FINAL
POND SITING REPORT

U.S. 98
(State Road 533)
Dade City Bypass

FROM U.S. 301 SOUTH TO U.S. 301 NORTH
PASCO COUNTY, FLORIDA

W.P.I. Segment Number: 256423-1
Federal-Aid Project Number: 3112-017P

The proposed action consists of upgrading U.S. 98 from a two-lane to a four-lane divided highway for approximately 1.6 miles.

Florida Department of Transportation
District Seven
Tampa, Florida

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EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to document the preliminary engineering concept of the US 98 Dade City Bypass from the vicinity of the US 301 South intersection to the vicinity of the US 301 North intersection in Dade City, Pasco County, a distance of about 1.6 miles. The purpose of the PD&E Study is to develop engineering and environmental data and document information which will aid the FDOT and the Federal Highway Administration (FHWA) in determining the type, design, and location of the proposed improvements; and the impacts, if any, associated with the preferred alternative.

The Pond Siting Report identifies pond site alternatives and floodplain compensation (FPC) sites and includes an alternative analysis for selection of a preferred alternative. This study analyzes pond site alternatives that are hydraulically feasible and environmentally permittable based on the best available information. These alternatives were then compared based on Section 4(f) involvement; cultural resources; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; economic factors including right-of-way costs; and hydrology [soil types and seasonal high water table (SHWT)] and hydraulics.

The preferred pond and FPC sites are listed in the table below.

Preferred Pond and FPC Sites	Station - Location	Area (ac)
Pond and FPC Site 100B	63+50; LT	4.80
Pond Site 200C	78+00; LT	0.75
FPC Site 200-1	80+00; LT	0.55
Pond Site 300B	108+50; LT	0.90
FPC Site 300-3	107+00; LT	0.75
Pond and FPC Site 400C	131+25; RT	1.30

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1.0 INTRODUCTION

The Florida Department of Transportation (FDOT) is conducting a Project Development and Environment (PD&E) Study to document the preliminary engineering concept of the US 98 Dade City Bypass from the vicinity of the US 301 South intersection to the vicinity of the US 301 North intersection in Dade City, Pasco County, a distance of about 1.6 miles. The purpose of the PD&E Study is to develop engineering and environmental data and document information which will aid the FDOT and the Federal Highway Administration (FHWA) in determining the type, design, and location of the proposed improvements; and the impacts, if any, associated with the preferred alternative.

The Pond Siting Report identifies pond site alternatives and floodplain compensation (FPC) sites and includes an alternative analysis for the selection of a preferred alternative. This study analyzes pond site alternatives that are hydraulically feasible and environmentally permittable based on the best available information. These alternatives were then compared based on Section 4(f) properties; cultural resources; environmental impacts including wetlands, upland habitat and protected species involvement; petroleum and hazardous materials contamination; economic factors including right-of-way costs; and hydrology [soil types and seasonal high water table (SHWT)] and hydraulics. An alternatives evaluation matrix was developed that summarizes the comparative analysis as shown in Tables 5 through 8 of Section 9.0. The process of defining and developing the information base included the following:

- Federal Emergency Management Agency (FEMA), Flood Insurance Study (FIS) for the City of Dade City, February 17, 1981.
- FEMA Flood Insurance Rate Maps (FIRM) for the City of Dade City, August 17, 1981.
- United States Department of Agriculture, Soil Conservation Service (now Natural Resource Conservation Service), Soil Survey of Pasco County, Florida, June 1982.
- United States Geological Survey (USGS) Quadrangle Maps, Scale 1:24,000: Dade City, FLA, 1960 and Lacoochee, FLA, 1960.
- Southwest Florida Water Management District (SWFWMD), Aerial Photography With Contours, Scale 1"=200', 1-foot contour interval, December 1977.
- Dade City Comprehensive Plan, June 1989.
- Dade City Storm Water Master Plan, Michaels Engineering, Inc., 1965.
- Pasco County Comprehensive Plan, July 3, 1989, Revised April 5, 1995.
- Pasco County Stormwater Management Master Plan, March 1992.
- Straight Line Diagram (SLD) for US 98 (SR 533), FDOT District Seven, Planning and Statistics Office, January 29, 1999.
- FDOT Construction Plans for US 98: SPN: 14130-3501 July 24, 1979; 14130-3502 January 8, 1985; 14130-3503 June 8, 1988; 14130-3504 March 26, 1987, 14130-3505 October 16, 1992; and US 301 SPN: 14050-3530, March 6, 1985; and 14050-3550, November 19, 1998.
- FDOT Drainage Manual, October 2000.
- Duck Lake Stormwater Management Master Plan; SWFWMD; December 1987.

2.0 PROJECT DESCRIPTION

The FDOT is proposing improvements to the US 98 Dade City Bypass from the vicinity of the US 301 South intersection to the vicinity of the US 301 North intersection, in Dade City, Pasco County, Florida, a distance of about 1.6 miles. The proposed improvements consist of widening the existing two-lane rural roadway to a four-lane divided urban highway to accommodate present and future traffic demands.

For analysis purposes, the US 98 Dade City Bypass PD&E Study has been separated into five segments:

- Segment 1 – South of the US 301 South intersection to Connector Road
- Segment 2 – Connector Road to Tuskeegee/Buford Avenues including the realigned intersection of CR 35A
- Segment 3 – Tuskeegee/Buford Avenues to Martin Luther King Boulevard
- Segment 4 – Martin Luther King Boulevard to River Road
- Segment 5 – River Road to US 301 North including the transition at River Road and the areas north and south of the US 301 intersection

US 98 Dade City Bypass is an east-west arterial highway across the central and panhandle regions of Florida. US 98 Dade City Bypass traverses peninsular Florida in a northwesterly direction from Palm Beach to the Panhandle. Through the project area, US 98 Dade City Bypass runs in a northerly direction bypassing the downtown area of Dade City in Pasco County. Typically, the existing US 98 Dade City Bypass is a two-lane rural roadway through the project area. Turn lanes have been added at select intersections. The right-of-way contains numerous jogs and setbacks and varies in width from 60 ft to 115 ft.

The project location is shown in Figure 1.

3.0 EXISTING CONDITIONS

3.1 Existing Roadway Conditions

The existing roadway is typically a two-lane rural facility with two 12-foot lanes and 8-foot shoulders (4-foot paved) with left turn lanes at select intersections. The roadway cross section varies throughout the length of the project. A continuous two-way left turn lane is provided in the median from Howard Avenue to Church Avenue. From Pasco Street to north of Meridian Avenue, the US 98 Dade City Bypass is an urban typical section with valley gutters along the west side and Type F curbs along the east side. The existing roadway typical section for the US 98 Dade City Bypass is shown in Figure 2.

Figure 1
Project Location Map

Figure 2
Existing Two-Lane Typical Section

3.2 Existing Drainage Conditions

3.2.1 Topography and Hydrologic Features

The topography of this section of Pasco County consists of low rolling hills interspersed with many lakes and low, wet areas. Pasco County is in the central or mid-peninsular physiographic zone of the Florida Peninsula. The county is characterized by discontinuous highlands in the form of ridges separated by broad valleys. The ridges are above the static level of the water in the aquifer, but the broad valleys are below it. Broad shallow lakes are common on the valley floors, and smaller deep lakes are on the ridges.

The project area lies along the eastern edge of the Brooksville Ridge and the western edge of the Western Valley regions of Pasco County.

US 301 is considered to be the approximate boundary of the Brooksville Ridge in the project area. Considerable local relief has developed along the ridge with elevations ranging from about 70 feet to 300 feet. Several thousand feet of sedimentary rock, principally various limestone formations, underlie the county. A few feet of sand cover the Brooksville Ridge. There is little surface drainage.

Elevations throughout the project corridor range from about 75 feet National Geodetic Vertical Datum (NGVD) of 1929 at the northern end of the project to about 110 feet at the southern end.

The Western Valley contains the valleys of the Withlacoochee and Hillsborough Rivers and consists mainly of poorly drained sandy soils. Most of the soils have loamy subsoil, ranging from acid to alkaline over short distances. Outcroppings of limestone are common. Dade City falls within the Withlacoochee River drainage basin. Table 1 describes the regional drainage boundaries. The drainage basin boundaries are shown in Figure 3.

Figure 3
Drainage Basin Map

Table 1
Regional Drainage Boundaries

Regional Drainage Basin	Regional Sub-Basins	Cross Drain	Contributing Area (Acres)
Withlacoochee River	100	CD 1	90.0
	200	CD 2	30.2
	300	CD 3	254.5
	400	CD 4 & CD 5	99.5

3.2.2 Existing Drainage Patterns and Stormwater Management Facilities

Stormwater runoff from the US 301 South intersection at the beginning of the project drains to natural depressions located southeast of the intersection with the US 98 Dade City Bypass.

The US 98 Dade City Bypass is elevated on fill across three natural depressions. The embankments create areas that tend to function as uncontrolled stormwater detention ponds. These depressions collect and detain stormwater runoff from the roadway and from offsite, providing some degree of water quality treatment.

The first depression is along the west (left) right-of-way between US 301 South and CR 35A. Stormwater runoff in this area is conveyed under the US 98 Dade City Bypass through a 42-inch reinforced concrete pipe (RCP) (Cross Drain No. 1) into a low wet area east of US 98. Existing cross drains are summarized in Table 2 in Section 3.2.3.

The second depression is along the west right-of-way of the US 98 Dade City Bypass just south of Howard Avenue. Stormwater runoff in this area is conveyed through a 36-inch RCP at the CR 35A intersection (Cross Drain No. 2) under the US 98 Dade City Bypass to an open ditch and then drains into canals in the Victory neighborhood east of US 98.

The third depression is located along the west right-of-way of the US 98 Dade City Bypass on the East Pasco County Government Center property south of Martin Luther King Boulevard. Some of this depression area has been filled for the expansion of the Government Center. The remaining depression is in the form of ditches about 5 to 6 feet deep along the west (left) US 98 Dade City Bypass right-of-way and across the center of the property. This depression discharges under the US 98 Dade City Bypass and is conveyed through a 48-inch RCP north of Meridian Avenue (Cross Drain No. 3).

All three of these areas discharge into the Shadow Lake drainage basin and ultimately into the Withlacoochee River.

Additionally, an existing stormwater management pond and floodplain compensation area, constructed for the expansion of the Government Center, occupy several acres adjacent to the US 98 Dade City Bypass south of Martin Luther King Boulevard.

3.2.3 Existing Cross Drains

A review of the FDOT construction plans, SLDs and FIRMs indicates that there are numerous drainage structures within the limits of the US 98 Dade City Bypass project. The locations of these drainage structures were verified by field inspection. Most of these structures are associated with the right-of-way stormwater systems draining the existing roadway or side drains under driveways and side streets. These storm drain systems do not cause encroachments upon the base floodplain and do not require further consideration in this report. Five of these drainage structures function as cross drains, which were built during the initial highway construction and modified or lengthened during subsequent road widening and resurfacing improvement projects.

Hydraulic equivalency for replacement or modification of the existing drainage structures will be determined in subsequent design phases of this project.

There is an existing storm sewer system located at the southern end of the project from Willingham Drive to the intersection of US 301 South. This system collects roadway runoff through a series of ditch bottom inlets and laterals draining to a trunk line on the east side of US 301. This system outfalls to an existing ditch at Station 50+75. The ditch runs east in the right-of-way of Poinsettia Drive through the Calvary Assembly of God Church parking lot. Other existing drainage structures include a double 24-inch RCP drain under CR 35A south of the intersection with US 98. This facility drains the infield area between CR 35A and US 98. Drainage structures that cross under the US 98 Dade City Bypass and are part of the existing drainage system include a 15-inch RCP @ Sta. 90+40 +/- (at Pasco Street), a 24-inch RCP @ Sta. 92+70 +/- (south of Meridian Avenue), a 24-inch RCP @ Sta. 94+25 +/- (north of Meridian Avenue), and a 24-inch RCP @ Sta. 126+70 +/- (north of Whitehouse Avenue). The existing cross drains are listed in Table 2. The locations of the existing cross drains are shown on Figure 3 and on the Concept Plans in Appendix A.

