

# Powell Creek Preserve Land Management Plan

1560 Hart Road  
North Fort Myers, Florida

Second Edition



Prepared by the Land Stewardship Section  
Lee County Department of Parks and Recreation

Approved by the Lee County Board of County Commissioners:  
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## **Acknowledgements**

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Laura Greeno

# Table of Contents

<b>VISION STATEMENT .....</b>	<b>6</b>
<b>I. EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>II. INTRODUCTION .....</b>	<b>8</b>
<b>III. LOCATION AND SITE DESCRIPTION .....</b>	<b>9</b>
<b>IV. NATURAL RESOURCES DESCRIPTION .....</b>	<b>12</b>
A. Physical Resources .....	12
<i>i. Climate.....</i>	<i>12</i>
<i>ii. Geology.....</i>	<i>12</i>
<i>iii. Topography.....</i>	<i>12</i>
<i>iv. Soils .....</i>	<i>14</i>
<i>v. Hydrologic Components and Watershed .....</i>	<i>16</i>
B. Biological Resources .....	20
<i>i. Ecosystem Function.....</i>	<i>20</i>
<i>ii. Natural Plant Communities.....</i>	<i>21</i>
<i>iii. Fauna.....</i>	<i>23</i>
<i>iv. Designated Species .....</i>	<i>23</i>
<i>v. Biological Diversity.....</i>	<i>27</i>
C. Cultural Resources .....	28
<i>i. Archaeological Features .....</i>	<i>28</i>
<i>ii. Land Use History.....</i>	<i>28</i>
<i>iii. Public Interest.....</i>	<i>46</i>
<i>iii. Public Interest.....</i>	<i>46</i>
<b>V. FACTORS INFLUENCING MANAGEMENT.....</b>	<b>46</b>
A. Natural Trends and Disturbances .....	46
B. Internal Influences.....	47
C. External Influences .....	49
D. Legal Obligations and Constraints.....	51
<i>i. Permitting.....</i>	<i>51</i>
<i>ii. Other Legal Constraints .....</i>	<i>51</i>
<i>iii. Relationship to Other Plans.....</i>	<i>53</i>
E. Management Constraints.....	53

F. Public Access and Resource-Based Recreation .....	54
G. Acquisition .....	56
<b>VI. MANAGEMENT ACTION PLAN .....</b>	<b>59</b>
A. Management Unit Descriptions .....	59
B. Goals and Strategies .....	61
C. Management Work to Date .....	64
<b>VII. PROJECTED TIMETABLE FOR IMPLEMENTATION .....</b>	<b>66</b>
<b>VIII. FINANCIAL CONSIDERATIONS.....</b>	<b>67</b>
<b>IX. LITERATURE CITED.....</b>	<b>68</b>
<b>X. APPENDICES .....</b>	<b>71</b>

## List of Exhibits

Figure 1: Location Map .....	10
Figure 2: 2015 Aerial.....	11
Figure 3: LiDAR Map .....	13
Figure 4: Soils Map.....	15
Figure 5: Watershed Map .....	18
Figure 6: Hydrologic Features Map.....	19
Figure 7: Plant Communities Map.....	22
Figure 8: 1944 Aerial.....	30
Figure 9: 1953 Aerial.....	31
Figure 10: 1958 Aerial.....	32
Figure 11: 1968 Aerial.....	33
Figure 12: 1972 Aerial.....	34
Figure 13: 1975 Aerial.....	35
Figure 14: 1979 Aerial.....	36
Figure 15: 1986 Aerial.....	37
Figure 16: 1990 Aerial.....	38
Figure 17: 1996 Aerial.....	39
Figure 18: 1998 Aerial.....	40
Figure 19: 2002 Aerial.....	41
Figure 20: 2005 Aerial.....	42
Figure 21: 2010 Aerial.....	43

Figure 22: 2012 Aerial.....	44
Figure 23: 2013 Aerial.....	45
Figure 24: Internal Influences .....	48
Figure 25: External Influences .....	50
Figure 26: Easements Map.....	52
Figure 27: Current Trail Map.....	55
Figure 28: Future Land Use Map .....	57
Figure 29: Zoning Map.....	58
Figure 30: Management Unit Map.....	60
Figure 31: 2004 Post Hurricane Charley Aerial Photograph .....	65

## List of Acronyms

C20/20	Conservation 20/20
CLASAC	Conservation Lands Acquisition and Stewardship Advisory Committee
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FFS	Florida Forest Service
FLEPPC	Florida Exotic Pest Plant Council
FLU	future land use
FNAI	Florida Natural Areas Inventory
FWC	Florida Fish and Wildlife Conservation Commission
IRC	Institute for Regional Conservation
LCDCD	Lee County Department of Community Development
LCDNR	Lee County Division of Natural Resources
LCEC	Lee County Electric Coop
LCPR	Lee County Parks and Recreation
LSOM	Land Stewardship Operations Manual
LMP	Land Management Plan
LiDAR	Light Detecting and Ranging
MU	Management Unit
ORV	Off-road Vehicle
PCP	Powell Creek Preserve
PCW	Powell Creek Watershed
SFWMD	South Florida Water Management District
STRAP	Section-Township-Range-Area-Block.Lot (Parcel)
USACOE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

## *Vision Statement*

*It is the vision of the Lee County Department of Parks and Recreation and the Conservation 20/20 Program to conserve, protect and maintain Powell Creek Preserve as a productive, functional and viable ecosystem. Although the Preserve is small and surrounded by mobile home communities it contains a wide variety of plant and wildlife species. The primary management objectives for Powell Creek Preserve will be continued exotic plant control and prescribed burning to ensure natural plant communities and the species dependent upon them will thrive.*



## I. EXECUTIVE SUMMARY

Powell Creek Preserve is located in North Fort Myers, in northern Lee County about 0.3 miles north of Bayshore Road and 0.75 miles east of Business U.S. 41. The site is bordered by the Powell Creek Bypass Canal to the west, Forest Park Mobile Home subdivision to the north, Hart Road to the east and Carriage Village Mobile Home subdivision to the south. The 77 acre Preserve was acquired in 2003 through the Conservation 20/20 Program for \$618,000 after being nominated to the program in the spring of 2002 by Royal Palm Estates LLC. The Conservation 20/20 Program was established in 1996 after Lee County voters approved a referendum that increased property taxes by up to .5 mil for the purpose of purchasing and protecting environmentally sensitive lands.

There are six different soil types found at Powell Creek Preserve. A common relationship for all of these soil types is that their slopes range from 0-2%. All soil types are nearly level and poorly drained with rapid permeability at the surface. Covering 35% of the Preserve, Immokalee Sand is the most common soil type, which is found in south Florida flatwoods communities. Pineda Fine Sand is found on 28% of the Preserve and is present in the slough type communities within and adjacent to Powell Creek. The Preserve's natural elevations range from 12' in northwest and central portions and slope towards the meandering creek to 6'. The excavation and berming related to the filter marsh construction has altered the soil types and topography on approximately 21 acres of the site.

The preserve contains a combination of uplands and natural and created wetland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. The Preserve consists of 11 natural and altered plant communities including abandoned pasture, scrubby flatwoods, mesic flatwoods and slough. Mesic flatwoods is the most common plant community. The construction of the filter marsh system converted 20.5 acres of disturbed uplands to wetlands. A portion of Powell Creek and its floodplain represent the slough community mainly with pop ash trees, buttonbush and willow. The Preserve's drier northwest corner resembles a scrub area with dwarf live oak, netted paw-paw and October flower. Powell Creek Preserve is also home to variety of animal species including warblers, pileated woodpeckers, coachwhip snakes, gray squirrels, rabbits and gopher tortoises.

The Preserve lies within the Powell Creek Watershed, its namesake, which covers a surface area of approximately 13 square-miles. A primary consideration for acquiring this preserve was the potential importance for flood management due to the proximity to adjacent water control structures. It was thought that this area might provide additional drainage or water storage for Suncoast Estates, Forest Park and other upstream developments. Several hydrological alterations affect the hydroperiod and sheet flow across the property, which flows in a southerly direction. Most hydrological impacts have occurred outside the property boundaries and consist of an adjacent roadway, an extensive drainage channel along the western boundary, widespread urban growth, and several ditches and their associated berms. Within the Preserve, the largest hydrological alteration was the construction of the filter marsh system.

Although not all elements of the land use history discussed here occurred on this preserve, modifications made on adjacent properties directly influence the Preserve. An aerial photograph from 1944 showed that land uses included agricultural activities, a building in the northeast corner, and the abandoned Seaboard Air Line railroad bed and its associated ditch to the west. During the 1950s, several additional structures associated with the Hart's Dairy Farm operation were built, while in the 1960s another drainage ditch from the north was dredged leading to the Powell Creek waterway.

During the 1970s, mobile home subdivisions sprung up in areas adjacent to the Preserve, while cattle grazed on the property until the early 1980s. In 1987, a weir was installed in the bypass canal at the southwest corner of the Preserve at the confluence of the canal and Powell Creek. During the mid to late 1980s, wells were installed in preparation for the Royal Palm Estates development, a 325 unit mobile home planned development approved for this site. In the 1990s, another mobile home subdivision and a storage facility were also built adjacent to this property. Before C20/20 acquired the property, additional uses observed during onsite property evaluations included camping, various childhood activities such as tree house building, dumping, off-road vehicles and hunting. In 2012 the biggest alteration to this preserve occurred when the filter marsh construction began.

Natural trends and disturbances influencing native communities and management at Powell Creek Preserve include the pattern of wet and dry periods, flooding, occasional freezes, hurricanes and wildfire. In 1990, a conservation easement was granted to the Florida Department of Environmental Regulation (renamed Florida Department of Environmental Protection) on approximately 10 acres of the property. This easement was granted to maintain the land in its natural vegetative and hydrologic conditions. The easement covered the creek bed throughout the entire property and the floodplain on the northern part of the creek. During the permitting process for the filter marsh this conservation easement was released due to the fact that it was related to a development permit for construction that never occurred prior to the purchase of the land by Lee County. In addition, there is a 15 foot drainage easement and a 10 foot utility easement that are recorded along portions of the property boundary.

