Mitigation Plan Overview

The mitigation plan for the Cypress Creek Town Center (CCTC) includes both on-site and off-site components (see Exhibit 1 for location map). Impacted wetlands will be mitigated consistent with the requirements of Chapter 373, F.S. and Section 40D-4 of the Florida Administrative Code (F.A.C); Section 404 of the Clean Water Act; and Section 3, Objective 2.7 of the Pasco County Comprehensive Plan. Wetland mitigation will consist of a combination of wetland enhancement, restoration, creation and preservation as well as upland restoration and preservation. The Unified Mitigation Assessment Method (UMAM) was used to quantify the functional value of both the impact sites and the proposed mitigation in order to assure that the mitigation proposed will provide at least as much functional value as was provided by the wetlands and surface waters that will be filled.

The on-site component of the plan consists of wetland creation. Three wetlands (M-1, M-2 and M-3) will be created in the southern part of the site (Exhibit 2). These locations were chosen because they are hydrologically appropriate and in close proximity to existing wetlands. The wetlands will be created by scraping down existing topography and planting with appropriate wetland plants. Details of the mitigation are in the sections which follow.

The Alston Mitigation Site will provide a regionally significant off-site mitigation location. The mitigation site is located within the Hillsborough River basin and is surrounded on three sides by publicly owned lands. SWFWMD owns the lands to the south, east and north sides of the site (SWFWMD's Upper Hillsborough Site). For clarity, the mitigation site is referenced throughout this document as the "Alston Mitigation Site."

The off-site component of the mitigation (Alston Mitigation Site, Exhibit 3) was chosen based largely on its regional significance and the potential to enhance, restore, and create wetland habitats that will provide improved functions and values relative to those to be impacted. The Alston Mitigation Site is a 249.1-acre tract of land located within the Hillsborough River Basin that is adjacent to conservation lands owned and managed by the Southwest Florida Water Management District (Exhibit 4). It is located in the southeastern corner of Pasco County. As part of the mitigation for this project, the Developer will create, restore, enhance, and preserve wetlands; restore and preserve uplands; and provide management of both uplands and wetlands on the tract in perpetuity. The proposed ecosystem improvement plan will result in increased acreage and improved functions and values of wetlands on the site (Exhibit 4). Details of the plan are presented in the sections which follow.

The activities proposed for the Alston Mitigation Site are a large-scale ecosystem enhancement/restoration effort that includes the enhancement/restoration of wet pasture to wetlands, hydrological and structural habitat enhancement of dewatered wetlands, restoration of mesic pasture to flatwoods, and upland preservation coupled with ecologically sound management.

In summary, the hydrological enhancement/restoration will consist of removing the effects of an extended history of localized ditching and rerouting of water and the clearing of a forested slough which increased the speed of water movement across the site resulting in some channelization in areas that were historically sheet flow. The hydrological enhancement/restoration will consist of the placing of control structures and berms in strategic locations to restore the historical pattern of water flow. Low berms will be installed to detain water in the slough and in existing "pasture wetlands" such that existing wetlands have a more reliable and longer hydroperiod and portions of the pasture that currently would be classified as uplands will be inundated or saturated at a frequency and duration sufficient to be

classified as COE jurisdictional wetlands. All control structures will be designed so that fish can swim between wetlands at high water.

The enhancement and expansion of wetlands in the pasture depends on lengthening of the hydroperiods in those areas. This will be accomplished by restricting water flow at the road crossing in the upstream portion of a slough just south of the pasture area. Currently, water flows north under a road through a large, artificially broadened culvert and ditch. A structure has been designed to control water flow so that during periods of high water, less water will flow at the base of the structure and water will be impounded in the upstream wetland (currently dewatered) until it flows over the top of the structure. This impoundment, coupled with removing fill from a historic low area in the existing roadway further east, will shunt water to the east to another historic overflow area during periods of high water. During low water periods, water will continue to flow only in the slough as occurs currently. During high water, the eastern overflow will direct water across a low area in what is now pasture and rehydrate an existing degraded cypress wetland in the pasture, thus rehydrating this wetland and expanding it into the pasture. Down-grade and west of this cypress wetland, a low berm will be constructed to block a shallow ditch that drains this cypress wetland. This berm will further retard flow resulting in a longer hydroperiod in the existing cypress wetland and also raising the water table in the much of the pasture This will create a broad area with hydrology appropriate to savanna-like wet prairie ("wetland savanna"). The wetland savannah will have a short hydroperiod but will be saturated for much of the growing season. In addition to the above, a wetland in the southern wooded part of the site will be enhanced by filling in a ditch that currently drains it.

Both wetlands and uplands within the pasture area will be enhanced. The enhancement procedure consists of removal of existing sod (mostly bahia grass, Bermuda brass, and torpedo grass), and seeding with a mix of native seed, that will be harvested from a donor site that has been managed via a controlled burn and selectively augmented with hand gathered wetland seed. Following establishment of the seed, selective planting will be done to return the existing slough (which consists now largely of a wet pasture) back to forested wetland, to provide additional diversity to other wetlands in the pasture, and to introduce appropriate native shrubs and trees that are not in the seed mix to both wetland and upland areas. Overall, the enhancement procedure will be similar to the type of enhancement currently used by public land management agencies to set degraded pasture areas on a path that will lead to more natural ecosystems and high wildlife value.

The organization of this document follows the checklist provided by the US Army Corps of Engineers in its May 24, 2004 Public Notice: Mitigation and Monitoring Guidelines.

1) Mitigation Goals and objectives

Impact Site

a) Describe and quantify the aquatic resource type and function that will be impacted at the proposed impact site. Include temporary and permanent impacts to the aquatic environment.

Wetlands on the Cypress Creek Town Center have been delineated in accordance with both State (Chapter 62-340, F.A.C.) and Federal (1987 US Army Corps of Engineers Wetland Delineation Manual) methodologies. Wetland boundaries have been verified and accepted by the US Army Corps of Engineers. All wetlands on the property are shown in Appendix A, Figure 8.

Wetlands on the property consist pri ... (*Taxodium ascendens*) heads and sloughs, a few isolated marsh syste ... ace waters. Cypress Creek forms the southern boundary of the p ... oundaries of the site.

Uplands

10/22/08

The current landuse of the site is ag ... ds on the site consist of bahia grass (*Paspalum notatum*) pasture v ... *rcus virginiana, Q. laurifolia, Q. nigra*) hammock located on the south ... mostly in the area bordering Cypress Creek. There are a few scattered live oaks present within the pasture. However, in general, the uplands on the property do not provide any significant wildlife habitat value.

Wetland Impact Area Descriptions

A map of the impact areas is given in Appendix A, Figure 8. This map includes all areas considered jurisdictional under either federal or state wetland delineation criteria. Areas not meeting federal wetland jurisdictional criteria are indicated as "Non-COE Jurisdictional." Only those areas meeting federal wetland jurisdictional criteria are included in the impact discussions below.

Wetland Impact Area W-A

Wetland Impact Area W-A is a large semi-forested wetland located in the center of the property just north of SR56. This wetland was historically forested but has been logged. Approximately half of the wetland consists of a young forest which is approximately half cypress (*Taxodium ascendens*) and half red maple (*Acer rubrum*). There is a distinct area located at the south end of the wetland adjacent to SR56 that is dominated by two species: Peruvian primrose-willow (*Ludwigia peruviana*) and softrush (*Juncus effusus*). This area has been heavily trampled by cattle. Water quality in the wetland at the time of the assessment appeared to be very poor based on high turbidity and a brown color to the water. The herbaceous cover in the wetland is fairly diverse. The most common species are pickerelweed (*Pontederia cordata*), fireflag (*Thalia geniculata*), marsh pennywort (*Hydrocotyle umbellata*), lizard's-tail (*Saururus cernuus*), and horned beakrush (*Rhynchospora inundata*). Other species in the wetland include sawgrass (*Cladium jamaicense*), Virginia chain fern (*Woodwardia virginica*), swamp fern (*Blechnum serrulatum*), climbing aster (*Symphyotrichum carolinianum*), smartweed (*Polygonum hydropiperoides*), lance-leaved arrowhead (*Sagittaria lancifolia*), and cattail (*Typha latifolia*).

There is also a significant cover of floating species, mostly mosquito fern (*Azolla caroliniana*) and water spangles (*Salvinia minima*). The existing hydrology appears to be adequate to maintain wetland function. Water quality in the remaining portions of the wetland (those areas not adjacent to SR56) appears to be good. Its proximity to SR56, which is approximately 20 feet higher then the natural grade, restricts access by wildlife to the wetland. The surrounding upland habitat is improved pasture.

Wetland Impact Area W-A2

Wetland Impact Area W-A2 is a historic flow-way located in the southwest corner of the northern portion of the property. It connects Wetland Areas W-A and W-J. Based on historic aerial photography, it appears to have been a shallow herbaceous flow-way. Currently the area consists of a deep steep-sided channel. The surrounding wetlands have been severely dewatered and also heavily grazed and trampled for many years by cattle. The wetland is dominated by softrush and Peruvian primrose-willow. Other species present in the wetland blackberry (*Rubus argutus*) and broomsedge (*Andropogon* spp.). Shrub cover is less than 10 percent and is dominated by wax myrtle (*Myrica cerifera*) and saltbush (*Baccharis* sp.). This wetland is in a highly degraded condition. It is also located very near SR56, which further decreases its wildlife habitat value.

Wetland Impact Areas W-A1 and W-A3

These are two areas which have been excavated to provide fill for a farm road under a powerline. Vegetation consists of buttonbush (*Cephalanthus occidentalis*), coastal-plain willow (*Salix caroliniana*) and pickerelweed (*Pontederia cordata*).

Wetland Impact Area W-H

Wetland Impact Area W-H is located just north of Wetland Impact Area W-I. Historically, this wetland was an oval-shaped cypress head. The western half of the wetland was filled to construct CR54. The wetland has been logged and is now a marsh. Trees are only present on the fringe of the wetland and consist primarily of red maple and cypress. The center is dominated by pickerelweed (approximately 80 percent cover); however, the wetland has a fairly high diversity of herbaceous species. The most common other species present are softrush, horned beakrush, and mermaid-weed (*Proserpinaca palustris*). Other species present in small amounts include swamp fern (*Blechnum serrulatum*), red maple seedlings, dog fennel (*Eupatorium capillifolium*), goldenrod, swamp azalea (*Rhododendron viscosum*), Peruvian primrose-willow, and broomsedge (*Andropogon virginicus*). There is also approximately 20 percent cover of bladderwort (*Utricularia* sp.). Shrub cover consists of approximately 10 percent cover and is dominated by wax myrtle. Scattered fetterbush (*Lyonia lucida*) is also present. The wetland receives untreated roadway runoff and has been cut off from much of its historic basin. Access for wildlife has been limited by the construction of CR54 and the surrounding habitat is bahia grass pasture.

Wetland Impact Area W-J

Wetland Impact Area W-J is a large, herbaceous wetland located in the northwest corner of the south half of the property. This historic cypress wetland has been logged and is currently dominated by wax myrtle, saltbush, red maple saplings and cypress saplings. The wetland likely will become a red maple swamp over time. The most common herbaceous species is softrush. However, other common species include blackberry (*Rubus argutus*), Peruvian primrose-willow, pickerelweed, softrush, and pale meadow-beauty (*Rhexia mariana*). Species present in smaller amounts include coinwort, pennywort, mermaid-weed, climbing hempweed (*Mikania scandens*), dog fennel, smartweed, mock bishop's-weed (*Ptilimnium capillaceum*), and lizard's-tail. The existing hydrology in the wetland appears to be adequate to maintain function.

Wetland Impact Area W-L

This wetland was historically contiguous to Wetland Impact Area W-A (located on the north side of SR56). This wetland has been heavily disturbed by logging and heavy cattle use. Many cattle trails exist and species composition is indicative of heavy cattle grazing. The dominant herbaceous species are softrush and maidencane. Mosquito fern and water spangles are dominate floating species. These species are indicative of disturbance, specifically high nutrient loading. The center of wetland is dominated by a combination of Peruvian primrose-willow (which accounts for approximately 75 percent cover in the understory) and coastal-plain willow in the overstory (accounting for approximately 50 percent cover in the center of the wetland). Other herbaceous species common in the wetland as five percent cover or less include climbing aster, shield fern (*Thelypteris* sp.), cinnamon fern (*Osmunda cinnamomea*), royal fern (*Osmunda regalis*), catbriar (*Smilax laurifolia*), and netted chain fern (*Woodwardia areolata*). Shrub cover is dominated by wax myrtle and coastal-plain willow. There is also a small amount of sweetspire (*Itea virginica*) present.

Wetland Impact W-L1

This is a highly disturbed area located directly adjacent to SR56. It is dominated by nearly 100 percent cover of softrush. Access to wildlife is highly limited by SR56 and by fences. It has been hydrologically isolated from Wetland W-A (to the north) and Wetland W-L (to the south).

Wetland Impact Area W-O

Wetland Impact Area W-O is a small, circular, historically isolated marsh located in the southeast corner of the southern portion of the property. A ditch, which was excavated in hydric soils, extends to the south from the wetland towards Wetland W-P; however, the two wetlands do not connect. This wetland is dominated by spatterdock (*Nuphar advena*). Three other species are common including softrush, spike-rush, and pickerelweed. Others species present include yellow-eyed-grass (*Xyris* sp.), grass-leaf rush, broomsedge, coinwort, and pennywort. The wetland is heavily grazed and somewhat dewatered.

Temporary Impact Areas (W-L2, W-P1, W-P2)

There are several very small, temporary impact areas near the outfalls of surface water management ponds. These areas have areas less than 0.01 ac and have been lumped in the analyses with areas that are similar in character. They are not shown on the maps since they are so small that they would fall under the lines used to draw the wetland limits. They have been included in the UMAM analyses.

Surface Water Impact Areas

Surface Water Impact Area W-N.

This is the deepest of several surface waters created during the excavation of fill for the construction of I-75. The shallower areas are vegetated with pickerelweed and softrush. The deeper portions have about 20 percent cover of white water lily (*Nymphaea odorata*).

Surface Water Impact Area W-U

This is a shallow transitional area that resulted from the excavation for fill described for Surface Water W-N. Dominant species in the area include pennywort, coinwort, carpetgrass (*Axonopus* sp.), yellow-eyed-grass, spike-rush, broomsedge, coinwort, pennywort, and grass-leaf rush (*Juncus marginatus*).

Other Surface Waters

Several other small surface waters exist but were not considered to provide wetland functions. These include several agricultural ditches, a cattle pond, and small depressional areas within the excavated area described above.

b) Describe aquatic resource concerns in the watershed (e.g. flooding, water quality, habitat) and how the impact site contributes to overall watershed/regional functions. Identify watershed or other regional plans that describe aquatic resources.

At Corps request, a detailed analysis of water resource concerns at the impact site was conducted and provided within the Cumulative Impact analysis for the project. This analysis is included as Appendix F. The Applicant is unaware of any regional plan that would provide a more in-depth analysis than that provided in Appendix F.

Mitigation Sites

c) Describe and quantify the aquatic resource type and functions for which the mitigation project is intended to compensate.

The mitigation sites are intended to compensate for losses of wetland functions. The on-site mitigation areas provide local replacement of lost wetland acreage and functions, and, together with planting of littoral shelves in surface water management ponds, provide for nearly 2:1 replacement of potential wood stork and other wading bird foraging habitat.

Mitigation will be provided by a combination of on-site wetland creation; off-site wetland restoration, creation and enhancement; and upland ecosystem preservation and management. Proposed compensation is being provided in terms of UMAM functional loss and lift units. Total COE jurisdictional wetland impacts associated with the project are 53.89 acres. An additional 9.65 acres of jurisdictional man made surface waters will also be filled. The total functional loss for the filling of wetlands and surface waters is 38.69 functional units.

The function lift has been computed to be 38.90 units for all wetland specific mitigation activities (wetland creation, enhancement and preservation). In addition, the 129.9 acres of upland restoration/enhancement and upland preservation on the Alston property result in 58.9 units of functional lift. See the UMAM analysis (Appendix B) for detail.

The offsite mitigation area (Alston Mitigation Site) can be described as a large-scale ecosystem enhancement/restoration and management effort that includes the enhancement/restoration of wet pasture to wetlands, hydrological enhancement of dewatered wetlands, restoration of mesic pasture to flatwoods, and upland preservation coupled with ecologically sound management. The mitigation activities will provide more functional improvement in wetland size and quality to offset the loss of wetland functions than required under SWFWMD and US Army Corps of Engineers (COE) regulations as determined by the Florida Uniform Mitigation Assessment Method (UMAM). In specific, the Alston Mitigation site provides for 1) enhancement of wetlands with hydrological and vegetative degradation, 2) creation of "savanna" wetlands that meet federal wetland criteria (saturation to the surface) and that regionally have suffered greater proportional losses than deeper wetland systems, 3) restoration of degraded uplands that form important buffers protective of water quality and habitat, 4) management and preservation of uplands and wetlands important to the maintenance of ecosystem and watershed functions, and 5) expansion of existing protected habitats via conservation easements and enhancement/restoration/creation activities.

d) Describe the contribution to overall watershed/regional functions that the mitigation site(s) is intended to provide.

Please see the above response.

2) Baseline information – for proposed impact site, proposed mitigation site & if applicable, proposed reference site(s).

a) Location

1) Coordinates (preferably using DGPS) & written location description (including block, lot, township, county, Hydrologic Unit Code (HUC) number, as appropriate and pertinent.

Impact Site and On-Site Mitigation Area

The Cypress Creek Town Center Project is located within Section 27, Township 26 South, Range 19 East in Pasco County, Florida. The latitude is 28° 11' 49.55" N and the longitude is 82° 23' 32.32" W. The site is located at the intersection of Interstate 75 (I-75) and State Road 56 (SR56) and State Road 54 (SR54), on the west side of I-75 and bisected by SR56. The Project can be accessed by driving north on I-75 from Tampa, exiting at SR56, and turning west. The project extends on both sides of the road west of the I-75 entrance and exit ramps.

Off-Site Mitigation Site

Appendix A includes maps of the project location and the Alston Mitigation Site. The Alston Mitigation Site is located in Sections 28 and 33, Township 26 South, Range 22 East, in Pasco County, Florida. The latitude is 28° 10' 46.42" N and the longitude is 82° 06' 28.96" W. It is in the southeastern corner of Pasco County. It can be reached by driving north from I-4 at Plant City on CR 39 to County Line Road, turning east on County Line Road, north on Saunders Road, and east on Deems Road to the end at which point it turns into a private drive into property owned by Mr. Brad Alston. The mitigation site itself is accessed from the main road through the Alston property by driving east until crossing the altered slough. Please refer to the location map in Appendix A, Figure 23.

2) Maps (e.g. site map with delineation (verified by the Corps), map of vicinity, map identifying location within the watershed, NWI map, NRCS soils map, zoning or planning maps; indicate area or proposed fill on site map).

See Appendix A, Figure 6 for a wetland delineation map of the impact site. The delineation line shown was approved by the Corps. See Appendix A, Figure 25 for a delineation of wetlands on the Alston Mitigation Site. The delineation line shown for the Alston Mitigation Site was approved by the SWFWMD.

3) Aerial/Satellite photos.