Table 2
Existing Cross Drains

Cross Drain No.	Milepost (Approximate Station)	Approximate Location	Pipe Size and Material
1	0.230 (61+50 +/-)	Between US 301 South and CR 35A	42 inch RCP
2	0.581 (79+00 +/-)	At the CR 35A Intersection	36 inch RCP
3	0.921 (98+00 +/-)	North of Meridian Avenue	48 inch RCP
4	1.522 (129+75 +/-)	North of Whitehouse Avenue	42 inch RCP
5	1.567 (132+17 +/-)	North Intersection of US 301	30 inch RCP

RCP - Reinforced Concrete Pipe

4.0 LAND USE

4.1 Existing Land Use

The following is a brief description of the existing land uses and the general location for these uses.

Residential

Less than 5 percent of the US 98 Dade City Bypass project corridor contains residential areas. Low and medium density residential areas are scattered throughout the project vicinity; however, most residential properties are not adjacent to the US 98 Dade City Bypass right-of-way. Residential properties adjacent to the existing right-of-way are located in the area of the US 301 South intersection and along the north side of the US 98 Dade City Bypass between US 301 South and CR 35A.

Commercial & Services

About 65 percent of the US 98 Dade City Bypass project corridor contains developed commercial uses. Strip commercial areas are located on both sides of the US 98 Dade City Bypass at the intersection with CR 35A, along the west side of the US 98 Dade City Bypass south of Meridian Avenue and along the intersection with US 301 North. Scattered commercial properties are present for the length of the project including a car dealership, restaurants, convenience stores, gasoline stations and an abandoned fuel depot.

Vacant & Undeveloped

Less than 20 percent of the US 98 Dade City Bypass project corridor contains vacant and undeveloped lands. Vacant areas are scattered along the project corridor intermixed with the residential and commercial properties. The majority of the currently vacant and undeveloped land is shown for commercial uses on the future land use maps.

Industrial

Less than 1 percent of the US 98 Dade City Bypass project corridor contains industrial uses. A large industrial area containing the Vitality Beverages, Inc. (former Lykes-Pasco) citrus processing plant is located east of the US 98 Dade City Bypass at the northern end of the project.

Agricultural

Agricultural land is present along both sides of the US 98 Dade City Bypass between the intersections of US 301 South and CR 35A. This represents less than 1 percent of the project corridor.

Recreation/Open Space

Less than 10 percent of the US 98 Dade City Bypass project corridor contains recreation/open space areas. A portion of an abandoned public ball field is located south of the intersection with Martin Luther King Boulevard. A stormwater management pond and

floodplain compensation area for the expansion of the East Pasco County Government Center occupy several acres adjacent to the US 98 Dade City Bypass south of the abandoned ball field. Open space exists between the US 98 Dade City Bypass and the CSX railroad north and south of Meridian Avenue and Martin Luther King Boulevard. The East Pasco County Government Center, located north of Meridian Avenue, contains open space adjacent to US 98.

Existing Special Land Use Conditions

Certain types of land uses are particularly important due to the special conditions surrounding them and the hardships involved in the relocation of such areas. Examples of this found adjacent to the project corridor are the CSX railroad right-of-way to the east of the US 98 Dade City Bypass and the historic Dade City train station at Meridian Avenue. The Calvary Assembly of God Church, Hibiscus Park and the Dade City Garden Club (housed in a historic former church) are located near the intersection with US 301 South.

The existing land use is shown in Figure 4.

4.2 Future Land Use

The 1988 Dade City and 2010 Pasco County Future Land Use Maps show that land use in the US 98 Dade City Bypass corridor will remain predominantly commercial/retail uses with areas of residential, industrial and public lands. The proposed improvements to the US 98 Dade City Bypass would utilize the existing corridor and land use is not anticipated to change significantly as a result of the improvements.

The future land use is shown in Figure 5.

5.0 PROPOSED IMPROVEMENTS

5.1 Proposed Typical Section

The improvement proposed for the US 98 Dade City Bypass is a four-lane divided urban typical section. This typical section would contain a 22-foot wide raised median, four 12-foot lanes (two in each direction), 4-foot bike lanes in each direction, and 12-foot borders (containing a 2-foot curb and gutter, a 3-foot utility strip, a 5-foot sidewalk, and a minimum 2-foot back-of-sidewalk buffer) in both directions. This would require a minimum typical section width of 102 feet. Left turn lanes would be accommodated within the median. The proposed four-lane typical section is shown in Figure 6.

Figure 4
Existing Land Use Map

Figure 5
Future Land Use Map

Figure 6
Proposed Typical Section

5.2 Recommended Alignment

The existing US 98 Dade City Bypass corridor was evaluated to develop a strategy to minimize or avoid impacts to the human and natural environment by considering widening to the left, right, or center on the existing alignment. This avoidance strategy was used in selecting the resulting recommended alignment in order to minimize impacts to wetlands, hazardous materials and petroleum contamination sites, threatened or endangered species, floodplains, noise sensitive sites, historic and archaeological sites, business and residential relocations, and community services.

For analysis purposes, the project has been separated into five segments as discussed in Section 2.0 of this report. The recommended alignment is described below for each segment.

- Segment 1, from South of the US 301 South intersection to Connector Road, will be widened to the left.
- Segment 2, from Connector Road to the intersection of Tuskeegee/Buford Avenues, will be shifted to the right.
- Segment 3, from the intersection of Tuskeegee/Buford Avenues to Martin Luther King Boulevard, will be widened to the left.
- Segment 4, from Martin King Boulevard to River Road, will be widened to the left.
- Segment 5, from River Road to US 301 North including the transition at River Road and the areas north and south of the US 301 North intersection will also be widened to the left.

The recommended alignment is shown on the Concept Plans in Appendix A.

5.3 Proposed Drainage

The roadway will primarily be drained by a closed drainage system with treatment and attenuation provided within wet or dry detention ponds. The majority of the project contains type A soil with an estimated SHWT greater than 6 ft, according to the SCS Pasco County Soil Survey. There will be one preferred pond site for each basin. Floodplain compensation will either be provided for in the Preferred Pond Site as discussed in Section 10.0 or in a separate site, if necessary. Some ditches may be provided in the design phase to maintain offsite runoff in a separate system, if necessary.

The post-development peak discharge for the 25-year/24-hour rainfall event will not exceed the pre-development peak discharge, in order to comply with SWFWMD regulations. The ponds will also comply with FDOT regulation 14.86 to meet critical duration requirements. A pre-application meeting to discuss drainage and flood plain compensation methodology was held with SWFWMD on November 7, 2000. The minutes from this meeting are included in Appendix B. See Section 9.0 for pond sizing methodology and criteria.

6.0 ENVIRONMENTAL EVALUATION

6.1 Jurisdictional Wetland Involvement

Wetlands within the project limits were initially identified through review of mapping resources including the Soil Survey of Pasco County, United States Fish and Wildlife Service (USFWS) National Wetlands Inventory mapping, and 1:1000 (1"=100') scale project aerial photography. Wetlands were identified in the field utilizing the United States Army Corps of Engineers (USACOE), Federal Manual for Identifying and Delineating Jurisdictional Wetlands (1987), classified according to the USFWS methodology (Cowardin, *et.al.*, 1979), and characterized using FLUCFCS.

Sizes of existing wetlands and potential wetland impacts were determined planimetrically from project aerial photographs. Wetlands that may be potentially affected by the project were assessed for functional significance using the Wetland Rapid Assessment Procedure (WRAP) as developed by the South Florida Water Management District and utilized by the USACOE.

Two wetlands were identified within the project study area, but do not impact any of the pond or floodplain compensation site alternatives. Wetland 1A is located on the parcel for Pond Site 100B, however any impacts to the wetland will be avoided. Wetland 2 slightly encroaches Pond Site 200B and Pond Site 200C parcels, and mainly encroaches the FPC 200-1 parcel. However, the pond site configurations for 200B and 200C would avoid impacting the wetland. FPC Site 200-1 utilizes 0.55 ac of the parcel, which does not contain the wetland, therefore avoiding any impacts to Wetland 2. More information regarding the type, classification, and functionality assessment for these wetlands may be found in the Wetland Evaluation Report.

6.2 Cultural Features

6.2.1 Section 4(f) Involvement

No pond or FPC site alternatives have any Section 4(f) involvement.

6.2.2 Archaeological and Historic

A Cultural Resource Assessment Survey (CRAS), December 2000, was conducted for the US 98 Dade City Bypass project corridor. The CRAS included the eighteen-stormwater management pond and floodplain compensation site alternatives.

The archaeological survey conducted for the project area including the eighteen pond and FPC site alternatives concluded that no sites considered potentially eligible for listing in the National Register of Historic Places (NRHP) are contained within the US 98 Dade City Bypass PD&E Study project area of potential effect.

Historical background research, including a review of the Florida Site File (FSF) and the NRHP, indicated that one historic resource (50 years of age or older) was recorded previously in the project area. This NRHP-listed property, the Dade City Atlantic Coast Line (ACL) Railroad Depot (8PA415) at 14216 US 98 Dade City Bypass, is located within the US

98 Dade City Bypass PD&E Study project APE. Field surveys resulted in the location and recording of 24 additional potential historic properties (8PA1207-1227, 8PA1265-67). Of the twenty-four newly recorded structures, four are located within pond or FPC site alternatives. Structure 8PA1215 is located in FPC Site 300-2, 8PA1214 is located in FPC Site 300-1, 8PA1225 and 8PA1226 are located in pond site 400-C. These newly recorded historic resources represent residential or commercial buildings common to the area. Additionally, the properties are neither distinguished by their architectural features, nor known to be associated with significant events or with the lives of persons significant in the past. Based upon these criteria, none appear to be eligible for listing in the NRHP, either independently or as part of a historic district.

The Florida State Historic Preservation Officer (SHPO) concurred with this opinion in a letter to the FHWA dated March 28, 2001. A copy of the SHPO letter is included in Appendix B.

6.3 Threatened and Endangered Species

Pursuant to Section 7(c) of the Endangered Species Act of 1973, as amended, the study area was evaluated for the potential occurrence of threatened and endangered species. Literature reviews were conducted and data were requested from the USFWS, Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Natural Areas Inventory (FNAI).

An Endangered Species Evaluation Memorandum prepared for this project did not identify any listed species or critical habitat that would be affected by the proposed improvements, pond site alternatives or FPC sites. Coordination with the FFWCC indicates that there are no known bald eagle nests within 1 mile of the US 98 Dade City Bypass project site. No occurrence records of listed species or critical habitat are contained within the FFWCC database for the project area.

A field inspection of the US 98 Dade City Bypass project was conducted on November 3, 1999. The purpose of this inspection was to observe any listed species that might be present and to determine if any suitable habitat existed for them and for specific occurrences of listed species within the project corridor.

The field inspection revealed that no habitat existed within the study corridor that would exhibit listed species. No specific occurrences or observations were made for any listed species that would occur within Pasco County. The lack of specific habitat for listed species within the study area is to be expected as the corridor is urban in nature and is highly developed. Additionally, there would be no impacts to native upland habitats as a part of the project.

