



*Southwest Florida  
Water Management District*

# **FDOT Mitigation Plan**

## **October 26, 2004**

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The District does not discriminate based on disability. Anyone requesting reasonable accommodations as provided for in the ADA should contact Technical Services at (352) 796-7211, (800) 423-1476, or TDD 231-6103.

**Cover: Gateway Restoration (SW 45).** Photo taken during construction in early 2004. The property is owned by Pinellas County, design and construction conducted through the SWFWMD – SWIM Department and funded through the FDOT mitigation program. The construction includes the creation of salt-marsh and tidal lagoons; along with an innovative method of utilizing high pressure water hoses to "hydroblast" spoil mounds located adjacent to mosquito ditches historically dredged through the mangrove (note white spots representing spoil areas cleared of Brazilian pepper within the mangroves). Gateway represents the first mangrove enhancement project in Florida where this technique is being utilized to avoid the inevitable mangrove impacts that construction equipment would cause if used to restore grade elevations.



## ATTACHMENTS - FDOT MITIGATION PROJECTS

**Yellow** – Existing Projects, **Blue** – New Projects for 2004)

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## **ATTACHMENTS - FDOT MITIGATION PROJECTS (Cont.)**

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**SW 76** - Lake Lowery Tract (Polk Co. / WMD – Land Resources)

**SW 77** - Conner Preserve (WMD – Land Resources)

**SW 78** – Bahia Beach (Hills. Co. Parks / WMD-SWIM)

**SW 79** - Fox Creek Regional Mitigation Project (Sarasota County)

## **INTRODUCTION**

This mitigation plan has been developed by the Southwest Florida Water Management District (SWFWMD) to provide regional, long-range mitigation planning for Florida Department of Transportation (FDOT) projects in accordance with Section 373.4137, Florida Statutes. The statute language is located after the listing of FDOT projects and before the Figures.

The FDOT has provided an annual statewide inventory of projected construction impacts to wetlands since 1996. In May, 2004 the FDOT identified and provided projected impacts for construction projects planned in Fiscal Years 2005 through 2010 and information regarding modifications to previously identified projects. In addition, advance notice was provided for several projects scheduled beyond this planning horizon so that appropriate mitigation projects can be developed and avoid deferring wetland impacts back for FDOT to implement mitigation. For each FDOT project, information was provided regarding the acreage and type of wetland impacts anticipated from construction.

Based on the information provided by the FDOT, mitigation projects were included in this plan to offset those impacts anticipated within the SWFWMD geographic area. Proposed mitigation projects are intended to meet State (ERP) and Federal (Section 404) permitting criteria pertaining to wetland mitigation. These mitigation projects are required to adequately compensate for the loss of the associated wetland impacts with similar enhanced, restored and created habitat functions and values.

Selection of mitigation projects was conducted in consultation with staff from the Florida Department of Environmental Protection (FDEP), Florida Fish & Wildlife Conservation Commission (FFWCC), Florida Department of Transportation (FDOT), U.S. Environmental Protection Agency (USEPA), U.S. Army Corps of Engineers (USACOE), U.S. Fish and Wildlife Service (USFWS), and the National Marine Fisheries Commission (NMFC). Other interested local and state agencies and the public, including representatives of private mitigation banks, also provide input during the nomination and selection process.

It should be noted this plan does not represent approval from the SWFWMD or any of the participating regulatory agencies for the wetland impacts identified in the inventory or any other impacts that may be related to the inventoried FDOT projects. These agencies reserve their authority to fully evaluate permit applications for each of the FDOT construction projects according to applicable rules at the time of application.



This mitigation plan is not specifically designed to offset impacts to any State or Federally-listed species or any secondary impacts that may be incurred as a result of road construction. However, this does not mean the mitigation projects included herein could not be used for such purposes if subsequent analysis determined a mitigation project was suitable and sufficient mitigation was available to meet this requirement and need for compensation.

This plan attempts to provide sufficient flexibility to account for subsequent revisions that maybe necessary to address specific permitting needs of the FDOT. Annual updates will be made to add FDOT projects planned for future years and to revise previously inventoried projects. Revisions are required to address changes to construction start dates, inventoried projects, wetland impact information, and various mitigation activities. Revisions may also be necessary to provide any additional mitigation required by federal regulatory agencies.

## **WETLAND IMPACTS**

Since the inception of the FDOT mitigation program in 1996, FDOT Districts 1 (Bartow), 5 (Deland), 7 (Tampa), and Turnpike (Orlando) have proposed 147 construction projects with wetland impacts be mitigated through the program. These include FDOT projects with anticipated construction schedules through at least 2010. Distributed over 13 drainage basins and covering 16 counties, the total wetland impact acreage projected by FDOT by all these projects is 485 acres. These impacts are associated with all the construction projects currently on the impact inventory (Table 1). Figure 1 portrays the basins within the SWFWMD, Figures 2 and 3 depict the proposed FDOT project locations relative to those basins.

Within this year's plan, FDOT has proposed an increase of 30 new projects with an anticipated 99 acres of wetland impacts. With the impact revisions of previously submitted FDOT projects, there is a cumulative impact increase of 107 acres compared to last year's plan. Table 2 depicts all the designated mitigation project budgets and associated FDOT wetland impacts. Tables 3 and 4 list the amended and new wetland impacts, and associated funds requested for implementing the mitigation projects. Mitigation nominations for 10 of the 30 new FDOT projects are being developed and selection will be deferred until the 2005 mitigation plan.

## **MITIGATION PROJECTS**

The District mitigation plan incorporates mitigation projects developed by various agencies, including various SWFWMD departments. The SWFWMD Departments involved with the majority of nominations include the Land Resources Department (LAND) and Surface Water Improvement & Management Section (SWIM). The SWIM-related projects include restoration activities conducted on property owned by FDEP or County Governments. The majority of the LAND-related projects include property owned by the WMD, but several of these tracts are co-owned and/or managed by other State (e.g. FDOF, FDEP, FFWCC) and County agencies. Mitigation nominations submitted from other entities generally include the FDEP, County Governments, and private mitigation banks. These potential mitigation options are reviewed by the

previously mentioned environmental agencies as to whether they appropriately mitigate for the loss of the wetland functions associated with the FDOT construction projects.

There are two new mitigation projects adopted in the 2004 mitigation plan. The **Conner Preserve (SW 77)** is a 2,980-acre tract in Pasco County that was acquired by the SWFWMD in late, 2003. This tract was an important acquisition in Pasco County due to the close proximity to other public lands. Various habitat improvements are proposed for the property including wetland enhancement, upland habitat enhancement, and upland restoration activities. The upland habitats are predominantly islands surrounded by wetland habitat, so the inter-relationship with the various habitats is important for several wildlife species. Unfortunately, a previous designated mitigation project in this basin (Brooker Creek Preserve Corridor to Starkey Wilderness Park) could not be successfully acquired by any of the public agencies. Therefore, the mitigation requirements for six FDOT projects previously approved for mitigation at the corridor project will be transferred to the Conner Preserve. The **Fox Creek Regional Mitigation Project (SW 79)** is a 140-acre parcel acquired by Sarasota County in mid-2004. The proposed plan includes substantial wetland creation with upland habitat preservation, restoration, and enhancement. This regional off-site mitigation area (ROMA) has been designated to provide compensation for wetland and upland habitat impacts associated with public infrastructure projects.

There are several future roadway projects proposed in the Hillsborough River basin. Public and private mitigation options are currently being developed in this basin but they're not within a phase sufficient for nomination and selection into the FDOT mitigation program. Since a few of the short-term roadway projects require designated mitigation in order to stay within FDOT's permitting schedule, mitigation activities will be conducted through a combination of available mitigation options within the FDOT program and wetland mitigation projects being developed outside the program on existing FDOT property.

As noted on Table 6, to date the mitigation projects propose a cumulative 9,378 acres and 30 mitigation bank credits of various mitigation activities to compensate for 422 acres of the proposed wetland impacts anticipated with the FDOT construction activities. Figure 4 depicts the selected mitigation projects relative to their associated basin. A basin-by-basin summary of wetland impacts and the designated mitigation projects is provided below and on Table 1. Tables 5 & 6 list the various mitigation activities and acreage proposed for each mitigation project. Information (narratives, location maps, aerials, designs) about the 35 mitigation projects is provided as separate attachments.

## MODIFICATIONS TO PREVIOUS MITIGATION PLANS

Minor impact revisions are anticipated for the majority of the FDOT projects, but in some cases the revisions can also be substantial. In most cases, the anticipated wetland impacts decrease as the roadway design proceeds from planning, project development, and design phases prior to permitting. Modifications proposed in this plan are required to adjust projected impact acres to account for design revisions by FDOT, and reconcile projected versus permitted impact acres following issuance of state and federal wetland permits. These modifications also include and update mitigation options, designs, and

activities based on ecological attributes and cost-saving options that can be incorporated into the mitigation projects. Impact revisions of the FDOT projects and associated mitigation activities are so noted where they occur in the plan.

## **REPAYMENT OF ADVANCE FUNDING**

Pursuant to Section 373.4137, F.S., the FDOT provided \$12 million in advance mitigation funding. These funds were distributed statewide to various projects listed in each of the Water Management Districts' SWIM plans and to specific aquatic and exotic plant control projects. To the extent these projects offset the wetland impacts identified in the inventory, the FDOT received mitigation credit for them, thus offsetting \$1.5 million of the advance funding. Of the \$12 million distributed statewide, the SWFWMD received \$1.9 million that was designated toward SWIM projects. The savings from cost-effective mitigation projects (i.e. projects costing less than the available funding based on impact acreage) remain in the FDOT Comptroller's escrow account and are credited toward the advance funding.

The advanced funding is required reimbursement to FDOT by FY2008-2009. As noted on Table 2, after all the mitigation projects within this WMD's plan are implemented, there will eventually be a total \$11.7 million remaining in the FDOT Comptroller's escrow funds that could be designated to offset the advance funding. Through 2004, the SWFWMD has officially closed the escrow funds associated with 46 of the 147 FDOT projects (Table 2) and therefore reimbursed FDOT \$4 million of the program's debt. This is more than twice the \$1.9 million of advanced funding received by the SWFWMD and approximately twice the reimbursement provided by any of the other four WMD's to date. As of September, 2004, there is approximately \$3.5 million remaining of the statewide debt.

Please feel free to provide any questions and comments concerning the FDOT mitigation program or designated mitigation projects by contacting the Program Manager / Environmental Scientist: Mark Brown, PWS, CPSS at:

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The following information lists all the FDOT projects from inception of the mitigation program in 1996, including roadway construction dates, wetland impact acreage, associated mitigation projects, and any project revisions from the 2003 plan. This information is also summarized on Table 1.



## **Alafia River Basin**

**Project:** SR 563 – Pipkin Road to SR 572 (Drane Field Road)  
**FM#:** 1973941  
**Date:** October 2008  
**Impacts:** 5.30 acres  
**Mitigation:** Defer mitigation selection to future years  
**Status:** New project in 2004

## **Charlotte Harbor Drainage Basin**

**Project:** CR 765A Bridge Replacement  
**FM#:** 1120082  
**Date:** October 2005  
**Impacts:** 0.1 acre  
**Mitigation:** Little Pine Island Mitigation Bank (SW 52)  
**Status:** -0.4 acre from 2003

## **Hillsborough River Basin**

**Project:** Interstate 4, County Line to Memorial Blvd., Sec. 1  
**FM#:** 2012081  
**Date:** October, 1997  
**Impacts:** 13.55 acres  
**Mitigation:** Upper Hillsborough 4 & 5 (SW 55)  
**Status:** No revisions

**Project:** SR 54 - US 41 to Cypress Creek  
**FM#:** 2563431  
**Date:** October, 2000  
**Impacts:** 14.20 acres  
**Mitigation:** Lake Thonotosassa Restoration Project (SW 34)  
**Status:** No revisions

**Project:** US 41 - Bell Lake to Tower Rd.  
**FM#:** 2563151  
**Date:** June, 2001  
**Impacts:** 1.10 acres  
**Mitigation:** Hillsborough River Corridor (SW 63)  
**Status:** No revisions

**Project:** Bruce B. Downs Bike Path (Amberly Dr. to Hunter's Green)  
**FM#:** 2578071  
**Date:** October, 1999  
**Impacts:** 0.5 acre  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** Interstate 4, W. of Memorial Blvd. To W. of US 98 (Section 2)  
**FM#:** 2012171  
**Date:** September, 2002  
**Impacts:** 4.26 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** +1.17 acres from 2003

**Project:** SR 39, Blackwater Creek Bridge Replacement  
**FM#:** 2555361  
**Date:** August, 2001  
**Impacts:** 2.10 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** SR 56 – SR 54 to Bruce B. Downs Blvd.  
**FM#:** 2587341  
**Date:** July, 1999  
**Impacts:** 5.3 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (SW 61)  
**Status:** No revisions

**Project:** Bruce B. Downs Bikepath (Tampa City Limits to Amberly Drive)  
**FM#:** 2578072  
**Date:** February, 2002  
**Impacts:** 0.2 acre  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** SR 678 (Bearss Avenue) Florida Ave. to Nebraska  
**FM#:** 2558591  
**Date:** November, 2002  
**Impacts:** 0.1 acre  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** Alexander Street, US 92 to Interstate 4  
**FM#:** 2578391  
**Date:** September, 2004  
**Impacts:** 2.60 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** Alexander Street, On-Ramp to Westbound Interstate 4  
**FM#:** 2584491  
**Date:** September, 2004  
**Impacts:** 1.70 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** SR 93 (Interstate-275), US 41 to Pasco County Line  
**FM#** 2584131  
**Date:** November, 2007  
**Impacts:** 7.60 acres  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** no revisions

**Project:** I-75 Off-Ramp at Bruce B. Downs  
**FM#** 4084602  
**Date:** December, 2001  
**Impacts:** 0.5 acre  
**Mitigation:** Jennings Tract, Cypress Ck. Preserve (West) (SW 61)  
**Status:** No revisions

**Project:** US 301 (SR 41) at McIntosh Road  
**FM#** 4037601  
**Date:** October, 2007  
**Impacts:** 0.50 acre (additional 0.3 acre mitigated off-the-program)  
**Mitigation:** Hillsborough River State Park (SW 73),  
Off Program – On-site mitigation by FDOT  
**Status:** + 0.3 acre since 2003

**Project:** SR 39 (Alexander St.), I-4 to Knights Griffin Road  
**FM#** 2555851  
**Date:** December, 2007  
**Impacts:** 4.9 acres (additional 9.3 acres mitigated off- the-program)  
**Mitigation:** On Program – Greer Tract (SW72),  
Off Program – On-site mitigation by FDOT at Alexander Street and  
Vicker's Swamp  
**Status:** No revisions

**Project:** SR 52, I-75 to Curley Road  
**FM#** 4037801  
**Date:** March, 2005  
**Impacts:** 0.20 acre  
**Mitigation:** Cypress Ck. Preserve-Greer Tract (SW 72)  
**Status:** No revisions

**Project:** US 301, Holloman's Branch to Hills./Pasco Co. Line  
**FM#** 4112771  
**Date:** October, 2005  
**Impacts:** 0.20 acres  
**Mitigation:** Cypress Ck. Preserve-Greer Tract (SW 72)  
**Status:** No revisions



**Project:** I-75 (SR 93A), CR 581(BB Downs) to SR 54  
**FM#** 4084593  
**Date:** November, 2009  
**Impacts:** 1.90 acres  
**Mitigation:** Defer mitigation to future years,  
 Potential Nomination- Conner Preserve (SW 77)  
**Status:** No revisions

**Project:** I-75 (SR 93A), Fowler Ave. to CR 581  
**FM#** 4084592  
**Date:** November, 2009  
**Impacts:** 5.10 Acres  
**Mitigation:** Defer mitigation to future years,  
 Potential Nomination – Conner Preserve (SW 77)  
**Status:** + 4.8 acres from 2003

**Project:** I-4 (SR 400) Weigh Station  
**FM#** 4067381  
**Date:** April, 2007  
**Impacts:** 4.10 acres  
**Mitigation:** Defer mitigation to future years,  
 Potential off-the-program mitigation by FDOT  
**Status:** New project in 2004

**Project:** US 301 (SR 41), Tampa Bypass to Fowler  
**FM#** 2557931  
**Date:** August, 2009  
**Impacts:** 0.10 acre – Hillsborough, 0.1 acre – Tampa Bay Basin  
**Mitigation:** Defer mitigation to future years,  
 Potential off-the-program mitigation by FDOT  
 Tampa Bay basin – Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** US 92 – Eureka Springs to Thonotassassa Road  
**FM#** 4113371  
**Date:** July, 2007  
**Impacts:** 1.60 acres – Hillsborough, 0.1 acre – Tampa Bay Basin  
**Mitigation:** Hillsborough - Cypress Creek Preserve – Greer Tract (SW 72)  
 Tampa Bay – Bahia Beach  
**Status:** New project in 2004

**Project:** SR 39 @ Hillsborough River  
**FM#** 4089321  
**Date:** May, 2008  
**Impacts:** 1.20 acres  
**Mitigation:** Defer mitigation to future years,  
 Probable off-the-program mitigation by FDOT  
**Status:** New project in 2004

**Project:** I-75 (SR 93A), Hills./Pasco Co. Line to CR 54  
**FM#** 4084594  
**Date:** October, 2011  
**Impacts:** 10.6 acres  
**Mitigation:** Defer mitigation, Potential Nomination – Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** I-75 (SR 93A), CR 54 to SR 52  
**FM#** 2587362  
**Date:** Undetermined  
**Impacts:** 5.2 acres  
**Mitigation:** Defer mitigation to future years,  
 Potential Nomination – Conner Preserve (SW 77)  
**Status:** New project in 2004

### **Kissimmee River Basin**

**Project:** US 27 - Lake Glenada to Hal McRae Rd.  
**FM#** 1945101  
**Date:** September, 2001  
**Impacts:** 0.39 acre  
**Mitigation:** Reedy Creek Mitigation Project (SW 49)  
**Status:** No revisions

**Project:** I-4, CR 557 to Osceola County (Seg. 6-7, 9)  
**FM#** 2012092  
**Date:** September, 2002  
**Impacts:** 2.35 acres – Kissimmee basin, 3.88 acres – Withlacoochee basin,  
 4.0 acres – Ocklawaha Basin  
**Mitigation:** Kissimmee - Reedy Creek Mitigation Project (SW 49)  
 Withlacoochee – Hampton Tract (SW 59)  
 Ocklawaha – Lake Lowery Tract (SW 76)  
**Status:** +0.33 acre from 2003

### **Lower Coastal Basin**

**Project:** SR 789 - Ringling Causeway Bridge  
**FM#** 1979421  
**Date:** June, 2001  
**Impacts:** 0.27 acres  
**Mitigation:** Quick Point Nature Preserve (SW 38)  
**Status:** No revisions

**Project:** US 41 Bus. (SR 45) - Venice Ave. to Bypass  
**FM#:** 1980051  
**Date:** September, 2000  
**Impacts:** 0.32 acres  
**Mitigation:** Quick Point Nature Preserve (SW 38)  
**Status:** No revisions

**Project:** I-75 – N River Road (CR 577) to SR 681  
**FM#:** 4063143  
**Date:** October, 2009  
**Impacts:** 14.70 acres - Lower Coastal Basin, 0.2 acre - Myakka basin  
**Mitigation:** Fox Creek Tract (SW 79) for the Lower Coastal Basin, 0.2 acre  
 Myakka basin impacts deferred to future plans, anticipated nomination will be Myakka State Forest  
**Status:** New project in 2004

**Project:** US 301 – Wood Street to University Avenue  
**FM#:** 1980101  
**Date:** October, 2006  
**Impacts:** 0.12 acre  
**Mitigation:** Fox Creek Tract (SW 79)  
**Status:** New project in 2004

**Project:** Englewood Connector, Charlotte C.L. to I-75  
**FM#:** 2006101  
**Date:** Undetermined  
**Impacts:** 2.01 acres - Lower Coastal basin, 9.88 acres – Myakka River Basin  
**Mitigation:** Anticipated nomination - Myakka State Forest  
**Status:** New project in 2004

## **Manatee River Basin**

**Project:** US 301 (Ellenton), 60<sup>th</sup> Ave. to Erie Rd.  
**FM#:** 1960581  
**Date:** October, 2000  
**Impacts:** 0.59 acres  
**Mitigation:** Terra Ceia (SW 50)  
**Status:** No revisions

**Project:** SR 64 – I-75 to Lena Road (Segment 1)  
**FM#:** 1960221  
**Date:** December, 2001  
**Impacts:** 2.42 acres  
**Mitigation:** Rutland Ranch (SW 65)  
**Status:** No revisions

**Project:** SR 64 – Lena to Lakewood Ranch Road (Segment 2)  
**FM#:** 1960223  
**Date:** September, 2006  
**Impacts:** 0.84 acre  
**Mitigation:** Rutland Ranch (SW 65)  
**Status:** -1.1 acres from 2003



**Project:** SR 70 – I-75 to Lakewood Ranch Road (Seg. 1)  
**FM#:** 1961211  
**Date:** July, 2005  
**Impacts:** 0.90 acre  
**Mitigation:** Rutland Ranch (SW 65)  
**Status:** -1.34 acres from 2003

**Project:** SR 70 – Lakewood Ranch Road to Lorraine Road (Seg. 2)  
**FM#:** 4043232  
**Date:** September, 2004  
**Impacts:** 3.80 acres  
**Mitigation:** Rutland Ranch (SW 65)  
**Status:** -1.07 acres from 2003

**Project:** SR 64 – Lakewood Ranch to Lorraine (Seg. 3)  
**FM#:** 1960224  
**Date:** October, 2005  
**Impacts:** 4.02 acres  
**Mitigation:** Deferred selection to future years, potential mitigation by FDOT  
**Status:** Project removed from inventory in 2003 and deferred to FDOT for mitigation due to substantial changes to the proposed impacts and subsequently, insufficient mitigation options through the program. The project was reinstated to the mitigation program in 2004.

**Project:** Upper Manatee River Road – SR 64 to US 301  
**FM#:** 1996682  
**Date:** September, 2008  
**Impacts:** 6.30 acres  
**Mitigation:** Defer mitigation selection to future years  
**Status:** New project in 2004

## **Myakka River Basin**

**Project:** SR 776, CR 771 to Willow Bend Rd.  
**FM#:** 1937941  
**Date:** July, 1999  
**Impacts:** 11.0 acres  
**Mitigation:** Cattle Dock Point (8.9 ac.), (SW 31)  
 Little Pine Island Mitigation Bank (2.1 ac.) (SW 52)

**Project:** SR 72, Deer Prairie to Big Slough  
**FM#:** 1980131  
**Date:** September, 1999  
**Impacts:** 0.87 acres  
**Mitigation:** Myakka River State Park (SW 51)  
**Status:** No Revisions

**Project:** SR 72, Big Slough to Desoto County line  
**FM#:** 1979251  
**Date:** January 1999  
**Impacts:** 1.49 acres  
**Mitigation:** Myakka River State Park (SW 51)  
**Status:** No Revisions

**Project:** SR 72, Manatee River to Big Slough  
**FM#:** 4138871  
**Date:** October, 2005  
**Impacts:** 5.00 acres  
**Mitigation:** Myakka River State Park (SW 51)  
**Status:** New project in 2004

### **Ocklawaha River Basin**

**Project:** SR 40, CR 225a to SW 52<sup>nd</sup> Ave  
**FM#:** 238762  
**Date:** December, 2004  
**Impacts:** 0.20 acre  
**Mitigation:** Ledwith Lake (SW 58)  
**Status:** No revisions

**Project:** SR 500 (US 27) - Levy Co. Line to CR 326  
**FM#:** 238641  
**Date:** September, 2002  
**Impacts:** 2.37 acres  
**Mitigation:** Ledwith Lake (SW 58)  
**Status:** No revisions

**Project:** SR 500 (US 27), CR 464 to CR 225a  
**FM#:** 238679  
**Date:** September 1999  
**Impacts:** 1.09 acres  
**Mitigation:** Ledwith Lake (SW 58)  
**Status:** No Revisions

**Project:** SR 40, CR 328 to SW 80th  
**FM#:** 238719  
**Date:** June, 2004  
**Impacts:** 0.08 acre  
**Mitigation:** Ledwith Lake (SW 58)  
**Status:** No Revisions

**Project:** US 27, SR 544 to Blue Heron Bay  
**FM#** 1976791  
**Date:** June, 2003  
**Impacts:** 0.45 acre - Ocklawaha, 1.50 acres - Peace Basin  
**Mitigation:** Ocklawaha - Lake Lowery Tract (SW 76)  
 Peace – Lake Hancock Reserve (SW 66)  
**Status:** No revisions

**Project:** US 27, Blue Heron Bay to CR 547  
**FM#** 4038901  
**Date:** August, 2003  
**Impacts:** 1.9 acres  
**Mitigation:** Lake Lowery Tract (SW 76)  
**Status:** +1.45 acres from 2003

**Project:** US 27, CR 546 to SR 544  
**WPI#** 4110391  
**Date:** October, 2010  
**Impacts:** 1.0 acre - Ocklawaha, 5.7 acres - Peace Basin  
**Mitigation:** Ocklawaha – Defer to future, Potential Nomination – Lk. Lowery (SW 76)  
 Peace – Lake Hancock Reserve (SW 76)  
**Status:** New project in 2004

## **Peace River Basin**

**Project:** I-4, US 98 to SR 33 (Section 3-5)  
**FM#:** 2012092  
**Date:** October 2002  
**Impacts:** 1.89 acres – Peace, 18.95 acres - Withlacoochee  
**Mitigation:** Peace - Tenoroc/Saddle Creek Restoration (SW 47),  
 Withlacoochee – Hampton Tract (SW 59)  
**Status:** +0.4 acre from 2003

**Project:** Ft. Green/Ona Rd., SR 62 to N. of Vandolah Rd. (Seg. 1)  
**FM#:** 1986401  
**Date:** May, 1999  
**Impacts:** 2.08 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** SR72 - Sarasota County Line to SR 70  
**FM#:** 1938880  
**Date:** October, 2000  
**Impacts:** 1.19 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions



**Project:** US 17 (SR 35), SR 64 to North of Peace River Bridge  
**FM#:** 1111286  
**Date:** February, 2001  
**Impacts:** 2.3 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** SR 540 - Thornhill Rd. to Recker Hwy.  
**FM#:** 1974751  
**Date:** July 2000  
**Impacts:** 5.87 acres  
**Mitigation:** Tenoroc/Saddle Creek Restoration Project (SW 47)  
**Status:** No revisions

**Project:** SR 540 (Cypress Gardens) - 9th St. to Overlook  
**FM#:** 1974711  
**Date:** November 2000  
**Impacts:** 0.41 acre  
**Mitigation:** Tenoroc/Saddle Creek Restoration Project (SW 47)  
**Status:** No revisions

**Project:** US 17 (SR 35) - North of CR 74 to CR 764  
**FM#:** 1937911  
**Date:** October 2000  
**Impacts:** 0.27 acre  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** Trabue Harborwalk Bike Path  
**FM#:** 1984711  
**Date:** October 2000  
**Impacts:** 0.16 acres  
**Mitigation:** Little Pine Island Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** CR 633 (Ft. Green/Ona Rd.), Vandolah Rd. (Segment 2)  
**FM#:** 1986381  
**Date:** October 2000  
**Impacts:** 7.22 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** CR 633 (Ft. Green/Ona Rd.), SR 64 to Vandolah (Seg. 3)  
**FM#:** 1986371  
**Date:** October 2003  
**Impacts:** 5.23 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** US 17 (SR 35), CR 764 South to CR 764 North  
**FM#:** 1937981  
**Date:** October 2002  
**Impacts:** 3.60 acres  
**Mitigation:** Boran Ranch Mitigation Bank (SW 53)  
**Status:** No revisions

**Project:** I-75 Widen Bridge over Peace River  
**FM#:** 4046971  
**Date:** January, 2002  
**Impacts:** 3.55 acres  
**Mitigation:** Peace River Rest. (SW 69), on-site mitig. for 0.8 imp. ac.  
 Little Pine Island Mit.Bank (SW 52), 2.75 impact ac.  
**Status:** No revisions

**Project:** US 27 – Towerview Rd. to SR 540  
**FM#:** 1975331  
**Date:** June, 2003  
**Impacts:** 3.46 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No revisions

**Project:** US 17 (SR 35) - Peace River to Tropicana Rd.  
**FM#:** 1940931  
**Date:** October 2002  
**Impacts:** 4.42 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No Revisions

**Project:** US 17 (SR 35) Livingston to Hardee County Line  
**FM#:** 1938991  
**Date:** September 2002  
**Impacts:** 11.59 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No Revisions

**Project:** SR 60A (Van Fleet Drive), CR 555 to Broadway Avenue  
**FM#:** 1971681  
**Date:** September, 2002  
**Impacts:** 0.46 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No Revisions

**Project:** US 27 - SR 544 to Blue Heron Bay  
**FM#:** 1976791  
**Date:** June, 2003  
**Impacts:** 1.5 acres, additional impacts in the Ocklawaha basin  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No revisions

**Project:** US 27 – SR 540 to SR 542  
**FM#:** 1977061  
**Date:** October, 2011  
**Impacts:** 1.77 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** - 15.8 acres from 2003

**Project:** US 27 – SR 542 to CR 546  
**FM#:** 1977071  
**Date:** October, 2010  
**Impacts:** 3.8 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** -1.01 acres from 2003

**Project:** US 98 – Carpenter's Way to Daugherty Road  
**FM#:** 1976381  
**Date:** August, 2003  
**Impacts:** 0.1 acre  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** No revisions

**Project:** US 27 – SR 60 to Towerview Road  
**FM#:** 1977051  
**Date:** July, 2006  
**Impacts:** 0.19 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** -0.89 acre from 2003

**Project:** SR 31 – SR 74 to Charlotte County Line  
**FM#:** 1973503  
**Date:** May, 2005  
**Impacts:** 0.2 acre  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** New project in 2004

**Project:** SR 559 – SR 655 (Recker Hwy.) to US 92  
**FM#:** 1977012  
**Date:** April, 2009  
**Impacts:** 0.7 acre  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** New project in 2004

**Project:** US 27 – CR 546 to SR 544  
**FM#:** 4110391  
**Date:** October, 2010  
**Impacts:** 5.70 acres  
**Mitigation:** Lake Hancock Reserve (SW 66)  
**Status:** New project in 2004

## **Tampa Bay Drainage**

**Project:** SR 676 - Maritime Blvd. To SR 60  
**FM#:** 2557341  
**Date:** January, 2001  
**Impacts:** 1.5 acres  
**Mitigation:** Gateway Restoration (SW 45)  
**Status:** No revisions

**Project:** SR 55 (US 19) - Drew St. to Railroad  
**FM#:** 2569571  
**Date:** September, 2002  
**Impacts:** 0.50 acre  
**Mitigation:** Cockroach Bay - Freshwater (SW 56)  
**Status:** No revisions

**Project:** Interstate 275 - Roosevelt to Big Island Gap  
**FM#:** 2588701  
**Date:** May, 2002  
**Impacts:** 9.10 acres  
**Mitigation:** Gateway Restoration (SW 45)  
**Status:** No revisions

**Project:** SR 679 (Bayway), Bunces Pass Bridge #150  
**FM#:** 2569051  
**Date:** February, 2000  
**Impacts:** 0.60 acres  
**Mitigation:** Gateway Restoration (SW 45)  
**Status:** No revisions

**Project:** US 19, CR 816 (Alderman) to SR 582 (Tarpon)  
**FM#:** 4037701  
**Date:** April, 2002  
**Impacts:** 0.10 acre  
**Mitigation:** Boyd Hill Nature Park (SW 67)  
**Status:** No revisions

**Project:** US 19, Coachman Rd. to Sunset Point  
**FM#:** 2568881  
**Date:** February, 2003  
**Impacts:** 0.50 acre  
**Mitigation:** Boyd Hill Nature Park (SW 67)  
**Status:** No revisions



**Project:** SR 686 (Roosevelt) at 49<sup>th</sup> Street  
**FM#:** 4062531  
**Date:** November, 2003  
**Impacts:** 0.20 acre  
**Mitigation:** Gateway Restoration (SW 45)  
**Status:** No revisions

**Project:** SR 60, Cypress St. to Fish Creek  
**FM#:** 2557031  
**Date:** August, 2004  
**Impacts:** 16.6 acres  
**Mitigation:** Tappan (SW 62-4.9 Ac.), Cockroach Bay (SW 56 & SW 76-6.2 ac.), Apollo Beach (SW 67-5.9 ac.)  
**Status:** No revisions

**Project:** Interstate-275, Howard Franklin to Himes Avenue  
**FM#:** 2583981 and 2583982  
**Date:** December, 2006 & December, 2008  
**Impacts:** 2.30 acres  
**Mitigation:** Gateway Tract (SW 49)  
**Status:** +0.4 acre from 2003

**Project:** SR 60, Courtney Campbell to Fish Creek  
**FM#:** 2556301  
**Date:** August, 2004  
**Impacts:** 12.2 acres  
**Mitigation:** Gateway Restoration (SW 45)  
**Status:** 0.2 acre of seagrass impacts has on-site mitigation by DOT

**Project:** US 301 – Sligh Avenue to Tampa Bypass Canal  
**FM#:** 2558881  
**Date:** October, 2005  
**Impacts:** 11.10 acres  
**Mitigation:** Boyd Hill Nature Park (SW 67 – 8.1 acres), Cockroach Bay – Freshwater (SW 56 – 3.0 acres)  
**Status:** -1.2 acres from 2003

**Project:** Ulmerton Road – US 19 to 49<sup>th</sup> Street  
**FM#:** 2571391  
**Date:** August, 2005  
**Impacts:** 0.10 acre  
**Mitigation:** Cockroach Bay – Saltwater (SW 76)  
**Status:** -0.1 acre from 2003

**Project:** Himes Avenue to Hillsborough Avenue  
**FM#:** 4082011  
**Date:** September, 2003  
**Impacts:** 0.10 acre  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** No revisions

**Project:** East-West Trail, Coopers Bayou to Bayshore  
**FM#:** 4062561  
**Date:** November, 2003  
**Impacts:** 0.10 acre  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** No revisions

**Project:** US 19 – 49<sup>th</sup> St. to 118<sup>th</sup> Avenue  
**FM#:** 2570701  
**Date:** October, 2006  
**Impacts:** 0.10 acre  
**Mitigation:** Boyd Hill Nature Park (SW 71 – 0.1 ac.)  
**Status:** -0.1 acre from 2003

**Project:** CR 296 Connector, 40<sup>th</sup> St. to 28<sup>th</sup> St.  
**FM#:** 2569941  
**Date:** April, 2007  
**Impacts:** 0.7 acre  
**Mitigation:** Cockroach Bay – Freshwater (SW 56 – 3.1 ac.)  
**Status:** -0.3 acres from 2003

**Project:** SR 676 (Causeway Blvd.) – US 301 to US 41  
**FM#:** 2555991  
**Date:** August, 2007  
**Impacts:** 3.9 acres  
**Mitigation:** Cockroach Bay – Freshwater (SW 56 – 3.1 acres)  
 Boyd Hill Nature Park (SW 71 – 0.8 acre)  
**Status:** No revisions

**Project:** CR 296 at I-275 Interchange  
**FM#:** 2569981  
**Date:** November, 2007  
**Impacts:** 1.1 acres  
**Mitigation:** Cockroach Bay – Freshwater (SR 56)  
**Status:** -0.9 acre from 2003

**Project:** Gandy Blvd. (SR 694), US 19 to 4<sup>th</sup> Street  
**FM#:** 2569311  
**Date:** January, 2013  
**Impacts:** 5.0 acres  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** No revisions

**Project:** Tampa International Airport (TIA), Runway 17-35  
**FM#:** 4143481  
**Date:** November, 2007  
**Impacts:** 28.40 acres  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** +8.3 acres from 2003

**Project:** US 19 (SR 55) – Seville Dr. to SR 60  
**FM#:** 2569491  
**Date:** November, 2007  
**Impacts:** 0.50 acre  
**Mitigation:** Cockroach Bay- Freshwater (SW 56)  
**Status:** +0.4 acre from 2003

**Project:** I-275, Howard Franklin to Himes Avenue  
**FM#:** 2583982  
**Date:** November, 2008  
**Impacts:** 0.4 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** No revisions

**Project:** SR 574 (MLK Blvd.) – Highview to Parsons  
**FM#:** 2558932  
**Date:** April, 2011  
**Impacts:** 0.40 acre  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** No revisions

**Project:** SR 686 (Roosevelt) – Ulmerton Rd. to 40<sup>th</sup> St.  
**FM#:** 2569951  
**Date:** June, 2011  
**Impacts:** 2.10 acre  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** No revisions

**Project:** I-75 (SR 93A) – SR 60 to I-75/I-4 Interchange  
**FM#:** 2586621  
**Date:** June, 2006  
**Impacts:** 1.0 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** CR 296 Connector – Northbound I-275 (Ramp P) to  
Westbound SR 692  
**FM#:** 2569942  
**Date:** May, 2007  
**Impacts:** 1.5 acres  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** US 19 (SR 55) – Seville Drive to SR 60  
**FM#:** 2568812  
**Date:** December, 2009  
**Impacts:** 0.5 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** US 19 (SR 55) – Whitney Rd. to Seville Drive  
**FM#:** 2568811  
**Date:** February, 2010  
**Impacts:** 0.8 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** SR 686 (Roosevelt) – 49<sup>th</sup> St. Bridge to Ulmerton Rd.  
**FM#:** 2569971  
**Date:** October, 2009  
**Impacts:** 0.3 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

**Project:** SR 688 (Ulmerton Rd.) – Long Branch to Wild Acres  
**FM#:** 4091551  
**Date:** December, 2009  
**Impacts:** 2.3 acres  
**Mitigation:** Boyd Hill Nature Park (SW 71)  
**Status:** New project in 2004

**Project:** Interstate-4 @ Selmon Expressway  
**FM#:** 2584151  
**Date:** May, 2009  
**Impacts:** 0.5 acre  
**Mitigation:** Bahia Beach (SW 78)  
**Status:** New project in 2004

## **Upper Coastal Basin**

**Project:** SR 54 - Mitchell to Gunn Hwy.  
**FM#:** 2563361  
**Date:** January, 2004  
**Impacts:** 6.6 acres,  
**Mitigation:** Anclothe Parcel (SW54)  
**Status:** No revisions

**Project:** SR 54 – North Suncoast to West of US 41  
**FM#:** 2563391  
**Date:** January, 2003  
**Impacts:** 7.00 acres  
**Mitigation:** Anclothe Parcel (SW54)  
**Status:** No revisions

**Project:** Suncoast Parkway / Ridge Road Interchange  
**FM#:** 2589581  
**Date:** February, 2005  
**Impacts:** 11.82 acres  
**Mitigation:** Serenova Extension (SW 60)  
**Status:** No revisions

**Project:** SR 60, Clearwater Harbor Bridge Replacement  
**FM#:** 2570931  
**Date:** January, 2002  
**Impacts:** 1.50 acres  
**Mitigation:** Gateway Restoration (SW 45) &  
on-site mangrove restoration by FDOT  
**Status:** No revisions

**Project:** US 19 – Republic Drive to CR 816 (Alderman)  
**FM#:** 4037711  
**Date:** April, 2002  
**Impacts:** 0.10 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker –Starkey Corridor

**Project:** US 98 – Hernando Co. Line to US 19  
**FM#:** 2571741  
**Date:** August, 2003  
**Impacts:** 1.40 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker – Starkey Corridor

**Project:** SR 688 (Ulmerton Road), Oakhurst Rd. to 119<sup>th</sup> Street  
**FM#:** 2570501  
**Date:** May, 2004  
**Impacts:** 0.20 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker – Starkey Corridor

**Project:** SR 52 – Moon Lake to Suncoast Parkway  
**FM#:** 2563221  
**Date:** February, 2006  
**Impacts:** 6.5 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker – Starkey Corridor

**Project:** SR 54 - Rowan Rd. to Mitchell Bypass  
**FM#:** 2563321  
**Date:** July, 1996  
**Impacts:** 3.60 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker – Starkey Corridor

**Project:** SR 586 (Curlew Road) – CR 1 to Fisher Road  
**FM#:** 2568151  
**Date:** July, 2004  
**Impacts:** 0.10 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Mitigation transfer from Brooker – Starkey Corridor

**Project:** SR 52 – Hicks to Moon Lake  
**FM#:** 2563161  
**Date:** November, 1996  
**Impacts:** 1.60 acres  
**Mitigation:** Serenova 2,3,4,8 (SW 75)  
**Status:** No revisions

**Project:** SR 682 (Bayway), SR 679 to West Toll Plaza  
**FM#:** 2569031  
**Date:** August, 2003  
**Impacts:** 0.80 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** SR 699 (Gulf Blvd.) John's Pass Bridge Replacement  
**FM#:** 4064741  
**Date:** October, 2005  
**Impacts:** 0.10 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** SR 688 (Ulmerton Road), 119<sup>th</sup> to Long Beach Canal  
**FM#:** 2571551  
**Date:** June, 2006  
**Impacts:** 0.20 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** SR 688 (Ulmerton Rd.), El Centro / Ranchero to US 19  
**FM#:** 2571541  
**Date:** May, 2008  
**Impacts:** 0.10 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** SR 679 (Bayway), Intercoastal to Bridge  
**FM#:** 2571521  
**Date:** November, 2007  
**Impacts:** 0.30 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** Alternate 19 – Meres Blvd. to Pasco County Line  
**FM#:** 2571371  
**Date:** July, 2005  
**Impacts:** 0.20 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** No revisions

**Project:** US 19 (SR 55) – CR 490 (Yulee) to CR 44  
**FM#:** 2571931  
**Date:** February, 2005  
**Impacts:** 0.09 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Deferred mitigation from 2003

**Project:** US 19 (SR 55) – 3<sup>rd</sup> Ave. NE to NW 6<sup>th</sup> Ave.  
**FM#:** 4089061  
**Date:** February, 2005  
**Impacts:** 0.20 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Deferred mitigation from 2003

**Project:** US 19 (SR 55) – Harry St. to Meres Blvd.  
**FM#:** 2570781  
**Date:** November, 2005  
**Impacts:** 0.10 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Deferred mitigation from 2003

**Project:** US 41 (SR 45) – Tower Rd. to Ridge Road  
**FM#:** 2563241  
**Date:** September, 2009  
**Impacts:** 9.2 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** -1.8 acres from 2003

**Project:** SR 599 (Gulf Blvd.) – 192<sup>nd</sup> Avenue to Walsingham/Ulmerton Road  
**FM#:** 2570831  
**Date:** November, 2008  
**Impacts:** 0.1 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** New project in 2004

**Project:** SR 688 (Ulmerton Rd.) – Wild Acres to El Centro/Ranchero Road  
**FM#:** 4091541  
**Date:** November, 2008  
**Impacts:** 0.2 acre  
**Mitigation:** Ft. DeSoto Park (SW 70)  
**Status:** New project in 2004

**Project:** CR 578 (County Line Rd.) – East Rd. to Mariner Blvd.  
**FM#:** 2572983  
**Date:** June, 2011  
**Impacts:** 0.4 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** -0.9 acre from 2003

**Project:** US 98 – CR 485 (Cobb Rd.) to CR 491 (Citrus Way)  
**FM#:** 4050172  
**Date:** September, 2011  
**Impacts:** 0.1 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Deferred mitigation from 2003, no impact revisions

**Project:** CR 485 (Cobb Rd.) - SR 50 to US 98  
**FM#:** 2572992  
**Date:** December, 2012  
**Impacts:** 12.00 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** Deferred mitigation from 2003, +9.0 acres from 2003

**Project:** SR 54 – Gunn Highway to Suncoast Parkway  
**FM#:** 2563371  
**Date:** September, 2002  
**Impacts:** 6.0 acres  
**Mitigation:** Conner Preserve (SW 77), additional mitigation conducted by  
 FDOT with on-site wetland creation along SR 54  
**Status:** New project in 2004



**Project:** CR 578 (County Line Rd.) – Suncoast Parkway to US 41  
**FM#:** 2572985  
**Date:** October, 2009  
**Impacts:** 0.2 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** SR 52 (County Line Rd.) – Suncoast Parkway to US 41  
**FM#:** 2563231  
**Date:** October, 2014  
**Impacts:** 4.2 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** US 41 (SR 45) – Gowers Corner to CR 578  
**FM#:** 4113341  
**Date:** November, 2007  
**Impacts:** 0.5 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** US 19 (SR 55) – Ft. Island Trail to NE 1<sup>st</sup> Terrace  
**FM#:** 4058224  
**Date:** October, 2008  
**Impacts:** 0.1 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** US 19 (SR 55) – Green Acres to Jump Ct.  
**FM#:** 4058222  
**Date:** October, 2008  
**Impacts:** 0.24 acre  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

**Project:** CR 578 (County Line Rd.) – US 19 to East Rd.  
**FM#:** 2572982  
**Date:** Undetermined  
**Impacts:** 5.5 acres  
**Mitigation:** Conner Preserve (SW 77)  
**Status:** New project in 2004

## **Withlacoochee River Basin**

**Project:** SR 44 - CR 470 to County Line  
**FM#:** 2571641  
**Date:** December, 2002  
**Impacts:** 13.90 acres  
**Mitigation:** Baird Tract (SW 64)  
**Status:** No revisions

**Project:** SR 44 - US 41 to CR 470  
**FM#:** 2571631  
**Date:** August, 2002  
**Impacts:** 7.90 acres  
**Mitigation:** Baird Tract (SW 64)  
**Status:** No revisions

**Project:** Interstate -75 Lake Panasoffkee Bridge Widening  
**FM#:** 4063291  
**Date:** November, 2000  
**Impacts:** 5.93 acres  
**Mitigation:** Lake Panasoffkee Restoration (SW 57)  
**Status:** No revisions

**Project:** SR 45 (US 41) – Watson Street to SR 44 East  
**FM#:** 2571841  
**Date:** November, 2004  
**Impacts:** 0.10 acre  
**Mitigation:** Baird Tract (SW 64),  
**Status:** No revisions

**Project:** CR 470 (Gospel Isle)  
**FM#:** 4092071  
**Date:** November, 2004  
**Impacts:** 0.3 acre  
**Mitigation:** Baird Tract (SW 64)  
**Status:** +0.3 acre from 2003

**Project:** US 41 (SR 45), SR 44 to SR 200  
**FM#:** 2571651  
**Date:** November, 2007  
**Impacts:** 0.70 acre  
**Mitigation:** Baird Tract (SW 64)  
**Status:** No revisions

**Project:** SR 52 – Curley Rd. to Smith Rd.  
**FM#:** 4037811  
**Date:** November, 2005  
**Impacts:** 0.40 acre  
**Mitigation:** Baird Tract (SW 64)  
**Status:** No revisions

**Project:** SR 200 – US 41 to Marion County Line  
**FM#:** 2571882  
**Date:** June, 2011  
**Impacts:** 5.0 acres  
**Mitigation:** Defer mitigation selection to future plans  
**Status:** -0.8 acre from 2003

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## The 2000 Florida Statutes

**Title XXVIII****NATURAL RESOURCES; CONSERVATION, RECLAMATION,  
AND USE****Chapter 373****Water  
Resources****[View Entire  
Chapter](#)****373.4137 Mitigation requirements.--**

(1) The Legislature finds that environmental mitigation for the impact of transportation projects proposed by the Department of Transportation can be more effectively achieved by regional, long-range mitigation planning rather than on a project-by-project basis. It is the intent of the Legislature that mitigation to offset the adverse effects of these transportation projects be funded by the Department of Transportation and be carried out by the Department of Environmental Protection and the water management districts, including the use of mitigation banks established pursuant to this part.

(2) Environmental impact inventories for transportation projects proposed by the Department of Transportation shall be developed as follows:

(a) By May 1 of each year, the Department of Transportation shall submit to the Department of Environmental Protection and the water management districts a copy of its adopted work program and an inventory of habitats addressed in the rules tentatively, pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344, which may be impacted by its plan of construction for transportation projects in the next 3 years of the tentative work program. The Department of Transportation may also include in its inventory the habitat impacts of any future transportation project identified in the tentative work program.

(b) The environmental impact inventory shall include a description of these habitat impacts, including their location, acreage, and type; state water quality classification of impacted wetlands and other surface waters; any other state or regional designations for these habitats; and a survey of threatened species, endangered species, and species of special concern affected by the proposed project.

(3) To fund the mitigation plan for the projected impacts identified in the inventory described in subsection (2), the Department of Transportation shall identify funds quarterly in an escrow account within the State Transportation Trust Fund for the environmental mitigation phase of projects budgeted by the Department of Transportation for the current fiscal year. The escrow account will be maintained by the Department of Transportation for the benefit of the Department of Environmental Protection and the water management districts. Any interest earnings from the escrow account shall remain with the Department of Transportation. The Department of Environmental Protection or water management districts may request a transfer of funds from the escrow account no sooner than 30 days prior to the date the funds are needed to pay for activities associated with development or implementation of the approved mitigation plan described in subsection (4) for the current fiscal year, including, but not limited to, design, engineering, production, and staff support. Actual conceptual plan preparation costs incurred before plan approval may be submitted to the Department of Transportation and the Department of Environmental Protection by November 1 of each year with the plan. The conceptual plan preparation costs of each water management district will be paid based on the amount approved on the mitigation plan and allocated to the current fiscal year projects identified by the water management district. The amount transferred to the escrow account each year by the

Department of Transportation shall correspond to a cost per acre of \$75,000 multiplied by the projected acres of impact identified in the inventory described in subsection (2). However, the \$75,000 cost per acre does not constitute an admission against interest by the state or its subdivisions nor is the cost admissible as evidence of full compensation for any property acquired by eminent domain or through inverse condemnation. Each July 1, the cost per acre shall be adjusted by the percentage change in the average of the Consumer Price Index issued by the United States Department of Labor for the most recent 12-month period ending September 30, compared to the base year average, which is the average for the 12-month period ending September 30, 1996. At the end of each year, the projected acreage of impact shall be reconciled with the acreage of impact of projects as permitted, including permit modifications, pursuant to this part and s. 404 of the Clean Water Act, 33 U.S.C. s. 1344. The subject year's transfer of funds shall be adjusted accordingly to reflect the overtransfer or undertransfer of funds from the preceding year. The Department of Transportation is authorized to transfer such funds from the escrow account to the Department of Environmental Protection and the water management districts to carry out the mitigation programs.

(4) Prior to December 1 of each year, each water management district, in consultation with the Department of Environmental Protection, the United States Army Corps of Engineers, the Department of Transportation, and other appropriate federal, state, and local governments, and other interested parties, including entities operating mitigation banks, shall develop a plan for the primary purpose of complying with the mitigation requirements adopted pursuant to this part and 33 U.S.C. s. 1344. This plan shall also address significant invasive plant problems within wetlands and other surface waters. In developing such plans, the districts shall utilize sound ecosystem management practices to address significant water resource needs and shall focus on activities of the Department of Environmental Protection and the water management districts, such as surface water improvement and management (SWIM) waterbodies and lands identified for potential acquisition for preservation, restoration, and enhancement, to the extent that such activities comply with the mitigation requirements adopted under this part and 33 U.S.C. s. 1344. In determining the activities to be included in such plans, the districts shall also consider the purchase of credits from public or private mitigation banks permitted under s. ~~373.4136~~ and associated federal authorization and shall include such purchase as a part of the mitigation plan when such purchase would offset the impact of the transportation project, provide equal benefits to the water resources than other mitigation options being considered, and provide the most cost-effective mitigation option. The mitigation plan shall be preliminarily approved by the water management district governing board and shall be submitted to the secretary of the Department of Environmental Protection for review and final approval. The preliminary approval by the water management district governing board does not constitute a decision that affects substantial interests as provided by s. ~~120.569~~. At least 30 days prior to preliminary approval, the water management district shall provide a copy of the draft mitigation plan to any person who has requested a copy.

(a) For each transportation project with a funding request for the next fiscal year, the mitigation plan must include a brief explanation of why a mitigation bank was or was not chosen as a mitigation option, including an estimation of identifiable costs of the mitigation bank and nonbank options to the extent practicable.

(b) Specific projects may be excluded from the mitigation plan and shall not be subject to this section upon the agreement of the Department of Transportation, the Department of Environmental Protection, and the appropriate water management district that the inclusion of such projects would hamper the efficiency or timeliness of the mitigation planning and permitting process, or the Department of Environmental Protection and the water management district are unable to identify mitigation that would offset the impacts of the project.

(c) Surface water improvement and management or invasive plant control projects undertaken using the \$12 million advance transferred from the Department of Transportation to the Department of Environmental Protection in fiscal year 1996-1997 which meet the requirements for mitigation under this part and 33 U.S.C. s. 1344 shall remain available for mitigation until the \$12 million is fully credited up to and including fiscal year 2004-2005. When these projects are used as mitigation, the \$12 million advance shall be reduced by \$75,000 per acre of impact mitigated. For any fiscal year through and including fiscal year 2004-2005, to the extent the cost of developing and implementing the mitigation plans is less than the amount transferred

pursuant to subsection (3), the difference shall be credited towards the \$12 million advance. Except as provided in this paragraph, any funds not directed to implement the mitigation plan should, to the greatest extent possible, be directed to fund invasive plant control within wetlands and other surface waters.

(5) The water management district shall be responsible for ensuring that mitigation requirements pursuant to 33 U.S.C. s. 1344 are met for the impacts identified in the inventory described in subsection (2), by implementation of the approved plan described in subsection (4) to the extent funding is provided by the Department of Transportation. During the federal permitting process, the water management district may deviate from the approved mitigation plan in order to comply with federal permitting requirements.

(6) The mitigation plan shall be updated annually to reflect the most current Department of Transportation work program and may be amended throughout the year to anticipate schedule changes or additional projects which may arise. Each update and amendment of the mitigation plan shall be submitted to the secretary of the Department of Environmental Protection for approval. However, such approval shall not be applicable to a deviation as described in subsection (5).

(7) Upon approval by the secretary of the Department of Environmental Protection, the mitigation plan shall be deemed to satisfy the mitigation requirements under this part and any other mitigation requirements imposed by local, regional, and state agencies for impacts identified in the inventory described in subsection (2). The approval of the secretary shall authorize the activities proposed in the mitigation plan, and no other state, regional, or local permit or approval shall be necessary.

(8) This section shall not be construed to eliminate the need for the Department of Transportation to comply with the requirement to implement practicable design modifications, including realignment of transportation projects, to reduce or eliminate the impacts of its transportation projects on wetlands and other surface waters as required by rules adopted pursuant to this part, or to diminish the authority under this part to regulate other impacts, including water quantity or water quality impacts, or impacts regulated under this part that are not identified in the inventory described in subsection (2).

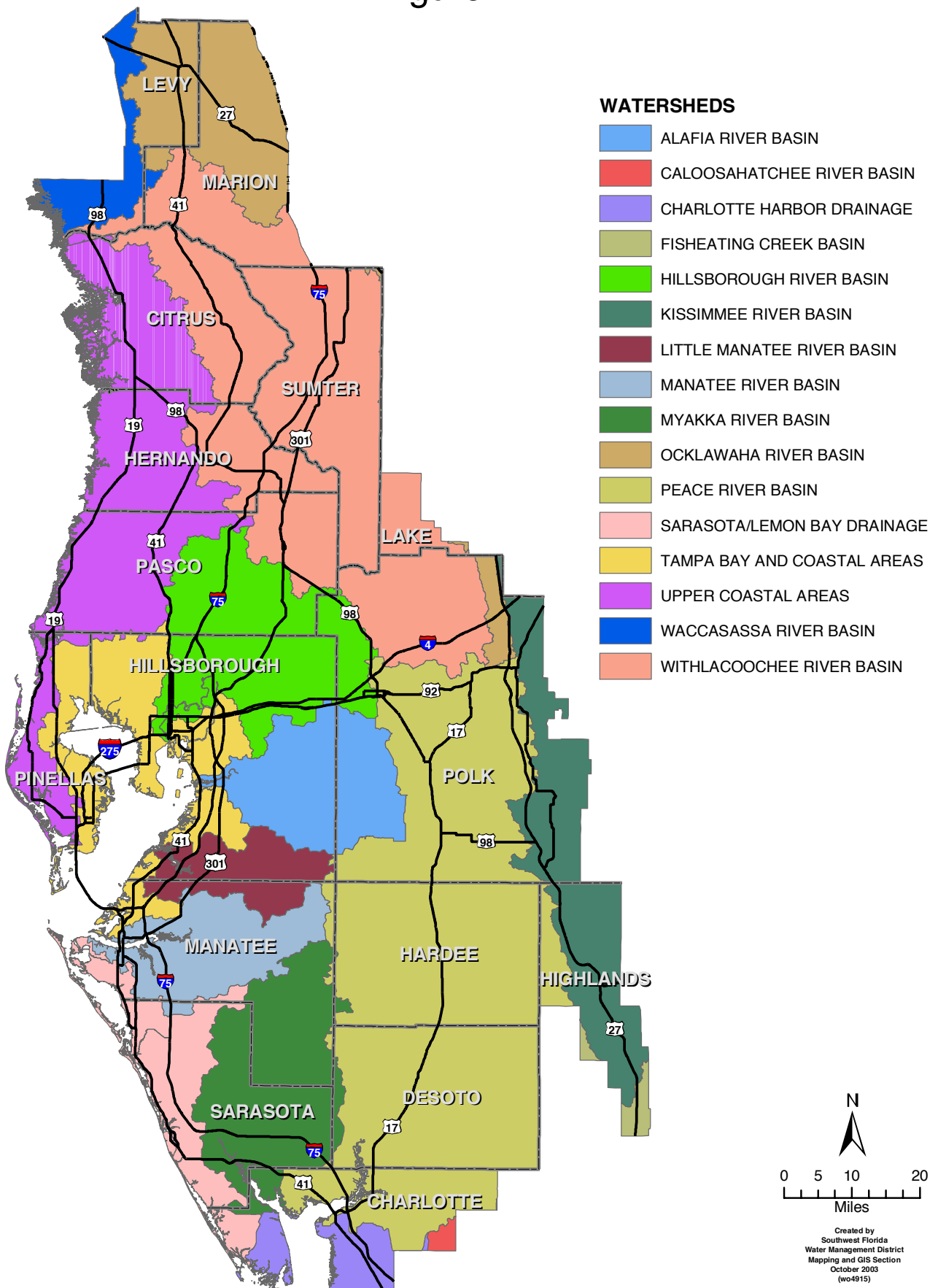
**History.**--s. 1, ch. 96-238; s. 36, ch. 99-385; s. 1, ch. 2000-261.

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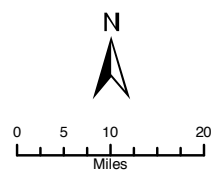
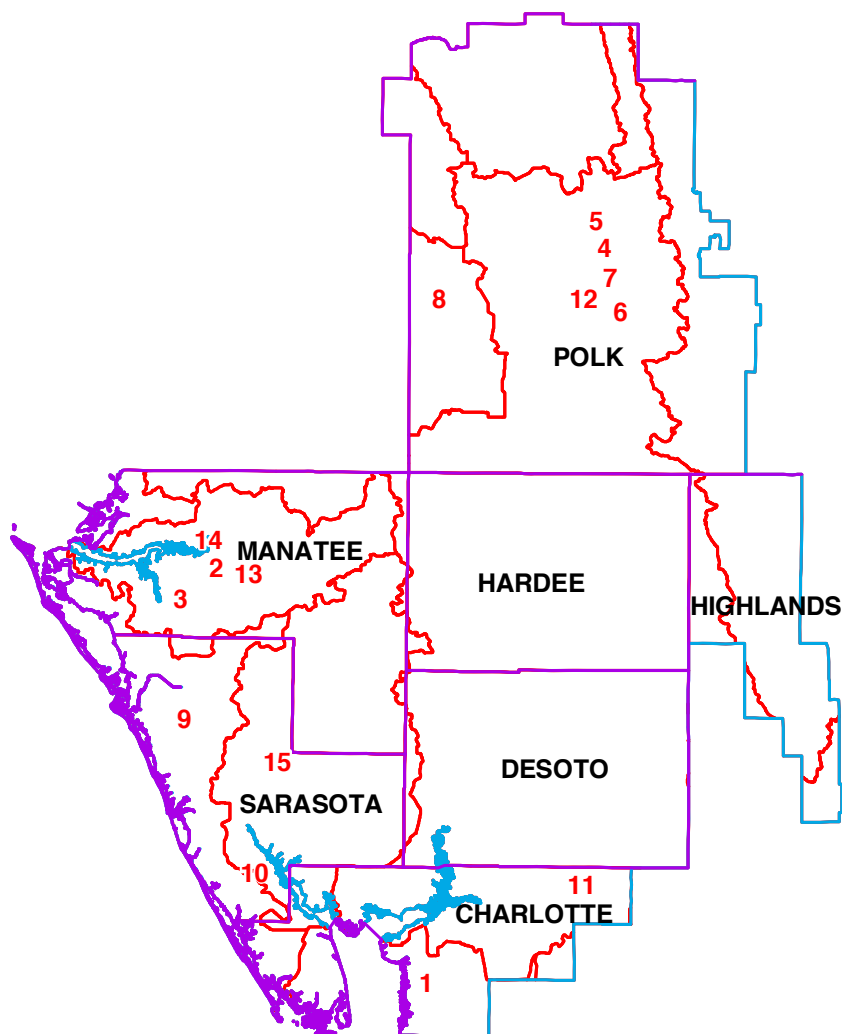
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# ERP Watersheds/Basins in the S.W.F.W.M.D.

Figure 1



**FDOT Wetland Impact Inventory  
(District 1)  
Anticipated Construction Commencement  
2004-2009  
Figure 2**



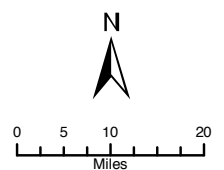
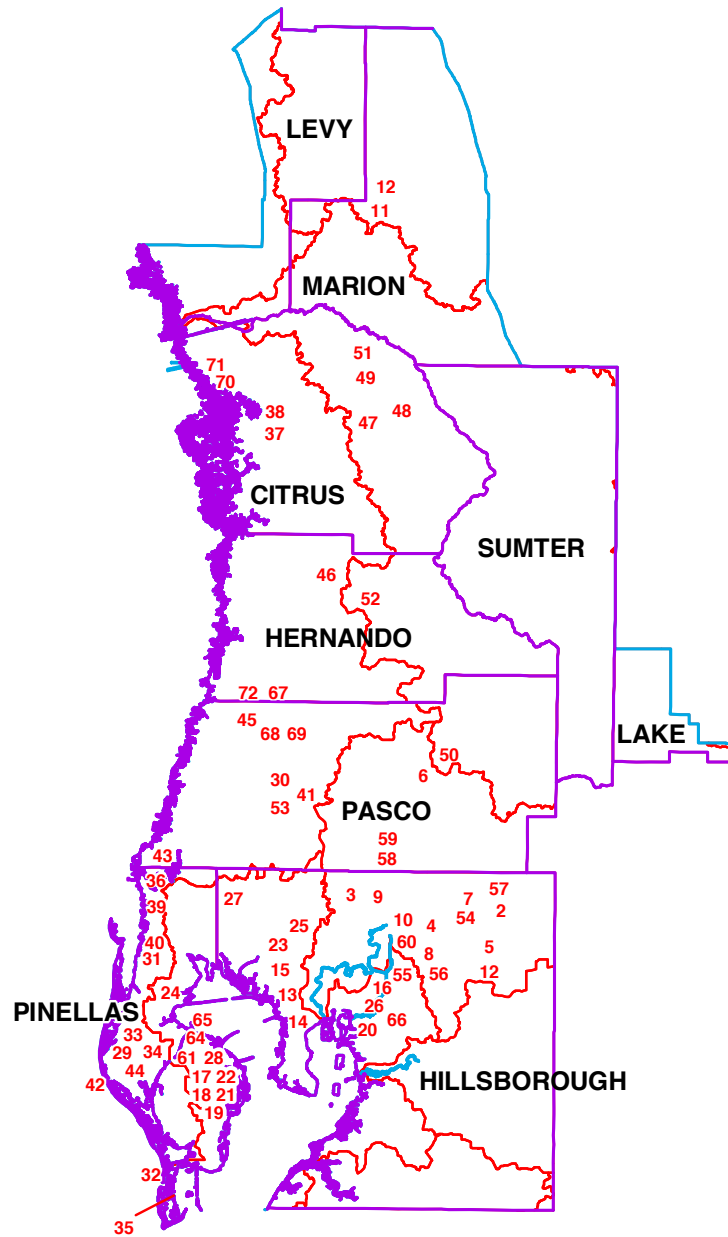
Created by  
Southwest Florida  
Water Management District  
Mapping and GIS Section  
September 2004  
(wo4915)



**FIGURE 2 – FDOT Project Location**  
**FDOT Wetland Impact Inventory (District 1 – 15 Projects)**  
**Anticipated Construction Commencement Dates – 2005 through 2010**

<b>Map#</b>	<b>County</b>	<b>Project Number &amp; Name</b>	<b>Const.</b>
1	Charlotte	1120082 - CR 765A Bridge Replacement	Oct -2005
2	Manatee	1960223 - SR 64 – Lena to Lakewood (Seg.2)	Sept -2007
3	Manatee	4043231 - SR 70 – Lakewood to Lorraine (Seg.1)	Sept -2005
4	Polk	1976021 - US 27 – SR 540 to SR 542	Oct -2009
5	Polk	1976721 - US 27 – SR 542 to SR 546	June - 2009
6	Polk	1977051 -US 27 – SR 60 to Towerview Blvd.	July – 2006
7	Polk	4110391 – US 27 – SR 546 to SR 544	Oct – 2010
8	Polk	1973941 – SR 563 – Pipkin Rd. to SR 572	Oct – 2008
9	Sarasota	4063142 – I-75 – N. River Rd. to SR 681	Oct – 2009
10	Sarasota	1980101 – Englewood Connector (Charlotte Co. to I-75)	Undetermined
11	Charlotte	1973503 – SR 31 – SR 74 to Charlotte Co.	May – 2005
12	Polk	1977012 – SR 559 – SR 655 to US 92	April – 2009
13	Manatee	1960224 – SR 64 – Lakewood to Lorraine (Seg.3)	Sept – 2006
14	Manatee	1996682 – Upper Manatee River, SR 64 to US 301	Sept – 2008
15	Sarasota	4138871 – SR 72, Myakka River to Big Slough	Oct –2005

**FDOT Wetland Impact Inventory  
(District 1, District 7, Turnpike)  
Anticipated Construction Commencement  
2004-2013  
Figure 3**



Created by  
Southwest Florida  
Water Management District  
Mapping and GIS Section  
September 2004  
(wo4915)

**FIGURE 3 – FDOT Project Location**  
**FDOT Wetland Impact Inventory (District 5 – 2 Projects,**  
**District 7- 53 Projects, Turnpike – 1 Project)**  
**Anticipated Construction Commencement Dates – 2004 through 2013**

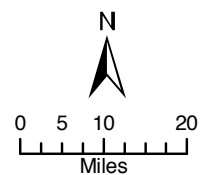
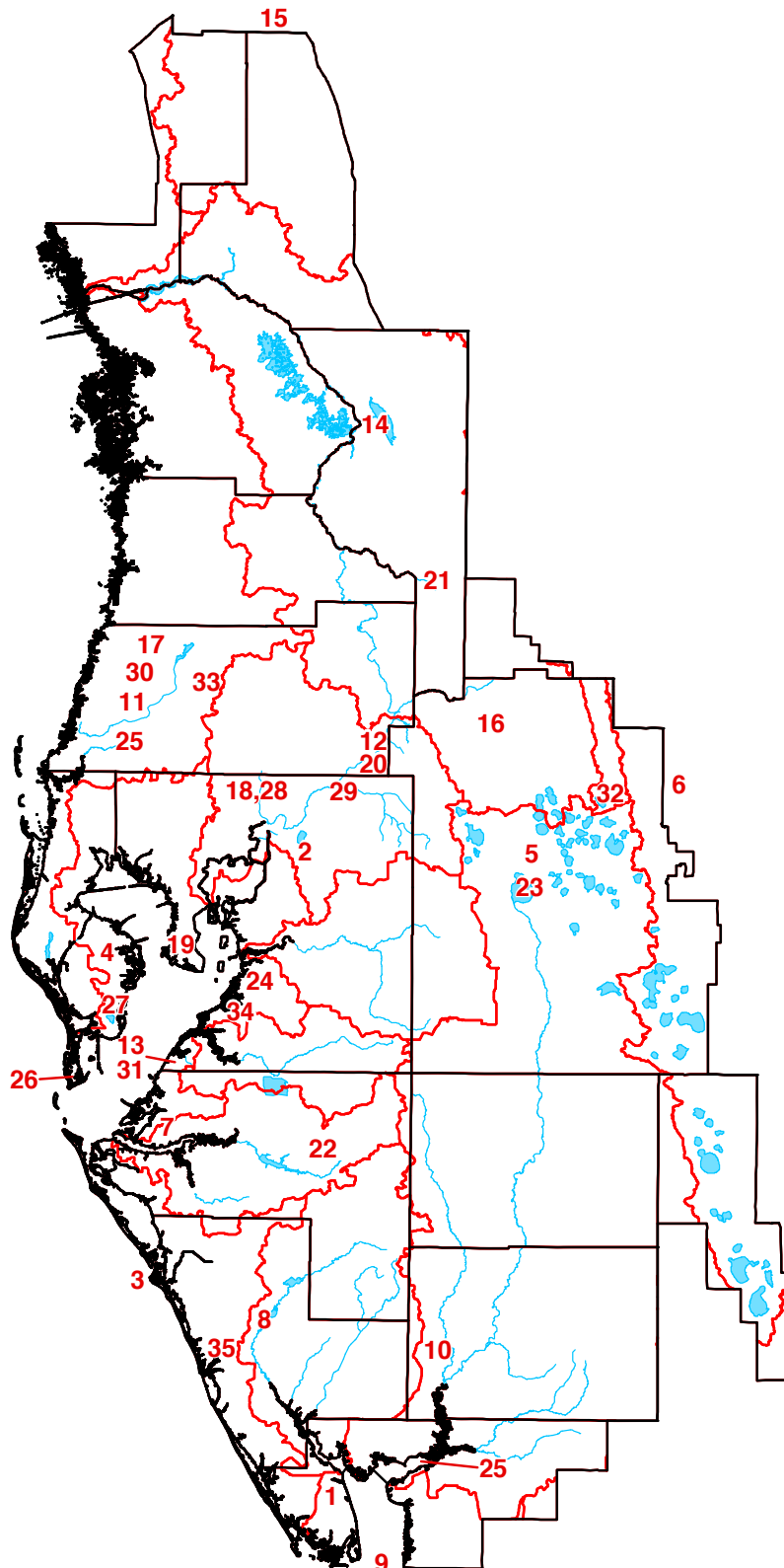
<b>Map#</b>	<b>County</b>	<b>Project Number &amp; Name</b>	<b>Const.</b>
1	Hillsborough	2578391 - Alexander St.-US 92 to I-4	Sept -2004
2	Hillsborough	2584491 - Int.-4 at Alexander St. Ramp	Sept -2004
3	Hillsborough	2584131 - SR 93 (I-275) – US 41 to Pasco C.L.	Nov -2007
4	Hillsborough	4037601 - US 301 at McIntosh Road	Oct -2007
5	Hillsborough	2555851 - SR 39 – I-4 to Knights Griffin Rd.	Dec -2007
6	Hillsborough	4037801 - SR 52 - I-75 to Curley Rd.	March-2007
7	Hillsborough	4112771 - US 301-Holloman's Branch to Hills. C.L.	Oct -2005
8	Hillsborough	4084601 - I-75 @ CR 581 (BB Downs Blvd.)	Sept -2006
9	Hillsborough	4084593 - I-75 - CR 581 to SR 54	Nov -2009
10	Hillsborough	4084592 - I-75 - Fowler Ave. to CR 581	Nov -2009
11	Marion	2387621 - SR 40 – CR 225A to SW 52 <sup>nd</sup> Ave.	Dec -2004
12	Marion	2387191 - SR 40 – CR 328 to SW 80 <sup>th</sup>	June-2004
13	Hillsborough	2557031 - SR 60 – Cypress St. to Fish Creek	Aug -2004
14	Hillsborough	2583981 - I-275 – Howard Franklin to Himes Ave.	Dec -2006
15	Hillsborough	2556301 - SR 60 – Courtney Campbell to Fish Ck.	Aug -2004
16	Hillsborough	2558881 - US 301-Sligh Ave. to Tampa Bypass	Oct -2005
17	Pinellas	2571391 - Ulmerton Rd. – US 19 to 49 <sup>th</sup> Street	Aug -2005
18	Pinellas	2570701 - US 19 – 49 <sup>th</sup> St. to 118 Ave.	Oct -2006
19	Pinellas	2569941 - CR 296 Connector, 40 <sup>th</sup> St. to 28 <sup>th</sup> St.	April-2007
20	Hillsborough	2555991 - SR 676 (Causeway) – US 301 to US 41	Aug -2007
21	Pinellas	2569981 - CR 296 @ I-275 Interchange	Nov -2007
22	Pinellas	2569311 - Gandy Blvd. (SR 694)- US 19 to 4 <sup>th</sup> St.	Dec -2013
23	Hillsborough	4143481 - Tampa Int. Airport (TIA), Runway 17-35	Nov -2007
24	Pinellas	2569491 - US 19 (SR 55) – Seville Dr. to SR 60	Nov -2007
25	Hillsborough	2583982 - I-275 – Howard Franklin to Himes Ave.	Nov -2008
26	Hillsborough	2558932 - SR 574(MLK Bld.)–Highview to Parsons	April-2008
27	Hillsborough	4052141 - Gunn Hwy. – Ehlich Rd. to Mobley Rd.	June-2004
28	Pinellas	2569951 - SR 686 (Roosevelt) – Ulmerton to 40 <sup>th</sup>	June-2011
29	Pinellas	2570501 - SR 688 (Ulmerton)-Oakhurst to 119 <sup>th</sup>	May-2004
30	Pasco	2563221 - SR 52 – Moon Lake to Suncoast Pkwy.	Feb –2006
31	Pinellas	2568151 - SR 586 (Curlew Rd.) – CR 1 to Fischer	July – 2004
32	Pinellas	4064741 - SR 699 (Gulf Bld.) – John's Pass Bridge	Oct – 2005
33	Pinellas	2571551 - SR 688 – 119 <sup>th</sup> to Long Beach Canal	June – 2006
34	Pinellas	2571541 - SR 688 – El Centro/Ranchero to US 19	May – 2008
35	Pinellas	4107551 - SR 679(Bayway)–Intercoastal to Bridge	Nov – 2007
36	Pinellas	2571371 - US Alt. 19 – Meres Blvd. to Pasco C.L.	July – 2005
37	Pinellas	2571931 - US 19 – CR 490 (Yulee) to CR 44	Feb -2005
38	Pinellas	4089061 - US 19 – 3 <sup>rd</sup> Ave. NE to NW 6 <sup>th</sup> Ave.	Feb –2005
39	Pinellas	2570781 - US Alt. 19 – Harry St. to Meres Blvd.	Nov - 2005

**Figure 3 (cont.) - Wetland Impact Inventory (District 7, Turnpike)**

<b>Map#</b>	<b>County</b>	<b>Project Number &amp; Name</b>	<b>Const.</b>
40	Pinellas	2568901 - US Alt. 19 – Sunset Pt. to Countryside	Aug – 2008
41	Pasco	2563241 - US 41– Tower Rd. to Ridge Rd.	Sept – 2009
42	Pinellas	2570831 - SR 699-192 <sup>nd</sup> Ave. to Walsingham/Ulmer.	Nov – 2008
43	Pinellas	4037661 - Alt. US 19 – Pinellas C.L. to US 19	Nov – 2008
44	Pinellas	4091541 - SR 688 – Wild Ac. to El Centro/Ranchero	Nov – 2008
45	Pasco	2572983 - CR 578(C.L. Road)–East Rd. to Mariner	June – 2011
46	Hernando	4050172 - US 98-CR 485 (Cobb Rd.) to CR 491	Sept – 2011
47	Citrus	2571841 - US 41 – Watson St. to SR 44 East	Nov – 2004
48	Citrus	4092071 - CR 470 (Gospel Isle)	Nov – 2004
49	Pasco	2571651 - US 41 – SR 44 to SR 200	Nov – 2007
50	Pasco	4037811 - SR 52 – Curley Rd. to Smith Rd.	Nov – 2005
51	Citrus	2571882 - SR 200, US 41 to Marion County Line	June – 2011
52	Hernando	2572992 - CR 485 (Cobb Rd.) - SR 50 to US 98	Dec – 2012
53	Pasco	2589581 - Suncoast Parkway / Ridge Rd. Interch.	Feb - 2005
54	Hillsborough	4067382 – I-4 Weigh State, Kingsway to Bakers Br.	April – 2007
55	Hillsborough	2557931 – US 301, Tampa Bypass to Fowler	Aug – 2009
56	Hillsborough	4113371 – US 92, Eureka Springs to Thonotasassa	July – 2007
57	Hillsborough	4089321 – SR 39 @ Hillsborough River	May – 2008
58	Pasco	4084594 – I-75 – Hills./Pasco Co. Line to CR 54	Oct – 2011
59	Pasco	2587362 – I-75 – CR 54 to SR 52	Undetermined
60	Hillsborough	2586621 – I-75 – SR 60 to I-75/I-4 Interchange	June - 2006
61	Pinellas	2569942 – CR 296 Connector, NB I-275 (Ramp P) to WB SR 692	May - 2007
62	Pinellas	2568812 – US 19 – Seville Dr. to SR 60	Dec – 2009
63	Pinellas	2568811 – US 19 – Whitney Rd. to Seville Dr.	Feb – 2010
64	Pinellas	2569971 – SR 686 – 49 <sup>th</sup> St. Bridge to Ulmerton Rd.	Oct – 2009
65	Pinellas	4091551 – SR 688 – Long Branch to Wild Acres	Dec – 2009
66	Hillsborough	2557931 – I-4 to Crosstown Connector	Aug – 2009
67	Pasco	2572985 – CR 578 – Suncoast Parkway to US 41	Oct – 2009
68	Pasco	2563231 – SR 52 – Suncoast Parkway to US 41	April – 2014
69	Pasco	4113341 – US 41 – Gowers Corner to CR 578	Nov – 2007
70	Citrus	4058224 – US 19 – Ft. Island Trail to NE 1 <sup>st</sup> Terrace	Oct – 2008
71	Citrus	4058222 – US 19 – Green Acres to Jump Court	Oct – 2008
72	Pasco	2572982 – CR 578 – US 19 to East Road	Undetermined

# FDOT Mitigation Projects

Figure 4



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September 2004  
(wo4915)

#### **FIGURE 4 - FDOT Mitigation Projects**

- 1 SW 31 - Cattle Dock Point, Phase II (DEP / WMD – SWIM )**
- 2 SW 34 - Lake Thonotassassa (WMD – SWIM / Hillsborough Co. Parks)**
- 3 SW 38 - Quick Point Preserve (City of Longboat Key)**
- 4 SW 45 - Gateway Restoration (Pinellas Co. / WMD – SWIM )**
- 5 SW 47 - Tenoroc / Saddle Creek (DEP / FFWCC)**
- 6 SW 49 - Reedy Creek Mitigation Bank (Private Mitig. Bank)**
- 7 SW 50 - Terra Ceia Restoration (DEP / WMD – SWIM)**
- 8 SW 51 - Myakka River State Park (DEP - Parks)**
- 9 SW 52 - Little Pine Island Mitigation Bank (Private Mitig. Bank)**
- 10 SW 53 - Boran Ranch Mitigation Bank (Private Mitig. Bank)**
- 11 SW 54 - Anclothe Parcel (WMD – Land Resources)**
- 12 SW 55 - Upper Hillsborough 4&5 (WMD – Land Resources)**
- 13 SW 56 - Cockroach Bay, Freshwater (Hills. Co. Parks / WMD – SWIM)**
- 14 SW 57 - Lk. Panasoffkee Restoration (WMD - SWIM)**
- 15 SW 58 - Ledwith Lake (Alachua County)**
- 16 SW 59 - Hampton Tract (WMD – Land Resources)**
- 17 SW 60 - Serenova Extension (WMD - Land Resources)**
- 18 SW 61 - Cypress Ck. Preserve, Jennings Tract (Hills. County Parks)**
- 19 SW 62 - Tappan Tract (City of Tampa / WMD – SWIM)**
- 20 SW 63 - Hillsborough River Corridor (WMD - Land Resources)**
- 21 SW 64 - Baird Tract (DEP / DOF)**
- 22 SW 65 - Rutland Ranch (WMD - Land Resources)**
- 23 SW 66 - Lk. Hancock Reserve (Polk County / WMD – Land Res.)**
- 24 SW 67 – Apollo Beach (Hills Co. Parks / WMD – SWIM)**
- 25 SW 69 – Peace River Bridge Restoration (DOT/ WMD)**
- 26 SW 70 - Fort DeSoto Park (Pinellas County / WMD – SWIM)**
- 27 SW 71 - Boyd Hill Nature Park (City of St. Petersburg)**
- 28 SW 72 - Cypress Creek Preserve, Greer Tract (Hills. County Parks)**
- 29 SW 73 – Hillsborough River State Park (DEP-Parks / WMD)**

**FIGURE 4 - FDOT MITIGATION PROJECTS (Cont.)**

- 30 SW 74 - Serenova Preserve, Sites 2,3,4,8 (WMD – Land Resources)**
- 31 SW 75 – Cockroach Bay – Saltwater (Hills. Co. Parks / WMD-SWIM)**
- 32 SW 76 - Lake Lowery Tract (Polk Co. / WMD – Land Resources)**
- 33 SW 77 – Conner Preserve (WMD – Land Resources)**
- 34 SW 78 - Bahia Beach (Hills. Co. Parks / WMD-SWIM)**
- 35 SW 79 – Fox Creek Regional Mitigation Project (Sarasota County)**

Table 1. FDOT WETLAND IMPACT INVENTORY

Update - September, 2004

Mtg. Transfer: New DOT Proj.				-Deferred Mtg. From Previous Plans		-Deferred Mtg. To Future Plans		Wetland Habitat Type - Proposed Impact Acres																											
ML Plan Year	DOT	County	Drainage Basin	RM No.	DOT Construction	Project Description	500	510	530	540	610	611	612	615	616	617	618	619	621	630	640	641	641x	642	642x	643	644	911	Total Impacted Acreage	Mitigation Location	Remarks				
04		Folk	Alafia River	1973941	Oct, 2008	SR 563 - Ripian Rd. to SR 572 (Cypress Creek Rd.)																													
SUBTOTAL BY BASIN:							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
02	1	Charlotte	Charlotte Harbor	1120062	Oct, 2005	CR 765A Bridge Replacement																													
SUBTOTAL BY BASIN:							0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.1			
96	1	Folk	Hillbor River	2012081	Oct, 1997	I-4 - County Line to Memorial Blvd - Sec. 1																													
97	7	Pasco	Hillbor River	2563431	Oct, 2000	SR 54 - US 41 to Cypress Creek																													
97	7	Pasco	Hillbor River	2563151	June, 2001	US 41 - Bell Lake to Tower Road																													
98	7	Hillsborough	Hillbor River	2578071	Oct, 1999	Brown St. Downe Bike Path Amherst Dr - Hunter's Green																													
98	1	Folk	Hillbor River	2012172	Sept, 2002	I-4 West of Memorial Blvd. to west of US 91 - Sec. 2																													
99	7	Hillsborough	Hillbor River	2553361	Aug, 2001	SR 56 - Blackwater Creek Bridge Replacement																													
00	7	Pasco	Hillbor River	2567341	July, 1999	SR 56 - Cypress Creek to CR 581 (B. B. Down)																													
00	7	Hillsborough	Hillbor River	2578072	Feb, 2002	Brown St. Downe Bike Path Tampa Links to Amherst Dr																													
00	7	Hillsborough	Hillbor River	2568591	Nov, 2002	SR 575 (Bassett Ave.) Florida Ave. to Nebraska																													
00	7	Hillsborough	Hillbor River	2578391	Sept, 2004	Alexander Street US 91 to Interstate 4																													
00	7	Hillsborough	Hillbor River	2564491	Sept, 2004	Interstate 4 (SR 400) at Alexander Street Ramp																													
00	7	Hillsborough	Hillbor River	2564131	Nov, 2007	SR 93 (Interstate-275) US 41 to Pasco Co. Line																													
01	7	Hillsborough	Hillbor River	4064652	Dec, 2001	I-75 CR Ramp at CR 581																													
02	7	Hillsborough	Hillbor River	4037601	Oct, 2007	US 301 (SR 41) at McArthur Road																													
02	7	Hillsborough	Hillbor River	2556651	Dec, 2007	SR 59 (Alexander St) I-4 to Kingsley Dr																													
03	7	Hillsborough	Hillbor River	4037801	March, 2005	SR 52 - I-75 to Curley Rd																													
03	7	Hillsborough	Hillbor River	4112771	October, 2006	US 301, Holoman's Branch to Hills/Pasco Co. Line																													
03	7	Hillsborough	Hillbor River	4064593	Nov, 2009	I-75 (SR 60A) CR 581 (BB Down) to CR 54																													
03	7	Hillsborough	Hillbor River	4064592	Nov, 2009	I-75 (SR 60A) Fowler Avenue to CR 581																													
04	7	Hillsborough	Hillbor River	4067382	April, 2007	I-4 (SR 400) Waugh Station (WIM) Highway to Sakers Branch																													
04	7	Hillsborough	Hillbor River	2557931	Aug, 2009	US 301 (SR 41) Tampa Bypass to Fowler																													
04	7	Hillsborough	Hillbor River	4113301	June, 2007	US 90 Eureka Springs to Thonotosassa Rd																													
04	7	Hillsborough	Hillbor River	4066321	May, 2008	SR 36 @ Hillsborough River																													
04	7	Pasco	Hillbor River	4064594	Oct, 2011	I-75 (SR 60A) Hills/Pasco Co. Line S. of CR 54																													
04	7	Pasco	Hillbor River	2567362	Undetermined	I-75 (SR 60A) CR 54 to SR 52																													
SUBTOTAL BY BASIN:							0.00	1.85	0.00	0.00	4.80	0.00	0.00	3.44	0.80	19.24	3.70	4.10	15.90	0.50	5.40	0.30	0.30	0.00	0.00	0.00	2.70	0.00	0.00	89.91	89.91				
97	1	Highlands	Kissimmee Ridge	1845101	Sept, 2001	US 27 - Lake Granada to Neil McNeil																													
01	1	Folk	Kissimmee Ridge	2012041	Sept, 2002	I-4, East of CR 557 to Deane County (S. of 67 St)																													
SUBTOTAL BY BASIN:							0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	1.53	0.00	5.00	0.00	0.00	0.45	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74				
97	1	Sarasota	Lower Coastal	1879421	June, 2001	SR 760 - Ringling Causeway Blvd																													
97	1	Sarasota	Lower Coastal	1980051	Sept, 2000	US 41 Bus (SR 45) Vertice Ave. to US 41 Bypass																													
04	1	Sarasota	Lower Coastal	4063143	Oct, 2009	I-75 - N. River Rd. (CR 577) to SR 601																													
04	1	Sarasota	Lower Coastal	1980101	Oct, 2009	US 301 - Wood St. to University Avenue																													
04	1	Sarasota	Lower Coastal	2006101	Undetermined	Englewood Connector (CR 606) to I-75																													
SUBTOTAL BY BASIN:							0.00	0.03	0.00	0.00	0.01	0.00	0.32	0.00	0.00	0.00	0.00	1.40	0.00	0.13	0.00	12.45	0.00	0.00	0.00	2.81	0.00	0.27	17.42	17.42					



October • November 2000

Worksheet: Student Type – Proposed Impact Strategies







Table 1. FDOT WETLAND IMPACT INVENTORY

— **1999** —

From Previous Year

**10. To Whom It May Concern:**

19. The Farmers' Union

National Market Type: Regional Market, Exchange

[illegible]

Table 2. Net funding requested by mitigation project, including all modifications and new projects.

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Sept., 2004

Mitig. Project Name	Mitig. Project Numbers	WPI #	FM #	Acreage Impacts (Prev.)	Acreage Impacts (Current)	Plan Year	Previous Cost Estimate	Proposed Requested Funds	Remarks/Fund Allocation (Fund Shortage -Parenth.)	Available Funds	Available Funds Minus Proposed Mitig. Cost (Surplus Funds)	Funds Closed Out
Cattle Dock Point (SWIM)	SW 31 (D005)	1110148	1937941	8.92	8.92	97	\$ 669,250.00	\$ 669,250.00	Partial mit. @ SW52, No Revisions	\$ 698,106.00	\$ -	
Project Total				8.92	8.92		\$ 669,250.00	\$ 669,250.00	-	\$ 698,106.00	\$ 28,856.00	
Lake Thonotassassa (SWIM)	SW 34 (D004)	7115981	2563431	14.20	14.20	97	\$ 791,549.00	\$ 791,549.00	No Revisions	\$ 1,093,443.00	\$ 301,894.00	xx
Project Total				14.20	14.20		\$ 791,549.00	\$ 791,549.00	-	\$ 1,093,443.00	\$ 301,894.00	
Quick Point (Longboat Key)	SW 38 (D006)	1119232	1979421	0.27	0.27	97	\$ 21,131.00	\$ 21,131.00	No Revisions	\$ 21,131.00	\$ -	
		1118295	1980051	0.32	0.32	97	\$ 25,044.00	\$ 25,044.00	No Revisions	\$ 25,044.00	\$ -	
Project Total				0.59	0.59		\$ 46,175.00	\$ 46,175.00	-	\$ 46,175.00	\$ -	
Gateway Restoration (Pinellas / SWIM)	SW 45 (D008)	7113975	2557341	1.50	1.50	97	\$ 100,000.00	\$ 100,000.00	No Revisions	\$ 115,505.00	\$ 15,505.00	xx
		7147874	2588701	9.00	9.10	97	\$ 600,000.00	\$ 600,000.00	No Revisions	\$ 709,845.00	\$ 109,845.00	
		7116991	2569051	0.60	0.60	98	\$ 40,000.00	\$ 40,000.00	No Revisions	\$ 46,202.00	\$ 6,202.00	xx
		7117181	2570931	1.50	1.50	*00	\$ 40,000.00	\$ 40,000.00	No Revisions	\$ 123,422.00	\$ 83,422.00	xx
		7123639	2583981	1.90	2.30	*01	\$ 100,000.00	\$ 100,000.00	No Revisions	\$ 198,030.00	\$ 98,030.00	
		NA	4062531	0.20	0.20	*00	\$ 8,000.00	\$ 8,000.00	No Revisions	\$ 16,456.00	\$ 8,456.00	xx
		7113871	2556301	12.20	12.20	*00	\$ 600,000.00	\$ 600,000.00	No Revisions	\$ 1,036,231.00	\$ 436,231.00	
Project Total				26.90	27.40		\$ 1,488,000.00	\$ 1,488,000.00	-	\$ 2,245,691.00	\$ 757,691.00	
Tenoroc / Saddle Creek (FDEP / FFWCC)	SW 47 (DEP)	1147942	2012092	1.89	1.89	96	\$ 160,530.00	\$ 160,530.00	No Revisions	\$ 160,530.00	\$ -	
		1118367	1974751	5.87	5.87	97	\$ 459,404.00	\$ 459,404.00	No Revisions	\$ 459,404.00	\$ -	
		1118363	1974711	0.41	0.41	97	\$ 32,088.00	\$ 32,088.00	No Revisions	\$ 32,088.00	\$ -	
Project Total				8.17	8.17		\$ 652,022.00	\$ 652,022.00	-	\$ 652,022.00	\$ -	
Reedy Ck. Mitig. Bank	SW 49 (D012)	1112576	1945101	0.39	0.39	97	\$ 13,650.00	\$ 13,650.00	No Revisions	\$ 31,108.00	\$ 17,458.00	xx
		1147942	2012041	1.99	2.35	*01	\$ 65,471.00	\$ 77,315.00	Impact Increase	\$ 199,602.00	\$ 122,287.00	
Project Total				2.38	2.74		\$ 79,121.00	\$ 90,965.00	(11,844.00)	\$ 230,710.00	\$ 139,745.00	
Terra Ceia (DEP/ SWIM)	SW 50 (D013)	1115399	1960581	0.59	0.59	98	\$ 46,175.00	\$ 46,175.00	No Revisions	\$ 46,175.00	\$ -	xx
Project Total				0.59	0.59		\$ 46,175.00	\$ 46,175.00	-	\$ 46,175.00	\$ -	
Myakka River State Park (FDEP)	SW 51 (DEP)	1119303	1980131	0.87	0.87	98	\$ 33,000.00	\$ 50,000.00	Expanded Restoration	\$ 68,089.00	\$ 18,089.00	
		1119215	1979251	1.49	1.49	98	\$ 66,000.00	\$ 80,000.00	Expanded Restoration	\$ 116,612.00	\$ 36,612.00	
		NA	4138871	0.0	5.0	*04	\$ -	\$ 400,000.00	New Project	\$ 440,920.00	\$ 40,920.00	
Project Total				2.36	7.36		\$ 99,000.00	\$ 530,000.00	(431,000.00)	\$ 625,621.00	\$ 95,621.00	
Little Pine Island Mitigation Bank	SW 52 (D015)	1120075	1984711	0.16	0.16	98	\$ 5,920.00	\$ 5,920.00	No Revisions	\$ 12,522.00	\$ 6,602.00	xx
		1110148	1937941	2.08	2.08	98	\$ 76,960.00	\$ 76,960.00	No Revisions	\$ 162,787.00	\$ 85,827.00	
		NA	4046971	2.75	2.75	*01	\$ 146,570.00	\$ 146,570.00	No Revisions	\$ 226,273.00	\$ 79,703.00	xx
		NA	1984781	0.50	0.10	*02	\$ 24,000.00	\$ 4,800.00	Impact Decrease	\$ 8,800.00	\$ 4,000.00	
Project Total				5.49	5.09		\$ 253,450.00	\$ 234,250.00	19,200.00	\$ 410,382.00	\$ 176,132.00	
Boran Ranch Mitig. Bank	SW 53 (D016)	1121259	1986401	2.08	2.08	97	\$ 62,400.00	\$ 62,400.00	No Revisions	\$ 160,166.00	\$ 97,766.00	xx
		1110453	1938851	1.19	1.19	97	\$ 35,700.00	\$ 35,700.00	No Revisions	\$ 91,634.00	\$ 55,934.00	xx
		1111286	1941021	2.30	2.30	97	\$ 69,000.00	\$ 69,000.00	No Revisions	\$ 180,004.00	\$ 111,004.00	xx
		1110145	1937911	0.27	0.27	98	\$ 8,100.00	\$ 8,100.00	No Revisions	\$ 21,536.00	\$ 13,436.00	xx
		1121257	1986381	7.22	7.22	98	\$ 216,600.00	\$ 216,600.00	No Revisions	\$ 565,059.00	\$ 348,459.00	xx
		1121256	1986371	5.23	5.23	98	\$ 174,600.00	\$ 174,600.00	No Revisions	\$ 430,330.00	\$ 255,730.00	xx
		1110152	1937981	3.6	3.6	99	\$ 108,550.00	\$ 108,550.00	No Revisions	\$ 296,212.00	\$ 187,662.00	xx
Project Total				21.89	21.89		\$ 674,950.00	\$ 674,950.00	-	\$ 1,744,941.00	\$ 1,069,991.00	
Anclote Parcel (WMD-LAND)	SW 54 (D017)	7115977	2563361	6.60	6.60	98	\$ 300,000.00	\$ 300,000.00	No Revisions	\$ 543,055.00	\$ 243,055.00	xx
		7115974	2563391	7.00	7.00	97	\$ 375,000.00	\$ 375,000.00	No Revisions	\$ 575,967.00	\$ 200,967.00	xx
Project Total				13.60	13.60		\$ 1,349,900.00	\$ 675,000.00	674,900.00	\$ 1,119,022.00	\$ 444,022.00	
Up.Hills.4&5 (WMD-LAND)	SW 55 (D009)	1147946	2012081	13.55	13.55	96	\$ 408,948.00	\$ 408,948.00	No Revisions	\$ 1,016,250.00	\$ 607,302.00	xx
Project Total				13.55	13.55		\$ 408,948.00	\$ 408,948.00	-	\$ 1,016,250.00	\$ 607,302.00	
Cockroach Bay (SWIM) (Freshwater)	SW 56 (D010)	7117045	2569571	0.50	0.50	97	\$ 46,202.00	\$ 46,202.00	No Revisions	\$ 46,202.00	\$ -	xx
		NA	2557031	0.80	0.80	*00	\$ 63,811.00	\$ 63,811.00	No Revisions	\$ 63,811.00	\$ -	
		NA	2558881	3.00	3.00	*01	\$ 197,474.00	\$ 254,000.00	Reapportion Costs	\$ 254,811.00	\$ 811.00	
		NA	2569941	1.00	0.70	*02	\$ 84,937.00	\$ 59,000.00	Impact Decrease	\$ 59,456.00	\$ 456.00	
		NA	2555991	3.10	3.00	*02	\$ 263,305.00	\$ 233,000.00	Impact Decrease	\$ 335,782.00	\$ 102,782.00	
		7117086	2569981	2.00	1.10	*02	\$ 84,937.00	\$ 84,000.00	Impact Decrease	\$ 97,002.00	\$ 13,002.00	
		NA	2569491	0.10	0.50	*03	\$ 4,000.00	\$ 4,000.00	Impact Increase	\$ 42,468.00	\$ 38,468.00	
Project Total				10.50	9.60		\$ 744,666.00	\$ 744,013.00	653.00	\$ 899,532.00	\$ 155,519.00	
Lk. Panasoffkee (SWIM)	SW 57 (D018)	NA	4063291	5.93	5.93	99	\$ 469,733.00	\$ 469,733.00	No Revisions	\$ 473,000.00	\$ 3,267.00	
Project Total				5.93	5.93		\$ 469,733.00	\$ 469,733.00	-	\$ 473,000.00	\$ 3,267.00	

Table 2. Net funding requested by mitigation project, including all modifications and new projects.

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Sept., 2004

Mitig. Project Name	Mitig. Project	WPI #	FM #	Impacts (Prev.)	Impacts (Current)	Plan Year	Previous Cost Estimate	Proposed Requested Funds	Remarks/Fund Allocation (Fund Shortage-Parenth.)	Available Funds	Available Funds Minus Proposed Mitig. Cost (Surplus Funds)	Funds Closed Out
Ledwith Lake (Alachua County)	SW 58 (D020)	5113632	2387621	0.20	0.20	98	\$ 500.00	\$ 500.00	No Revisions	\$ 16,990.00	\$ 16,490.00	
		5113511	2386411	2.37	2.37	97	\$ 66,000.00	\$ 66,000.00	No Revisions	\$ 201,301.00	\$ 135,301.00	
		5113549	2386791	1.09	1.09	97	\$ 29,000.00	\$ 29,000.00	No Revisions	\$ 92,581.00	\$ 63,581.00	
		5113589	2387191	0.08	0.08	*01	\$ 4,500.00	\$ 4,500.00	No Revisions	\$ 6,795.00	\$ 2,295.00	
<b>Project Total</b>				<b>3.74</b>	<b>3.74</b>		<b>\$ 100,000.00</b>	<b>\$ 100,000.00</b>	<b>-</b>	<b>\$ 317,667.00</b>	<b>\$ 217,667.00</b>	
Hampton Tract (WMD-LAND)	SW 59 (D019)	NA	2012092	18.95	18.95	98	\$ 1,200,000.00	\$ 1,200,000.00	No Revisions	\$ 1,609,556.00	\$ 409,556.00	
		NA	2012041	3.55	3.88	98	\$ 200,000.00	\$ 200,000.00	Impact Increase	\$ 301,526.00	\$ 101,526.00	
<b>Project Total</b>				<b>22.50</b>	<b>22.83</b>		<b>\$ 1,400,000.00</b>	<b>\$ 1,400,000.00</b>	<b>-</b>	<b>\$ 1,911,082.00</b>	<b>\$ 511,082.00</b>	
Serenova Ext. (WMD-LND)	SW 60	7155806	2589581	11.82	11.82	*00	\$ 1,018,281.00	\$ 1,018,281.00	No Revisions	\$ 1,018,281.00	\$ -	
<b>Project Total</b>				<b>11.82</b>	<b>11.82</b>		<b>\$ 1,018,281.00</b>	<b>\$ 1,018,281.00</b>	<b>-</b>	<b>\$ 1,018,281.00</b>	<b>\$ -</b>	
Cypress Ck. Preserve (Hills. County Parks)	SW 61 (D011)	7123606	2578071	0.50	0.50	98	\$ 20,000.00	\$ 20,000.00	No Revisions	\$ 38,502.00	\$ 18,502.00	xx
		NA	2012172	5.43	4.30	98	\$ 130,000.00	\$ 130,000.00	No Revisions	\$ 353,808.00	\$ 223,808.00	xx
		7113773	2555361	2.10	2.10	99	\$ 110,000.00	\$ 110,000.00	No Revisions	\$ 167,504.00	\$ 57,504.00	xx
		7147617	2587341	5.30	5.30	*00	\$ 280,000.00	\$ 280,000.00	No Revisions	\$ 436,088.00	\$ 156,088.00	xx
		NA	2578072	0.20	0.20	*00	\$ 11,376.00	\$ 11,376.00	No Revisions	\$ 16,456.00	\$ 5,080.00	xx
		NA	2558591	0.10	0.10	*00	\$ 5,000.00	\$ 5,000.00	No Revisions	\$ 8,228.00	\$ 3,228.00	xx
		NA	2578391	2.60	2.60	*00	\$ 213,931.00	\$ 213,931.00	No Revisions	\$ 213,931.00	\$ -	xx
		NA	2584491	1.70	1.70	*00	\$ 100,000.00	\$ 100,000.00	No Revisions	\$ 139,878.00	\$ 39,878.00	xx
		NA	2584131	7.60	7.60	*00	\$ 581,661.00	\$ 581,661.00	No Revisions	\$ 625,336.00	\$ 43,675.00	xx
		NA	4084602	0.50	0.50	*01	\$ 24,647.00	\$ 24,647.00	No Revisions	\$ 41,141.00	\$ 16,494.00	xx
<b>Project Total</b>				<b>26.03</b>	<b>24.90</b>		<b>\$ 1,476,615.00</b>	<b>\$ 1,476,615.00</b>	<b>-</b>	<b>\$ 2,040,872.00</b>	<b>\$ 564,257.00</b>	
Tappan Tract - SWIM	SW 62 (D014)	7113944	2557031	5.10	5.10	*00	\$ 400,000.00	\$ 400,000.00	Partial Mit. @ SW 67	\$ 433,179.00	\$ 33,179.00	
<b>Project Total</b>				<b>5.10</b>	<b>5.10</b>		<b>\$ 400,000.00</b>	<b>\$ 400,000.00</b>	<b>-</b>	<b>\$ 433,179.00</b>	<b>\$ 33,179.00</b>	
Hills. River Corridor (LND)	SW 63 (D003)	7115951	2563151	1.10	1.10	97	\$ 14,457.00	\$ 14,457.00	No Revisions	\$ 87,740.00	\$ 73,283.00	xx
<b>Project Total</b>				<b>1.10</b>	<b>1.10</b>		<b>\$ 14,457.00</b>	<b>\$ 14,457.00</b>	<b>-</b>	<b>\$ 87,740.00</b>	<b>\$ 73,283.00</b>	
Baird Tract (FDOF, FDEP)	SW 64 (DEP)	7119003	2571641	13.90	13.90	98	\$ 795,000.00	\$ 795,000.00	No Revisions	\$ 1,143,706.00	\$ 348,706.00	
		2571631	7119002	7.90	7.90	99	\$ 500,000.00	\$ 500,000.00	No Revisions	\$ 650,020.00	\$ 150,020.00	
		2571841	7119013	0.10	0.10	*01	\$ -	\$ -	Reapportion Costs	\$ 8,228.00	\$ 8,228.00	
		NA	4092071	0.20	0.30	*02	\$ -	\$ -	Reapportion Costs	\$ 25,481.00	\$ 25,481.00	
		NA	2571651	0.70	0.70	*02	\$ -	\$ -	Reapportion Costs	\$ 60,269.00	\$ 60,269.00	
		NA	4037811	0.30	0.40	*03	\$ -	\$ -	Reapportion Costs	\$ 33,975.00	\$ 33,975.00	
<b>Project Total</b>				<b>23.10</b>	<b>23.30</b>		<b>\$ 1,295,000.00</b>	<b>\$ 1,295,000.00</b>	<b>-</b>	<b>\$ 1,921,679.00</b>	<b>\$ 626,679.00</b>	
Rutland Ranch (WMD-LND)	SW 65 (D022)	NA	1960221	2.42	2.42	*01	\$ 200,383.00	\$ 200,383.00	No Revisions	\$ 205,548.00	\$ 5,165.00	xx
		NA	1960223	0.80	0.80	*02	\$ 30,000.00	\$ -	No Revisions	\$ 68,919.00	\$ 68,919.00	xx
		NA	1961211	2.24	0.90	*02	\$ 30,000.00	\$ 10,000.00	Reapportion Costs	\$ 77,534.00	\$ 67,534.00	xx
		NA	4043232	4.87	3.80	*02	\$ 70,000.00	\$ 20,000.00	Impact Increase	\$ 322,760.00	\$ 302,760.00	xx
<b>Project Total</b>				<b>10.33</b>	<b>7.92</b>		<b>\$ 330,383.00</b>	<b>\$ 230,383.00</b>	<b>100,000.00</b>	<b>\$ 674,761.00</b>	<b>\$ 444,378.00</b>	
Lk. Hancock Reserve (Polk Co. / WMD-LND)	SW 66 (D023)	1118425	1975331	3.46	3.46	*01	\$ 290,000.00	\$ 290,000.00	No Revisions	\$ 293,882.00	\$ 3,882.00	
		1111277	1940931	4.42	4.42	*01	\$ 360,000.00	\$ 360,000.00	No Revisions	\$ 363,682.00	\$ 3,682.00	
		1110467	1938991	11.59	11.59	*01	\$ 950,000.00	\$ 950,000.00	No Revisions	\$ 953,637.00	\$ 3,637.00	
		1118059	1971681	0.46	0.46	*01	\$ 35,000.00	\$ 35,000.00	No Revisions	\$ 39,071.00	\$ 4,071.00	
		1118571	1976791	1.50	1.50	*01	\$ 80,000.00	\$ 80,000.00	No Revisions	\$ 121,776.00	\$ 41,776.00	
		1118494	1977061	16.98	1.77	*02	\$ 160,000.00	\$ 100,000.00	Impact Decrease	\$ 171,000.00	\$ 71,000.00	
		1118564	1977071	4.76	3.8	*02	\$ 40,000.00	\$ -	Impact Decrease	\$ 340,370.00	\$ 340,370.00	
		1118530	1976381	0.10	0.10	*02	\$ 5,000.00	\$ -	No Revisions	\$ 8,615.00	\$ 8,615.00	xx
		1118597	1977051	1.08	0.19	*03	\$ 5,000.00	\$ -	Impact Decrease	\$ 18,000.00	\$ 18,000.00	
		NA	1977012	0.00	0.70	*04	\$ -	\$ -	New Project	\$ 63,000.00	\$ 63,000.00	
		NA	4110391	0.00	5.70	*04	\$ -	\$ -	New Project	\$ 502,649.00	\$ 502,649.00	
		NA	1973503	0.00	0.20	*04	\$ -	\$ -	New Project	\$ 17,637.00	\$ 17,637.00	
<b>Project Total</b>				<b>44.35</b>	<b>33.89</b>		<b>\$ 1,925,000.00</b>	<b>\$ 1,815,000.00</b>	<b>110,000.00</b>	<b>\$ 2,893,319.00</b>	<b>\$ 1,078,319.00</b>	
Apollo Bch. (Hills. / SWIM)	SW 67 (D024)	7113944	2557031	5.30	5.30	*00	\$ 450,000.00	\$ 450,000.00	No Revisions	\$ 450,166.00	\$ 166.00	
<b>Project Total</b>				<b>5.30</b>	<b>5.30</b>		<b>\$ 450,000.00</b>	<b>\$ 450,000.00</b>	<b>-</b>	<b>\$ 450,166.00</b>	<b>\$ 166.00</b>	
Peace River Bridge (WMD)	SW 69 (D026)	NA	4046971	0.80	0.80	*01	\$ 30,000.00	\$ 30,000.00	No Revisions	\$ 65,824.00	\$ 35,824.00	xx
<b>Project Total</b>				<b>0.80</b>	<b>0.80</b>		<b>\$ 30,000.00</b>	<b>\$ 30,000.00</b>	<b>-</b>	<b>\$ 65,824.00</b>	<b>\$ 35,824.00</b>	

Table 2. Net funding requested by mitigation project, including all modifications and new projects.

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Sept., 2004

Mitig. Project Name	Mitig. Project	WPI #	FM #	Impacts (Prev.)	Impacts (Current)	Plan Year	Previous Cost Estimate	Proposed Requested Funds	Remarks/Fund Allocation (Fund Shortage-Parenth.)	Available Funds	Available Funds Minus Proposed Mitig. Cost (Surplus Funds)	Funds Closed Out
Ft. DeSoto Park (Pinellas Co. / WMD-SWIM)	SW 70 (D027)	7116989	2569031	0.80	0.80	*02	\$ 65,825.00	\$ 65,825.00	No Revisions	\$ 65,825.00	\$ -	
		NA	4064741	0.10	0.10	*02	\$ 8,494.00	\$ 8,494.00	No Revisions	\$ 8,494.00	\$ -	
		7117240	2571521	0.30	0.30	*02	\$ 26,455.00	\$ 26,455.00	No Revisions	\$ 26,455.00	\$ -	
		7117225	2571371	0.20	0.20	*02	\$ 16,987.00	\$ 16,987.00	No Revisions	\$ 16,987.00	\$ -	
		NA	2570831	0.10	0.10	*03	\$ 9,197.00	\$ 9,197.00	No Revisions	\$ 9,197.00	\$ -	
		NA	4091541	0.20	0.20	*03	\$ 18,395.00	\$ 18,395.00	No Revisions	\$ 18,395.00	\$ -	
		NA	2570781	0.10	0.10	*03	\$ 8,957.00	\$ 8,957.00	No Revisions	\$ 8,957.00	\$ -	
<b>Project Total</b>				<b>1.80</b>	<b>1.80</b>		<b>\$ 154,310.00</b>	<b>\$ 154,310.00</b>	<b>-</b>	<b>\$ 154,310.00</b>	<b>\$ -</b>	
Boyd Hill Nature Park (St. Petersburg)	SW 71 (D028)	NA	4037701	0.10	0.10	*00	\$ 8,228.00	\$ 260.00	Reapportion Funding	\$ 5,760.00	\$ 5,500.00	xx
		7116974	2568881	0.40	0.40	*00	\$ 33,735.00	-	Reapportion Funding	\$ 33,735.00	\$ 33,735.00	xx
		NA	4082011	0.10	0.10	*01	\$ 8,228.00	-	Reapportion Funding	\$ 8,228.00	\$ 8,228.00	xx
		NA	4062561	0.10	0.10	*02	\$ 8,494.00	-	Reapportion Funding	\$ 8,494.00	\$ 8,494.00	xx
		7117158	2570701	0.10	0.10	*02	\$ 8,494.00	-	Reapportion Funding	\$ 8,494.00	\$ 8,494.00	xx
		7114129	2558881	9.30	8.10	*02	\$ 200,000.00	\$ 260,000.00	Reapportion Funding	\$ 687,990.00	\$ 427,990.00	
		7117019	2569311	5.00	5.00	*02	\$ 100,000.00	\$ 100,000.00	No Revisions	\$ 430,490.00	\$ 330,490.00	
		7113840	2555991	0.80	0.80	*02	\$ -	-	No Revisions	\$ 67,950.00	\$ 67,950.00	
		NA	2569951	2.10	2.10	*03	\$ -	-	No Revisions	\$ 178,368.00	\$ 178,368.00	
		NA	2558932	0.40	0.40	*03	\$ -	-	No Revisions	\$ 33,735.00	\$ 33,735.00	
<b>Project Total</b>				<b>18.40</b>	<b>19.50</b>		<b>\$ 367,179.00</b>	<b>\$ 360,260.00</b>	<b>\$ 6,919.00</b>	<b>\$ 1,678,582.00</b>	<b>\$ 1,318,322.00</b>	
Greer Tract (Hills.)	SW 72 (D029)	NA	2555851	6.50	4.90	*02	\$ 100,000.00	\$ 110,000.00	Impact Decrease	\$ 438,898.00	\$ 328,898.00	
		NA	4037801	0.20	0.20	*03	\$ -	-	Impact Decrease	\$ 17,637.00	\$ 17,637.00	
		NA	4112771	0.20	0.20	*03	\$ -	-	Impact Decrease	\$ 17,914.00	\$ 17,914.00	
		NA	4113371	0.00	1.60	*04	\$ -	-	New Project	\$ 141,062.00	\$ 141,062.00	
<b>Project Total</b>				<b>6.90</b>	<b>6.90</b>		<b>\$ 100,000.00</b>	<b>\$ 110,000.00</b>	<b>\$ (10,000.00)</b>	<b>\$ 615,511.00</b>	<b>\$ 505,511.00</b>	
Hills. R.S.P. (DEP/WMD)	SW 73 (D030)	NA	4037601	0.40	0.50	*02	\$ 100,000.00	\$ 100,000.00	Increase Costs	\$ 43,075.00	\$ (56,925.00)	
<b>Project Total</b>				<b>0.40</b>	<b>0.50</b>		<b>\$ 100,000.00</b>	<b>\$ 100,000.00</b>	<b>-</b>	<b>\$ 43,075.00</b>	<b>\$ (56,925.00)</b>	
Serenova 2,3,4,8 (LAND)	SW 74 (D031)	7115952	2563161	1.60	1.60	*02	\$ 130,000.00	\$ 135,000.00	No Revisions	\$ 135,899.00	\$ 899.00	
		<b>Project Total</b>		<b>1.60</b>	<b>1.60</b>		<b>\$ 130,000.00</b>	<b>\$ 135,000.00</b>	<b>\$ (5,000.00)</b>	<b>\$ 135,899.00</b>	<b>\$ 899.00</b>	
Cockroach Bay - Saltwater (Hills. Co. / WMD- SWIM)	SW 75 (D032)	7113944	2557031	5.40	5.40	*01	\$ 410,000.00	\$ 458,660.00	Reapportion Funding	\$ 458,660.00	\$ -	
		7117227	2571391	0.20	0.10	*01	\$ 10,000.00	\$ 8,494.00	Reapportion Funding	\$ 8,494.00	\$ -	xx
		<b>Project Total</b>		<b>5.60</b>	<b>5.50</b>		<b>\$ 420,000.00</b>	<b>\$ 467,154.00</b>	<b>\$ (47,154.00)</b>	<b>\$ 467,154.00</b>	<b>\$ -</b>	
Lake Lowery (Polk Co. /WMD-LAND)	SW 76	1118571	1976791	0.45	0.45	*03	\$ -	-	No Revisions	\$ 37,026.00	\$ 37,026.00	xx
		NA	4038901	0.45	1.90	*03	\$ -	-	Impact Increase	\$ 156,334.00	\$ 156,334.00	xx
		1147942	2012041	4.32	4.32	*03	\$ 255,436.00	\$ 255,436.00	No Revisions	\$ 366,928.00	\$ 111,492.00	xx
<b>Project Total</b>				<b>5.22</b>	<b>6.67</b>		<b>\$ 255,436.00</b>	<b>\$ 255,436.00</b>	<b>-</b>	<b>\$ 560,288.00</b>	<b>\$ 304,852.00</b>	
Conner Preserve (WMD-LAND)	SW 77 (D033)	7119013	2571741	1.40	1.40	*00	\$ 115,193.00	\$ 100,000.00	Reapportion Funding	\$ 115,193.00	\$ 15,193.00	
		7117138	2570501	0.20	0.20	*00	\$ 16,456.00	\$ 10,000.00	Reapportion Funding	\$ 16,456.00	\$ 6,456.00	
		NA	4037711	0.10	0.10	*00	\$ 8,228.00	-	Reapportion Funding	\$ 8,228.00	\$ 8,228.00	
		7115970	2563221	6.30	6.50	*00	\$ 535,103.00	\$ 520,000.00	Impact Increase	\$ 552,091.00	\$ 32,091.00	
		7115970	2563321	3.60	3.60	*01	\$ 302,794.00	\$ 290,000.00	Reapportion Funding	\$ 302,794.00	\$ 12,794.00	
		7116901	2568151	0.10	0.10	*01	\$ 8,494.00	-	Reapportion Funding	\$ 8,494.00	\$ 8,494.00	
		NA	2571931	0.00	0.09	*03	\$ -	-	Deferred Project	\$ 7,936.00	\$ 7,936.00	
		NA	4089061	0.00	0.20	*03	\$ -	-	Deferred Project	\$ 17,636.00	\$ 17,636.00	
		NA	2570781	0.00	0.10	*03	\$ -	-	Deferred Project	\$ 8,818.00	\$ 8,818.00	
		NA	2563241	0.00	9.20	*03	\$ -	\$ 700,000.00	Deferred Project	\$ 824,053.00	\$ 124,053.00	
		NA	2572983	0.00	0.40	*03	\$ -	\$ 30,000.00	Deferred Project	\$ 36,788.00	\$ 6,788.00	
		NA	4050172	0.00	0.10	*03	\$ -	-	Deferred Project	\$ 9,362.00	\$ 9,362.00	
		NA	2572992	0.00	12.00	*03	\$ -	\$ 250,000.00	Deferred Project	\$ 1,147,320.00	\$ 897,320.00	
		NA	2563371	0.00	6.00	*04	\$ -	\$ 100,000.00	New Project	\$ 537,426.00	\$ 437,426.00	
		NA	2572985	0.00	0.20	*04	\$ -	-	New Project	\$ 18,134.00	\$ 18,134.00	
		NA	2563231	0.00	4.20	*04	\$ -	-	New Project	\$ 401,562.00	\$ 401,562.00	
		NA	4113341	0.00	0.50	*04	\$ -	-	New Project	\$ 44,092.00	\$ 44,092.00	
		NA	4058224	0.00	0.10	*04	\$ -	-	New Project	\$ 8,957.00	\$ 8,957.00	
		NA	4058222	0.00	0.24	*04	\$ -	-	New Project	\$ 22,470.00	\$ 22,470.00	
<b>Project Total</b>				<b>11.70</b>	<b>50.73</b>		<b>\$ 986,268.00</b>	<b>\$ 2,000,000.00</b>	<b>\$ (1,013,732.00)</b>	<b>\$ 4,613,665.00</b>	<b>\$ 2,613,665.00</b>	

Table 2. Net funding requested by mitigation project, including all modifications and new projects.

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Sept., 2004

<u>Mitig. Project Name</u>	<u>Mitig. Project</u>	<u>WPI #</u>	<u>FM #</u>	<u>Impacts (Prev.)</u>	<u>Impacts (Current)</u>	<u>Plan Year</u>	<u>Previous Cost Estimate</u>	<u>Proposed Requested Funds</u>	<u>Remarks/Fund Allocation (Fund Shortage-Parenth.)</u>	<u>Available Funds</u>	<u>Available Funds Minus Proposed Mitig. Cost (Surplus Funds)</u>	<u>Funds Closed Out</u>
Bahia Beach (SWIM) (Hills. Co. / SWIM)	SW 78 (D034)	NA	4143481	20.10	28.40	^03	\$ 1,698,740.00	\$ 2,360,000.00	Impact Increase	\$ 2,366,403.00	\$ 6,403.00	
		NA	2583982	0.40	0.40	^03	\$ 33,975.00	\$ 25,000.00	New Project	\$ 33,975.00	\$ 8,975.00	
		NA	2586621	0.00	1.00	^04	\$ -	\$ 80,000.00	New Project	\$ 88,184.00	\$ 8,184.00	
		NA	2569942	0.00	1.50	^04	\$ -	\$ 125,000.00	New Project	\$ 132,276.00	\$ 7,276.00	
		NA	2568812	0.00	0.50	^04	\$ -	\$ 40,000.00	New Project	\$ 45,336.00	\$ 5,336.00	
		NA	2568811	0.00	0.80	^04	\$ -	\$ 65,000.00	New Project	\$ 72,538.00	\$ 7,538.00	
		NA	2569971	0.00	0.30	^04	\$ -	\$ 20,000.00	New Project	\$ 27,201.00	\$ 7,201.00	
		NA	2557931	0.00	0.10	^04	\$ -	\$ 5,000.00	New Project	\$ 9,067.00	\$ 4,067.00	
		NA	4113371	0.00	0.70	^04	\$ -	\$ 35,000.00	New Project	\$ 35,274.00	\$ 274.00	
		NA	2584151	0.00	0.50	^04	\$ -	\$ 45,000.00	New Project	\$ 45,986.00	\$ 986.00	
				20.50	34.20	\$	1,732,715.00	\$ 2,800,000.00	\$ (1,067,285.00)	\$ 2,856,240.00	\$ 56,240.00	
Fox Creek Reg. Mitig. (Sarasota County) Project Total	SW 79	NA	4063143	0.00	14.70	^04	\$ -	\$ 1,300,000.00	New Project	\$ 1,376,288.00	\$ 76,288.00	
		NA	1980101	0.00	0.12	^04	\$ -	\$ -	New Project	\$ 10,582.00	\$ 10,582.00	
				0.00	14.82	\$	-	\$ 1,300,000.00	\$ (1,300,000.00)	\$ 1,386,870.00	\$ 86,870.00	
GRAND TOTAL				361.36	422.55		\$ 20,458,583.00	\$ 23,432,926.00	\$ (2,974,343.00)	\$ 35,627,234.00	\$ 12,194,308.00	

Avg. Mit. Cost / Impact Ac.  
\$ 55,455.98



**Southwest Florida Water Management District  
2004-2005 Regional Mitigation Plan**

### Table 3 - Amended DOT Impacts and Associated Mitigation

Sept. 2004

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DOT- WPI	DOT- FM	Prev. Ac.	Curr. Ac.	Mitigation Project	Cost Estimate (Previous)	Cost Estimate (Current)	Mitig. Type	Prev. Mitig.	Curr. Mitig.	Prev. Mitig. Credits	Curr. Mitig. Credits
7123639	2583981	1.90	2.30	SW 45 - Gateway Restoration	\$ 100,000.00	\$ 100,000.00	S. Wetland Enh./Rest.	16.0	16.0		
7147874	2588701	9.00	9.10	SW 45 - Gateway Restoration	\$ 40,000.00	\$ 40,000.00	S. Wetland Enh./Rest.	25.8	25.8		
NA	2012041	1.99	2.35	SW 49 - Reedy Ck. Mit. Bank	\$ 65,471.00	\$ 77,315.00	Fresh Forested Enhance			1.99	2.35
NA	1984781	0.50	0.10	SW 52 - Pine Island Mit. Bank	\$ 24,000.00	\$ 4,800.00	Fresh Forested Restoration			0.5	0.1
NA	2569941	1.00	0.70	SW 56- Cockroach Bay (Fresh)	\$ 84,937.00	\$ 59,456.00	F. Wetland Creation	3.6	2.6		
7117086	2569981	2.00	1.10	SW 56- Cockroach Bay (Fresh)	\$ 84,937.00	\$ 84,937.00	F. Wetland Creation	7.2	4.2		
NA	2569491	0.10	0.50	SW 56- Cockroach Bay (Fresh)	\$ 4,000.00	\$ 10,000.00	F. Wetland Creation	0.4	1.5		
NA	2012041	3.55	3.88	SW 59- Hampton Tract	\$ 200,000.00	\$ 200,000.00	F. Wetland Enhancement	140.0	140.0		
NA	2012172	5.43	4.26	SW 61 - Cypress Ck., Jennings	\$ 130,000.00	\$ 130,000.00	Wet.&Upl.Acquis./Enhance.	42.5	42.5		
NA	4092071	0.20	0.30	SW 64- Baird Tract	\$ 1,000.00	\$ -	F. Wetland Enhancement	13.0	20.0		
NA	4037811	0.30	0.40	SW 64- Baird Tract	\$ -	\$ -	F.Wetland Enhancement	20.0	27.0		
NA	1960223	1.94	0.84	SW 65 - Rutland Ranch	\$ 30,000.00	\$ 5,000.00	Wet.&Upl.Rest./Enhance.	17.2	17.2		
NA	1961211	2.24	0.90	SW 65 - Rutland Ranch	\$ 30,000.00	\$ 10,000.00	Wet.&Upl.Rest./Enhance.	16.0	16.0		
NA	4043231	4.87	3.80	SW 65 - Rutland Ranch	\$ 70,000.00	\$ 20,000.00	Wet.&Upl.Rest./Enhance.	54.9	54.9		
118494	1977061	16.98	1.77	SW 66-Lk. Hancock Reserve	\$ 160,000.00	\$ 160,000.00	Wet.&Upl.Rest./Enhance.	85.0	10.0		
118564	1977071	4.76	3.80	SW 66-Lk. Hancock Reserve	\$ 40,000.00	\$ 40,000.00	Wet.&Upl.Rest./Enhance.	24.0	20.0		
NA	4084411	1.00	-	SW 66-Lk. Hancock Reserve	\$ 5,000.00	\$ -	Wet.&Upl.Rest./Enhance.	5.0	-		
118597	1977051	1.08	0.19	SW 66-Lk. Hancock Reserve	\$ 5,000.00	\$ -	Wet.&Upl.Rest./Enhance.	3.0	1.0		
NA	2558881	9.30	8.10	SW 71 - Boyd Hill Nature Park	\$ 750,000.00	\$ 400,000.00	F.Forested Wet. Enh.	45.0	40.0		
7117227	2571391	0.20	0.10	SW 75 - Cockroach Bay (Salt)	\$ 10,000.00	\$ 8,494.00	S. Wetland Creation	0.6	0.3		
NA	4038901	0.45	1.90	SW 76-Lk. Lowery Tract	\$ -	\$ -	Marsh Preservation	18.0	18.0		
7115970	2563221	6.30	6.50	SW 77- Conner Preserve	\$ 535,103.00	\$ 520,000.00	Wet.&Upl.Rest./Enhance.	10.0	380.0		
NA	4143481	20.20	28.40	SW 78- Bahia Beach	\$ 1,698,740.00	\$ 2,300,000.00	Wet.&Upl.Rest./Enhance.	64.0	90.0		
<b>TOTALS</b>		<b>95.29</b>	<b>81.29</b>		<b>\$ 4,068,188.00</b>	<b>\$ 4,170,002.00</b>		<b>611.2</b>	<b>927.0</b>	<b>2.49</b>	<b>2.45</b>
<b>NET DIFF.</b>			<b>-14.0</b>			<b>\$ 101,814.00</b>		<b>Acres</b>	<b>Acres</b>	<b>Credits</b>	<b>Credits</b>
Average	Mitig.	Ratio:	13 mitigation acres : 1 impact acre								
Average	Mitig.	Cost:	\$8,523 per impact acre, \$4,465 per mitigation acre								

**Southwest Florida Water Management District  
2004-2005 Regional Mitigation Plan**

**Table 4 - New DOT Impacts and Associated Mitigation**

Sept. 2004

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DOT - WPI	DOT - FM	Const. Date	FLUCCS	Acres	Total Acres	Mitigation Project	Cost Estimate (Current)	Mitig. Type	Mitig. Acres	Mitig. Bank
NA	4138871	Oct.-'05	641x	3.00	5.00	SW 51 - Myakka River S.P.	\$ 400,000.00	F. Wetland Enhance.	865.0	
			643	2.00						
NA	1973503	May-'05	510	0.20	0.20	SW 66 - Hancock Reserve	\$ -	F. Wetland Enhance.	1.0	
NA	1977012	Aug.-'09	641	0.60	0.70	SW 66 - Hancock Reserve	\$ -	F. Wetland Enhance.	4.0	
			641x	0.10						
NA	4110391	Oct.-'10	630	0.80	5.70	SW 66 - Hancock Reserve	\$ -	F. Wetland Enhance.	30.0	
			641	2.10						
			641x	2.80						
NA	4091551	Dec.-'09	510	1.50	2.30	SW 71 - Boyd Hill	\$ 50,000.00	F. Forested Wet. Enhancement	10.5	
			530	0.30						
			630	0.50						
NA	2571931	Feb.-'05	615	0.05	0.09	SW 77 - Conner Preserve	\$ -	F. Wetland Enhance. Upland Restoration	6.0	
			630	0.02						
			641	0.02						
NA	4089061	Feb.-'05	615	0.20	0.20	SW 77 - Conner Preserve	\$ -	" "	12.0	
NA	2570781	Nov.-'05	618	0.10	0.10	SW 77 - Conner Preserve	\$ -	" "	6.0	
NA	2563241	Sept.-'09	610	1.80	9.20	SW 77 - Conner Preserve	\$ 700,000.00	" "	550.0	
			621	5.20						
			640	2.00						
			641	0.20						
NA	2572983	June-'11	641	0.40	0.40	SW 77 - Conner Preserve	\$ 30,000.00	" "	25.0	
NA	4050172	Sept.-'11	610	0.10	0.10	SW 77 - Conner Preserve	\$ -	" "	6.0	
NA	2572992	Dec.-'12	630	8.00	12.00	SW 77 - Conner Preserve	\$ 250,000.00	" "	720.0	
			643	4.00						
NA	2563371	Sept.-'02	621	6.00	6.00	SW 77 - Conner Preserve	\$ 100,000.00	" "	360.0	
NA	2572985	Oct.-'09	617	0.20	0.20	SW 77 - Conner Preserve	\$ -	" "	12.0	
NA	2563231	April-'14	610	2.00	4.20	SW 77 - Conner Preserve	\$ -	" "	250.0	
			618	0.50						
			621	1.00						
			641	0.70						
NA	4113341	Nov.-'07	641x	0.50	0.50	SW 77 - Conner Preserve	\$ -	" "	30.0	
NA	4058224	Oct.-'08	641x	0.10	0.10	SW 77 - Conner Preserve	\$ -	" "	6.0	
NA	4058222	Oct.-'08	617	0.20	0.24	SW 77 - Conner Preserve	\$ -	" "	15.0	
			621	0.01						
			641	0.03						
NA	2572982	Undet.	641	5.50	5.50	SW 77 - Conner Preserve	\$ -	" "	330.0	

## Southwest Florida Water Management District 2004-2005 Regional Mitigation Plan

#### Table 4 - New DOT Impacts and Associated Mitigation

Sept. 2004

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[illegible]

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Cattle Dock Point (SW 31)</b> (DEP / WMD-SWIM) Myakka Basin - Charlotte Co.	Charlotte Co. Mangrove - 1.93 ac. Marsh (Fresh) - 3.66 ac. Marsh (Salt) - 3.33 ac. <b>Total - 8.92 acres</b>	Mangrove (Creation) - 1.3 ac. Marsh (Fresh & Oligohaline) - 4.4 ac. Marsh (Salt) Creation - 13.9 ac. Upland Habitat (Creation) - 4.6 ac. <b>Total - 24.2 acres</b>	Cattle Dock Point (Phase II) is an expansion of adjacent restoration phase covering over 10 acres.
<b>Lake Thonotasassa (SW 34)</b> (WMD-SWIM / Hills. Co. Parks) Hillsborough Basin - Hillsborough Co.	Pasco Co. Inland Pond - 0.8 ac. Scrub-Shrub - 4.1 ac. Cypress - 4.6 ac. Marsh (Fresh) - 4.7 ac. <b>Total - 14.20 acres</b>	Marsh (Fresh) Enhance - 14 ac. Marsh Restoration - 45 ac. Cypress Plantings Throughout <b>Total - 59 acres</b>	The Lk. Thonotasassa project is a large-scale habitat restoration project that also provides water quality treatment & attenuation of contributing watershed flow into the lake.
<b>Quick Point (SW 38)</b> (Longboat Key) Lower Coastal - Sarasota Co.	Sarasota Co. Seagrass - 0.27 ac. Mangrove - 0.32 ac. <b>Total - 0.59 acre</b>	Seagrass Restoration - 1.5 ac. Inland Pond - 0.3 ac. Mangrove Enhancement - 1.0 ac. <b>Total - 2.8 acres</b>	Quick Point Preserve is a 34-acre tract with other restoration activities funded by various sources.
<b>Gateway Restoration (SW 45)</b> (Pinellas Co. / WMD-SWIM) Tampa Bay Drainage Basin - Pinellas Co.	Hillsborough & Pinellas Co. Mangrove - 13.3 ac. Exotic Hardwood - 3.7 ac. Marsh (Salt) - 5.1 ac. Bay & Estuary - 4.0 ac. Marsh (Fresh) - 0.5 ac. Ditch - 0.3 ac. <b>Total - 26.9 acres</b>	Mangrove Enhancement - 42.5 ac. Marsh (Salt) Restoration - 42.9 ac. Bay & Estuary - 7.8 ac. Upland Habitat Restoration - 3.5 ac. <b>Total - 96.7 acres</b>	This phase of Gateway covers a total 176-acres, portion of adjacent several hundred acres of proposed estuary restoration & enhancement.
<b>Tenoroc / Saddle Ck. (SW 47)</b> (DEP / FFWCC) Peace River - Polk Co.	Polk Co. Forest (Fresh) - 6.33 ac. Marsh (Fresh) - 1.25 ac. <b>Total - 8.17 acres</b>	Forested Wetland Creation - 21.4 ac. Marsh (Fresh) Creation - 3.7 ac. <b>Total - 25.1 acres</b>	The creation & restoration of wetland habitat at Tenoroc is part of an overall habitat & watershed management plan that covers over 6,000 acres.

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Reedy Creek Mitigation Bank (SW 49)</b> (Private Mitigation Bank) Kissimmee River Basin - Polk & Osceola Co.	Polk Co. Marsh (Fresh) - 0.39 ac. Hardwood Forest - 2.35 ac. <b>Total - 2.75 acres</b>	Forested Wetland Enhancement & Upland Habitat Restoration <b>Total – purchase 2.74 credits</b>	The mitigation bank covers over 3,500-acres of wetland and upland enhancement & restoration.
<b>Terra Ceia Restoration (SW 50)</b> (DEP / WMD - SWIM) Manatee River Basin – Manatee Co.	Manatee Co. Mangrove - 0.18 ac. Shrub – 0.41 ac. <b>Total - 0.59 acre</b>	Mangrove Enhancement - 4.0 ac. Upland Habitat Enhancement - 3.0 ac. <b>Total – 7.0 acres</b>	This mitigation is part of a 1,700- acre tract proposed for major wetland & upland enhancement & restoration activities.
<b>Myakka River State Park (SW 51)</b> (DEP - Parks) Myakka Basin - Sarasota Co.	Sarasota Co. Stream Swamp – 0.30 ac. Marsh (Fresh) - 3.19 ac. Ditch – 3.00 ac. <b>Total - 7.36 acres</b>	Stream Swamp Enhancement - 194 ac. Marsh (Fresh) Enhancement - 1074 ac. Marsh (Fresh) Restoration - 6 ac. <b>Total – 1274 acres</b>	The project includes removal of a railroad grade berm (9 miles) and filling ditches to restore the hydrology of substantial wetland acreage.
<b>Little Pine Island Mitigation Bank (SW 52)</b> (Private Mitigation Bank) Charlotte Harbor - Lee Co.	Charlotte Co. Forest (Fresh) – 0.1 ac. Bay & Estuary - 2.24 ac. Mangrove – 2.75 <b>Total - 5.09 acres</b>	Saltwater Marsh Restoration & Mangrove Enhancement <b>Total - purchase 5.09 credits</b>	The mitigation bank includes eradication of exotic vegetation from 1,565 wetland acres on state- owned property.
<b>Boran Ranch Mitigation Bank (SW 53)</b> (Private Mitigation Bank) Peace River Basin - DeSoto Co.	Hardee & DeSoto Co. Hardwood Forest - 9.96 ac. Marsh (Fresh) – 11.80 ac. <b>Total - 21.76 acres</b>	Freshwater wetland & upland restoration & enhancement <b>Total - 21.76 credits</b>	The mitigation bank includes 132 wetland acres and 272 upland acres (total 404 acres), construction complete, currently maintenance & monitoring.

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Anclote Parcel (SW 54)</b> (WMD - Land Resources) Upper Coastal Basin - Pasco Co.	Pasco Co. Mixed Hardwood - 4.1 ac. Scrub-Shrub - 0.8 ac. Cypress - 4.6 ac. Marsh (Fresh) - 2.7 ac. Ditch - 1.4 ac. <b>Total - 13.6 acres</b>	Acquisition & enhancement of 185-acres that includes mixed hardwood swamp, cypress, pine flatwoods, and oak hammocks. Creation of a 6-acre marsh from an existing borrow pit. <b>Total - 185 acres</b>	The acquired tract is adjacent to over 25,000-acres of publicly-owned native habitat, majority deeded to WMD/Pasco Co. as mitigation for other projects' wetland impacts.
<b>Upper Hills. - 4 &amp; 5 (SW 55)</b> (WMD - Land Resources) Hillsborough Basin - Pasco Co.	Polk Co. Mixed Hardwood - 6.57 ac. Marsh (Fresh) - 6.98 ac. <b>Total - 13.55 acres</b>	Cypress & Mixed Hardwood Enhancement & Restorat. - 101.3 ac. Forested & Marsh Restorat. - 10 ac. Marsh & Shrub Enhance.- 8.7 ac. <b>Total - 120 acres</b>	Backfill 1.3 miles of ditch to hydrologically enhance 12 forested and 3 non-forested wetlands, portion of WMD property covering several thousand acres.
<b>Cockroach Bay - Fresh (SW 56)</b> (Hills. Parks / WMD - SWIM) Tampa Bay Basin - Hills. Co.	Pinellas Co. Canal - 0.8 ac. Shrub - 0.2 ac. Marsh (Fresh) - 8.3 ac. <b>Total - 9.3 acres</b>	Marsh (Fresh) Creation - 26 ac. Upl. Hardwood Hamm. Enhance - 7 ac. <b>Total - 33 acres</b>	Entire site covers 651 acres of various fresh & saltwater wetland creation & restoration, along with upland habitat restoration
<b>Lk. Panasoffkee Restorat. (SW 57)</b> (WMD - SWIM) Withlacoochee Basin - Sumter Co.	Sumter Co. Open Water - 5.93 ac. (Bridge Impact over Lk. Panasoff.) <b>Total - 5.93 acres</b>	Lake Enhancement - 75 ac. <b>Total - 75 acres</b>	Mitigation includes portion of lake bottom dredging to remove 5 million cub.yds. of sediment from 1,010 acres of the lake.
<b>Ledwith Lake (SW 58)</b> (Alachua Co./ FDEP / SJRWMD) Ocklawaha Basin - Alachua Co.	Marion Co. Marsh (Fresh) - 3.66 ac. Mixed Hardwood - 0.02 ac. <b>Total - 3.68 acres</b>	Acquisition & enhance 160-acre marsh <b>Total - 160 acres</b>	Site is a 2200-acre marsh proposed for public acquisition, within a proposed east-west corridor from Ocala Nat. Forest to Wacasassa River.

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Hampton Tract (SW 59)</b> (WMD - Land Resources) Withlacoochee Basin - Polk Co.	Polk Co. Forested Hardwood – 8.9 ac. Marsh - 7.2 ac. Cypress – 3.9 ac. Shrub – 2.8 ac. Open Water / Ditches – 1.2 <b>Total - 22.8 acres</b>	Mixed Forest Enhancement – 684 ac. Cypress Enhancement – 309 ac. Wet Prairie Enhancement – 60 ac. Hydric Pine Flatwood Enhance - 19 ac. Marsh Enhancement - 4 ac. <b>Total – 1076 acres</b>	Entire tract is 7,640 acres, adjacent to Green Swamp Wilderness Preserve (99,775 acres). Backfill over 4.5 miles of wetland ditches, install over 90 ditchblocks to restore wetland hydrology.
<b>Serenova Extension (SW 60)</b> (WMD - Land Resources) Upper Coastal – Pasco Co.	Pasco Open Water - 0.15 ac. Cypress - 8.19 ac. Marsh (Fresh) - 3.48 ac. <b>Total - 11.82 acres</b>	Acquisition, Enhancement, Management Oak Hammocks – 38 ac. Pine Flatwoods – 98 ac. Mixed Forested Wetlands - 44 ac. Cypress - 15 ac. Marsh (Fresh) - 2 ac. Open Water - 7 ac. Marsh Creation – 11 ac. <b>Total – 215 acres</b>	This tract is adjacent to the Serenova Tract & Starkey Wilderness Area, a 15,000-acre parcel of native habitat owned by the WMD.
<b>Cypress Ck. Preserve, West Jennings Tract (SW 61)</b> (Hillsb. Parks / WMD-Land) Hillsborough Basin – Hillsbor. Co.	Hillsborough, Pasco, Polk Co. Forested – 18.3 ac. Ditch (Forest) – 1.84 ac. Marsh (Fresh) – 3.6 ac. Willow – 0.5 ac. Cypress – 0.7 ac. <b>Total - 24.9 acres</b>	Acquisition, Enhancement, Management Mixed Forest Wetland – 146 ac. Upland Hardwood Hammock – 98 ac. Pine Flatwoods – 19 ac. Palmetto Prairie – 15 ac. Pine Flatwood Restoration - 20 ac. <b>Total - 298 acres</b>	This parcel acquisition is adjacent to several hundred acres of native habitat owned and managed by Hills. Co. Parks (ELAPP).

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Tappan Tract (SW 62)</b> (City of Tampa / WMD – SWIM) Tampa Bay Drainage Basin - Hillsborough County	Hillsborough Co. Mangrove – 0.3 ac. Ditch (Salt) - 3.5 ac. Ditch (Fresh) - 0.6 ac. Pond – 0.1 ac. Canal – 0.6 ac. <b>Total - 5.1 acres</b>	Mangrove Enhancement - 0.77 ac. Marsh (Salt) Create & Enhance - 5.9 ac. Marsh (Fresh) Create - 0.55 ac. Hardwood Hammock Restore - 1.2 ac. <b>Total - 8.4 acres</b>	One of several tracts along Old Tampa Bay proposed for acquisition and restoration.
<b>Hillsbor. River Corridor (SW 63)</b> (WMD - Land Resources) Hillsborough Basin – Pasco Co.	Pasco Co. Cypress - 1.1 ac. <b>Total - 1.1 acres</b>	Acquisition & Preservation - Forest Wetland Floodplain - 10.0 ac. <b>Total - 10 acres</b>	Acquiring this parcel will almost connect separate WMD-owned parcels covering several thousand acres along the Hillsborough River.
<b>Baird Tract (SW 64)</b> (DEP / DOF) Withlacoochee Basin – Sumter Co.	Citrus, Hernando Co. Forest - 12.7 ac. Shrub – 3.4 ac. Marsh (Fresh) - 6.8 ac. Waterway & Ditch – 0.4 <b>Total - 23.3 acres</b>	Marsh Enhancement - 970 ac. Forested Wetland Enhance. - 548 ac. <b>Total - 1518 acres</b>	The Baird Tract covers over 11,000 acres within the Withlacoochee State Forest.
<b>Rutland Ranch (SW 65)</b> (WMD-Land Resources) Manatee River Basin – Manatee Co.	Manatee Co. Forest - 3.11 ac. Marsh - 4.9 ac. Ditches - 0.9 ac. <b>Total – 8.0 acres</b>	Marsh Enhancement – 75 ac. Marsh Restoration – 5 ac. Upland Restoration – 10 ac. Upland Enhancement – 25 ac. <b>Total - 115 acres</b>	The South Tract of Rutland Ranch covers 900 acres, enhancement includes hydrologic restoration of several heavily drained marshes, and upland habitat corridors.



**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Lk. Hancock Reserve (SW 66)</b> (Polk Co. Nat. Res./WMD-Land Res.) Peace River, Polk County	Polk Co. Forest - 8.7 ac. Shrub - 0.5 ac. Marsh - 13.2 ac. Ditches – 8.7 ac. <b>Total - 33.9 acres</b>	Mixed Forested Restore - 50 ac. Mixed Forest Enhance – 40 ac. Marsh Enhance – 339 ac. Upland Restore - 24 ac. Upland Preservation – 19 acres <b>Total – 472 acres</b>	The entire Lake Hancock Reserve covers 1256 acres. Restoring wet pastures to marsh and forested wetland habitat within the core of the property. Adjacent upland and wetland habitat will be restored by Polk Co.
<b>Apollo Beach Nature Pres. (SW 67)</b> (Hills. Co. Parks / WMD-SWIM) Tampa Bay Drainage, Hills. Co.	Hillsborough Co. Marsh (Salt) – 5.3 ac. <b>Total - 5.3 acres</b>	Marsh (Salt) Create - 13.8 ac. <b>Total – 13.8 acres</b>	The site includes a total of 33 acres of saltwater wetland creation and 5 acres of upland preservation and enhancement.
<b>Peace River Bridge Rest. (SW 69)</b> (DOT & WMD) Peace River Basin, Charlotte Co.	Charlotte Co. Mangrove & Salt-marsh Impacts <b>Total - 3.31 acres</b>	Restore Temporary Impacts to Mangrove & Saltmarsh - 2.51 ac. Enhance non-vegetated area under existing bridge span after removal, Mangrove & Saltmarsh - 2.06 ac. <b>Total - 4.57 acres</b>	A joint sponsorship between DOT and the WMD at the bridge construction site. Bridge Contractor responsible for the earthwork, WMD responsible for post-const. activities.
<b>Ft. DeSoto Park (SW 70)</b> (Pinellas County / WMD – SWIM) Upper Coastal Basin, Pinellas Co.	Pinellas Co. Open Water – 0.7 ac. Marsh – 0.3 ac. Ditch – 0.1 ac. Mangrove – 0.2 ac. Seagrass – 0.4 ac. Shrub – 0.1 ac. <b>Total – 1.8 acres</b>	Seagrass Enhancement – 20 ac. <b>Total – 18 acres</b>	The proposed bridge (2) construction will restore tidal flow connections to interbay areas within the Park, resulting in a minimum 200 acres of seagrass enhancement, with additional enhancement to mangrove and other tidal ecosystems.

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Boyd Hill Nature Park (SW 71)</b> (City of St. Petersburg) Tampa Bay Drainage Basin, Pinellas County	Pinellas & Hillsborough Counties Mixed Forest – 8.3 ac. Shrub – 6.3 ac. Marsh – 1.8 ac. Canals & Ditches – 3.1 ac. <b>Total – 19.5 acres</b>	Hardwood Wet. Enhancement – 69.6 ac. Upland Habitat Enhancement – 21.4 ac. Pond Enhancement – 1.0 ac. <b>Total – 92.0 acres</b>	The 300-acre park of upland and wetland habitat borders Lk. Maggiore, a rare and unique mosaic island of habitat communities for southern Pinellas County.
<b>Cypress Ck. Preserve, West Greer Tract (SW 72)</b> (Hillsb. Parks / WMD-Land) Hillsborough Basin – Hillsbor. Co.	Hillsborough County Mixed Forest – 4.9 ac. Marsh 0.7 ac. Shrub – 1.0 ac. Ditch – 0.3 ac. <b>Total – 6.9 acres</b>	Forest Wet. Preservation – 61.5 ac. Upl. Forested Enhance. – 38.0 ac. <b>Total – 99.5 acres</b>	This parcel acquisition is adjacent to several hundred acres of native habitat owned and managed by Hills. Co. Parks (ELAPP).
<b>Hillsborough River State Park, Bulkhead Removal (SW 73)</b> (FDEP – Parks / WMD) Hillsborough Basin – Hillsbor. Co.	Hillsborough County Mixed Forest – 0.5 ac. <b>Total – 0.5 acre</b>	Forest Wet. Restoration – 0.5 ac. <b>Total – 0.5 acre</b>	This project includes removal of a concrete bulkhead and forested wetland restoration along the Hillsborough River.
<b>Serenova Pres. - 2,3,4,8 (SW 74)</b> (WMD-Land) Upper Coastal Basin – Pasco County	Pasco County Mixed Forest – 1.6 ac. <b>Total – 1.6 acres</b>	Forested Wet. Enhancement – 26 ac. <b>Total – 26 acres</b>	Hydrologic enhancement of the Pithlac. River and Five Mile Creek within the Serenova Preserve (7,000 acres)
<b>Cockroach Bay – Saltwater (SW 75)</b> (Hills. Parks / WMD – SWIM) Tampa Bay Drain. Basin – Hills. Co.	Hillsborough County Marsh (Salt) – 5.4 ac. Mangrove – 0.2 ac. <b>Total – 5.4 acres</b>	Marsh (salt) creation – 15.1 acres <b>Total – 15.1 acres</b>	Entire site covers 651 acres of various fresh & saltwater wetland creation & restoration, along with upland habitat restoration.