The trail system is one mile long and allows hiking and bicycling. The wide variety of year-round bird life brings nature photographers and bird watchers to the preserve in large numbers.

The goal of this land management plan is to identify Preserve resources, develop strategies to protect those resources and implement restoration activities to maintain this preserve as a productive, functional and viable. Management activities will focus on control of invasive exotic plant and animal species, improving hydrologic components, maintaining upland ecosystems with prescribed fire or by other methods, and enhancing wildlife habitat and public access for resource-based recreational opportunities. A Management Action Plan that outlines restoration and stewardship goals has been developed. This plan outlines these goals and strategies, explains how to accomplish these goals, and provides a timetable for completion. This land stewardship plan will be updated in ten years (2026).

## **II. INTRODUCTION**

Powell Creek Preserve (PCP) was acquired as one parcel in August 2003 through Lee County's Conservation 20/20 (C20/20) program for \$618,000. The site totals 77 acres and is located in North Fort Myers along the west side of Hart Road. The site was a mixture of disturbed areas, pine flatwoods, a slough and the natural creek bed of Powell Creek.

Little land use history has been documented on the Preserve. It is known that the site was used as part of Hart's Dairy in the 1950s and remnants of a few structures associated with the dairy still remain on the property (concrete slabs). The majority of the property was undisturbed except areas in the eastern portion that were used for grazing. The largest land use change came in 2012 with the construction of the filter marsh system. The Preserve is surrounded by mobile home communities to the north, east and south, and is bordered by a drainage canal to the west.

The main land management challenge for the next ten years will be establishing a burn regime. PCP is at maintenance level for invasive exotic plant species due to a continued aggressive annual sweeps across the preserve. Although the dominant upland invasive exotic plants at PCP were Brazilian pepper, air potato and Caesar's weed, there were more than thirty-five (35) others when the first LSP was approved 10 years ago. Twenty-four of the 35 exotic plant species have been eradicated from the preserve to date.

The majority of these exotic plant species were common landscape/house plants introduced from neighbors disposing of them across the fence or spreading growth across the fenceline from backyards. Controlling non-native landscape and houseplants species on the preserve will be an on-going challenge.

The purpose of this management plan is to define conservation goals for PCP that will address the above concerns. It will serve as a guide for Lee County's Department of Parks and Recreation to use best management practices to ensure proper stewardship and protection of the Preserve. It also can be used as a reference guide as a significant amount of field surveys were conducted along with researching scientific literature, studies and historical records to understand how the Preserve functions in the ecosystem, what wildlife and plants are found within its boundaries, as well as influences from human use.

### **III. LOCATION AND SITE DESCRIPTION**

Powell Creek Preserve is located at 15601 Hart Road, North Fort Myers, in northern Lee County about 0.3 miles north of Bayshore Road. It is in the northwestern corner of Section 36, Township 43 South, and Range 24 East. The site is bordered by Powell Creek Bypass Canal to the west, Forest Park Mobile Home subdivision to the north, Hart Road to the east and Carriage Village Mobile Home subdivision to the south. The Preserve consists of STRAP 36-43-24-0000002.0000.

The Preserve is approximately 77 acres in size and contains a combination of uplands and natural and created wetland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. The Preserve consists of 11 natural and altered plant communities including abandoned pasture, scrubby flatwoods, mesic flatwoods and slough. Mesic flatwoods is the most common plant community. The construction of the filter marsh system converted 20.5 acres of disturbed uplands to wetlands. A portion of Powell Creek and its floodplain represent the slough community mainly with pop ash trees, buttonbush and willow. The Preserve's drier northwest corner resembles a scrub area with dwarf live oak, netted paw-paw and October flower. Powell Creek Preserve is also home to variety of animal species including warblers, pileated woodpeckers, coachwhip snakes, gray squirrels, rabbits and gopher tortoises. Figure 1 shows PCP's location in Lee County while Figure 2 shows the current boundary of PCP in a 2015 aerial photograph.

Figure 1: Location Map

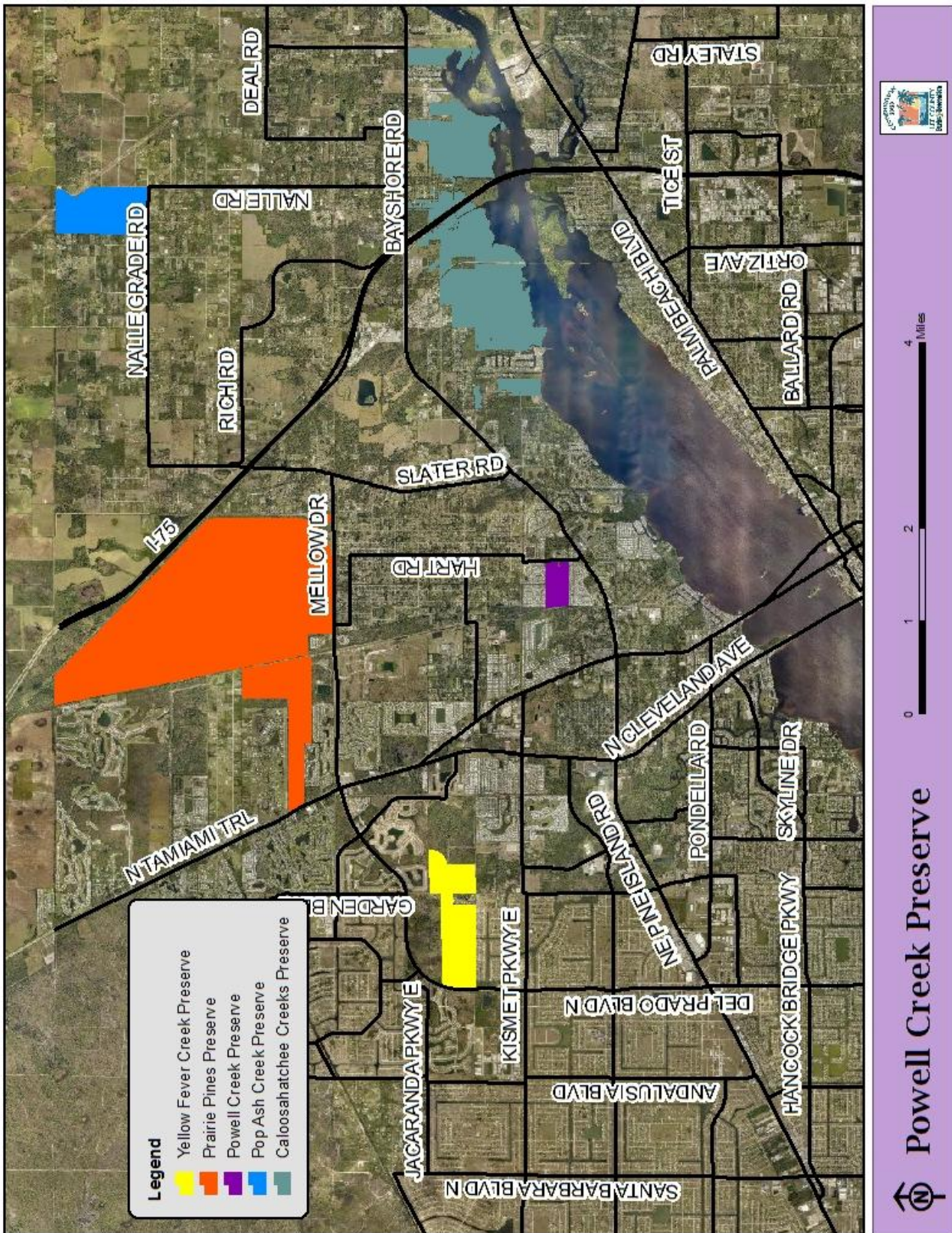


Figure 2: 2015 Aerial



## IV. NATURAL RESOURCES DESCRIPTION

### A. Physical Resources

#### *i. Climate*

General information on the climate of southwest Florida is located in the Land Stewardship Plan Development and Supplemental Information section of the Land Stewardship Operations Manual (LSOM).