On April 14, 2000, the USFWS indicated “The Proposed Action is not likely to adversely affect the resources protected by the Endangered Species Act of 1974, as amended (16 U.S.C. 1531, et. Seq.). This finding fulfills the requirements of the Act.”

6.4 Hazardous Materials and Petroleum Site Data

A Level I Contamination Screening of the US 98 Dade City Bypass project corridor was conducted to determine the potential for contamination for the pond site alternatives and FPC sites.

A separate Contamination Screening Evaluation Report (CSER) was prepared pursuant to the FHWA=s Technical Advisory T 6640.8A, dated October 30, 1987, and in accordance with the FDOT=s PD&E Manual, Part 2, Chapter 22, dated February 8, 1994, as further modified and clarified by the District Contamination Impact Coordinator. The purpose of the report was to present the preliminary findings of a literature and file review of the potential for finding hazardous materials and petroleum contamination on parcels along the proposed alignment which may affect the proposed improvements.

Eighteen properties were evaluated for pond site alternatives and FPC sites. The alternatives have been assigned a hazardous materials potential rating and are summarized in Tables 5 through 8 in Section 9.0. The FDOT=s hazardous materials rating system was used and include NO, LOW, MEDIUM, and HIGH.

The results of the evaluation for the eighteen alternative pond and FPC sites are discussed in Section 9.0 of this report.

Of the eighteen alternative pond and FPC sites, one was rated HIGH and one was rated MEDIUM. The two sites are discussed below.

FPC Area 300-2 is located on the former JH Williams Fuel Depot property which was rated HIGH in the CSER prepared for this project. FPC 300-2 is located on the west side of the US 98 Dade City Bypass at the intersection of the US 98 Dade City Bypass and Meridian Avenue. This facility was found eligible for the FDEP Early Detection Incentive (EDI) program on December 24, 1990. According to the Petroleum Contamination Tracking System Report, the facility cleanup status is ongoing and Remedial Action is in progress.

Based on surface aquifer water table elevation and flow direction shown in the CSER, it is noted that there is a contamination plume in the western portion of the property and groundwater flows away from the US 98 Dade City Bypass project. Based on this information, FPC 300-2 was given a rating of HIGH.

Pond Site 400C is the La Pasa Dita restaurant. This facility was rated MEDIUM in the CSER prepared for this project. Pond Site 400C is located on the east side of the US 98 Dade City Bypass, north of River Road and south of Meredith Street. One incident of soil contamination (pollutant unknown) was reported in December 1988. This facility was found eligible for the FDEP EDI program on May 4, 1990. According to the Petroleum Contamination Tracking System Report, new cleanup is required. A site assessment cleanup activity is in progress. Based on surface topography, it is assumed that the groundwater flows toward the US 98 Dade City Bypass project. Based on this information, Pond Site 400C was given a rating of MEDIUM.

For additional information regarding proposed FPC Area 300-2 and Pond Site 400C, refer to the Contamination Screening Evaluation Report prepared for the US 98 Dade City Bypass project.

7.0 FLOODPLAINS/FLOODWAYS

7.1 Flooding History

The Duck Lake Stormwater Management Master Plan (Duck Lake Study), FDOT drainage maps, USGS Quadrangle maps, SWFWMD topographic maps, and FEMA FIRMs were used to identify flood-prone areas within the US 98 Dade City Bypass corridor. Field inspections were conducted on July 28, 1999, September 7, 2000 and October 26, 2000 to identify obvious drainage problems. Additionally, people knowledgeable about local drainage conditions (residents, FDOT maintenance personnel, and Pasco County and Dade City operations personnel) were interviewed on June 24, 1999, June 29, 1999, July 6, 1999 and October 26, 2000 and summarized below.

Drainage generally flows from west to east for the length of the project. Dade City has very few storm sewer systems and as a result, most stormwater runoff flows in the street gutters or overland sheet flow towards the US 98 Dade City Bypass. Heavy rainfall causes ponding to occur in the depression areas and roadside ditches along the west right-of-way of US 98. However, according to the Dade City Public Works Department, the roadway has not been overtopped in recent memory. The FEMA designated 100-year base flood is at elevation 78 feet. The Duck Lake Study 100-year base flood is at elevation 78.8 ft. Typically, the US 98 Dade City Bypass roadway is perched above the floodplain.

However, an area from the intersection with Pasco Avenue (about Sta. 90+00 +/-) to south of Martin Luther King Boulevard (about St. 106+00 +/-) is below the 100-year base flood elevation. The lowest point of the US 98 Dade City Bypass is from about Sta. 95+00 +/- to about Sta. 104+00+/- at elevation 76.6 feet. Storm sewers and curb and gutter have been installed in this area to alleviate the potential for roadway flooding.

No other flooding problems associated with FDOT drainage structures have been identified for the length of this project.

7.2 Flood Insurance Rate Maps

FEMA has prepared an Flood Insurance Study for Dade City, August 17, 1981. The accompanying FIRMs are dated August 17, 1981. The project area is covered by portions of Community-Panel Numbers 120231 0010 C and 120231 0115 C.

Coordination with local FEMA representatives for Dade City and Pasco County, made in July 1999, revealed that no revisions have been made to the effective FIRMs within the US 98 Dade City Bypass project limits.

7.3 Flood Zone Description

FEMA has designated 100-year base floodplain areas in two locations in the US 98 Dade City Bypass project corridor as Zone AH (El 78). Zone AH is described as areas of potential 100-year shallow flooding where flood depths are between 1 and 3 feet.

A Zone B (now Zone X) is delineated at the north end of the project west of the US 301 North intersection. Zone B is described as areas between the limits of the 100-year and

500-year flood boundaries or certain areas subject to 100-year flooding with average depths less than 1-foot or where the contributing drainage area is less than 1 square mile.

The remainder of the US 98 Dade City Bypass project is in Zone C (now Zone X). Zone C is described as areas of minimal flood risk (generally above the 100-year flood elevation).

7.4 Duck Lake Stormwater Management Master Plan

The Duck Lake Stormwater Management Master Plan was developed for the Duck Lake Study Area by SWFWMD in December 1987. The study area is in east-central Pasco County. Dade City lies in the approximate center of the study area. The study area covers 40.2 sq mi in the Withlacoochee River drainage basin. The Duck Lake Study identified that major floods affecting east Pasco County have historically involved rising waters in the Withlacoochee River basin. Within Dade City, flooding from runoff and ponding in low-lying areas are due to inadequate interior drainage.

The majority of the existing stormwater control structures within the Duck Lake Study Area have been designed to protect transportation facilities. These facilities include the major storm sewer systems within the study area and virtually all of the drainage structures. With the exception of the downtown central business district of Dade City and the major roadway storm sewers, virtually all stormwater runoff within the built-up areas of Dade City is routed along street gutters.

The Duck Lake Study used the USACOE HEC-1 model developed by SWFWMD for the Green Swamp Project in 1985 to model the flooding conditions resulting from the 100-year, 24 hour storm event within the study area. The peak water surface elevations were predicted to rise to elevation 78.8 ft within the flood prone areas of the US 98 Dade City Bypass project study area.

Coordination with SWFWMD indicates that the Duck Lake Study 100-year flood elevation of 78.8 ft will be used to determine flood plain encroachment compensation for the widening of the US 98 Dade City Bypass.

The results of the Duck Lake Study were delineated on 1977 SWFWMD 1" = 200' aerial topographic maps, 1 ft contour interval. Considerable change to the topography has occurred since 1977. The Duck Lake Study 100-year floodplain boundaries were delineated on the US 98 Dade City Bypass project aerials. In areas where the topography has changed, the delineations of the Duck Lake Study floodplain boundaries were adjusted by estimation to fit the new topography. The adjusted Duck Lake Study floodplain boundaries affected by the proposed improvements to the US 98 Dade City Bypass are shown on the Concept Plans in the Appendix A.

The resulting 100-year floodplain delineation at elevation 78.8 ft and the recommended alignment on the SWFWMD aerials were used to estimate encroachment volume for the proposed project. Table 3 summarizes the estimated encroachment per basin. The actual encroachment volumes will be determined during the subsequent design phase when more detailed survey and pond sizing information are available.

Floodplain compensation site alternatives were also included in the analysis for each basin. The estimated encroachment volumes are provided either within the pond site alternative (if the site is large enough to accommodate the required treatment and attenuation in addition

to the floodplain compensation) or in a separate site. FPC sites will be located adjacent to the 100-year floodplain elevation of 78.8 ft.

Table 3
Floodplain Encroachment Summary

Basin Number	Duck Lake Study Elevation (ft)	Estimated Floodplain Encroachment Volume (ft^3)
100	78.8	345,000
200	78.8	200,750
300	78.8	107,000
400	78.8	74,000

7.5 Regulatory Floodways

There are no regulatory floodways within the US 98 Dade City Bypass project corridor.

8.0 GEOTECHNICAL DATA

The geotechnical data reviewed for this study include the United States Department of Agriculture, Soil Conservation Service (now Natural Resource Conservation Service (NRCS)), Soil Survey of Pasco County, June 1982; the United States Geological Survey (USGS), Quadrangle Map "Dade City, Florida," 1960, for the respective sections of this project; 1977 SWFWMD aerial photographs of the existing alignment; FDOT roadway construction plans prepared for the existing roadway and the Preliminary Geotechnical Report prepared for this project. A windshield survey was performed to identify areas where existing pavement conditions indicate the possible presence of unsuitable subsurface conditions (peat, muck) beneath roadways, to observe general topography; soil and groundwater conditions along the alignment; and to identify areas where significant pavement distress is present within the mainline roadway.

The Soil Survey of Pasco County was reviewed with respect to near-surface soil conditions along the project. It is generally a reliable and comprehensive published source for information regarding near-surface soil and groundwater conditions. The geology of Pasco County can briefly be described as surficial sands and clay, sandy clays and clayey sands overlying limestone.

The soil survey indicates that there are four mapping units within the project area. The predominant soil groups are Tavares Urban Land Complex and miscellaneous Urban Land in the northern and central portions of the project with Quartzipsamments, Lake and Placid Fine Sands in the southern portion.

Hand auger borings were performed generally every 500 feet offset right and left of the survey baseline to evaluate the subsurface conditions along the proposed roadway alignment. The auger borings were performed to depths of 5 feet below existing grades. In the area of the potential stormwater ponds, hand auger borings were advanced generally 1 to 2 feet below the groundwater level encountered in the borings or to a maximum depth of 10 feet.

The groundwater table was not encountered to a depth of 5 feet in any of the shallow borings adjacent to the existing roadway. Groundwater was encountered at about 7 feet below land surface (bls) east of the US 98 Dade City Bypass between Station 58+00 and Station 61+00 and at 4 feet bls about 80 feet west of the US 98 Dade City Bypass at Station 77+60.

SHWT depths were estimated along the roadway alignment from several of the auger borings. Generally the SHWT within and adjacent to the existing right-of-way is estimated to be greater than 5 feet bls. In the areas of the potential pond locations, the SHWT is estimated to range from 3 to >10 feet bls. Refer to the Preliminary Geotechnical Report for specific SHWT locations and depths.

The USGS topographic survey map was reviewed for ground surface features. The natural ground surface elevations along the project vary from 70 to 110 feet National Geodetic Vertical Datum of 1929 (NGVD).
The hydrologic soil groups range from A to B/D throughout the project length. The soils along the Brooksville Ridge generally fall in hydrologic group A (which includes most of the corridor), while the soils in the Western Valley generally fall into the C and D hydrologic groups. An area of D hydrologic group soil lies to the east of the US 98 Dade City Bypass between the intersections of US 301 South and CR 35A in the southern end of the project corridor. Group A soils have a high infiltration rate (low runoff potential) when thoroughly wet. They are mainly deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Group D soils have a very slow infiltration rate (high runoff potential) when thoroughly wet. They consist chiefly of clays having a high shrink-swell potential, a permanent high water table, a claypan or clay layer at or near the surface, and are shallow over nearly impervious material. These soils have a very slow rate of water transmission. The soil groups are summarized in Table 4.