**Table 5 - DOT Mitigation Projects - Compensation Summaries, Updated September, 2004**

<b>Mitigation Project Agency Representative Watershed Basin, County</b>	<b>DOT Impacts Wetland Locations, Type &amp; Acreage</b>	<b>Proposed Mitigation Type &amp; Acreage</b>	<b>Remarks</b>
<b>Lake Lowery Tract (SW 76)</b> (Polk Co. Nat. Res. / WMD – Land) Ocklawaha River Basin – Polk Co.	Polk County Cypress – 0.6 ac. Marsh (Fresh) – 3.8 ac. Mixed Forest – 2.3 ac. <b>Total – 6.7 acres</b>	Marsh Preservation – 198 acres	Entire site includes joint-acquisition and preservation of 397 acres, predominantly forested and marsh wetland habitat. Adjacent to 5700-acres of FFWCC property (Hilochee Wildlife Mgmt. Area).
<b>Conner Preserve (SW 77)</b> (WMD – LAND) Upper Coastal & Hillsborough River Drainage Basins – Pasco County	Pasco County Hardwood Forest – 21.9 ac. Cypress – 9.8 ac. Shrub – 1.9 ac. Marsh (Fresh) – 17.1 ac. <b>Total – 50.6 acres</b>	Forested Wet. Enhancement – 918 acres Non-Forested Wet. Enhance. – 712 acres Upland Habitat Enhancement – 1046 acres Upland Habitat Restoration – 304 acres <b>Total – 2,980 acres</b>	Habitat improvements within a tract located in the core of several other public lands in central Pasco County.
<b>Bahia Beach Tract (SW 78)</b> (Hills. Co. Parks / WMD – SWIM) Tampa Bay Basin – Hills. Co.	Hillsborough County Canal & Waterway – 3.4 ac. Pond – 0.3 ac. Shrub – 0.8 ac. Exotic Shrub – 2.8 ac. Cypress – 0.3 ac. Forested Wet. – 10.6 ac. Marsh (Fresh) – 7.0 ac. Marsh (Salt) – 0.8 ac. Ditch – 6.3 ac. Mangrove – 1.7 ac. <b>Total – 33.9 acres</b>	Freshwater Forested & Marsh Wetland Creation – 40 acres Upland Habitat Restoration – 21 acres Coastal Wet. Hammock Enh. – 17 acres Marsh (salt) Restoration – 15 acres Mangrove & Salt-marsh Enhance. – 27 ac. <b>Total – 120 acres</b>	The Bahia Beach Tract is adjacent to several thousand acres of other Hills. County tracts that have been acquired, enhanced and restored with assistance through the WMD.
<b>Fox Creek Regional Mitigation Project (SW 79)</b> (Sarasota County) Lower Coastal Basin – Sarasota Co.	Sarasota County Hardwood Forest – 0.2 ac. Shrub – 1.2 ac. Marsh (Fresh) – 13.6 <b>Total – 15 acres</b>	Freshwater Forested & Marsh Creation – 20-30 acres	The entire tract includes 140 acres of upland and wetland acres of wetland and upland habitat creation, restoration, and enhancement.

Table 6 - Mitigation Projects - Habitat Types & Acreages					Page 1 of 2			Updated Sept., 2004						
	DOT	Forest	Forest	Forest	Non-Forest	Non-Forest	Non-Forest	Mangrove	Mangrove	Non-Forest	Forest	Forest	MITIG.	PROJ.'s
Mitigation	Impact	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Wetland	Upland	Upland	BANK	MITIG.
Projects	Acreage	Enhance (Fresh)	Restore & Create (Fresh)	Preserve & Enhance (Fresh)	Enhance (Fresh)	Restore & Create (Fresh)	Preserve (Fresh)	Enhance (Salt)	Restore & Create (Salt)	Restore & Create (Salt)	Enhance	Restore	CREDITS	ACREAGE
SW 31-Cattle Dock	8.92				4.3				1.3	13.9		4.6		24.1
SW 34-Lk. Thono	14.2				14.0	45.0								59.0
SW 38-Quick Point	0.59							1.0		1.8				2.8
SW 45-Gateway	27.4							42.5		50.7		3.5		96.7
SW 47-Teneroc	8.17		21.4			3.7								25.1
SW 49-Reedy Ck.	2.74												2.75	0.0
SW 50-Terra Ceia	0.59							4.0			3.0			7.0
SW 51-Myakka S.P.	7.36	194.0			1,074.0	6.0								1274.0
SW 52-LPI Mit. Bk.	5.1												5.1	0.0
SW 53-Boran Ranch	21.89												21.76	0.0
SW 54-Anclote	13.6			139.0		6.0					40.0			185.0
SW 55-UH 4&5	13.55	101.0	10.3		8.7									120.0
SW 56-C.R.Bay-Fresh	9.6					26.0					7.0			33.0
SW 57-Lk. Panas.	5.93				75.0									75.0
SW 58 - Ledwith Lk.	3.74						160.0							160.0
SW 59-Hampton	22.83	993.0			83.0									1076.0
SW 60-Serenova Ext.	11.82			59.0	11.0	9.0					136.0			215.0
SW 61-Jennings	24.9			146.0							132.0	20.0		298.0
SW 62-Tappan	5.1					0.55		0.77		5.9		1.20		8.42

[illegible]

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cattle Dock Point

Project Manager: Paul Miselis, WMD - SWIM Engineer

County(ies): Charlotte

Project Number: SW 31

Phone No: (813) 985-7481 ext. 2200

Location: Section 3, T41S, R21E

### IMPACT INFORMATION

DOT WPI 1110148, FM 1937941, SR 776 - CR 771 to Willow Bend Rd. ERP #: 4316676.00 COE: 199601986

Drainage Basin(s): Myakka River Water Body(s): Myakka River/Charlotte Harbor SWIM water body? Y

Impact Acres/Types: WPI 1110148 1.93 ac. 612 (Fluccs code)

3.66 ac. 641 (Fluccs code)

3.33 ac. 642 (Fluccs code)

**TOTAL: 8.92 Acres**

Note: This project has an additional 2.08 acres of open water impact mitigated through the purchase of 2.08 credits from the Little Pine Island Mitigation Bank (SW 52).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement Mitigation Area: **24.1 Acres**

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? N Drainage Basin(s): Myakka River Drainage Basin Water Body(s): Myakka River and Charlotte Harbor SWIM water body? Y

#### Project Description

- A. **Overall project goals:** The purpose of the project is to restore the intertidal habitat on property jointly owned by the FDEP and the SWFWMD. The project removed extensive exotic vegetation that invaded the site, regraded the site to create a habitat mosaic of upland (hammocks, cabbage palm) and wetland (transitional, intertidal, and freshwater) communities (Figs. C,D,E).
- B. **Brief description of current condition:** Prior to construction in 2004, the area was disturbed by fill from an abandoned constructed boat basin. The site was been heavily invaded by nuisance/exotic vegetation, particularly Brazilian pepper and Australian Pine. The freshwater marsh was dominated by cattails and sesbania (photos).
- C. **Brief description of proposed work:** Characterized the existing vegetation, hydrology and soil conditions; coordinated the design with the appropriate agencies; prepared the site design and permit applications. The disturbed uplands had nuisance/exotic vegetation removed and regraded to create appropriate intertidal elevations. The cut material is being deposited in the basin to create salt-marsh habitat. Once all the appropriate grades are established, the intertidal area will be planted with low marsh, high marsh, mangrove, and transitional native vegetation. The freshwater marsh will be enhanced (exotics removed), enlarged, and planted with suitable desirable species. The remaining upland area not lowered to wetland grade will be planted with appropriate upland coastal species to create live oak/cabbage palm hammocks. Implementation of the final design will result in the creation of tidal marsh (12.75 acres), open water channels (1.14 acres), enhancement of freshwater marsh (0.10 acre), mangrove forest (1.25 acres), high marsh (4.25 acres), upland islands / observation mound (3.01 acres), and the live oak/cabbage palm hammocks (1.56 acres).
- D. **Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The created intertidal marsh, open water channels, and salt-marsh platforms (13.89 mit. acres) will compensate for the

saltwater marsh impact (3.33 impact acres). The freshwater/oligohaline marsh impacts (3.66 impact acres) will be compensated with the enhancement of freshwater marsh and high marsh (4.35 mit. acres). The mangrove impacts (1.93 impact acres) will be compensated with the enhancement of mangrove habitat (1.25 mit. acres) and much of the 12.75 acres of intertidal marsh will transition to mangrove habitat following the typical successional stages. In addition, upland habitat (4.57 mit. acres) will be enhanced (Fig. E). This project is located adjacent to the mitigation area for other FDOT wetland impacts from a different segment of the same roadway (SR 776) in the same basin (Fig. C- Phase I area). Construction of that restoration area was completed in the summer, 2001. The open water impacts (2.08 impact acres) will be mitigated with similar habitat credit purchased from the Little Pine Island Mit. Bank (refer to SW 52).

- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The proposed mitigation project for the impacts to estuarine marsh and mangrove habitat includes creation of similar habitat, close proximity to the proposed impacts, located on publicly-owned land in need of major restoration, and adjacent to mitigation for impacts associated with another FDOT roadway project. The loss of each wetland habitat type will be compensated with similar habitat at a cumulative ratio of 2.7 mitigation acres to 1 impact acre. The open water impacts will be mitigated through 1:1 credit purchase from Little Pine Island Mitigation Bank.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** This SWIM project site is adjacent to another SWIM project (Cattle Dock - Phase I) funded by FDOT prior to the legislation formalizing the FDOT mitigation program (Section 373.4137). The project site is owned and managed by the FDEP (Charlotte Harbor Buffer Preserve), and is in dire need of substantial habitat restoration.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Southwest Florida Water Management District or designee  
Contact Name: Paul Miselis, SWIM Engineer Phone Number: (813) 985-7481 ext. 2200 Entity responsible for monitoring and maintenance: Southwest Florida Water Management District or designee  
Proposed time frame for implementation: Commence: July, 1999 Complete: Construction - 2004, followed by minimum 3 years maintenance & monitoring

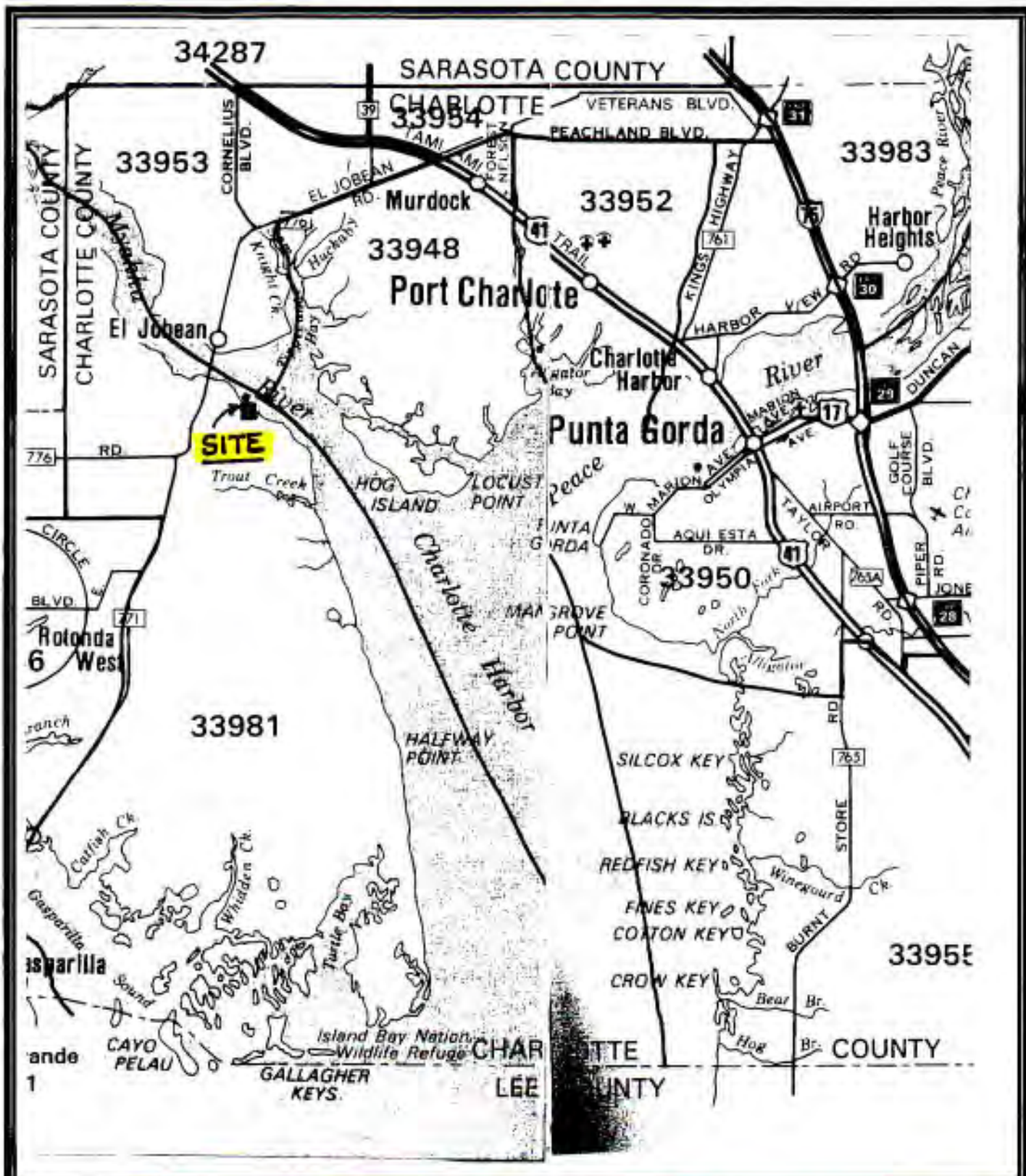
Project cost: \$ 669,250 (total); attach itemized cost estimate  
\$ 100,000 design, permitting and construction management  
\$ 569,250 construction, maintenance, revegetation and monitoring

#### Attachments

- x 1. Detailed description of existing site and proposed work. Refer to Figs. C & D for existing site conditions, Fig. E for proposed habitat plan, site photographs.
- x 2. Recent aerial photograph with date and scale. Figure C - 1995 Infrared Aerial.
- x 3. Location map and design drawings of existing and proposed conditions. Figs. A & B - Location Map, Fig. E for proposed conditions.
- x 4. Detailed schedule for work implementation, including any and all phases. Construction of Phase I was completed in the summer, 2001 and has achieved success criteria by 2004. Construction of Phase II will be completed by late 2004, followed by a minimum 3 years of maintenance & monitoring.

- x   5. Proposed success criteria and associated monitoring plan. The success criteria will reflect a minimum 70% coverage of desirable species in the project area. The monitoring is expected to be semi-annual for three years to evaluate species survival, percent cover, invasive exotic plants, and recommend maintenance activities needed to ensure or enhance success. Annual monitoring reports will be submitted.
- x   6. Long term maintenance plan. The mitigation is associated with a larger restoration objective for land owned by FDEP. The maintenance of the project is expected to be minimal. History with estuarine mitigation projects suggests that if the elevations are constructed correctly to allow for a sufficient tidal action, the vegetation will survive and recruit. Maintenance will be primarily related to control of debris from the site, replacement of plants that may not have survived the initial planting. Salt water will limit the regeneration of exotic vegetation, however herbicide control to eliminate regeneration of exotics within the freshwater marsh and restored upland habitat will be required on a routine basis.
- x   7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to response to Comment D.





FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)

CATTLE DOCK POINT  
RESTORATION  
(SW 31)

FIGURE A  
VICINITY MAP





**FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)**

**CATTLE DOCK POINT  
RESTORATION  
(SW 31)**

**FIGURE B  
PROJECT LOCATION**



# CATTLE DOCK POINT

NORTH ^ SCALE 1 IN. = 423 FT.

MYAKKA RIVER

AUSTRALIAN  
PINE

PHASE I

PHASE II

LOW MARSH

MANGROVE

SALT PINE

ARTIFICIAL  
FRESHWATER  
MARSH

TRANSITIONAL  
UPLAND  
HABITAT

FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)

CATTLE DOCK POINT  
RESTORATION  
(SW 31)

FIGURE C  
INFRARED AERIAL  
(1995)

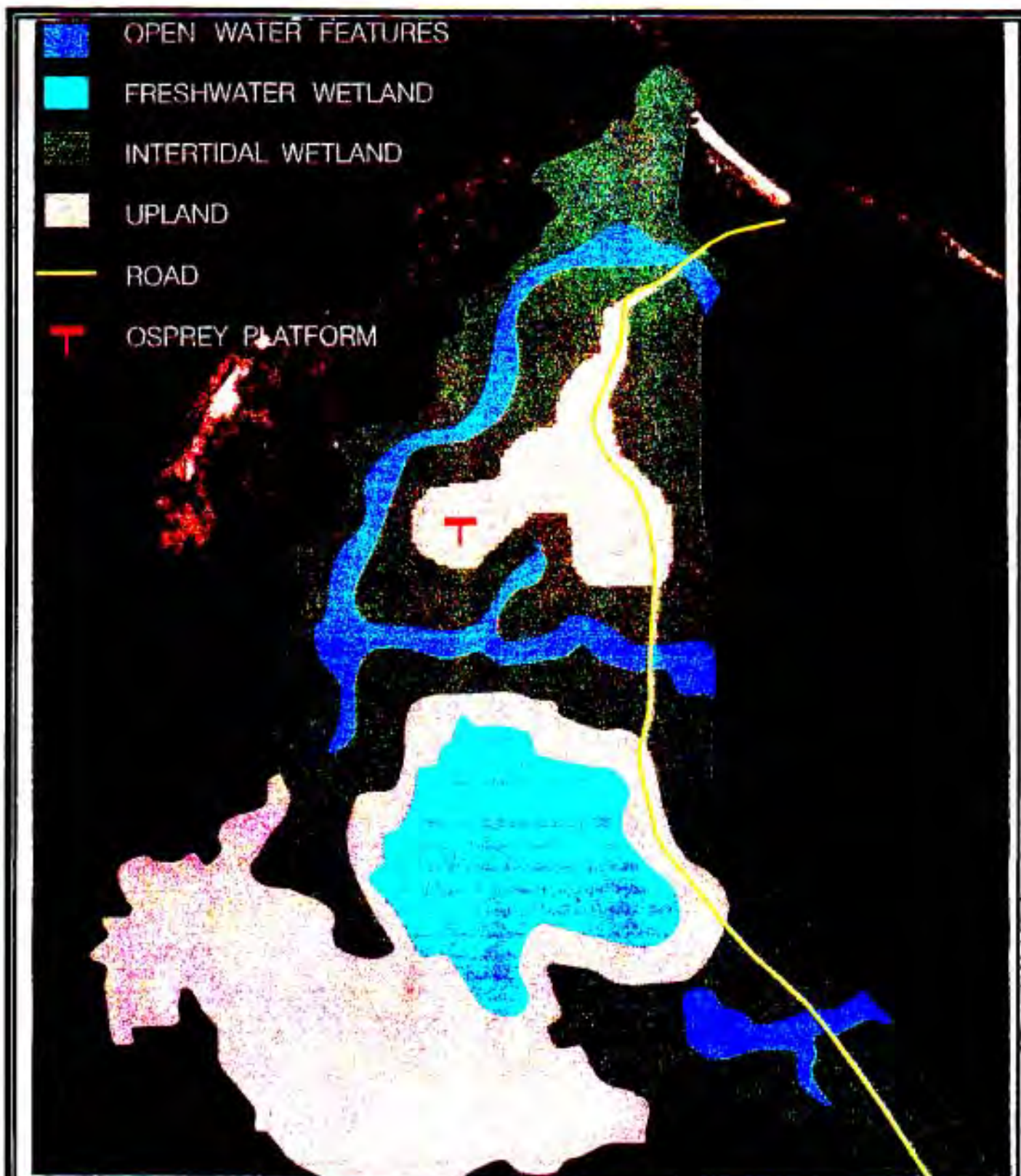




FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)

CATTLE DOCK POINT  
RESTORATION  
(SW31)

FIGURE D  
PHASE II - EXISTING  
VEGETATION



FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)

CATTLE DOCK POINT  
RESTORATION  
(SW 31)

FIGURE E  
PHASE II - CONCEPTUAL  
HABITAT PLAN





*View from the southern shoreline of the Cattle Dock bayou area, looking north at the Brazilian pepper and Australian pine dominating the peninsula of the Phase I area.*



*View along the access road located along the eastern boundary of the Phase II construction area, access road is one of the few upland areas not dominated by B. pepper.*

**FDOT - District 1 Mitigation Site  
(Myakka River Basin)**

**CATTLE DOCK POINT (SW 31)**



*The freshwater marsh has cattails, willows, and a recent invasion of sesbania species.*



*Additional view along the access road, looking over dense B. pepper coverage and A. pine (background) along the southern Phase II boundary.*

**FDOT - District 1 Mitigation Site  
(Myakka River Basin)**

**CATTLE DOCK POINT (SW 31)**

## REGIONAL MITIGATION PLAN

### BASIC INFORMATION

Water Management District : Southwest Florida Water Management District

Project Name: Lake Thonotosassa Shoreline Restoration

Project Number: SW 34

Project Manager: Amy Remley, SWIM Environmental Scientist

Phone Number: (813) 985-7481 ext. 2083

County(ies): Hillsborough

Location : Sec. 11, 12, 13, 14, T28S, R20E

DOT: FM 2563431, SR 54 - US 41 to Cypress Ck.

ERP #4319567.000 ACOE# 19950145 (IP-ES)

Impact Acres / Types: 0.80 ac. 616 (Flucss code)

4.10 ac. 618

4.60 ac. 621

4.70 ac. 641

**Total: 14.20 ac.**

### ENVIRONMENTAL INFORMATION

Type(s) of Mitigation: Enhancement: 14 ac. Restoration: 45 ac. **Total: 59 ac.**

SWIM project? Y

Aquatic Plant Control project? N

Exotic Plant Control Project? N

Mitigation Bank? N

Drainage Basin: Hillsborough River

Water Body: Lake Thonotosassa, Baker Creek

#### Project Description

**A. Overall project goals:** The purpose of the project is to improve and enhance the water quality and the fish and wildlife values of Lake Thonotosassa through a restoration plan that involves enhancement and restoration of 59 wetland acres.

**B. Brief description of current condition:** The southeast shoreline of the lake was historically filled and separated from the lake with a berm and seawall. The filled area was converted to a bahia pasture which was ditched to provide drainage to a collection area. The collection area was periodically pumped to maintain a dry pasture, however a small percentage (14 acres) of wetland enhancement (Figures D & E) of disturbed soft rush marsh regenerated in the pasture.

**C. Brief description of proposed work:** Enhancement of the historical lake bottom occurred within the north and south cells of the project and incorporated the following elements (refer to Figure E): (1) A structure was installed in Baker Creek which diverts up to the mean annual flow of the creek into the restoration area with sediments removed by a sump; (2) A low flow channel carries water from the sediment sump through the marsh planting area; (3) Planted upland islands bracket the low flow islands; (4) The marsh restoration area was graded to proper elevation and planted with herbaceous vegetation & scattered cypress; (5) The existing hydrologic connection of Otter Lake to Lake Thonotosassa was enhanced via the construction of an open water slough system; (6) an additional marsh planting was conducted adjacent to and surrounding the existing Otter Lake; (7) The berms separating the north and south cells from Lake Thonotosassa were excavated to allow the enhancement area and the lake to merge during periods of high water. The resulting fill material was used to cover seawall demolition areas and fill ditches.



**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The created herbaceous marsh and planted cypress will replace the acreage and function of the marsh, open water, and cypress wetlands proposed for impact along SR 54 in conjunction with a larger restoration project, allowing for a greater chance of success and provide the desired fish and wildlife benefits.

#### **PROJECT IMPLEMENTATION**

Entity responsible for construction: Construction Complete in 1999

Contact Name: Amy Remley, SWIM Environmental Scientist Phone Number: (813) 985-7481 ext. 2083

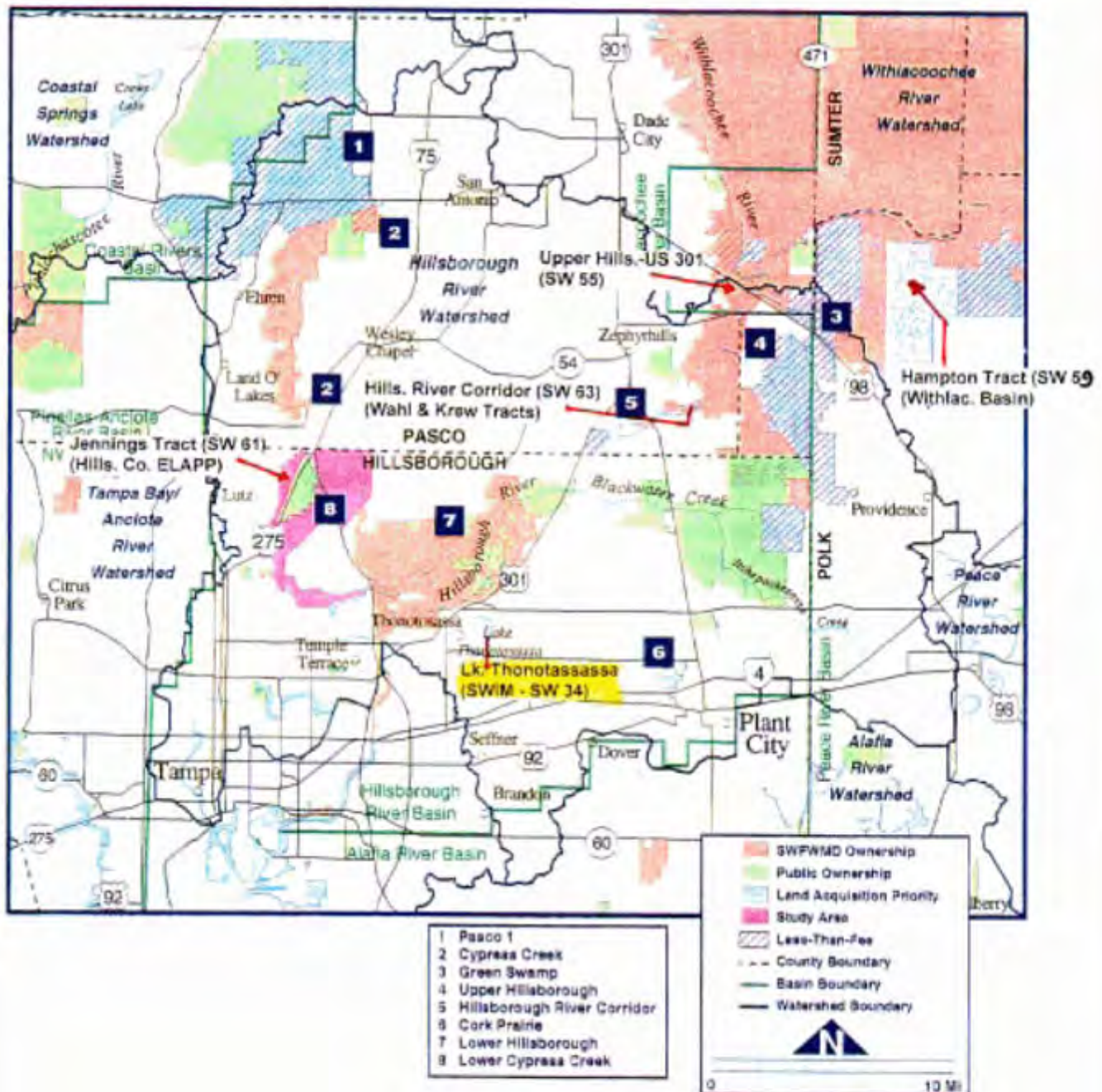
Entity responsible for monitoring and maintenance: SWFWMD-SWIM and Hillsborough County Parks

Proposed timeframe for implementation: Commence: January, 1998 Complete: Construction completed in 1999, supplemental planting in the fall, 2003 and 2004 ; minimum of three years of maintenance & monitoring.

Project cost: \$800,000 (total)

#### **Attachments:**

- X 1. Detailed description of existing site and proposed work. Refer to text under Comment C, site photographs.
- X 2. Recent aerial photograph with date and scale. Figure D-1995 Infrared Aerial, Figure E - Summer, 1999, aerial photograph during site construction.
- X 3. Location map and design drawings of existing and proposed conditions. Figs. A, B, C.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to text under Comment C.
- X 5. Proposed success criteria and associated monitoring plan. Success criteria includes a minimum 85% coverage of desirable species and less than 10% exotic / nuisance species, determined by qualitative assessment methods. Supplemental planting occurred in the fall, 2003 with additional herbs in late 2004 to guarantee the percent coverage Of desirable species.
- X 6. Long term maintenance plan. Maintenance is currently being conducted and will continue for an additional 3 years and/or until success criteria is met. Since the mitigation area also provides a good containment area for any exotic and nuisance species that historically flowed directly in Lake Thono from the Baker Creek Canal, Hills. County is providing additional assistance with herbicide treatment of these species within the mitigation area.
- X 7. Itemized cost estimate. Design & Permitting - \$90,000, Construction - \$240,000 Planting - \$180,000, Supplemental Planting & 3 years maintenance - \$250,000, Maintenance & Monitoring - \$140,000
- X 8. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to text under Comment D.



**FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)**

**LAKE THONOTOSASSA  
SHORELINE RESTORATION  
(SW 34)**

**FIGURE A  
WATERSHED BASIN MAP**



# WETLAND RESTORATION IN THE LAKE THONOTOSASSA WATERSHED

SECTION 11, 12, 13 and 14, TOWNSHIP 26 S, RANGE 20 E  
HILLSBOROUGH COUNTY, FLORIDA

## PROJECT CONSTRUCTION PLANS



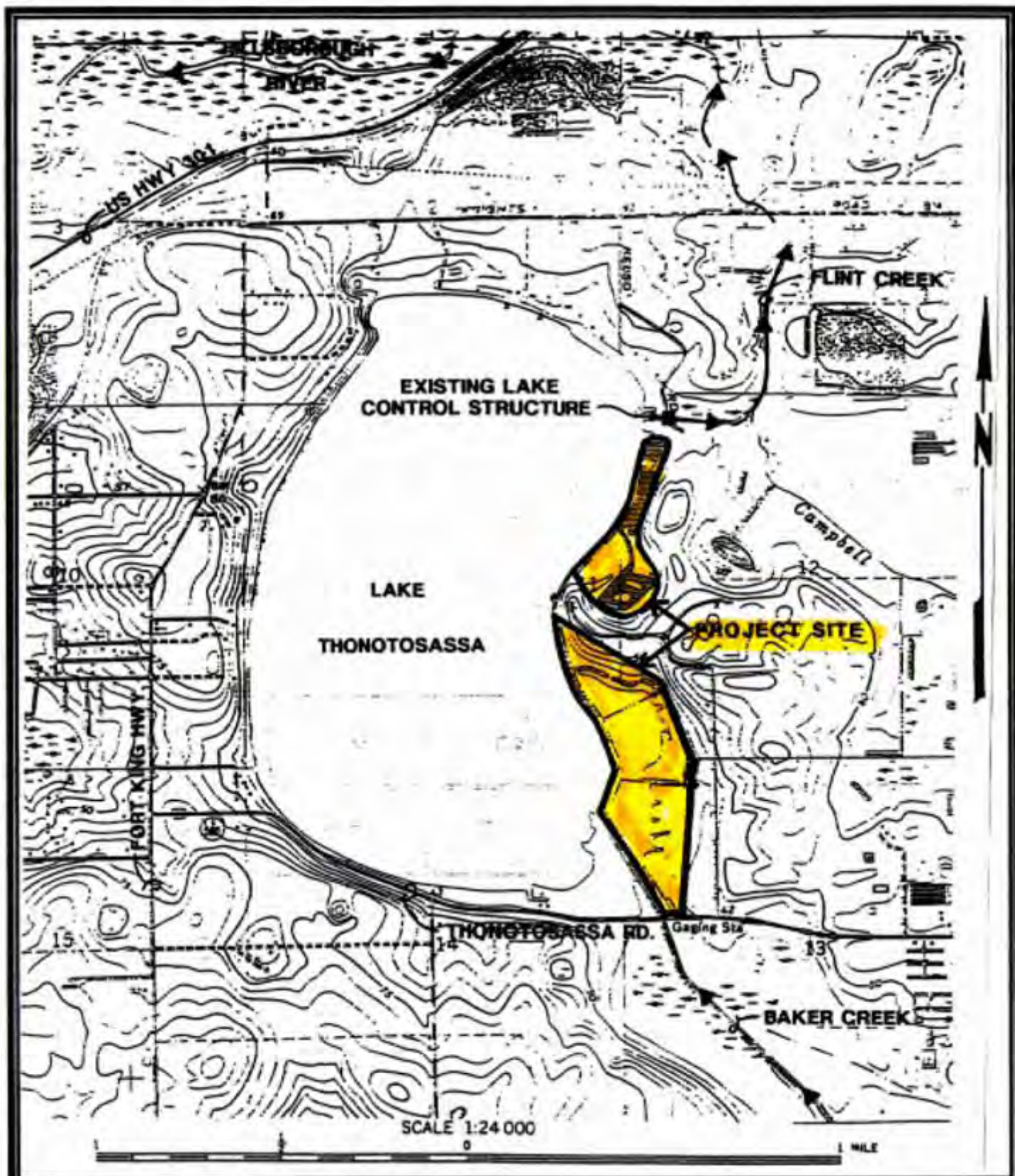
VICINITY MAP

FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)

LAKE THONOTOSASSA  
SHORELINE RESTORATION  
(SW 34)

FIGURE B  
LOCATION MAP





FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)

LAKE THONOTOSASSA  
SHORELINE RESTORATION  
(SW 34)

FIGURE C  
PROJECT SITE



# Lake Thonotasassa Shoreline Restoration Wetland Enhancement & Restoration - 59 Acres

Project Boundaries  
(Green)

Wetland Enhancement  
(West of Blue Line)

Wetland Restoration  
(East of Blue Line)

Baker Creek--  
Flow Diverted  
Through Marsh

NORTH ^

SCALE 1 in. = 1265 ft.

FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)

LAKE THONOTOSASSA  
SHORELINE RESTORATION  
(SW 34)

FIGURE D  
INFRARED AERIAL  
(1995)



# Southwest Florida Water Management District



FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)

LAKE THONOTOSASSA  
SHORELINE RESTORATION  
(SW 34)

FIGURE E  
SUMMER, 1999 AERIAL  
DURING CONSTRUCTION





*View from the upland fringe, with the deep water flow-way in the foreground, followed in sequence by planted cypress and fireflag, an upland peninsula with planted oaks, and the enhanced marsh and additional planted cypress in the background. The shoreline of Lake Thonotasassa is located along the tall cypress in the left background.*



*North of Otter Pond, view of the constructed deep water flow-way, marsh, and cypress along the lake shoreline.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**LAKE THONOTASASSA  
SHORELINE RESTORATION (SW 34)**



*Wildlife activity has substantially increased since completing construction. The deep water habitats are used by otters and alligators, with many of the gators using the shoreline banks for resting. Wading birds forage within the shallow waters and even a few Canadian geese (shown above) have decided to establish residency.*



*The islands within Otter Pond have become refuge for nesting snowy egrets.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**LAKE THONOTASASSA  
SHORELINE RESTORATION (SW 34)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Quick Point Nature Preserve**

Project Number: **SW 38**

Project Manager: Steve Schield, Environmental Officer

Phone No: 941-316-1999

610 General Harris St., Longboat Key, FL 34228-3196

County: Sarasota

Location :Sec./T/R: 24,25/36S/17E

### IMPACT INFORMATION

WPI: 1119232 FM: 1979421, SR 789-Ringling Causeway Bridge ERP #: 4418555.01 COE #: 199500210 (IP-TF)

WPI: 1119295 FM: 1980051, US 41-Venice Ave. to US 41 Bypass ERP #: 44020099.02 COE #: 199905145 (IP-PB)

Drainage Basin(s): Lower Coastal Water Body(s) :Sarasota Bay SWIM water body? Y

Impact Acres: WPI: 1119232 - 0.07 ac. 911 (Flucss code- seagrass - fill impacts)

0.20 ac. 911 (Flucss code - seagrass - shading impacts)

WPI: 1119295 - 0.32 ac. 612 (Flucss code – mangrove)

**TOTAL 0.59 ac.**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration ☒ Enhancement ☐ Preservation Mitigation Area: **2.8 ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? N Drainage Basin(s): Lower Coastal Water Body(s): Sarasota Bay SWIM water body? Y

#### Project Description{tc "Project Description"}

**A. Overall project goal:** Restore mangrove, seagrass, upland habitat areas on and adjacent to the 34-acre Quick Point Preserve located on the southern end of Longboat Key.

**B. Brief description of current condition:** The 34-acre site has an existing 20-acres of mangrove (the majority disturbed by mosquito ditches, spoil mounds, and exotic vegetation), 5 acres of restored wetland, and 9-acres of fill area that will be used to create upland habitat. The original plan proposed removal of the 9-acres of fill to create wetland habitat, but it was determined that construction limitations would lead to wetland disturbance. The disturbed upland fill will have exotic species removed and used to create upland habitat. The upland habitat creation is not proposed as mitigation for the DOT impacts.

**C. Brief description of proposed work:** The disturbed mangrove area will have the exotic species removed (primarily Brazilian pepper, Australian pine), minor grading has been conducted to construct a tidal pond. Due to the loss of seagrass from decreased salinity levels during El Nino, seagrass will be planted within existing sandy bottom areas at Quick Point and, if additional acreage is needed, within appropriate areas under the existing Ringling Bridge proposed for removal or other areas within Sarasota Bay. Seagrass planting will be conducted with a rotary plugging apparatus operated on a pontoon boat. The combination of these activities with other enhancement & restoration activities at Quick Point provide a diverse relationship of various habitats.**{tc "Mitigation Project – Quick Point Nature Preserve"**  
**" \ 2 }**

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** For the 0.27 acre of seagrass impacts associated with the Ringling Causeway Bridge (located 2 miles from Quick Point), 1.5 acres of seagrass planting will occur in the area adjacent to Quick Point and, if additional area is required, within the shaded area under the existing Ringling Bridge span that will be removed in association with the new bridge construction. For the 0.32 acre of mangrove impact, a minimum 1.0 acre of the disturbed mangrove area will be enhanced with eradication of exotic vegetation.

## Mitigation Project – Quick Point Nature Preserve, Page 2

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are currently no existing or proposed mitigation banks in the Lower Coastal Basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** This project is a coordinated effort between the Town of Longboat Key, FDEP, SWFWMD-SWIM and the National Estuary Program. Sarasota Bay is one of the few water bodies within the state that is nationally considered of such importance to receive priority and partial funding for enhancement through the “National Estuary Program (NEP).”

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by the Town of Longboat Key and/or public agency staff.

Contact Name: Steve Schield (Longboat Key- 941-316-1999)

Entity responsible for monitoring and maintenance: Town of Longboat Key

Proposed timeframe for implementation: Commence: October, 1998 Complete: Winter, 2002 (Mangrove Enhancement), Summer, 2003 (Seagrass Planting)

Project cost: \$46,580 (total); attach itemized cost estimate

Design - \$1,000

Enhancement (Mangrove Area, 1.0 acres) - \$4,000

Planting (Seagrass Area, 1.5 acres) - \$37,080

Maintenance & Monitoring - \$4,500

### Attachments

X 1. Detailed description of existing site and proposed work. Attached description of existing vegetative conditions, refer to the following response to Question #4 for details on the proposed work.

X 2. Recent aerial photograph with date and scale. Figure D - 1995 infrared aerial of Quick Point.

X 3. Location map and design drawings of existing and proposed conditions. Figures A&B- Location Map, Figure C restoration plan view depicting the work areas relative to the mitigation proposed for the three DOT projects.

X 4. Detailed schedule for work implementation, including any and all phases. The proposed schedule for work implementation includes finalizing the design by end of 2004. The mangrove enhancement activities will be conducted during winter 2004 by the Longboat Key Parks Dept. Seagrass planting will be conducted in the Spring--Summer, 2004. If areas under the existing Ringling Bridge span require planting in order to achieve the total 1.5 acres, the seagrass planting may be deferred and/or extended until after the new bridge has completed construction. Other areas within Sarasota Bay will be evaluated for seagrass planting. A local nursery contractor specifically grows seagrass plugs and pallets that are planted using a stainless steel rotary drum mounted on a pontoon boat. The drum rotates and installs the seagrass directly into the sand bottom grades.

### **Mitigation Project – Quick Point Nature Preserve, Page 3**

X 5. Proposed success criteria and associated monitoring plan. The success criteria for the mangrove area will include greater than 85% cover of desirable species, and less than 10% exotic/nuisance species. Monitoring will be conducted semi-annually the first year after planting, and annually thereafter for a minimum three years and until success criteria is met. In the past, seagrass planting by various methods and locations have variable results. The use of the rotary drum planting method has exhibited the same or better success rates, but at the same time can plant much larger areas in less time than manual planting. Due to the past success of seagrass planting, the proposed mitigation plan includes planting 1.5 acres of bay bottom, compared to 0.27 acres of proposed seagrass impacts (0.07 ac. from fill, 0.20 ac. from shading) at the Ringling Causeway or other designated area in Sarasota Bay. The proposed planting rate compared to the impact is a ratio of 5.6-to-1. With a success criteria requiring a minimum 30% survivorship for at least three years, that results in a minimum 0.45 acres of total survivorship area, which is a 2-to-1 ratio compared to the impact area. Monitoring will be conducted annually for three years to evaluate the survivorship. The proposed planting area is a site known to have supported seagrass in the past, and survivorship is anticipated to be much higher than planting in an area where seagrasses haven't been documented (refer to Figure C and site photographs). However, if additional opportunities are available at the area under the existing Ringling Bridge span to be removed or other areas within Sarasota Bay, those areas will also be evaluated for potential seagrass planting in lieu of Quick Point.

X 6. Long-term maintenance plan. Maintenance will be conducted as needed during the first three years, proposed quarterly inspections to control exotics/nuisance species during the first year, and semi-annually afterward for the minimum three years of monitoring. Maintenance will continue as necessary by the City of Longboat Key Parks Dept. to minimize regeneration of exotic and nuisance species.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous response to Issue D and Question 4. The quantity of DOT projects to be mitigated at Quick Point has decreased from several projects with a cumulative 5 acres of impacts to the proposed 0.59 acres associated with the two aforementioned DOT projects. Other restoration aspects associated with Quick Point will be funded by different sources. If some time in the future, restoration opportunities are still available at Quick Point and a DOT project has proposed saltwater wetland impacts that could possibly be mitigated at the site, the WMD and City of Longboat Key will coordinate with the ACOE and other agencies toward evaluating those opportunities.



## **HABITATS**

For the purposes of this section, habitat will be described as an area of land having a set of vegetation types, animal species and internal biological relationships of a character separate and distinct from other areas within the boundary of the site. The Quick Point property contains a number of distinct habitats which reflect historical alterations to the site.

An accurate and extensive understanding of the native habitats which exist at Quick Point was essential to the development of the park design. The preservation of valuable marine habitat and the minimization of disturbance to other sensitive areas was a primary component of the design philosophy. With this in mind, a habitat mapping of the property was conducted to specifically identify the various distinct exo-systems which comprised the Quick Point area.

The following is a listing and brief introduction of the six habitats and a description of the fauna found on the Quick Point property.

### Sandy Shoreline

The sandy shoreline spans 200 feet section on the southern section of the property adjacent to new Pass. The quartz sands do not support any vegetation due to salinity and wave action. The shoreline does support various marine wildlife, including ghost crabs, hermit crabs and various shorebirds.

### Disturbed Uplands

This area is located adjacent to and east of Gulf of Mexico Drive in the southern portion of the property. since it has been previously disturbed, it is dominated mostly by ruderal vegetation. Canopy species include Australian Pine and Cabbage Palm. Brazilian Pepper and Seagrape are the dominant shrubs. Herbs include Flat Sedge (*Cyperus striosus*), Greenbriar (*Smilax* spp.), Guinea Grass (*Panicum maxicum*), Seaoxeye Daisy (*Borrchia frutescens*), Spiny Needles (*Bidens pilosa*), Wholly Mullein (*Verbascum thapsus*), and Woonbine (*Parthenocissus quinqueruvia*).

### Mangroves - General

Estuarine shoreline edges, such as Quick Point, provide important habitat to birds and invertebrates. With a few exceptions, all of the coastal breeding colonies of Heron, Ibis, Cormorant and Pelican are in mangroves. In addition, rails, ducks and numerous other shorebirds rely upon marsh habitat.

Mangroves thrive in low-energy intertidal areas. Each type of mangrove has special adaptations for growing in or near salt water and for being daily or seasonally inundated by tides. Sensitive to frost, they are tropical in their geographic distribution.

Four species of mangrove are found at Quick Point. The two common intertidal species are Red Mangrove (*Rhizophora mangle*) and Black Mangrove (*Avicennia germinans*). White Mangrove (*Languncularia*

racemosa) and the Buttonwood Mangrove (*Conocarpus erectus*) grow adjacent to those two species, but generally on higher ground. Two succulents commonly found growing as ground cover within the mangroves include saltwork (Batis Maritima and Glass Wort (*Salicornia* spp.)).

#### Mangrove (Ditched with Spoil Mounds)

On the Quick Point property, the area designated on the habitat map as mangroves (ditched with spoil mounds) was most probably once a combination saltmarsh, sandy area and mangrove swamp which was subsequently ditched for mosquito control purposes. Generally, the dominant species include red mangrove, black mangrove and white mangrove. In addition, Brazilian Pepper (*Schinus terbinthifolius*) and Australian Pine (*Casuarina equisetifolia*) are found extensively on the associated spoil mounds adjacent to the mosquito ditches.

#### Australian Pine Spoil Areas

There are two large areas at the Quick Point site which are probably the result of previous dredge spoil deposition. Australian pine has heavily colonized these areas. Other canopy species include Cabbage Palm (*Sabal palmetto*) and Red Bay (*Persea borbonia*). Shrubs include Brazilian Pepper, Mariberry (*Ardesia escallonioides*), Myrtle Oak (*Quercus myrtifolia*), Prickly Pear Cactus (*Opuntia humifusa*), Seagrape (*Coccoloba uvifera*), Spanish Bayonet (*Yucca aloifolia*), Sea Myrtle (*Baccharis* spp.), and White Stopper (*Eugenia axillaris*). The understory includes herbs such as Arrow-leaf Morning Glory (*Ipomoea sagittata*), Coastal Panic Grass (*Panicum amarulum*), St. Augustine Grass (*Stenotaphrum secundatum*), Coastal Sanbur (*Cenchrus incertus*), Glasswort (*Salicornia* spp.), Narrow-leaved Sunflower (*Helianthus augustifolius*), Seaside Goldenrod (*Solidago sempervirens*), Sea Lavender (*Limonium carolinianum*), Sea Oxeye (*Borrchia frutescens*) and Sea Purslane (*Sesuvium portulacastrum*).

#### Seagrass Beds

Seagrass beds are prevalent along the entire Quick Point shoreline. Turtle Grass (*Thalassia testudinum*) and Shoal Grass (*Halodule beaudetii*) are the dominant grasses. Intermittent wading birds were noted feeding in the seagrass beds along the entire periphery.

#### Mangrove (Shoreline Fringe)

Mature and healthy red and black mangroves constitute the majority of the Sarasota Bay shoreline and the inner fringe of the two estuarine lagoons. The eastern shoreline is dominated by all three species of mangroves in addition to buttonwood and some Australian Pine. The eastern lobe of the northerly shoreline is also dominated by all three species of mangroves, with Australian Pine being more prevalent. The remainder of the northern shoreline consists of mature red and black mangroves with the exception of an area of Australian Pines in the central portion. These Australian Pines are associated with a large inland spoil area.



## LAND MANAGEMENT RECOMMENDATION

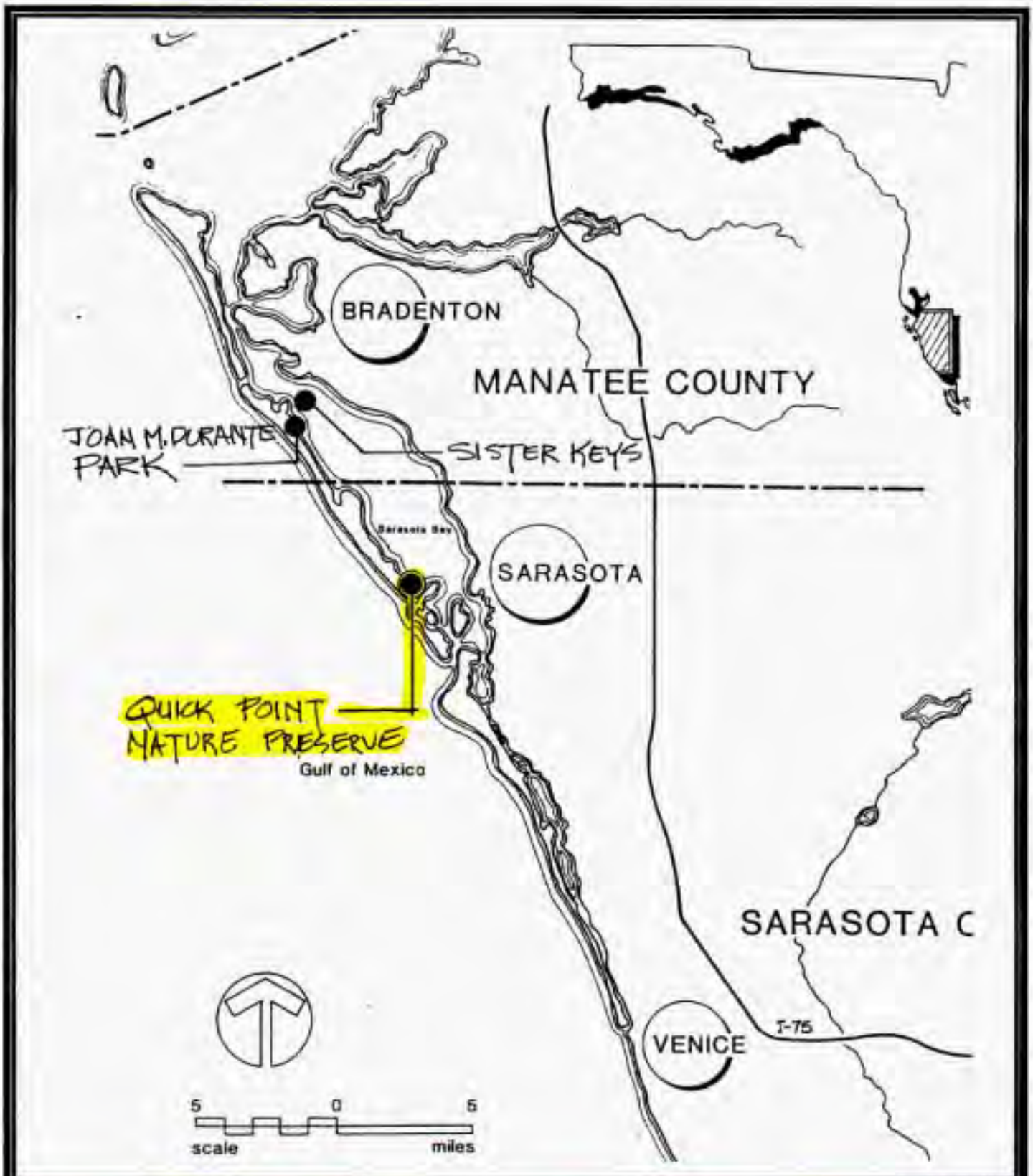
The proper management of publicly held lands can serve as an important example to other residents. The management of the Quick Point property provides an excellent opportunity to demonstrate proper ecological management techniques especially in and around estuarine systems, especially those with a history of previous alteration.

Because of its high environmental value and importance to the Sarasota Bay ecosystem, management of the land should emphasize preservation of valuable habitat and improvement and protection of altered habitat. Areas where we would recommend that specific land management techniques be applied are:

1. Mangrove/Spoil Mound System While the mangrove-lined ditches create an environmental system with important ecological value to the bay and marine life, the subsequent spoil mounds which were created as a result of the ditching need to be properly managed. In time, it is possible that the exotic vegetation will out-compete the mangrove areas and eventually cause a decline in growth and productivity of the mangroves. A phased longterm maintenance program should be in place which addresses the removal of the exotic vegetation (such as the Australian Pine and Brazilian Pepper) while preserving the mangrove fringe. A management program for this area must be very specific and selective as traditional horticultural techniques do not work well in such a sensitive location.
2. Bay Shoreline Much of the Quick Point property is naturally stabilized and protected through a mature mangrove growth fringe. However, portions of the eastern shoreline have experienced severe erosion, probably due to boat wake. This area should be re-established with mangroves and salt marsh grasses at appropriate locations and elevations. The use of some low level wave protection may be necessary, though we would not recommend considering a revetment or any other shoreline hardening techniques. In general, the entire Quick Point shoreline should be managed for the continued growth and health of the mangrove fringe. Australian Pines and other exotic vegetation which compromises the health, vigor and future growth of this fringe should be removed and natives replanted, if necessary.
3. Seagrass Beds The extensive seagrass beds in the northern lagoon shows signs of some damage, probably caused by propeller scar. These seagrass beds are particularly vulnerable at low tide and should be protected from further damage. Propeller scars in seagrass beds are particularly damaging as most destroyed areas will not naturally recolonize for a very long time.

4. Mixed Uplands A program of phased removal of Australian Pines should be considered in this area, along with the introduction of native coastal hammock species. This program would also facilitate the eventual recolonization of the shoreline by mangroves and would eliminate maintenance and safety problems associated with dead Australian Pines.

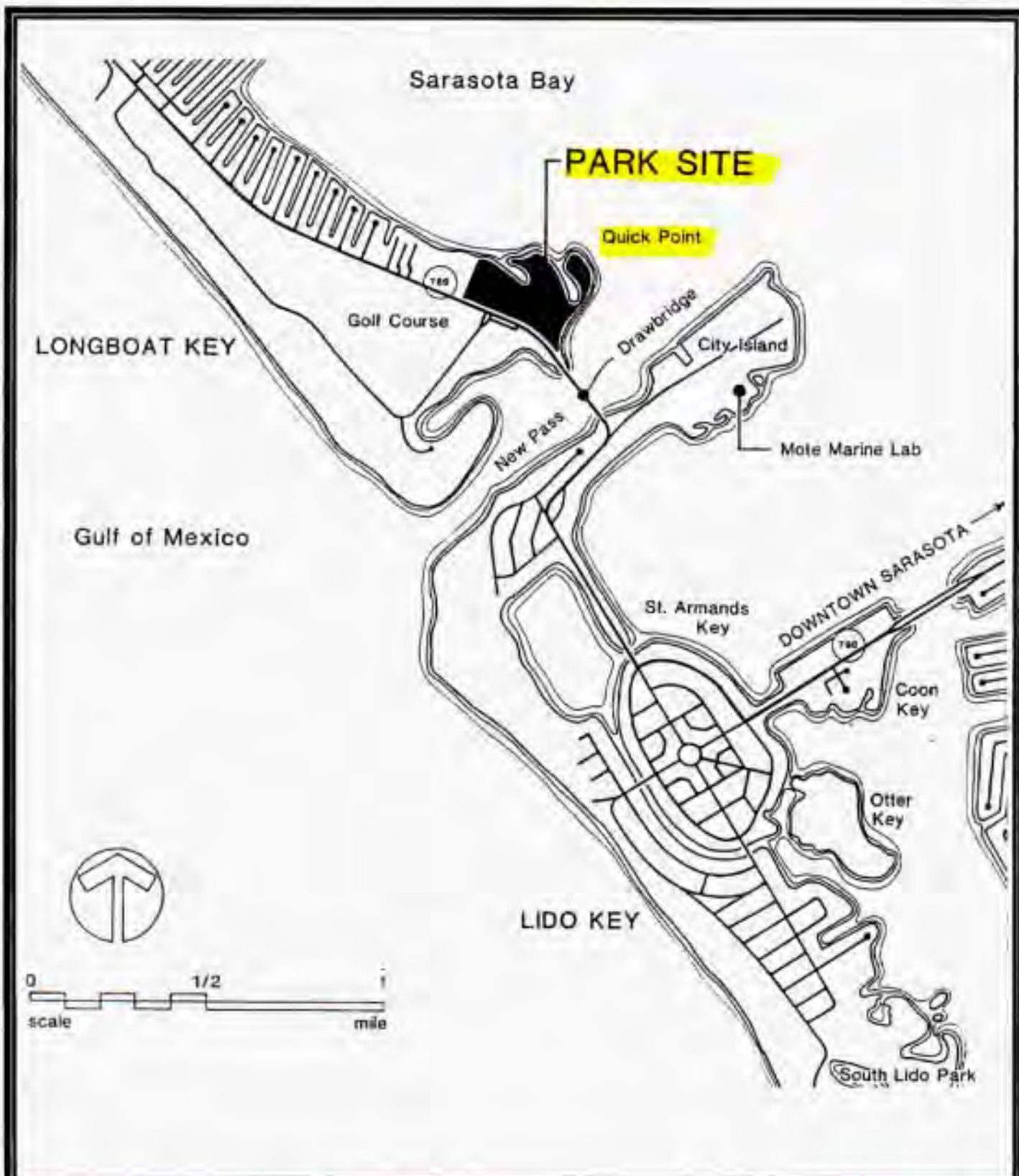




**FDOT - District 1  
MITIGATION SITE  
(Lower Coastal Basin)**

**QUICK POINT  
NATURE PRESERVE  
(SW 38)**

**FIGURE A  
REGIONAL LOCATION**



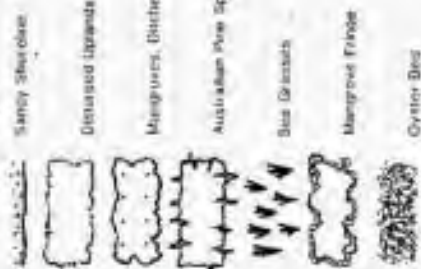
**FDOT - District 1  
MITIGATION SITE  
(Lower Coastal Basin)**

**QUICK POINT  
NATURE PRESERVE  
(SW 38)**

**FIGURE B  
SITE LOCATION**



# HABITAT MAP

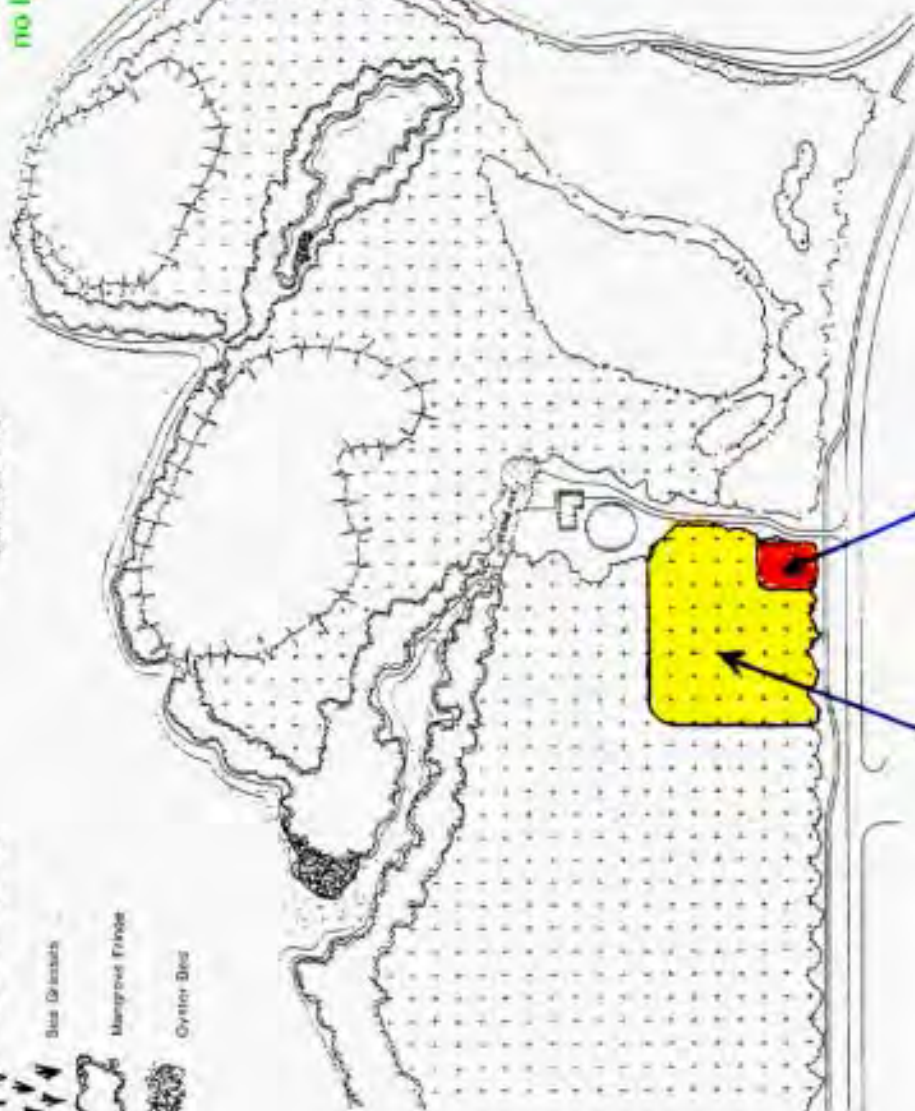


Mitigation for WPI 1119232  
Seagrass to be located in areas  
not present, planted coverage  
no less than 1.5 acres



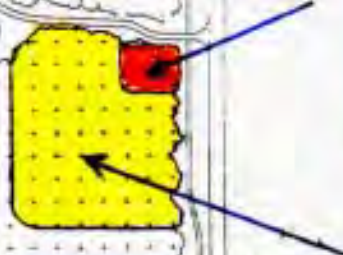
New Pass

Sarasota Bay



NORTH  
SCALE 1 in. = 300 ft.

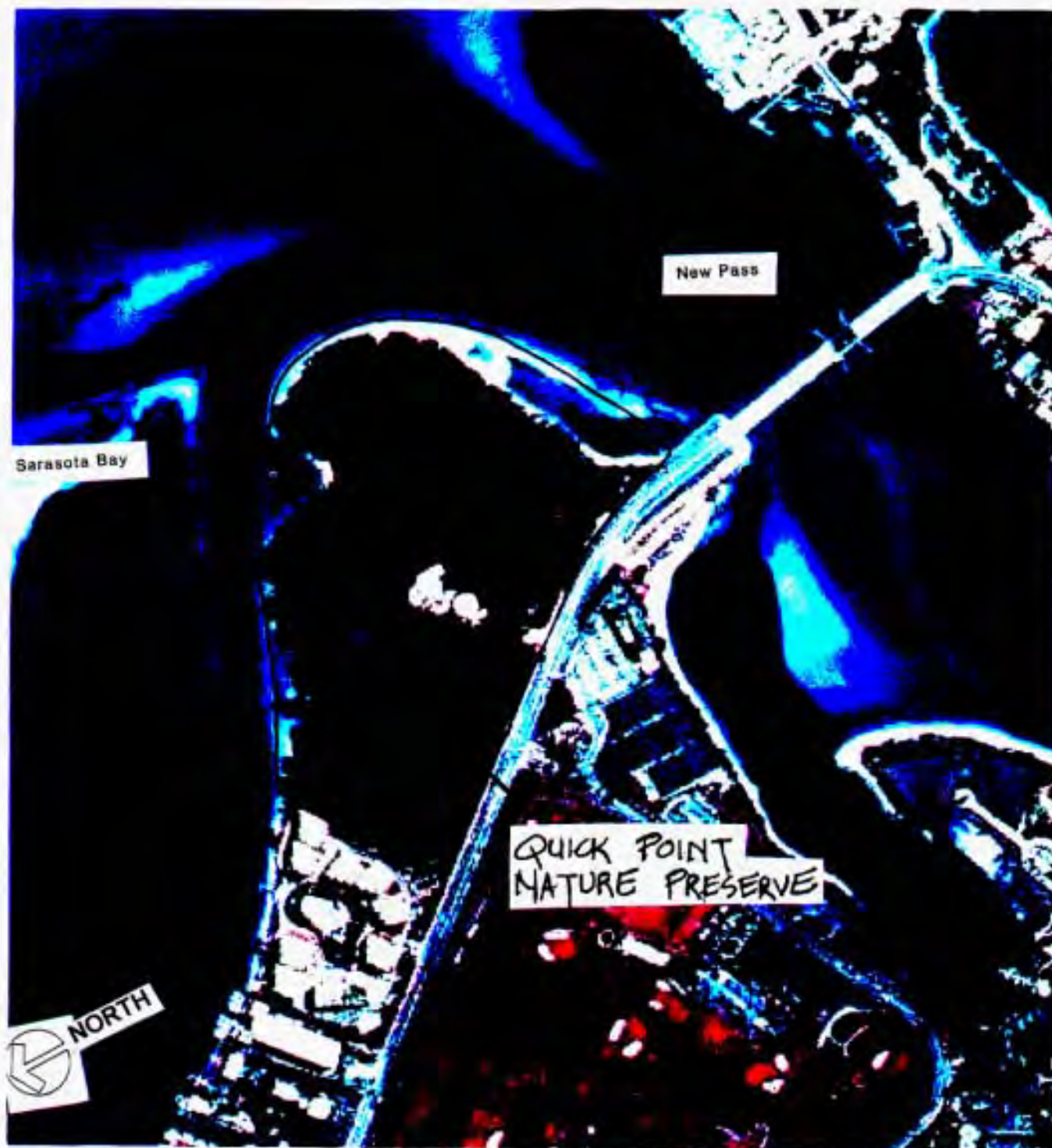
Mitigation for WPI 1119295  
Mangrove Restoration - Min. 1.0 Ac. **Constructed Pond**



FDOT - District 1  
MITIGATION SITE  
(Lower Coastal Basin)

QUICK POINT  
NATURE PRESERVE  
(SW 38)

FIGURE C  
HABITAT & PROPOSED  
RESTORATION



SCALE 1 in. = approx. 200 ft.

FDOT - District 1  
MITIGATION SITE  
(Lower Coastal Basin)

QUICK POINT  
NATURE PRESERVE  
(SW 38)

FIGURE D  
INFRARED AERIAL (1995)





*Restoration effort is a joint project with funding, design, and construction provided by partnering between local, state, and federal programs.*



*The 0.3 acre intertidal pond has been constructed by removing exotic vegetation and fill material. Mangroves have naturally recruited around the perimeter and there is substantial wildlife use of the lagoons at the Preserve.*

**FDOT - District 1 Mitigation Site  
(Lower Coastal Basin)**

**Quick Point Nature Preserve  
(SW 38)**





*Within the mangrove areas, spoil adjacent to mosquito ditches have coverage of Australian pine and Brazilian pepper that will be eradicated; once removed, periodic maintenance will keep these species under control.*



*View from the bridge crossing over New Pass, along the northern perimeter of Quick Point. The light colored, sandy bottom areas depicted above were historically covered with seagrass. Since natural recruitment is so slow, these areas will be replanted with seagrass.*

**FDOT - District 1 Mitigation Site  
(Lower Coastal Basin)**

**Quick Point Nature Preserve  
(SW 38)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Gateway Restoration**

Project Number: **SW 45**

Project Manager: Stephanie Powers, SWIM Environmental Scientist

Phone No: (813) 985-7481 ext. 2213

County(ies): Pinellas

Location: Sec. 12, T30S, R16E

### IMPACT INFORMATION

(1) FM: 2569051, SR 679 (Bayway), Bunces Bridge	DEP #: <u>52-0148752-001</u>	COE #: <u>199100289 (IP-AM)</u>
(2) FM: 2588701, I-275-Roosevelt to Big Island Gap	ERP #: <u>43001034.006</u>	COE #: <u>199402523 (IP-ES)</u>
(3) FM: 2556301, SR 60, Courtney Campbell to Fish Creek	ERP #: <u>43000920.005</u>	COE #: <u>200105084 (IP-MN)</u>
(4) FM: 2570931, SR 60, Clearwater Harbor Bridge Replace.	ERP #: <u>44021540.001</u>	COE #: <u>200024966 (IP-TF)</u>
(5) FM: 4062531, SR 686 (Roosevelt) at 49 <sup>th</sup> Street	ERP #: <u>44007482.012</u>	COE #: <u>200206320 (NW 14)</u>
(6) FM: 2557341, SR 676-Maritime Blvd. to SR 60	ERP #: <u>4413736.003</u>	COE #: <u>199502501 (IP-ES)</u>
(7) FM: 2583981, I-275, Howard Franklin to Himes Ave.	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Drainage Water Body(s): McKay Bay, Bunces Pass, Clearwater Harbor, Boca Ciega Bay, Anclote River, Lake Tarpon, Curlew Creek, Cross Bayou Canal, Fish Creek, Tampa Bay SWIM water body? Y, all referenced water bodies connect to Tampa Bay

Impact Acres/ Type:

(1) FM 2569051	<u>0.10</u> ac. <u>540</u> (FlucCs)	(4) FM 2570931	<u>1.30</u> ac. <u>612</u> (FlucCs)
	<u>0.50</u> ac. <u>642</u>		<u>0.20</u> ac. <u>642</u>
TOTAL	0.60 acres	TOTAL	1.50 acres
		(5) FM 4062531	TOTAL 0.20 ac. <u>612</u> (FlucCs)
(2) FM 2569571	<u>4.90</u> ac. <u>612</u> (FlucCs)	(6) FM 2557341	<u>1.00</u> ac. <u>612</u> (FlucCs)
	<u>3.20</u> ac. <u>619</u>		<u>0.50</u> ac. <u>619</u>
	<u>0.50</u> ac. <u>641</u>	TOTAL	1.50 ac.
	<u>0.50</u> ac. <u>642</u>		
TOTAL	9.10 acres	(7) FM 2583981	<u>2.00</u> ac. <u>612</u> (FlucCs)
			<u>0.30</u> ac. <u>641x</u>
(3) FM 2556301	<u>3.70</u> ac. <u>540</u> (FlucCs)	TOTAL	2.30 ac.
	<u>4.40</u> ac. <u>612</u>		
	<u>4.10</u> ac. <u>642</u>	<b>TOTAL 27.40 acres</b>	
TOTAL	12.20 acres		

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration ☒ Enhancement Preservation Mitigation Area: **96.8 ac.**

Project Site: 176 Acres - Preservation of mangroves (42 acres) not included in the mitigation acreage.

Mitigation:	Saltwater Marsh Restoration	42.93 Acres (FlucCs 642)
	Open Water Inlets & Lagoons	7.78 Acres (FlucCs 540)
	Mangrove Enhancement	42.48 Acres (FlucCs 612)
	Upland Enhancement	3.60 Acres
	<b>Mitigation Area</b>	<b>96.8 Acres</b>

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N

Drainage Basin(s): Tampa Bay Drainage Basin SWIM water body? Y

### Project Description

**A. Overall project goal:** To restore and enhance coastal habitats along publicly-owned (Pinellas County) parcels within the Gateway corridor south of the Howard Franklin Bridge in Pinellas County. Construction commenced in 2004, starting with removal of the extensive exotic vegetation that had invaded the entire site, followed by restoring the grade of filled wetlands to the appropriate marsh elevations and planted with native intertidal and estuarine species. This will restore the lost estuarine habitat historically located on the site. The uplands received eradication of the extensive exotic species and were

## Mitigation Project - Gateway Restoration Site

planted with native coastal upland species. Over a third (35.0 acres) of the existing 92-acres of mangrove habitat were enhanced with initial herbicide treatment (Garlon) of the Brazilian pepper, followed by backfilling spoil into mosquito ditches to eliminate the potential for B. pepper regeneration. Mangrove seedlings will naturally recruit and generate within the filled mosquito ditches and adjacent spoil removal areas. Open water and lagoon components will reconnect the estuarine habitat and improve tidal flushing, increasing access for aquatic micro-organisms, fish, and invertebrates throughout the Gateway habitat area.

**B. Brief description of current condition:** Large portions of the historically pristine mangrove forest and intertidal marsh within the project area were adversely impacted by dredge & fill activities associated with extensive mosquito ditching, urban development, and highway construction (Figures B & C). The filled upland, transitional wetland habitat, and spoil mounds adjacent to the mosquito ditches were heavily invaded by exotic vegetation including Brazilian pepper, Melaleuca, and Australian pine.

**C. Brief description of proposed work:** Construction commenced early, 2004 with removal of exotic vegetation from the uplands and followed by herbicide treatment of the B. pepper on the spoil ridges adjacent to the mosquito ditches. Proper erosion control methods were installed on the site, followed by earthwork activities. The unique spoil removal method utilized high-pressure water hoses to spray and displace the majority of the soil into the adjacent mosquito ditches. Grading of the adjacent upland area was conducted, followed by planting of the historic salt-marsh, intertidal zones, and former upland habitats.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The created intertidal salt-marsh, enhancing existing mangroves, and naturally-generating mangroves will compensate with a substantially larger acreage than the similar proposed habitat impacts. This activity is conducted within a large restoration project; allowing for a greater chance of success and provide the desired fish and wildlife benefits. The total DOT wetland impacts (27.4 acres) are mitigated with habitat enhancement and restoration covering 96.8 acres, a cumulative mitigation ratio of 3.5-to-1 (refer to mitigation table). Approximately 30% (9.1 acres) of the total proposed impact will occur in association with the I-275 project adjacent to the mitigation area, essentially resulting in an on-site mitigation option. There is an additional 9 acres of habitat improvements that have not been designated for DOT mitigation purposes. These enhancement activities are associated with the potential of any additional impacts for the last remaining designated FDOT project that hasn't been permitted as of 2004. No additional DOT projects are proposed for mitigation within this first phase of Gateway.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The Tampa Bay Mitigation Bank (TBMB) is located within the Tampa Bay Drainage basin, but had not received permits during the period of mitigation selection.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** Gateway Restoration is a SWIM project.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A designated Contractor selected by the SWFWMD

Contact Name: Stephanie Powers, SWIM Environmental Scientist Phone Number: (813) 985-7481, ext. 2213

Entity responsible for monitoring and maintenance: SWFWMD or designee



## Mitigation Project - Gateway Restoration Site

Proposed timeframe for implementation: Commence: Design Complete, 2002 Complete: Construction Spring-Summer, 2004; followed by minimum 3 years maintenance and monitoring.

Project cost: \$1,488,000 (total);  
\$ 92,000 Design, permitting, and construction monitoring  
\$1,336,000 Construction & Planting  
\$ 60,000 Maintenance & Monitoring

### Attachments

- ☒ 1. Detailed description of existing site and proposed work. Refer to Attach. A - Existing Site & Proposed Work Attachment D - Design Drawings
- ☒ 2. Recent aerial photograph with date and scale. Figure B - 1995 infrared aerial.
- ☒ 3. Location map and design drawings of existing and proposed conditions. Figure A (Location Map) and Attachment D - Design Drawings
- ☒ 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B - Schedule
- ☒ 5. Proposed success criteria and associated monitoring plan. Refer to Attachment C -Maintenance & Monitoring Plan, Success Criteria.
- ☒ 6. Long term maintenance plan. Refer to Attachment C - Maintenance & Monitoring Plan, Success Criteria
- ☒ 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). The attached mitigation table and design plans depict each of the proposed wetland impacts and associated designated mitigation portion at Gateway.

## ATTACHMENT A - Existing Site & Proposed Work

This first phase of Gateway is 176-acres, covered with 92 acres of mangrove that were historically ditched and drained for mosquito control. As depicted on the 1970 aerial (Figure C - Pinellas Co. Soil Survey), the mangroves were bordered by salt-marsh habitat in the northwest quadrant. The marsh was predominantly filled, as was approximately 11 acres of historic upland habitat in the northwest and southeast quadrants. The filled areas had extensive and dense coverage of exotic species, primarily Brazilian pepper and Melaleuca (refer to site photos).

As depicted on the attached design plans, the salt-marsh, open water, and upland habitats are being restored with a combination of exotics removal, appropriate grading, and planting with native species. The dominant wetland plantings include smooth cordgrass, marshhay cordgrass, sand cordgrass, seaside paspalum, and needle rush. As part of the proposed DOT mitigation requirements, a minimum 35-acres of the 92-acre mangrove habitat will also be enhanced. Historically, enhancing and restoring mangrove habitat with mosquito ditching has been a very problematic procedure. Unless continuously maintained, cutting Brazilian pepper from the spoil mounds is only a temporary solution since they will regenerate as long as the spoil is still present. To rid a mangrove area of exotics without continuous maintenance, the spoil mounds have to be graded below high tide elevations. However, utilizing construction equipment usually results in mangrove impacts due to the entangled pepper and mangrove. The pepper roots also firmly hold the spoil material, made up of shell, sand, and limerock. This limits the use of small grader equipment. As a result of these problems, the agencies associated with saltwater habitat enhancement have essentially avoided attempting to restore mosquito ditch systems in the last decade.

In recent years, a new method of spoil removal has been implemented with success in Texas. After herbicide and manual removal of the B. pepper and other exotics, staked silt screens and floating barriers were installed to control sedimentation prior to commencing earthwork. The 35-acres of mangrove habitat had pressurized water

## **Mitigation Project - Gateway Restoration Site**

pumped through a fire hose to "washdown" the spoil mounds. This grading method has allowed tides to evenly sheet flow under the mangroves, eliminated the opportunity for pepper regeneration, and allowed the opportunity for mangrove seedlings to generate. This method of mosquito ditch regrading had not been attempted before elsewhere in Florida. As of 2004, the initial evaluation has indicated this method to be a valuable ecological yet economical construction method for mangrove enhancement.

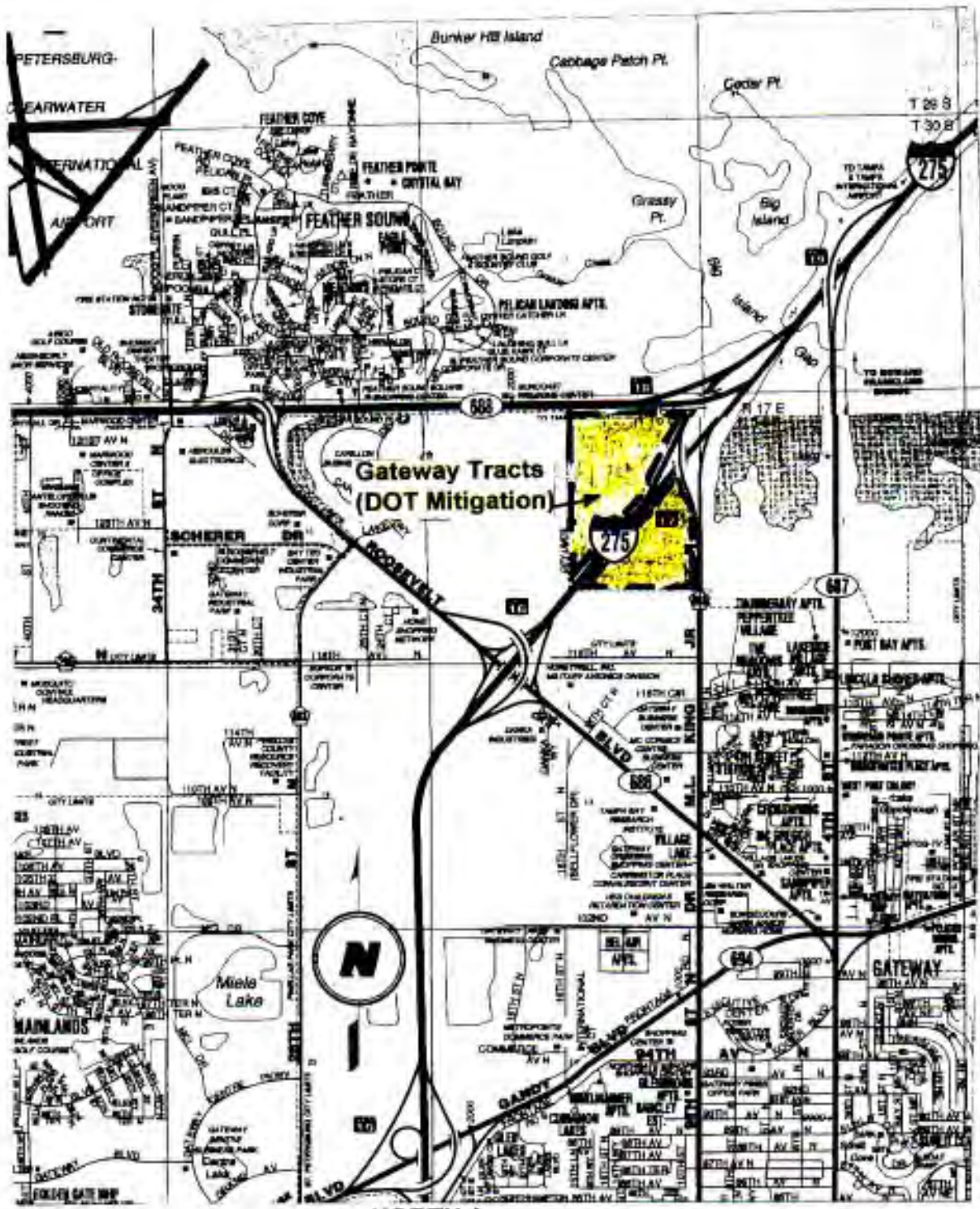
## **ATTACHMENT B - Schedule**

Construction and planting will be complete by fall, 2004. A minimum 3-year period of maintenance & monitoring will extend beyond the construction period. Perpetual maintenance will be conducted as necessary by Pinellas County after the monitoring period.

## **ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria**

The mitigation is associated with a larger restoration objective for the Gateway land jointly purchased by the WMD and Pinellas County (Figure B). The maintenance of the project is expected to be minimal. For estuary restoration projects, with proper construction of appropriate wetland grades to allow for sufficient tidal action, the planted vegetation will survive and recruit throughout the site. Maintenance will primarily be related to control of debris from the site and conducting supplemental planting. Salt water limits the re-establishment of exotic vegetation. The control of nuisance/exotic vegetation within the restored upland area will be maintained through use of herbicide application. Maintenance will be conducted as needed, expected to be quarterly for the first year after planting, and at least semi-annually thereafter for a minimum of three years. After three years, maintenance activities will be conducted as needed to maintain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance/exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted semi-annually for three years post-construction. Annual reports will be conducted to document habitat conditions and various activities implemented during the previous year. The first monitoring report will include documentation (qualitative information, site photos, etc.) of pre-construction habitat conditions. This report will also designate the monitoring station locations utilized for the entire monitoring period. However, site conditions will be annually documented for the entire site, not just for the monitoring station locations. The success criteria includes a minimum 90% survivorship for planted material for one year after planting and a total 85% cover of planted and recruited desirable species. The natural recruitment and generation of mangroves are anticipated to occur within portions of the planted salt marsh habitat.



NORTH ^  
SCALE 1.7 in. = 1 mile

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

GATEWAY TRACT  
(SW 45)

FIGURE A  
LOCATION MAP

**FDOT Impacts and Mitigation**

**Gateway Tract Restoration Site  
Tampa Bay Drainage Basin  
SW 45 (Updated 8/04)**

Project No.	Project Name	FM	SWFWMD Permit No.	USACOE Permit No.	Total Impact Acreage	Impact Acreage	Habitat Type (FLUCFCS)	Mitigation Ratio	Mitigation Acreage	Mitigation Type
1	SR 679 (Bayway) - Bunces Pass Bridge #150	2569051	DEP 52-0148752-001	199100289 (IP-AM)	0.60	0.10	540 - Bays & Estuaries	2 to 1	0.20	Open Water Restoration
						0.50	642 - Saltwater Marsh	2 to 1	1.00	Saltwater Marsh Restoration
2	I-275 - Roosevelt to Big Island Gap	2588701	43001034.006	199402523 (IP-ES)	9.10	4.90	612 - Mangrove	4 to 1	17.28	Mangrove Enhancement
						3.20	619 - Exotic Hardwood	2 to 1	6.44	Saltwater Marsh Restoration
						0.50	642 - Saltwater Marsh	2 to 1	1.00	Saltwater Marsh Restoration
						0.50	641 - Freshwater Marsh	2 to 1	1.06	Saltwater Marsh Restoration
3	SR 60, Courtney Campbell to Fish Creek	2556301	43000920.005	2001015084 (IP-MN)	12.20	3.70	540 - Bays & Estuaries	2 to 1	6.60	Open Water Restoration
									0.90	Saltwater Marsh Restoration
						4.40	612 - Mangrove	5 to 1	11.60	Mangrove Enhancement
									9.70	Saltwater Marsh Restoration
						4.10	642 - Saltwater Marsh	3 to 1	11.53	Saltwater Marsh Restoration
									2.00	Upland Enhancement
4	SR 60, Clearwater Harbor Bridge Replacement	2570931	44021540.001	200004966 (IP-TF)	1.50	0.20	540 - Bays & Estuaries	2 to 1	0.98	Open Water Restoration
						1.30	612 - Mangrove	3 to 1	3.00	Mangrove Enhancement
5	SR 686 (Roosevelt) at 49 <sup>th</sup> Street	4062531	44007482.001	200206320	0.20	0.20	612 - Mangrove	12 to 1	2.40	Mangrove Enhancement
6	SR 676 - Maritime Blvd. to SR 60 (SR 45, Causeway Blvd & US 41, Licata Bridge)	2557341	44137356.003	199502501 (IP-ES)	1.50	1.00	612 - Mangrove	4 to 1	4.00	Mangrove Enhancement
						0.50	619 - Exotic Hardwood	2 to 1	1.00	Saltwater Marsh Restoration
7	I-275 - Howard Franklin to Himes	2583981	---	---	2.30	2.00	612 - Mangrove	7 to 1	4.20	Mangrove Enhancement
									10.30	Saltwater Marsh Restoration
						0.30	641x - Freshwater Ditch	5 to 1	1.50	Upland Enhancement
TOTAL					27.40	27.40	3.5 to 1 (avg.)		96.69	

**FDOT Wetland Impacts - Habitat & Acreage**

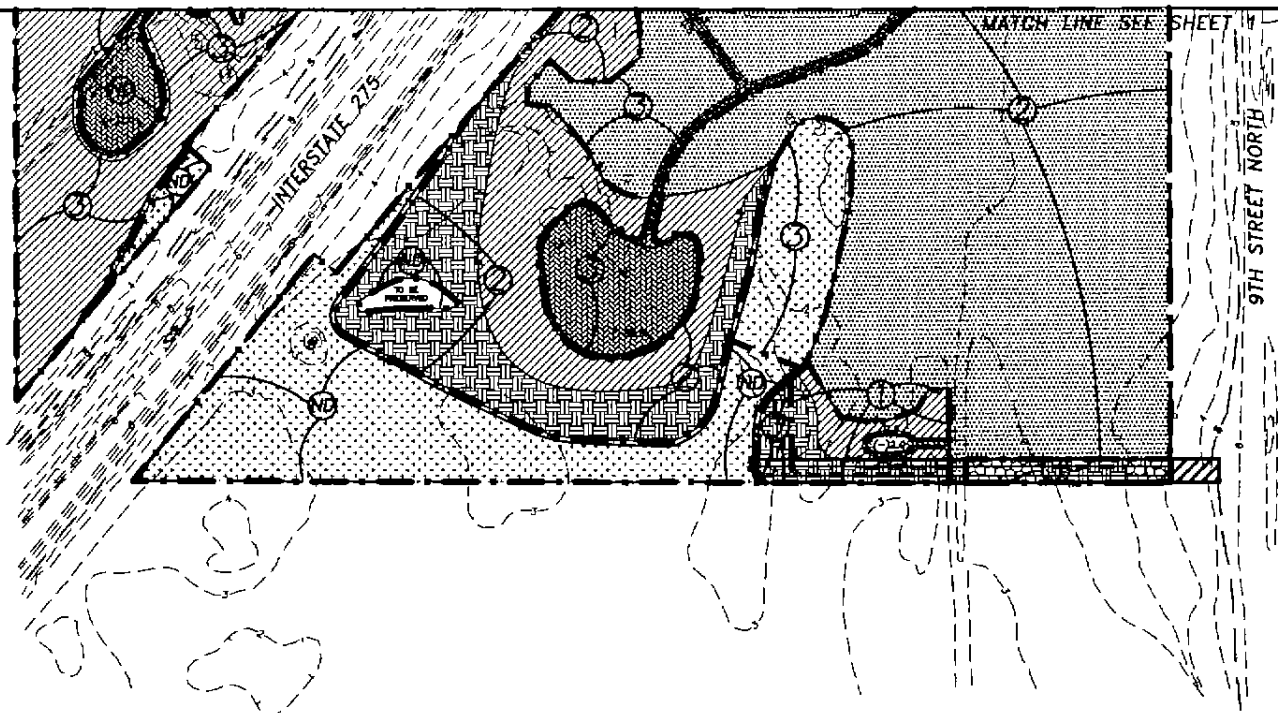
540 - Bays & Estuaries	3.8
612 - Mangrove	13.8
619 - Exotic Hardwood	3.7
641 - Freshwater Marsh	0.5
641x - Freshwater Ditch	0.3
642 - Saltwater Marsh	5.3
TOTAL	27.4

**Gateway Mitigation Acreage**

Total Open Water	10.63
Total Mangrove Enhancement	42.50
Total Saltwater Marsh	42.93
Total Upland Enhancement	10.25
TOTAL	106.31

**Mitigation Acreage Committed To FDOT**

Total Open Water	7.78
Total Mangrove Enhancement	42.48
Total Saltwater Marsh	42.93
Total Upland Enhancement	3.50
TOTAL	96.69



FDOT MITIGATION APPROPRIATION		
FDOT PROJ. ID	FDOT PROJECT NAME	ACOE PERMIT NO.
1	SR 679 (BAYWAY) - BUNCES PASS BRIDGE #150	199100289
2	I-275, ROOSEVELT BLVD. TO BIG ISLAND GAP	199402523
3	SR 60, COURTNEY CAMPBELL TO FISH CREEK	-
4	SR 60, CLEARWATER HARBOR BRIDGE REPLACEMENT	200004988
5	SR 666 (ROOSEVELT BLVD.) AT 49TH STREET	-
6	SR 676, MARITIME BLVD. TO SR 60	199502501
7	I-275, HOWARD FRANKLIN TO HIMES	-

LEGEND	
--2--	EXISTING 1 FOOT CONTOUR
—5—	EXISTING 5 FOOT CONTOUR
---	PROPOSED CENTER LINE OF CHANNEL
—2.0—	PROPOSED CONTOUR
---	EXISTING RIGHT OF WAY
---	PROJECT ALLOCATION BOUNDARY
①	F.D.O.T. PROJECT I.D. NUMBER
ND	NOT DESIGNATED FOR F.D.O.T. MITIGATION
	MANGROVE SWAMP TO BE ENHANCED
	ZONE 1 (EL. (-)2.0 TO 0.5) OPEN WATER & WATER WAY
	ZONE 2 (EL. 0.5 TO 1.5) SALTWATER MARSH
	ZONE 3 (EL. 1.5 TO 2.0) SALTWATER MARSH
	ZONE 4 (EL. 2.0 TO 3.0) SALTWATER MARSH
	ZONE 5 (EL. 3.0 TO NG) UPLAND - SOD
	ZONE 6 UPLAND - NUISANCE SPECIES REMOVAL



0 100 200 400  
Scale in feet

PURPOSE: MITIGATION/RESTORATION  
DATUM: NGVD 1929

SWFWMD  
GATEWAY TRACT

## F.D.O.T. PROJECT APPROPRIATION MITIGATION PLAN

IN: TAMPA BAY  
AT: ULMERTON ROAD & I-275  
COUNTY OF: PINELLAS STATE OF: FLA.  
APPLICATION BY: SWFWMD

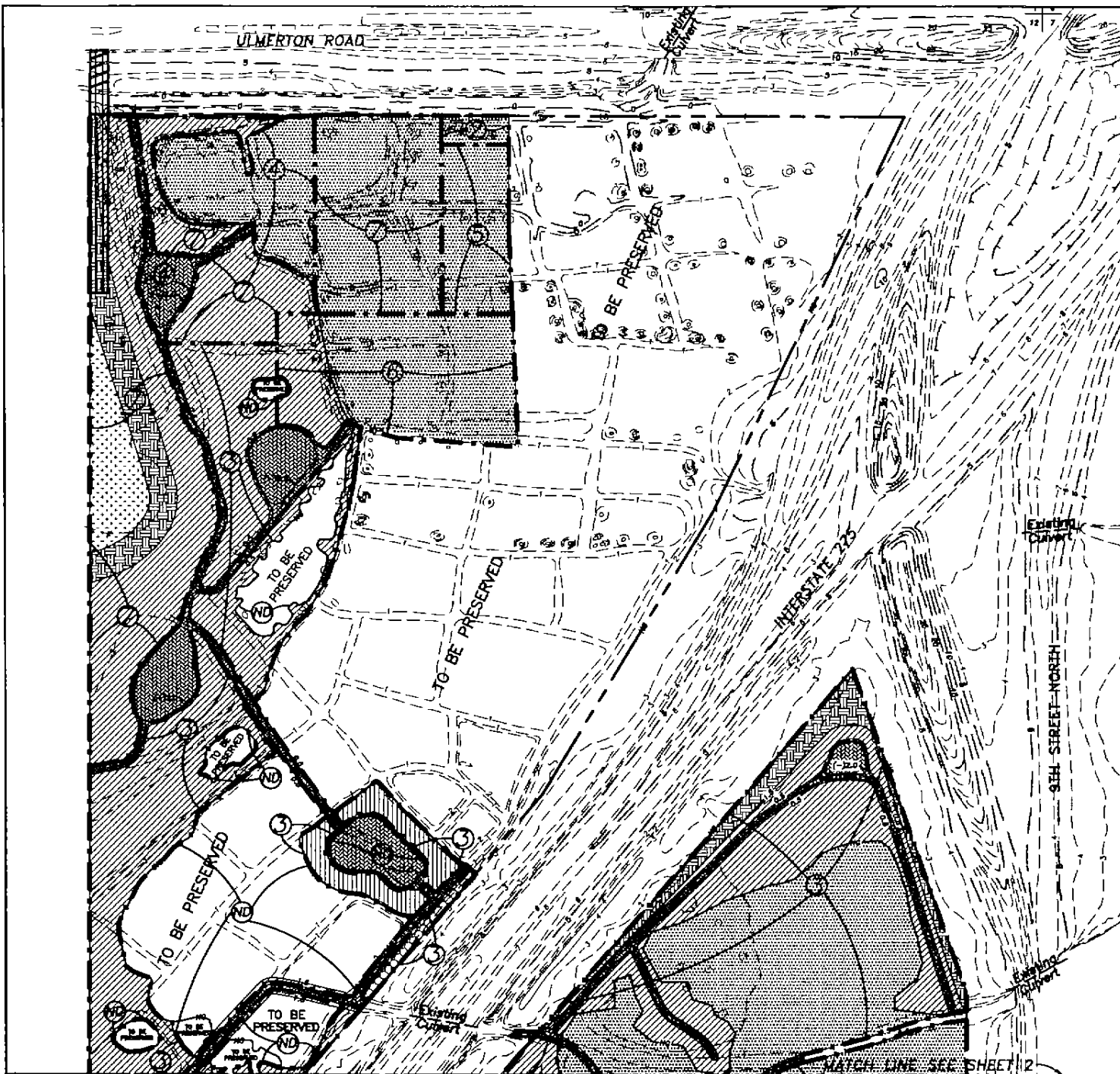
SHEET 2 OF 2

DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern





0 100 200 400  
Scale in feet

FOR LEGEND SEE SHEET 2

PURPOSE: MITIGATION/RESTORATION  
DATUM: NGVD 1929

SWFWMD  
GATEWAY TRACT

# F.D.O.T. PROJECT APPROPRIATION MITIGATION PLAN

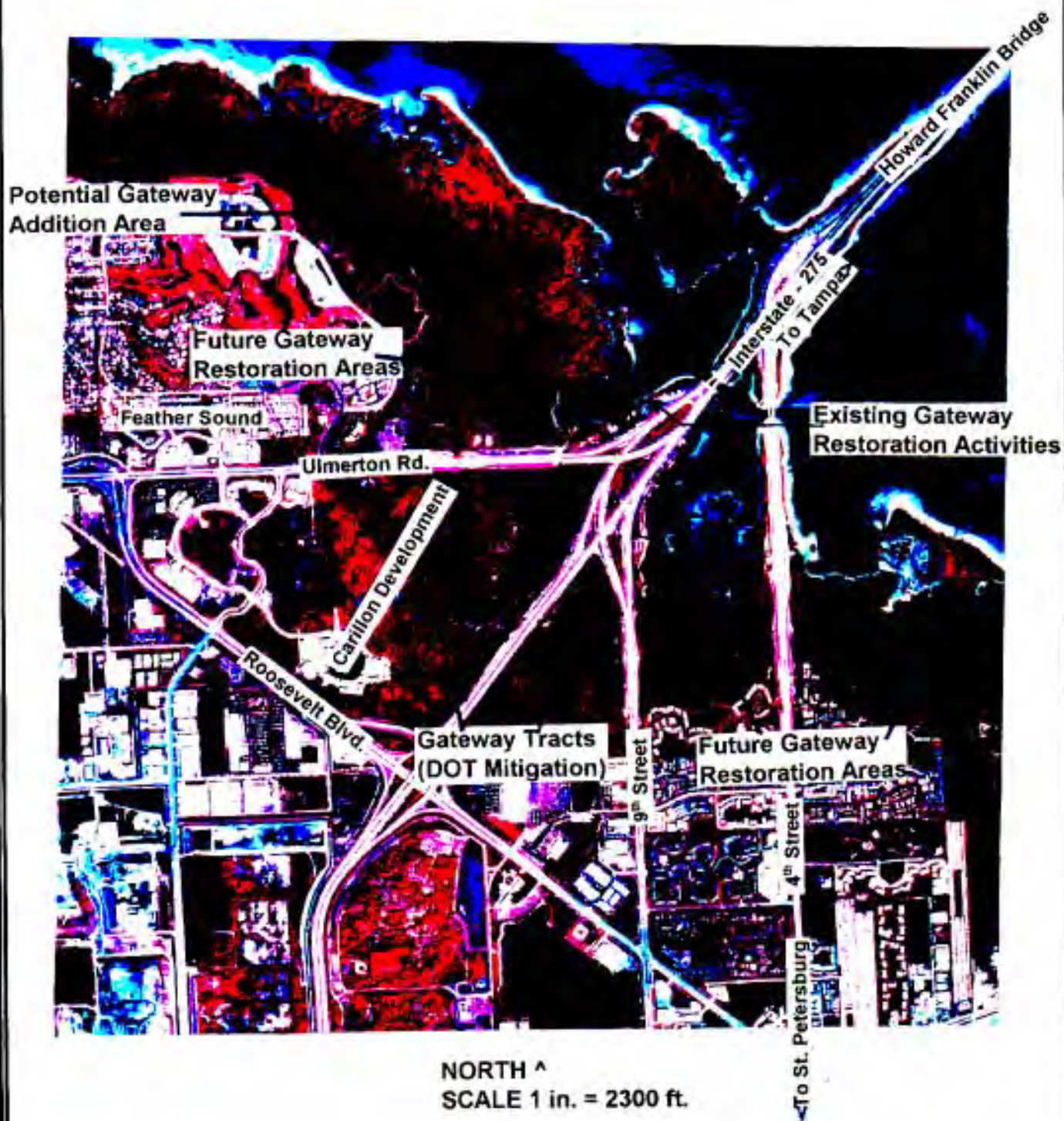
IN: TAMPA BAY  
AT: ULMERTON ROAD & I-275  
COUNTY OF: PINELLAS STATE OF: FLA.  
APPLICATION BY: SWFWMD

SHEET 1 OF 2

DATE: JULY, 2002

FOR PERMIT PURPOSES ONLY

Prepared by: URS Corporation Southern



FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

GATEWAY TRACT  
(SW 45)

FIGURE B  
INFRARED AERIAL  
(1995)





*The remnant upland habitat at Gateway includes a dominance of Brazilian pepper and Melaleuca that will be removed as part of the enhancement plan.*



*Higher elevation view from the Carillon Development along the western boundary of the Gateway Tract. The western and southern perimeter of the two DOT mitigation tracts (Figure B) are uplands that still have saw palmetto and other native species interspersed with the exotic/nuisance vegetation.*

**FDOT - District 7 Mitigation Site  
(Tampa Bay Drainage Basin)**

**GATEWAY TRACT (SW 45)**





*The major ditch that tidally connects the northern mitigation tract to the channel north of Ulmerton Road. Restored wetlands adjacent to the enhanced uplands will be tidally connected to this ditch with small channels.*



*View from the Ulmerton Rd. bridge of the northern mitigation tract. The tidal area has a dominance of B. pepper on the mosquito ditch spoil mounds, mangroves within the remaining area. The western boundary of the northern tract is located at the higher treeline and building to the right, eastern boundary at I-275 to the left.*

**FDOT - District 7 Mitigation Site  
(Tampa Bay Drainage Basin)**

**GATEWAY TRACT (SW 45)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District: Southwest Florida Water Management District

Mitigation Project Name: Tenoroc/Saddle Creek Restoration

Project Number: SW47

Project Manager: Bud Cates – DEP Program Administrator

Phone No: (850) 488-8217

County(ies): Polk

Location: Sections 29,30,31,32 T27S, R24E

### IMPACT INFORMATION

(1) FM: 2012092, Int.- 4, US 98 to CR 557 (Seg. 3-5)\*

ERP #: 43011896.026

COE #: 200204891 (IP-MGH)

(2) FM: 1974751, SR 540, Thornhill Rd. to Recker Hwy.

ERP #: 4401612.000

COE #: 199401950

(3) FM: 1974711, SR 540, 9<sup>th</sup> St. to Overlook Dr.

ERP #: 4417859.000

COE #: 199403139

Drainage Basin(s): Peace River Water Body(s): None

SWIM water body? N

Impact Acres / Types:

(1) FM 2012092      0.10 ac. – 510 (Fluccs code)  
                                 1.79 ac. – 611 (Fluccs code)

TOTAL 1.89 Acres

(2) FM 1974751      0.59 ac. – 610 (Fluccs code)  
                                 0.33 ac. – 611 (Fluccs code)  
                                 2.86 ac. – 615 (Fluccs code)  
                                 1.35 ac. – 617 (Fluccs code)  
                                 0.74 ac. – 641 (Fluccs code)

TOTAL 5.87 Acres

(3) FM 1974711      0.06 ac. -- 640 (Fluccs code)  
                                 0.35 ac. – 644 (Fluccs code)

TOTAL 0.41 Acres

**TOTAL:      8.17 acres**

\*Note: The I-4 project also has 18.95 wetland impact acres within the Withlacoochee River Basin, those anticipated impacts are proposed to be mitigated at the Hampton Tract (SW 59).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation    Restoration    Enhancement    Preservation      Mitigation Area: **25.1 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Peace River Water body(s): Saddle Creek Headwaters SWIM water body? N

#### Project Description

**A. Overall project goal:** Restoration, enhancement, and creation of wetland & upland habitat on land previously altered by phosphate mining. Establishment of hydrologic, vegetative, and wildlife corridors through the Tenoroc Management Area and adjacent Bridgewater addition. Establishment of appropriate water quantity, flow regimes, and water quality improvements to Saddle Creek and Lake Parker, thus enhancing headwater flows to the Peace River. The watershed improvements and mitigation activities are being conducted through a joint ecosystem management initiative managed by the FFWCC and FDEP.

**B. Brief description of current condition:** Reclaimed phosphate mined land of various landscape features constructed by various clay/sand disposal and earthwork methods. In 2002, the southern portion of the Bridgewater property (Figures B & C) was publicly acquired by the FFWCC as an addition to Tenoroc. Tenoroc and Bridgewater contain numerous man-made lakes and substantial upland ruderal areas dominated by opportunistic species such as bahia grass, salt-bush, wax myrtle, and exotic species such as cogon grass and Brazilian pepper. The proposed DOT mitigation area is within the recently acquired portion of southern Bridgewater, adjacent to the western boundary of the property. The designated mitigation area is within an upland fallow field between a few man-made lakes, and minimal acreage of low quality marshes that naturally generated on top of the reclamation areas.

**C. Brief description of proposed work:** The mitigation is a 25.1 acre wetland creation area to be constructed in 2004 and 2005 (refer to Fig. D). An outer facultative zone of forested wetland creation includes a planting plan dominated by red maple and bald cypress, with additional species including popash, sweetgum, laurel oak, water hickory, buttonbush and blackgum. An inner obligate forested zone includes a dominance of bald cypress, with additional coverage provided by popash, red maple, buttonbush, and blackgum. The ground coverage of the forested components will include a dominance of soft rush, pickerelweed, and arrowhead. Three obligate pockets of created marsh habitat will include a dominance of pickerelweed, arrowhead, bulrush, and fireflag. The marsh pockets will be connected with shallow creek tributaries that will maintain proper hydraulic flow throughout the wetland system. Herbs will be planted on three ft. centers, trees on ten ft. centers. Once wetland construction and planting is complete, there will be a minimum 5 years of maintenance & monitoring activities.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** All the proposed DOT wetland impacts will occur within the upper watershed of the Peace River in Polk County. The majority of the proposed wetland impacts (6.33 acres, approx. 77%) will be to forested wetland systems. Those wetland impacts will be mitigated by the creation of forested wetlands (21.4 acres, 3.4-to-1 ratio). The non-forested wetland impacts (1.84 acres) will be mitigated with the creation of marshes (3.7 acres, 2-to-1 ratio). The 25.1 acres of wetland mitigation will occur within a larger habitat plan that will include upland and wetland creation, restoration, and enhancement .

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There is currently only one permitted mitigation bank selling credits within the Peace River Basin, Boran Ranch (DeSoto County) is located within the lower portion of the Peace Basin. To mitigate the hydrologic and vegetative characteristics of the proposed FDOT wetland impacts in the upper basin, the restoration plan associated with Tenoroc will more appropriately compensate for those impacts. The majority of the proposed FDOT impacts are associated with forested wetlands, whereas Boran Ranch is predominantly a non-forested wetland restoration project. As of 2003, Boran Ranch (SW 53) is providing mitigation for approximately 20 acres of FDOT wetland impacts, providing \$670,500 to the mitigation bank.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are currently no proposed SWIM projects in the Peace River Basin that are appropriate to mitigate for the proposed wetland impacts.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by FDEP

Contact Name: Bud Cates (FDEP)

Phone Number: (850) 488-8217

Entity responsible for monitoring and maintenance: DEP/FFWCC

Proposed timeframe for implementation: Commence: 1998 (evaluation & design) Complete: 2004-05 (construction, followed by minimum 5 years of maintenance & monitoring)

Project cost: \$650,000 (total) Includes design, construction & planting, maintenance & monitoring for minimum five years. Perpetual management & maintenance to be conducted by the FFWCC.

**Attachments**

X 1. Detailed description of existing site and proposed work. Refer to previous description.

X 2. Recent aerial photograph with date and scale. Refer to attached 1995 infrared aerials (Figs. C & D).

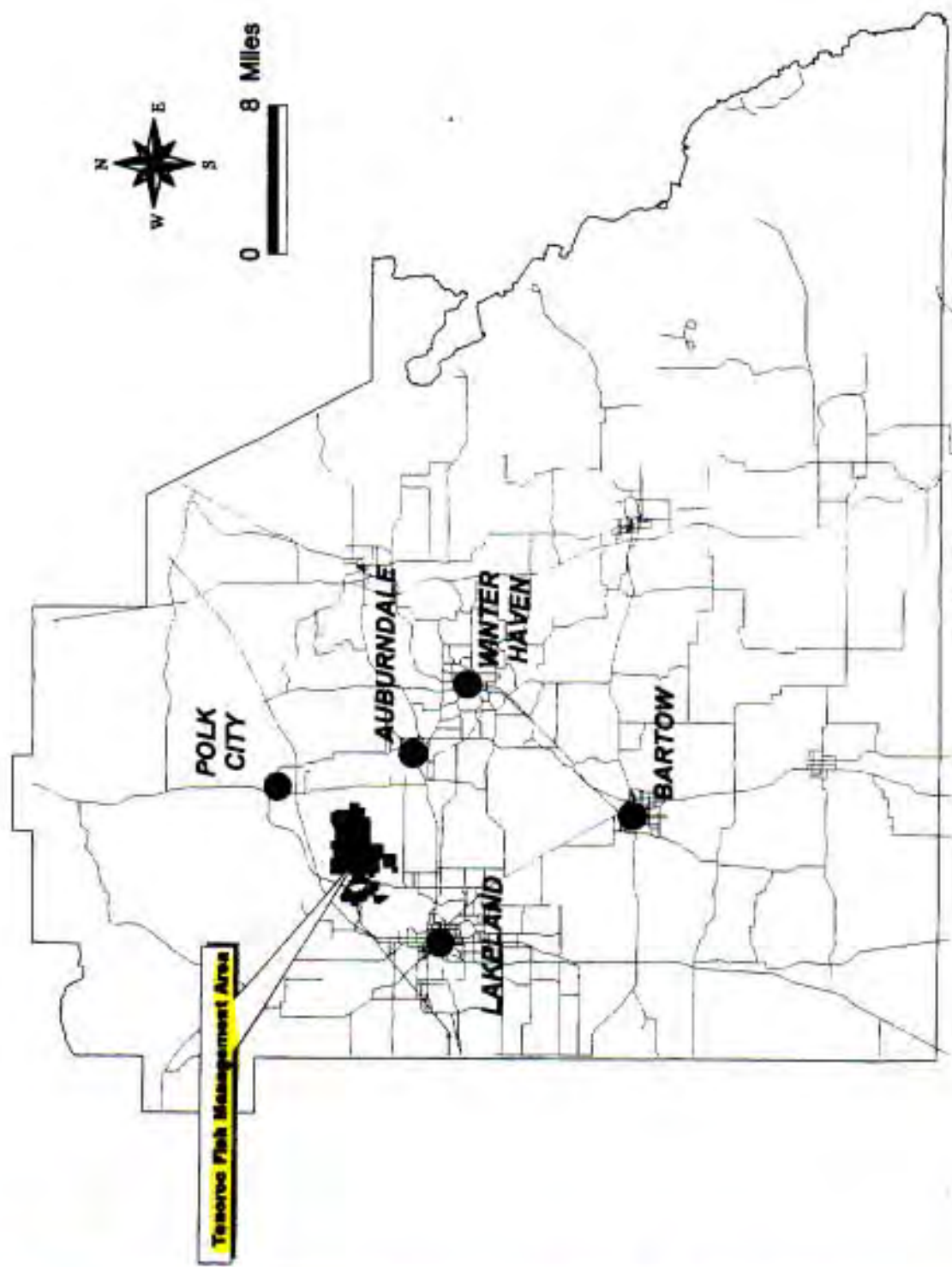
X 3. Location map and design drawings of existing and proposed conditions. Refer to Figs. A, B for location map, Figures C & D for proposed wetland creation area.

X 4. Detailed schedule for work implementation, including any and all phases. Design & permitting will be finalized in late 2003, construction conducted in 2004-2005, followed by a minimum 5-years maintenance & monitoring.

X 5. Proposed success criteria and associated monitoring plan. The monitoring will include qualitative habitat evaluations within the created wetland. Habitat evaluations will be conducted semi-annually for a minimum 5-years post construction. These evaluations will include documentation of vegetative, wildlife, and hydrologic conditions. Additional information on maintenance activities and success trends will also be reported. The two semi-annual evaluations each year will be compiled into annual monitoring reports for WMD and ACOE submittals. Success criteria will require a minimum 90% survivorship of planted stock. Maintenance activities (herbicide treatment) are required to maintain less than 10% cover of exotic, nuisance, and undesirable species. Vegetative cover of planted and naturally recruited vegetative cover will exceed 85% at the end of the 5-year monitoring period. Canopy cover of forested wetlands will exceed 30% by the end of the monitoring period, measuring only trees that exceed a height of 10 ft. It may be necessary to extend the monitoring periods beyond the 5-years to document that success criteria is met.

X 6. Long term maintenance plan. Maintenance will include herbicide control of nuisance, exotic, and undesirable species for a minimum 5 years and until the success criteria is met. After the 5 years, the FFWCC will be responsible to periodically conduct additional herbicide maintenance as necessary to guarantee these same success criteria are being met.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to the previous response under Comment D. Additional wetland habitat creation activities at Tenoroc and/or Bridgewater are proposed as mitigation for wetland impacts associated with the Turnpike construction of the Polk Parkway. This additional mitigation is separate from the FDOT mitigation program.



**FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)**

**TENOROC / SADDLE CK.  
RESTORATION PROJECT  
(SW 47)**

**FIGURE A  
LOCATION MAP**





**FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)**

**TENOROC / SADDLE CREEK  
RESTORATION PROJECT  
(SW 47)**

**FIGURE B – Infrared Aerial (1995)  
Tenoroc Tract & Project Area  
Scale 1 in. = 6714 ft. < North**





FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)

TENOROC / SADDLE CREEK  
RESTORATION PROJECT  
(SW 47)

FIGURE C – Infrared Aerial (1995)  
Wetland Creation Mitigation  
Scale 1 in. = 250 ft. < North





**FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)**

**TENOROC / SADDLE CK.  
RESTORATION PROJECT  
(SW 47)**

**FIGURE D – 1995 Infrared Aerial  
Bridgewater Wetland Creation &  
Designated DOT Mitigation Locations  
Scale 1 in = 760 feet, <North**

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** Reedy Creek is a cost-effective mitigation bank that appropriately compensates for the proposed wetland impacts.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no existing or proposed SWIM projects in this basin.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: Reedy Creek Mitigation Bank

Contact Name: Kathy Odom

Phone No: 407-719-3194

Entity responsible for monitoring and maintenance: Reedy Creek Mitigation Bank

Proposed timeframe for implementation: Commence: \_\_\_\_\_ Complete: Currently Maintenance & Monitoring

FM 1945101 - \$ 13,650 (\$35,000 cost/credit x 0.4 impact acres, Credits purchased Fall, 2001)

FM 2012092 - \$ 77,315 (\$32,900 cost/credit x 2.35 impact acres, Credits purchased Summer, 2004)

**TOTAL**                **\$ 90,965**

#### **Attachments**

X 1. Detailed description of existing site and proposed work. Refer to previous discussion.

X 2. Recent aerial photograph with date and scale. Figure B – 1995 Infrared Aerial.

X 3. Location map and design drawings of existing and proposed conditions. Figure A – Location Map, Figure B depicts wetland enhancement & preservation, upland restoration areas.

X 4. Detailed schedule for work implementation, including any and all phases. Currently maintenance & monitoring activities.

X 5. Proposed success criteria and associated monitoring plan. Reference permit conditions.

X 6. Long term maintenance plan. Reference permit conditions.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Reedy Creek Mitigation Bank

Project Manager: Kathy Odom

County(ies): Polk, Osceola

Project Number: SW 49

Phone No: 407-719-3194

Location: Sec. 7,17,20,29,31,32 T26S, R28E

### IMPACT INFORMATION

1 – FM 1945101, US 27-Lake Glenada to Hal McRae

ERP #: 4412845.06

COE #: 199342314

2 – FM 2012092, I-4, CR 557 to Osceola County (Seg. 6, 7,9) \*

ERP #: 44011896.033

COE #: 200208260 (IP-MGH)

Drainage Basin: Kissimmee River

Water Body(s): None

SWIM water body? N

Impacts / Types:

1 – FM 1945101 0.34 ac. 640 (Flucss) 2-FM 2012092 1.53 ac. 617 (Flucss)

0.05 ac. 611

0.82 ac. 640/641

TOTAL 0.39 ac.

2.35 acres

**TOTAL 2.74 Acres**

\* The majority of the proposed wetland impacts associated with I-4 are within the Ocklawaha basin (4.00 acres mitigated at SW 76-Lake Lowery Tract) and the Withlacoochee basin (3.88 acres mitigated at SW 59 – Hampton Tract).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration ☒ Enhancement ☐ Preservation ☐ Mitigation Area: **2.74 Credits**  
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? Y If yes, give DEP/WMD mitigation bank permit #: 970819-11 COE # 199507852 (IP-ME)

Drainage Basin(s) : Kissimmee Ridge Water Body(s): Reedy Creek SWIM water body? N

#### Project Description

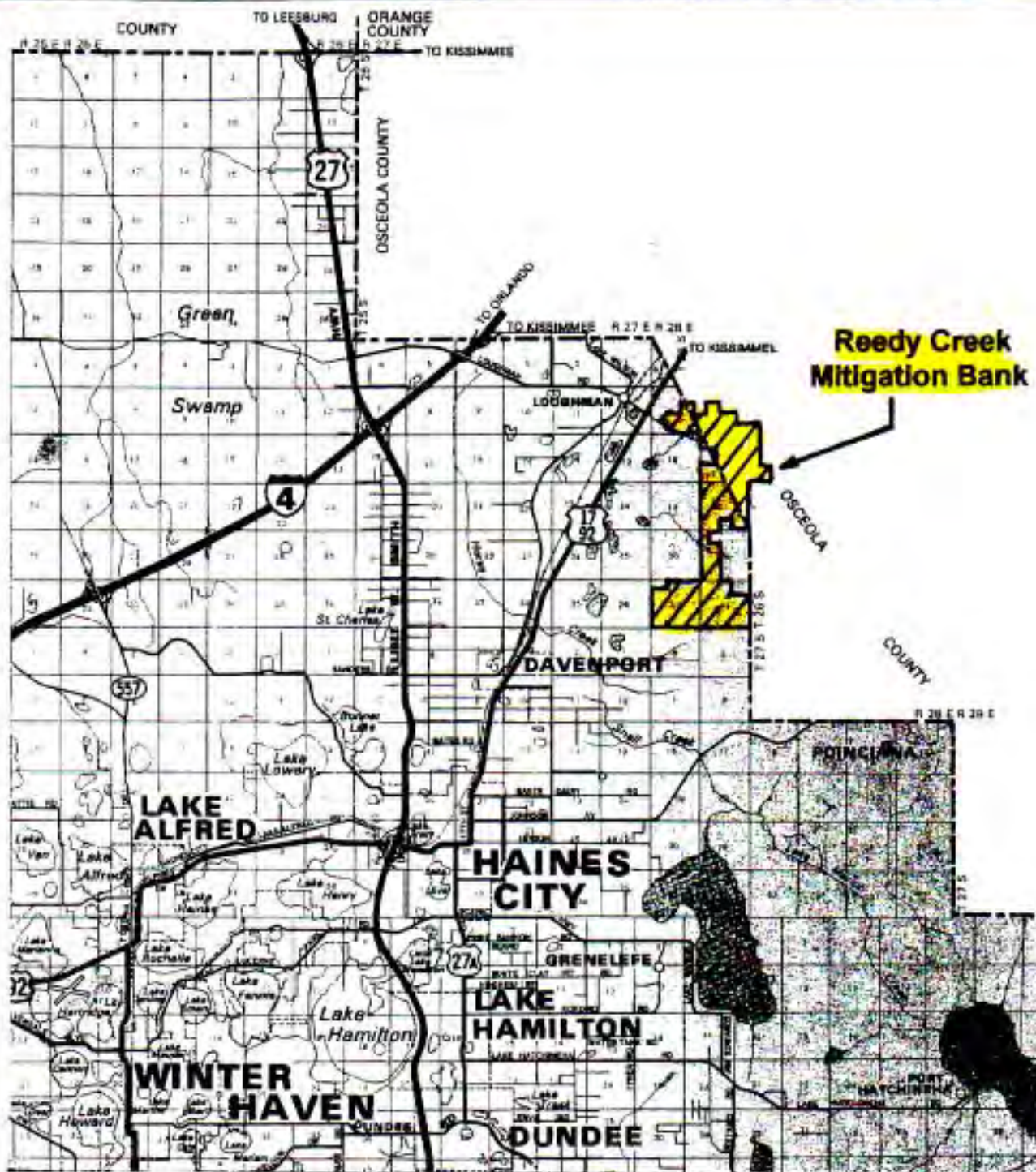
**A. Overall project goal:** Hydrologic enhancement of forested floodplain wetlands associated with Reedy Creek, restore upland improved pastures into native flatwoods habitat.

**B. Brief description of current condition:** The Reedy Creek Mitigation Bank covers approximately 3500-acres in northeast Polk County and southwest Osceola County. Reedy Creek Swamp is a high quality wetland system, however, has been historically logged for cypress and some alterations to hydrologic conditions. The upland area along the eastern border of the swamp was converted to improved pasture, but being restored to pine flatwoods habitat to provide a habitat buffer to Reedy Creek Swamp.

**C. Brief description of proposed work:** Hydrologic connections to Reedy Creek Swamp have been restored and the upland pasture has been converted to flatwoods habitat with a combination of bahiagrass eradication and implementing a native species planting and seed relocation program.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The mitigation bank adequately compensates for the minor wetland impacts with the combination of wetland enhancement and upland restoration.



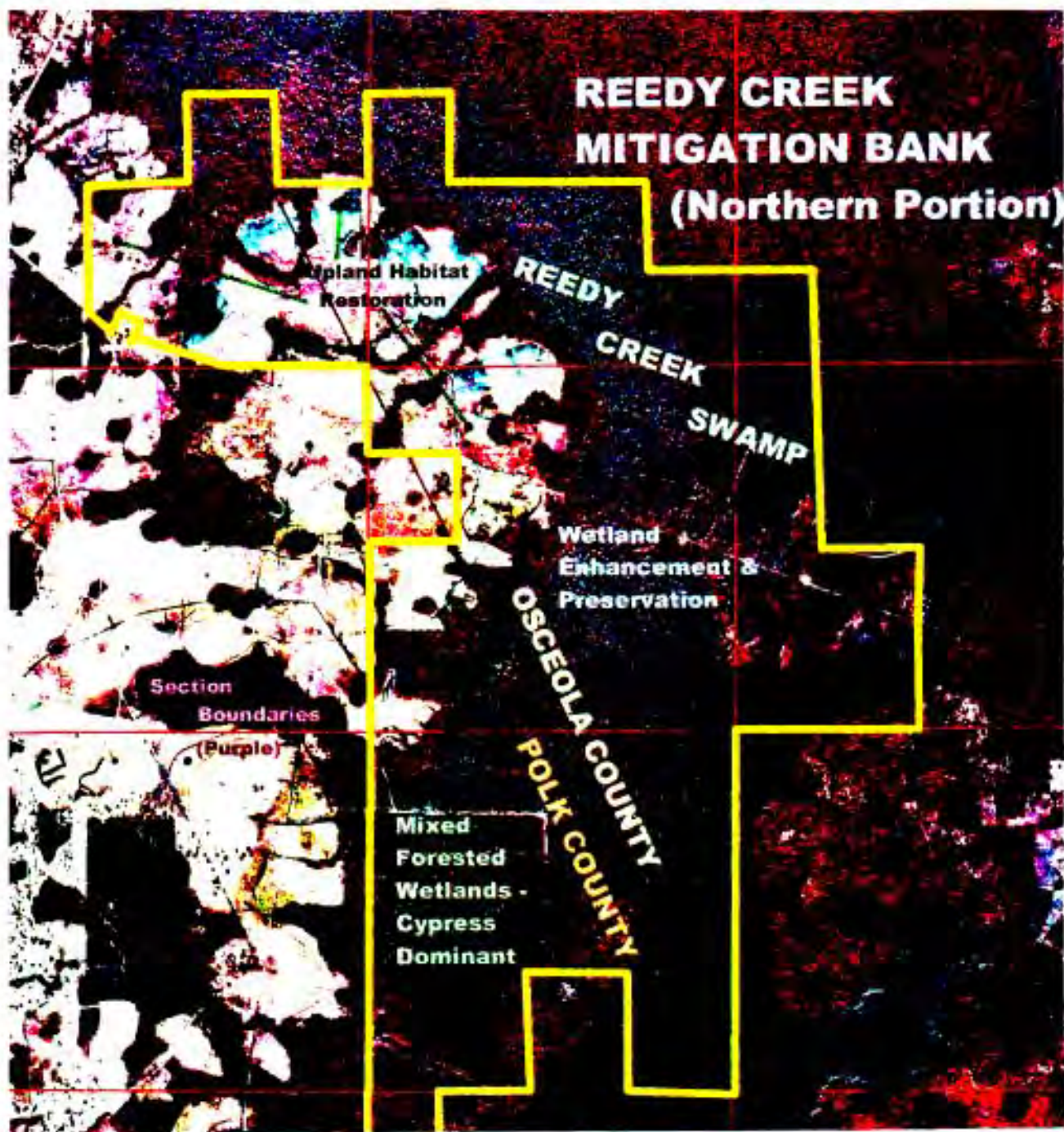


FDOT - District 1  
MITIGATION SITE  
(Kissimmee River Basin)

REEDY CREEK  
MITIGATION BANK  
(SW 49)

FIGURE A  
LOCATION MAP





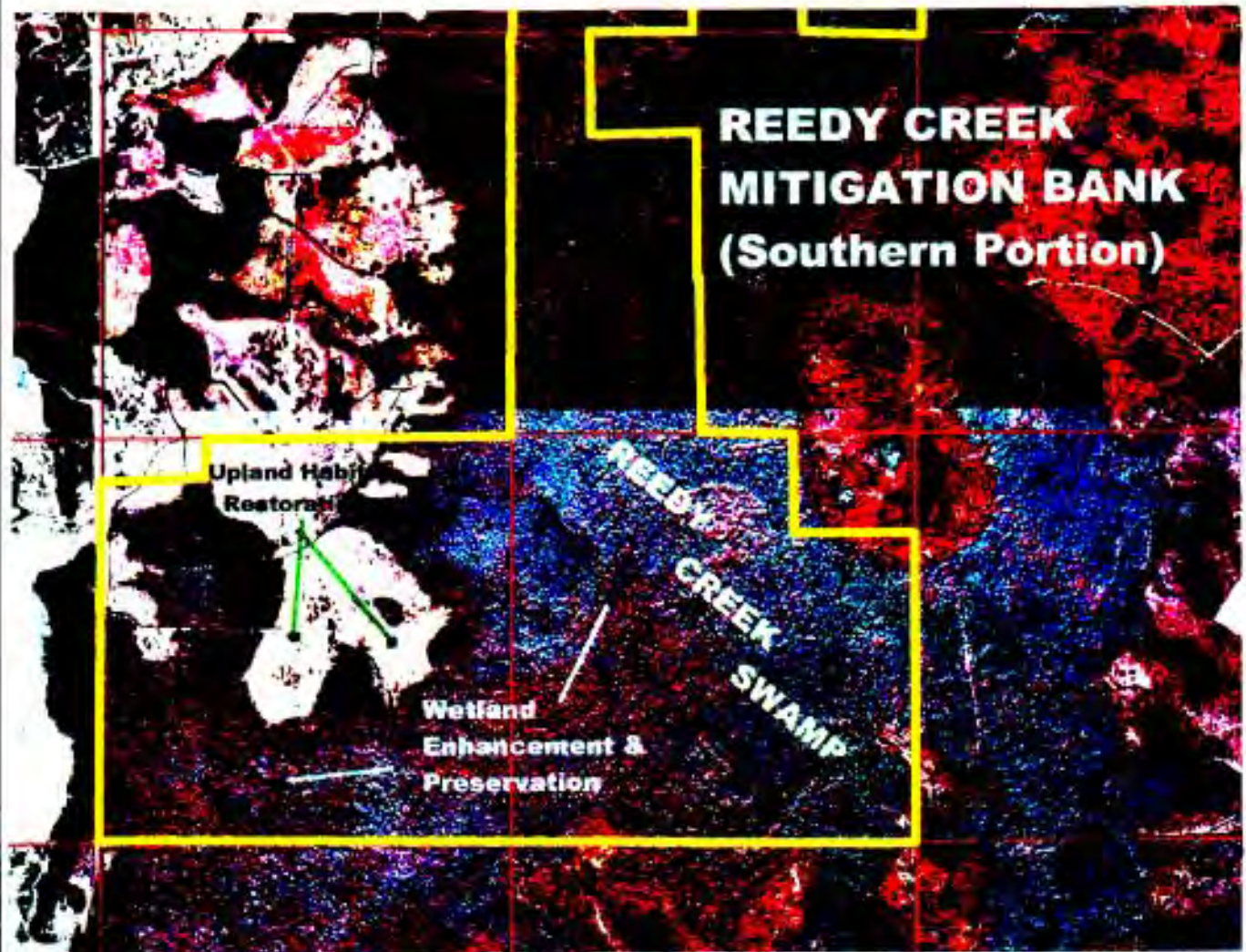
NORTH ^ SCALE 2.4 in. = 1 mile

FDOT - District 1  
MITIGATION SITE  
(Kissimmee River Basin)

REEDY CREEK  
MITIGATION BANK  
(SW 49)

FIGURE B  
INFRARED AERIAL (1995)  
(NORTHERN PORTION)





NORTH ^ SCALE 2.4 in. = 1 mile

FDOT - District 1'  
MITIGATION SITE  
(Kissimmee River Basin)

REEDY CREEK  
MITIGATION BANK  
(SW 49)

FIGURE B  
INFRARED AERIAL (1995)  
(SOUTHERN PORTION)

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Terra Ceia Restoration

Project Number: SW 50

Project Manager: Brandt F. Henningsen, Ph.D., SWIM Sr. Env. Scientist

Phone: (813) 985-7481 ext. 2202

County(ies): Manatee

Location : Sec. 13, 14, 23, 24, 25, 26, T33S, R17E

### IMPACT INFORMATION

DOT: WPI 1115399, FM 1960581, US 301 (Ellenton)-60th Ave to Erie Road

ERP #: 4012295 COE#: 199802683

Drainage Basin(s): Manatee River Basin Water Body(s) : Manatee River

SWIM water body? Y

Impact Acres / Types: WPI 1115399 0.18 ac. .612 (Flucss code)

0.41 ac. .618 (Flucss code) **TOTAL - 0.59 Acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Restoration X Enhancement

Mitigation Area: **7 acres**

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N

Drainage Basin(s): Manatee River Water Body(s): Manatee River, Tampa Bay, Terra Ceia Bay SWIM water body? Y

#### Project Description

- A. Overall project goals:** Restoration and enhancement of various types of saltwater wetlands and upland habitat within a 1700-acre DEP -owned tract (Terra Ceia Isles) in southeastern Tampa Bay (Figures A & B).
- B. Brief description of current condition:** Large tracts of once-pristine mangrove forest and intertidal wetlands within the project area have been adversely impacted by dredge and fill operations. Also, much of the existing upland and various wetland habitats have been infested by exotic vegetation including Brazilian pepper, Melaleuca, and Australian pines. These areas of infestation currently provide poor habitat value for the adjacent estuary (photos).
- C. Brief description of proposed work:** The disturbed uplands and wetlands have had exotic/nuisance vegetation removed and planted with native species. For the area designated to provide the DOT mitigation (Figure D), there has been four acres of mangrove enhancement by removing the perimeter of Brazilian pepper, and three acres of upland adjacent habitat enhancement and restoration with B. pepper removal and plantings of cabbage palms and other native vegetation.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The restored and enhanced uplands and mangroves replace the acreage and function of the disturbed wetlands while increasing habitat diversity, further enhancing the habitat mosaic concept. For mitigating the proposed mangrove (0.18 acre) and willow & elderberry impact (0.41acre) (total 0.59 impact acres), a minimum 4 acres of mangrove enhancement, and 3 acres of upland habitat enhancement & restoration have been conducted by removing exotic/nuisance vegetation, followed with planting desirable species. Even though the existing 19 acres of mangrove interior will be enhanced by these surrounding activities, this enhancement was not accounted for as mitigation credit. The cumulative ratio of enhancement and restoration activities will result in a cumulative ratio of 12:1 compared to the proposed impacts, and will appropriately compensate for those impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks were available in the Manatee River Drainage Basin in 1998.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: The mitigation activities are in conjunction with a SWIM project located on DEP property in need of major habitat restoration & enhancement.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD - Operations Dept.

Contact Name: Brandt F. Henningsen, Ph.D., Sr. Environmental Scientist Phone: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD & DEP Proposed time frame for implementation:  
Commence: Design in 2000-2001 Complete: Exotic/Nuisance Species Removal & Planting, 2002; followed by a minimum 3 years maintenance & monitoring

Project cost: \$ 46,175 (total);

Mangrove Enhancement & Creation (exotics/nuisance species removal - 10 acres) - \$26,175

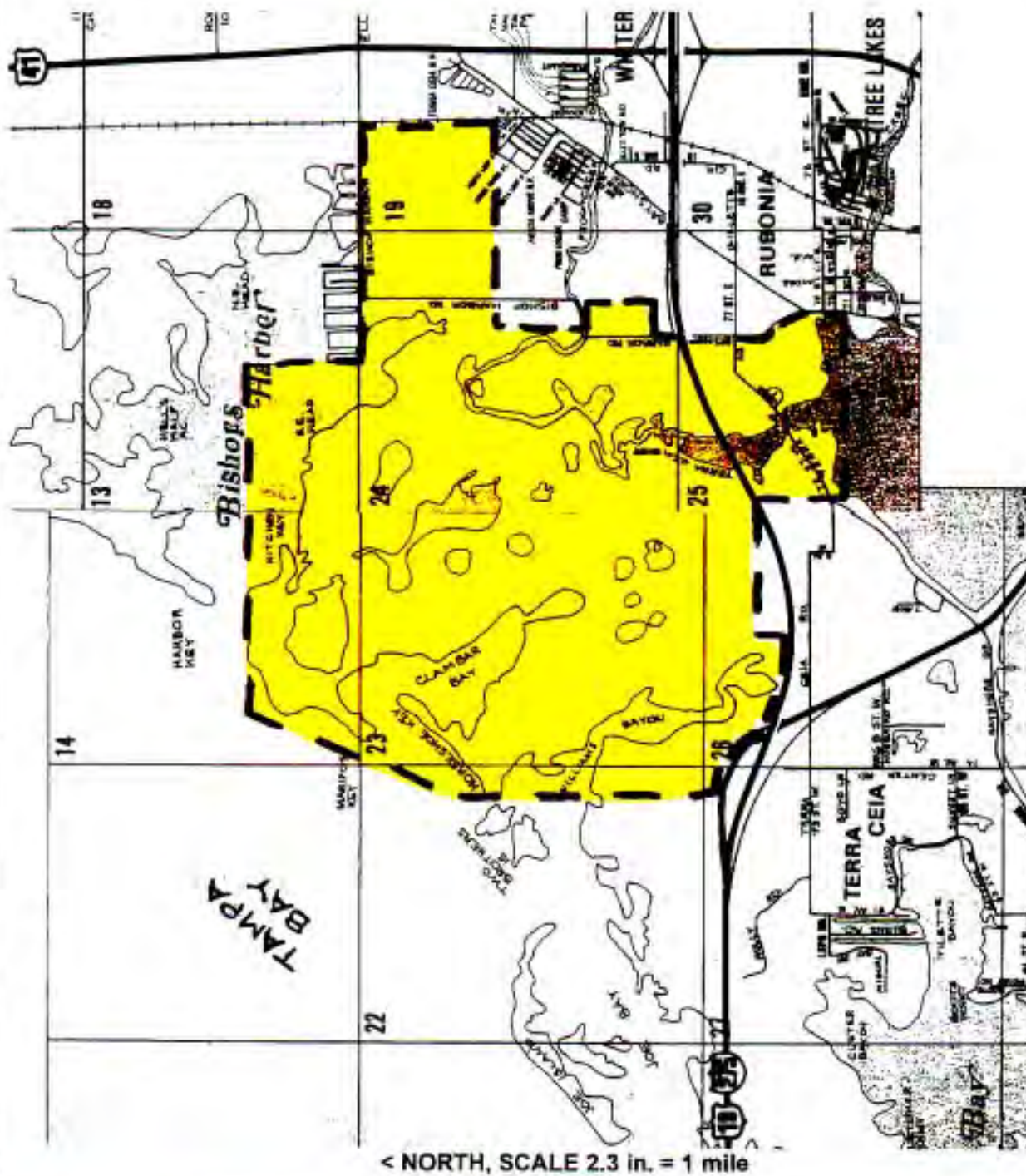
Maintenance (minimum 5 years) - \$15,000

Monitoring (minimum 3 years) - \$5,000

#### Attachments

- ☒ 1. Detailed description of existing site and proposed work. Refer to previous discussion.
- ☒ 2. Recent aerial photograph with date and scale. Figure B - 1995 Infrared Aerial
- ☒ 3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Fig D - Design.
- ☒ 4. Detailed schedule for work implementation, including any and all phases. The exotic species were eradicated and the area planted in 2002.
- ☒ 5. Proposed success criteria and associated monitoring plan. The success criteria includes less than 10% cover of exotic/nuisance vegetation for the minimum 7- acre area providing mitigation for DOT wetland impacts. The monitoring will occur on an annual basis for 3 years, qualitative evaluation of species survival, cover, exotic/nuisance vegetation, hydrologic conditions, wildlife use, and recommended actions needed to ensure or enhance success.
- ☒ 6. Long term maintenance plan. The mitigation is associated within larger restoration objectives for land owned by the DEP. The maintenance of the project is being conducted by a private contractor working for the FDEP. The maintenance is primarily related to control of invasive exotic vegetation, maintaining less than 10% nuisance/exotics, and less frequent maintenance as the project matures.
- ☒ 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Please refer to previous discussion.

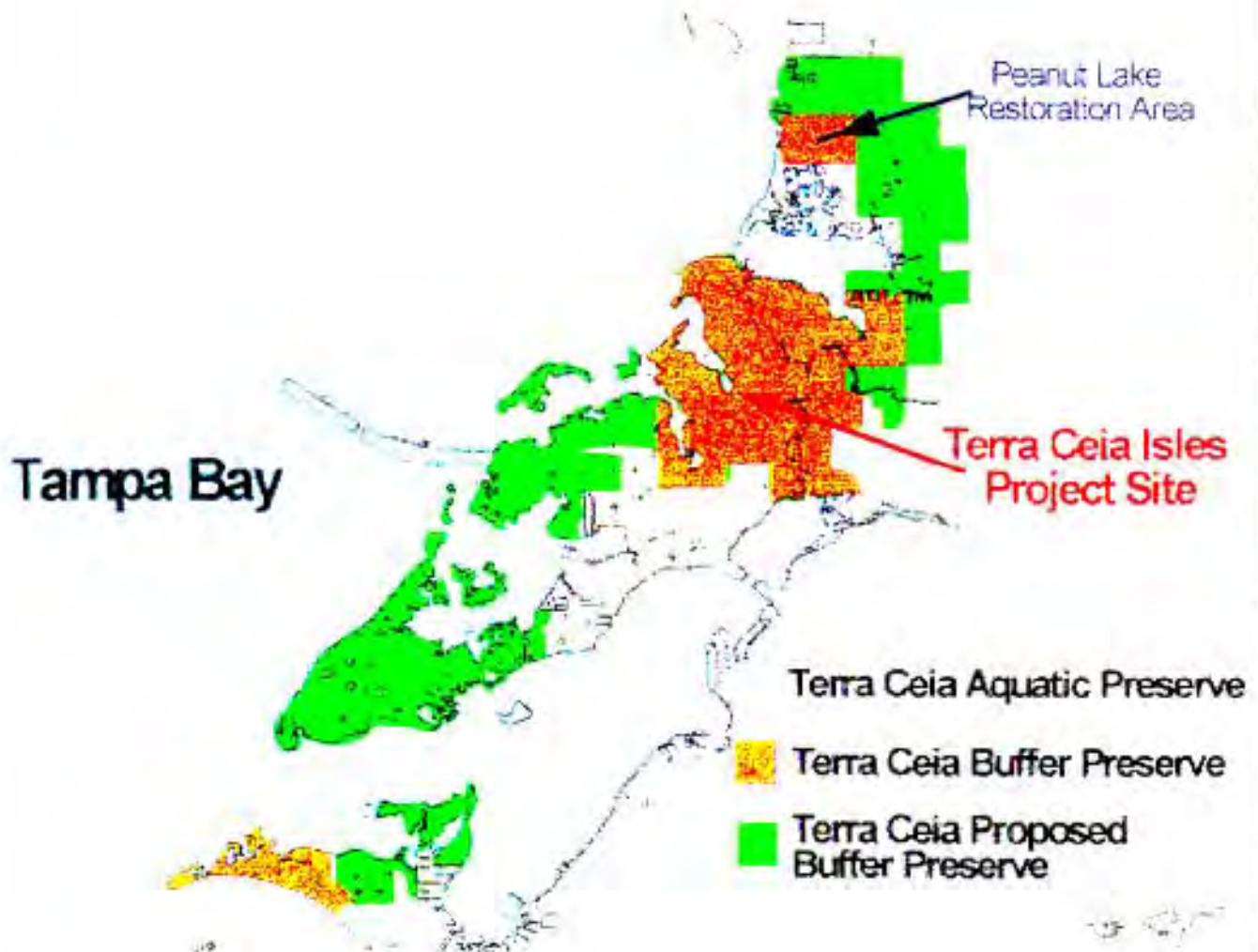




FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)

TERRA CEIA  
RESTORATION  
(SW 50)

FIGURE A  
LOCATION MAP

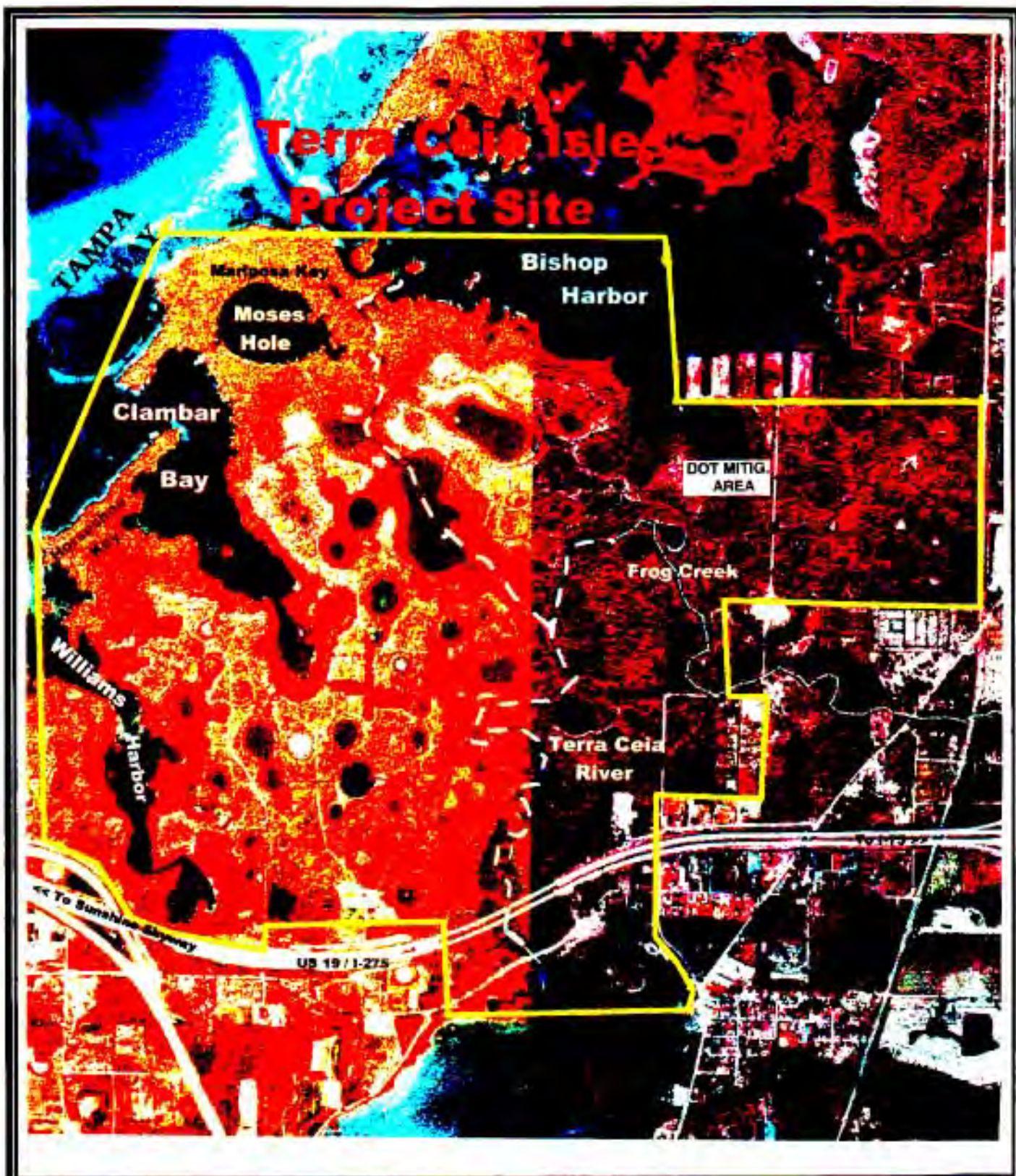


FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)

TERRA CEIA  
RESTORATION  
(SW 50)

FIGURE B  
TERRA CEIA BUFFER  
PRESERVE





FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)

TERRA CEIA  
RESTORATION  
(SW 50)

FIGURE C  
INFRARED AERIAL (1995)





**FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)**

**TERRA CEIA  
RESTORATION  
(SW 50)**

**FIGURE D  
PROPOSED MITIGATION  
^North, Scale 1in. = 340 ft.**





*The upland areas are dominated by dense coverage of exotic/nuisance species such as Australian pine, Brazilian pepper, Johnson grass, ragweed, and dog fennel. Extensive efforts will be conducted to eradicate exotic/nuisance species, followed by a planting plan to include native upland species.*



*Small areas of live oak and cabbage palm hammocks are still present but are also heavily infested with Brazilian pepper that will require eradication to enhance and expand these remnant habitats.*

FDOT - District 1 Mitigation Site  
(Manatee River Basin)

TERRA CEIA (SW 50)





*Small, circular open water components at the site have been tidally connected by ditches to the various harbors and bays on the property, resulting in various salinity levels and species coverage. Black mangroves are common along the perimeter of these open water areas. Brazilian pepper dominates along the upland border of the mangroves.*



*Even though there is substantial opportunity for upland & wetland enhancement & restoration at Terra Ceia, there are still high quality saltwater wetlands and open water habitat associated with several harbors & bays. This view is located along the projects southern border where the Terra Ceia River connects with Terra Ceia Bayou.*

**FDOT - District 1 Mitigation Site  
(Manatee River Basin)**

**TERRA CEIA (SW 50)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Myakka River State Park

Project Number: **SW51**

Project Manager: Jon Robison, Park Manager

Phone No: (941) 366-6511; SC 516-1876

County(ies): Sarasota, Manatee

Location: Sec. 19,26,28,29,30, T37S, R21E

### IMPACT INFORMATION

(1) FM 1979251, SR 72 - Big Slough to DeSoto County Line	ERP#: <u>4318471.00</u>	COE #: <u>199802683</u>
(2) FM 1980131, SR 72 - Deer Prairie to Big Slough	ERP#: <u>4418399.00</u>	COE #: <u>199802683</u>
(3) FM 4138871, SR 72 – Myakka River to Big Slough	ERP#: _____	COE #: _____

Drainage Basin(s): Myakka River Water Body(s): Big Slough, Deer Prairie Slough, Myakka River SWIM water body? N

Impact Acres / Types :

(1) FM 1979251 <u>0.30</u> ac. <u>615</u> (FlucCs)	(3) FM 4138871 <u>3.00</u> ac. <u>641x</u> (FlucCs)
<u>1.19</u> ac. <u>641</u>	<u>2.00</u> ac. <u>643</u>
TOTAL 1.49 acres	TOTAL 5.00 acres

(2) FM 1119303 0.87 ac. 641 (FlucCs)

**TOTAL 7.36 acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: \_\_\_\_ Creation X Restoration X Enhancement

Mitigation Area: **1,274 acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Myakka River Water Body(s): Myakka River / Deer Prairie Slough SWIM water body? N

### Project Description

A. **Overall project goal:** The objective is to restore surface and groundwater hydrology of wetlands by removing 9 miles of an abandoned elevated railroad grade, as well as construction of ditch blocks and backfilling of ditch segments at appropriate locations (refer to Figures B & C). With the proposed plan, there will be at least 37 wetlands that will have direct habitat improvements; including 1,074 acres of non-forested wetland enhancement, 194 acres of forested wetland enhancement, and 6 acres of non-forested wetland restoration in the location where 3.3 miles of the railroad grade crosses former wetland habitat. Secondary benefits will include restoring surface and groundwater flow regimes to thousands of acres of other wetland and upland habitat in the Park.