#### *ii. Geology*

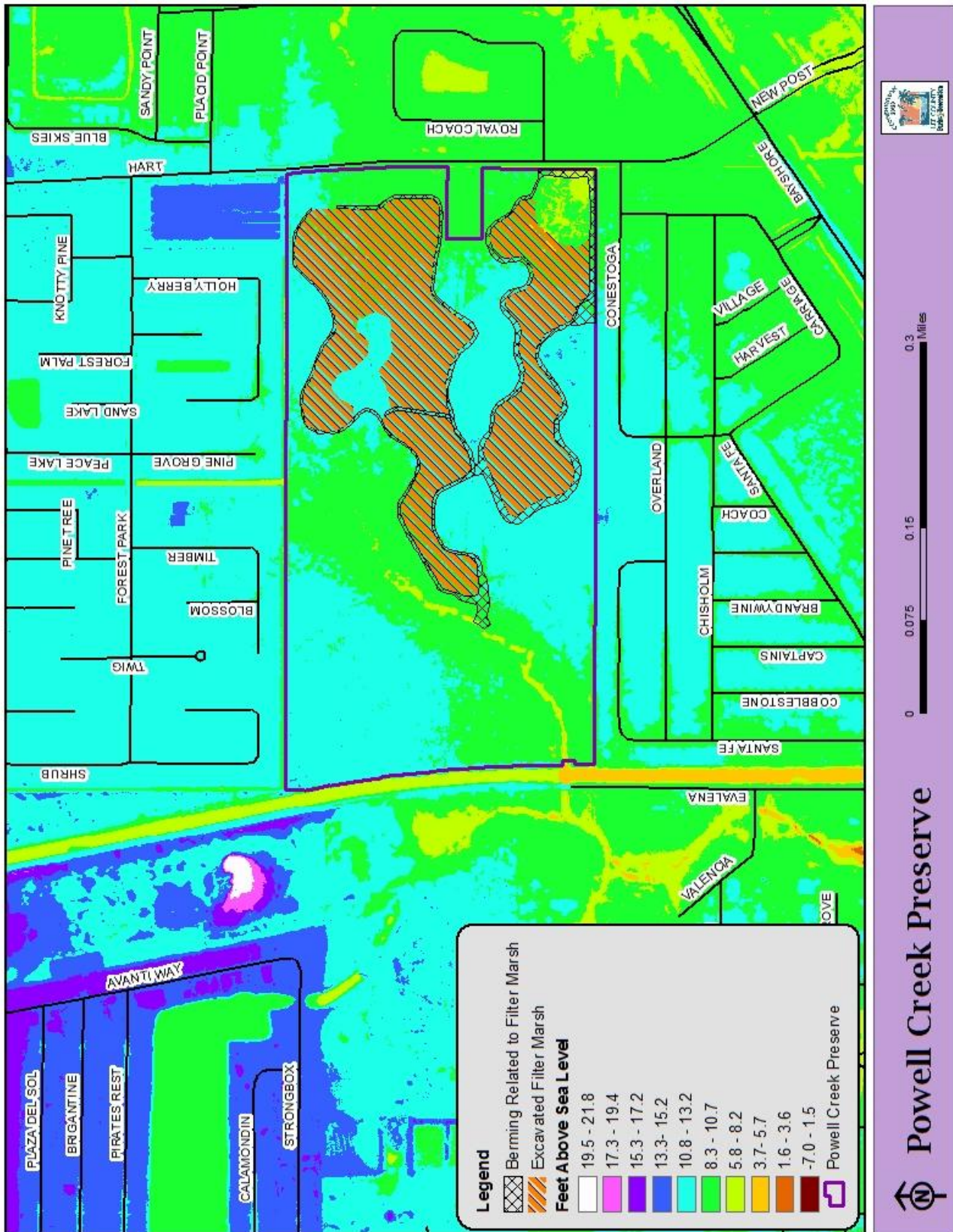
Specific information on the geologic features such as physiographic regions, formations and maps can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

#### *iii. Topography*

The natural elevations at PCP range from 12' in northwest and central portions of the Preserve and slope towards the meandering creek to 6'. In addition, the wetland in the southeastern corner is only at 8'. Man-made topographic features include berms and spoil piles associated with channel and ditch dredging and neighboring developments have an elevation of approximately 13'.

The following topographic map (Figure 3) uses light detecting and ranging (LiDAR) data, which is an optical remote sensing technology that measures properties of scattered light to find range and/or other information of a distant target. These data were collected from flights conducted in 2007 and represents the published 5 foot digital elevation model. The change in color gradient visually demonstrates the change in elevation with the creek bed being the lowest area. The berming and excavated areas associated with the construction of the filter marsh system were not present in 2007 so they are not represented with topographic elevations on the map.

Figure 3: LIDAR Map

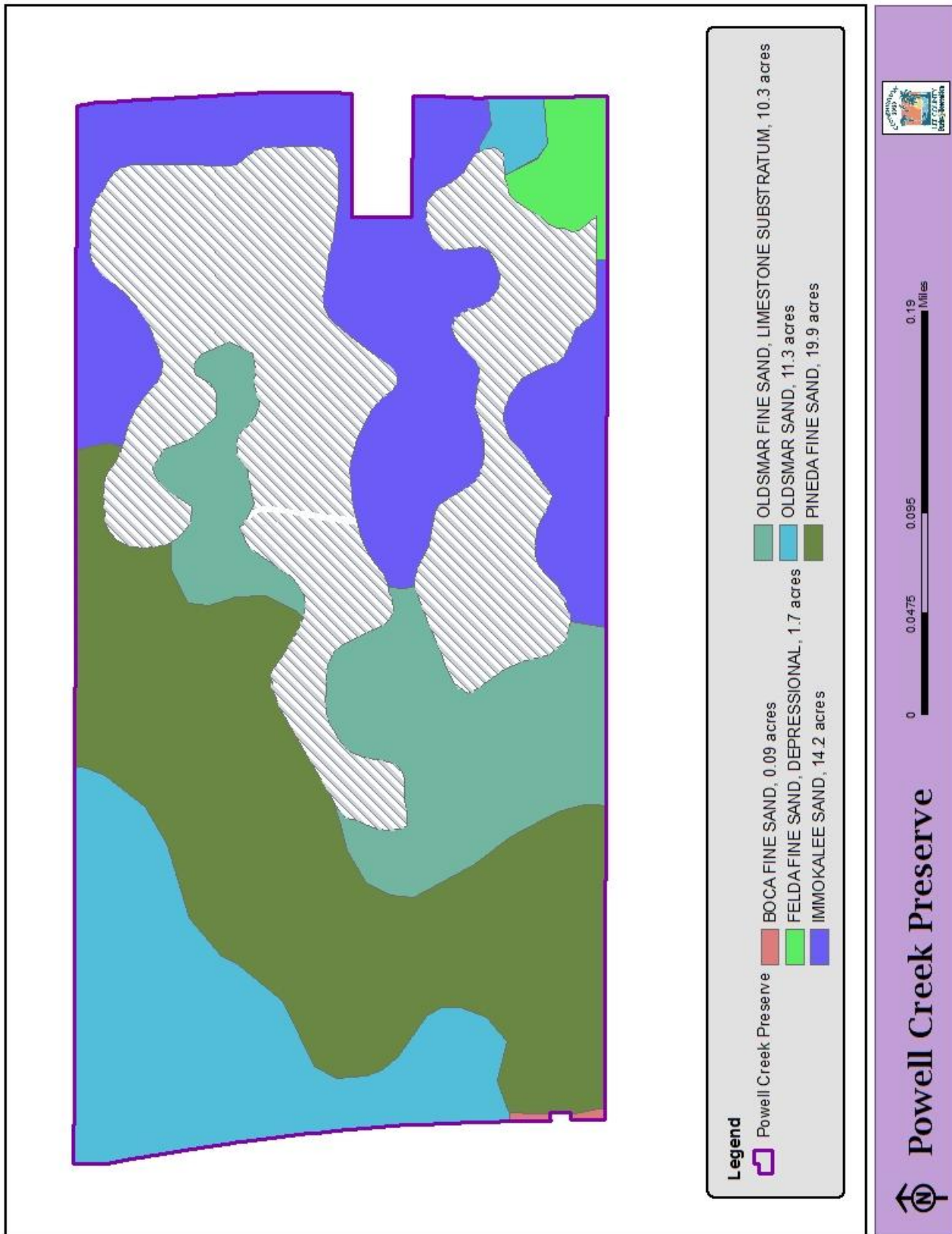


#### *iv. Soils*

PCP contains a total of six different soils (Appendix A and Figure 4). The majority of the soils is described as nearly level and moderately drained, have limitations for urban uses because of the high water table and sheet-flow inundation, and all are categorized with rapid permeability in the surface and subsurface levels. Soils play an important role in dictating the location and types of recreation that the Preserve can provide. Refer to the LSOM's Land Stewardship Plan Development and Supplemental Information section for additional information on soil types and limitation.



Figure 4: Soils Map



## *v. Hydrologic Components and Watershed*

Powell Creek Preserve is within the north-central portion of the South Florida Water Management District's (SFWMD) Lower West Coast Region (LWCR). PCP falls within a subset of the combined LWCR and Lower East Coast Region, within the 1,400 square-mile Caloosahatchee Basin (SFWMDa 2000). The Preserve lies within the Powell Creek Watershed (PCW), its namesake, which covers a surface area of approximately 13 square-miles. Figure 5 illustrates the location of PCW as well as adjacent watersheds. Essentially, PCW is nine miles long and is relatively narrow, varying from one to two miles across. PCW originates in Charlotte County and eventually empties freshwater into the Caloosahatchee River. The majority of land surrounding the Preserve has been developed as residential mobile home communities, scattered single-family homes, and a limited number of commercial developments.

Several hydrological alterations affect the hydroperiod and sheet flow across the Preserve. In general, sheet flow moved in a southerly direction. This has been altered some with the berming associated with the constructed filter marsh system. Most hydrological impacts are outside the Preserve boundaries and include an adjacent roadway, an extensive drainage channel, smaller ditches and their associated berms. Figure 6 illustrates the above hydrologic impacts and includes data layers from the National Wetland Inventory, Lee County Division of Natural Resources (LCDNR) drainage systems and Powell Creek.

By 1944, the old Seaboard Air Line (SAL) railroad bed existed along with the usual ditches adjacent to most railroad grades. Directly west of the Preserve and channel, the old railroad grade was transformed into North Evalena Lane and a maintenance road for access to the channel. The ditch on the eastern side of this railroad grade was upgraded to a channel for drainage to alleviate flooding problems for North Fort Myers and Bayshore areas. This channel (Powell Canal) runs along the Preserve's western boundary and Powell Creek empties into the Valencia Weir near the southwest corner of the Preserve. "The Valencia Weir was installed in 1987 and provides an effective barrier to maintain higher groundwater elevations in the upstream portion of the watershed during the dry season. At the Valencia Weir, the main conveyance is an excavated channel about seventy feet wide that has its alignment inside the old SAL Railroad right-of-way" (JEI et al. 1991).

A primary consideration for acquiring PCP was its possible importance for flood management due to the close proximity to these adjacent water control structures. It was thought that this area might provide additional drainage or water storage for Suncoast Estates, Forest Park and other upstream developments. The Lee County Natural Resources Division hired a consultant to compile the North Fort Myers Surface Water Master Plan. This plan covers areas north of the Caloosahatchee River, between U.S. 41 and S.R. 31.