See Appendix A, Figures 3 and 24 for on-site aerial photographs of the impact and mitigation sites.

b) Classification – Hydrogeomorphic as well as Cowardian classification, Rosgen stream type, NRCS classification, as appropriate.

Impact Site (not all wetlands in the table are to be impacted)

Wetlands are identified in the table as shown in Appendix A, Figure 6.

Wetland	Acreage	FLUCFCS	Cowardin Classification
W-A	35.32	621	Palustrine, scrub-shrub
W-A1	13.65	621	Palustrine, scrub-shrub
W-A2	.84	500, 641	Palustrine, emergent
W-C	.20	641	Palustrine, emergent
W-D	.43	641	Palustrine, emergent
W-D1 - ditch	.12	500	Palustrine, emergent
W-E	9.50	621	Palustrine, scrub-shrub
W-E1	.72	641	Palustrine, emergent
W-F	.30	530	Palustrine, emergent
W-H	3.73	641	Palustrine, emergent
W-J	24.29	621	Palustrine, scrub-shrub
W-J1	.04	643	Palustrine, emergent
W-K – borrow pond	3.83	530	Palustrine, emergent
W-L	25.74	621	Palustrine, scrub-shrub
W-L1	1.46	641	Palustrine, emergent
W-N– borrow pond	4.43	530	Palustrine, emergent
W-O – marsh with ditch	.82	641, 500	Palustrine, emergent
W-P	33.18	621	Palustrine, scrub-shrub
W-R	5.01	643	Palustrine, emergent
W-S	.22	641	Palustrine, emergent
WT– borrow pond	.18	530	Palustrine, emergent
W-U	1.09	530	Palustrine, emergent

In the FLUCFCS system, 621 is a cypress dominated wetland. In this case, all are recently logged so classified in the Cardin system as Palustrine, scrub-shrub. FLUCFCS 641 and 643 are emergent marshes with 641 being deeper than 643. Artificial wetlands include FLUCFCS 500 (ditches) and FLUCFCS 530 (borrow ponds). See Section 1 for wetland impact area descriptions.

Alston Mitigation Site

Wetlands are mapped according to type on the Alston mitigation site as shown in Appendix A, Figure 29. In the table below, the areas are named and described as they are on the figure and given classifications in accordance with their current (not future) condition. Wetlands to be created are not included in the table.

Wetlands	Acreage	FLUCFCS	Cowardin Classification
Wetland Enhancement 1 (historic slough)	4.2	641/643	Palustrine, emergent
Wetland Enhancement 3 (marshes in existing pasture)	7.9	641/643	Palustrine, emergent
Wetland Enhancement 4 (marshes with pasture on one side and SWFWMD land on the other	1.4	641/643	Palustrine, emergent
Wetland Enhancement 5 (cypress wetlands located in existing pasture)	3.80	621	Palustrine, forested
Wetland Enhancement 8 (ditched/dewatered cypress wetland)	2.9	621	Palustrine, forested
Wetland Enhancement 9 (dewatered cypress wetland surrounded by flatwoods)	25.5	621	Palustrine, forested
Wetland Preservation 1 (mixed forested wetlands)	33.8	621/630	Palustrine, forested
Wetland Preservation 2 (marshes surrounded by flatwoods	4.9	641/643	Palustrine, emergent

c) Quantify wetland resources (acreage) or stream resources (linear feet) by type(s).

See tables above.

d) Assessment method(s) used to quantify impacts to aquatic resource functions (e.g., HGM, IBI, WRAP, etc.); explain findings. The same method should be used at both impact and mitigation sites.

Impact Site

Wetlands on the CCTC site were assessed using the Florida Unified Wetland Mitigation Assessment Methodology and the assessment has been reviewed by Tracy Hurst of the Corps. Wetlands to be created on-site and all mitigation areas on the Alston Mitigation site were assessed using the same methodology. See Appendix B for detail.

Mitigation Sites

Wetlands on the Mitigation Sites were assessed using the Florida Unified Wetland Mitigation Assessment Methodology. Care was taken that the assessment be consistent with the mitigation of the impact sites. See Appendix B for detail.

e) **Existing hydrology**

1) **Water budget. Include water source(s) (precipitation, surface runoff, groundwater, stream) and losses(s). Provide budgets for both wet and dry years.**

Impact Site and On-Site Mitigation Area

Ardaman and Associates, Inc. conducted a groundwater investigation on the impact site that included an evaluation of the water budget especially as it relates to the surface water management system and wetlands on the property. Excerpts from that report are provided in Appendix H. Overall, the report shows that the surface water management system on the property should appropriately and adequately maintain the water balance of wetlands on the site.

Alston Mitigation Site

The water budget of the off-site mitigation area (Alston Mitigation Site) will not be altered from that currently present. What will be altered is existing ditches and blockages to flow which will be removed or converted into control structures and low berms that will increase existing hydroperiods in areas that are currently altered. The contributing drainage area will not be altered. No water quality analyses have been conducted, but since the site has been used only as pasture, the primary pollutants anticipated are those contributed by cattle and various wildlife. Since cattle will be removed and the restoration area will be fenced to exclude both cattle and hogs, water quality will be improved.

2) **Hydroperiod (seasonal depth, duration and timing of inundation and/or saturation), percent open water.**

Impact Site and On-Site Mitigation Area

Wetlands on the impact site vary in terms of hydroperiod and depth. Based on conditions observed on the site, the typical on-site wetland has a hydroperiod of approximately 9 months and is approximately 2 feet deep in the center. No natural wetlands have open water.

Ardaman and Associates, Inc. conducted a groundwater investigation on the site that included an evaluation of the water budget especially as it relates to the surface water management system and wetlands on the property. Excerpts from that report are provided in Appendix H. Overall, the report shows that the surface water management system on the property should appropriately and adequately maintain the hydroperiods of wetland on the site.

Alston Mitigation Site

The mitigation wetlands on the Alston Mitigation Site vary in hydroperiod. Most wetlands south of the pasture have hydroperiods of approximately 6 to 9 months but greater fluctuation due to alterations. These wetlands appear to have a reduced hydroperiod compared to the historic condition based on observed fire scars and invasion by facultative and facultative upland plant species into the wetlands. In particular, portions of the wetlands south of the pasture have

had the transitional zones colonized by bahia grass and laurel oaks. Natural depth of these wetlands is approximately 2 ft, greater in impounded areas.

Wetlands within the area to be restored have hydroperiods that appear, based on indicators, to be approximately 6-7 months in forested systems and much less in herbaceous systems. There is no history of hydrological data, so the best evidence includes stain lines, lichen lines, and adventitious roots.

Wetlands in the preservation areas appear to have relatively normal to slightly shortened hydroperiods estimated to be approximately 7-9 months.

3) Historic hydrology of mitigation site if different than present condition.

Historically, wetlands on the Alston Mitigation site would have had long hydroperiods. Forested wetlands would have had approximately 9 month hydroperiods. The slough system would have varied from year to year from being a stream to being totally dry depending on rainfall. The herbaceous wetlands would have varied from relatively long hydroperiod systems (likely 9 months or more) to very short hydroperiod systems. The savannas would rarely have been inundated but would have been saturated to the surface for several months each year.

4) Contributing drainage area (acres).

The principal contributing drainage area is shown on Appendix A, Figure 31. It includes 255.2 acres.

5) Results of water quality analyses (e.g., data on surface water, groundwater, and tides for such attributes as pH, redox, nutrients, organic content, suspended matter, DO, heavy metals).

Impact Site and On-Site Mitigation Area
A surface water quality report is provided in Appendix G. Appendix F includes an assessment of water quality in Cypress Creek, the only area for which long term information is available.

Alston Mitigation Site

No water quality studies have been conducted for this area. Based on land uses (pasture and wetlands surrounded by flatwoods), generally good water quality is anticipated. DO (dissolved oxygen) and nutrient levels could be somewhat high due to the presence of domestic animals.

f) Existing vegetation

1) List of typical wetland species on site, indicating dominants. (D=dominant in one or more wetlands, *=present)

Impact Site only (On-Site Mitigation Areas are currently uplands, the species list is for existing wetlands)

Table 2-1. Existing vegetation in on-site wetlands.

Species	Forested Palustrine	Non-forested Palustrine
Acer rubrum	D	
Andropogon glomeratus		*
Andropogon virginicus		*
Axonopus spp. (non-native)		*
Azolla caroliniana (non-native)	*	*
Baccharis halimifolia	*	*
Centella asiatica	*	*
Cephalanthus occidentalis	*	
Eichhornia crassipes (non-native, nuisance)	*	*
Eupatorium capillifolium	*	*
Hydrocotyle umbellata		*
Hyptis alata		*
Juncus effusus		D
Juncus marginatus		*
Juncus sp.	*	*
Itea virginica	*	
Ludwigia peruviana (non-native, nuisance)	D	*
Ludwigia repens	*	
Lyonia lucida	*	
Mikania scandens	*	*
Myrica cerifera	*	
Nuphar advena		*
Nymphaea odorata		*
Nyssa sylvatica var. *biflora*	*	*
Osmunda cinamomea	*	
Osmunda regalis	*	
Panicum hemitomon		*
Panicum repens (non-native, nuisance)	*	*
Paspalum notatum (non-native, nuisance)		*
Polygonum hydropiperoides	*	*
Pontederia cordata	*	*

Species	Forested Palustrine	Non-forested Palustrine
Proserpinaca palustris		*
Ptilimnium capillaceum		*
Quercus laurifolia	*	
Quercus nigra	*	
Rhexia mariana		*
Rhododendron viscosum	*	
Rhynchospora inundata	*	
Rhynchospora sp.	*	*
Rubus argutus (native, not desirable)	*	*
Sagittaria graminea	*	*
Sagittaria lancifolia	*	
Sarurus cernuus	*	*
Salix caroliniana	*	
Salvinia minima (non-native)	*	
Solidago fistulosa		*
Symphiotrichum carolinianum	*	
Taxodium ascendens	D	*
Taxodium distichum	*	
Thalia geniculata	*	
Thelypteris sp.	*	
Typha sp. (native, not desirable)	*	D
Utricularia sp.	*	*
Woodwardia aereolata	*	
Woodwardia virginica	*	
Xyris elliottii	*	*
Xyris sp.	*	

Table 2-2. Existing pre- and post-restoration vegetation in off-site Alston Mitigation Site Wetlands.

Species	Forested Palustrine		Non-forested Palustrine	
	Pre	Post	Pre	Post
Acer rubrum	*	*		
Andropogon glomeratus			*	*
Andropogon virginicus			*	*
Axonopus sp.			*	*
Axolla caroliniana (non-native)	*			
Baccharis halimifolia	*	*		
Blechnum serrulatum	*	*		
Centella asiatica	*	*	*	*
Cephalanthus occidentalis	*	*	*	*

Species	Forested Palustrine		Non-forested Palustrine	
	Pre	Post	Pre	Post
Eichhornia crassipes (non-native, nuisance)	*		*	
Eupatorium capillifolium	*		*	
Hydrocotyle umbellata	*	*	*	*
Juncus effusus	*	*	D	*
Juncus marginatus	*	*	*	*
Juncus sp.	*	*	*	*
Ilex cassine	*	*		
Itea virginica	*	*		
Ludwigia repens	*	*	*	*
Lycopus rubellus	*	*		
Lyonia lucida	*	*		
Micranthemum sp.			*	*
Mikania scandens	*	*		
Myrica cerifera	*	*		
Nymphaea odorata		*		
Nyssa sylvatica var. *biflora*	*	*		*
Osmunda cinamomea	*	*		
Osmunda regalis	*	*		
Panicum hemitomon			*	*
Panicum repens (non-native, nuisance)	*		D	
Paspalum notatum (non-native, nuisance)	*		D	
Polygonum hydropiperoides	*	*	D	*
Pontederia cordata	*	D	*	D
Proserpinaca palustris			*	*
Ptilimnium capillaceum			*	*
Quercus laurifolia	*	D		
Quercus nigra	*	*		
Rhexia mariana			*	*
Rhododendron viscosum	*	*		
Rhynchospora inundata		*		
Rhynchospora sp.	*	*	*	*
Rubus argutus (native, not desirable)	*			
Sagittaria graminea	*		*	*
Sagittaria lancifolia	*	D		D
Sarurus cernuus	*	*		*
Salix caroliniana	*	*		
Sesbania herbacea (non-native, not desirable)			*	

Species	Forested Palustrine		Non-forested Palustrine	
	Pre	Post	Pre	Post
Solidago fistulosa				*
Symphiotrichum carolinianum	*	*		
Taxodium ascendens	D	D	*	*
Taxodium distichum		*		
Thalia geniculata		*		*
Utricularia sp.		*		*
Woodwardia aereolata	*	*		
Woodwardia virginica		*		*
Xyris elliottii		*		*
Xyris sp.		*		*

Please see Section 4.0 for details on future vegetation in mitigation areas.

2) Species characteristics such as densities, general age and health, and native/non-native/invasive status.

Wetlands on the CCTC site are altered by past history of logging and hydrological alteration. All wetlands were logged during the 1990s as part of ongoing agricultural operations. As a result, trees in wetlands are small and mostly shrubby in stature. Most species present are native; however, invasive non-natives such as Peruvian primrose-willow (*Ludwigia peruviana*) and invasive natives such as cattail (*Typha* sp.) are common. Also present in abundance are species indicative of high nutrient loads including water hyacinth (*Eichhornia crassipes*), water spangles (*Salvinia minima*) and mosquito fern (*Azolla caroliniana*). Most of the wetlands are ditched and some are the result of human activities (parts of a borrow pit are jurisdictional). Almost all wetlands are surrounded by pasture or roads. All are grazed. Cypress Creek, which is in good condition but which is associated with few wetlands within the project site, is immediately south of the project site. Overall, wetlands on the project site are of moderate to low quality due to long term agricultural use.

3) Percent vegetative cover; community structure (canopy stratification).

Impact Site and On-Site Mitigation Area

As indicated above, the forested wetlands are recovering from past logging, and the trees are small in stature. Percent vegetative cover is high, typically exceeding 75%.

Alston Mitigation Site

The Alston Mitigation Site must be divided into preservation and restoration/enhancement areas. Within the preservation areas, the community structure is generally good. Wetlands have dense overstories with canopies exceeding 75% and diverse groundcover. Most have a relatively sparse shrub layer.

Within the pasture restoration/enhancement area, wetlands are severely altered. Forested wetlands have dense canopies but virtually no understory and no shrub layer due to heavy cattle use. The historic slough has been cleared and lacks trees. It is dominated by torpedo grass (*Panicum repens*). Herbaceous wetlands are dominated by species tolerant of grazing, mostly soft rush (*Juncus effusus*) and smartweed (*Polygonum hydropiperoides*) which are disliked by cattle. Diversity is low.

South of the pasture restoration/enhancement area are forested wetlands to be enhanced. These wetlands have a good tree cover; however, in one case, pines have invaded the overstory, and the groundcover is dominated by species tolerant of extended dry conditions.

4) Map showing location of plant communities.

Maps of plant communities are included in Appendix A, Figure Nos. 6A and 29. For Figure 29, areas labeled Upland Enhancement 1 and Wetland Creation (savanna) are currently pasture, and Wetland Enhancement 1 (historic slough) is currently wet pasture that is jurisdictional.

g) Existing soils

1) Soil profile description (e.g., soils survey classification and series) and/or stream substrate (locate soil samples on site map).

Maps of soils on the CCTC and Alston Mitigation Site are found in Appendices A, Figures 4 and 26.

2) Results of standard soils analyses, including percent organic matter, structure, texture, permeability.

This information is not available.

h) Existing wildlife usage (indicate possible threatened and endangered species habitat).

Impact Site and On-Site Mitigation Area

This is a summary of listed species information previously provided.

Wood Stork

Detail on wood storks has been provided to the USFWS. To summarize, no wood stork colonies exist on site. The closest active colony (in 2006) was at Heron Pointe approximately 3.5 miles to the northwest. The colony that had been present 1.25 miles to the south near the junction of I-75 and I-275 was totally abandoned in 2006 (this appears to be the result of high tree mortality which may be the result of past overuse by the storks). The Applicant is in communication with Linda Smith of the USFWS and we anticipate a response in the near future.

The Applicant will be creating more wood stork foraging habitat at the CCTC than will be lost. Habitat will be created on littoral shelves of stormwater ponds that will be planted to native

species and in one 8.03 acre on-site wetland mitigation area. Approximately 11.79 acres will be lost and 21.35 acres will be created.

Gopher Tortoise - Observed

Gopher tortoises (state threatened) were observed in the improved pasture in the southern part of the site and in shrubby areas that are recently cut hardwood hammock. The northern part of the site was too wet for tortoises, and none were seen. The Permittee has a permit to relocate gopher tortoises on this site in accordance with the regulations of the FFWCC. Tortoises will relocated to the managed, natural uplands on the Alston Mitigation Site.

American Alligator - Observed

One alligator (Florida species of special concern [SSC], federal threatened due to similarity of appearance) was observed near the Cypress Town Center Creek site during the wetland wildlife surveys. It was using the Cypress Creek system. Alligators are anticipated to use, at least occasionally, the larger wetlands and Cypress Creek. The American alligator is listed; however, it has recovered from past low population levels to the extent that a limited harvest has been established by the FFWCC.

Eastern Indigo Snake – Not observed

Inadequate habitat for maintenance of eastern indigo snakes exists on the impact site in its predevelopment state.

Wading Birds - Little Blue Heron, Snowy Egret, Tricolored Heron, Wood Stork, White Ibis – Observed

Observed were snowy egret (Florida SSC), tricolored herons (Florida SSC), little blue herons (Florida SSC), white ibises (Florida SSC), snowy egret (SSC) and wood storks (Florida and federal endangered). All were foraging or loafing. None were nesting.

Florida Sandhill Crane – Observed

Florida sandhill cranes (Florida threatened) were observed using pastures on the site for foraging. One unsuccessful attempt at nest construction was observed in 2002. Repeated surveys have not indicated any more recent attempts.

Alston Mitigation Site
With the exception of surveys for gopher tortoises (an upland species), no formal wildlife surveys have been conducted on the Alston mitigation site. Species observed on site during site visits include the following:

Common Name	Scientific Name
American alligator	*Alligator mississippiensis*
American crow	*Corvus brachyrhynchos*
Black vulture	*Coragyps atratus*

Common Name	Scientific Name
Cattle egret (foraging)	*Bubulcus ibis*
Florida sandhill crane	*Grus canadensis pratensis*
Fox squirrel	*Sciurus niger*
Gopher tortoise (resident)	*Gopherus polyphemus*
Gray squirrel	*Sciurus carolinensis*
Great blue heron (foraging)	*Ardea herodias*
Great egret (foraging)	*Casmerodius albus*
Greater sandhill crane	*Grus canadensis*
Green tree frog	*Hyla cinerea*
Killdeer	*Charadrius vociferous*
Lesser yellowlegs	*Tringa flavipes*
Little blue heron (foraging)	*Egretta caerulea*
Mourning dove	*Zenaida macroura*
Northern bobwhite	*Colinus virginianus*
Northern cardinal	*Cardinalis cardinalis*
Raccoon	*Procyon lotor*
Red-shouldered hawk	*Buteo lineatus*
Roseate spoonbill (foraging)	*Ajaia ajaja*
Snowy egret (foraging)	*Egretta thula*
Tufted titmouse	*Parus bicolor*
Turkey vulture	*Cathartes aura*
White ibis (foraging)	*Eudocimus albus*
White tailed deer	*Odocoileus virginianus*
White-tailed deer (resident)	*Odocoileus virginianus*
Wild hog (resident, non-native, nuisance)	*Sus scrofa*
Wild turkey	*Meleagris gallopavo*
Wood stork (foraging)	*Mycteria americana*

i) Historic and current land use; note prior converted cropland.