B. **Brief description of current condition:** The Park has a flat topography with a general groundwater and surface water flow pattern to the south and west toward the Myakka River. The river is also located along the western boundary of the Park. An abandoned elevated railroad tram grade cuts through marshes predominantly located within several thousand acres of palmetto & dry prairies (Figure B&C, site photos). This east-west railroad tram and adjacent ditches are located in a perpendicular direction opposite of the general flow direction of ground and surface water hydrology. Except for the Deer Prairie Slough crossing, the railroad tram was installed without the use of culverts to maintain north-south drainage patterns. This has resulted in minimizing hydrologic connectivity with periodic impoundment of surface water within the contributing watershed north of the tram. Subsequently, the tram performs as a levee that also decreases historic contributing flow to upland and wetland habitats south of the tram. Some of the marshes within the prairie are interconnected with ditches that were historically dredged to increase drainage off the property. A portion of the stream swamp within North Deer Prairie Slough was also been bermed and channelized near the northern Park boundary.

- C. **Brief description of proposed work:** The primary earthwork includes backfilling the railroad grade into the adjacent lateral ditches to match their historic natural grade elevations. Additional activities include filling ditch segments and installing ditch blocks that currently drain marshes within the prairie (refer to Figures B & C). A portion of these activities were initially nominated and approved for the FDOT mitigation plan in 1998. At that time, the approved mitigation for FDOT Projects 1 & 2 included removing approximately 2 miles of the tram and the 600 ft. berm in N. Deer Prairie Slough. Except for some periodic maintenance, these activities were completed by 2004 and the flow regime has been successfully achieved in those areas. With the addition of FDOT Project 3, the removal of the remaining 7 miles of tram and installation of ditch blocks are included in the 2004 FDOT mitigation plan. For the tram removal, only upstream and downstream wetlands and portion of wetlands that will receive direct hydrologic enhancement were accounted to provide mitigation credit (delineated in blue on Figures B & C). The restored marsh credit (6 acres) includes only half the lateral ditch and fill footprint area since the remaining half of the restored grade will be utilized for vehicle access necessary for land management activities (site photo). Due in part to the sandy soil and presence of a hardpan spodic horizon in the subsoil, for the restored grades to date, vehicle use through the surface water has proven to still be accessible which is essential for land management activities. The installation of long ditch blocks and total backfilling of some ditches will also restore hydrologic conditions of small to large shallow marshes. This will result in restoring historic attenuation and groundwater recharge within the wetland basin limits, and allow appropriate hydrophytic species to regenerate and recruit to historic limits. Even though maidencane is the dominant herb cover of these marshes; broomsedge, palmetto, and more traditional upland vegetative species have encroached within the outer facultative zones of these marshes. Due to the shallow grade elevations and narrow hydrologic fluctuations of the majority of the marshes at the Park, even the small ditches can alter the duration and depth of surface water (hydroperiod) within these systems. Not only from a vegetative water quality/quantity perspective, but restoring and maintaining the hydrology and hydroperiods of these wetlands have a direct correlation to the wildlife use of these habitats. To date, natural recruitment of desirable species within the graded areas has been exhibited without the need for supplemental planting. However, planting and/or seeding of desirable species from an on-site donor site may be conducted if necessary.
- D. **Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The three roadway projects are associated with various segments of SR 72 that actually bisects the Park (Figure A). Not only are the wetland impact areas similar in habitat conditions as the wetland enhancement areas, the majority of the wetland impacts (FDOT Project 3) are actually associated with SR 72 improvements through the Park.
- E. **Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks were permitted in the Myakka River Basin during the period of selection.
- F. **Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** The impacts are not within a SWIM water body and there are no freshwater SWIM projects within the Myakka River basin.

## MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: FDEP, Division of Recreation and Parks selection of a private contractor  
Contact Name: Jon Robinson, Park Manager or Diana Donaghy, Park Biologist Phone Number: 941-361-6511

Entity responsible for monitoring and maintenance: FDEP – Park staff  
Proposed timeframe for implementation: Commence: 1998 - Design First Phase Construction – 2002-2003  
Second Phase Construction - 2005-2007 Maintenance & Monitoring - 2003 – 2010 Complete: 2010  
Project cost: \$530,000 (total)

### Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion, Figs. B&C, site photographs.

X 2. Recent aerial photograph with date and scale. Figs. B&C – 1999 Infrared Aerials

X 3. Location map and design drawings of existing and proposed conditions. Fig. C – Design Drawings

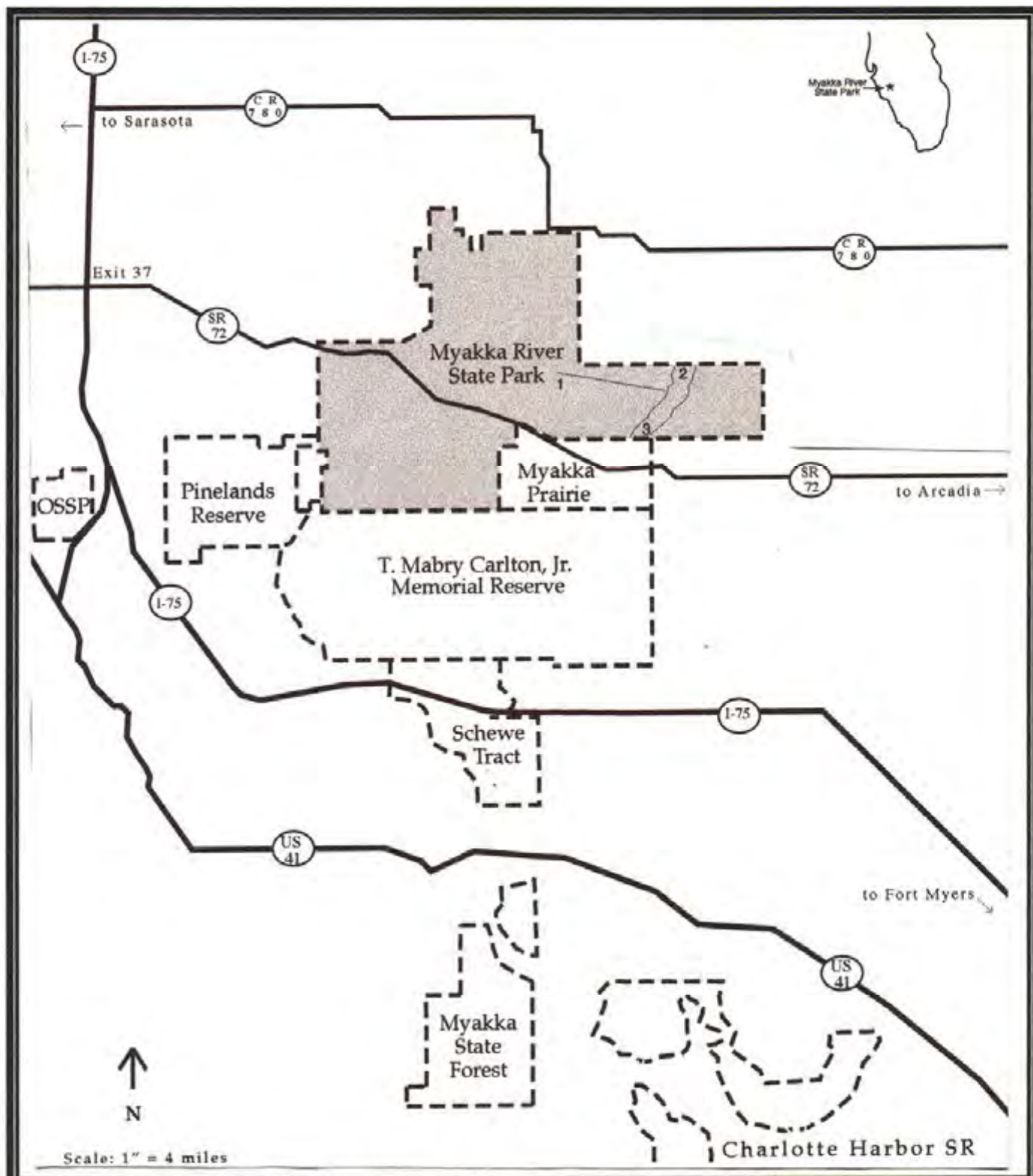
X 4. Detailed schedule for work implementation, including any and all phases. Design (1998), Construction (First Phase, 2002-2003, Second Phase 2005-2007); followed by 3 years of annual monitoring reports to document site conditions.

X 5. Proposed success criteria and associated monitoring plan. For the marsh restoration where the tram is graded, minimum of 80% vegetative coverage within filled ditches and majority of the graded tram (leaving a 10-15 ft. wide path for vehicular access) within 3 years after construction & less than 5% exotic species. For the enhanced wetlands, success is achieved when filled ditches and ditch blocks are stabilized with vegetation to eliminate any potential of erosion & sedimentation conditions, and historic drainage patterns are restored. Annual monitoring for a minimum two years post-construction will include qualitative documentation and photographs of tram regrading to demonstrate vegetative regeneration and restoration of proper drainage patterns.

X 6. Long term maintenance plan. Maintenance will be conducted as needed to ensure proper erosion control measures until vegetative cover is achieved in the wetlands and uplands. Maintenance to eliminate exotic & nuisance vegetative cover within the restored wetlands can be manually conducted or herbicide treatment. It should be noted that the first phase has shown extensive recruitment of native desirable vegetative species without the need for planting or maintenance due to minimal presence of existing exotic & nuisance species seed sources (site photos).

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous response under Comment D. Even though this restoration activity has an extensive acreage relative to the proposed wetland impacts, it has been determined that eliminating the entire railroad grade beyond the wetland boundaries is very important in restoring natural drainage patterns. The palmetto/dry prairie at Myakka River State Park has high groundwater conditions near the surface grade elevations during the rainy season. If only the grade crossings over the wetlands were restored and the tram was maintained through the uplands, groundwater within the upland prairies would still be improperly diverted from contributing to some wetlands while providing too much water in other wetlands. Restoring surface grade elevations for the 9 miles of railroad grade is an important component for allowing the entire ecosystem and various habitat inter-relationships to naturally restore.





**FDOT - District 1  
MITIGATION SITE  
(Myakka River Basin)**

**MYAKKA STATE PARK  
(SW 51)**

**FIGURE A  
LOCATION MAP**



**SW 51 - Myakka River State Park**  
**Figure B - West Portion**

Railroad Grade Removal

Wetland Enhancement

Wetland Restoration

Fill / Plug Ditches





# SW 51 - Myakka River State Park Figure C - East Portion

- Railroad Grade Removal
- Wetland Enhancement
- Wetland Restoration
- Fill / Plug Ditches

PARK BOUNDARY

North Deer  
prairie Slough

End Railroad  
Grade Removal



0 0.4 0.8 1.6 2.4 3.2 Miles





*The majority of the proposed earthwork activities include removing nine miles of the elevated railroad tram grade depicted above. This abandoned tram blocks and diverts surface and ground water flow from north to south (left to right), effectively impounding surface water within habitats upstream and minimizing contributing flow to the habitats directly downstream of the berm.*



*This photo depicts a portion of the post-construction road shortly after tram removal. The berm material was graded into the adjacent lateral ditches to restore historic grade elevations and contributing hydrology. Native vegetation is naturally recruiting into the filled ditches. The lowered road grade still provides vehicle access necessary for land management activities, including through the surface water at wet crossings.*

**FDOT - District 1 Mitigation Site  
(Myakka River Basin)**

**MYAKKA RIVER  
STATE PARK (SW 51)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Little Pine Island Mitigation Bank

Project Manager: Ray Pavelka

County(ies): Lee

Project Number: **SW 52**

Phone No: (941) 481-2011

Location: Sec. 14,15,16,21,22,23,24,25,26,27,34,35,36 T44S, R22E

### IMPACT INFORMATION

(1) FM: <u>1937941, SR 776-CR 771 to Willow Bend Rd.*</u>	ERP #: <u>4316676.00</u>	COE#: <u>199601986</u>
(2) FM: <u>1984711, Trabue Harborwalk Bike Path</u>	ERP #: <u>4417560.01</u>	COE#: <u>199705303</u>
(3) FM: <u>4046971, I-75 Widen Bridge over Peace River**</u>	ERP #: <u>43021917.00</u>	COE#: <u>200102749</u>
(4) FM: <u>1984781, CR 765A at Bridge #010005</u>	ERP #: _____	COE#: _____

Drainage Basin(s): Myakka River (1110148), Peace River (1984711, 4046971) Charlotte (1984781)

Water Body(s): Peace River, Alligator Creek SWIM water body? Y

Impacts / Types: (1) FM 1937941 <u>2.08</u> ac. <u>540</u> (Flucss)*	(3) FM 4046971 <u>2.75</u> ac. <u>612</u> (Flucss code)**
(2) FM 1984711 <u>0.16</u> ac. <u>540</u>	(4) FM 1984781 <u>0.10</u> ac. <u>615</u> (Flucss code)
<b>TOTAL:</b>	<b>5.09 Acres</b>

\* Note - This roadway project has an additional 8.92 acres of wetland impacts being mitigated through restoration activities at SW 31-Cattle Dock Point.

\*\* Note - The bridge project has an additional 0.8 acres of proposed mangrove impacts that will be mitigated through on-site restoration activities, as noted under SW 69 - Peace River Bridge Restoration.

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration ☒ Enhancement ☐ Preservation ☐ Mitigation Area: **5.49 Credits**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? Y If yes, give DEP/WMD mit bank permit #: 362434779 COE # 199400037 (IP-GS)

Drainage Basin(s): Charlotte Harbor Water Body(s): Charlotte Harbor SWIM water body? Y

#### Project Description

**A. Overall project goal:** Little Pine Island is state-owned property that has extensive cover of exotic vegetation (melaleuca, Brazilian pepper, Australian pine). The goal of the mitigation bank is to eradicate exotic vegetation from approximately 1,565 acres of previously disturbed or impacted coastal marsh, salt flats, mangroves, and pine flatwoods; construct temporary haul roads, and restoring grades by backfilling and plugging 48.3 acres of mosquito ditches. The mitigation service area includes portions of the 100 year flood plain of Charlotte, Lee, Sarasota, and Collier counties.

**B. Brief description of current condition:** Mangrove species exist within undisturbed portions of the island, particularly within the perimeter (approx. 3500 of the total 5000 acres). However, prior to current restoration, the exotics (particularly melaleuca) has overwhelmed the native vegetation. As restoration activities have taken place, native estuarine herbaceous and shrub species have naturally regenerated with minimal need for additional planting.

**C. Brief description of proposed work:** Due to the fact a private entity has been conducting restoration on public lands, extensive construction conditions have been required and adopted by the mitigation bankers. In order to access and restore the site without turbidity, impermeable liners have been used to enclose fill roads used to haul cut exotic vegetation to a mulcher. The mulch quantity is too extensive to use as a restoration soil amendment because it would substantially limit regeneration of native vegetation. Instead, the mulch is burned as a fuel source in a sugar processing plant. Once the exotic vegetation is cut and removed from the site, herbicide treatment of the stumps and spraying of any regenerated exotic vegetation is conducted on a routine schedule.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** Little Pine Island Mitigation Bank is conducting restoration and enhancement of freshwater and saltwater herbaceous and forested wetland habitats. The proposed DOT wetland impacts are similar in habitat and function of the enhanced and restored wetlands at Little Pine Island.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** Little Pine Island is a private mitigation bank conducted on public property.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** A SWIM project (Cattle Dock Point) is located in the Myakka River basin, and partially mitigates for FM 4138871, a roadway project within a few miles and similar habitat impacts as the proposed restoration components of Cattle Dock Point.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: Mariner Properties, Inc.

Contact Name: Ray Pavelka, Richard Anderson

Phone Number: (941) 481-2011

Entity responsible for monitoring and maintenance: Same

Proposed timeframe: Commence: 1996 Complete: When the seven phases meet permit success criteria

Project cost: \$233,430 (total)

- |                |   |
|----------------|---|
| (1) FM 1937941 | 2.08 Ac. x \$37,000/credit = \$76,960 (Credits purchased Summer, 2001)  |
| (2) FM 1984711 | 0.16 Ac. x \$37,000/credit = \$5,920 (Credits Purchased Summer, 2001)   |
| (3) FM 4046971 | 2.75 Ac. x \$53,000/credit = \$145,750 (Credits Purchased Summer, 2002) |
| (4) FM 1984781 | 0.10 Ac. x \$48,000/credit = \$4,800                                    |

#### **Attachments**

x 1. Detailed description of existing site and proposed work. Refer to previous discussion & mit. bank permits.

x 2. Recent aerial photograph with date and scale. Attached aerial and site photographs.

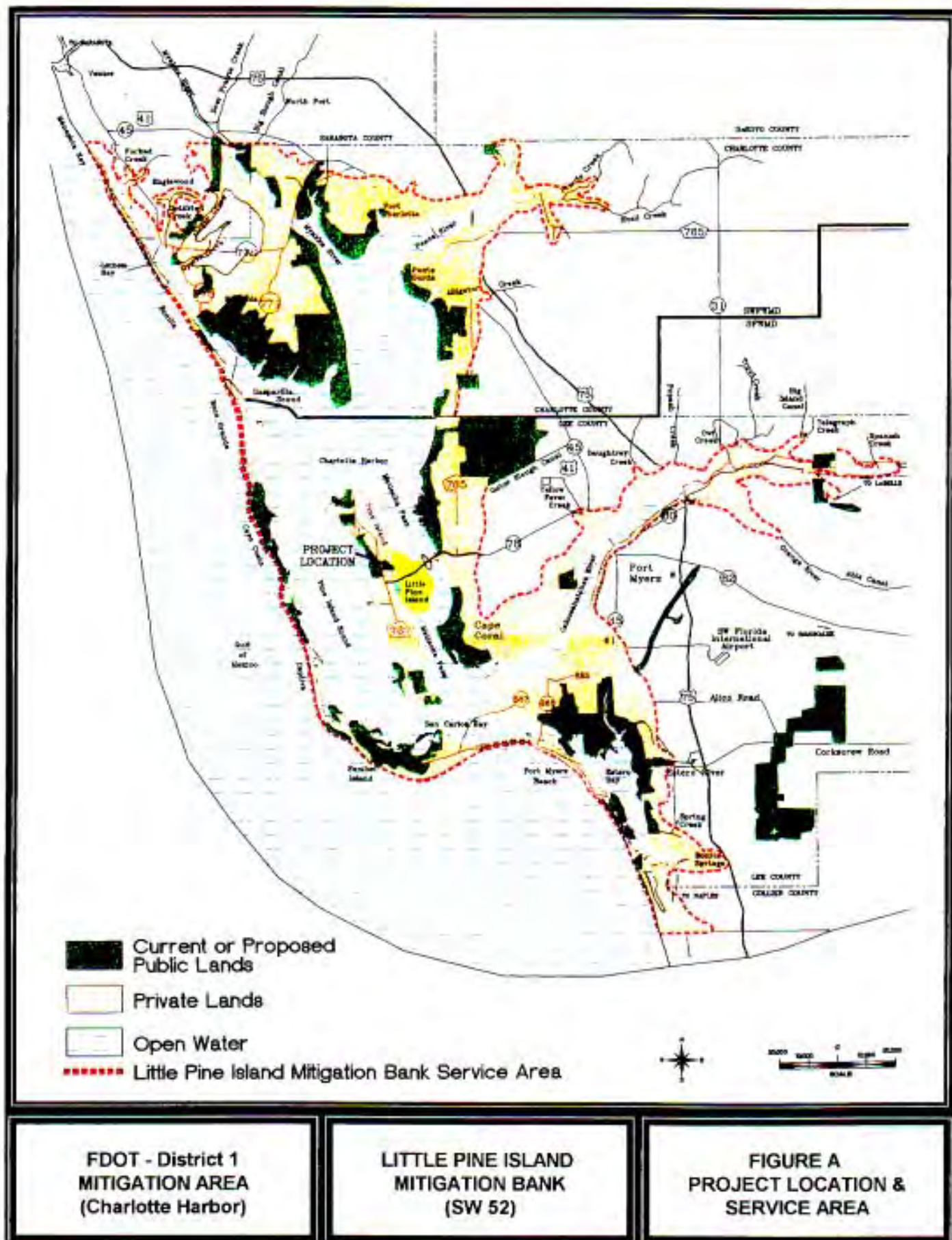
x 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, Figures B & C - cross section drawings of existing vegetative conditions and proposed ditch blocks.

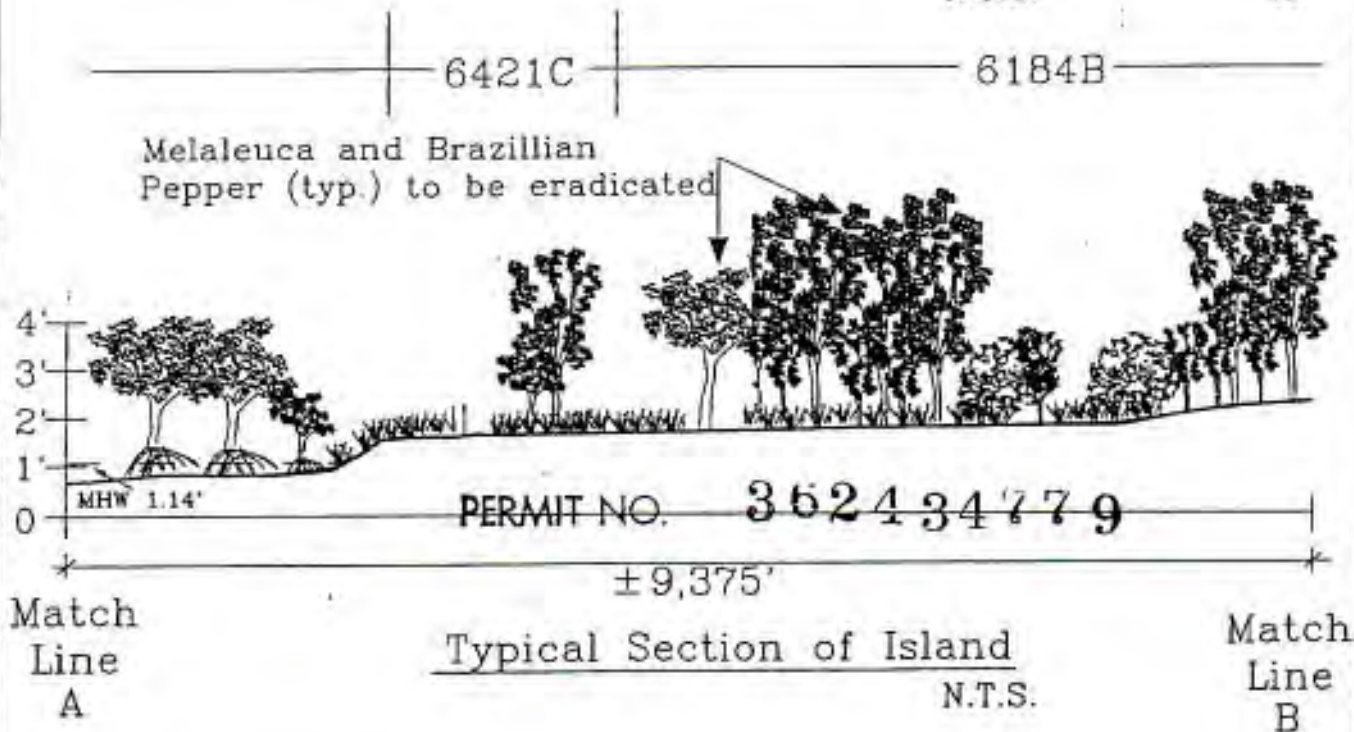
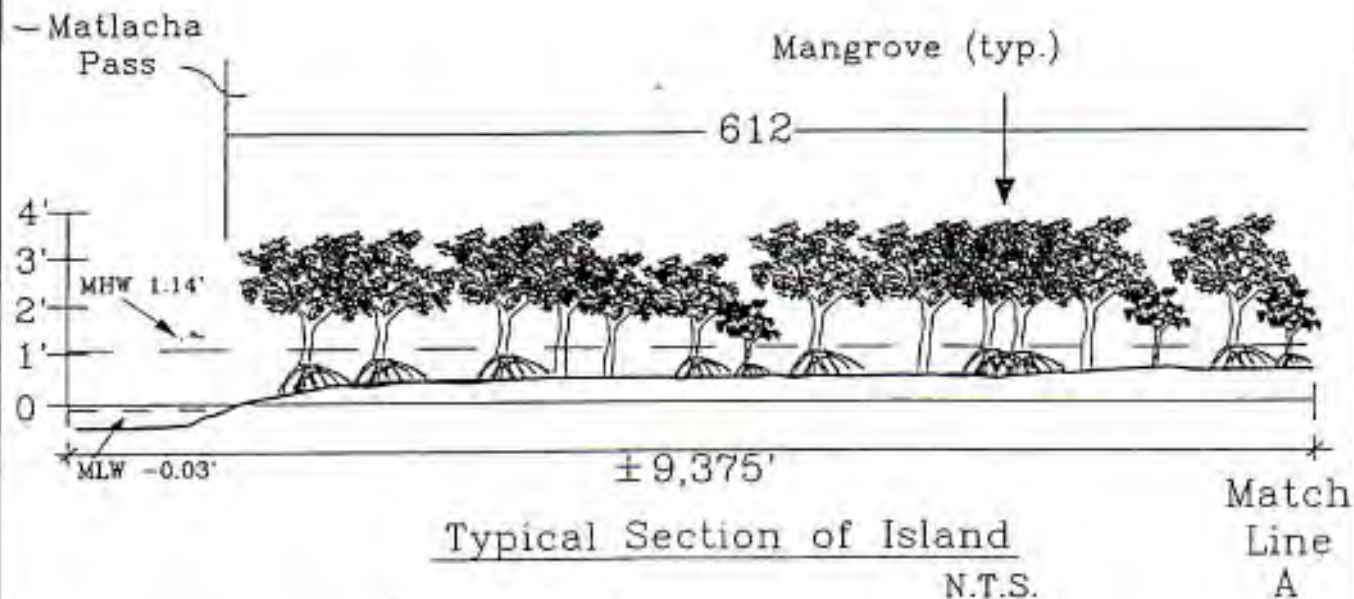
x 4. Detailed schedule for work implementation, including any and all phases. Construction activities are ongoing for seven phases until complete.

x 5. Proposed success criteria and associated monitoring plan. The monitoring plan includes an extensive quantitative analysis procedure that includes hydrologic, vegetative, and wildlife evaluation as stipulated in the permit. The success criteria requires percent cover, presence, and richness of various flora and fauna species, also stipulated in the mitigation bank's permits.

x 6. Long term maintenance plan. In order to achieve the success criteria, the mitigation banker has incorporated a routine maintenance schedule to ensure exotic and nuisance species are substantially minimized from regeneration.

x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.



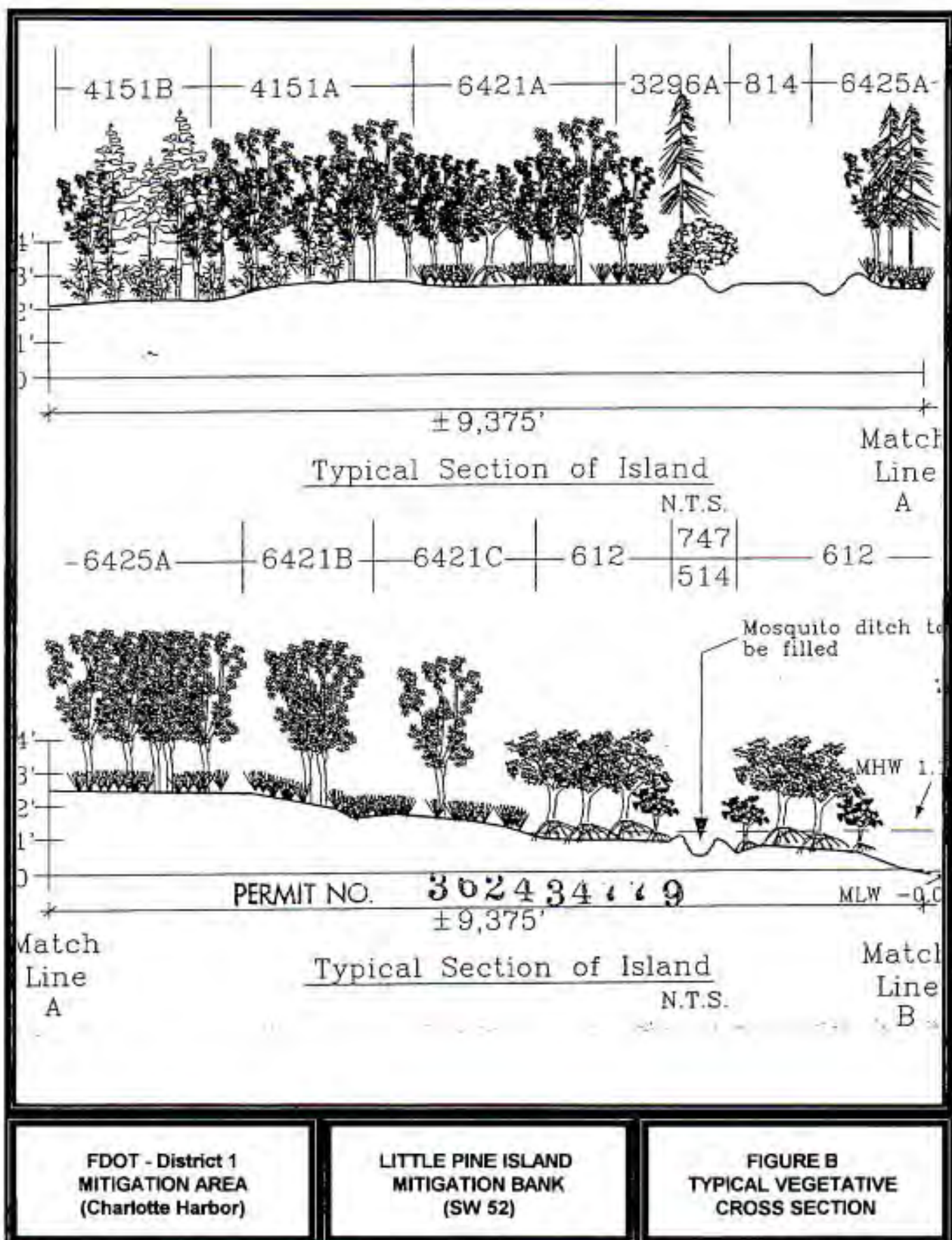


FDOT - District 1  
MITIGATION AREA  
(Charlotte Harbor)


LITTLE PINE ISLAND  
MITIGATION BANK  
(SW 52)


FIGURE B  
TYPICAL VEGETATIVE  
CROSS SECTION

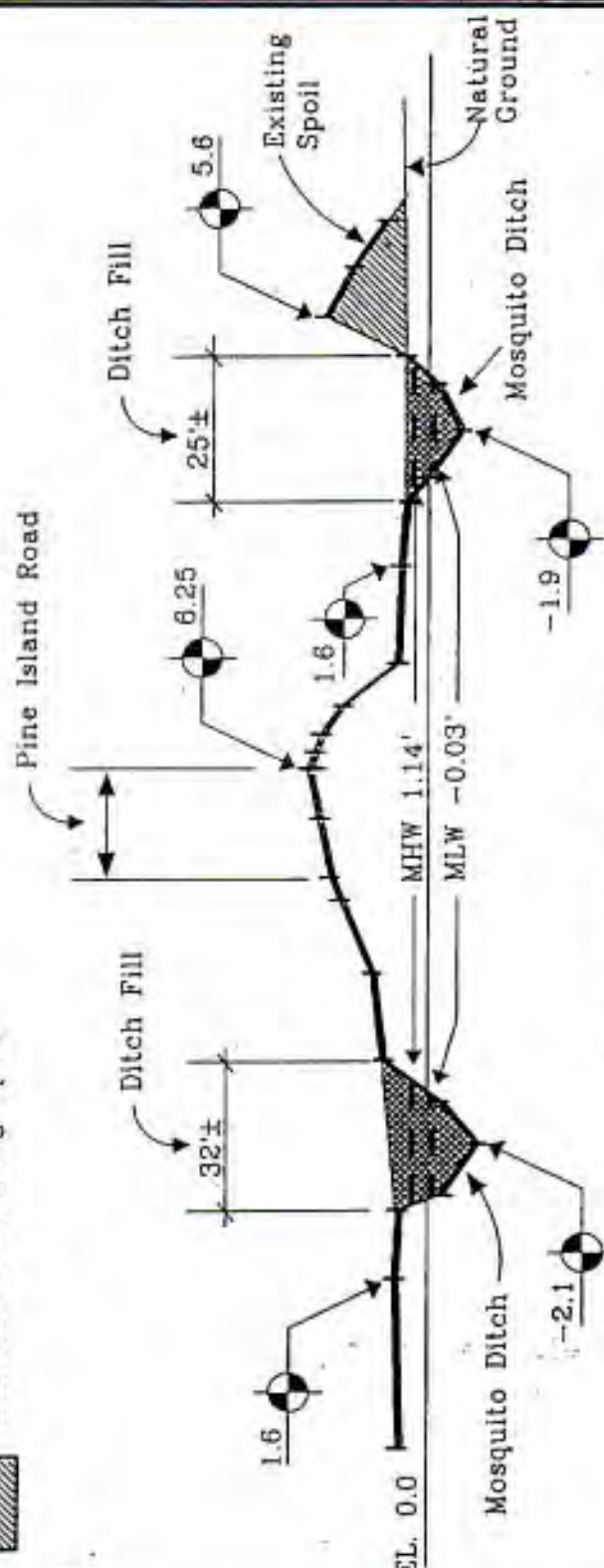




Legend

 Fill for Ditch Blocks

 Removal of Existing Spoil



Typical Ditch Block Section

Notes: 1. Drawings are intended for permit purposes.

Horizontal scale is 1" = 40'.

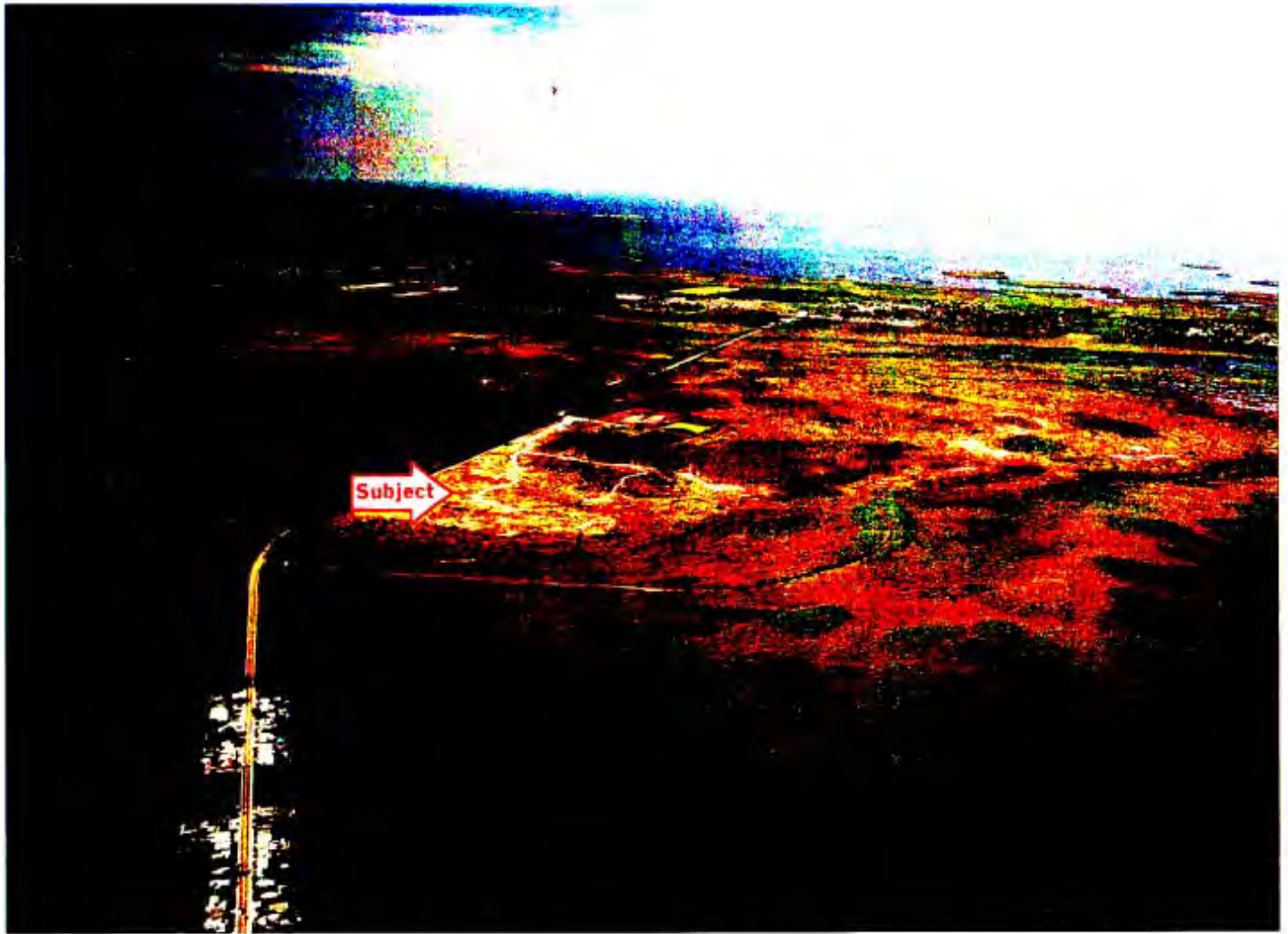
Vertical scale is 1" = 10'.



FDOT - District 1  
MITIGATION AREA  
(Charlotte Harbor)

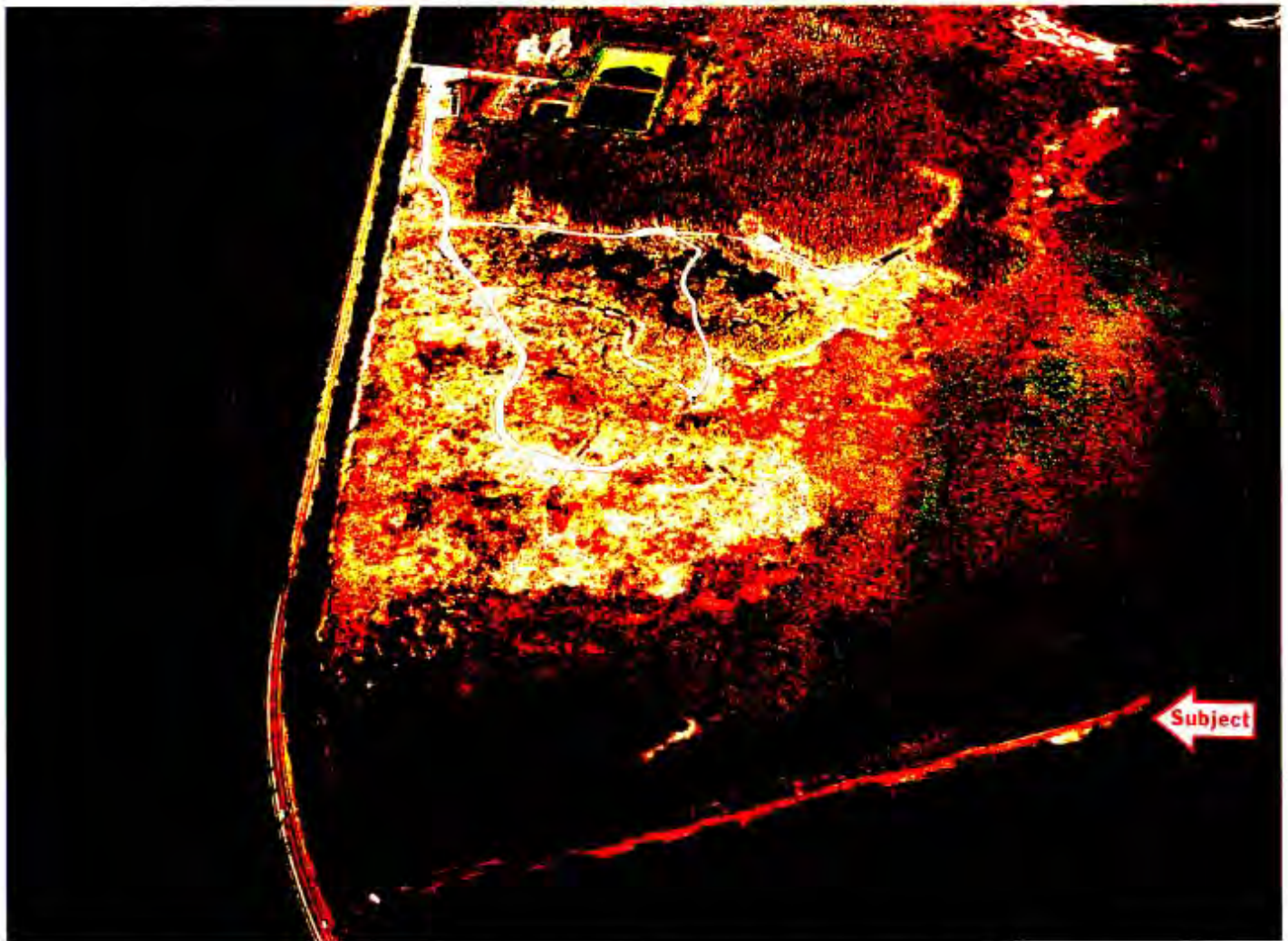
LITTLE PINE ISLAND  
MITIGATION BANK  
(SW 52)

FIGURE C  
MOSQUITO DITCH  
FILL CROSS SECTION



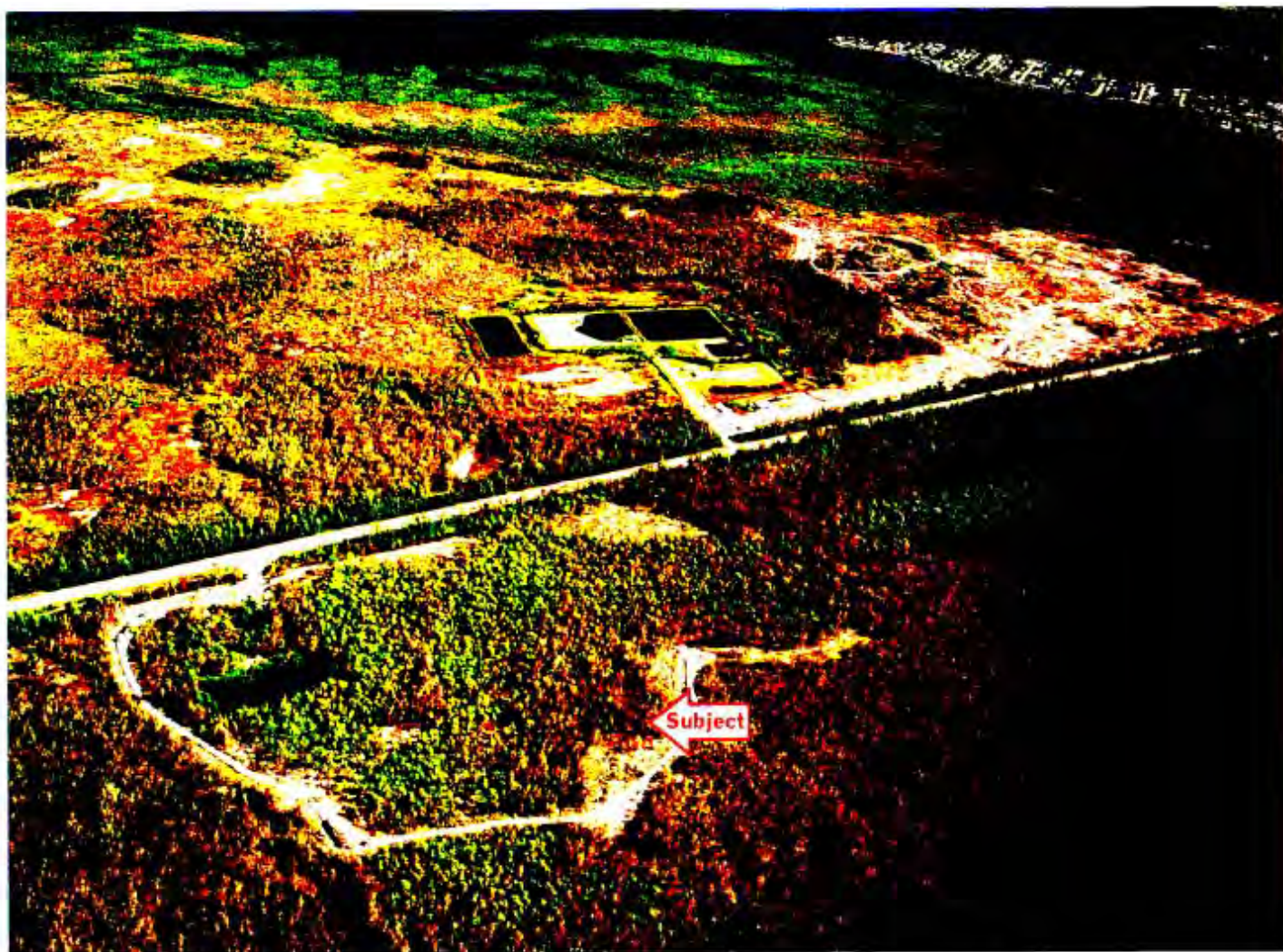
SEPTEMBER 1997 - PHASE I EXOTIC VEGETATION REMOVAL COMPLETE AT LITTLE PINE ISLAND - VIEW FROM MATLACHA PASS AQUATIC PRESERVE



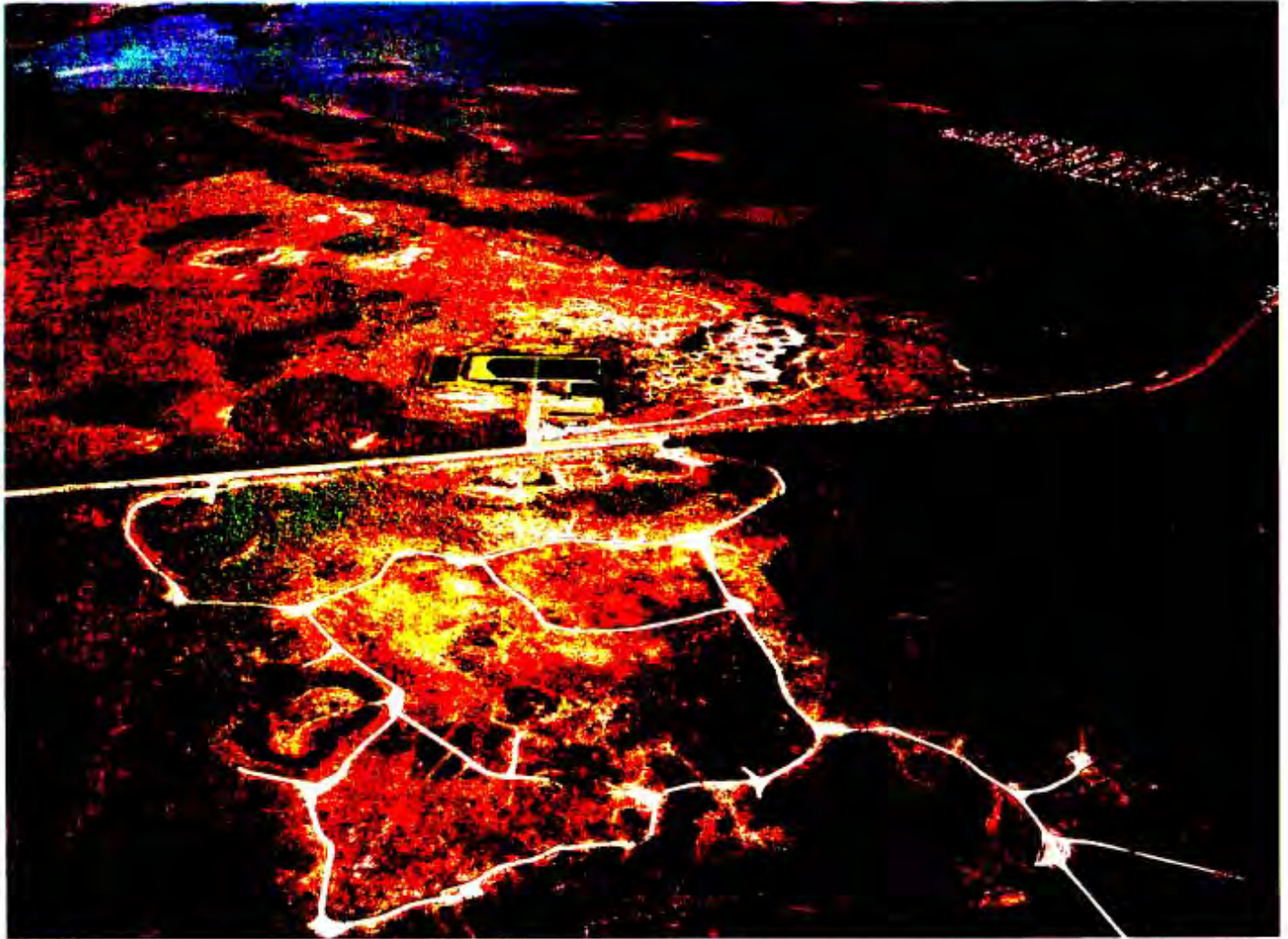


SEPTEMBER 1997 - PHASE I HYDROLOGIC RESTORATION AT LITTLE PINE ISLAND -  
DRAINAGE CANALS ARE FILLED TO RESTORE SHEET FLOW





SEPTEMBER 1997 - COMMENCEMENT OF EXOTIC VEGETATION REMOVAL FROM  
FORESTED WETLANDS AT LITTLE PINE ISLAND



FEBRUARY 2000 - EXOTIC VEGETATION REMOVAL AND HYDROLOGIC RESTORATION OF LITTLE PINE ISLAND COMPLETED IN PHASES I, II, AND V. TEMPORARY ROADS REMOVED FROM PHASES I AND II.





Dense melaleuca infestation in former herbaceous wetlands has greatly reduced wetland functions including wildlife habitat at Little Pine Island



All exotic vegetation is cut using chain saws and manual labor so as to minimize the impacts to wetland habitat



Temporary roads are underlain by filter cloth so as to reduce impacts to habitat and facilitate road removal





**April 1997 -  
commencement of  
exotic vegetation  
removal from Phase I  
herbaceous wetlands  
at Little Pine Island**



**August 1997 - initial  
regrowth of native  
herbaceous wetland  
plants at Little Pine  
Island Phase I**



**November 1997 -  
wetland dependent  
wading birds return to  
Phase I wetlands at  
Little Pine Island**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Boran Ranch Mitigation Bank**

Project Number: **SW 53**

Project Manager: Don Ross, Charles Kocur - Earth Balance, Inc.

Phone No: (941) 624-2911

County: DeSoto

Location: Section 29, T38S, R23E

### IMPACT INFORMATION

(1) <u>WPI 1121259, FM 1986401, Ft.Green/Ona Rd.- (Seq. 1)</u>	ERP #: <u>4317734.000</u> COE #: <u>199801201</u>
(2) <u>WPI 1110453, FM 1938851, SR 72 – Sarasota Co. Line to SR 70</u>	ERP #: <u>4317646.000</u> COE#: <u>199801103</u>
(3) <u>WPI 1111286, FM 1941021, US 17 (SR 35)-SR 64 to Peace Bridge</u>	ERP #: <u>4316955.000</u> COE#: <u>199405245</u>
(4) <u>WPI 1110145, FM 1937911, US 17 (SR 35)-CR 74 to CR 764 North</u>	ERP #: <u>4113562.002</u> COE #: <u>199500627</u>
(5) <u>WPI 1121257, FM 1986371, Ft.Green/Ona Rd.- (Seq. 2)</u>	ERP #: <u>4317734.001</u> COE #: <u>199801201</u>
(6) <u>WPI 1121256, FM 1986371, Ft.Green/Ona Rd.- (Seq. 3)</u>	ERP #: <u>4317734.002</u> COE #: <u>199801201</u>
(7) <u>WPI 1110152, FM 1937981, US 17-CR 764 S. to CR 764 N.</u>	ERP #: <u>4317646.002</u> COE #: <u>199500267</u>

Drainage Basin(s): Peace River Water(s): Peace River, Horse Ck., Brandy Br., Buzzard's Roost Br. SWIM water? N

(1) WPI 1121259 – 2.08 ac. – 617 (Fluccs code)  
(2) WPI 1110453 - 1.19 ac. – 615 (Fluccs code)  
(3) WPI 1111286 – 1.84 ac. – 615 (Fluccs code)  
    0.46 ac. – 641 (Fluccs code)  
TOTAL    2.30 ac.

(4) WPI 1110145 – 0.27 ac. – 630 (Fluccs code)  
(5) WPI 1121257 – 7.22 ac. – 641 (Fluccs code)  
(6) WPI 1121256 - 0.68 ac. – 615 (Fluccs code)  
    0.43 ac. - 617 (Fluccs code)  
    4.12 ac. - 640 (Fluccs code)  
TOTAL    5.23 ac.

(7) WPI 1110152 – 3.00 ac. – 630 (Fluccs code)  
    0.58 ac. – 641 (Fluccs code)  
TOTAL    3.58 ac.

**TOTAL - 21.87 acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type:      Creation ☒ Restoration ☒ Enhancement ☒ Preservation   Mitigation : **22.46 credits**  
SWIM project? N   Aquatic Plant Control project? N   Exotic Plant Control Project? N

Mitigation Bank? Y   If yes, give DEP/WMD mit bank permit #: 4914074.04   COE # 199601134 (IP-ML)  
Drainage Basin(s) : Peace River Basin Water Body(s): un-named SWIM water body? N

### Project Description

**A. Overall project goal:** Restoration, enhancement and preservation of freshwater forested and non-forested wetlands previously impacted by agricultural ditching. Restoration and preservation of upland habitat conditions.

## FDOT Mitigation – Boran Ranch Mitigation Bank, Page 2

**B. Brief description of current condition:** Site is comprised of 132 wetland acres and 272 upland acres (total –404 acres). Wetlands and uplands have been drained by agricultural ditches and converted to improved pasture for cattle grazing (Figure C – Aerial). Since restoration & enhancement activities have been conducted in 1997-98, vegetative composition within former wet pastures have reverted to more diverse, desirable hydrophytic species (refer to pre-post construction photos).

**C. Brief description of proposed work:** Installed riser structures in three existing outfall ditches to enhance & restore proper wetland hydrology. The top 6 inches of the pasture surface soils were scraped/stockpiled, the underlying 6 inches of soil matrix was scraped and removed from the site. The original topsoil was evenly backfilled across the pasture, which has allowed appropriate hydroperiods for creation and regeneration of marsh and wet prairie habitat. The existing native upland habitat has been preserved and converted uplands have been planted with appropriate species. The project is currently in the maintenance & monitoring period, which will include implementing a prescribed burn plan (refer to Figure F).

**C. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The mitigation will enhance / restore and preserve wetland and upland habitat. The following information indicates the credits for six of the seven DOT projects that have been permitted for credit purchase at Boran Ranch.

Project 1 – WPI 1121259 – 2.08 ac. impacts – 2.08 credits of mesic hammock

Project 2 – WPI 1110453 – 1.19 ac. impacts – 1.19 credits of mesic hammock

Project 3 – WPI 1111286 – 2.30 ac. impacts – 1.84 credits of mesic hammock, 0.46 credits of marsh

Project 4 – WPI 1110145 – 0.27 ac. impacts – 0.27 credits of mesic hammock

Project 5 – WPI 1121257 – 7.22 ac. impacts – 7.22 credits of marsh

Project 6 – WPI 1121256 – 5.23 ac. impacts – 1.11 credits of mesic hammock, 4.71 credits of marsh

Project 7 – WPI 1110152 – 3.58 ac. impacts – 3.47 credits of mesic hammock, additional 0.11 credits to be purchased 9/03 to compensate for additional impacts.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The Boran Ranch Mitigation Bank was selected because it provided the most cost-effective means to offset the proposed impacts, including cumulative impacts in the drainage basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** No SWIM projects are available or currently proposed within the drainage basin to offset the specific impacts associated with the identified road projects.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Boran Ranch Mitigation Bank

Contact Name: Don Ross or Charles Kocur, Earth Balance, Inc.

Phone Number: (941) 624-2911

Entity responsible for monitoring and maintenance: Same

Proposed timeframe for implementation: Commence: 1998 Complete: Construction complete, currently monitoring.

### **FDOT Mitigation – Boran Ranch Mitigation Bank, Page 3**

Project cost: \$670,500 (TOTAL through 2002 DOT Mit. Plan)

Project 1 – WPI 1121259 – 2.08 credits x \$30,000 = \$62,400 (Purchased Summer, 2001)

Project 2 – WPI 1110453 – 1.19 credits x \$30,000 = \$35,700 (Purchased Spring, 2002)

Project 3 – WPI 1111286 – 2.30 credits x \$30,000 = \$69,000 (Purchased Spring, 2002)

Project 4 – WPI 1110145 – 0.27 credits x \$30,000 = \$8,100 (Purchased Summer, 2001)

Project 5 – WPI 1121257 – 7.22 credits x \$30,000 = \$216,600 (Purchased Summer, 2001)

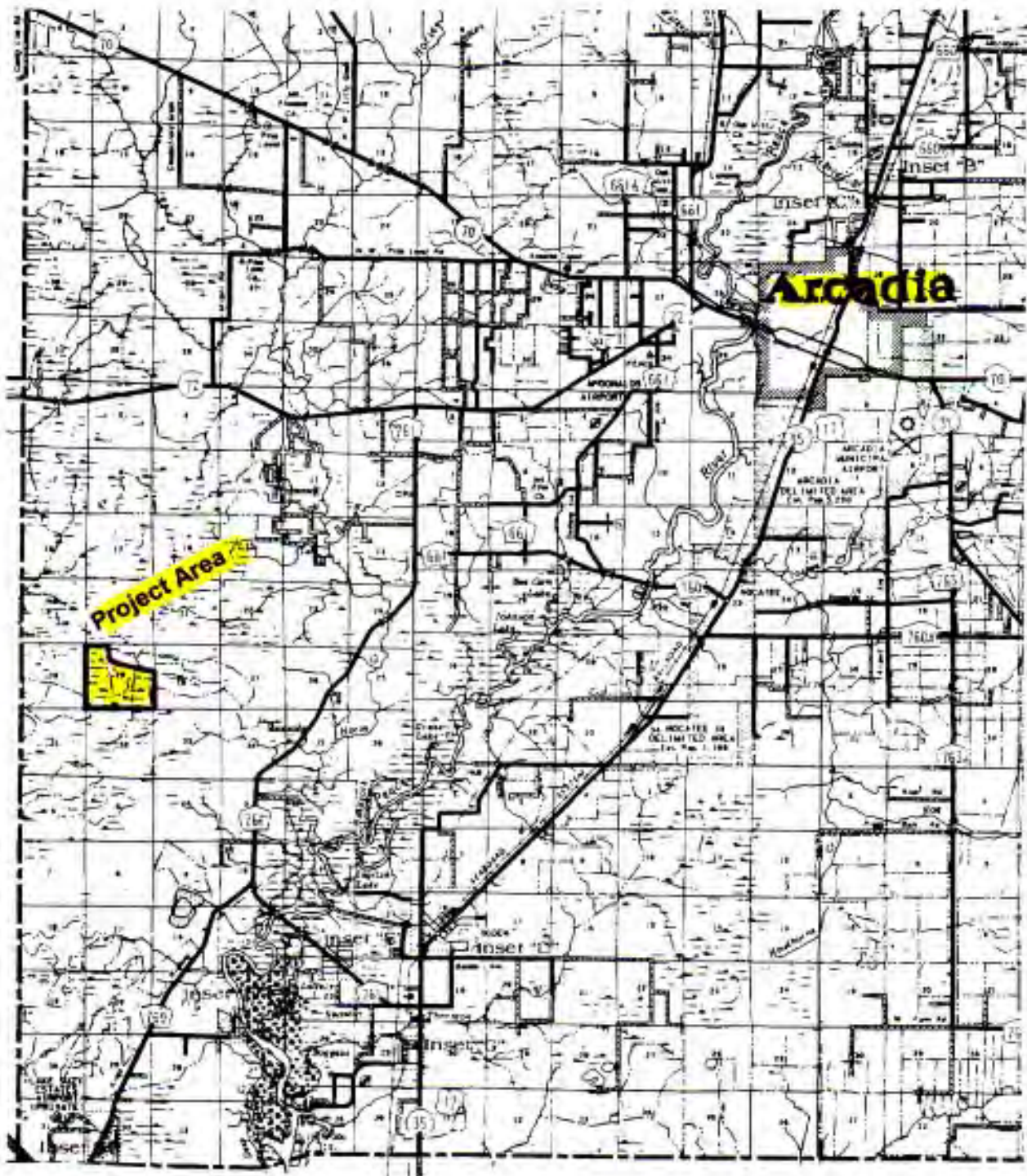
Project 6 – WPI 1121256 – 5.82 credits x \$30,000 = \$174,600 (Purchased Spring 2002)

Project 7 – WPI 1110152 – 3.47 credits x \$30,000 = \$104,100 (Purchased Summer, 2001)

Additional 0.11 credits x \$30,000 = \$3,300 (Purchase Fall, 2003)

### **Attachments**

- x 1. Detailed description of existing site and proposed work. Reference previous discussion, ACOE & SWFWMD Permits, attached site photographs of pre- (April, 1997) and post- (Sept., 2000) construction during monitoring.
- x 2. Recent aerial photograph with date and scale. Figure C - 1995 Infrared Aerial.
- x 3. Location map and design drawings of existing and proposed conditions. Figure A – Location Map, Figures B & D Existing & Proposed Habitat Conditions.
- x 4. Detailed schedule for work implementation, including any and all phases. Construction activities are complete, current maintenance & monitoring until required success criteria are met.
- x 5. Proposed success criteria and associated monitoring plan. Success criteria for each enhancement & restoration habitat area (upland & wetland) are specified in the permits, monitoring plan is depicted on Fig. E.
- x 6. Long term maintenance plan. The long-term maintenance plan is specified in the permits, includes minor use of herbicide control and long-term prescribed fire management plan (Figure F).
- x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Section D.



FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)

BORAN RANCH  
MITIGATION BANK  
(SW 53)

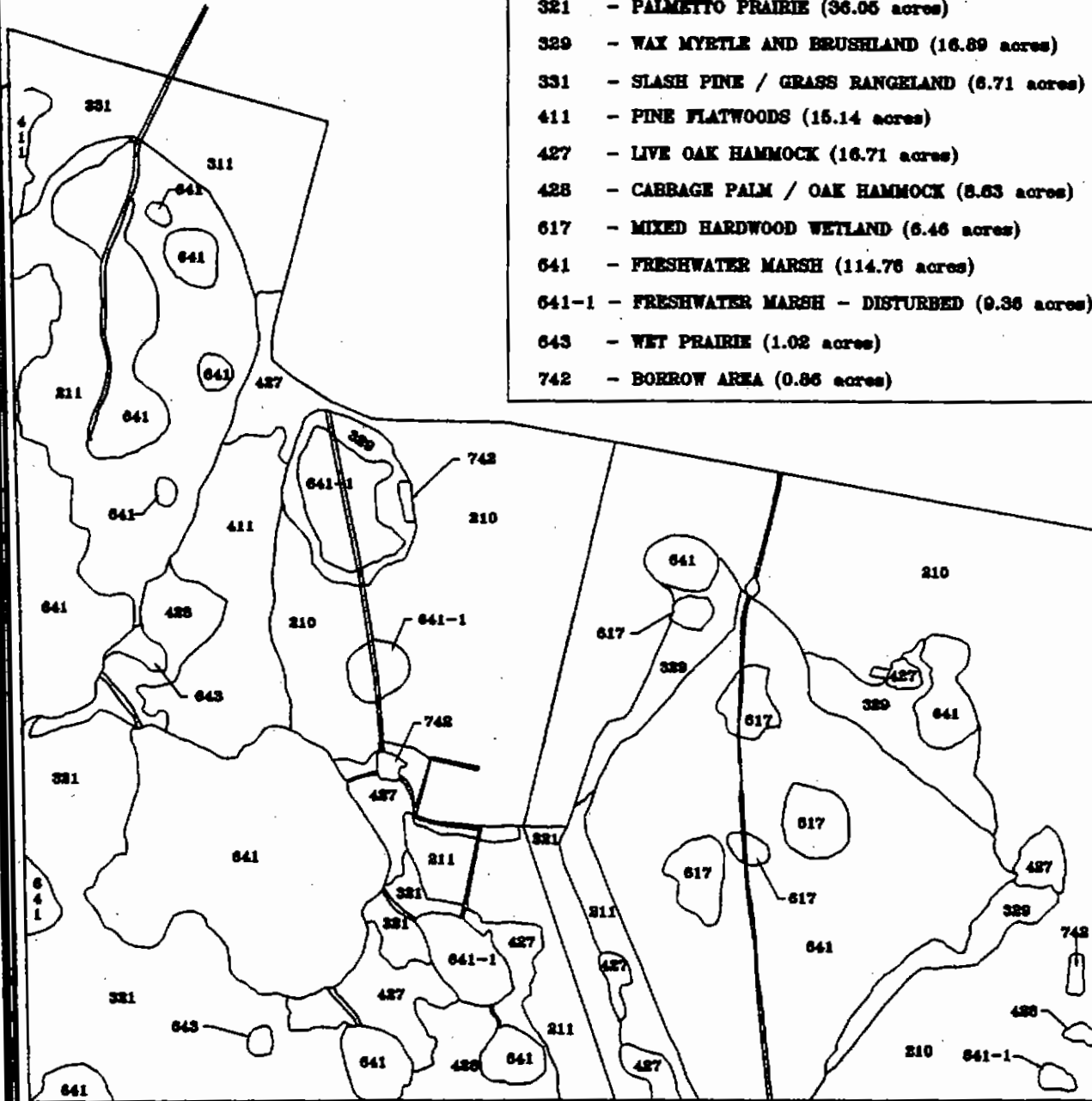
FIGURE A  
PROJECT LOCATION



NORTH ^  
SCALE 1 in. = 750 ft.

# LEGEND

- 210 - CROP AND PASTURELAND (118.11 acres)
- 211 - IMPROVED PASTURE (41.24 acres)
- 311 - GRASS RANGELAND (10.43 acres)
- 321 - PALMETTO PRAIRIE (36.05 acres)
- 329 - WAX MYRTLE AND BRUSHLAND (16.89 acres)
- 331 - SLASH PINE / GRASS RANGELAND (6.71 acres)
- 411 - PINE FLATWOODS (15.14 acres)
- 427 - LIVE OAK HAMMOCK (16.71 acres)
- 428 - CABBAGE PALM / OAK HAMMOCK (8.63 acres)
- 617 - MIXED HARDWOOD WETLAND (6.46 acres)
- 641 - FRESHWATER MARSH (114.76 acres)
- 641-1 - FRESHWATER MARSH - DISTURBED (0.36 acres)
- 643 - WET PRAIRIE (1.02 acres)
- 742 - BORROW AREA (0.86 acres)



FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)

BORAN RANCH  
MITIGATION BANK  
(SW 53)

FIGURE B  
EXISTING LAND USE /  
HABITAT TYPES



FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)

BORAN RANCH  
MITIGATION BANK  
(SW 53)









FIGURE C  
INFRARED AERIAL (1995)

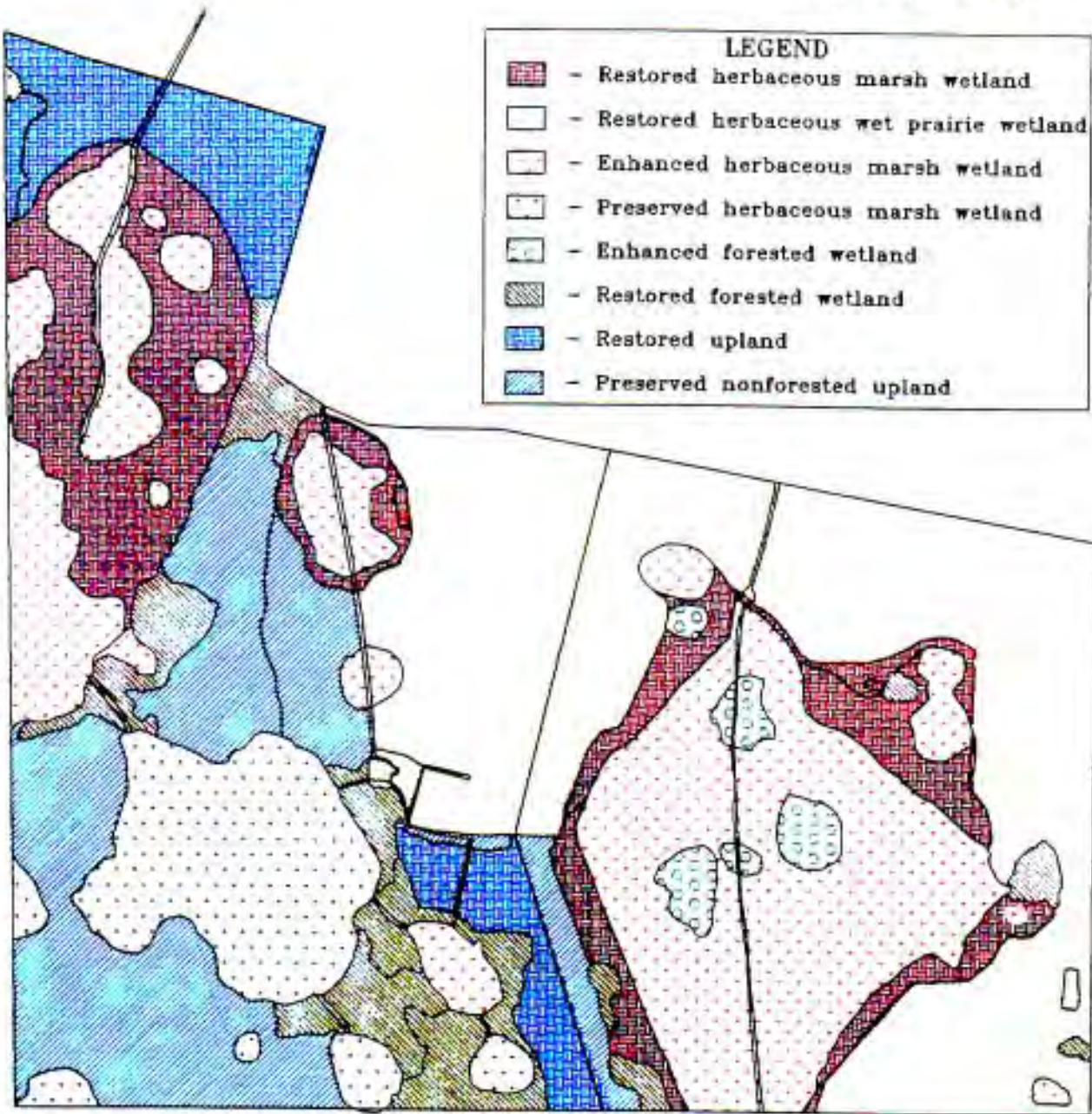


SCALE 1 in. = 750 ft.



LEGEND

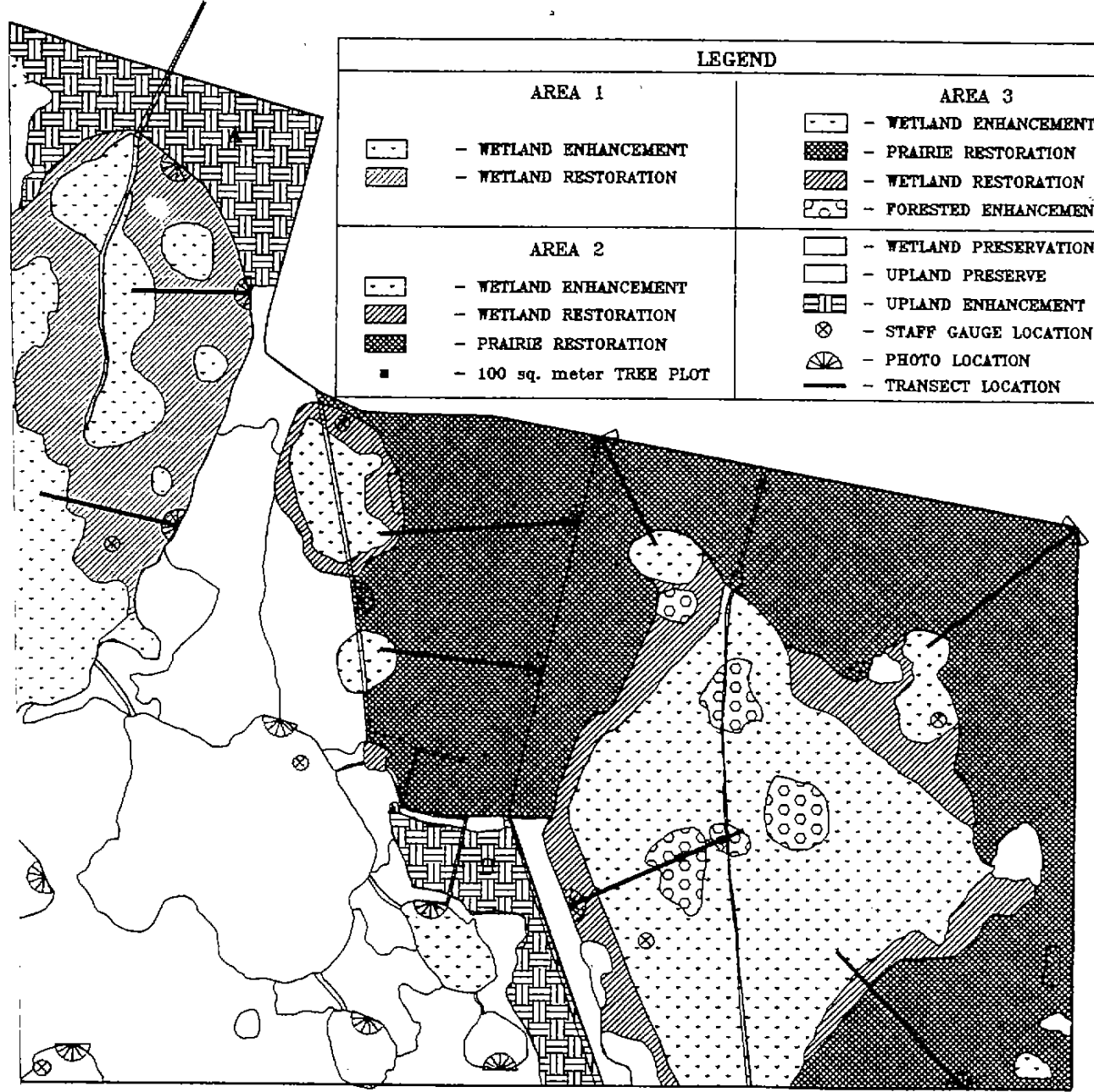
-  - Restored herbaceous marsh wetland
-  - Restored herbaceous wet prairie wetland
-  - Enhanced herbaceous marsh wetland
-  - Preserved herbaceous marsh wetland
-  - Enhanced forested wetland
-  - Restored forested wetland
-  - Restored upland
-  - Preserved nonforested upland



FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)

BORAN RANCH  
MITIGATION BANK  
(SW 53)

FIGURE D  
PROPOSED LAND USE /  
HABITAT TYPE



LEGEND	
AREA 1	AREA 3
- WETLAND ENHANCEMENT	- WETLAND ENHANCEMENT
- WETLAND RESTORATION	- PRAIRIE RESTORATION
	- WETLAND RESTORATION
	- FORESTED ENHANCEMENT
AREA 2	
- WETLAND ENHANCEMENT	- WETLAND PRESERVATION
- WETLAND RESTORATION	- UPLAND PRESERVE
- PRAIRIE RESTORATION	- UPLAND ENHANCEMENT
- 100 sq. meter TREE PLOT	- STAFF GAUGE LOCATION
	- PHOTO LOCATION
	- TRANSECT LOCATION

FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)








BORAN RANCH  
MITIGATION BANK  
(SW 53)

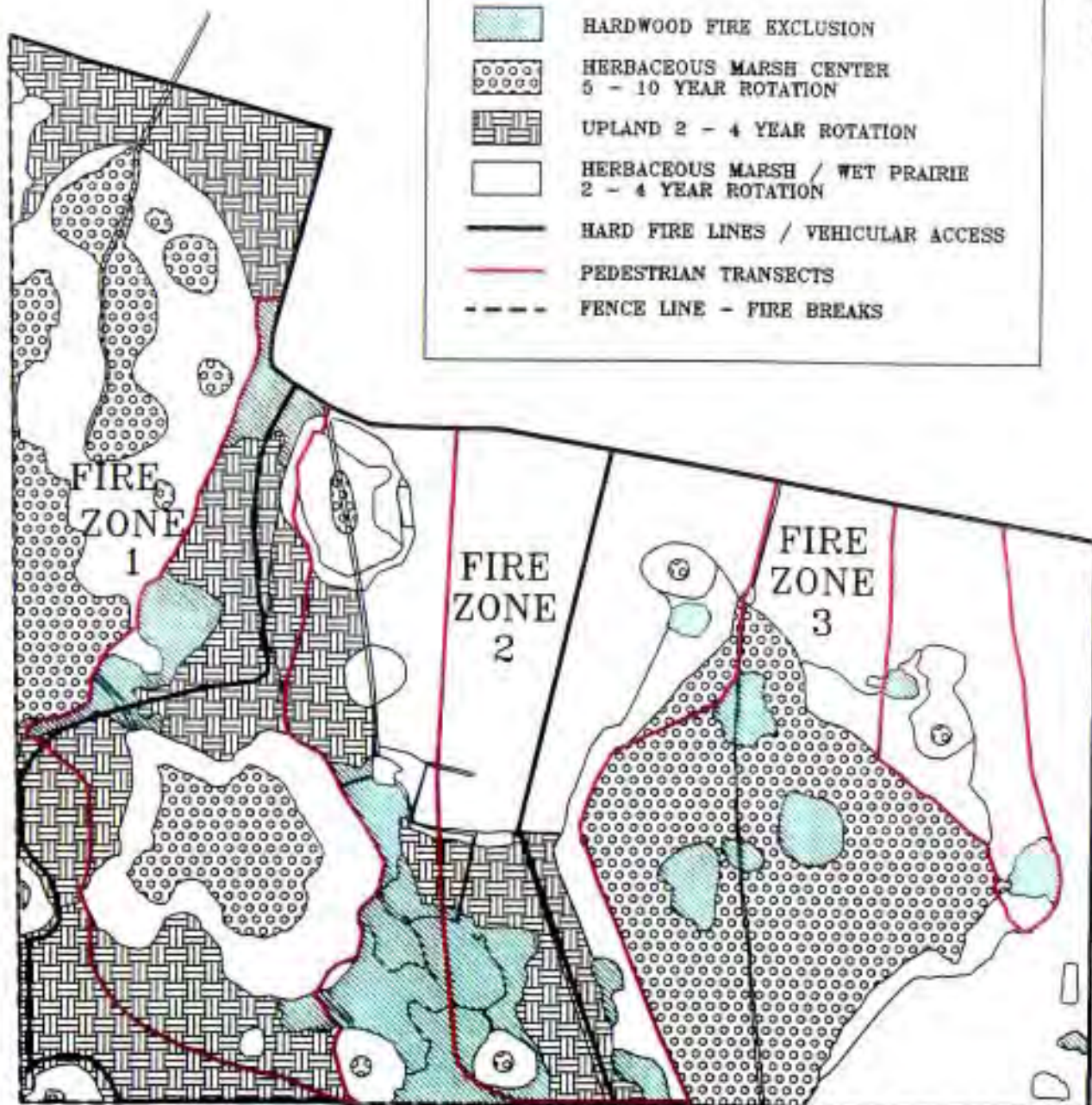
FIGURE E  
MONITORING PLAN  
Scale 1 in. = 750 ft.





LEGEND

-  HARDWOOD FIRE EXCLUSION
-  HERBACEOUS MARSH CENTER  
5 - 10 YEAR ROTATION
-  UPLAND 2 - 4 YEAR ROTATION
-  HERBACEOUS MARSH / WET PRAIRIE  
2 - 4 YEAR ROTATION
-  HARD FIRE LINES / VEHICULAR ACCESS
-  PEDESTRIAN TRANSECTS
-  FENCE LINE - FIRE BREAKS



FDOT - District 1  
MITIGATION AREA  
(Peace River Basin)

BORAN RANCH  
MITIGATION BANK  
(SW 53)

FIGURE F  
MANAGEMENT PLAN  
Scale 1 in. = 750 ft.



## ***Boran Ranch Mitigation Bank***



T6 Restoration/Transition Area - April 1997



T6 Restoration/Transition Area - September 2000

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Boran Ranch Mitigation Bank  
(SW 53)**

## ***Boran Ranch Mitigation Bank***



T7 Restoration/Transition Area - April 1997



T7 Restoration/Transition Area - September 2000

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Boran Ranch Mitigation Bank  
(SW 53)**



## ***Boran Ranch Mitigation Bank***



T7 Enhancement/Transition Area - April 1997



T7 Enhancement/Transition Area - September 2000

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Boran Ranch Mitigation Bank  
(SW 53)**



## ***Boran Ranch Mitigation Bank***



T8 Restoration Area - April 1997



T8 Restoration Area - September 2000

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Boran Ranch Mitigation Bank  
(SW 53)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Anclote Parcel**

Project Manager: Clark Hull, Environmental Program Director

County(ies): Pasco

Project Number: **SW 54**

Phone No: (352) 796-7211 ext. 4302

Location : Sections 7, 18 T26S, R17E

### IMPACT INFORMATION

(WPI): 7115974 (FM) 2563361 - SR 54 Mitchell to Gunn

ERP #: 43016251.002

COE #: 199905202 (IP-RGW)

(WPI): 7115977 (FM) 2563391 - SR 54 Suncoast to US 41

ERP #: 43016251.000

COE #: 199504576 (IP-ES)

Drainage Basin(s): Upper Coastal

Water Body(s) : Anclote River (South Prong)

SWIM water body? N

Impact Acres / Type:

WPI: 7115974 - SR 54 (Mitchell to Gunn)

WPI: 7115977 - SR 54 (Suncoast to US 41)

1.6 ac. 621 (Fluccs code)

1.3 ac. 617 (Fluccs code)

2.8 ac. 630 (Fluccs code)

0.8 ac. 619 (Fluccs code)

2.2 ac. 641 (Fluccs code)

3.0 ac. 621 (Fluccs code)

TOTAL: 6.6 acres

0.5 ac. 641 (Fluccs code)

1.4 ac. 641x (Fluccs code)

TOTAL 7.0 acres

**TOTAL: 13.7 acres**

### MITIGATION ENVIRONMENTAL INFORMATION

{tc \11 "MITIGATION ENVIRONMENTAL INFORMATION}

Mitigation: X Creation X Enhancement X Preservation Mitigation Area: 82 ac. For WPI: 7115974

X Enhancement X Preservation Mitigation Area: 103 ac. For WPI: 7115977 **TOTAL: 185 Ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Upper Coastal Water Body(s): Anclote River SWIM water body? N

### Project Description

{tc \12 "Project Description} **A. Overall project goal:** Acquisition, enhancement, and long-term management of 185 acres of high quality habitat including a portion of the Anclote River and associated mixed hardwood floodplain forest, mixed forested (cypress dominant) wetland, and buffers of pine flatwoods, and oak hammocks. This includes creation of 6-acres of freshwater marsh (with a perimeter 4-acres of planted cypress for mitigation of Starkey Blvd. proposed wetland impacts) in a borrow pit which exists on the property (site photos). The parcel is divided into two areas to mitigate for the two DOT projects. The northern 82-acres includes the marsh creation and mitigates for WPI: 7115974 (6.6 ac. impacts) because of the higher quantity of proposed marsh impacts (Fluccs 641). The southern 103-acres mitigates for WPI 7115977 (7.0 ac. impacts). Long-term management will be conducted by the WMD-Land Management Dept. and will primarily include prescribed burning and maintaining security.

**B. Brief description of current condition:** The parcel is in relatively high quality condition except for a borrow pit (which has been converted to a marsh and cypress fringe) and the lack of prescribed burn management in the uplands. Wetland and upland habitat is adjacent to the Anclote River floodplain, high quality habitat and abundant wildlife use. The mixed forested wetland habitat (139 acres) includes a diversity of tree species (refer to photos). The wetlands are bordered by pine flatwoods and oak hammocks (40 acres). The uplands require enhancement through prescribed burning. The parcel is located adjacent to other public lands and private property (Starkey family) which are in native habitat conditions (Figure A). A borrow pit (total 10 acres) has been filled to provide marsh habitat (6 acres – DOT mitig.) and surrounded by a perimeter of cypress (4 acres – County mitig. for Starkey Blvd.). The adjacent public property covers over 15,000 acres of native habitat, the majority acquired by the Turnpike and deeded to the WMD to provide mitigation for wetland impacts associated with constructing the Suncoast Parkway.

## Mitigation Project – Anclothe Parcel, Page 2

**C. Brief description of proposed work:** Acquisition and enhancement of the 185-acre parcel through fee simple purchase by the WMD (completed 2000). Of that total area, constructed 6- acres of freshwater marsh by filling and planting an existing borrow pit (currently under maintenance and monitoring). The adjacent perimeter 4- acres cypress creation will also be deeded to the WMD upon achieving mitigation success criteria. The uplands will be enhanced by implementing a prescribed burn management plan as an extension of adjacent WMD property, burn cycle 4-5 years.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed mitigation will create and preserve wetlands providing functions similar to those lost due to the two nearby SR 54 roadway projects in the same drainage basin, along with enhancement of upland habitat buffers adjacent to preserved native habitat associated with SWFWMD-owned tracts (Starkey Wilderness Preserve, Anclothe River Ranch, Serenova Preserve – total 25,000 acres). The SR 54-Mitchell to Gunn impacts (6.6 acres) will be mitigated with 6 acres of marsh creation and forested wetland preservation (76 acres) for a total of 82 acres (12:1 ratio). The SR 54-Suncoast to US 41 impacts (7 acres) will be mitigated with enhancement of pine flatwoods and oak hammocks (34 acres) that buffer the wetlands, and forested wetland preservation (69 acres) for a total of 103 acres (15:1 ratio). The acquisition, preservation, and enhancement of this 185-acre tract mitigates the 13.7 acres of proposed wetland impact at a cumulative ratio of 14– to - 1.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks currently exist or proposed in the Upper Coastal drainage basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** No SWIM projects are available in this basin.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Southwest Florida Water Management District

Contact Name: Mark Brown, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4488

Entity responsible for monitoring and maintenance: Southwest Florida Water Management District

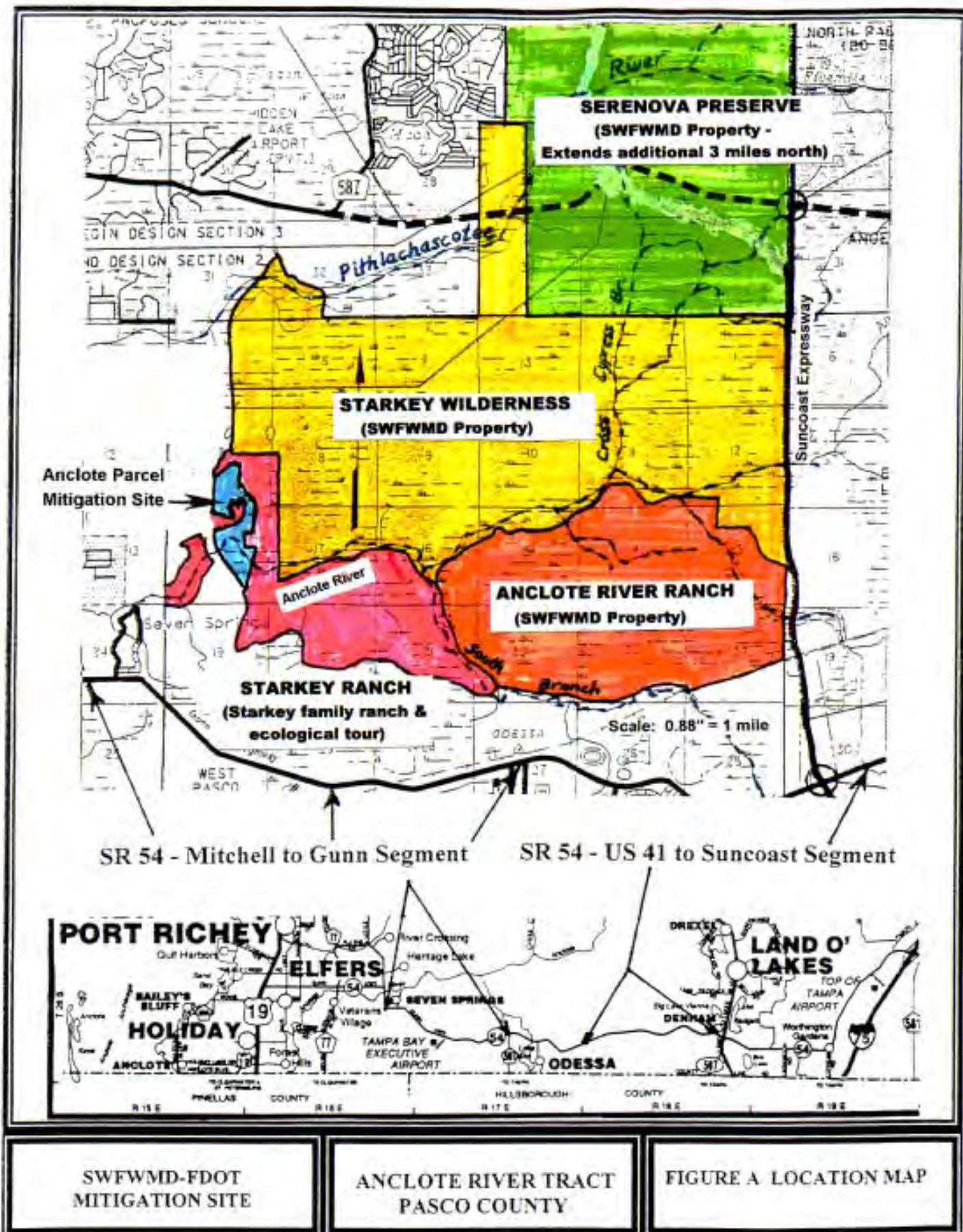
Proposed timeframe for implementation: Commence: July 1999 Acquired: April, 2000

Project cost: \$ 675,000 (total); maintenance & management provided by the WMD-Land Management Dept.

#### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to previous discussion and vegetative descriptions with the site photos. Additional site descriptions available from Clark Hull & Mark Brown (WMD).
- X 2. Recent aerial photograph with date and scale. Refer to Fig. D (1995 Infrared).
- X 3. Location map and design drawings of existing and proposed conditions. Fig. A - Location Map, Figure D.
- X 4. Detailed schedule for work implementation, including any and all phases. Beyond regular management, only construction is associated with the creation of marsh & cypress habitat in the borrow pit (site photo).
- X 5. Proposed success criteria and associated monitoring plan. The native habitat is high quality that doesn't require success criteria & monitoring, the creation of marsh & cypress habitat has success criteria & monitoring associated with the permitting of the Starkey Blvd. mitigation plan. Currently within the maintenance & monitoring phase.
- X 6. Long term maintenance plan. Prescribed management plans (primarily burn management) to be conducted in conformity with the adjacent SWFWMD property (Starkey Wilderness Preserve, Anclothe River Ranch, Serenova Preserve).
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text concerning mitigation site and SR 54 impacts. Additional site evaluation and WRAP analysis available from Mark Brown.







NORTH  
SCALE 1" = 1000'

SWF PARCEL 15-010-0005

HYDRIC SOIL/  
WETLAND HABITAT (BLUE)

NON-HYRIC SOIL  
UPLAND HABITAT (YELLOW)

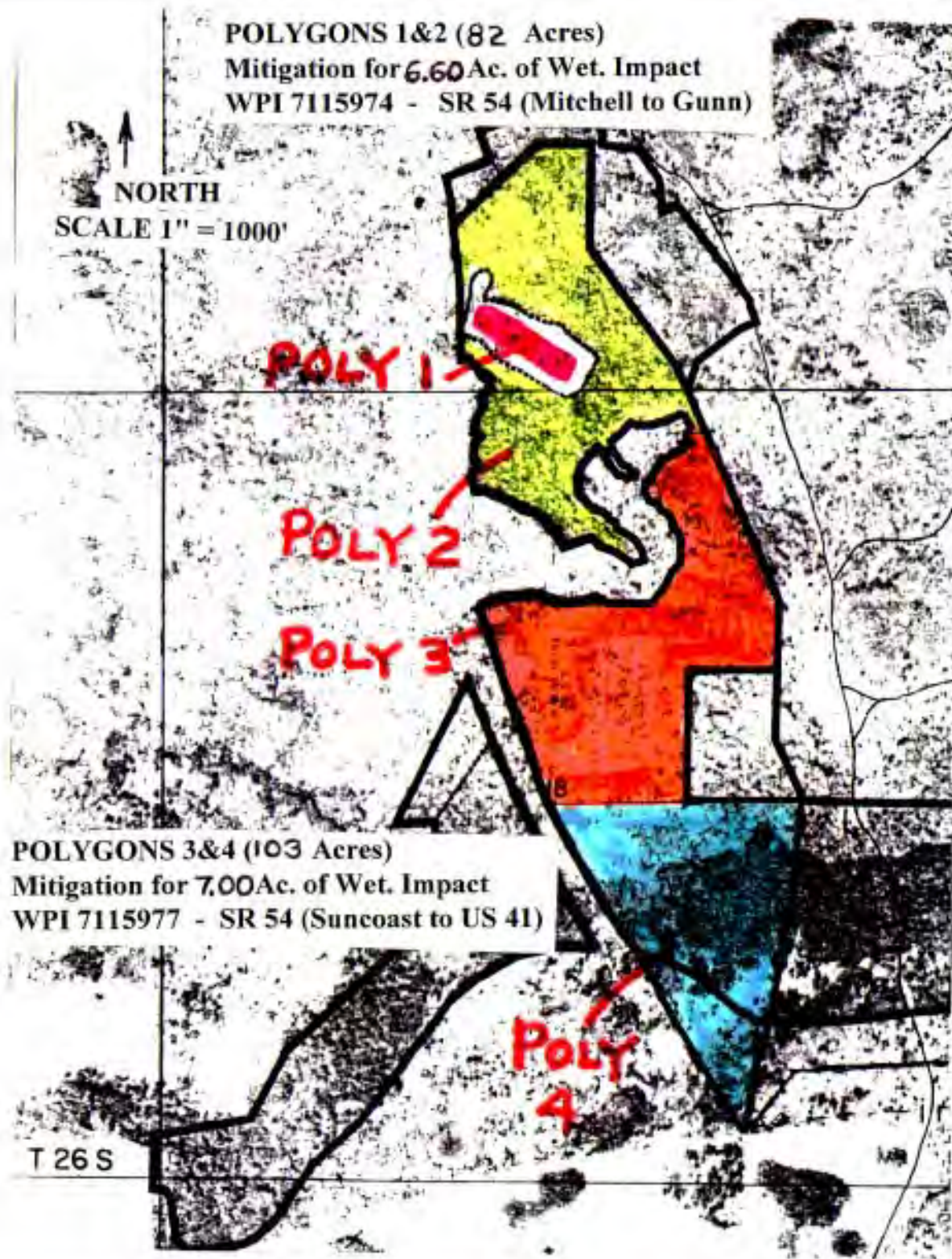
T 26 S

SWFWMD-FDOT  
MITIGATION SITE

ANCLOTE RIVER TRACT  
PASCO COUNTY

FIGURE B - WETLAND &  
HYDRIC SOILS MAP



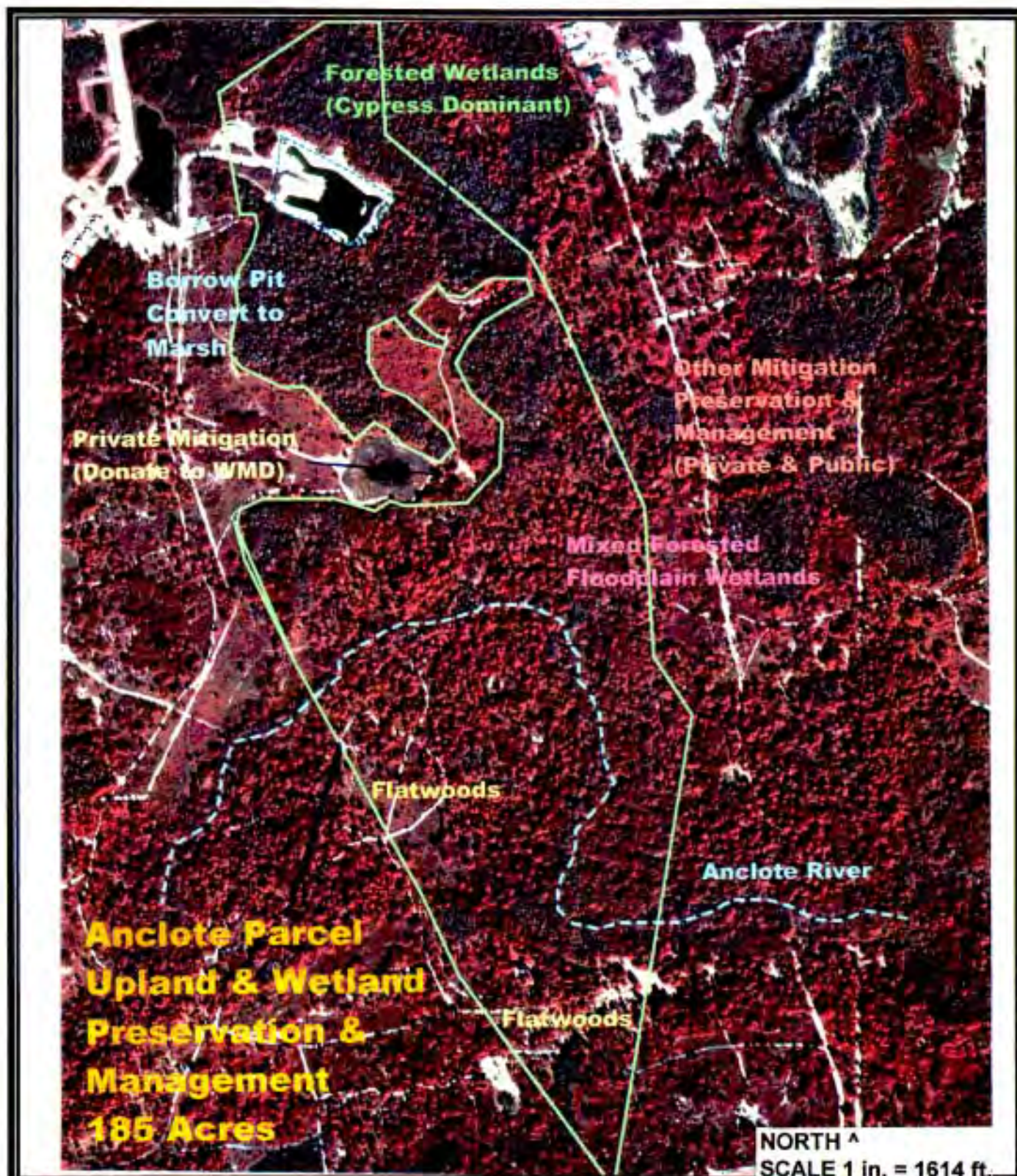


SWFWMD-FDOT  
MITIGATION SITE

ANCLOTE RIVER TRACT  
PASCO COUNTY

FIGURE C - "WRAP" POLYGON  
LOCATIONS (ON-SITE MIT.)





**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

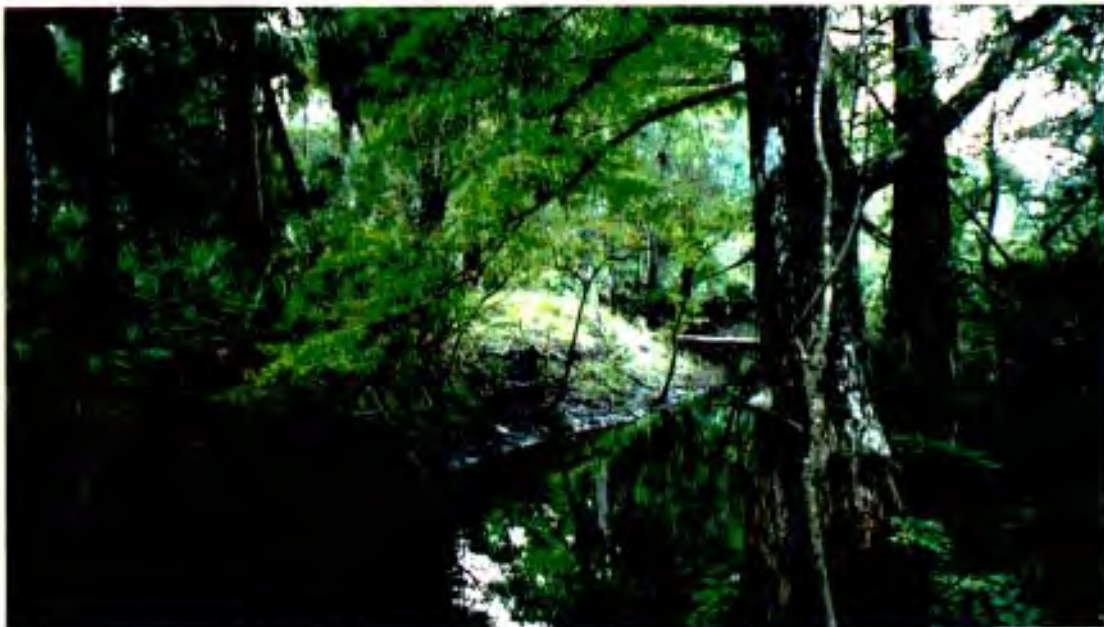
**ANCLOTHE  
PARCEL  
(SW 54)**

**FIGURE D  
INFRARED AERIAL (1995)  
VEGETATIVE COMMUNITIES**





*The mixed forested wetland within the northern portion of the tract is dominated by bald cypress with additional dense canopy coverage provided by red maple, tupelo, dahoon holly, and a perimeter of water & laurel oaks.*



*The Anclote River meanders through the southern portion. The river has an incised channel predominantly bordered with mixed forested wetlands dominated by laurel oak, red maple, and cabbage palm.*

**FDOT - District 7 Mitigation Site  
(Upper Coastal Basin)**

**ANCLOTE PARCEL (SW 54)**





*One of the pine flatwood communities at the site. These areas have not received prescribed burns for several years, allowing the overgrowth of palmetto, and generation of wax myrtle and oak species. These areas will be enhanced by scheduled mechanical thinning and roller chopping of the shrubs and palmetto, followed by prescribed fires every 3-4 years. This restores desired flatwood conditions, increases the foraging opportunities for wildlife while decreasing the potential of wildfires.*



*One of several small oak hammocks located along the perimeter of some wetlands and on sand deposits formed due to periodic overflow of the Anclote River. These hammocks have dominant canopy coverage provided by live oaks, scattered cabbage palm, few remnant pines (slash & loblolly), over saw palmetto. These areas also need prescribed burns to minimize palmetto density.*

**FDOT - District 7 Mitigation Site  
(Upper Coastal Basin)**

**ANCLOTE PARCEL (SW 54)**





*Within the site's southern forested wetlands, cypress are not as dominant compared to the northern portion. Water & laurel oaks are still dominant along the outer perimeter of the wetland, tupelo and maple in the interior. Due to shorter hydroperiods compared to the cypress dominated wetlands, more shrub and ground cover vegetation and diversity is present. Dominants include Virginia willow, wax myrtle (on hummocks), maple saplings, and various fern species (chain, swamp, & royal ferns).*



*Another view of the Anclote River on the parcel. With the addition of the Anclote Parcel, Anclote River Ranch, Starkey Wilderness Preserve, and private mitigation opportunities deeded to the WMD (Figure A), several miles of the Anclote River and the contributing Cross Cypress Branch will be preserved from impacts associated with extensive development activities within western Pasco County.*

**FDOT - District 7 Mitigation Site  
(Upper Coastal Basin)**

**ANCLOTE PARCEL (SW 54)**





*September, 2000 - Current site conditions of the former borrow pit in the northern portion of the parcel. A dewatering ditch (right) maintains a lower water table as the borrow pit grade is raised to construct wetland habitat. Adjacent to the former pit, stockpiled muck will be placed on top of the fill material to provide organics and wetland plant seed source. Forested wetlands border the former pit, a perimeter of created cypress habitat is proposed (mitigation for other activity, deeded to the WMD), followed by an interior of marsh creation to mitigate for the DOT projects.*



*A constructed wetland adjacent to a marsh & oak hammock (background) to be deeded to the WMD once the wetland mitigation meets success criteria. This area is designated as "Private Mitigation" on Figure D. Maidencane, arrowhead, various sedge species, and small cypress plantings are shown above, dog fennel invasion due to extended dry season conditions.*

**FDOT - District 7 Mitigation Site  
(Upper Coastal Basin)**

**ANCLOTE PARCEL (SW 54)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District  
Mitigation Project Name: Upper Hillsborough 4&5  
Project Manager: Mary Barnwell, SWFWMD Sr. Land Management Specialist  
County(ies): Pasco

Project Number: SW55  
Phone No: (352)796-7211, ext. 4475  
Location: S 28 & 38, T 25 S, R 22 E

### IMPACT INFORMATION

WPI: 1147946 FM: 2012081 (Int.-4, County Line Rd. to Memorial., Seg.1) ERP #: 4311869.09 COE #: 199501846  
Drainage Basin(s): Hillsborough River Water Body(s): none SWIM water body? N

Impact Acres / Types: WPI 1147946 6.57 ac. - 617 (Fluccs code)  
6.98 ac. - 641 (Fluccs code) **Total: 13.55 ac.**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Restoration 10 ac. Enhancement 110 ac. Mitigation Area: **120 Acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N  
Drainage Basin(s): Hillsborough River Water Body(s): Hillsborough River SWIM water body? N

#### Project Description

**A. Overall project goal:** Restore hydrologic and hydraulic conditions to wetlands adjacent to the Hillsborough River floodplain, removing a fill road and large ditches in order to restore wetland conditions, functions, and habitat value.

**B. Brief description of current condition:** The Upper Hillsborough (UH 4&5) tract covers 302 acres (Figures A-D), 15 wetland segments covering 110 acres have substantial opportunities for hydrologic enhancement and restoration (Fig. D). Large ditches (30-40 ft. across top-of-bank, 5-8 ft. deep, over 1.3 miles long) and a levee fill road were constructed adjacent and through a series of wetlands to effectively maintain the water levels below surface grades, resulting in very minimal wetland hydroperiods. Twelve forested wetlands (101.3 acres) and three non-forested wetlands (8.7 acres, Wetlands 9 and 15 are shallow borrow pits with vegetative cover) have been impacted by construction of the levee fill road, and adjacent large ditches that connect and drain wetlands to allow direct groundwater discharge into the Hillsborough River floodplain. The wetlands exhibit various signs of decreased water levels such as tree fall, soil loss, upland species encroachment, and changes in plant species composition (site photos). The groundwater drawdown has allowed extensive cover of nuisance upland species such as pokeweed to invade Wetlands 4 and 5, and dog fennel within the man-made ponds (Wetlands 9 and 15).

**C. Brief description of proposed work:** The ditches were filled from removal of the levee road during the spring and summer, 2001. The restored wetland grades were planted with cypress to restore 10 acres within the former ditches and supplemental plantings of cypress were conducted within Wetland 2. Vegetative ground cover species have recruited as well as naturally regenerated from hydrologically restoring the wetlands (110 acres). Eleven surficial aquifer monitor wells were installed within the proposed enhanced wetlands in the Spring, 2001, during which time there was no groundwater within six feet of the grade elevation within each of those wetlands. Since completion of construction, the groundwater and surficial hydrology and hydraulic flow patterns have been restored to historic conditions. The restored hydrology has resulted in the mortality of the pokeweed and dog fennel, allowing for the natural regeneration of maidencane, ferns, and other appropriate hydrophytic species.



## Mitigation Project – Upper Hillsborough 3 & 4, Page 2

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** Restoring the wetlands to historic conditions has resulted in a large-scale improvement in wetland functions. Being located within a dense industrial area along Interstate-4, the wetland impacts associated with the interstate improvements were low quality systems.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** No mitigation banks currently exist or proposed in the Hillsborough River drainage basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project within this basin is Lk. Thonotassassa which has been constructed and serves as mitigation to off-set wetland impacts associated with another DOT project.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD, Operations Div. (Completed construction – Sept., 2001)

Contact Name: Mary Barnwell, Sr. Land Management Specialist

Phone Number: (352) 796-7211 ext. 4475

Entity responsible for monitoring and maintenance: SWFWMD – Tech. Services & Land Management

Proposed timeframe for implementation: Commence: January 1999 Complete: September 2001 (Construction)

Project cost: \$160,000.00 (total);

Design \$82,000

Construction & Planting \$65,000

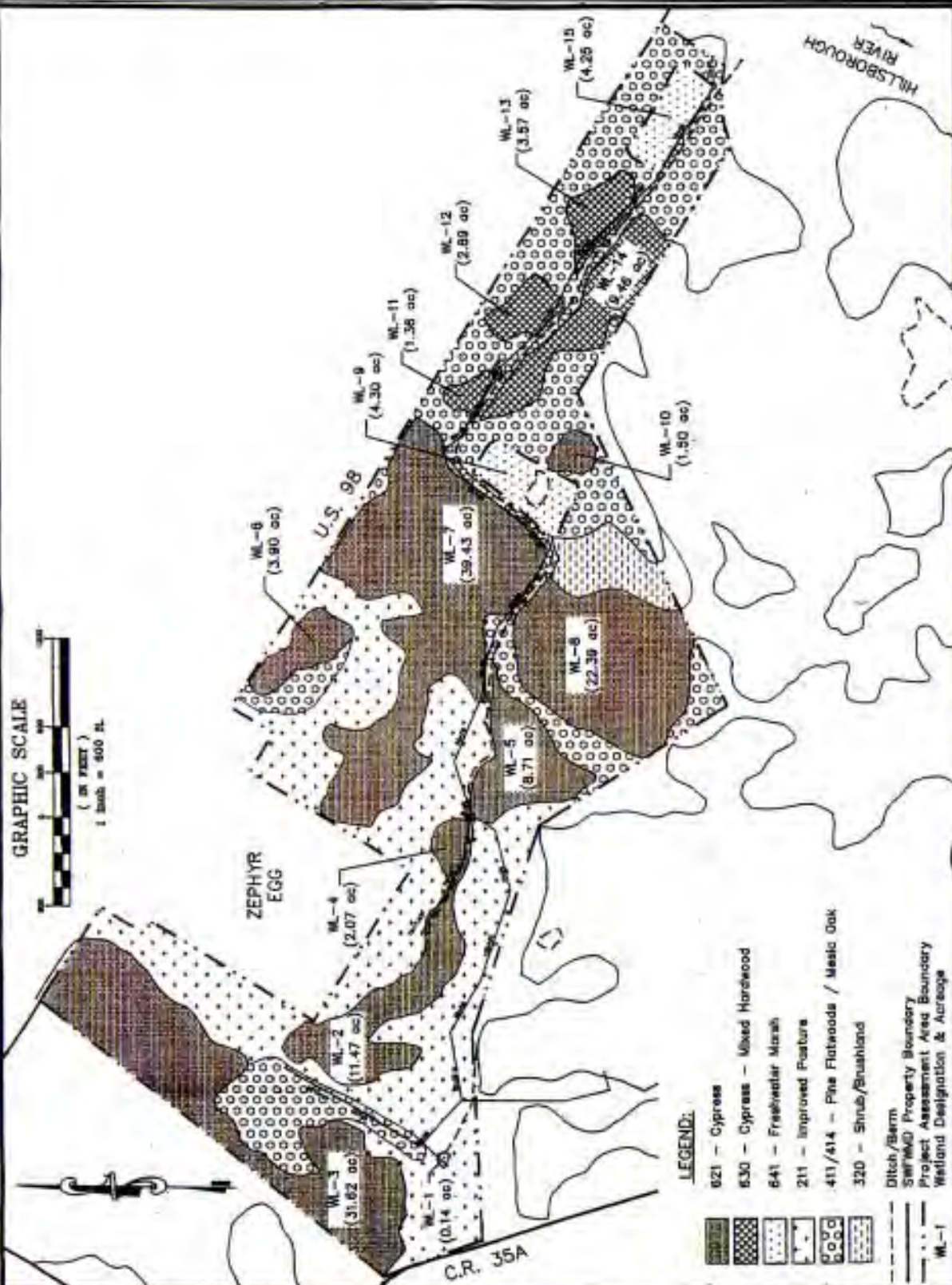
Maintenance & Monitoring \$13,000

### Attachments

- x 1. Detailed description of existing site and proposed work. Refer to previous discussion and site photographs.
- x 2. Recent aerial photograph with date and scale. Figure D - 1995 Infrared Aerial.
- x 3. Location map and design drawings of existing and proposed conditions. Figures A-D, photos depict pre-post construction.
- x 4. Detailed schedule for work implementation, including any and all phases. Construction was completed in Sept. 2001, followed by cypress planting, and a minimum three years of monitoring.
- x 5. Proposed success criteria and associated monitoring plan. Success criteria includes documentation of hydrologic restoration of the enhanced wetlands and vegetative re-establishment in the filled ditches. Monitoring will include qualitative evaluation of enhanced wetlands and measuring water levels within the 13 monitor wells on a quarterly basis for a minimum 3 years.
- x 6. Long term maintenance plan. Maintenance to control nuisance & exotic vegetation will be conducted as needed for a minimum 3 years. No maintenance activities have been required within the first year post-construction.
- x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.







FDOT - District 1  
MITIGATION AREA  
(Hillsborough River Basin)

UPPER HILLS. 4 & 5 -  
US HWY. 301  
(SW 55)

FIGURE B  
LAND USE / HABITAT TYPE





\* HYDRIC SOILS

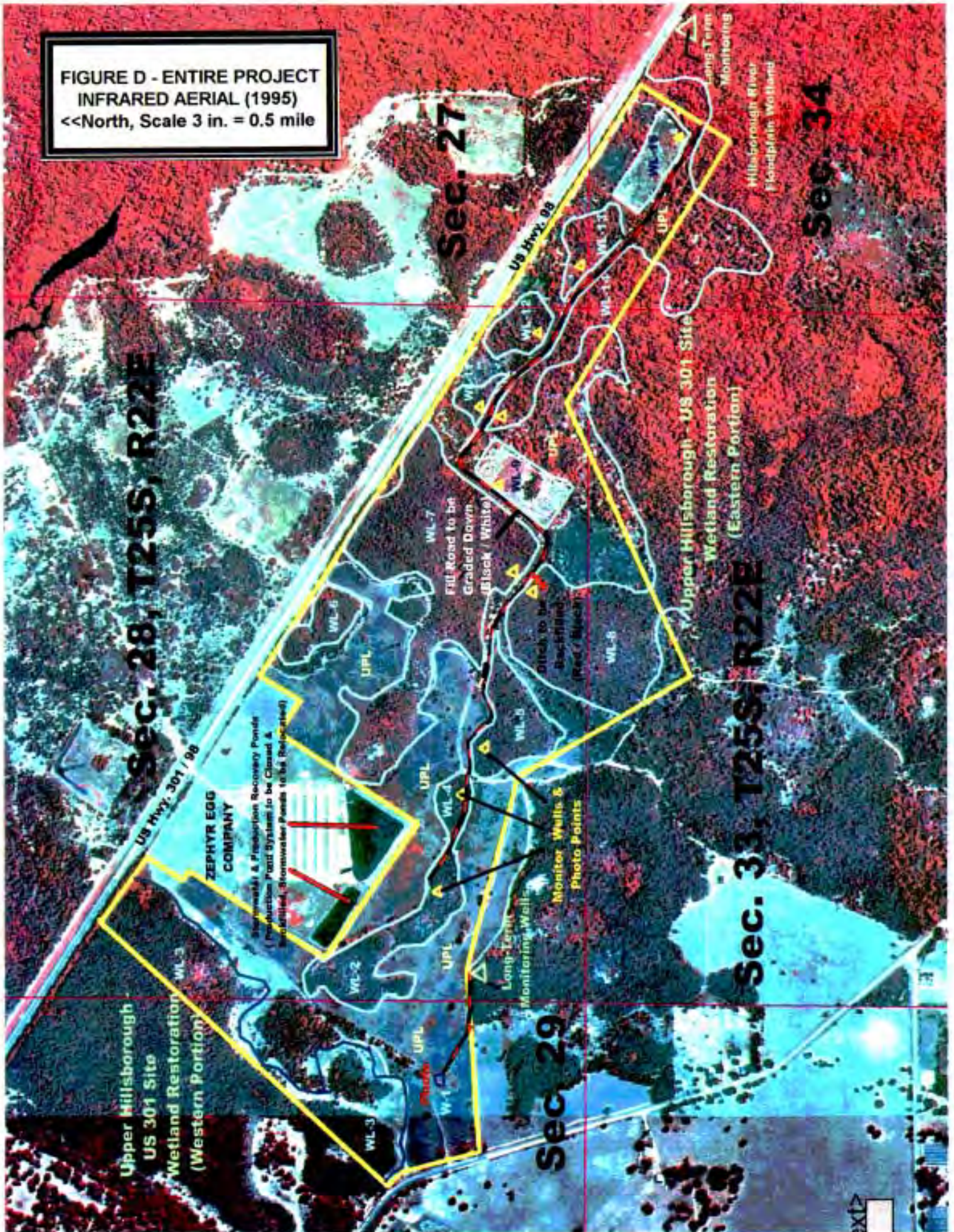
FDOT - District 1  
MITIGATION AREA  
(Hillsborough River Basin)

UPPER HILLS. 4 & 5 -  
US HWY. 301  
(SW 55)

FIGURE C  
PASCO CO. SOIL SURVEY  
Scale 4 in. = 1 mile, North ^



**FIGURE D - ENTIRE PROJECT  
INFRARED AERIAL (1995)  
<<North, Scale 3 in. = 0.5 mile**



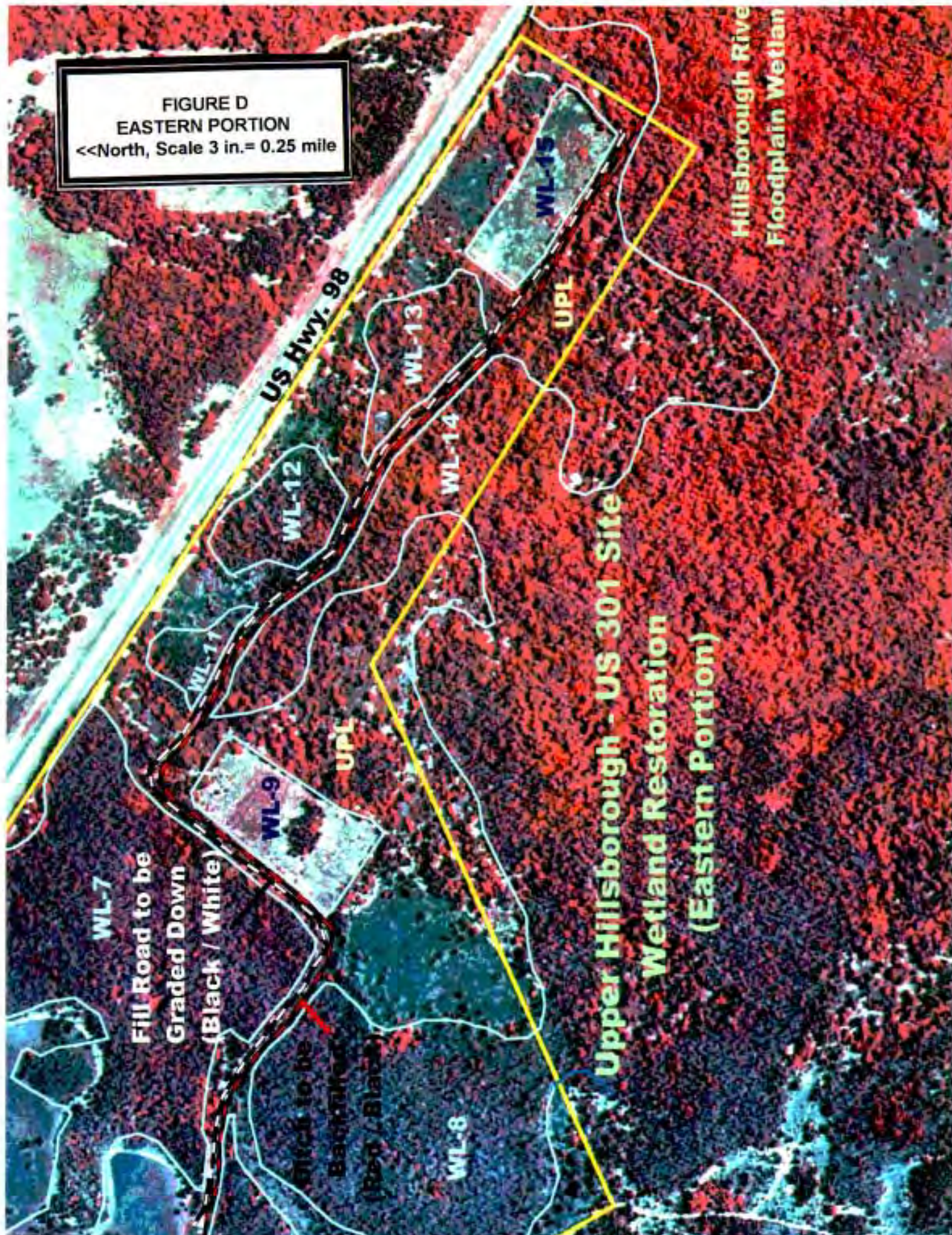


**FIGURE D**  
**WESTERN PORTION**  
<<North, Scale 3 in. = 0.25 mile





FIGURE D  
EASTERN PORTION  
<<North, Scale 3 in.= 0.25 mile







***Wetland 5 - The perimeter ditches not only dewater the adjacent wetlands (left) and groundwater, but the adjacent spoil ridge detains contributing upland surface water from reaching the wetlands.***



***Same view as above photo after spoil material was backfilled. Silt screens installed to minimize erosion into the adjacent wetland while ground cover is establishing. Note where practical, construction worked around the drip line to preserve trees located on previous spoil ridge.***

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301  
(SW 55)**





*Deep (4-5 ft.) perimeter ditch dredged adjacent to Wetland 2 (right).*



*Same view as above photo after spoil material was backfilled.  
Preserved oak tree (left) on top of spoil mound depicts  
the amount of graded material required to fill the perimeter ditch.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301  
(SW 55)**





*Ditch connecting Wetlands 2 and 4 depict the 5-6 ft. decrease in grade elevation between the Wetland 4 grade (right) and the ditch bottom grade (left).*



*Wetland 2 - Tree fall & stress associated with the adjacent dewatering, after backfilling the adjacent ditch, the wetland will be planted with additional cypress.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301  
(SW 55)**





*Typical view of a wetland-cut ditch that bisects a wetland into Wetlands 7 and 8. Nuisance species like ragweed and pokeweed are common ground cover species.*



*The tram fill road adjacent to a ditch, the fill material will be backfilled into the ditch.*

**FDOT - District 1 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301 Site**





***Wetland 5 - Muck oxidation due to exposed soils are common conditions of the dewatered wetlands.***



***Wetland 8 - Elevated lichen lines represent historic seasonal high water elevations, no moss collars are indicative of minimal depths & duration of surface water (hydroperiod).***

**FDOT - District 1 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301 Site**





*View of the major east-west ditch segment cutting through Wetlands 11-13.  
Pines have been logged off the tram road (right),  
just prior to grading fill back into the ditch.*



*View of the filled east-west ditch and removed tram road,  
just after construction and prior to tree planting,  
wetland groundwater and surface water sheet flow hydrology is restored.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**Upper Hillsborough 4&5 - US 301  
(SW 55)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cockroach Bay Restoration - Freshwater

Project Number: SW 56

Project Manager: Brandt Henningson, PhD. SWIM Environmental Scientist

Phone No: (813) 985-7481 ext. 2202

County: Hillsborough

Location : Sec. 21, T32S, R18E

### IMPACT INFORMATION

(1) FM: 2569571, US 19 - Drew to Railroad	ERP #: 4411760.000	COE #: 199400606 (NW-PB)
(2) FM: 2557031, SR 60 - Cypress St. to Fish Creek *	ERP #: 43002958.004	COE #: 200205816 (IP-MN)
(3) FM: 2558881, US 301- Sligh to Tampa Canal **	ERP #: 43024246.000	COE #: 200206711 (IP-JF)
(4) FM: 2569491, US 19 (SR 55) - Seville Dr. to SR 60	ERP #:	COE #:
(5) FM: 2569941, CR 296 Connector, 40 <sup>th</sup> St. to 28 <sup>th</sup> St.	ERP #: 43008898.006	COE #:
(6) FM: 2569981, CR 296 at I-275 Interchange	ERP #:	COE #:
(7) FM: 2555991, SR 676 (Causeway)-US 301 to US 41**	ERP #:	COE #:

Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Old Tampa Bay, Alligator Ck., Delaney Ck., Fish Creek SWIM water body? Y- Old Tampa Bay

#### Impact Acres / Types:

(1) <u>0.2 ac. 618</u> (FlucCs)	(3) <u>3.0 ac. 641</u> (FlucCs)	(6) <u>0.1 ac. 640</u> (FlucCs)	(7) <u>0.8 ac. 510</u>
<u>0.3 ac. 641</u>	(4) <u>0.1 ac. 641</u>	<u>1.0 ac. 643</u>	<u>2.3 ac. 641</u>
TOTAL: 0.5 Acres	(5) <u>0.7 ac. 643</u>	TOTAL 1.1 acres	TOTAL 3.1 acres

(2) 0.8 ac. 641

**TOTAL: 9.3 acres**

\* The total wetland impacts of this project include 16.6 acres. The ditch, pond, and mangrove impacts of this project (5.1 acres) are being mitigated at Tappan Tract (SW 62). The saltwater marsh impacts (10.9 acres) are being mitigated at Cockroach Bay - Saltwater (SW 77) and Apollo Beach (SW 67).

\*\* The freshwater forested and shrub wetland impacts of these two projects are being mitigated at Boyd Hill Nature Park (SW 71).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation    Enhancement X Restoration Mitigation Area: 34 ac. SWIM project? Y  
Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N Drainage Basin(s):  
Tampa Bay Drainage Water Body(s): Tampa Bay, Cockroach Bay SWIM water body? Y

### PROJECT DESCRIPTION

**A. Overall project goals:** Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hills. Co. Parks) wetland and upland habitat ecological restoration effort on property (total 651 acres) acquired by Hillsborough County. The SWFWMD - SWIM Section is responsible for the initial habitat creation & restoration activities, Hillsborough Co. Parks will conduct the perpetual management of the site. The designated mitigation area includes the creation of a freshwater marsh habitat (26 acres) and restoration of coastal hammock habitat buffer (7 acres).

**B. Brief description of current condition:** Prior to construction, the area was a fallow farm field with invasion of exotic and nuisance vegetation such as ragweed, fennel, and various nuisance grass species (refer to photographs). Other species such as Brazilian pepper, salt-bush, and elderberry had also invaded the site. As noted on the difference between the 1958 and 1989 NRCS Soil Surveys (Fig. D), the site didn't have presence of hydric soils and was historically farmed but allowed to go fallow, allowing the nuisance and exotic species to heavily invade. The groundwater elevations and evaluations for any saltwater intrusion have been monitored for a few years in order to ensure the freshwater wetland components can be successfully created and maintained in perpetuity.

**C. Brief description of proposed work:** Construct palustrine marsh habitat with diverse and variable vegetative zones commenced in early, 2004 (Figures E, F and Table 1). A coastal hammock buffer will be restored by eradication of exotic and nuisance species, and supplemental plantings around the marsh to provide cover for wildlife use. Since the entire area is considered upland, fallow farm fields, the mitigation qualifies as wetland creation and upland habitat restoration.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed wetland impacts are almost all low quality palustrine marshes (8.3 acres, FlucCs #640 series) and minor amount of open water canal (0.8 acre, FlucCs #510) and shrub habitat (0.2 acre, FlucCs #618). The proposed creation of palustrine marsh habitat (26 acres) and restoration of upland habitat buffer (7 acres) will adequately mitigate for these DOT impacts at a cumulative ratio of 3.7-to-1. This wetland creation and coastal hammock restoration effort will be further buffered with the restoration of adjacent forested upland habitat.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The only mitigation bank in the basin is the Tampa Bay Mitigation Bank, which is also within the Cockroach Bay area. The mitigation bank has not been constructed and available credits are not anticipated until at least 2005.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** This project is part of a large SWIM restoration effort for the Cockroach Bay area. The Cockroach Bay restoration effort has been guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including the agencies, landowners, and the Tampa Bay Mitigation Bank. The SWFWMD - SWIM Section has coordinated the wetland creation and most of the upland restoration activities of the project. Hillsborough County Parks is responsible for the stormwater facilities, some upland restoration, and perpetual maintenance & management activities. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions, an ecological transition of upland habitat to palustrine wetlands, followed by salinity gradients of wetland habitats toward estuarine wetlands. Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the mitigation portions are expected to be very successful.

## **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: Southwest Florida Water Management District or designee

Contact Name: Brandt Henningson, PhD, SWIM Environ. Scientist Phone Number: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD, Hillsborough County or designee

Proposed timeframe for implementation: Commence: Design & Permitting, 2002-03

Complete: Const. & Planting, 2004, followed by a minimum three years maintenance & monitoring

Project cost: \$ 741,458 (total);  
\$150,000 for design  
\$591,458 for const., planting, and maintenance & monitoring



## Attachments

- ☒ 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- ☒ 2. Recent aerial photograph with date and scale. Figures B & C - 1995 Infrared Aerial.
- ☒ 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, design plans on Figures E & F.
- ☒ 4. Detailed schedule for work implementation, including any and all phases. The construction will commence in commenced early, 2004 and completed in early 2004, followed by a minimum of 3 years of maintenance & monitoring.
- ☒ 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- ☒ 6. Long term maintenance plan. Refer to Attachment B.
- ☒ 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.

## Attachment A – Site Conditions & Proposed Plan

The exotic and nuisance species had recruited and generated throughout the fallow farm fields. Construction of palustrine marsh habitat provide a valuable component of habitat diversity for wildlife use to inter-relate between the restored upland and existing, restored, and created estuary habitat at Cockroach Bay. Due to the extensive design effort associated with the entire Cockroach Bay restoration, additional groundwater salinity data for the Cockroach Bay area was required to determine the extent of freshwater and various saltwater wetland creation and restoration components. The additional data was critical to ensure the various restoration segments will function as proposed.

The majority of land area within the Tampa Bay Drainage Basin has some degree of saltwater influence during hurricane conditions, extreme spring tides, and/or major flood events (25 year, 50 year, and/or 100 year). These oligohaline conditions apply to both the freshwater wetland impact areas as well as created freshwater wetlands at Cockroach Bay. The species planting at the freshwater mitigation site (Table 1) are capable of enduring these very periodic events.

## Attachment B – Maintenance & Monitoring, Success Criteria

The maintenance activities will be conducted by Hillsborough County staff with assistance from the SWFWMD, and primarily related to control of invasive exotic vegetation. Maintenance will be a more intensive effort during the first couple years after planting to allow for establishment of desirable plants, and less frequent maintenance as the project matures. Maintenance will be conducted as needed, expected to be quarterly for two to three years. After this period, maintenance activities will be conducted as needed by Hillsborough County staff to maintain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance & exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted semi-annually, with annual reports for three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the mitigation area, to evaluate and document species survival, coverage, wildlife use, exotic & nuisance species coverage, and recommended actions needed to ensure or enhance success. The success criteria will reflect a minimum 90% survivorship for planted material for one-year post planting, a total 85% cover of planted and recruited desirable species, and less than 10% exotic and nuisance species cover.



FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

COCKROACH BAY-  
FRESHWATER  
(SW 56)

FIGURE A – Location Map  
^ North





FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

COCKROACH BAY-  
FRESHWATER  
(SW 56)

FIGURE B – Infrared Aerial (1995)  
Scale 1 in = 1365 ft. , ^ North



**DOT Freshwater  
Mitigation Sites**

**Site  
A**

**Site  
B**

**Cockroa  
Bay**

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

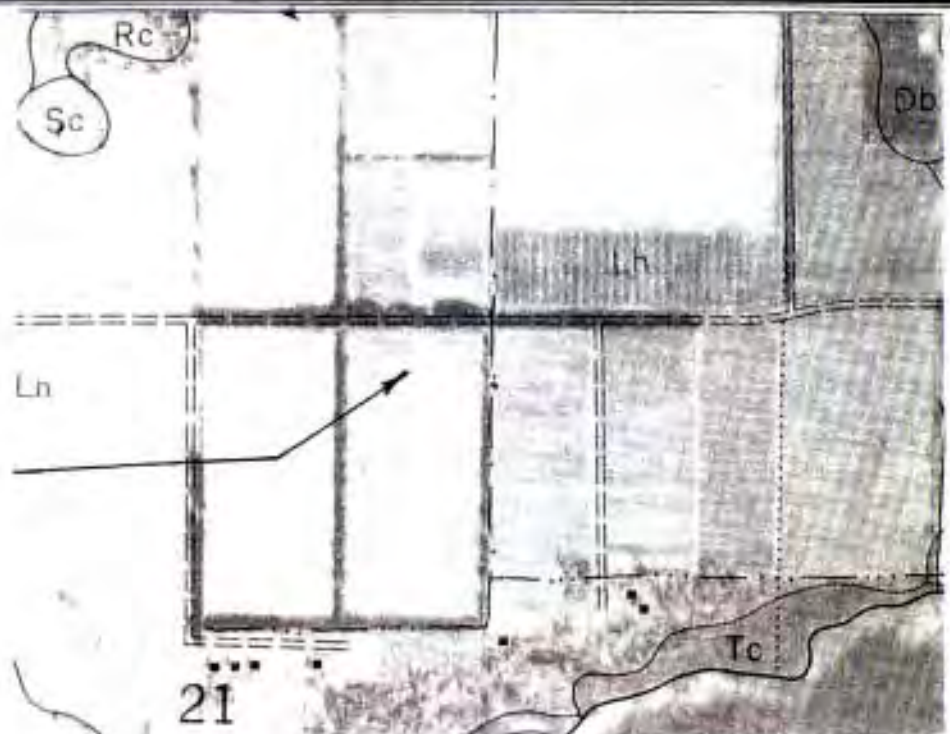
COCKROACH BAY-  
FRESHWATER  
(SW 56)

FIGURE C – Infrared Aerial (1995)  
Scale 1 in. = 380 ft., ^ North



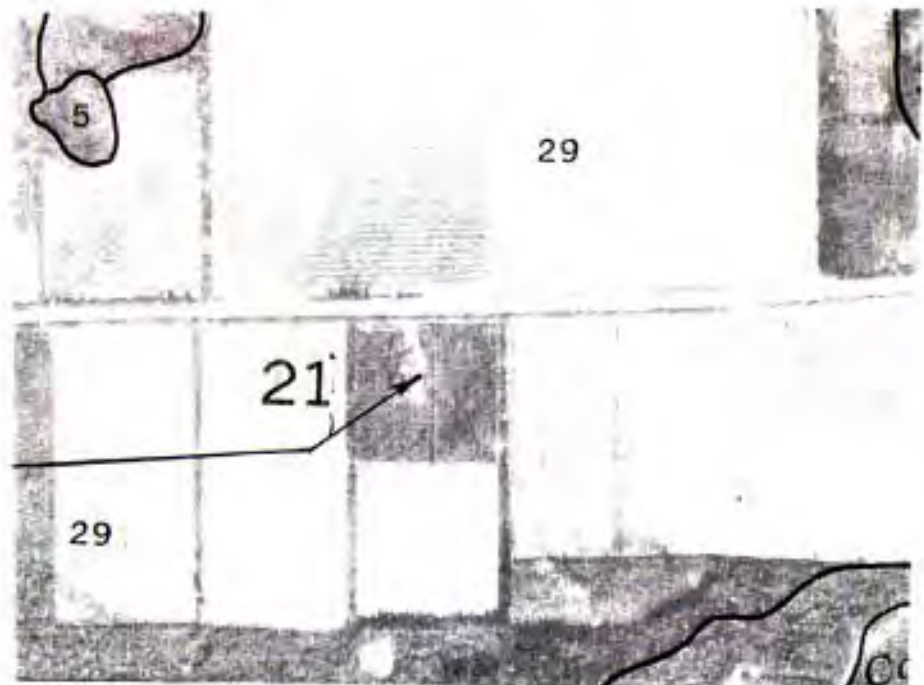
**1958 Soil Survey  
(1949 Aerial)**

**Lh – Leon fine sand  
(Non-hydric soil)  
Land use – row crops**



**1989 Soil Survey  
(1982 Aerial)**

**29 – Myakka fine sand  
(Non-hydric soil)  
Land use – North  
Row crops,  
South & East  
Exotic & nuisance  
Species**

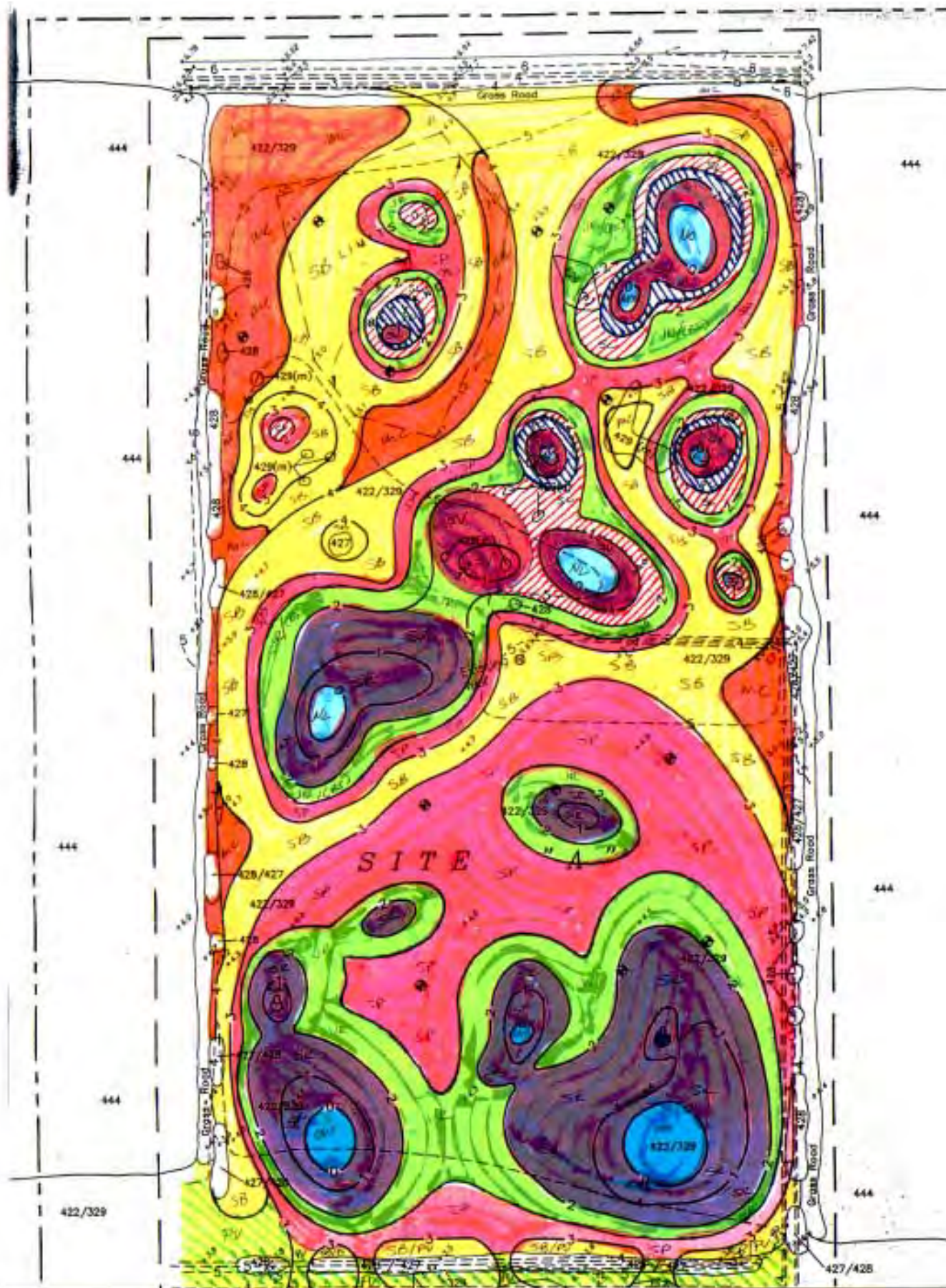


**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-  
FRESHWATER  
(SW 56)**

**FIGURE D – 1958 & 1989  
Hills. Co. Soil Survey  
Scale 6.4 in. = 1 mile, ^ North**



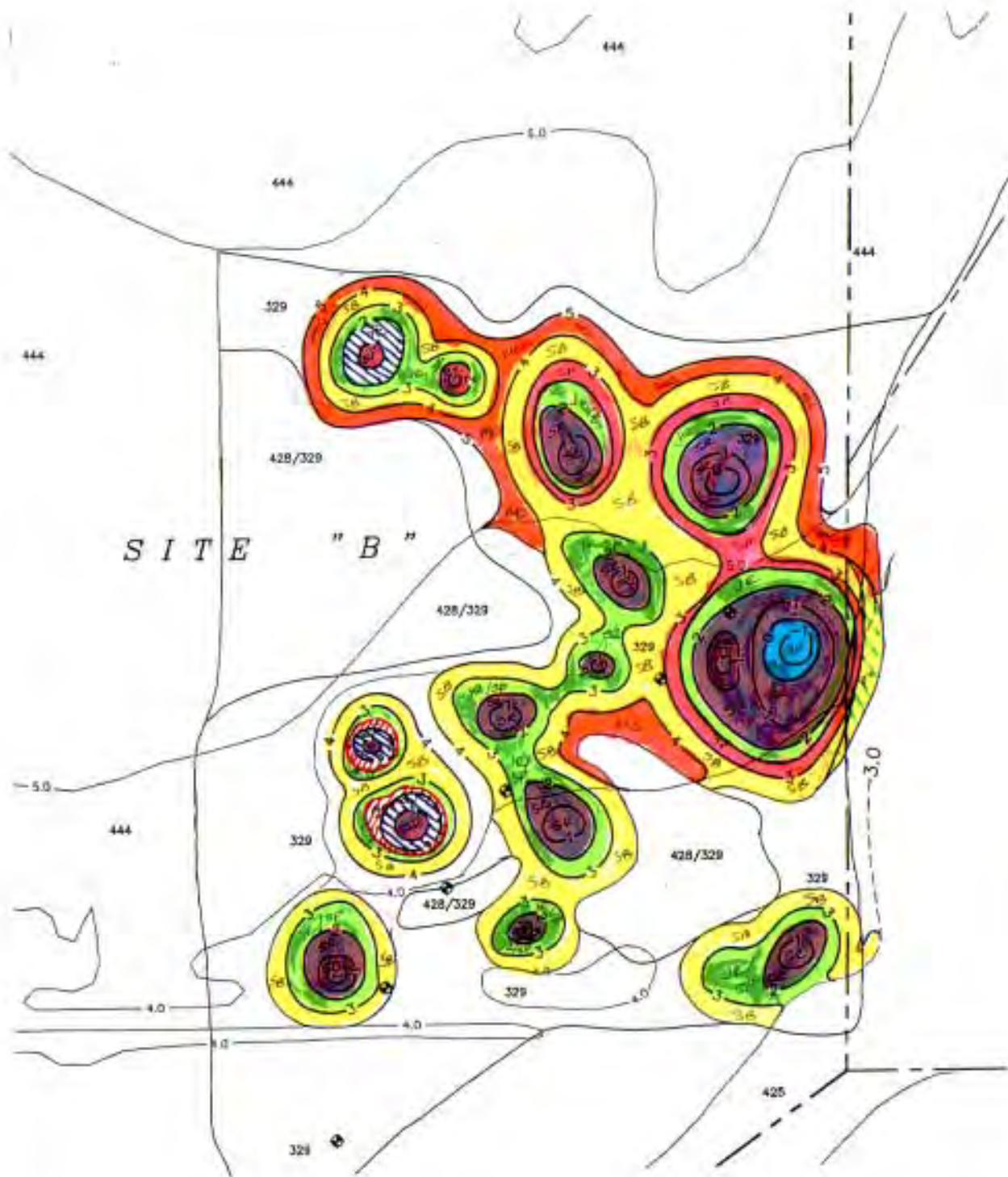


FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

COCKROACH BAY-  
FRESHWATER  
(SW 56)

FIGURE E  
SITE A – 30% Design Plans  
Scale 1 in. = 155 ft., ^ North



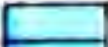




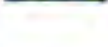






**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-  
FRESHWATER  
(SW 56)**

**FIGURE F  
Site B – 30% Design Plans  
Scale 1 in = 155 feet, ^ North**

Table 1. Preliminary list of species proposed for the Cockroach Bay Freshwater Habitat Restoration Project.

<u>Symbol</u>	<u>Zone/species</u>	<u>common name</u>	<u>elevation</u>
OW	 <b>Open water/Submergent</b>		< 0'
RM	<i>Ruppia maritima</i>	wigeongrass (natural recruitment)	
	<b>Deep Emergent</b>		
NO	 <i>Nymphaea odorata</i>	white waterlily	0 to 1'
NL	 <i>Nuphar luteum</i>	spatterdock	0 to 1'
	<b>Shallow Emergent</b>		
SV	 <i>Scirpus validus</i>	soft-stem bulrush	0 to 2'
SR	 <i>Scirpus robustus</i>	salt marsh bulrush	0 to 2'
PC	 <i>Pontederia cordata</i>	pickerelweed	1 to 2'
SL	 <i>Sagittaria lancifolia</i>	duck potato	1 to 3'
BM	 <i>Bacopa monnieri</i>	water hyssops	1 to 3'
JR	 <i>Juncus roemerianus</i>	black needlerush	2 to 3'
AD	<i>Acrostichum danaeifolium</i>	leather fern	2 to 3'
CA	<i>Crinum americanum</i>	string lily	2 to 3'
	<b>High Marsh/Wet Prairie/Glade</b>		
SP	 <i>Spartina patens</i>	marshhay cordgrass	2 to 3'
SV	<i>Sporobolus virginicus</i>	seashore dropseed	2 to 3'
DS	<i>Distichlis spicata</i>	saltgrass	2 to 3'
BS	<i>Blechnum serrulatum</i>	swamp fern	2 to 4'
PV	 <i>Paspalum vaginatum</i>	seashore paspalum	2 to 4'
BF	<i>Borrichia frutescens</i>	seaside oxeye	2 to 4'
LC	<i>Lycium carolinianum</i>	Christmasberry	2 to 4'
CO	<i>Cephalanthus occidentalis</i>	buttonbush	2 to 4'
SB	 <i>Spartina bakeri</i>	sand cordgrass	3 to 4'
MC	 <i>Muhlenbergia capillaris</i>	hairawn muhly	3 to 5'
MY	<i>Myrica cerifera</i>	wax myrtle	3 to 5'
	<b>Coastal Hammock</b>		
SA	<i>Sabal palmetto</i>	cabbage palm	> 3'
SR	<i>Serenoa repens</i>	saw palmetto	> 3'
QV	<i>Quercus virginiana</i>	live oak	> 3'
SC	<i>Sideroxylon celastrinum</i>	saffron plum	> 3'
ZF	<i>Zanthoxylum fagara</i>	wild lime	> 3'
CA	<i>Chiococca alba</i>	snowberry	> 3'
EH	<i>Erythina herbacea</i>	coralbean	> 3'
FS	<i>Forestiera segregata</i>	Florida privet	> 3'





*Historically an area used for row crops, the proposed freshwater wetland creation site has generated to extensive cover of exotic and nuisance species such as Brazilian pepper, dog fennel, ruderal grass species, and Australian pine (background left).*



*View of the same area, connecting to the right side of the above photograph. Desirable species such as cabbage palm will be incorporated into the creation project.*

**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**COCKROACH BAY – FRESHWATER  
(SW 56)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District  
Mitigation Project Name: Lake Panasoffkee Restoration (SWIM) Project Number: SW 57  
Project Manager: Mike Holtkamp, SWFWMD-SWIM Engineer Phone No: 813-985-7481 ext. 2212  
County(ies): Sumter Location: Sec.18,19,20,28,29,32,33,T19S, R22E  
Sec. 4,3 T20S, R22E

### IMPACT INFORMATION

DOT (FM): 4063291 - I-75, Lk. Panasoffkee Bridge ERP #: 4320508.00 COE #: 200000754 (NPR-KF)  
Drainage Basin(s) : Withlacoochee River Water Body(s) : Lake Panasoffkee SWIM water body? Y  
Acres / Types: 5.93 ac. 500 (Fluccs code) TOTAL: **5.93 acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement Preservation Mitigation Area: +/- 75 ac.  
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N  
Drainage Basin(s): Withlacoochee River Basin Water Body(s): Lake Panasoffkee SWIM water body? Y

#### Project Description

**A. Overall project goal:** Lake Panasoffkee has suffered due to the extensive buildup of inorganic sediments and shallowing of the lake has destroyed fish spawning areas, promoted nuisance/exotic species growth along the shoreline and substantial bands of nuisance emergent vegetation in the lake. The restoration plan proposes several steps to improve the fisheries habitat, restore the shoreline, and facilitate navigation.