Construction of the filter marshes occurred in 2012 as a partnership with Lee County Natural Resources with grant funding. The construction cost was \$1,850,000 (this does not include design and permitting costs). Water pumped from the canal on the west boundary of the property into one cell of the filter marsh makes its way through the system and into the creek (or gets evaporated or absorbed by the plants or drunk by the animals). If the water level in the canal drops, the pumps shut off until the canal water levels recover. Water levels in the cells are dependent upon whether it is wet season or dry season. When water level in the canal drops below elevation 6.4, it is considered dry season. In dry season mode, the marsh cell nearest the north fence (west of the parking area cell) is kept between 8.5 and 9 feet. In wet season the marsh is kept between elevations 9.7-9.9.

The weir at the outflow into the creek is set at elevation 9.2. If the water level in the marsh is over 9.2, then water flows over the weir and into the creek. Under 9.2 the water is held in the marsh. In high water situations such as tropical storms or substantial rains, the pumps can be shut off or the weir can be lowered to discharge more water from the marsh if necessary. The elevation of the berms around the cells allows for stormwater from rain events that would naturally fall across the preserve to be held in the marsh as another way to decrease likelihood of neighborhood flooding.

The Caloosahatchee Estuary was identified by DEP as impaired by nutrients and a Basin Management Action Plan (BMAP) was implemented to reduce total maximum discharge limits for total nitrogen in 2009. The filter marsh system on Powell Creek Preserve was constructed to assist in the mission of reducing the amount of total nitrogen (TN), total phosphorus (TP) and other potential pollutants that discharge into the estuary. LCDNR conducts water monitoring to measure load reductions and has found the percent load reduction as of 2015 was 1,188 lbs/yr for TN, and 153 lbs/yr for TP.

Figure 5: Watershed Map

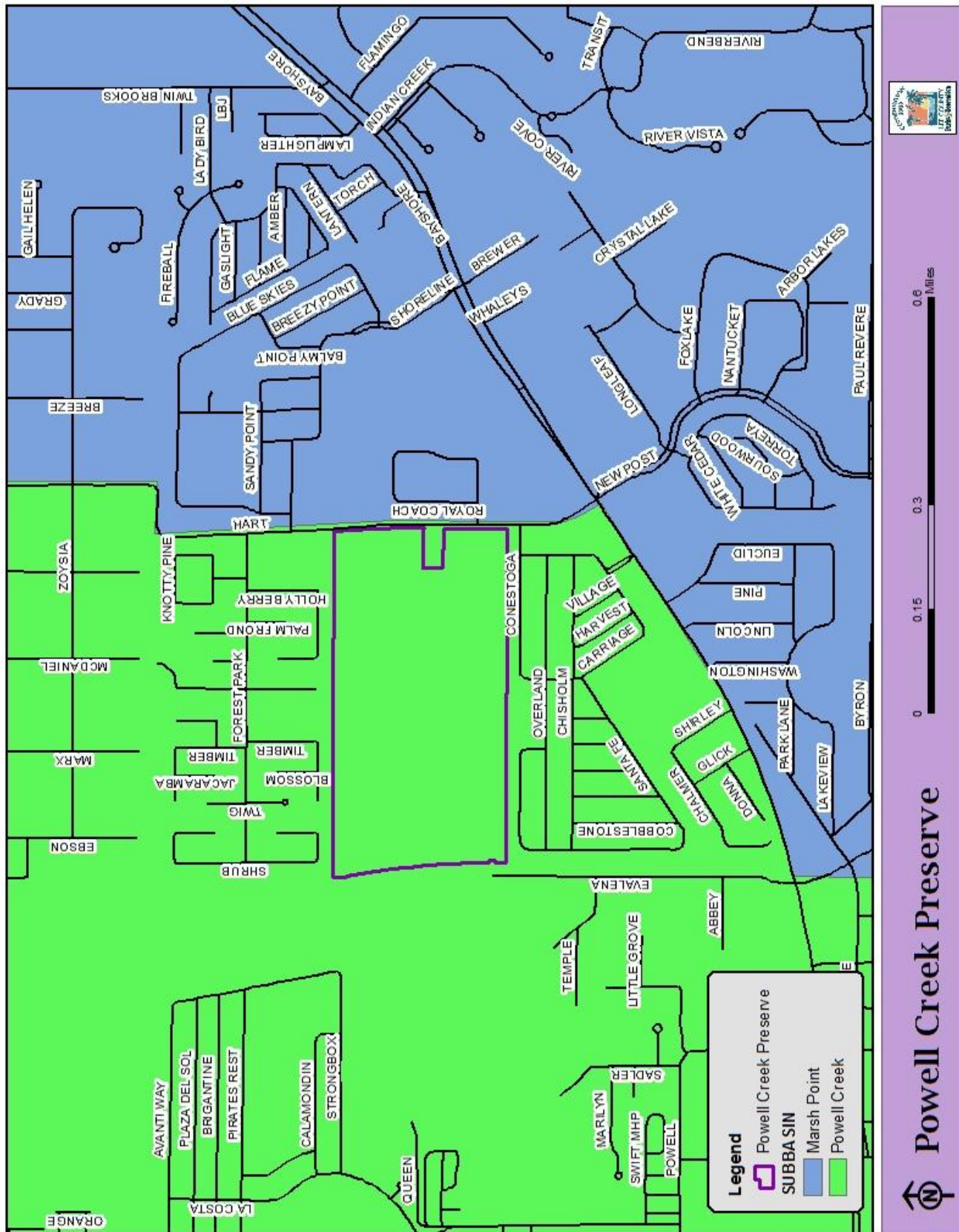
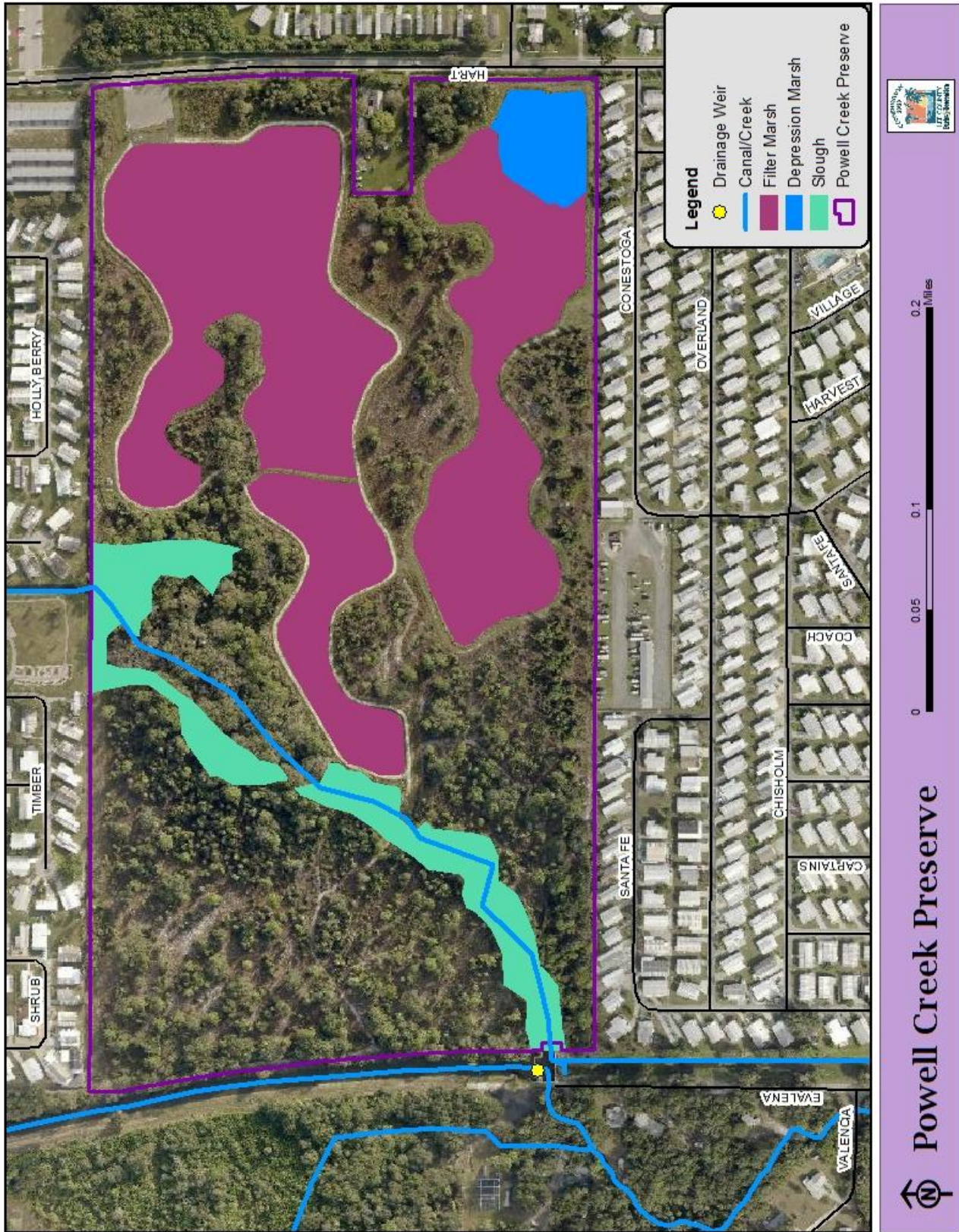


Figure 6: Hydrologic Features Map



## B. Biological Resources

### i. Ecosystem Function

Lee County's preserves contain a diversity of plant communities that provide habitat for numerous plant and animal species. The majority of the preserves are not islands of habitat, but are pieces of a larger conservation effort striving to create or maintain a healthy and viable ecosystem.

Powell Creek Preserve protects a remnant portion of Powell Creek's natural waterway. To the north, the creek is now a series of canals and no longer functions as a natural system. The portion of the creek within the preserve slows water flowing from canals in developments to the north and allows sediment to settle (and trash to be collected) before reaching the lower branches of the creek and further downstream, the Caloosahatchee River.