Impact Site and On-Site Mitigation Area

Historically, this site was low uplands dominated by long leaf pine with an understory of saw palmetto and forbs (flatwoods). Distributed within this site were palustrine wetlands, mostly forested. A few of these were isolated, but most were connected either to Cypress Creek or to Cabbage Swamp (to the north) by shallow sloughs. Two wetlands were contiguous with Cypress Creek. Only two non-forested palustrine wetlands were present.

More recently (in the last 50 years), all wetlands were ditched or otherwise altered. Wetlands on the northern half of the property were altered (via ditch) to outfall to the south toward Cypress Creek. Construction of I-75 severed the connection between one wetland in the southeastern part of the site from Cypress Creek and it and several other wetlands on the east side outfall through culverts under I-75 into other wetlands (off site).

Alston Mitigation Site

Historically, the Alston Mitigation Site included low uplands dominated by flatwoods, a forested wetland slough, and a number of isolated wetlands. The latter were either cypress-dominated forested wetlands, shallow marshes, or savannas. The latter term refers to areas that would have met Corps jurisdictional criteria via saturation to the surface. They would have been mostly open and dominated by wiregrass and likely had occasional slash pines.

Much of the Alston Mitigation Site retains native vegetation. However, there are areas where the hydrology has been altered by either ditching (dewatering) or impoundment (by inadequately constructed wetland culverts and crossings). Approximately 70 acres of the site has been converted to pasture. Wetlands within the pasture area have altered vegetation. Forested wetlands have virtually no groundcover, marshes are dominated by species not palatable to cattle, mostly soft rush and smartweed, and savannas are converted to bahia grass. Nuisance species are dominant in the non-forested pasture wetlands.

j) Current owner(s)

Impact Site and On-Site Mitigation Area

Pasco 54 Ltd.
Pasco Properties of Tampa Bay, Inc.
Pasco Ranch, Inc.
509 Guisando de Avila, Suite 200
Tampa, FL 33613

Alston Mitigation Site

Mr. Brad Alston
1521 Touchton Road
Lutz, FL 33549

k) Watershed context/surrounding land use.
1) Impairment status and impairment type (e.g., 303(d) list) of aquatic resources.

Impact Site and On-Site Mitigation Area

The impact site lies in the Cypress Creek sub-basin of the Hillsborough River Basin. Impaired aquatic resources include water quality (the site is heavily grazed), water quantity (most wetlands are ditched), and wetland wildlife habitat (surveys indicated low usage by wetland wildlife including wading birds). All wetlands have a long history of agricultural usage. All forested wetlands are shrubby and lack canopy coverage due to past logging.

Alston Mitigation Site

The site lies in the Hillsborough River basin. Relative to the Impact Site, there is less impairment. Only wetlands in the southern part of the site have been ditched or impounded. There is no recent logging. All wetlands have a history of agricultural usage. Cattle have access to the entire site and hence water quality is impaired. Casual observation suggests relatively high usage by wildlife including wading birds.

2) Description of watershed land uses (percent ag, forested, wetland, developed).

Impact Site and On-Site Mitigation Area

The Cypress Creek sub-basin of the Hillsborough River basin lies in a rapidly urbanizing area. Much of Cypress Creek and natural lands along the creek are protected. Areas outside of public ownership are generally developed, mostly as residential areas, or are in the process of being developed. . In 2006, there were 14,770 acres of forested wetlands, 2,253 acres of non-forested wetlands, and 1,862 acres of open water (see map, Appendix D). The latter was predominantly surface water management ponds, borrow ponds and agricultural ponds. Uplands were predominantly developed (12,937 acres), predominantly as residential areas. Approximately 11,338 acres were agricultural

Alston Mitigation Site

The site lies in the Hillsborough River basin. It is in the upper Hillsborough River basin. Approximately 23 percent is agricultural (pasture), 43 percent is upland forest, 34 percent is wetland, and none is developed.

3) Size/Width of natural buffers (describe, show on map).

Impact Site and On-Site Mitigation Area

Please see the aerial photograph in Appendix A, Figure 3 to see natural buffers. These buffers are relatively narrow due to I-75 forming the eastern site boundary, CR 54 on the northwest side, agricultural land uses (known to be in the process of seeking development approval) on the north, Cypress Creek and a large agricultural property (seeking development approval) on the south, and a small agricultural property and subdivisions on the west.

The existing buffer along Cypress Creek consists on a mixed hardwood forest. The overstory is dominated by live oak (*Quercus Virginiana*), but small amounts of other species including laurel oak (*Quercus laurifolia*), water oak (*Quercus nigra*), cabbage palm (*Sable palmetto*) sour orange (*Citris sp.*) and southern magnolia (*Magnolia grandiflora*) (a few individuals) are also present in the overstory. The understory is sparse, consisting primarily of leaf litter. The most common herbaceous species is cat briar (*Smilax sp.*). Shrubs species present include saw palmetto (Serenoa repens), sparkleberry (*Vaccinium arboreum*) and American beautyberry (*Callicarpa americana*).

Alston Mitigation Site

Please see the aerial photograph in Appendix A, Figure 24 to see natural buffers. The Alston Mitigation site is bounded by a large naturally vegetated public land ownership on the south, east, and north. On the west it is bounded by a mixture of naturally vegetated lands and agricultural lands (pasture).

4) **Description of landscape connectivity: proximity and connectivity of existing aquatic resources and natural upland areas (show on map).**

Impact Site and On-Site Mitigation Area

Please see the aerial photograph in Appendix A, Figure 3 to see landscape connectivity. Wetlands and uplands along Cypress Creek and within project area have been identified by Pasco County as a critical wildlife linkage between large natural areas in public ownership or otherwise preserved. However, with the exception of Cabbage Swamp on the North and Cypress Creek on the south, there is no connectivity to natural lands. Connectivity via Cabbage Swamp and Cypress Creek will not be altered by the project. The on-site mitigation areas are located adjacent to wetlands associated with the creek, so to the extent possible, these mitigation sites will maintain such connectivity as exists.

Alston Mitigation Site

Please see the aerial photograph in Appendix A, Figure 24 to see landscape connectivity. The Alston Mitigation Site is bounded by a large naturally vegetated public land ownership on the south, east, and north. On the west it is bounded by a mixture of naturally vegetated lands and agricultural lands (pasture). The Alston Mitigation Site expands on a major natural area. The proposed mitigation eliminates pasture and enhances connectivity within the site. The choice of the Alston Mitigation Site was made, in part, because Pasco County lists it as important to maintaining connectivity of natural lands and because the SWFWMD had previously attempted to acquire it for the same reason.

5) **Relative amount of aquatic resource area that the impact site represents for the watershed and/or region (i.e., by individual type and overall resources).**

Impact Site and On-Site Mitigation Area
The impact site represents less than one (0.98) percent of the wetland resources of the Cypress Creek sub-basin and 0.18 percent of the wetland resources of the Hillsborough River Basin. The impacts represent 0.32 percent of the wetland resources of the Cypress Creek sub-basin and 0.06 percent of the wetland resources of the Hillsborough River Basin. None of the wetland impact areas on the impact site is unique.

Alston Mitigation Site

The Alston Mitigation Site represents 0.09 percent of the wetland resources of the Hillsborough River Basin.

3) Mitigation Site Selection & Justification

a) Site-specific objectives: Description of mitigation type(s), acreages and proposed compensation ratios.

Mitigation will be provided by a combination of on-site wetland creation, off-site wetland restoration creation and enhancement, and upland ecosystem preservation and management. Proposed compensation is being provided in terms of UMAM functional loss and lift units. Total COE jurisdictional wetland impacts associated with the project are 53.23 acres. An additional 9.65 acres of jurisdictional man-made surface waters will also be filled. The total functional loss for the filling of wetlands and surface waters is 38.33 functional units.

The function lift has been computed to be 40.74 units for all wetland specific mitigation activities (wetland creation, enhancement and preservation). In addition, the 129.9 acres of upland restoration/enhancement and upland preservation on the Alston property result in 58.9 units of functional lift. See the UMAM analysis (Appendix B) for detail.

The on-site component of the mitigation plan consists of wetland creation. The creation areas are being provided, consistent with Regulatory Guidance Letter (RGL) No. 02-2 to as closely as possible approach 1:1 compensation for the wetland acreage losses. Three wetland creation areas; M1 (2.95 acres), M2 (2.40 acres) and M3 (8.03 acres), totaling 13.38 acres, will be constructed on the project site. The creation areas are adjacent to retained natural wetlands and provide buffers between the development and the natural wetlands. They also will assist in maintaining the natural hydrological regime of Cypress Creek which forms the southern boundary of the development site (Cypress Creek is not directly impacted by the project).

The Alston Mitigation Site component of the mitigation plan can be described as large-scale ecosystem enhancement/restoration and management that includes the enhancement/restoration of wet pasture to wetlands, hydrological enhancement of dewatered wetlands, restoration of mesic pasture to flatwoods, and upland preservation coupled with ecologically sound management. The mitigation will provide more functional improvement in wetland size and quality to offset the loss of wetland functions than required under US Army Corps of Engineers (COE) regulations as determined by the UMAM.

The Alston Mitigation Site component of the mitigation plan is consistent with US Army Corps of Engineers RGL No. 02-2 dated December 24, 2002 and titled "Guidance on Compensatory Mitigation Projects for Aquatic Resource Impacts under the Corps Regulatory Program Pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899." The purpose of this RGL is to clarify and support the national policy for "no overall net loss" of wetlands and reinforce the Crops' commitment to protect waters of the United States including wetlands. This guidance applies to all compensatory mitigation proposals associated with permit applications submitted for approval after 12/24/02. The numbers and headings below refer to the quoted section of the RGL, and all excerpts from the RGL are italicized:

2.a. Districts will use watershed and ecosystem approaches when determining compensatory mitigation requirements, consider the resource needs of the watersheds where impacts will occur, and also consider the resource needs of neighboring watersheds.

2.b. Applicants will be encouraged to provide compensatory mitigation projects that include a mix of habitats such as open water, wetlands, and adjacent uplands. When viewed from a watershed perspective, such projects often provide a greater variety of functions.

2.c. There may be instances where permit decisions do not meet the "no overall net loss of wetlands" goal because compensatory mitigation would be impracticable, or would only achieve inconsequential reductions in impacts. Consequently, the "no overall net loss of wetlands goal" may not be achieved for each and every permit action, although all Districts will strive to achieve this goal on a cumulative basis, and the Corps will achieve the goal programmatically.

Functional Replacement: For wetlands, the objective is to provide no net loss of functions, with an adequate margin of safety to reflect anticipated success. On an acreage basis, the ratio should be greater than one-to-one where the impacted functions are demonstrably high and the replacement wetlands are of lower function. Conversely, the ratio may be less than one-to-one where the functions associated with the area being impacted are demonstrably low and the replacement wetlands are of high function.

Acreage Surrogate: In the absence of more definitive information on the functions of a specific wetland site, a minimum one-to-one acreage replacement may be used as a reasonable surrogate for no net loss of functions.

On-site and Off-site Mitigation: In choosing between on-site or off-site compensatory mitigation, Districts will consider: 1) likelihood for success; 2) ecological sustainability; 3) practicability of long-term monitoring and maintenance or operation and maintenance; and 4) relative costs of mitigation alternatives:

Upland Areas: Under limited circumstances, Districts may give credit for inclusion of upland areas within a compensatory mitigation project to the degree that the protection and management of such areas is an enhancement of aquatic functions and increases the overall ecological functioning of the mitigation site, or of other aquatic resources within the watershed. The establishment of buffers in upland areas may only be authorized as mitigation of the District determines that this is best for the aquatic environment on a watershed basis.

The Alston Mitigation Site provides compensatory mitigation that is totally consistent with the RGL. It has been deemed regionally significant by the SWFWMD which issued the ERP for the site on the basis of all mitigation being provided at the Alston Mitigation Site, benefits the watershed (Hillsborough River) by providing natural and sustainable buffers and wetlands, provides for functional replacement by restoration of savanna wetlands that have largely been lost in the region, enhances a degraded forested slough system, and provides upland buffers that will prevent future impacts.

b) Watershed/regional objectives: Description of how the mitigation project will compensate for the functions identified in the Mitigation Goals section 1(c).

The development team for the Cypress Creek Town Center conducted a detailed mitigation alternatives analysis (see Appendix I). On-site mitigation alternatives were rejected as a sole alternative early in the assessment process due to configuration requirements for a regional mall, available acreage, and site topography. All acreage that could be converted into viable wetlands given the configuration, available acreage, and topography is being used for wetland creation and

is included in this Mitigation Plan as one component of the plan. In addition, the team looked for off-site locations that could meet the requirements of all permitting agencies including the Corps, SWFWMD, Pasco County, and the Tampa Bay Regional Planning Council. To select an off-site location, the team conducted the detailed mitigation analysis that is included herein as Appendix I. The selection criteria included 1) location, 2) technical feasibility, 3) cost feasibility, and 4) benefit to the region. The site was required by Pasco County to be in Pasco County and required by the SWFWMD to be within the Hillsborough River Basin. Technical feasibility was based on existing hydrology, potential to correct hydrological alterations, landowner concurrence, and soils. Cost feasibility was a function largely of landowner willingness to sell the land or provide a conservation easement over the land and allow mitigation to occur for a practicable cost. Regional benefit was based on requirement of the Regional Planning Council and the SWFWMD. The latter required that the selected mitigation area meet strict standards for "regional significance" including but not limited to providing connectivity along major streams, a wildlife corridor, or proximity to adjacent public ownerships. In addition, the site had to be able to provide adequate mitigation credit in the form of UMAM credits to more than compensate for UMAM functional credit losses on the CCTC site. The Alston Mitigation Site meets all required criteria: it lies within Pasco County and the Hillsborough River basin, it is a low-relief area with a water source (intermittent stream), portions of the site have been altered (converted to pasture) or hydrologically altered (through a combination of flow restriction, flow rerouting, and scour) and the alterations can be corrected, it has a willing owner who will allow the proposed mitigation to occur and who will allow a conservation easement to be placed over the mitigation area, meets SWFWMD requirements to be regionally significant, and can provide adequate UMAM functional lift to more than compensate for on-site losses. When combined with the on-site mitigation, it exceeds the mitigation needs for the CCTC in terms of UMAM functional loss and lift requirements.

c) Description of how the mitigation project will contribute to aquatic resource functions within the watershed or region (or sustain/protect existing watershed functions) identified in the Mitigation Goals section 1(d). How will the planned mitigation project contribute to landscape connectivity?

The mitigation project will improve aquatic resource functions within the Hillsborough River Watershed and the greater Tampa regions. The project will restore an altered slough system that was originally forested but which is currently wet pasture, restore former wet savanna wetlands, restore upland buffers, remove nutrient inputs to headwaters of the Hillsborough River from cattle and hogs, and extend environmentally sound management to a large area adjacent to public conservation ownership. The site is adjacent to the SWFWMD Upper Hillsborough Tract which protects part of the Hillsborough River basin and which is contiguous with the SWFWMD Green Swamp property.

The on-site mitigation areas will provide buffers between wetlands contiguous with Cypress Creek and the commercial development site. They will also provide wading bird foraging habitat and will be specifically designed to increase the amount of foraging habitat available in the region for the endangered Wood Stork.

d) Likely future adjacent land uses and compatibility (show on map or aerial photo).

The Alston Mitigation area is of special importance because it extends the area of land under conservation ownership. It removes acreage from agricultural uses and converts it back to a more native ecosystem. The land on three sides is either in public ownership or is being placed under conservation easements (as mitigation for other projects).

e) Description of site selection practicability in terms of cost, existing technology, and logistics.

The proposed site is suitable. It was chosen in part based on cost including purchasing the right (from the land owner) to place a conservation easement over the site and the cost of implementing the mitigation.

The technology to be used is described in detail in the work plan. The technology to be used as been demonstrated to work at other projects in the region, and it will be implemented by a team of environmental professionals who include those who have demonstrated their capacity to successfully implement the proposed technology. The ecology team will consist of Biological Research Associates, Tampa, FL with The Natives, Davenport, FL and Peer, Inc. acting as subconsultants.

f) If the proposed mitigation is off-site and/or out-of-kind, explain why on-site or in-kind options are not practicable or environmentally preferable.

On-site mitigation is being implemented to the extent feasible. Due to site configuration and requirements by the SWFWMD that the mitigation be "regionally significant," on-site mitigation is not possible for the majority of the mitigation. The mitigation site was chosen to meet the "regionally significant" requirements of the SWFWMD.

g) Existing or proposed mitigation site deed restriction, easement and rights-of-way. Demonstrate how the existence of any such restriction will be addressed, particularly in the context of incompatible uses.

There are currently no deed restrictions or rights-of-way on the mitigation sites.

h) Explanation of how the design is sustainable and self-maintaining. Show by means of a water budget that there is sufficient water available to sustain long-term wetland or stream hydrology. Provide evidence that a legally defensible, adequate and reliable source of water exists.

The mitigation plan will not change the runoff volume/water budget of the Alston Mitigation, merely remove existing minor drainage alterations. The great majority of the mitigation is removal of vegetative alterations (pasture) and enhancement or restoration of more natural site conditions through establishment of native vegetation.

Mitigation on the CCTC site will likewise not alter the existing water budget. The mitigation areas are low areas within floodplain compensation areas and adjacent to existing wetlands, and the surface water management of the mall site has been designed to maintain or enhance existing hydrological conditions. The engineering of the site was supported by appropriate hydrologic modeling which is included with this response and demonstrates that existing and post peak elevations and durations of inundation have been maintained for the wetlands.

i) USFWS and/or NOAA Fisheries Listed Species Clearance Letter or Biological Opinion.

The project team is in coordination with Linda Smith at the USFWS and the Listed Species Clearance Letter or Biological Opinion will be provided as soon as it is available.

j) SHPO Cultural Resource Clearance Letter.

The SHPO Cultural Resource Clearance Letter for the CCTC site is enclosed as Appendix E.

4.0 Mitigation Work Plan

The Mitigation Work plan is divided into three components based on mitigation location and mitigation type:

- Alston Mitigation Site, Off-site restoration and Enhancement Plan
- Alston Mitigation Site, Off-site Upland Preservation and Management Plan
- On-site Wetland Creation Plan

General maps of the mitigation sites are provided in Appendix A. Each major mitigation area is described in detail in the following paragraphs.

4.1 Alston Mitigation Site, Off-site Upland Restoration and Wetland Enhancement and Creation Plan

4.1.a. Mitigation Location.