Table 4
Summary of Soil Groups

Soil Name (Map Unit No.)	Depth (inches)	Classification		Permeability (in/hour)	Seasonal High Water Table Depth (ft)	Hydrologic Group
		AASHTO[1] Group	USCS[2] Group			
Tavares Urban Land Complex (15)	0 - 86	A-3	SP[3], SP-SM[4]	>20	3.5 - 6	A
Urban Land (38)	Soils so altered that identification is not feasible.					-
Quartzipsamments (24)	0 - 60	A-3	SP, SP-SM	High	>6	-
Lake (32)	0 - 80	A-3/A-2-4	SP-SM	6 - 20	>6	A
Placid (70)	0 - 80	A-3/A-2-4	SP, SP-SM, SM[5]	6 - 20	0-1.0	B/D

Source: Soil Survey of Pasco County, June 1982

Notes: [1]American Association of State Highway and Transportation Officials
[2]Unified Soil Classification System
[3]SP - Poorly graded sand (with gravel)
[4]SP-SM - Poorly graded sand (with sand and gravel)
[5] SM - Silty sand (with gravel)

A copy of the soil survey map for the US 98 Dade City Bypass Dade City Bypass corridor is shown in Figure 7.

Figure 7
Soils Map

9.0 ALTERNATIVE POND SITE INFORMATION

9.1 Stormwater Management Methodology and Criteria

A review of the best available information listed in Section 1.0 of this report in addition to field reconnaissance was conducted to assess the potential pond and FPC site locations. The following parameters of each site were analyzed in the selection process:

- The "Available Area" for each alternative was obtained from the Pasco County Appraiser's Tax Maps.
- The "Existing Average Ground Elevation" was obtained from the SWFWMD Aerials (1'"=200'), as shown in Appendix C.
- The "Soil Type" information was obtained for each of the alternatives from the SCS Soil Survey Report for Pasco County, Florida.
- The maximum allowable stage in the pond for a 25-year storm event (DHW_{25}) was estimated using the following procedure. DHW_{25} = (elevation at the lowest edge of pavement or elevation at inflow to the pond for each basin)-(1 foot of freeboard)-(estimated friction loss in pipe between lowest edge of pavement and pond). The estimated DHW was used in the "Volume Provided in Stormwater Facilities" table in Appendix D to estimate the pond sizes. In Basin 100, the inflow to each of the pond site alternatives is at Station 58+20. The requirements for this basin were calculated by providing compensatory treatment from the beginning of the project to Station 58+20 in exchange for allowing the remainder of the basin to drain directly to the cross drain.
- The "Impact on Wetlands, Cultural Resources, Threatened or Endangered Species" and "Contamination Impact" is based on the information included in Section 6.0 of this report.
- The "Right-of-Way Cost Estimate" information was approved by the FDOT Right-of-Way Department.

9.2 Pond Siting Alternative Analysis

The project has been divided into four roadway drainage basins, as shown in the Drainage Basin Map in Figure 3.

Based on the methodology and criteria stated in Section 9.1, the following alternative pond and floodplain compensation sites were evaluated for each basin. Floodplain compensation sites are designated by FPC 200-1, for example, and the pond site alternatives are labeled Pond Site 100A, for example. In some cases, both the pond and floodplain compensation could be accomplished in one parcel and are labeled accordingly.

1) Basin 100: Pond Site 100A, FPC Site 100-1, and Pond and FPC Sites 100B through 100D

2) Basin 200: Pond Sites 200A, 200B, and 200C and FPC Site 200-1

3) Basin 300: Pond Sites 300A and 300B, and FPC Sites 300-1, 300-2 and 300-3

4) Basin 400: Pond Sites 400A through 400D

The particulars of the sites are summarized in the Alternative Matrix Analyses in Tables 5 through 8. The locations of the alternative pond and FPC sites are shown on the Concept Plans in Appendix A. The ponds are sized to accommodate the required treatment and attenuation per basin. The treatment volume was calculated for 1" over the directly connected impervious area (DCIA), which includes the average pond area per basin. Attenuation volumes were calculated using the SCS 100-year/24-hour post minus pre volumes per basin. Weighted curve numbers (CNs) were calculated using the proposed right-of-way width of 102 ft. The calculations used to estimate the size of the ponds are included in Appendix D.

In addition, a right-of-way cost estimate analysis was performed for all alternative pond and FPC sites. Pond and FPC site right-of-way costs are included in Appendix E. In Basin 100, Pond Site 100A is not large enough to accommodate floodplain compensation in addition to the required treatment and attenuation, therefore requiring a portion of the adjacent parcel (FPC 100-1) to meet the requirements. The additional right-of-way required for FPC 100-1 was estimated and included in the matrix for Basin 100. Pond and FPC Sites 100B and 100C are large enough to accommodate the required treatment, attenuation and floodplain compensation within the same parcel. The right-of-way estimate for Pond and FPC Site 100D was calculated based on a "total take" estimate because the remainder of area that was "left over" was deemed uneconomic due to its location within low-lying wetlands in the 100-year floodplain.

Tables 5 through 8 analyze the parameters for each pond and FPC site. The preferred alternatives are highlighted for each basin and the recommendations are summarized in Section 10.0.

Table 5
Alternative Matrix Analyses
Basin 100

Alternative	**100A**	**100B**	**100C**	**100D**
Location (Station)	**57+75**	**63+50**	**54+00**	**59+50**
Side (LT, RT)	LT	**LT**	RT	RT
Parcel Area (acres)	1.2	**4.8**	4.7	7.0
Pond Area (acres)	1.2	**2.5**	2.4	2.2
Floodplain Compensation Area (acres) within parcel	0	**2.3**	2.3	2.3
Soils Names & Hydrologic Groups	Lake Fine Sand (A)	**Lake Fine Sand (A)**	Lake Fine Sand (A)	Placid (B/D)
Land Use	Vacant/ Residential	**Residential/ Farm**	Residential/ Church	General Commercial
Proximity to Outfall (feet)	200	**0**	350	0
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$9,400	**$0**	$16,450	$0
Cultural Resources	None	**None**	None	None
Wetlands (acres)	0	**0**	0	0
Wetland Mitigation Cost ($80,000/acre)	$0	**$0**	$0	$0
Threatened and Endangered Species (Plant and Animals)	None	**None**	None	None
Contamination Risk Rating	No	**No**	No	Low
Right-of-Way (ROW) Cost Estimate	$520,000	**$1,274,000**	$4,815,500	$2,544,200
Additional ROW for FPC[1]	$581,100	**Included**	Included	Included
Total Estimated Cost	$1,110,500[2]	**$1,274,000**	$4,831,950	$2,544,200

Additional ROW for FPC[1] is located at FPC Site 100-1 since floodplain compensation cannot be accomplished within the same parcel for the alternative Pond Site 100A.

Pond Site 100A[2] is a heavily wooded with oak trees. This alternative was not selected as the preferred alternative in order to avoid impacting more than one parcel as well as preserving the existing oak trees since Dade City had expressed a desire to retain wooded lots wherever possible.

Additional Notes:

- Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.
- **Total Treatment and Attenuation Volume Required for Basin 100: 0.75 ac-ft**

Table 6
Alternative Matrix Analyses
Basin 200

	Pond Site Alternatives			Floodplain Compensation Site Alternative
Alternative	**200A**	**200B**	**200C**	**FPC 200-1**
Location	72+00	76+50	**78+00**	**80+00**
Side (LT, RT)	RT	LT	**LT**	**LT**
Pond Area or FPC Area (acres)	0.75	1.0	**0.75**	**0.55**
Soils Names & Hydrologic Groups	Urban Land	Quartzipsamments	**Quartzipsamments**	**Quartzipsamments**
Land Use	Shopping Center	Commercial	**Vacant Commercial**	**Vacant Commercial**
Proximity to Outfall (feet)	250	0	**0**	**0**
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$11,750	$0	**$0**	**$0**
Cultural Resources	None	None	**None**	**None**
Wetlands (acres)	0	0	**0**	**0**
Wetland Mitigation Cost ($80,000/acre)	$0	$0	**$0**	**$0**
Threatened and Endangered Species (Plant and Animals)	None	None	**None**	**None**
Contamination Risk Rating	No	Low	**Low**	**No**
Right-of-Way Cost Estimate	$592,600	$741,600	**$507,300**	**$111,500**
Total Estimated Cost	$604,350	$741,600	**$507,300**	**$111,500**
Total for Preferred Pond and FPC Sites			**$618,800**	

Notes:

- Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.
- All pond site alternatives in Basin 200 require floodplain compensation in a separate parcel, which is provided in FPC Site 200-1.
- **Total Treatment and Attenuation Volume Required for Basin 200: 0.53 ac-ft**

Table 7
Alternative Matrix Analyses
Basin 300

	Pond Site Alternatives		Floodplain Compensation Site Alternatives		
Alternative	**300A**	**300B**	**FPC 300-1**	**FPC 300-2**	**FPC 300-3**
Location (Station)/ Side (LT, RT)	**98+50/RT**	**108+50/LT**	**91+25/LT**	**92+50/LT**	**107+00/LT**
Pond Area, (acres)	0.55	**0.90**	0.50	0.40	**0.75**
Soils Names & Hydrologic Groups	Tavares-Urban Complex (A)	**Urban Land**	Tavares-Urban Complex (A)	Tavares-Urban Complex (A)	**Urban Land**
Land Use	Residential	**Open Space**	Residential/Office/ Retail	Residential/Office/ Retail	**Open Space**
Proximity to Outfall (feet)	200	**300**	N/A	N/A	**N/A**
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$9,400	**$14,100**	$0	$0	**$0**
Jack and Bore under R/R*	$250,000	**$0**	$0	$0	**$0**
Cultural Resources	None	**None**	None	None	**None**
Wetlands	0	**0**	0	0	**0**
Wetland Mitigation Cost ($80,000/acre)	$0	**$0**	$0	$0	**$0**
Threatened and Endangered Species (Plant and Animals)	None	**None**	None	None	**None**
Contamination Risk Rating	No	**No**	Low	High	**No**
Right-of-Way Cost Estimate	$526,000	**$632,200**	$736,500	$666,700	**$132,200**
Total Estimated Cost	$785,400	**$646,300**	$736,500	$666,700	**$132,200**
Total for Preferred Pond and FPC Sites		**$646,300 + $132,200 = $778,500**			

Notes:

- Variances in the pond site alternative size are due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.
- Each of the pond site alternatives requires floodplain compensation in a separate parcel, which can be provided for in any of the floodplain compensation site alternatives.
- **Total Treatment and Attenuation Volume Required for Basin 300: 0.86 ac-ft**

Table 8
Alternative Matrix Analyses
Basin 400

Alternative	**400A**	**400B**	**400C**	**400D**
Location (Station)	**126+00**	**128+75**	**131+25**	**133+00**
Side (LT, RT)	RT	RT	**RT**	RT
Pond Area, (acres)	0.70	1.0	**1.3**	0.70
Soils Names & Hydrologic Groups	Tavares-Urban Complex (A)	Tavares-Urban Complex (A)	**Tavares-Urban Complex (A)**	Tavares-Urban Complex (A)
Land Use	Commercial	Commercial	**Commercial**	Commercial
Proximity to Outfall (feet)	350	125	**75**	75
Pipe Costs (Assume 36" Class II Conc. Pipe @ $47/LF)	$16,450	$5,875	**$3,525**	$3,525
Cultural Resources	None	None	**None**	None
Wetlands	0	0	**0**	0
Wetland Mitigation Cost to ($80,000/acre)	$0	$0	**$0**	$0
Threatened and Endangered Species (Plant and Animals)	None	None	**None**	None
Contamination Risk Rating	Medium	Low	**No**	Low
Right-of-Way Cost Estimate	$808,000	$1,550,300	**$409,200**	$482,900
Total Estimated Cost	$824,450	$1,556,175	**$412,725**	$486,425

Notes:

- Any variance in the pond site alternative sizes is due to one or all of the following: differences in the estimated seasonal high water table elevation, estimated average ground elevations and/or parcel size.
- All of the pond site alternatives include floodplain compensation within the same parcel.
- **Total Treatment and Attenuation Volume Required for Basin 400: 0.50 ac-ft**

10.0 RECOMMENDATIONS

Table 9 summarizes the preferred pond sites for the proposed project.