Pine flatwoods provide essential cover and forage material for a variety of birds, small mammals, reptiles and amphibians and some large mammals. Species observed at PCP include gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon coraiscouperi*) and pileated woodpecker (*Dryocopus pileatus*). Birds find shelter in the palmetto understory, nest in the tall pines and forage in the grasses. Oak toads (*Anaxyrus quercicus*) will dig burrows in the sandy soil and hunt for spiders and insects. There are a number of rare wildlife and plant species that primarily occur in the flatwoods, as well as numerous rare plants, including some endemic species. During the wet season, these communities provide dry refuge for non-aquatic animals. During a severe flood, the flatwoods serve as a water storage area to help protect adjacent land from flooding (Tiner 1998). Mesic pine flatwoods function seasonally as both a wetland and upland. This hydrologic transformation allows for an abundant diversity of flora which, in turn, supports a wide range of wildlife (USFWS 1999).

Fire is an important natural component of pine flatwoods. Florida has more thunderstorm days per year than anywhere else in the country and, in turn, one of the highest frequencies of lightning strikes of any region in the United States. These lightning strikes are natural ignitors of wildfires across the Florida landscape. Fire shapes ecosystem processes in the flatwoods including creation of soil conditions suitable for germination of seeds of some species, turnover of litter, humus and nutrients, reduction of competition from hardwoods and increasing the hardiness of some species (Myers and Ewel 1990). Mechanical thinning and rollerchopping of pine flatwoods is beneficial, especially in areas that have suffered fire suppression or have had hydrologic alterations to surrounding lands which in turn creates conditions favoring growth of pines over hardwood species. Without regular fire or mechanical work pine flatwoods can become dense stands of palmetto and have tall weak pines which block sunlight from reaching the ground, further decreasing the biodiversity and coverage of native grasses and wildflowers that gopher tortoises, quail and many other species depend upon.

Freshwater wetlands of south Florida are important for a variety of wildlife and people. Birds feed, fish and frogs live and breed, and people rely on these marshes to improve water quality and recharge the aquifers. The man-made filter marshes on PCP provide resting and feeding areas for migratory birds as well as year-round habitat for a wide variety of songbirds and wading birds.

## *ii. Natural Plant Communities*

PCP contains a combination of upland and natural and created wetland communities that serve as important habitat for a variety of birds, mammals, reptiles and amphibians. The Preserve consists of 11 natural and altered plant communities described by the Florida Natural Areas Inventory (FNAI). Mesic flatwoods is the most common plant community on the preserve. The construction of the filter marsh system converted 20.5 acres of disturbed uplands to wetlands. Figure 7 shows the location of the plant communities found at PCP. The plant communities are defined using the Guide to the Natural Communities of Florida (2010) prepared by FNAI.

Acreages and percent of cover for each community are listed below. Descriptions of the plant communities and characteristic animals found within each community, as well as management suggestions can be found in the LSOM. The percent cover is slightly under 100% due to rounding off values. A complete list of plant species identified during site inspections to PCP can be found in Appendix B. The plant species list will be updated on a seasonal basis to identify plants in their inflorescence phase.

**Abandoned Pasture** – 5.95 acres, 7.73% coverage of PCP

**Depression Marsh** – 1.42 acres, 1.84% coverage of PCP

This natural depression marsh was combined into the filter marsh which was excavated adjacent to its location. This depression marsh is now bermed on two sides.

**Mesic Flatwoods** – 27.96 acres, 36.32% coverage of PCP

**Scrubby Flatwoods** – 6.12 acres, 7.95% coverage of PCP

**Hydric Hammock** – 2.31 acres, 3.00% coverage of PCP

**Mesic Hammock** – 3.89 acres, 5.05% coverage of PCP

**Slough** – 2.74 acres, 3.56% coverage of PCP

### **Altered Landcover Types:**

**Clearing** – 3.98 acres, 5.17% coverage of PCP

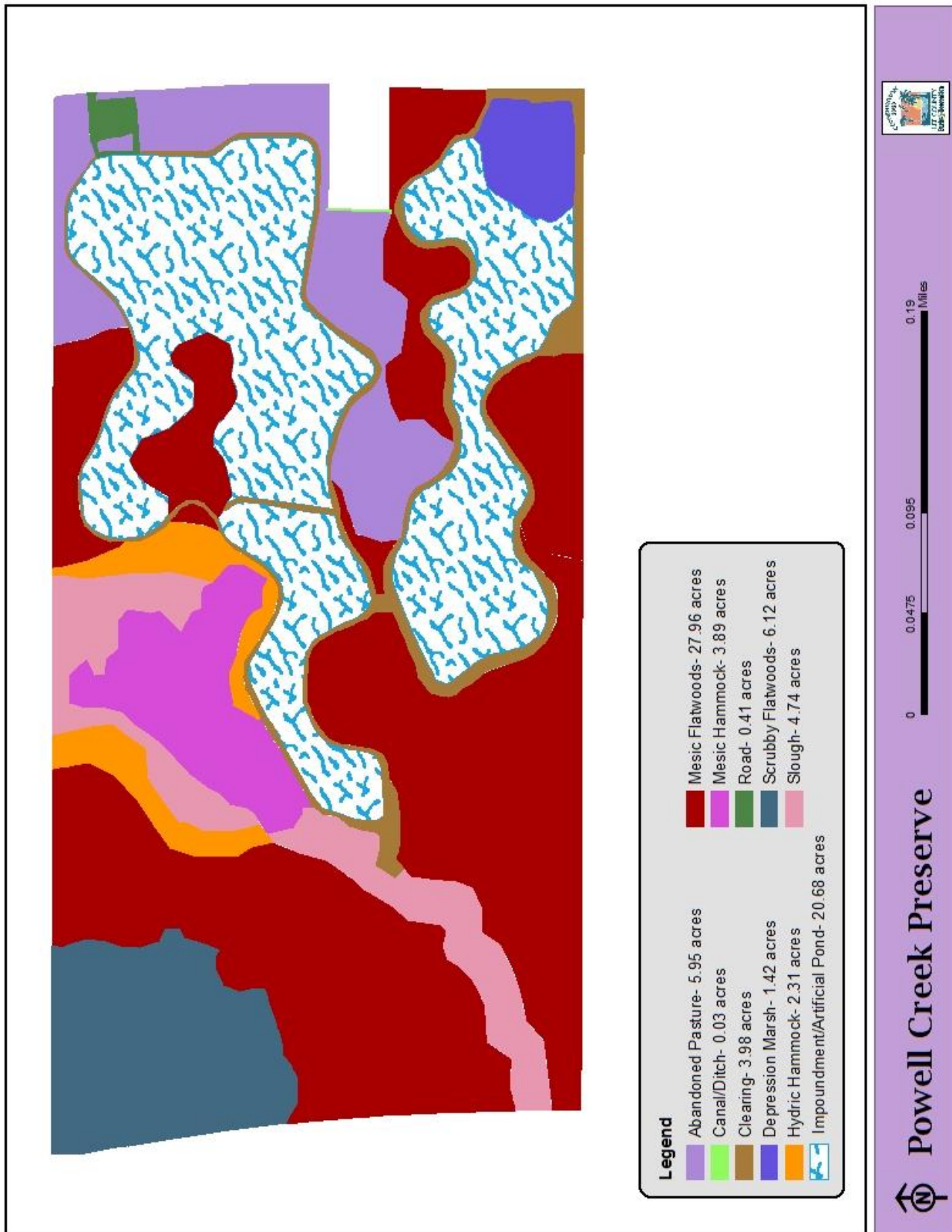
The clearing is related to the berming associated with the constructed filter marsh system.

**Impoundment/Artificial Pond** – 20.68 acres, 26.86% coverage of PCP

**Canal/Ditch** – 0.03 acres, 0.04% coverage of PCP

**Road** – 0.41 acres, 0.53% coverage of PCP

Figure 7: Plant Communities Map





### *iii. Fauna*

Due to the small size and isolation of the Preserve, the number of fauna present on site is lower than on other preserves. Nine non-native wildlife species have been documented at the Preserve. Appendix C has the complete list of wildlife documented on the Preserve at the time of writing this LMP, as recorded through staff field work and site inspections as well as the volunteers in Bird Patrol.

Management goals will focus on maintaining healthy, functioning ecosystem processes to provide optimal habitat for native wildlife (including listed species). Restoration of the disturbed areas and control of invasive exotic plants and animals will be critical components in providing the best possible habitat for native wildlife.

Additional general information about fauna on all C20/20 preserves can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

### *iv. Designated Species*

There are a variety of designated animal and plant species found at PCP. Although all native plant and animal species found on the Preserve have some protection due to the preservation of this property, certain species need additional attention. For stewardship and management purposes, all plants and animals listed by the USFWS, Florida Fish and Wildlife Conservation Commission (FWC), Florida Department of Agriculture and Consumer Services (FDACS), the Institute for Regional conservation (IRC) and FNAI will be given special consideration when considering recreation and hydrological projects. If additional listed species are documented on the Preserve, they will be added to the lists in Appendices B or C.

The following are brief summaries of designated wildlife species and reasons for their decline. Unless stated otherwise, the reasons for the species' decline and the management recommendations, if available, were obtained from Hipes et al. (2001).

#### **Wood Stork**

Wood storks are very sensitive to water levels in freshwater wetlands, as they require high concentrations of fish in fairly shallow water for foraging. Threats to them include loss and degradation of wetlands, fire suppression, free ranging dogs and cats, and entanglement in fencing (Rodgers et al. 1996). Unnaturally high water levels during nesting seasons and extended droughts are additional threats that wood storks face.

Management practices that will benefit this species include invasive exotic plant control in the wetlands and implementing a prescribed fire plan. Pets and pet walking are not allowed at PCP to further protect wood storks.