Maps of the Alston Mitigation Site showing the restoration, enhancement and creation areas are shown in the attached construction plans (Appendix C). A map showing detail of the restoration and enhancement area is included as Figure 29, Appendix A. In general, the 249.1-acre Alston property has three distinct zones. These are the north, central and south. In this section we will discuss the activities in the central and southern portions of the site. This is the portion of the project that involves active construction in order to enhance, restore and create wetlands as well as restore upland habitat. The central portion of the site currently consists of improved pasture and highly degraded wetlands. This portion of the site will be enhanced via restoring and lengthening of hydroperiods, as well as re-establishment of native species composition. The southern portion of the site (all areas south of the pasture) consists of somewhat dewatered cypress wetlands as well as relatively undisturbed flatwoods habitats. The proposed mitigation plan will rehydrate the wetland areas by means of the construction of several berms.

4.1.b Timing of Mitigation

Mitigation will occur concurrently with site development. Construction activities on the Alston off-site mitigation area consist of three basic steps; eradication of pasture grasses, construction of berms and planting. The following is the proposed schedule of activities. The details of each step will be described in greater detail in Section 4.1.d.

April 2007 – Erect hog fencing.

May 2007 – Begin eradication of pasture grasses via sod removal followed by spot application of herbicide.

May 2007 – Construction of rehydration berms and road crossings.

June/July 2007 - Preparation of native flatwoods seed donor site via a prescribed burn.

November/December 2007 – Broadcast seed (obtained from the previously prepared donor flatwoods) over upland restoration and wetland enhancement and creation areas.

July through October 2008 – Plant containerized herbs shrubs and trees in wetland enhancement and creation areas.

June through August 2010 – Burn seeded sites excluding wetland areas with planted trees and shrubs.

August through October 2010 – Plant containerized shrubs and trees in upland restoration areas.

The timing of the initiation of activities will depend on the effectiveness of the grass eradication procedure. It is critical that the pasture grasses be completely eliminated before re-establishment of native species can begin. If the eradication is not accomplished in the growing season of 2007 the schedule will be delayed until the following year.

4.1.c Grading Plan/Plan details

Construction sheets showing the location and details of each feature are included as Appendix C. The berms are labeled A though D and the two water crossings are labeled Road Crossing R and S (refer to construction sheet 53).

4.1.d Description of Construction Methods

The Alston Mitigation Site Restoration and Enhancement Plan consists of restoring and enhancing altered habitats. These habitats are currently both hydrologically and vegetatively altered. Construction will consist of elimination of pasture vegetation and nuisance species, restoration of historic hydrology to the extent feasible, planting with desirable native species, and maintenance. Construction will be done with a combination of agricultural equipment (used for elimination of pasture grasses and nuisance vegetation and for planting of desired future vegetation) and earth moving equipment such as bulldozers and grading pans.

It is the intent of the Permittee to conduct the mitigation activities in the most sensitive manner in regard to the planting material and the downstream wetlands. Erosion and sedimentation control measures will be used both at key locations within the mitigation area and downstream. Turbidity will be controlled through detention and appropriate siltation barriers. These measures will remain in place until the mitigation area has stabilized. The contractor will ensure that the water being discharged meets state water quality standards prior to discharge to the downstream wetlands. A QEP will supervise the mitigation activities. The QEP may make minor in-field adjustments during the mitigation construction to avoid or minimize any adverse, unforeseen impacts to the existing adjacent wetlands or the mitigation area itself to better ensure the success of the mitigation area and protection of the downstream wetlands. Such adjustments may include minor changes to the erosion/sedimentation controls, construction techniques and mitigation access points.

Removal of Cattle and Exclusion of Wild Hogs

Wild hogs are currently abundant on the property. Wild hogs pose one of the greatest threats to the success of many restoration projects in Florida, so it is critical that they be excluded from all enhancement and restoration areas where there will be any soil disturbance, seeding, or planting.

Hogs are particularly attracted to loose areas of soil that have been freshly planted. Hog damage can be the largest factor impacting the success of mitigation activities on the site since hogs can dig up and totally destroy acres of newly planted flatwoods or wetlands overnight. Cattle eat and trample plantings and their droppings often contain both weed seedlings and nutrients that benefit the weeds and lower water quality. The entire 249.1-acre Alston Mitigation Site will be fenced to exclude cows. Those

portions of the site where pasture restoration and enhancement activities will occur will be fenced to also exclude wild hogs. Hog fencing will be accomplished using a wire mesh "hog fence." The limits of the Hog fencing are shown on Construction Sheets 44, 45 and 46. The hog fence will be installed prior to or immediately following sod removal in order to prevent re-inoculation of the area with invasive species as a result of either cattle or hog droppings.

Elimination of Pasture Grasses

All portions of the site that are currently dominated by pasture grasses will need to have those grasses eliminated. The pasture grasses, primarily bahia (*Paspalum notatum*) and Bermuda (*Cynodon dactylon*), will be eradicated via stripping of the sod layer combined with spot herbicide treatments and discing if necessary. The sod will be stripped to a depth that will remove the sod and underground rhizomes and roots. This will also result in a lower ground elevation/higher water table relative to the ground surface.

A QEP knowledgeable about plant species identification will be on site during sod removal and will be in charge of all herbiciding in order to preserve any valuable native vegetation existing on the site. The site will be checked for vegetation that needs to be resprayed, and touch-up applications will be applied as needed.

4.1.e Construction Schedule

See Section 4.1.b above (Timing of mitigation activities)

4.1.f Planned Hydrology

Conceptually, the hydrological enhancement/restoration will consist of removing the effects of an extended history of localized ditching and rerouting of water and the clearing of the forested slough which increased the speed of water movement across the site resulting in some channelization in areas that were historically sheet flow. The hydrological enhancement/restoration will consist of the placing of control structures and berms in strategic locations to restore the historical pattern of water flow. Low berms will be installed to detain water in the slough and in existing "pasture wetlands" such that they will have more reliable and longer hydroperiods. All controls will be designed so that fish can swim into the wetlands at high water.

The enhancement of the wetlands on the southern, forested portion of the site will depend on lengthening of the hydroperiods that will occur by restricting water flow at road crossing S (See construction sheets 43a and 50). The structure has been designed to restrict water flow until it flows over the road at elevation 93.7 ft NGVD resulting in the shunting of water to the east and then north across road crossing R which will be lowered to elevation 93.5 ft NGVD. In this way we will force water to flow across Road Crossing R and through an existing degraded cypress wetland that exists in the pasture. Thus rehydrating this wetland and expanding into the pasture. Berm B (top elevation 93.25 ft NGVD, see construction sheet 45), located west of the existing cypress wetland, will block a small ditch that drains this wetland and will further holds back water resulting in a much longer hydroperiod not only in the existing cypress wetland and will also raise the water table in the northwest portion of the property. The wetland savanna habitat that is proposed in that area will have a short period of inundation but will be saturated for much of the growing season (long hydroperiod).

4.1.g Planned Vegetation

Planting Plan for Slough System

The heart of the mitigation consists of enhancement and restoration of an altered slough system that runs through the Alston Mitigation Site. In its current state, this system is open wet pasture and wet prairie dominated by torpedo grass; it has no trees other than a few pines on a raised island. The flows have been altered by ditches and structures downstream and upstream of the pasture which result in reduced hydroperiods within the pasture and likely pulses of water that run through the system more rapidly than occurred historically. The enhancement and restoration consist of improving the hydrology of the system by constructing a series of low berms and replanting the slough such that it again becomes a forested slough bordered by wet prairie, savanna, and hydric flatwoods. Some portions of the area are currently jurisdictional, and activities in those portions are termed "enhancement." Other areas are currently non-jurisdictional, and activities in those areas are termed "creation" or "restoration" depending on whether or not the areas were historically wetlands.

The vegetation in the slough system has been impacted by removal of almost all trees and shrubs as a result of land management and grazing. The enhancement of the slough system will begin with removal of non-desirable species during site preparation. Trees and shrubs will need to be planted. Herbaceous species will be introduced to the site via hand collected seed and flail-vac collected seed. The site will also be augmented with pickerelweed and arrowhead in deeper areas to speed colonization and provide cover during the early successional stages of the proposed forested system.

A planting scheme has been devised that will provide a system similar to the system that once meandered through flatwoods. The deepest part of the system will be planted with cypress and tupelo with a few pockets of pop ash. Shallower edges will include some red maples, dahoon holly, pond cypress, and sweet-bay. The shallowest areas will be predominantly laurel and water oak. Landward, there will be bands of wet prairie, savanna, and hydric flatwoods.

Wetland shrubs will be planted at densities and in locations typical for forested slough systems. The dominant shrub species in the central portion will be buttonbush.

Herbaceous species will largely be allowed to recruit into the system. However, since they are largely absent currently and would have been abundant in deeper areas selective planting will be sued to speed recolonization.

Planting Plan for Existing Cypress Wetlands in Pasture

Three cypress wetlands exist in the pasture. Two of these are currently dewatered and the hydrological restoration will enhance their hydroperiods by blocking the flow of water to the west as described in Section 4.1.e. All are heavily grazed and have little or no native groundcover in the understory. The approach to enhancement of these wetlands is to exclude cattle, herbicide any nuisance species, and to enhance the wetlands with plantings of desirable wetland plants (as shown in Table 2) to increase the diversity of groundcover in the wetlands. Given that the native seedbank will still exist in these wetlands, spot herbicide applications will likely be needed for several years. The hydrologic enhancement coupled with removal of cows will provide the great majority of the improvement in wetland function.

Planned Vegetation for Existing Herbaceous Wetlands in Pasture

A number of areas of non-forested jurisdictional wetland occur in the pasture. These areas are dominated by pasture grasses and wetland forbs that are not palatable to cattle. The approach to enhancement of these wetlands is to remove the cows, herbicide any nuisance species that are observed, and to enhance the wetlands with plantings of desirable wetland plants to increase the diversity of groundcover in the wetlands. The groundcover will be enhanced by seeding with material from the donor site and planting of appropriate wetland species from Table 4-1.

Planned Vegetation for Wet Prairie, Savanna, Wet Flatwoods and Flatwoods Restoration Areas

As described in Section 4.1.e, additional water will be shunted through to the existing cypress wetland in the pasture via the construction of the structure at Road Crossing S and the lowering of Road Crossing R. Construction of the berm west of the forested wetland, will block a drainage ditch and reduce the rate of flow of water from the cypress wetlands to the wetland and north. This will result is an expansion of the wetland area. The margins of this area will have a hydroperiod that meets the standard of wetland hydrology (saturated or inundated at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted to saturated soil conditions) but is not inundated for most of the growing season. These grassy savanna and wet prairie areas occur as natural transitional fringe around marshes, cypress domes, and sloughs. For purposes of this document, savanna and wet prairie are distinguished on the basis of jurisdictional status, with wet prairie being those areas that will easily meet both COE wetland delineation methodology and Florida Chapter 62-340 F.A.C., and savanna areas as those that will meet the COE jurisdictional criteria but may or may not be jurisdictional based on the state methodology.

The savanna and wet prairie areas will be seeded with hand and flail-vac collected seed with additional plantings if needed. Herbaceous species will be planted only in those areas where adequate appropriate cover is not attained through seeding and to encourage diversity by introducing species appropriate to the system.

The remaining portions of the pasture on the Alston Mitigation Site will be restored to mesic and hydric flatwoods and wet prairie depending on hydrology. The objective is to eliminate the pasture grasses to restore the site to groundcover, shrub, and tree species appropriate to mesic and hydric pine flatwoods as indicated by soils.

Well-managed mesic and hydric flatwoods ecosystems have groundcover dominated by grasses, sedges, and forbs. Historically, palmettos were a minor component of the system (winter burns and grazing result in increased palmetto density). High quality flatwoods communities are best described as savannas with scattered trees. The flatwoods community is pyrophitic (relies on regular and periodic fire), and the groundcover must be able to carry fire. The term savanna as used here refers to a similar, transitional wetland community that lacks palmettos and pines.

For this reason, this flatwoods restoration plan has, as a large component, direct seeding of the groundcover. Unlike typical wetland restoration, flatwoods groundcover species rarely establish on their own, and planting them from nursery stock can be cost prohibitive and ineffective. Direct seeding most directly assists with the herbaceous cover; however, some shrub and tree species can also be introduced through the direct seeding process.

After a period of establishment for the groundcover, additional trees, shrubs, and other groundcover species will be planted from container-grown plants to add structure and diversity to the developing ecosystem.

Native seed will be harvested from a donor site that will be prepared for seed harvest via a prescribed burn in June/July of 2007 as described in Section 4.1.b.

Seed Collection Methodology

Several visits will be made to the donor site before and during mechanical harvesting begins to hand collect species that ripen earlier than the harvest time or which are shorter than the harvesting height. Key species include, but are not limited to, lopsided Indiangrass (*Sorgastrum secundum*), beaked panicum (*Panicum anceps*), Elliott's lovegrass (*Eragrostis elliottii*), coastal lovegrass (*Eragrostis virginica*), native legumes, and other forbs such as tickseed (*Coreopsis leavenworthii*). Some savanna and wet prairie species may be added to supplement seeding on wetland edges. Tree and shrub species such as pine, saw palmetto, beautyberry, shining sumac, and coral bean may also be included. All hand-collected seed will be kept dried and/or stored until site seeding begins.

The key species for mechanical harvesting is wiregrass (*Aristida stricta*), which has a very narrow optimal harvest window, which usually begins around November 10 and may run as late as December 10. Any unusual weather events can shorten this window on either end, so the donor site must be monitored for seed readiness as well as potential seed germination beginning in late October.

Mechanical harvesting will be done with a green silage cutter with 14-ft to 17-ft cutting blades. The harvester cuts material at heights that can be raised and lowered during operation to get a maximum of seed with as little chaff as possible. Usually material more than 16 – 18 inches high is harvested. The material is then collected by screw, slightly chopped, and blown into an attached wagon. When the wagon is full, it is transported to the seeding site.

This harvest may be supplemented with a flail-vac harvester that harvests by brushing mature seed into a collecting bin.

The seed will be transported to the Alston Mitigation Site. Most material will be broadcast on the restoration site within one day of harvest. Prior to seeding, hand-collected seed will be distributed into the mix for wetter sites.

Following the direct seeding, there will be a period of progress evaluation and maintenance. The evaluation will include monitoring of exotics followed by maintenance to control exotic and nuisance species.

Many non-native and nuisance species that germinate on upland restoration sites are weedy annuals that become less prolific after the second and third years, and although the site may look messy the first couple of years, if there is good native perennial competition, weedy annuals generally decrease to acceptable standards without intervention.

One species that may need active control is tropical soda-apple (*Solanum viarum)* which, if allowed to mature can produce many thousands of seed from a single plant. Tropical soda-apple is most easily controlled by hand removal or spot herbiciding the plants when plants are very young or during the spring of the year and continuing to remove them whenever they are spotted.

Bermuda grass and torpedo grass are exceptionally difficult to eradicate, even with very intensive site preparation. These problem species require several years of very active management after site seeding.

Spot spraying these species on an ongoing basis as they continue to re-emerge is the best control available.

Dog fennel, which is a native perennial pioneer species, sometimes emerges in large numbers. Though most other species can germinate with dog fennel present, its rapid growth and large size may cause it to out-compete other more desirable species. After 3 or 4 years, dog fennel begins to die off or be reduced in size. Controlled burning also helps to reduce and kill the plants when they are more mature. If dog fennel needs to be controlled, control can be accomplished by wicking the tops of the dog fennel with herbicide when it is taller than the other native vegetation.

If bahia grass should germinate from seed, or otherwise need further control, the areas where they occur may be over-sprayed with imazapic at a rate that will not be detrimental to the co-existing native species. This can be done in the late spring or early summer following seeding.

When the site is mature enough to sustain a controlled burn (2010).

The goal is to keep exotic cover to less than 5 per cent.

Supplemental Planting

Near the end of the summer, after the 2010 controlled burn, tree, shrub, vine, and other groundcover species will be planted in the seeded areas. All containerized plant species will be grown from seed sources within central Florida.

Since most upland plants are more likely to readily establish in late July and August when hot dry spells are least likely to occur and the plants are actively growing, the plants will be planted at that time. This increases chances of root growth out from the container ball and therefore, establishment and survival through the droughty months of spring. The actual time of planting will be decided by the QEP on the basis of the weather patterns and projected weather patterns at that time.

Planted species will be watered on an as-needed basis through the first dry season (usually winter – spring) until summer rains begin the following year. Careful monitoring of the site will determine when this is necessary. Watering on an 'only as needed' basis increases the rate of establishment and survival. Plants placed on well-drained soils are more likely to need extra watering, and those placed in the wetter areas may not need more than the initial watering.

Trees will be planted at 50 trees or fewer per acre. Shrubs will be planted at 300 per acre.

4.1.h Planned Soils

The intent of the mitigation is not to alter the existing soils except as necessary to restore past alterations, remove sod, or construct the low water control berms. With restoration of more natural hydrology, areas mapped as wetlands on construction sheet 43A should develop more hydric soil profiles and there should be a decrease in past evidence of alteration. The USDA mapped soil types should remain.

Erosion and soil compaction should not be major issues since little disturbance to the soil is proposed. To a very large extent, erosion will be prevented by careful timing. The berms are very low and will be sodded as described above immediately after construction using native sod species. Turbidity controls will be used as needed and required where construction occurs in existing wetlands that are hydrated. Tops of berms will be hardened as described in the enclosed construction plans.

4.1.i Planned Habitat Features

No specific habitat features have been planned. Where there is currently an absence of topographic variation or snags, natural materials, such as old stumps may be selectively placed into restoration areas to provide habitat diversity.

4.1.j Planned Buffer

The restoration and enhancement areas are surrounded by natural lands owned by the SWFWMD or Hillsborough County to the north south and east. The lands to the west are natural in character on the north half of the site. The land to the west of the existing pasture area is also existing pasture. These lands will likely be restored and placed under conservation easements as mitigation for future projects in the Hillsborough River drainage basin.

4.2 Alston Mitigation Site, Off-site Upland Preservation and Management Plan

4.2.a. Mitigation Location

The north portion of the property consists of the area north of the improved pasture. The native uplands within the Alston Mitigation Site will be managed to benefit the wetlands, regional hydrology, regional water quality, and wetland biota.

4.2.b Timing of Mitigation

Mitigation will commence concurrent with site development. Maintenance activities will occur as needed based on recommendations of a Qualified Environmental Professional. See Section 8, Adaptive Management Plan for further detail.

4.2.c Grading Plan

The upland preservation and management areas will not be graded.

4.2.d Description of Methods

Nothing will be constructed within the upland preservation and management areas. They do however, need management. The management methods are described herein.

Controlled Burns

Native wildlife and vegetation in Florida are adapted to a repetitive fire regime, and certain habitats in Florida are wholly dependent upon periodic burns to maintain the health and viability of the vegetative communities and the resident animals, which in some cases may exist exclusively within specific habitats.

One species present on the Alston Mitigation Site, the gopher tortoise, is highly adapted to this type of natural disturbance. Because of its strict habitat requirements and sensitivity to seemingly minor changes in its environment, and because their burrows provide habitat for many other species, these animals are frequently considered to be a keystone species. If the habitat becomes too overgrown due to prolonged fire exclusion, it will not provide the specific habitat requirements needed by gopher tortoises and will be vacated.