Table 9
Preferred Pond Sites

Preferred Pond and FPC Sites	Location – Station	Area (ac)
Pond and FPC Site 100B	63+50; LT	4.80
Pond Site 200C	78+00; LT	0.75
FPC Site 200-1	80+00; LT	0.55
Pond Site 300B	108+50; LT	0.90
FPC Site 300-3	107+00; LT	0.75
Pond and FPC Site 400C	131+25; RT	1.30

BASIN 100

Preferred Pond Site 100B is 4.80 ac and is located adjacent to Cross Drain No. 1. The total estimated cost for right-of-way is $1,274,000. Preferred Pond Site 100B is large enough to accommodate the required treatment, attenuation and floodplain compensation for Basin 100 within the same parcel.

Pond Site 100A is approximately 13% less than the preferred, but is not large enough to accommodate floodplain compensation in addition to the required treatment and attenuation, therefore requiring a portion of the adjacent parcel (FPC 100-1) to meet the requirements. This alternative would impact two parcels as opposed to one parcel. Due to the estimated 100-year floodplain impact volume of 345,000 ft^3 for Basin 100, approximately 2.3 ac (assuming a depth of 3 ft) would be required for floodplain compensation.

Pond Site 100A is heavily wooded with oaks. The City of Dade City has expressed a desire to retain wooded lots wherever possible. The City's designation as "Tree City USA" is very important to the character of the area and was considered in not selecting Pond Site 100A as the preferred alternative.

In order to minimize the number of parcels impacted to provide the treatment, attenuation and floodplain compensation and due to the proximity to the cross drain, Pond Site 100B was selected as the preferred alternative.

BASIN 200

Pond Site 200C is 0.75 ac and is located on a vacant parcel near Cross Drain No. 2. The total estimated cost for this site is $507,300. In order to meet the required floodplain compensation for Basin 200, it is necessary to also acquire FPC Site 200-1. The total estimated cost for Basin 200 for Pond Site 200C and FPC 200-1 would be $618,800. Based on land use, proximity to outfall, and lowest cost, Pond Site 200C and FPC-200-1 were selected as the preferred alternative.

BASIN 300

Pond Site 300B is approximately 0.90 ac with an estimated cost of $646,300. This pond is located on a vacant portion of the East Pasco County Government Center adjacent to an existing pond and floodplain compensation site. Floodplain compensation will be accommodated adjacent to Pond Site 300B in FPC Site 300-3. FPC Site 300-3 is 0.75 ac and is also located on a vacant portion of the East Pasco County Government Center. Based on land use, proximity to outfall, and lowest cost, Pond Site 300B and FPC Site 300-3 were selected as the preferred alternative.

BASIN 400

Pond Site 400C is 1.30 ac and is located on a vacant parcel east of the intersection of the US 98 Dade City Bypass and 301 North. The total estimated cost for this site is $412,725. This site can accommodate the required treatment, attenuation and floodplain compensation. Approximately 0.65 ac would be used for treatment and attenuation and the remaining 0.65 ac would be allocated for floodplain compensation. Approximately, 0.3 ac of this parcel is located within the 100-year floodplain, however any impacts to the 100-year floodplain would be minimal due to the existing ground elevation. Based on land use, proximity to outfall, and lowest cost, Pond Site 400C was selected as the preferred alternative.

Appendix A
Concept Plans

Appendix B
Correspondence

Appendix C
SWFWMD Aerials

Appendix D
Pond Sizing and Estimated 100-year Floodplain Impact Calculations

Pond Sizing Calculations

Estimated 100-year Floodplain Impact Calculations

Appendix E
Right-of-Way Cost Estimates

US HIGHWAY 98
DADE CITY
PD&E Study

Florida Department of Transportation
Project Development and Environment (PD&E) Study

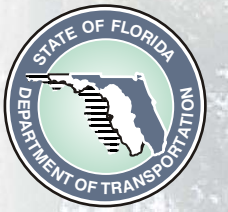
Pond Siting Report

U.S. 98 DADE CITY BYPASS

From U.S. 301 South to U.S. 301 North
Dade City, Pasco County

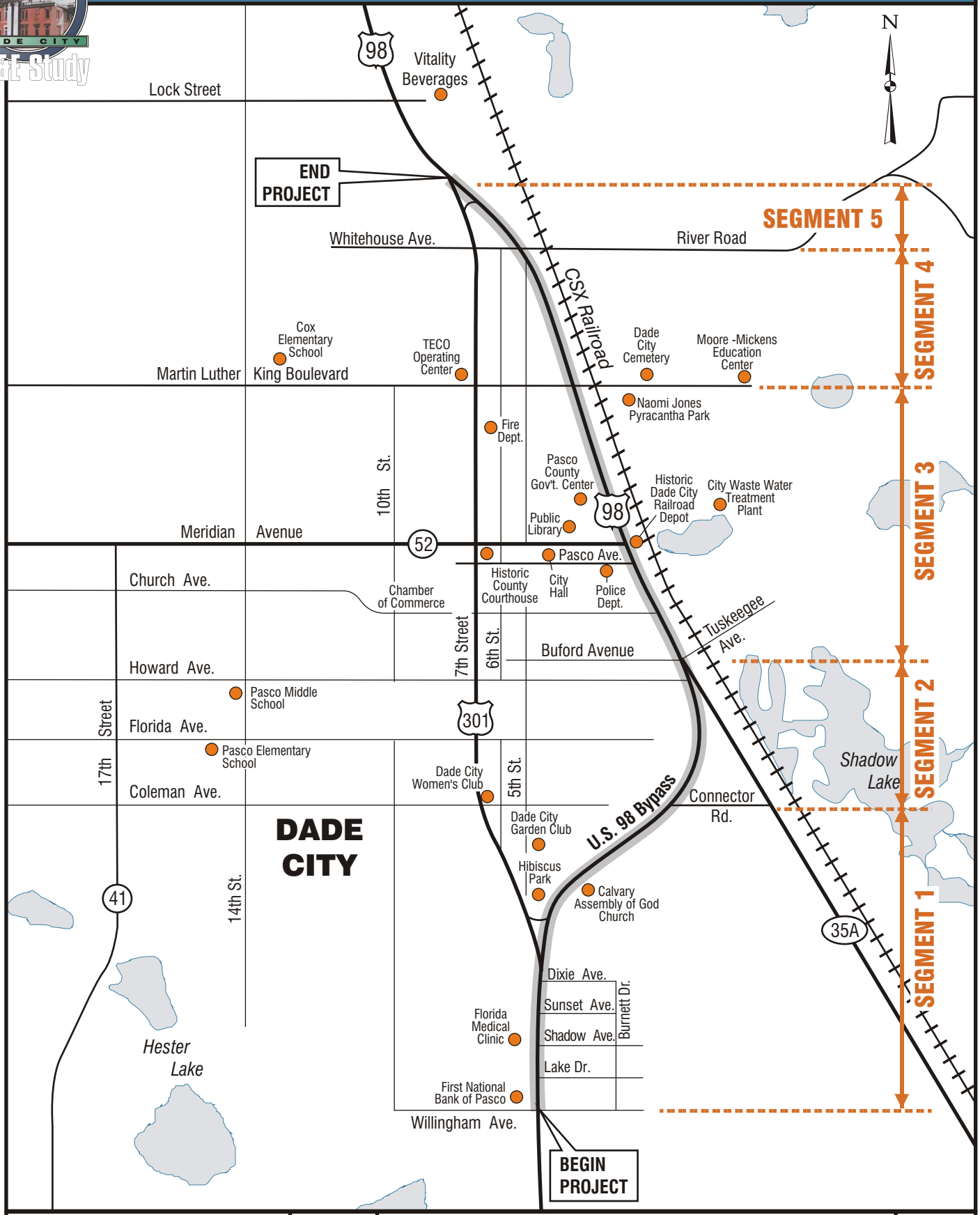
W.P.I. Segment No. 256423 1

Florida Department of Transportation
District Seven
Tampa, Florida



August 2001

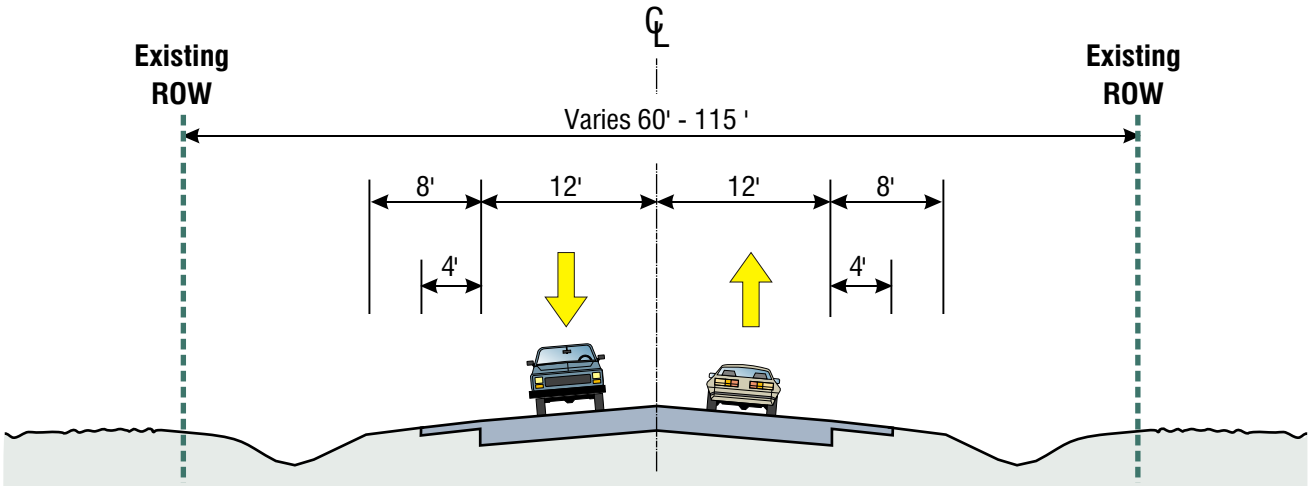
U.S. 98 DADE CITY BYPASS PD&E STUDY



Dade City, Pasco County
WPI Segment No. 256423 1
Federal Aid Project Number 3112-017P