#### **Herons, Egrets, Ibises, Bitterns and Spoonbills**

The little blue heron's (*Egretta caerulea*) and tricolored heron's (*Egretta tricolor*) decline are due to loss of freshwater wetlands and alteration of their natural hydroperiod. There is also some indication that pesticides and heavy metal contamination may affect these species. Yellow-crowned (*Nyctanassa violacea*) and black-crowned (*Nycticorax nycticorax*) night heron "populations have probably declined due to illegal shooting, disturbance at breeding colonies, and drainage of wetlands

used for foraging. In Florida, the destruction and alteration of more than half of the wetlands, due to the phenomenal increase in population has caused a substantial decline in ardeids. Wetlands have been filled and or impacted by housing developments, agriculture, human activity (i.e. sports, recreation) and the infrastructure that supports these activities” (Rodgers et al. 1996).

Like these herons, the great egret (*Ardea alba*) and snowy egret (*Egretta thula*) have been declining throughout their ranges since the 1950s. Scientists believe that the main reason for this decline is the loss and alteration of wetlands where they forage. Similar to the herons and egrets listed above, the white ibis and glossy ibis (*Plegadis falcinellus*) are declining throughout their range due to the reduction and degradation of wetlands and human disturbances to their rookeries.

During the summer months, least bitterns (*Ixobrychus exilis*) breed throughout the eastern and central U.S. and southern Ontario from coastal Maine to Florida, and westward to the eastern Dakotas and central Texas. They are known to be in scattered locations in the western United States, in Mexico, Caribbean, and Central and South America. During winter months, least bitterns range from the mid-Atlantic seaboard to south Florida and southward. They prefer freshwater or brackish marshes with tall emergent vegetation and are difficult to survey, so few data are available. Loss of wetland habitat and the encroachment of exotic species of marsh vegetation may pose a threat (CLOa 2003).

The roseate spoonbill nests in coastal mangrove areas with a mix of other bird species and occasionally in willowheads around freshwater systems. They forage in shallow-water. Their decline is attributed to human disturbance of nesting colonies, alteration of foraging sites and alterations of hydrologic patterns.

All of these species of wading birds are seen regularly at PCP. The management practices that benefit wood storks will also benefit these species.

### **Kites**

Swallow-tailed kites (*Elanoides forficatus*) migrate to southwest Florida from South America in late February/early March for their nesting season that lasts through late July/early September. In the early 1900s, swallow-tailed kites were confirmed as nesting in 21 states; today they are only found in seven southeastern states including Florida. Loss of nesting sites through development and conversion to agriculture are the major threats to this species.

### **Eagles and Hawks**

Bald eagle (*Haliaeetus leucocephalus*) numbers have steadily increased in Florida after a low of 120 active nests in 1973 primarily caused by impacts from DDT and related pesticides. Still, loss of habitat and human disturbance due to development is a primary concern for this species. Secondary poisoning of bald eagles from the consumption of lead shot in waterfowl contributed to the 1991 ban on lead shot for waterfowl hunting in the United States.

During the summer Cooper’s hawks (*Accipiter cooperii*) breed across southern Canada southward to southern United States and into central Mexico. In the winter, they range throughout the United States and Mexico. They breed in deciduous, mixed, and coniferous forests, although documentation of breeding in south Florida is scant, and are becoming more common in suburban and urban areas.

“Declines of the Cooper's hawk in the late 1940s and 1950s were blamed on DDT and pesticide contamination. Populations started increasing in the late 1960s, but it is still listed as threatened or of

special concern in a number of states. The Cooper's hawk appears to be adapting to breeding in urban areas, which may help increase populations" (CLOb 2003).

Neither species has been documented utilizing PCP for nesting. If nesting is observed in the future, bald eagle nests will be protected according to Federal, state and local laws and the management activities listed under kites will also be implemented to protect any nests.

### **Gopher Tortoise**

Gopher tortoises are in decline throughout their range due to loss and degradation of habitat. As a species dependant on dry, upland communities much of their habitat has been lost to urban and residential development, agriculture, citrus groves, mining and pine plantations. Additional threats include a highly contagious respiratory disease and human consumption.

Due to the high number of gopher tortoises on PCP management work will focus on maintaining low-density canopy cover and groundcover. Burrows will be identified before mechanical work is done and domestic dogs will not be allowed on the site. Staff will determine if burrows will be flagged and equipment operators will be advised to stay away from the burrows based on type of work being planned and time of year. High intensity chopping should be planned for winter months when gophers will be less active outside of the burrow.

### **Eastern Diamondback Rattlesnake**

Although not an officially listed species, the eastern diamondback rattlesnake (*Crotalus adamanteus*) is commonly thought to be in decline throughout its range. Scientists believe that it requires 10,000 acres or more to sustain long-term viable populations. Contiguous natural areas of this size are few and far between in this area so loss of habitat is a threat to this species. Additional threats to this species include indiscriminate killing because of fear, as well as for trade and being hit by cars.

Prescribed burning and exotic plant removal are resource management techniques that will be beneficial to this species. Additionally, public education about the ecological value of this and other species of snakes will help to protect them from visitors to the Preserve and from adjacent landowners.

### **Florida Bonneted Bat**

Although not documented yet at PCP, the Florida bonneted bat (*Eumops floridanus*) is another designated species which staff will need to be prepared to manage for. This bat is currently listed as Federally Endangered. Staff will be monitoring for this species and, if documented on-site, roost areas will be protected during management activities.

### **Plant Species**

In addition to designated wildlife, the preserves may provide habitat for plant species listed by the IRC or FDACS. The following are brief summaries of the FDACS designated plant species explaining reasons for their decline and typical communities where they are located.

### **Northern Needleleaf, Cardinal and Giant Airplants**

The northern needleleaf (*Tillandsia balbisiana*) is a state threatened species occasionally found in a variety of communities including pinelands, hammocks and mangroves. Endangered cardinal

airplants (*Tillandsia fasciculata* var. *densispica*) and giant airplants (*Tillandsia utriculata*) are found in hammocks, cypress swamps and pinelands. Threats to these species include illegal collecting, habitat destruction and the exotic Mexican bromeliad weevil (*Metamasius callizana*) (Save 2004).

Currently, scientists are researching biological control agents for the exotic Mexican bromeliad weevil. Staff will keep current with the research developments and work with scientists in the future if the United States Department of Agriculture (USDA) is in need of release sites.

IRC, which is not a regulatory agency, also maintains a listing of threatened plant species. IRC's designation is either obtained from their book Rare Plants of South Florida: Their History, Conservation and Restoration, (Gann 2002) or internet website: regionalconservation.org. Scientists working for this Institute have conducted a tremendous amount of field work and research documenting plants occurring in conservation areas throughout Florida's 10 southernmost counties. This initial floristic inventory allowed the IRC to rank plant species in order to indicate how rare/common these plants are in protected areas. Rare plants are defined as being either very rare and local throughout their range in south Florida (21-100 occurrences, or less than 10,000 individuals), or found locally in a restricted range. IRC only ranks those taxa as rare when there are fewer than 100,000 individuals. Imperiled plants are those that are imperiled in south Florida because of rarity (6-20 occurrences, or less than 3,000 individuals) or because of vulnerability to extinction. This can be due to some natural or human factors. IRC only ranks taxa as imperiled if there are fewer than 10,000 individuals. Critically Imperiled plants are defined as being either extremely rare (5 or fewer occurrences, or fewer than 1,000 individuals), or extremely vulnerable to extinction from natural or human factors. IRC only ranks those taxa as critically imperiled with 10,000 or fewer individuals.

In their book, (Gann 2002), the authors provide an entire chapter of recommendations to help restore south Florida's rare plant diversity. Several of these recommendations, particularly those that protect plants on the preserve and relate to stewardship practices, will be followed. More information on the specific techniques used will be discussed in the Management Action Plan. The following list highlights IRC recommendations that will be incorporated into the management of PCP:

- Prohibit recreational activities such as off-road vehicle use to avoid impacts to rare plant populations.
- Prevent illegal poaching of rare plants.
- Prosecute poachers to the fullest extent of the law.
- Implement an ongoing exotic pest plant control program.
- Educate exotic plant control crews about the rare plants to ensure they avoid non-target damage.
- Trap wild hogs, which can completely destroy the above ground vegetation and disturb all the soil in an area where they are feeding.
- Initiate prescribed fire regimes in communities that are fire adapted since fire as a management tool is extremely critical for the protection of many rare plants.
- Divide the site so the entire area is not burned during the same year to help protect these communities.

- Ensure that management activities do not negatively impact rare plant populations.

#### *v. Biological Diversity*

General information on biological diversity and measures used to help promote biological diversity can be found in the LSOM's Land Stewardship Plan Development and Supplemental Information section.

The integrity and diversity of each C20/20 preserve must be protected when and where possible. Where applicable and practical, Land Stewardship staff will perform the following actions in this regard:

- Control of invasive, exotic vegetation followed by regular maintenance to provide more suitable habitat for native aquatic and terrestrial species.
- Control invasive exotic animal populations to reduce their impacts on the herbaceous plants, native animals and soils.
- Maintain boundary signs to deter illegal access to the Preserve and protect fragile ecosystems. Continue to monitor the site for illegal off-road vehicle (ORV) use and install fencing or other barriers if necessary.
- Install and maintain "no berry picking" signs to inform palmetto pickers it is illegal to harvest them on the preserves.
- Implement a prescribed fire program/mechanical fuels management program to closely mimic the natural fire regimes for different plant communities to increase plant diversity and ensure the canopies remain open in the appropriate plant communities.
- Where necessary, install perimeter fire breaks to protect resources on the Preserve and surrounding neighbors in the event of wildfires.
- Remove any debris and prevent future dumping within the boundary line.
- Conduct on-going species surveys utilizing volunteers and staff to catalog and monitor the diversity that is present.
- Temporary closure of flooded trails to prevent soil disturbance and avoid plant damage.
- Reduce canopy cover in appropriate habitats to promote herbaceous plant diversity.
- Use adaptive management if monitoring of restoration techniques indicates a change may be necessary.
- Offer public access that allows citizens to enjoy the preserve while protecting sensitive plant communities and wildlife needs.
- Enhance hydrologic conditions with the goal of restoring as close to historic hydroperiods as current surrounding land use allows while protecting current upland communities.
- Prevent and prosecute poaching and removal activities (e.g. palmetto berry harvesting, illegal hunting, pine cone/straw removal and orchid collection).