Gopher tortoises inhabit dry uplands including flatwoods, sandhill, and scrub communities, particularly those which provide substantial grassy and herbaceous forage. Except on forest edges and ecotones, tortoises are generally not found in dense, shady hammocks or overgrown habitats due to an absence of suitable, mostly herbaceous, food sources. These seed sources are eliminated by the dense cover of

canopy and shrub species. Frequent fire in the preferred upland communities maintains a relatively sparse canopy of pines and oaks and a diverse, dense layer of herbaceous ground cover (Abrahamsen and Hartnett 1990). The herbaceous ground cover is the principal food source for the gopher tortoise. When the frequency of periodic fires is reduced, hardwoods such as oaks and shrubs such as palmetto proliferate, causing a reduction in the amount of sunlight penetrating to ground level and a corresponding decrease in the density and diversity of herbaceous forage needed by the tortoise.

Many species of plants adapted to the upland communities also require high amounts of light provided by an open canopy to grow, and many also need periodic burning in order to reproduce. Similarly, it has been observed that upland communities which periodically burn have a higher diversity of herpetofauna and other vertebrate species when compared to uplands that do not burn on a relatively frequent schedule, as vertebrates associated with pyrophitic (fire dependent) communities will abandon the overgrown habitat (Mushinsky 1985, Wade and Lunsford 1989). Additionally, tortoise burrows have been documented to provide shelter for 60 vertebrate and 302 invertebrate species, many of which are protected by state and federal agencies (Jackson and Milstrey 1989).

Lastly, controlled fire and alternative mechanical treatments protect against wildfire. Most of the plant communities found on or adjacent to the Alston Mitigation Site are pyrophytic, that is, naturally dependant on fire and flammable. If allowed to become overgrown, fuel loads increase and wildfires can be extremely hot, difficult to control, and therefore, potentially catastrophic. If burned at appropriate intervals, fuel loads are kept low, both wildfires and controlled burns are light and manageable, and risk to property and people is low.

The Permittee will implement a periodic prescribed burn and mechanical treatment program designed to maintain habitat quality in the natural areas.

The amount of time between burns varies greatly among different natural vegetative communities. Historically, flatwoods typically burned on a two- to five-year (Meyers 1990, FNAI 1990) cycle. In order to maintain optimal conditions (canopy cover and shrub layers at a low density) for key wildlife species, particularly the gopher tortoise, the Permittee will implement a burn cycle that maximizes benefits to these species and which will encourage the burns be manageable and not very hot. With these goals, controlled burns may take place every three to five years in the flatwoods communities which typify the Alston Mitigation Site.

Management flexibility will allow for any lightning fires or other wild fires. A patchy burn pattern will be encouraged. Not all portions of a given management unit will burn or should be burned simultaneously (Abrahamsen and Hartnett 1990). A burn regime that results in habitat patches of varying ages helps to maintain habitat for species dependent on specific levels of cover or openness. In a patchy environment, many animals move to the patches that are in the preferred stage of development. Additionally, patchy burns ensure that reproductive success is lost in only a small portion of a population. For example, ground nesting birds (quail, turkeys) are particularly sensitive to burns that occur while they are nesting in the spring and early summer, as the burns are likely to destroy the nests and kill eggs and young. Incomplete burns provide habitat so that these species can nest again if one nest is lost or significantly disturbed.

Another important factor when planning this type of management is the timing of the burns. Natural fires in Florida's uplands are lightning-ignited and most occur during the late spring and early summer (May – June) just as the rainy season commences and lightning strikes are frequent (Snyder, Herndon and Robertson 1990). Small, patchy burns may also occur throughout the rainy season. Burns that coincide with the onset of the thunderstorm season trigger a late summer or early seed set in many native

plant species. Additionally, fires set in latter portions of the rainy season are more likely to stop at the edges of hydrated wetlands, or burn wetlands with moist substrates only lightly and without harm, further protecting the integrity of the natural communities and minimizing the need for additional, land altering fire breaks. To mimic natural conditions as closely as possible, controlled burns will therefore take place during the late spring or early summer.

The most important part in conducting the above described management program is the actual implementation of the prescribed burns. In order to safely conduct a prescribed burn, numerous factors must be considered, including existing fuel loads, predicted weather conditions, soil moisture, risks to sensitive wildlife, adjacent habitat conditions, risks to neighboring lands, and potential impacts to human activities. Prior to conducting a prescribed burn will be made. Discussions pm where and when to burn will be made by an individual(s) qualified in performing prescribed burns. Finally, upon completion of the burn, a comprehensive assessment of the managed area will be performed to determine the successes or failures of the burn which should be considered when preparing for future management activities. This flexibility is a key component of the Adaptive Management discussed in Section 8.

Control of Wild Hogs

The European wild hog digs extensively in hammocks and selected wetlands areas churning the soil and digging up the ground cover over large areas. In the Alston Mitigation Site area, the feral hog is a problem species. Introduced from Europe, it digs up the ground flora of hammocks and wetlands while looking for food. A hog-damaged wetland looks plowed.

The wild hog will be excluded from the restoration area. Elsewhere, the best management is shooting or trapping. Hunting will be used as the primary hog control.

Cattle

Cattle will be excluded from the entire 249.1-acre Alston Mitigation Site. Please refer to Section 3 item j in the attached Conservation Easement (Appendix D)

4.2.e Description of Construction Methods

Other than fencing to exclude cattle, there will be no construction in the preservation area.

4.2.f Construction Schedule

The Alston Mitigation Site will be fenced to exclude cattle within 60 days of project commencement. No other construction is anticipated.

4.2.g Planned Hydrology

No alterations to existing hydrology are anticipated in the preservation area.

4.2.h Planned Vegetation

No alterations to existing vegetation are anticipated. Vegetation will be managed as discussed above.

4.2.i Planned Soils

No alterations to existing hydrology are anticipated in the preservation area.

4.2.j Planned Habitat features

No alterations to existing habitat features are anticipated.

4.2.k Planned Buffer

The 249.1-acre Alston Mitigation Site is surrounded by natural lands owned by the SWFWMD or Hillsborough County to the north south and east. The lands to the west are natural in character on the north half of the site. The land to the west of the existing pasture area is also existing pasture. These lands will likely be restored and placed under conservation easements as mitigation for future projects in the Hillsborough River drainage basin.

4.3 On-site Wetland Creation Plan

4.3.a. Mitigation Location.

Maps showing the locations of the three on-site wetland creation areas (M1, M2 and M3) are included as Appendix A, Figure 7.

4.3.b Timing of Mitigation

Construction of the on-site wetland creation areas will occur concurrently with site development. Construction activities for the mitigation area will commence within 30 days of wetland impacts.

4.3.c Grading Plan

Grading plans and planting plans are included as Appendix A, Figures 20 through 22B. Conceptually, each of the areas is located adjacent to an existing wetland and will be graded so that the hydrology will mimic that of the adjacent natural wetland. Each area has been design such that the majority of the area is approximately 1.5 feet below the seasonal high water (SHW) elevation of the adjacent wetland. The SHW elevations were field verified and approved by an environmental scientist of the SWFWMD. The creation areas will be connected to an existing adjacent wetland by a small swale constructed slightly lower in elevation than the adjacent wetland's seasonal high water elevation. The swales allow water to overflow from the natural wetland when water levels are high helping to assure an adequate water supply to the created wetland. The elevation also allows wet season entry and exit by fish.

4.3.d Description of Construction Methods

A bulldozer or other appropriate mechanical equipment will be used to remove the existing soil down to the proposed grade. Silt fencing will be placed around the periphery of the construction zones to prevent erosion during construction. Side slopes above the seasonal high water elevation will be stabilized with sod after construction has been completed.

4.3.e Construction Schedule

Construction activities for the mitigation area will commence within 30 days of wetland impacts. A specific date cannot be determined prior to final issuance of all approvals needed to initiate construction.

4.3.f Planned Hydrology

As described in detail in Section 4.3.c, each wetland creation area will be hydrologically connected to an adjacent existing wetland by a small swale. In addition, because the wetland creation areas are excavated to an elevation that is below the ground water elevation, they will also receive groundwater inputs and can be expected to be inundated for 6 to 9 months in a year of normal rainfall. These areas will likely go dry during the dry season.

4.3.g Planned Vegetation

The wetland creation areas will be planted with a variety of native herbaceous and woody vegetation typical to shallow depressional wetland in central Florida. Planting plans for each area have been developed and are included as Appendix A, Figures 20-22b. The deeper zones (1.5 feet of inundation) will be planted primarily with pickerelweed (*Pontederia cordata*) and lance-leaved arrowhead (*Sagittaria lancifolia*). The intermediate depths (0.5 to 1.5 of inundation) will be planted with maidencane (*Panicum hemitomon*), canna lily (*Canna flaccida*) and prairie iris (*Iris hexagona*). The shallow edge areas (0.5 feet of inundation or less) will be planted with maidencane, rushes, beak-rushes, and sand cordgrass (*Spartina bakeri*). The entire area will be planted with 3-gallon pond cypress (*Taxodium ascendens*).

Herbaceous species will be planted on 3-foot centers and the trees will be planted on 10-foot centers. Plant material installed will be either containerized stock obtained from a reputable nursery or bare root material obtained from an approved donor wetland. It is anticipated that desirable native species will colonize the created wetland from the adjacent existing wetland thus increasing species diversity and wildlife habitat value.

4.3.h Planned Soils

The wetland creation areas will be scraped down to below the desired wetland depth. To the extent that weed free sources are available, natural soils from areas to be impacted will be moved to the creation areas and deposited such that the creation areas have the designed depth with an organic soil layer. If weed free sources are not available, the Permittee will strive to use other topsoil high in organic content to form the top layer of the mitigation wetlands. Hydric soil characteristics are expected to develop over time.

4.3.i Planned Habitat Features

No specific habitat features have been planned. Old stumps and snags from wetlands to be impacted may be selectively placed into creation areas to provide habitat diversity.

4.3.j Planned Buffer

All the wetland creation areas will be buffered to a large extent by the fact that they are bordered on at least one side by natural wetlands. These will provide a natural buffer on that side and will provide a seed source for propagules of wetland plant species that should result in increased diversity in the created wetlands. The adjacent wetlands also act as corridors allowing access for non-avian species.

Table 1. Planting Plan for Species to Be Used in Supplemental Plantings

Area Name	Area Type	Acres	Quantity	Size	Spacing	%	Scientific Name	Common Name
Wetland Restoration 1	Wet Prairie	14.8	14,326	1-quart BR equiv.	3' o.c.	20%	*Panicum hemitomon*	maidencane
			35,816	1-quart BR equiv.	3' o.c.	50%	*Pontederia cordata*	pickerelweed
			21,490	1-quart BR equiv.	3' o.c.	30%	*Sagittaria lancifolia*	arrowhead
			516	3-gallon	25' o.c.	100%	*Taxodium distichum*	bald cypress
Wetland Enhancement 3 & Wetland Enhancement 4	Marshes	9.3	22,506	1-quart BR equiv.	3' o.c.	50%	*Pontederia cordata*	pickerelweed
			13,504	1-quart BR equiv.	3' o.c.	30%	*Sagittaria lancifolia*	arrowhead
			4,500	1-quart BR equiv.	3' o.c.	10%	*Thalia geniculata*	fire flag
			2,251	1-quart BR equiv.	3' o.c.	5%	*Iris hexagona*	prairie iris
			2,251	1-quart BR equiv.	3' o.c.	5%	*Canna flaccida*	golden canna
			552	3-gallon	25' o.c.	85%	*Taxodium distichum*	bald cypress
			98	3-gallon	25' o.c.	15%	*Fraxinus caroliniana*	pop ash
			650	3-gallon	25' o.c.	100%	*Cephalanthus occidentalis*	buttonbush
Wetland Enhancement 1	Historic Slough System	4.2	12,197	1-quart BR equiv.	3' o.c.	60%	*Pontederia cordata*	pickerelweed
			6,098	1-quart BR equiv.	3' o.c.	30%	*Sagittaria lancifolia*	arrowhead
			2,033	1-quart BR equiv.	3' o.c.	10%	*Thalia geniculata*	fire flag
			1,083	3-gallon	25' o.c.	100%	*Cephalanthus occidentalis*	buttonbush
			1,555	3-gallon	25' o.c.	85%	*Taxodium distichum*	bald cypress
			275	3-gallon	25' o.c.	15%	*Fraxinus caroliniana*	pop ash
Wetland Enhancement 5	Cypress Wetland	3.8	6,437	1-quart BR equiv.	3' o.c.	35%	*Blechnum serrulatum*	swamp fern
			1,839	1-quart BR equiv.	3' o.c.	10%	*Spartina bakeri*	sand cordgrass
			4,598	1-quart BR equiv.	3' o.c.	25%	*Saururus cernuus*	lizard's-tail
			3,311	1-quart BR equiv.	3' o.c.	18%	*Pontederia cordata*	pickerelweed
			1,655	1-quart BR equiv.	3' o.c.	9%	*Sagittaria lancifolia*	arrowhead
			276	1-quart BR equiv.	3' o.c.	2%	*Canna flaccida*	golden canna
			276	1-quart BR equiv.	3' o.c.	2%	*Iris hexagona*	prairie iris
			160	3-gallon	25' o.c.	60%	*Cephalanthus occidentalis*	buttonbush
			40	3-gallon	25' o.c.	15%	*Myrica cerifera*	wax myrtle
			26	3-gallon	25' o.c.	10%	*Itea virginica*	Virginia willow
			26	3-gallon	25' o.c.	10%	*Viburnum obovatum*	small viburnum
			13	3-gallon	25' o.c.	5%	*Lyonia lucida*	fetterbush

5. Performance Standards

a. Identify clear, precise, quantifiable parameters that can be used to evaluate the status of desired functions. These may include hydrological, vegetative, faunal and soil measures. (e.g., plant richness, percent exotic/invasive species, water inundation/saturation levels.) Describe how performance standards will be used to verify that objectives identified in 3(b) and 3 (c) have been attained.

b. Set target values or ranges for the parameters identified. Ideally, these targets should be set to mimic the trends and eventually approximate the values of a reference wetland(s).

Mitigation success criteria have been developed based on measurable, quantifiable parameters. Wetlands constructed for mitigation purposes will be considered successful and will be released from monitoring and reporting requirements when the following criteria are met continuously for a period of at least one year without intervention in the form of irrigation or the addition or removal of vegetation.

a. The mitigation area can be reasonably expected to develop into palustrine systems as determined by the USFWS Classification of Wetlands and Deepwater Habitats of the United States in accordance with the following table:

System	Class	Zone
Palustrine	Forested	Slough
Palustrine	Forested	Hydric flatwoods
Palustrine	Emergent marsh	Wet Prairie
Palustrine	Emergent marsh	Marsh
Palustrine	Forested	Cypress swamp
Upland	NA	Mesic flatwoods
Palustrine	Emergent marsh	Savanna

b. Topography, water depth and water level fluctuation in the mitigation area are characteristic of the wetland/surface water type specified in criterion "a."

c. The dominant, subdominant, and other appropriate species of desirable wetland plants shall be as follows:

Zone	Stratum	Dominant Species [1]	Subdominant Species [2]	Other Species (for diversity) [5]
Slough (long hydroperiod areas)	Canopy	Bald cypress	Swamp tupelo Pop ash	Pond cypress Sweet-bay
	Subcanopy	none [2]	none [3]	Coastal plain willow
	Shrubs	Buttonbush	none	None
	Groundcover	Pickerelweed	Arrowroot	Lemon bacopa Swamp fern Fragrant waterlily Alligator flag Many others

Zone	Stratum	Dominant Species [1]	Subdominant Species [2]	Other Species (for diversity) [5]
Slough (short hydroperiod areas	Canopy	Laurel oak	none [4]	Loblolly bay Dahoon holly Sweet-gum Sweet-bay Swamp bay Slash pine Water Oak Red maple Cabbage palm
	Subcanopy	none [2]	none [3]	Swamp dogwood Hornbeam
	Shrubs	Virginia-willow	none [3]	Virginia-willow Swamp honeysuckle Highbush blueberry
	Groundcover	Chain fern	Swamp fern	Netted chain fern Lizard's tail Cinnamon fern Royal fern Many others
Hydric flatwoods	Canopy	Slash Pine	none [3]	Laurel oak Water oak Red maple Loblolly-bay Dahoon holly Sweet-gum Sweet-bay Cabbage palm Live oak
	Shrubs	none [2]	none [3]	Gallberry Virginia-willow Little blueberry Swamp honeysuckle Red chokeberry Shiny lyonia Dangleberry Dwarf huckleberry St. John's worts Dwarf live oak Saw palmetto Many others
	Groundcover	none [4]	none [4]	Iris Wiregrass Beak rushes Maidencane Sedges Many others
Wet prairie	Shrubs	none [2]	none [3]	Sandweed Buttonbush

Zone	Stratum	Dominant Species [1]	Subdominant Species [2]	Other Species (for diversity) [5]
	Groundcover	none [4]	none [4]	Lemon bacopa Lizard's tail Maidencane Swamp fern Wiregrass Beak rushes Maidencane Sedges Many others
Marsh	Shrubs	Buttonbush	none [3]	Sandweed Coastal plain willow Virginia-willow
	Groundcover	Pickerelweed	Arrowhead	Alligator flag Lemon bacopa Fragrant water-lily Maidencane Cinnamon fern Many others
Cypress	Canopy	Pond cypress	none [3]	Dahoon holly Sweet-bay Swamp tupelo Red maple
	Subcanopy	none [2]	none [3]	Popash Swamp dogwood
	Shrubs	Buttonbush	none [3]	Virginia-willow Wax myrtle
	Groundcover	Pickerelweed	Arrowhead	Lemon bacopa Alligator flag Maidencane Beak rushes Many others
Mesic flatwoods	Canopy	Long leaf pine	none [3]	Slash pine Live oak
	Subcanopy	none [2]	none [3]	
	Shrubs			Saw palmetto Shiny lyonia Running oak Dwarf live oak
	Groundcover	none [2]	none [3]	Eupatoriums Beaded Panicum Coastal grasses Wirey vass Lopsided Indian grass Many others
Savanna	Shrubs	none [2]	none [3]	Gallberry Running oak Shiny lyonia Many others

Zone	Stratum	Dominant Species [1]	Subdominant Species [2]	Other Species (for diversity) [5]
	Ground cover	none [2]	none [3]	Wiregrass Beak rushes Sedges Beaded Panicum Coastal lovegrass Many others

1. Tree species must be greater than 12 feet in height and have been planted for greater than 3 years.

2. This plant community generally does not have a dominant. Low abundance of species listed in the "other species" column are appropriate.

3. This plant community generally does not have a subdominant. Low abundance of species listed in the "other species" column are appropriate.

4. This plant community is typically does not have a dominant or subdominant. High abundance of species listed in the "other species" column is appropriate.

5. All species appropriate to the zone and which provide appropriate function to the zone will be included in the determination of success.

This criterion must be achieved within eight years of mitigation area construction. The Permittee shall complete any activities necessary to ensure the successful achievement of the mitigation requirements by the deadline specified. Any request for an extension of the deadline specified shall be accompanied with an explanation and submitted as a permit letter modification to the District for evaluation.

d. Species composition of recruiting wetland vegetation is indicative of the wetland type specified in criterion "a".

e. Density of trees and percent cover meet the conditions specified in the table below.