**B. Brief description of current condition:** Lake Panasoffkee has accumulated sediment and silted in hard bottom areas which historically served as fish beds, in many areas the nuisance emergent vegetation is extremely dense due to shallowing of the lake.

**C. Brief description of proposed work:** The Lake Panasoffkee Restoration Council has recommended removal of the inorganic sediments from the lake bottom and hydraulic dredging will be a major element of the restoration plan. The dredging prospects will follow a six step approach presented in the Lake Panasoffkee Restoration Plan (Attachment A) as reported to the State Legislature. STEP 1 included a Pilot Project of dredging completed in the summer, 2000). The dredging plan included various areas and proposed final grade depths associated with the lake. STEP 2 includes dredging almost 5 million cubic yards of sediments from approximately 1,010 acres (30% of the lake bottom grade) to hard bottom. Approximately 75 acres of this phase of the project will mitigate for the proposed open water wetland impacts. This phase commenced in early, 2004.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The DOT project impacts included open water habitat associated with the area between the two I-75 bridge spans that cross along the southeast portion of Lake Panasoffkee. The roadway open water wetland impacts and location match the proposed restoration habitats associated with the same Lake Panasoffkee.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There isn't an existing or proposed mitigation bank within the Withlacoochee River Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : Lake Panasoffkee is a SWIM project and the FDOT mitigation program provides much needed funds to this multi-million dollar project while adequately and appropriately compensating for unavoidable impacts to the lake.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by the SWFWMD

Contact Name: Mike Holtkamp - SWFWMD- SWIM Engineer

Phone Number: 813-985-7481 ext. 2212

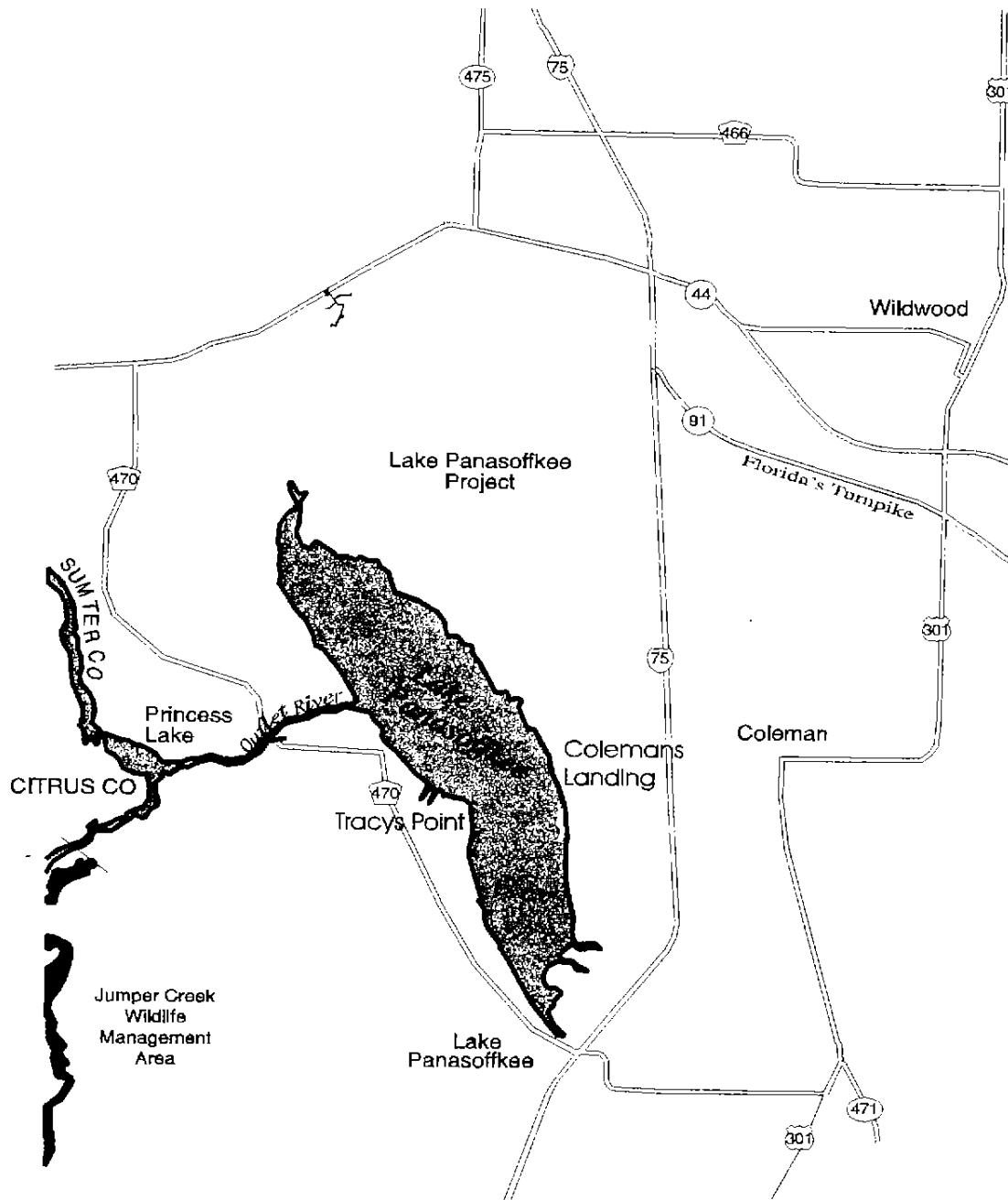
Entity responsible for monitoring and maintenance: Contractor selected by the SWFWMD.

Proposed timeframe for implementation: Commence: Spring, 2004 Complete: Winter, 2004

Project cost: \$469,733 - Estimate for 75 acres of sediment removal under STEP 2 construction.

#### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Figure B - 1995 infrared aerial.
- X 3. Location map and design drawings of existing and proposed conditions. Figure A-Location Map, Attachment A has the proposed conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Design of STEP 2 (portion proposed for DOT mitigation) was finalized in 2001. Construction of STEP 2 of the restoration project began in the spring, 2004 and will finish by the end of 2004.
- x 5. Proposed success criteria and associated monitoring plan. This project proposes to create open water habitat in Lake Panasoffkee, an Outstanding Florida Water. The bottom elevations will be deep enough to exclude emergent species, thus ensuring the persistence of open water habitat. With these reasons in mind, no monitoring or success criteria is proposed.
- x 6. Long term maintenance plan. The mitigation is associated with the larger Lake Panasoffkee Project being implemented by the WMD. Maintenance will primarily be related to control of invasive aquatic vegetation with a more intensive early effort to allow for the plants to become established and less frequent herbicide control as the project matures. This effort will not be funded through the FDOT mitigation program.
- x 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to Comment D.



**FDOT - District 5  
MITIGATION SITE  
(Withlacoochee River Basin)**

**LAKE PANASOFFKEE  
RESTORATION  
(SW 57)**

**FIGURE A  
LOCATION MAP**





**FDOT - District 5  
MITIGATION SITE  
(Withlacoochee River Basin)**

**LAKE PANASOFFKEE  
RESTORATION  
(SW 57)**

**FIGURE B  
INFRARED AERIAL  
(1995)**

## **Attachment A**

Concerned for the health of Lake Panasoffkee, the Legislature passed the Chapter 98-69, Laws of Florida, creating the Lake Panasoffkee Restoration Council (Council). The Legislature charged the Council with identifying strategies to restore the lake. Specifically, the Council was to look at sport fish population recovery strategies, shoreline restoration, sediment removal, exotic species management, floating tussock management and removal, navigation, water quality and fisheries habitat improvement. The Council established that of the seven restoration issues identified in the enacting legislation, its primary objectives in priority order were: fisheries habitat improvement, shoreline restoration, and navigation.

Based on the studies reviewed, presentations by agency experts and the knowledge and life long experience of members of the Council, it was concluded that the primary cause of adverse impacts to the water resources of the lake was due to the accumulation of sediments causing a reduction in the fisheries habitat, shoreline degradation and impediments to navigation. Accumulated sediment had silted in hard bottom areas which served as fish bedding areas, and in other areas emergent vegetation had become extremely dense due to shallowing. In addition, the growth of vegetation has progressed to such an extent that more than 800 acres of historic lake bottom are now covered with a mix of woody/shrubby vegetation. In order to reclaim these areas it was determined that substantial amounts of chiefly inorganic sediments would have to be removed from the lake bottom and that hydraulic dredging would likely be a major element of any restoration plan.

The Council, in consideration of the recommendations of its Advisory Group voted at its October 12, 1998, to include in their 1998 report to the Legislature the following recommendation and request:

Design and seek regulatory approval for removal of sediments following a systematic six step approach to insure maximum benefit to the restoration of the lake while insuring all necessary environmental safeguards are implemented.

The six steps are fully described in the *Lake Panasoffkee Restoration Council Report to the Legislature, November 25, 1998*. Step 2 proposes to restore the littoral zone of the lake by removing flocculent sediment to expose hard lake bottom. Step 3, which involves the removal of emergent vegetation will restore 800 acres of open water. Together these two steps are proposed to provide mitigation for the open water impacts identified in this application. Steps 2 and 3 are described below.

### **Step Two - Dredge to Hard Bottom from the 35-foot Contour**

The prime historic fish bedding areas in Lake Panasoffkee are known to have existed in areas around Grassy Point and Shell Point located on the lake's northeast side (Figure 1). Extensive deposits of snail shells occur throughout this area, and sport fish, particularly redear ("shell cracker") and other sunfish ("bream") are known to have spawned there.



Hard bottom can be reached with the least sediment removal in the Grassy and Shell Point areas and in a narrow band bordering much of the western shoreline. It is documented that in areas where accumulated sediment deposits are five feet or less, the lakeward most edge of the area could be fairly well defined by the 35-foot contour. For this reason, it is proposed that many historical bedding areas could be restored by dredging in two areas from the 35-foot contour toward shore while removing sufficient material to expose the hard bottom (e.g., shell deposits, sand, etc.). It was also recognized that there are substantial sediment deposits (i.e., greater than 20 feet deep) in the north end of the lake, that two major inflows, Little Jones and Big Jones creeks, enter the lake in this area, and that it is highly likely that sediments in this area would be carried into the two cleared spawning zones if not lowered to the 35-foot contour as well.

For this reason, it is recommended that sediments in this area be dredged even though hard bottom would not be reached. It should be noted that very little submersed vegetation occurs in the north end of the lake, that fish usage appears low perhaps due to lack of cover, and that there is probably more organic sediment deposited here than in most areas of the lake. To accomplish Step Two, it is estimated that as much as 4.9 million cubic yards of sediment will have to be removed and that approximately 900 acres (30 percent) of the lake bottom will be restored.



Figure 1. Step Two - Dredge to Hard Bottom from 35' Contour - entails dredging on east side of lake in vicinity of Shell and Geasey Points, along most of western shoreline. Although sediment deposits are deep, the north end is dredged to prevent material from this area being transported into hard bottom areas.

**Step Three - East Side Emergent Removal - Tied to 35-foot Contour:** There is a broad band of emergent vegetation along the eastern shoreline of Lake Panasoffkee that runs from just south of Shell Point to the southern end of the lake (see Figure 2). This band of emergent vegetation is composed largely of pickerelweed, cattail and arrowhead. Although much of the vegetation is rooted to the lake bottom, a substantial amount could be classified as tussocks and much of the tussock problem on the lake is generated by this band of vegetation. The band is more than 1,000 feet wide in some sections and is so dense and impenetrable that much of it does not provide productive fish habitat. Removal of this vegetation would improve fish habitat, restore much of the eastern shoreline and improve navigation. Dredging to a depth of two to three feet will open the area to fish and encourage the growth of submersed vegetation while discouraging emergents. It is proposed that sediment be dredged from the 35-foot contour toward the shore, and the area be sloped or stepped so that a narrow emergent zone is preserved. The entire



project area is almost 800 acres, and this step would remove upwards of 3.2 million cubic yards of sediment and open up approximately 388 acres for possible colonization by submersed plants. Cost \$4,589,000.

It should be noted that land bordering the entire eastern shoreline of Lake Panasoffkee is in public ownership, and the proposed dredging will enhance public access to the lake's resources. Defined as the East Lake Panasoffkee property, approximately 9,950 acres were purchased through the Save Our Rivers program. The majority of the property consists of floodplain swamp, and most of the property remains in a relatively natural, unaltered condition. Public ownership of the property will contribute directly to the long-term protection and management of the lake (SWFWMD 1996).



Figure 2.

Step Three - Removal of East side emergent vegetation and sediments from the 35' Contour.

Step Five - Removal of woody/shrubby vegetation and associated sediments.

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Ledwith Lake**

Project Number: **SW 58**

Project Manager: Ramesh Buch, Land Conservation Manager  
Alachua Co. Environmental Protection Dept.

Phone No: (352) 264-6800

County: Alachua

Location: Sections 1, 2 T12S, R19E

### IMPACT INFORMATION

- |   |                            |                                      |
|---|----------------------------|--------------------------------------|
| (1) <u>FM 238762 - SR 40, CR 225A to SW 52<sup>nd</sup> St.</u> | ERP #: _____               | COE #: <u>NPR (isolated wetland)</u> |
| (2) <u>FM 238641 - SR 500 (US 27), Levy Co. to SR 326</u>       | ERP #: <u>43014024.001</u> | COE #: <u>NPR (isolated wetland)</u> |
| (3) <u>FM 238678 - SR 500 (US 27), SR 326 to CR 225A</u>        | ERP #: <u>438697.01</u>    | COE #: <u>199702099 (NW)</u>         |
| (4) <u>FM 238719 - SR 40, SR 328 to SW 80<sup>th</sup></u>      | ERP #: <u>44022268.00</u>  | COE #: <u>NPR (isolated wetland)</u> |

Drainage Basin(s) : Ocklawaha River Basin Water Body(s):None SWIM water body? N

Acres / Types of Impact:

(1) FM 238762 - <u>0.20</u> ac. <u>617</u> (Flucss code)	
(2) FM 238641 - <u>2.37</u> ac. <u>640</u> (Flucss code)	
(3) FM 238678 - <u>1.09</u> ac. <u>641</u> (Flucss code)	
(4) FM 238719 - <u>0.08</u> ac. <u>641</u> (Flucss code)	<b>TOTAL: - 3.74 ac.</b>

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type:    Creation    Restoration X Enhancement X Preservation Mitigation Area: **160 ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin: Ocklawaha (also considered Florida Ridge Basin) Water Body: Ledwith Lake SWIM water body? N

#### Project Description

- A. Overall project goal:** Acquire, preserve, and enhancement of a portion (160 acres) of Ledwith Lake, a high quality marsh covering 2200 acres in Alachua & Marion Counties. Along with the adjacent marsh enhancement associated with Levy Lake, this is the highest concentration of wetland habitat within the same basin of the proposed DOT wetland impacts. Preservation through acquisition is the best alternative toward protecting this important water and wetland resource, particularly considering the lack of other large wetland systems within the majority of this basin. This acquisition will be conducted by Alachua County, with assistance from the Conservation Trust for Florida.
- B. Brief description of current condition:** Ledwith Lake is a 2200-acre marsh prairie with a few pockets of open water around the perimeter (Figures C, D, photos 1,2). The marsh has dominance of pickerelweed, floating pennywort, smartweed, spatterdock, soft rush, and maidencane. Extensive vegetative diversity and wildlife is present in the marsh and surrounding hardwood hammocks. Resource evaluations were conducted and are available from Mark Brown (SWFWMD).
- C. Brief description of proposed work:** Ledwith Lake is part of a proposed east-west corridor of proposed land acquisition between Ocala National Forest and Waccasassa River. This portion of the proposed acquisition is referred to as the "Levy Project" (Figure B) which includes a 4000 - acre acquisition of Ledwith Lake and the surrounding area (Figures C & D) from Rayonier and the Zetrouer Tract. Once acquired by Alachua County, the property will be managed under a joint agreement with FDEP, who owns and manages the adjacent Paynes Prairie State Preserve. A current hydrology study of Levy Lake and Ledwith Lake will determine if the hydrologic connection should be elevated or

decreased via the existing structures (Photo 4) to enhance the site conditions of each wetland. Other enhancement opportunities include the elimination of cattle grazing within the marsh prairie, which has allowed some encroachment of nuisance vegetation along the perimeter.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** Essentially all the DOT wetland impacts (3.54 of the 3.74 acres) are proposed to occur to marsh habitat. Preservation and minimal enhancement of a portion (160 acres) of this high quality marsh prairie will result in a proposed wetland mitigation ratio of 43:1. Ledwith Lake is one of the few and largest marsh systems within the entire basin, exhibits high quality characteristics and conditions that deserve protection through an acquisition program.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no mitigation banks within this basin. Due to the very limited public property within this basin (the least of any basin that covers the SWFWMD), and the minimal presence of wetlands within this predominantly high ridge basin (also referred to as the Florida Ridge Basin), there are limited wetland enhancement & restoration opportunities in this basin, and in particular within the portion of the basin located within the SWFWMD boundaries.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no SWIM projects or SWIM water bodies within this basin.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: No construction warranted, any revisions to Ledwith Lake hydrology will be conducted in coordination between Alachua County, FDEP, and the SJRWMD.

Contact Name: Ramesh Buch, Land Conservation Manager Phone Number: (352) 264-6800

Entity responsible for monitoring and maintenance: Joint agreement between Alachua County and FDEP staff (Paynes Prairie Preserve) to ensure both entities will coordinate the long-term maintenance & management.

Proposed timeframe for implementation: Commence: Summer, 2001 Complete: Land acquisition by Summer, 2005

Project cost: \$100,000 (total); Acquisition (160 acres) – Long-term management conducted by Alachua Co. & FDEP

#### **Attachments**

- X 1. Detailed description of existing site and proposed work. The detailed evaluations of site conditions are included are available from Mark Brown (SWFWMD, 352-796-7211, ext. 4488). There are no proposed work activities at this time. If the hydraulic and hydrology study of Ledwith & Levy Lake determine the water levels need to be modified to enhance either marsh system, that will be conducted by Alachua County in coordination with FDEP and SJRWMD.
- X 2. Recent aerial photograph with date and scale. Fig. B & C - Infrared aerials – 1995.
- X 3. Location map and design drawings of existing and proposed conditions. Fig. A, location map, drawings of existing and proposed conditions are exhibited under Figures B & C.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to schedule provided above.
- X 5. Proposed success criteria and associated monitoring plan. No proposed success criteria or monitoring plan.
- X 6. Long-term maintenance plan. A long-term maintenance plan is not warranted due to the habitat conditions.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.





**FDOT - District 5  
MITIGATION SITE  
(Ocklawaha River Basin)**

**LEDWITH LAKE  
(SW 58)**

**FIGURE A  
LOCATION MAP  
Scale 1 in. = 2.3 miles**



**Levy Project (Alachua County Section)  
Ocala National Forest to  
Waccassassa Preserve Corridor**

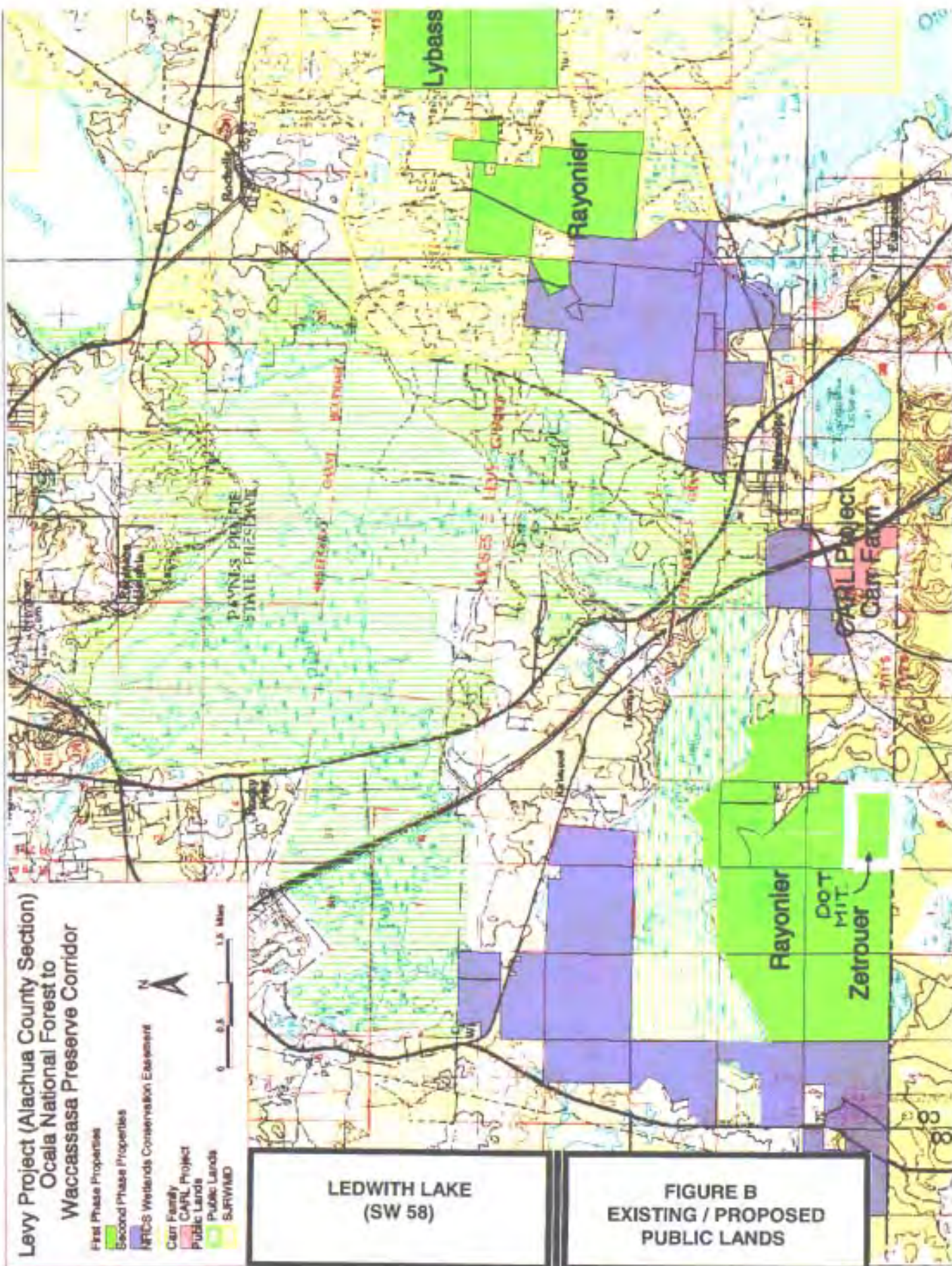
- First Phase Properties  
Second Phase Properties  
APRCS Wetlands Conservation Easement  
Carr Family  
CARL Project  
Public Lands  
SURFWMO



0 0.5 1 1.5 Miles

**LEDWITH LAKE  
(SW 58)**

**FIGURE B  
EXISTING / PROPOSED  
PUBLIC LANDS**















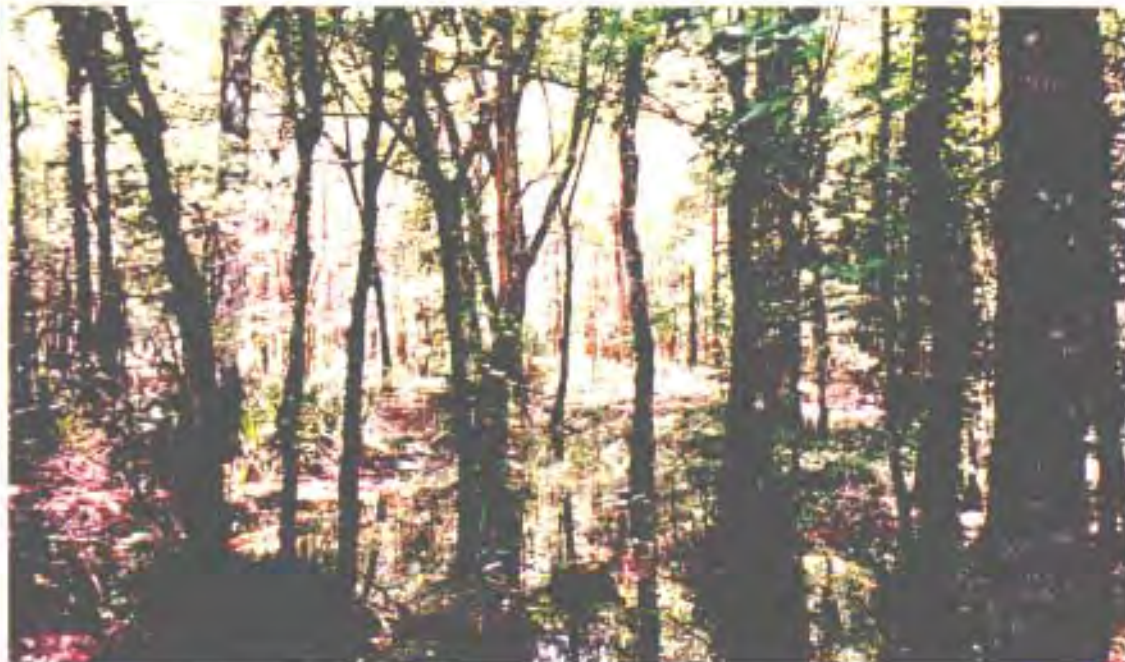
*Photo 1 - View of Ledwith Lake from the western marsh boundary. The marsh prairie has diverse vegetative cover including a dominance of pickerelweed, floating pennywort, smartweed, spatterdock, soft rush, and maidencane.*



*Photo 2 - View extending from right of Photo 1, open water areas in Ledwith Lake are few and predominantly located within the perimeter of the marsh prairie. Hardwood wetlands rim portions of the marsh, short transitions to upland hardwood hammocks.*

**FDOT - District 5 Mitigation Site  
(Ocklawaha Basin)**

**Ledwith Lake  
(SW 58)**



*Photo 3 - Some wetland hardwoods rim Ledwith Lake and within the hydrologic connection between Levy Lake and Ledwith Lake (shown above), dominance of laurel oak, red maple, sweetgum, and swamp chestnut oak that transition to upland hardwood hammocks of pignut hickory and live oak.*



*Photo 4 - The two outfall structures with flashboard risers that control the water elevation and flow from Ledwith Lake north to Levy Lake.*

**FDOT - District 5 Mitigation Site  
(Ocklawaha Basin)**

**Ledwith Lake  
(SW 58)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Hampton Tract**

Project Number: **SW 59**

Project Manager: Philip Rhinesmith, WMD Environmental Scientist

Phone: (352) 796-7211 ext. 4266

County(ies): Polk Location : Sections 22, 23, 25, 26, 27, 34, 35, 36 T25S, R23E ; Sections 30, 31 T25S R24E

### IMPACT INFORMATION

(1) FM 2012092, I-4, US 98 to CR 557 (Sec. 3-5)\* ERP #: 43011896.026 COE #: 200204891 (IP-MGH)  
(2) FM 2012041, I-4, CR 557 to Osceola (Sec. 6,7,9)\*\* ERP #: 43011896.032 COE #: SAJ-1994-3591 (IP-MGH)

Drainage Basin(s) : Withlacoochee River Water Body(s) : Lake Mattie, Lake Agnes SWIM water body? N

Impact Acres/ Types:

(1) FM 2012092 1.19 ac. 510 (FlucCs)	(2) FM 2012141 0.03 ac. 630 (FlucCs)
0.02 ac. 611	3.18 ac. 640
0.12 ac. 617	0.55 ac. 641
2.75 ac. 618	0.12 ac. 643
3.90 ac. 621	<u>TOTAL 3.88 acres</u>
8.63 ac. 630	
0.04 ac. 640	
0.94 ac. 641	
1.36 ac. 643	
<u>TOTAL 18.95 acres</u>	<b>TOTAL 22.83</b>

\* Note – A portion of this I-4 project is located within the Peace River Basin and associated wetland impacts (total – 1.5 acres) will be mitigated at Tenoroc / Saddle Creek (SW 47).

\*\* Note – A portion of this I-4 project (Seg. 7) is located within the Kissimmee Ridge basin and the associated wetland impacts (total – 2.35 acres) are mitigated at Reedy Creek Mitigation Bank (SW 49). Another portion of this I-4 project is located within the Ocklawaha basin and those wetland impacts (4.0 acres) are mitigated at Lake Lowery (SW 76).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement Preservation Mitigation Area: **1076 ac.**

Mixed Forested (FlucCs- 630)	684 acres
Cypress (FlucCs- 621)	309 acres
Marsh Slough (FlucCs- 643)	60 acres
Hydric Flatwoods (FlucCs- 625)	19 acres
Marsh (FlucCs- 641)	4 acres
<b>TOTAL</b>	<b>1076 acres</b>

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N  
Drainage Basin: Withlacoochee River Water Body: Gator Cr., Colt Cr., Sapling Drain, Bee Tree Drain SWIM water? N

### Project Description

**A. Overall project goal:** The Hampton Tract (Total -7640 acres) was acquired by the SWFWMD in late, 1999. The site has an extensive network of ditches that have excessively drained various wetland habitats throughout the property. With the use of at least 90-100 large ditch blocks and filling approximately 5 miles of ditches, the wetlands will be hydrologically enhanced, allowing other wetland functions and values to be restored and enhanced.

## Mitigation Project - Hampton Tract

**B. Brief description of current condition:** The site has various wetland habitats covering over 2400 acres, dominated by cypress domes & strands, mixed forested floodplains, hydric pine flatwoods, and marshes (Figure F). Approximately 1000 wetland acres are hydrologically impacted by three major drainage ditch systems (Figure E, Colt Creek Drain, Sapling Drain, Bee Tree Drain). These ditches ultimately connect to Gator Creek along the western project boundary. Upland habitats (approx. 4200 acres) are dominated by pine flatwoods with some upland hardwood hammocks generally located along the perimeter of the forested wetlands. The remaining property is dominated by improved pasture (approx. 1000 acres) primarily located within the northeast and center of the tract. The pastures are separated and interspersed by various cypress strands & domes. The property is bordered to the north & west by extensive property owned and managed by the SWFWMD (Figures A,D), and to the east & south by low-density residential areas.

**C. Brief description of proposed work:** The Hampton Tract has been included in a Gator Creek Watershed Study (conducted by Polk Co. and the SWFWMD) to evaluate and determine design features necessary to restore the hydrology of the Hampton Tract without impacting adjacent landowners. The majority of wetland hydrologic restoration will be conducted by constructing ditch blocks (90-100, approximate locations on Figure F), that will redirect and detain surface and ground water in the wetlands. There are two miles of a large perimeter ditch located along the northeast property boundary, the adjacent spoil material has minimal tree cover and will be back filled into the ditch (Figure F). There is also a 2.5-mile ditch (Sapling Drain, Figure F - Central) that diverts all the historic water sheet flow away from a remnant marsh & cypress slough. That ditch will also be back filled to restore sheet flow through the slough. Monitor locations (23) have been designated with the installation of shallow monitor wells. These wells will be monitored on a semi-annual basis and surrounding wetland habitat conditions will be noted for a period of at least three years post-construction.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority (approximately 70%) of the proposed I-4 wetland impacts will be to forested wetland habitat. The Hampton Tract will have at least 993-acres of forested wetland hydrologic enhancement (cypress & mixed forested) plus the enhancement of marsh habitat (64 acres) and hydric pine flatwoods (19 acres). The cumulative mitigation area (1076 acres) and impact acreage (22.83 acres) result in an overall mitigation ratio of 47-to-1. The mitigation acreage and habitat associated with each section at Hampton is described in Attachment D. Even though the hydrologic restoration plan will benefit all the wetlands and uplands within and adjacent to the 7600-acre tract, wetlands without direct hydrologic enhancement (over 1400 acres) are not accounted for in the mitigation credit (reference green delineated wetlands on infrared aerals). The substantial wetland enhancement on a large-scale site will adequately and appropriately mitigate for these Interstate-4 wetland impacts within the Withlacoochee Basin. No other DOT projects are proposed for mitigation through the enhancement activities at the Hampton Tract.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no established or proposed mitigation banks within the Withlacoochee River Basin at this time.

## Mitigation Project - Hampton Tract

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project within the Withlacoochee River Basin is the restoration of Lake Panasoffkee (SW 57). The lake is being restored through the re-establishment of the appropriate aquatic habitat, and is being proposed to mitigate for wetland impacts associated with the I-75 bridge widening over the southern portion of the lake.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: WMD Operations Department  
Contact Name: Philip Rhinesmith, WMD Environmental Scientist Phone Number: (352) 796-7211 ext. 4266  
Entity responsible for monitoring and maintenance: The WMD will be responsible for monitoring and maintenance.  
Proposed timeframe for implementation: Commence: Fall, 2000 Complete: Spring, 2005 (Construction)

Install Monitor Wells – Spring, 2001	Project Cost: <u>\$1,400,000 (total):</u>
Watershed Study – Complete, 2003	Watershed Study <u>\$50,000</u>
Design & Permitting – 2004 - 2005	Design <u>\$80,000</u>
Construction – 2006 -2007	Construction <u>\$1,230,000</u>
Minimum 3 Years Maintenance & Monitoring	Maintenance & Monitor <u>\$40,000</u>

### Attachments

- X 1. Detailed description of existing site and proposed work. Attachment A -Existing Site & Proposed Work.
- X 2. Recent aerial photograph with date and scale. Attached infra-red aerials (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figure A - Watershed Map, Figure B - Location Map. One set of infrared aerials (Fig. E) depict the major ditches (yellow) and natural wetland water flow patterns (blue). Another set of infrared aerials (Fig. F) and depict wetlands proposed for enhancement (blue) and minimal enhancement (green). The wetlands designated in green are not accounted for as mitigation credit. Additional design drawings will be prepared as part of the Gator Creek Watershed Study.
- X 4. Detailed schedule for work implementation, including any and all phases. The work schedule for proposed activities are presented under Project Implementation.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Refer to Attachment B - Maintenance & Monitoring Plan, Success Criteria.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Attachment C.

### ATTACHMENT A - Existing Site & Proposed Work

The site is located within the Green Swamp (Area of Critical State Concern), and has over 60% of the adjacent property also under ownership of the SWFWMD (referred to as “Green Swamp East”). The site’s habitat and land-use is dominated by approximately 2400 wetland acres (predominantly mixed forested and cypress systems), 4200 acres of pine flatwood & upland hardwood hammocks, and 1000 acres of improved pasture.

The site's natural drainage pattern meanders from east to west. During the late 1940's and early 1950's, the construction of large drainage ditches (Colt Creek Drain, Sapling Drain, Bee Tree Drain) and smaller connecting ditches resulted in a more direct drainage of surface and ground water west to connect with Gator Creek along the project's western boundary. In turn, Gator Creek has been ditched and connects to the Withlacoochee River approximately 4 miles northwest of the site (Figure B). However, the northern boundary of the Hampton Tract is adjacent to the forested floodplain associated with the Withlacoochee River. These ditched drainage systems



## **Mitigation Project - Hampton Tract**

have directly impacted the hydroperiods and vegetative composition of a large percentage of the site's wetlands, particularly with the transition of obligate to more facultative species within the wetland, and allowing undesirable upland species to encroach along the wetland perimeters. The major ditches are designated with yellow lines and the natural surface water drainage patterns are marked with curved blue lines on the infrared aerial (Fig. E).

A combination of predominantly large ditch block construction (90-100), breach cuts within spoil ridges located within wetlands, and some total ditch backfilling (approx. 5 miles) will be conducted to hydrologically enhance the ditched wetlands, allowing the regeneration of more obligate species that have gradually decreased from the wetlands. This construction will also attenuate the surficial and groundwater hydrology for the entire tract. The constructed ditch blocks will include spoil material from the adjacent ditches, with a top top-of-block length of 50 to 100 feet, and gradual sideslopes (minimum 10:1) to the bottom ditch grades. Since the majority of the ditches on the site are 3-4 feet deep, these ditchblocks will extend 110 to 180 feet in total length. The ditchblocks will be stabilized with vegetative cover (predominantly maidencane) and, where necessary, stabilized on the downstream slope with structural support (liners with rip-rap rubble). These ditchblocks will also provide easier access for wildlife into the wetlands during wet season conditions. The following information describes the wetland enhancement aspects associated with each major drainage system.

### **Colt Creek Drain**

The Colt Creek Drain includes a combination of isolated, partially connected, and forested wetland tributaries within the northern portion of the property. The highest concentration of isolated and partially connected wetlands for the entire Hampton Tract is associated with cypress systems within the northeast pastures. Historically, these wetlands were hydrologically connected with surface water that sheet flowed through minor drainageways and pine flatwoods during the wet season. The high concentration of perimeter ditches around the wetlands have connected and substantially altered those drainage patterns and the wetlands' hydroperiods. West of the pastures, the wetlands are more contiguous and less historically isolated, particularly for the unnamed tributary located south of the southeast-northwest access road leading to the rock mine (Figure F).

In order to restore the drainage patterns within each of these wetlands, the highest percentage of ditch blocks are proposed for the wetlands associated with the Colt Creek Drain. The ditch blocks will be strategically placed at certain locations within the perimeter ditches to divert contributing water across low elevation breach points into the adjacent wetlands. This is particularly more important for the elongated wetland strands than the cypress domes. In all cases, ditch blocks will be constructed within the ditch locations where the wetland surface and ground water outfalls through the ditch toward the next downstream wetland system. This is generally at the location where the ditch crosses the wetland/upland boundary. This will not only detain water within the wetland throughout the rainy season to restore hydroperiods, but contribute groundwater hydration of wetlands during the dry season. This is important since during recent drought periods, surface water was not only absent in the wetlands but also in the ditches. Soil borings at the 23 monitor locations during the spring, 2001 indicated groundwater was greater than 6 ft. below surface grade elevations within each of the wetlands. Extended dry season ground and surface water conditions not only stress vegetative conditions, but the surface water sources for all types of wildlife use, not just wetland dependent species. Even though the wetlands have natural cycles of below grade water elevations, the opportunity to maintain some surface water within the ditches without resulting in groundwater drawdown will allow an important water resource to be available for wildlife use during extended droughts.

As noted on Figure F (East aerial photo), there is a 2-mile long ditch along the northeastern property boundary proposed for backfill. As noted in the photos, this ditch and adjacent road berm are large and block historic surface water flow to the on-site wetlands from adjacent property. Unlike some of the smaller ditches associated with Colt Creek, wildlife accessibility of the wetlands and crossing from the adjacent property is difficult, particularly during the rainy season conditions when the perimeter ditch water storage is very deep. With construction equipment access to this ditch and associated spoil material, backfilling this ditch will not only enhance the hydrology of the wetlands but allow more wildlife movement through and around the wetlands and

## **Mitigation Project - Hampton Tract**

adjacent property, which includes other WMD property north of the Hampton Tract. The backfilled ditch will have native seed source material transferred to re-establish an appropriate wetland buffer habitat of facultative sedges, rushes, etc.

The WMD has converted the land use of the northeast upland pastures to silviculture. However, pines were planted at least 50 feet from the wetlands and this buffer is allowed to naturally generate foraging sedges and rushes to replace the bahia. With the introduction of pines to replace open pasture, additional vegetative cover will encourage more wildlife to cross from the native habitat areas west and north of these sections. In addition, the meandering alignment of the wetland strands allow corridor connections to other native habitat.

As noted, there is an unnamed tributary to the Colt Creek Drain south of the main access road to the former limerock mine in the northwest corner of the property. This tributary commences near Rock Ridge Road at the entrance gate (Section 36), and extensively meanders west through Sections 35 and 27. Due to the meandering and contributing water flow from adjacent wetlands, the ditch was constructed from the area of monitor site 14 and extends northwest to a wetland near the rock mine. This ditch was dredged through uplands and wetlands (e.g. Wetlands 31, 164, 195, Figure F - Central) to adequately circumvent the meandering flow into a relative direct alignment off the property. The ditch blocks are proposed at the locations where the ditch crosses wetland/upland boundaries to restore the water flow into the meandering systems. Along with the ditch blocks, adequate breach points in the spoil ridges adjacent to the wetland ditch segments will be constructed only where necessary by pushing spoil segments back into the ditch. In order to minimize impacts to trees throughout the property, every effort will be made to utilize only spoil material without tree cover for both ditch blocks, backfilling ditch segments, and creation of breach points. Graded spoil material will commence at the dripline of any adjacent trees in order to not impact roots or result in disruption of spoil material.

### **Sapling Drain**

Sampling Drain is a large, straight, east-west ditch that conveys substantial volumes of water from a large contributing watershed. The majority of the existing central pasture north and south of the drain was historically a wet prairie slough. Remnant portions of the slough (Wetland 194, 220, Figure F - Central) will be substantially enhanced from a restored sheet flow pattern. The current vegetative cover is predominantly bahia, fennel, and pine trees with a few pockets of dewatered cypress domes (refer to photo). This remnant slough was the heart of the historic wet prairie and this enhancement effort will restore an east-west wetland & wildlife corridor across the property to Gator Creek. This will attenuate and sheet flow surface water to replace the straight ditch. Some minimal coverage of desirable hydrophytic vegetation is currently present within the cypress portions of the slough, however supplemental plantings (predominantly soft rush, maidencane, and pickerelweed) will be conducted in those areas where natural regeneration does not provide at least 80% cover of hydrophytic vegetation.

However, it's noted that much of the pasture northeast of Wetland 194 have average grade elevations less than 6 inches above that of the remnant slough. It has been decided to not plant pines in this pasture, nor detain surface water flow when it does extend beyond the slough. These pastures have been periodically mowed which minimize regeneration of fennel, and allows soft rush to generate in the collector swales. The cattle have been removed and the restored hydrology associated with filling Sapling Drain is expected to result in regeneration and recruitment of soft rush and other hydrophytic vegetation in the pasture. Documentation of these conditions will be noted throughout the restoration and monitoring effort and even though not accounted for in the mitigation credits, this natural regeneration of substantial wet prairie acreage is expected to become an additional ecological benefit of the restoration effort.

### **Bee Tree Drain**

Bee Tree Drain was dredged across a meandering mixed forested wetland and the adjacent upland habitat. Like the previously discussed unnamed tributary of the Colt Creek Drain, restoring the wetland flow patterns will be conducted by constructing ditch blocks at the wetland/upland boundary. Portions of spoil material along the ditch

## **Mitigation Project - Hampton Tract**

segments within the wetlands will also be backfilled to create appropriate breach points necessary to restore historic flow patterns. One of the most drastic water diversions is the drain outfalling from Wetland #224 near monitor location #22 (Figure F – Central). This diversion takes the majority of the natural water flow that historically flowed north and directly west into a borrow pit within the Gator Creek floodplain.

### **Gator Creek**

Gator Creek is a major north-south drainage feature in the Green Swamp. Historically, this floodplain had minimal definition of a creek channel, more dependent on water sheet flow like the other wetland strands on the property. With the demand to increase drainage to the Withlacoochee River, a large ditch was dredged through the floodplain. As seen on the aerials, the portion of the Gator Creek ditch that crosses the Hampton Tract was dredged along the western edge of the floodplain, as opposed through the floodplain core which has slightly lower grade elevations. Even though the floodplain still maintains high quality habitat, the transition toward more facultative species such as laurel oak has replaced the dominance of the obligate tree species, even within the wetland core.

With the increased residential development activities in the Green Swamp during the last 20 years, filling the Gator Creek ditch to restore sheet flow patterns is unfortunately not feasible. A Gator Creek watershed study is being conducted for the WMD and Polk County to evaluate and determine future maintenance and management activities. Due to potential flooding impacts to residential development south and east of the Hampton Tract, there are limited opportunities to divert water flow from the large ditch into the Gator Creek floodplain. However, some breaches within the spoil material adjacent to the ditch will be constructed to match natural grade. This will allow some water attenuation within the adjacent floodplain when the ditch water flow does periodically overflow the banks.

In addition, filling the short ditch segments of the connecting Sapling Drain and Bee Tree Drain portions within the Gator Creek floodplain will provide some wetland enhancement opportunities. This will allow more attenuation of contributing groundwater and sheet flow throughout the floodplain that is currently direct channel flow from the east. Since laurel oaks presently cover the spoil ridges, unfortunately this backfilling operation will result in loss of the majority of those trees. Care will be given to minimize impacts to the larger trees on the spoil, but with the contributing seed source, oaks will recruit and supplemental plantings of maples and cypress (1 gallon containerized, 10 ft. centers) will also be conducted to quickly regenerate the forested component for the displaced trees on the spoil. As noted, the combination of the breach cuts within the Gator Creek spoil and filling the connector ditches to attenuate more contributing hydrology to this floodplain will be an ecological benefit. However, it's difficult to quantify the degree and limits of this enhancement relative to the Gator Creek ditch that has to be maintained open instead of backfilled. As a result, upon additional evaluation determination, the restoration effort does not designate mitigation credit for the approximately 270 acres of the Gator Creek forested wetland floodplain that crosses through the Hampton Tract.

## **ATTACHMENT B - Maintenance & Monitoring Plan, Success Criteria.**

Maintenance & monitoring activities are anticipated for a minimum three years and until success criteria is met. Maintenance activities will be predominantly associated with evaluating and ensuring the structural integrity and suitability of the ditch blocks. At any time should any ditch blocks or associated wetland enhancement areas are not performing as proposed, corrective action will be taken which will include additional block support, backfilling extra ditch segments, and/or constructing additional breaches within spoil ridges through the wetlands. These inspections will be conducted on a monthly schedule throughout the first rainy season post-construction, and quarterly for at least two more years. Additional maintenance will be perpetually conducted as part of a long-term management plan for the Hampton Tract. One of the primary components of the management plan includes prescribed burns. Such burns can periodically encroach too far into drained forested wetlands, which has resulted in vegetative impacts and loss of organic topsoil. With the restored hydrology of those drained wetlands on-site, the prescribed burns will only encroach along the transitional perimeters of the forested wetlands. These



## Mitigation Project - Hampton Tract

transitional areas often become too dense with vegetative species such as wax myrtle and smilax, limiting some wildlife movement. So periodic burns to include the upland buffers and wetland transition will allow for more wildlife use of all habitat areas.

The 23 monitoring stations will be monitored for water levels, flow patterns, vegetative components, and wildlife activities on a semi-annual basis pre- and post- construction, which will be for a minimum three years post-construction. This will provide at least two years of pre-construction hydrologic monitoring to compare with post-construction monitoring to ensure the surface water hydrology has been restored and document any potential problems. Additional documentation will be conducted of habitat conditions within the Gator Creek floodplain (including the trees planted within the filled floodplain ditches), any supplemental plantings within the Sapling Drain restored slough, and the natural regeneration of wet prairie conditions within pastures north of the Sapling Drain (not accounted for in the mitigation credit).

Success criteria will include documentation of restored hydrologic and hydraulic flow regimes of those wetlands proposed for enhancement. It also includes documentation of ditch block stabilization, vegetative cover of totally filled ditches and, where necessary, rip-rap material. Shifts in vegetative cover and diversity will be noted in the monitoring reports, but no proposed specific criteria for species shifts since the majority of the major transitions will take place over 10-20 years. Planted trees in the Gator Creek floodplain will require 90% survivorship, and 30% canopy closure of planted and recruited trees in the displaced area.

A long-term maintenance & management plan will be prepared as an extension of the adjacent Green Swamp East & West Tracts, also referred to as the Green Swamp Wilderness Preserve. Specific issues such as prescribed burn parcels, fencing, silviculture operations, and wildlife management will be prepared by the Land Management Specialist who manages the Hampton Tract. For an example of the type of general management plans and procedures for the area, a copy of the "*Plan for Use & Management of the Green Swamp Wilderness Preserve*, SWFWMD, January, 1994" is available for review. Most of these same principles will be applied for the long-term management of the Hampton Tract.

## ATTACHMENT C - DOT Mitigation

The wetland impacts associated with the two Interstate-4 projects were designated different areas of enhancement at the Hampton Tract. In order to evaluate which wetlands would and would not be documented for enhancement, all the site's wetlands were mapped, evaluated, and are depicted on Figure F. Those wetlands that are delineated with green boundaries are anticipated to have minimal habitat improvements and are not designated for mitigation credit. Those wetlands designated with blue boundaries will have hydrologic improvements and are accounted for mitigation credit. For those contiguous wetlands that cross into more than one section, the first section where the individual wetland is first designated has the total wetland acreage documented, as opposed to dividing the individual wetland's acreage based on each section. The following table designates the wetland enhancement acreage associated with the proposed activities at the Hampton Tract.

Sect. & Total Mitig. Acres	#630 –Enhanced Mix Wet. Forest	#621–Enhanced Cypress	#641 – Enhanced Marsh	#643 – Enhanced Marsh Slough	#625– Enhanced Hydric Flatwoods
22 - 235.9	73.8	162.1			
23 - 88.6	74.7	13.2	0.7		
26 - 57.7	52.7	5.0			
25 - 24.5		24.5			
36 - 103.8	78.8	25.0			
27 - 43.1	10.6	32.5			
34 - 139.8	76.8	13.2	1.4	48.4	

## Mitigation Project - Hampton Tract

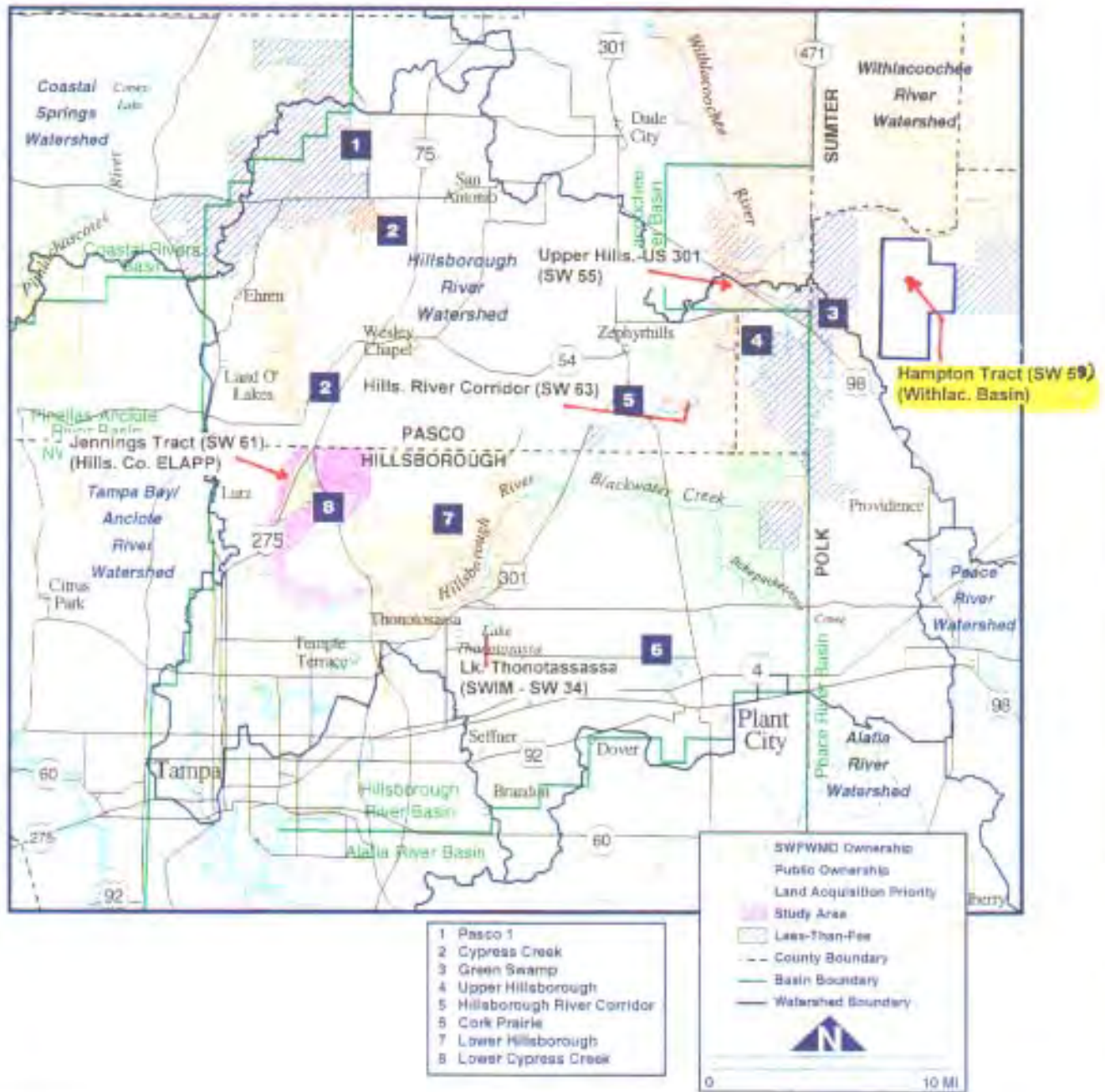
Sect. & Total Mitig. Acres	#630 –Enhanced Mix Wet. Forest	#621–Enhanced Cypress	#641 – Enhanced Marsh	#643 – Enhanced Marsh Slough	#625– Enhanced Hydric Flatwoods
35 - 154.7	153.1	1.6			
2 - 61.1	24.0	4.6	1.5	11.8	19.2
3 - 152.1	139.0	13.1			
11 - 14.6		14.6			
<b>1076 Acres</b>	<b>683.5 Ac.</b>	<b>309.4 Ac.</b>	<b>3.6 Ac.</b>	<b>60.2 Ac.</b>	<b>19.2 Ac.</b>

In order to provide appropriate habitat mitigation to offset the proposed impacts, the following breakdown of impacts to mitigation are provided based on the various sections at the Hampton Tract. With these projects currently going through the permitting phase, the impact acreage will be adjusted and final acreages placed within the 2003 DOT plan. Of the two Interstate 4 projects with wetland impacts being mitigated at the Hampton Tract, the eastern portion (Segments 6-9) currently proposes all non-forested wetland impacts. Since Section 34 at the Hampton Tract has the majority of non-forested wetland enhancement, these are designated as mitigation for the wetland impacts associated with the eastern segment.

<b>FM 2012092 – Interstate 4, US 98 to CR 557</b> <b>Wetland Impacts, (Western Project – Segments 3-5)</b> 1.19 acres – Streams & Waterway (510) 0.02 acre – Bay Swamp (611) 0.12 acre – Mixed Hardwood Forest (617) 2.75 acres – Willow & Elderberry (618) 3.90 acres – Cypress (621) 8.63 acres – Mixed Wetland Forest (630) 0.98 acres – Freshwater Marsh (640 & 641) 1.63 acres – Wet Prairie (643) <b>18.95 Acres – TOTAL</b>	<b>Mitigation – Sect. 22, 23, 26, 25, 36, 27, 35, 2, 3, 11 (all but Section 34)</b>  Mixed Forested Enhancement – 606.7 acres Cypress Enhancement – 296.2 acres Marsh Enhancement – 2.2 acres Marsh Slough – 11.8 Hydric Flatwoods – 19.2 acres <b>TOTAL – 936.1 acres (ratio 49-to-1)</b>
<b>FM 2012141 – Interstate 4, CR 557 to Osceola Co.</b> <b>Wetland Impacts, (Eastern Project – Segments 6-9)</b> 0.03 acre – Mixed Wetland Forest (630) 3.73 acres – Freshwater Marsh (640 & 641) 0.12 acre – Wet Prairie (643) <b>3.88 Acres – TOTAL</b>	<b>Mitigation – Section 34</b>  Mixed Forested Enhancement – 76.8 acres Cypress Enhancement – 13.2 acres Marsh Enhancement – 1.4 acres Marsh Slough Enhancement – 48.4 acres <b>TOTAL – 139.8 acres (ratio 36-to-1)</b>

There will be temporary impacts associated with backfilling ditches and installing ditch blocks within upland and wetland-cut ditches. For any wetland-cut ditch impacts, mitigation for these impacts will be conducted by restoring the natural wetland grades within the ditches as well as the portions of backfilled spoil material disposed within the wetlands.

The combination of the wetland enhancement, along with the proposed upland habitat enhancement and management activities (not conducted for mitigation credit) will restore the major historic habitat features of the Hampton Tract. This will allow the wildlife species within the adjacent Green Swamp public property to gradually return and provide cumulative habitat and wildlife value and function to this large and important site within a Green Swamp tract that is designated as an “Area of Critical State Concern” (Figure D).

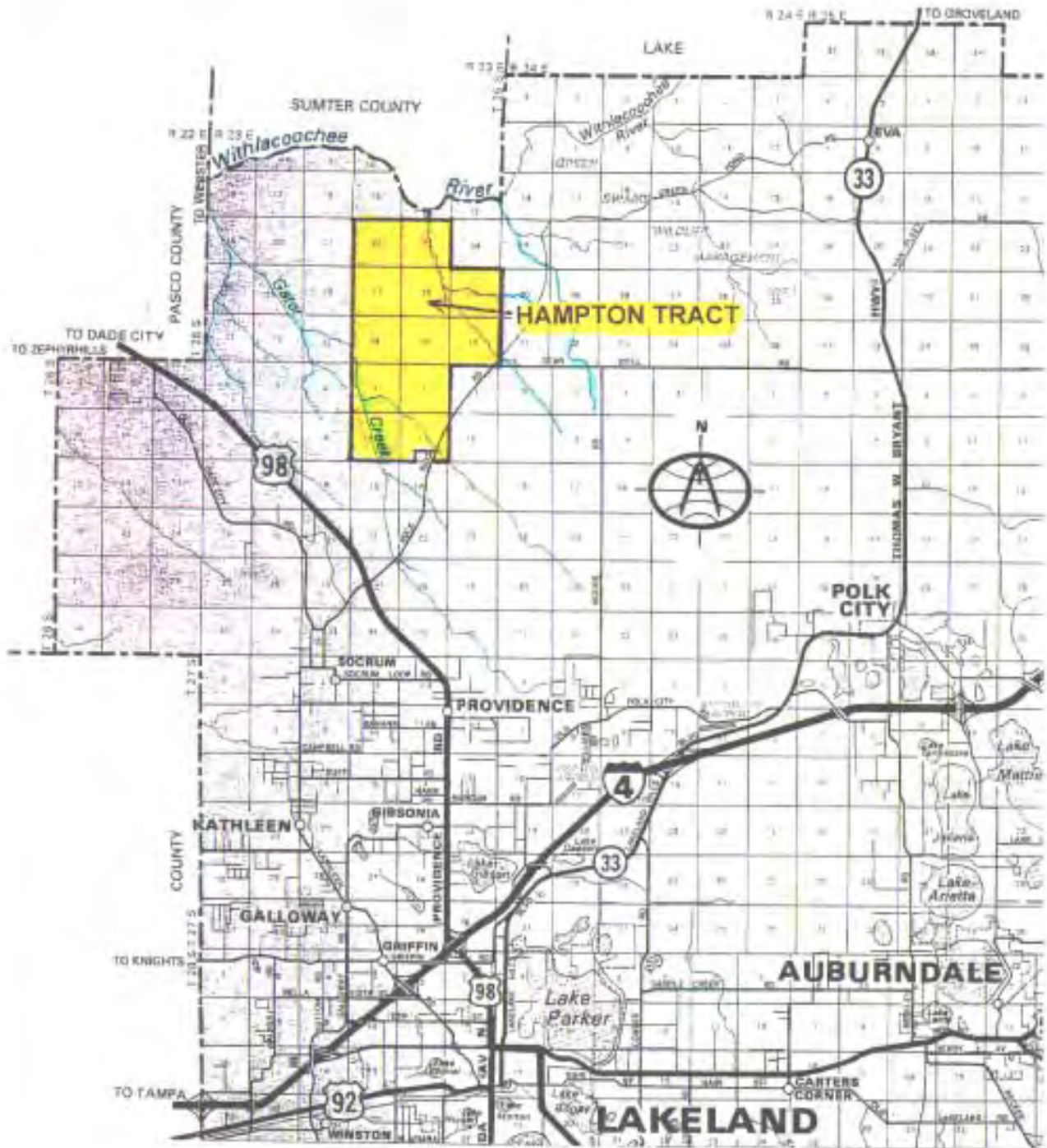


FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE A  
WATERSHED BASIN MAP





NORTH ^ SCALE 0.3 in. = 1 mile

FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE B  
LOCATION MAP

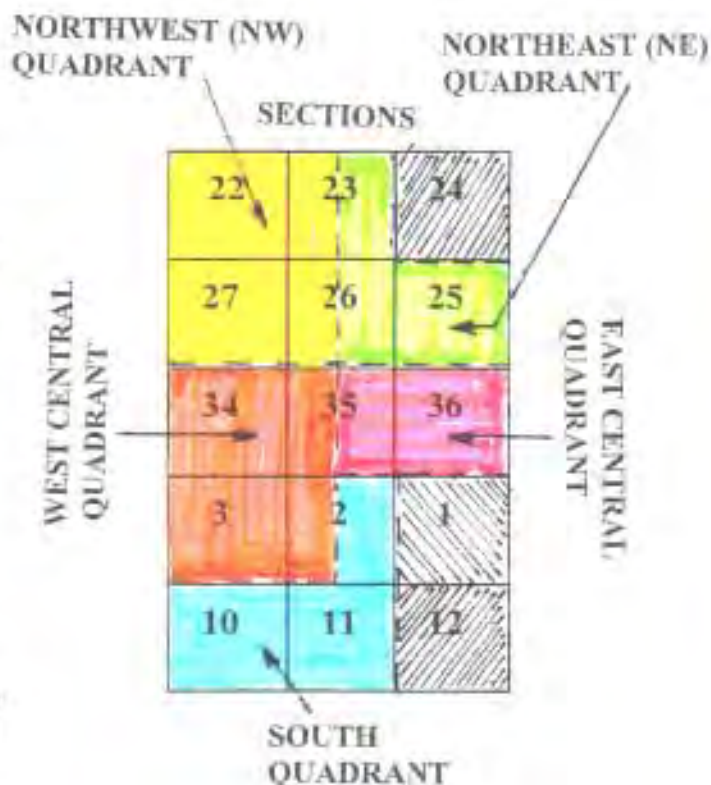
# HAMPTON TRACT SOIL LEGEND

- 5 - Eau Gallie fine sand
- 6\* - Eaton mucky fine sand, dep.
- 7 - Pomona fine sand
- 9 - Lynne sand
- 10\* - Malabar fine sand
- 13\* - Samsula muck
- 17 - Smyrna and Myakka fine sands
- 19\* - Floridana mucky fine sand, dep.
- 23 - Ona fine sand
- 25\* - Placid and Myakka fine sands, dep.
- 32\* - Kaliga muck
- 33\* - Holopaw fine sand, depressional
- 35\* - Hontoon muck
- 36\* - Basinger mucky fine sand, dep.
- 40 - Wauchula fine sand
- 42 - Felda fine sand
- 48\* - Chobee fine sand, depressional
- 58 - Udorthents, excavated
- 62 - Wabasso fine sand
- 67 - Bradenton fine sand
- 75\* - Valkaria sand
- 78 - Paisley fine sand, stony subsurface
- 82\* - Felda fine sand, frequently flooded
- 86\* - Felda fine sand, depressional
- 87\* - Basinger fine sand

\* Hydric Soils

NORTH ^

Scale - 3.75 inches = 1 mile



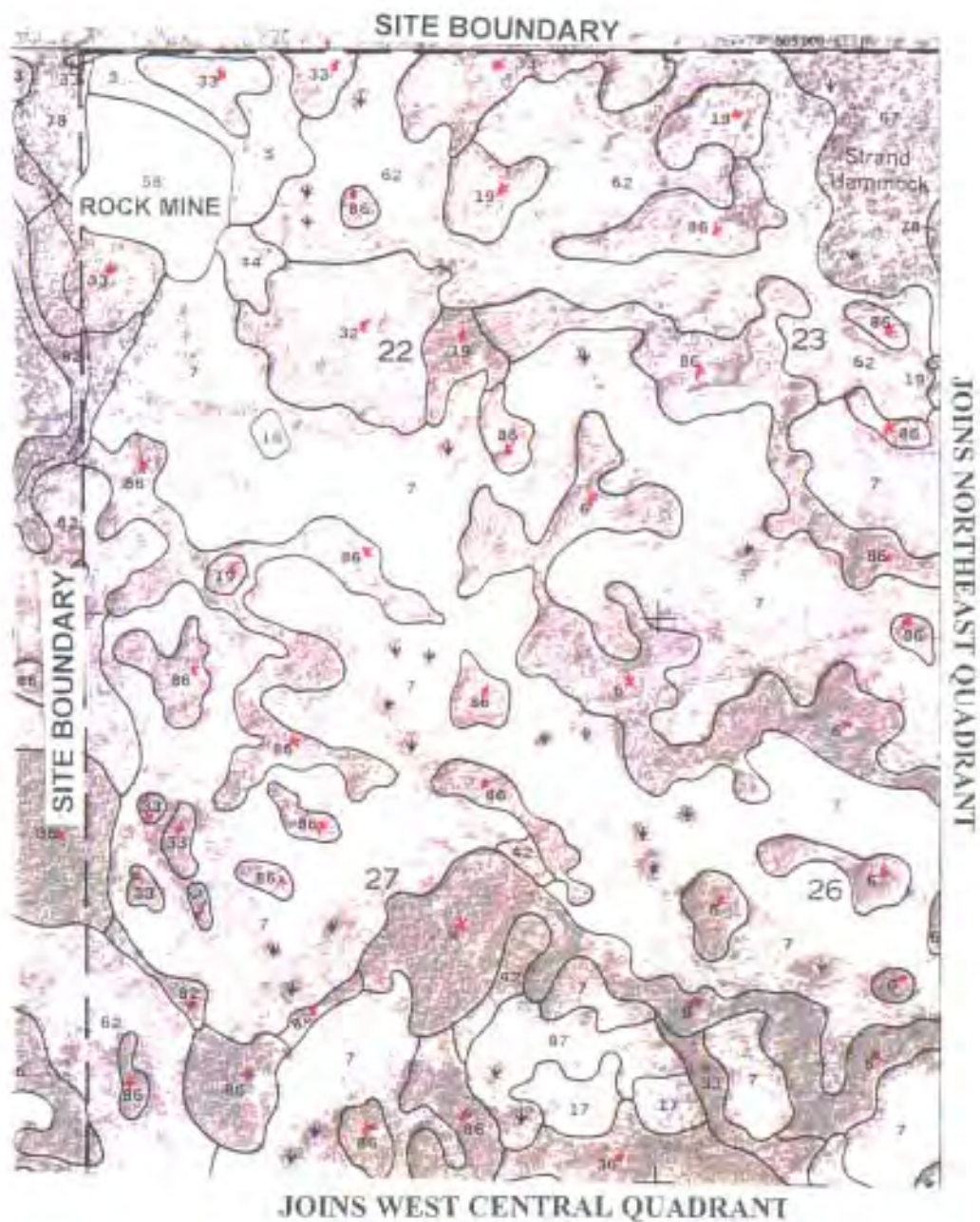
POLK SOIL SURVEY AERIAL DATE - 1974

FDOT - District 1  
MITIGATION SITE  
(WITH LACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C  
POLK CO. SOIL SURVEY  
(LEGEND & QUADRANT MAP)



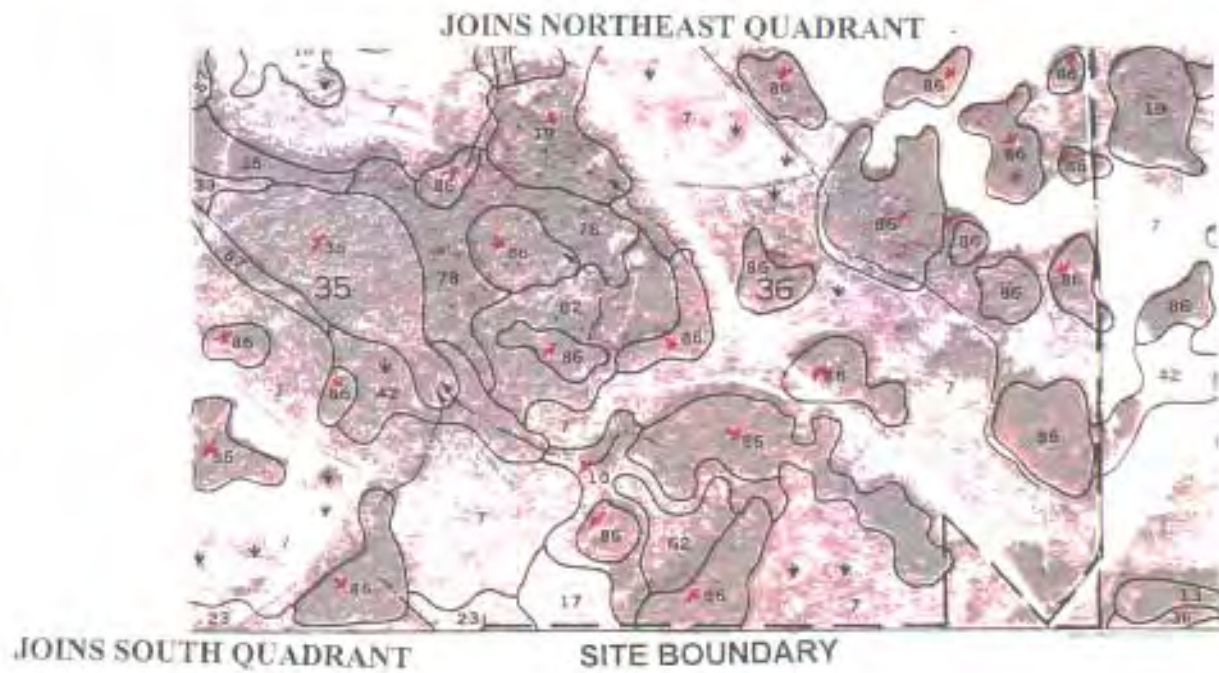


**FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)**

**HAMPTON TRACT (SW 59)**

**FIGURE C  
POLK CO. SOIL SURVEY  
(NW QUADRANT)**





FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C  
POLK CO. SOIL SURVEY  
(**EAST CENTRAL QUADRANT**)



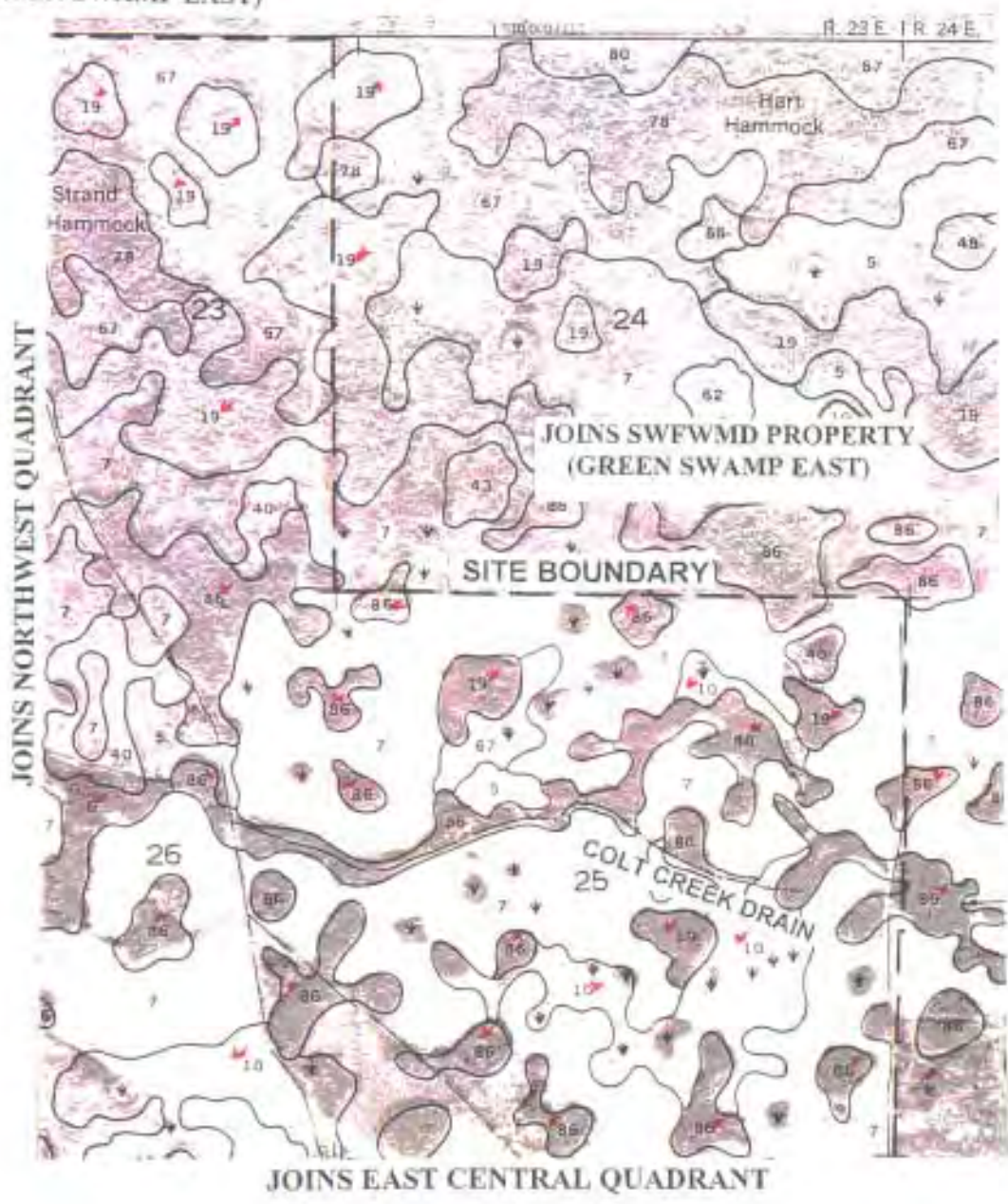
FDOT - District 1  
MITIGATION SITE  
(WITH LACOOCHIE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C  
POLK CO. SOIL SURVEY  
(WEST CENTRAL QUADRANT)



JOINS SWFWMD PROPERTY  
(GREEN SWAMP EAST)



NORTH ^ SCALE 3.25 in. = 1 mile

FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

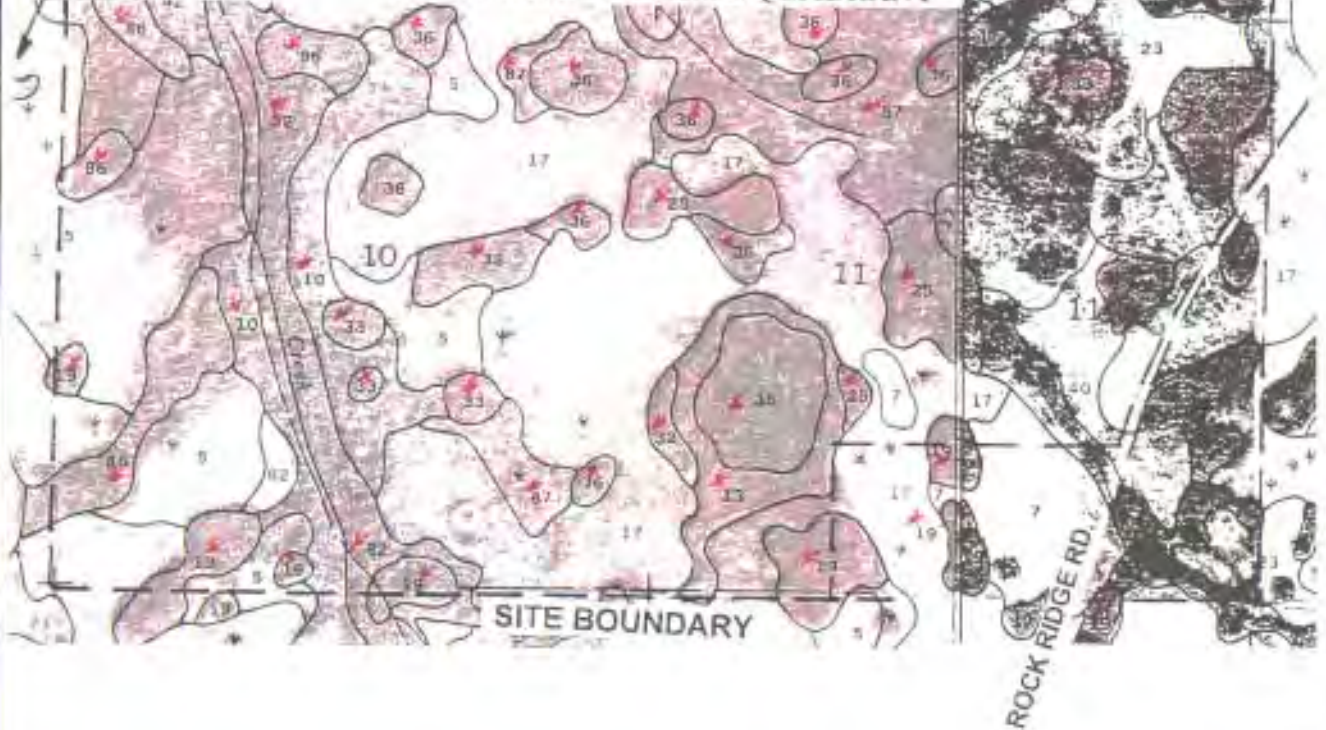
FIGURE C  
POLK CO. SOIL SURVEY  
(NE QUADRANT)



# JOINS EAST CENTRAL QUADRANT

JOINS SWFWMD PROPERTY  
(GREEN SWAMP EAST)

## JOINS WEST CENTRAL QUADRANT



NORTH ^ SCALE 3.25 in. = 1 mile

FDOT - District 1  
MITIGATION SITE  
(WITHLACOOCHEE BASIN)

HAMPTON TRACT (SW 59)

FIGURE C  
POLK CO. SOIL SURVEY  
(SOUTH QUADRANT)





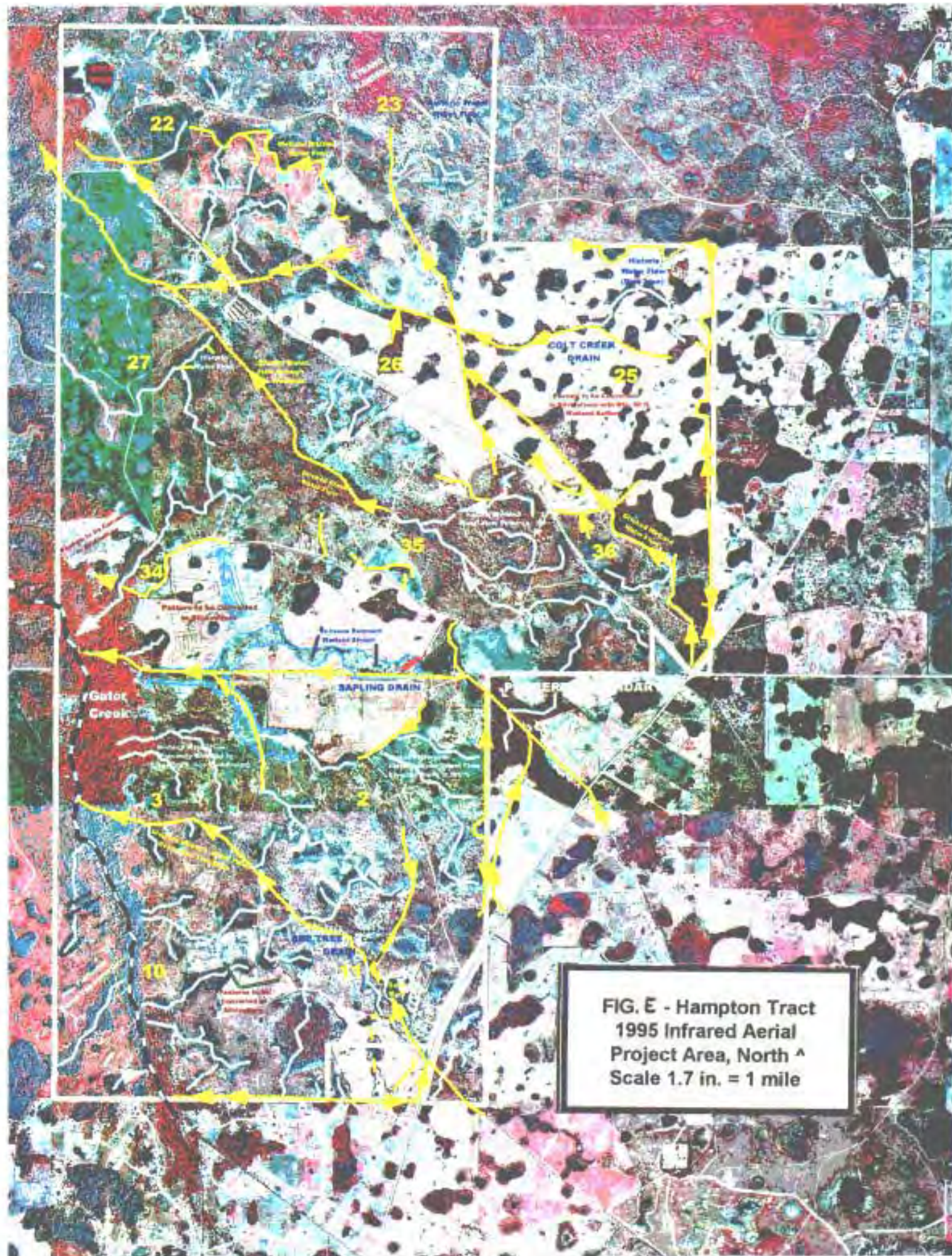




FIG. E - Hampton-Northwest  
Drainage Patterns (Blue)  
Major Ditches (Yellow)  
< North, Scale 4.1 in. = 1 mile

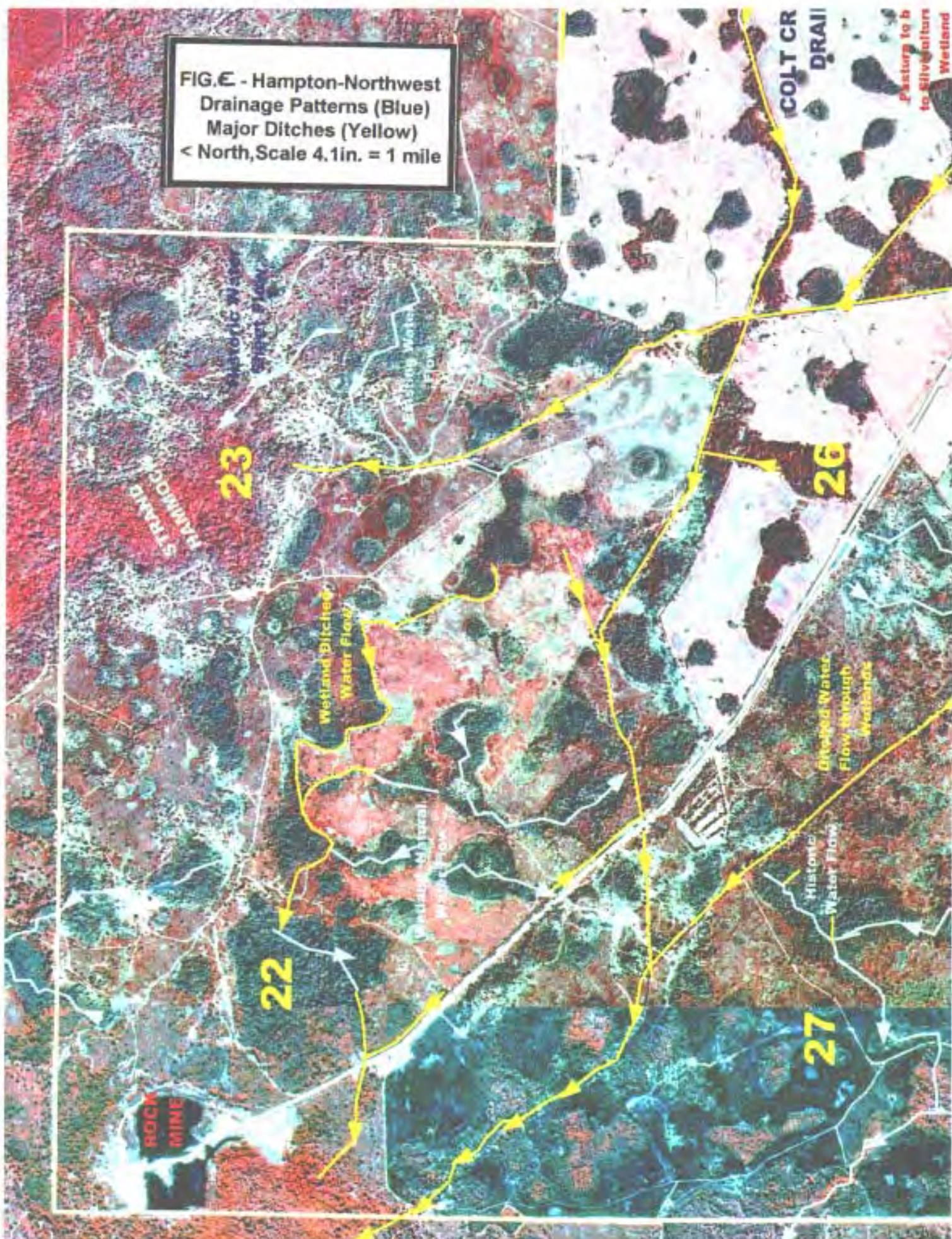
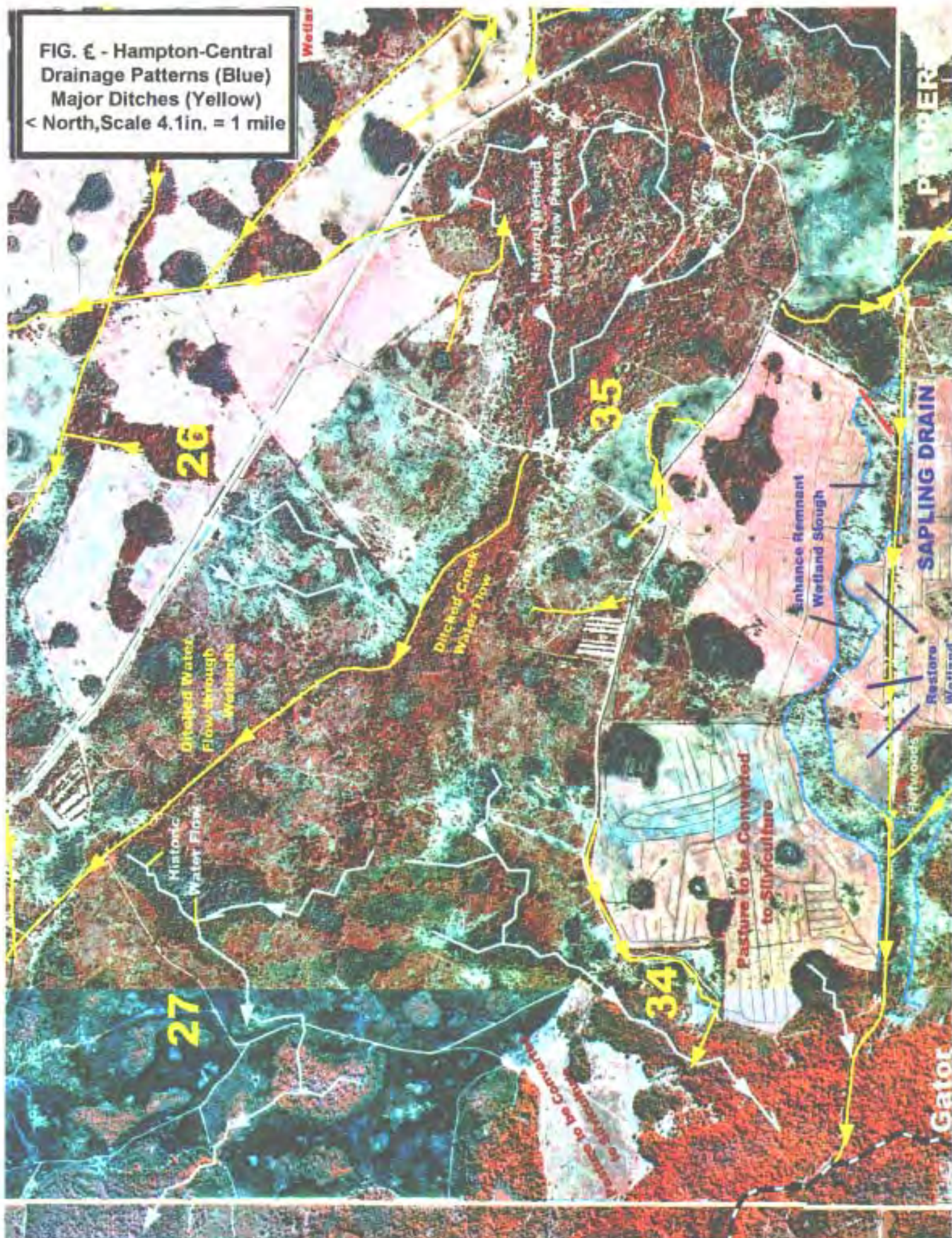




FIG. 6 - Hampton-Central  
Drainage Patterns (Blue)  
Major Ditches (Yellow)  
< North, Scale 4.1 in. = 1 mile





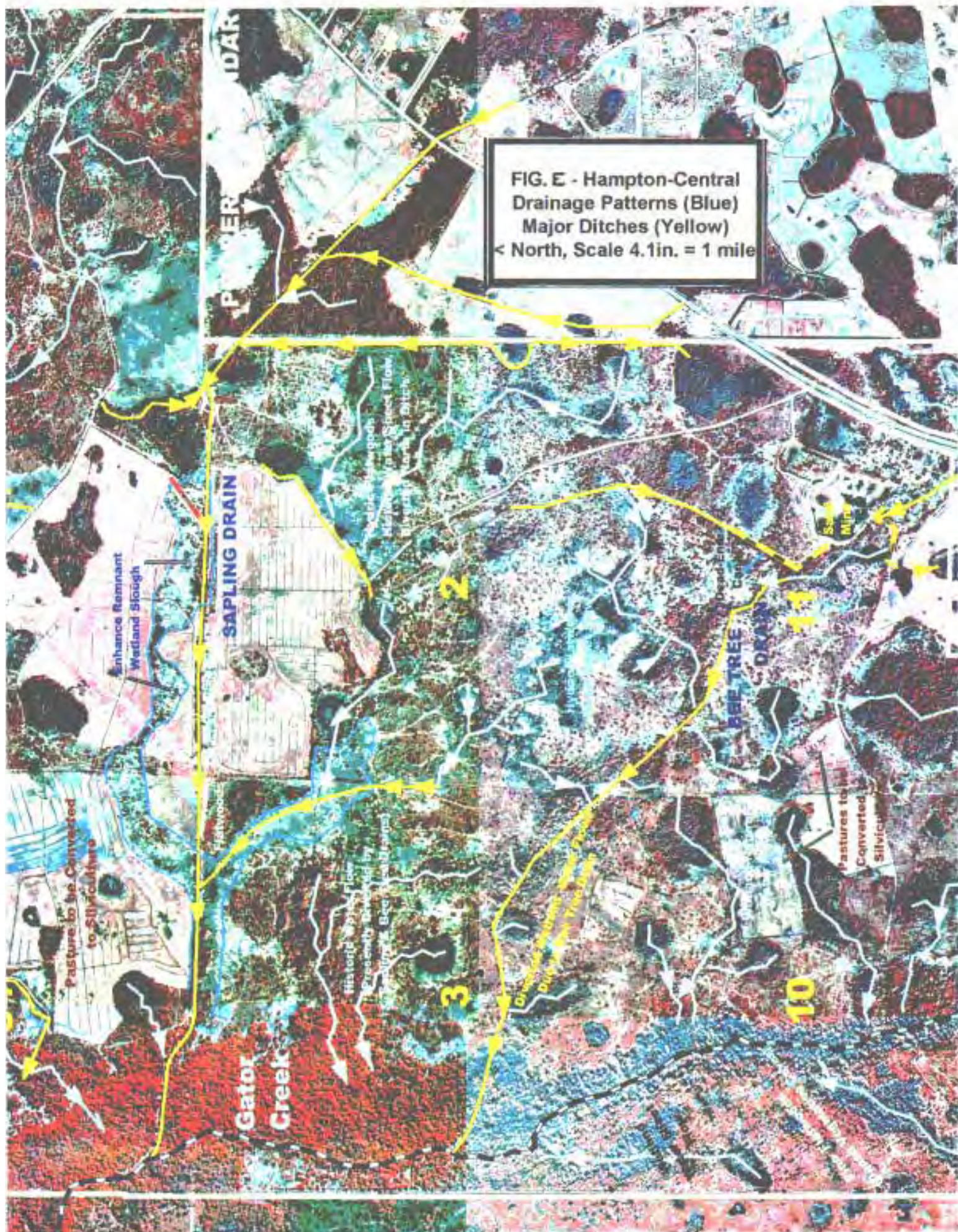


FIG. E - Hampton-Central  
Drainage Patterns (Blue)  
Major Ditches (Yellow)  
North, Scale 4.1in. = 1 mile



FIG. E - Hampton - South  
Drainage Patterns (Blue)  
Major Ditches (Yellow)  
< North, Scale 4.1in. = 1 mile

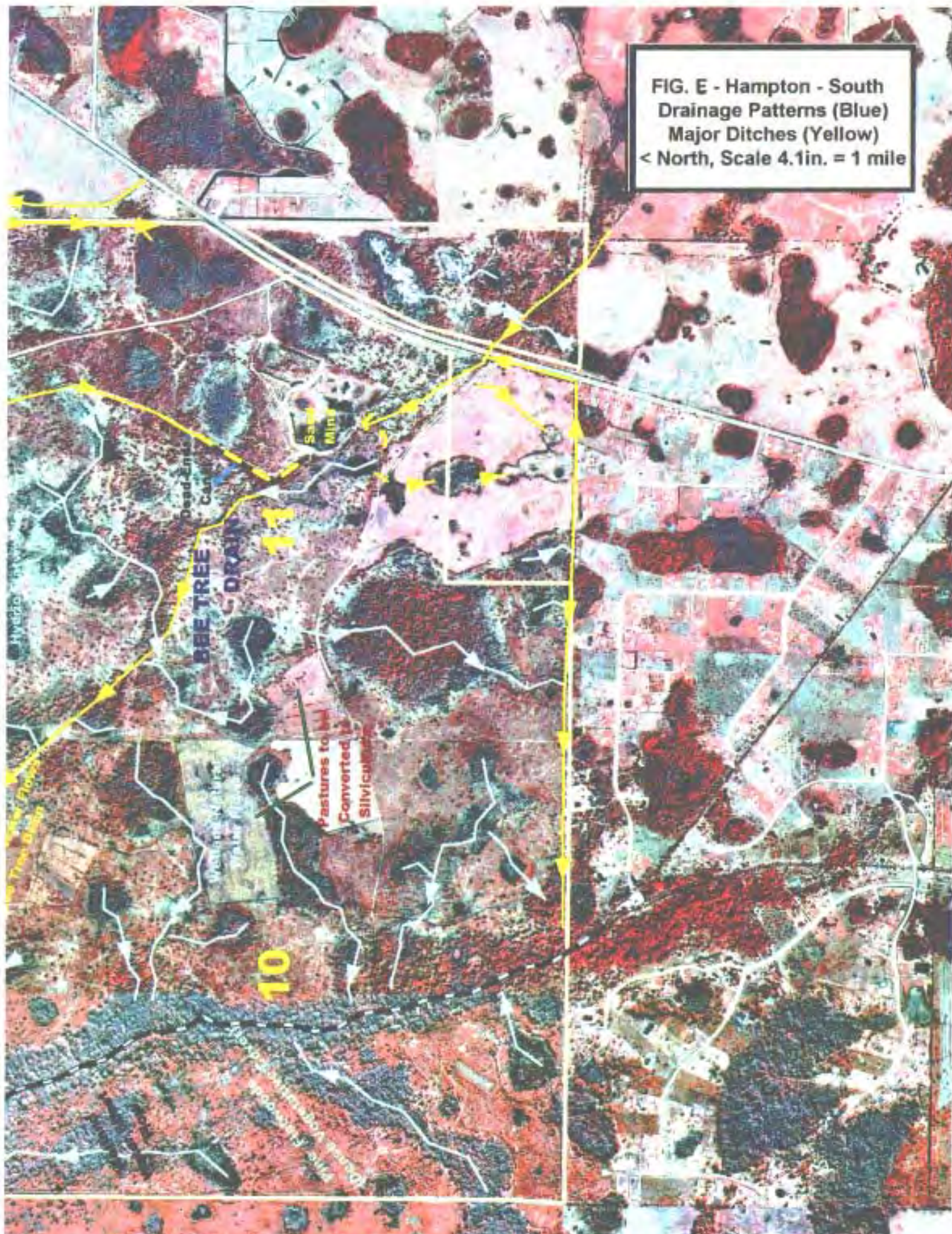






FIG. E - Hampton- East  
Drainage Patterns (Blue)  
Major Ditches (Yellow)  
Scale 3.3 in. = 1 mile, North ^



WITH LACOOCHIEE  
RIVER

FIG. F - Hampton Tract  
Wetland Boundaries  
Ditch Block Locations  
Scale 2.0 in. = 1 mile, North ^

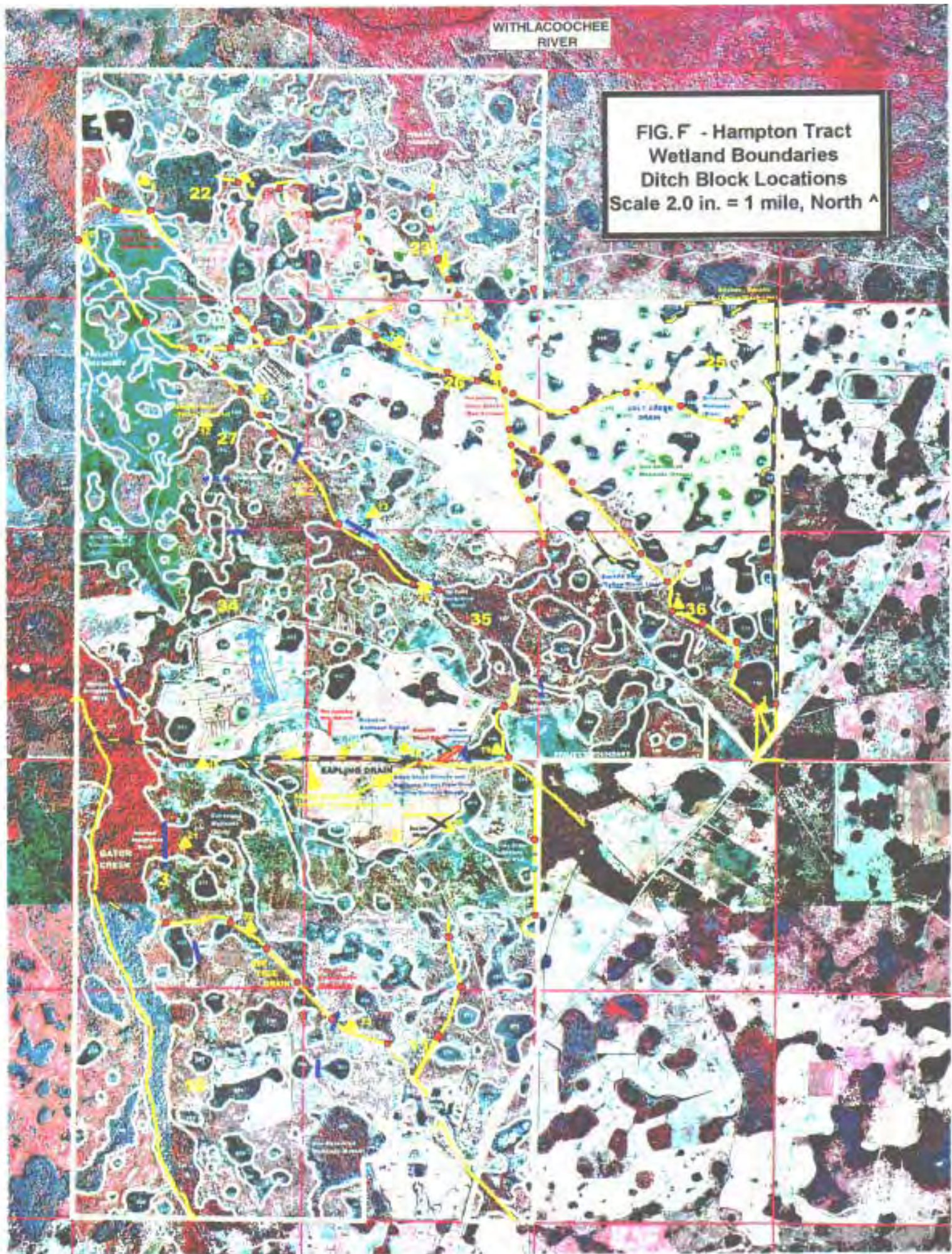
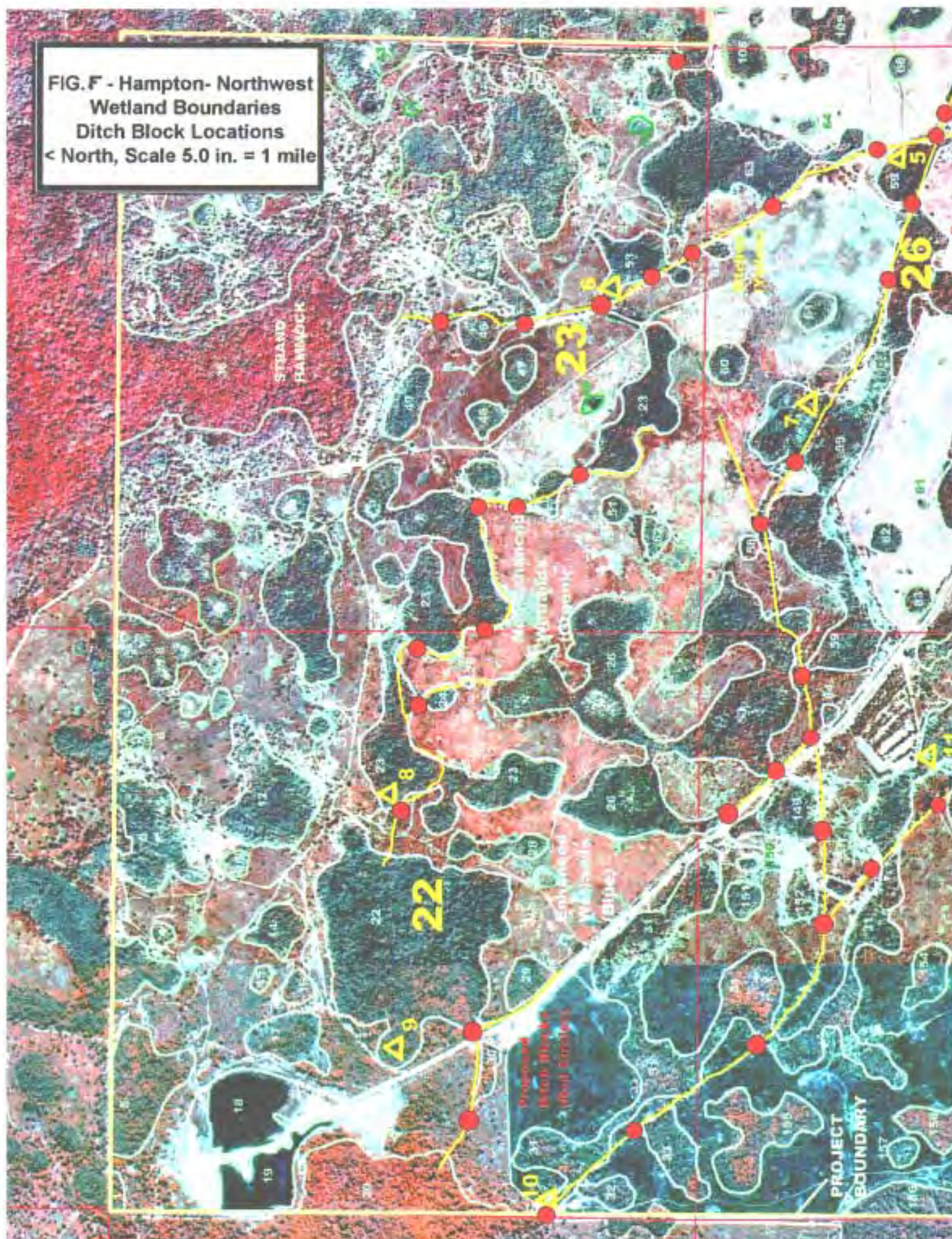
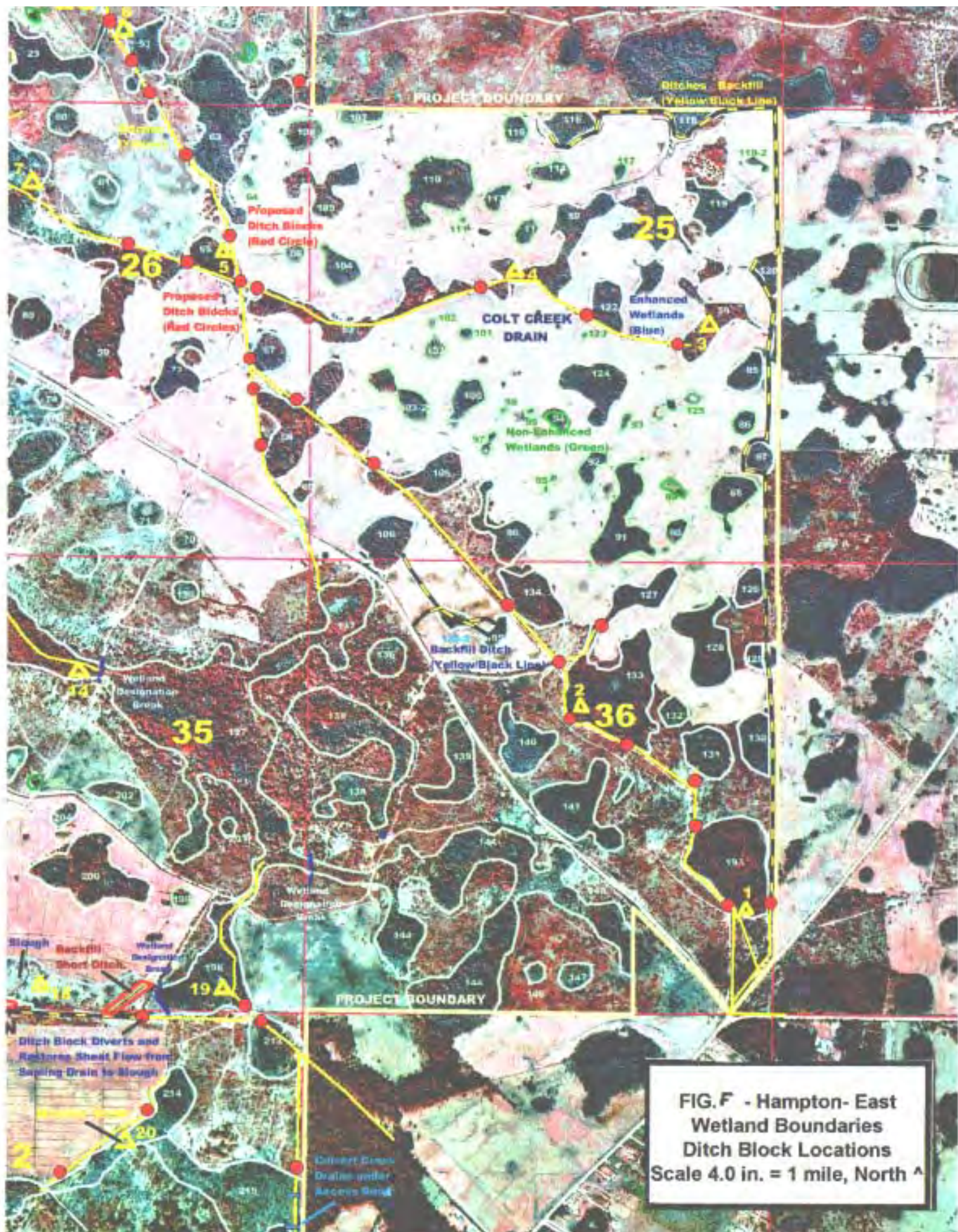




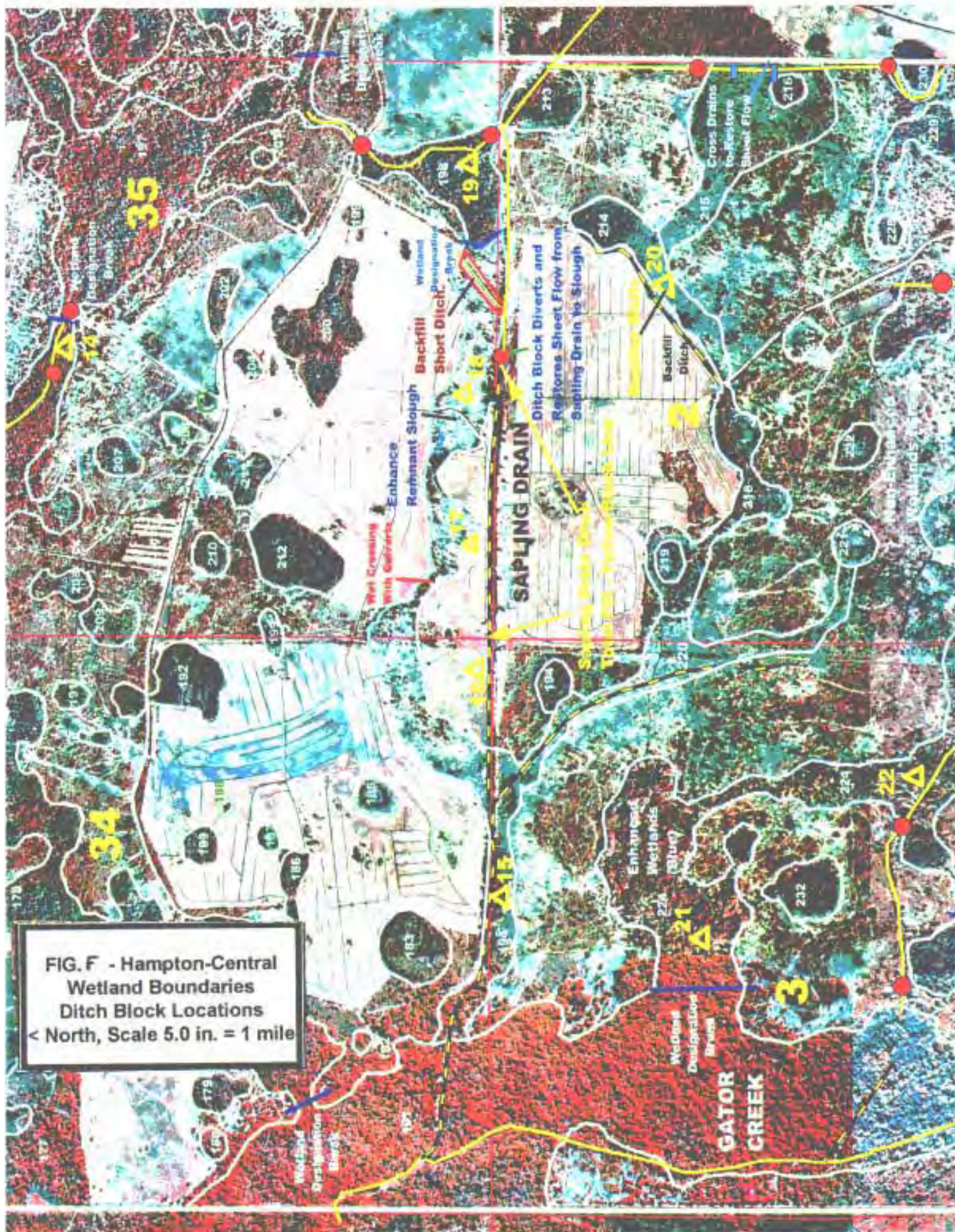
FIG. F - Hampton- Northwest  
Wetland Boundaries  
Ditch Block Locations  
< North, Scale 5.0 in. = 1 mile



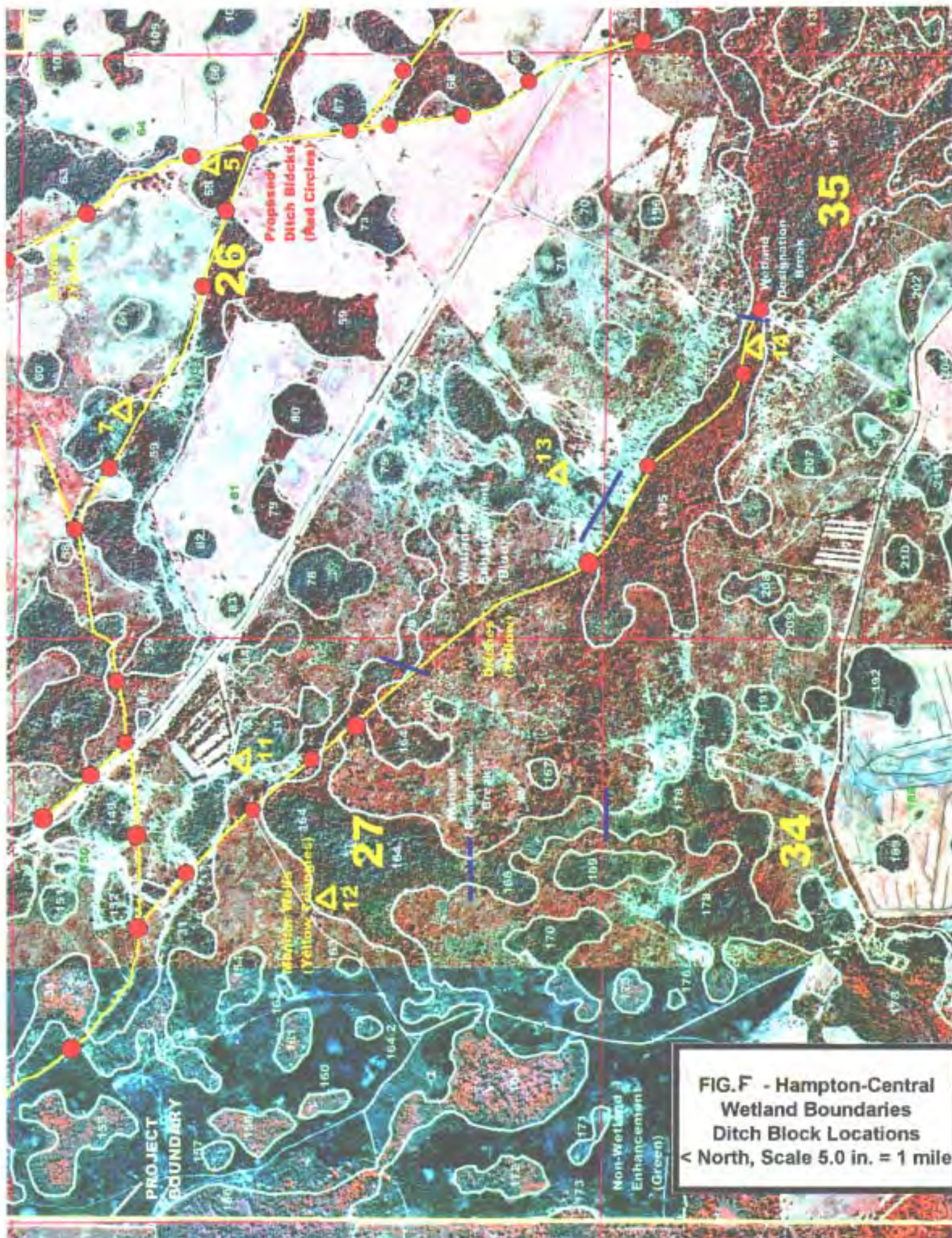




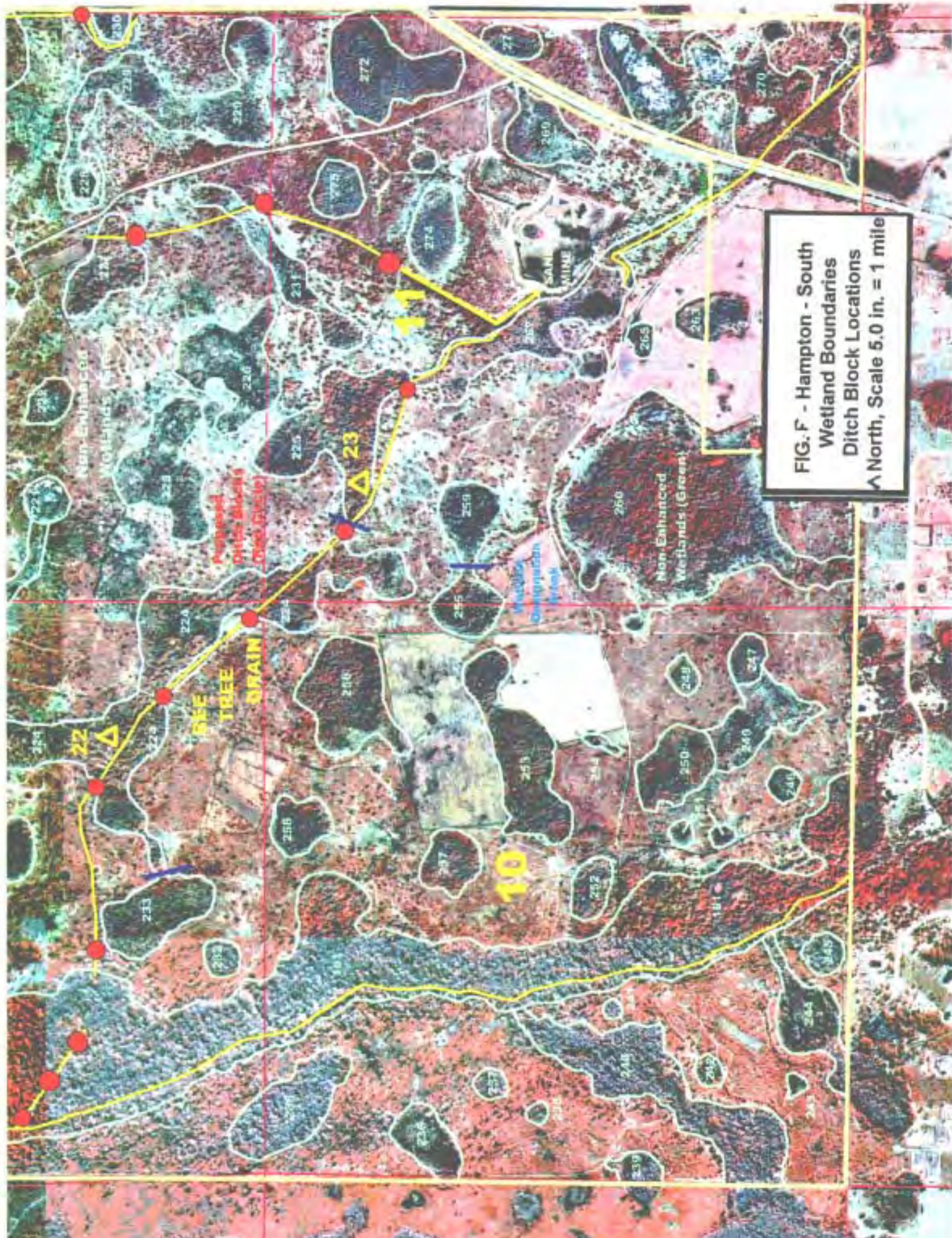
















*Colt Creek Drain – This ditch is located through and in many cases, around the perimeter of the cypress systems in the northeastern pastures. Total backfilling for the pasture ditches and ditchblocks at the cypress outfalls will enhance wetland hydrology. The wetland buffers will be restored with native seed source material from a WMD donor site.*



*Colt Creek Drain – Monitor Site 3 is representative of many of the cypress systems with diverted water flow. Pines & laurel oaks have invaded the cypress strands due to minimal durations of surface water, and ground cover vegetation is displaced by pine thatch.*

**FDOT – District 1  
MITIGATION SITE  
(Withlacoochee River Basin)**

**HAMPTON TRACT  
(SW 59)**





*Colt Creek Drain – Monitor Station 2, another dewatered cypress dome exhibits facultative species such as laurel oak, wax myrtle, and the opportunistic grapevine invading and displacing the cypress within the interior of the system. Biological indicators exhibit little to no surface water hydrology for many years.*



*Bee Tree Drain – Adjacent to Monitor Site 22, the ditch drain (foreground) dewateres the adjacent forested wetland, allowing pines and laurel oaks to invade the system. The cypress lichen elevations indicate historic seasonal high water elevations but there are no indications that the water has overflowed the banks in many years. A ditch block along the downstream wetland boundary will restore the flow back through this wetland.*

**FDOT – District 1  
MITIGATION SITE  
(Withlacoochee River Basin)**

**HAMPTON TRACT  
(SW 59)**





*Sapling Drain – View of base flow conditions of the ditch that diverts contributing flow direct to Gator Creek, instead of through the marsh & cypress slough north of the drain (cypress segment in far background).*

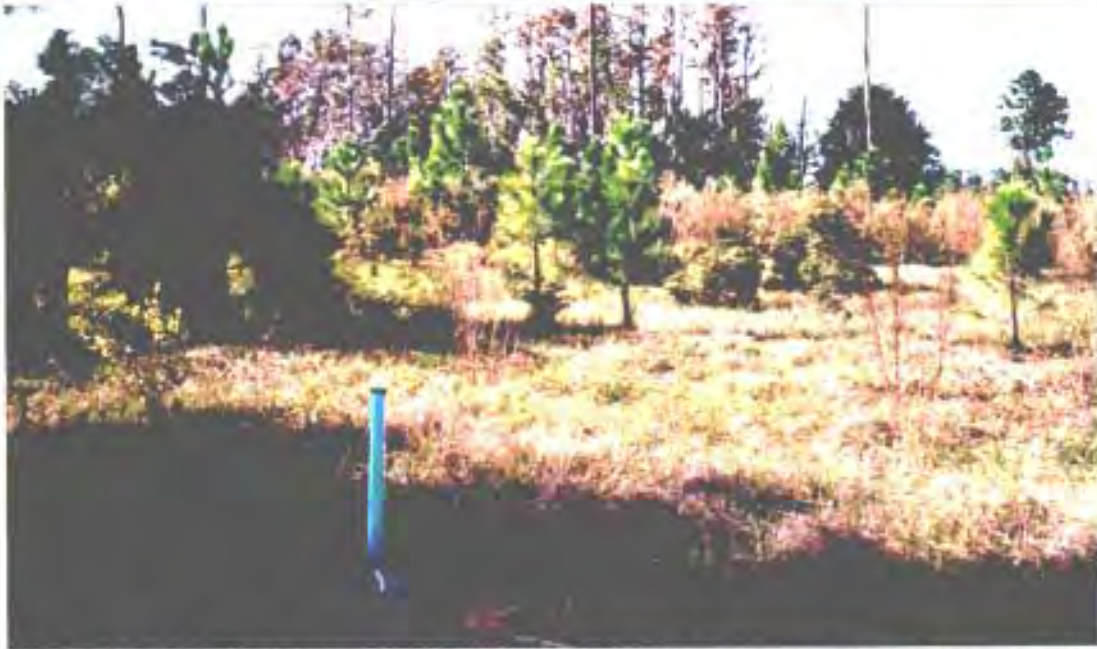


*Sapling Drain – View from the spoil ridge of the Sapling Drain ditch (left) as it ties into the Gator Creek ditch (background). Spoil material will be backfilled into the drain to restore the wetland floodplain hydrology, and trees will be planted to aid in restoring the earthwork areas.*

**FDOT – District 1  
MITIGATION SITE  
(Withlacoochee River Basin)**

**HAMPTON TRACT  
(SW 59)**





*Sapling Drain – Monitor Station 18, the remnant marsh & cypress slough (cypress area in background) have minimal wetland characteristics. Bahia, fennel, and pines dominate. Sapling Drain will be backfilled, restoring the sheet flow hydrology through this area, along with supplemental planting of hydrophytic herbs.*



*Sapling Drain – Monitor Station 15, the drain is located adjacent to this cypress strand that extends from the adjacent Gator Creek floodplain. No surface water hydroperiods occur in this system, allowing the cypress to be displaced with laurel oak. Filling of Sapling Drain will restore sheet flow hydrology through this habitat.*

**FDOT – District 1  
MITIGATION SITE  
(Withlacoochee River Basin)**

**HAMPTON TRACT  
(SW 59)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Serenova Extension**

Project Number: **SW 60**

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211, ext. 4488

County(ies): Pasco

Location : Sec. 10, 11 T 25S, R17E

### IMPACT INFORMATION

DOT FM: 2589581, Suncoast Parkway/Ridge Rd. Interchange

ERP #: \_\_\_\_\_

COE #: \_\_\_\_\_

Drainage Basin(s): Upper Coastal Basin Water Body(s): None SWIM water body? N

Impact Acres/Types: FM 2589581- 0.15 ac. - 530 (FlucCs)

8.19 ac. - 621 (FlucCs)

3.48 ac. - 641 (FlucCs)

**TOTAL 11.82 ac.**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation \_\_\_\_ Restoration X Enhancement X Preservation Mitigation Area: **215 ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Upper Coastal Basin Water Body(s): None SWIM water body? N

#### Project Description

**A. Overall project goal:** Acquire, preserve, and manage a 215-acre tract of predominantly high quality upland and wetland habitat located adjacent to an existing protected habitat area (Serenova & Starkey Wilderness Area - Total 15,000 acres, Fig.

A). The property is currently owned by the Florida Turnpike, and is proposed for WMD acquisition to expand existing public land habitat and mitigate the proposed wetland impacts associated with the above-referenced Turnpike project.

**B. Brief description of current condition:** The tract has upland habitat comprised of live oak hammocks (38 acres) and pine flatwoods (98 acres). The wetlands are made up of cypress domes (15 acres) with some perimeter marsh habitat (2 acres), two borrow pits (7 acres), and mixed forested wetland systems (44 acres) (Figures B & C). Descriptions of habitat vegetation are described under Attachment A.

**C. Brief description of proposed work:** The SWFWMD Land Management Division has implemented best management practices for maintenance and enhancement of the adjacent Serenova Tract. These same management activities (particularly prescribed burning in the uplands) will be implemented at this proposed extension of Serenova. The 136 acres of upland habitat referenced above does not include an additional 11 acres of predominantly flatwoods that will be graded to construct necessary floodplain compensation areas in association with the widening of the adjacent segment of SR 52. These floodplain compensation areas will be graded and planted to create marsh habitat conditions that will be utilized as compensation for the proposed wetland impacts. Additional information is provided under Attachment B.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the proposed wetland impacts (8.19 of the total 11.82 acres) will be to cypress wetlands, of which there are 59 acres of high quality forested wetlands that will be preserved at the proposed mitigation site. The remaining wetland impacts include borrow pits and marsh (3.63 acres), which can be compensated with the creation of marsh habitat within the floodplain compensation areas (11 acres) and preservation of existing borrow pits (7 acres). In addition to these mitigation components, the plan includes the preservation and enhancement of oak hammocks (38 acres) and pine flatwoods (98 acres) that buffer the existing and constructed wetlands. Upland enhancement will be through implementing a prescribed fire management plan. The project will result in 78 acres of high quality wetland preservation, 87 acres of upland habitat preservation and

enhancement, creation of 11 acres of marsh habitat, and 7 acres of borrow pit preservation. The overall plan will result in 215 acres of mitigation to compensate for 11.82 acres of proposed wetland impacts (18:1 ratio). Additional information is provided in Attachment C.

E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: A mitigation bank is not existing or currently proposed within the Upper Coastal Basin.

F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : There are no current or proposed SWIM projects within the Upper Coastal Basin.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Marsh grading to be conducted by FDOT selected contractor for SR 52 widening, planting to be conducted by certified Nursery Contractor designated by the WMD.

Contact Name: Mark Brown, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4488

Entity responsible for monitoring and maintenance: Maintenance & management of the tract will be conducted by the SWFWMD Land Management Dept. as an extension of the same activities within the adjacent Serenova Tract.

Proposed timeframe for implementation: Commence: Acquisition when Turnpike proposes interchange project - 2004.  
Complete: Perpetual maintenance & management by the SWFWMD Land Management Division as an extension of the existing Serenova Tract.

Project cost: \$1,017,000 (Total will be determined by the appraised value & final acreage. Construction, planting, short-term maintenance & monitoring to be reimbursed by FDOT funds. Perpetual management operations will be funded by the SWFWMD.

#### Attachments

- ☒ 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site & Proposed Work, Figure C- Infra-red aerial, Site Photographs.
- ☒ 2. Recent aerial photograph with date and scale. Figure C - Infra-red aerial (1995).
- ☒ 3. Location map and design drawings of existing and proposed conditions. Figure A- Location map. A grading and marsh planting plan of the five floodplain compensation ponds can be obtained from Mark Brown (WMD).
- ☒ 4. Detailed schedule for work implementation, including any and all phases. Acquisition pending final design and permitting of the Suncoast - Ridge Road interchange, which in turn is dependent on the permitting of the Ridge Road extension. Final decision of the Ridge Road permitting is expected in 2004. The proposed construction of the floodplain compensation areas will commence late, 2006, in association with the widening of the adjacent SR 52. Once acquired, perpetual maintenance and management of the Serenova Extension parcel will be conducted by the WMD.
- ☒ 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B. Maintenance & Monitoring Plan, Success Criteria.
- ☒ 6. Long term maintenance plan. Refer to Attachment B.
- ☒ 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Attachment C - DOT Mitigation.

#### ATTACHMENT A - Existing Site & Proposed Work



The Serenova Extension parcel includes a variety of high quality native habitats. There are two large live oak hammocks (northwest and southeast) and several pocket hammocks of less than 0.5 acre each (Figure C - Infra-red aerial, site photos). Canopy cover is generally 50-70%, dominated by sand live oak (*Quercus geminata*), live oak (*Quercus virginiana*), and scattered turkey oak (*Quercus laevis*). Ground cover is dominated by scattered saw palmetto (*Serenoa repens*), wiregrass (*Aristida stricta*), runner oak (*Quercus pumila*), live oak saplings, rusty lyonia (*Lyonia ferruginea*), and various ground mosses (*Cladonia* spp.). Several gopher tortoise burrows are present within the oak hammocks and adjacent pine flatwoods. The pine flatwoods have scattered longleaf pine (*Pinus palustris*) over dense cover of saw palmetto, scattered gallberry (*Ilex glabra*) and rusty lyonia, with a ground cover dominated by wiregrass.

The eastern mixed forested wetland (Figure C) is primarily a bay/maple system with a cypress core. Slight hydroperiod changes and fire management have allowed slash pine (*Pinus elliotii*) to encroach this system. Dominant canopy cover (avg. 70%) includes slash pine, sweet bay (*Magnolia virginiana*), loblolly bay (*Gordonia lasianthus*), red maple (*Acer rubrum*), laurel oak (*Quercus laurifolia*), and a core of bald cypress (*Taxodium distichum*). Dense subcanopy is dominated by wax myrtle (*Myrica cerifera*), gallberry (*Ilex glabra*), saw palmetto along the wetland perimeter, and saplings of the same canopy species. Understory vegetation is dominated by sawgrass (*Cladium jamaicense*) in the core, with less ground cover and dominated by sedges (*Cyperus* spp.) and blue maidencane (*Amphicarpum muhlenbergianum*) within the outer zones. The cypress systems have a dense canopy (>80%) and includes a dominance of bald cypress with additional cover provided by tupelo in the interior; dahoon holly, red maple, and slash pine along the perimeters. These same species along with wax myrtle provide a moderate shrub canopy (30-50% cover). Sawgrass and various fern species, particularly swamp fern (*Blechnum serrulatum*) and chain fern (*Thelypteris* spp.) provide the dominant cover. The water level indicators for the cypress systems depict an appropriate range of hydroperiods and fluctuations.

The mixed forested wetland across the western portion of the site has a very dense canopy (> 90%) and sub-canopy cover (80-90%), dominant cover is provided by red maple, loblolly bay, sweet bay, swamp bay (*Persea palustris*), dahoon holly (*Ilex cassine*); with tupelo (*Nyssa sylvatica*) and cypress within the interior of this system. A sub-canopy is dominated by bay saplings, but also includes wax myrtle along the perimeter and dense fetterbush (*Lyonia lucida*) within the interior. Various ferns (*Thelypteris* spp., *Woodwardia* spp.) and lizard's-tail (*Saururus cernuus*) dominate the understory. The hydrology of this system is primarily through continuous groundwater seepage. The mixed forested and cypress systems have all the appropriate functions and represent high quality wetland systems. The marsh habitats are perimeters of cypress systems, dominated by blue maidencane, spikerush (*Eleocharis* spp.), and St. John's-wort (*Hypericum* spp.). The borrow pits were dredged from isolated marshes. The ponds have upland shrub islands and when the wetlands have water levels below grade during the dry season, these deep-cut ponds are the primary water source for wildlife.

Since the borrow pits removed the majority of the historic marsh habitat on the site, the floodplain compensation areas (5 sites, total 11 acres) will be graded to create marsh habitat. The ponds are referred to and depicted as "FPC" on Figure C. For all the ponds except for FPC 3, the ponds will be shallow-cut ponds with lowest grade elevations less than 1.5 feet below the seasonal high water table (SHWT) of the adjacent wetland to provide hydraulic connections. These ponds will be planted with species such as soft rush (*Juncus effusus*), pickerelweed (*Pontederia cordata*), and arrowhead (*Sagittaria lancifolia*). The largest pond (FPC 3- 5 acres) will have these same species and a small inner core of permanent pool conditions for wildlife use, allowing for the use of more obligate species such as bulrush (*Scirpus validus*), fireflag (*Thalia geniculata*), and spatterdock (*Nuphar luteum*).

Observed wildlife on the tract include deer, turkey, raccoon, and armadillo. The site's location adjacent to an existing several thousand-acre preserve allows contiguous and extensive wildlife use. The mixture of various wetland and upland habitats within the Serenova Extension site represent the most dominant types of ecological habitats in the vicinity. The tract has been relatively well-managed, which has maintained proper wetland hydrology and periodic prescribed burns have kept palmetto heights and densities at appropriate levels. The WMD-Land Resources Dept. has considered this an important extension to buffer any potential future development activities of the adjacent SR 52 frontage from the primary Serenova parcel.

## **ATTACHMENT B - Maintenance, Monitoring, & Success Plan**

The Serenova Tract and Anclote River Ranch (now part of the Starkey Wilderness Area) was purchased by the Turnpike and deeded to the SWFWMD to mitigate for wetland impacts associated with the Suncoast Parkway, which is a toll road facility located along the eastern boundary of Serenova (Figure A). The Serenova Extension area is presently owned by the Turnpike and will be added to the management plan, which will maintain and enhance the upland habitat with an appropriate prescribed burn plan, and provide security of the property. Maintenance will include prescribed burning (conducted by the SWFWMD Land Management Dept.) of the upland habitat on a 3-5 year cycle, as an extension of the same management & maintenance conducted on the Serenova Tract south of the site. Maintenance of fencing and security patrols will also be conducted to control access and activities.

The floodplain compensation areas will be graded by the roadway contractor who constructs SR 52, commencing in late, 2006. Upon completion of the earthwork, the compensation area planting will be conducted by a nursery contractor on contract to the SWFWMD. Monitoring will be semi-annually conducted for a minimum three years post-planting. The monitoring will be qualitative in order to document the various functions and habitat value of the constructed marshes. Documentation of planted and recruited species coverage, water elevations, wildlife utilization, overall conditions and trends toward achieving success criteria, and summary of any conducted or proposed maintenance activities. Photos of the five wetland creation areas will be conducted at the same station points during each monitoring event. Information from the two semi-annual monitoring events will be compiled and documented in an annual monitoring report that will be presented to the WMD-Regulation Dept. and ACOE Enforcement Branch, for a minimum of three years and until success criteria is met. The first annual report will document the planting schemes for each of the five sites (e.g. design details, herb species, quantities, sizes, etc.), construction activities and site preparation, and the plant installation.

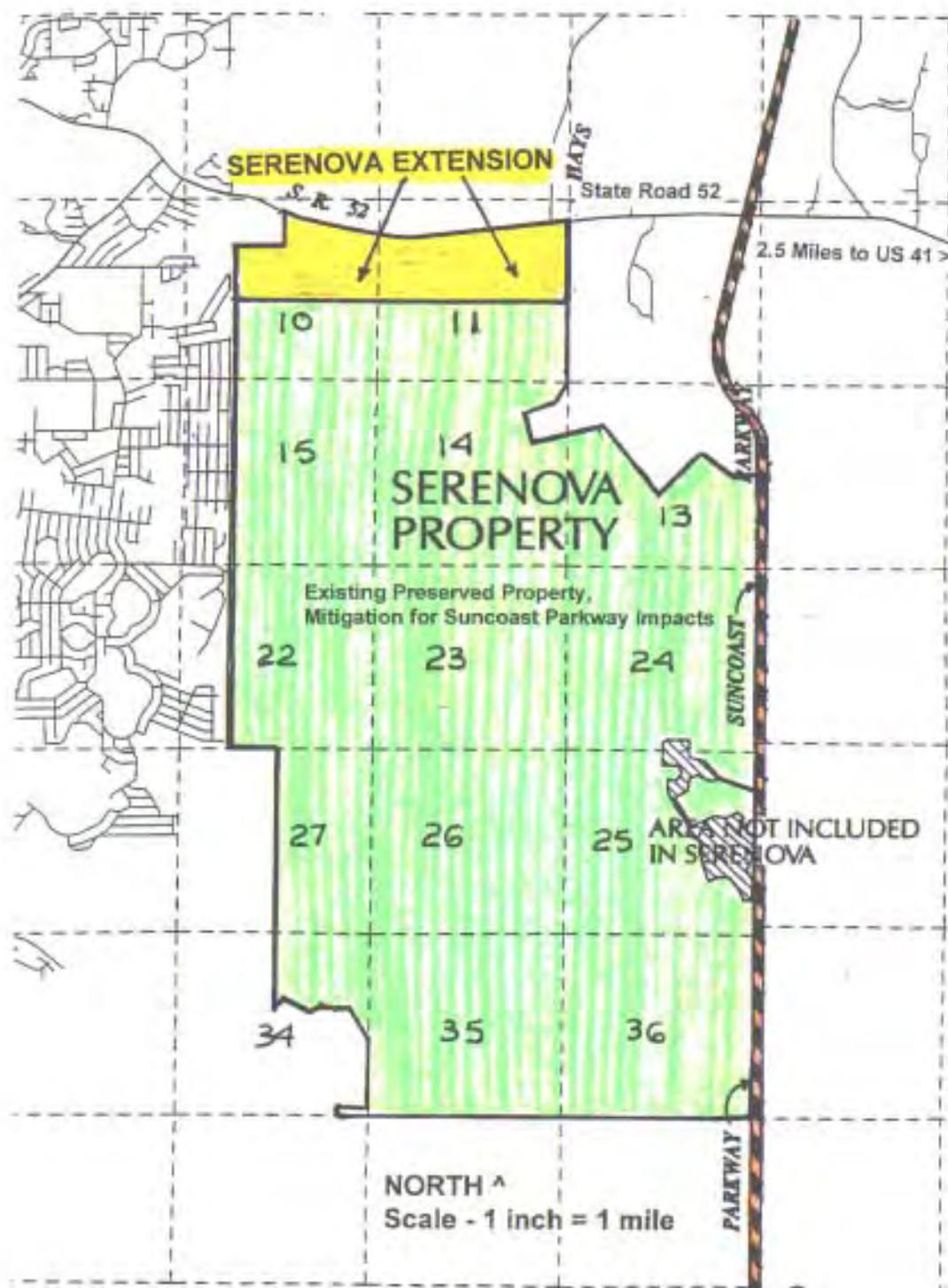
Maintenance of the planted areas will occur on an as-needed basis to control nuisance and/or exotic species that may threaten the establishment of desirable vegetation. Maintenance activities are anticipated to be quarterly the first year and semi-annually or quarterly thereafter, primarily herbicide control of exotic and nuisance vegetation. To minimize the chance of exotic and nuisance species from establishing within the project area, the littoral zones (1 acre each) of the two future DOT stormwater ponds will be planted with arrowhead, fireflag, bulrush, and pickerelweed. Maintenance will be conducted to control exotics within these littoral areas for the first year post-planting.

The mitigation success will be based on implementation and maintaining a prescribed burn management plan for the upland habitat, and establishment and management of appropriate marsh habitat within the constructed wetlands. Success criteria for the constructed wetlands include a minimum 85% coverage of desirable planted and naturally recruited vegetation, and less than 10% coverage of exotic and nuisance species.

## **ATTACHMENT C - DOT Mitigation**

This proposed mitigation project is designated to compensate for wetland impacts associated with the proposed interchange of the existing Suncoast Parkway and the Pasco County proposed Ridge Road extension. The Suncoast Parkway was constructed with a bridge overpass to accommodate the proposed Ridge Road so the proposed wetland impacts are associated with access ramps. If the extension of Ridge Road does not receive all the necessary permits and approvals for construction, there will be no need to construct an interchange. If that situation would occur, Turnpike has agreed to still consider allowing the Serenova Extension tract be purchased by the WMD which will provide a mitigation option for proposed wetland impacts associated with DOT-District 7 projects. The final decision of Ridge Road construction is anticipated by mid-2004. No matter whether this proposed mitigation will be compensating for wetland impacts associated with the Turnpike interchange or District 7 projects, the existing and proposed conditions represent a high quality, diverse, and inter-related mosaic of various habitats, value and functions.

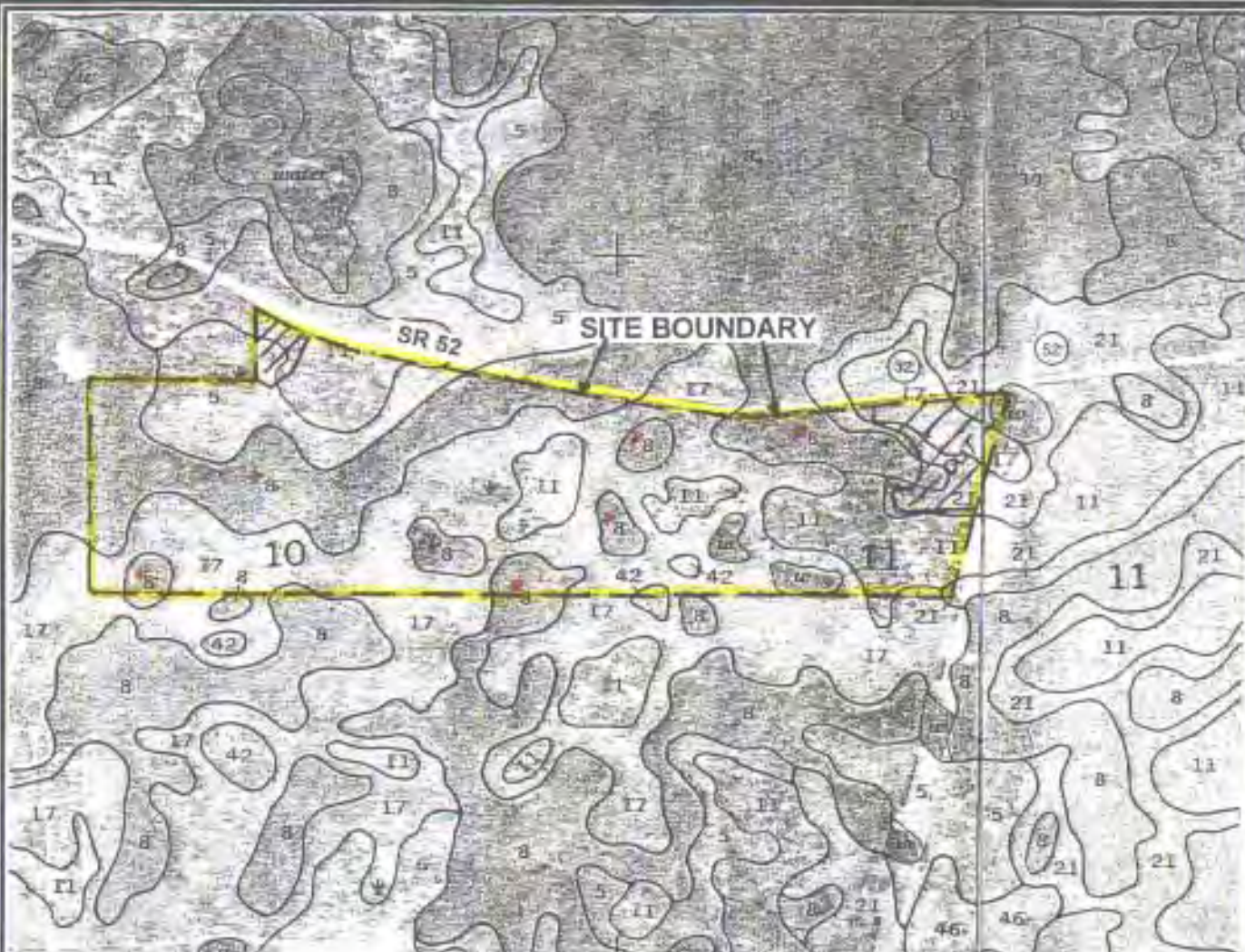




FDOT - TURNPIKE  
MITIGATION SITE  
(UPPER COASTAL BASIN)

SERENOVA EXTENSION  
(SW 60)

FIGURE A  
LOCATION MAP



# **SERENOVA EXTENSION SOIL LEGEND**

- 5 - Myakka fine sand
- 8\* - Sellers mucky loamy fine sand
- 11 - Adamsville fine sand
- 17 - Immokalee fine sand
- 21 - Smyrna fine sand
- 42 - Pomello fine sand, 0-5% slopes

\* Hydric Soils

NORTH ^

Scale - 3.75 inches = 1 mile

**FDOT - TURNPIKE  
MITIGATION SITE  
(UPPER COASTAL BASIN)**

**SERENOVA EXTENSION  
(SW 60)**

**FIGURE B  
PASCO CO. SOIL SURVEY**



# SERENOVA EXTENSION (SW 60)

S.R. 52

Future FDOT  
Stormwater Pond

Live Oak  
Hammock

FPC 3

Mixed Forested  
Wetland

Pine  
Flatwoods

Cypress

FPC 4B

Mixed Forested  
Wetland

Live Oak  
Hammock

Cypress

Cypress

Cypress

Cypress

Project Boundary

Floodplain Compensation (FPC)  
Marsh Creation Areas

Borrow Pit  
(Open Water)

Existing Serenova Preserve  
(SWFWMD Property)

Site 12

**Figure C**  
**Habitat Areas**  
**1995 Infrared Aerial**  
**Scale 1 in. = 740 ft.**  
**< North**





*Southeast quadrant, one of the two large oak hammocks, typical species coverage of sand live oak, over pockets of saw palmetto, runner oak, and scattered wiregrass, gopher tortoise burrow in foreground.*



*Pine flatwood area in the center of the tract, scattered longleaf pine over saw palmetto, gallberry, and wiregrass under palmetto. Appropriate pine density, palmetto density and heights controlled by prescribed burns.*

**FDOT - TURNPIKE Mitigation Site  
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW 60)  
(Upland Habitat)**





*Interior of cypress dome, photo taken June, 2000 during extreme drought conditions. However, the typical cypress wetlands on the tract have biological (moss collars, lichen lines) and other hydrologic indicators that demonstrate appropriate surface water hydrology.*



*The few marshes on the tract are located along the perimeter of the cypress systems, drought conditions have stressed the blue maidencane & cypress saplings but marsh fringe will soon recover from summer rains.*

**FDOT - TURNPIKE Mitigation Site  
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW 60)  
(Wetland Habitat)**





*Large mixed forested wetland within the western portion of the tract, outer portions of the wetland indicate a dense & diverse habitat conditions, with cover of bay species, maples, dahoon holly, cypress, myrtles, shiny lyonia, saw palmetto, gallberry, ferns.*



*Interior of the mixed forested wetland depicted above, very good species density and cover, more cypress with the maple, tupelo, and variable density (due to water levels & shading) of ground cover, typical species include sawgrass, ferns, and lizard's-tail.*

FDOT - TURNPIKE Mitigation Site  
(Upper Coastal Basin)

SERENOVA EXTENSION (SW 60)  
(Wetland Habitat)





*The mixed forested wetland in the northeast quadrant of the site differs from the western mixed forested system. Maples and bays are still present, but slash pine, gallberry, myrtles, & palmetto have encroached due to extended periods of shorter hydroperiods (water depth & duration). Sawgrass is the dominant ground cover species.*



*One of the two borrow pits on the tract. Minimal coverage of littoral zones but good island feature for resting/nesting birds, and continuous, clean water source for wildlife.*

**FDOT - TURNPIKE Mitigation Site  
(Upper Coastal Basin)**

**SERENOVA EXTENSION (SW 60)  
(Wetland Habitat)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Jennings Tract - Cypress Creek Preserve, West (ELAPP)

Project Number: SW 61

Project Manager: Forest Turbiville, Resource Manager  
Hillsborough County Parks & Recreation  
10940 McMullen Road  
Riverview, FL 33569-6226

Phone: 813-672-7876

County(ies): Hillsborough

Location: Sections 4, 5, T27S, R19E

### IMPACT INFORMATION

1- FM: <u>2578071 B.B. Downs Bikepath (Hunter's)</u>	ERP #: <u>4418710.000</u>	COE #: <u>199803683</u>
2- FM: <u>2555361 SR 39, Blackwater Ck. Bridge</u>	ERP #: <u>4320526.000</u>	COE #: <u>200000574 (IP-MS)</u>
3- FM: <u>2587341 SR 56, SR 54 to BB Downs</u>	ERP #: <u>4312944.004</u>	COE #: <u>199500079 (IP-MN)</u>
4- FM: <u>2012171 I-4, Memorial to US 98 (Seg.2)</u>	ERP #: <u>43011896.028</u>	COE #: <u>199502569 (MOD-MGH)</u>
<u>Kathleen Rd. West Portion</u>	ERP #: <u>430009069.006</u>	COE #: <u>SAJ-2003-8981 (IP-MGH)</u>
5- FM: <u>2578072 B.B. Downs Bikepath (Amberly)</u>	ERP #: <u>4421434.000</u>	COE #: <u>200101187 (NW-MS)</u>
6- FM: <u>2558591 SR 678 (Bearss Ave.) Florida Ave.</u>	ERP #: <u>4419802.002</u>	COE #: <u>200101181 (NW-MS)</u>
7- FM: <u>2578391 Alexander St., US 92 to Inter.-4</u>	ERP #: <u>43011896.025</u>	COE #: <u>200003012 (IP-RGW)</u>
8- FM: <u>2584491 Alexander St., On-Ramp to Westbound I-4</u>	ERP #: <u>43011896.025</u>	COE #: <u>200003012 (IP-RGW)</u>
9- FM: <u>2584131 SR 93 (Inter. 275), US 41 to Pasco Co.</u>	ERP #: <u>43024745.000</u>	COE #: <u>200302685 (IP-MLS)</u>
10-FM: <u>4084602 I-75 at CR 581 (Off-Ramp to B.B. Downs)</u>	ERP #: <u>4421639.000</u>	COE #: <u>199803683 (NW-KI)</u>

Drainage Basin(s) : Hillsborough River Water Body(s): Blackwater Creek , Cypress Creek SWIM water body? N

Impact Acres/ Wetland Types:

1-FM 2578071 0.4 ac. 618 (FlucCs)  
0.1 ac. 641 (FlucCs)  
TOTAL 0.5 ac.