## C. Cultural Resources

### *i. Archaeological Features*

In 1987, Piper Archaeological Research, Inc. conducted an archaeological site inventory of Lee County. They were able to identify 53 additional sites increasing the total number of known archaeological sites in Lee County to 204. They also created a site predictive model and archaeological sensitivity map for the county that highlighted potential areas likely to contain additional archaeological sites. There are no known archaeological sites or potential areas predicted by the model at Powell Creek Preserve.

### *ii. Land Use History*

Although not all elements of the land use history discussed below occurred on PCP, modifications made on adjacent properties directly influence the Preserve. From the late nineteenth century until the 1930s, intense logging of slash pine virtually eliminated all virgin stands of the southern mixed forest in south Florida. These activities likely reduced slash pine densities throughout the Preserve and explain the lack of old growth pine trees found on the site, although several large pines have been located near the creek. A series of historical aerial photographs dating from 1944 through 2013 are shown in Figures 8-23.

According to interpretations based on aerial photography dating back to 1944, land uses included agricultural activities, a building in the northeast corner, and the abandoned SAL railroad bed and its associated ditch to the west. Besides the original flow way of Powell Creek, this photograph also illustrated Hart Road as a straight dirt trail that ended at the northeast corner of the property. The 1953 aerial photograph includes additional structures, including a portion of Hart's Dairy Farm in the southeast portion of the Preserve (Carter & Smith 2005), a trail from Hart Road running west to the creek and a home and sheds on the 1-acre residential out-parcel. Although not discernible on the photograph, there are remnants of a concrete block structure at the end of this trail adjacent to the creek. The 1958 photograph shows the original size of the southeastern wetland and the sandy upland area on western section of the site.

The stumps from the logged slash pines were removed from many properties in the region during the 1960s and 1970s. This activity, referred to as "stumping", was conducted to extract turpentine from the wood. Stumping created depressions in the soil, which created a microhabitat where soil moisture is higher for longer periods than adjacent habitats, allowing different plant species to occur.

Additional activities were derived from either historical aerial photographs taken between 1966 and 2002, speaking with local residents (Carter, Schmitt & Smith 2005) or the Phase I Environmental Site Assessment report (WRS 2003). By 1966, the drainage ditch from the north (north and center of the Preserve) was dredged leading to the Powell Creek waterway, while the buildings associated with the farm were removed from the northeast portion of the Preserve.

In 1970, construction of the Carriage Village subdivision began to the south, and a portion of the Preserve's southeast wetland was filled. By 1974, the building in the northeast corner was removed,

while the Forest Park subdivision was partially completed north of the Preserve. During the 1970s until the early 1980s, cattle grazed on the property (Smith 2005).

In 1987, the Valencia Weir was installed in the bypass canal at the southwest corner of the Preserve at the confluence of the canal and Powell Creek. During the mid to late 1980's, five wells were installed in preparation for the Royal Palm Estates development, a 325 unit mobile home planned development (WRS 2003). In 1990, the Royal Coach Village subdivision was under construction on the east side of Hart Road and by 1998, the Hart Road Storage facility was built to the northeast of the Preserve.

Before C20/20 acquired the property, additional uses observed during onsite property evaluations included still smoldering campfires from overnight campers, various childhood activities (tree house), dumping, off-road vehicle (ORV) tracks and hunting (tree stand and old hog pens). Invasive exotic Brazilian pepper and other non-native trees and shrubs continue to spread across the preserve through 2009. In 2010 pine thinning was conducted across the site to open the canopy and remove snags along the firelines.

If you look closely at the 2012 aerial you may notice thin black lines in the eastern and southern portions of PCP. This is silt fence, installed at the beginning of the filter marsh construction project which was completed in 2013.