	System Type					
Criteria	Slough (Palustrine, forested)	Hydric Flatwoods (Palustrine, forested)	Wet Prairie (Palustrine, emergent)	Marsh (Palustrine, emergent)	Cypress (Palustrine, forested)	Mesic Flatwoods (upland)
Groundcover	N/A	≥85% cover, includes shrubs	≥85% cover, includes shrubs	≥85% cover	N/A	≥85%, includes shrubs
Shrubs	≥5% cover	≥250/ac	≤10% cover	≤30% cover	≤10% cover	≥250/ac
Canopy	≥30% cover	20 or more trees/acre	≤10% cover	≤10% cover	≥30% cover	10 or more trees/acre

f. Coverage by nuisance or exotic species does not exceed 10 percent.

g. The wetland mitigation area can be determined to be a wetland or other surface water according to Chapter 62-340, F.A.C.

The mitigation area may be released from monitoring and reporting requirements and be deemed successful at any time during the monitoring period if the Permittee demonstrates that the conditions in the mitigation area have adequately replaced the wetland and surface water functions affected by the regulated activity and that the site conditions are sustainable.

6. Site Protection and Maintenance

a. Long-term legal protection instrument (e.g. conservation easement, deed restriction, transfer of title).

There will not be any deed restrictions, easements, right of way, or other types of restrictions or encumbrances that adversely impact the proposed mitigations sites. All of the proposed mitigation areas, and the existing wetland areas that will not be impacted, will be protected through the dedication of perpetual conservation easements. The conservation easement for the Alston Mitigation Area will be in a form consistent the requirements of the Southwest Florida Water Management District (SWFWMD), and incorporates a variety of provisions to ensure the long term success of the mitigation area. The on- and off-site mitigation areas will be the subject of various forms of restrictive covenants, deed restrictions and/or property owners' association agreements which will ensure the appropriate level of maintenance and monitoring. These various documents will also ensure against any existing or future incompatible uses within the project area.

The draft conservation easement for the Alston Mitigation Area is given in Appendix D.

b. Party(ies) responsible and their role (e.g. site owner, easement owner, maintenance implementation). If more than one party, identify primary party.

The Permittees will maintain management authority for implementation and day-to-day oversight of the Mitigation Plan until such time a Property Owners' Association (POA) is formed. At that time, responsibility will be transferred to the POA. The POA will have ongoing responsibility for common area improvements for the CCTC regional retail center, including the mitigation site, mitigation areas with funding generated by Common Area Maintenance (CAM) fees.

c. Maintenance plan and schedule (e.g. measures to control predation/grazing of mitigation plantings, temporary irrigation for plant establishment, replacement planting, structure maintenance/repair, etc.).

Please see sections 4 and 8.

d. Invasive species control plan (plant and animal).

Please see sections 4 and 8.

7) Monitoring Plan

a) Party(ies) responsible for monitoring. If more than one, identify primary party.

The Permittees understand the responsibility to monitor and maintain the upland restoration and wetland enhancement/restoration areas for compliance with permit conditions and establishment of successful conditions. The Permittees are responsible for monitoring unless and until a Property Owners Association (POA) is formed and responsibility for common area improvements for the CCTC are transferred to it. Please refer to 6.b for additional detail.

b) Data to be collected and reported, how often and for what duration (identify proposed monitoring stations, including transect locations on map).

For both the Alston Property and the on-site mitigation areas, monitoring events will be conducted semi-annually for the first three years and annual thereafter. Semi-annual monitoring events will be combined into an annual monitoring report.

a. Color photographic prints taken from fixed reference points.
b. Estimates of percent survival of planted trees and shrubs based on thorough canvassing of each area.
c. Estimates of total percent cover of vegetation.
d. A list of recruited species with an estimate of relative abundance.
e. Total percent cover of desirable species based on visual estimates.
f. Percent cover of each nuisance and/or exotic species based on visual estimates.
g. Observations of wildlife use.
h. Visual observation of water quality and measurement of water depth.

Specific monitoring locations will be determined after mitigation area establishment and will be representative of the system being monitored.

Hydrologic Enhancement Area Monitoring

Wetland enhancement Areas 8 and 9 on the Alston tract will be enhanced by increasing the hydroperiod. These areas exhibit signs of a reduced hydroperiod based on an increase in the prevalence of facultative and facultative upland plant species in the transitional zones, sparse tree canopies and fire scars (indicating dry conditions during the rainy season). The hydrologic enhancement will be accomplished by blocking a drainage ditch that flows to the west and constructing a series of control structures on the historic slough that run across the pasture. Four berms identified as A, B, C, D, and Road crossing S (see Appendix C, sheet 50 of 53).

Typically wetlands that have been ditched do not experience a dramatic decrease in the seasonal high water (SHW) elevation; however, the length of time the water is at the SHW elevation is decreased, often dramatically, and the normal pool elevation is decreased drastically. Currently, in a year with

normal or below average rainfall, the hydroperiod of portions of these areas is decreased. This has a cascading ripple effect of direct and indirect impacts throughout the wetland. Direct effects include:

- Colonization by upland and transitional species
- Soil oxidation
- Loss of wetland dependant aquatic and semi-aquatic species (such as salamanders and sirens)
- Shifts in species composition of the macro-invertebrates

Indirectly the reduced hydroperiod allows greater access to cows and feral hogs and loss of habitat to species that are adapted to utilize the natural assemblage of plants, macro-invertebrates and fish. Cattle selectively graze vegetation (encouraging grazing resistant species), disturb the soil (increasing the likelihood of invasion by undesirable species), raise nitrogen levels and alter pH.

Success and Contingency Planning

For Wetland Enhancement Areas 8 and 9, the monitoring plan is as follows:

1. To assess the success of the hydrologic enhancement the existing wetland transition zones/wet prairie edges of the wetlands shall be monitored to determine that desirable wetland vegetation is colonizing the transition/edge ecotones after construction of the berms. Two monitoring stations will be set up in Wetland Enhancement Area 8 and four monitoring stations will be set up in Wetland Enhancement Area 9. The location of the monitoring stations shall be filed determined based on site conditions at the time the monitoring is initiated. Success of the Plan shall be based on a predominance of desirable wetland species present in the transition zones/wet prairie edges instead of the current species of dog fennel, bahia grass and other upland/transitional species. The presence of young age-class cypress will also provide evidence of successful hydroperiod restoration. Baseline monitoring of the below listed parameters will occur prior to construction of the berms.
2. At each monitoring station the Permittee shall provide an assessment of existing cover by percent of the species of vegetation within a one-square-meter quadrat. A species list of vegetation shall be made and the relative percent cover by species shall be documented. Representative color photos of the monitoring station shall be taken.
3. The Permittee will also measure the relative inundation period at each monitoring station and record a staff gauge reading within the wetlands. One staff gage will be located on Wetland Enhancement Area 8 and two staff gauges will be located in Wetland Enhancement Area 9.
4. An electronic water level recorder will be placed within the Wetland Enhancement Area 9 just upstream from Road crossing S. The recorder's data can be downloaded onto a laptop computer and a graphic display provided to show how long (periodicity) the water was above or below a certain elevation (level). The recorders will be housed in perforated heavy duty PVC piping and secured to protect them being damaged by grazing/foraging wildlife.
5. The Permittee will also record wildlife observations/sign at each monitoring station and staff gauge location with an emphasis on species such as fish, amphibians, crayfish and their predators.
6. The Permittee shall perform the monitoring for five years or until success criteria are met. The Applicant proposes that an affirmative demonstration of 70% cover by desirable wetland vegetation (OBL, FAC WET) in the monitoring areas and increased hydroperiod data from the water level recorders is sufficient for a success determination. Upon achieving success, all monitoring requirements will terminate.

c) Assessment tools and/or methods to be used for data collection monitoring the progress towards attainment of performance standard targets.

See above.

d) Format for reporting and monitoring data and assessing mitigation status.

Monitoring reports will be consistent with that outlined in Regulatory Guidance letter 06-03.

e) Monitoring schedule

A Wetland Mitigation Completion Report shall be submitted to the Corps within 30 days of completing construction and planting of the wetland mitigation areas.

The Permittee shall monitor the mitigation area until the criteria set forth in the Mitigation Success Criteria are met. Monitoring events shall occur between March 1 and November 30 of each year.

An Annual Wetland Monitoring Report shall be submitted upon the anniversary date of Corps approval to initiate monitoring. Annual reports shall provide documentation that a sufficient number of maintenance inspection/activities were conducted to maintain the mitigation area in compliance according to the Wetland Mitigation Success Criteria Condition above. The performance of maintenance inspections and maintenance activities will normally need to be conducted more frequently than the collection of other monitoring data to maintain the mitigation area in compliance with the Wetland Mitigation Success Criteria Condition above.

For herbaceous wetland areas, the performance standards must be achieved by the end of the 5-year monitoring period, with no maintenance during the 5th year of monitoring. For forested wetland areas, the performance standards must be achieved by the end of the 10-year monitoring period, with no maintenance during the 10th year of monitoring.

Upon receipt of the final monitoring report, the Corps will evaluate the wetland mitigation site(s) to determine if the Mitigation Success Criteria have been met and maintained. The Corps will notify the Permittee in writing of the evaluation results. The Permittee shall perform corrective actions for any portions of the wetland mitigation area(s) that fail to maintain the criteria set forth in the Wetland Mitigation Success Criteria.

The mitigation area may be released from monitoring by the COE and reporting requirements and be deemed successful at any time during the monitoring period if the Permittee demonstrates that the conditions in the mitigation area have adequately

replaced the wetland and surface water functions affected by the regulated activity and that the site conditions are sustainable.

8) Adaptive Management Plan

Management needs vary dramatically based on the proposed mitigation activities. Adaptive management will thus vary depending on those activities.

The Permittees shall undertake required maintenance activities within the wetland mitigation area(s) as needed at any time between mitigation area construction and termination of monitoring, with the exception of the final year. Maintenance shall include the manual removal of all nuisance and exotic species, with sufficient frequency that their combined coverage at no time exceeds the Wetland Mitigation Success Criteria.

- Alston Mitigation Site, Off-site restoration and enhancement area
- Alston Mitigation Site, Off-site upland preservation and management area
- On-site Wetland Creation area

a) Party(ies) responsible for adaptive management.

The Permittees will maintain management authority for adaptive management on the mitigation sites until such time as a CCTC Property Owners' Association (POA) is formed. At that time, responsibility will be transferred to the POA. The POA will have ongoing responsibility for common area improvements for the CCTC Regional Retail Center, including the Alston Mitigation Site and on-site mitigation areas. Funding will be generated by Common Area Maintenance (CAM) fees.

b) Identification of potential challenges (e.g., flooding, drought, invasive species, seriously degraded site, extensively developed landscape) that pose a risk to project success. Discuss how the design accommodates these challenges.

<u>Alston Mitigation Site, Off-site restoration and enhancement area</u>

Following initial site preparation and installation of native seed materials, most management on this site becomes adaptive. The general procedure is to have the site inspected monthly and to take necessary actions to address management needs as they come up.

The principal challenges to the restoration and enhancement (both wetland and upland) is invasive species. Drought and flooding could also be problems, but they are expected to be less problematic than nuisance species.

Plant mortality

With any wetland mitigation site there is always the risk of plant mortality. This may be the result of an inappropriately designed area or unusual environmental conditions, such as an extended period of drought or a hurricane. Should monitoring reports reveal that plant survival, and/or cover, do not meet success criteria (se section 5), including all interim success criteria, the

area will be replanted in order to make up the deficit. The replanting will be done as soon as possible after the deficit is reporting considering environmental conditions.

Nuisance species

When a site like the Alston Mitigation Site restoration and enhancement area is restored via sod removal, seeding with native vegetation, and selective planting, nuisance species invasion is a potential problem. Generally, nuisance invasion is due to species on the site that were not eliminated during site preparation or species found in the surrounding area. On this site, the species of greatest concern are 1) Bermuda grass, 2) bahia grass, 3) torpedo grass and 4) tropical soda-apple, and 5) dog fennel. In the deeper wetland areas, cattails and primrose-willow could also be problematic.

The method of choice for controlling nuisance species is prevention. Site preparation (see section 4) focuses on eliminating the pasture grasses via repetitive herbiciding and discing. The existing sod will be stripped along with its roots and rhizomes. Any grass that comes up will be herbicided and tilled repeatedly until the site can be seeded. The latter will occur in late fall or early winter as that is when native seed can be harvested and spread.

Following seeding, the site will be inspected monthly, and any grass (or any other nuisance species) that appear will be selectively herbicided.

Dog fennel is a special challenge. It is a native pioneer species that generally appears in great abundance in the first few years after seeding. It generally disappears on its own was cover with desirable species increases. In the short term, it also acts as somewhat of a "nurse plant" and can provide shade for desirable young plants. Dog fennel is thus problematic only if is becomes so abundant that it shades out the desirable plants. It will be dealt with, as appropriate, by mowing or selective herbiciding (wicking) if it becomes overly abundant.

A monthly schedule of inspection and maintenance will enable elimination of any other nuisance species that appear before they become problematic.

After the first two years, burning may be substituted for some (or all) herbicide management.

Wild Hogs

The wild hog will be excluded from the restoration area. If hogs gain entry to the restoration/enhancement area, the hogs will be trapped, killed, and disposed of consistent with local and state regulations.

Flooding and Drought

Flooding is not anticipated to be a problem. This generally low, nearly flat site has been observed under high rainfall conditions and the vegetation that is to be planted can tolerate the anticipated maximum flood levels. The planting plan for plants that will be planted as young plants (not seeded) places plants in the wetlands according to anticipated depth and hydroperiod.

Drought is a greater challenge. Should drought occur, supplemental water (pumped from an existing pond or obtained from a local well) will be used temporarily and as needed to support the system until it is adequately established to handle drought conditions.

Alston Mitigation Site, Off-site upland preservation and management area

The natural preservation and management area is anticipated to be robust to most management challenges. The site is maintained currently by controlled burns. The natural areas will be inspected at least twice per year, and controlled burns will be scheduled as needed to keep the flatwoods in good condition. The schedule may be altered in the event of a wild fire.

Wild Hogs

The European wild hog digs extensively in hammocks and selected wetlands areas churning the soil and digging up the ground cover over large areas. In the Alston Mitigation Site area, the feral hog is a problem species. Introduced from Europe, it digs up the ground flora of hammocks and wetlands while looking for food. A hog-damaged hammock or wetland looks plowed.

The wild hog will be excluded from the restoration area. Elsewhere, the best management is shooting or trapping. If hogs gain entry to the restoration/enhancement area, the hogs will be trapped, killed, and disposed of consistent with local and state regulations.

Wild Fire and Fire Suppression

Native wildlife and vegetation in Florida are adapted to a periodic fire, and certain habitats in Florida are wholly dependent upon periodic burns to maintain the health and viability of the vegetative communities and the resident animals, which in some cases may exist exclusively within specific habitats.

Wild fires could pose a problem to the success of the mitigation area if it results in overly hot fires or if the restoration/enhancement area burns before planted materials are sufficiently well established to recover from fire. Alternatively, fire suppression could lead to extreme fire hazard and loss of characteristic flatwoods and savanna plant communities.

Controlled fire and alternative mechanical treatments protect against wild fire and prevent the risks and natural community degradation that occur with fire suppression.

With this in mind, the Permittee will implement a periodic prescribed burn and mechanical treatment program designed to maintain habitat quality in the natural areas. The burn regime is described in detail in Section 4.

<u>On-site Wetland Creation areas</u>

These areas provide the greatest adaptive management challenges as the areas will be surrounded by developed areas and the general area around the CCTC is already developed and nuisance species are abundantly available to invade. Avoidance via appropriate site design and exclusion of invasive species from the site are considered to be the best controls, however active measures will be used if avoidance is not adequate to prevent nuisance species problems. The Permittee has developed an On-site Wetland Protection Plan that has been approved by Pasco County Appendix J).

Buffers (Avoidance)

Consistent with the SWFWMD regulations, buffers averaging 25 feet will be maintained around all wetland areas to provide an upland transition into the wetland areas and to protect the natural wetland systems from development impacts. A minimum 50-ft buffer will be maintained along Cypress Creek.

Buffers around wetlands serve to reduce the extent and intensity of secondary impacts. They help maintain water quality in the wetlands, minimize the extent to which fertilizers and pollutants enter the wetlands (typically causing nuisance species to proliferate), and to protect the wetlands as habitat for wildlife.

Because buffers are notoriously difficult to maintain in areas where residences and commercial sites abut them, management of buffers will focus on initial (development period) efforts that will facilitate and encourage ongoing maintenance of them for aesthetics. To this end, buffers that are not initially attractive may be augmented with native plants and will be managed consistent with goals of maintaining water quality and quality of wetland habitat for wildlife. Species such as (but not limited to) wax myrtle (*Myrica cerifera*), sand cordgrass (*Spartina bakeri*), and Walter's viburnum (*Viburnum obovatum*) may be planted along the foot of the development pad and in the buffer itself. Alternatively, desirable natives may be planted on the rear of the development pad as part of the landscaping. If so planted, the plantings will be part of the overall landscape plan and contribute to meeting the quota of native landscape plants specified in the Pasco County Landscape Ordinance.

Buffers will be actively maintained in areas where they abut roadways and areas visible to mall customers. Maintenance will include removal of species that are generally considered to be unattractive or invasive such as but not limited to dog fennel (*Eupatorium capillifolium*) and exotic nuisance species such as air potato (*Dioscorea bulbifera*).

Buffers will be inspected annually or more frequently by a Qualified Environmental Professional (QEP) to determine needed management, if any. A QEP will provide oversight for maintenance activities conducted in the buffers.

Planting of Surface Water Management Pond Littoral Shelves (Avoidance)

Littoral shelves in the water management ponds on Cypress Creek Town Center will be planted. By planting, undesirable species (such as cattails), will have less opportunity to colonize the littoral shelves and there will thus be less seed source in the area from which cattails can invade the mitigation wetlands. Planting the littoral shelves will also provide a combination of combination of water quality enhancement, aesthetics, and wildlife habitat improvement. Species to be planted will be restricted to native species that will grow well under the anticipated hydrologic regimes. Littoral shelves will be subject to maintenance, monitoring, and contingency planning as provided in the ERP permit. Consistent with the DO, species to be planted will be native and may include, but not limited to, pickerelweed (*Pontederia cordata*), arrowhead (*Sagittaria lancifolia*), fireflag (*Thalia geniculata*), and buttonbush (*Cepalanthus occidentalis*). Native species which recruit will be retained except that cattails (*Typha* spp.) will be removed (subject to SWFWMD approval)

Nuisance Species Removal (Adaptive management)

Non-native pest plants, such as Peruvian primrose-willow *(Ludwigia peruviana*), will be removed. Areas required by the Environmental Resource Permit (ERP) to have vegetative cover, will be planted with natives as described above to re-establish the level of vegetative cover required by the ERP. Although certain species are specifically identified in this paragraph, the entire list of plants listed by the Florida Exotic Pest Plant Council (FLEPPC) as Category I or Category II pest plants will be targeted for elimination and control.

Any which are planted for aesthetics or non-permit mandated reasons will be maintained in a manner consistent with the intent for planting.

