	4.32	2.74
4	4B	179+19	196+64	Wet	1.75	1.90	2.16
5/19	19A	196+64	222+61	Wet	7.65	9.14	7.93
		300+00	320+68				
13	13C	401+79	502+54	Wet	5.36	5.50	3.18
14	14C	502+54	542+19	Wet	1.83	3.74	2.40
15	15B	542+19	578+35	Wet	1.32	3.15	1.60
16	16A	578+35	597+39*	Wet	1.02	1.16	1.27
17	17B	597+39*	612+93*	Wet	3.78	6.66	5.97
20	20C	320+68	340+35	Wet	1.22	1.26	1.88
21	21A	340+35	372+74	Wet	2.18	2.20	3.40
22	22C	372+74	385+47	Wet	5.18	5.40	2.91
23	23A-1 & 23A-2	385+47	401+79	Wet	5.27	5.74	3.58
				Total	**43.55**	**54.97**	**41.97**

*Approximate station value extrapolated from beginning or end of station chain.

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