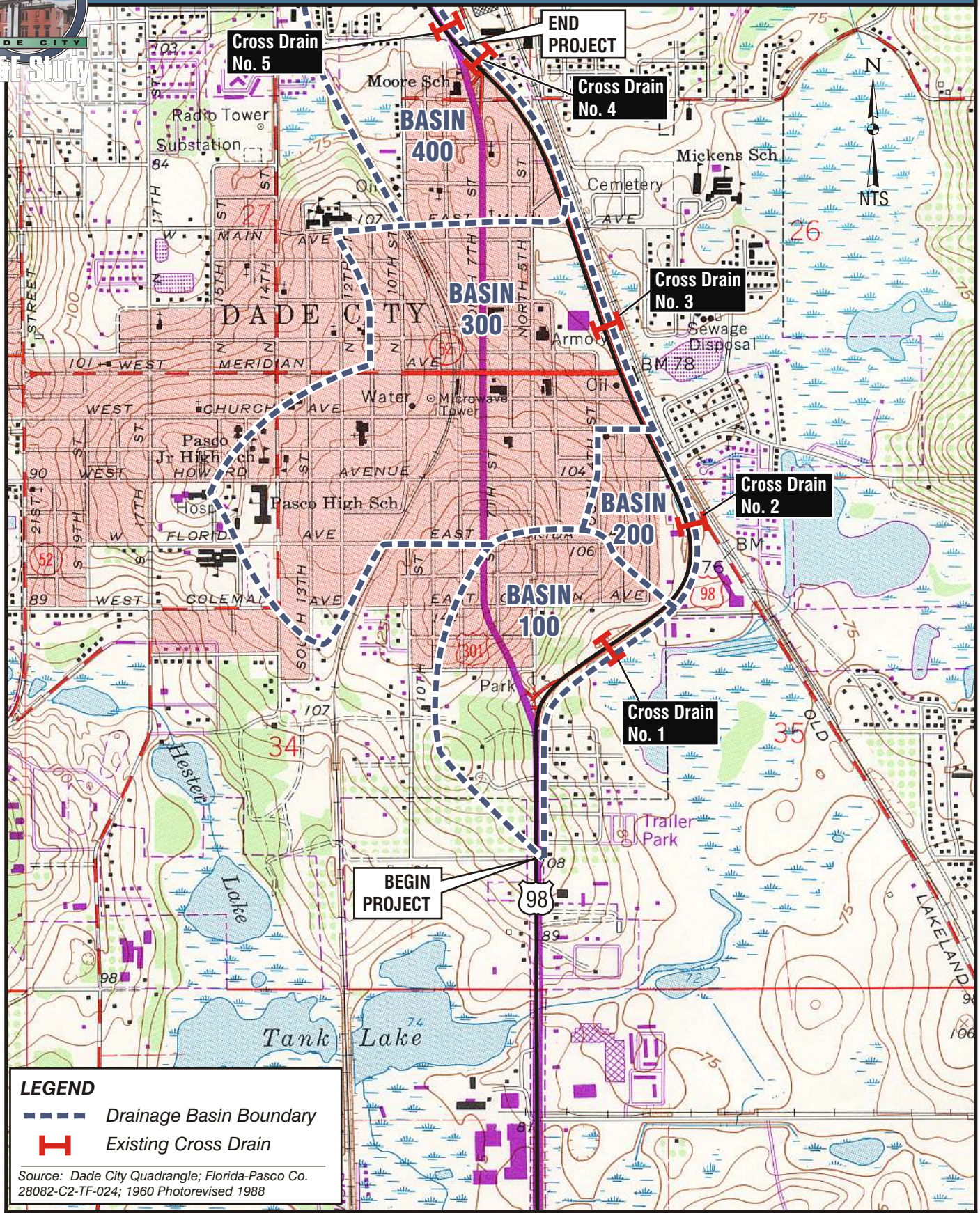
PROJECT LOCATION MAP

Figure 1



2-Lane Undivided Rural Typical Section

U.S. 98 DADE CITY BYPASS PD&E STUDY

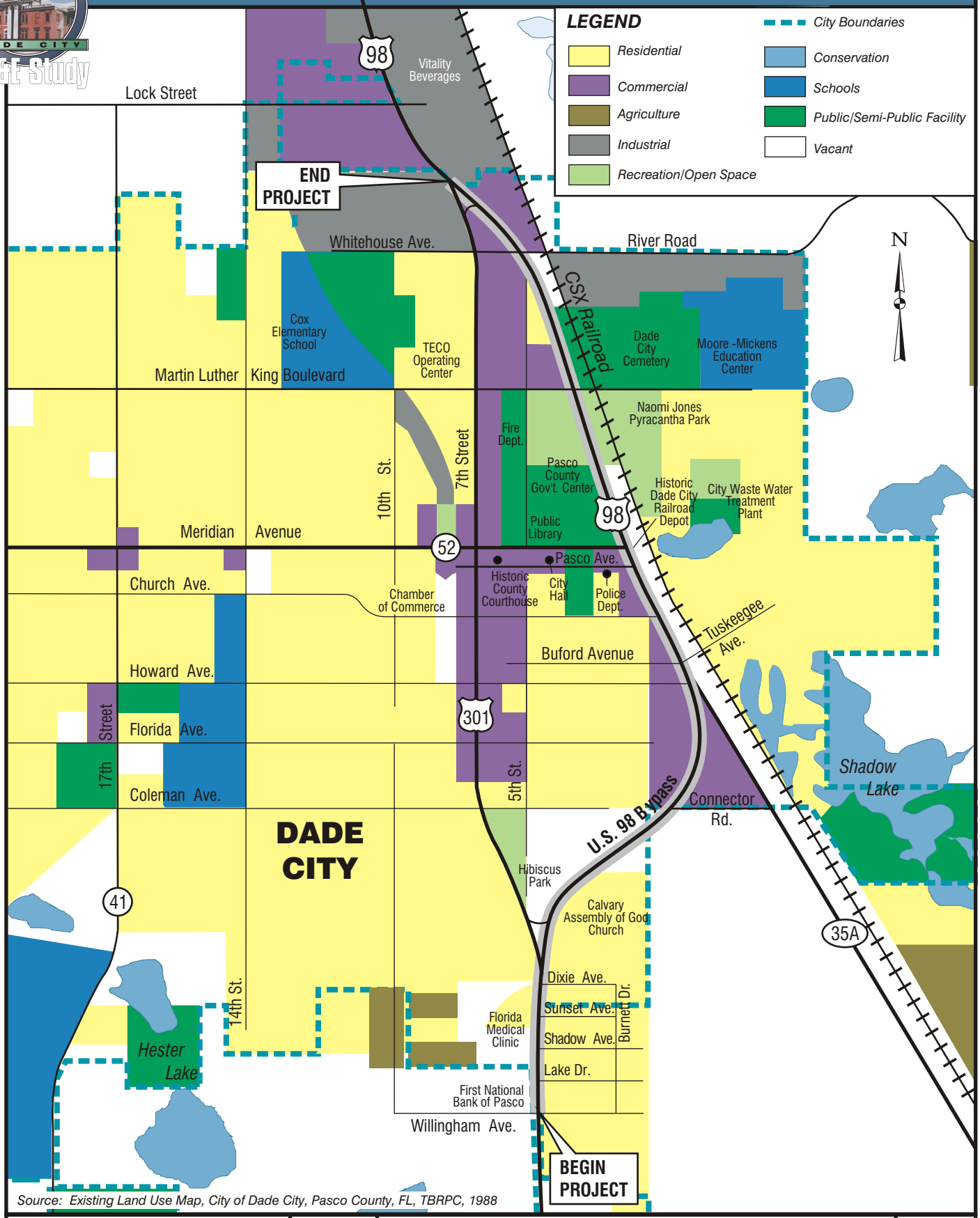


Dade City, Pasco County
WPI Segment No. 256423 1
Federal Aid Project Number 3112-017P

DRAINAGE BASIN MAP

Figure 3

U.S. 98 DADE CITY BYPASS PD&E STUDY



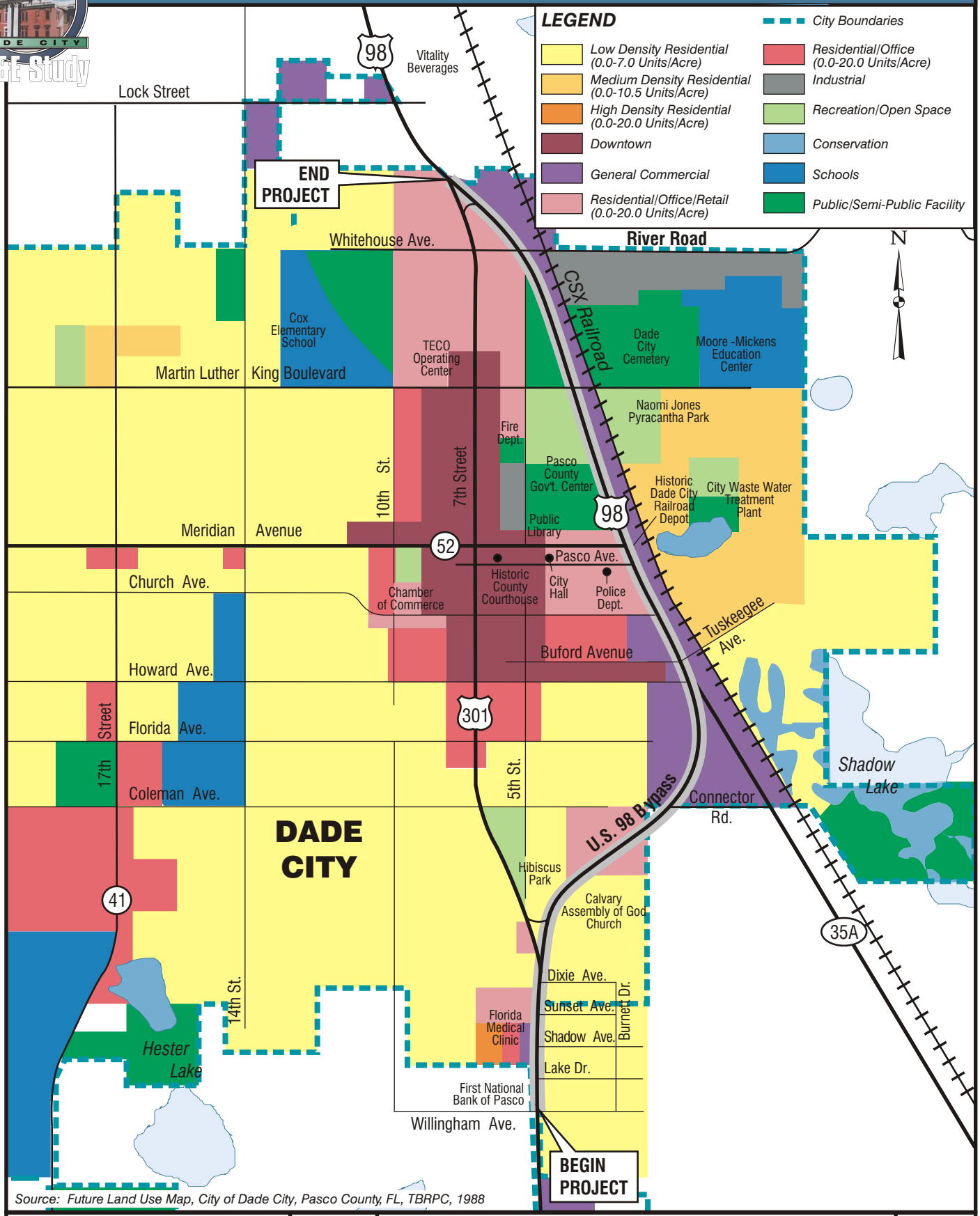
Source: Existing Land Use Map, City of Dade City, Pasco County, FL, TBRPC, 1988

Dade City, Pasco County
WPI Segment No. 256423 1
Federal Aid Project Number 3112-017P