7-FM 2578391 2.6 ac. 617 (FlucCs)

8-FM 2584491 1.7 ac. 617 (FlucCs)

2-FM 2555361 1.4 ac. 615 (FlucCs)  
0.7 ac. 641 (FlucCs)  
TOTAL 2.1 ac.

9-FM 2584131 4.6 ac. 610 (FlucCs)  
0.2 ac. 621 (FlucCs)  
0.1 ac. 630 (FlucCs)  
2.7 ac. 640/641 (FlucCs)

TOTAL 7.6 ac.

3-FM 2587341 5.2 ac. 630 (FlucCs )  
0.1 ac. 641 (FlucCs )  
TOTAL 5.3 ac.

10-FM 4084602 0.50 ac. 621 (FlucCs)

**TOTAL 24.86 ACRES**

4-FM 2012171 1.75 ac. 511 (FlucCs)  
0.68 ac. 615 (FlucCs)  
1.74 ac. 617 (FlucCs)  
TOTAL 4.26 ac.

5-FM 2578072 0.2 ac. 610 (FlucCs)

6-FM 2558591 0.1 ac. 618 (FlucCs)

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration ☒ Preservation

Mitigation Area: 298 Acres

SWIM Project? N Aquatic Plant Control Project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Hillsborough River Water Body(s): Blackwater Creek, Cypress Creek SWIM water? N



**Project Description**

**A. Overall project goal:** The acquisition, enhancement, and management of a 298-acre tract that includes a high quality mosaic of native upland & wetland habitat within the Cypress Creek floodplain. The property has been a high priority for acquisition by the Hillsborough County Parks & Recreation Dept., under the Environmental Lands Acquisition and Protection Program (ELAPP). The County presently owns several hundred acres east of the site, referred to as Cypress Creek Preserve East. This additional acquisition is part of an evaluation and acquisition corridor area by Hillsborough County and the SWFWMD, referred to as Lower Cypress Creek, that will connect other property owned by the SWFWMD (Cypress Creek in Pasco Co. and Lower Hillsborough in Hillsborough County. Refer to Figure A).

**B. Brief description of current condition:** The native habitat components of the site represent high quality functions relative to wildlife habitat, species richness & diversity, and especially habitat connectivity to both on- and off-site habitat conditions. There is mixed forested wetland (146 acres) surrounding hardwood hammock uplands (98 acres), pine flatwoods (19 acres), and palmetto prairies (15 acres). The only non-native habitat is bahia pasture (20 acres) along the western edge of the parcel (Figure E - Vegetative Communities).

**C. Brief description of proposed work:** The proposed activity includes acquisition of the property and enhancement of the native habitat areas. Land management and maintenance activities such as prescribed burning within the existing and restored upland habitat areas. The bahia pasture will be restored to pine flatwoods with appropriate planting, but construction activities are not necessary. A conceptual management plan has been prepared by the Hillsborough County Parks and Recreation Dept. (available from Mark Brown, SWFWMD). The SWFWMD will carry title on the property and Hills. County Parks will manage the site as part of an inter-agency agreement.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the proposed wetland impacts will occur to forested wetlands. The proposed mitigation site has 146 acres of high quality mixed forested wetlands and 98 acres of high quality hardwood hammock that compensate for the impacts to the forested wetland habitat. The remaining proposed wetland impacts include encroachments of marsh, shrub, and predominantly ditch habitats. These impacts will also be compensated by the site's wetlands but in addition, 54 acres of enhanced and restored upland habitat buffers. The inter-relationship of the hardwood hammocks, palmetto prairie, and pine flatwoods with the forested wetlands provide a high quality habitat for wildlife use that compensates for the proposed wetland impacts. This 298-acre acquisition & enhancement will result in an overall mitigation ratio of 10 acres of compensation for every 1 acre of wetland impact. The breakdown of mitigation per each roadway impact is referenced on the project table (Attachment B) and Figure F. Each of ten DOT projects has some form of upland habitat enhancement and/or restoration along with upland and wetland preservation. Preservation alone is not proposed for any one DOT project. As an added bonus of habitat enhancement, an additional 100-acres of native habitat adjacent to the Jennings Tract (referred to as the Greer Tract – SW 72) has also been preserved and provides partial mitigation for wetland impacts associated with one DOT project.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no existing or currently proposed mitigation banks within the Hillsborough River basin.

## Mitigation Project – Jennings Tract, pg. 3 of 5

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project in the Hillsborough Basin is the Lake Thonotassassa Restoration Project. The habitat restoration associated with that project has already been delegated the mitigation option for another DOT project.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No proposed construction, management by Hillsborough County Parks & Recreation  
Contact Name: Sheryl Bowman, Resource Manager, Hills. Parks & Rec. Phone Number: (813)-672-7876

Entity responsible for monitoring and maintenance: Hillsborough County Parks & Recreation  
Proposed timeframe for implementation: Commence: Summer, 2000 Complete: Summer, 2001, followed by a minimum 3 years maintenance & monitoring

Project cost: \$1,000,000 (total) - For acquisition; maintenance & management activities funded by Hills. Parks.

### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Figure D- Infrared aerial (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figures A & B - Location Maps. Figures D & E – existing & proposed habitat conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Acquisition completed in 2001. Long-term maintenance & management conducted by the Hills. Co. Parks & Recreation Department.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Maintenance & management to be conducted by Hillsborough Co. Parks & Rec. as a continuous operation of the adjacent Cypress Creek Preserve East property. A management plan for this property has been prepared by Hills. Co. Parks (available from Mark Brown – SWFWMD).
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Project Description - D, Attachment C (text and table), & Figure F designates the various mitigation for each wetland impact.

### ATTACHMENT A - Existing & Proposed Site Conditions

In addition to preservation of mixed forested wetland (145 acres) and hardwood hammock uplands (98 acres), there will be enhancement of pine flatwoods (19 acres), palmetto prairie (15 acres), and restoration of bahia pasture (20 acres) into pine flatwoods. Due to the dense canopy cover (80-90%) and the high percentage of hydric soil mapped on the soil survey (Figure C), the presence of several upland hardwood hammocks are not as readily evident as actually present (Figure E), providing an overall diverse combination of upland and wetland communities.

The upland hardwood hammocks include a dominance of live oak, Southern magnolia, sweet gum, and water oak, a sub-canopy of saw palmetto, cabbage palm, beautyberry, salt-bush, and buckthorn, and ground cover dominated by small panicums (*Dicanthelium spp.*). Depending on the variable wetland surface grade elevation, the mixed forested wetland has dominant canopy and subcanopy species including laurel oak, sweet gum, red maple, bald cypress, American elm, sweet bay, cabbage palm, tupelo, and ironwood.



## **Mitigation Project – Cypress Ck. Preserve, Page 4 of 5**

During the 1970's, selective upland and wetland tree-cutting allowed many of the normal subcanopy species to spread and reach canopy heights. Ground cover is dense in the transitional wetland areas, minimal in obligate zones where rainy season water levels are generally above surface grade. Dominant ground cover species include cabbage palm saplings, various sedges & rushes, wild coffee, Jack-in-the-Pulpit, and shield fern. The palmetto prairie and pine flatwoods have a dominance of slash pine (in the flatwoods), over saw palmetto, rabbit tobacco, paw-paw, and bahiagrass. The density and height of palmetto is generally moderate to low, but has increased in cover since removal of the cattle. Wildlife diversity is known to be high within the forested areas, and several gopher tortoise inhabit the pasture.

Implementation of a prescribed burn plan will be conducted within the upland habitats, in order to maintain appropriate vegetative coverage and minimize the opportunity for nuisance and exotic species to generate and recruit. Longleaf pine and wiregrass will be planted within the bahia pasture and palmetto prairie in order to enhance and restore upland habitat.

The acquisition of this tract for preservation, enhancement, and management is important for native habitat conditions. As noted, there is extensive upland habitat than what appears from the soil survey. This has made the parcel more valuable for potential development than if the site was predominantly wetlands. Prior to the County's acquisition, the landowner had offers to sell the property for constructing residential development on the upland hammocks. Acquiring this property as a mitigation alternative has provided the habitat protection needed for this area of Hillsborough County and the Hillsborough River basin.

### **ATTACHMENT B – Maintenance & Monitoring, Success Criteria**

Maintenance activities are primarily associated with implementing the prescribed burn plan as necessary to maintain appropriate habitat conditions. Based on the growth rate of vegetative cover, these burns will be attempted on 5-year cycles for the pine flatwoods (restored and enhanced flatwoods) and probably 10-15 year cycles for the upland hardwood hammocks. Herbicide control of existing and generated exotic and nuisance species will be conducted as necessary. The dominant undesirable species of concern for this parcel include Chinaberry and skunkvine.

Qualitative monitoring will be conducted semi-annually for a minimum 3-years post planting. Monitoring stations will be established to adequately evaluate habitat conditions and functions for each of the habitat communities. The results of the two monitoring events each year will be compiled into an annual monitoring report that documents the habitat conditions, any maintenance & management activities, and success trends. Documentation of the County's efforts to implement the management plan will also be included as part of the monitoring reports. Success criteria requirements include adequate pine plantings within the bahia pasture and palmetto prairie to guarantee survivorship of 200 trees per acre. Wiregrass will be planted in these same areas to guarantee survivorship rates of 300 plants per acre.

### **ATTACHMENT C - Mitigation Opportunities**

The delineation of the DOT projects relative to the various habitat types are depicted on Figure F. The following table designates the various wetland impacts for each DOT project and the associated mitigation acreage. The delineation provides a combination of wetland and upland habitat (preserved and enhanced/restored) to compensate for the wetland impacts associated with each of the ten DOT projects. No individual project's impacts are being mitigated with just wetland preservation.

## **Mitigation Project – Cypress Ck. Preserve, Page 5 of 5**

As noted on the attached table, there are two projects (one District 7 and one District 1) that are currently in the final design phases. The design of one of the DOT projects (Project 9, I-275-US 41 to Pasco Co.) has an estimate of 8.1 acres of wetland impacts, however that acreage will probably change pending final design. This proposed segment of I-275 is located along the eastern boundary of the Preserve, which would essentially be an on-site mitigation opportunity to compensate for these impacts.

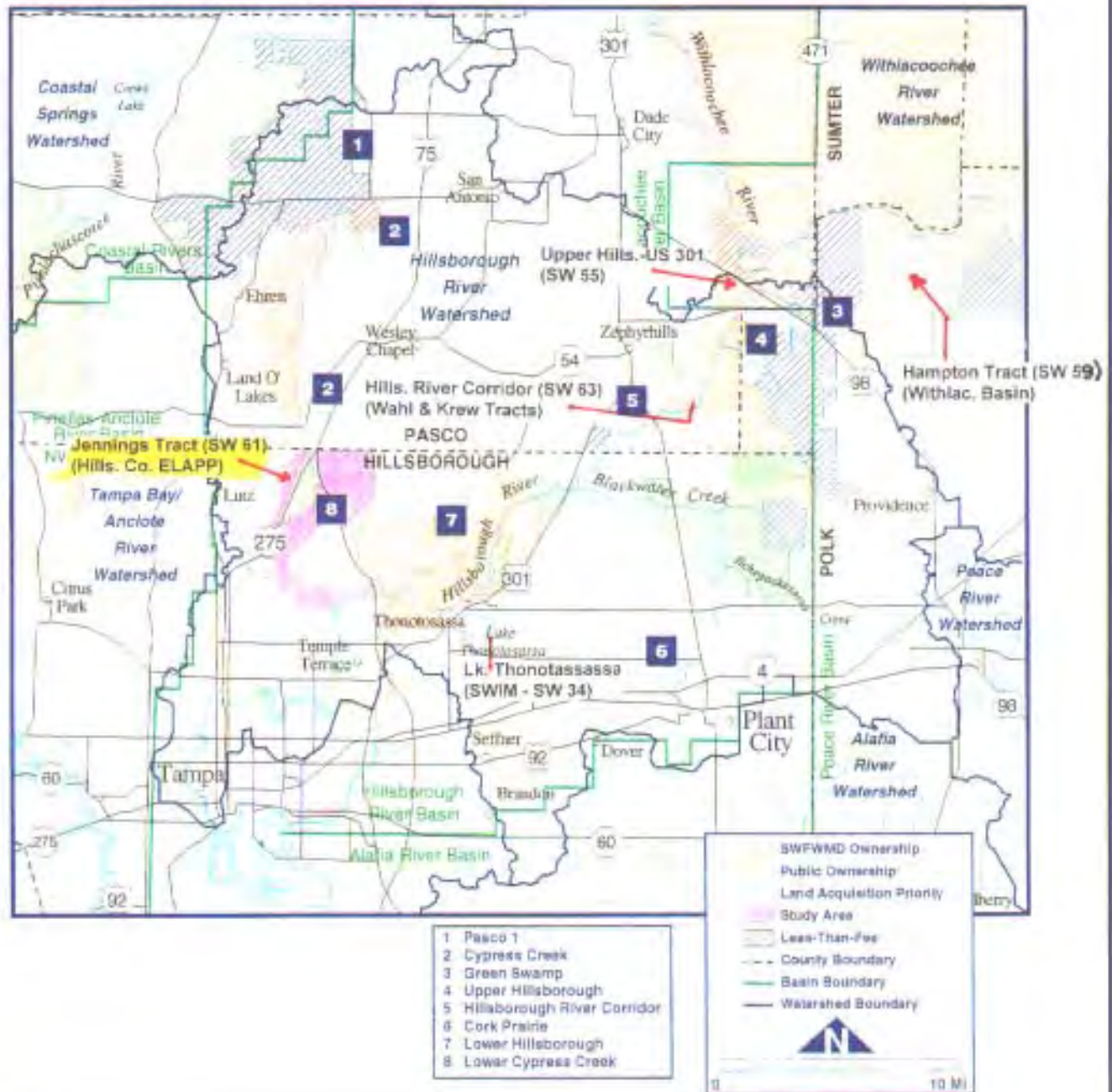
The District One project (Project 4, Interstate-4, Seg. 2) is within a re-design phase in late, 2002. Within the 2001 DOT mitigation plan for this project, the Jennings Tract was proposed to provide mitigation for 2.08 acres of upland-cut ditches under ACOE jurisdiction that didn't require mitigation per ERP criteria. During 2002, the ACOE made a decision to also not require mitigation for the 2.08 acres. However, the roadway redesign has resulted in different wetland impacts with a range of 4.7 to 8.1 acres, predominantly forested systems and a high percentage of upland-cut ditches. As with the previous design, the optimal 8.1 impact acres include approximately 3-4 acres of upland-cut ditches that may or may not require mitigation. Therefore, the mitigation plan design has accounted for the optimal 8.1 acres and designated appropriately lower ratios in case the ditches do require mitigation per ACOE criteria.



## Attachment C - DOT Project / Mitigation Table

## Cypress Creek Preserve, West (Jennings Tract) Hills. Co. ELAPP Updated 9/03

SITE	DOT Project	WPI	FM	USACOE Permit #	SWFWMD Permit #	Impact Acres	Habitat (FLUCFCS)	Mitig. Ratio	Mitig. Ac.	Mitigation Type
1	BB Downs Bikepath (Hunter's)	7123606	2578071 2578641	199803683	4418710.000	0.40 0.10 <b>TOTALS 0.50</b>	618- Willow & Elderberry 641 - Marsh	<b>15 to 1</b>	1.0 2.0 4.5 <b>7.5</b>	Mix Forest Wet. Preservation Upl. Hardwood Preservation Flatwoods Restoration
2	SR 39-Blackwater Ck. Bridge	7113773	2555361	200000574 (IP-MS)	4320526.000	1.40 0.70 <b>TOTALS 2.10</b>	615- Stream Swamp 641- Marsh	<b>19 to 1</b>	24.0 10.0 6.0 <b>40.0</b>	Mix Forest Wet. Preservation Upl. Hardwood Preservation Flatwoods Enhancement
3	SR 56-SR 54 to BB Downs	7147617	2587341	199500079 (IP-MN)	4312944.004	5.20 0.10 <b>TOTALS 5.30</b>	630-Mix Forest 641-Marsh	<b>13 to 1</b>	2.0 3.0 19.0 47.0 <b>71.0</b>	Flatwoods Restoration Flatwoods Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
4	I-4, Memorial- US 98 (Seg. 2)	1147944	2012171	<b>199502569 (MOD-MGH)</b>	43011896.02 8	0.93 1.34 <b>1.84</b> <b>4.11</b> <b>TOTALS</b>	615- Stream Swamp 630- Mixed Forest <b>641x – Hydric Ditch</b>	<b>10 to 1</b>	17.0 13.5 12.0 <b>42.5</b>	Mix Forest Wet. Preservation Flatwoods Restoration Upl. Hardwood Preservation
5	BB Downs Bikepath (Amberly)	NA	2578072	200101187 (NW-MS)	4421434.000	0.20 <b>TOTALS 0.20</b>	610- Hardwood Forest	<b>18 to 1</b>	0.5 3.0 <b>3.5</b>	Mix Forest Wet. Preservation Flatwoods Restoration
6	SR 678 (Bearss Ave.)	NA	2558591	200101181 (NW-MS)	4419802.002	0.10 <b>TOTALS 0.10</b>	618 – Willow & Elderberry	<b>15 to 1</b>	0.2 1.0 0.3 <b>1.5</b>	Upl. Hardwood Preservation Palmetto Prairie Enhancement Mix Forest Wet. Preservation
7	Alexander St., US 92 to Interstate 4	NA	2578391	200003012 (NW-RGW)	43011896.02 5	2.60 <b>TOTALS 2.60</b>	617-Mix Hardwood Forest	<b>12 to 1</b>	7.0 12.0 13.0 <b>32.0</b>	Palmetto Prairie Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
8	Alexander St., On-Ramp to Interstate 4	NA	2584491	200003012 (IP-RGW)	43011896.02 5	1.70 <b>TOTALS 1.70</b>	617-Mix Hardwood Forest	<b>9 to 1</b>	7.0 1.0 7.5 <b>15.5</b>	Flatwoods Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
9	I-275, US 41 to Pasco County	NA	2584131	Applic. Review (9/03)	Applic., Review (9/03)	4.60 0.20 0.10 2.70 <b>TOTALS 7.60</b>	610 - Hardwood Forest 621 – Cypress 630 – Mixed Forest 640/641 - Marsh	<b>10 to 1</b>	4.0 39.0 33.0 <b>76.0</b>	Palmetto Prairie Enhancement Upl. Hardwood Preservation Mix Forest Wet. Preservation
10	I-75 at BB Downs Off – Ramp	NA	4084602	199803683 (NW-KI)	4421639.000	0.50 <b>TOTALS 0.50</b>	621-Cypress	<b>17 to 1</b>	2.0 3.0 3.3 <b>8.3</b>	Mix Forest Wet. Preservation Upl. Hardwood Preservation Palmetto Prairie Enhancement



FDOT - District 7  
MITIGATION SITE  
(HILLSBOROUGH BASIN)

JENNINGS TRACT  
CYPRESS CREEK  
PRESERVE WEST  
Hills. Co. ELAPP (SW 61)

FIGURE A - WATERSHED  
BASIN MAP





NORTH ^  
Scale 1 in. = 2.3 miles

FDOT - District 7  
MITIGATION SITE  
(HILLSBOROUGH BASIN)

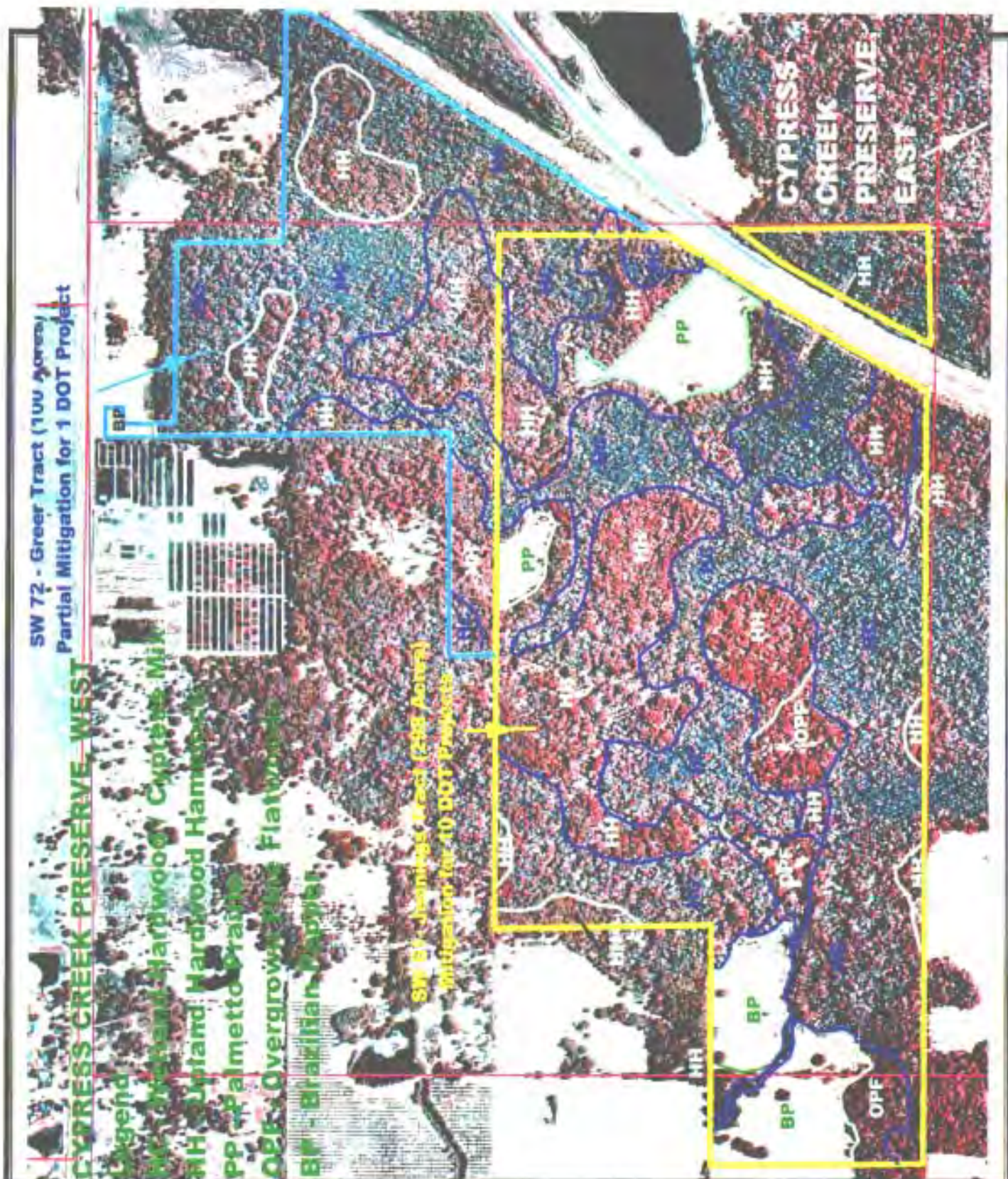
JENNINGS TRACT  
CYPRESS CREEK  
PRESERVE WEST  
Hills. Co. ELAPP (SW 61)

FIGURE B  
LOCATION MAP












FDOT – District 7  
MITIGATION SITE  
(Hillsborough Basin)

JENNINGS TRACT  
CYPRESS CREEK  
PRESERVE WEST  
(SW 61)

FIGURE D – 1995 Infrared Aerial  
HABITAT MAP  
Scale 1 in = 910 feet, <North



# **Cypress Creek - Jennings Parcel** *- Plant Communities*

 Hardwood/Cypress Swamp (145 ac)  
 Hardwood Hammock (99 ac)  
 Palmetto Prairie (15 ac)

 Overgrown Pine Flatwoods (19 ac)  
 Bahla Pasture (20 ac)



0 1000 2000 Feet

FDOT - District 7  
 MITIGATION SITE  
 (HILLSBOROUGH BASIN)

JENNINGS TRACT  
 CYPRESS CREEK  
 PRESERVE WEST  
 Hills. Co. ELAPP (SW 61)

FIGURE E  
 VEGETATIVE COMMUNITIES



1 BB Downs Bikepath (Hunter's)

2 SR 39-Blackwater Ck. Bridge

3 SR 56-SR 54 to BB Downs

4 I-4, Memorial to US 98  
(Seg. 2)

5 BB Downs Bikepath (Amberly)

6 SR 678 (Bearss Ave.)

7 Alexander St., US 92 to I-4

8 Alexander St., On-Ramp to I-4

9\* I-275, US 41 to Pasco Co.

10 I-75 at BB Downs Off-Ramp

**Cypress Creek - Jennings Parcel  
Plant Communities - FLUCCS codes**

211 - Improved Pasture (Restore to Pine Flatwoods)

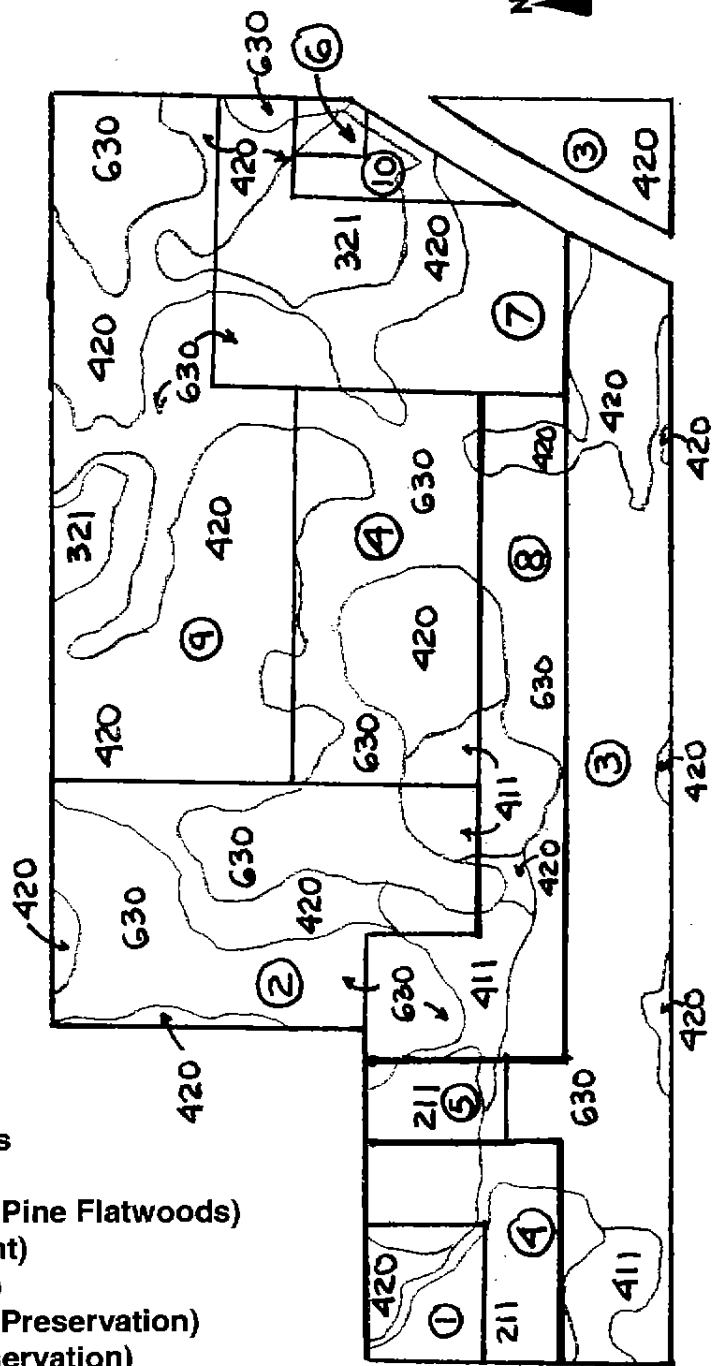
321 - Palmetto Prairie (Enhancement)

411 - Pine Flatwood (Enhancement)

420 - Upland Hardwood Hammock (Preservation)

630 - Mixed Forested Wetland (Preservation)

FDOT Projects are designated by circled numbers 1-10



FDOT - District 7  
MITIGATION SITE  
(Hillsborough Basin)

JENNINGS TRACT  
CYPRESS CREEK  
PRESERVE WEST  
Hills. Co. ELAPP (SW 61)

FIGURE F  
DESIGNATED MITIGATION



*Upland Hardwood Hammock - The hardwood hammocks have diverse canopy species, dominated by live oak, water oak, Southern magnolia, sweet gum, over saw palmetto, beautyberry, and buckthorn.*



*Upland Hardwood Hammock - Transitional area depicting the upland hammock (right) with sweet gum over saw palmetto, dropping in grade elevation to the mixed forested wetland (left) with cabbage palm, laurel oak, maples. Intricate mosaic of upland hammocks and wetland hardwoods results in high quality habitat for wildlife .*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 61)  
(Jennings Tract, Hills. Co. ELAPP)**





*Mixed Forested Wetland - View of one of the lower grade elevations that becomes inundated with surface waters during the rainy season, tupelos and cypress are more common than the higher elevations.*



*Mixed Forested Wetlands - The higher grade elevations are more prevalent than the lower elevations. Mixed hardwoods (laurel oak, maple, sweet gum, American elm, ironwood) are the most common species.*

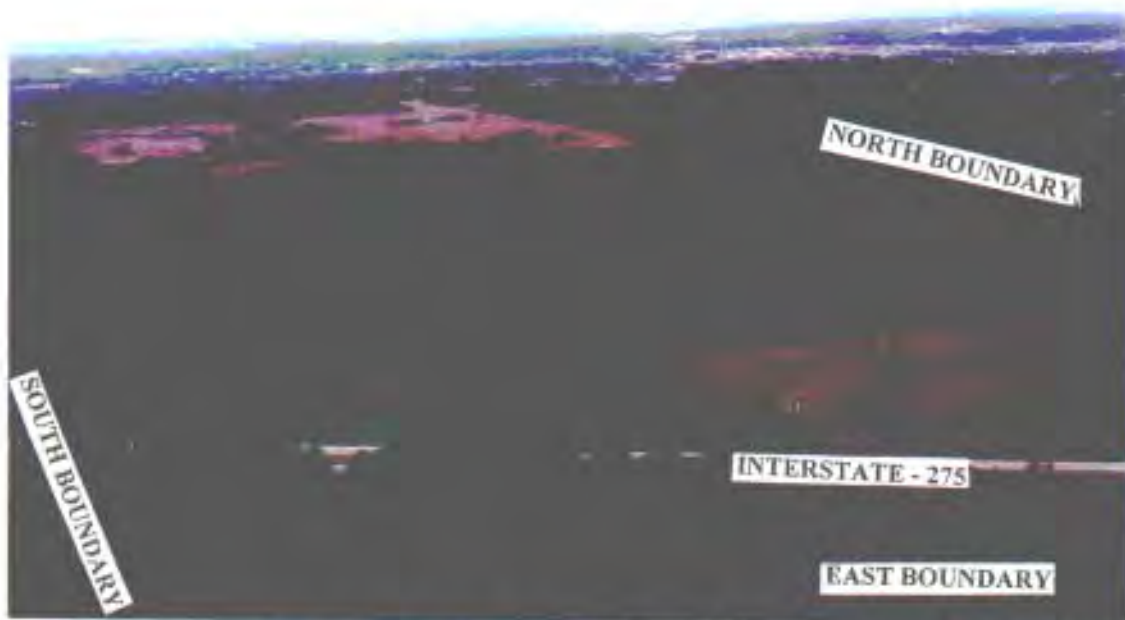
FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)

CYPRESS CREEK PRESERVE WEST (SW 61)  
(Jennings Tract, Hills. Co. ELAPP)





*Aerial view from north of the property boundary, looking southwest, palmetto prairie along I-275 (left), isolated palmetto prairie to the right.*



*Aerial view from east of the property, looking west. Triangular parcel separated from the main tract by I-275 in the foreground, large palmetto prairie to the right.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 61)  
(Jennings Tract, Hills. Co. ELAPP)**





*Palmetto Prairie - Will be enhanced by removing cattle, planting wiregrass and scattered longleaf pine.*



*Bahia Pasture - Will be enhance by removal of cattle and debris, planting of wiregrass and longleaf pine. Area was included in the proposed acquisition due in part to the several large gopher tortoise present.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 61)  
(Jennings Tract, Hills. Co. ELAPP)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Tappan Tract

Project Number: SW 62

Project Manager: Amy Remley, WMD- SWIM Environmental Scientist

Phone No: 813-985-7481 ext. 2083

County(ies): Hillsborough

Location : Sec. 17, T30S, R18E

### IMPACT INFORMATION

DOT (FM): 2557031, SR 60 - Cypress St. to Fish Creek\* ERP #: 43002958.003 COE #: 200205816 (IP-MN)

Drainage Basin(s): Tampa Bay Coastal Water Body(s): Tampa Bay SWIM water body? Y

Acres/Impact Types: FM 2557031 -

<u>0.6</u> ac.	<u>510- Saltwater canal</u> (FlucCs)
<u>0.1</u> ac.	<u>530</u>
<u>0.3</u> ac.	<u>612</u>
<u>0.6</u> ac.	<u>641x</u>
<u>3.5</u> ac.	<u>642x</u>

**TOTAL: 5.1 acres**

\* Note: The total wetland impacts proposed for this project is 16.6 acres. Only the minor mangrove and substantial ditch and open water impacts associated with this project are being mitigated at Tappan Tract. The saltwater marsh impacts for this DOT project (10.7 acres) will be mitigated at the Apollo Beach (SW 67) and Cockroach Bay - Saltwater (SW 77) projects. The freshwater marsh impacts for this DOT project (0.8 acres) will be mitigated at the Cockroach Bay - Freshwater project (SW 56).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Wetland Creation X Upland Enhancement X Wetland Enhancement Mitig. Area: 8.38 ac.

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin(s): Tampa Bay Drainage Water Body(s): Tampa Bay SWIM water body? Y

#### Project Description

**A. Overall project goal:** Create tidal pool (0.41 ac.), salt marsh (1.19 ac.), and freshwater ephemeral marsh (0.55 ac.) habitat (total 2.15 acres of wetland creation). Enhance saltern habitat (0.53 ac.), tidal pool/creek (1.18 ac.), mangrove habitat (0.77 ac.) and salt marsh (2.55 ac.) (total 5.03 acres of wetland enhancement). Existing and upland spoil covered with exotic species will be enhanced into hardwood hammock habitat (1.20 ac.). The Tappan Tract is a SWIM project on property owned by the City of Tampa along the eastern shoreline of Old Tampa Bay.

**B. Brief description of current condition:** The Tappan Tract property covers approximately 33-acres, which included 9 upland acres and 24 wetland acres (Figures D&E). Only the eastern portion of the property received habitat construction activities in early 2003, and that is the area that was designated to provide the mitigation for the DOT wetland impacts. The upland area within the east central portion of the site was primarily a mowed maintained open field with dominant cover of grasses, sedges, scattered cabbage palm, exotic species (Brazilian pepper, Melaleuca), and a few live oaks along the eastern boundary (site photos). A ridge of spoil material was located along the north and northwestern perimeter of the proposed construction area (Figure E), approx. 10 ft. above natural grade, covered with pokeweed, caesar's-weed, and elderberry. A dense stand of Brazilian pepper and Melaleuca was located along the northern boundary, scattered B. pepper along the western project boundary. Saltmarsh and mangroves are present north and west of the project boundaries. South Sherrill Street and W. Prescott Street border the east and west sides respectively.

**C. Brief description of proposed work:** The exotic species were removed from the proposed wetland creation and enhancement areas, followed by grading activities to create tidal pool, saltmarsh, and an ephemeral freshwater marsh (Figure F). The wetland enhancement was conducted primarily through removal of exotic species.



The spoil ridges were decreased in grade elevation, and converted to upland hardwood hammocks. The project included planting species typical of estuarine habitat (attachment A).

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** Only a portion of the proposed wetland impacts associated with the DOT project will be mitigated at the Tappan Tract, the remainder mitigated at the Cockroach Bay (Freshwater and Saltwater sites), and the Apollo Beach site; all are SWIM projects conducted on Hills. Co. Parks property. For the 0.3 acres of proposed mangrove impact, there will be mangrove enhancement (0.77 ac.), resulting in a mitigation ratio of 2:1. Additional mangrove germination will naturally occur within the enhanced and constructed salt marsh. For the 3.5 acres of saltwater ditch impacts, the proposed mitigation includes salt marsh creation (1.19 ac.), salt marsh enhancement (3.06 ac.), tidal pool creation (0.41 ac.), saltern enhancement (0.53 ac.), and tidal pool enhancement (0.72 ac.), for a total mitigation ratio of 1.7:1. For the 0.6 acres of freshwater ditch impacts, the mitigation will include freshwater marsh creation (0.55 ac.) and hardwood hammock enhancement (1.20 acres), which is a mitigation ratio of 3:1. Considering 94% of the proposed wetland impacts are associated with ditches, and there are over 20 acres of publicly protected quality habitat surrounding the proposed restoration area, the mitigation is considered appropriate and adequate to mitigate these impacts.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The only proposed mitigation bank in the Tampa Bay Drainage Basin is the Tampa Bay Mitigation Bank (TBMB), which was not permitted at the time mitigation had to be designated for this DOT project.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** This is a SWIM project.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD, Operations Dept. or selected contractor

Contact Name: Amy Remley, WMD-SWIM Environmental Scientist Phone Number: 813-985-7481 ext. 2083

Entity responsible for monitoring and maintenance: City Of Tampa, Parks Department

Proposed timeframe for implementation: Commence: Design, 2000, Construction, Dec. 2002 Complete: June, 2003 (construction complete), followed by 3 years maintenance & monitoring

Project cost: \$ 460,000 (total)

Design: \$80,000

Construction and planting: \$340,000

Monitoring & Maintenance: \$40,000

#### Attachments

X 1. Detailed description of existing site and proposed work. Attachment A - Existing Site & Proposed Work

X 2. Recent aerial photograph with date and scale. Figure D & E - Infrared Aerial (1995).

X 3. Location map and design drawings of existing and proposed conditions. Figure A (Location Map), Figure D (Existing Conditions), Figure F (Conceptual Habitat Plan).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B - Schedule

X 5. Proposed success criteria and associated monitoring plan. Attachment C - Success Criteria & Monitoring

X 6. Long term maintenance plan. Refer to Attachment C

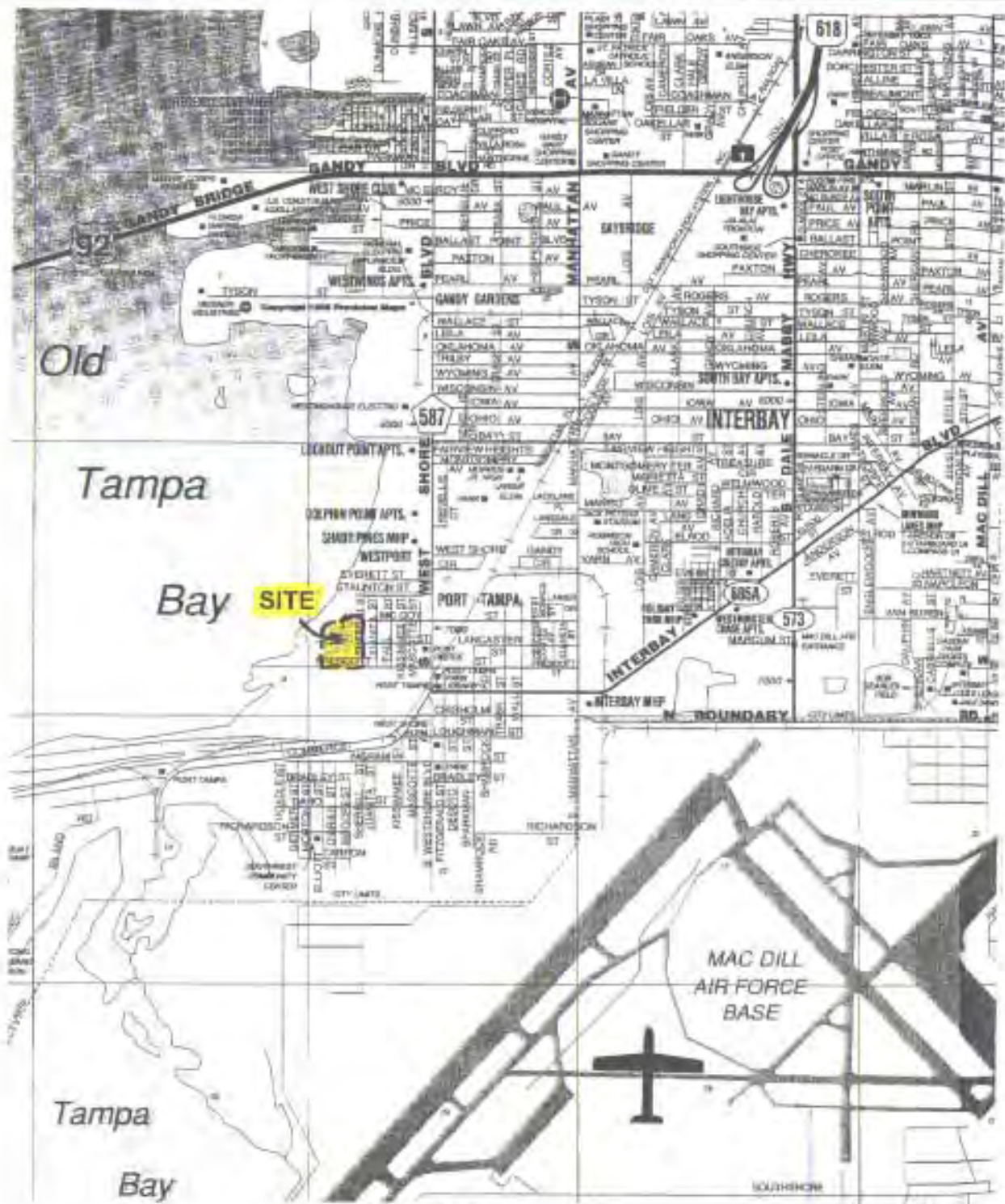
X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.

**ATTACHMENT A - Existing Site & Proposed Work** - Based on the information (aerials, soils), the historical 1948 aerial (Figure B) and pre-construction conditions (Figures C & D, site photos), the site was historically a coastal pine flatwood adjacent to a mangrove fringe along Tampa Bay. The pine flatwoods were cleared and fill material was placed along the wetland boundary. Possible fill source was from the scraped upland along the southeast side of the project site, resulting in the generation of a transitional salt marsh (refer to Figure E). The clearing and fill material allowed the site to become invaded by Brazilian pepper and Melaleuca. As part of the initiative of the SWFWMD-Surface Water Improvement & Management Program (SWIM) and the Tampa Bay National Estuary Program (TBNEP), this site was selected to not only restore upland habitat, but to create estuarine wetlands that will be tidally connected to Tampa Bay. This project is one of the proposed habitat creation and restoration projects under consideration along Tampa Bay, referred to as the South Tampa Greenway, and owned by the City of Tampa. Property directly south of the Tappan Site is also being evaluated for possible City of Tampa acquisition and future SWIM Restoration activities. As part of the 2003 construction, the exotic species were removed and appropriate grading conducted to create and enhance estuarine habitat such as salt marsh, saltern, tidal pool, and mangrove habitat (Figure F). In areas where grading is required for estuarine creation, species such as smooth cordgrass, marshhay cordgrass, sand cordgrass, seaside paspalum, and needle rush were planted throughout the creation area. The mangrove forest adjacent to the project site will provide a seed source to allow mangroves to recruit and germinate within portions of the created marsh habitat. The freshwater marsh is separated from tidal influence by the spoil ridges that were decreased in elevation. The marsh was planted with soft rush and beak rush species, but also included salt tolerant species such as fimbries, lemon bacopa, muhly grass, and American bulrush. The upland berms will be graded to slope and provide surface water runoff into the ephemeral marsh, will be mulched and planted with coastal hammock species such as Florida privet, live oak, firebush, redbay, sabal palm, wild coffee, and rouge plant.

**ATTACHMENT B - Schedule** - As of the summer, 2002, the design was completed and permitted by the ACOE. Construction commenced December, 2002 and completed in June, 2003; followed by plant installation. Construction was conducted by the SWFWMD-Operations Dept. who has extensive experience in restoration construction projects. A minimum of 3 years maintenance & monitoring will be conducted after construction. The proposed roadway construction with the wetland impacts associated with this mitigation plan are not planned to commence until at least August, 2004.

**ATTACHMENT C - Maintenance & Monitoring Plan, Success Criteria** - The maintenance of the project is expected to be minimal. The plants typically planted in association with estuarine restoration projects will survive, vigorously recruit, and have minimal regeneration of exotic species. Maintenance will primarily be related to control of debris from the site, replacement of plants that may not have survived the initial planting, and to ensure exotics (particularly Brazilian pepper and Melaleuca) do not regenerate within the upland area. Saplings of these species are controlled with herbicide. Long-term maintenance will be the responsibility of the City of Tampa Parks Dept. who owns the property. The qualitative monitoring is expected to be semi-annual for 3 years, with an annual monitoring report each year to document the habitat conditions and maintenance activities for the previous year. The success criteria includes 90% survivorship for planted material for at least 90-days post planting, a total 85% cover of desirable species, and less than 10% cover of exotic and nuisance species. The DEP and WMD experiences with the estuarine mitigation projects indicate when the grade elevations are correctly constructed to allow for sufficient tidal action, the vegetation survives and recruits throughout other areas of the mitigation site.





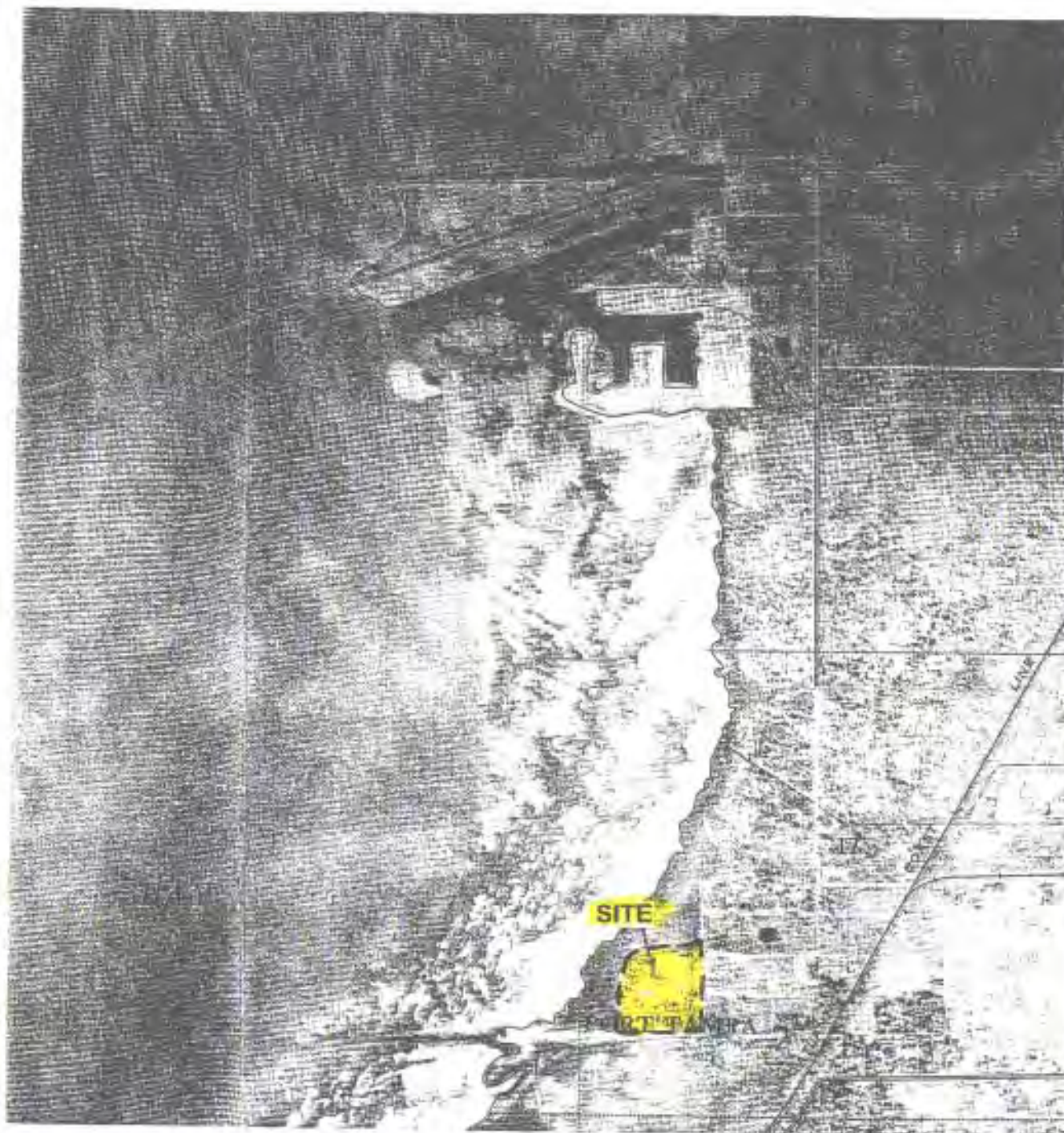
NORTH ^  
SCALE: 1.8 in. = 1 mile

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

TAPPAN SITE  
(SW 62)

FIGURE A  
LOCATION MAP





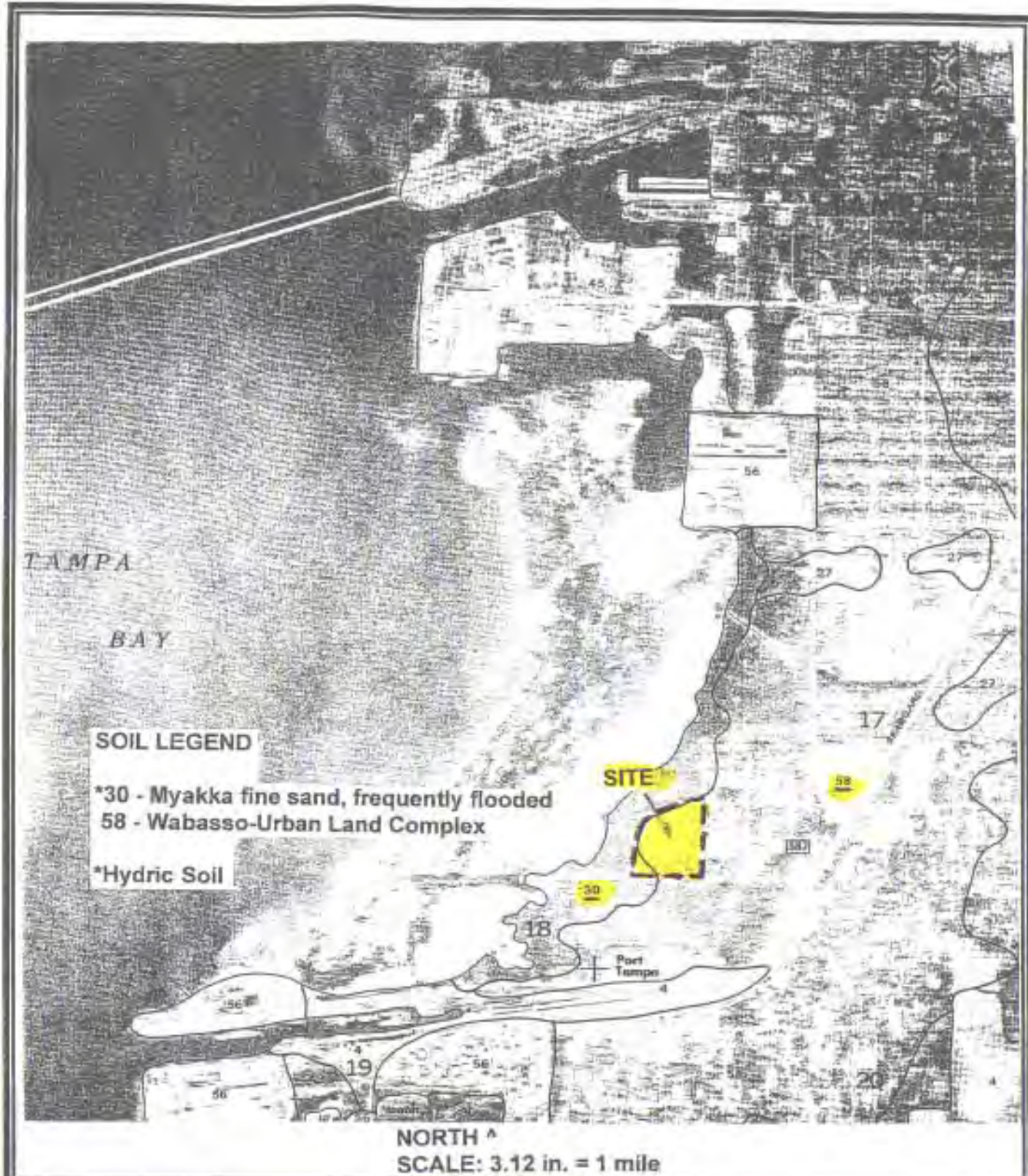
NORTH ^  
SCALE: 3.12 in. = 1 mile

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

TAPPAN SITE  
(SW 62)

FIGURE B  
HILLS. CO. SOIL SURVEY  
(AERIAL DATE - 1948)





FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

TAPPAN SITE  
(SW 62)

FIGURE C  
HILLS, CO. SOIL SURVEY  
(AERIAL DATE - 1982)



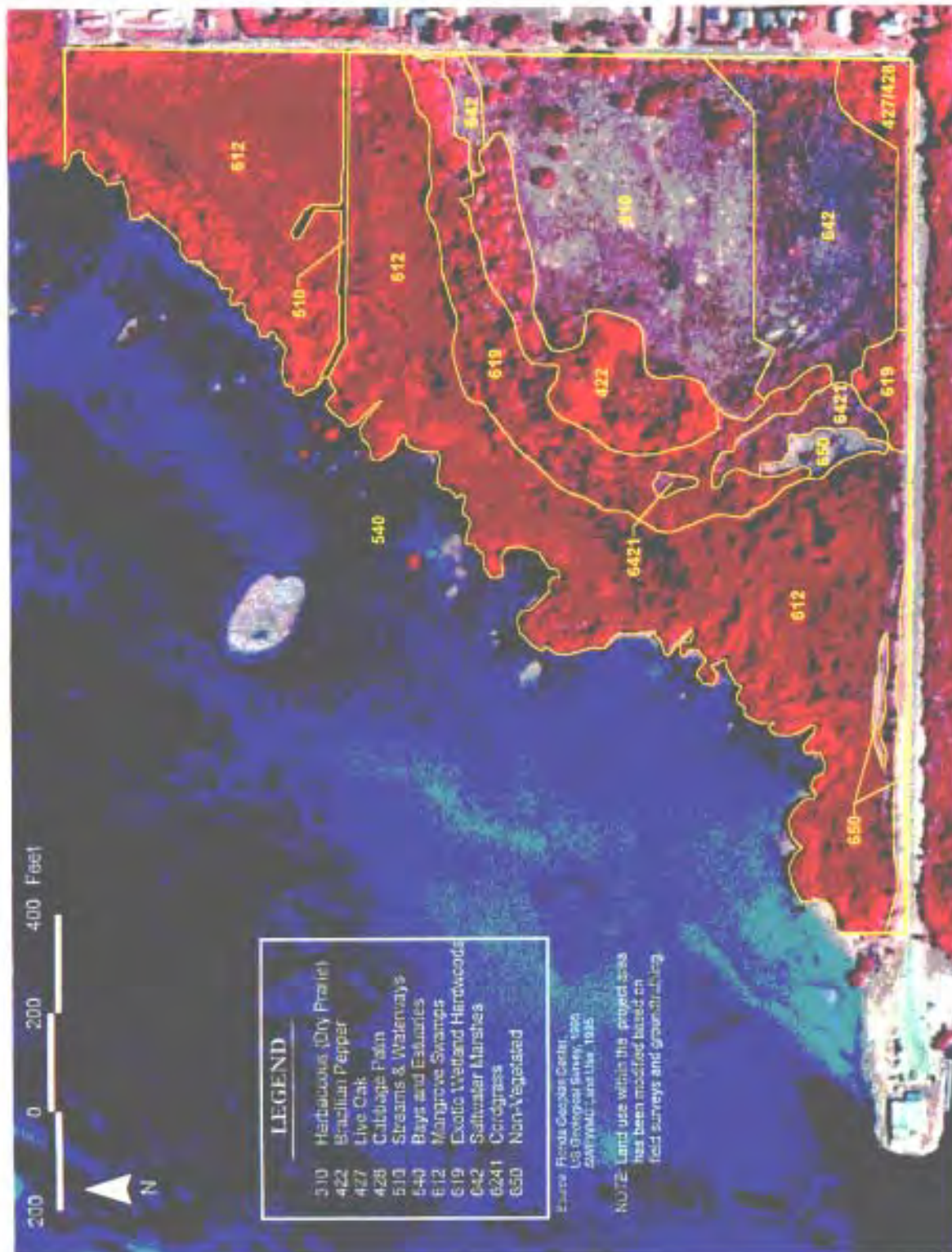


FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Coastal Basin)

TAPPAN SITE  
(SW 62)

FIGURE D  
INFRARED AERIAL  
(AERIAL DATE - 1995)





FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

TAPPAN TRACT  
(SW 62)

FIGURE E  
EXISTING HABITAT







*View from the southeast corner (intersection of South Sherrill and West Prescott Streets). Some scattered palms and live oaks along the eastern boundary will be preserved by incorporating them into an upland habitat restoration area of the project.*



*Opposite view of previous photo, from close to the northwest corner of the site. Standing on a fill ridge of 15-20 ft., this view shows the majority of the tract is dominated by bermuda grass with a few scattered myrtle, cabbage palm, Brazilian pepper, and melaleuca.*

**FDOT - District 7 Mitigation Site  
(Tampa Bay Drainage Basin)**

**Tappan Tract  
(SW 62)**





*View toward northern project boundary from top of the fill ridge. The fill is heavily covered with nuisance/exotic species such as pokeweed, caesarweed, elderberry, and Brazilian pepper. As seen in the background, the northern boundary has extensive coverage of melaleuca and Brazilian pepper that will be eradicated.*



*View of the saltmarsh just west of the project boundary. Needle rush, salt bush, Borrighia, saltmarsh cordgrass, salt grass, glasswort, and sea blite are commonly found in the vicinity of the site boundary. B. pepper within the transitional wetland will be eliminated.*

**FDOT - District 7 Mitigation Site  
(Tampa Bay Drainage Basin)**

**Tappan Tract  
(SW 62)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Hillsborough River Corridor (Crews Tract)

Project Number: SW 63

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211 ext. 4488

County(ies): Pasco

Location : Sections 30, T26S, R22E

### IMPACT INFORMATION

FM: 2563151, US 41, Bell Lake to Tower Road

ERP #: 4418030.002

COE #: 199241273 (IP-ES)

Drainage Basin(s): Hillsborough River Water Body(s): Trout Creek, Cabbage Swamp SWIM water body? N

Impact Acres/Types: FM: 2563151 - 1.1 ac. 621 (Fluccs code)

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration Enhancement X Preservation Mitigation Area: 10 ac.

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s) : Hillsborough Water Body(s): Hillsborough River SWIM water body? N

#### Project Description

- A. **Overall project goal:** Acquisition and preservation of a parcel within the Hillsborough River floodplain, a mixed forested wetland (10 acres) that is part of a high quality riverine habitat corridor (Figure D). This tract is an outparcel of adjacent river floodplain property already owned by the SWFWMD (Figures A, C, D).
- B. **Brief description of current condition:** The entire tract is a mixed forested wetland floodplain with high quality habitat. A narrow portion (40-60 ft. wide) of the Hillsborough River meanders through the southern portion of the tract (refer to Attachment A for additional site information).
- C. **Brief description of proposed work:** After acquisition, the site will be periodically reviewed for security and high quality habitat conditions are maintained. Efforts will continue to be made to hopefully acquire the adjacent 20 acre outparcel of floodplain forest to finalize the corridor connection of public lands along the Hillsborough River (Fig. D).
- D. **Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The Hillsborough River corridor is an important area for wildlife use and access, water quality treatment, flood attenuation, and providing a water source for Hillsborough County and the City of Tampa. The proposed wetland impact area includes forested wetlands of lesser habitat quality, with the acquisition and preservation of 10 acres, the mitigation ratio will be 10:1.
- E. **A brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** A mitigation bank is not present or currently proposed within the Hillsborough River basin.
- F. **Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project within this basin is the Lake Thonotassassa Restoration Project. All available wetland components for that restoration project have been delegated to mitigate for wetland impacts associated with another DOT project.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No construction activities are necessary

Contact Name: Mark Brown, WMD Environmental Scientist

Phone Number: (352) 796-7211 ext. 4488

Entity responsible for monitoring and maintenance: Management, security, and maintenance will be conducted by the SWFWMD Land Management and Land Use Depts.

Proposed timeframe for implementation: Commence: Summer, 2000 Complete: April, 2001 (acquisition)

Project cost: \$15,000 (acquisition, maintenance & management will be provided by the WMD)

#### **Attachments**

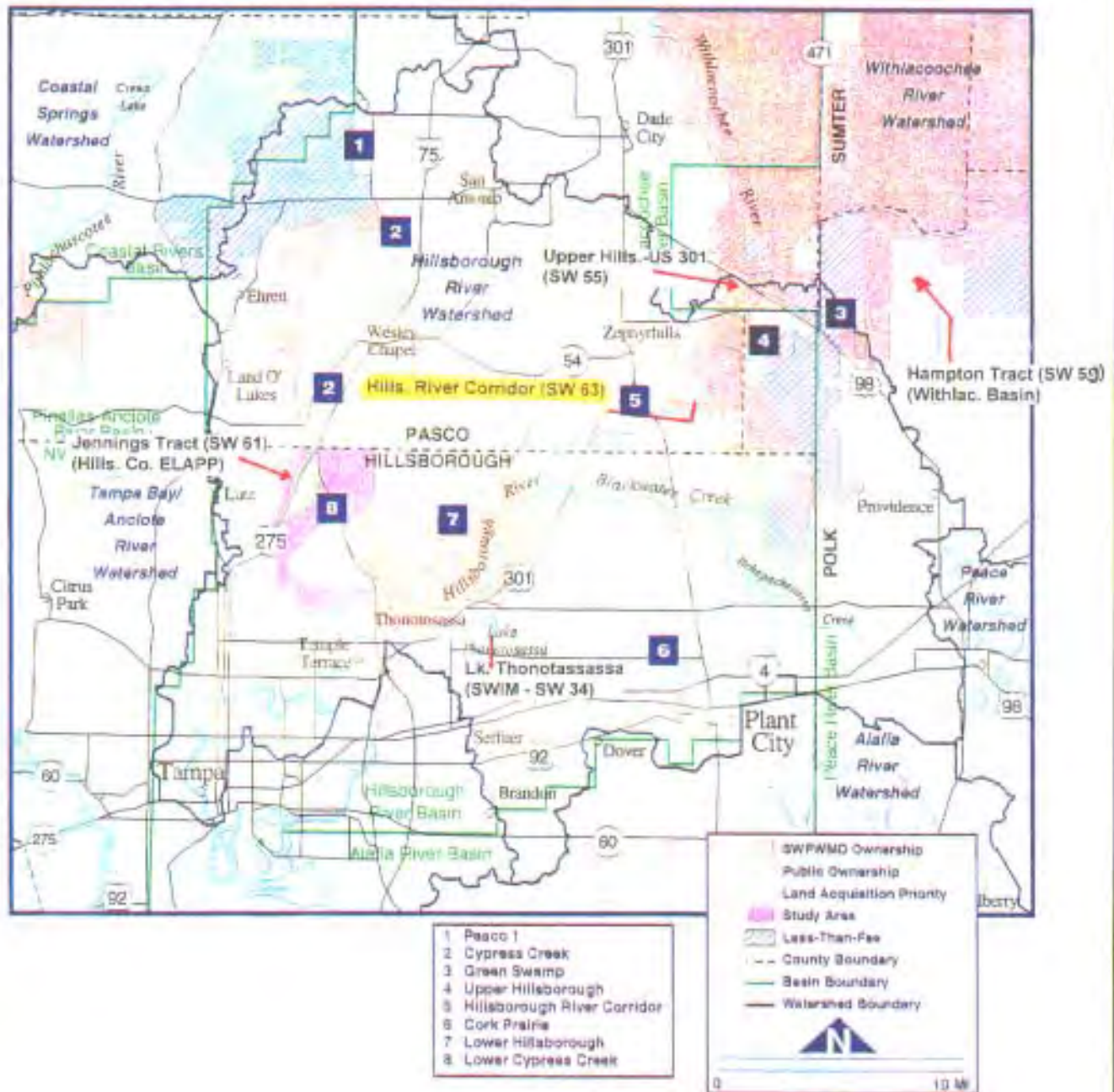
- X 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site
- X 2. Recent aerial photograph with date and scale. Figure D - infrared aerial (1995).
- X 3. Location map and design drawings of existing and proposed conditions. Figure A - Watershed Map, Figure B- Location Map, and Figure D- Site Conditions.
- X 4. Detailed schedule for work implementation, including any and all phases. Acquisition in spring, 2001.
- X 5. Proposed success criteria and associated monitoring plan. No monitoring or success criteria required or proposed.
- X 6. Long term maintenance plan. Maintenance activities are not required.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

#### **ATTACHMENT A - Existing Site & Proposed Work**

The entire 10 acres is mixed forested wetland floodplain with the Hillsborough River meandering through the southern portion of the site (refer to photos). The overstory (canopy >70%) is dominated by red maple, American elm, and laurel oak. Sub-dominants include sweet gum, hackberry, ironwood, bald cypress, and pop ash. Several small natural channels exist where river overflows during flood events. The cypress are dominant within these channels. A shrub canopy (50-70% cover) in combination with the overstory provides a dense cumulative canopy but still relatively open understory to provide easy wildlife movement. Shrub layer species include the same canopy species with a dominance of elm and additional cover of cabbage palm, Virginia willow, and wax myrtle. Understory vegetation includes smilax, poison ivy, Virginia creeper, wild coffee, and various, small *Panicum spp.* Observed wildlife species include deer, racoon, squirrels, and substantial bird activity. Periodic review of the site will be conducted to ensure these high quality habitat conditions are maintained and that no adjacent land use activity encroaches or impacts the habitat.

It's noted that this project previously proposed the acquisition of the adjacent 20-acres (Wahl Tract), removal of the existing fill road to restore wetland habitat, and provide a contiguous connection of riverine floodplain habitat under SWFWMD ownership. Unfortunately, negotiations with Mr. Wahl were not successful and the additional impacts proposed for mitigation at this project site were transferred for mitigation at Cypress Creek Preserve, West (SW 61). Hopefully the opportunity for public acquisition of the additional 20 acres will occur in the future.

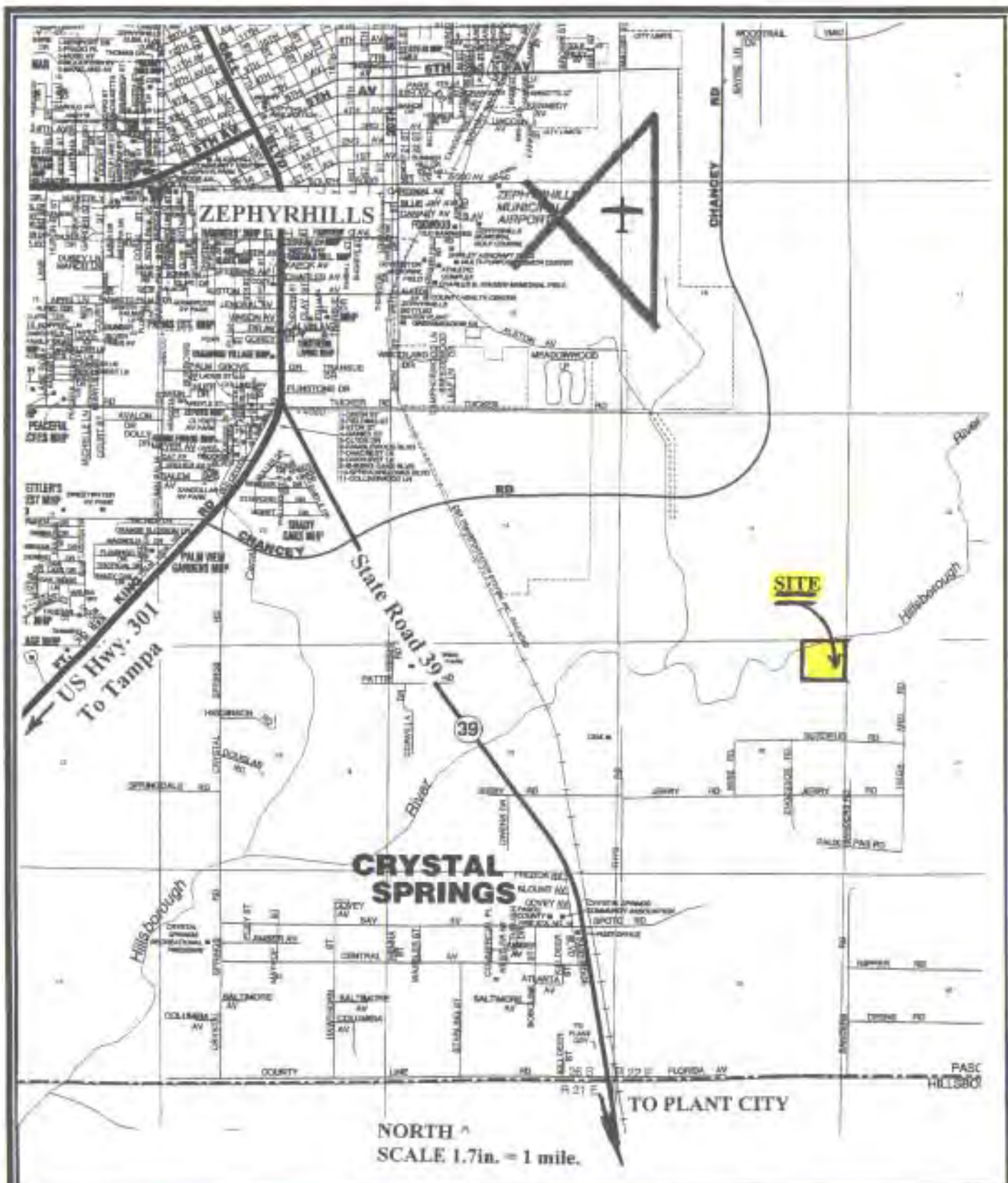




FDOT - District 7  
MITIGATION SITE  
(HILLSBOROUGH BASIN)

HILLSBOROUGH RIVER  
CORRIDOR (SW 63)  
(WAHL & KREW TRACTS)

FIGURE A - WATERSHED  
BASIN MAP

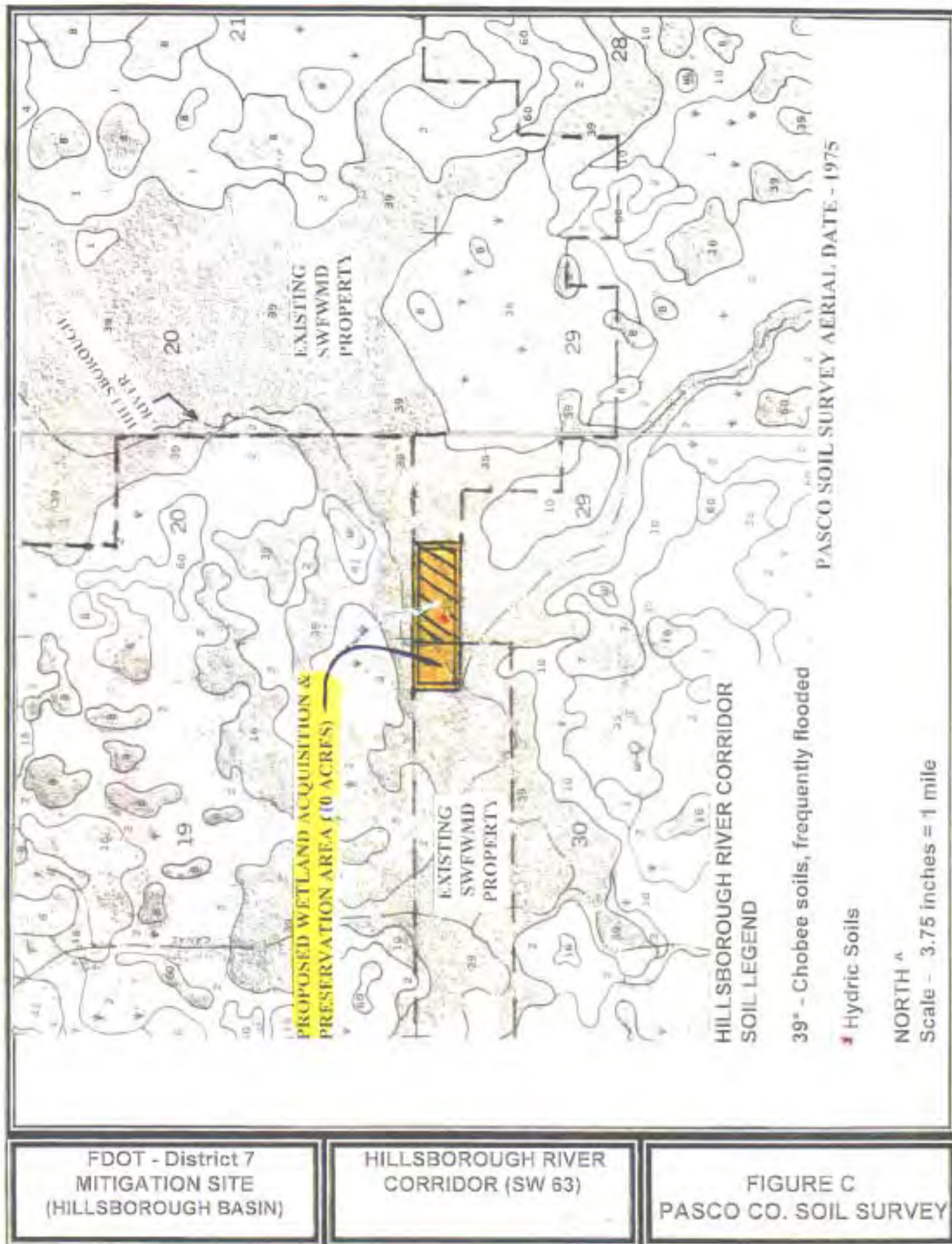


FDOT - District 7  
MITIGATION SITE  
(HILLSBOROUGH BASIN)

HILLSBOROUGH RIVER  
CORRIDOR (SW 63)

FIGURE B  
LOCATION MAP



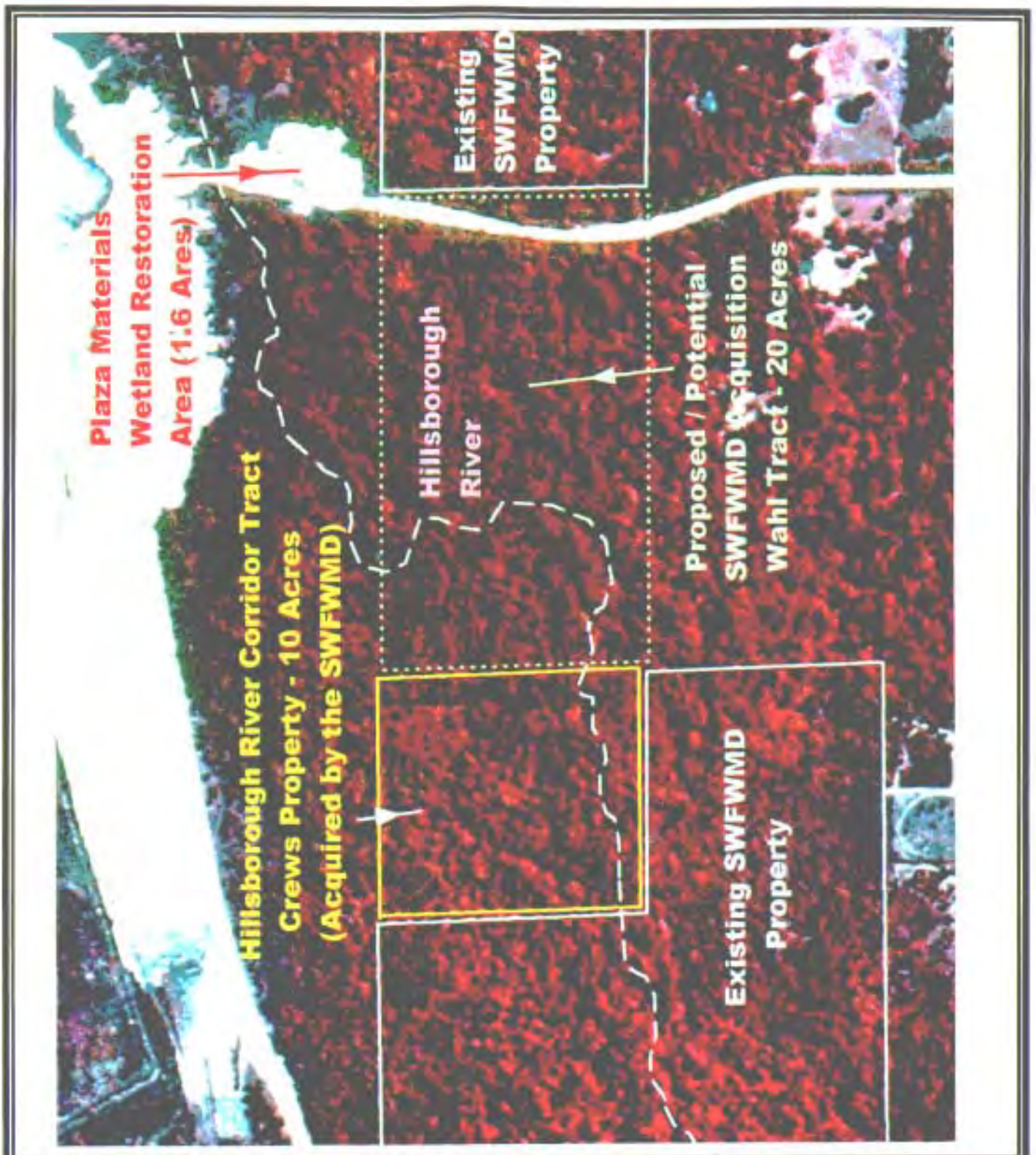


FDOT - District 7  
MITIGATION SITE  
(HILLSBOROUGH BASIN)

HILLSBOROUGH RIVER  
CORRIDOR (SW 63)

FIGURE C  
PASCO CO. SOIL SURVEY





FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)

HILLSBOROUGH RIVER  
CORRIDOR (SW 63)  
(Crews Tract)

FIGURE D  
LOCATION MAP  
Scale 1in. = 366 ft.





*View depicting the dense canopy & subcanopy coverage, yet still open ground area for wildlife movement. The white lichens on the cypress (left) delineates a flood elevation a few feet above surface grade.*



*Background depicts an area of very dense subcanopy however small pockets of less canopy (foreground) allow substantial cover of various herbaceous species.*

**FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)**

**HILLSBOROUGH RIVER CORRIDOR (SW 63)**





*View of the Hillsborough River that substantially meanders through the property, averaging 40-60 ft. wide, very clear & clean water.*



*One of the many overflow channels within the floodplain, the cypress tend to be concentrated along the channels, various wetland hardwood species dominate the remaining floodplain area.*

FDOT - District 7 Mitigation Site  
(Hillsborough River Basin)

HILLSBOROUGH RIVER CORRIDOR (SW 63)



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Baird Tract** (Withlacoochee State Forest, Richloam) Project Number: **SW 64**

Project Manager: Rose Poyner , Judy Ashton (FDEP-Tampa) Phone No: (813) 744-6100, Suncom 542-1042

County(ies): Sumter

Location (central lat/long): 28 33' 0", 82 00', 00"

### IMPACT INFORMATION

1 - FM: 2571641, SR 44-CR 470 to County Line	ERP #: <u>4310152.004</u>	COE #: <u>199606491 (IP-KF)</u>
2 - FM: 2571631, SR 44-US 41 to CR 470	ERP #: <u>4310152.003</u>	COE #: <u>199606491 (IP-LM)</u>
3 - FM: 2571841, SR 45 (US 41) – Watson St. to SR 44 East	ERP #: <u>44024198.000</u>	COE #: <u>200206293 (NW-KCF)</u>
4 - FM: 4092071, CR 470 (Gospel Isle)	ERP #: _____	COE #: _____
5 - FM: 2571651, US 41 (SR 45), SR 44 to SR 200	ERP #: _____	COE #: _____
6 – FM 4037811, SR 52 – Curley Rd. to Smith Rd.	ERP #: _____	COE#: _____

Drainage Basin(s): Withlacoochee River Water Body(s): Lake Henderson, Lake Tsala Apopka SWIM water body? N

Impact Acres / Types:

1- FM 2571641	3 - FM 2571841	5 – FM 2571651
4.9 ac. <u>617</u> (FlucCs)	0.1 ac. <u>641x</u> (FlucCs)	0.5 ac. <u>617</u> (FlucCs)
4.1 ac. <u>630</u> (FlucCs)	<b>0.1 acres</b>	0.2 ac. <u>618</u> (FlucCs)
4.9 ac. <u>641</u> (FlucCs)		<b>0.7 acres</b>
<b>13.9 acres</b>		

2- FM 2571631	4- FM 4092071	6- FM 4037811
3.1 ac. <u>615</u> (FlucCs)	0.1 ac. <u>617</u> (FlucCs)	0.3 ac. <u>510</u> (FlucCs)
3.2 ac. <u>618</u> (FlucCs)	0.2 ac. <u>641</u> (FlucCs)	0.1 ac. <u>641</u> (FlucCs)
1.6 ac. <u>641</u> (FlucCs)	<b>0.3 acres</b>	<b>0.4 acres</b>
<b>7.9 acres</b>		

**TOTAL – 23.3 Acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: \_\_\_\_ Creation \_\_\_\_ Restoration X Enhancement \_\_\_\_ Preservation Mitigation Area: **1518 acres**  
(Non-forested Wetlands - 970 acres, Forested Wetlands – 548 Acres)

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Withlacoochee River Water Body(s): Giddon Lake, Merritt Pond, Goose Pond, Little Withlacoochee River SWIM water body? N

#### Project Description

**A. Overall project goal:** Enhancement of various wetland systems (1518 acres) within portions of the Withlacoochee State Forest; including the Baird Tract (11,000 acres) and Richloam Management Area (49,000 acres). Benefits will include hydrologic enhancement of existing wetlands through culvert installation, geotextile crossings, constructing sills, plugging & backfilling ditches, and removal of various segments of fill road. Enhancement and attenuation of water sheet flow throughout these wetland systems and groundwater recharge will be achieved through reduction and removal of upland-cut ditches. Installation of appropriately placed cross-drains within access roads to remove blocked-flow patterns will also enhance various aspects for wildlife life cycles.

**B. Brief description of current condition:** Refer to Attachment A and 1995 infrared aerials.

**C. Brief description of proposed work:** Refer to Attachment B.

## Mitigation Project – Baird Tract, Page 2

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed hydrologic enhancement will result in biological (flora & fauna) improvements to various wetland and upland habitats. Particular enhancement will result in various deep-water marshes associated with wetland systems at Baird Tract (i.e. Gidden Lake, Merritt Pond, Revel Pond, Goose Pond), similar to the deep-water marsh habitat conditions of the proposed SR 44 roadway impacts along Lake Henderson and Lake Tsala Apopka. Almost all the proposed wetland shrub habitat impacts are wax myrtle and Carolina willow generated along the existing SR 44 toe-of-sideslope areas. Beyond the proposed roadway construction limits, the willows transition into marsh habitat typical of wetland conditions prior to the construction of the existing SR 44. As for the proposed forested wetland impacts associated with SR 44 widening, hydrologic enhancement of Fender Swamp and other hydrologically impacted forested wetlands adjacent to the existing ditches will compensate for those impacts. Due to the large-scale of the proposed Baird Tract improvements, the loss of the SR 44 wetland habitats will be compensated by the significant ecosystem benefits from the proposed activities. The minor alterations (i.e. ditch plugs, culvert invert modifications and additions, etc.) required to enhance and restore hydrologic regimes provide more opportunity to increase the various wetland habitat functions and overall value than the combination of other restoration methods such as vegetative planting, herbicide maintenance, and extensive construction activities. In addition, retaining water within the wetlands and surface waters to restore a natural hydrology will result in significant secondary benefits such as attenuation and groundwater recharge within the entire area of Baird Tract. The final estimate of forested versus non-forested wetland enhancement will be conducted as part of the design. At a minimum, the activities are expected to enhance wetland acreages that include **970 acres (non-forested) and 548 acres (forested) for a total 1518 acres to mitigate for 23.2 wetland impact acres (65:1 ratio).**

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are currently no existing or proposed mitigation banks within the Withlacoochee River Basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project within this watershed is the Lake Panasoffkee Restoration project, which has been designated to provide the mitigation for proposed DOT impacts to the lake, FM 548964, I-75 Lake Panasoffkee Bridge.

## MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Division of Forestry in cooperation with the Dept. of Environmental Protection

Contact Name: Rose Poyner, Judy Ashton (DEP-Tampa)

Phone Number: 813-744-6100

Entity responsible for monitoring and maintenance: DEP and DOF

Proposed timeframe for implementation: Commence: January, 2001-2003 – Site Evaluations & Hydrologic monitoring, initial enhancement with culvert replacements – 2003, Surface water modeling & permitting – 2004-2005

Complete: Spring, 2006 -Construction, followed by minimum 3 years of monitoring.

Project cost: \$1,300,000 (total)

Design & Permitting - \$120,000

Construction - \$1,100,000

Maintenance & Monitoring - \$80,000



### Mitigation Project – Baird Tract, Page 3

#### Attachments

- x   1. Detailed description of existing site and proposed work. Refer to Attachment A.
- x   2. Recent aerial photograph with date and scale. Refer to attached 1995 infrared aerials.
- x   3. Location map and design drawings of existing and proposed conditions. Refer to Attachments 1 and 4 for site location, infrared aerials have potential structure locations, design drawings will be completed in 2005.
- x   4. Detailed schedule for work implementation, including any and all phases. Refer to previous scheduled description.
- x   5. Proposed success criteria and associated monitoring plan. Monitoring will be conducted semi-annually (dry & wet season monitoring events) for a minimum of three years to monitor the wetland hydroperiod and vegetative trends as a result of the enhancement efforts. The results of the semi-annual monitoring will be documented in annual monitoring reports submitted for a minimum 3 years post-construction. The initial monitoring report will document pre-existing conditions and the construction activities. A monitoring plan will be conducted in coordination with the Div. of Forestry to evaluate strategically placed staff gauges and vegetative monitoring. Qualitative vegetative evaluation of the proposed wetland enhancement areas will be conducted as part of the hydrologic monitoring. Success criteria will include the demonstration of hydrologic and vegetative enhancement to the wetlands specified for proposed enhancement.
- x   6. Long term maintenance plan. Long-term maintenance will be associated with checking the proposed construction areas (i.e. ditch blocks, sills, culverts, geotextile crossings, etc.) to ensure proper function and no erosion or stabilization problems. Control of nuisance and exotic species will include herbicide management when and where necessary for the wetlands proposed for enhancement.
- x   7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to Response to Comment E.

## ATTACHMENT A

Natural conditions within the subject areas have been significantly altered due to structures such as roads and railway grades which function as levees. Water is impounded or is diverted during periods of high water, altering the natural hydroperiods and flow patterns. Canals, drainage ditches, undersized culverts and culverts set with low inverts have also dewatered systems. Flows are channelized and bypassing occurs due to these alterations as opposed to the natural sheet flow which historically existed through these wetlands. In areas where very minor water elevation differences would be expected between pools which are proximal to each other, differences in excess of a foot have been observed due to blockages and diversions. Lake levels have shown in excess of 9 foot differences between the historic level as observed from indicators on site. Vegetation changes have occurred such as upland species moving into historically wetland areas. Some examples are described below:

- **The Van Fleet Trail** (a former railroad grade) is apparently restricting and diverting some of the high water flows which would otherwise move westward. The elevation of the Van Fleet Trail has been observed to be in excess of 4' above the seasonal high water elevation of adjacent wetlands. For example, in Section 24, water moving westward during periods of high flow must pass through a single concrete culvert approximately 31" wide, and 33" in height, and 48 feet in length. Flow is also restricted 1,000 feet to the west by a 30" corrugated metal pipe embedded in an elevated forest road which surrounds Fender Swamp. Flow is diverted and channelized resulting in bypassing of major areas.
- High water elevations from the **Davis Swamp** pool westward are described as follows: From the east side of the **Van Fleet Trail** (east) to the west side of the Trail, there was a 0.19 feet drop in water level based on lichen lines. From the west side of the Van Fleet Trail westward through a culverted forest road there was an additional drop of 0.87 feet. drop as measured within the **Fender Swamp** pool. The total elevation drop within a distance of 1,000 ft. was 1.06 ft.
- Historic flows westward from the Van Fleet Trail in Section 14 have been blocked by a road on private property which is presently without culverts.
- During the high water event in 94, several hundred acres of marsh and cypress wetlands bordering 1.5 miles of the Van Fleet Trail were somewhat shielded from flood flows due to the elevated grade of the Van Fleet Trail and adjacent forest roads to the west and a lack of culverts in strategic locations. The semi-impounded system west of the Van Fleet Trail had a high water level 1.25 ft. below that of **Davis Swamp**, and within one isolated pool located 600 ft. northwest of Davis Swamp the water level was 1.44 ft. below that of **Davis Swamp**. This is significant in this flat terrain where normal water levels may vary only fractions of a foot from one wetland to another.
- Within less than a mile north of Davis Swamp, along the forest road flanking the east side of the Van Fleet Trail, the high water level was 1/10 ft. lower on the east (**Big Prairie**) side of the East Railroad Grade.
- During the stronger flow events, some of the water discharged from **Davis Swamp** will bypass the **Van Fleet Trail** and move northward and northeastward, generally east of East Railroad Grade, through swales (6'x 1.75') and as sheet flow through some wooded wetlands and prairies over a span of two miles before connecting with the box culverts on **S.R. 50 (Big Prairie)**. Culverts and ditches are directing waters, east of East Railroad Grade, northward across S.R. 50.
- The wooded floodplain (live oak, swamp laurel oak) of **Davis Swamp** was covered with 1 ft. of water during the last high water event. This implies that a water level close to 95.50' would be expected during a normal wet period.



- In summary, from **Davis Swamp** to **S.R. 50** there was a drop between the high water marks of 2.26 feet.
- **Fender Swamp** is one of the larger flatwoods, pond cypress basin swamps (262 acres). High water lines were found to be identical both north and south of the south perimeter road of Fender Swamp (NE 1/4 of Section 26). Ditches have both (1) diverted flows and/or (2) caused excessive drainage of Fender Swamp.
- Base flows to **Gidden Lake** have been substantially interrupted. These base flows have been diverted by the Fender Swamp/Gidden Lake drainage canal which extends in a southwest direction from Fender Swamp. Instead of the water being allowed to sheet to the west, it is shunted to the southwest through this large canal toward the Little Withlacoochee. Extended lakebed areas in Gidden are dry and dominated by dog fennel. Limestone features within pooled areas are exposed. On site indicators showed an elevational difference of 9.33 feet between the existing lake level and high water line. While dry seasonal conditions may contribute to lower levels, these dramatic differences emphasize the artificial alterations which have occurred at the site.
- **Goose Pond** has been dewatered.
- **Merit Pond** which is a karst feature is overdrained. A ditch connects Merit pond to Gidden Lake.
- Approximately 150 acres of wetlands including **Goose Pond** have been adversely impacted by the canal which has breached the ridge line in Section 30.
- Revel pond (old borrow pit) recreation site has reduced water flow to it due to channelization of flows.

## ATTACHMENT B

Significant hydrological impacts have occurred due to the construction of roads and ditches. By pursuing efforts to plug ditches, install additional culverts, bridges and remove selected secondary roadbeds, restoration of historic drainage patterns and extended wetland hydroperiods would result. Outparcel acquisition would also be pursued as targeted areas would be critical to the rehydration plan. These efforts would significantly benefit fish and wildlife, surface water storage and groundwater recharge. This can all be achieved without any adverse consequences to Forest Management. Restoration efforts would be prioritized to achieve the greatest benefits. Regional changes in groundwater levels and natural cycles are factors which must be taken into account while proceeding with the project activities. It should also be noted that while some specific actions are identified, a more detailed study of the areas hydrology would be pursued which may modify some of these proposals (such as size, type and location of structures to be installed). A drainage study has been included in the budget. Some examples of activity areas are identified below:

- **Van Fleet Trail**-This would be one of the primary project areas as the Van Fleet trail functions as one of the limiting factors in allowing water through this vast causeway. Additional culverts are recommended for the Van Fleet Trail in Sections 24 and 14. A more detailed study of the areas hydrology would be implemented to determine the size, location and type of cross drains to be constructed. It would be anticipated that larger box culverts (3' x 6') may be required in major conveyance areas. If additional culverts were constructed at the Van Fleet Trail and within the forest roads, some of the **Davis Swamp** flow could flow northward and westward into the wetlands bordering the west side of the Van fleet Trail.
- The course of action recommended for **Fender Swamp** is to add inflow and outflow culverts from the southeast to the southwest of the swamp, to place several ditch blocks in the Fender Swamp outfall canal, and to install additional culverts in Canal Grade Road to restore flows to the west. In Section 24, two 30 inch culverts are needed west of the Van Fleet Trail. The first culvert would be installed in the East Railroad Grade and the second culvert would be installed through the south end of Front Pasture Grade. This would allow improved flows into Fender Swamp and allow the wetlands in Sections 14, 23 and 24 west of the Van Fleet Trail to exchange waters.
- Several 24 inch culverts are recommended along the south and southwest sides of **Fender Swamp**. Two 24 inch culverts should be placed immediately at the southwest corner of **Fender Swamp**. Four 24 inch culverts are proposed for wetland crossing located east of Canal Grade. For the present time and for the foreseeable future the culvert beneath Buzzard Roost Road connecting Fender Swamp to the Fender Swamp Canal along Canal Grade Road can remain in place, even though the canal is scheduled to be plugged approximately 60 feet to the south. The existing culvert could still function to convey waters in ditches cut parallel to the road which tie into established wetlands.
- Approximately 8 ditch blocks may be required on the **Fender Swamp** canal in Sections 26, 27 and 34 (Canal Grade). Several 24 inch culverts need to be replaced and (4) 30 inch culverts need to be installed on Canal Grade in the southeast corner of Section 27.
- **Gidden Lake and wetland complex**: Selectively plug the drainage canal along the east side of Canal Grade Road to improve flows to Gidden Lake and install additional culverts at the appropriate locations to restore more natural drainage to Gidden Lake. There is a natural outlet to Gidden Lake which will be left intact. Flows redirected to Gidden Lake will be monitored.
- **Section 14 and Merritt Pond**: A closer examination of Section 14 is needed to resolve the impact of a private road which is functioning as a levee. Negotiations with private land owners can result in restoration of flows to forest lands in the Merritt Pond area. Some localized flooding should also be



reduced if drainage is restored to the west. An overflow in an old road bed, local topography and excessive drainage to the west clearly indicates westerly flows need to be restored.

- **Merit Pond:** Potential of installing a control structure between the canal connecting Merit Pond and Gidden Lake.
- **Goose Pond:** Ditch blocks would be constructed to restore hydroperiod.
- **Section 26 and Southwest of Fender Swamp:** Removal of fill roadway to restore natural grade.
- **Northwest corner of Fender Swamp:** Creation of a ponded area within an existing spoil site.
- Several Geoweb crossings will be installed along main crossings such as canal grade where there are currently insufficient culvert crossings. This would allow for sheet flow across currently restricted areas.
- Swale checks/blocks would be installed at locations to maintain natural flow patterns and preclude or reduce the current diversion and channelization of water. These ditches may then be used as feeder/dispersion ditches with correct elevations applied to these ditch blocks.
- Construction of sills around altered wetlands to restore hydroperiods.
- **Revel Pond:** An existing culvert is set approximately ½ foot below the existing wetland grade. Alteration of the culvert invert elevation would reduce dewatering effects. Construction of a sill on west side of the pond to reduce overdrainage would enhance this system.
- Additional studies would be required prior to implementing culvert installations along the East Railroad Grade east of the Van Fleet Trail since the culverts could simply increase drainage of the wetlands eastward into wetlands already ditched and drained northward into Big Prairie and from the Little Withlacoochee River.

**Land Acquisition and Preservation:** less than Fee simple title transfer of outparcel areas would be pursued. Properties may also be encumbered with conservation easements.

Some of the major components of the Baird Tract wetland restoration project will include the following areas. The restoration efforts will primarily consist of ditch blocks, culverts and geoweb crossings within these systems to promote sheet flow and eliminate channelization and diversion. It is expected that significantly greater acreages of wetlands will actually receive benefits from these activities. The following are estimates of direct wetland enhancement which would be expected to occur through restoration efforts.

Sally Slough

Approximately 303 acres of wetland enhancement via the installation of ditch blocks and culverts. Wetlands consist of cypress, mixed wetland forest, hardwood forested wetlands. Land use codes included in enhancement area: 6300, 6150, 6210

Fender Swamp

Approximately 240 acres of wetland enhancement via culvert installations. Wetlands consist of cypress and herbaceous wetlands. Land use codes included in enhancement area: 6210, 6400

Gidden Lake

Approximately 422 acres of wetlands to be enhanced. Dewatered marsh adjacent cypress wetlands and hardwood forested wetlands will be enhanced. Land use codes included in enhancement areas: 6410, 6150, 6210

Merrit Pond

Approximately 185 acres of marsh will be enhanced, including openwater areas. Enhancement will include the blocking of the ditch draining from Merrit Pond into Gidden lake. Land use codes included in enhancement areas: 6430, 6440, 6410, 6150

Van Fleet Trail

Approximately 316 acres of wetlands will be directly enhanced via the construction of culverts. Land use codes included in enhancement areas: 6410, 6200

\*Canal Grade

Approximately 422 acres of wetlands will be directly enhanced via the installation of ditch blocks, geoweb and culverts. Land use codes included in enhancement areas: 6210, 6430, 6300, 6410

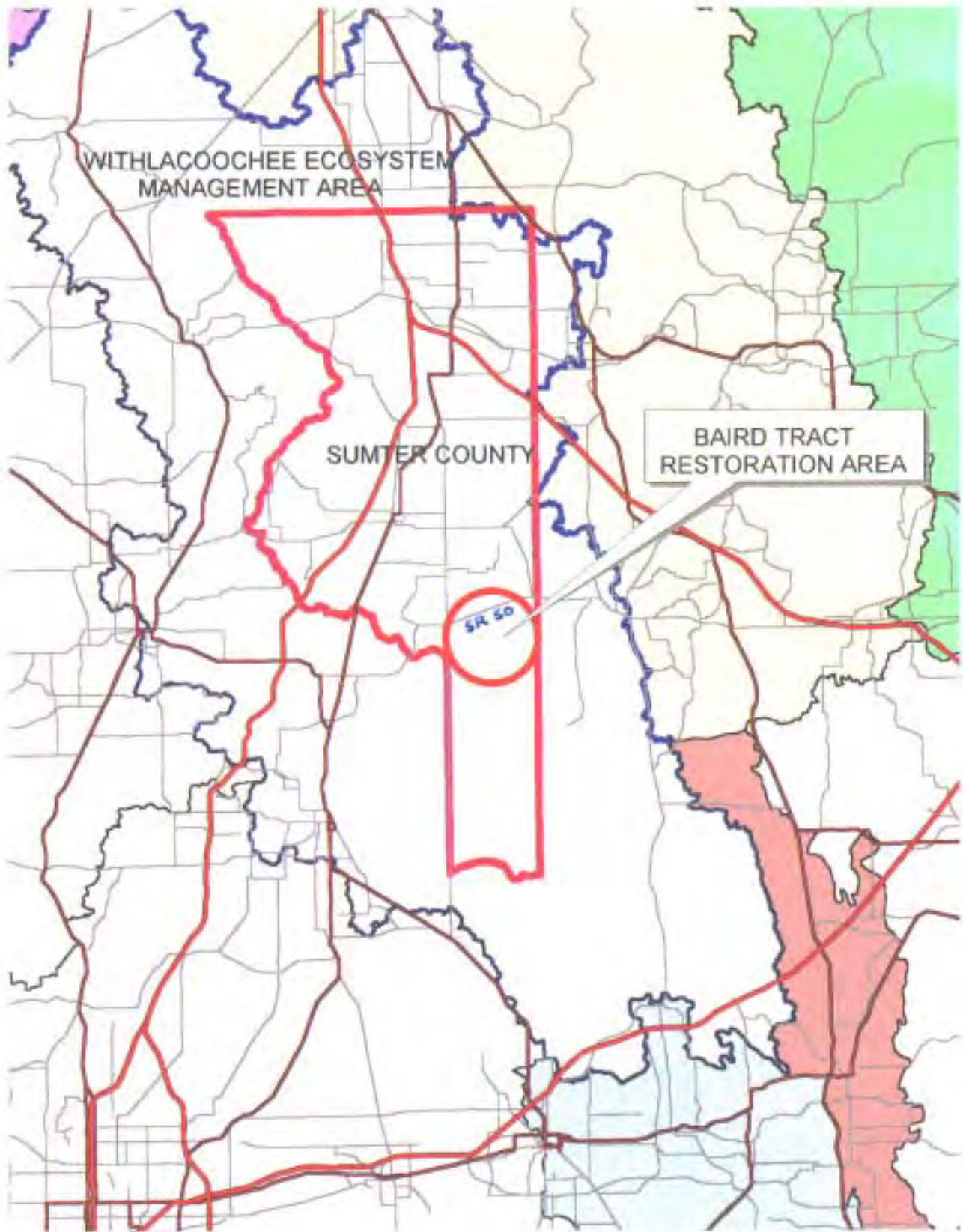
\*(A Federal Grant has been applied for and received by the Department for this area. This area will not be included within this plan)

Goose Pond

Approximately 52 acres of wetlands will be directly enhanced. Land use codes in enhancement areas: 6430, 6210



ATTACHMENT 1



5 0 5 10 Miles



ATTACHMENT 4





**BAIRD TRACT**  
Natural Resource Conservation Survey November 1988





BAIRD TRACT  
1995 INFRARED AERIAL  
Entire Project Area

SR 471

SR 50

OUT PARCEL

Goose Pond

Oradon Lake

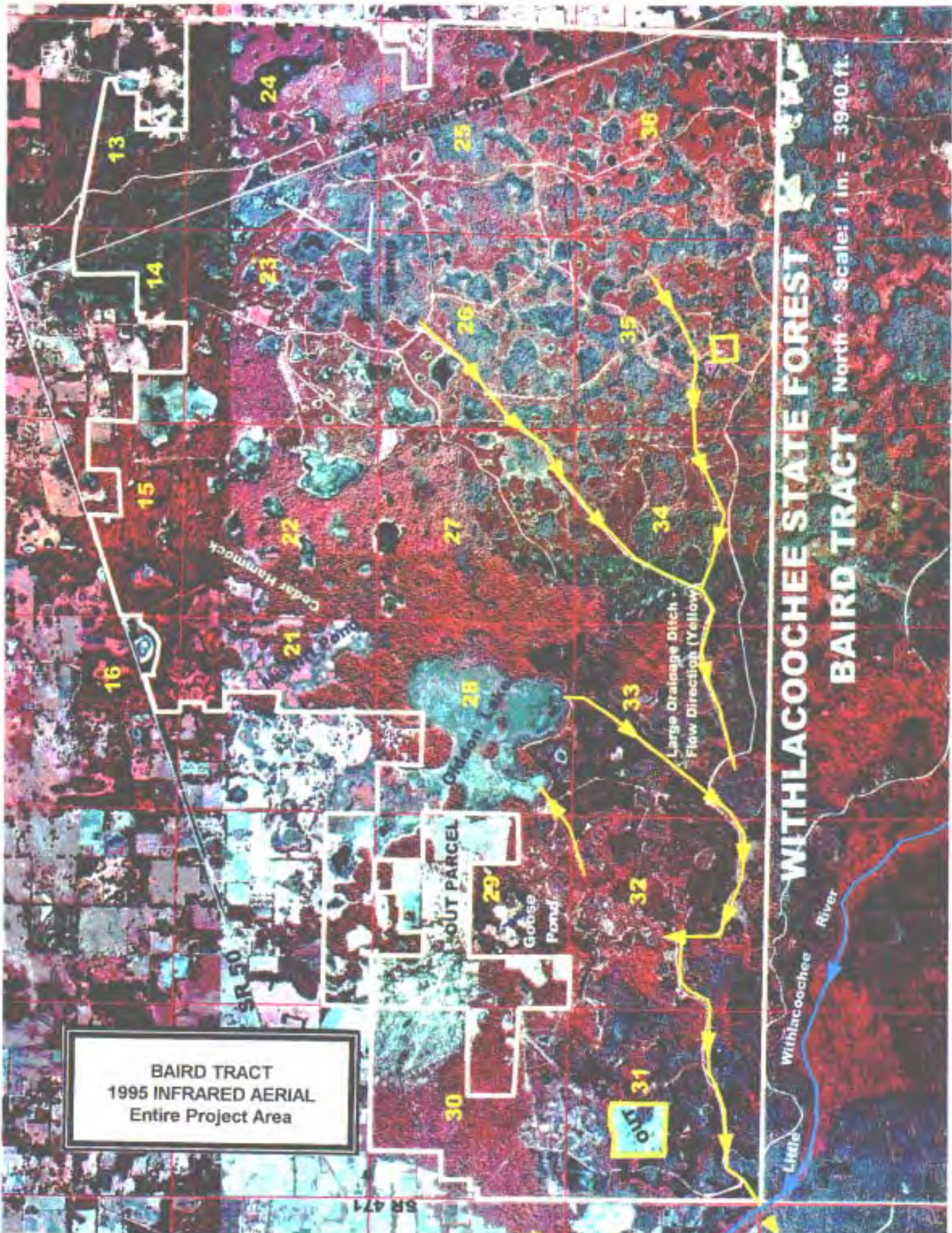
Cedar Hammock  
Pond

Large Drainage Ditch -  
Flow Direction (Yellow)

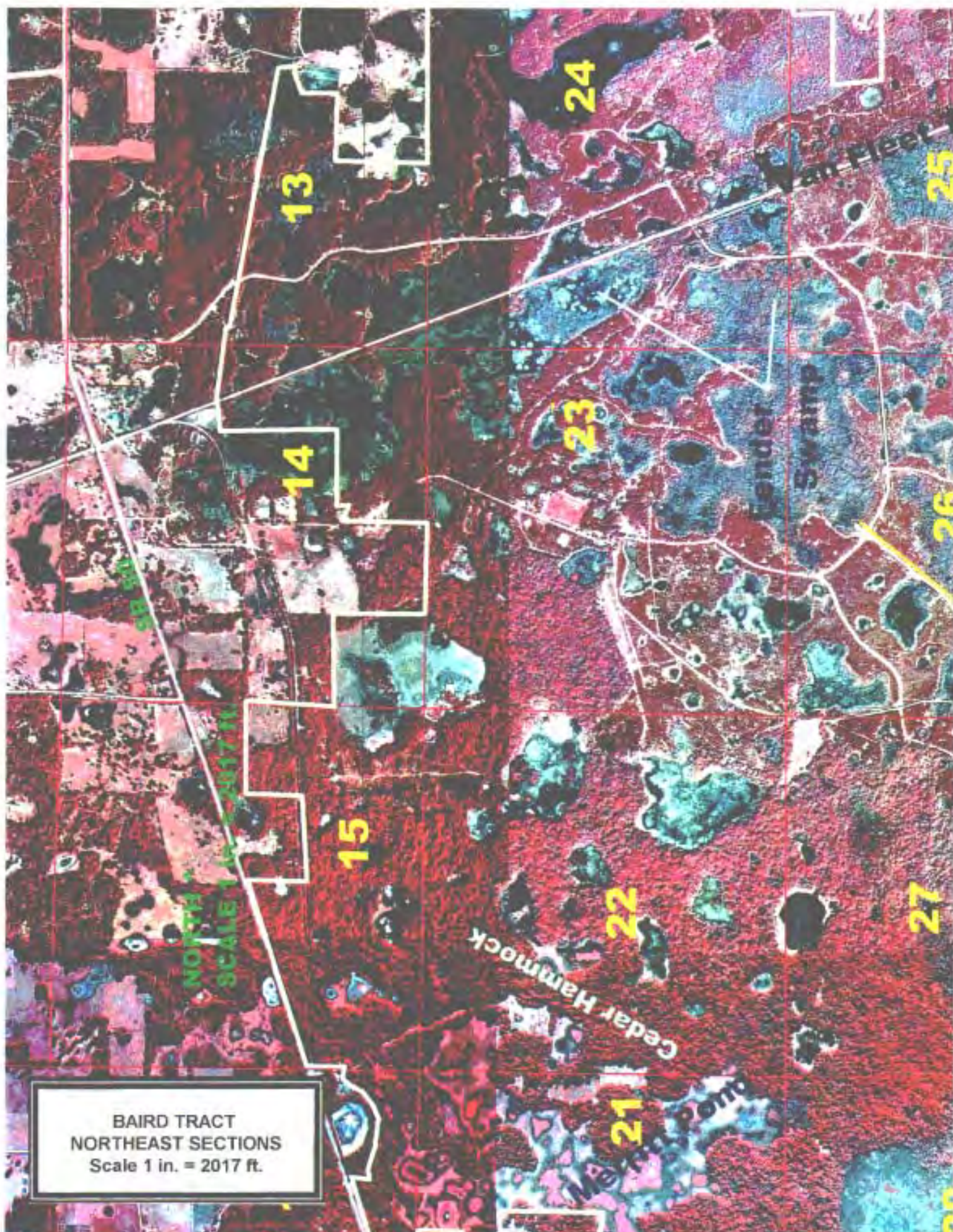
Little  
Withlacoochee  
River

# WITHLACOOCHEE STATE FOREST BAIRD TRACT

North ^ Scale: 1 in. = 3940 ft.

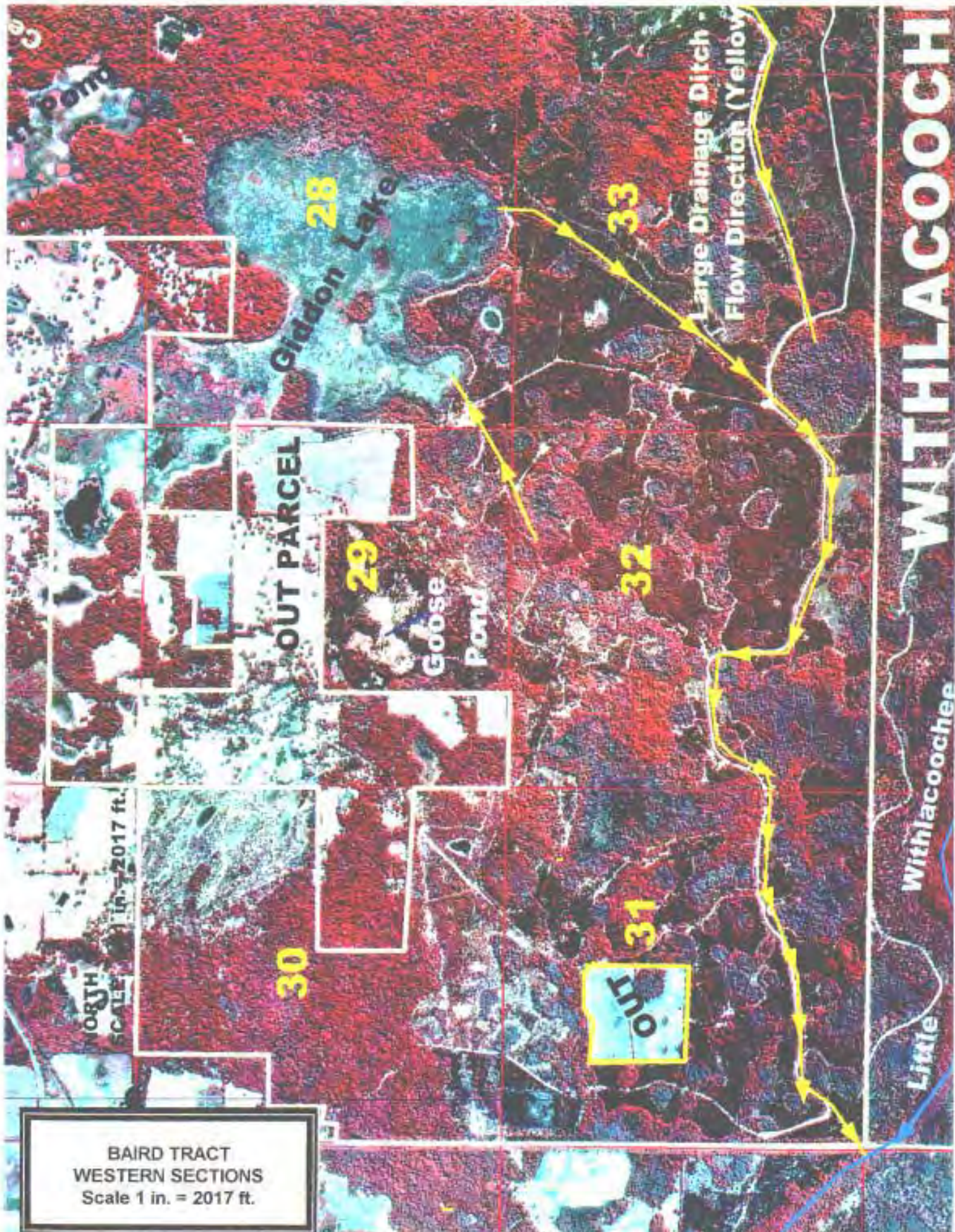




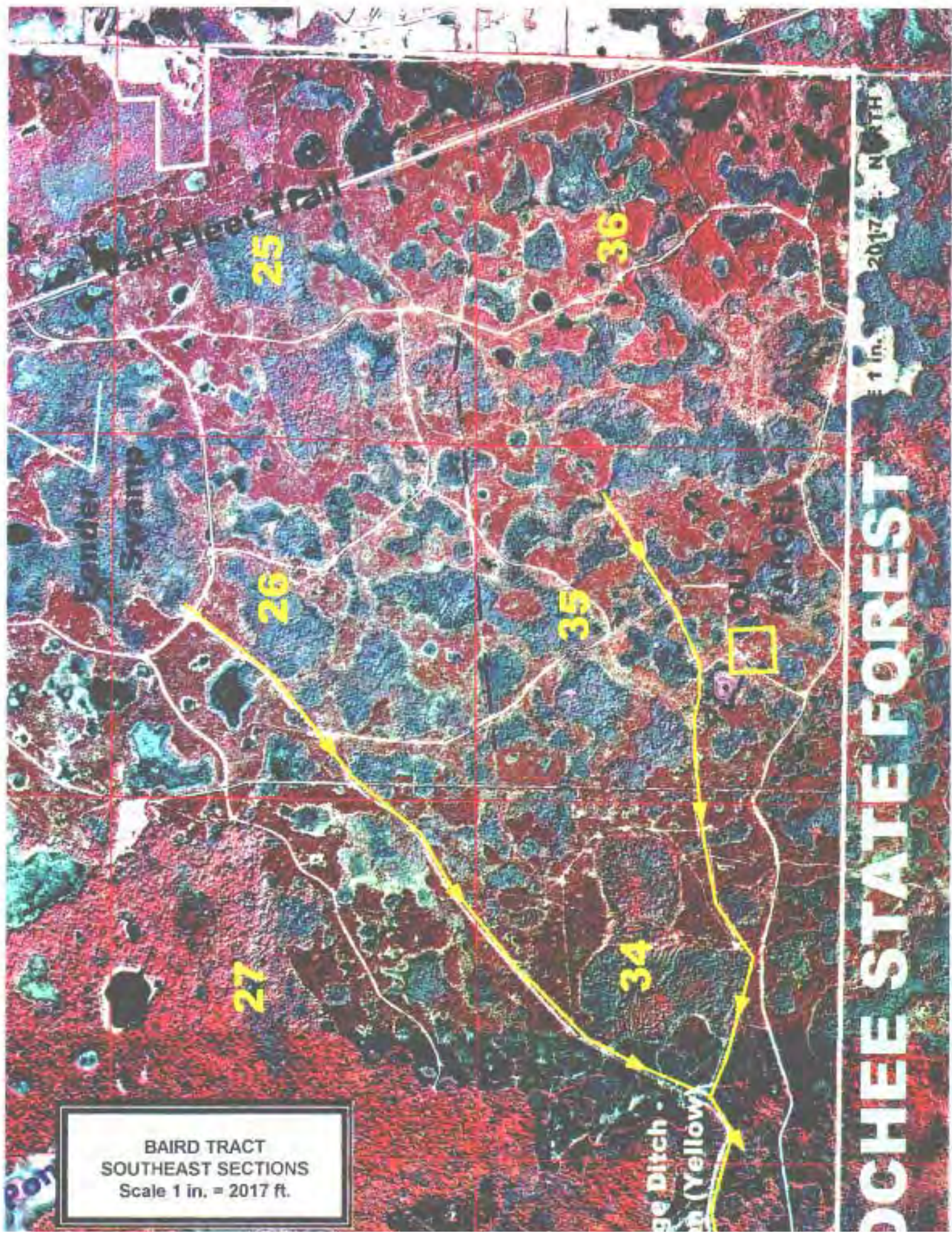


BAIRD TRACT  
NORTHEAST SECTIONS  
Scale 1 in. = 2017 ft.







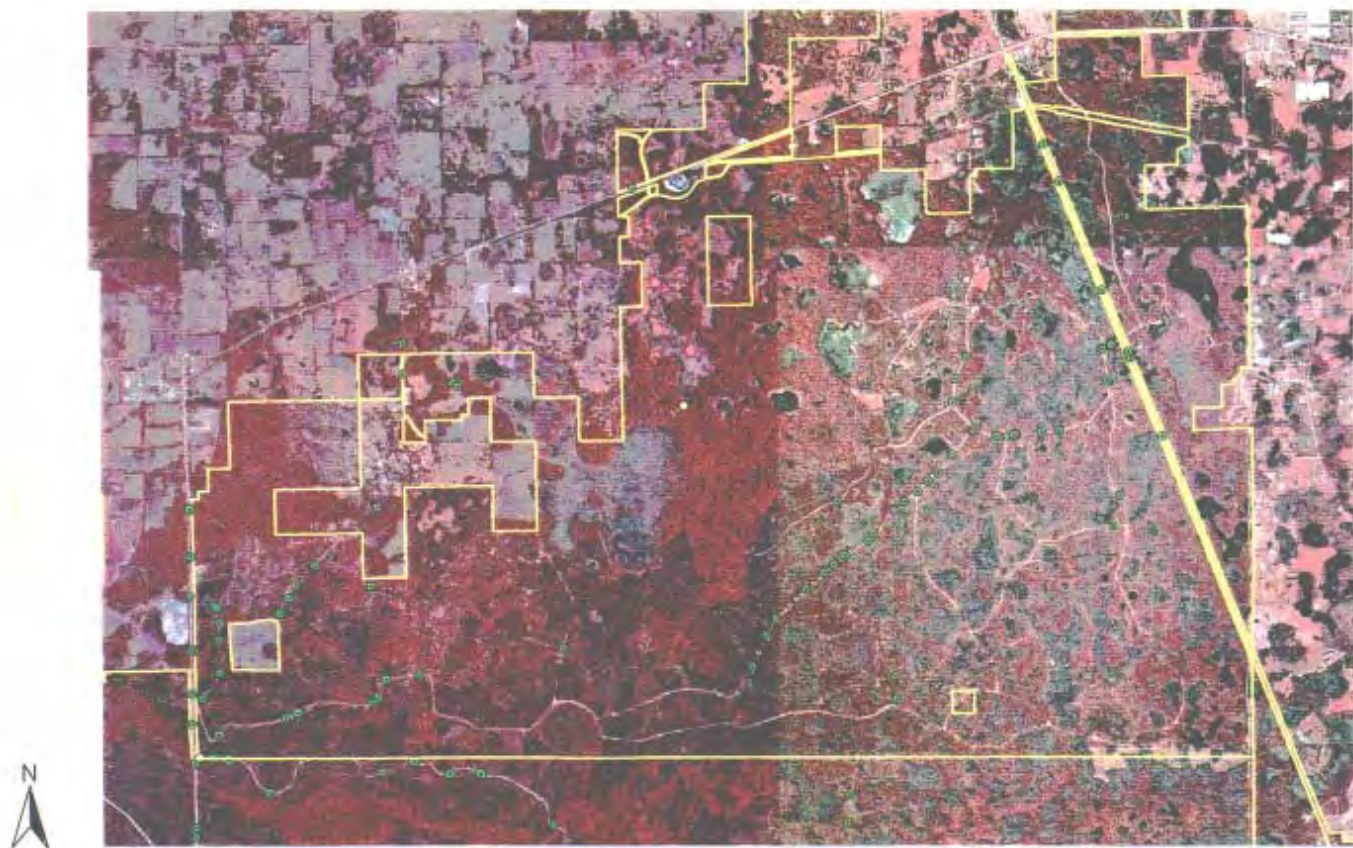


BAIRD TRACT  
SOUTHEAST SECTIONS  
Scale 1 in. = 2017 ft.

1 in. = 2017 ft. NORTH

OCHEE STATE FOREST





Overall Project Area W/Structures

2000 0 2000 4000 Feet



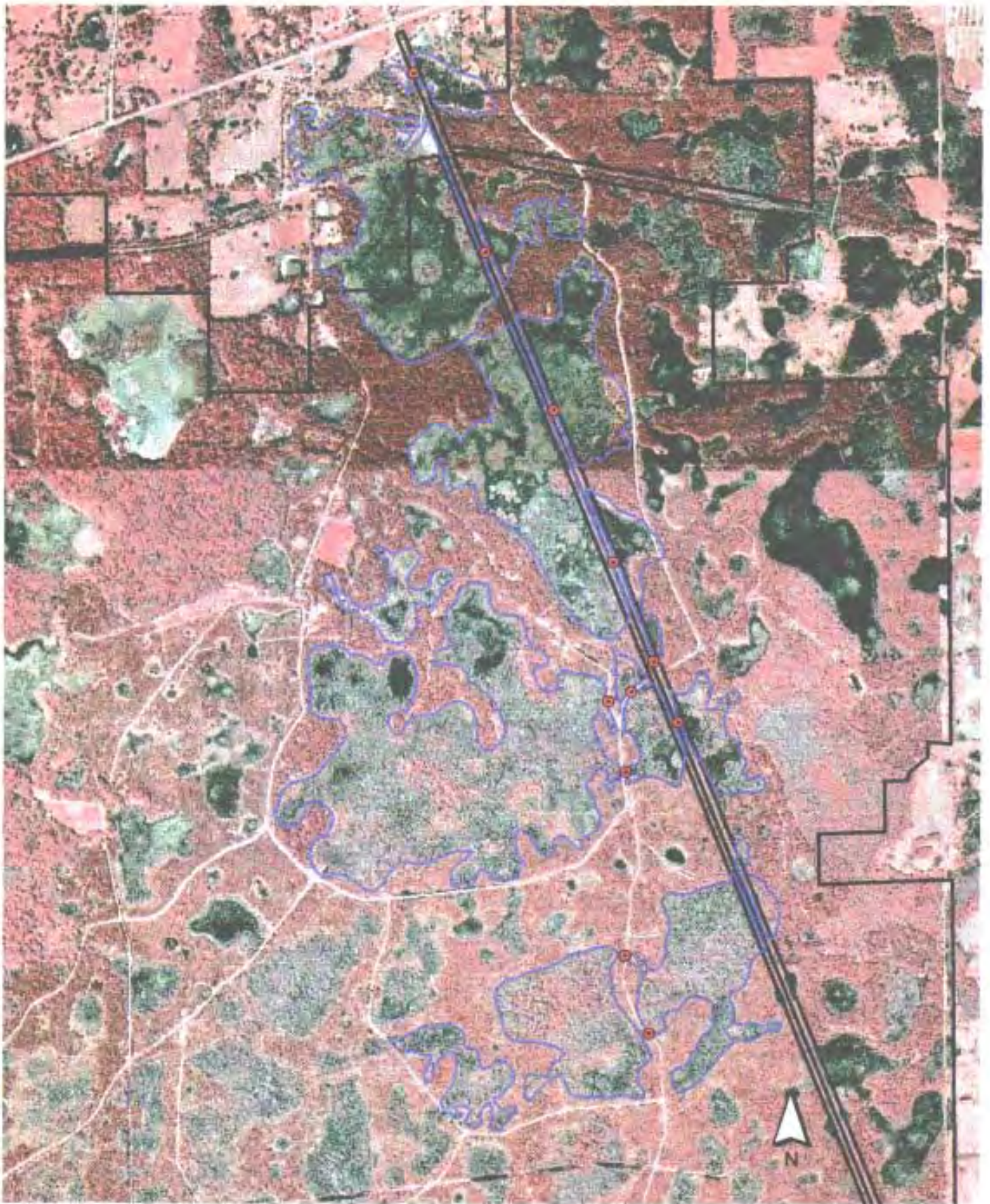
Gidden Lake, Goose Pond, Merritt Pond  
Restoration Area



700 0 700 1400 Feet

Gidden Lake-422 acres  
Merritt Pond-185 acres  
Goose Pond-10 acres





Van Fleet Trail/Fender Swamp Enhancement Area

1000 0 1000 2000 Feet

● Proposed/Upgraded Structures  
Enhancement Area 672 Acres



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Rutland Ranch – South Tract**

Project Number: **SW 65**

Project Manager: Mark Brown, SWFWMD Environmental Scientist

Phone No: (352) 796 – 7211 (ext. 4488)

County: Manatee

### IMPACT INFORMATION

1 - FM: <u>1960222, SR 64, I-75 to Lena Rd. (Seg. 1)</u>	ERP #: <u>4302058.009</u>	COE #: <u>199901379 (IP-KI)</u>
2 - FM: <u>1960223, SR 64, Lena to Lakewood (Seg. 2)</u>	ERP #: <u>4316872.018</u>	COE #: _____
3 - FM: <u>1961211, SR 70, I-75 to Lakewood Ranch (Seg. 1)</u>	ERP #: <u>44025920.001</u>	COE #: <u>SAJ-2003-11659 (IP-MLS)</u>
4 - FM: <u>4043232, SR 70, Lakewood to Lorraine Rd. (Seg. 2)</u>	ERP #: <u>43025920.002</u>	COE #: <u>SAJ-2004-32-IP-JPF</u>

Drainage Basin: Manatee River

Water Body: Gates Creek, Manatee River

SWIM water body? N

#### SR 64 Projects (3.26 acres)

1 (Seg. 1) – 0.68 ac. 617 (FlucCs)  
1.29 ac. 640 (FlucCs)  
0.45 ac. 641 (FlucCs)  
TOTAL 2.42 acres

#### SR 70 Projects (5.86 acres)

3 (Seg. 1) - 0.9 ac. 641 (FlucCs)

2 (Seg. 2) - 0.33 ac. 630 (FlucCs)  
0.51 ac. 641 (FlucCs)  
TOTAL 0.84 acres

4 (Seg. 2) - 2.1 ac. 615 (FlucCs)  
1.7 ac. 640 (FlucCs)  
TOTAL 3.8 acres

**TOTAL 8.06 Acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Enhancement X Restoration (Upland & Wetland Habitat)

Mitigation : **115 ac.**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin(s): Manatee River Water Body: None SWIM water body? N

#### Project Description

A. **Overall project goal:** Over half of the Rutland Ranch – South Tract (total 900 acres) was historically used for row crop farming (Figure C). The site has 15 wetland areas, all but one were historically isolated marshes. The majority of these marshes have been interconnected with large ditches which have substantially altered the wetland hydrology and vegetative composition. The restoration includes completely filling some of those ditches and using ditch blocks in other areas to restore ground and surface water hydrology and subsequently enhance the wetland habitat. Upland buffers and filled ditches will also be planted to enhance upland & wetland habitat and corridors between the marshes within the pasture.

B. **Brief description of current condition:** The upland interior of the South Tract was historically flatwoods and palmetto prairie that was converted to row crop farming. The row crops were replaced with improved pasture (bermuda & bahia grass) that was subsequently allowed to go fallow, resulting in substantial generation of salt-bush, broomsedge, and dog fennel. The hydrology of the marshes were substantially altered by the deep cross and connector ditches, allowing broomsedge to heavily invade the marshes (photos). The western one-third portion of the tract is still covered with a palmetto prairie with scattered shallow ephemeral marshes that have also been impacted by ditches. A mixed forested wetland tributary to Gilley Creek is located along the northern boundary. (Refer to Attachment A for details of existing and proposed conditions).

## Mitigation Project – Rutland Ranch, Page 2

- C. Brief description of proposed work:** Initial effort included herbicide treatment of exotics and nuisance species within the ditches. Followed by construction activity to backfill the majority of the ditches (some ditchblocks) in order to restore groundwater and surficial hydrology of the majority of on-site wetlands. Herb planting was conducted in the exposed earthwork areas of those wetlands where the spoil was cut to backfill the ditches (refer to site photos). The existing upland buffers around Wetlands 1-4 and 12 had longleaf pine planted to increase buffer habitat, and cypress and maple were planted within the outer zone of Wetland 12 in 2004. Refer to Attachment A for additional information and Figure C for the mitigation plan design. Construction and planting activities were conducted in the spring and summer, 2002; a minimum of 3 years of maintenance & monitoring is proposed.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The anticipated FDOT wetland impacts (total 7.96 acres) includes 4.85 acres of non-forested and 3.11 acres of forested wetlands. The proposed mitigation plan will result in wetland enhancement (75 acres) from the hydrologic restoration, wetland restoration from grading the spoil material to historic wetland grade elevations and planting (5 acres), upland habitat restoration from grading ditches in the palmetto prairie (10 acres), upland habitat enhancement and restoration around Wetlands 1-4 and 12 (25 acres) which will establish and maintain upland habitat corridors. This results in a cumulative mitigation acreage of 115 acres to mitigate for the 8.06 acres (14.3-to-1 ratio). Detailed description of the mitigation ratios for each DOT impact is described under Attachment C, WRAP assessment and associated ledger debit available from Mark Brown (SWFWMD).
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no existing mitigation banks within the Manatee River Basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project in this basin is Terra Ceia (SW50). The Terra Ceia project includes restoration and enhancement of salt-water and estuarine habitat, and is mitigating for salt-water wetland impacts associated with one DOT project to date (2004).

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD – Operations Dept.

Contact Name: Mark Brown, SWFWMD Environmental Scientist

Phone Number: 352-796-7211, ext. 4488

Entity responsible for monitoring and maintenance: SWFWMD

Proposed timeframe for implementation: Commence: Hydrologic Monitoring, Spring – 2001 Complete: Const., Spring, 2002, minimum 3 years of maintenance & monitoring, perpetual management

Project cost:	\$ 181,000 (total);	
	\$1,000	Herbicide Ditches
	\$120,000	Construction (Backfill Ditches)
	\$40,000	Planting (Wetland Herbs, Pine Tree Planting)
	\$20,000	Maintenance (Herbicide) & Monitoring (3 Years – Annual Reports)



## Mitigation Project – Rutland Ranch, Page 3

### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A – Existing Site & Proposed Work
- X 2. Recent aerial photograph with date and scale. Refer to Figure B (Vicinity Aerial) and Figure C (Site Aerial)
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) & Figure C has the ditch backfill, ditchblock, & pond locations.
- X 4. Detailed schedule for work implementation, including any and all phases. Attachment B – Work Schedule
- X 5. Proposed success criteria and associated monitoring plan. Attachment C – Maintenance & Monitoring Plan
- X 6. Long term maintenance plan. Figure E -Monitoring Plan & Attachment C – Maintenance & Monitoring Plan
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion to Comment D and Attachment D.

### Attachment A – Existing & Proposed Site Conditions

The SWFWMD purchased the Rutland Ranch property in 1998 for a few major reasons. The tract is located within the Southern Water Use Caution Area (SWUCA), a designated area where groundwater resources are at critical levels that require limitations of water well withdrawals. The property provides contributing surface and ground water to the Manatee River and Lake Manatee. Located less than a mile south of the tract, the river and reservoir provide potable water to Manatee County. Land use changes from row crops to less intensive agricultural operations such as cattle (South Tract) and silviculture (North Tract) not only place less strain on consumptive use (water quantity) but results in less nutrients (water quality) that contribute to the watershed and the Manatee River. The SWFWMD and Manatee County are striving toward additional land acquisition and habitat restoration opportunities in the Lake Manatee watershed.

The SWFWMD is currently committed to minimal long-term cattle grazing on the existing pasture within the Rutland Ranch-South Tract. However, the activities associated with this mitigation plan will substantially lessen any associated impacts from cattle, enhance wetland habitat, improve water quality, retain surface water for groundwater recharge, and increase the habitat opportunities for wildlife. The following information pertains to major pre-construction site characteristics and improvements to the site. Refer to Figure C for aerial depiction and the site photographs to relate with the text.

**Native Range** - The native range designation pertains to the palmetto prairie within the eastern one-third of the site, pine flatwoods within the northeast quadrant near the forested floodplain wetland (Wetland 15), and within the southeast corner (surrounding Wetlands 13, 14). The vegetation of these prairies include a dominance by saw palmetto, broomsedge, and wiregrass. Ditches excessively drain surface and ground water conditions from the uplands and the majority of wetland marshes (particularly Wetlands 5 & 6 but also 7-11, and 13) located within the prairies. These marshes are shallow systems, with dominant cover of maidencane and relatively high percentage of St. John's-wort. Drainage ditch patterns lead northwest, west, south, and southeast to tributaries of Gilley Creek and the Manatee River.

The original construction plan proposed utilizing a dominance of ditch blocks within the western ditches and, where necessary, total ditch backfilling to enhance the hydrology of these shallow marshes. Upon evaluation it was determined that ditch blocks alone could not detain the substantial volume of groundwater drawdown caused by the deep ditches located adjacent to Wetlands 7-9, so total backfill of those ditch segments were conducted during July, 2002. In addition, total filling was conducted for the ditch segment crossing through Wetland 5 and a portion of Wetland 6. However, in order to protect existing trees and shrubs generated on the spoil while restoring hydrology in Wetland 6, the construction of ditch blocks were employed. The ditch block method also allows an open water source for wildlife during the dry season.

## Mitigation Project – Rutland Ranch, Page 4

Herb generation and seed recruitment from adjacent native habitat has occurred and provides over 70% ground cover of desirable vegetation by 2004, resulting in **10 acres of upland habitat (palmetto prairie) restoration** to replace the ditches and adjacent spoil material.

**Improved Pasture** – A new cattle lease commenced late 2002 but cattle have not been re-introduced by early, 2004. The WMD has bush-hogged the pastures and bahia is the dominant cover grass. In order to minimize cattle use of the marshes for a water source, three large cattle ponds were dredged in the pastures (Fig. C). The excavated material was used to backfill ditches.

The existing upland habitat buffer around Wetlands 1-4 and 12 will be maintained under existing conditions as part of the cattle lease. Supplemental plantings (1 gallon – 1000 longleaf pines) were planted within these palmetto buffers around Wetlands 1-4 and 12. An average 50 ft. wide upland corridor of native habitat has been enhanced between Wetlands 3, 4, and 12. Existing palmetto, pines, and myrtles located on spoil material within this corridor were preserved from the construction activity necessary to fill the adjacent ditches. Supplemental trees and native seed dispersal has replaced the deep ditches with desirable upland vegetation, resulting in **3 acres of upland habitat (pine flatwood) restoration** to replace the ditches. In addition, tree planting and introduction of prescribed burn management will provide enhancement of the upland buffers around Wetlands 1-3, resulting in **12 acres of upland habitat (pine flatwood) enhancement**. The upland buffers of Wetlands 4 and 12 are also being enhanced with planting and fire management, providing an additional **10 acres of upland habitat (pine flatwood) enhancement**. All the palmetto prairies, pine flatwoods, and wetland buffers will be incorporated into a prescribed burn management plan that will further enhance and maintain these upland habitats for wildlife use. The burn plan will be incorporated on a +/- 5 year cycle, pending growth rate of vegetation.

There is evidence that the removal of the large upland ditches have allowed substantial wildlife movement, including large deer, to travel through the buffer cover from the Gilley Creek tributary north of the site (Wetland 15) all the way to the forested ditch south of the property (Fig. C). The proposed corridors and low cattle stocking rates will allow wildlife to roam and forage throughout the tract.

**Marshes** – The majority of the marshes were previously bisected by drainage ditches. The smaller wetland cross ditches in Wetlands 2, 14, and perimeter of Wetland 12 averaged 10-15 ft. wide, 2-3 ft. deep, and connected to moderate size drainage ditches that were 20-25 ft. wide, 5-8 ft. deep from natural grade elevations. The large drainage ditches such as through the center of Wetland 12 and east-west connecting ditch to Wetland 4 were 25-30 ft. wide, 6-8 ft. deep from top-of-bank. With the gradual size increase as the ditches proceed downstream and positive hydraulic gradient, they were capable of conveying a large volume of water off-site. These ditches not only drained surface water after rain events, but substantially dewatered the shallow groundwater table. Prior to construction, the marshes had very minimal duration and depth of surface water (hydroperiods) due to the ditches. This resulted in substantial alterations in the vegetative components of these wetlands. The marshes transitioned from maidencane-dominated systems to upland and facultative vegetative species such as broomsedge (*Andropogon virginicus* dominant, some *Andropogon glomeratus*). The most extensively ditched marsh was Wetland 12, which had few relic indicators of wetland functions and characteristics. Remnant pockets of maidencane within the cross-ditches were present due to intermittent periods of surface water drainage to the large interior collector ditch. Along with the broomsedge, other upland species that recruited into the marsh include gallberry, wax myrtle, and scattered pine. A substantial amount of wildlife activity has returned to Wetland 12. Wading birds and raptors roost and nest within oaks purposely left within the wetland core to die and become snags. Amphibians, fish, and reptiles have become established and provide excellent food resources. Supplemental herb and tree planting within Wetland 12 was conducted for the spring, 2004; including bulrush, pickerelweed, arrowhead, spikerush, sawgrass, spatterdock, cypress, and red maple. The other marsh enhancement and restoration areas have already achieved over 90% coverage of desirable herb coverage by 2004.



## Mitigation Project – Rutland Ranch, Page 5

The following wetland types and acreage are located on the South Tract. The wetlands proposed for enhancement include hydrologic restoration (HR) for the most impacted systems, hydrologic enhancement (HE) for the less disturbed systems, and minimally improved wetlands (MI) are not accounted for with mitigation credits.

Wet. 1 - marsh – 1.0 acres (HR)	Wet. 9 – marsh – 2.2 acres (HR)
Wet. 2 - marsh – 9.2 acres (HR)	Wet. 10 – marsh – 1.9 acres (MI)
Wet. 3 - marsh – 0.9 acres (HR)	Wet. 11 – marsh – 4.1 acres (HR)
Wet. 4 – marsh – 11.4 acres (HR)	Wet. 12 – marsh – 21.3 acres (HR)
Wet. 5 – marsh – 2.1 acres (HR)	Wet. 13 – marsh – 11.4 acres (MI)
Wet. 6 – marsh – 21.6 acres (HR)	Wet. 14 – marsh – 0.5 acres (MI)
Wet. 7 – marsh – 0.9 acres (HE)	Wet. 15 – mix forest – 19.5 acres (MI)
Wet. 8 – marsh – 2.1 acres (MI)	
<b>TOTALS – Wetland Enhancement - 75 acres</b> (total 110 wetland acres)	

There are five wetlands that had upland spoil ridges as a result of constructed ditches. These spoil areas were covered with bahiagrass and saltbush. Once these spoil areas were graded to fill the adjacent ditches, herb plantings were conducted within these earthwork areas. An older spoil ridge through the middle of Wetland 12 was covered with oak trees that were purposely not removed to result in mortality from the restored hydrology and create snags for wildlife use; particularly bird roosting and nesting. The graded spoil ridges accounted as wetland restoration are as follows:

Wet. 2 – 0.6 acre, Wet. 4 – 0.1 acre, Wetland 5 – 0.4 acre, Wetland 6 – 0.4 acre, Wetland 12 – 3.6 acres  
**TOTALS – Wetland Restoration - 5 acres**

Hydrologic restoration and enhancement of the marshes have resulted in the enhancement of other wetland functions and attributes. Vegetative shifts are transitioning to more desirable and appropriate wetland species have provided foraging opportunities for wildlife. Prior to construction, the marshes within the proximity of the pastures had so limited hydroperiods that they transitioned to vegetative characteristics more indicative of abandoned fallow fields (particularly Wetland 12), with minimal wildlife food resources. Opportunities for foraging wading birds were primarily limited to the few, small isolated marshes within the western palmetto prairie. Water and aquatic food resources within the pasture area were primarily limited to high nutrient ditch water. Restoring the wetlands into isolated systems has increased the water quality treatment opportunities compared to the existing drainage ditches that directly discharge into a nearby potable water source (Lake Manatee Reservoir). Retaining surface water on-site will result in soil infiltration that will also improve water quality and groundwater recharge.

By restoring marsh hydrology, the gradual regeneration and recruitment of maidencane and other desirable hydrophytic vegetation will continue to improve the ecological balance of upland habitat with appropriate wetland habitat value. With the segregated habitat between Wetlands 3, 4, and 12, there wasn't a contiguous corridor of native habitat through the improved pasture. The re-established corridor for wildlife use won't conflict or restrict mobility of the limited cattle and grazing. Reintroduction of the cattle into the pastures will keep the ruderal species (i.e. salt-bush, fennel) that substantially encroached into the pastures after the WMD acquired the property and temporarily removed the cattle. The combination of the marsh restoration, existing native habitat, and the proposed upland corridor will attract and increase the wildlife opportunities across the property.

## Attachment B – Work Schedule

Evaluation of habitat conditions and proposed improvements were conducted in 2001. Five monitor stations (Fig. C) were designated based on anticipated habitat improvement areas and monitor wells (70 inches deep) were installed to mark the locations. Prior to construction, herbicide treatment of exotic and nuisance species was conducted within the ditches during early, 2002.

## **Mitigation Project – Rutland Ranch, Page 6**

Construction commenced during the dry spring conditions in 2002 and since there was no standing water in the deep ditches dredged through the central wetlands (Wetlands 2,4,12), there was no need to utilize pumps for temporary dewatering. A portion of the spoil within the core of Wetland 4 was not removed since it now provides an excellent upland island for wildlife use, particularly wading birds utilizing the island for secure resting and nesting. The remnant water hole adjacent to the spoil has a substantial frog population.

Construction sequence commenced north to south through the headwater ditches of the pasture wetlands, followed by the ditches within the palmetto prairie. As depicted in the photos, in less than a month, the combination of filling the ditches and receiving normal rainy season rainfall resulted in the groundwater tables rising from 70 inches below grade to the desired hydrologic range of 6-24 inches of surface water in the various marshes; more shallow in Wetlands 1-3,5,6,9, moderate levels in Wetlands 11 and 12, and deeper surface water in Wetland 4. As the surface water levels increased, there has been a natural regeneration of maidencane along with supplemental plantings (37,000 units) of soft rush (shallow marshes), pickerelweed, arrowhead, and bulrush. In addition, 1000 longleaf pine saplings were planted within the upland buffers of Wetlands 1-4 & 12. Supplemental arrowhead planting of open water areas within Wetland 12 will be conducted in the spring, 2004. Additional pines will also be planted in the buffer; maples and cypress will be planted along the outer zone of Wetland 12 to provide more diversity and buffer from the adjacent pastures.