Low Impact Stormwater Treatment Designs (Avoidance)

As a DRI Development Order (DO) Condition, the Permittee has committed to the implementation of "Low Impact Stormwater Treatment" designs (LID) within the mall footprint. These low-impact treatments are intended to capture runoff from the parking lots and improve water quality prior to any discharge into natural wetlands. They include standard procedures such as grease baffles and retention in surface water management ponds. They increase treatment through combinations of early capture in parking lot swales, greater treatment volumes and increased residence time in treatment ponds relative to that required by ERP standards, and other measures with demonstrated potential to improve the quality and quantity of water retained on site and within on-site wetlands. Among the LID techniques that are to be limited is the use of native species which will help prevent the spread of nuisance species and help limit the need for nuisance species management in the mitigation wetlands.

c) **Discussion of potential remedial measures in the event mitigation does not meet performance standards in timely manner.**

Successful mitigation takes time. The intent is for mitigation to meet performance standards in a timely manner. Risk is reduced due to location (adjacent to natural lands) and planning for adequate time for site success.

d) **Description of procedures to allow for modifications of performance standards if mitigation projects are meeting mitigation goals, but in unanticipated ways.**

The mitigation procedures, especially those for the Alston Mitigation Site, are designed to improve wetland functions and values. Since seeding with native seeds is the restoration and enhancement method to be employed for most of the Alston Mitigation Site, the success criteria have been written to allow flexibility. The intent is that the species present in the seed mix that are best adapted to the conditions that develop will be the species that succeed.

Should the unexpected occur and a successful mitigation project develop that does not meet the success criteria, a Qualified Environmental Professional (QEP) will meet with the various permitting agencies to modify the conditions of success to meet the unanticipated but desirable results.

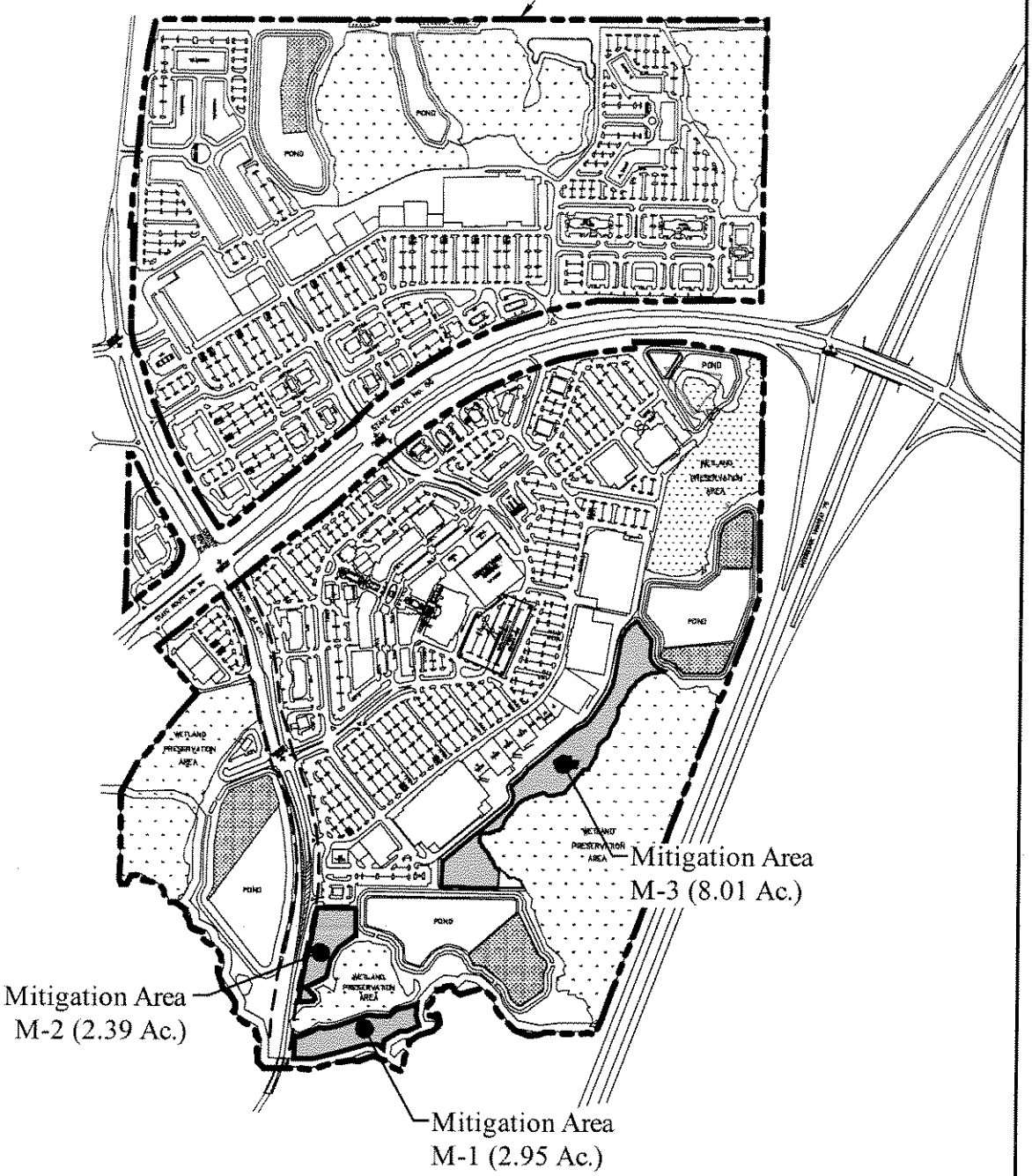
9) Financial Assurances

a) **For each of the following, identify party(ies) responsible to establish and manage the financial assurance, the specific type of financial instrument, the method used to estimate assurance amount, the date of establishment, and the release and forfeiture conditions:**
   1) **Construction phase**
   2) **Maintenance**
   3) **Monitoring**
   4) **Remedial measures**
   5) **Project success**

b) **Types of assurances (e.g., performance bonds, irrevocable trusts, escrow accounts, casualty insurance, letters of credit, etc.).**

c) **Schedule by which financial assurance will be reviewed and adjusted to reflect current economic factors.**

Appendix J provides draft financial assurance documents. The anticipation is that final versions of these documents will be available within the next 30 days.



COE # SAJ20032336

1000 0 500 1000 1 inch = 1000ft.

Figure 10

Preparation Date: 08/18/2008	Revision Date:	
Project Manager: JJB	CAD QA/QC:	
Project #: 7724-001-b08	CAD Operator: JMB	

Figure 10
Cypress Creek Town Center
Site Plan

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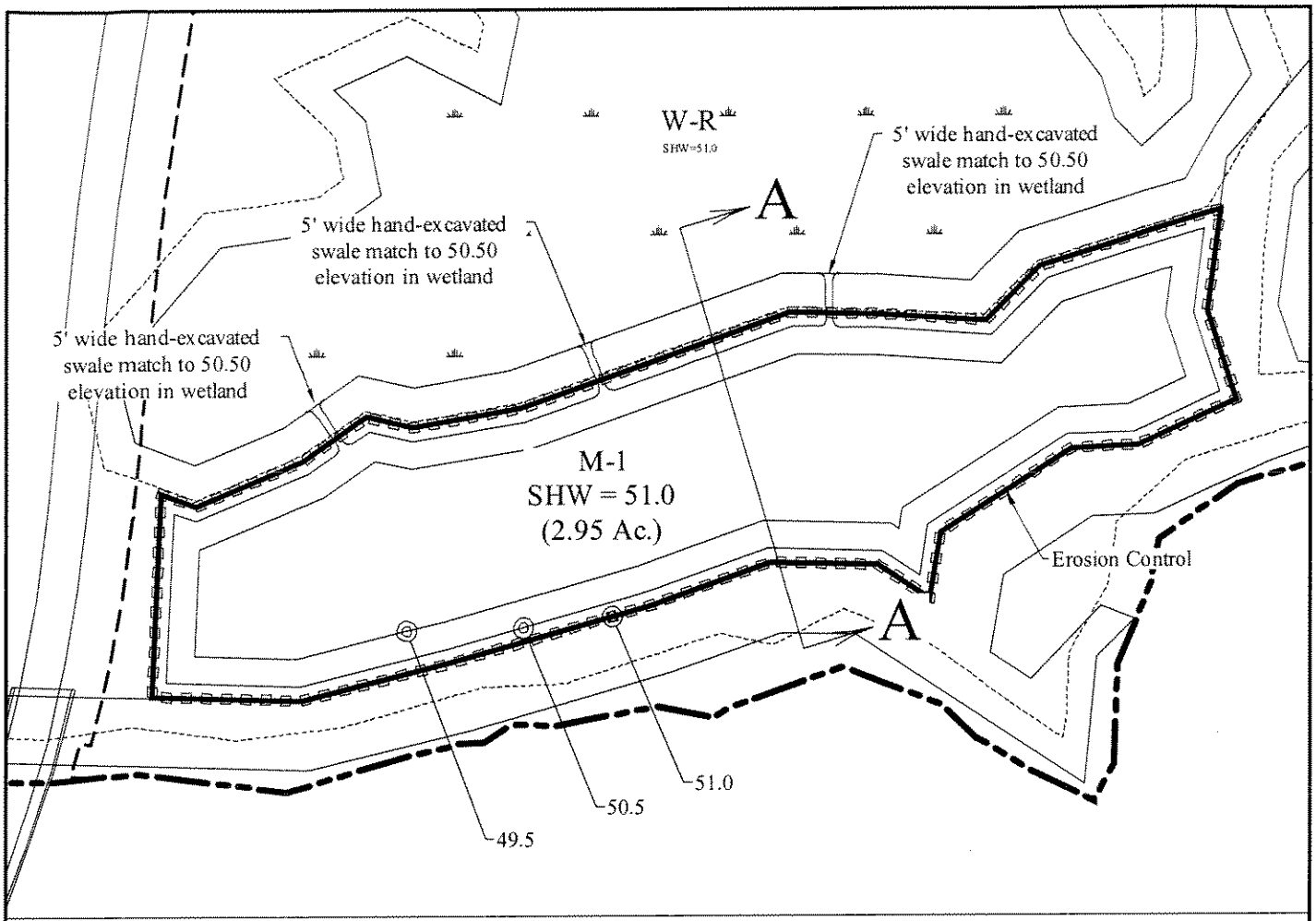

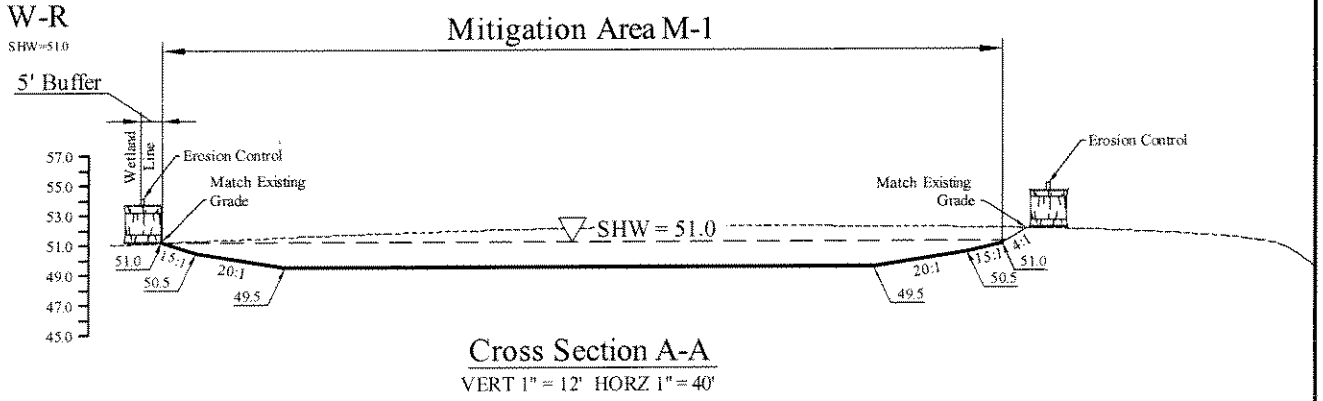

Cross Section A-A
VERT 1" = 12' HORZ 1" = 40'

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 23

Preparation Date: 08/18/2008	Revision Date:
Project Manager: JJB	CAD QA/QC:
Project #: 7724-001-b08	CAD Operator: JMB

Figure 23
Cypress Creek Town Center
Mitigation Area M-1 Grading Plan

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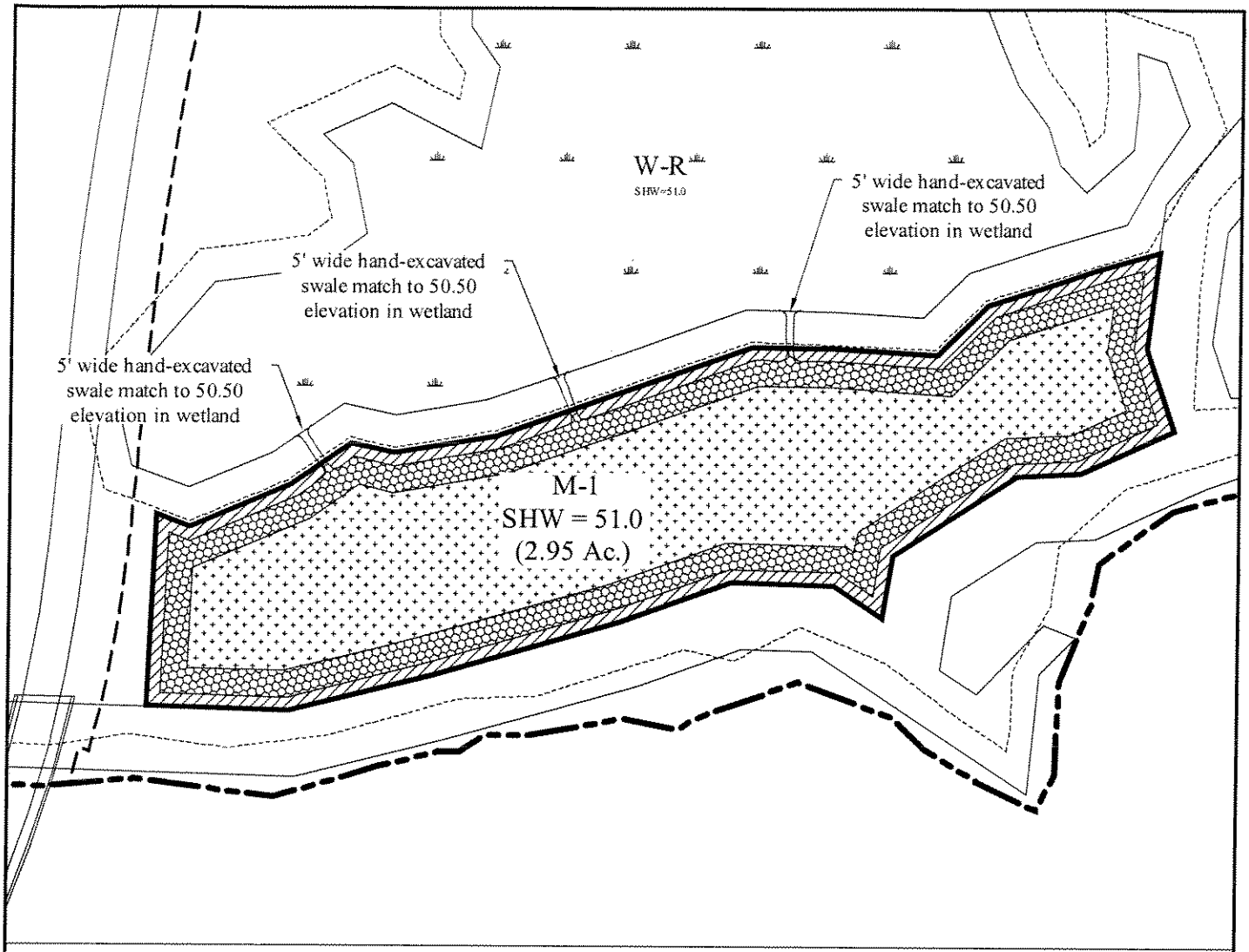

Cypress Creek Town Center On-Site Mitigation Area - M1

Elevation	Scientific Name	Common Name	Area	Quantity	Size	Spacing
49.50	*Pontederia cordata*	pickerelweed	1.68	4,066	1 qt. Equiv	3' o.c.
	Sagittaria lancifolia	lance-leaved arrowhead		4,066	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		732	3 Gal.	10' o.c.
49.5 to 50.50	*Panicum hemitomon*	maidencane	0.83	1,339	1 qt. Equiv	3' o.c.
	Canna Flacida	canna lilly		1,339	1 qt. Equiv	3' o.c.
	Iris Hexagona	prairie iris		1,339	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		362	3 Gal.	10' o.c.
50.5 to 51.00	*Panicum hemitomon*	maidencane	0.44	0	1 qt. Equiv	3' o.c.
	Ludwigia repens	creeping seedbox		1,339	1 qt. Equiv	3' o.c.
	Spartina bakerii	maidencane		1,339	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		192	3 Gal.	10' o.c.
		Total:	2.95			

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 23a

Preparation Date: 08/18/2008	Revision Date:
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Project #: 7724-001-b08	CAD Operator: JMB

Figure 23a
Cypress Creek Town Center
Mitigation Area M-1 Planting Plan

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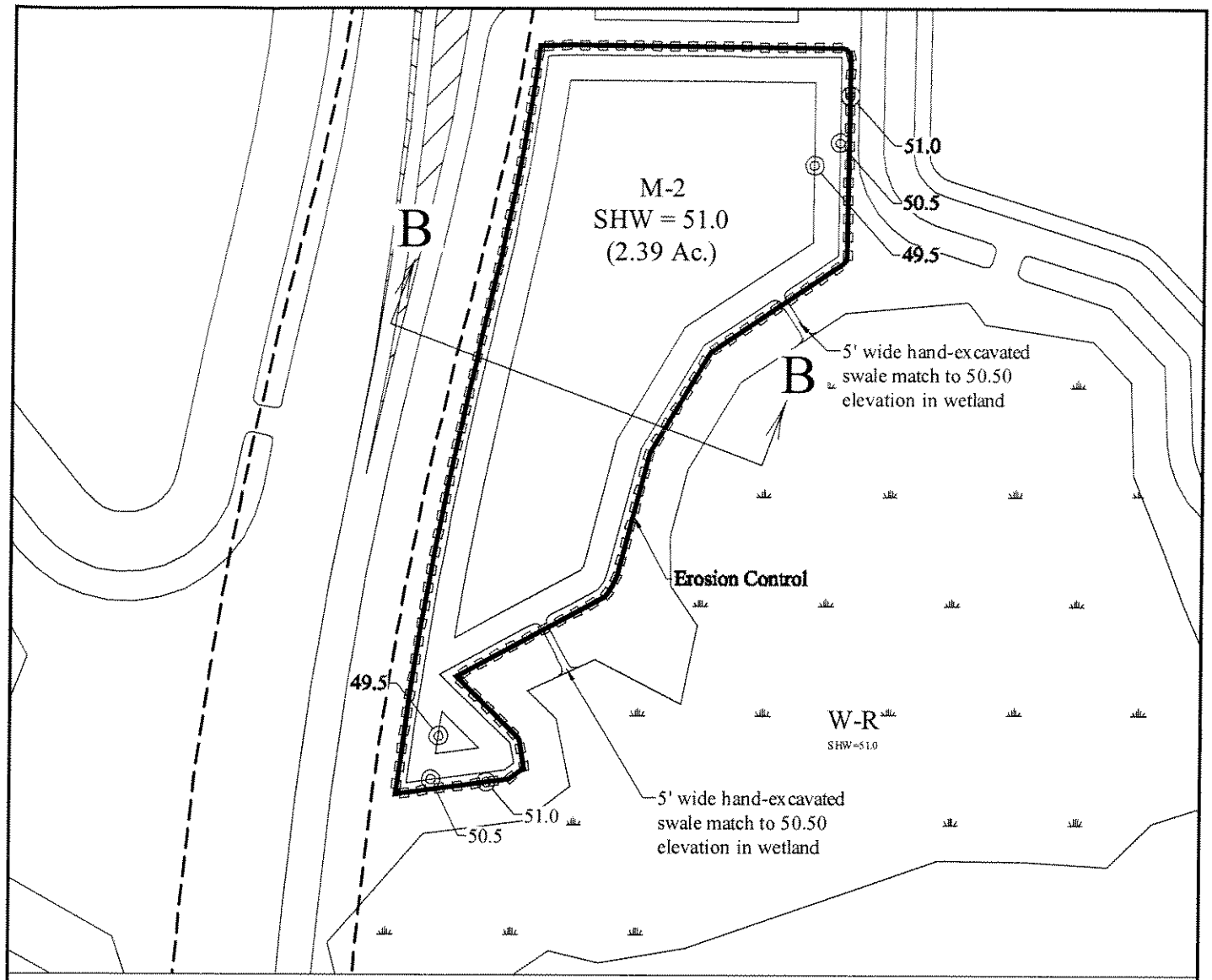