EXISTING LAND USE MAP

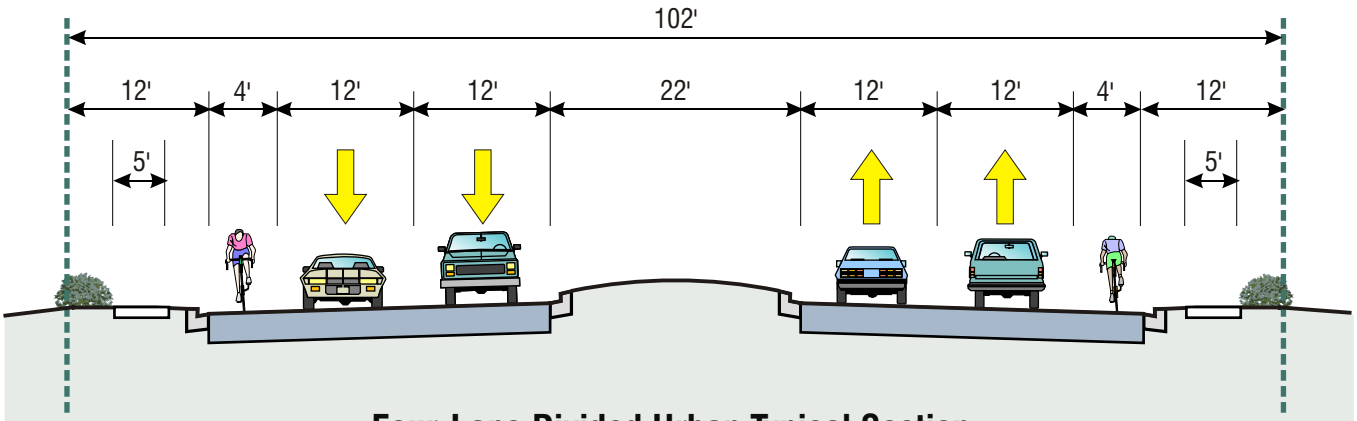
Figure 4

U.S. 98 DADE CITY BYPASS PD&E STUDY



Source: Future Land Use Map, City of Dade City, Pasco County, FL, TBRPC, 1988

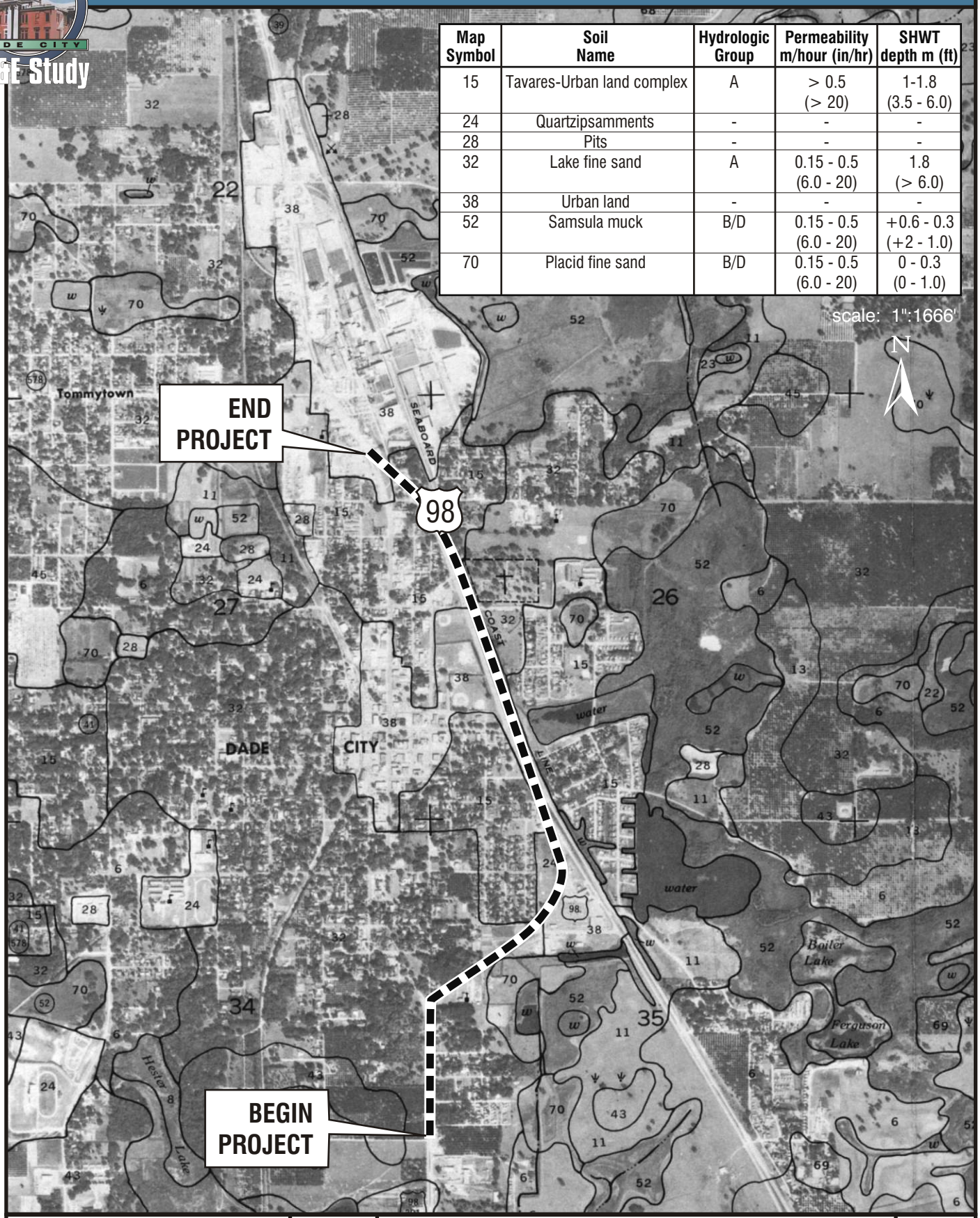
Dade City, Pasco County WPI Segment No. 256423 1 Federal Aid Project Number 3112-017P	**FUTURE LAND USE MAP**	Figure 5



Four-Lane Divided Urban Typical Section

U.S. 98 DADE CITY BYPASS PD&E STUDY

Map Symbol	Soil Name	Hydrologic Group	Permeability m/hour (in/hr)	SHWT depth m (ft)
15	Tavares-Urban land complex	A	> 0.5 (> 20)	1-1.8 (3.5 - 6.0)
24	Quartzipsamments	-	-	-
28	Pits	-	-	-
32	Lake fine sand	A	0.15 - 0.5 (6.0 - 20)	1.8 (> 6.0)
38	Urban land	-	-	-
52	Samsula muck	B/D	0.15 - 0.5 (6.0 - 20)	+0.6 - 0.3 (+2 - 1.0)
70	Placid fine sand	B/D	0.15 - 0.5 (6.0 - 20)	0 - 0.3 (0 - 1.0)

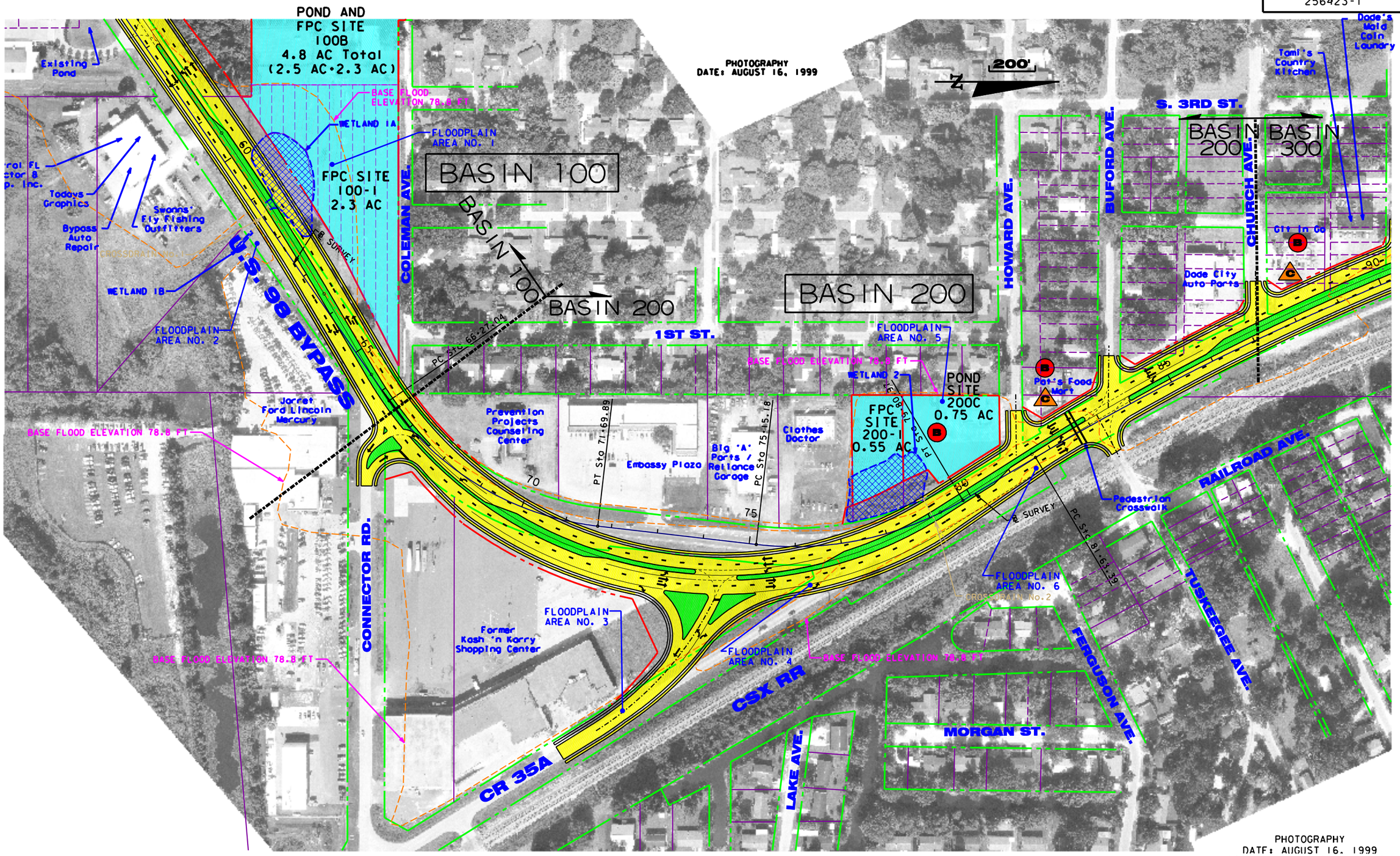


Dade City, Pasco County
WPI Segment No. 256423 1
Federal Aid Project Number 3112-017P

SOILS MAP

Figure 7

WPI SEGMENT NO.	SHEET NO.
256423-1	·



FPC SITE 100-1 | Existing Right-of-Way | Proposed Right-of-Way | Base Flood Elevation 78.8 FT | Wetland Areas

PHOTOGRAPHY
DATE: AUGUST 16, 1999
100' 0' 100' 200'
SCALE: 1"=200'

REVISIONS																	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION
APPROVED BY :
DATE :