Three upland-cut ponds (average size, 0.25 acre) were dredged within the center of the three main pastures to provide a water source for cattle. A wildlife seed mix and millet seed was placed in the graded upland areas to provide temporary vegetative cover. Subsequently, native herb seed recruitment and generation from the adjacent upland habitat occurred and there is over 90% cover of desirable vegetative cover within the graded areas by 2004.

## **Attachment C – Maintenance & Monitoring Plan, Success Criteria**

Pre-construction monitoring was conducted to document pre-existing marsh conditions (hydrology, vegetative coverage & diversity, wildlife use) exhibited in the summer, 2001 and winter, 2002 periods. This information is used as baseline data to evaluate the anticipated hydrologic and vegetative restoration as a result of the earthwork activities. Qualitative monitoring and photographic documentation of vegetative, hydrologic, and wildlife conditions for the various proposed marsh enhancement areas will be conducted for the minimum three years post-construction. Figure C depicts monitoring stations for qualitative evaluation, and hydrologic monitoring stations. Qualitative evaluation will include vegetative, hydrologic, and wildlife use of the enhanced wetlands and uplands. Documentation of the two semi-annual monitoring events will be combined each year to produce an annual monitoring report to be submitted to the USACOE and SWFWMD. The anticipated maintenance activity will include herbicide control of all exotic and nuisance vegetation in the wetlands and periodic implementation of prescribed burn management. By 2004, the only enhanced wetland with some exotic and nuisance coverage is Wetland 12. This was by far the most disturbed system pre-construction and has generated some primrose willow along the upland/wetland boundary and clumps of torpedo grass. Starting in 2003, this system was included in a herbicide maintenance program every two months to eradicate these undesirable species. In late spring, 2004, supplemental planting was conducted within this system to increase the vegetative cover from 50% to at least 85%; leaving scattered open water areas near the core for wading birds foraging from the adjacent oak snags.

Success criteria will be based on several conditions. The primary criteria include the demonstration of appropriate hydroperiods for the enhanced wetlands, with particular documentation for the more extensive dewatered wetlands (Wetlands 2, 4, 5, 6, 11, and the most damaged, Wetland 12). Success criteria requires 90% survivorship of planted stock, less than 10% coverage of exotic and nuisance species, and a minimum 85% coverage of desirable species (including existing, regenerated, recruited, and any planted material) within the enhanced and restored marshes as well as designated uplands.



## Mitigation Project – Rutland Ranch, Page 7

Shifts in vegetative cover and diversity will be noted in the monitoring reports. Evaluation in early 2004 has indicated that except for Wetland 12, all the enhanced uplands and wetlands have exceeded the success criteria. However, monitoring will continue until Wetland 12 also achieves success criteria. The first of at least three annual monitoring reports will be conducted in 2005.

### Attachment D – FDOT Mitigation

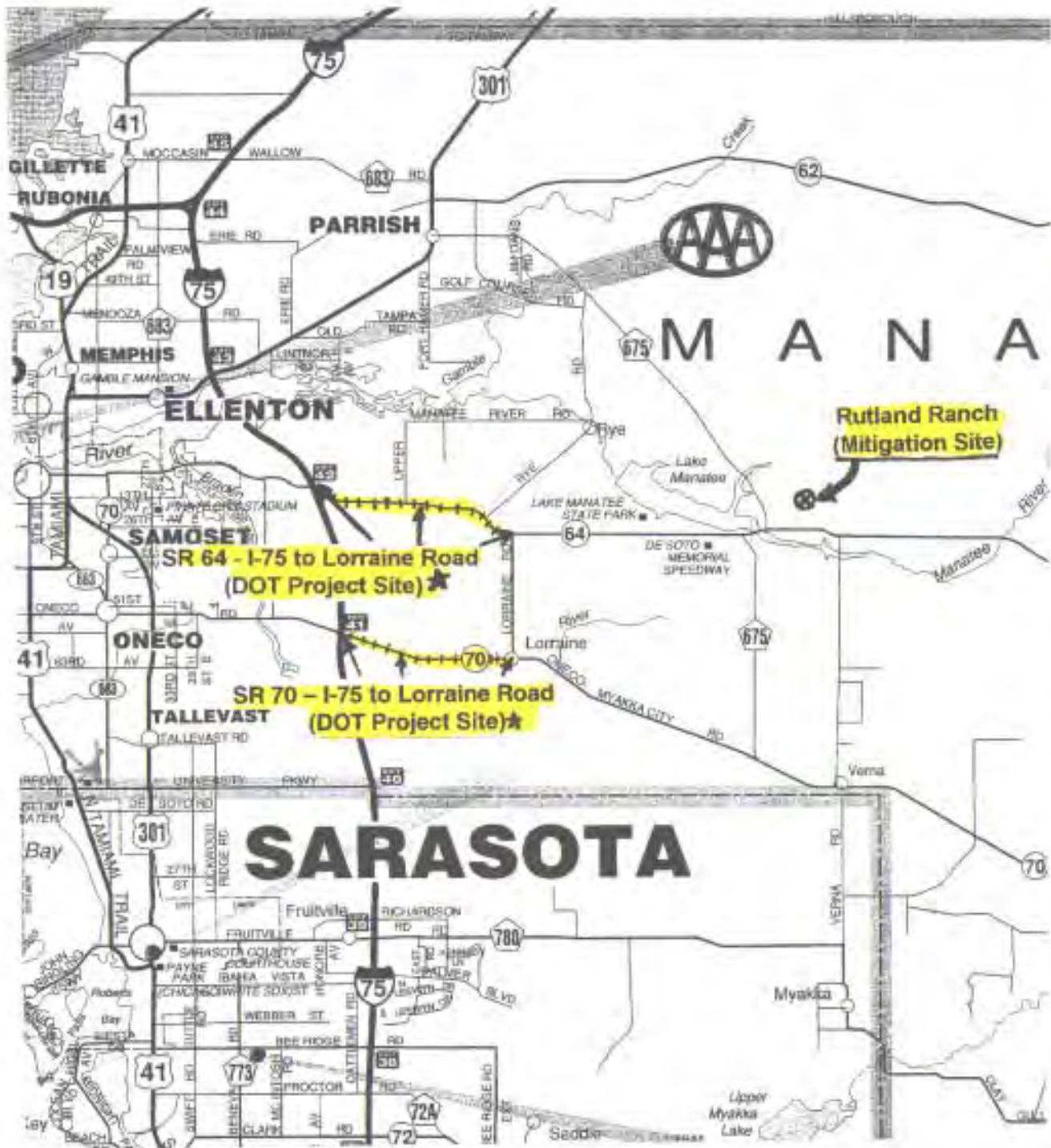
A comparison of the type of wetland impacts was conducted and compared to the proposed restoration activities. Rather than scatter the various activities to mitigate for a variety of wetland impacts, they were combined based on the general site location and proposed activities relative to the anticipated impacts. These include the uplands and wetland enhancement in the vicinity of Wetlands 1-3 (mitigation for SR 64-Seg. 1), Wetlands 7, 9, 11 enhancement and adjacent palmetto prairie restoration (SR 64 – Seg. 2), Wetland 4 enhancement adjacent upland buffer enhancement (SR 70 – Seg. 1), Wetlands 5, 6, 12 enhancement and adjacent upland buffer enhancement (SR 70 – Seg. 2). Along with falling within the normal ERP mitigation ratio guidelines, the proposed mitigation for the wetland impacts associated with each roadway segment are well within the ranges based on the Wetland Rapid Assessment Procedure (WRAP) that was conducted for the impacts and the mitigation. The following details the correlation of mitigation with the impacts:

**SR 64 – Seg. 1** - The proposed impacts include 0.68 acre of mixed forested wetland (#617) and 1.74 acres of marsh (#640, #641). The proposed mitigation includes enhancement of Wetlands 1-3 (11.1 acres), restoration portion of Wetland 2 (0.6 acres), and enhancement of the adjacent pine flatwoods around Wetlands 1-3 (12 acres). This results in a total **impact of 2.42 acres and compensation of 23.7 acres** (ratio 9.9-to-1). SWFWMD & ACOE permits issued in 2002.

**SR 64 – Seg. 2** – The proposed impacts include 0.33 acres of mixed forested wetland (#630) and 0.51 acres of marsh (#641). The mitigation includes enhancement of Wetland 7 (0.9 acres), Wetlands 9 & 11 (6.3 acres) and restoration of the adjacent palmetto prairie from the filled ditches (10 acres). This results in a total **impact of 0.84 acre and compensation of 17.2 acres** (ratio 20-to-1). Permit applications under review, summer 2004.

**SR 70 – Seg. 1** – These impacts include 0.9 acre to marsh habitat (#641). The proposed mitigation includes enhancement (11.4 acres), restoration (0.1 acre), and associated upland buffer enhancement of Wetland 4 (4.5 acres). This results in a total **impact of 0.9 acre and compensation of 16.0 acres** (ratio 17.8-to-1). SWFWMD and ACOE permits were issued in 2004.

**SR 70 – Seg. 2** – The wetland impacts include 2.1 acres of stream swamp (#615), 1.7 acres of marsh (#640). Due to the higher quantity of impacts and forested wetland impacts associated with this roadway segment compared to the other three segments, the habitat improvements of the most disturbed wetlands on the mitigation site (Wetlands 5, 6, 12) are designated to provide the mitigation. The proposed mitigation includes enhancement (2.1 acres) and restoration (0.4 acre) of Wetland 5, enhancement (21.6 acres) and restoration (0.4 acre) of Wetland 6, and enhancement (21.3 acres), restoration (3.6 acres), and associated upland buffer enhancement (5.5 acres) of Wetland 12. This results in a total **impact of 3.8 acres and compensation of 54.9 acres** (ratio 14.4-to-1). SWFWMD and ACOE permits were issued in 2004.



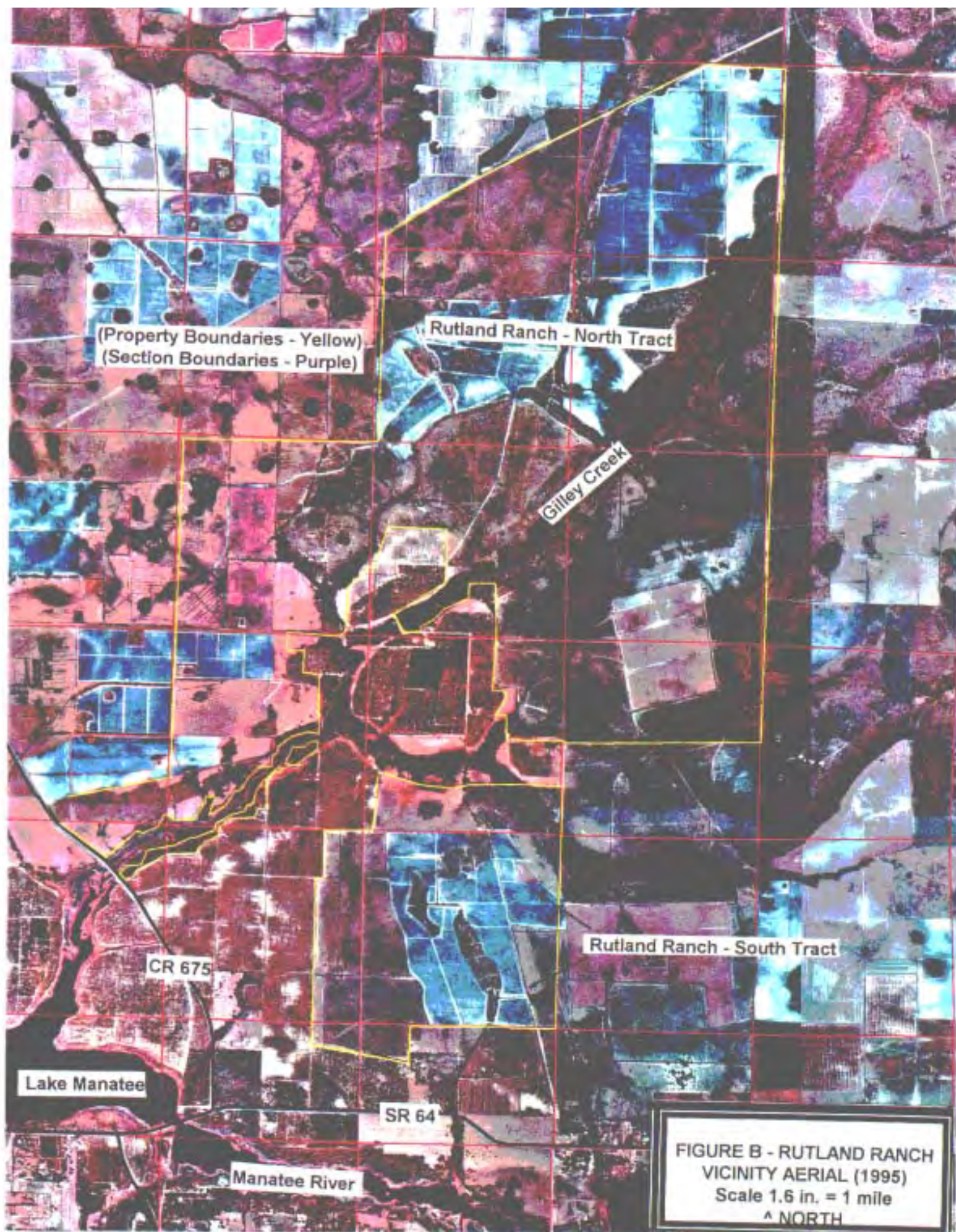
^ NORTH, SCALE 1.4 in. = 5 miles

FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)

RUTLAND RANCH -  
SOUTH TRACT  
(SW 65)

FIGURE A  
LOCATION MAP





(Property Boundaries - Yellow)  
(Section Boundaries - Purple)

Rutland Ranch - North Tract

Gilley Creek

Rutland Ranch - South Tract

CR 675

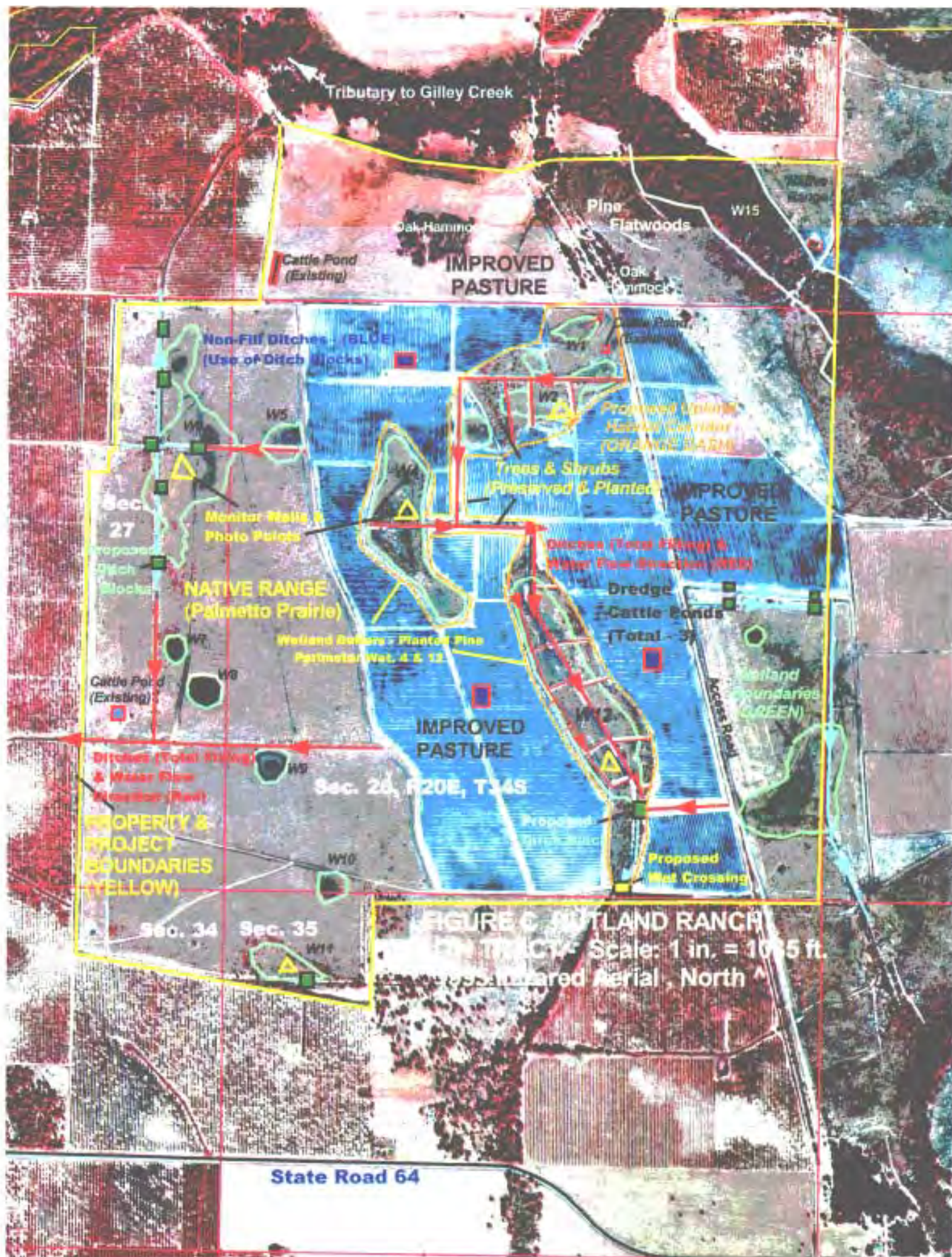
Lake Manatee

SR 64

Manatee River

FIGURE B - RUTLAND RANCH  
VICINITY AERIAL (1995)  
Scale 1.6 in. = 1 mile  
^ NORTH







## SOILS LEGEND

- 11-Cassia f.s.
- \*16-Delray Complex
- \*24-Felda-Wabasso Assoc.  
Frequently Flooded
- \*26-Floridana-Immokalee-  
Okeelanta Assoc.
- 30-Myakka f.s. (0-2% slope)
- 31-Myakka f.s. (2-5% slope)
- 54-Zolfo f.s.
- \*- Hydric Soils

Rutland Ranch  
(South Tract)  
Project Boundaries



^ NORTH Scale 1.6 in. = 1 mile

FDOT - District 1  
MITIGATION SITE  
(Manatee River Basin)

RUTLAND RANCH -  
SOUTH TRACT  
(SW 65)

FIGURE D  
MANATEE COUNTY  
SOIL SURVEY  
1979 Aerial Date



*June, 2002 - Wetland 12 – View from the south, looking north at former ditch area (20 feet against tree line) & previous spoil material (center 30 –40 ft.) graded to backfill the ditch.*



*July, 2002 – Same view as above, wetland hydrology has been restored with maximum surface water depth of 18 inches in the marsh core. Natural regeneration of maidencane occurring with supplemental plantings of pickerelweed, arrowhead, and bulrush. Some of the oaks and pines that generated on the low elevation spoil will not survive the restored hydrology and becoming snags for wading bird resting (e.g. left oak tree).*

**FDOT – District 1  
MITIGATION SITE  
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT  
(SW 65)**





*Wetland 12 Monitoring Station – Typical pre-construction condition of the drained marsh included broomsedge, bahia, dog fennel, gallberry, wax myrtle, and some exposed areas due to hog activity which have been removed from the site.*



*August, 2002 – Same view as above, just after backfilling the center ditch and the marsh's perimeter ditch (right), hydrology has been restored and mortality of upland vegetation has commenced.*

**FDOT – District 1  
MITIGATION SITE  
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT  
(SW 65)**



*Pre-construction conditions near the core of Wetland 4 included substantial coverage of broomsedge mixed with the maidencane, as well as scattered wax myrtle.*



*August, 2002 – Same view as above, restored hydrology has resulted in surface water core depths of 18-24 inches, resulting in mortality of the broomsedge and wax myrtles.*

**FDOT – District 1  
MITIGATION SITE  
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT  
(SW 65)**





*June, 2002 – Wetlands 5 & 6 – View from the east side of the marshes, looking west at the filled ditch (center) and graded spoil material (right) to restore hydrology.*



*July, 2002 – Same view as above, wetland hydrology has been restored with maximum surface water depth of 8 inches in both marshes. Natural regeneration of maidencane occurring with supplemental plantings of soft rush.*

**FDOT – District 1  
MITIGATION SITE  
(Manatee River Basin)**

**RUTLAND RANCH – SOUTH TRACT  
(SW 65)**

# REGIONAL MITIGATION PLAN

## BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Lk. Hancock Reserve

Project Number: SW 66

Project Manager: Mark Brown, SWFWMD Env. Scientist

Phone No: (352) 796-7211 ext. 4488

County(ies): Polk

Location: Sect. 1, 2, T29S, R24E, Sec. 6, T29S, R25E

## IMPACT INFORMATION

1 – <u>FM 1975331, US 27 – Towerview Rd. to SR 540</u>	ERP #: <u>43023834.002</u>	COE #: <u>200205668 (IP-JF)</u>
2 – <u>FM 1976791, US 27 – SR 544 to Blue Heron Bay*</u>	ERP #: <u>43023431.000</u>	COE #: <u>200202574 (IP-JF)</u>
3 – <u>FM 1940931, US 17 (SR 35) – Peace River to Tropicana</u>	ERP #: <u>43016955.001</u>	COE #: <u>200102990 (IP-JF)</u>
4 – <u>FM 1938991, US 17 – Livingston to Hardee County</u>	ERP #: <u>43022736.000</u>	COE #: <u>200105669 (IP-MN)</u>
5 – <u>FM 1971681, SR 60A (Van Fleet Dr.)-CR 555 to Broadway</u>	ERP #: <u>44023032.000</u>	COE #: <u>2002000069 (NW-MS)</u>
6 – <u>FM 4110391, US 27- CR 546 to SR 544</u>	ERP #: _____	COE #: _____
7 – <u>FM 1977061, US 27 – SR 540 to SR 542</u>	ERP #: _____	COE #: _____
8 – <u>FM 1977071, US 27 – SR 542 to CR 546</u>	ERP #: _____	COE #: _____
9 – <u>FM 1976381, US 98 – Carpenter's Way to Daugherty Rd.</u>	ERP #: <u>44013552.003</u>	COE #: <u>200206904 (NW-14)</u>
10 – <u>FM 1977012, SR 559 – SR 655 (Recker Hwy.) to US 92</u>	ERP #: _____	COE #: _____
11 – <u>FM 1977051, US 27 – SR 60 to Towerview Rd.</u>	ERP #: <u>44023431.003</u>	COE #: _____
12 – <u>FM 1973503, SR 31 – SR 74 to Charlotte C.L.</u>	ERP #: _____	COE #: _____
13 – <u>FM 4110391, US 27 – CR 546 to SR 544</u>	ERP #: _____	COE #: _____

Drainage Basin: Peace Water Body(s): Tower Lake, Thompson Branch, McBride Br., Mare Branch, Sand Gully Br., Peace Creek Canal, SWIM water body? N

Impact Acres / Habitat Types (FLUCCS):

1- FM 1975331 2.35 ac. 640 1.11 ac. 641x <u>TOTAL 3.46 acres</u>	7- FM 1977061 0.02 ac. 618 0.08 ac. 610 0.01 ac. 617 0.44 ac. 631 1.22 ac. 641x <u>TOTAL 1.80 acres</u>
2- FM 1976791* 0.60 ac. 631 0.90 ac. 641 <u>TOTAL 1.50 acres</u>	8- FM 1977071 2.7 ac. 641 1.1 ac. 644 <u>TOTAL 3.8 acres</u>
3- FM 1940931 3.00 ac. 630 0.49 ac. 640 0.93 ac. 641 <u>TOTAL 4.42 acres</u>	9- FM 1976381 0.1 ac. 615
4- FM 1938991 0.48 ac. 618 6.18 ac. 630 0.74 ac. 631 0.59 ac. 640 0.20 ac. 641 3.40 ac. 641x <u>TOTAL 11.59 acres</u>	10- FM 1977012 0.60 ac. 641 0.10 ac. 641x <u>TOTAL 0.70 acre</u>
5- FM 1971681 0.46 ac. 630	11-FM 1977051 0.01 ac. 510 0.18 ac. 611 0.002 ac. 618 <u>TOTAL 0.19 acre</u>
6- FM 4110391** 0.8 ac. 630 3.1 ac. 641 2.8 ac. 641x <u>TOTAL 5.7 acres</u>	12 – FM 1973503 0.2 ac. - 510

**TOTAL – 33.92 Acres**

\* Additional impacts for this project are within the Ocklawaha Basin and will be mitigated at Lake Lowery (SW 76).

\*\* There may be additional impacts for this project within the Ocklawaha Basin that may be mitigated at Lake Lowery (SW 76).



## MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: ☐ Creation ☒ Restoration ☒ Enhancement ☐ Preservation Mitigation Area: **473 acres**  
SWIM project? ☒ Aquatic Plant Control project? ☒ Exotic Plant Control Project? ☒ Mitigation Bank? ☒  
Drainage Basin(s): Peace Water Body(s): Banana Creek Canal, Lake Hancock SWIM water body? ☒

### Project Description

**A. Overall project goal:** Historically, surface water from Banana Lake maintained a sheet flow hydrology east through forested and marsh wetland habitat into Lake Hancock (Figure C, 1927 Soil Survey). During the 1940's, the construction of the Banana Creek Canal between the two lakes, along with connector ditches, excessively drained the floodplain area to convert forested wetlands and marshes into pastures. The substantial differences in habitat transition before and after canal construction are exhibited between the 1941 aerial (Figure D-1) and 1952 aerial (Figure D-2). In 2000, Polk County & SWFWMD co-purchased approximately 1,256 acres (formerly Circle B Bar Ranch) to convert into a passive recreational park with a long-term objective to restore and enhance upland and wetland habitat throughout the property. The proposed wetland enhancement will be primarily achieved by filling portions of the Banana Creek Canal and other contributing ditches to restore the wetland floodplain to a sheet flow hydrology, replanting the historical limits of the forested wetlands, and supplementing the planting of regenerated marsh habitat. This will allow the wetlands provide water quality treatment and attenuation of surface water flow from Banana Lake before discharging into Lake Hancock. Both these lakes are included in the Surface Water Improvement and Management (SWIM) program and the property was designated an acquisition priority under the SWFWMD Florida Forever and Polk County's acquisition programs (Fig.A).

**B. Brief description of current condition:** Of the entire Lk. Hancock Reserve (Figure F), the majority of the remnant wetlands are associated with wet improved pastures adjacent to the Banana Lake Canal (site photos). For purposes of site description, the designated project area (473 acres) is delineated into west (Fig. G) and east (Fig. H) of the central access road crossing. At the time of acquisition, the pastures still had sufficient cover of hydrophytic species, presence of hydric soils, and minimal groundwater hydrology to be designated as wetlands per state and federal criteria. Prior to initial hydrologic restoration in 2003, bahiagrass, carpetgrass, and pigweed provided the dominant cover but scattered soft rush was also common (predominantly southeast pasture). The northeast pasture (Fig. H) has a diverter ditch along the northern boundary and the canal separates it from the southeast pasture. Two seepage maple / bayheads are still present, one along the southeast project boundary, the other located along the western boundary (Figure G). Two smaller remnant cypress wetlands are within the eastern area. However, the existing forested wetlands within the project area are half of the historic limits because of the dewatering impacts from the canal, resulting in tree fall and 18-24 inches of muck oxidation in the remnant western swamp and a foot of oxidation in the southeastern swamp. A large levee was constructed along the western property boundary (Figure G), impounding water in the wetland west of the project area and diverting ground and surface water away from the remnant forested wetland within the project area. A large tributary ditch was constructed along the southwestern project boundary, dewatering the on- and off-site wetlands south of the property boundary. Both the western levee and southwestern canal

divert surface and groundwater flow directly into the Banana Creek Canal. The several decades of extensive over-drainage and previously incorporated dewatering pump system have substantially altered the wetland functions and conditions of the entire site, converting the area to a dominance of upland pasture grasses for intensive cattle grazing (refer to site photos); resulting in minimal species diversity and hydrology to adequately support appropriate hydrophytic species and habitat conditions for wildlife. After public acquisition, the dewatering pump system was discontinued and with the El Nino rains of 2003, the wet pastures within the eastern portion of the designated mitigation area were inundated to commence partial hydrologic restoration. The extended hydroperiods resulted in the desired bahiagrass mortality and additional regeneration of hydrophytic vegetation. Due to the higher grade elevations of the western pastures, this hydroperiod recovery cannot be achieved until the historic sheet flow conditions are restored through the proposed construction activities.

**C. Brief description of proposed work:** The two existing access road berms (Fig. H – east and central roads) will be reinforced (synthetic liner, additional fill cap, culverts, limerock road base, sodded sideslopes) and utilized to restore the wetland hydrology while still maintaining access across the property. Both access roads will be slightly elevated and widened to construct structurally sound water control facilities (culverts, wide overflow saddle swales). The ditches and segment of the Banana Creek Canal within the western portion of the project will be backfilled to restore hydrologic sheet flow patterns throughout the wetland floodplain. The historic limits of the forested wetland will be planted with tree species. The wet pastures will have supplemental plantings with herb and shrub species, as well as scattered cypress. Maintenance & monitoring will be conducted for a minimum five years post-construction. Perpetual management of the property will be conducted by the Polk County Natural Resources Department, with cost-share management fees paid by the SWFWMD. The enhancement & restoration plan for the designated mitigation area include the following proposed activities and associated acreage per habitat type:

Marsh Enhancement	339 acres (Predominantly within the eastern portion)
Forested Wetland Enhancement	40 acres (Adjacent to western and southeastern project boundary)
Forested Wetland Restoration	50 acres (Within the west / central portion)
Upland Habitat Restoration	24 acres (Predominantly along the wetland boundary, west portion)
Upland Habitat Preservation	19 acres (Preservation of oak habitat on east canal spoil ridge area)
<b>TOTAL</b>	<b>473 acres</b>

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the anticipated wetland impacts are associated with disturbed marsh and mixed forested wetland fringes along DOT R/W. There was a 25% reduction of proposed wetland impacts between 2003 and 2004, mostly associated with anticipated ditch impacts that will not require mitigation. Additional proposed impacts submitted by FDOT in the future will be evaluated to determine if they can be appropriately mitigated at the Reserve. Considering the low quality habitat conditions and functions of the wetland habitat at the Reserve, the proposed wetland enhancement is substantial and more closely resembles major wetland restoration activities (ERP ratio range 1.5:1 to 5:1) due to the minimal existing wetland functions and values. A wetland functional assessment (WRAP) was conducted for the mitigation area and it was determined that the ecological “lift” associated with the improvements will result in



142 functional credits, an overall mitigation ratio of acreage- to- credits of 3.3-to-1. As the functional assessment of the proposed roadway wetland impacts are conducted, these credits are debited from the total. Not all the available credits will be utilized, approximately 20 credits have been debited from the seven FDOT projects permitted through January, 2004.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion**

**of cost:** The only permitted mitigation bank (January, 2004) selling credits in the Peace River basin is Boran Ranch (BRMB), located within the lower portion of the basin (DeSoto County). The BRMB has been selected to provide mitigation for wetland impacts associated with several FDOT mitigation projects in the basin (refer to SW 53 in the DOT mitigation plan, \$670K provided in purchased credits through 2003). Upon the wetland functional assessment (WRAP) of the Lake Hancock Reserve, depending on the quality of the proposed wetland impacts, the proposed mitigation activities within the 473-acre designated mitigation area will be able to compensate for approximately 142-180 acres of anticipated wetland impacts. Even though not all of the available credits will be utilized, using the same 1 impact acre – to – 1 credit ratio applied for BRMB, the anticipated costs of mitigation construction, planting, and maintenance at the Lk. Hancock Reserve (\$1,700,000) will equate to a maximum of \$13,000 per impact acre, which is less than 30% of the cost of purchasing mitigation bank credits from BRMB (2004 rate - \$48,000 per credit). The enhancement of the entire Peace River watershed has required substantial emphasis on the hydrologic restoration (water quality and quantity) of the headwater areas. This has been and will continue to be a major goal and objective of many existing and proposed public restoration projects in the basin (e.g. Tenoroc (SW 47), Saddle Creek, Lake Hancock, Banana Lake, Peace Creek Canal, Lake Lena Run, Winter Haven Chain-of-Lakes). The FDOT Mitigation Program can provide necessary funds for this major and important wetland restoration and enhancement opportunity, adequately and appropriately mitigate the proposed impacts with a more ecologically beneficial project for the entire Peace Basin compared to traditional DOT mitigation methods, and still result in substantial savings of public funds. In addition, the construction activities associated with this project will hydrologically enhance over 50 acres of an impounded forested wetland west of the project area, as well as over 200 acres of drained wetlands north of the project area but within the Reserve's property boundary. This additional wetland enhancement is not accounted for as mitigation credit but will directly benefit from this mitigation project.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a**

**discussion of cost, if the anticipated impacts are located within a SWIM water body :** Even though enhancement and restoration of the wetland floodplain is not considered a SWIM project, the site is located between two SWIM projects, Banana Lake Restoration (conducted in the late 1980's) and the current evaluation of Lake Hancock. The Banana Lake restoration removed high nitrogen and phosphorus-laden sediments that accumulated due to the direct discharge of untreated sewage for 60 years. Recent studies have indicated high phosphorus levels within Banana Lake are re-occurring due to natural phosphate reserves within the surrounding soil matrix (north side of Banana Lake was mined for phosphate ore in the 1920's and 30's). By restoring and enhancing the wetland vegetation and hydrology of the designated mitigation area, additional water quality treatment and attenuation can lessen the nutrients flowing directly from Banana Lake into Lake Hancock via the Banana Creek Canal.

## MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Dept.

Contact Name: Mark Brown, SWFWMD Environmental Scientist

Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: SWFWMD contract for minimum five years of monitoring & maintenance, perpetual management to be conducted by Polk County Natural Resources Dept.

Proposed timeframe for implementation: Commence: January, 2001 Complete: Summer, 2005 (Construction & Planting, followed by minimum 5 years of maintenance & monitoring).

Project cost: \$1,700,000 (total);

Planning, Design & Permitting - \$100,000

Construction - \$800,000

Planting – \$600,000

Maintenance & Monitoring - \$200,000

### Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A. Construction plan details can be obtained from Mark Brown (SWFWMD).

X 2. Recent aerial photograph with date and scale. 1995 Infrared Aerials are depicted on Figures F-H.

X 3. Location map and design drawings of existing and proposed conditions. Location maps are depicted on Figures A, B. Existing conditions and conceptual design plans depicted on Figures F-H. Final design plans available from Mark Brown.

X 4. Detailed schedule for work implementation, including any and all phases.

**Spring, 2001 – Summer, 2004** – Field work (habitat assessment, vegetative evaluation, soil borings, land surveying) and surface water modeling conducted to ensure no off-site impacts, evaluate and determine appropriate hydrologic restoration for the project area, evaluate regeneration of native habitat and prepare appropriate planting plan, conduct herbicide maintenance activities.

**Summer, 2004 – Winter, 2004** – Finalize reports, WMD internal review, FDEP & ACOE permitting, pre-construction fieldwork and equipment orders, herbicide maintenance activities.

**Spring, 2005 – Summer, 2005** – Earthwork construction by WMD-Operations Dept. during the dry season, followed by planting during the rainy season, herbicide maintenance activities.

**Summer, 2005 – Summer, 2010** – Monitoring and maintenance for a minimum 5 years.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B, Maintenance & Monitoring Plan, Success Criteria

X 6. Long term maintenance plan. Refer to Attachment B, Maintenance & Monitoring, Success Criteria.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion and Attachment C – DOT Mitigation.



## Attachment A – Existing Site Conditions & Proposed Work

### West Portion (Figure G) – Vegetative Conditions

**Monitoring Station 1** - The remnant 40-acre forested wetland in the western portion of the project area has dominant canopy cover provided by red maple (*Acer rubrum*). Sub-dominant coverage is provided by sweet bay (*Magnolia virginiana*), black gum (*Nyssa sylvatica* var. *biflora*), American elm (*Ulmus americana*), laurel oak (*Quercus laurifolia*), and cypress (*Taxodium distichum*). The subcanopy also includes a dominant of these species but because of the altered hydrology and subsequent muck oxidation, sapling generation has been minimal and almost all the historic cypress have fallen. The understory provides less than 50% cover, dominated by ferns (*Woodwardia* spp., *Thelypteris* spp.), lizard's-tail (*Saururus cernuus*), dayflower (*Commelina diffusa*), and some Virginia willow (*Itea virginica*). The lack of appropriate wetland hydrology and decades of cattle use has limited ground cover and resulted in some invasion of undesirable species such as pokeweed (*Phytolacca americana*) and soda apple (*Solanum khasianum*).

Due to the muck oxidation, the grade elevations have been lowered in this remnant wetland from an historic elevation averaging of 102 ft. down to 100 ft.; with a deeper interior pocket of 99.5 ft. This was reconfirmed upon survey of the grade elevations within the historically same forested wetland system west and south of the perimeter berm. Over the years, the berm (average 5 ft. in height) has acted as a levee that impounds contributing water in the off-site wetlands (thereby not allowing associated muck oxidation) and diverts flow into the Banana Creek Canal where it enters the Reserve property in the southwest corner. The canal flow into the property has been restricted and during heavy rain events, was historically blocked from entering the Reserve property by an existing culvert flapgate. This berm and culvert has resulted in extended surface water flooding impoundment within the wetland area west and south of the Reserve, and minimal hydroperiods within the entire on-site wetland floodplain. This adjacent portion of the forested wetland (over 50 acres) is owned by the City of Lakeland (south) and the University of South Florida – Lakeland Campus (west), who reviewed and concur that the proposed restoration plan will also benefit the impounded wetlands on their property and not be in conflict with their activities. As anticipated, with the El Nino rains in 2003 and the lower grade elevations within the remnant forest system, there was partial hydrologic restoration. Some individual trees, particularly recruited facultative species such as the laurel oaks, did not survive into 2004 and there was minor tree fall due to unstable footing. With the muck oxidation and lower grade elevations in this 40-acre remnant system, there isn't a method to restore the hydrology of the wetlands upstream and downstream of the property without also restoring the hydrology of this forested component. Additional tree mortality is anticipated but without the restored hydrology, muck oxidation would continue and this remnant system would eventually lose all the trees, similar to what happened to the 50-acres east of the forested area. The dead trees do result in snags for more denning & nesting opportunities; and opens up the ground cover from shade to allow regeneration of appropriate vegetation. Supplemental tree plantings may be necessary to restore sufficient canopy cover.

Restoration of the ground and surface water hydrology within the forested wetland will be conducted through a few methods. There is an existing dredged pond in the southwest corner of the site that provides a good settling basin for canal flow coming into the site. This pond has the potential of good wildlife and water quality attributes and therefore will only be partially backfilled to construct and plant a littoral zone. However, instead of the pond water flowing back into the canal to force water flow toward Lake Hancock, swale breaches will be cut into the pond's containment berm to allow overflow flow north into an existing shallow swale. In turn, this spreader swale will allow seepage and flow north into the forested wetland. The culvert and flapgate will be removed and therefore allow the impounded water in the adjacent wetlands to hydrologically restore to normal drainage patterns and water level conditions. Afterward, three large breaches in the western perimeter berm will be graded down to match existing grade. This berm also has an adjacent ditch that will act as a spreader swale to allow western flow into the forested wetland. Cut material from the berm will be used to construct blocks in the spreader swale to allow equivalent linear flow into the forested wetland. After drainage flow patterns are restored into the wetland system, the canal and contributing ditches will be backfilled within the western half of the project area. A large ditch block will be constructed where the existing central access road crosses the canal, prior to backfilling the remaining

portion of the canal so that sediment doesn't flow to Lake Hancock. If dewatering of the canal west of the central access road ditch block is necessary, the pumping will be conducted over the berm and temporarily stored into the eastern canal for settling prior to backfilling the eastern canal segment so that sediment will not be deposited downstream.

**Monitor Stations 2, 3, 4** – Historic aerials indicate that a portion of the wet pasture just east of the remnant forested wetland was also historically a forested wetland. The tan colored areas on the infrared aerial (Figure G) indicate the area that is heavily dominated by bahiagrass (*Paspalum notatum*), but also bermuda grass (*Cynodon dactylon*), carpet grass (*Axonopus affinis*), with scattered pennywort (*Hydrocotyle umbellata*), thistle (*Cirsium smallii*), dog fennel (*Eupatorium capillifolium*), and soda apple. The dark shadow signature depicted east of Station 2 is also dominated by bahia and thistle, but also has some coverage of soft rush (*Juncus effusus*) and dayflower; and has periodically had surface water seepage. There is another smaller dark signature west of Station 3 that has bahia, smartweed (*Polygonum* spp.), bitter dock (*Rumex* spp.), and pigweed (*Amaranthus retroflexus*); and subdominants of dayflower, thistle, pennywort, soft rush, and scattered arrowhead (*Sagittaria lancifolia*) in the lowest elevation. A smartweed pocket is located south of Station 4 and there is a 10-acre smartweed pocket east of Station 4 that abuts the central access road. An increase in hydrophytic vegetation (particularly smartweed) has regenerated in this wet pasture since the cattle were removed (December, 2002) and the 2003 El Nino rainfall conditions. But generally, since the west pasture averages 1-2 feet higher than the east pasture, except for the smartweed pocket southeast of Station 4, this area will not maintain an appropriate wetland hydroperiod unless the proposed structures are constructed.

Along with the Banana Creek Canal located through the center of this pasture, there are three contributing ditches that adequately drain the surficial groundwater table from this pasture. The ditch along the southwestern property boundary is as large as the main canal. The adjacent spoil material impounds water in the wetland south of the property (City of Lakeland property), while the deep hydraulic gradient draws down the surficial water table as it proceeds east then north to connect with the canal. This dewatered condition resulted in tree fall and additional clearing was previously conducted to convert the entire area into pasture. Unlike Station 1, the surficial muck depth averages 12 inches over sand in this pasture. One area between Stations 2 and 4 has the highest elevations of the wet pasture. The grade elevations range 101-102 ft., and the historic and restored seasonal high water table (SHWT) for this wetland area is estimated to be 100.5 ft. So this area was historically a very transitional wetland area. The area is almost exclusively covered with bahia and any previous hydric soil characteristics have oxidized and disappeared over the years. In order to restore and expand wetland conditions for this area, a proposed pond with shallow slopes will be constructed (referred to as obligate zone on Figure G). In addition to the southwestern settling pond and canal segments within the eastern half of the project area, this 1.5-acre pond will provide a valuable open water component and planted littoral zone that will enhance the surrounding wetland system; providing a foraging and resting location for reptiles, amphibians, fish and other species that will utilize the entire wetland enhancement area. The dredged material will be utilized to make-up for the shortage of necessary material to restore natural grade for the canal and ditches, as well as provide fill cap material to stabilize the central access road crossing.

## **West Portion - Hydrologic Restoration**

**Background Information** - Extensive site evaluations were conducted in the 1980's to determine the historic water elevations of Lake Hancock. This information was extrapolated to determine where the historic water elevations extended throughout the Lake Hancock Reserve. The lake elevations are currently controlled by an outfall structure that maintains an ordinary water level of approximately 98.0 feet with a normal ordinary high elevation of 98.7 ft. The 10-year flood elevation is 102.4 ft., minimum flood elevation is 99.0 ft., and minimum low management elevation of 96.0 ft. Various indicators provide evidence that the normal ordinary high elevation of the lake was historically 100.5 feet; approximately two feet higher than the lake currently achieves during normal rainy season conditions. This elevation actually correlates closely with many of the wetland boundaries and remnant cypress buttresses at the Reserve. There is a current study evaluating the possibilities and limitations of elevating Lake Hancock from the current elevations to potentially approximate the historic conditions. Not only with this provide more water quality and quantity



storage, but it is viewed as a means to restore minimum flow levels for the upper Peace River. That evaluation and potential land purchases will require several years beyond the timeframe necessary to construct the mitigation project. As of July, 2004, based on several ecological and economical factors, there is a recommendation that an ordinary high water elevation of 100.0 ft. would be the preferred alternative elevation for the lake. This would not result in achieving all of the historic conditions but does provide many benefits. As a result, a major objective of hydrologic restoration of the designated mitigation area is to as closely achieve the historic conditions, but also meet the regulatory requirements of maintaining appropriate flow conditions to Lake Hancock while not impacting adjacent landowners.

For the designated mitigation area, a surface water modeling study was conducted in 2003 and 2004 to determine the necessary water control structures (quantity, size, location, elevations, etc.) that would be necessary to implement for the mitigation project in case the lake can be raised to any elevation between the current conditions and the historic 100.5 feet. These elevations are depicted in the construction plans and the following information summarizes the concepts.

**Central Access Road** - Of particular concern was to ensure that under any scenario, the proposed structure elevations and sizes would be able to accommodate the potential for a 100-year flood event in addition to the possibility of elevating the lake to 100.5 ft. without restricting flow regimes. As a result, there are several large culverts, as well as very long overflow saddles proposed for construction within the existing berm access roads (refer to construction plans). The berms and associated structures will act to provide very gradual "stair-step" flow between the west portion to east portion of the designated mitigation area, and subsequently into the lake. These berms have been in place for several decades, but are predominantly made of muck soils and were only used for access and not structural support since the major flows were diverted through the canal. Therefore, synthetic liners will be installed over the existing berms for extra support and capped with suitable sand fill material. The flow between the west and east portion of the site will be controlled by stabilizing the central access road berm. Twelve 24-inch culverts will be installed, nine of the culverts will have an invert elevation of 100.5 ft. to restore historic SHWT conditions. Four of the equally dispersed culverts will have invert elevations of 100.0 ft. to restore normal pool (NP) conditions from the western to eastern portions. The grade elevations within the western portion of the site are more variable than the eastern portion, generally ranging from 99.5 in the deepest pockets of the remnant forested system to 102.0 feet.

The use of the proposed NP and SHWT elevations will provide a 6-inch fluctuation that will maintain the NP surface water approximately 3-6 inches deep across the wetland area during the majority of the year and averaging 6 inches deep during the rainy season. This shallow water depth will allow wildlife and wading birds to forage during the rainy season, and allow shallow surface water pools in the dry season for a water source; as well as concentrate food resources. In addition, the shallow water fluctuation provides more vegetative surface area to uptake nutrients and increase water quality conditions.

However, the designated mitigation area is large and has received extensive drainage alteration for several decades. Just in the three years of site evaluation, the area has been observed with no groundwater present even in the canal (summer, 2001) to the El Nino period of impounded surface water within the eastern portions of the site (summer, 2003). Even with the extensive modeling and restoring sheet flow conditions, the wetland hydroperiod will be variable from year to year. As a result, in order to have a little more consistency and control to cover contingency of too much or too little surface water, the four NP culverts will have the potential of single, 6- inch flashboard risers installed during extended dry periods. This will provide the opportunity to elevate the NP overflow elevation from 100.0 ft. to equalize with the 100.5 ft. SHWT elevation. These flashboard risers will not be necessary if the lake is eventually elevated as proposed. In addition to the culverts, the access road berm will be topped with three overflow saddles that extend over 100 ft. in length with invert elevations of 101.0 ft. These gradual slope saddles will allow floodwaters to overflow shorter sections of the access road rather than the entire road at one time. The top of the access road berm will have an additional synthetic liner under a 4 inch limerock base material so that vehicles can drive across the berm. The berm slopes will have an average 4:1 sideslopes (minimum 3:1) that will be stabilized with bahia sod.

**Western Access Road** – There is an existing limerock and sand access road that crosses the western pasture. Portions of the road are within the 100.0 to 100.5 feet elevation and the adjacent pasture grades are 99.8 to 100.0 ft. range. So in order to maintain water sheet flow hydrology from west to east, this road will be lowered to 100.0 ft. A synthetic liner will be installed approximately 4 inches below grade and capped with limerock base material. This wet crossing will have maximum water elevations of 3-6 inches above grade during the wet season, which can still allow vehicular crossing if necessary.

## **West Portion – Planting Plan**

Supplemental planting of the existing forested wetland is not proposed at this time. However, monitoring will be conducted to evaluate natural regeneration of vegetation and health of existing vegetation. With the restored hydrology, there is expected to be a continuation of some additional tree mortality and tree fall. Most of the unstable trees would eventually fall anyway under the current drained condition. But with longer durations of normal pool elevations matching existing grade and SHWT ranging 6-12 inches above grade, some older individual trees within deeper pockets of the oxidized muck may fall sooner. In addition, species that have recruited into the core of this drained system such as laurel oak, soda apple, and pokeweed will not be able to withstand the restored hydroperiod for an extended period. The resulting tree snags have already commenced in 2003 and will be a benefit for wildlife use.

For the restoration of the forested wetland area surrounding this remnant canopy area, a variety of similar tree species are proposed for planting within two designated zones (refer to construction plans). As with the existing forested system, maple will be the dominant planted species. Other species will include American elm, bald cypress, black gum, sweet bay, dahoon holly (*Illex cassine*), popash (*Fraxinus caroliniana*), sweet gum (*Liquidambar styraciflua*), and laurel oak in the higher elevations. Over 34,000 trees (1 gal., 10 ft. centers) will be planted in the restored forested area. Shrubs proposed for planting include buttonbush (*Cephalanthus occidentalis*) and wax myrtle (*Myrica cerifera*) in the higher elevations. Along with the natural regeneration of desirable herbs, plantings of arrowhead, bulrush (*Scirpus validus*), duck potato (*Sagittaria latifolia*), fireflag (*Thalia geniculata*), pickerelweed, soft rush, sand cordgrass (*Spartina bakeri*), spikerush (*Eleocharis interstincta*), and spatterdock (*Nuphar luteum*) in the shallow-cut pond. Herb plantings will be on 3 ft. centers within exposed soil areas where the spoil material is backfilled into the ditches. The cordgrass will be planted on 4 ft. spacings within the remaining bahia covered higher elevations. Supplemental plantings will be conducted as necessary every year to achieve the desired success criteria.

Approximately half of the designated mitigation boundary is bordered by either upland or additional wetland habitat. The additional wetland habitat will be hydrologically enhanced but are currently not accounted for in the mitigation credit. Pending the need for mitigation credit by Polk County and FDOT, this may change in later years. The upland pastures adjacent to the wetland mitigation area were purposely included to allow for restoring upland habitat buffers, which will include planting of longleaf pine (*Pinus palustris*), live oak (*Quercus virginiana*), and wax myrtle.

## **East Portion (Figure H) – Vegetative Conditions**

Unlike the west portion, the construction doesn't propose filling of the Banana Creek Canal because of the habitat value of the existing laurel oak hammocks on the adjacent spoil and excessive volumes of off-site fill material that would otherwise be required to fill the substantial voids in the canal. Instead, a series of ditch blocks will be incorporated with the access road crossings to ensure surface and ground water conditions are maintained without directly flowing into the lake. These blocks will also maintain surface water conditions year round that can be used as foraging and resting locations for alligators and other wildlife.

As depicted on the infrared aerial (Figure H), there has been a dramatic vegetative difference between the southeastern (Monitor Stations 7 & 9) and northeastern wet pastures (Monitor Stations 5, 6, 8, 10). The southeastern pasture is bordered to the south by a linear maple/bayhead system that is down gradient of deep sandy soil ridge of a large contributing area south of the property. This ridge provides groundwater seepage for the bayhead and the southeastern wet pasture. This southeast wet pasture had a dominance of bahia, dog fennel, and scattered soft rush clumps. As depicted on the soil survey (Figure C), this pasture



has deep muck (32 – Kaliga muck) that provides adequate groundwater seepage from the ridge to maintain the hydrophytic vegetation. By allowing the pasture to flood during 2003, mortality of the majority of bahia and fennel has occurred and there is some regeneration and recruitment of desirable hydrophytic vegetation such as pickerelweed, smartweed, pennywort, and arrowhead. However, there have also been pockets of cattails and primrose willow that received sufficient eradication in the summer 2003 but have increased in 2004 due to sustained hydroperiods. Exotic and nuisance species will be included in an intense herbicide maintenance program commencing in the summer, 2004.

However, the contributing basin, soil characteristics, and intense cattle management of the northeastern pasture is substantially different than the southeastern pasture. Prior to the 2003 rainfall conditions, this pasture was almost exclusively bahia with scattered soda apple and pigweed (refer to photos). As evident on the infrared aerial, a few small pockets of smartweed were present. The contributing basin flow from north of the pasture was diverted by the construction of a ditch along the designated northern mitigation boundary. Soil borings in this pasture indicated an average of 18 inches of sand over a dense clay horizon that extends below 70 inches (24-Nittaw sandy clay loam, 44-Paisley fine sand). The clay horizon adequately maintained soil moisture during the rainy season but any excess water was historically pumped over the spoil berm and into the canal or lake. During the dry season, the groundwater could not percolate up through the clay so dry pasture conditions were easier to manage and maintain compared to the continuous groundwater seepage of the southeast pasture. These pastures currently perform like a closed basin because the Banana Creek Canal berm and lakeshore berm contain surface water collected from rainfall. With the discontinued pumping and substantial rains in 1993, the clay acted as an aquitard and the pastures were purposely allowed to inundate. Subsequently, the northeastern pasture had an average of 6-8 inches of surface water for almost the entire year. Bahia mortality has occurred and some hydrophytes such as smartweed have regenerated and recruited.

## **East Portion - Hydrologic Restoration**

**Eastern Access Road** - The same principles of hydrologic restoration applied for the culvert and saddle crossing at the central road have been applied for the eastern road berm; essentially a 6 inch stair-step decrease from the central road. The berm will also have a synthetic liner and capped with fill material. There will be twelve 24-inch culverts installed with eight culverts set at 100.0 feet (SWHT) and four culverts set at 99.5 feet (NP). The grade elevation of the enhanced marsh between the central and eastern access road has an average contour range of 99.0-99.5. Therefore, selecting similar control elevations for the culverts will maintain hydroperiod fluctuation ranges 3-6 inches above grade for NP and 6-12 inches for SHWT. The NP culverts will also have the ability to have 6-inch riser boards installed so that the overflow can be elevated to the SHWT elevation if necessary during drought conditions. There will be four – 100 ft. wide saddle crossings constructed across the top of the berm to allow floodwaters to overflow the road at elevation 100.5 ft.

The existing wood bridge crossing for the eastern access road crossing of the Banana Creek Canal will be replaced with a large ditch block. In order to maintain the oak hammock habitat along the two spoil ridges adjacent to the eastern portion of the canal, those spoil areas will be preserved and not backfilled into the canal. The open water that will be maintained in the canal will provide resting and foraging habitat for alligators and other wildlife species. There are a few low breaches in the spoil ridge that borders the south side of the canal. So the canal water levels will actually equalize with the water levels maintained in the southeast pasture. There will be a recreational access road/trail installed on the berm that borders the north side of the canal. The majority of the oaks on this berm are located on the sideslopes, so there is an existing mowed cattle trail that will be stabilized with limerock and utilized for bike/pedestrian access, as well as a wildlife corridor.

**Lakeshore Berm** – The grade elevations for the southeast and northeast pastures between the central access road and the lakeshore berm are generally around 98.5-99.2 ft. In order to restore a hydrologic connection to the lake, six 48-inch concrete culverts will be installed within the two berms bordering the canal just east of where the canal discharges into the lake. The culverts will have invert elevations of 97.5 ft. Since the lake's current ordinary water level is approximately 98.0 ft. and the wetland grade elevations are

several inches higher, the lake cannot currently overflow into the restored wetland areas. In reverse, without additional control structures, the culverts would essentially drain any surface water from the eastern portion of the restored wetland area into the lake. In order to avoid this, a sand-cement bag overflow sill with an impermeable liner will be installed on the upstream side of the culverts (refer to construction plans). This sill will have an overflow elevation of 99.5 ft. and will be constructed with a gradual stair-step approach to provide easier access for alligators to slide over the sill to enter the restoration area. Selecting the 99.5 ft. elevation provides for maintaining an appropriate hydroperiod in the restored marsh no matter whether the lake elevation stays at 98.0 ft. or is elevated to the proposed 100.5 ft. elevation.

For additional hydrologic enhancement, the ditch located along the northern project boundary will be backfilled with adjacent spoil material. Along with the contributing flow through the central access road, backfilling this ditch will restore contributing surface and ground water flow from the north.

### **East Portion – Planting Plan**

Supplemental plantings of more obligate species (arrowhead, bulrush, fireflag, spikerush) will be conducted in the summer, 2005 within the pockets that currently have less vegetative coverage. The perimeter ditch along the northern project boundary will be planted with soft rush and pickerelweed after backfilling and restoring grade elevations. The natural regeneration will be monitored for recruitment and if necessary, supplemental planting will be conducted as deemed necessary after the first year.

### **Additional Pond Construction**

Suitable soil will be necessary to provide fill cap material for the existing central and eastern access roads. A small amount of donor material will be obtained from the previously discussed shallow pond dredged in the western portion of the site. However, the majority of the fill material will be obtained by widening the existing rectangular-shaped borrow pit adjacent to SR 540 and constructing another small pond within the northwest quadrant of the Reserve (refer to construction plans).

The SR 540 pond widening will have a shallow littoral zone planted with the same herbs as within the mitigation area; along with cypress, maple, and myrtles. This pond is proposed for recreational use (fishing, remote control boats) by Polk County, and will not be accounted for as mitigation credit. The planting will be conducted to stabilize the slopes, exclude exotic species coverage, and provide appropriate littoral zone habitat.

A smaller 3-acre pond will be constructed along the northwestern corner of the Reserve property. Currently, surface water contributing from north of the SR 540 is routed through a ditch to the designated mitigation area. The area adjacent to the ditch will be graded into a shallow settling pond with a wide littoral zone that will be planted with appropriate vegetation. This pond will provide additional water quality treatment and attenuation of flow before entering the designated mitigation area. The pond will have a deep water component but predominantly shallow littoral zones that will also be planted with appropriate herbs and trees. Between this pond and the downstream receiving forested wetland, the ditch is bordered by improved pasture that will have 50 ft. buffers planted with pines, oaks, and myrtles; providing a wildlife corridor within the northwest portion of the property.

### **Attachment B – Maintenance & Monitoring, Success Criteria**

Maintenance will be conducted primarily to control exotic and nuisance species. Maintenance will include herbicide treatment, anticipated to be bi-monthly for the first two years after construction, quarterly or more often for an additional three years, and perpetual semi-annual applications thereafter. Herbicide application will be conducted by a licensed applicator under contract with the SWFWMD. Any maintenance of structures will also be conducted in cooperation between Polk County and WMD-Operations Department.

Monitoring will be conducted semi-annually for a minimum 5 years and continue until success criteria is met. Ten monitor stations have been designated (Figures G & H) to evaluate the hydrologic and qualitative



vegetative conditions across the project area (refer to site photos). These areas will be photographed from pre-construction through the minimum 5 years of monitoring post-construction. Qualitative evaluation of hydrologic conditions, vegetative cover, and wildlife use will be conducted for the entire project area.

Success criteria includes a minimum 30% canopy of the restored forested wetland, measuring trees over 10 ft. tall and shrubs over 5 ft. tall. Herb cover for the forested wetlands and marsh will include 80% cover of desirable species and less than 10% cover of exotic and nuisance species. Wildlife use and restored hydrology will be documented and within the anticipated ranges specified per the final design. Existing and proposed vegetative conditions, and specific design criteria and success conditions will be finalized in the summer, 2004, construction in early, 2005, and planting commencing in the late spring, 2005.

## Attachment C – DOT Mitigation

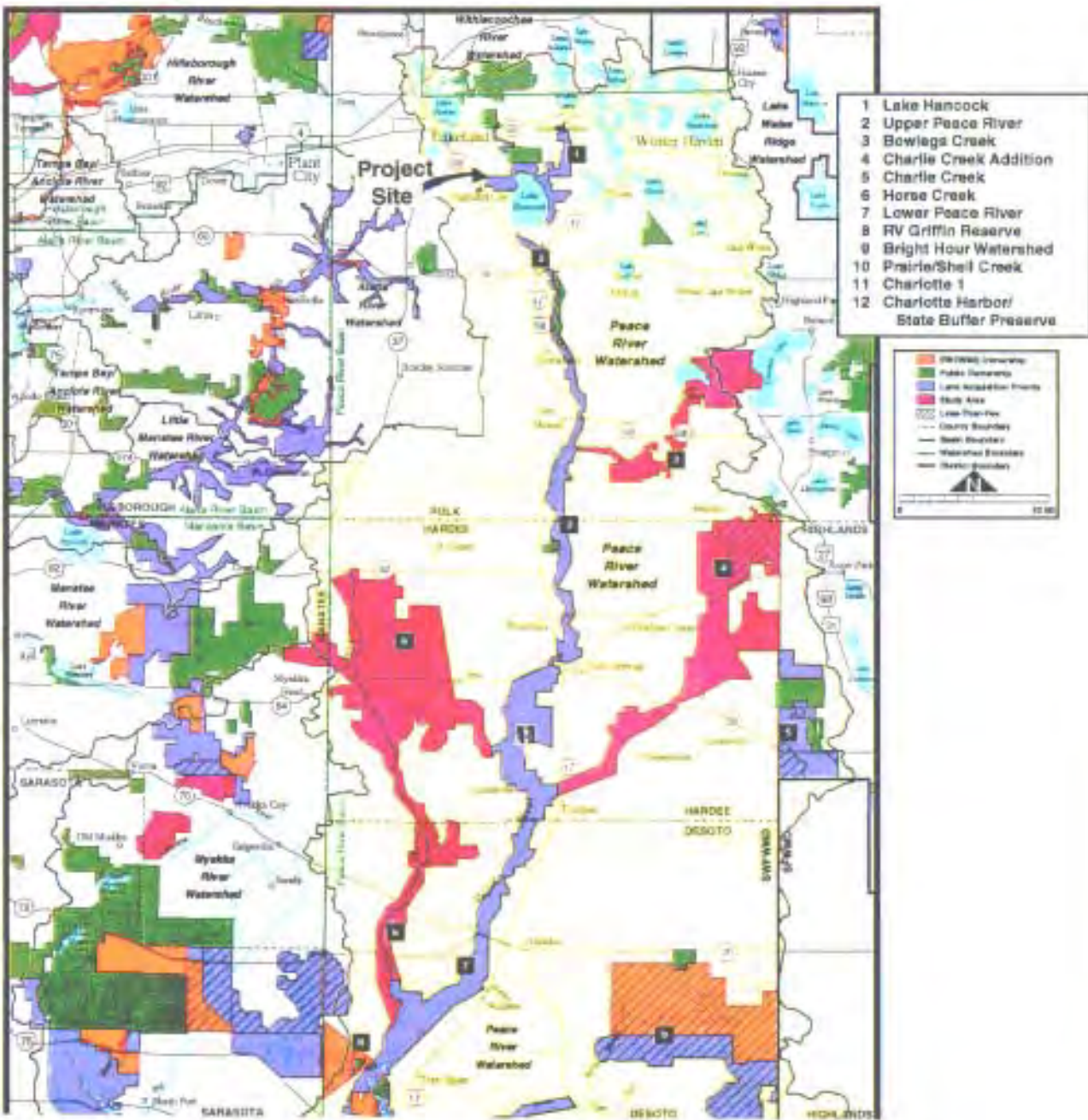
The following information summarizes the proposed wetland impacts for those projects proposed for mitigation through construction activities at Lake Hancock Reserve. The DOT impacts have been substantially decreasing as these projects go through the design and permitting stages. During the permitting of each of these DOT projects, some of the associated impacts have WRAP evaluations that are tabulated and debited from a credit ledger for the mitigation project, which also has a WRAP evaluation. For those DOT projects without WRAP evaluations, the wetland impacts are evaluated as providing highest quality and functions. Subsequently, those impacts and associated credits are debited based on the 1:1 ratio for credits-to-impact acreage. It is noted that there are 9.3 acres of temporary impacts and 4.1 acres of permanent wetland and surface water impacts associated with construction activities proposed at the Reserve. The temporary impacts are primarily associated with constructing the southwest pond in the bahia pasture. The permanent impacts are primarily filling of the wetland cut ditches to either match wetland grade, or in the case of the central and eastern access road, to stabilize the berms. These impacts will be mitigated through on-site enhancement and restoration activities that have been debited from the total mitigation credit available for FDOT projects. The following mitigation information pertains to roadway projects permitted through Spring, 2004.

DOT Wetland Impacts	Proposed Mitigation
1- FM 1975331 US 27 – Towerview Rd. to SR 540 Freshwater Marsh – 2.35 Acres Marsh (Ditches) – 1.11 Acres <b>TOTAL – 3.46 Acres</b>	Marsh Enhancement – 6.28 Acres Upland Buffer Habitat Restoration – 5.0 Acres <b>TOTAL – 11.28 Acres (ratio 3.2:1)</b>
2 – FM 1976791 US 27 – SR 544 to Blue Heron Bay Shrub Wetland – 0.6 Acres Freshwater Marsh – 0.9 Acres <b>TOTAL – 1.5 Acres</b>	Marsh Enhancement – 2.3 Acres Upland Buffer Habitat Restoration – 5.0 Acres <b>TOTAL – 7.3 Acres (ratio 5:1)</b>
3 – FM 1940931 US 17 – Peace River to Tropicana Mixed Forested Wetland – 3.00 Acres Freshwater Marsh – 1.42 Acres <b>TOTAL – 4.42 Acres</b>	Forested Wetland Enhancement – 12.0 acres Marsh Enhancement – 4.0 acres Upland Buffer Habitat Restoration – 6.0 acres <b>TOTAL – 22.0 Acres (ratio 4.9:1)</b>
4 – FM 1938991 US 17 – Livingston to Hardee Co. Mixed Forested Wetland – 0.48 Acre Shrub – 6.92 Acres Freshwater Marsh – 0.79 Acres	Forested Wetland Enhancement – 13.8 Acres Forested Wetland Restoration – 13.5 Acres Marsh Enhancement – 11.7 Acres Upland Buffer Habitat Restoration – 6.0 Acres

Freshwater Marsh (Ditch) – 3.40 Acres <b>TOTAL – 11.59 Acres</b>	<b>TOTAL – 46.3 Acres (ratio 4:1)</b>
5 – FM 1971681 SR 60A – CR 555 to Broadway Mixed Forested Wetland – 0.46 Acres <b>TOTAL – 0.46 Acres</b>	Forested Wetland Restoration – 1.8 acres Upland Buffer Habitat Restoration – 2.0 acres <b>TOTAL – 3.8 Acres (ratio 4.9:1)</b>
6 – FM 4110391 US 27 – CR 546 to SR 544 Shrub – 0.8 Acre Freshwater Marsh – 3.1 Acres Freshwater Ditch – 2.8 Acres <b>TOTAL – 5.7 Acres</b>	Future determination when impacts are evaluated and finalized.
7 – FM 1977061 US 27 – SR 540 to SR 542 Shrub – 0.02 Acre Fresh. Hardwood Forest – 0.08 Acre Mixed Hardwood Forest – 0.01 Acre Mixed Wetland Forest – 0.44 Acre Freshwater Ditch – 1.22 Acres <b>TOTAL – 1.8 Acres</b>	Final determination when impacts are evaluated and finalized.
8 – FM 1977071 US 27 – SR 542 to SR 546 Marsh – 2.7 Acres Lake Marsh – 1.1 Acres <b>TOTAL - 3.8 Acres</b>	Final determination when impacts are evaluated and finalized.
9 – FM 1976381 US 98 – Carpenter's Way to Daugherty Road Stream Swamp – 0.1 Acre <b>TOTAL – 0.1 Acre</b>	Marsh Enhancement – 0.3 acre Upland Buffer Habitat Preservation – 0.5 acre <b>TOTAL – 0.8 Acre (ratio 8:1)</b>
10 – FM 1977012 SR 559 – SR 655 (Recker) to US 92 Marsh – 0.6 Acre Freshwater Ditch – 0.1 Acre <b>TOTAL – 0.7 Acre</b>	Final determination when impacts are evaluated and finalized.
11 – FM 1977051 US 27 – SR 60 to Towerview Rd. Stream – 0.01 Acre Bay Swamp – 0.18 Acre Shrub – 0.002 Acre <b>TOTAL – 0.19 Acre</b>	Upland Buffer Habitat Preservation – 1.5 acres <b>TOTAL – 1.0 Acre (ratio 8:1)</b>



12 – FM 1973503 SR 31 – SR 74 to Charlotte C.L. Stream – 0.2 Acre <b>TOTAL – 0.2 Acre</b>	Final determination when impacts are evaluated and finalized.
13 – FM 4110391 US 27 – CR 546 to SR 544 Mixed Forest – 0.8 Acre Marsh – 2.1 Acres Freshwater Ditch – 2.8 Acres <b>TOTAL – 5.7 Acres</b>	Final determination when impacts are evaluated and finalized.
<b>TOTALS – 39.62 Impact Acres</b>	<b>GRAND TOTALS – 473 Mitigation Acres</b> Forested Wetland Enhancement – 40.3 Acres Forested Wetland Restoration – 50.6 Acres Marsh Enhancement – 339.0 Acres Upland Habitat Restoration – 24.0 Acres Upland Habitat Preservation – 19.4 Acres

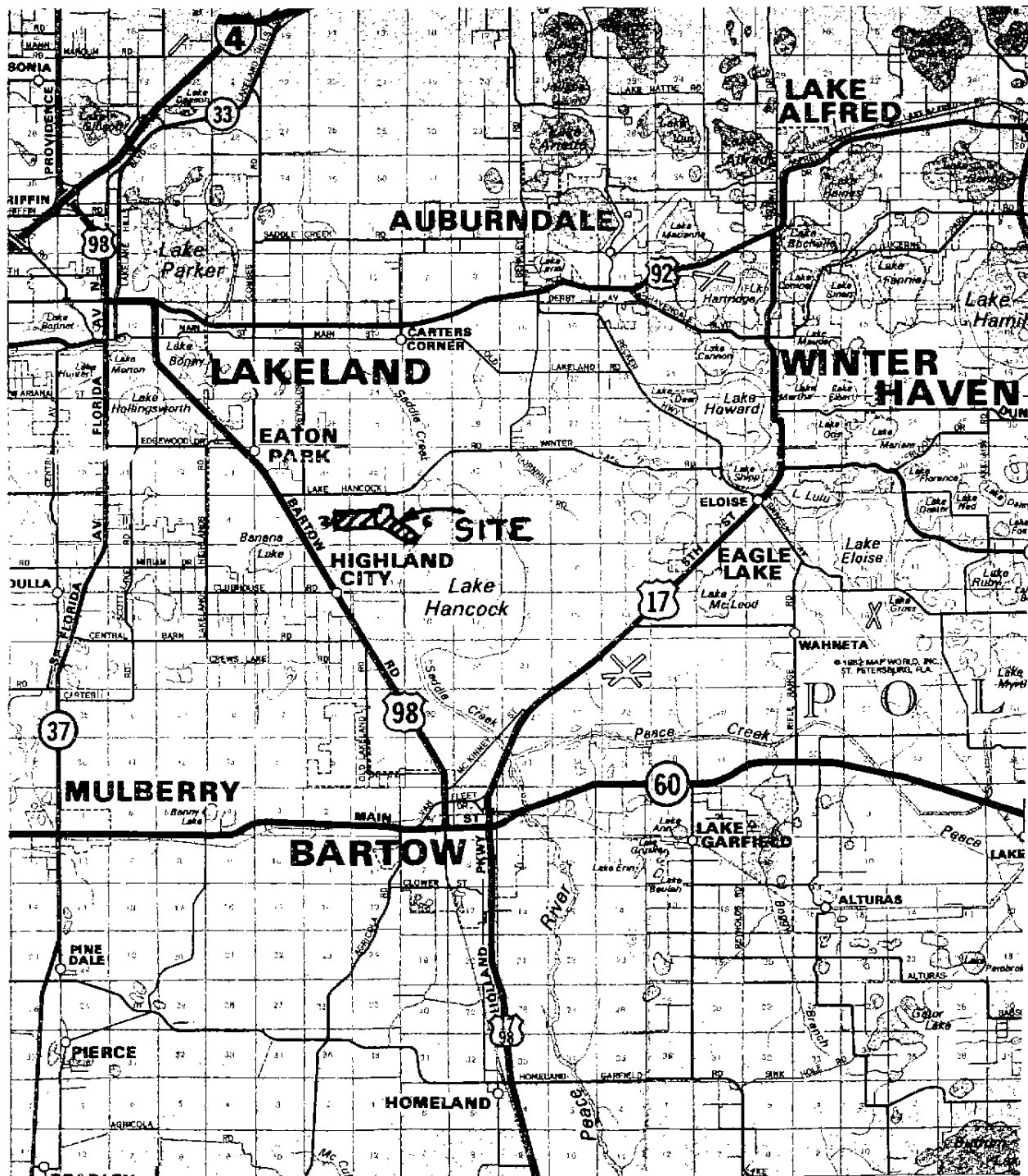


**FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)**

**LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)**

**FIGURE A  
WATERSHED  
BASIN MAP**





North ^  
Scale 1 in. = 3 miles

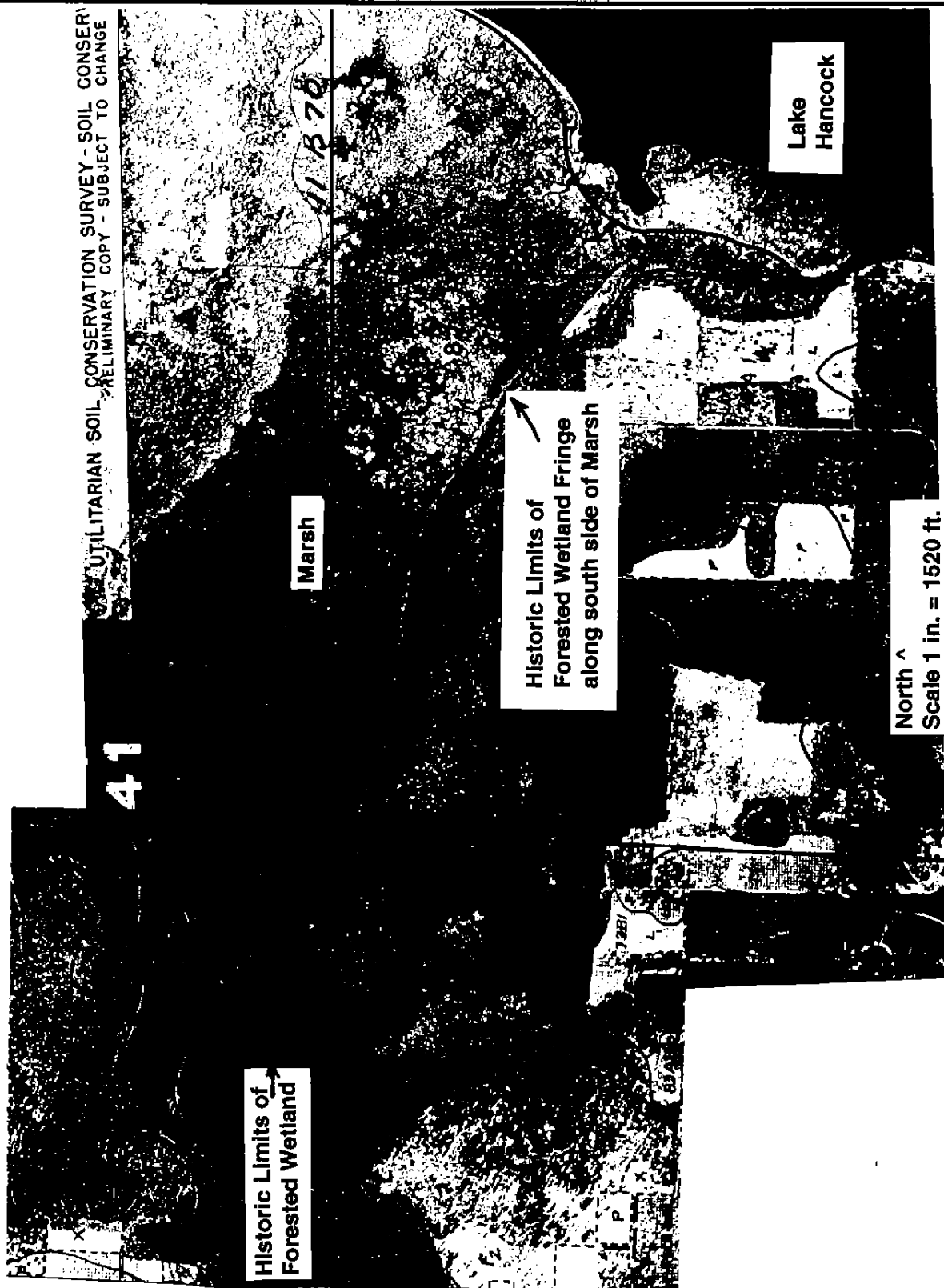
FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)

LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)

FIGURE B  
LOCATION  
MAP







FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)

LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)

FIGURE D-1  
1941 AERIAL



Lake  
Hancock

Historic Limits of  
Forested Wetland

North ^  
Scale 1 in. = 1520 ft

**FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)**

**LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)**

**FIGURE D-2  
1952 AERIAL**



### Soils Legend

- 7 - Pomona f.s.
- 13 - Samsula muck \*
- 17 - Smyrna & Myakka f.s.
- 21 - Immokalee s.
- 22 - Pomello f.s.
- 24 - Nittaw s.c.l.\*
- 32 - Kaliga muck \*
- 35 - Hontoon muck \*
- 44 - Paisley f.s. \*

\* - Hydric Soils

North ^

Scale 1 mile = 3.13 in.

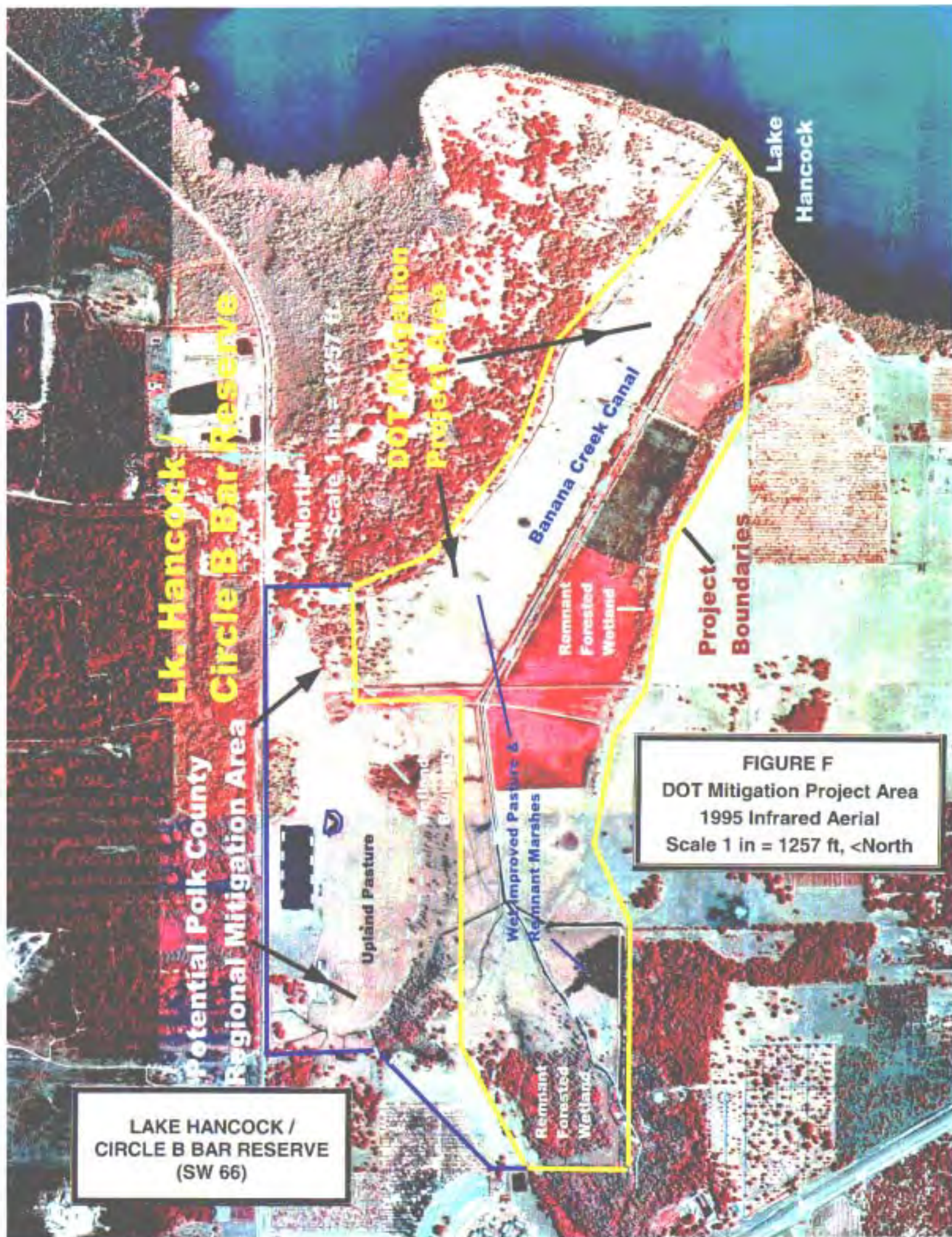


FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)

LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)

FIGURE E  
NRCS - POLK COUNTY  
SOIL SURVEY





**Lk. Hancock /  
Circle B Bar Reserve**

**Potential Polk County  
Regional Mitigation Area**

**North**

**Scale 1 in = 1257 ft**

**DOT Mitigation  
Project Area**

**Banana Creek Canal**

**Remnant  
Forested  
Wetland**

**Project  
Boundaries**

**Lake  
Hancock**

**Upland Pasture**

**Wet Improved Pasture &  
Remnant Marshes**

**Remnant  
Forested  
Wetland**

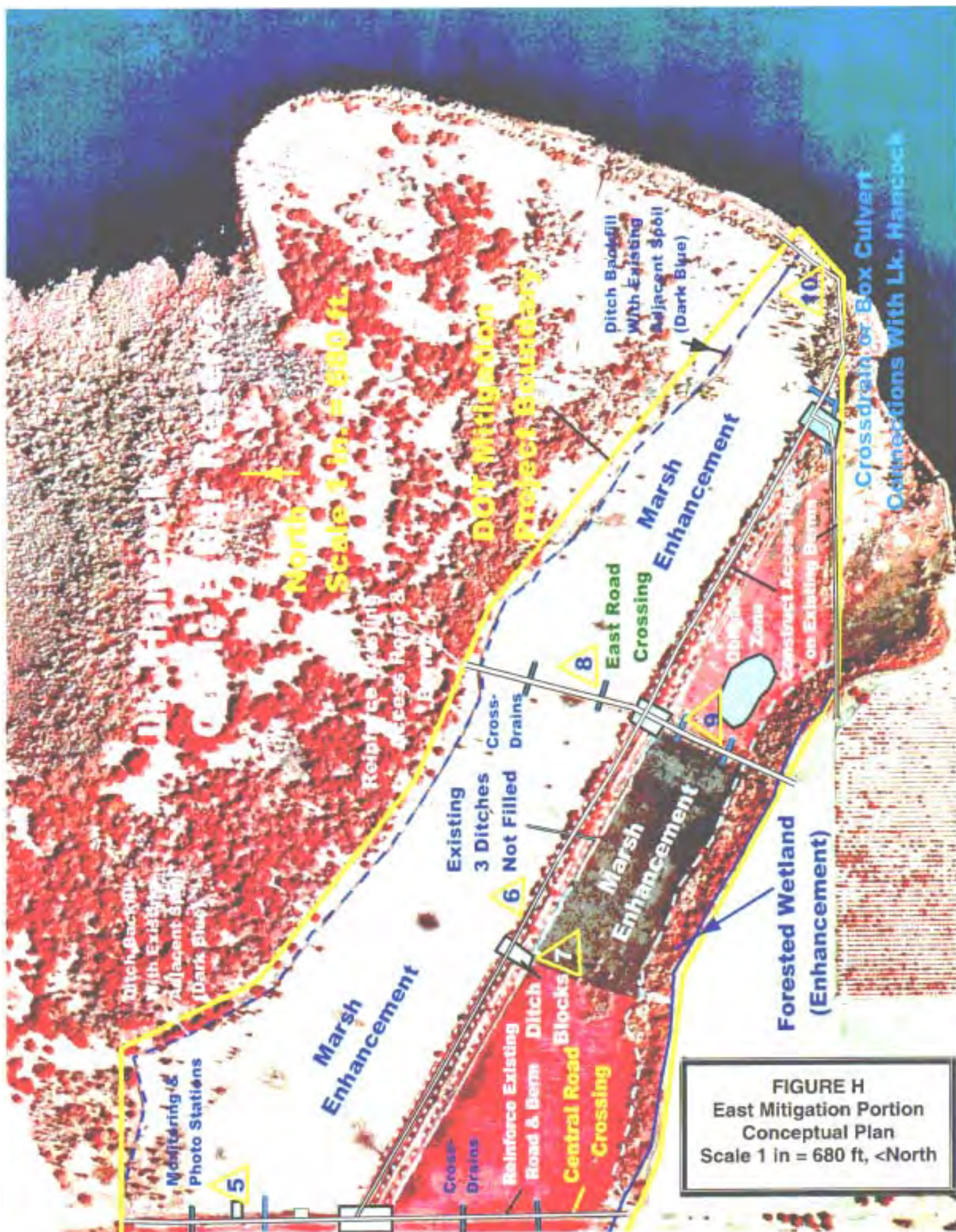
**FIGURE F**  
**DOT Mitigation Project Area**  
**1995 Infrared Aerial**  
**Scale 1 in = 1257 ft, <North**

**LAKE HANCOCK /  
CIRCLE B BAR RESERVE  
(SW 66)**













**Monitoring Station 1 – Typical condition of the western remnant forested wetland. As exhibited by the exposed roots, the dewatered condition has resulted in 18-24 inches of muck oxidation. Dominant vegetation includes maple, some sweet bay, tupelo, but no sapling generation.**



**Monitoring Station 3 – View south over proposed forested wetland restoration area. Dominant cover of bahia with minimal coverage provided by pigweed, thistle, and within the lower elevations (right), scattered soft rush and smartweed.**

**FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)**

**LAKE HANCOCK / CIRCLE B BAR RESERVE  
(SW 66)**





*Monitoring Station 4 - View east over proposed enhanced marsh, typical conditions of the west portion pasture. Bahia is very dominant cover, with bermuda, pennywort, carpet grass, and a few pockets of soft rush and smartweed (right background).*



*Southeast Pasture – View from southern project boundary looking north over southeast pasture. This pasture is slightly lower in elevation and has sufficient hydrology to allow more soft rush to generate than the other pastures (top), but lack of maintenance during dry periods allows this pasture to generate dense coverage of fennel (bottom). Restoring appropriate wetland hydroperiods will eradicate the fennel.*

FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)

LAKE HANCOCK / CIRCLE B BAR RESERVE  
(SW 66)





*Central Access Road – View south along the access road berm to be reinforced (right) and adjacent ditch (center) that will be have ditchblocks installed to direct surface water flow to the northeast pasture (left and photo below).*



*Monitoring Station 5 – View from atop the existing central berm (shown in top photo) looking over adjacent ditch and northeast pasture. Bahia very dominant with pigweed, soda apple, and few small pockets of slightly lower elevations with scattered smartweed. Area to be enhanced into marsh habitat to replace the wet improved pasture.*

FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)

LAKE HANCOCK / CIRCLE B BAR RESERVE  
(SW 66)



***Monitoring Station 10 – Area adjacent to bottom photo, view west over northeast bahia pasture and proposed marsh enhancement area.  
Banana Creek Canal under oaks (left, south) and upland oak hammock (right, north) border the proposed marsh.***



***Monitoring Station 10 – View from atop the berm bordering Lake Hancock, Looking west at the northeast pasture (left background) and diverter ditch (center).  
This ditch diverts contributing ground and surface water flow from reaching the northeast pasture, and will be filled to aid in restoring wetland hydrology.***

**FDOT – District 1  
MITIGATION SITE  
(Peace River Basin)**

**LAKE HANCOCK / CIRCLE B BAR RESERVE  
(SW 66)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Apollo Beach Nature Preserve

Project Number: SW 67

Project Manager: Mike Holtkamp, WMD - SWIM Engineer

Phone No: (813) 985-7481, ext. 2212

County: Hillsborough

Location: Sec. 16, T31S, R19E

### IMPACT INFORMATION

DOT FM: 2557031 - SR 60, Cypress to Fish Creek ERP #: 43002958.003 COE #: 200205816 (IP-MN)

Drainage Basin: Tampa Bay Water Body(s): Spruce Street Drainage Canal SWIM water body? N

Impact Acres /Types : 5.3 ac. 642 (Fluccs code)

This SR 60 project has a total proposed impact of 16.6 acres, 5.3 acres to be mitigated at Apollo Beach, 5.1 acres to be mitigated at Tappan Tract (SW 62), 5.4 acres to be mitigated at Cockroach Bay - Saltwater (SW 75), and 0.8 acres to be mitigated at Cockroach Bay - Freshwater (SW 56).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation    Restoration    Enhancement    Preservation Mitigation Area: 13.8 ac.

SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin: Tampa Bay Water Body(s): Tampa Bay SWIM water body? Y

#### Project Description

- A. Overall project goal:** The creation of various coastal habitats within an area of spoil constructed (1955) from adjacent dredged material from Tampa Bay. The total project area is 38 acres, on a site owned and managed by Hillsborough County Parks Dept., with the habitat creation conducted through the WMD-SWIM Dept. The habitats and associated proposed acreage include intertidal low marsh and mangroves (13.8 acres), intertidal high marsh (7.2 acres), intertidal open water (10.8 acres), dunes (1.2 acres), and upland preservation & enhancement (5.0 acres). The restoration area proposed to mitigate for the DOT wetland impacts include the creation of 13.8 acres of low marsh and mangrove species will naturally recruit in this area during the initial growing season.
- B. Brief description of current condition:** Prior to construction in 2004, the majority of the site included a relatively level spoil "plateau" essentially covered with a monoculture of cogon grass and minor cover provided by goldenrod, beggar's-tick, dog fennel, ragweed, and several upland grasses (refer to site photos). A narrow strip of white and black mangroves were established along the southern shore's waterline, couple areas of dense concentrations as well as scattered Brazilian pepper, with scattered cabbage palm, salt-bush, wax myrtle, and Australian pine. Overall, very low quality habitat dominated by exotic vegetation and minimal opportunities for wildlife use.
- C. Brief description of proposed work:** The majority of the spoil material has been removed, graded to create low and high marsh habitat. The design emphasizes an interconnected network of open water channels and deeper pools, a myriad of planting platforms at various elevations, sinuous edge communities, and areas of upland preservation and enhancement. The open water component is particularly important in the design to offer feeding and resting habitat for the Florida manatee that frequent the area due to the neighboring warm-water discharge from the Tampa Electric Company's (TECO) Big Bend Power Station.

present in the form of scattered individuals and small, dense pockets. Dominant species included Brazilian pepper (*Schinus terebinthifolius*), salt-bush (*Baccharis angustifolia*), wax myrtle (*Myrica cerifera*), lantana (*Lantana camara*), cabbage palm (*Sabal palmetto*), and Australian pine (*Casuarina equisetifolia*). A narrow strip of intertidal wetland exists along the outer, waterward edge of the site. Woody vegetation in this zone consists mainly of white mangroves (*Laguncularia racemosa*) and black mangroves (*Avicennia germinans*) with scattered Brazilian pepper and coinvine (*Dalbergia castaphyllum*). Herbs include sea purslane (*Sesuvium portulacastrum*), saltmeadow cordgrass (*Spartina patens*), and saltwort (*Batis maritima*).

Several proposed habitats have been constructed. The open water component (10.8 acres) includes sub-tidal, mudflats, and salterns created between elevations 0.5 to deeper than -2.0 feet. The interconnected deepwater channels will provide tidal flows into the interior of peninsula. Deeper pools (greater than 3.0 ft.) are created to provide refuge for manatees and juvenile fish. Topographic ridges are constructed in the intertidal zone to trap tidal flows and encourage development of saltern zones.

The intertidal low marsh and mangroves (13.8 acres) is the wetland zone proposed to compensate for the proposed wetland impacts. This zone (elevations 0.5 to +2.0 ft.) will be planted with *Spartina alterniflora* and mangrove species will recruit and generate during the initial growing seasons. The existing eastern shoreline is dominated by mangroves and will be preserved to inhibit erosion and provide a seed source for recruitment. Excavation to provide hydrologic connections for the proposed channels will occur in areas where erosion has eliminated mangrove coverage. The intertidal high marsh (7.2 acres) is constructed between elevations +2.0 to +3.0, with proposed plantings of *Iva spp.*, *Spartina patens*, *Batis maritima*, *Borrichia frutescens*, and *Sesuvium portulacastrum*. Mangrove recruitment will also occur within this zone to further diversify the installed plant communities.

A portion of the excavated material is used to construct sand dune habitat along the northern top-of-bank. The dunes and surrounding areas will be enhanced by plantings of sea oats (*Uniola paniculata*), railroad vine (*Ipomoea pescaprae*), beach sunflower (*Helianthus debilis*), along with transplanted cabbage palms and prickly pear cactus. Selected upland areas will be enhanced to increase community diversity and offer roosting & nesting areas for a wide variety of bird species that will frequent the site. Brazilian pepper will be manually cleared and stumps will receive herbicide application using an approved treatment method. The few remaining Australian pines will be girdled, herbicide treated, and left as dead snags for additional habitat value.

## **Attachment B - Maintenance & Monitoring Plan, Success Criteria**

For estuary creation and restoration projects, with proper construction of appropriate wetland grades to allow for sufficient tidal action, the planted vegetation will survey and recruit throughout the wetland. Salt water limits the re-establishment of exotic vegetation that is more of a concern with freshwater restoration projects. Maintenance for the wetlands will be primarily associated with control of any debris and replacement of herbs that didn't survive the initial planting.

Maintenance to control exotic and nuisance species are generally associated with upland habitat, which is a low percentage of the project area, and will be maintained through the use of herbicide. Maintenance will be conducted as necessary, expected to be quarterly for 2-3 years after planting. Afterward, Hillsborough County staff will continue maintenance as necessary to retain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance/exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted semi-annually, followed by annual reports conducted for a minimum three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the portions proposed for mitigation, as well as general habitat conditions of the entire project area. The success criteria will reflect a minimum 90% survivorship for planted material and a total 85% cover of planted and recruited desirable species.



- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s): The 5.9 acres of the saltwater marsh impacts will be compensated by the creation of 13.8 acres of saltwater low marsh habitat. The DOT funds will be sufficient to reimburse the construction and maintenance of 13.8 acres, which will be buffered with the creation of other saltwater habitats.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: The Tampa Bay Mitigation Bank (TBMB) is the only mitigation bank within the Tampa Bay Drainage Basin. TBMB will be under construction and not anticipated to sell credits until at least 2005.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body : The Apollo Beach restoration project is a SWIM project. Constructed through the WMD-SWIM Dept., the site is owned and will be managed by the Hillsborough County Parks Department.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: A private contractor selected by the SWFWMD - SWIM Dept.

Contact Name: Mike Holtkamp, WMD - SWIM Engineer

Phone Number: (813) 985-7481, ext. 2212

Entity responsible for monitoring and maintenance: SWFWMD- SWIM Dept. and Hills. County Parks Dept.

Proposed timeframe for implementation: Commence: Design complete, Construction commenced 2003

Complete: Construction and planting complete in late 2004, followed by 3 years maintenance & monitoring

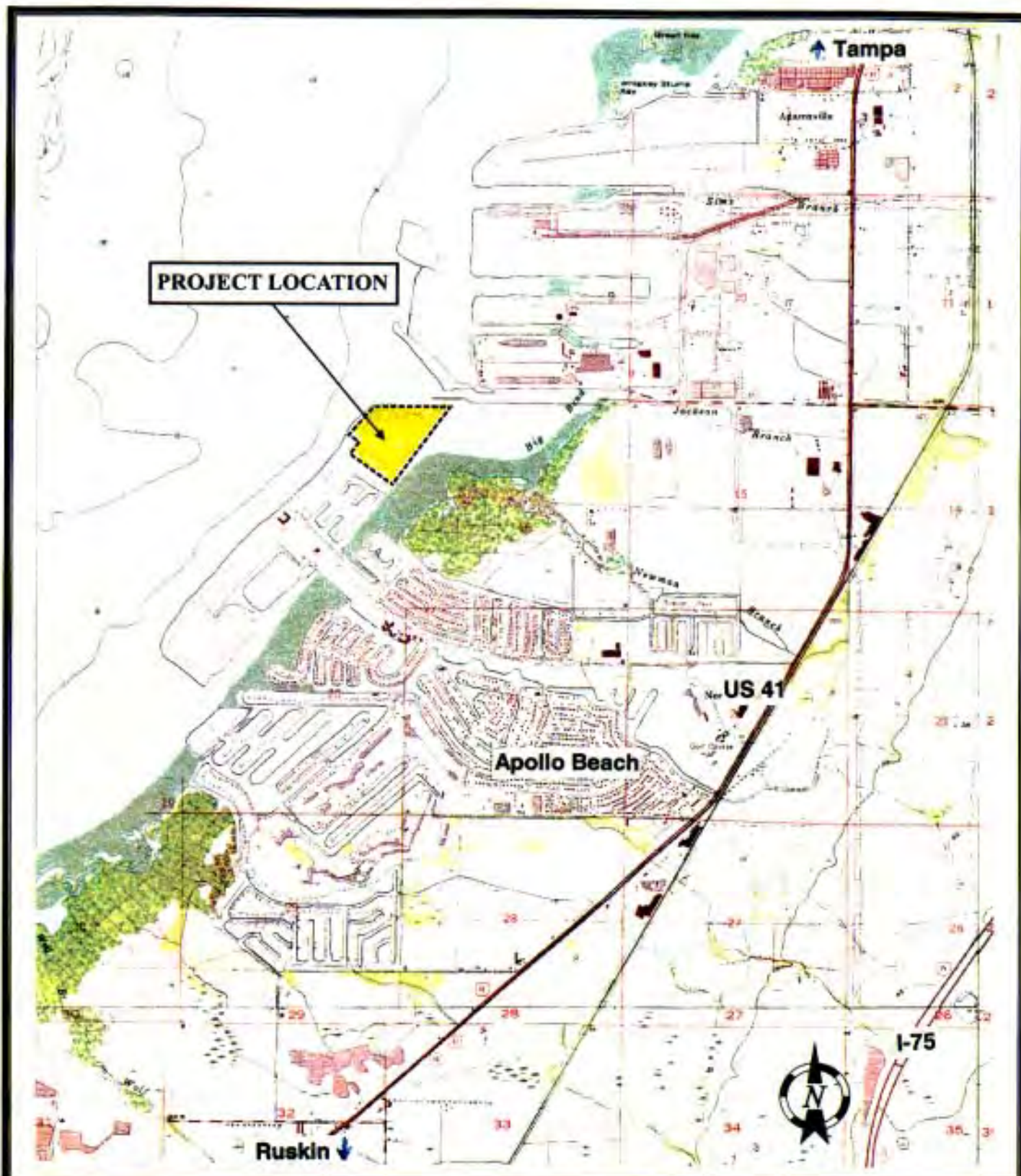
Project cost: \$ 450,000 (total); the entire project cost is \$1.5 million. The FDOT wetland impacts and associated funds will reimburse for the construction, maintenance & monitoring for the 13.8 acres of intertidal low-marsh which provides mitigation credit for the 5.3 acres of impact.

#### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figure B.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figure C (Design Drawings).
- X 4. Detailed schedule for work implementation, including any and all phases. Construction commenced in 2003, finished by the end of 2004, followed by three years maintenance & monitoring.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Refer to Attachment B.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text and Attachment C.

#### Attachment A - Site Conditions & Proposed Plan

The vast majority of pre-construction site was classified as upland. Numerous plant species colonized the upland portions of the site in the 47 years since construction of the Apollo Beach peninsula. With sterile dredged soils and minimal seed source of desirable upland species, the "plateau" (average elev. 9-10 ft.) offered little opportunity for desirable species to colonize. Cogon grass (*Imperata brasiliensis*) was the most dominant ground cover species (refer to site photos). Other herbs include purple sedge (*Cyperus ligularis*), hurricane grass (*Fimbristylis spathacea*), licorice weed (*Scoparia dulcis*), seaside evening primrose (*Oenothera humifusa*), and camphor daisy (*Haploppus phyllocephalus*). Shrub and tree species were



**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**APOLLO BEACH  
(SW 67)**

**FIGURE A  
LOCATION MAP  
Scale 1 in. = approx. 3200 ft.**





**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**APOLLO BEACH  
(SW 67)**

**FIGURE B  
1995 Infrared Aerial  
Scale 1 in. = approx. 300 ft.**



**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

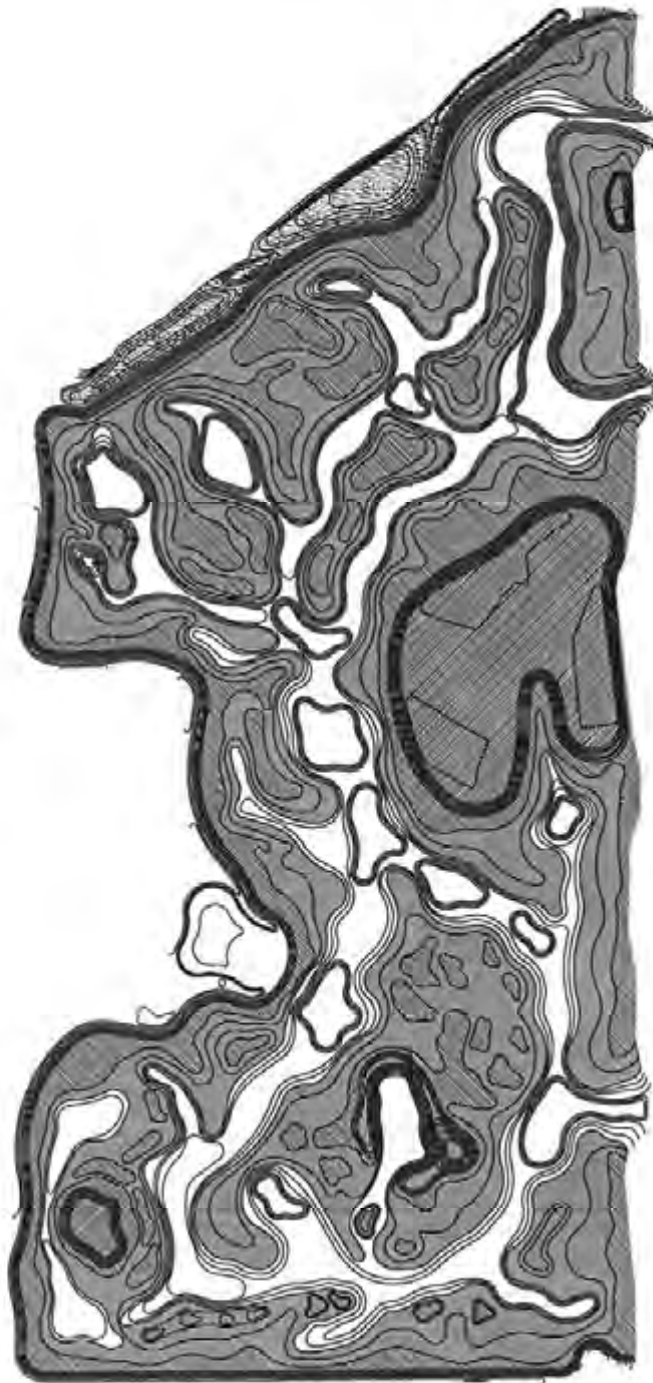
**APOLLO BEACH  
(SW 67)**

**FIGURE C  
Grading Plan  
Scale 1 in. = approx. 300 ft.**



ZONE	SYMBOL	PLANT SPECIES	SIZE	SPACING O.C.	ELEVATION	PLANT QUANTITY
SCOPES		<i>Paupulum virginicum</i>	1 gal	2.0	1.0 to 2.0	12,210
		<i>Helianthus debilis</i>	1 gal			3,000
		<i>Paupulum virginicum</i>	1 gal	3.0		3,000
		<i>Gaillardia palustris</i>	1 gal		4.0 - 5.0	3,000
UPLAND		<i>Coccydactylaria</i>	3 gal	10.0		500
		<i>Myrica carolinensis</i>	3 gal			500
		<i>Urtica dioica</i>	1 gal	2.0		19,000
		<i>Apocynum peruvianum</i>	1 gal			19,000
DUNES		<i>Helianthus debilis</i>	1 gal	3.0	7.0 to 10.0	3044
		<i>Iva maritima</i>	1 gal			700
		<i>Coccydactylaria</i>	3 gal	3.0		750

ZONE	SYMBOL	PLANT SPECIES	SIZE	SPACING O.C.	ELEVATION	PLANT QUANTITY
FRESHWATER		<i>Spartina alterniflora</i>	1 gal	3.0	7.5 - 8.5	350
		<i>Phragmites australis</i>	1 gal	3.0	7.5 - 8.5	300
LOW MARSH		<i>Myrica repens</i>	3 gal	5.0	8.5 - 9.0	50
		<i>Spartina alterniflora</i>	1 gal	2.0	9.5 - 10.0	130,000
HIGH MARSH		<i>Iva frutescens</i>	1 gal			6,000
		<i>Salicornia virginica</i>	1 gal	3.0	2.0 - 2.5	6,000
		<i>Batis maritima</i>	1 gal			6,000
		<i>Paupulum virginicum</i>	1 gal	3.0	2.0 - 3.0	21,000
		<i>Borrichia fruticosa</i>	1 gal			16,500
		<i>Spartina patens</i>	1 gal			7,000
		<i>Distichlis spicata</i>	1 gal	3.0	2.5 - 3.0	7,000
		<i>Spartina alterniflora</i>	1 gal			16,500



FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

APOLLO BEACH  
(SW 67)

FIGURE D  
Planting Plan  
Scale 1 in. = approx. 300 ft.



***Entrance to the Preserve, owned and managed by Hillsborough County Parks Dept., habitat restoration activities conducted in association with the SWFWMD – SWIM Dept.***



***Typical view of the site, dominant ground cover of cogon grass, with scattered Brazilian pepper, low quality habitat conditions.***

**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**APOLLO BEACH NATURE PRESERVE-  
HABITAT RESTORATION PROJECT  
(SW 67)**





*Another typical view of the site, cogon grass, scattered B. pepper. Small oak hammock (left background) will be preserved and enhanced.*



*One of the three proposed southeast open water channel points, connecting the created wetlands to the interbay area. B. pepper along the top-of-bank, minor temporary impacts to mangrove fringe along toe-of-slope in order to construct the connections.*

**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**APOLLO BEACH NATURE PRESERVE-  
HABITAT RESTORATION PROJECT  
(SW 67)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: I-75 Peace River Bridge Restoration

Project Number: SW 69

Project Manager: Mark Brown, WMD Environmental Scientist

Phone No: (352) 796-7211, ext. 4488

County(ies): Charlotte

### IMPACT INFORMATION

WPI: 4046971 - I-75 Bridge Widening over Peace River ERP #: 43021917.00 COE #: NPR (USCG)

Drainage Basin(s): Peace River

Water Body(s) : Peace River

SWIM water body? Y

Impact Acres / Types: 0.08 ac. 619 / 612 / 642 (Fluccs) - Permanent Impacts from Bridge Embankment Fill:

0.72 ac. 612 / 642

Permanent Impacts from Shading

2.51 ac. 612 / 642

Temporary Impacts from Construction

**TOTAL 3.31 Acres**

Note: The total proposed impact associated with the bridge construction is 6.06 acres. In addition to the 3.31 acres of impact listed above, there will be 2.75 acres of mangrove & estuarine permanent impacts from shading that will be mitigated through the purchase of mangrove credits from the Little Pine Island Mitigation Bank (SW 52).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation: 2.51 ac. Restoration (temp. impacts) 2.06 ac. Enhance. (under removed bridge) Mitigation: **4.57 acres**

SWIM project? N Aquatic Plant Control project? Y Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin(s): Peace River Water Body(s): Peace River SWIM water body? Y

#### Project Description

**A. Overall project goal:** DOT constructed a new northbound I-75 bridge over the Peace River in 2002-2004. The new span is located between the existing northbound and southbound bridges (refer to Figures 13-16 for plan views). To remove the existing northbound bridge, construction equipment required access adjacent to the eastern side of the existing span, resulting in 2.51 acres of temporary wetland impact. Once the bridge span was removed, the existing non-vegetated, shaded area under the existing span (2.06 ac.) and temporary impact area (2.51 ac.) was planted with white mangrove, saltmarsh bulrush, and black needle rush.

**B. Brief description of current condition:** Beneath the former northbound bridge span, there was a dominance of non-vegetated, exposed sand conditions (refer to site photos). For Site C, beneath the outer edges of the bridge span, ground and small shrub-size white mangroves were present due to limited sunlight exposure. Trimmed mangroves were dominant within the proposed temporary impact area of Site C. For Site B (Bird Key), the temporary impact area had some small trimmed mangroves, scattered leather-fern, and some non-vegetated areas where previously cut limbs were prevalent over the ground. For Site A, the temporary impact area included a mixture of white & red mangrove along with a dominance of black rush (refer to site photos).

**C. Brief description of proposed work:** The bridge contractor constructed the new bridge span before removing the existing northbound span. After the previous northbound span was removed, the Contractor re-graded the area to restore pre-construction grade elevations within the temporary impact and enhancement areas. The enhanced and restored wetlands were planted in July, 2004 with 1100 white mangrove, 4800 black rush, and 1700 saltmarsh bulrush. The planting supplemented the natural regeneration of these same species that had already commenced in these areas after construction. Maintenance & monitoring will be conducted for a minimum 2 years and until success criteria is met.



**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** For the on-site mitigation, the permanent loss of 0.8 acres of mangrove/estuarine marsh habitat will be adequately and appropriately compensated by the enhancement of 2.06 acres of non- to minimally-vegetated wetlands that was beneath the previous northbound span. The 2.51 acres of temporary impact to mangrove and saltmarsh habitat was restored in place. To compensate for the additional 2.75 acres of permanent mangrove and estuarine impact, the impacts are mitigated through purchasing 2.75 credits from the Little Pine Island Mitigation Bank

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** Due to habitat conditions, proximity to the proposed impact, and economical value, the Little Pine Island Mitigation Bank was selected to compensate for some of the proposed wetland impact associated with this project. However, the I-75 Bridge is within the Peace River Basin and the mitigation bank is within the adjacent and downstream Charlotte Harbor Basin. Selection of an appropriate mitigation project within the basin is required to partially mitigate for wetland impacts, in order to avoid cumulative losses of wetland habitat function and value within the Peace basin. Since the on-site wetland restoration and enhancement adequately compensates for a portion of the impacts, the mitigation bank can adequately and appropriately mitigate for the remaining habitat loss.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There were no existing or currently proposed saltwater restoration SWIM projects proposed in the Peace River basin.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: Contractor for the bridge construction was responsible for the necessary earthwork to restore grade elevations. A nursery contractor was selected for planting and maintenance of the restored wetlands.  
Contact Name: Mark Brown, WMD Environmental Scientist Phone Number: (352) 796-7211, ext. 4488

Entity responsible for monitoring and maintenance: The maintenance and monitoring will be conducted by private environmental firms on contract with the SWFWMD.

Proposed timeframe for implementation: Commence: Bridge construction was conducted from 2001- 2004, planting conducted in July, 2004 Complete: minimum 2 years maintenance & monitoring

Project cost: \$21,000 (total)  
Planning, Design, Site Evaluations, Contract Preparation - \$3,000  
Planting (4.57 acres) - \$9,000  
Maintenance & Monitoring (2 years) - \$9,000

#### **Attachments**

- X 1. Detailed description of existing site and proposed work. Refer to previous discussion and site photos.
- X 2. Recent aerial photograph with date and scale. Refer to Figure B, 1995 infrared aerial.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figures 13-16 (bridge plan views) for pre-post construction conditions.

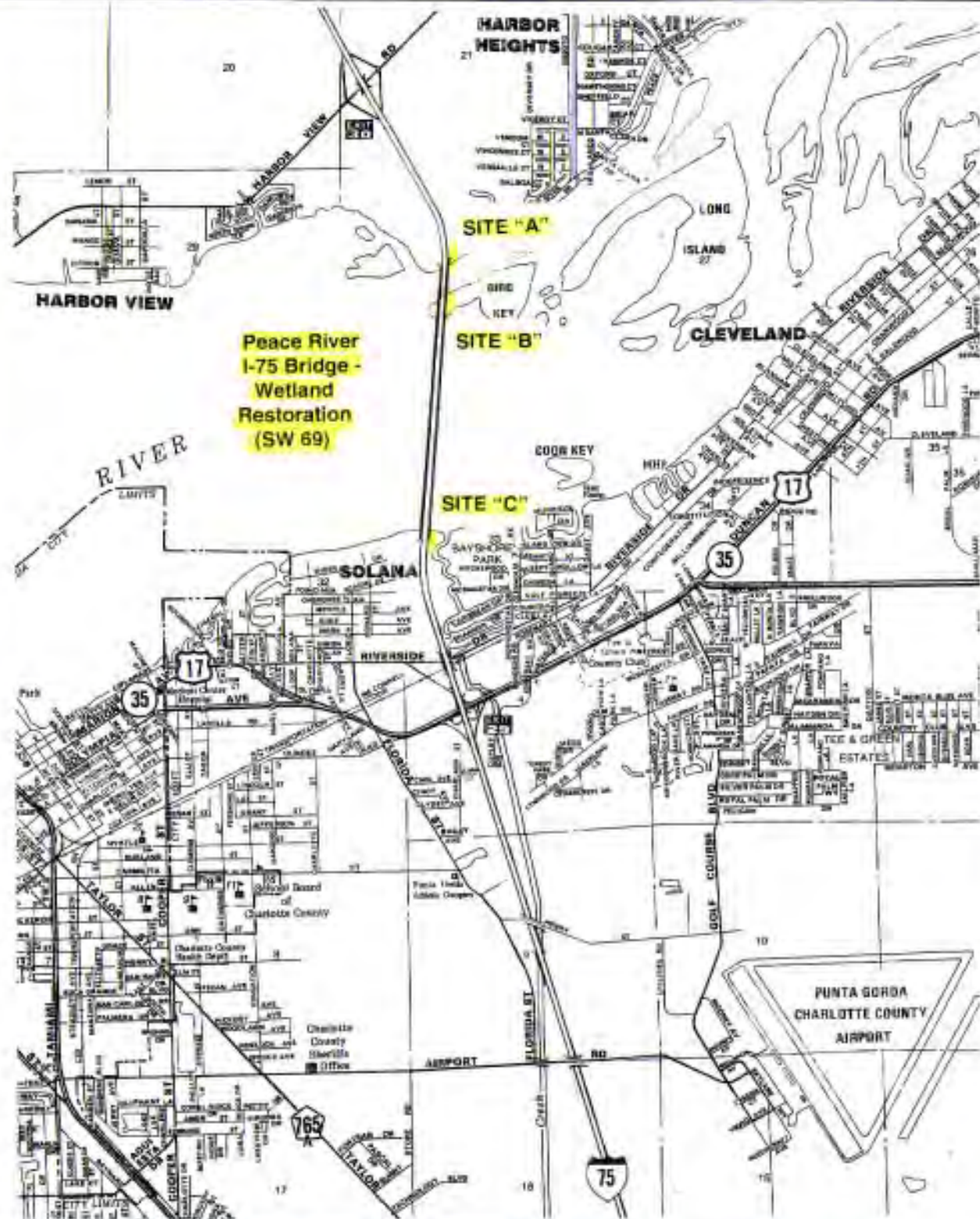
X **4. Detailed schedule for work implementation, including any and all phases.** Refer to previous discussion on activities.

X **5. Proposed success criteria and associated monitoring plan.** Proposed success criteria includes 90% survivorship of planted stock which included white mangroves (*Laguncularia racemosa*), black rush (*Juncus roemerianus*), and saltmarsh bulrush (*Scirpus robustus*). These same species are naturally recruiting and regenerating at the site, the supplemental plantings were concentrated within the less vegetated areas. Success criteria requires a minimum 80% cumulative cover of desirable vegetation, since ground cover within mature mangrove systems are generally sparse. With the proper grading, tidal waters restrict the generation of exotic/nuisance species, which are required to be eradicated during a minimum 2 -year monitoring period. The monitoring will be conducted on a semi-annual basis for a minimum 2-years post-construction. The monitoring will be qualitative, noting species coverage, photo documentation, and vegetative trends and required maintenance activities. The results of the semi-annual monitoring will be prepared within annual monitoring reports and submitted to the ACOE and SWFWMD.

X **6. Long term maintenance plan.** Maintenance activities will be conducted as needed for a minimum 2-years post construction. This will include a minimum of quarterly inspections the first year and semi-annual thereafter to conduct a review of the site conditions, herbicide any exotic/nuisance species, trash removal, and photo documentation of conditions to be included in the annual monitoring reports.

X **7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s).** Refer to previous discussion.



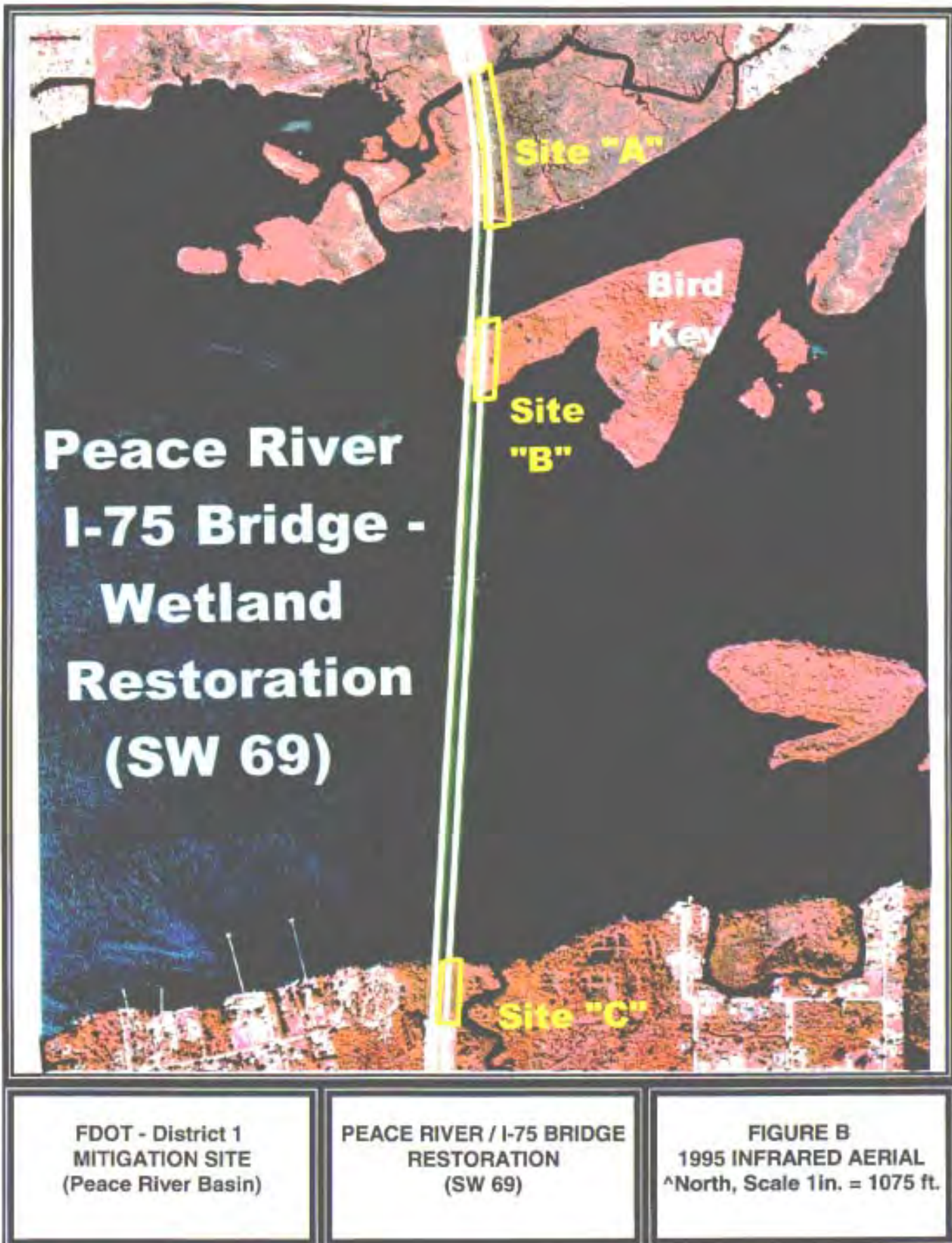


**FDOT - District 1  
MITIGATION SITE  
(Peace River Basin)**

**PEACE RIVER / I-75 BRIDGE  
RESTORATION  
(SW 69)**

**FIGURE A  
LOCATION MAP  
^North, Scale 1.7 in. = 1 mile**

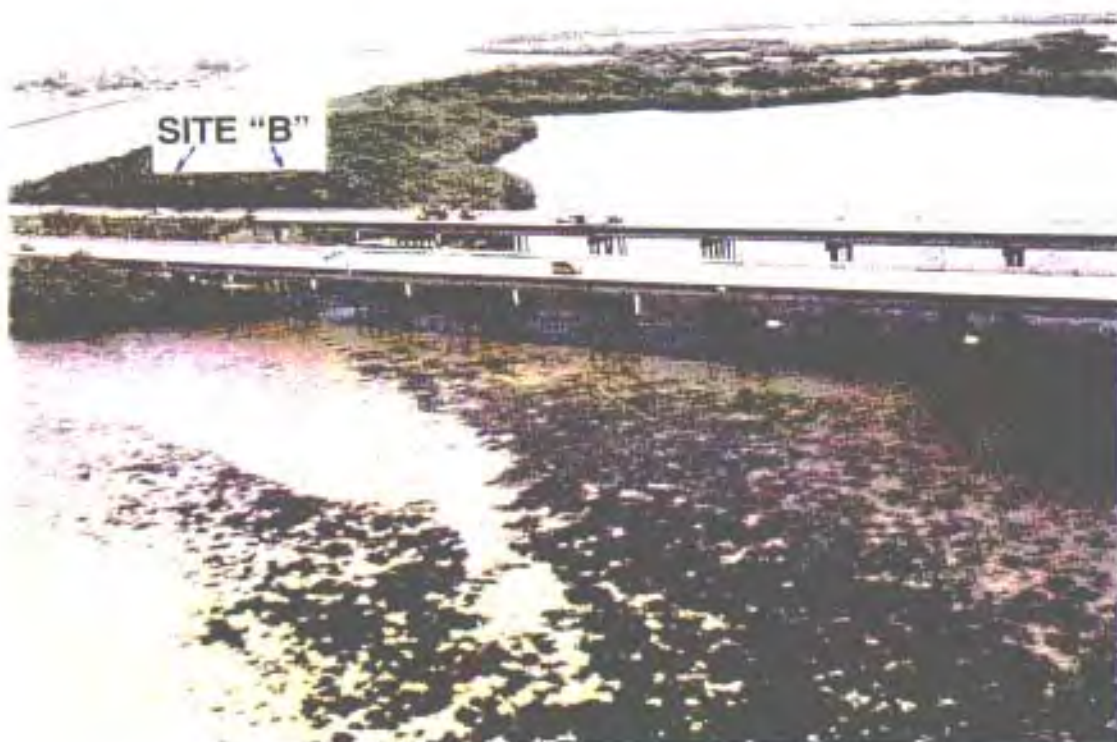




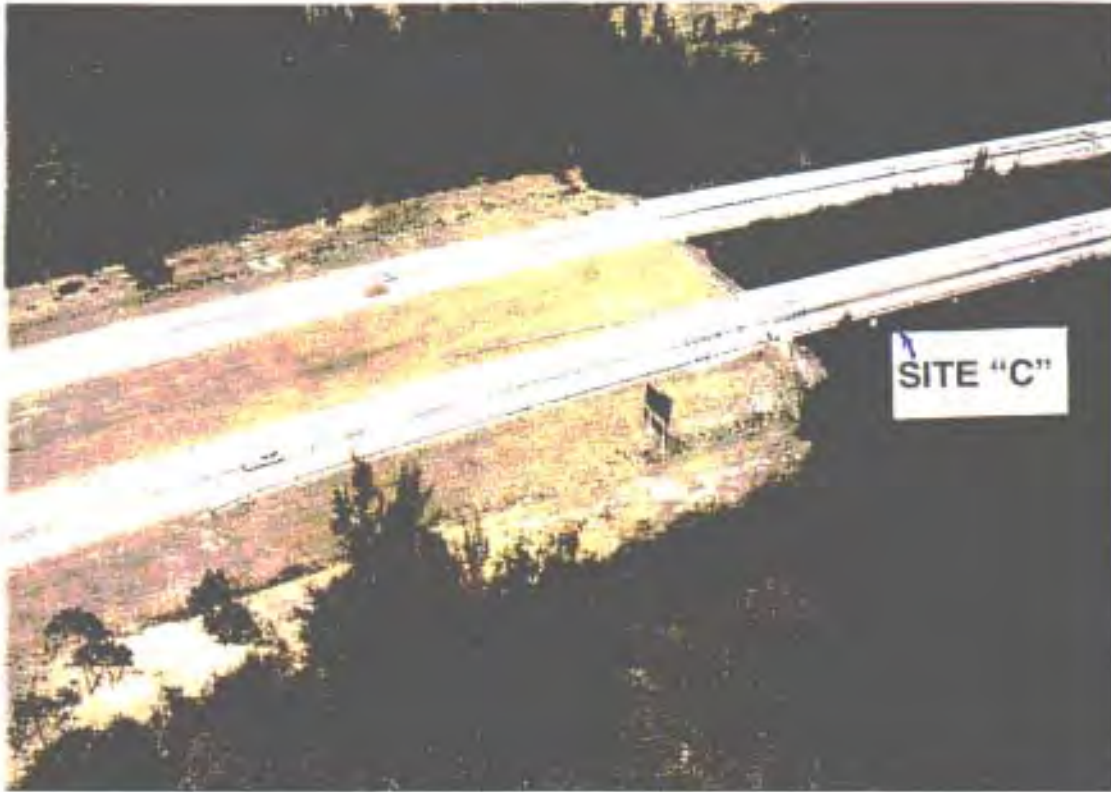




Wetland S1  
Facing South



Seagrass bed  
on west side  
of bridge



Wetland I  
Facing West



Wetland J  
Facing North





***Site A - View from top of the northbound bridge, looking south at mangroves and black rush alongside the bridge within the proposed temporary impact area. These species will be planted to restore the temporary impact and to enhance a portion under the bridge span proposed for removal.***



***Site A - View from the northern bridge embankment area, looking south over the tidal branch (refer to Figure B for aerial depiction). Brazilian pepper along the embankment (foreground) with mangroves and black rush south of the open water and adjacent to the bridge.***

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration  
(SW 69)**





*Site B - View from top of the northbound bridge, looking south at the large mangroves on Bird Key. Note the proposed temporary impact area has minimal coverage of mangroves and ground cover vegetation, primarily scattered leather fern and previously cut mangroves.*



*Site B - Opposite view from top photo, looking north at the temporary impact area adjacent to the bridge, the temporary impact area and enhancement area under the existing span will be planted with mangroves.*

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration  
(SW 69)**





*Site C - View from the northbound bridge's southern embankment, looking north at the proposed temporary wetland impact area associated with access of construction equipment. The temporary impact limits approximate the area where the mangroves are trimmed adjacent to the existing bridge span.*



*Site C - View of the temporary impact area (right) and proposed span removal (left). The temporary impact area is dominated by white mangrove, including shrub-size mangroves that have generated under the edge of the existing bridge span.*

**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration  
(SW 69)**





*Site C - View under the northbound bridge, minimal vegetation within the area under shade. Once this bridge span is removed, white mangroves are proposed for planting, along with natural generation of mangroves. Stain lines on the bridge pilings indicate normal tidal fluctuations.*

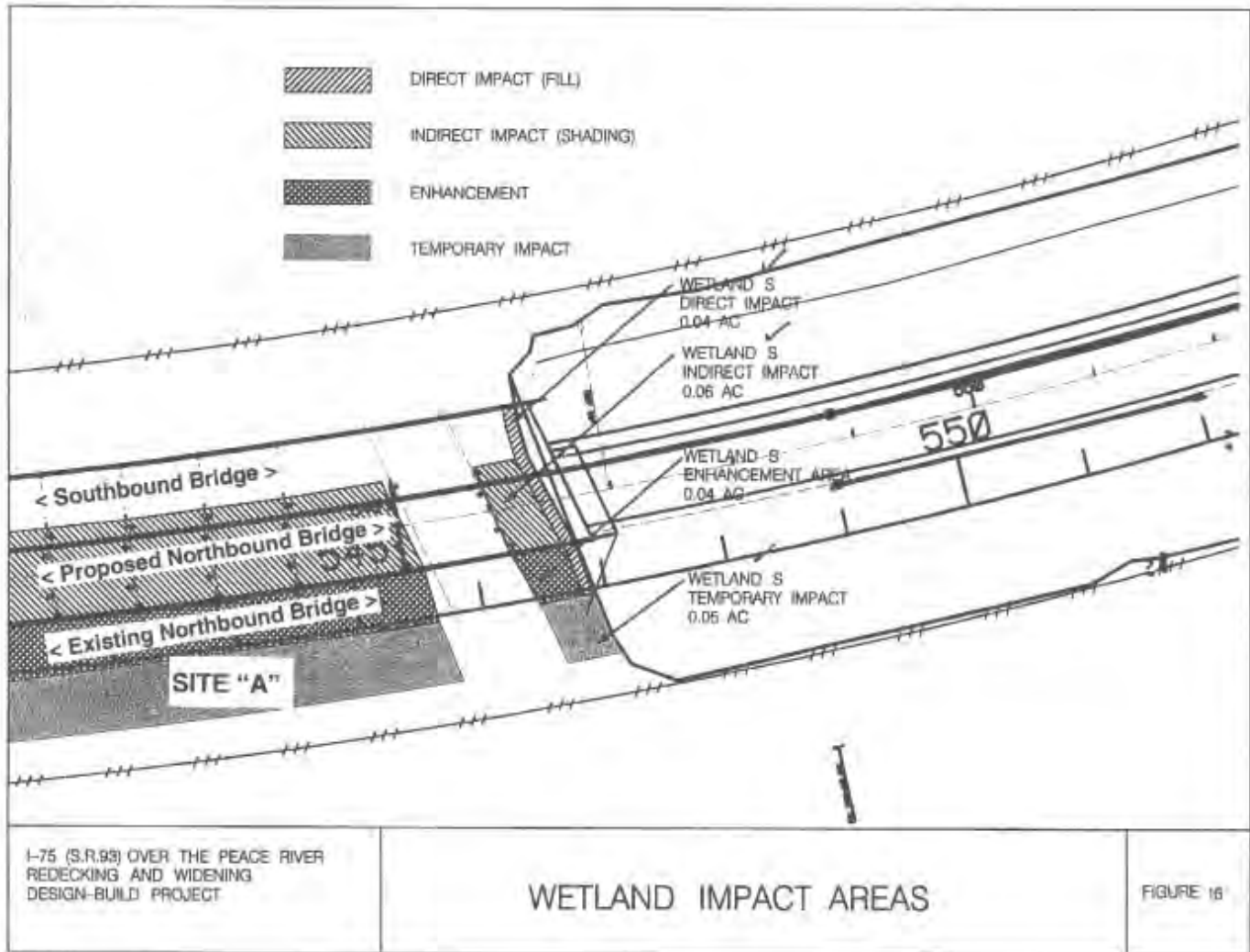


*Site C - View from the southern shoreline of the Peace River, underneath the northbound bridge proposed for removal. Some red mangrove along the banks, seagrass beds within the river will not be impacted by bridge construction.*

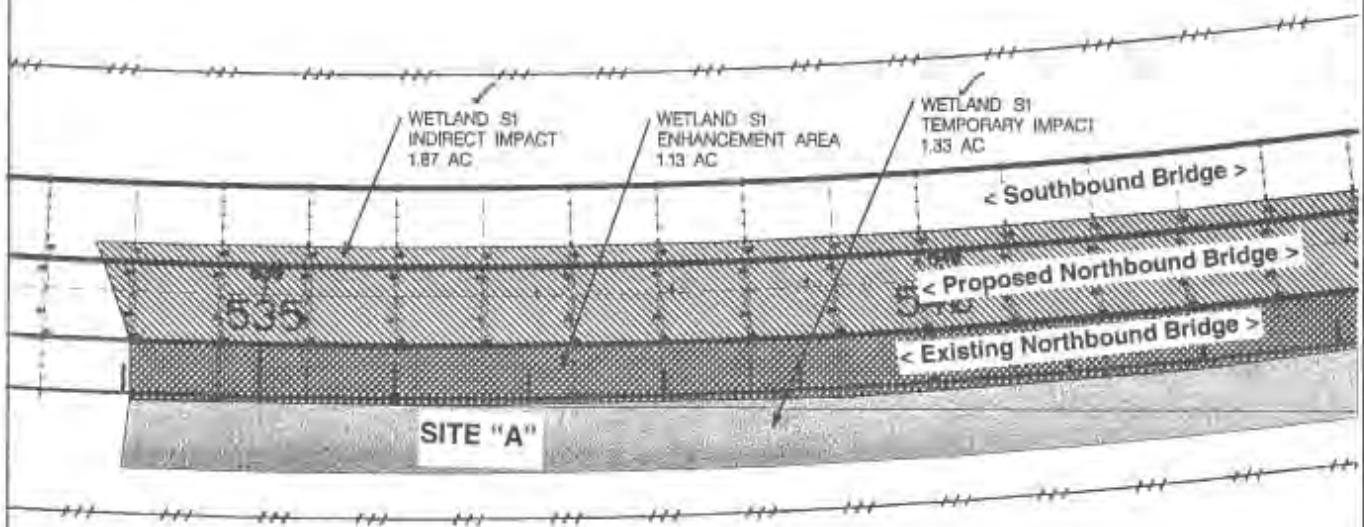
**FDOT - District 1 Mitigation Site  
(Peace River Basin)**

**Peace River / I-75 Bridge Restoration  
(SW 69)**





-  DIRECT IMPACT (FILL)
-  INDIRECT IMPACT (SHADING)
-  ENHANCEMENT
-  TEMPORARY IMPACT

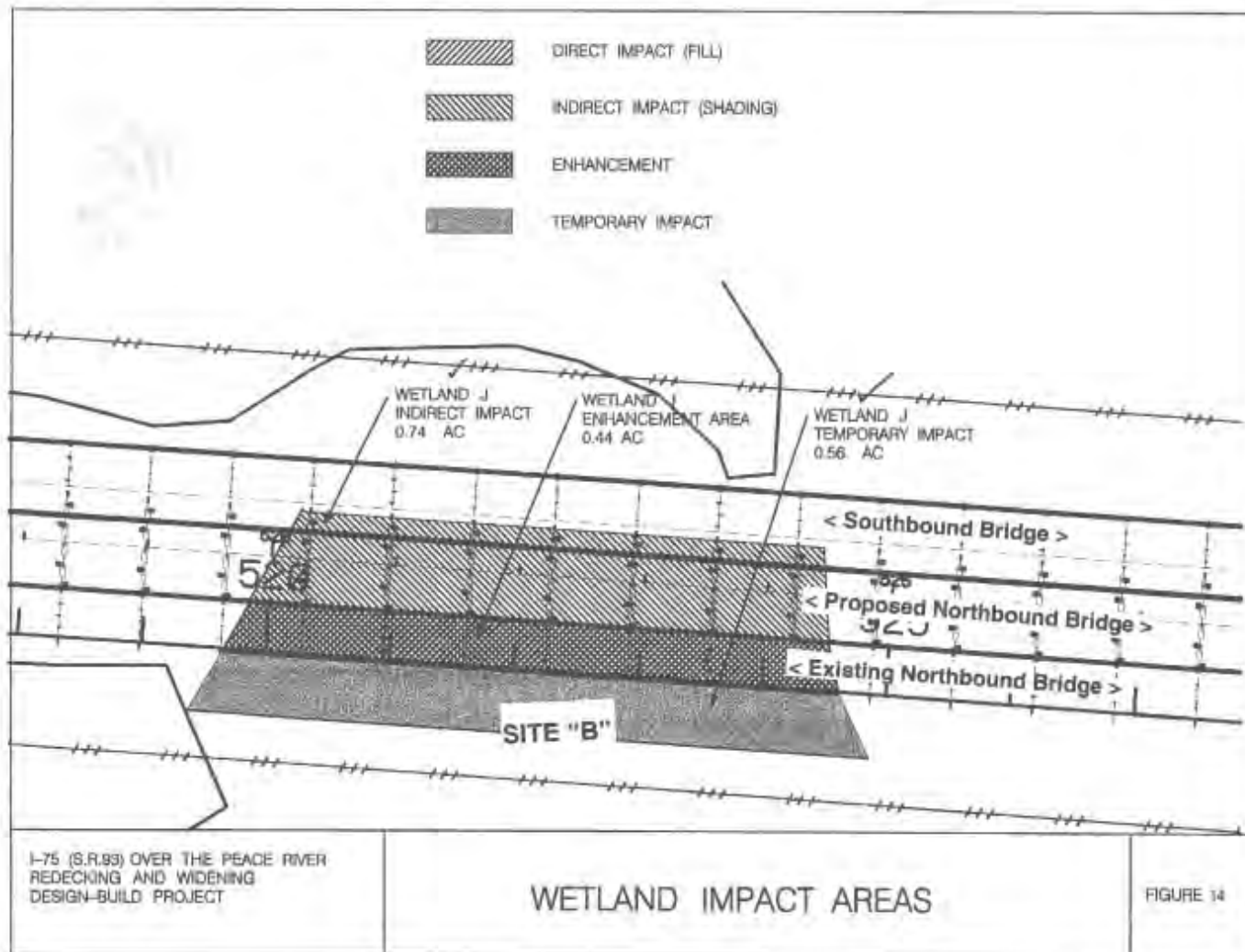


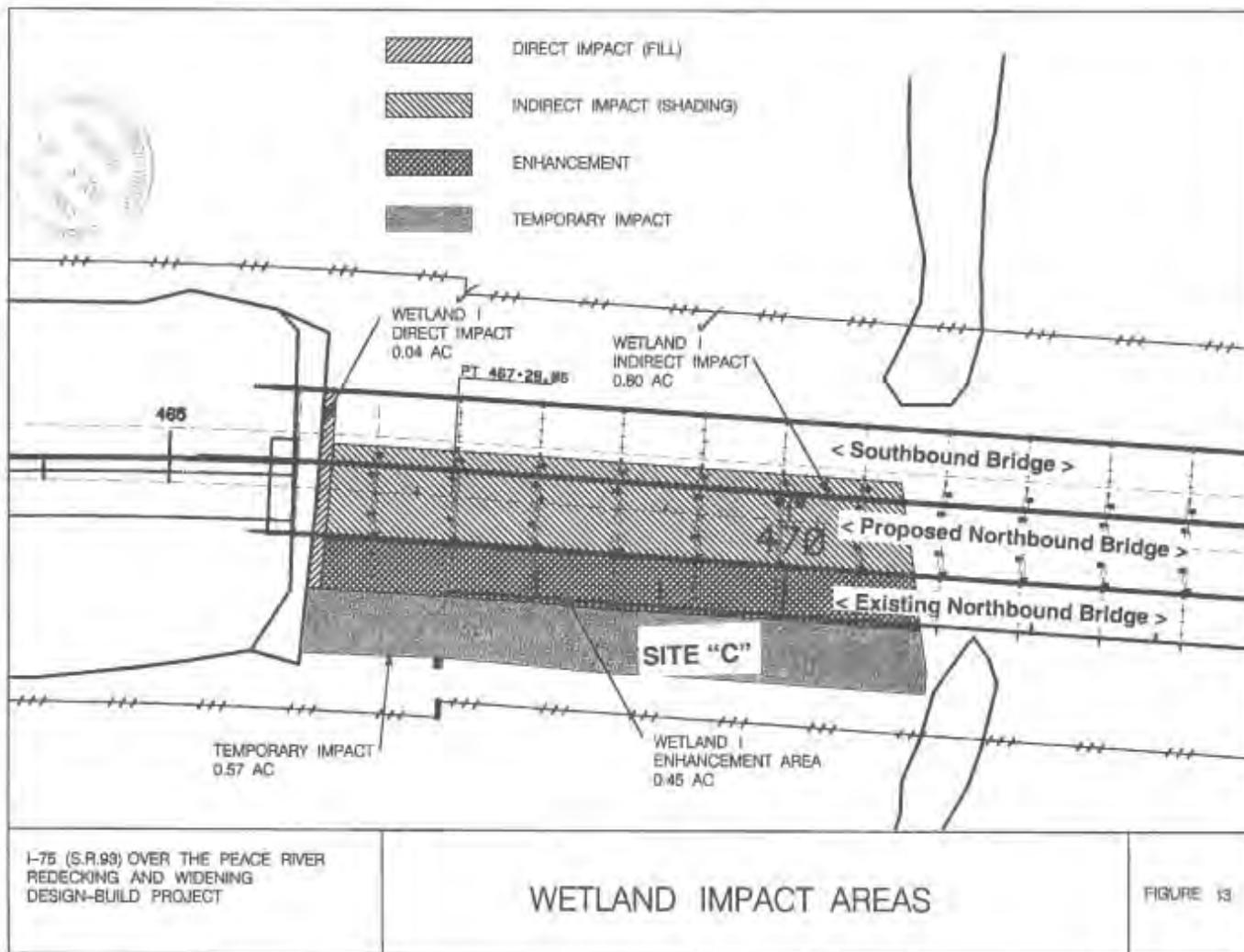
I-75 (S.R.93) OVER THE PEACE RIVER  
REDECKING AND WIDENING  
DESIGN-BUILD PROJECT

## WETLAND IMPACT AREAS

FIGURE 15









## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Ft. DeSoto Park

Project Manager: Eric Fehrmann, Pinellas County

County: Pinellas

Project Number: SW 70

Phone No: (727) 464-4761

Location: Section 8, 9, T33S, R16E

### IMPACT INFORMATION

1 -FM: <u>2569031, SR 682 (Bayway Bridge), SR 679 to W. Toll Plaza</u>	ERP #: <u>4423532.000</u>	COE #: <u>NA (USCG)</u>
2 -FM: <u>4064741, SR 699 (Gulf Blvd.), Johns Pass Bridge Replace.</u>	ERP #: <u>4302007.002</u>	COE #: <u>200303564 (NW-PEB)</u>
3 -FM: <u>2571521, SR 679 (Bayway), Intercoastal to Bridge</u>	ERP #: <u>47023803.000</u>	COE #: <u>200204286 (NW-PW)</u>
4-FM: <u>2571371, Alt. 19 (SR 595), Meres Blvd. to Pasco County Line</u>	ERP #: _____	COE #: _____
5-FM: <u>2570831, SR 699 (Gulf Blvd.) – 192<sup>nd</sup> Ave. to Walsingham/Ulmer</u>	ERP #: <u>44025373.000</u>	COE #: <u>200307110 (NW 14)</u>
6-FM: <u>4091541, SR 688 (Ulmerton) – Wild Acres to El Centro/Ranch.</u>	ERP #: _____	COE #: _____
7-FM: <u>2570781, US Alt. 19 (SR 55) – Harry St. to Meres Blvd.</u>	ERP #: _____	COE #: _____

Drainage Basin: Upper Coastal Water Body(s): Boca Ciego Bay, John's Pass, Long Beach Canal, Intercoastal Waterway, Anclote River, Pinellas Aquatic Preserve SWIM water body? N

Acres / Impact Types:

1- <u>0.1</u> ac. <u>540</u> (Flucss)	3 – <u>0.3</u> ac. <u>540</u> (Flucss)	6 – <u>0.2</u> ac. <u>510</u> (canal)
<u>0.3</u> ac. <u>641</u>	4 – <u>0.1</u> ac. <u>641x</u> (Flucss)	7 – <u>0.1</u> ac. <u>618</u>
<u>0.4</u> ac. <u>911</u>	<u>0.1</u> ac. <u>612</u>	
TOTAL: 0.80 acres	TOTAL 0.2 acres	

2 – 0.1 ac. 540 (Flucss)

5 – 0.1 ac. 612 (Flucss)

**TOTAL – 1.8 Acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement Preservation Mitigation Area: 20 acres  
SWIM project? Y (cost-share funds from SWIM) Aquatic Plant Control project? N Exotic Plant Control Project? N  
Mitigation Bank? N Drainage Basin(s): Upper Coastal Water Body(s): Mullet Key Bayou SWIM water body? Y

#### Project Description

**A. Overall project goal:** The Ft. DeSoto Park Aquatic Habitat Management Area has a couple islands that were connected to Mullet Key 40 years ago by the construction of causeway roads. These causeways have blocked historic tidal circulation patterns to the inner portion of the bays, resulting in severe stress and mortality of seagrass habitat. With construction of two – 40 foot bridge spans to place channels through the causeways, flow patterns will be restored to the inner bays and enhance the health and survivorship of seagrass beds. The minimal area of anticipated seagrass enhancement will be 200 acres (Figure B). Secondary enhancement will include hydrologic improvements to the adjacent mangrove habitat and additional seagrass beds further from the proposed bridges.

**B. Brief description of current condition:** Tidal flow patterns fill the inner bays, then empty with a slow and often stagnant condition, not conducive to flushing which leads to elevated water temperatures in the summer, water quality degradation, and seagrass mortality.

**C. Brief description of proposed work:** With assistance from eight agency funding sources, Pinellas County will construct the bridge spans (Figures D,E, F) in the locations of historically open water breaks between the islands (Figure C). These spans will allow significant hydrologic flow between the back bays to improve the areas with the worst water quality and stagnation problems. As part of an evaluation for the USEPA, Pinellas County conducted an evaluation of the extent of the minimal anticipated seagrass enhancement, which is depicted on Figure B.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the proposed wetland impacts are associated with minor encroachments from bridge pilings within open water (FlucCs #540), heavily disturbed remnant marsh (#640, #641) & ditch habitat (#641x) commonly found within the highly urbanized areas of Pinellas County. Many of these wetland impacts will be determined to not require mitigation. Through 2006, additional minor FDOT within the Pinellas Co. portion of the Upper Coastal Basin will be evaluated to determine if they can be appropriately mitigated at Ft. DeSoto. The most noteworthy anticipated impact includes the 0.4 acre shading impact to a seagrass bed (#911) associated with the widening of the Pinellas Bayway Bridge. The Bayway Bridge crosses the Intercoastal Waterway along Boca Ciega Bay and is 7 miles north of Ft. DeSoto Park. A potential 0.1 acre mangrove (#612) impact is anticipated for the US 19 bridge widening over the Anclote River. The Ft. DeSoto Park project was nominated to compensate for these impacts due to the very important and large-scale enhancement opportunities to alter the continuous degradation of seagrass beds within a designated aquatic habitat management area. Secondary benefits include restoring tidal conditions to other habitats including adjacent mangroves that border the bays. Appropriate and adequate DOT impacts and associated funds will be sufficient to compensate for 10% of the final construction budget, therefore DOT will be designated mitigation credit for 10% (20 acres) of the total minimal anticipated enhancement area of 200 acres.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no existing or currently proposed mitigation banks within the Upper Coastal Basin.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** Ft. DeSoto Park is located at the mouth of Tampa Bay, which is a SWIM water body, within the Tampa Bay National Estuary Program, Pinellas County Aquatic Preserve, and a TMDL High Priority Water Body. This project is within the Pinellas County Capital Improvement Plan. In addition to Pinellas County funds, the various other agencies and funds necessary and designated toward cost-sharing the project include SWFWMD-SWIM (\$416,750), Gulf of Mexico Program (\$100,000), USEPA (\$50,000), Pinellas County Environmental Foundation (\$250,000), NOAA (\$75,000), FDCA (\$153,000), USFWS (potential, \$50,000), and the FDOT mitigation funds (\$100,000 - \$150,000, pending construction budget). Construction has commenced on one of the bridge spans in 2004, the second bridge span may be delayed an additional year pending budget constraints.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: A private contractor selected by Pinellas County

Contact Name: Eric Fehrmann

Phone Number: (727) 464-4761

Pinellas County Dept. of Environmental Management  
512 S. Ft. Harrison Avenue  
Clearwater, FL 33756

Entity responsible for monitoring and maintenance: Pinellas County Department of Environmental Management

Proposed timeframe for implementation: Commence: Construction – Fall, 2003 Complete: Spring, 2004, followed by water quality and vegetative monitoring

Project cost: Construction: \$ 2- 3 million, DOT impacts and funds will provide 10% of the construction budget.