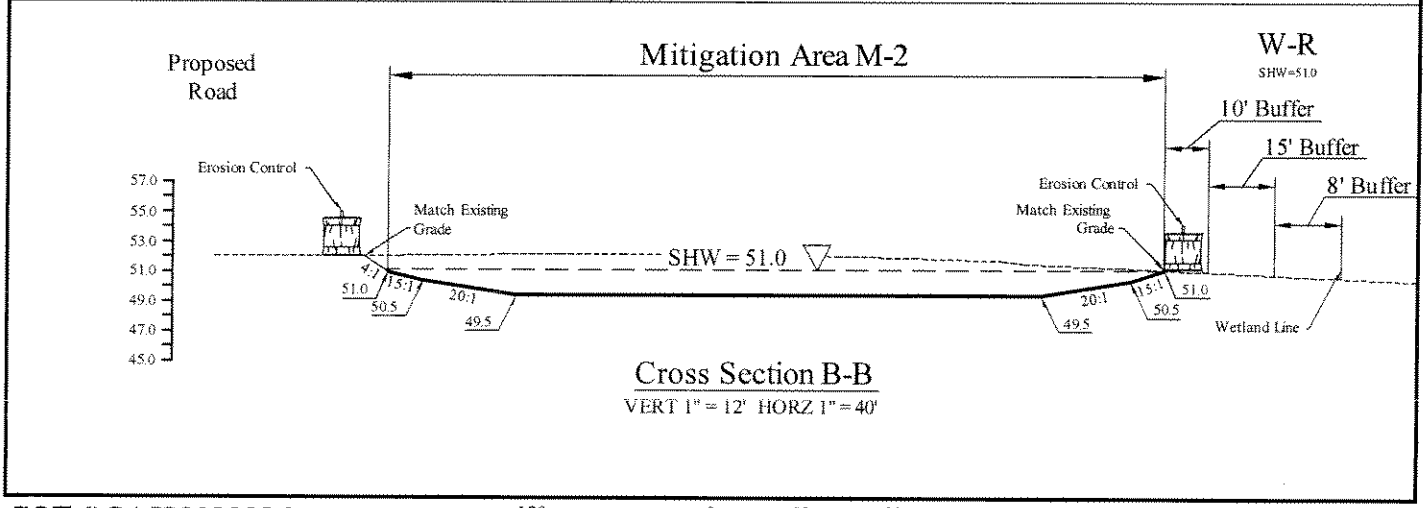

Cross Section B-B
VERT 1" = 12' HORZ 1" = 40'

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 24

Preparation Date: 08/18/2008	Revision Date:
Project Manager: JJB	CAD QA/QC:
Project #: 7724-001-b08	CAD Operator: JMB

Figure 24
Cypress Creek Town Center
Mitigation Area M-2 Grading Plan

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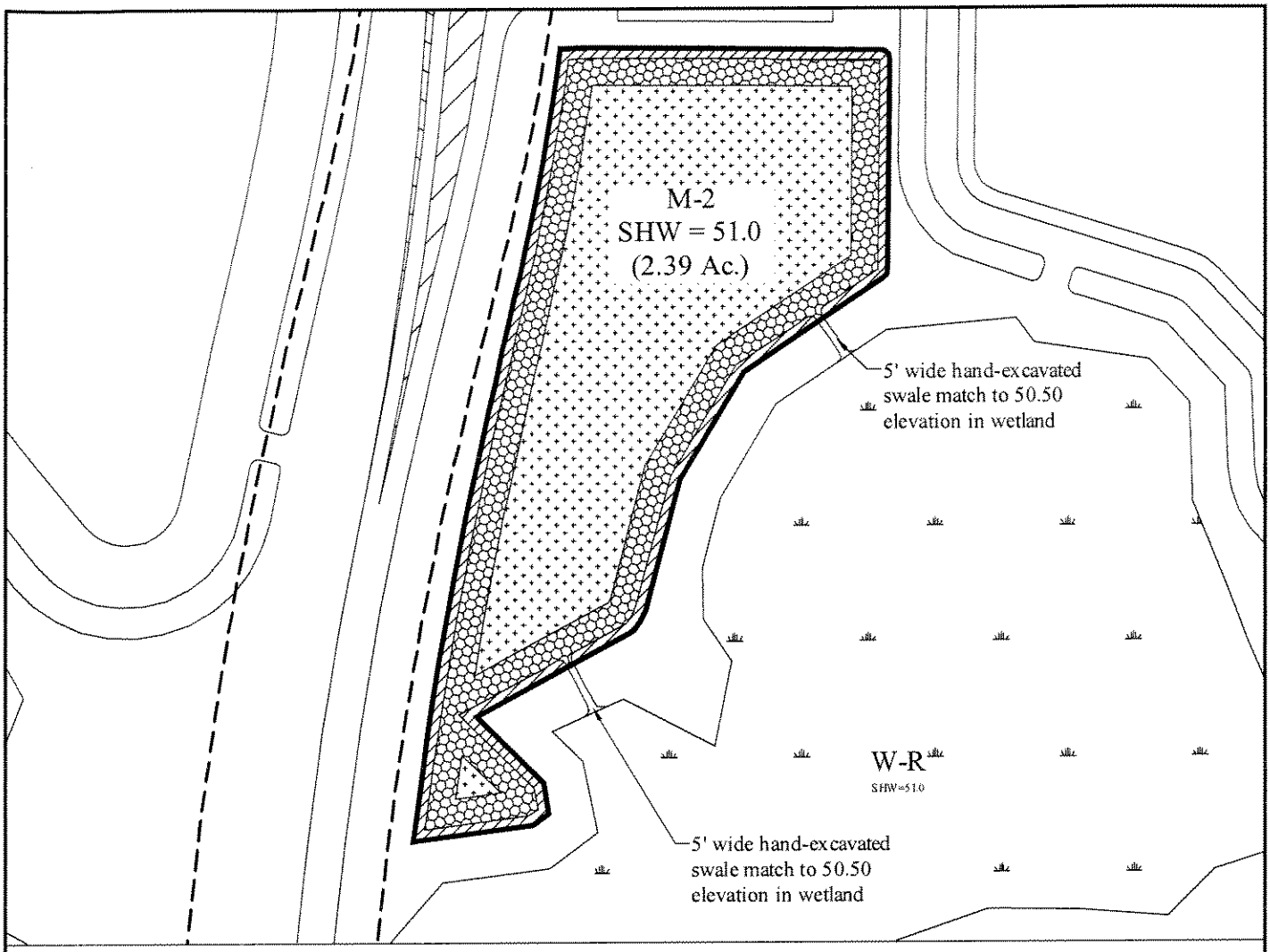

Cypress Creek Town Center On-Site Mitigation Area - M2

Elevation	Scientific Name	Common Name	Area	Quantity	Size	Spacing
49.50	*Pontederia cordata*	pickerelweed	1.40	3,412	1 qt. Equiv	3' o.c.
	Sagittaria lancifolia	lance-leaved arrowhead		3,412	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		614	3 Gal.	10' o.c.
49.5 to 50.50	*Panicum hemitomon*	maidencane	0.70	1,129	1 qt. Equiv	3' o.c.
	Canna Flacida	canna lilly		1,129	1 qt. Equiv	3' o.c.
	Iris Hexagona	prairie iris		1,129	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		305	3 Gal.	10' o.c.
50.5 to 51.00	*Panicum hemitomon*	maidencane	0.29	0	1 qt. Equiv	3' o.c.
	Ludwigia repens	creeping seedbox		1,129	1 qt. Equiv	3' o.c.
	Spartina bakerii	maidencane		1,129	1 qt. Equiv	3' o.c.
	Taxodium Ascendens	Pond Cypress		129	3 Gal.	10' o.c.
		Total:	2.39			

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 24a

Preparation Date: 08/18/2008	Revision Date:
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Project #: 7724-001-b08	CAD Operator: JMB

Figure 24a
Cypress Creek Town Center
Mitigation Area M-2 Planting Plan

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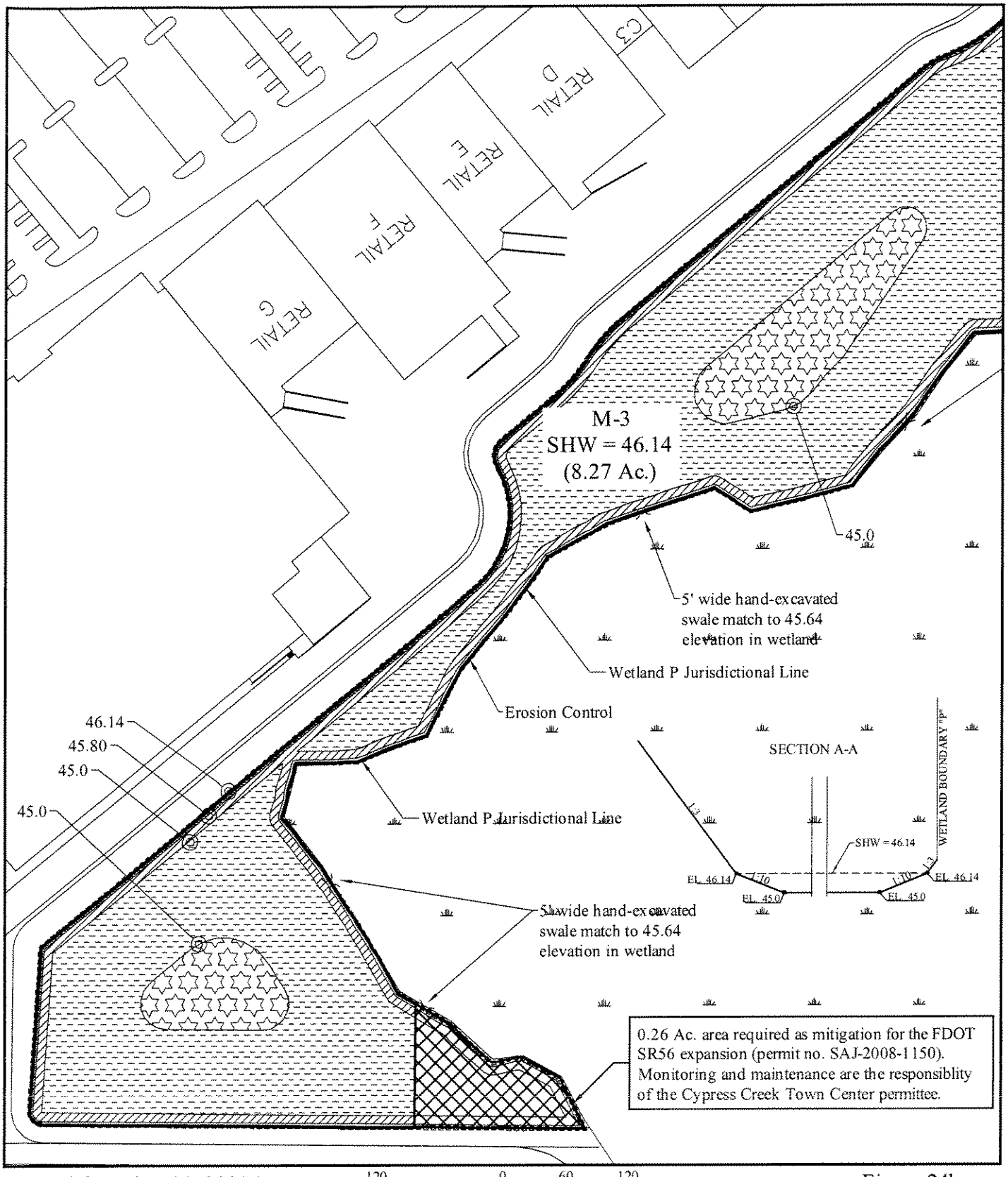

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 24b

Preparation Date: 08/18/2008	Revision Date:
Project Manager: JJB	CAD QA/QC:
Project #: 7724-001-B08	CAD Operator: JMB

Figure 24b
Cypress Creek Town Center
Mitigation Area M-3 Planting Plan

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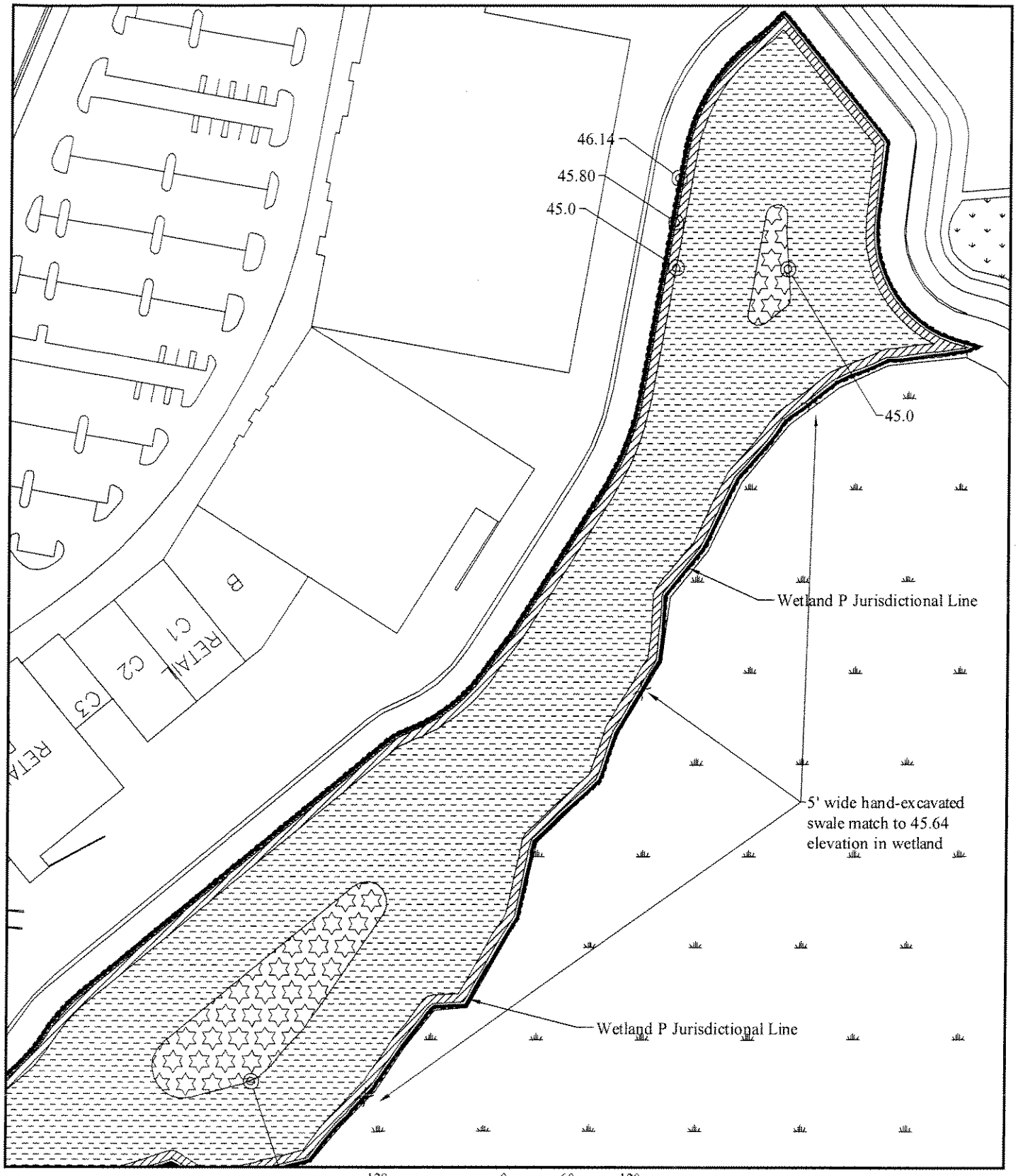

COE # SAJ20032336

120 0 60 120 1 inch = 120 ft.

Figure 24c

Preparation Date: 08/18/2008	Revision Date:	
Project Manager: JJB	CAD QA/QC:	
Project #: 7724-001-B08	CAD Operator: JMB	

Figure 24c
Cypress Creek Town Center
Mitigation Area M-3 Planting Plan

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Cypress Creek Town Center On-Site Mitigation Area - M-3

	Elevation	Scientific Name	Common Name	Area	Quantity	Size	Spacing
	45.00	*Pontederia cordata*	pickerelweed	6.04	15028	1 qt. Equiv	3' o.c.
		Sagittaria lancifolia	lance-leaved arrowhead		150028	1 qt. Equiv	3' o.c.
	45.00	*Pontederia cordata*	pickerelweed	0.69	1670	1 qt. Equiv	3' o.c.
		Sagittaria lancifolia	lance-leaved arrowhead		1670	1 qt. Equiv	3' o.c.
		Cephalanthus occidentalis	buttonbush		1202	1 Gal.	5' o.c.
	45.00 to 45.80	*Panicum hemitomon*	maidencane	0.90	4646	1 qt. Equiv	3' o.c.
	45.8 to 46.14	*Spartina bakerii*	sand cordgrass	0.21	1162	1 qt. Equiv	3' o.c.
	45.80 to 46.14	*Spartina bakerii*	sand cordgrass	0.17	823	1 qt. Equiv	3' o.c.
		*Taxodium Ascendens**	pond cypress		74	3 Gal.	10' o.c.
	Note - 0.26 ac. of this area was created as mitigation for the FDOT SR56 expansion (permit no. SAJ - 2008-1150)			0.26			
			Total:	8.27			

* This is a herbaceous wetland creation area, these trees are being planting on the edge of the area for aesthetics, to discourage mowing, and to act as perches to encourage wood stork use of the area. The survival of these trees is not necessary for this area to be considered successful.

COE # SAJ20032336

Figure 24d

Preparation Date: 08/18/2008	Revision Date:	*Figure 24d*	Biological Research Associates
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Project #: 7721-001-B08	CAD Operator: JMB	*Mitigation Area M-3 Planting Plan*	

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