PB 100 YEARS

U.S. 98 DADE CITY BYPASS CONCEPT PLANS

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09/26/02
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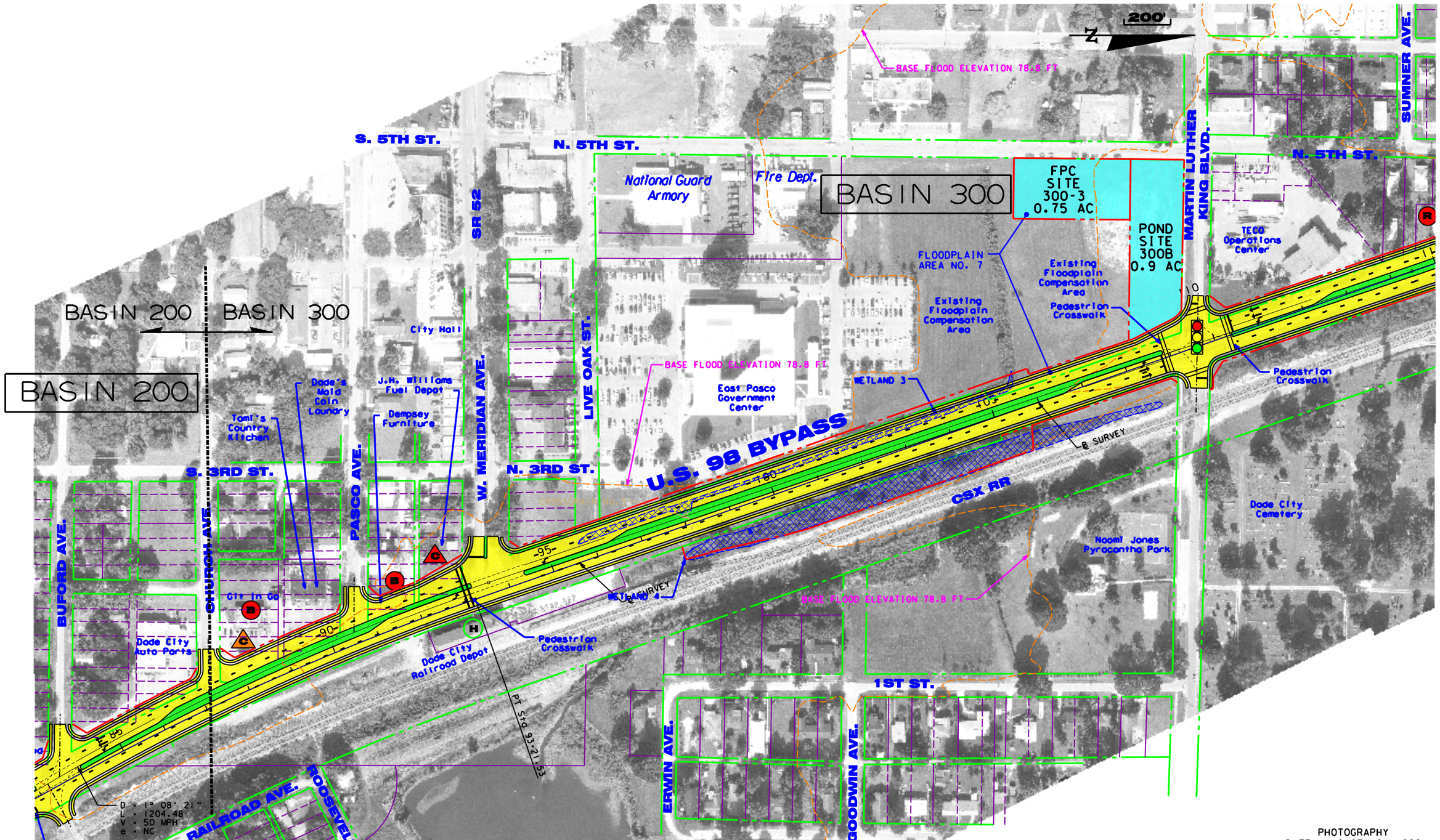
WPI SEGMENT NO.	SHEET NO.
256423-1	·



REVISIONS																	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

FLORIDA DEPARTMENT OF TRANSPORTATION

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DATE :

PB 100 YEARS

U.S. 98 DADE CITY BYPASS CONCEPT PLANS

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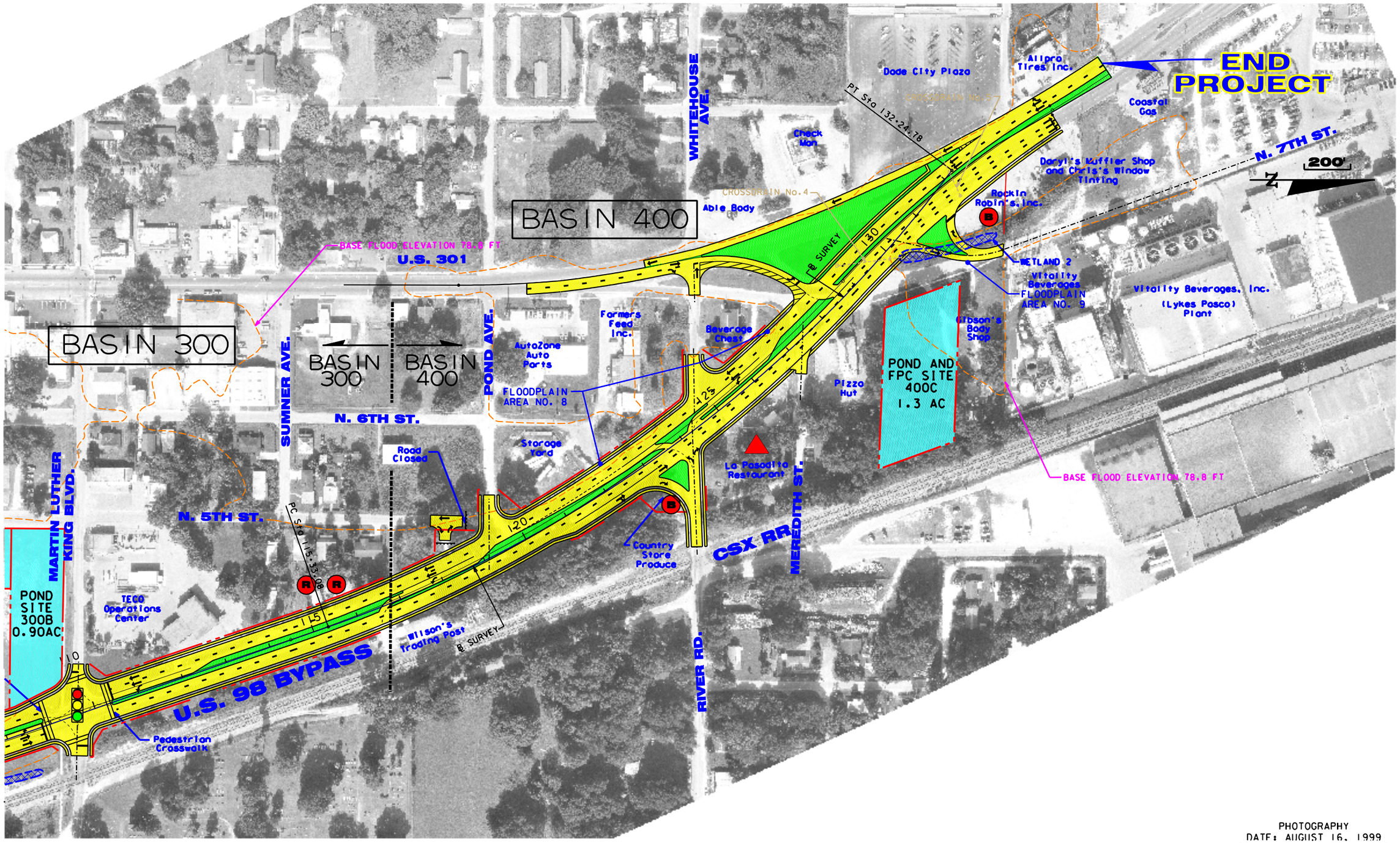
WPI SEGMENT NO.	SHEET NO.
256423-1	·



Existing Right-of-Way — Proposed Right-of-Way — Base Flood Elevation 78.8 FT — Wetland Areas

PHOTOGRAPHY
DATE: AUGUST 16, 1999
100' 0' 100' 200'
SCALE: 1"=200'

REVISIONS																	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

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WPI SEGMENT NO.	SHEET NO.
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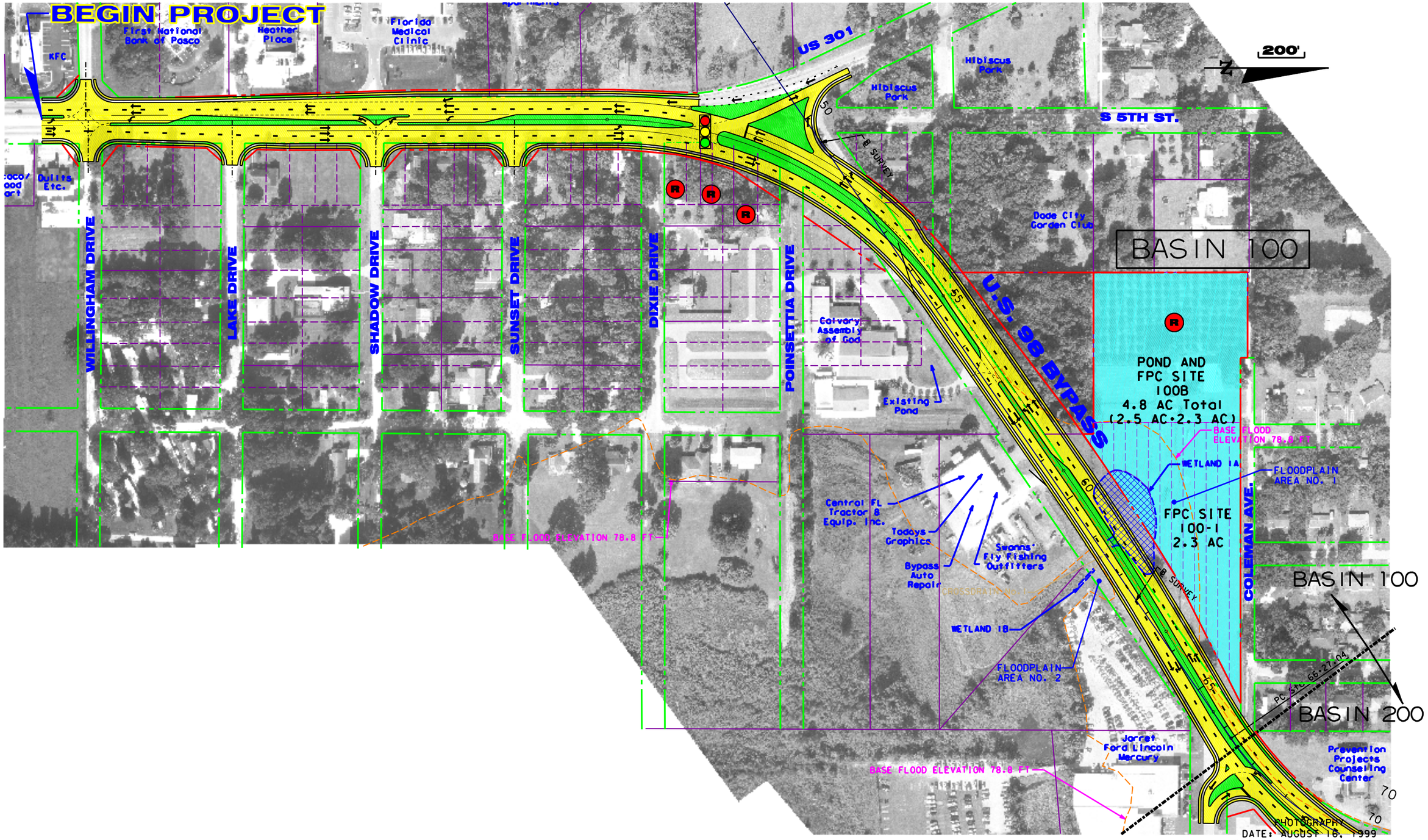

REVISIONS														
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