**Attachments**



X 1. Detailed description of existing site and proposed work. Refer to Attachment A, the Pinellas County narrative of the project. Site photos with vegetative conditions are attached. Some minimal mangrove and salt-marsh fringe impacts will have to occur to construct the bridge approaches (refer to photos). These impacts will be mitigated by grading some of adjacent causeway spoil, planting salt grass and saltmarsh cordgrass, and allowing the mangroves to recruit.

X 2. Recent aerial photograph with date and scale. Refer to Figure B, 1995 Infrared aerial.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A - location map, Figure D - bridge locations, and Figures E&F - bridge plan view designs. It's noted that the bridge spans are proposed to only have 4 ft. clearance during high tide, limiting the use of the inner bays to small boats and kayaks, motor boats are restricted from use in the project areas in accordance with Pinellas County habitat protection goals. The use of rubble rip-rap aprons and under the bridges are necessary to minimize channel and bridge scouring. Bridge hydraulic studies indicate flow may be more than one would expect in a back bay area, as survey elevations have indicated up to a few inches difference in water elevations bordering each side of the causeways, reiterating the importance of restoring tidal flows. The existing dredged channels within the proposed enhancement areas (Fig. B) are not included in the mitigation acreage.

X 4. Detailed schedule for work implementation, including any and all phases. Construction of one bridge span has commenced in 2004.

X 5. Proposed success criteria and associated monitoring plan. No specific success criteria is proposed however periodic monitoring of seagrass health and water characteristics will be conducted post construction. A monitoring plan for water quality and seagrass conditions has been proposed and accepted by Pinellas County. A copy of the proposed plan is provided as Attachment B. Along with this post-construction monitoring plan, additional pre-construction monitoring will be conducted including summer water temperatures, salinity, etc.

X 6. Long term maintenance plan. Maintenance of the seagrass beds is not necessary. The salt-tolerant species planted near the bridge spans will be periodically evaluated to make sure survivorship and recruitment of herbs and mangroves occur, and that no erosion is taking place.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion. Except for the Bayway Bridge project with the seagrass impact, the majority of the remaining wetland impacts per project are very minor (0.1-0.2 acre). These low-quality Pinellas County wetland and surface water impacts are ecologically compensated with this worthwhile enhancement project. In order to assist Pinellas County with the necessary funds to construct the project, these minor impacts have to be pooled together and maximized to assist in achieving the project's budget.

**PROJECT:** Construction of Bridges to Restore Circulation and Provide Ecological Enhancement in the Ft. DeSoto Park Aquatic Habitat Management Area

**LEAD ORGANIZATION:** Pinellas County Dept. of Environmental Management

**CONTACT PERSON:** Eric Fehrmann  
512 S. Ft. Harrison Ave  
Clearwater, FL 33756  
Phone(727)464-4761  
Fax (727)464-3174  
E-mail: efehrman@co.pinellas.fl.us

**COOPERATING ORGANIZATIONS:** Southwest Florida Water Management District  
Tampa Bay Estuary Program

**PROJECT LOCATION:** Ft. DeSoto Park Aquatic Habitat Management Area  
Located at the mouth of Tampa Bay - HUC - 03100206  
Tampa Bay is a SWIM, unified watershed assessment, National Estuary Program and a TMDL High Priority Water Body

**WATERSHED RESTORATION ACTION STRATEGY:** The poor circulation patterns were first identified in a study performed by Dr. Norman Blake with the University of South Florida in 1985. Dismantling of the waste treatment plants in the Management Area and pumping sewage to mainland treatment plants did not sufficiently solve the water quality problems. This project was then placed in the Pinellas County Capital Improvement Plan and is consistent with the Water Quality, Bay Habitats and Fish & Wildlife components of the Tampa Bay CCMP.

**ESTIMATED POLLUTANT LOAD REDUCTION:** While this project does not propose to reduce pollutant load from terrestrial sources, water quality improvements will be accomplished through restoration of historical circulation patterns and improved health of the submerged plant community within the back bays of the Management Area. Instead of the summer die-off of seagrass contributing pollutants loads they will function as a sink through continued uptake of nutrients and sediment trapping. Preliminary modeling predicts a 100% exchange of water during an average tidal cycle in the smaller bay and 25% for the larger bay.



**PROJECT OBJECTIVES:** The objective of this project is to restore circulation to the inner portion of the bays that was severed during the dredging and filling activities that occurred in the late 1950's. Summertime temperatures become extremely elevated in these areas leading to very low dissolved oxygen levels as well as severe seagrass stress resulting in blade necrosis. Restored circulation patterns will lead to improvement in water quality parameters and a healthier seagrass and faunal community. The improved health and viability of seagrasses result in continued seasonal uptake of nutrients and sediment trapping instead of adding pollutant load to the water body due to decaying seagrasses.

**PROJECT DESCRIPTION:** The project will include the construction and performance evaluation of 40 foot span bridges to replace portions of the filled causeways at Ft. DeSoto Park in Pinellas County. The Park was once a group of separate islands. During the Park's development in the late 1950's and early 1960's the main island was connected to the smaller islands by dredging and filling two causeways, one to provide access to the mainland and the other to create a maintenance area and Park Manager residence. This activity cut off circulation between the back bays.

Data obtained during a 1985 study of water quality, circulation and benthic fauna of the area support the theory that the causeways are restricting flow and reducing water exchange within the back bays of the Park. This study was conducted as a result of the not optimal operation of the four sewage treatment plants located at the park. Water quality was poor due to the incomplete treatment of sewage during peak use and suspected entrapment in the back bays.

Tidal surge and flow patterns were mapped to determine if the back bays were flushing or if they were stagnant. As expected, although the tidal flux travels from east to west, the flow patterns merely fill the bays then empty them in a very calm manner not conducive to flushing which led to elevated water temperatures, water quality degradation and sea grass mortality.

Although the plants were dismantled and the sewage pumped to mainland treatment plants, water quality still was poor in comparison with surrounding waters. Field visits confirmed stagnant conditions and at times one can observe differences in the tidal and wind driven water levels between the cells of Mullet Key. If water could pass between the cells pocketing and stagnation would be reduced. Opening the causeways by partial replacement with bridges will restore east-west circulation to the semi-enclosed embayments and will improve ecosystem health.

Pinellas County has started to perform pre-construction water quality monitoring to document the improved conditions. Allowing the natural tidal flux and wind driven gulf/bay water to pass between the cells will help modulate water temperature and improve water quality by restoring the historic circulation patterns that existed prior to the filling of the passes. The bridges will be designed to allow non-motorized vessels to travel between the bays and provide a canoe trail within the park as an added public benefit.

The project directly affects a SWIM priority water body and a high priority TMDL water body. It affects water quality and habitat value at a regional park facility. The Southwest Florida Water Management District has committed \$416,750 to this project. The project is consistent with the Pinellas County Comprehensive Plan, SWIM, the goals of the National Estuary Program and the CCMP. It is also contained within the Pinellas County Capital Improvement Project Program.

Pinellas County is designing the project in-house. Pinellas County proposes to design and permit the project during F.Y. 99/00 with construction to follow. Discussions with permitting personnel revealed that the project is very desirable and that permitting should pose no problems.

**SPECIFIC OUTPUTS/DELIVERABLES:** Pinellas County will design the hydrologic reconnections and bridges in-house with SWFWMD and consultant assistance to model the hydrodynamic flow patterns. The bridges/supports and other technical aspects will be designed by Pinellas County in-house.

The Pinellas County Department of Environmental Management has already begun to perform water quality testing for the basic parameters over incoming and outgoing tidal cycles. These will be compared to analyses performed after the hydrologic reconnections are established. A comparison will be made and a summary report submitted to funding partners. In addition, Pinellas County is in the process of contacting the local Universities to provide graduate students to perform faunal studies in the areas of the bridges.

The project will entail the complete design, permitting (SWFWMD, ACOE) and construction of bridges to a maximum span of 40 feet. This span will allow significant hydrologic flow between the back bays to improve water quality in the areas that currently exhibit the worst water quality. In addition, the structure's size will allow the creation of a public canoe trail that would foster better appreciation of the natural resources of the Aquatic Habitat Management Area. Motor boats are restricted from use in the areas of the project in accordance with Pinellas County's habitat protection goals. Signage will be installed on the bridges specifying the partnership and explanation of how water quality will be improved due to the project. Fishing would also be encouraged with the construction of access areas (ADA accessible).



**Ft DeSoto Park Aquatic Habitat Management Area  
Tidal Exchange Restoration:  
Event precedent collection.**

**Participants**

Entities:

University of South Florida College of Marine Science, St. Petersburg, Florida  
Delta Seven Inc., St. Petersburg, Florida

Principle Investigators:

Dr. Thomas R. Cuba, University of South Florida Research Adjunct.

Roles of Participants:

University of South Florida College of Marine Science scientists will direct interns and staff on loan from Delta Seven Inc in the collection of data and samples as described below.

Delta Seven Inc. is supports the effort and pledges the following in kind support. Delta Seven will acquire necessary permits, is donating the use of some field equipment and the services of field staff. Equipment includes both field equipment and computer programs (ArcMap GIS, Primer-5, etc). Delta Seven will provide ArcMap files of the limits of the seagrass as of November 23, 2000.

**Project Narrative**

Context of existing restoration project

Pinellas County has initiated a major restoration project within the Ft. DeSoto Park Aquatic Habitat Management Area. This project will open tidal connections which were closed approximately 40 years ago by causeways and which resulted in serious degradation of the system. Please refer to the scope of the restoration project titled "Restoration of circulation to provide ecological enhancement in the Ft. DeSoto park aquatic habitat management area." for details (NA17F21553). The proposal hereby submitted builds on the already funded project and will allow for an effective evaluation of the effort.

Context of synoptic and associated studies

Participating and advising researchers have identified numerous potential effects of the restoration of the circulation including changes to ichthyofauna, infauna, epifauna, macro-invertebrates, epilithic fauna, macro flora and micro flora, epiflora, water chemistry, sediment chemistry, and water exchange. The restoration will effect a change in virtually every aspect of the ecosystem. The magnitude of such effects is expected to change along gradients created by the restructuring of the tidal flux patterns. Of critical importance in the success of many of these investigations is the necessity to collect certain data prior to the actual opening of the channels. The analysis of these data have been pursued separately because of the time constraints of the funding process pitted against the timing of the restoration effort.

Context of event synoptic data collection

Pinellas county has dedicated an effort equivalent to \$12,822 in in kind service to meet the need to collect water quality data during time period immediately before and after the opening of the channels. The data and samples collected by USF will be temporally consistent with the water quality data collected by the county.

Abstract of proposed work:

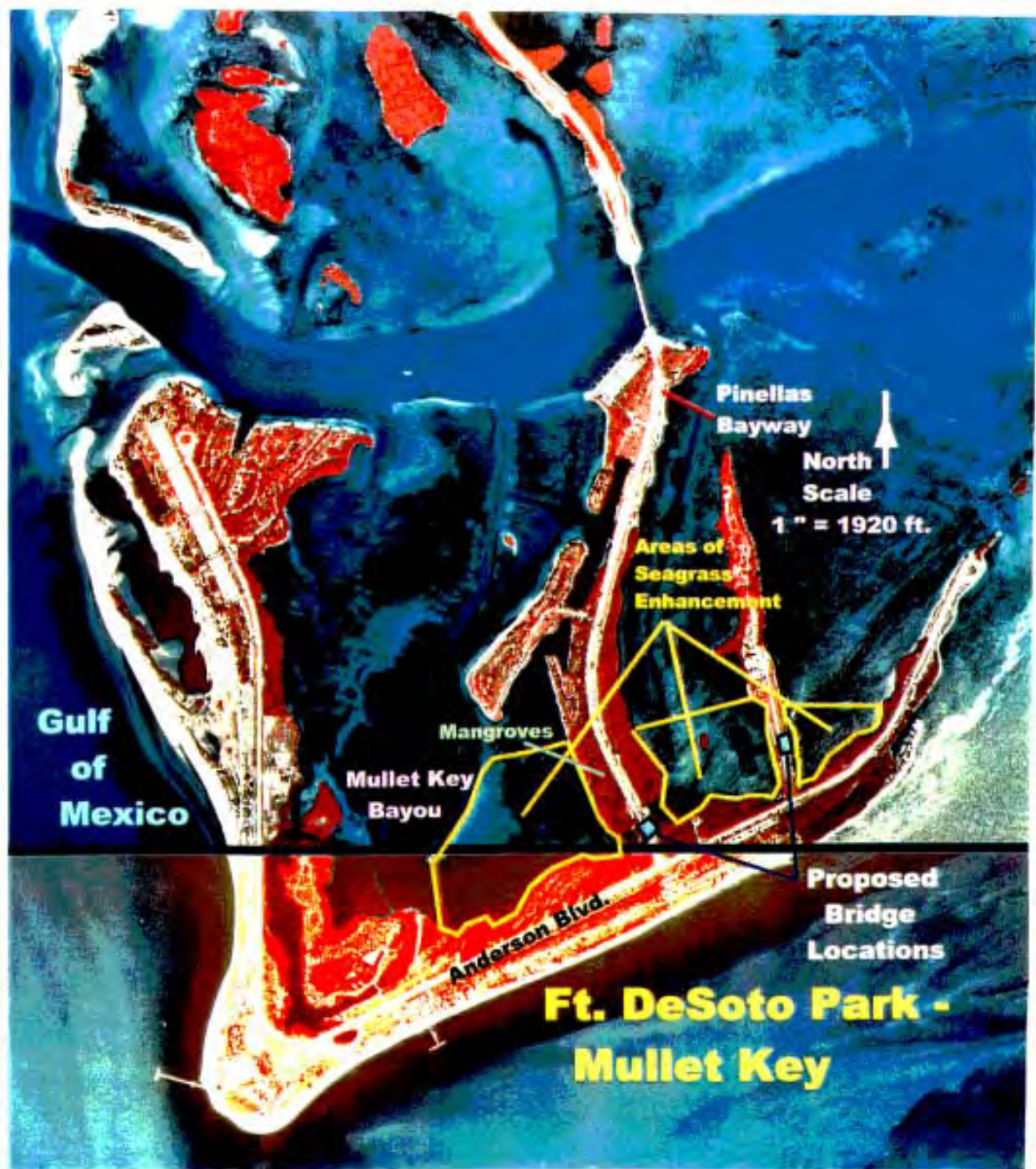
In the weeks and hours immediately preceding the establishment of the tidal connections, USF and Delta Seven scientists will visit up to 44 stations located in the project area. At 11 stations, sediment cores will be collected using standard vibra coring protocols. Surficial sediment grabs will be collected at all 44 stations and preserved for subsequent analysis (grain size, TOC). At the time of collection, surface sediments will be tested for sulfide content using an ion specific probe. Twenty four permanent transects will be established for the evaluation of sea grass populations. Along each transect the frequency of necrosis, species composition, blade length, blade width, shoot density, and visual-census macro invertebrate data will be collected. Where *Thalassia testudinum* occurs, ten leaves will be randomly collected and preserved for epiphyte analysis. Along the transect, an area up to one square meter will be harvested by hand to collect entire plants with shoots and rhizomes intact. Harvesting will cease when 15 plants have been collected. These will be preserved for later morphometrics. Ten sites are located in habitats of unconsolidated sediments and ten sites are located along mangrove fringes or in mangrove channels. Ichthyofauna will be collected using seines and traps at each of the 44 sites. Infauna will be collected, field seived, bagged, stained, and fixed using a 15 cm Eckman box core. Fixed transects equivalent to those established in grass beds will be established in unconsolidated sediments and along mangrove edges for visual census of macro invertebrates. Photographs will be taken to document site conditions. If possible, long term in situ temperature loggers will be pegged into place at each site. During site visits, measurements of salinity, temperature, turbidity, dissolved oxygen, and PAR will be recorded.

Samples will be preserved and stored for later analysis and reduction.

Cost: \$10,000







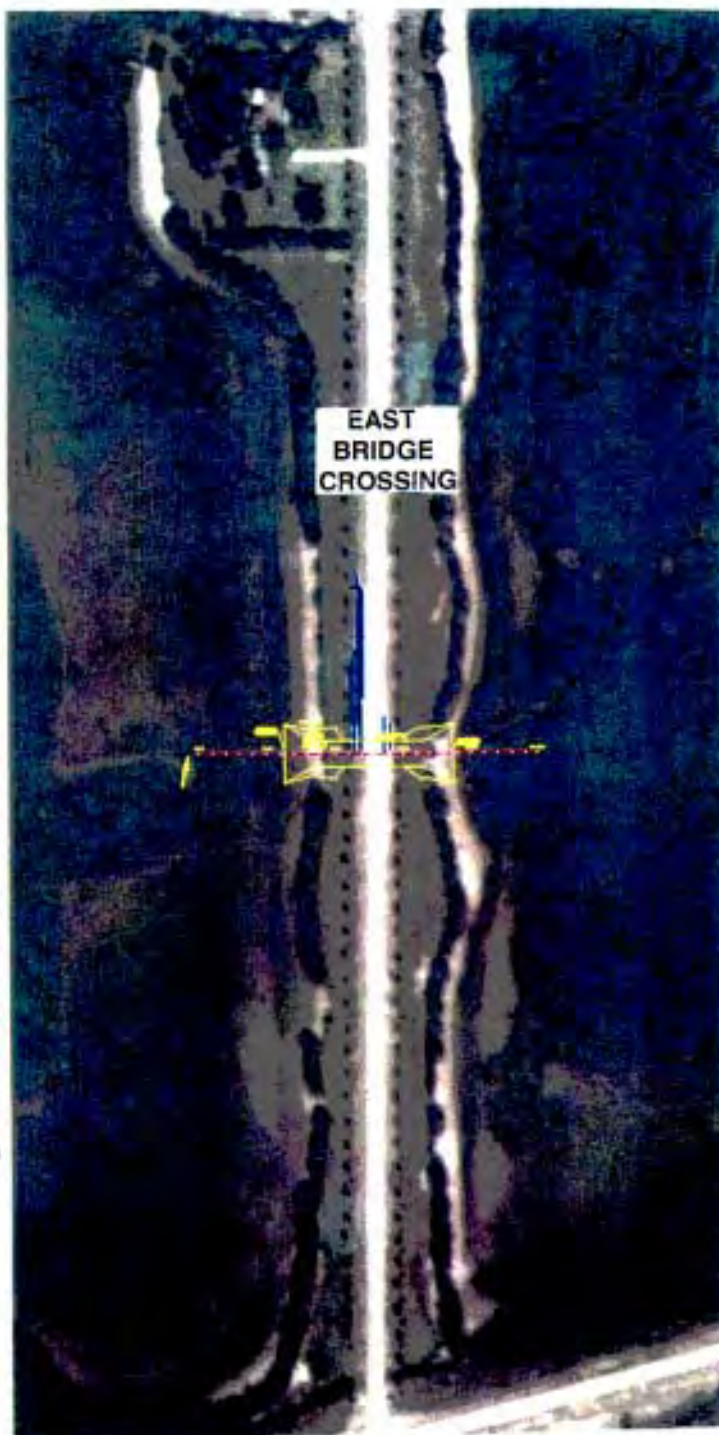
FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)

FORT DE SOTO  
(SW 70)

FIGURE B  
1995 INFRARED AERIAL







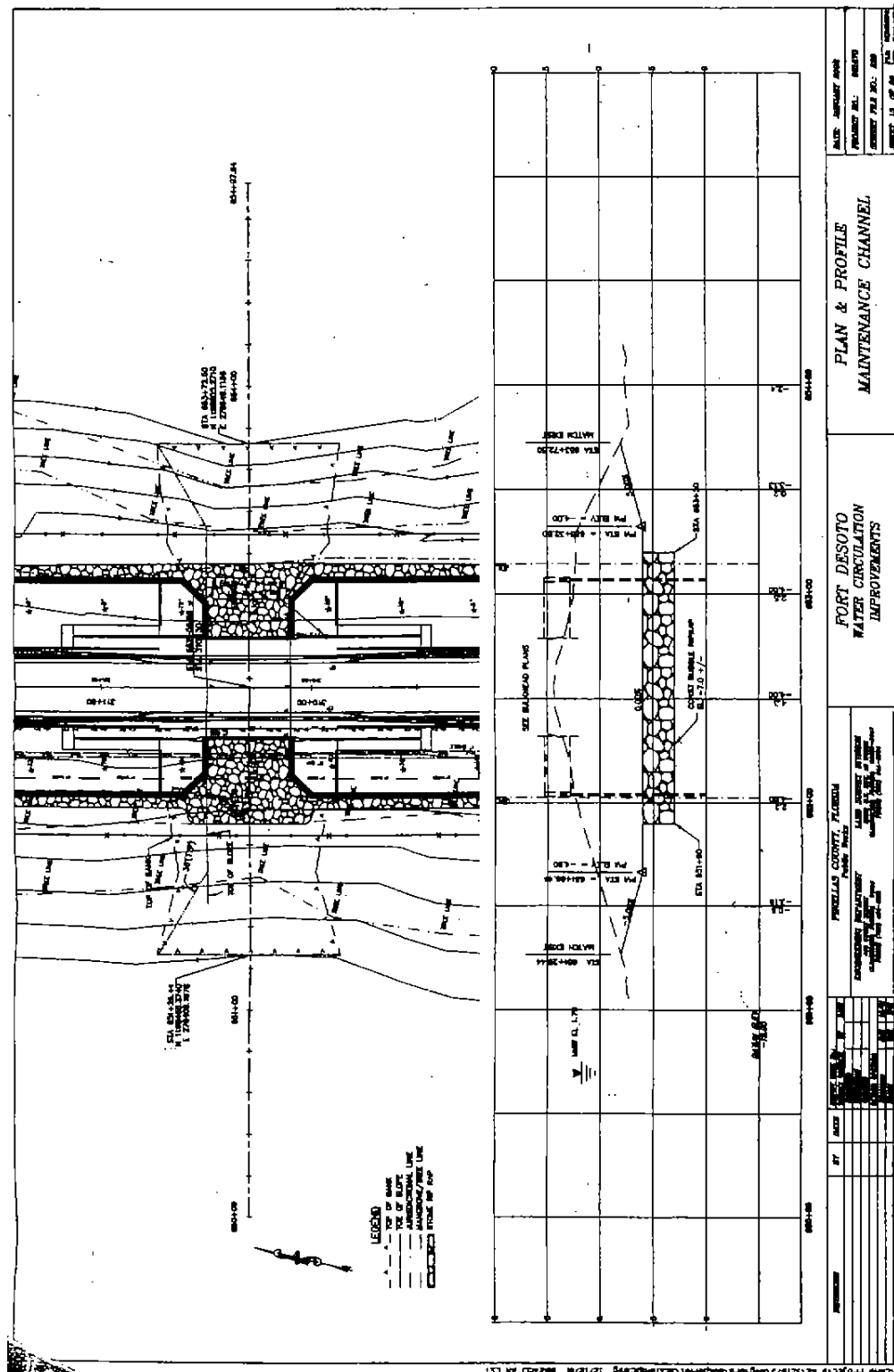
**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**FORT DE SOTO  
(SW 70)**

**FIGURE D  
PROPOSED BRIDGE  
CROSSING LOCATIONS**











*View of the proposed bridge crossing, looking east from the entrance road toward one of the inner bays. Some minor impacts associated with removing red & white mangroves, and salt grass will occur. The bicycle path (foreground) will have to be relocated alongside the bridge.*



*View of the entrance road (Pinellas Bayway) south toward the park's visitor center along Anderson Road. This portion of the roadway will have to be slightly elevated to accommodate bridge height clearance. Bicycle path to the left.*

**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**FORT DE SOTO PARK (SW 70)  
West Bridge Crossing  
(Entrance Channel)**





*View of the proposed bridge crossing, looking east from the maintenance road toward an inner bay. Some minor impacts associated with removing red & white mangroves, and Brazilian pepper will occur.*



*View of the maintenance road, north toward some of the park's maintenance facilities. This portion of the roadway will have to be slightly elevated to accommodate bridge height clearance.*

**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**FORT DE SOTO PARK (SW 70)  
East Bridge Crossing  
(Maintenance Channel)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Boyd Hill Nature Park

Project Manager: Linda Seufert, Park Supervisor

County: Pinellas

Project Number: SW 71

Phone No: (727) 893-7317

Location: Sec. 16, 35, T31S, R16E

### IMPACT INFORMATION

(1) FM: <u>4037701 - US 19, CR 816 to SR 582</u>	ERP #: <u>44022085.001</u>	COE #: <u>NW 14 PCN</u>
(2) FM: <u>2568881 - US 19, Coachman Rd. to Sunset Point</u>	ERP #: <u>4411760.013</u>	COE #: <u>200104383 (LP-PB)</u>
(3) FM: <u>4082011 - Himes Avenue to Hillsborough Avenue</u>	ERP #: <u>44002448.002</u>	COE #: <u>200208419 (NW-MS)</u>
(4) FM: <u>4062561 - East-West Trail, Coopers Bayou - Bayshore</u>	ERP #: <u>44022718.001</u>	COE #: <u>200105298(NW-PB)</u>
(5) FM: <u>2570701 - US 19, 49<sup>th</sup> St. to 118<sup>th</sup> Avenue</u>	ERP #: <u>44000188.002</u>	COE #: <u>200206325 (IP-MGH)</u>
(6) FM: <u>2555991 - SR 676 (Causeway Blvd.) US 301 to US 41*</u>	ERP #: _____	COE #: _____
(7) FM: <u>2558932 - SR 574(MLK Blvd.)-Highview to Parsons</u>	ERP #: _____	COE #: _____
(8) FM: <u>2558881 - US 301 - Sligh Ave. to Tampa Bypass*</u>	ERP #: <u>43024246.000</u>	COE #: <u>200206711 (IP-JF)</u>
(9) FM: <u>2569311 - Gandy Blvd., US 19 to 4<sup>th</sup> Street</u>	ERP #: _____	COE #: _____
(10) FM: <u>2569951 - SR 686 (Roosevelt) - Ulmerton to 40<sup>th</sup> St.</u>	ERP #: _____	COE #: _____
(11) FM: <u>4091551 - SR 688 (Ulmerton) - L.Beach to Wild Acres</u>	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body: Curlew Creek, Cross Bayou Canal, Cooper's Bayou Canal, Old Tampa Bay  
SWIM water body? N, except for Old Tampa Bay

Impact Acres /Types :

(1) FM 4037701 <u>0.1</u> ac. <u>618</u> (FlucCs)	(9) FM 2569311 <u>0.5</u> ac. <u>530</u> (FlucCs)	(11) FM 4091551 <u>1.5</u> ac. <u>510</u> (FlucCs)
(2) FM 2568881 <u>0.2</u> ac. <u>617</u>	<u>0.3</u> ac. <u>617</u>	<u>0.3</u> ac. <u>530</u>
<u>0.2</u> ac. <u>618</u>	<u>4.0</u> ac. <u>619</u>	<u>0.5</u> ac. <u>630</u>
TOTAL 0.4 acres	<u>0.1</u> ac. <u>641x</u>	TOTAL 2.30 acres
	<u>0.1</u> ac. <u>642</u>	
(3) FM 4082011 <u>0.1</u> ac. <u>618</u> (FlucCs)	TOTAL 5.0 acres	
(4) FM 4062561 <u>0.1</u> ac. <u>618</u>		
(5) FM 2570701 <u>0.1</u> ac. <u>617</u>	(10) FM 2569951 <u>0.5</u> ac. <u>510 (canal)</u>	
(6) FM 2555991 <u>0.8</u> ac. <u>610</u>	<u>0.3</u> ac. <u>530</u>	
(7) FM 2558932 <u>0.4</u> ac. <u>610</u>	<u>0.4</u> ac. <u>618</u>	
(8) FM 2558881 <u>6.4</u> ac. <u>617</u>	<u>0.1</u> ac. <u>619</u>	
<u>1.7</u> ac. <u>618</u>	<u>0.6</u> ac. <u>641</u>	
TOTAL 8.1 acres	<u>0.2</u> ac. <u>641x</u>	
	TOTAL 2.1 acres	
		<b>TOTALS - 19.5 Acres</b>

\* The freshwater marsh and ditch impacts associated with these projects will be mitigated with activities proposed at Cockroach Bay - Freshwater (SW 56).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type:    Creation    Restoration X Enhancement    Preservation Mitigation Area: 92 acres

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? N Drainage Basin: Tampa Bay Water Body(s): Lake Maggiore SWIM water body? Y

#### Project Description

**A. Overall project goal:** The enhancement of freshwater hardwood wetlands (69.6 acres) with buffers of upland forested habitat (21.4 acres), and ponds (1 acre) by removal of the extensive cover of exotic and nuisance species. Enhancement activities are part of an overall plan of eradication and maintenance control of undesirable vegetation within the 300-acre preserve owned and managed by the City of St. Petersburg Parks Dept.

**B. Brief description of current condition:** The proposed enhancement areas include four designated portions of the Park (Figures B, D, E). Areas 1, 2 and 3 include hardwood hammock wetlands, dominated by laurel oak with additional coverage provided by Brazilian pepper, water oak, live oak, red maple, cabbage palm, and sparse

understory dominated by ferns. In addition to the wetlands, Areas 1 and 3 have upland hardwood hammocks that buffer the adjacent forested wetlands, dominated by live oak, scattered longleaf pine, Brazilian pepper, extensive vines, and where the pepper is not dense, an understory of scattered saw palmetto. The southeast enhancement area includes approximately half (27 acres) of a forested wetland (Figures B & E, Area 4). This wetland has a more extended hydroperiod than the wetlands in the northeast part of the park. Dominant vegetation within Area 4 include red maple, Brazilian pepper, sweet bay, Carolina willow, primrose willow, elderberry, and grapevine over much of the outer shrub components. Ground cover is sparse due to the heavy cover shade from B. pepper, elderberry and grapevine, but there are various fern species present.

- C. Brief description of proposed work:** Commencing in 2004, the City is using private environmental contractors to eradicate the extensive cover of nuisance and exotic vegetation. The dominant species to be removed from all the areas is Brazilian pepper, which has moderate to very dense cover within the wetland and upland habitats (refer to site photos). Secondary species control will include herbicide control and long-term maintenance of primrose willow, elderberry, and grapevine. Pepper eradication will include a phased approach of herbicide treatment (Garlon) for initial mortality, hand tools and mechanical removal, and transport to either the on-site mulching facility or Pinellas County incinerator. An extensive follow-up schedule of herbicide applications will minimize regeneration of exotic & nuisance species. Areas of previous eradication in the Park have exhibited good regeneration of desirable tree and herb species. However, funds have been budgeted to provide supplemental tree and shrub planting. This minimizes the time lag of forested wetland regeneration. Where practical and feasible, small ditches cut through the southeast wetland will be backfilled with adjacent spoil material.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The DOT impacts proposed for mitigation at the Park include freshwater forested and shrub wetlands, the majority occurring within the peninsular area of Pinellas County. The proposed wetland enhancement areas at the Park include a couple of the largest forested freshwater wetlands within peninsular Pinellas County. The park is essentially an oasis for wildlife and wetland functions that has been substantially diminished by the nuisance & exotic species problem, which is extensive and will only worsen if not brought under control. The Park provides opportunities to mitigate the proposed impacts with large-scale and extensive habitat improvements.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The Tampa Bay Mitigation Bank (TBMB) is the only mitigation bank within the Tampa Bay Drainage Basin. However, construction had not commenced and credit sales were not available at the time mitigation had to be determined for the proposed FDOT projects.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** SWIM projects (SW 45-Gateway, SW 56 & SW 76 -Cockroach Bay, SW 70-Apollo Beach) have been selected to mitigate for saltwater wetland and freshwater marsh impacts in this basin. None of these or any other current SWIM projects in the basin have the opportunity to provide appropriate mitigation for forested freshwater wetland impacts. However in 2004, the adjacent Lake Maggiore Restoration Project is hydraulically dredging sediments from the lake, and that project is a SWFWMD and City of St. Petersburg sponsored project. The Boyd Hill Park project was selected due to the opportunity to appropriately mitigate the proposed wetland impacts, and the City has limited funding resources for this extensive and ecologically beneficial activity.



### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Private environmental contractors working for the City of St. Petersburg Parks Dept  
Contact Name: Linda Seufert, Boyd Hill Park Supervisor Phone Number: (727) 893-7317  
Boyd Hill Nature Park  
1101 Country Club Way South  
St. Petersburg, FL 33705

Entity responsible for monitoring and maintenance: City of St. Petersburg or designee  
Proposed timeframe for implementation: Commence: Fall, 2003 Complete: Initial Eradication - 2004-2005, followed by minimum 3 years maintenance & monitoring

Project cost: \$ 580,000 (total);  
Exotic & Nuisance Species Eradication (Areas 1, 3, 4) - \$200,000  
Exotic & Nuisance Species Eradication (Area 4) - \$60,000  
Supplemental Tree & Shrub Plantings - \$120,000  
Minimum 3 years Maintenance & Monitoring - \$100,000  
One Time Fee for Perpetual Maintenance Assistance - \$100,000

#### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figures B, D, and E.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figures B, D, and E (Work Area).
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Refer to Attachment B.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text.

#### Attachment A - Existing Site and Proposed Work

Freshwater wetlands are less common than saltwater wetlands within the Tampa Bay Drainage Basin, particularly forested wetlands and freshwater systems within Pinellas County. As a result, locating freshwater wetland mitigation opportunities within this basin is difficult, particularly on existing public lands. The Park has historically had extensive problems with exotic and nuisance species, particularly Brazilian pepper that has heavily invaded all the habitat areas. The Park staff has been diligent in it's efforts to eradicate exotic and nuisance species, but lack of funding sources has limited such opportunities to small segments of usually 10 acres at any one time. In order to minimize the recruitment and generation of exotic seed sources within the Park, the ability to eradicate these species within large segments is particularly important.

Areas 1, 2, and 3 - These areas are part of a historically contiguous forested wetland bordered by upland habitat. Prior to restoration commencing in 2004, the density of B. pepper varied within Areas 1 and 2 to an average sub-canopy cover of 30%. The pepper was much larger and more coverage within the southern portions of Area 3. Within Areas 1-3, the dominant exotic or nuisance species throughout the wetlands and uplands is Brazilian pepper. The pepper received herbicide treatment (Garlon), manual cutting and removed to the nearby mulching and incinerator facility. With limited ground cover vegetation within the wetlands, spreading the mulch would minimize natural regeneration of herbs expected to grow as a result of opening more canopy. Herbicide treatment of any pepper regeneration and other existing and generated exotic & nuisance species will be conducted as necessary, and additional tree and shrub species will be planted in areas with minimal tree cover due to existing dense pepper. Supplemental wetland trees and shrubs may include laurel oak, red maple, cypress, and wax myrtle. The two small ponds within Area 1 have some exotic & nuisance coverage (primarily cattails). These will receive herbicide treatment and plantings of desirable

species such as pickerelweed, arrowhead, and bulrush. The Park periodically implements prescribed burns as needed within the uplands to maintain appropriate vegetative coverage and density. Along with the pepper removal, grapevine is the most prolific nuisance species that will be initially controlled by hand and mechanical means. Afterward, the prescribed burning will keep the exotic and nuisance species under control. Supplemental plantings of longleaf pine, wax myrtle, and gallberry are proposed where necessary within the uplands.

**Area 4** - The 57-acre hardwood swamp within the southeast section of the property will be partially utilized for DOT mitigation, and approximately half of the swamp's enhancement (30 acres) has been designated to provide mitigation for wetland impacts (6 acres) associated with a nearby Lowe's Department Store. This hardwood swamp is one of the largest forested freshwater wetland habitats within peninsular Pinellas County, which requires the system provide more wetland and wildlife functions than would be expected of a similar system in a less congested urban setting. This wetland receives direct stormwater flow from the contributing basin, which like all the surrounding land use is high density residential. The wetland treats stormwater before flowing into Lake Maggiore. During high water conditions, the lake overflows into this wetland, providing even more opportunity for water quality treatment and flood attenuation. Due to the extended hydroperiod for this wetland compared to the northeast wetland, much of the pepper grows on the minor spoil mounds that were historically dredged for mosquito control. After herbicide and removal of the pepper, the minor cross-ditches will be backfilled below seasonal high water elevations to minimize the opportunity for pepper regeneration. Some of the spoil mounds also have desirable species intermixed with the pepper. To the degree possible, the minimal earthwork will avoid impacts to the desirable species. However, the maple and Carolina willow will quickly regenerate so any necessary removal would be considered temporary.

Due to the muck and seasonal high water conditions of this swamp, necessary construction and mechanical removal of B. pepper will be conducted during dry season periods, with temporary matting placed where necessary for stable footing of equipment. Erosion control measures (hay bales, silt screens) will be installed at the construction locations as necessary to minimize sedimentation into Lake Maggiore. As expected within one of the most developed areas in the state, Lake Maggiore's water quality conditions are poor. Hydraulic dredging of lake bottom sediments has commenced in 2004. The anticipated costs associated with this activity include \$12 million, paid by the WMD and the City of St. Petersburg. When the Lake Maggiore hydraulic dredging of sediments is conducted, the control structure for the lake will maintain a higher lake elevation so that the hydraulic dredging can access more of the shallow water littoral areas. This dredging could last two years, which could limit equipment access to remove vegetation within the southeast swamp. The combination of the lake dredging and wetland enhancement for mitigation purposes will provide a substantial ecological improvement and inter-relationship of wetland and surface water habitats. In addition, the City has recently received grants toward funding exotic and nuisance species removal within the remaining areas of the Park; which is primarily upland habitats. This will further minimize the exotic and nuisance species seed sources that recruit into the wetlands. Wildlife species depend on many habitat conditions for various functions and values within their life cycles. With the lake improvement, wetland and upland enhancement activities conducted in the Park, this will provide an exponential increase of ecological value compared to just enhancing one habitat component. The following information depicts the proposed mitigation acreage for enhancement areas:

	<b>Upland Enhance.</b>	<b>Wetland Enhance.</b>	<b>Pond Enhance.</b>	<b>TOTAL</b>
Area 1	10.0 ac.	9.0 ac.	1.0 ac.	20.0 ac.
Area 2	2.0 ac.	26.0 ac.	--	28.0 ac.
Area 3	9.4 ac.	7.6 ac.	--	17.0 ac.
Area 4	--	27.0 ac.	--	27.0 ac.
	<b>21.4 ac.</b>	<b>69.6 ac.</b>	<b>1.0 ac.</b>	<b>92.0 ac.</b>

#### **Attachment B - Schedule, Maintenance & Monitoring, Success Criteria**

In 2004, eradication activities were conducted for Areas 1 and 3. For Area 2, construction equipment and pipeline placement is necessary for access to the lake for hydraulic restoration. So access in this area will be limited until the lake dredging is complete. Total access into Area 4 will also be dependent on lake elevations



for the dredging activities. Each area will receive some supplemental planting necessary to achieve the desired success criteria, followed by a minimum three years of maintenance & monitoring activities.

The City contracted with private consultants to conduct the maintenance activities. The maintenance to eradicate exotic and nuisance species has included manual removal and herbicide. Regeneration is generally more prolific within the first few years after initial eradication. At a minimum, maintenance is expected to occur every other month for the first year post-construction, and quarterly in years 2 and 3. After the third year, periodic maintenance activities will be required to minimize regeneration. After the minimum three-year maintenance & monitoring period for mitigation credit, the Park will be responsible to continue maintenance activities to maintain the same level of success criteria. Some DOT funds will be provided so that the Park can place into an escrow account toward cost-sharing future maintenance costs. The City has exhibited substantial efforts toward eradication of exotic and nuisance species from the upland and wetland habitats throughout the Park (refer to site photos). Since the initial eradication costs for any particular area on this tract are expensive, limitations have required the Park to concentrate such activities on relatively small areas every year.

Monitoring will include qualitative analysis of the enhanced habitat on a semi-annual basis, commencing with pre-eradication conditions at various monitoring stations to be established prior to activities. The qualitative information will be compiled into annual reports, which will also document maintenance activities and efforts toward achieving success. These semi-annual inspections will be conducted for a minimum three years after the initial eradication. The Park will provide annual updates of habitat functions and current conditions of the wetland, and associated maintenance activities for an additional 7 years after the initial 3-year monitoring period, to document the efforts to maintain the same level of success. Success criteria will require less than 10% cover of Brazilian pepper, elderberry, grapevine, and primrose willow, and a minimum 90% survivorship of planted stock within each of the designated mitigation areas.



**Boyd Hill  
Nature Park**



**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

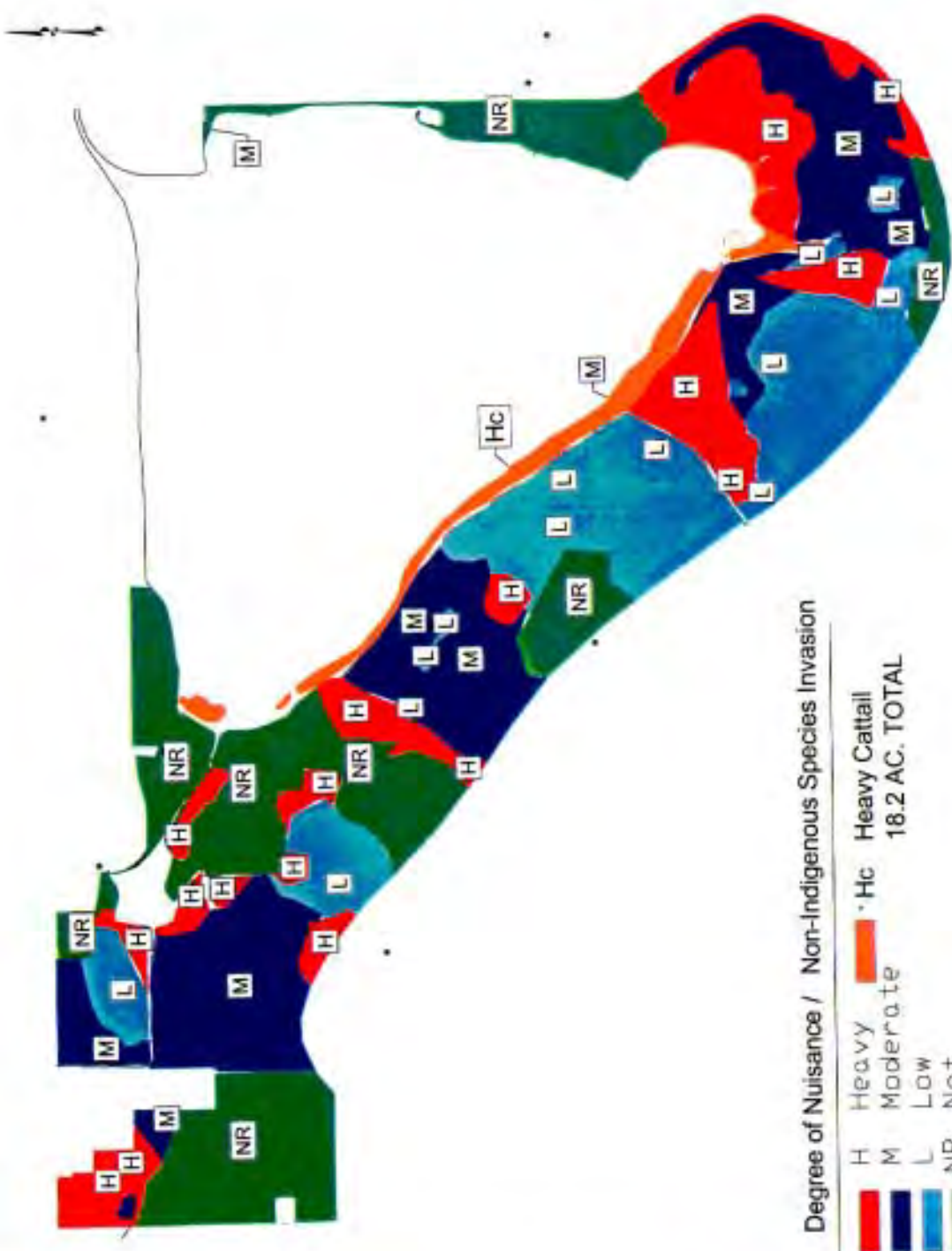
**BOYD HILL  
NATURE PARK  
(SW 71)**

**FIGURE A  
Location Map**









Degree of Nuisance / Non-Indigenous Species Invasion

- H Heavy
- M Moderate
- L Low
- NR Not Rated
- Hc Heavy Cattail
- 18.2 AC. TOTAL

\* Based on Aerial photography 2 / 6 / 85

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BOYD HILL  
NATURE PARK  
(SW 71)

FIGURE C  
Park's Exotic & Nuisance  
Species Coverage





FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BOYD HILL  
NATURE PARK  
(SW 71)

FIGURE D – 1995 Infrared Aerial  
DOT Mitigation Areas 1-3  
Scale 1 in = 500 feet, < North





FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BOYD HILL  
NATURE PARK  
(SW 71)

FIGURE E – 1995 Infrared Aerial  
DOT Mitigation Area 4  
Scale 1 in = 440 feet, ^ North





*Owned and managed by the City of St. Petersburg, Boyd Hill Nature Park is one of largest parks in Pinellas County and known for having one of the most active environmental educational programs in the region.*



*For a narrow fringe of the southeast forested wetland that borders Country Club Way and M.L. King Street, the Park has conducted exotic & nuisance species eradication and planted trees. For the DOT mitigation, this same activity is proposed for the remaining portion of the same forested wetland (background).*

**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK  
(SW 71)**





*Even though there are desirable tree species within the southeast forested wetland, this recently cut area of *B. pepper* within the same system is representative of some pockets where the extensive exotics coverage limit the opportunity for desirable species to generate.*



*This wetland within the northwest portion of the Park recently received mechanical removal of the Brazilian pepper. The remaining trees represent the minimal cover of what otherwise was a dense, closed canopy of *B. pepper*. Maple saplings and fern species are starting to regenerate, supplemental tree planting may be initiated, with an extensive herbicide maintenance plan to minimize *B. pepper* regeneration.*

**FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK  
(SW 71)**





***Forested Uplands – The uplands within Areas 1-3 have a dominance of live oaks over saw palmetto, but scattered individuals and pockets of Brazilian pepper (above right) are common. Pepper eradication followed where necessary with native tree and shrub plantings will be conducted.***



***Forested Uplands – Some of the uplands include dense vine coverage within oak dominated hammocks. The vines will be removed by mechanical and herbicide treatment. All the enhanced uplands will receive periodic prescribed burns to minimize regeneration of undesirable species and maintain proper vegetative cover.***

**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BOYD HILL NATURE PARK  
(SW 71)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District  
Mitigation Project Name: **Greer Tract - Cypress Creek Preserve, West (ELAPP)**  
Project Manager: Forest Turbiville, Resource Manager  
Hillsborough County Parks & Recreation  
10940 McMullen Road  
Riverview, FL 33569 -6226

Project Number: **SW 72**  
Phone: 813-672-7876

County: Hillsborough  
Location: Sections 4, 5, T27S, R19E

### IMPACT INFORMATION

- (1) FM: 2555851, SR 39 (Alexander St.), I-4 to Knights Griffin\*  
(2) FM: 4037801, SR 52, I-75 to Curley Road  
(3) FM: 4112771, US 301, Holloman's Branch to Hills./Pasco C.Line  
(4) FM: 4113371, US 92, Eureka Springs to Thonotassassa Road\*\*

ERP #: \_\_\_\_\_ COE #: \_\_\_\_\_  
ERP #: \_\_\_\_\_ COE #: \_\_\_\_\_  
ERP #: \_\_\_\_\_ COE #: \_\_\_\_\_  
ERP #: \_\_\_\_\_ COE #: \_\_\_\_\_

Drainage Basin(s) : Hillsborough River Water Body(s): Westside Canal, Bayou Branch SWIM water body? (Y/N) N  
Impact Acres/ Wetland Types:

(1) FM 2555851 4.9 ac. 617 (FlucCs)  
(2) FM 4037801 0.1 ac. 510  
0.1 ac. 641  
TOTAL 0.2 acres

(3) FM 4112771 0.2 ac. 641 (FlucCs)  
(4) FM 4113371 1.0 ac. 618  
0.3 ac. 641  
0.3 ac. 641x  
TOTAL 1.6 acres

**TOTAL 6.9 acres**

\* Note: This SR 39 project proposes a total wetland impact of 14.2 acres, the majority of the forested wetland impacts are designated for mitigation at the Greer Tract. The remaining wetland impacts are proposed for mitigation separate from the FDOT Mitigation program on property owned by FDOT (tract referred to as "Vicker's Swamp") and on-site wetland creation within floodplain compensation areas for Alexander Street.

\*\* Note: This US 92 project proposes an additional 0.7 acre impact in the Tampa Bay Drainage Basin. The designated mitigation area for these impacts is Bahia Beach (SW 78).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration X Enhancement X Preservation Mitigation Area: **99.5 acres**  
SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N  
Drainage Basin(s): Hillsborough River Water Body(s): Cypress Creek SWIM water body? N

#### Project Description

**A. Overall project goal:** The acquisition, preservation, enhancement, and management of a 99.5-acre tract that includes a high quality mosaic of native upland (38 acres) & forested wetland (61.5 acres) habitat within the Cypress Creek floodplain. The property was a high priority for acquisition by the Hillsborough County Parks Department (ELAPP - Environmental Lands Acquisition and Protection Program). The tract was purchased, nominated and designated for FDOT mitigation credit in 2002. The County owns several hundred acres southeast of the site (referred to as Cypress Creek Preserve East), and a 298-acre parcel adjoining the southern boundary. This southern parcel (referred to as the "Jennings Tract") also provides mitigation for 25 impact acres associated with 10 FDOT projects (Refer to Figure B and SW 61 in the FDOT mitigation plan). The Jennings and Greer Tracts form an area referred to as "Cypress Creek Preserve West, bisected from the East tract by I-275. The Greer Tract acquisition is part of a Cypress Creek corridor evaluation by Hillsborough County and the SWFWMD for future acquisition (Save Our Rivers / Florida Forever). This acquisition will help connect other property owned by the SWFWMD (Cypress Creek) in Pasco Co., the Hillsborough



County Parks - Cypress Creek Preserve tracts, the SWFWMD Lower Hillsborough property, and FDEP Hillsborough River State Park. Both the Jennings and Greer Tracts were proposed for residential development before public acquisition and protection.

**B. Brief description of current condition:** The native habitat components of the site represent high quality functions relative to wildlife habitat, species richness & diversity, and especially habitat connectivity to both on-site and off-site preserved native habitat conditions. These habitats include mixed forested wetlands surrounding the upland hardwood hammocks. A discussion of species and habitat conditions are provided within Attachment A.

**C. Brief description of proposed work:** The proposed activity includes land acquisition with preservation and enhancement of the wetlands and upland hardwood hammocks. Enhancement activities include land management and maintenance activities such as prescribed burning and herbicide control of exotic and nuisance vegetation that is primarily limited to skunk vine. Direct construction activities are not necessary due to existing habitat conditions. Hillsborough County Parks will expand the adjacent Jennings Tract management plan to include necessary activities for the Greer Tract.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the proposed wetland impacts will be to forested wetlands (4.9 of the 6.9 impact acres). The proposed mitigation protects high quality mixed forested wetlands and upland hardwood hammock buffers that appropriately compensate for the impacts to the forested wetland habitat. This acquisition & enhancement will result in an overall mitigation ratio of 14 acres of compensation for every 1 acre of wetland impact. There are no additional FDOT projects proposed for mitigation at the Greer Tract.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no existing mitigation banks within the Hillsborough River basin at the time of mitigation selection.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** The only SWIM project in the Hillsborough Basin is the Lake Thonotassassa Restoration Project. The habitat restoration associated with that project has already been delegated as the mitigation option for another FDOT project.

## MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: No proposed construction, management by Hillsborough County Parks & Recreation  
Contact Name: Forest Turbiville, Resource Manager, Hills. Parks & Rec. Phone Number: (813)-672-7876  
Entity responsible for monitoring and maintenance: Hillsborough County Parks & Recreation

Proposed timeframe for implementation: Commence: Land acquisition and nomination to the FDOT mitigation program occurred in 2002, reimbursement to Hillsborough County will be after SR 39 project is permitted, expected late 2004 to early 2005.

Complete: Payment of acquisition and up-front funds for maintenance & management expected in 2005.

Project cost:	<u>\$110,000</u> (total)
	\$100,000 – Acquisition
	\$10,000 - Maintenance & Management

## Attachments

- ☒ 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing Site & Plan, Figure B - habitat units plotted on the 1995 infrared aerial.
- ☒ 2. Recent aerial photograph with date and scale. Figure B - Infrared aerial (1995).
- ☒ 3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, Figure B.
- ☒ 4. Detailed schedule for work implementation, including any and all phases. Acquisition was completed in 2002, reimbursement (\$100K) to Hillsborough County to be conducted after the SR 39 project receives permits. Long-term maintenance & management conducted by the Hills. Co. Parks & Recreation Department with up-front reimbursement of \$10,000.
- ☒ 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- ☒ 6. Long term maintenance plan. Refer to Attachment B.
- ☒ 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

## ATTACHMENT A - Existing Site Conditions & Proposed Plan

The mixed forested wetlands (61.5 acres) have dominant tree cover provided by a diverse assemblage of laurel oak, sweet gum, red maple, American elm, sweet bay, cabbage palm, and ironwood; with additional cover of bald cypress and tupelo within the lower elevations. Due to less obligate wetland conditions, cypress and tupelo are not as prevalent compared to the adjacent Jennings Tract. Subcanopy species include a dominance of the same tree species along with *Viburnum* spp., wax myrtle, and Virginia willow; and ground coverage of various sedges and ferns. The wetlands are high quality habitats that provide excellent buffers for the interior upland hammocks.

The upland hardwood hammocks have dominant cover of live oak, Southern magnolia, sweet gum, cabbage palm, and water oak; a sub-canopy of saw palmetto, cabbage palm, beautyberry, salt-bush, and buckthorn; and ground cover dominated by sedges and small panicums (*Dicanthelium* spp). There are fewer live oaks and more cabbage palm in the hammocks of the Greer Tract compared to the adjacent Jennings Tract. This more open canopy has allowed more understory vegetation, as well as the invasion of skunkvine. The habitat conditions of the upland hammocks include a diverse assemblage of vegetative cover and species. The cover and landscape position of upland hammock islands that buffer wetlands allow substantial use by wildlife for foraging, nesting, and denning. In addition to the upland and wetland habitat designated for mitigation credit, there is 0.5-acre area of bahia pasture that borders County Line Road. This area may be used for future parking to allow the public to have an access point to the Greer Tract.

The proposed plan concentrates on herbicide control of any undesirable, exotic, and nuisance vegetation, which is primarily limited to skunkvine under current conditions. The plan also includes implementing a prescribed burn management plan for the upland habitat. By implementing a burn plan, understory growth will be maintained at appropriate density to allow wildlife movement, generate appropriate foraging ground cover vegetation, minimize generation of undesirable vegetation, and minimize the potential of habitat damage from wildfires. The implementation of the prescribed burn plan will be dependent on the growth and percent cover of understory vegetation, but expected to be every 5-10 years. Management activities of the Greer Tract will be conducted concurrent with the adjacent Jennings Tract. Security of the Cypress Creek Preserve property is conducted through a Parks staff person who lives adjacent to the Preserve.



## **ATTACHMENT B – Maintenance & Monitoring Plan, Success Criteria**

Maintenance activities will be conducted concurrent with similar activities on the adjacent Jennings Tract. Maintenance activities will primarily concentrate on herbicide treatment of skunkvine and periodic prescribed burns when necessary to enhance the upland hammocks. As with the Jennings Tract, maintenance activities will also include herbicide control of any other exotic, nuisance, and undesirable species that invade the site. No supplemental planting is necessary or proposed for the Greer Tract.

Monitoring includes an annual update of activities conducted at the Greer Tract as a part of the monitoring activities and associated reporting for the adjacent Jennings Tract. Qualitative assessment of the habitat conditions will be conducted and assessment of necessary management and maintenance activities to maintain success criteria will be documented. This annual update will be prepared for a minimum 3 years after approval of the site as a mitigation option. Success criteria includes implementing periodic prescribed burns and a herbicide management program to maintain less than 5% vegetative cover of exotic, nuisance, and undesirable species.



FDOT – District 7  
MITIGATION SITE  
(Hillsborough Basin)

GREER TRACT  
CYPRESS CREEK  
PRESERVE WEST  
(SW 72)

FIGURE A  
Location Map  
Scale 1 in = 1 mile, ^ North









***Upland Hardwood Hammock – These hammocks have diverse canopy species such as live oak, laurel oak, Southern magnolia, sweet gum, cabbage palm, over saw palmetto, small cabbage palm, beautyberry, and buckthorn. These hammocks have fewer live oaks and more cabbage palm than the hammocks on the adjacent Jennings Tract, providing more open canopy.***



***Mixed Forested Wetland – The wetlands have a dominance of laurel oak, maple, sweet gum, American elm, and elm. Understory vegetation includes various sedges, ferns, with lizard's-tail and golden club (above) within the drainageways. There are fewer obligate areas of tupelo and cypress compared to the adjacent Jennings Tract.***

**FDOT – District 7  
MITIGATION SITE  
(Hillsborough River Basin)**

**CYPRESS CREEK PRESERVE WEST (SW 72)  
(Greer Tract, Hills. Co. ELAPP)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Hillsborough River State Park – Bulkhead Removal Project Number: SW 73

Project Manager: Manny Lopez, WMD Environmental Scientist

Phone No: (352) 796-7211, ext. 4270

County: Hillsborough

Location: Sect. 7, T27S, R21E

### IMPACT INFORMATION

DOT FM: 4037601, US 301 (SR 41) at McIntosh Road

ERP #: 44020875.001 COE #: \_\_\_\_\_

Drainage Basin: Hillsborough Water Body(s): None SWIM water body? NA

Impact Acres /Types : 0.5 ac. 617 (Flucss)

Note: There is an additional 0.3 acre impact to non-forested wetland habitat in association with this project. These impacts will be mitigated by FDOT with wetland creation at the US 301 project.

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation ☒ Restoration Enhancement Preservation Mitigation Area: 0.5 acre

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin: Hillsborough Water Body(s): Hillsborough River SWIM water body? Y

#### Project Description

- A. Overall project goal:** Removal of a bulkhead wall located along the shores of the river within Hillsborough River State Park. Once the wall is removed, grading will restore the sideslopes that will include a combination of natural and man-made materials and plantings. This is part of a joint project to provide FDEP- Parks with financial and technical assistance to enhance the river shoreline, as well as implement various options to provide water quality treatment of parking facilities. Only the bulkhead portion is proposed to compensate for the DOT wetland impacts.
- B. Brief description of current condition:** The concrete bulkhead (170 ft. long x 10 ft. high, refer to photos) was constructed over an original wall of sand-cement bags, to control erosion along the banks of the Hillsborough River where an extreme river oxbow is located (Figure B).
- C. Brief description of proposed work:** The wall will be removed, some rubble will be required below the waterline to control erosion and bank stabilization. The upper sideslopes will require a combination of man-made materials, potentially some terracing for stabilization, and extensive tree, shrub, and herb plantings for habitat restoration. The various alternatives of terracing and vegetation will be evaluated prior to construction.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed minor wetland impact includes 0.5 acres of mixed hardwood forested, similar to the proposed habitat conditions proposed for this restoration project. The FDOT impacts will occur to wetlands located less than 2 miles from the restoration area. Considering the ecological improvement of restoring habitat along the Hillsborough River (OFW) and within a State Park, the activity appropriately and adequately compensates for this minor impact. No additional FDOT projects' wetland impacts will be mitigated with the bulkhead removal project.

- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost: There are no mitigation banks currently available in the Hillsborough River basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body: There are currently no SWIM designated restoration projects proposed for implementation within the Hillsborough Basin. With limited DEP funds necessary to implement various water quality and natural habitat improvements proposed for the Park, several funding sources such as SWIM, Basin Board, and the DOT mitigation program are being evaluated as potential opportunities.

### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Contractor selected by DEP and the WMD

Contact Name: Manny Lopez, WMD Environmental Scientist

Phone Number: 352-796-7211, ext. 4270

Entity responsible for monitoring and maintenance: DEP – Hillsborough River State Park staff

Proposed timeframe for implementation: Commence: 2005 – project design Complete: 2006 - Construction

Project cost: \$100,000; includes design, construction and planting costs, maintenance costs covered by DEP.

### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figure B, 1995 infrared aerial.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A, Location Map, project evaluation and design will be complete in 2003.
- X 4. Detailed schedule for work implementation, including any and all phases. Site evaluation and design (2004-2005), construction & planting (2006), followed by 2 years maintenance & monitoring.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B.
- X 6. Long term maintenance plan. Refer to Attachment B.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

### Attachment A – Site Conditions & Proposed Work

The grade elevations between the Hillsborough River and the adjacent floodplain are variable as the river meanders through the Park. For the bulkhead area, the natural scouring conditions of the river oxbow resulted in a naturally steep escarpment. The natural floodplain sideslopes adjacent to the bulkhead has a transition of vegetation; from cypress along the lower banks to elms, maple, and hickory along the upper slopes. Shrubs such as wax myrtle, sugarberry, and saltbush provide a subcanopy, and ground cover includes various fern and sedge species. The slope rises 10-12 feet over a limited horizontal distance of 70-100 feet.



The original cement bag wall was capped with the concrete wall bulkhead after major storm events started eroding the capacity of the cement bags to maintain the slopes. The Park facilities include a concrete block picnic shelter less than 100 feet from the bulkhead, somewhat limiting the capacity to maximize slope restoration to an angle that can be naturally maintained. As a result, the proposed restoration will require a combination of man-made and natural stabilization methods. Depending on the evaluation of river hydraulics, historical flood elevations, and slope gradient restrictions to the shelter, the most likely design will include a series of slightly sloped terraces, with small walls of reinforced fill, wood, cements bags, rubble, and/or other material. A staircase, not funded through the DOT program, will probably be constructed to keep visitors from walking down the restored slope to the river.

No matter what kind of man-made material may be used to stabilize the slope, an extensive planting plan of trees, shrubs, and herbs will be adopted after construction. The aforementioned tree and shrub species that are currently present along the sideslopes will be the dominant species proposed for planting. Depending on the final slope design, some form of temporary cover such as rye or millet will be required for quick stabilization. This will be followed by planting of permanent herb species such as wiregrass, broomsedge, ferns, or some other species deemed suitable for the soil, slope, and hydrologic conditions of the site. The desired outcome is to provide earthwork design and associated revegetation plan that over the course of 5-10 years, will be a blending of restoration and matching the natural habitat conditions that currently exist along the sideslopes adjacent to the wall.

## **Attachment B – Maintenance & Monitoring, Success Criteria**

Maintenance activities are expected to be minimal, and primarily within a couple years of the construction. Exotic and nuisance species are currently not a problem for the site. Even though not anticipated as part of the restoration effort, generation of such species will be eradicated by herbicide. Any terracing, rubble along the waterline, or other man-made conditions of the site will be periodically checked to ensure stabilization is being maintained while not interfering with the integrity or transition of the habitat restoration components or functions.

Qualitative monitoring will be conducted semi-annually, followed by an annual monitoring report conducted for a minimum 2 years post-construction. The initial monitoring report will include photo and narrative documentation of conditions pre-, during, and post- construction. The monitoring reports will document the health, functions, and values of the restoration effort; and the maintenance activities and events necessary to achieve and maintain success.

Success criteria shall include a minimum 90% survivorship of planted material, and any tree and shrub mortality will be replaced with similar species. Tree canopy cover for the restored slope shall exceed 30% closure. Ground cover vegetation shall exceed 70% for all areas not covered with unnatural material (e.g. rubble rip-rap, terraces, staircase, etc.). Exotic, nuisance, and undesirable species shall not exceed 10%.

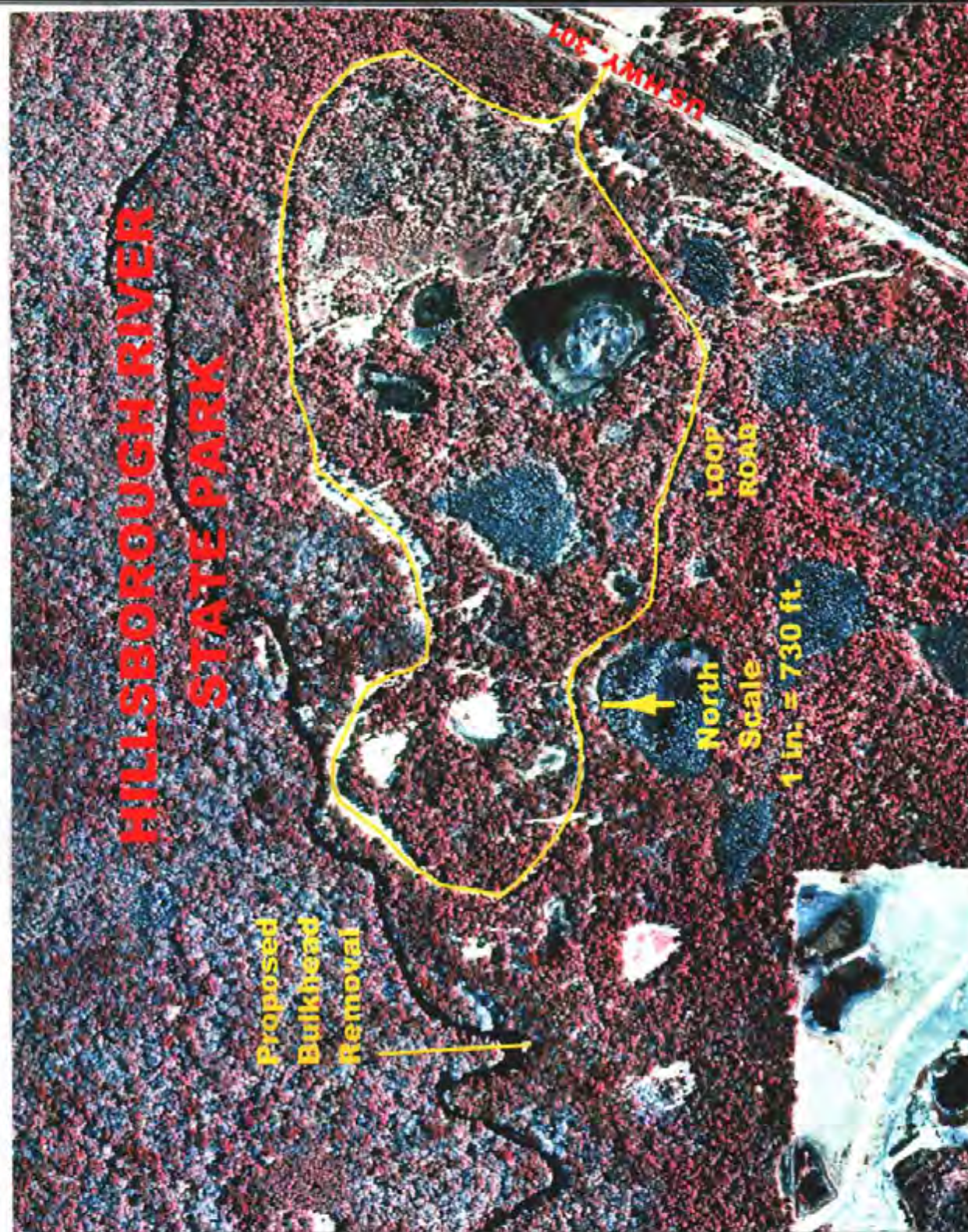


**FDOT – District 7  
MITIGATION SITE  
(Hillsborough River Basin)**

**HILLSBOROUGH RIVER  
STATE PARK  
(SW 73)**

**FIGURE A  
Location Map  
Scale 1 in = 2 Miles, ^ North**





FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)  
Drainage Basin)

HILLSBOROUGH RIVER  
STATE PARK  
(SW 73)

FIGURE B  
1995 Infrared Aerial  
Scale 1 in. = 730 ft.





***View of the bulkhead wall along the Hillsborough River. The wall will be removed and the area graded to reflect a more sideslope gradient, with tie-in to the grade elevation of the existing tree line (right). Native tree, shrub, and herb species will be planted to restore habitat function and value.***



***View of the wall from the water elevation.***

**FDOT - District 7  
MITIGATION SITE  
(Hillsborough River Basin)**

**HILLSBOROUGH RIVER STATE PARK  
BULKHEAD REMOVAL (SW 73)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Serenova – Sites 2, 3, 4, 8

Project Number: SW 74

Project Manager: Manny Lopez, WMD Environmental Scientist

Phone No: 352-796-7211, ext. 4270

County: Pasco

Location: Sec. 23, R17E, T26S

Sec. 34, R17E, T25S

### IMPACT INFORMATION

DOT FM: 2563161, SR 52 – Hicks to Moon Lake

P #: 4007804.005 COE #: 90IPI-03363

Drainage Basin: Upper Coastal Water Body(s): Buckhorn Creek

SWIM water body? N

Impact Acres /Types : 1.6 ac. 617 (Fluccs)

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: Creation Restoration x Enhancement Preservation Mitigation Area: 26 acres

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N

Mitigation Bank? N Drainage Basin: Upper Coastal Water Body(s): Pithlachascotee River SWIM water body? N

#### Project Description

**A. Overall project goal:** The Serenova Preserve is owned and managed by the SWFMWD (Figure A), and has several wetland enhancement opportunities being evaluated (Figure B). Enhancement activities at four areas are proposed to mitigate for the wetland impact associated with the one SR 52 project. The Pithlachascotee River and Five Mile Creek are tributary systems that cross east-west through the Serenova property. The Pithlachascotee River has two access road berm crossings (Site 2 - actively used, Site 4 - abandoned) and Five Mile Creek has one crossing (Site 3). Each crossing requires improvements to restore surface water flow conditions through the floodplains. Site 8 is a large outfall ditch of a cypress system, requiring a ditch block in order to enhance wetland hydrologic conditions.

**B. Brief description of current condition:** The Pithlachascotee River and Five Mile Creek are forested wetland floodplains of relatively high-quality with a diverse canopy cover dominated by laurel oak, sweet gum, cypress, red maple, cabbage palm, and tupelo. A sub-canopy has saplings of the same species as well as Virginia willow, buttonbush, and wax myrtle. Ground cover is sparse due to canopy cover and periodic flooding conditions, dominated by various fern and sedge species. However, hydraulic characteristics of these two floodplains are altered by the berms and undersized culverts. The abandoned Pithlachascotee River crossing has a berm that currently blocks and diverts surface water flow along the berm and through a dredged channel segment of the river (Figure B, Site 4, refer to site photos). Another berm crossing of the river is used for management access, and has three undersized 48" CMP's for the main channel flow, and only one 24" overflow pipe (Site 2). The Five Mile Creek crossing has such an undersized culvert, the supporting fill material has eroded and deposited downstream (Site 3). The cypress system associated with Site 8 has a dense canopy and fern understory, but hydrologic indicators demonstrate minimal hydroperiods due to the outfall ditch.

- C. Brief description of proposed work:** To restore the primary flow patterns of the Pithlachascotee River, a surface water modeling effort will be conducted to determine the appropriate size replacement and supplemental culverts required for Site 2. Culvert expansions will include stabilization methods such as the addition of rubble, sand-cement bag rip-rap, and/or other material. This will eliminate the current undermining of the culverts and downstream sedimentation. The abandoned Pithlachascotee River floodplain berm crossing will have at least two breaches installed to restore the floodplain flow patterns. These breaches will have gradual slopes, graded to match historic surface grade elevations, and installed to minimize impacts to the laurel oaks along the sideslopes. As the dilapidated bridge continues to decay and drop debris into the river channel, limbs and other debris are caught which restricts flow. Eventually the entire bridge will fall into the river so it will also be removed during construction of the berm breaches. The Five Mile Creek crossing will be evaluated to either have the undersized culvert replaced with appropriately sized culverts and associated berm stabilization, or an at-grade wet crossing stabilized with aggregate or another compatible material. The ability to maintain vehicular access for land management activities will be a major factor in determining the type of crossing and material. The outfall ditch from the cypress system (Site 8) will have two ditch blocks installed to enhance hydrologic conditions of the cypress wetland, as well as create and maintain ephemeral marsh habitat within the ditch (Figure D).
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The DOT-SR 52 project is close to the northern limits of the Serenova Tract. The roadway has been constructed and the forested wetland impacts have occurred. But it was determined that even though the on-site wetland mitigation project constructed by DOT has ecological value and will be preserved, it will not be able to maintain all the wetland functions due to unforeseen hydrologic limitations. Therefore, this additional mitigation option at Serenova will regionally enhance the hydrologic characteristics of forested wetland habitats, which in turn will enhance the other wetland functions and values. This mitigation project will only be used to compensate for wetland impacts associated the SR 52 project.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are currently no existing or proposed mitigation banks within the Upper Coastal Basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no existing or proposed SWIM projects in the Upper Coastal basin that can appropriately provide the mitigation for the proposed impacts.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD Operations Department

Contact Name: Manny Lopez, WMD Environmental Scientist

Phone No: 352-796-7211, ext. 4270

Entity responsible for monitoring and maintenance: Monitoring not necessary, any structure maintenance will be coordinated through the WMD Land Management and Operations Departments

Proposed timeframe for implementation: Commence: Surface Water Modeling – 2005

Complete: Construction - 2006, pending river hydrologic conditions to avoid turbidity.

Project cost: \$130,000 (total); Hydraulics Study & Design - \$40,000, Construction - \$90,000



## Attachments

- X 1. Detailed description of existing site and proposed work. Refer to previous discussion and Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figures B, C, and D, 1995 aerials.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for location map. design drawings of any culvert crossings will be conducted as part of the hydraulics study.
- X 4. Detailed schedule for work implementation, including any and all phases. The hydraulics study will be completed in 2005. Actual construction to install the culverts and breach the berm will depend on final design plans and weather conditions. Construction will be attempted to coincide with no river flow conditions to avoid potential turbidity, anticipated in the spring of 2006.
- X 5. Proposed success criteria and associated monitoring plan. No success criteria or monitoring is proposed, the restoration of hydraulic and hydrologic patterns will be documented as part of the hydraulics study.
- X 6. Long term maintenance plan. Specific maintenance activities are not anticipated, but periodic inspection of the structures, rip-rap, etc. will be conducted to ensure they function as intended.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.

## Attachment A – Existing & Proposed Work

The following information provides additional details of the site conditions and anticipated improvements. The acreage of direct versus secondary wetland enhancement opportunities is difficult to quantify and qualify, particularly prior to hydraulic modeling of the crossings. A minimal acreage of anticipated direct wetland enhancement is proposed for mitigation credit. This minimal enhancement is based on wetland floodplain limits of 350 ft. upstream and downstream of each crossing (Sites 2, 3, 4), and the most northern 300 ft. perimeter of the cypress wetland associated with Site 8. The enhancement acreage is presented for each site.

**Site 2** – This access road berm over the Pithlachascotee River is used for maintenance and management of the Serenova property. The three existing 48-inch culverts have stain indicators that demonstrate normal flow conditions that exceed 70% of the available flow capacity, resulting in pooling of water upstream of the crossing and detaining flow from reaching the downstream wetland floodplain. The crossing is also very wide (700 ft.) and with only one additional small overflow culvert, the contributing flow is funneled through the large culverts that substantially minimize the expansion of surface water patterns throughout the downstream floodplain, while extending the hydroperiods of the upstream floodplain wetlands. The existing culverts are undersized and without rip-rap material, scouring of berm material has resulted in downstream sedimentation. Anticipated enhancement will include replacing the corrugated metal pipe with concrete pipe, probably additional and larger pipes at the main river channel. Additional overflow culverts will be installed within other areas of the berm to restore surface water flow conditions to the downstream wetlands. Rip-rap material will be placed around the culverts along the berm as well as underneath each pipe to eliminate undermining and dissipate velocities. Anticipated direct wetland enhancement (length 700 ft. x width 700 ft. = 11 acres).

**Site 3** – The crossing of Five Mile Creek cannot be accessed by vehicles due to the scouring and loss of berm material from around the culvert (refer to photo). Even though this crossing is shorter than Site 2, the condition of the berm is actually less stable than the much larger berm of Site 2. The scouring has resulted in more downstream sedimentation so if culverts are replaced, additional berm stabilization will have to occur. It is anticipated that a wet crossing with rubble rock aggregate or other material will be installed in lieu of the culverts. Anticipated direct wetland enhancement (length 700 ft. x width 150 ft. = 2 acres).

**Site 4** – This remnant tram road has a dilapidated bridge and considering the accessibility of the other Pithlachascotte River crossing (Site 2), neither replacing the bridge nor placing culverts within the access berm are necessary. Since there are no existing culverts in the berm, like the other two crossings, flow conditions are detained upstream and more contained within the main channel within downstream areas. In order to restore normal floodplain flow patterns, a minimum of one wide breach cut is anticipated within each berm segment north and south of the main channel. There is evidence that snags, limbs and other debris periodically get caught in the bridge debris within the river that also alters flow conditions. The remaining bridge debris will eventually drop into the river so it will be removed. Anticipated direct wetland enhancement (length 700 feet x width 700 feet = 11 acres).

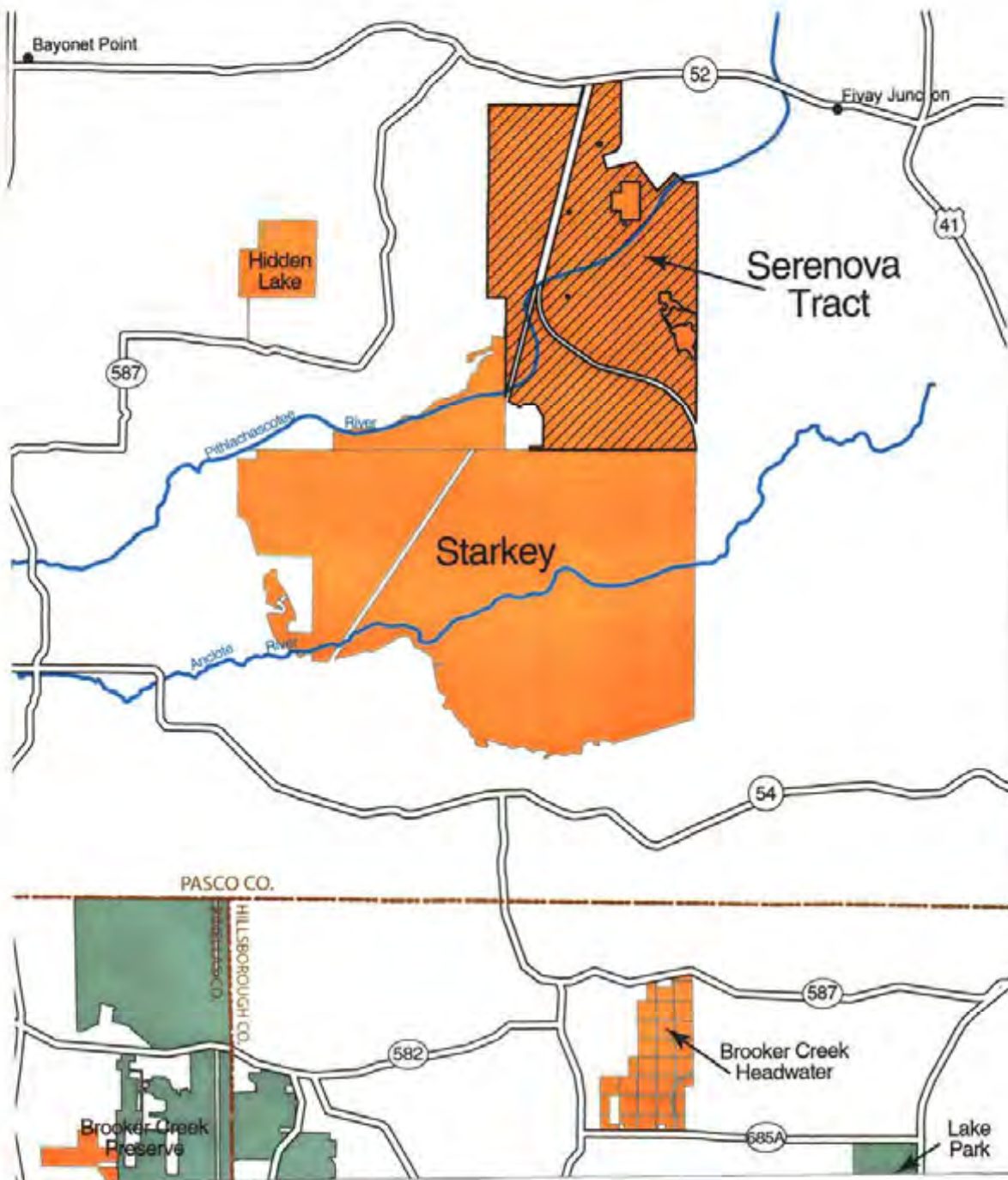
**Site 8** – This is a large outfall ditch, with a bottom width over 10 ft, and top-of-bank width varying 30-50 ft. The ditch depth from top-of-bank varies because most of the ditch was dredged through elevated topography to provide positive flow. But because of the excessively drained, sandy soil conditions, the ditch hydroperiods are intermittent. Even though the cypress wetland is large, the area of direct wetland enhancement is anticipated near the northern extent of the system. Along with a ditch block along the wetland / upland interface, another ditch block is anticipated to maintain the upland ground water conditions and create and maintain ephemeral marsh habitat within the wide ditch. Anticipated direct wetland enhancement (length 300 feet x width 350 length = 2 acres).

## **Summary**

The Serenova parcel (7000 acres) was purchased by the Florida Turnpike and deeded to the SWFWMD for public ownership and management to provide partial mitigation for wetland impacts associated with the construction of the Suncoast Expressway. In a settlement agreement between the Turnpike Authority and the Florida Audubon Society, the Turnpike provided \$50,000 to the WMD toward evaluating potential wetland enhancement opportunities, and to conduct as many of the approved activities within those funding limits. The evaluation resulted in 13 sites with various levels of wetland impacts due to historic man-made alterations (Figure B - Sites 1 through 13). Once located, additional evaluation was conducted to see which sites justified enhancement or restoration. All but one of Sites 9-13 are associated with dredged ponds within cypress wetlands. These impacts occurred over 30 years ago, and natural generation of mature cypress has occurred on the dredged spoil material and the open water components have coverage of desirable species. As a result, the evaluation indicated that backfilling these ponds would result in the loss of the minimal and very desirable open water habitat of the Serenova property. As a result, Sites 1-8 will be the only hydrologic wetland improvement projects proposed at Serenova.

Additional evaluation was conducted to determine which of the proposed restoration sites 1-8 could be enhanced with the available Turnpike funds and which sites would be appropriate to mitigate for the SR 52 wetland impacts. There were adequate funds to conduct the enhancement activities associated with Sites 1, 5, 6, and 7 and these enhancement activities are fulfilling the mitigation agreement with the Turnpike and Audubon. In order to compensate for the proposed SR 52 wetland impacts, Sites 2, 3, 4, and 8 were evaluated and nominated to provide the mitigation for the DOT impacts, and the DOT funds provide sufficient funds to also fulfill the budget requirements for activities necessary to enhance these four sites.





**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA  
WETLAND  
ENHANCEMENT  
(SW 74)**

**FIGURE A  
Location Map  
Scale 1 in. = 2 miles  
North ^**



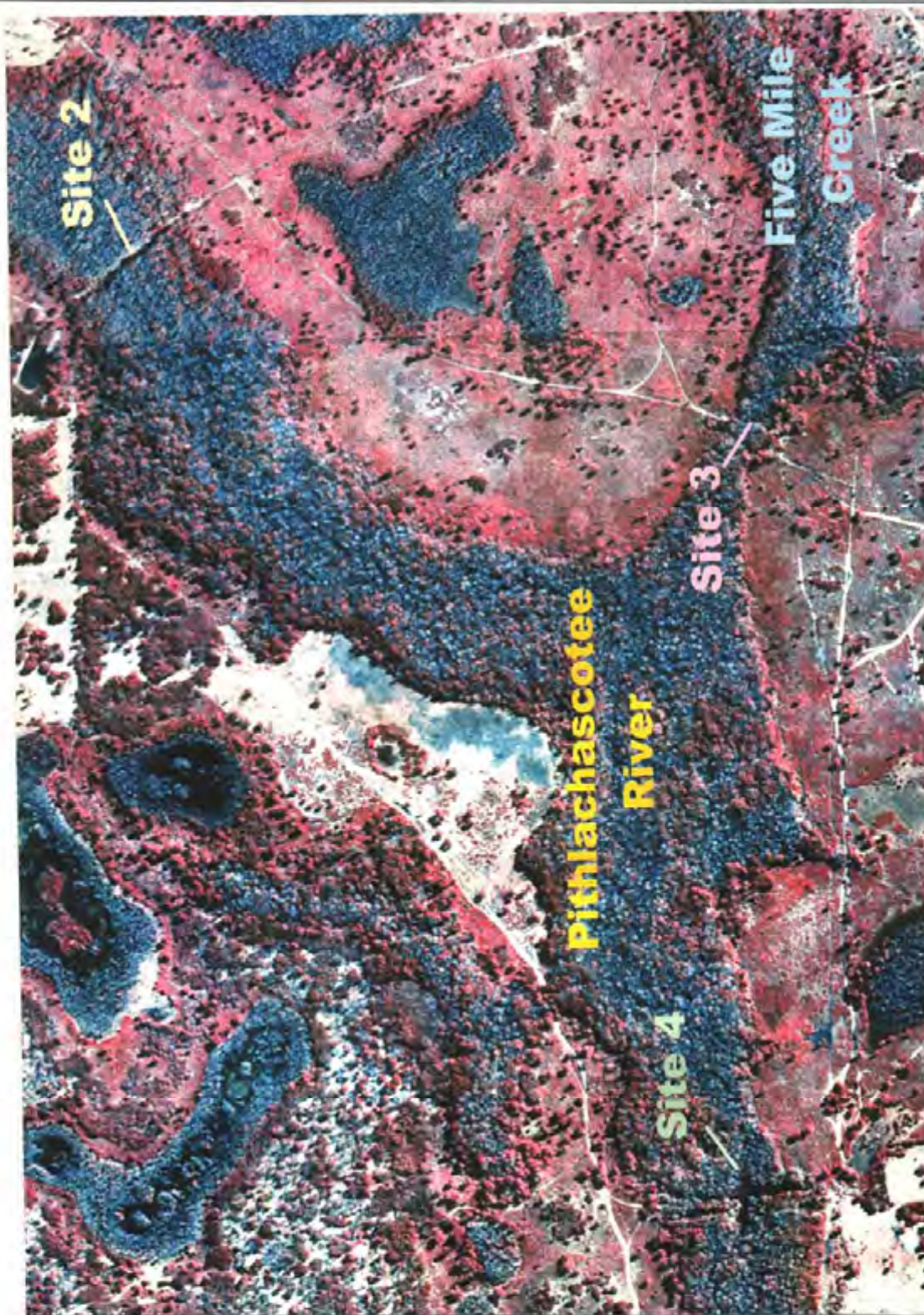


**FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA  
WETLAND  
ENHANCEMENT  
(SW 74)**

**FIGURE B  
Potential Wetland  
Enhancement Sites  
Scale 1.7 in. = 1 mile, North ^**





FDOT - District 7  
MITIGATION SITE  
(Upper Coastal Basin)

SERENOVA  
WETLAND  
ENHANCEMENT  
(SW 74)

FIGURE C  
Wetland Enhancement  
Sites 2, 3, 4  
Scale 1 in. = 700 ft., < North





FDOT – District 7  
MITIGATION SITE  
(Upper Coastal Basin)

SERENOVA  
WETLAND  
ENHANCEMENT  
(SW 74 )

FIGURE D  
Wetland Enhancement  
Site 8  
Scale 1 in. = 500 ft., ^ North





***Site 2 – View of access road berm crossing through the Pithlachascotee River floodplain, the majority of this crossing's sideslopes are stabilized.***



***Site 2 – The undersized culverts within the main channel crossing of the Pithlachascotee River. Erosion evident between the center and left culvert, Abandoned refrigerator used as slope stabilization between center and right culvert. These culverts will be replaced with probably more and larger concrete culverts, as well as proper sideslope and pipe stabilization.***

**FDOT – District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA – WETLAND  
ENHANCEMENT  
(SW 74)**





***Site 4 – Side view of the abandoned tram berm crossing through the Pithlachascotee River floodplain. Breached berm material will be placed within dredged donor area (left), which will elevate and restore the historic floodplain grade.***



***Site 4 – View of the floodplain vegetative and grade elevation conditions, which is 4-5 feet lower than the tram berm elevation evident in the background. This berm blocks and diverts flow to the main channel of the Pithlachascotee River.***

**FDOT – District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA – WETLAND  
ENHANCEMENT  
(SW 74)**





***Site 4 – Portion of the abandoned tram berm north of the Pithlachascotee River. The berm breach will only be as wide as needed to restore flow (probably 30-40 feet) with gradual, stabilized slopes. Berm placement and construction will be located within an area to minimize removal of oaks along the sideslopes.***



***Site 4 – The old tram bridge will continue to decay and eventually fall into the river, which will catch debris, so it will be removed.***

**FDOT – District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA – WETLAND  
ENHANCEMENT  
(SW 74)**





***Site 3 – The undersized pipe crossing of Five Mile Creek has resulted in erosion of the fill cap and downstream sedimentation. Further evaluation of this crossing and associated access management will determine whether additional culverts will be installed, or construction of a stabilized wet crossing.***



***Site 8 – The ditch outfall area along the wetland/upland boundary is shallow and wide, a ditch block will be installed to remove the dewatering conditions caused by the ditch.***

**FDOT – District 7  
MITIGATION SITE  
(Upper Coastal Basin)**

**SERENOVA – WETLAND  
ENHANCEMENT  
(SW 74)**



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Cockroach Bay Restoration - Saltwater

Project Manager: Brandt Henningson, PhD. SWIM Environmental Scientist

County: Hillsborough

Project Number: SW 75

Phone No: (813) 985-7481 ext. 2202

Location : Sec. 16, T32S, R18E

### IMPACT INFORMATION

- |   |                            |                                 |
|---|----------------------------|---------------------------------|
| (1) <u>FM: 2557031, SR 60 - Cypress St. to Fish Creek *</u>         | ERP #: <u>43002958.003</u> | COE #: <u>200205816 (IP-MN)</u> |
| (2) <u>FM: 2571391, Ulmerton Road, US 19 to 49<sup>th</sup> St.</u> | ERP #: <u>44026223.000</u> | COE #: _____                    |

Drainage Basin(s): Tampa Bay Drainage Basin Water Body(s): Fish Creek SWIM water body? N

**Impact Acres / Types:** (1) FM 2557031 - 5.4 acres 642 (FlucCs)\*  
(2) FM 2571391 - 0.1 acre 612  
**TOTAL** 5.5 acres

\*The total impacts associated with this project are 16.6 acres. The ditch, pond, freshwater marsh, and mangrove impacts of this project (5.1 acres) are being mitigated at Tappan Tract (SW 62). Approximately half of the saltwater marsh impacts (5.3 acres) are being mitigated at Apollo Beach (SW 67), the remaining saltwater marsh impacts (5.4 acres) at Cockroach Bay - Saltwater. The remaining impacts (0.8 acre) are freshwater marsh that are being mitigated at Cockroach Bay- Freshwater (SW 56).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation    Enhancement    Restoration Mitigation Area: 15.1 ac. SWIM project? Y  
Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N Drainage Basin(s): Tampa Bay Drainage Water Body(s): Tampa Bay, Cockroach Bay SWIM water body? Y

### PROJECT DESCRIPTION

**A. Overall project goals:** Cockroach Bay includes a multi-agency (USACOE, SWFWMD, FDEP, Hills. Co. Parks) wetland and upland habitat restoration effort on property (total 651 acres) acquired by Hillsborough County. The SWFWMD is responsible for the initial wetland habitat creation & restoration activities, Hillsborough Co. Parks is responsible for the perpetual management of the site. The saltwater marsh impacts (5.4 acres) will be mitigated through grading an existing fallow farm field to create saltwatermarsh habitat (7.9 acres), and open water tidal pools and channels (7.2 acres). The minor mangrove impacts (0.1 acre) will be mitigated with natural recruitment of mangrove habitat within the created marsh habitat.

**B. Brief description of current condition:** As depicted on the infrared aerial (Figure B), prior to construction in 2004, the proposed wetland creation site was an upland fallow field and historically a row crop area. The site is bordered along the west by an upland oak hammock adjacent to the mangrove fringe of Tampa Bay. There was a Brazilian pepper fringe along the eastern boundary, and a separate freshwater wetland creation project constructed within another former upland fallow field south of the tract. This additional wetland creation project is providing mitigation for wetland impacts associated with the construction of the Crosstown Roadway Extension.

**C. Brief description of proposed work:** The design plan includes dredging the uplands to create saltwater marsh habitat, tidal pools and channels that connect to other wetland creation areas south and east of the project site (Fig. C). The saltwater marsh habitat includes low marsh (4.6 acres) planted with smooth cordgrass (*Spartina alterniflora*), and marshhay cordgrass (*Spartina patens*). The high marsh habitat includes plantings of knotgrass (*Paspalum distichum*) and sand cordgrass (*Spartina bakeri*) (Fig. D). The intertidal pools and channels encompass 7.2 acres. The dredged material was placed into an adjacent mine cut east of the site (referred to as the Southeast Pit) to create additional saltwater wetland habitat not associated with the mitigation plan.

**D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed wetland impacts include 5.4 acres of saltwater marsh habitat (FlucCs #642) and a minor 0.1 acre of mangrove impact (FlucCs #612). The creation of saltwater marsh habitat (7.9 acres) and connecting intertidal pools and channels (7.2 acres) will appropriately mitigate for these DOT impacts at a minimum ratio of 2.7:1. This creation effort will be buffered within an existing oak hammock (west), creation of freshwater marsh habitat (south), and upland restoration east of the project site.

**E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The only mitigation bank in the basin is the Tampa Bay Mitigation Bank, which is also within the Cockroach Bay area. The mitigation bank did not have available credits when this project was selected in 2002 for the FDOT mitigation program.

**F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** This project is part of a large SWIM restoration effort for the Cockroach Bay area. The Cockroach Bay restoration effort has been guided by the Cockroach Bay Restoration Alliance, made up of stakeholders including the agencies, landowners, and the Tampa Bay Mitigation Bank. The SWFWMD - SWIM Section has coordinated the wetland creation and restoration, and the majority of the upland habitat activities of the project. Hillsborough County Parks is responsible for the stormwater facilities, some upland restoration, and perpetual maintenance & management activities. Even though there are various restoration phases throughout the Cockroach Bay Habitat Restoration area, they are all inter-related based on site conditions. An ecological transition of upland habitat to palustrine wetlands, followed by salinity gradients of various marsh habitats toward estuarine wetlands. Because of the extensive planning and evaluation of the restoration, being co-located with on-going restoration efforts that are managed and maintained by Hillsborough County, the mitigation portions have been very successful.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Southwest Florida Water Management District or designee

Contact Name: Brandt Henningson, PhD, SWIM Environ. Scientist Phone Number: (813) 985-7481 ext. 2202

Entity responsible for monitoring and maintenance: SWFWMD, Hillsborough County or designee

Proposed timeframe for implementation: Commence: Design, 2002 Complete: Construction in 2004, followed by minimum 3 years maintenance & monitoring

Project cost: \$ 450,000 (total); \$100,000 for design, \$350,000 for construction, planting, and maint. & monitoring

#### Attachments

- x   1. Detailed description of existing site and proposed work. Refer to previous discussion.
- x   2. Recent aerial photograph with date and scale. Figure B - 1995 Infrared Aerial.
- x   3. Location map and design drawings of existing and proposed conditions. Figure A - Location Map, final design plans on Figures C,D,E.
- x   4. Detailed schedule for work implementation, including any and all phases. The final design for this portion of the Cockroach Bay plan was completed at the end of 2002, construction and planting was conducted in 2004, followed by a minimum 3 year monitoring period.
- x   5. Proposed success criteria and associated monitoring plan. Refer to Attachment A.
- X   6. Long term maintenance plan. Refer to Attachment A.



<u>  x  </u> 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under Comment D.
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## **Attachment A - Maintenance & Monitoring, Success Criteria**

The maintenance activities will be conducted by Hillsborough County staff with assistance from the SWFWMD, and be primarily related to control of invasive exotic vegetation. Maintenance will be a more intensive effort during the first couple years after planting to allow for establishment of desirable plant species, and less frequent maintenance as the project matures. Maintenance will be conducted as necessary, expected to be quarterly for two to three years. After this period, maintenance activities will be conducted as needed by Hillsborough County staff to maintain the success criteria. Inspections on a semi-annual basis are anticipated to evaluate vegetative conditions, debris, and any nuisance & exotic vegetation. After each inspection, proper maintenance activities will be conducted to correct any problems.

Monitoring will be conducted by a SWFWMD consultant on a semi-annual basis, followed by annual reports conducted for three years post-construction. Monitoring will include qualitative evaluation and photo documentation of the mitigation area, to evaluate and document species survival, coverage, wildlife use, exotic & nuisance species coverage, and recommended actions needed to ensure or enhance success. The success criteria will reflect a minimum 90% survivorship for planted material for one-year post planting, a total 85% cover of planted and recruited desirable species, and less than 10% exotic and nuisance species cover.

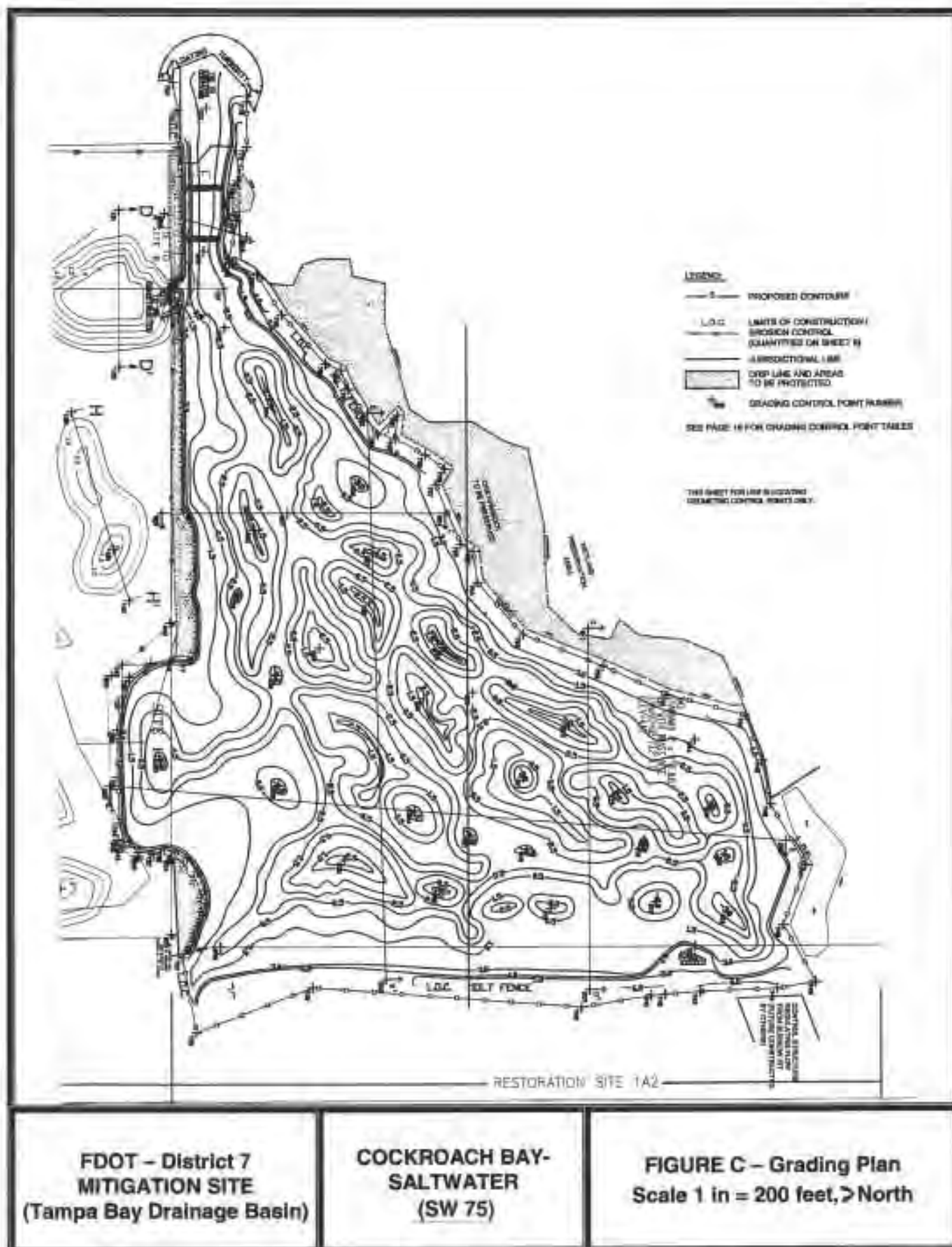


**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**COCKROACH BAY-  
SALTWATER  
(SW 75)**

**FIGURE B – Infrared Aerial  
Scale 1 in = 1070 feet, >North**





LEGEND

- LOC LIMITS OF CONSTRUCTION /  
ENOUGH CONTROL  
EXAMINED (ON SHEET)  
— SUGGESTED LINE  
□ AREA TO BE PROTECTED

NOTE: DESIGN HIGH WATER =  
6.18 MVD (25 YEAR STORM)

MHW = 5.48

MW = 1.00

MW = 3.4

MW = 4.75

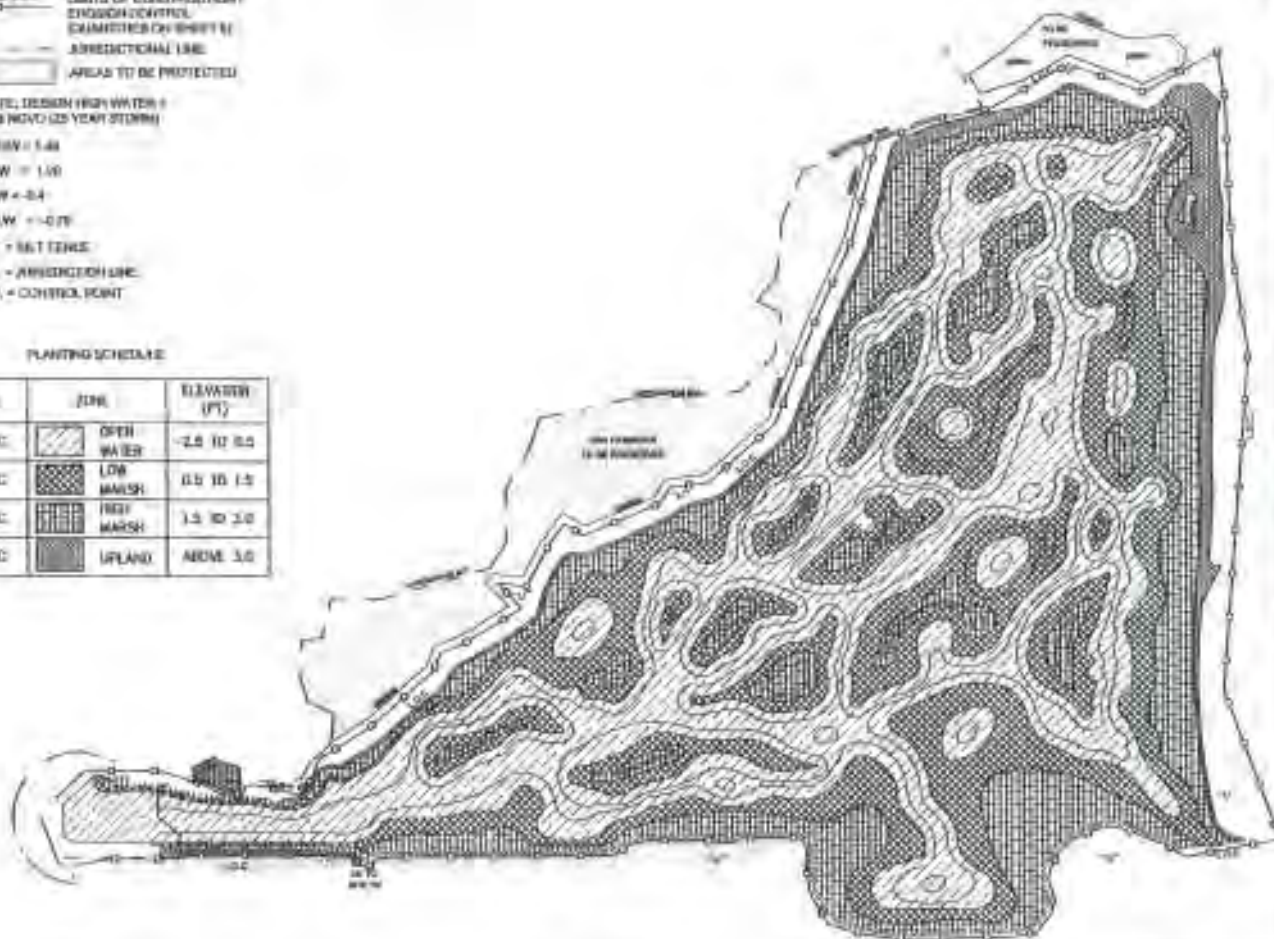
SE = SALT TONGUE

LD = JURASSIC LINE

CP = CONTROL POINT

PLANTING SCHEDULE

AREA	ZONE	ELEVATION (FT)
7.2 AC	OPEN WATER	-2.5 TO 0.5
4.8 AC	LOW MARSH	0.5 TO 1.5
3.3 AC	HIGH MARSH	1.5 TO 3.0
0.8 AC	UPLAND	ABOVE 3.0



PLANTING SCHEDULE

AREA	ZONE	ELEVATION (FT)	SPECIES	SIZE	SPACING	QTY.
7.2 AC	OPEN WATER	-2.5 TO 0.5	RA	RA	RA	RA
4.8 AC	LOW MARSH	0.5 TO 1.5	SMOOTH CORDEGRASS <i>Spartina alterniflora</i>	4" pot	3' x 3'	17,280
			MATCHBAY CORDEGRASS <i>Spartina patens</i>	4" pot	3' x 3'	5,760
3.3 AC	HIGH MARSH	1.5 TO 3.0	SMOOTH CORDEGRASS <i>Spartina alterniflora</i>	4" pot	3' x 3'	17,280
			SAND CORDEGRASS <i>Spartina patens</i>	4" pot	3' x 3'	5,760
0.8 AC	UPLAND	ABOVE 3.0	MHW GRASS <i>Portulaca oleraceae</i>	6" pot	HIGH DENSITY	0.8

FDOT - District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

COCKROACH BAY-  
SALTWATER  
(SW 75)

FIGURE D - Planting Plan  
Scale 1 in = 150 feet, ^North



## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Lake Lowery Tract

Project Number: SW 76

Project Manager: Gaye Sharpe

Phone No: (863) 534-7377

Polk County Environmental Lands Coordinator

County: Polk

Location: Sec. 10 T27S, R26E

### IMPACT INFORMATION

(1) FM: <u>1976791, US 27 - SR 544 to Blue Heron Bay *</u>	ERP#: <u>43023431.000</u>	COE #: <u>200202574 (IP-JPF)</u>
(2) FM: <u>4038901, US 27 - Blue Heron Bay to CR 547</u>	ERP#: <u>43023431.001</u>	COE #: <u>200205885 (IP-JPF)</u>
(3) FM: <u>2012041, I-4, CR 557 to Osceola Co. Line (Seg. 6,7,9)**</u>	ERP#: <u>43011896.032</u>	COE #: <u>SAJ-1994-3591 (IP-MGH)</u>

Drainage Basin: Ocklawaha      Water Body(s): Tower Lake      SWIM water body? N

Impact Acres / Types:

(1) FM 1976791 <u>0.02</u> ac. <u>510</u> (FlucCs)	(3) FM 2012041 <u>0.59</u> ac. <u>621</u> (FlucCs)
<u>0.29</u> ac. <u>630</u>	<u>3.76</u> ac. <u>640</u>
TOTAL <u>0.45</u> acres	TOTAL <u>4.35</u> acres

(2) FM 4038901 1.9 ac. 630 (FlucCs )

**TOTAL: 6.7 acres**

\*Note - A portion of this US 27 segment is within the Peace Basin and the associated wetland impacts will be mitigated at the Lk. Hancock Reserve (SW 66).

\*\* Note - A portion of this I-4 project is within the Withlacoochee Basin and the associated wetland impacts will be mitigated at the Hampton Tract (SW 59). Another portion of this project is within the Kissimmee Ridge Basin and the associated wetland impacts will be mitigated at the Reedy Creek Mitigation Bank (SW 49).

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type:    Creation    Restoration    Enhancement X Preservation      Mitigation Area: 198 ac.

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? N Mitigation Bank? N

Drainage Basin: Ocklawaha      Water Body(s): Lake Lowery      SWIM water body? N

#### Project Description

A. **Overall project goal:** The primary goal includes acquisition, preservation, and management of high quality wetlands within the Lake Lowery floodplain. The 198 acres is part of a 397-acre parcel purchased in Feb., 2002 in a joint acquisition between the SJRWMD and Polk County. In addition to providing mitigation for FDOT wetland impacts, the site fulfills overall objectives of acquisition of many parcels within the 100-year flood zone of Lake Lowery. The benefits of this acquisition are further enhanced since the tract is adjacent to 5700 acres of habitat owned and managed by the FFWCC (Fig. B, Hiloochee Wildlife Management Area, Osprey Unit), as well as within the Green Swamp Area of Critical State Concern.

- B. Brief description of current condition:** The majority of the entire 397-acre tract is a large palustrine marsh with forested wetland and shrub wetland islands, and a partial perimeter of forested wetlands within the southern portion of the tract (Fig. C). Dominant cover of the marsh includes pickerelweed and maidencane. Other common species include smartweed, arrowhead, and sand cordgrass. There are separate pockets of sawgrass and Carolina willow. The forested wetland areas have dominant canopy and sub-canopy species of bays, tupelo, and cypress; with additional cover provided by red maple and dahoon holly. The ground cover includes a dominance of lizard's-tail and various fern species. A buffer of pine flatwoods is located along the northeast and southeast portion of the marsh. An improved pasture is located along the western and northern boundary of the marsh. The tract is an undivided interest between the WMD and Polk County, therefore it was determined that the mitigation credit would be designated within a 198-acre area of the wetland. The upland buffers provide important functions for the wetland area, but are not designated for mitigation credit (refer to Figure C). The wetland conditions represent high quality conditions with minimal exotic and nuisance species coverage. Wildlife use is substantial, foraging opportunities for wading birds are high, and sandhill crane nesting has been documented for the marsh. Amphibian presence is substantial, particularly the frog population.
- C. Brief description of proposed work:** The wetlands are of high quality and no direct enhancement is necessary. Indirect enhancement has been provided by removal of cattle and the threat of potential development activities along the perimeter of the marsh through public lands acquisition. Without the development threat, there is substantially less potential for invasion of exotic/nuisance vegetation and water quality degradation that is often associated with residential development (i.e. septic tanks, fertilizers, etc.). The potential of silviculture activities of the forested components are also removed through public acquisition, protection, and management.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The proposed wetland impacts include cypress (0.6 acre), marsh (3.8 acres), and mixed forested (2.2 acres). The proposed mitigation includes the preservation of 198 acres of marsh, shrub, and mixed forested wetland habitat. Wetland functional assessment (WRAP) has been conducted for the site and the ratio of 30 acres of preservation to 1 acre impact has been determined to be appropriate to compensate for these impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The SJRWMD considered the use of a mitigation bank to compensate for the anticipated impacts. The only mitigation bank in the basin (Lk. Louisa/Green Swamp Mitigation Bank) includes a dominance of xeric habitat restoration and bayhead enhancement. The proposed wetland impacts and mitigation include a dominance of mixed forest and marsh habitat. Therefore, the Lake Lowery option was deemed by the SJRWMD and the multi-agency mitigation review group to be a more appropriate mitigation option for the proposed impacts.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body :** There are no SWIM water bodies within this basin.



Entity responsible for construction: No construction activities necessary or proposed

Contact Name: Gaye Sharpe, Polk Co. Environmental Lands Coordinator

Phone No: (863) 534-7377

Entity responsible for monitoring and maintenance: No monitoring or maintenance necessary or proposed

Proposed timeframe for implementation: Commence: Evaluation, 2000 Complete: Acquisition, 2002

Project cost: \$255,436 (total); SJRWMD reimbursed by FDOT in 2002

\$126,953 - Acquisition Costs - 50% Ownership

\$69,000 - Administrative Costs

\$59,482 - Long-Term Management Costs

## Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous text and Attachment A.

X 2. Recent aerial photograph with date and scale. Refer to Figures B and C.

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A for the location, Figure C for existing and proposed wetland mitigation conditions.

X 4. Detailed schedule for work implementation, including any and all phases. Joint land acquisition was conducted by the SJRWMD and Polk County in 2002. The SJRWMD were reimbursed by FDOT for their portion of the acquisition, administrative costs, and long-term management to designate 198 acres of mitigation for FDOT impacts. Additional information in Attachment B.

X 5. Proposed success criteria and associated monitoring plan. No success criteria or monitoring necessary or proposed due to the high quality of existing wetland habitat conditions.

X 6. Long term maintenance plan. No specific maintenance activity necessary or proposed for the wetland area designated for mitigation purposes, additional information in Attachment B.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion in Item D.

## Attachment A - Existing and Proposed Activities

Lake Lowery is a 900-acre lake surrounded by thousands of acres of wetlands and floodplains, including the large wetland associated with this project. The lake and associated wetlands are located in the Green Swamp Area of Critical State Concern and a headwater area for the Palatlahaha, Withlacoochee, and Peace basins. A little of the Lake Lowery Tract's northwestern portion is within the Withlacoochee basin (Figure C), but the designated mitigation area is within the Palatlahaha basin, a sub-basin of the Ocklawaha River Basin. The topography for the floodplain wetlands in the vicinity is relatively flat, which has resulted in flooding of homes, septic tanks, wells, and roads. In coordination and cooperation with the SJRWMD, Polk County initiated a priority of land acquisition in the area to minimize the threat of future residential development and associated impact and loss of native habitat, additional flooding, and the inherent water quality degradation caused by such land use conversion.

The wetland associated with the Lake Lowery Tract is high quality in terms of ecological functions and values. There is substantial species richness, diversity, and dense coverage. The majority of the marsh component is dominated by pickerelweed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), smartweed (*Polygonum* spp.), and a perimeter of sand cordgrass (*Spartina bakeri*). Other common species include arrowhead (*Sagittaria lancifolia*), spikerush (*Eleocharis baldwinii*), and bacopa (*Bacopa caroliniana*). There are scattered small pockets (various sizes of less than 30 ft. diameter to 1-2 acres) of sawgrass (*Cladium jamaicense*) and separate pockets of small Carolina willow (*Salix virginica*).

The forested wetland components have a diverse mix of cypress (*Taxodium distichum*) and hardwoods. The most dominant species in the canopy and sub-canopy include bays (*Persea palustris*, *Magnolia virginiana*), and tupelo (*Nyssa aquatica* var. *biflora*); less coverage is provided by red maple (*Acer rubrum*) and dahoon

holly (*Ilex cassine*). Due in part to high water conditions and shading, the understory varies in coverage but generally averages 30-60%. The dominant coverage is provided by ferns (*Woodwardia virginica*, *Thelypteris palustris*), and lizard's-tail (*Saururus cernuus*); duckweed (*Lemna* spp.) is common along the water surface.

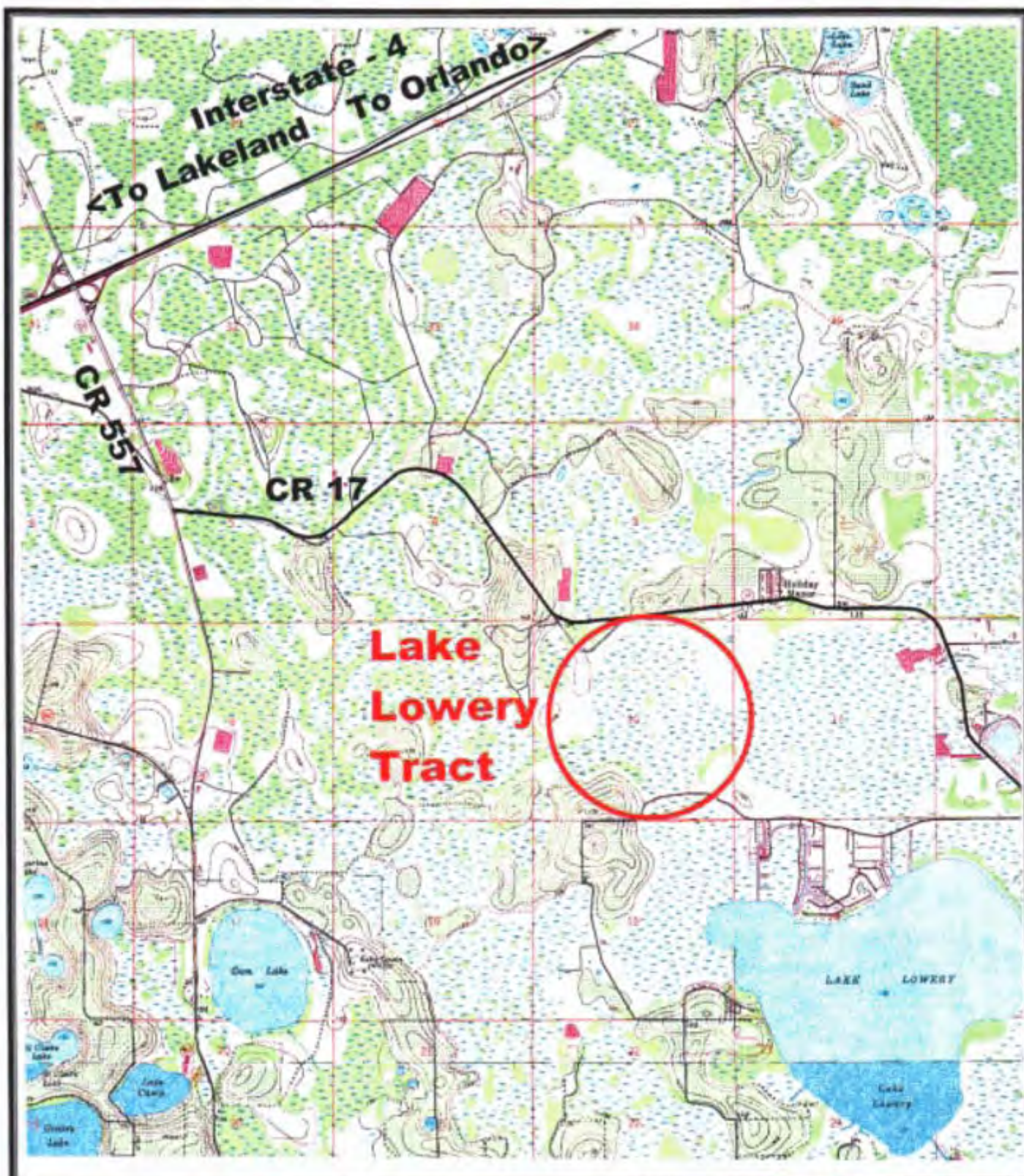
The adjacent upland buffers of the tract are not designated for DOT mitigation credit, and even though the acreage is minor, the buffers are important components of the acquisition toward maintaining appropriate functions and values of the wetland. The pine flatwoods along the western perimeter of the wetland include a dominance of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), fetterbush (*Lyonia ferruginea*), wax myrtle (*Myrica cerifera*), and scattered slash pine (*Pinus elliotii*). The upland buffers for the northern and eastern side of the marsh include a dominance of improved pasture with bahiagrass (*Paspalum notatum*) and scattered fennel (*Eupatorium capillifolium*), euthamia (*Euthamia* sp.), and blue maidencane (*Amphicarpum muhlenbergianum*). As the pasture and pine flatwoods transition into the wetland, various sedges (*Cyperus* spp.), broomsedge (*Andropogon glomeratus*, *A. virginicus*), and goldenrod (*Solidago* spp.) are present. The presence of dead fennel within the pasture buffer/wetland edge is due to high water conditions associated with the 2003 "El Nino" weather patterns.

Beyond periodic inspections and the potential of prescribed burns in the uplands, there are no maintenance or management activities currently proposed or adopted for the site. There are still some outparcels between the western boundary of the property and the FWC Hilochee Wildlife Management Area (refer to Figs. B & C). Polk County has considered restoring the pastures to upland habitat conditions. However, until if and when such time that hopefully the adjacent landowners are willing to sell their property to the County, attempting to restore the buffers is problematic. These remnant upland outparcels cannot be developed due to lack of access but cattle grazing operations can still be conducted. However, the limitation of potential upland restoration does not downgrade the habitat value of the tract or the buffers. Since it is unknown whether the buffers will be further enhanced and/or restored, that condition does not influence the mitigation credits since the designated mitigation area is within the wetland portion of the tract. The ecological "lift" and associated mitigation credit would be slightly increased with upland restoration activities. However, the ecological value and functions of the wetland and buffers under existing conditions are sufficient to compensate for the minor wetland impact acreage proposed for mitigation at the Lake Lowery Tract.

## **Attachment B - Mitigation and Ownership Issues**

As noted, the Lake Lowery Tract was a joint acquisition pursuit (50/50 split) with the SJRWMD and Polk County. The site was an undivided interest, and the SJRWMD received approval from the regulatory and commenting agencies to designate their 50% interest to also mitigate for DOT wetland impacts. As of the 2003 Legislative session, the area of the Palatlahaha basin within Polk County was transferred to the SWFWMD. This transfer included a wide range of issues, including permitting and the transfer of property holdings to the SWFWMD.



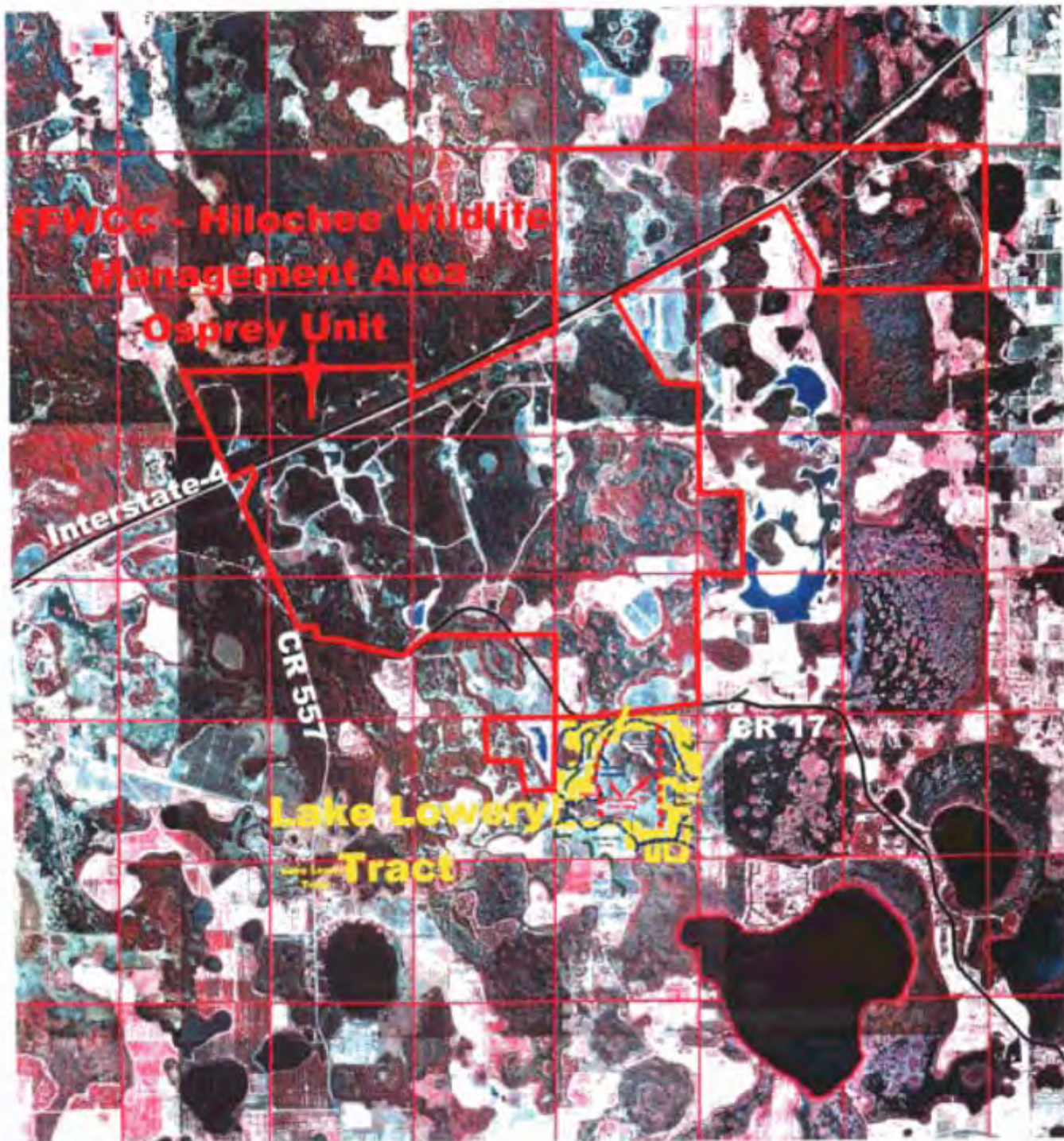


**FDOT – District 1  
MITIGATION SITE  
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT  
(SW 76)**

**FIGURE A - Location Map  
Scale 1.5 in. = 1 mile, ^North**



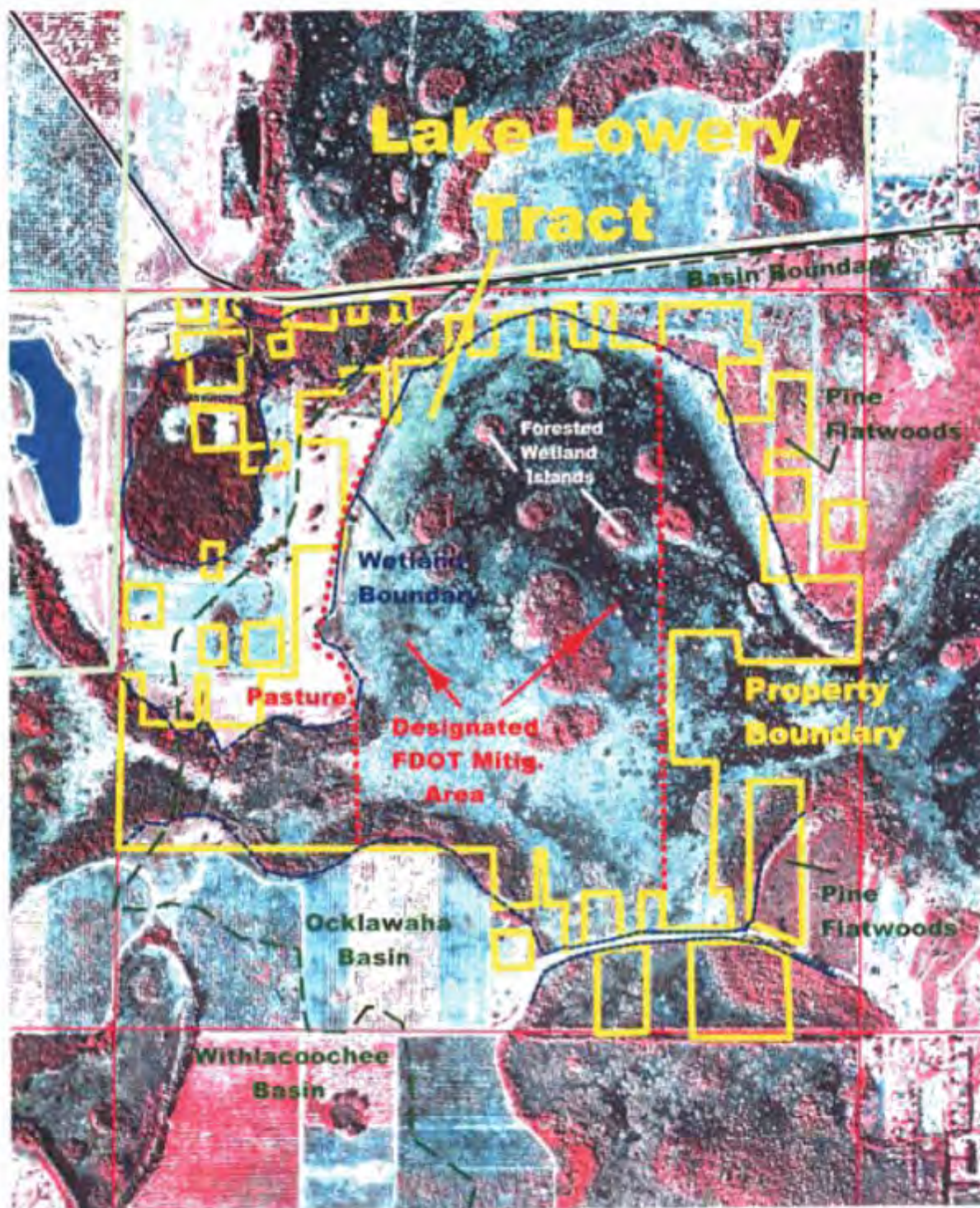


**FDOT - District 1  
MITIGATION SITE  
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT  
(SW 76)**

**FIGURE B - Adjacent Public Lands  
Scale 1 in. = 1 mile ^North**





FDOT – District 1  
MITIGATION SITE  
(Ocklawaha River Basin)

LAKE LOWERY TRACT  
(SW 76)

FIGURE C – Habitat  
Scale 1 in. = approx. 1080 ft.  
^North





*The majority of the tract is covered with a high quality marsh with a dominance of maidencane and sand cordgrass along the outer zone (foreground). Pickerelweed, smartweed, and maidencane dominate the interior, with scattered pockets of sawgrass, Carolina willow and forested wetland islands (background).*



*The forested wetlands are located along the southwestern portion of the property and islands within the marsh. Dominant overstory and sub-canopy is provided by sweet bay, swamp bay, tupelo, cypress, and red maple. Understory vegetation includes a dominance of lizard's-tail and various fern species.*

**FDOT – District 1  
MITIGATION SITE  
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT  
(SW 76)**





*Within the property boundary, the upland buffers (foreground) along the western and northern perimeters of the marsh (background) have a dominant cover of bahiagrass. Other species include broomsedge, euthamia, dog fennel, blue maidencane, and goldenrod. Scattered myrtles and live oaks are also present.*



*Within the property boundary, the upland buffers along the eastern and southeastern perimeter of the marsh are pine flatwoods that have dominant cover of saw palmetto, gallberry, fetterbush, wax myrtle and scattered slash pine. A forested perimeter dominated by cypress (background) is present along the marsh within the southeastern and southwestern portion of the property.*

**FDOT – District 1  
MITIGATION SITE  
(Ocklawaha River Basin)**

**LAKE LOWERY TRACT  
(SW 76)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: Conner Preserve

Project Number: SW 77

Project Manager: Mary Barnwell, SWFWMD Senior Land Management Specialist Phone No: (352) 796-7211, ext. 4475

County: Pasco

Location: Sec. 11,12,13,14, 22,23,24, T25S, R18E; Sec. 7,8,17,18,19,20, T25S, R19E

### IMPACT INFORMATION

(1) FM: 4037711, US 19 – Republic Dr. to CR 816 (Alderman)	ERP #: 44022085.001	COE #: NW 14PCN
(2) FM: 2571741, US 98 – Hernando Co. Line to US 19	ERP #: 4323430.000	COE #: 199803481 (IP-KF)
(3) FM: 2570501, SR 688 (Ulmerton) – Oakhurst to 119 <sup>th</sup> St.	ERP #: 44012347.010	COE #: 200204931 (NW 14)
(4) FM: 2563221, SR 52 – Moon Lake to Suncoast Parkway	ERP #: 43007396.001	COE #: SAJ-2002-6047 (IP-MN)
(5) FM: 2563321, SR 54 – Rowan Rd. to Mitchell Bypass	MSW #: 4011641.004	COE #: 199302010 (IP-ML)
(6) FM: 2568151, SR 586 (Curlew Rd.) – CR 1 to Fisher Rd.	ERP #: 44009837.008	COE #: 200205245 (NW)
(7) FM: 2571931, US 19 – CR 490 (Yulee) to CR 44	ERP #:	COE #:
(8) FM: 4089061, US 19 – 3 <sup>rd</sup> Ave. NE to NW 6 <sup>th</sup> Ave.	ERP #:	COE #:
(9) FM: 2750781, US 19 – Harry St. to Meres Blvd.	ERP #:	COE #:
(10) FM: 2563241, US 41 (SR 45) – Tower Rd. to Ridge Road	ERP #:	COE #:
(11) FM: 2572983, CR 578 (County L.R.) – East Rd. to Mariner	ERP #:	COE #:
(12) FM: 4050172, US 98 – CR 485 (Cobb) to CR 491 (Citrus)	ERP #:	COE #:
(13) FM: 2572992, CR 485 (Cobb) – SR 50 to US 98	ERP #:	COE #:
(14) FM: 2563371, SR 54 – Gunn Hwy. to Suncoast Parkway	ERP #:	COE #:
(15) FM: 2572985, CR 578 (County L.R.) – Suncoast to US 41	ERP #:	COE #:
(16) FM: 2563231, SR 52 – Suncoast Parkway to US 41	ERP #:	COE #:
(17) FM: 4113341, US 41 (SR 45) – Gowers Corner to CR 578	ERP #:	COE #:
(18) FM: 4058224, US 19 – Ft. Island Trail to NE 1 <sup>st</sup> Terrace	ERP #:	COE #:
(19) FM: 4058222, US 19 – Green Acres to Jump Court	ERP #:	COE #:
(20) FM: 2572982, CR 578 (County L.R.) – US 19 to East Rd.	ERP #:	COE #:

Drainage Basin: Upper Coastal (additional I-75 segments in the Hills. River Basin potentially added in 2005 and 2006)

Water Body(s): None

SWIM water body? N

#### Impact Acres /Types :

(1) FM 4037711 <u>0.1</u> ac. <u>618</u> (Fluccs)	(14) FM 2563371 <u>6.0</u> ac. <u>630</u> (Fluccs)
(2) FM 2571741 <u>1.4</u> ac. <u>621</u> (Fluccs)	(15) FM 2572985 <u>0.2</u> ac. <u>617</u> (Fluccs)
(3) FM 2570501 <u>0.2</u> ac. <u>630</u> (Fluccs)	(16) FM 2563231 <u>2.0</u> ac. <u>610</u> (Fluccs)
(4) FM 2563221 <u>3.2</u> ac. <u>617</u> (Fluccs)	<u>0.5</u> ac. <u>618</u>
<u>0.9</u> ac. <u>618</u>	<u>1.0</u> ac. <u>621</u>
<u>2.1</u> ac. <u>621</u>	<u>0.7</u> ac. <u>641</u>
<u>0.1</u> ac. <u>641x</u>	TOTAL 4.2 acres
TOTAL 6.3 acres	(17) FM 4113341 <u>0.5</u> ac. <u>641x</u> (Fluccs)
(5) FM 2563321 <u>0.1</u> ac. <u>671</u> (Fluccs)	(18) FM 4058224 <u>0.1</u> ac. <u>641x</u> (Fluccs)
<u>0.2</u> ac. <u>618</u>	(19) FM 4058222 <u>0.2</u> ac. <u>617</u> (Fluccs)
<u>3.3</u> ac. <u>641</u>	<u>0.01</u> ac. <u>621</u>
TOTAL 3.6 acres	<u>0.03</u> ac. <u>641</u>
(6) FM 2568151 <u>0.1</u> ac. <u>618</u> (Fluccs)	TOTAL 0.24 acres
(7) FM 2571931 <u>0.05</u> ac. <u>615</u> (Fluccs)	(20) FM 2572982 <u>5.5</u> ac. <u>641</u> (Fluccs)
<u>0.02</u> ac. <u>630</u>	
<u>0.02</u> ac. <u>641</u>	
TOTAL 0.09 acres	



(8) FM 4089061 0.2 ac. 615 (Fluccs)

(9) FM 2570781 0.1 ac. 618 (Fluccs)

(10) FM 2563241 1.8 ac. 610 (Fluccs)

5.2 ac. 621

2.0 ac. 640

0.2 ac. 641

TOTAL 9.2 acres

(11) FM 2572983 0.4 ac. 641 (Fluccs)

(12) FM 4050172 0.1 ac. 610 (Fluccs)

(13) FM 2572992 8.0 ac. 630 (Fluccs)

4.0 ac. 643

TOTAL 12.0 acres

**TOTAL – 50.53 acres**

#### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type:      Creation X Restoration X Enhancement      Preservation Mitigation Area: **2,980 Acres**

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y

Mitigation Bank? N Drainage Basin: Upper Coastal Hillsborough River Water Body(s): None SWIM water body? N

#### Project Description

**A. Overall project goal:** The Conner Preserve (2,980 acres) was acquired by the SWFWMD for public ownership at the end of 2003. The property represents diverse habitat conditions within a high priority public lands acquisition area since it's within a habitat core of surrounding public lands in central Pasco County (Figure A). The overall project goal includes enhancement of wetland and upland habitat. There are also several improved pasture islands surrounded by wetlands that will also be restored into appropriate upland habitat communities. Implementation of the enhancement and restoration plan (attachment) will provide inter-related ecosystem habitat improvements that will result in more beneficial opportunities for wildlife use.

**B. Brief description of current condition:** The Preserve consists of a mosaic of pine flatwoods, improved pasture, oak hammocks, sandhill, and wetlands (Figure B). Over half of the Preserve is composed of wetlands (1,630 acres). The non-forested wetlands (total 1,014 acres) include a range of habitat and hydrologic conditions varying from wet prairie (290 acres), shallow marshes (675 acres), and deeper emergent systems (49 acres). The forested component (616 acres) is primarily composed of cypress-dominated systems (521 acres) and the remaining are predominantly mixed cypress & hardwood communities. Many of the forested components are along the outer perimeters surrounding marsh habitat, as well as cypress strands and domes within the interior of many marshes. The wetlands are in moderate to high quality condition, and have adapted to varying hydrologic conditions. Hydroperiod fluctuations have varied due to rainfall conditions and groundwater influence from wellfields in the vicinity (Cross Bar, Cypress Creek). The only area where wetland functions have resulted in noticeable herbaceous vegetative shifts is within the most eastern portion of the site. As a result of a reduced hydroperiod, many of the emergent marshes within this area have transitioned to more ephemeral and wet prairie systems. From a landscape perspective, conversion of upland habitat to improved pastures and minimal land management practices of remaining native upland habitats have fragmented ecosystem conditions and the inter-relationship with adjacent wetland systems. The pasture conditions and previous cattle grazing practices have allowed non-native and exotic

species to encroach into the wetlands and uplands; particularly pasture grasses, soda apple, skunk vine, camphor trees, and Chinese tallow. Changes in fire intensity and fire intervals have also resulted in inappropriate density and diversity of vegetative species within the upland buffers adjacent to the wetlands. Particularly hardwoods and wax myrtles that have minimized appropriate ground cover vegetation, hindered wildlife access, limited foraging and nesting opportunities between the wetland and upland habitats, and impeded fire movement. Several wildlife species have been reported on the Preserve; the most notable observations include Florida scrub jay, bald eagle, Southeastern American kestrel, gopher frog, gopher tortoise, Sherman's fox squirrel, and several wading birds. Documentation of habitat and wildlife conditions is included in the attachment - Conner Preserve Restoration Plan.

- C. Brief description of proposed work:** Primary wetland enhancement will be achieved through eradication of exotic and nuisance species, some mechanical thinning and control of dense vegetative within the outer wetland fringes and upland buffers, and implementation of a prescribed burn program. Most of the exotic and nuisance species will be eradicated via herbicide control. The inappropriate density of hardwoods and myrtles within the wetland fringes and upland buffers will include an initial combination of mechanical thinning (hydro-ax) and implementation of the prescribed burn management program (3-5 year cycle), allowing regeneration of appropriate species. Prescribed fire applications at suitable intervals within the marshes will reduce and prevent encroachment of woody shrubs and trees (particularly exotic and nuisance species such as camphor and Chinese tallow), remove detritus, recycle nutrients, and stimulate the regeneration and recruitment of appropriate hydrophytic herbs. Secondary wetland enhancement will be conducted through enhancement and restoration of adjacent upland habitats. Monitor wells have been installed in wetlands to monitor hydrologic and hydroperiod conditions. This information is used to coordinate with pumping rates of adjacent well-field operators to ensure appropriate wetland hydrology is maintained at the Preserve. For upland habitat enhancement (1,046 acres), some mechanical and herbicide eradication of exotic and nuisance vegetation is necessary; particularly for weedy and/or exotic species such as bahia, persimmon, Chinese tallow, laurel oak, and wax myrtle that have encroached upon the pine flatwoods and sandhill communities. Additional enhancement will be achieved by implementing a prescribed burn program that will minimize the regeneration and recruitment of these undesirable species. There are five upland island pastures (total, 304 acres) that will be restored to their historic habitat conditions of pine flatwoods and sandhill (refer to Figures 3B, 6-10). Restoration of these upland areas include a series of initial burns, herbicide application and disking to eradicate the pasture grasses, direct seeding from WMD-donor sites, and supplemental planting of appropriate desirable species such as longleaf pine, oaks, tarflower, rusty lyonia, staggerbush, and ericaceous shrubs. Due to the availability of donor seed source material and time lag necessary to implement each phase of the restoration activities associated with the upland habitats, each of the five restored uplands have different schedules of when implementation will be conducted (refer to Table 1). The restored uplands will be perpetually maintained with a prescribed fire application. Additional details on the habitat enhancement and restoration activities are included in the attached Restoration Plan. The FDOT mitigation activities and associated maintenance and management funding will be implemented over a 10-year period after the initial implementation, followed by perpetual management by the SWFWMD. Adjacent to the Conner Preserve there are two tracts totaling 560-acres of proposed wetland and upland habitat improvements (Figure B). These improvements are being conducted for mitigation credit associated with construction-related habitat impacts proposed from the residential development (Connerton) located south of the Conner Preserve. After these two mitigation tracts achieve success criteria stipulated in their permits, these mitigation areas will be transferred and perpetually maintained by the SWFWMD.



- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The Preserve has land within the Hillsborough River Basin (876-acres) and the Upper Coastal Basin (2,104-acres). As of the 2004 mitigation plan, there are 21 roadway projects with a conservative estimate of 51-acres of wetland impacts within the Upper Coastal basin designated for mitigation at the Preserve. These are very conservative impacts that are anticipated to decrease to 30-35 acres as the roadway projects proceed into the design and permitting phase. The majority of these impacts are associated with roadway projects within a 5-mile radius of the Preserve, and the project with the highest anticipated impact (US 41-Tower to Ridge Road, 9 impact acres) is located along the west side of the Preserve. The majority of the proposed impacts are associated with marsh and cypress-dominated wetland systems, which closely resemble the wetland ecosystems within the Conner Preserve. There are segments of Interstate-75 improvements in northern Hillsborough and Pasco Counties that are located in the Hillsborough River basin (refer to FDOT mitigation plan, Table 1). As of 2004, the conceptual wetland impacts (20 acres) associated with those I-75 segments are being evaluated to potentially mitigate within the Hillsborough basin portion of the Preserve, and associated habitat improvements will potentially be nominated for mitigating some of these impacts within 2005 and 2006. The Preserve hasn't been proposed to mitigate for these impacts in 2004 in order to provide additional time to potentially locate and evaluate other mitigation options in the Hillsborough basin. In addition, it may be possible that a portion of the designated long-range roadway projects' impacts in the Upper Coastal basin may be proposed to transfer to another mitigation option other than the Preserve if such option(s) are deemed more ecologically beneficial. As noted on Figure 2, there are several proposed critical corridors of wildlife habitat being evaluated and pursued for acquisition and enhancement by a few land acquisition agencies and potentially private mitigation bankers. If such option(s) become available for potential nomination and are within adequate project schedules for FDOT, the WMD may provide the transfer nomination request to the multi-agency mitigation review group for review and approval prior to official adoption.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** As of 2004, there are no existing or proposed mitigation banks in the Upper Coastal or Hillsborough River Basins.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** There no SWIM projects in the Upper Coastal or Hillsborough Basins that are either not already constructed or appropriate for mitigation credit.

#### **MITIGATION PROJECT IMPLEMENTATION**

Entity responsible for construction: SWFWMD- LAND Dept. or designee

Contact-Name: Mary Barnwell, Senior Land Management Specialist Phone Number: (352) 796-7211, ext. 4475

Entity responsible for monitoring and maintenance: SWFWMD-LAND Dept. or designee

Proposed timeframe for implementation: Commence: Acquisition – end of 2003, Restoration Design – 2004, Restoration Activities, 2005-2012, Maintenance & Monitoring to achieve success criteria for the entire site 2005-2015, followed by perpetual land management activities by the WMD.

Complete: Maintenance & monitoring complete by 2015 or until success criteria is met for all the sites, followed by perpetual maintenance & management activities

Project cost: TOTAL \$ 2,000,000

Habitat Restoration & Maintenance Activities - \$1,700,000 (refer to Restoration Plan)

Administrative Costs (Management Activities, Salaries, Equipment, etc.—FY2005 to FY2015) - \$300,000

## Attachments

X 1. Detailed description of existing site and proposed work. Refer to previous text; additional habitat and wildlife information, and proposed work activities included in the attached Conner Preserve Restoration Plan.

X 2. Recent aerial photograph with date and scale. Figure 3B - 1999 infrared aerial, Restoration Plan.

X 3. Location map and design drawings of existing and proposed conditions. Figures 1 & 2 – Location & Corridor Maps, Figures 3 & 3B - Existing Conditions & Restoration Plan, Figure 4- Land Cover Map, Figure 5 – Soils Map, Figures 6-10 – Upland Restoration Sites.

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous discussion and the Restoration Plan, including Tables 1-3 – Projected & Detailed Task Schedules & Activities. The project's restoration plan was conducted in 2004 (attached), and implementation is scheduled to commence in FY2005. Since the upland restoration areas have to be gradually implemented, final field activities are scheduled for completion in 2012 with success criteria expected to be achieved gradually for the entire site by 2015. After the mitigation has been deemed to meet success criteria, the tract will be rotated within the normal SWFWMD land management program funds for perpetual management.

X 5. Proposed success criteria and associated monitoring plan. Refer to the Restoration Plan for the success criteria and monitoring plan. The monitoring plan includes qualitative and quantitative evaluation of wildlife, vegetative, and habitat conditions. Monitoring will be conducted semi-annually with annual monitoring reports. Success criteria will include (1) achieving and maintaining bahiagrass cover to below 20% cover, (2) obtain greater than 80% cover by desirable sandhill and flatwood species within 4 years after initial eradication, (3) to successfully implement prescribed fires through the site within 5 years, (4) and to achieve and maintain less than 2% cover of exotic and nuisance species coverage in the wetlands.

X 6. Long term maintenance plan. Refer to the Restoration Plan for the maintenance plan. After initial eradication of exotic and nuisance species, the maintenance and land management activities will be implemented as necessary to achieve and maintain success criteria.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion.



# **Conner Preserve Restoration Plan**



**Southwest Florida Water Management District  
Land Management Section  
August 2004**

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## **INTRODUCTION**

The District purchased the 2,980 Conner Preserve (Preserve), a key parcel in the Pasco I Save Our Rivers/Forever Florida project, in 2003. It is located in central Pasco County approximately 7 miles north of Land O' Lakes, Florida, and is bordered by U.S. Highway 41 to the west, and State Road 52 to the north (Figure 1). The Preserve is a key link in a proposed wildlife habitat corridor connecting the 18,240-acre Starkey Wilderness Park to the west and the 7,460-acre Cypress Creek Wellfield to the east (Figures 2). Natural systems restoration and land management activities proposed in this plan will increase the value and functionality of the Preserve as both core habitat and as a potential linkage between Starkey Wilderness Park and the Cypress Creek Wellfield. This will be accomplished through enhancement of existing wetland habitat and restoration and enhancement of upland habitat adjacent to the wetlands.

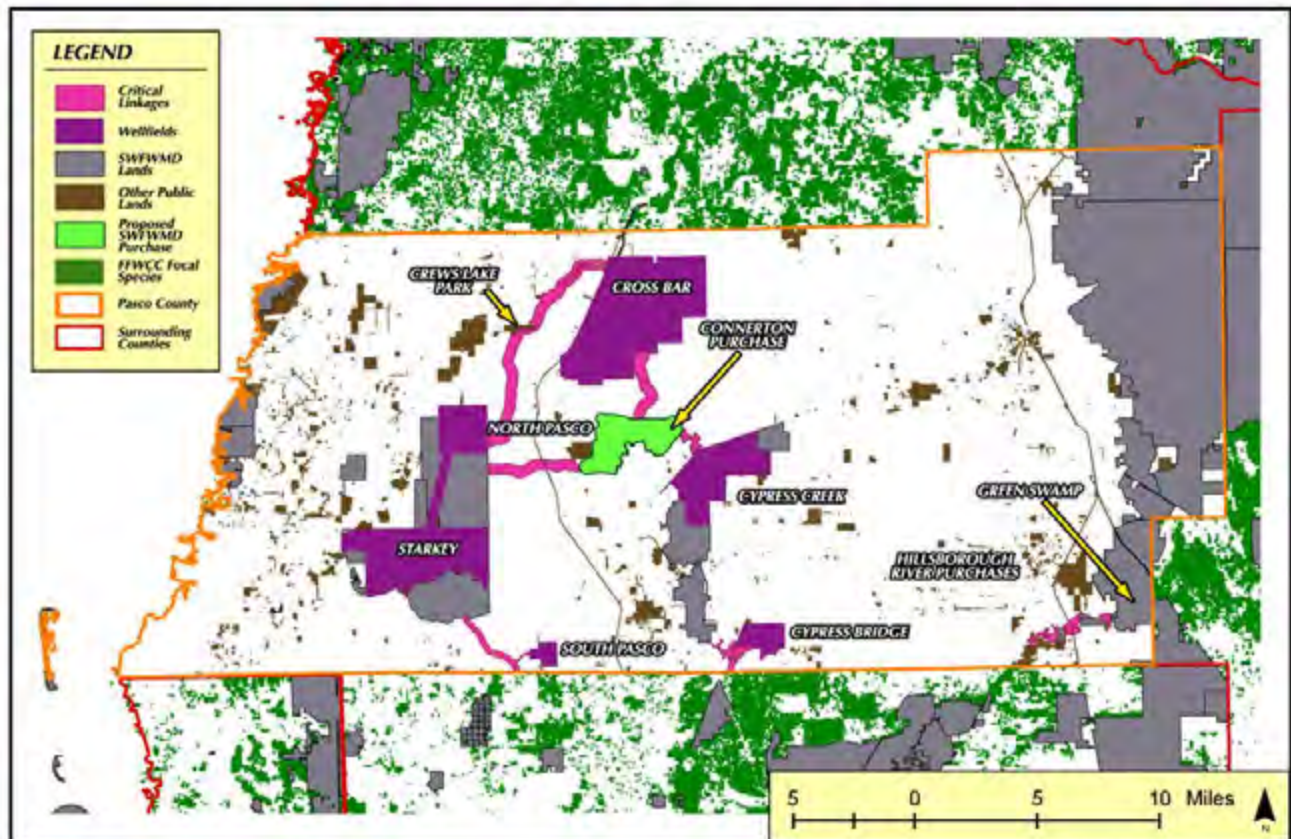
Restoration of SWFWMD lands is guided by Board Procedure 61-10 Natural Systems Restoration. This document states that the restoration and maintenance of the natural state and function of all communities making up an ecosystem is the goal of the District's management efforts. The natural successional process and reinstatement of dynamic disturbance processes is recognized as the most environmentally acceptable means of restoration of an altered community. However, when warranted, active intervention shall be employed within the District's management approach as a means of restoration; active intervention may be undertaken to either reestablish an important natural element, function or process which has been removed from the system, or to remove an element, function or process which is not a natural part of the system. When active intervention is considered warranted, only the most cost-effective methods available that will achieve the project goals will be utilized. Priority for allocation of restoration funds and resources shall be given to those communities where intervention will achieve the greatest ecological benefits.

The altered sites on the Preserve have been evaluated pursuant to Board Procedure 61-10 and due to the extent and location of alterations, natural communities and species involved, and the extent of exotics species infestation, the project sites are ranked as high priorities for restoration.

Figure 1. Conner Preserve Location Map







Source: Glatting Jackson and Pasco County



*Pasco County, Florida*

**Figure 7**  
Critical Linkages (Corridors) of Wildlife Habitat  
Between Existing Public Lands

**Figure 2. Conner Preserve. Wildlife corridor link between Starkey Wilderness Park and Cypress Creek.**

Excerpted from: \*\*Glatting Jackson. 2002. Pasco County Assessment of Measures to Protect Wildlife Habitat in Pasco County. Submitted to Pasco County.

The Conner Preserve consists of a mosaic of pine flatwoods, improved pasture, oak hammock, longleaf pine/turkey oak sandhill, marshes and wet prairies, and cypress ponds. From a landscape perspective, pasture conversion resulted in fragmentation of the forest and the loss of pine flatwoods and globally imperiled longleaf pine/turkey oak sandhill vegetation and associated fauna. The removal of the forest vegetation also impacted the on-site wetlands, exposing them to detrimental edge effects which may include soil erosion and soil moisture loss, exotic plant encroachment, increased predation rates, changes in fire intensity and fire intervals, and species composition changes.

Restoration and enhancement activities proposed for the Preserve have been nominated for designated mitigation credit to compensate for future wetland impacts associated with proposed

Florida Department of Transportation (FDOT) roadway improvement projects. This mitigation nomination will be further reviewed for multi-agency approval during Summer 2004 and for District Governing Board approval in October 2004.

To date, there are approximately 20-30 individual FDOT projects proposed for mitigation at the Preserve, with a total of 30-50 acres of anticipated wetland impacts associated with these projects. The majority of these wetland impacts will include cypress and marsh systems associated with widening SR 52 and US 41 within close proximity to the Preserve. The anticipated FDOT impacts will be revised as roadway projects proceed to design and permitting phases. Based on functional assessment of the wetland impacts and associated mitigation credit designated from activities proposed at Conner Preserve and other future FDOT mitigation opportunities in the Upper Coastal and Hillsborough Basins, there may be additional future roadway projects and wetland impacts proposed to be mitigated at Conner Preserve.

Restoration and enhancement anticipated at the Preserve for FDOT mitigation credit include wetland enhancement (1,630 acres), upland habitat enhancement (1,046 acres), and upland habitat restoration (304 acres) (Figure 3). These improvements will include eradicating exotic and nuisance vegetative species within the wetlands and uplands, restoring upland native habitat on the improved pastures, and implementing land management activities to restore, enhance and maintain appropriate ecosystem composition, function and biological diversity on the Preserve.

## **SITE DESCRIPTION**

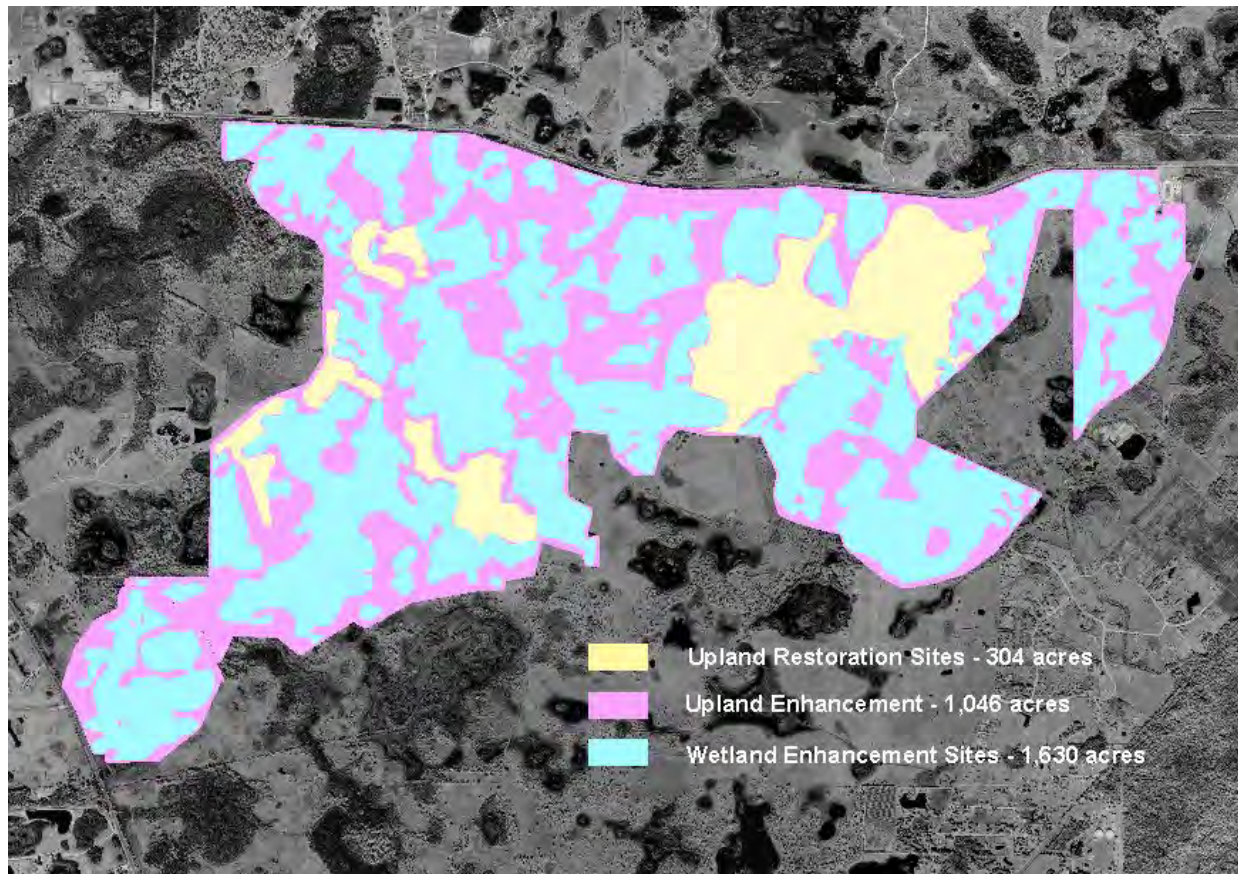
### **Land Uses – Past & Future**

Former land uses on the Preserve include cattle grazing, logging, and hunting. The general condition of the property is good. Though nearly 22% of native upland communities were converted to bahia pasture, most of the wetlands were only minimally altered and most of the adjacent uplands were left intact. Relative to surrounding agricultural lands, the Preserve is structurally diverse and compositionally complex. It is anticipated that revenue-generating uses such as cattle grazing and silviculture will not be continued on the Preserve. Tree removal will only be conducted for restoration purposes (hardwood reduction), and for conversion of planted pine stands back to natural species and densities. Hunting is not proposed on the property at this time, but the District may explore opportunities for low intensity special hunts to control feral hog populations. Passive recreational uses such as including hiking, horseback riding, bird watching, fishing, and picnicking will also be allowed on the Preserve. Other compatible uses may be evaluated and implemented during the development of a management plan for the property.

### **Vegetation Communities**

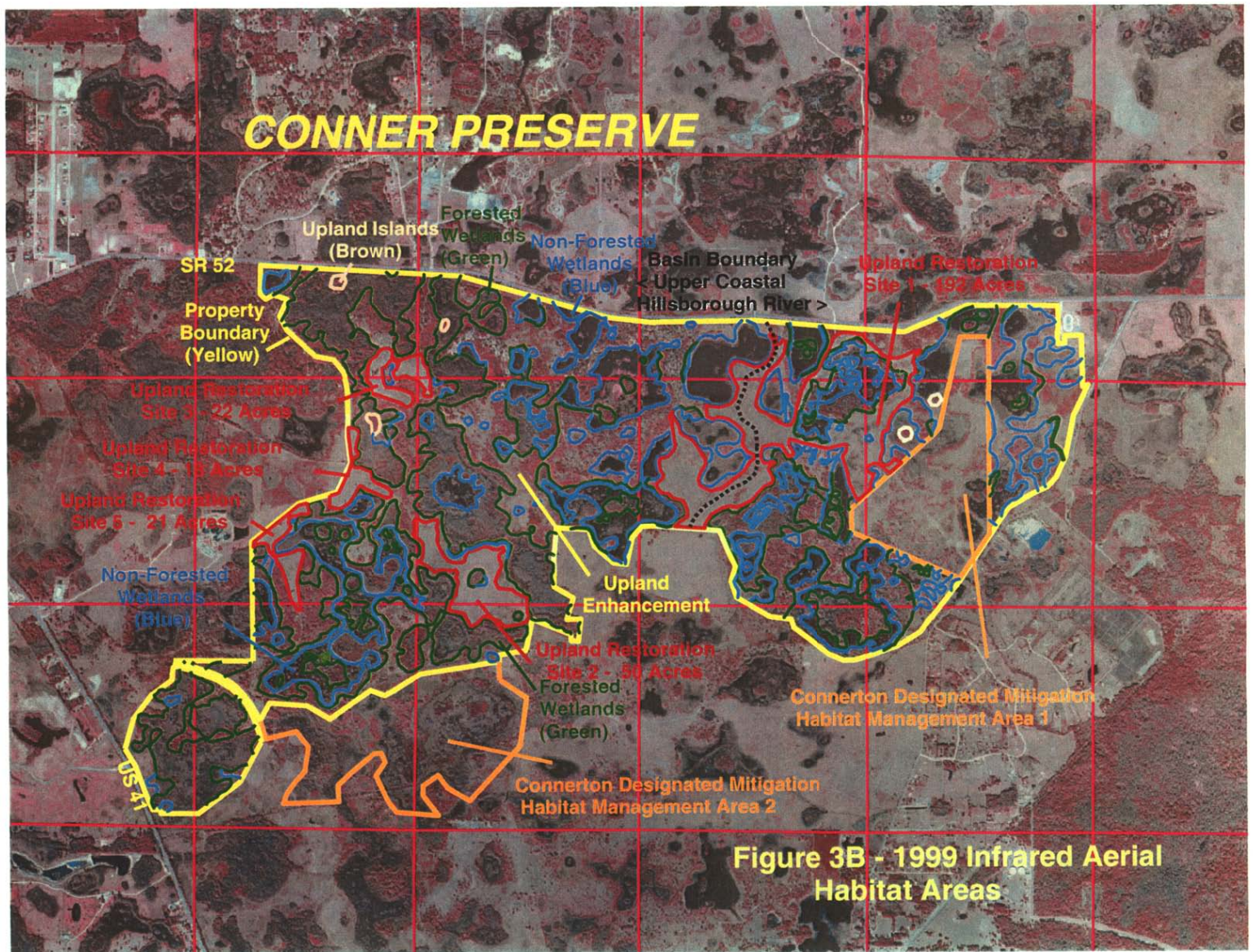
Dominant natural communities present on the Conner Preserve include pine flatwoods, longleaf pine/turkey-oak sandhill, freshwater marsh, wet prairie, and cypress ponds (Figure 4). Bahia pasture was created mostly on the larger contiguous uplands within a matrix of natural communities. Bahia grass was inter-seeded in some of these communities, but the native vegetation was left intact. Wetland communities are in generally good condition, with only minor physical alterations observed. Each of these communities is described below.





**Figure 3. Conner Preserve. Upland restoration and enhancement sites.**





**Figure 3B - 1999 Infrared Aerial  
Habitat Areas**



Pine flatwoods – The intact pine flatwoods generally occur along the transitional zones between wetlands and bahia pasture. These systems are in fair condition, with uneven aged pine stands and a midstory of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), staggerbush (*Lyonia fruticosa*), highbush blueberry (*Vaccinium corymbosum*), and St. John's wort (*Hypericum fasciculatum*). In the drier scrubby flatwoods, saw palmetto, sand live oak (*Quercus geminata*) and runner oak (*Quercus pumila*) are more prevalent than gallberry. The understory has been suppressed to varying degrees by fire exclusion. The re-introduction of regular growing season burns should reduce the woody shrubs and increase the abundance of herbaceous groundcover.

Longleaf-pine/turkey-oak sandhill – The longleaf pine/turkey-oak sandhills occur along the high ridges on the Preserve. Turkey oaks (*Quercus laevis*), sand live oaks (*Quercus geminata*) and laurel oaks (*Quercus hemisphaerica*) have obtained heights of 30-60 feet, and the characteristic groundcover has declined due to low fire intensities (or fire suppression) and shading from the hardwood understory. Although bahia grass was inter-seeded within the sandhill vegetation, a diversity of sandhill species are still present, including wiregrass (*Aristida beyrichiana*), beaked panicum (*Panicum anceps*), Florida paspalum (*Paspalum floridanum*), low panicums (*Dicanthelium* spp.), splitbeard bluestem (*Andropogon ternarius*), tread-softly (*Cnidocolus stimulosus*), elephant's-foot (*Elephantopus elatus*), reticulate pawpaw (*Asimina reticulata*), narrow-leaf pawpaw (*Asimina augustifolia*) and bracken fern (*Pteridium aquilinum*). The re-introduction of growing season fire and mechanical treatments to reduce hardwoods should increase the herbaceous component of the sandhill communities. Bahia grass may be selectively treated with herbicide in these areas.

Freshwater marshes and sloughs – There are several large freshwater marshes interspersed among the uplands. These systems exhibit dominance by maidencane (*Panicum hemitomon*) in the larger marshes, and soft rush (*Juncus effusus*) in the smaller isolated wetlands. Cypress trees (*Taxodium distichum*) rim many of these systems. In wetlands that have burned recently, as evidenced by fireflow scars and dead cypress trees, the species diversity appears higher, with more open water habitat, and the presence of species such as pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), pond flag (*Thalia geniculata*), and water lilies (*Nymphaea* sp.). The re-introduction of fire will benefit the marshes by removing detritus, recycling nutrients, and stimulating the re-growth of wetland plants. Many of the herbaceous wetlands are sloughs, providing flow ways between the cypress ponds for water during periods of prolonged rainfall. Chinese tallow tree (*Sapium sebiferum*), a Category I species on the Florida Exotic Pest Plant Council's list, is present in some of these wetlands (Florida EPPC 2004).

Wet prairies – Wet prairies occur in association with the marshes, either along the fringes of the wetlands or as extensions off of them, sometimes functioning as sloughs. Characteristic vegetation in the wet prairie ecosystems on the Preserve include maidencane (*Panicum hemitomon*), blue maidencane (*Amphicarpum muhlenbergia*), meadow beauty (*Rhexia mariana*), white-topped sedge (*Dichromena* sp.), spikerush (*Eleocharis* sp.), bog batchelor's button (*Polygala lutea*), yellow-eyed grass (*Xyris* spp.), sundews (*Drosera rotundifolia*), bog buttons (*Lachnocaulon* spp.) and St. John's-wort (*Hypericum fasciculatum*). There are no apparent physical alterations that contribute to any significant degradation of these systems. Feral hogs have been maintained at low population levels, probably due to hunting pressure, and no ditching or draining of wetlands was conducted. Prescribed fire applications at suitable intervals will prevent encroachment of woody shrubs and trees, and stimulate flowering and proliferation of herbaceous species.

Forested Wetlands – Cypress ponds are the most dominant forested wetlands on the property, closely associated with the marshes and wet prairies. Additionally, there are a few swamps

dominated by sweet bays (*Magnolia virginiana*) and a few characterized as mixed hardwood-cypress, supporting cypress (*Taxodium distichum*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), blackgum (*Nyssa sylvatica*), sweetbay (*Magnolia virginica*), and various oak species (*Quercus* spp.). All these wetlands are in relatively good shape, although the old-growth cypress was harvested and there are some indications of reduced hydroperiods and minor dredging and backfilling evident in a few systems.

### Soils

Figure 5 illustrates the soils found on the Preserve. The dominant soils include Sellers mucky loamy fine sands and Samsula muck in the wetlands, and Basinger fine sands and Paola fine sands in the uplands (National Cooperative Soil Survey 1982). More detail is provided on soils specific to restoration sites in the *Restoration Plan* section.

### Wildlife

The Florida Fish and Wildlife Conservation Commission designated undeveloped northwest Pasco County as potentially important habitat for wildlife associated with pineland, dry prairie, wetlands, and rangeland (Cox et al. 1994). This region is designated as a Strategic Habitat Conservation Area for rare wading birds, short-tailed hawk (*Buteo brachyurus*), and Florida sandhill crane (*Grus Canadensis pratensis*) (Cox et al. 1994). Wildlife species documented in the area, as reported by field notes of District staff and by the Connerton ERP permit application documents, are included in Appendix A (Biological Research Associates 2004).

The assemblage of fauna that characterizes healthy, intact pine flatwood, sandhill and xeric oak scrub communities has undoubtedly declined. Due to the loss of significant forest habitat, populations of red-cockaded woodpeckers (*Picoides borealis*), red-headed woodpeckers (*Melanerpes erythrocephalus*), Florida scrub-jay (*Aphelocoma coerulescens*), Sherman's fox squirrel (*Sciurus niger*), brown-headed nuthatch (*Sitta pusilla*) and other habitat-specific species appear to have been extirpated or have declined significantly throughout the region.

Three Florida scrub-jay groups were documented on the Conner Ranch (which includes the Preserve, proposed Connerton development, and the two Habitat Mitigation Areas) by Biological Research Associates (BRA) in 2001. One of the groups was within the area proposed for development (south of the Preserve), one was located in Habitat Mitigation Area I (directly east of the preserve lands), and one was located on the area now designated the Conner Preserve. A follow-up survey conducted by BRA in 2002 detected only the jays on the District's Conner Preserve property.

To ensure compliance with state and federal laws and regulations, Terrabrook Development Inc. set-aside approximately 515 acres in two sites for mitigation. Habitat Management Area I (236 acres) was set aside to mitigate for incidental take of two protected species - the Florida scrub-jay and the gopher tortoise. Habitat Management Area II (279 acres) is mitigation for wetland impacts associated with the development. Terrabrook will convey a conservation easement to the District for the two mitigation areas until mitigation requirements are met, and then will either sell or donate them to the District to be appended to the Conner Preserve. Within Habitat Management Area 1, the USFWS required Terrabrook to install 12,000 scrub oaks to compensate for habitat loss to scrub-jays due to proposed development. According to BRA personnel, planting has been completed, but survival rates for these plantings are unknown (Denton pers. comm.). Additionally, TerraBrook has indicated that two small parcels totaling 41-acres may be set aside for additional mitigation requirements.



Gopher tortoises (*Gopherus polyphemus*), a state-listed species of special concern, also occur on the tract, and their burrows may continue to provide habitat for several commensal species, including gopher frog (*Rana capito*), eastern coachwhip (*Masticophis flagellum flagellum*), eastern diamondback rattlesnake (*Crotalus adamanteus*), and eastern indigo snake (*Drymarchon corais couperi*).

The numerous wetlands on the Preserve continue to provide high quality habitat for a variety of wading birds. Species documented utilizing these wetlands include great egret (*Casmerodius albus*), great blue heron (*Ardea herodias*), wood stork (*Mycteria americana*), white ibis (*Eudocimus albus*), and sandhill crane (*Grus canadensis pratensis*). Other species expected to occur are little blue heron (*Egretta caerulea*), green-backed heron (*Butorides virescens*), snowy egret (*Egretta thula*), glossy ibis (*Plegadis falcinellus*), and least bittern (*Ixobrychus exilis*). Many of the herbaceous wetlands provide both suitable nesting and foraging habitat for Florida sandhill cranes. The *Florida Atlas of Breeding Sites for Herons and their Allies: 1986-1989 Update* (FGFWFC 1991) documents 9 rookeries located within 10 miles of the property. Restoration and enhancement activities will substantially improve habitat quality for the suite of wildlife species that occur on the Preserve or on adjacent land proposed for development.

### **Exotic Species**

Control of invasive exotic vegetation is currently, and will continue to be, an ongoing maintenance activity on the Preserve. Exotic plant species observed on the property include skunk vine (*Paderia foetida*), cogongrass (*Imperata cylindrica*), Chinese tallow (*Sapium sebiferum*), camphor tree (*Cinnamomum camphora*) and tropical soda apple (*Solanum viarum*). The most problematic plant at this time is Chinese tallow, which is well-established in the marshes and forested swamps, and occurs as landscape specimens at private residences adjoining the Preserve. A monoculture of bahia grass (*Paspalum notatum*) has replaced the groundcover vegetation typically associated with flatwoods and sandhill. As a component of the upland restoration activities, aggressive management actions will be undertaken to eradicate bahia grass and to maintain it at levels below 10% or less of the total cover. Several other exotic plants are found on the property, including smutgrass (*Sporobolus indicus*), torpedo grass (*Panicum repens*), and natalgrass (*Rhynchrlytrum repens*), and treatment of these species will vary depending on their impact to natural systems and restoration efforts.

Exotic and non-endemic wildlife also occur on the Preserve, but control practices for most of these species have not yet been adopted by land managers due to scarcity of information about their impacts and effective eradication techniques, logistical complexities, and associated costs. Feral hogs and armadillos are present on the property, but physical damage due to these species appear to be minimal at this time, possibly due to hunting pressure imposed on them by the previous landowner. District Land Management staff routinely assesses damage due to feral hogs, and dispatches trappers to capture and remove hogs when damage becomes unacceptable. Coyotes (*Canis latrans*) are known to occur throughout the area; in fact, in some regions of Pasco County this canine has become a nuisance for both cattle ranchers and pet owners. Both the cattle egret (*Bubulcus ibis*) and the greenhouse frog (*Eleutherodactylus planirostris*) have been confirmed on the property (BRA 2004). Other non-endemic wildlife species that potentially occur on the property include the following: marine toad (*Bufo marinus*), Cuban treefrog (*Osteopilus septentrionalis*), and Cuban brown anole (*Anolis segrei segrei*).

### **Fire Management**

The restoration and long-term maintenance of historic fire patterns – both seasonality and fire return intervals - will be an integral component of the restoration effort on the Conner Preserve.

Prescribed fire is one of the primary tools utilized by public land managers in Florida to maintain the health and character of natural systems. Fire, a naturally occurring process in the Florida landscape, maintains the unique structure and composition of vegetation communities; improves wildlife habitat; induces flowering, seeding, and germination of native plants; contributes to the recovery of threatened and endangered species; and prevents the accumulation of heavy fuel loads and subsequent catastrophic wildfires (US Forest Service 1978). Historically, range managers and forestry personnel have burned during the dormant season (winter) in order to safely and economically generate tender forage for cattle and to reduce competition for pine trees, respectively. However, it is in the spring and summer when fires naturally occurred, and duplication of seasonal fire patterns is now the preferred management strategy by most agencies. Although growing season fire will be utilized whenever feasible to promote maintenance and recovery of natural communities, dormant season burns may also be conducted to achieve management objectives.

There are approximately 460 acres of pine flatwoods and scrubby pine flatwoods occurring on the Conner Preserve. These communities are characterized by a slash pine/longleaf pine canopy exceeding 1 tree per acre, and a shrub component consisting of saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), and wiregrass (*Aristida beyrichiana*) for the former, and scrubby oaks for the latter. Flatwoods burn frequently, with fire return intervals of 3 – 7 years (FNAI 1997; Myers 1986).

Pines are fire-adapted species whose seeds require fire disturbance to germinate, and are characterized by long needles that protect the buds and thick insulating bark that protects the cambium tissue (Robbins and Myers 1992). Saw palmetto, which is important as a source of food and cover for wildlife, has thick scaly rhizomes that protect the meristemic tissues from fire and re-sprouts vigorously almost immediately after fire (Robbins and Myers 1992). Wiregrass, which is one of the most important fire fuels in the flatwoods community (along with muhley grass (*Muhlenbergia capillaris*) and pinewoods dropseed (*Sporobulus junceus*)), must experience growing season fire in order to flower and produce viable seed (Robbins and Myers 1992; Bissett 1998; FNAI 1998).

There are approximately 110 acres of historic longleaf pine/turkey oak sandhill on the Conner Preserve, and most of this acreage has suffered from either clearing or exclusion of growing season fire. Sandhill fires occur frequently as low intensity ground fires, with fire return intervals ranging from 1 – 7 years (FNAI 1997; Myers 1986). This community type can best be described as a grassland dominated by species such as wiregrass (*Aristida beyrichiana*), pinewoods dropseed (*Sporobulus junceus*), native crabgrass (*Digiteria* spp.), little bluestem (*Schizachyrium scoparium*) and broomsedge (*Andropogon* spp.), with a sparse canopy of longleaf pine (Myers 1986). As previously discussed, wiregrass requires growing season burns in order to produce viable seeds. Longleaf pine (*Pinus palustris*) is also fire-dependent – it remains in a grass stage, with its terminal bud protected by a thick sheath of longleaf needles up to 18 inches long - until exposed to fire (Robbins and Myers 1992). Once exposed to fire, the pine tree rapidly gains height, sometimes several feet per year, to protect it from the next fire event (Robbins and Myers 1992).

There are approximately 960 acres of depression marsh and wet prairie on the Preserve; these wetland systems provide foraging habitat for wading birds and breeding habitat for amphibians. Average fire return intervals for marshes range from 2-25 years, with fire maintaining the emergent vegetation which characterizes these systems, such as pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria* sp.), fire flag (*Thalia geniculata*), and sawgrass (*Cladium jamaicense*) ((FNAI 1997; Myers and Ewell 1990). Spring burns, conducted when water levels are below the ground surface or have receded significantly into the interior of the wetland, are usually required to reduce hardwood encroachment and burn out organic deposits, although sawgrass is susceptible to drought season burns and also rapid flooding after a burn. Colonization of the marshes and prairies



by trees and shrubs, such as willows (*Salix* sp.), wax myrtle (*Myrica cerifera*), and red maple (*Acer rubrum*), is prevented by frequent fire application (Robbins and Myers 1992).

Florida's vegetation communities have evolved with fire, and similarly, many of the wildlife species that co-evolved in these landscapes require fire for their continued existence and maintenance of healthy populations. The Conner Preserve provides habitat for a suite of rare and/or declining species that are dependent on regular disturbance by fire. These species include gopher tortoise, Florida gopher frog, several woodpecker species, bobwhite quail, southeastern American kestrel, Florida sandhill crane, Florida scrub-jay, and Sherman's fox squirrel. Fire improves forage quality of grasses and herbs, increasing the nutrient value of these food sources, promotes the production of mast and berries, and cleans out thick dense undergrowth to facilitate wildlife movement (Robbins and Myers 1992). It facilitates the seeding and germination of southern yellow pine species, and controls forest diseases (Robbins and Myers 1992). Fire also generates snags and stump holes, therefore providing structural habitat for a variety of species. Over 25 bird species that potentially inhabit the Preserve utilize cavities created in dead trees. So do mammals such as the eastern flying squirrel and weasels. Once the tree decays and falls, the deadwood on the ground is utilized as cover by various snakes, lizards, treefrogs, and mammals. Burned out stump holes are important components of eastern indigo snake habitat. Wading birds benefit from early growing season fire, which reduces encroachment of woody species into the marsh, maintains healthy ecotones between the uplands and wetlands, and recycles nutrients, increasing productivity of the wetland ecosystem (Robbins and Myers 1992)

All natural communities will be managed primarily with growing season fire, as feasible. The uplands targeted to be restored will be integrated into the burn cycles of the surrounding landscape when native species are dominant and bahia grass cover is minimal.

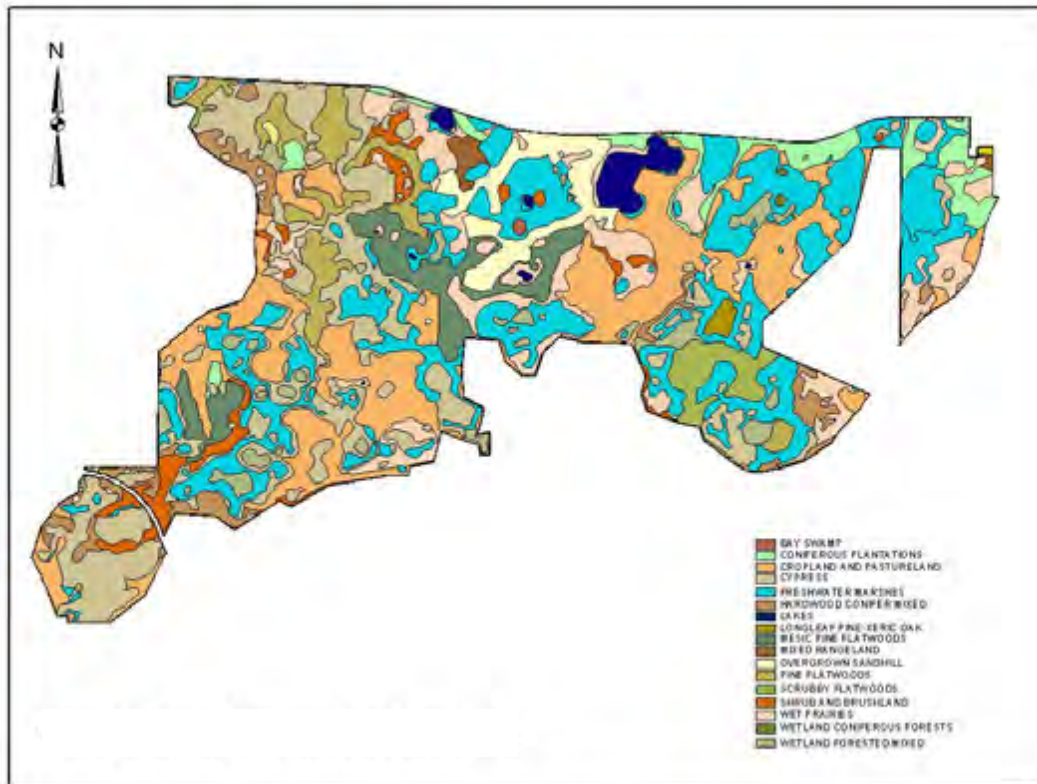


Figure 4. Conner Preserve Land Cover Map.



Figure 4 (Cont.). Conner Preserve Land Cover Classification Acreage By ERP Watershed Basin			
DRNBASIN	FLUCCSCODE	FLUCDESC	Sum_Acres
HILLSBOROUGH RIVER BASIN	1800	RECREATIONAL	1.55
HILLSBOROUGH RIVER BASIN	2100	CROPLAND AND PASTURELAND	149.02
HILLSBOROUGH RIVER BASIN	2600	OTHER OPEN LANDS <RURAL>	1.70
HILLSBOROUGH RIVER BASIN	3200	SHRUB AND BRUSHLAND	4.27
HILLSBOROUGH RIVER BASIN	4110	PINE FLATWOODS	9.33
HILLSBOROUGH RIVER BASIN	4112	SCRUBBY FLATWOODS	58.65
HILLSBOROUGH RIVER BASIN	4120	LONGLEAF PINE-XERIC OAK	9.96
HILLSBOROUGH RIVER BASIN	4340	HARDWOOD CONIFER MIXED	31.71
HILLSBOROUGH RIVER BASIN	4400	TREE PLANTATIONS	30.53
HILLSBOROUGH RIVER BASIN	4410	CONIFEROUS PLANTATIONS	39.07
HILLSBOROUGH RIVER BASIN	4410	CONIFEROUS PLANTATIONS	14.23
HILLSBOROUGH RIVER BASIN	5200	LAKES	0.25
HILLSBOROUGH RIVER BASIN	6200	WETLAND CONIFEROUS FORESTS	2.05
HILLSBOROUGH RIVER BASIN	6210	CYPRESS	57.13
HILLSBOROUGH RIVER BASIN	6300	WETLAND FORESTED MIXED	38.33
HILLSBOROUGH RIVER BASIN	6410	FRESHWATER MARSHES	330.38
HILLSBOROUGH RIVER BASIN	6430	WET PRAIRIES	98.27
		TOTAL	876.43
UPPER COASTAL AREAS	1100	RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS	0.05
UPPER COASTAL AREAS	2100	CROPLAND AND PASTURELAND	403.46
UPPER COASTAL AREAS	2300	FEEDING OPERATIONS	2.84
UPPER COASTAL AREAS	3200	SHRUB AND BRUSHLAND	80.55
UPPER COASTAL AREAS	3300	MIXED RANGELAND	14.16
UPPER COASTAL AREAS	4110	PINE FLATWOODS	144.28
UPPER COASTAL AREAS	4111	MESIC PINE FLATWOODS	143.78
UPPER COASTAL AREAS	4121	OVERGROWN SANDHILL	110.57
UPPER COASTAL AREAS	4340	HARDWOOD CONIFER MIXED	71.89
UPPER COASTAL AREAS	4400	TREE PLANTATIONS	21.42
UPPER COASTAL AREAS	4410	CONIFEROUS PLANTATIONS	3.20
UPPER COASTAL AREAS	4410	CONIFEROUS PLANTATIONS	6.97
UPPER COASTAL AREAS	5200	LAKES	47.82
UPPER COASTAL AREAS	5300	RESERVOIRS	0.70
UPPER COASTAL AREAS	6110	BAY SWAMP	2.18
UPPER COASTAL AREAS	6210	CYPRESS	462.29
UPPER COASTAL AREAS	6300	WETLAND FORESTED MIXED	54.32
UPPER COASTAL AREAS	6410	FRESHWATER MARSHES	341.74
UPPER COASTAL AREAS	6430	WET PRAIRIES	190.58
UPPER COASTAL AREAS	6440	EMERGENT AQUATIC VEGETATION	1.07
		TOTAL	2,103.89

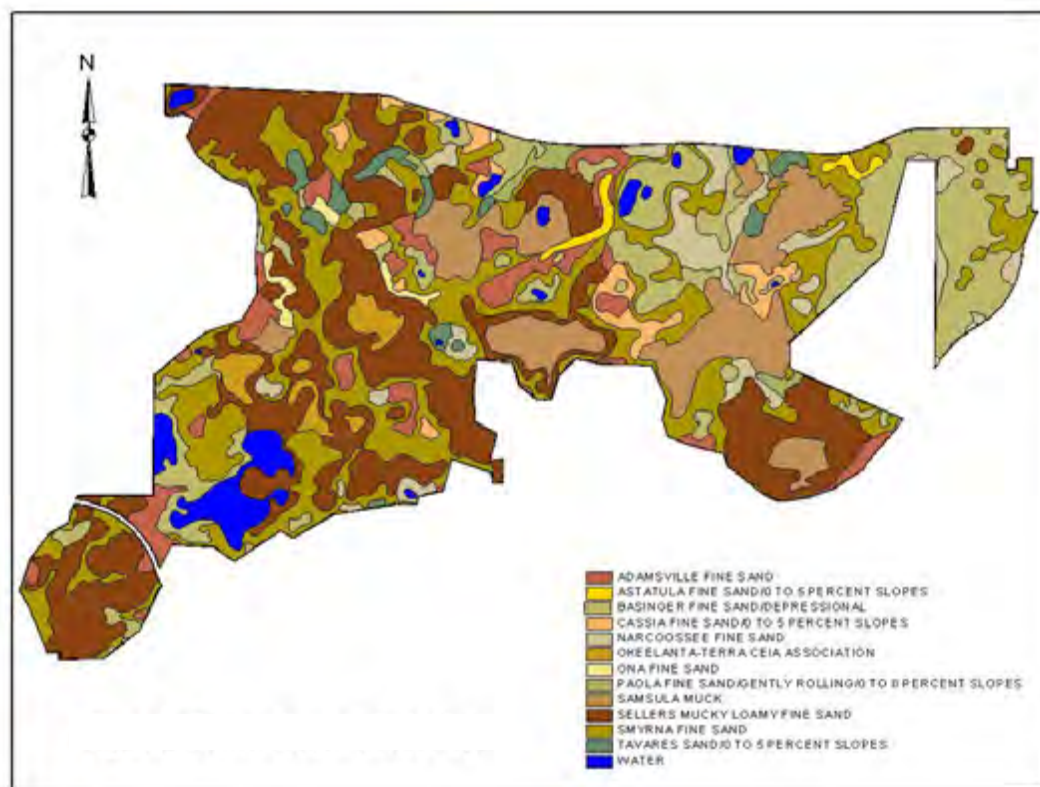


Figure 5. Conner Preserve Soils Map.



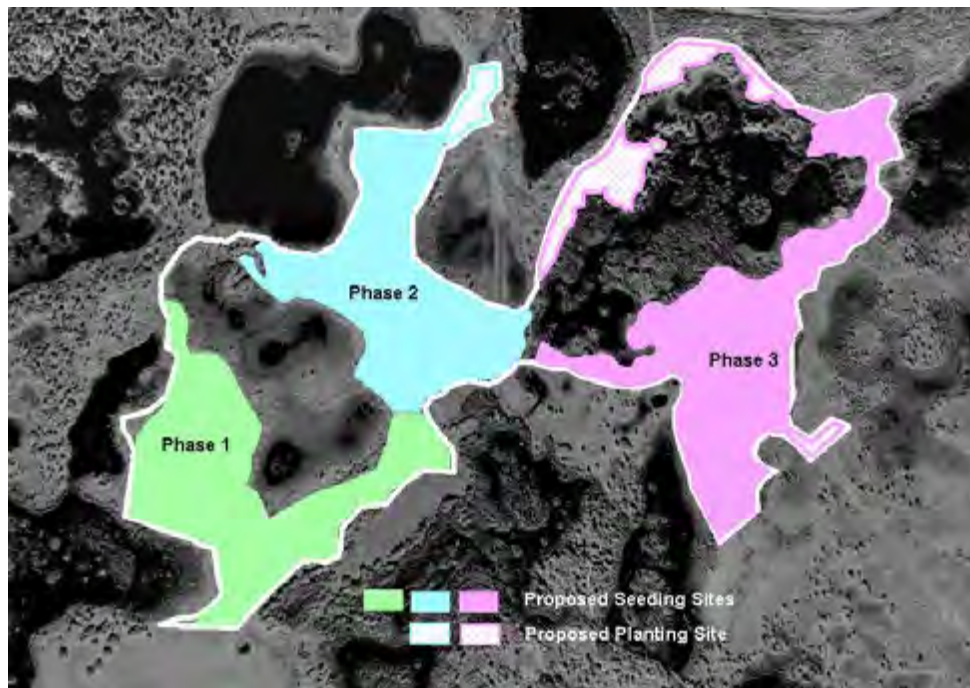
## RESTORATION PLAN

### Restoration Methods

Due to the dominance of bahia grass on the restoration sites, the only feasible method to restore the rich diversity and structural complexity characteristic of sandhill and flatwoods communities is to eradicate the bahia grass using a combination of herbicide treatments, prescribed fire application, and disking, and then to re-vegetate using a combination of seeding and planting with containerized material. Restoration of the groundcover will be completed and deemed successful prior to introducing other components of the community, such as longleaf pine (*Pinus palustris*), oaks (*Quercus* spp.), tarflower (*Beferia racemosa*), rusty lyonia (*Lyonia ferruginea*), staggerbush (*Lyonia fruticosa*), and ericaceous shrubs (Family Ericaceae - blueberries, huckleberries). This tactic will allow maintenance activities to proceed without any undue constraints. Appendix B includes a detailed discussion of the overall restoration strategy.

### Restoration Site Prescriptions

Five altered upland sites totaling 304-acres are being proposed for restoration; all are former pine flatwoods or sandhill communities that were converted to bahia pasture. Site characterizations and implementation plans are outlined below. Appendix C includes a more detailed discussion of upland restoration methodologies that will be utilized on the sites.



**Figure 6. Conner Preserve Upland Restoration Site 1.**

#### Site 1

Consists of 192-acres centrally located on the tract in sections 7, 8, 17, & 18 Township 25 Range 19 (Figure 6). The native upland vegetation has been cleared and replaced with bahia grass, but linear strips of pine flatwoods are still present around the perimeters of the wetlands. Several soil types are represented on this site. Remnant sandhill vegetation still occurs on the high ridges, characterized by Tarvares, Narcoosee, and Paola fine sands (National

Cooperative Soil Survey 1982). The former flatwoods, which have been entirely converted to improved pasture, occurred in those areas mapped as Cassia and Adamsville soils (National Cooperative Soil Survey 1982). The large forested wetland in the eastern portion of the site is dominated by Samsula muck (National Cooperative Soil Survey 1982). Site 1 will be restored to scrubby flatwoods and sandhill in three phases in 2006-2008 via direct seeding methods and plant installation.

Site preparation will start in February 2005. The entire site (all three phases) will be burned in late winter to early spring 2005, after it has been hit by a hard frost. Following fire application, several herbicide applications will be conducted as necessary to remove exotic vegetation from the Phase I unit. Due to the interspersions of several wetlands within and adjacent to the restoration unit, the herbicide AquaStar will be used. AquaStar is equivalent to Rodeo in labeling (can be used in aquatic environments) and similar in pounds of active ingredient. If fuels are continuous enough to facilitate the spread of fire, another prescribed burn may be conducted. Finally, if deemed necessary, the Phase I unit will be disked and rolled in late summer, and a final herbicide application will be conducted in September or October. The 57-acre Phase I unit will be seeded in November/December 2005. Seeding of Phase 2 (60-acres) and Phase 3 (54-acres) will be conducted in 2006 and 2007 respectively, following a similar sequence of site preparation events. However, herbicide application may be extended 1-2 years in advance of seeding on Phase II and Phase III if deemed necessary to effectively eradicate bahia grass. An aerial application of Plateau, applied at a rate of 12 ounces per acre, will be conducted 4-5 months after seeding, in April or May, to eradicate bahia grass seedlings. A total of 15-acres will be planted during Phase 2 and Phase 3. Installation of longleaf pine will be conducted on all sites after success criteria are achieved.



**Figure 7. Conner Preserve Upland Restoration Site 2.**



## Site 2

Consists of 50-acres located in the south-central region of the tract almost exclusively in Section 13 Township 25 Range 18. The dominant soils are Adamsville and Smyrna fine sands, with smaller pockets of Sellers mucky loamy fine sand, Cassia fine sands, and Narcossee fine sands (National Cooperative Soil Survey 1982).

Site 2 will be restored in 2008 using a combination of direct seeding and plant installation (Figure 7). Site preparation will begin 1-2 years in advance of seeding with 2-3 aerial herbicide applications per year to effectively reduce bahia grass, accompanied by one or two disking treatments. If introduced grasses (bahia, Bermuda, cogon, natal) are sufficiently eradicated, the site may be allowed to lie fallow the summer prior to seeding to provide a firmly packed seedbed, facilitate full recharge of soil moisture profile, enhance nutrient availability, and to reduce recruitment of undesirable weeds. The site will be burned in February 2008, followed by several aerial applications of either Roundup or AquaStar herbicide, and another burn, if feasible. Disking and rolling requirements will be based on the results of the 2006 and 2007 seeding events and site conditions. In November 2008, seeding will be conducted on the entire 50-acres, followed by installation of primarily wiregrass on approximately 8-acres around the perimeter and westernmost portion of the site. An aerial application of Plateau may be applied at a rate of 12 ounces per acre 4-5 months after seeding to reduce survival of bahia grass seedlings. Installation of longleaf pine will be conducted on the site after success criteria are achieved.



**Figure 8. Conner Preserve Upland Restoration Site 3.**

### Site 3

This site is 22-acres in size and located in the northwest portion of the tract at the junction of Sections 11, 12, 13, & 14 in Township 25 Range 18. The dry upland ridges are characterized by Tavares and Adamsville fine sand (National Cooperative Soil Survey 1982). These will be targeted for restoration of sandhill vegetation. The lower elevations, which will be re-vegetated to pine flatwoods groundcover, are comprised primarily of Smyrna fine sands.

Site 3 will be restored in 2006 using a combination of direct seeding and plant installation (Figure 8). Site preparation for Site 3 will start in February 2005, when the site will be burned. Herbicide applications will then be conducted throughout 2005. In 2006, the site will continue to be treated with herbicide to remove nuisance and exotic vegetation, and burned periodically as fuel loads allow. Disking will be conducted in mid- to late-summer, followed by one more herbicide treatments and potentially shallow disturbance with a chain drag immediately before seeding. Site preparation on Sites 3, 4, and 5 may be more intensive than on Sites 1 and 2 because the former sites will be treated with a Grasslander seeder instead of the modified sod sprigger. In November 2006, seed will be distributed on the eastern lobe of the site, and in the interior of the western lobe, and then plants will be installed on 8-acres in the western lobe in July or August 2007. Installation of longleaf pine will be conducted after success criteria are achieved.



**Figure 9. Conner Preserve Upland Restoration Site 4.**

### Site 4

This site is 18-acres located centrally along the west boundary of the tract in Section 14 Township 25 Range 18. The higher elevations are comprised of Adamsville soils and the lower



elevations, which once supported pine flatwoods, are comprised of Ona fine sands (National Cooperative Soil Survey 1982).

Site 4 will be restored in 2007 using a combination of direct seeding and plant installation (Figure 9). The site will be burned in February/March 2006, and herbicide treatments will commence through 2006 and 2007, with burns conducted as necessary to reduce biomass. The site will be seeded in November 2007, and plants will be installed on 6-acres in the narrow, unseeded portions of the site in July/August 2008. Aerial applications of Plateau may be applied at a rate of 12 ounces per acre to reduce competition and establishment of bahia grass. A long period of herbicide treatment prior to seeding the site is anticipated to reduce the post-construction herbicide needs on the site. Installation of longleaf pine will be conducted on the site after success criteria are achieved.



**Figure 10. Conner Preserve Upland Restoration Site 5.**

#### **Site 5**

Site 5 is comprised of 21-acres, is located directly south of Site 4 in Section 14 Township 25 Range 18. Smyrna and Adamsville are the primary soils on this site (National Cooperative Soil Survey 1982).

Site 5 will be restored in 2009 using a combination of direct seeding and plant installation (Figure 10). The site will be burned in February 2008. Herbicide treatments will then be conducted throughout 2008 and early 2009, with fire applied as necessary to reduce above-ground biomass. Seeding will be conducted in November/December 2009, followed by plant

installation on 6 acres in July/August 2009. A long period of herbicide treatment prior to seeding the site is anticipated to reduce the post-construction herbicide needs on the site. Installation of longleaf pine will be conducted after success criteria are achieved.

### **Post-Restoration Maintenance**

Plateau, a grass-specific American Cyanamid BASF product that contains the active ingredient Imazapic, will be utilized at the rate of 10-12 ounces per acre for bahia maintenance treatments on all five sites. This product was developed for use on tall-grass prairie restoration sites and it selectively controls for weedy species, leaving most of the native species undamaged (Kurtz 2001). Several surfactants may be utilized with this product including Sunwest, Silnet, Induce, and Dynamic. Both aerial applications with a helicopter or terrestrial applications with a Terrigator (liquid fertilizer spreader), backpack sprayers and ATV's may be utilized, depending on site conditions, selected herbicide, time of year, and treatment objectives. Plateau will be applied only in Spring or Fall, but not during the summer months. Spot applications of glyphosate herbicides such as Roundup or AquaStar may be used to ensure that label rates (12 ounces per acre per year) for Plateau are not surpassed if additional treatments are still required.

Mowing may also be used to control some weedy species that may be shielding the bahia grass from the herbicide or preventing establishment of seeded species. Since several of the undesirable exotic species seed over a wide temporal period, manual removal of individual plants and seed heads may be required. Optimally mowing should be conducted before seeds from targeted species are formed.

### **Seed Donor Site – Site Preparation and Seed Collection**

Six seed donor sites are proposed to be utilized for seed collection. Five of the proposed seed donor sites are located on the Starkey Wilderness Park in Pasco County (Figure 11). Approximately 1,200 acres of pine flatwoods are suitable and available for harvesting on this property. Starkey is about 10 miles west of the Conner Preserve, and travel distance between the two properties is approximately 18 miles. The pine flatwoods that characterize the donor sites have been managed with growing season fire at 3-4 year intervals for approximately 30 years. The soils characterizing these flatwoods include Pomona, Myakka, Immokalee, Smyrna, and Candler fine sands (National Cooperative Soil Survey 1982). Predominant species on these seed donor sites include wiregrass (*Aristida beyrichiana*), bottlebrush three-awn (*Aristida spiciformis*), toothachegrass (*Ctenium aromaticum*), panic grasses (*Dicanthelium* spp.), splitbeard bluestem (*Andropogon ternarius*), broomsedge (*Andropogon virginicus*), roserush (*Lygodesmia aphylla*), bog button (*Lachnocaulon anceps*), narrow-leaved sabatia (*Sabatia brevifolia*), blackroot (*Pterocaulon pycnostachyum*), false hoarhound (*Eupatorium rotundifolium*), saw palmetto (*Serenoa minor*), gallberry (*Ilex glabra*), sand live oak (*Quercus geminata*), and longleaf pine (*Pinus palustris*).





**Figure 11. Starkey Wilderness Park. Five seed donor sites are available.**



**JB Starkey Wilderness Park seed donor site.**



**Figure 12. Green Swamp West seed donor site.**

The sixth donor site is located in the Green Swamp West Wildlife Management Area, also in Pasco County (Figure 12). There are approximately 900 – 1,100 acres available for harvesting on this property, although the majority is sandhill vegetation. Green Swamp West is located approximately 22 miles to the east of the Conner Preserve. The travel distance between this seed donor site and the Conner Preserve is about 35 miles. The dominant soils include Tavares, Millhopper and Astatula fine sands (National Cooperative Soil Survey 1982).



**Green Swamp West seed donor site.**

All of the seed donor sites will be matched to the appropriate restoration site based on vegetation, soil type and elevation characteristics. See Appendix C for a detailed discussion of proposed donor site preparation and harvesting techniques.



### **Proposed Upland Enhancement**

Upland enhancement is proposed on 1,046 acres of upland communities that were not converted to pasture. The primary targets of enhancement will be pine flatwoods and sandhill. Generally, enhancement actions will consist of re-introduction of natural fire and disturbance regimes, and long-term control and/or eradication of invasive exotic species.

Sandhill – Approximately 120 acres of sandhill will be enhanced. The longleaf pine/turkey-oak ecosystem located primarily on one centrally located ridge on the property has suffered from fire suppression, introduction of exotics, and logging. Longleaf pines occur at reduced densities and turkey oaks have formed thickets and hammocks. The encroachment of bahia grass and hardwoods have resulted in a greatly diminished groundcover. Enhancement of the sandhill community will consist of longleaf pine planting, mechanical reduction (hydroaxing) of turkey oak thickets, the manual removal of large mature turkey oaks, and prescribed fire application. Sandhill sites will be burned on a 3 to 5 year rotation. In addition, some sites will be hydro-axed and then burned. There will also be hand removal of some native trees that have become problematic due to lack of fire or reduced fire intensity, such as persimmon, laurel oak, and wax myrtle. Long-term fire management will be perpetuated utilizing funds from the Water Management Lands Trust Fund.

Flatwoods – Several hundred acres of flatwoods and scrubby flatwoods will be enhanced by re-introducing natural fire cycles, including fire seasonality and fire return intervals, to the extent practicable. A combination of fire exclusion and long-term winter burning has facilitated the development of a hardwood canopy, resulting in the suppression of the rich and diverse understory that characterizes these two communities in their natural state. Additionally, the introduction of bahia grass has reduced the structural and compositional diversity of the project site, and also greatly reduced fire intensities. Upland enhancement of flatwoods will include the application of at least 2 growing season fire cycles at 3-5 year intervals, treatment of any Category 1 and/or Category 2 exotics, and potentially mechanical work or manual labor to reduce hardwoods. Long-term fire management will be perpetuated utilizing funds from the Water Management Lands Trust Fund.

### **Proposed Wetland Enhancement**

Wetland enhancement is proposed to include the 1,630 acres of wetlands existing within the Conner Preserve. Generally, enhancement actions will consist of control of invasive exotic species in the wetlands and enhancement and restoration of the upland buffers surrounding the wetlands. The species targeted initially for eradication is Chinese tallow. It is typically treated with Garlon – foliar and basal treatments of Garlon 4 are effective on saplings and seedlings, and stem injections of Garlon 3A are often used on large trees.

### **Monitoring**

Permanent photo plot locations have been established on all restoration and enhancement sites, and a map showing the location of all photo plots and the baseline photographs are provided in Appendix D. Photos will be re-taken annually, and filed with monitoring data. Quantitative monitoring will be conducted on all upland restoration sites in accordance with standard procedures for such. A simple random stratified sampling design will be utilized to identify and measure cover of all species encountered within randomly established quadrats. The site will be stratified by elevation, with higher elevations assigned to sandhill community and lower elevations to the flatwoods community. Cover for each species will be estimated utilizing 2m x 2m quadrats; the number of sampling quadrats required will be determined using Stein's two-stage sampling. Coordinates for quadrat placement will be selected from a random

number generation table generated in Microsoft Excel Analysis Tool Pak or a similar software package using the uniform distribution format. Using ArcMap 8.3, a digital infrared photograph of the site will be divided into 1 meter interval grids, the set of random numbers inserted into the grid system, and then a shape file will be created and downloaded as a background file into a Trimble GeoExplorer 3 GPS unit with real time differential correction and submeter accuracy. Using the navigate feature, each quadrat will be located and permanently marked with 1 6-foot rebar at the southeast corner, and 3 6-inch survey spikes on the subsequent corners to facilitate permanent long-term monitoring. Both the x- and y-axis will be offset 3-meters inward from the perimeter fire lanes in order to minimize edge effects that may result in sampling error (for example, deposition of nuisance and exotic seeds by vehicles treads; physical disturbance of soils adjacent to road). A species inventory on the site, with vegetation nomenclature following Wunderlin (1982), will be completed; each species will then be assigned to one of three groups – desirable native, nuisance native, and exotic. Additionally, a coefficient of conservatism between 1-10 will be assigned to each species (0= pioneer or early successional weedy species and 10=difficult species to establish that is rare and typically only found in well-managed, relatively undisturbed system) to determine site quality relative to selected reference sites (Appendix E). A mean coefficient will be determined for the site using the following equation:

**Mean C = sum of coefficients of conservatism/number of species**

and then a Floristic Quality Index will be determined using the following equation:

**Floristic Quality Index = Mean C x square root of number of species**

Data collection and analysis will be conducted to obtain the following: complete species list, absolute and relative cover of each species, classification of each species as to native, nuisance or exotic status; and absolute and relative percent cover for each status classification. The analysis will include the combined cover central tendency (mean) and variability (standard deviation) for each cover classification (native, nuisance, exotic, bare ground & litter), and the 95% percent confidence intervals, the interquartile range and the median value for each status. The central tendency of the data, as determined by the estimated mean value, and the variability, as determined by the standard deviation, for each cover classification will be reported. The following success criteria are proposed:

1. To maintain bahiagrass cover below 20%;
2. To obtain greater than 80% cover by desirable sandhill and flatwoods species within 4 years.
3. To be able to successfully run a growing season (June-September) fire through the site within 5 years.
4. To achieve and maintain less than 2% cover of exotic and nuisance species coverage in the wetlands.



## **TIMELINE AND BUDGET**

This project will start in FY-05 and it is anticipated all sites will achieve success criteria by 2015, which will include construction and post-construction monitoring and maintenance requirements. The conceptual plan described above may be modified as necessary based on unanticipated site conditions or alterations, revisions to currently accepted techniques, results of ongoing projects, including successes and failures, and new findings in the scientific literature. The anticipated timeline and budget for the project is provided in this section.

### **Timeline**

Project construction is scheduled to start in FY2005 and continue until completion in FY2012. Success criteria are not expected to be achieved for all sites until FY2015. Table 1 provides the general schedule, with specific task completion dates and a timeline provided in Appendix F.

**Table 1. Projected Schedule.**

<b>Restoration Site</b>	<b>Year</b>	<b>Seed (acres)</b>	<b>Seed Donor Site</b>	<b>Plant Installation (acres)</b>	<b>Total Acres to be Restored</b>
Site 1-Phase 1	2005	57	Starkey	0	57
Site 1- Phase 2	2006	60	Starkey	5	65
Site 1- Phase 3	2007	54	Starkey	10	64
Site 2	2008	50	Starkey	8 (3-acres in seeded matrix)	55
Site 3	2006	7	Green Swamp West	12	19
Site 4	2007	16	Green Swamp West	6	22
Site 5	2009	16	Starkey	6	22
<b>Total Acres Proposed for Restoration</b>					<b>304</b>

**Budget**

The estimated cost to complete the project as described is \$1,701,887 (Table 3). Generally, this cost includes, for each restoration site, 4-6 pre-restoration herbicide treatments, 4-5 post-restoration herbicide treatments (2 aerial broadcast events and 2-3 spot treatments with backpack sprayers), 4 prescribed fires, 2 pre-restoration disking events, 4 post-restoration mowing events in selected areas, re-vegetation (seeding and planting events, including final reforestation with longleaf pine seedlings), soil and seed viability testing lab fees, and monitoring. It also includes, for the upland enhancement areas, hydroax treatments on 250 acres and 4 prescribed fires. Additionally, costs to prepare seed donor sites for harvesting have been added into the budget. Some site preparation is anticipated, particularly on the Green Swamp West site, but it is difficult to propose degree of preparation that may be required. It also includes treatment of exotic vegetation (excluding treatment of pasture grasses) such as tropical soda apple and Chinese tallow for a period of 15 years.

However, this budget is general, and the tasks itemized are not uniformly applied to each site. Sites scheduled to be restored early in the cycle (2005-2006) may not receive the full complement of herbicide and disking treatments as sites scheduled for subsequent years. Additionally, the current restoration schedule provides the minimum treatments necessary on all sites, but the budget provides for contingencies. These contingencies include unscheduled pre- and post-construction herbicide treatments which are sure to be required, but for which scheduling is difficult to predict. At least one disking treatment will be required on all sites prior to seeding, but two treatments are proposed on most of the sites. On Sites 3, 4, and 5, proposed seeding methods may require shallow harrowing immediately prior to seeding; these sites will be seeded using a Grasslander seeder instead of the modified seed sprigger proposed for use on Sites 1 and 2. However, recent research conducted in the Midwest suggest that it may be beneficial to let well-prepared sites lie fallow the summer prior to seeding, so the second disking treatment currently proposed on some sites may be eliminated. Also, prescribed fire application may be conducted whenever possible in order to reduce organic debris, volatilize excess nutrients, and expose bare mineral soil. Fuel load build-up may vary depending on soil type, elevation, nutrient levels, rainfall, seedbank deposits, prevailing winds, and prior land use activities, thereby affecting how many fire cycles may be feasible. This budget reflects the amount of funding necessary to ensure successful completion of all components of the project, including the restoration of altered uplands, and the enhancement of both degraded uplands and wetlands.



**Table 3. Projected Project Costs.**

<b>Management Activity</b>	<b>Unit</b>	<b>Cost per Unit</b>	<b># of Units</b>	<b>Total Cost</b>
Prescribed fire on Restoration Areas	Acre	\$15	1,216	\$18,240
Plateau herbicide applications	Acre	\$105	2,432	\$255,360
Roundup/Aqua Star herbicide applications	Acre	\$95	1,216	\$115,520
Disking	Acre	\$100	608	\$60,800
Seeding (Harvest, transport, & broadcasting)	Acre	\$1,400	304	\$425,600
Groundcover plants	Acre	\$7,000	49	\$343,000
Longleaf trees	Acre	\$333	304	\$101,232
Mechanical tree installation	Acre	\$75	304	\$22,800
Mowing (Maintenance)	Acre	\$25	200	\$5,000
Mowing (Seed donor site preparation)	Acre	\$25	600	\$15,000
Exotic plant treatments	Year	\$5,000	15	\$75,000
Monitoring	Event	\$4,620	30	\$138,600
Soil pH testing	Sample	\$5	12	\$60
Seed viability testing	Sample	\$20	20	\$400
Hydroax (Enhancement)	Acre	\$125	250	\$31,250
Hydroax (Seed donor site preparation)	Acre	\$125	100	\$12,500
Prescribed Fire (Enhancement)	Acre	\$15	5,435	\$81,525
<b>TOTAL</b>				<b>\$1,701,887</b>

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## Appendix A – Wildlife Observations and Protected Species Checklist

### Table A. Wildlife Species Documented Occurrence List.

Cottonmouth Moccasin (*Agkistodon piscivorus*)  
 American Alligator (*Alligator mississippiensis*)  
 Green Anole (*Anolis carolinensis*)  
 Six-lined Racerunner (*Cnemidophorus sexlineatus*)  
 Southern Black Racer (*Coluber constrictor priapus*)  
 Eastern Diamondback Rattlesnake (*Crotalus adamanteus*)  
 Southern Ringneck Snake (*Diadophis punctatus punctatus*)  
 Southeastern Five-lined Skink (*Eumeces inexpectatus*)  
 Gopher Tortoise (*Gopherus polyphemus*)  
 Eastern Mud Turtle (*Kinosternon subrubrum*)  
 Brown water snake (*Nerodia taxispilota*)  
 River cooter (*Pseudemys floridana*)  
 Eastern fence lizard (*Sceloporus undulatus*)  
 Ground Skink (*Scincella lateralis*)  
 Dusky Pygmy Rattlesnake (*Sistrurus miliarius*)  
 Stinkpot Turtle (*Sternotherus odoratus*)  
 Florida Box Turtle (*Terrepene carolina bauri*)  
 Southern Cricket Frog (*Acris gryllus gryllus*)  
 Southern Toad (*Bufo terrestris*)  
 Greenhouse Frog (*Eleuthrodactylus planirostis*)  
 Eastern Narrowmouth Toad (*Gastrophryne carolinensis*)  
 Green Tree Frog (*Hyla cinerea*)  
 Squirrel Treefrog (*Hyla squirrela*)  
 Southern Chorus Frog (*Pseudacris nigrita*)  
 Gopher Frog (*Rana aerolata*)  
 Pig Frog (*Rana grylio*)  
 Southern Leopard Frog (*Rana sphenoccephala*)  
 Cooper's hawk (*Accipiter cooperii*)  
 Red-winged blackbird (*Agelaius phoeniceus*)  
 Roseate spoonbill (*Ajaia ajaja*)  
 Anhinga (*Anhinga anhinga*)  
 Florida scrub-jay (*Aphelocoma coerulescens*)  
 Great blue heron (*Ardea herodias*)  
 Red-tailed hawk (*Buteo jamaicensis*)  
 Red-shouldered hawk (*Buteo lineatus*)  
 Cattle egret (*Bubulcus ibis*)  
 Turkey vulture (*Cathartes aura*)

Great egret (*Casmerodius albus*)  
 Killdeer (*Charadrius vociferus*)  
 Common nighthawk (*Chordeiles minor*)  
 Northern harrier (*Circus cyaneus*)  
 Northern bobwhite (*Colinus virginianus*)  
 Common ground-dove (*Columbina passerina*)  
 Black vulture (*Coragyps atratus*)  
 Little blue heron (*Egretta caerulea*)  
 Snowy egret (*Egretta thula*)  
 Tri-colored heron (*Egretta tricolor*)  
 American swallow-tailed kite (*Elanoides forficatus*)  
 White ibis (*Eudocimus albus*)  
 American kestrel (*Falco sparverius*)  
 Southeastern American kestrel (*Falco sparverius paulus*)  
 Greater Sandhill crane (*Grus canadensis*)  
 Florida sandhill crane (*Grus canadensis pratensis*)  
 Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*)  
 Wild turkey (*Meleagris gallopavo*)  
 Woodstork (*Mycteria Americana*)  
 Osprey (*Pandion haliaetus*)  
 Rufous-sided towhee (*Pipilo erythrophthalmus*)  
 Boat-tailed grackle (*Quiscalus major*)  
 Field sparrow (*Spizella pusilla*)  
 Barred owl (*Strix varia*)  
 Eastern meadowlark (*Sturnella magna*)  
 Greater yellowlegs (*Tringa melanoleuca*)  
 Mourning dove (*Zenaida macroura*)  
 Coyote (*Canis latrans*)  
 Nine-banded armadillo (*Dasypus novemcinctus*)  
 Virginia opossum (*Didelphis marsupialis*)  
 Southeastern Pocket Gopher (*Geomys pinetis*)  
 Southern flying squirrel (*Glaucomys volans*)  
 Whitetail deer (*Odocoileus virginianus*)  
 Raccoon (*Procyon lotor*)  
 Gray squirrel (*Sciurus caroliniana*)  
 Sherman's fox squirrel (*Sciurus niger*)  
 Hispid cotton rat (*Sigmodon hispidus*)  
 Feral hog (*Sus scrofa*)  
 Eastern cottontail (*Sylvilagus floridanus*)  
 Gray fox (*Urocyon cinereoargenteus*)



**Table B. Conner Preserve FDOT Mitigation Project Listed Wildlife Species Occurrence Checklist**

COMMON NAME	SCIENTIFIC NAME	STATUS*		OCCURRENCE			
		GFC	USFWS	Observed	Probable	Possible	Unusual
BIRDS							
S.E. American Kestrel	<i>Falco sparverius paulus</i>	T		X			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T	X			
Burrowing Owl	<i>Speotyto cunicularia</i>	SSC				X	
Florida Sandhill Crane	<i>Grus canadensis pratensis</i>	T		X			
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	T	T	X			
Limpkin	<i>Aramus guarauna</i>	SSC			X		
Little Blue Heron	<i>Egreta caerulea</i>	SSC		X			
Red-Cockaded Woodpecker	<i>Picoides borealis</i>	T	E				X
Snowy Egret	<i>Egretta thula</i>	SSC			X		
Tricolored Heron	<i>Egretta tricolor</i>	SSC		X			
White Ibis	<i>Eudocimus albus</i>	SSC		X			
Wood Stork	<i>Mycteria americana</i>	E	E	X			
Roseate Spoonbill	<i>Ajaia ajaja</i>	SSC					
REPTILES/AMPHIBIANS							
American Alligator	<i>Alligator mississippiensis</i>	SSC	T (S/A)		X		
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T		X		
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>	SSC			X		
Gopher Frog	<i>Rana capito</i>	SSC		X			
Gopher Tortoise	<i>Gopherus polyphemus</i>	SSC		X			
Short-tailed Snake	<i>Stilosoma extenuatum</i>	T				X	
MAMMALS							
Florida Black Bear	<i>Ursus americanus floridanus</i>	T					X
Florida Mouse	<i>Podomys floridanus</i>	SSC				X	
Sherman 's Fox Squirrel	<i>Sciurus niger shermani</i>	SSC	X				
Round-tailed muskrat	<i>Neofiber allenii</i>			X			

USFWS = United States Fish and Wildlife Service; GFC = Florida Fish and Wildlife Conservation Commission; E = Endangered; T = Threatened; T(S/A) = Threatened/Similarity if Appearance; SSC = Species of Special Concern Based on Florida 's Endangered Species, Threatened Species and Species of Special Concern – Official Lists' , Florida Game and Fresh Water Fish Commission (April 1997).

## APPENDIX B – PROPOSED RESTORATION TECHNIQUES

**Proposed Restoration Techniques** – The restoration sites must be prepared in advance of seeding to ensure exotic vegetation (pasture grasses) are eradicated and soil is aerated. Site preparation may begin 1-2 years prior to re-vegetating in order to ensure a weed-free substrate.

Prior to any treatments, the soil pH will be tested to ensure pH is between the optimal levels of about 6 – 7; a slightly acidic pH value is preferred over an alkaline one. A late winter burn will be conducted in late January to early March to reduce biomass of bahia grass and other exotic forage species. The sites will then be treated with a 2-5% percent solution of RoundupPro or AquaStar as soon as above-ground biomass of bahiagrass is sufficient. Application methods will depend on size of site, the existing vegetation on the site, and the presence of wetlands interspersed within the site or adjacent to it. Another burn may be conducted 2-4 weeks following herbicide treatment depending on fuel continuity and loads. A second herbicide application will be conducted in early summer. The sites may also be disked to break up bahia rhizomes and also to expose seed remaining in soil bank. Following disking, the site may be rolled to put any remaining weed seeds in contact with the soil, thus promoting their germination. Finally, at least one additional application of RoundupPro or AquaStar, at a rate of 2 - 5%, will be conducted in September/early October. This sequence can be repeated for a second year if weed species are still present on the site. The site may be harrowed with a disk or a chain drag just prior to seeding if deemed necessary and also based on results of similar treatments at GSW8 restoration site. Species that will be problematic if still present on the site (pre- or post-seeding) include the following: bahia grass (*Paspalum notatum*), Bermudagrass (*Cynodon dactylon*), natal grass (*Rhynchelytrum repens*), purple nutsedge (*Cyperus rotundus*), cogongrass (*Imperata cylindrica*), tropical soda apple (*Solanum viarum*), smutgrass (*Sporobolus indicus*). Species that initially may appear to be problematic will probably not be after 2-3 years – these may include: dog fennel (*Eupatorium* spp.), common ragweed (*Ambrosia artemisiifolia*), Brazil pusley (*Richardia brasiliensis*), Florida pusley (*Richardia scabra*), hairy indigo (*Indigofera hirsuta*). Seeds will be transported to the site from the Starkey and/or Green Swamp West seed donor site, and either distributed immediately or allowed to dry for 24-hours. Modified sod spriggers and/or the Grasslander seeder will be utilized to broadcast the seed at a rate of 40-60 seeds per square foot on to the prepared site. Both of these seed dispensers are designed to scarify the soil slightly, dispense the seed, and then roll the seed into the soil. After restoration is complete, continued maintenance to control undesirable vegetation will be conducted utilizing a combination of herbicide treatments, mowing, and prescribed fire. In addition to direct seeding, plant installation will also be utilized, either alone or in combination with seeding, to re-vegetate the restoration sites. The primary focus will be to restore fine flashy fire fuels to the site to facilitate required intensity and seasonality of burns, and also to provide competition against weedy species that might otherwise invade. Wiregrass plugs will be ordered in advance from the Florida Division of Forestry. Appropriate grasses, sedges, and wildflowers may also be planted, depending on availability and site conditions. Plants will be contract-grown in advance and planted during the rainy season. Additionally, seeds of species not represented in the seed mix may be hand-collected and added.



## APPENDIX C – SEED DONOR SITE PREPARATION TECHNIQUES

**Proposed Donor Site Preparation and Harvesting Techniques** – Native seed will be collected from intact pine flatwoods and longleaf pine-turkey oak sandhills. The optimal seed donor site has an abundance of grasses and wildflowers, with low to moderate density of large pines and oaks. A combination of mowing and/or hydroaxing overgrown turkey oaks, scrub oaks, and other shrubs may be utilized to prepare the seed donor site prior to prescribed fire application. To stimulate the flowering and production of maximum viable seeds for most of the native grasses and asters, a late spring to early summer burn will be conducted, as conditions allow (mid-April through mid-July). The optimal seed collection period is from late November through late December, and the precise window will be determined based on presence of ripe seed on wiregrass stems. This is determined by bending the floret – if floret snaps it is full, if it does not, the floret is empty (Bissett, 1998). Other native species have a higher seed viability and germination rate, exhibit after-ripening following cutting, and have a long period of seeding, so the collection window is not as critical. During the time period specified above, the abundance and overall viability of native seed in general is highest. Species collected via mechanical equipment will include wiregrass (*Aristida beyrichiana*), bluestem sedges (*Andropogon* spp.), creeping bluestem (*Schizachyrium stoloniferum*), dalea (*Dalea* spp.), deer's tongue (*Carphephorus* spp.), blazing star (*Liatris* spp.), and other members of the Asteraceae. Two methods will be utilized for large-scale collection of seed – the flail-vac and the green silage cutter. The District owns a 12-foot wide Woodward flail-vac seed stripper that attaches to a tractor's front-end loader. A hydraulically powered brush sweeps the ripe seed off of the vegetation, and then deposits it in a bin. The flail-vac is more flexible and can operate in somewhat rougher conditions than the green silage cutter. It will be utilized to collect seed for the smaller sites proposed for restoration (Sites 3, 4, and 5). The green silage cutter can collect more seed than the flail-vac. This machine cuts the seed stalk, so both ripe and unripe seed is collected, and the cut material is then blown into a large trailer that is pulled behind the tractor. The green silage cutter requires a wide turning radius and wide-open areas with few trees. The flail-vac will be utilized to collect from the smaller and more heavily forested sites, and the green silage cutter will be utilized in larger, lightly forested areas. Hand-collection of seeds may be conducted to supplement the seed mix; targeted species may include saw palmetto (*Serenoa repens*), scrub oaks (*Quercus* spp.), pinewoods dropseed (*Sporobolus junceus*), beaked panicum (*Panicum anceps*), lop-sided Indiangrass (*Sorghastrum secundum*), gopher apple (*Licania michauxii*), winged sumac (*Rhus copallinum*), blue curls (*Trichostema dichotomum*), green eyes (*Berlandiera subacaulis*), beard tongue (*Penstemon multiflorus*), butterfly pea (*Centrosema virginianum*), dollarweed (*Rhynchosia reniformis*), sandspur (*Krameria lanceolata*), pawpaw (*Asimina reticulata*), gallberry (*Ilex glabra*), tarflower (*Befaria racemosa*), and beautyberry (*Callicarpa americana*). Since the seed donor site is diverse and an entire suite of species will be represented in the seed mix, seeds will be collected to provide a ratio of 2-5 acres collected to 1 acre seeded, depending on the collection method. When utilizing the green silage cutter, seed will be collected at rate of approximately 2:1 of donor site to recipient site. When collecting with a flail-vac, the rate of seed collected will be increased to approximately 3-5 acres for every acre to be seeded. Testing of seed viability is not proposed at this time, since multiple species will be collected and distributed. However, if testing is deemed necessary, seeds will be sent to Oregon State University Agricultural Lab or Sterling Seed Testing in Oklahoma. Seeds will be transported from the seed donor sites at Starkey and Green Swamp West directly to the restoration sites via large dump trucks. They will then be dumped in regularly spaced mounds on the restoration site, spread with a front-end loader, and allowed to dry for 24-hours prior to being distributed on the site.

## **APPENDIX D – – REPRESENTATIVE PHOTOGRAPHS**







**Photograph 1**



**Photograph 2**





**Photograph 3**



**Photograph 4**



**Photograph 5**



**Photograph 7**





**Photograph 8**



**Photograph 9**



**Photograph 10**



**Photograph 11**





**Photograph 12**



**Photograph 13**



**Photograph 14**



**Photograph 15**





**Photograph 16**



**Photograph 17**



**Photograph 18**



**Photograph 19**





**Photograph 20**



**Photograph 21**



**Photograph 22**



**Photograph 23**





**Photograph 24**



**Photograph 25**



**Photograph 26**



**Photograph 27**





**Photograph 28**



**Photograph 29**



**Photograph 30**



**Photograph 31**





**Photograph 32**

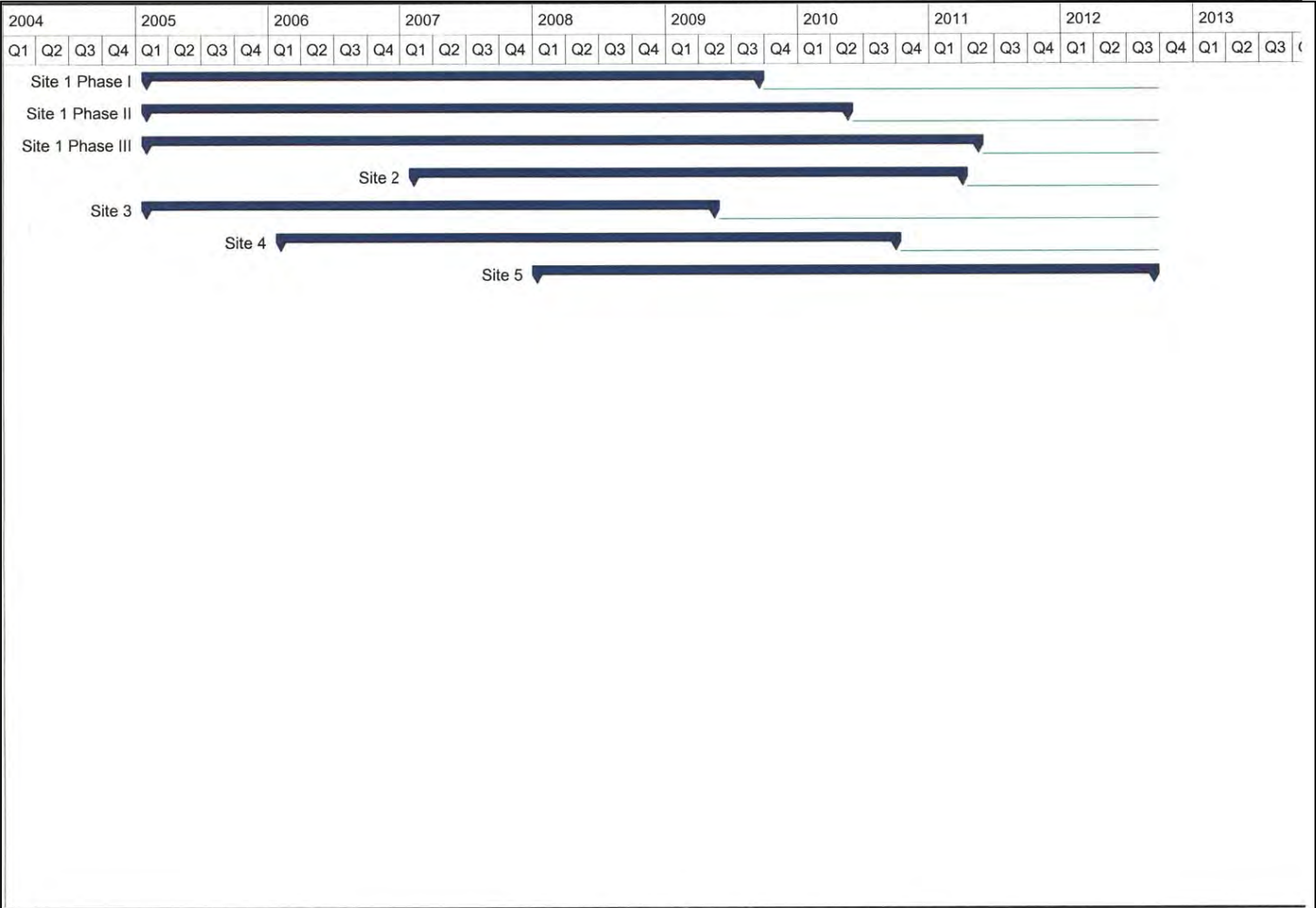


**Photograph 33**

## **APPENDIX E – FLORISTIC QUALITY INDEX (EXAMPLE)**



Conner Preserve FDOT Mitigation Project



## **APPENDIX F - PROJECT CONSTRUCTION TASK SCHEDULE & TIMELINE**



## Floristic Quality Assessment

- ❖ Coefficient of Conservatism ranks each plant from 0 to 10 or weedy to rare and specific to habitat conditions
- ❖ Mean C = sum of C's of C / number of species
- ❖ Floristic Quality Index = Mean C x square root of number of species

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Bahia Beach**

Project Manager: Hillsborough County (EPC)

County: Hillsborough

Project Number: **SW 78**

Phone No: (813) 985-7481

Location: Sec. 1, T32S, R18E

### IMPACT INFORMATION

(1) FM 4143481: Tampa Inter. Airport, Runway 17-35	ERP #: <u>49008387.01</u>	COE #: <u>200101521 (IP-MN)</u>
(2) FM 2583982: I-275, Howard Franklin to Himes Ave.	ERP #: _____	COE #: _____
(3) FM 2586621: I-75 (SR 93A), SR 60 to I-75/I-4 Interchange	ERP #: _____	COE #: _____
(4) FM 2569942: CR 296 Connector, NB I-275 (Ramp P) to SR 692	ERP #: _____	COE #: _____
(5) FM 2568812: US 19 (SR 55), Seville Drive to SR 60	ERP #: _____	COE #: _____
(6) FM 2568811: US 19 (SR 55), Whitney Rd. to Seville Dr.	ERP #: _____	COE #: _____
(7) FM 2569971: SR 686 (Roosevelt), 49 <sup>th</sup> St. Bridge to Ulmerton	ERP #: _____	COE #: _____
(8) FM 2557931: US 301 (SR 41), Tampa Bypass to Fowler	ERP #: _____	COE #: _____
(9) FM 4113371: US 92, Eureka Springs to Thonotassas Road	ERP #: _____	COE #: _____
(10) FM 2584151: I-4 (SR 400) @ Selmon Expressway	ERP #: _____	COE #: _____

Drainage Basin: Tampa Bay Water Body(s): Sweetwater Creek, Tampa Bay, Fish Creek SWIM water body? Yes  
Impact Acres /Types :

(1) FM 4143481		
3.40 ac. <u>510</u> (FlucCs)	(2) FM 2583982 <u>0.40</u> ac. <u>612</u> (FlucCs)	(8) FM 2557931 <u>0.10</u> ac. <u>617</u> (FlucCs)
0.30 ac. <u>530</u>		
0.40 ac. <u>618</u>	(3) FM 2586621 <u>1.00</u> ac. <u>640</u> (FlucCs)	(9) FM 4113371 <u>0.40</u> ac. <u>618</u> (FlucCs)
9.00 ac. <u>617</u>		
2.80 ac. <u>619</u>	(4) FM 2569942 <u>1.50</u> ac. <u>643</u> (FlucCs)	(10) FM 2584131 <u>0.50</u> ac. <u>612</u> (FlucCs)
0.30 ac. <u>621</u>		
1.50 ac. <u>630</u>	(5) FM 2568812 <u>0.50</u> ac. <u>643</u> (FlucCs)	
3.40 ac. <u>640</u>		
0.40 ac. <u>641</u>	(6) FM 2568811 <u>0.80</u> ac. <u>612</u> (FlucCs)	
6.30 ac. <u>641x</u>		
0.80 ac. <u>642</u>	(7) FM 2569971 <u>0.10</u> ac. <u>621</u> (FlucCs)	
TOTAL 28.40 acres	0.20 ac. <u>641</u>	
	TOTAL 0.30 acres	<b>TOTAL: 33.9 acres</b>

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: X Creation X Restoration X Enhancement \_\_\_ Preservation Mitigation Area: **120 ac.**  
SWIM project? Y Aquatic Plant Control project? N Exotic Plant Control Project? Y  
Mitigation Bank? N Drainage Basin: Tampa Bay Drainage Water Body(s): Tampa Bay SWIM water body? Y

#### Project Description

**A. Overall project goal:** The Bahia Beach project site (120 acres) was acquired in 2001 by Hillsborough County through their Environmental Lands Acquisition and Protection Program (ELAPP), one of several contiguous habitat tracts owned and managed by the County west of Ruskin (Fig. B). Hillsborough County Environmental Protection Commission (EPC) will manage the project with cooperative assistance from the WMD-SWIM Dept. and Hillsborough County Parks Dept. to conduct a variety of habitat improvements including wetland creation with buffers of upland habitat restoration within existing fallow fields, as well as enhancement of coastal wetland hammock habitat, restoration of salt-marsh habitat, and enhancement of salt-marsh/mangrove habitat.

**B. Brief description of current condition:** As part of the acquisition agreement, the previous landowner removed the citrus grove and the uplands are presently fallow fields dominated by invasive and nuisance species (refer to Figure C and site photos). The field is bordered by a coastal wetland hammock dominated by an overstory of cabbage palm with scattered red juniper, live and laurel oaks, and slash pine. The subcanopy of the hammock

includes minor to moderate coverage of Brazilian pepper, cabbage palm, salt-bush, wax myrtle, and saw palmetto. Small pockets of black needle rush, cordgrass, and sawgrass are located in the interior of the hammock. A large mosaic of salt-marsh and mangrove habitat is located west of the hammock. Vegetation in the marsh portion is dominated by saltwort, glasswort, and salt-grass. The mangrove portion is dominated by white mangrove with scattered black mangrove and buttonwood. Shrub-size mangroves transition into the marsh component. This saltwater habitat has interconnecting mosquito ditches with adjacent spoil piles covered with Brazilian pepper. In part due to the altered hydrology from the ditching, the transition between the hammock and saltwater habitat has become a very dense stand of Brazilian pepper. Additional site information is provided in Attachment A.

- C. Brief description of proposed work:** The fallow fields will be converted to an inter-related mosaic of created wetlands and upland habitat restoration of primarily oak hammocks and pine flatwoods. The created wetlands (estimated 40-50 of the total 61 field acres) will include a dominance of freshwater wetland creation, with the potential of transitioning to oligohaline wetland creation closer to the hammock. Piezometers have been installed in the uplands to monitor and evaluate the surficial groundwater conditions. For wetland creation design, this information will be important to determine appropriate hydroperiods and proximity of saltwater influence. The created wetlands (forested and non-forested) will be buffered by restored upland habitat, and the combination of wetland and upland habitats will provide corridors for wildlife utilizing the adjacent native ecosystems. The coastal hammock will be enhanced with the eradication of Brazilian pepper. For forested wetland mitigation credit, this hammock may be expanded with similar habitat creation within the adjacent field. Additional forested wetland creation is anticipated to concentrate along the perimeter of several constructed marshes. The mosquito and drainage ditches within the coastal hammock and saltwater wetland habitat will be evaluated to determine the most appropriate locations for backfilling spoil material into the ditches. Additional site monitoring, evaluations and subsequent design plans will be updated into the annual FDOT mitigation plans.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of the proposed wetland impacts proposed for mitigation at the Bahia Beach project include wetlands associated with expansion activities at Tampa International Airport (TIA). Due to the close proximity to Tampa Bay and high quantity of ditched wetland and surface waters, the proposed wetland impact areas at TIA are very low quality systems with a variety of salinity levels; with a third of the proposed impacts are ditches and canals. The combination of various wetland creation, restoration, and enhancement; in addition to buffers of upland habitat restoration activities can be appropriately conducted at the Bahia Beach project. Due to the major habitat improvements and anticipated ecological lift, Bahia Beach will provide appropriate mitigation options to compensate for freshwater and saltwater wetland impacts.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** The only existing or proposed mitigation bank within the Tampa Bay Drainage Basin at this time is the Tampa Bay Mitigation Bank (TBMB). TBMB credits were not available during the period of mitigation selection for the referenced FDOT projects.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** The Bahia Beach project is a SWIM project adjacent to a SWIM water body (Tampa Bay), to be constructed on property owned and managed by the Hillsborough County Parks, Recreation & Conservation Dept.



### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: SWFWMD – Operations Dept. and/or a selected private contractor  
Contact: Bob Stetler, Hills. Co. Environmental Protection Commission Phone Number: (813) 272-5955, ext. 1088

Entity responsible for monitoring and maintenance: Minimum 3 years post construction maintenance & monitoring under contract with SWFWMD, perpetual management conducted by Hills. County Parks.

Proposed timeframe for implementation: Commence: Design and Permitting 2004-2005, Construction 2006-2007, followed by minimum 3 years maintenance & monitoring

Project cost: \$2,800,000 (estimate total);  
Design & Permitting                      \$150,000  
Construction & Planting                \$2,500,000  
Maintenance & Monitoring            \$150,000

#### Attachments

- X 1. Detailed description of existing site and proposed work. Refer to Attachment A.
- X 2. Recent aerial photograph with date and scale. Refer to Figures B and D, 1999 infra-red aerials.
- X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map) and Figure C of existing and conceptual mitigation plan.
- X 4. Detailed schedule for work implementation, including any and all phases. Refer to Attachment B – Schedule.
- X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment C – Maintenance & Monitoring Plan, Success Criteria.
- X 6. Long term maintenance plan. Refer to Attachment C – Maintenance & Monitoring Plan, Success Criteria.
- X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous text. As part of the final design and permitting process, a functional wetland assessment will be conducted, and a mitigation credit/debit table will be established to properly designate the appropriate mitigation for each of the proposed DOT impacts.

#### Attachment A – Existing Site & Proposed Work

The proposed Bahia Beach project is one of a series of public land acquisitions along Tampa Bay west of Ruskin (Figure B). The property was acquired in the summer, 2001 through the Hillsborough County ELAP program, with partial reimbursement by the FDEP and USFWS. Coordination between the Hillsborough County EPC (project manager), Hillsborough Parks, SWFWMD-SWIM Dept., and a design consultant will be contracted to prepare a plan to include creation, restoration, and enhancement of habitat conditions on the site. FDOT mitigation funds will be utilized to reimburse costs incurred for design, construction, planting, and short-term maintenance & monitoring activities. The following information describes the site conditions and possible scenarios of habitat improvements that will be further evaluated with various alternatives. This information will be adopted in a design plan that will be updated in the FDOT mitigation plan.

#### Fallow Field Conversion to Wetland Creation and Upland Habitat Restoration (Approx. 61 Acres)

The existing site conditions for the Bahia Beach tract includes 120 acres of upland fallow fields and various wetland habitats. The upland area was historically pine flatwoods that were converted to citrus groves. The groves were removed as part of the agreement of public acquisition. Subsequently, the former groves have converted to fallow field conditions with a variety of nuisance and exotic vegetation. The dominant cover is provided by bahiagrass (*Paspalum notatum*), natalgrass (*Rhynchelytrum repens*), and dog fennel (*Eupatorium capillifolium*). Other species include smutgrass (*Sporobolus poiretii*), chickweed (*Richardia*

*scabra*), beggar's-tick (*Bidens alba*), nutsedge (*Cyperus esculentus*), ragweed (*Ambrosian artemisiifolia*), and lantana (*Lantana* spp.).

According to soil borings and the NRCS Soil Survey (Figure D), the soils underlying the fallow field are poorly drained with seasonal high water tables within one foot of the surface grades. Large east-west ditches drain on-site and off-site contributing flow toward the adjacent hammock. For drainage purposes, the grove had shallow swales between the citrus beds. Positive drainage flow from the swales are no longer maintained to the east-west ditches, which has allowed nuisance hydrophytic species to invade with a dominance of torpedograss (*Panicum repens*), sedges (*Cyperus* spp.), frog fruit (*Phylum nodiflora*), bacopa (*Bacopa monnieri*) and scattered pockets of primrose willow (*Ludwigia octavalis*), para grass (*Brachiaria mutica*), sesbania (*Sesbania exaltata*), foxtail (*Setaria* spp.), and cattails (*Typha* sp.). Saplings of Brazilian pepper (*Schinus terebinthifolius*) are generating within the fallow field.

The conceptual design for the upland fallow fields will include the creation of wetland habitats. After minimal earthwork, the surficial groundwater conditions can support wetland habitat conditions. However, on- and off-site contributing watershed conditions will have to be evaluated to determine the adequacy and appropriateness of hydroperiods and water budgets for the constructed wetlands. Piezometers have been installed to measure annual groundwater conditions in terms of both elevations and potential salinity levels. The majority of the created wetlands will be freshwater systems since that is a unique and substantially lost habitat community within such close proximity to Tampa Bay and the Bahia Beach area. However, oligohaline wetland systems are also a rare ecosystem within the basin. Site conditions will be evaluated and the creation of oligohaline wetlands may be adopted in the design plan. There are also east-west ditches that convey off-site contributing water flow through the fallow fields and into the large ditches along the western perimeter of the coastal hammock. These off-site contributing flows will be evaluated (quantity and quality) to determine if and where the flow can be directed into created wetlands. If this opportunity can be incorporated in the design, it can provide an added benefit of additional freshwater source, water quality treatment and attenuation of surrounding grove run-off before reaching the wetland habitat. The created wetlands will include a dominance of common species found within similar systems in the basin. The grading and planting plan will be designed and annually updated in FDOT mitigation plan.

The mosaic and inter-relationship with upland habitat will provide corridor opportunities for wildlife utilizing the adjacent hammock and salt-water wetland areas. These corridors will surround the constructed wetlands and will include a variety of oak hammock and pine flatwood restoration opportunities. Some of the dredged material from the constructed wetlands may remain on site, and configured to create slightly elevated mounds suitable for drier oak hammock creation opportunities. Common oak and pine flatwood species will be planted within the upland corridor areas. The created wetland and upland corridor areas and configuration depicted on Figure C are only conceptual; this design will be revised based on additional site evaluations, mitigation criteria, and annually updated in the FDOT mitigation plan.

### **Coastal Wetland Hammock Enhancement (Approx. 17 Acres)**

The coastal hardwood hammock has dominant canopy coverage of cabbage palm (*Sabal palmetto*), with scattered slash pine (*Pinus elliotii*), red cedar (*Juniperus virginiana*), and oaks (*Quercus virginiana*, *Q. laurifolia*). Depending on the competition from the surrounding vegetation, the B. pepper provides minor to moderate canopy and sub-canopy cover within the hammock. Other sub-canopy species include cabbage palm, salt-bush (*Baccharis halmifolia*), wax myrtle (*Myrica cerifera*), and saw palmetto (*Serenoa repens*). Ground cover varies depending on the shade factor, but includes sawgrass (*Caladium jamaicense*), broomsedge (*Andropopon glomoratus*), swamp fern (*Blechnum serrulatum*), fleabane (*Pluchea odorata*), and various other sedges. Where the canopy has slightly opened, there are also a few pockets of sawgrass, black needle rush (*Juncus roemerianus*), and cordgrass (*Spartina patens*) within the hammock.

The boundary between the fallow field and the hammock has two large parallel drainage ditches with spoil ridges covered with Brazilian pepper (refer to Figure C and photo). These ditches connect with the mosquito ditches dredged through the salt-marsh and mangroves, allowing saltwater intrusion to occur further inland than historic conditions. Enhancement opportunities will be evaluated to determine if and which ditches can be backfilled without off-site hydrologic impacts. As one alternative, if the ditches cannot be totally backfilled due to potential hydraulic conveyance problems, the ditches may be graded to form shallow swales that would at least minimize salt-water intrusion. If left in their current condition, the dense B. pepper and deep

ditches would substantially limit wildlife movement between the hammock and the upland restoration and wetland creation areas. Ditch filling or constructing shallow swales will minimize that current wildlife restriction for corridor connections.

Mangroves have recruited along the ditch sideslopes. Backfilling ditch segments will unfortunately result in unavoidable mangrove impacts. There will be a designated amount of on-site saltwater wetland enhancement that will be designated to mitigate for these impacts. This mitigation credit will be debited separate from any mitigation credit designated for FDOT wetland impacts. In addition to the hydrologic improvements, Brazilian pepper eradication will be another mitigation component of the hammock.

### **High Salt-Marsh Restoration (Approx. 15 Acres)**

As the hammock transitions to the adjacent saltwater wetland habitat, there is an extensive area of dense Brazilian pepper with very minimal coverage of other species, primarily scattered cabbage palm, salt-bush and leather fern (*Acrostichum danaeifolium*). This area was historically within a high salt-marsh landscape position. With some hydrologic changes of contributing tidal conditions due to the mosquito ditches, this altered the depth and duration of inundation. Subsequently, the condition provided the opportunity for the Brazilian pepper to generate and substantially dominate this area. The Brazilian pepper density is essentially a dense thicket that decreases within the hammock where it has to compete with the native vegetation (refer to Figure B and photos). But without eradication, the Brazilian pepper will increase in the hammock.

Enhancement opportunities will include Brazilian pepper eradication and determination of which mosquito ditches can be backfilled to historic grade elevations. Once the B. pepper is removed, this area has so little coverage of other desirable species, supplemental planting of herbs and shrubs will be necessary. The grade elevations in this area range from 2.5 to 2.7 feet so examples of anticipated plantings include cordgrass (*S. patens*, *S. bakeri*), knotgrass (*Paspalum distichum*), seashore dropseed (*Sporobolus virginus*), seaside oxeye (*Borrchia frutescens*), hairawn muhly (*Muhlenbergia capillaries*), and salt-grass (*Distichlis spicata*). With the B. pepper eradication, mangrove and other desirable herb species will recruit from the adjacent salt-marsh habitat.

### **Mangrove and Salt-Marsh (Approx. 27 Acres)**

There is a mosaic of mangroves surrounding salt-marsh habitat. White mangrove (*Laguncularia racemosa*) is dominant, with additional coverage provided by black mangrove (*Avicennia germinans*) and buttonwood (*Conocarpus erectus*). Some red mangrove (*Rhizophora mangle*) is present along the lower slopes of a few larger and deeper perimeter and mosquito ditches. The mangroves transition into a salt-marsh interior, dominant species include saltwort (*Batis maritima*), glasswort (*Salicornia* spp.), and salt-grass (*Distichlis spicata*). Scattered mangrove saplings are present in the marsh.

The mosquito ditches will be evaluated for determining if and where backfilling activities can be conducted with minimal impact to existing mangrove habitat. For spoil material removal, SWIM is incorporating a hydro-blast method within another restoration project designated for FDOT mitigation (SW 45 - Gateway, construction 2003). This method utilizes high water pressure from fire hoses to displace spoil material underneath Brazilian pepper and into the adjacent mosquito ditches. Compared to traditional earthwork construction methods, this alternative method will minimize the potential of damage to surrounding mangroves. By achieving appropriate grade elevations below high tide elevations, this method also removes the continuous problem of Brazilian pepper generation. This restoration technique will be evaluated for adoption at the Bahia Beach project. A couple large perimeter ditches are the primary source of providing tidal flow to the saltwater wetlands, so unless additional evaluation determines otherwise, it's unlikely these ditches can be modified much if any. Overall, the design plan for Bahia Beach will include an inter-related mosaic of upland and wetland habitat, as well as freshwater and saltwater wetland habitat conditions. In turn, providing this many habitats allow for more species diversity and use by a variety of wildlife species.

### **Attachment B – Schedule**

The proposed schedule includes contracting the services of a consulting firm in late 2004 to obtain additional site information and commence a design plan. A design and permitting plan is anticipated in 2005 and 2006. Pending permit approval, construction should commence in 2006 and continue into 2007.



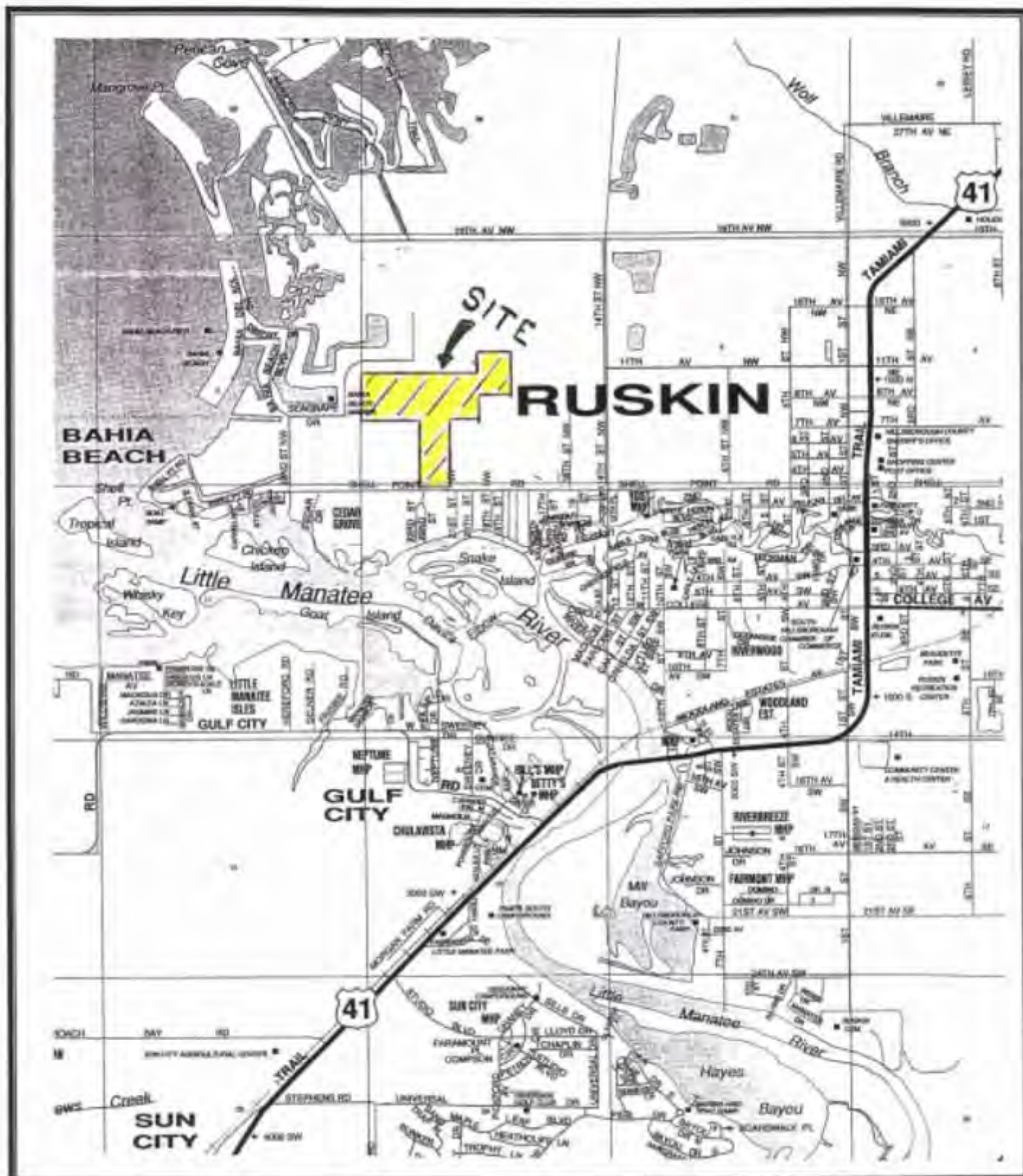
## **Attachment C – Maintenance & Monitoring, Success Criteria**

The following information relates to potential maintenance, monitoring, and success criteria that could be implemented, this information will be updated with the design plans.

Post-construction and planting, there will be a minimum 3 years of maintenance to guarantee mitigation success criteria. Maintenance will be a more intensive effort during the first year after planting to allow for establishment of plant species, and less frequent maintenance as the habitat matures. The primary maintenance activity will include herbicide treatment of exotics & nuisance vegetation on an as needed basis based on periodic inspections. Treatments are expected to be every couple months for the first year after construction and quarterly thereafter. Based on the conditions of the various habitats and status of selected species proposed for planting, supplemental planting will be conducted where necessary to fulfill desired results of each habitat area and success criteria. After a minimum 3 years and the desired habitat conditions and mitigation success has been achieved, perpetual management will be conducted by the Hillsborough County Parks, Recreation & Conservation Department to maintain the same success criteria. Based on the progress of the habitat conditions, inspections and any necessary herbicide treatments will be expected on a semi-annual basis to eradicate exotics and nuisance species.

Monitoring will be conducted by a consulting firm on contract with Hills. Co. and/or WMD, semi-annually for a minimum of three years and until meeting success criteria. Monitoring will include a comprehensive qualitative assessment of each habitat area on the site, including but not limited to plant health & survivorship, recruited plant species, cumulative plant coverage, exotic & nuisance species coverage, wildlife use & opportunities, and recommended & proposed actions necessary to ensure and further enhance success. The first monitoring report will include qualitative and photo documentation of pre-construction habitat conditions, construction activities, and habitat conditions at the monitoring station locations that will be documented on the permitted design plans and utilized for the entire monitoring period. However, site conditions will be annually documented for the entire site, not just for the monitoring stations. Annual monitoring reports will be prepared and submitted to the SWFWMD-Regulation Dept. and USACOE Enforcement Branch to document habitat conditions, any problems and solutions, and anticipated activities for the following year.

Success criteria will be determined as part of the design process but is expected to include a minimum 90% survivorship of planted material for a minimum of one year from the selected nursery contractor. Any plant mortality will be replaced with appropriate species to be agreed upon with the WMD and Hillsborough County. Plant coverage for the created wetlands and restored upland habitat is expected to include a minimum 90% coverage of planted and recruited desirable species. Exotic and nuisance vegetative eradication will be conducted to as little coverage as possible for all the various habitat areas, with a maximum coverage limit of 10% to achieve success criteria.



FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BAHIA BEACH  
(SW 78)

FIGURE A – Location Map  
Scale 2 in. = 1 mile, ^North





FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BAHIA BEACH  
(SW 78)

**FIGURE B**  
Adjacent Public Lands  
Scale 2.3 in. = 1 mile, ^North





FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BAHIA BEACH  
(SW 78)

**FIGURE C**  
Existing Conditions & Conceptual Plan  
Scale 1 in. = approx. 530 ft. ^North





### LEGEND

#15 - Felda fine sand\*\*

#29 - Myakka fine sand

#30 - Myakka fine sand, frequently flooded\*\*

#57 - Wabasso fine sand

\*\* - Hydric soils

FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)

BAHIA BEACH  
(SW 78)

FIGURE D  
NRCS Hills. Co. Soil Survey  
Scale 4.2 in. = 1 mile ^North





*The citrus groves were removed from the uplands, allowing the generation of nuisance vegetation such as natalgrass, bahiagrass, dog fennel, ragweed, smutgrass, chickweed, beggar'-tick, and nutsedge.*



*Upland-cut swales (left and right) were used to provide grove drainage to collector ditches. Two large ditches were constructed along the perimeter between the grove and coastal hammock. The associated spoil ridges are covered with a dense stand of Brazilian pepper (background).*

**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BAHIA BEACH  
(SW 78)**





*The coastal wetland hammock has a dominant cover of cabbage palm with scattered oaks and slash pine. The Brazilian pepper provides minor to moderate coverage. Other common species include salt-bush, saw palmetto, broomsedge, and swamp fern.*



*The hammock has a few marsh pockets, dominant species include sawgrass, cordgrass, and for this particular marsh, a dominance of black needle rush and marsh fleabane.*

**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BAHIA BEACH  
(SW 78)**





*The transition between the coastal hammock and the mangrove & salt-marsh area is a dense stand of Brazilian pepper with very minimal coverage of other species; scattered small cabbage palm, salt-bush, and leather fern.*



*View from within the core of the mangrove & salt-marsh area, looking east toward the B. pepper transition and coastal hammock. The salt-marsh has dominant cover of glasswort, saltwail, and salt-grass. Shrub-size white and black mangroves transition to larger mangroves along the northwestern and western portions of this ecosystem.*

**FDOT – District 7  
MITIGATION SITE  
(Tampa Bay Drainage Basin)**

**BAHIA BEACH  
(SW 78)**

## REGIONAL MITIGATION PLAN

### BACKGROUND INFORMATION

Water Management District : Southwest Florida Water Management District

Mitigation Project Name: **Fox Creek Regional Mitigation Project**

Project Number: **SW 79**

Project Manager: Ron Van Fleet, Manager - Sarasota Co. Public Works

Phone No: 941-861-0852

County: Sarasota County

Location: Sec. 20, 29, T38S, R19E

### IMPACT INFORMATION

(1) FM: 4063143, I-75 - North River Rd. (CR 577) to SR 681

ERP #: \_\_\_\_\_

COE #: \_\_\_\_\_

(2) FM: 1980101, US 301 - Wood St. to University Parkway

ERP #: \_\_\_\_\_

COE #: \_\_\_\_\_

Drainage Basin: Lower Coastal Water Body(s): Fox Creek, Salt Creek, Curry Creek, Cow Pen Slough, Myakka River

SWIM water body? N

Impact Acres /Types :

(1) FM 4063143	(2) FM 1980101
<u>1.3 ac. 619</u> (FlucCs)	<u>0.03 ac. 510</u> (FlucCs)
<u>0.1 ac. 631</u>	<u>0.01 ac. 610</u>
<u>10.1 ac. 641</u>	<u>0.03 ac. 631</u>
<u>0.8 ac. 643</u>	<u>0.05 ac. 641</u>
<u>0.1 ac. 510/619</u>	TOTAL 0.12 acre
<u>2.4 ac. 510/641</u>	
<u>0.2 ac. 641/619/510</u>	
TOTAL 14.9 acres	

**TOTAL 15.02 acres**

### MITIGATION ENVIRONMENTAL INFORMATION

Mitigation Type: x Creation x Restoration x Enhancement x Preservation

Mitigation Area: **30-40 acres\***

\* Note - the total parcel covers 140-acres, the area and credits designated for FDOT mitigation will be determined based on the final acreage and habitat value of the proposed wetland impacts, and the permitted mitigation credit for Fox Creek (under review in 2004).

SWIM project? N Aquatic Plant Control project? N Exotic Plant Control Project? Y Mitigation Bank? N

Drainage Basin: Lower Coastal Water Body(s): Fox Creek, Cow Pen Slough SWIM? N

#### Project Description

**A. Overall project goal:** Sarasota County acquired the 140-acre Fox Creek parcel in 2004 with the goal of preserving, enhancing, and creating a variety of diverse native habitats on the tract. In addition, these activities have been proposed to provide mitigation to compensation for unavoidable wetland and upland habitat impacts associated with public infrastructure projects; including future County and FDOT roadway improvements in the Lower Coastal basin. The mitigation project objectives include a combination of freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, scrub creation & enhancement, mesic hammock restoration & enhancement, and pine flatwood habitat enhancement and preservation. Details are provided in Attachment A and within the permit applications submitted by Sarasota County for the project in 2004.

**B. Brief description of current condition:** The parcel includes the lower reaches of Fox Creek, mesic hammocks, improved pasture, semi-improved pasture, pine flatwoods of various quality and coverage, and a large borrow pit (refer to Figure B, 1999 infrared aerial). Additional site description information is provided in Attachment A.



- C. Brief description of proposed work:** The Fox Creek parcel has been delineated into 16 mitigation areas with a variety of proposed habitat improvement activities based on the existing conditions and overall objectives of creating a mosaic of inter-related habitat conditions. Many of the improved and semi-improved pastures will be graded to create wetland habitat, with the northwestern pasture enhanced and restored into appropriate scrub habitat conditions (Figures B & C). The dredged material from constructing wetlands will be used to partially fill the 15-acre borrow pit to create appropriate littoral zone habitat transitioning to the open water component. The pine flatwood and mesic hammock habitats have variable coverage of exotic and nuisance species (e.g. Brazilian pepper, bahiagrass) that will be eradicated as well as supplemented with planted native species. The County will perpetually manage the mosaic of habitats with appropriate activities (e.g. herbicide exotics/nuisance vegetation, prescribed burns, supplemental plantings, etc.). Additional information of proposed activities is provided in Attachment A.
- D. Brief explanation of how this work serves to offset the impacts of the specified DOT project(s):** The majority of anticipated FDOT roadway wetland impacts proposed for mitigation at Fox Creek include widening improvements of I-75 from SR 681 to North River Road. As exhibited on the location map (Figure A), this long segment of I-75 is partially located adjacent to the Fox Creek property so this tract can essentially provide an on-site mitigation opportunity. The majority of the proposed I-75 wetland impacts will include freshwater marsh habitat that will be adequately and appropriately compensated with the creation of freshwater marshes and improvements to other habitats at Fox Creek. Additional FDOT mitigation information is provided in Attachment C.
- E. Brief explanation of why a mitigation bank was/was not chosen, in whole or in part, including a discussion of cost:** There are no existing or proposed mitigation banks in the Lower Coastal basin.
- F. Brief explanation of why a SWIM project was/was not chosen as mitigation, in whole or in part, including a discussion of cost, if the anticipated impacts are located within a SWIM water body:** The only current and proposed SWIM projects in the Lower Coastal basin include saltwater wetland habitat activities. The proposed FDOT impacts are freshwater wetland habitats, which will be appropriately and adequately compensated with similar habitat improvements proposed for Fox Creek.

#### MITIGATION PROJECT IMPLEMENTATION

Entity responsible for construction: Sarasota County will contract for construction activities

Contact Name: Ron Van Fleet, Manager, Public Works (Permitting, Mitigation & Restoration)

Phone Number: 941 - 861 - 0852

Entity responsible for monitoring and maintenance: Sarasota County or designee

Proposed timeframe for implementation: Commence: Acquisition, Design & Permitting, 2004.

Construction & Planting, 2005-2006 Complete: Mitigation Maintenance & Monitoring (M&M), 2006-2011 (minimum 5 years), followed by perpetual management activities

Anticipated cost for FDOT: \$1,000,000 - 1,300,000 \*\*

**\*\*** The entire anticipated cost of land acquisition, construction, planting, M&M for the Fox Creek tract is \$10-15 million. The partial costs reimbursed by FDOT mitigation funds will be determined by the final impact acreage, habitat value of the impacts and proposed mitigation, and the roadway permit schedule.

## Attachments

X 1. Detailed description of existing site and proposed work. Refer to Attachment A - Existing & Proposed Site Conditions.

X 2. Recent aerial photograph with date and scale. Refer to Figure B (1999 Infrared Aerial).

X 3. Location map and design drawings of existing and proposed conditions. Refer to Figure A (Location Map), Figures B & C (Proposed Design), Figure D (Planting Plan), and Figure E (Rendition of Future Habitat Conditions).

X 4. Detailed schedule for work implementation, including any and all phases. Refer to previous discussion of schedule.

X 5. Proposed success criteria and associated monitoring plan. Refer to Attachment B - Maintenance & Monitoring Plan.

X 6. Long term maintenance plan. Refer to Attachment B - Maintenance & Monitoring Plan.

X 7. Detailed explanation of how this work serves to offset the impacts of the specified DOT project(s). Refer to previous discussion under category D and Attachment C - FDOT Wetland Mitigation.

## Attachment A - Existing Site Conditions and Proposed Work

### Existing Habitat Conditions

Located along the coastal areas of western Manatee, Sarasota, and Charlotte County; the Lower Coastal Basin (also referred to as the Southern Coastal Watershed) has one of highest concentrations of urban land uses in southwest Florida. In an effort to acquire and protect some of the remaining undeveloped and native habitat areas in the basin portion located within Sarasota County, the County contracted for an extensive evaluation of undeveloped parcels within the basin. In order to justify the substantial acquisition costs associated with purchasing any remaining undeveloped tracts in the basin, the County evaluated the possibility of utilizing the tracts to fulfill upland and wetland mitigation requirements. As a result, a total of 10 tracts were evaluated and ranked for their potential habitat value (protected species, wildlife corridor, water quality improvements, flood attenuation) relative to costs associated with acquisition and construction. Other factors that were considered included proximity to known future roadway projects, existing hydrology, landscape disturbance & potential for enhancement, hydric soils data, and existing habitat buffers. As a result of this evaluation, the highest ranked site was Fox Creek and was actively pursued and acquired in 2004 to serve as a regional mitigation site to compensate for wetland impacts associated with County and other public infrastructure projects.

The parcel includes the lower reaches of Fox Creek along the western border of the property (Figure B). The site has improved pasture, semi-improved pasture transitioning into pine flatwoods, mesic hammocks and a 15-acre borrow pit that was dredged by FDOT for fill material associated with constructing the adjacent I-75; the same segment of I-75 proposed for widening and with anticipated wetland impacts proposed for mitigation at Fox Creek.

Adjacent to Fox Creek, there is a mature mesic hammock buffer consisting of live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), and sand live oak (*Quercus geminata*) (*Photo 1*). The banks of Fox Creek are incised, which has precluded the establishment of riparian vegetation, though some leatherfern (*Acrostichum danaeifolium*) does exist near the toe-of-slope. The upland adjacent to the northern portion of the creek is an improved pasture covered with bahiagrass (*Paspalum notatum*) (*Photo 2*). Though few native groundcover species exist, native trees and shrubs are beginning to regenerate with the removal of cattle. Species include scattered seedlings of saw palmetto (*Serenova repens*) and sand live oak. The soils in the area are well drained and densely occupied by both active and inactive gopher tortoise (*Gopherus polyphemus*) burrows. Within the northern portion of the improved pasture, there are several large live oaks and a few pignut hickory (*Carya glabra*), which are providing habitat and food to a population of Sherman's fox squirrels (*Sciurus niger shermani*).

The interior of the tract has variable coverage of a pine flatwood community intermixed with semi-improved pasture conditions. The flatwood portion that still has moderate density of longleaf pine (*Pinus palustris*), saw palmetto, scattered wiregrass (*Aristida stricta*), and pawpaw (*Asimina reticulata*) is predominantly in the west-central portion of the site and will be preserved and enhanced within the project's plan. Beyond this core area, there are remnant pockets of scattered pine, palmetto and variable cover of semi-improved pasture with sedges and bahia (*Photo 3*). As depicted in the mitigation plan (Figures B and C), the design was prepared to protect and enhance many of these remnant flatwood stands as upland habitat peninsulas extended into proposed graded areas that will be converted to wetland creation areas. This will enhance the preserved flatwoods while concentrating minimal vegetative loss to scattered pines and palmetto. As a result, the mosaic of created wetland and enhanced upland habitat will be a substantial benefit to wildlife and there is very limited freshwater wetland habitat (marsh and forested systems) within the Lower Coastal basin. These wetland systems are important for various periods of the life cycle of many wildlife species, and the design plan for Fox Creek proposes substantial wetland creation while recognizing the benefits of protecting and enhancing the ecological value of the adjacent upland habitat (refer to Figure E for rendition of future habitat conditions). Within the preserved flatwood community, a bald eagle nest (SA009) exists that was last reported as active in 2002. Currently, the nest is occupied by great horned owls that have been observed in the nest during site inspections. A second bald eagle nest (no assigned number) exists in the flatwoods located just south of the Fox Creek parcel. The nest appears to be active as two eagles and at least two chicks have been recently observed (February, 2004).

There are a few mesic oak hammocks on the property, along the top-of-bank for Fox Creek, within the southwestern corner along Fox Creek, and along the southeastern border of the property. Live oak provides the dominant canopy cover, however Brazilian pepper (*Schinus terebinthifolius*) and carrotwood (*Cupaniopsis anacardiodes*) have encroached the hammock, particularly in the southeastern community.

#### Proposed Habitat Conditions

A combination of mitigation types is proposed that includes freshwater wetland creation (forested and herbaceous), freshwater wetland enhancement (forested), estuarine wetland creation, scrub creation & enhancement, mesic hammock enhancement, and upland enhancement and preservation. A total of 16 areas are proposed for mitigation credit; 15 of these areas are being requested for mitigation credit with the remaining upland enhancement area likely utilized to compensate for potential upland scrub impacts. The freshwater marsh creation areas will include interior obligate zones planted with spatterdock (*Nuphar luteum*) that transition to bulrush (*Scirpus californicus*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), spikerush (*Eleocharis cellulose*), maidencane (*Panicum hemitomon*), soft rush (*Juncus effusus*), and sawgrass (*Cladium jamaicense*). The soil material scalped to create wetlands will be deposited in the borrow pit to create littoral zones that are not currently present (*Photo 4*). The lack of littoral features has precluded the growth of herbaceous vegetation that has reduced the habitat value for many species of birds, reptiles, amphibians, and fish. An open water core will still be present to create habitat diversity for many wildlife species including fish, waterfowl, and raptors such as osprey and bald eagles.

Forested wetland components will be strategically placed within the created marshes and will include species common to the forested wetlands in the area including dahoon holly (*Ilex cassine*), red maple (*Acer rubrum*), pop ash (*Fraxinus carolinana*), loblolly bay (*Gordonia lasianthus*) and sweet bay (*Magnolia virginiana*). The enhancement of the mesic hammocks will have the exotics eradicated (B. pepper dominant) and supplemented with plantings of live oak, sand live oak, cabbage palm, and laurel oak (*Quercus laurifolia*). The upland restoration area will have bahiagrass eradication and replaced with native groundcover such as wiregrass, as well as native shrubs and trees.

One of the most unique aspects of the design includes the creation of an estuarine marsh system by constructing channel connections to the tidal waters of Shakett Creek. The northern boundary of Shakett Creek occurs at the southernmost control structure of the freshwater flow of Cow Pen Slough (Figures B and C). This control structure defines the saltwater/freshwater interface and is located just east of the project area. Currently, freshwater levels are maintained in Cow Pen Slough at elevation 11 ft. NGVD during the months of November through June; then dropped to 7 ft. NGVD through the summer to alleviate the potential of upstream flooding. During the dry season, freshwater flow will be diverted from Cow Pen Slough into created freshwater wetlands on Fox Creek. The freshwater overflows into the estuarine marsh constructed in the southeast corner of the property. This will result in a salinity gradient, diverse vegetative species, variable



habitat conditions, and water quality treatment before the flow discharges into Shakett Creek. The created low salt-marsh will be planted with needle rush (*Juncus roemerianus*) and saltmarsh cordgrass (*Spartina alterniflora*). The high salt-marsh will be planted with a mixture of leatherfern, saltbush (*Baccharis halimifolia*), buttonwood (*Conocarpus erectus*), and Atlantic white cedar (*Chamaecyparis thyoides*).

## **Attachment B - Maintenance & Monitoring Plan**

Sarasota County proposes to develop an adaptive management and monitoring program to ensure the success of this regional mitigation project. A management plan will be developed after the project is permitted which will include a detailed habitat management plan (maintenance activities, schedules, etc.), maps of existing and proposed habitat types, access points, and allowable site uses (passive recreational). This management plan will incorporate data from the proposed monitoring plans described below, to provide for an adaptive management approach for the entire site. The adaptive management will be used to regularly measure site criteria and adjust treatments and activities, as necessary. The expected benefits of this approach will extend the values of multiple wetland functions, including wildlife use, appropriate hydroperiods, water quality opportunities, passive recreation, and aesthetics.

The monitoring program will involve both vegetative transect (semi-annually) and water level monitoring (monthly). Staff gages and piezometers will be installed in each wetland creation area. A description of the proposed monitoring program follows:

### Herbaceous Wetland Monitoring Plan

1. A "time zero" monitoring report will be submitted, which will include the date the planting was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for three years. Each monitoring report will include two monitoring events to occur once in the dry season and once in the wet season.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, plant species, plant species compositions with estimates of the contributions of each species to percent cover, data documenting the hydrologic regime (seasonal high and normal pool), and a description of the pertinent climatological conditions preceding the monitoring event.
4. Planted herbaceous species will achieve an acceptable minimum percent cover and the total contribution of exotic species will be maintained below 10% of the total coverage.

### Forested Wetland Monitoring Plan

1. A "time zero" monitoring report will be submitted, which will include the date the planting was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for five years. Each monitoring report will include two monitoring events to occur once in the dry season and once in the wet season.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, growth data including measurements of height, diameter at breast height (dbh), and mean annual growth rate to date, data documenting the hydrologic regime (seasonal high and normal pool), and a description of the pertinent climatological conditions preceding the monitoring event.
4. The total contribution of exotic species will be maintained below 10% of the total coverage.

A combination of the above criteria will be used for sites that include both herbaceous and forested components to demonstrate that the mitigation site meets the defined success criteria.

### Upland Monitoring Plan (for enhanced sites)

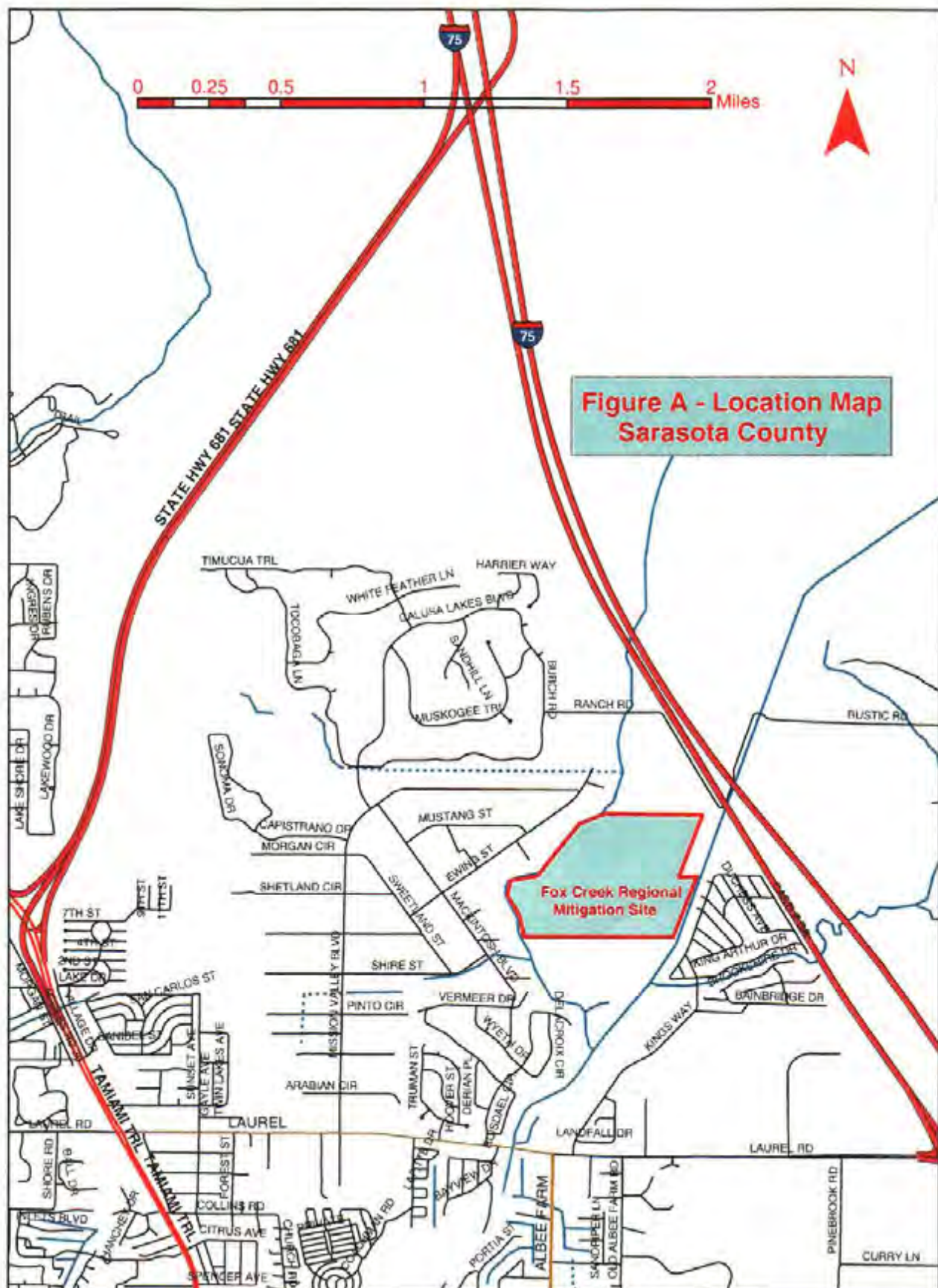
1. A "time zero" monitoring report will be submitted, which will include the date the planting or exotic removal was completed, color photographs from fixed photo reference points and directions, and a table depicting the approximate numbers, spacing, and sizes of each planted species.
2. Mitigation monitoring reports shall be submitted annually for three years.
3. The mitigation monitoring reports will include color photographs from fixed photo stations, percent area cleared of exotic vegetation, growth data including measurements of height, diameter at breast height (dbh), and mean annual growth rate to date, and a description of the pertinent climatological conditions preceding the monitoring event.

The information gathered from the monthly water level and semi-annual vegetation monitoring will be used to manage and maintain adequate and appropriate hydroperiods for each of the constructed wetland areas. Water levels are expected to vary seasonally due to natural and localized rainfall conditions, and particularly in the constructed wetlands hydrologically connected to Cow Pen Slough and Shakett Creek. The facultative and obligate zones within the constructed wetlands have been designed to account for the potential changes in groundwater elevations caused by water level controls in Cow Pen Slough, however, minor modifications may be required to ensure adequate and appropriate hydroperiods (timing, duration, depth).

In addition, the data gathered during the annual monitoring reports will be used to re-evaluate each of the mitigation areas in the context of the Uniform Mitigation Assessment Method (UMAM). Since several areas within the Fox Creek Regional Mitigation Project will be either enhanced or constructed and planted prior to future infrastructure wetland impacts, ratings for time lag and risk will be re-evaluated and an updated UMAM credit table will be developed and submitted for agency review through permit modifications.

### **Attachment C - FDOT Mitigation Criteria**

As previously noted, the majority of anticipated FDOT roadway wetland impacts proposed for mitigation at Fox Creek are associated with the widening improvements of the I-75 segment located adjacent to the tract. This widening is not scheduled to commence until the summer, 2009. This will provide the opportunity for the habitat improvements proposed for Fox Creek to be implemented and approaching success criteria prior to when the anticipated wetland impacts will occur. The I-75 design contract has been initiated in 2004, so the listed impacts are conservative planning estimates and only for the maximum limits of roadway improvements. The final impacts (habitat and acreage) will decrease or increase based on the ability to minimize the roadway construction limits and limit wetland impacts associated with the construction of stormwater and floodplain compensation facilities. In addition, habitat evaluation of the proposed impacts may alter the quantity and type of mitigation areas and associated credits debited from the mitigation ledger that will be finalized for Fox Creek during the 2004 permitting schedule. It's possible that additional future FDOT projects in the basin with minor anticipated wetland impacts may also be proposed in the next few years. As these wetland impacts are proposed by FDOT, coordination with Sarasota County will be required to determine if there will be appropriate and adequate mitigation credits available to compensate for these impacts. This effort will be followed with submittal and approval from regulatory and commenting agencies before adopting into the FDOT mitigation plan.





# Fox Creek Regional Mitigation Site

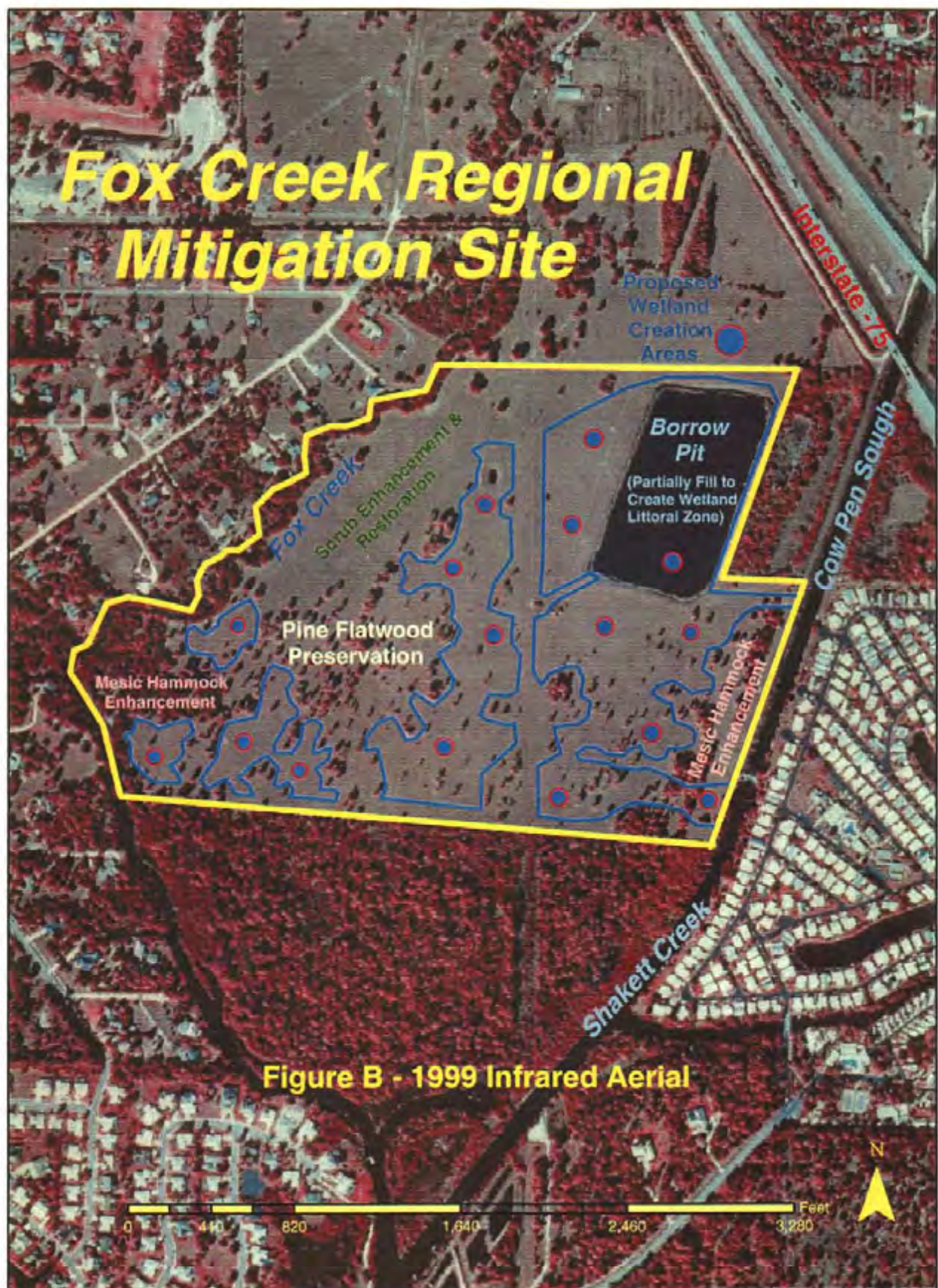
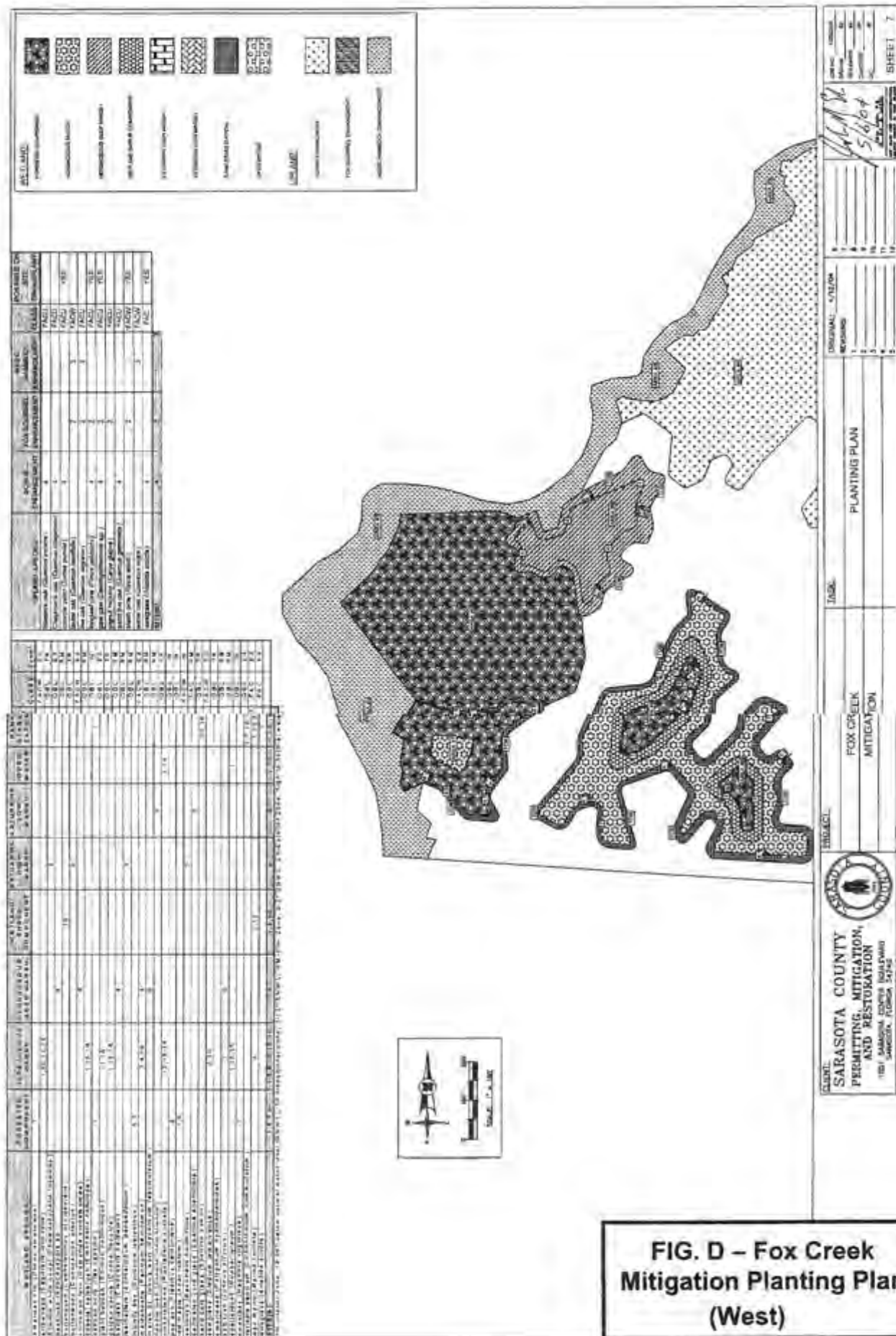


Figure B - 1999 Infrared Aerial

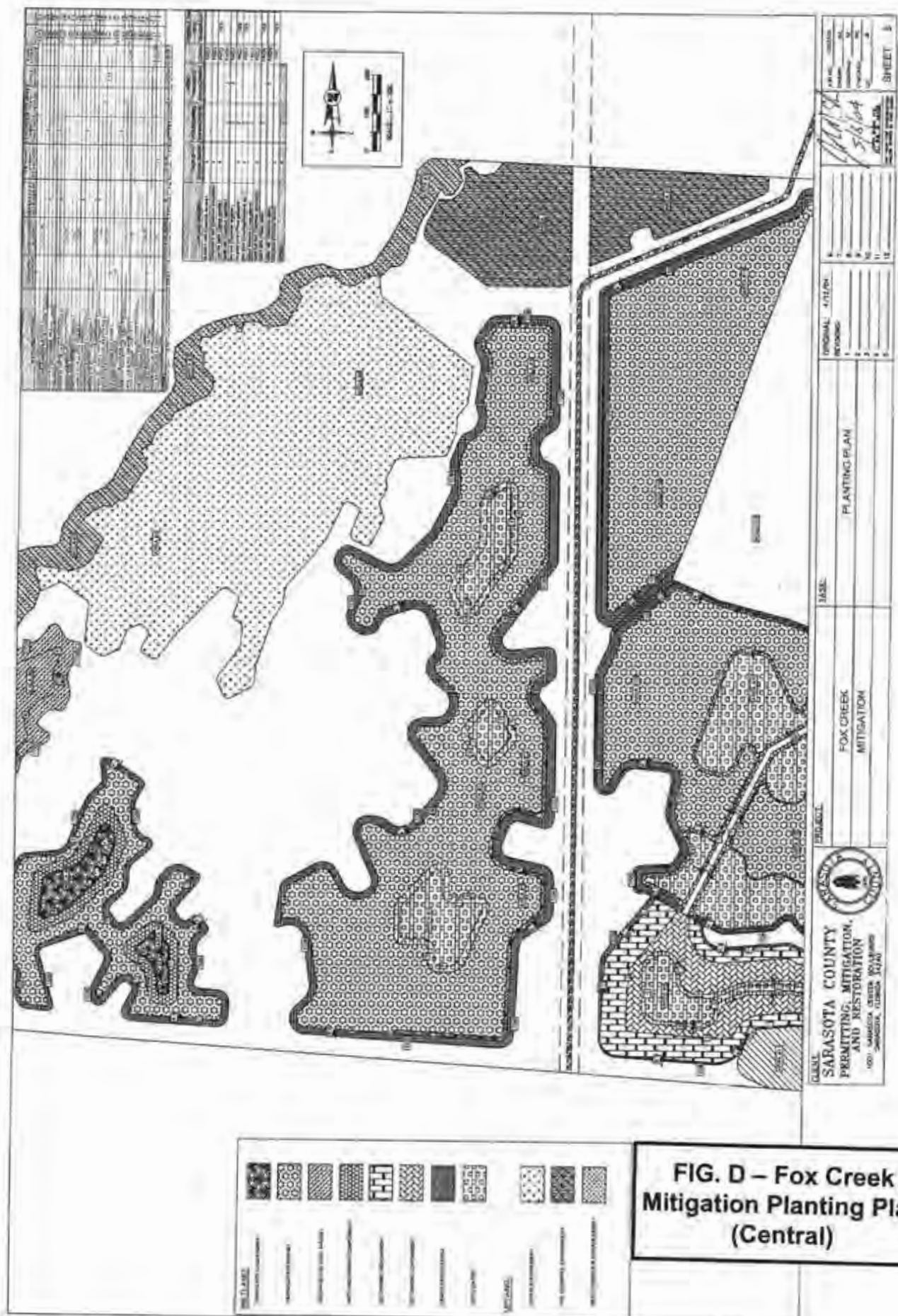




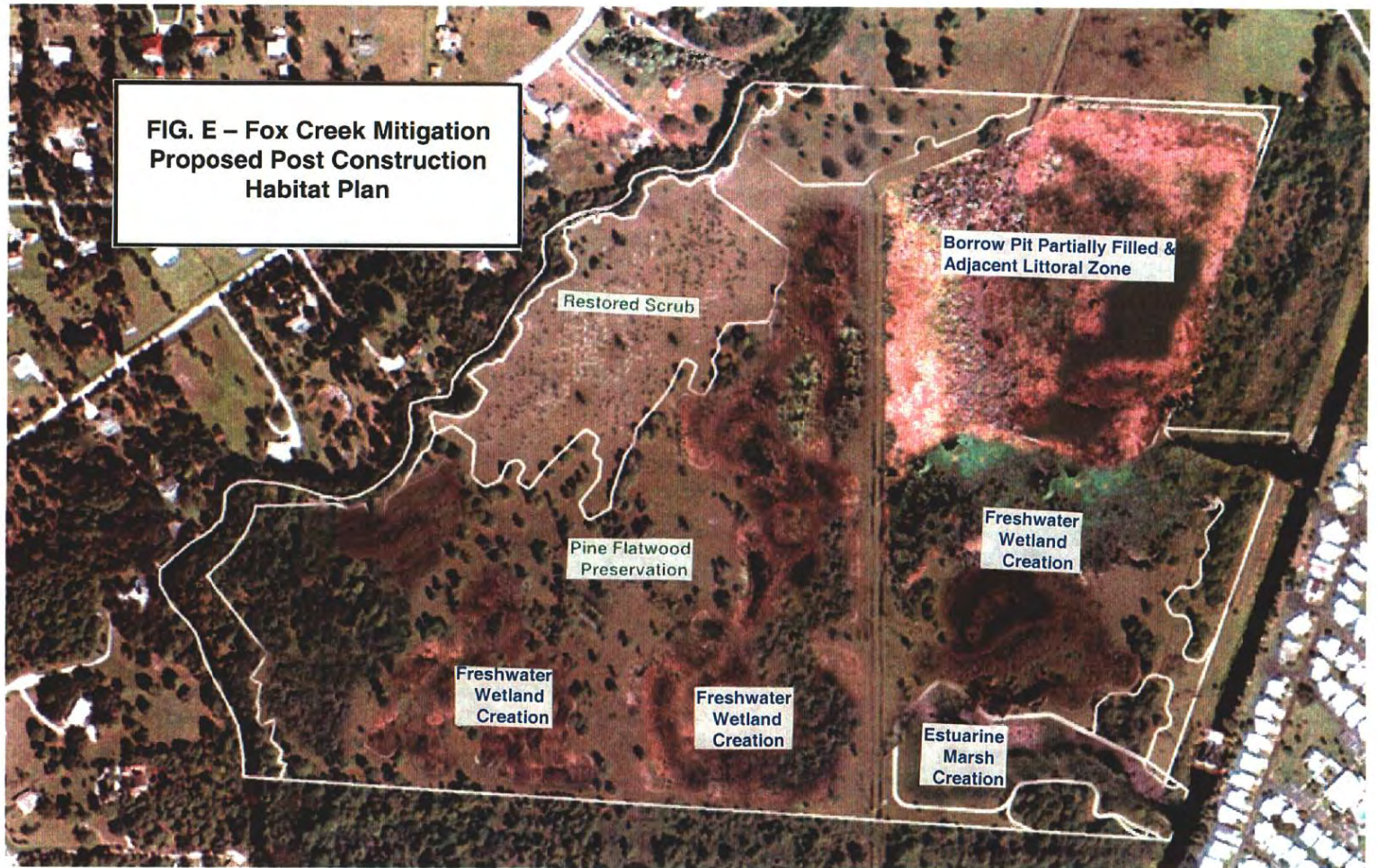








**FIG. E – Fox Creek Mitigation  
Proposed Post Construction  
Habitat Plan**







*Photo 1 – Fox Creek meanders along the western boundary of the tract. Deeply incised, the creek is bordered by a mesic hammock dominated by live oak and cabbage palm.*



*Photo 2 – The northwest pasture is dominated by bahia and will be restored into a scrub habitat community.*

**FDOT - District 1 Mitigation Site  
Lower Coastal Basin**

**FOX CREEK  
REGIONAL MITIGATION PROJECT  
(SW 79)**





***Photo 3 – Portions of the semi-improved pasture with scattered palmetto and sedges mixed with the bahia (foreground) will be graded to create wetlands. Remnant pine flatwoods (background) will be preserved and enhanced as part of the proposed mitigation plan.***



***Photo 4 – Improved pastures (foreground) will be graded and material placed into the borrow pit (background) to create extended marsh littoral zones.***

**FDOT - District 1 Mitigation Site  
Lower Coastal Basin**

**FOX CREEK  
REGIONAL MITIGATION PROJECT  
(SW 79)**