Figure 8: 1944 Aerial

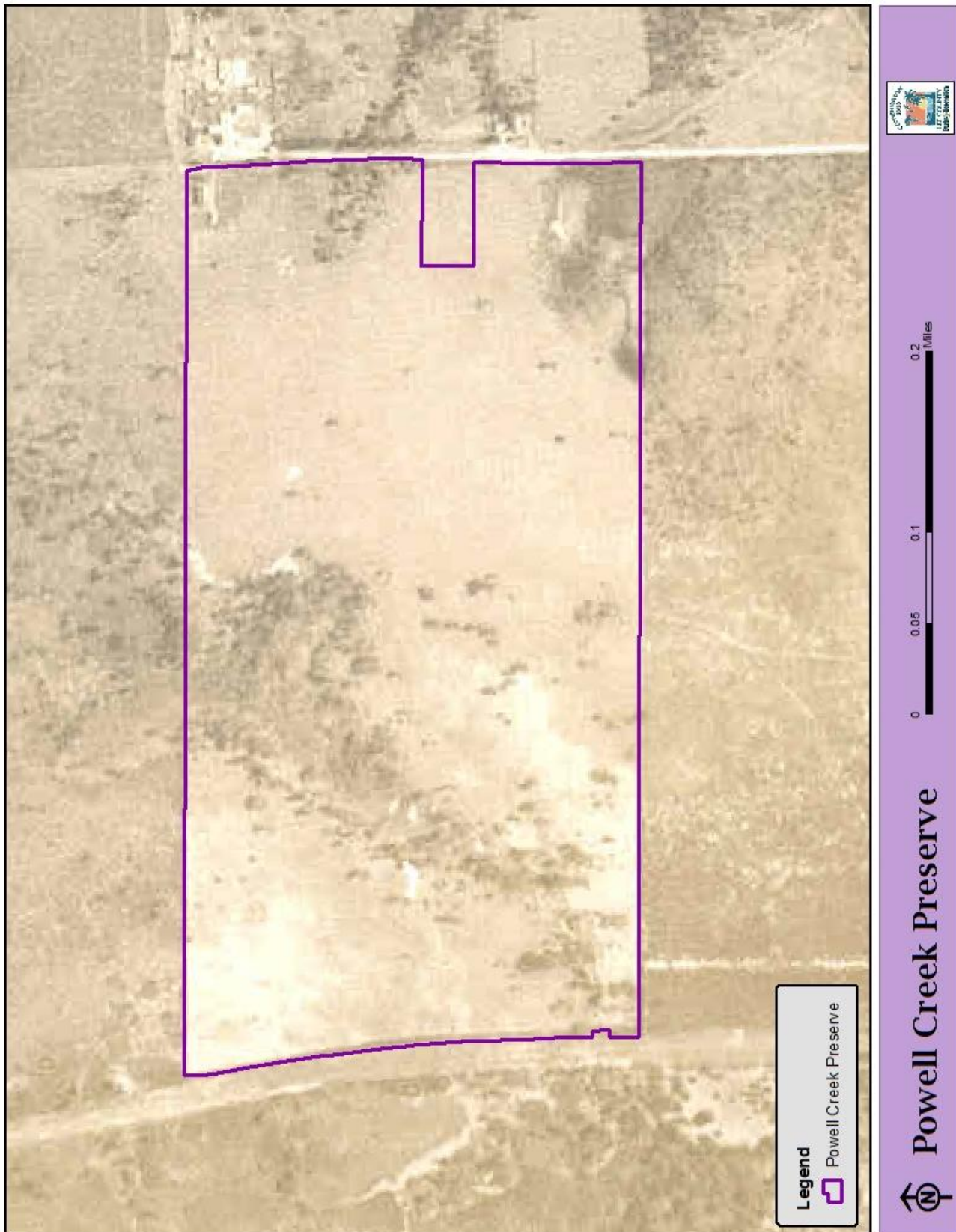




Figure 9: 1953 Aerial



Figure 10: 1958 Aerial



Figure 11: 1968 Aerial



Figure 12: 1972 Aerial

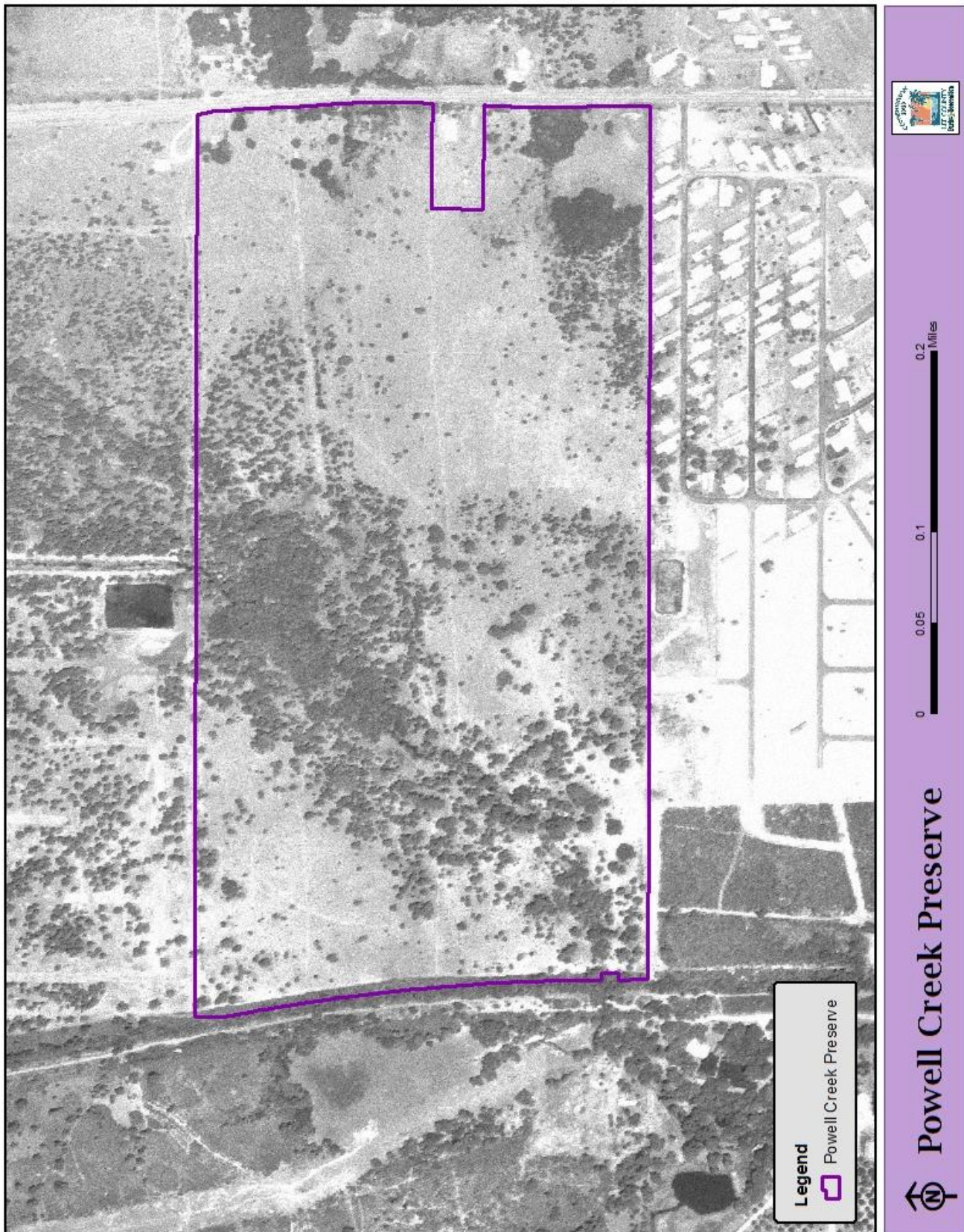


Figure 13: 1975 Aerial



Figure 14: 1979 Aerial



Figure 15: 1986 Aerial



Figure 16: 1990 Aerial





Figure 17: 1996 Aerial

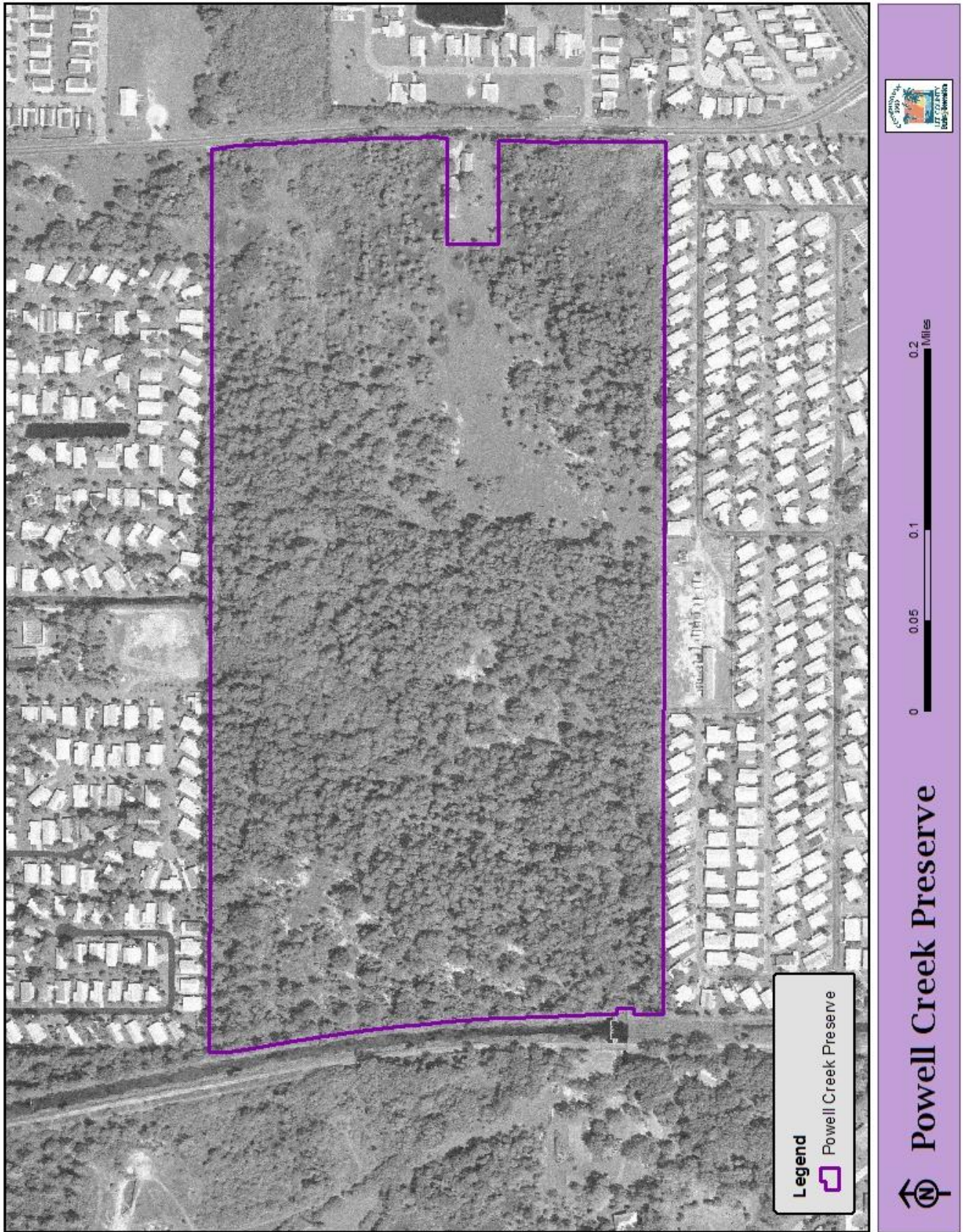


Figure 18: 1998 Aerial



Figure 19: 2002 Aerial



Figure 20: 2005 Aerial



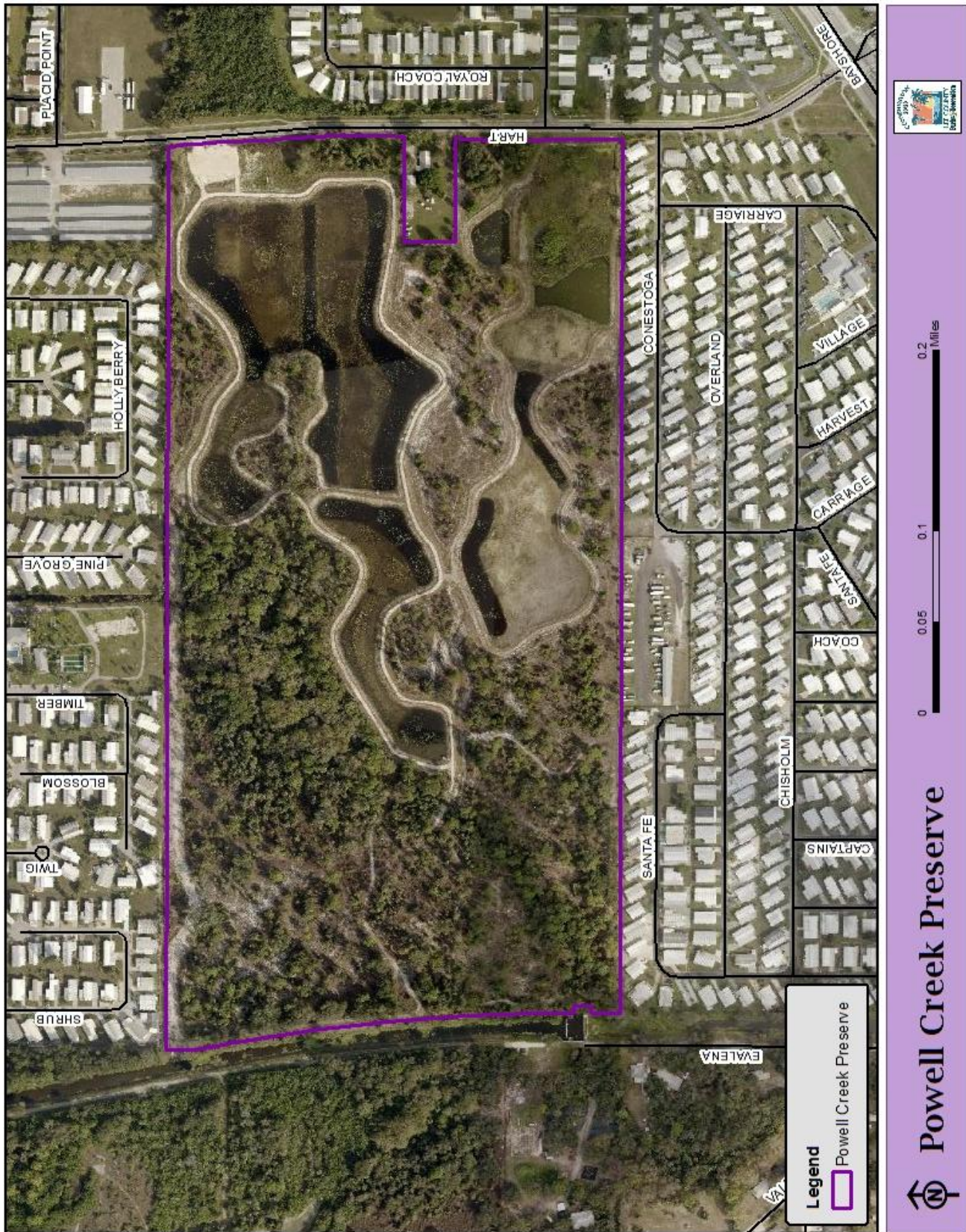
Figure 21: 2010 Aerial



Figure 22: 2012 Aerial



Figure 23: 2013 Aerial



### *iii. Public Interest*

This preserve was purchased for the preservation of environmentally sensitive lands, its high probability for listed species, and for the potential to provide water quality enhancements and flood protection in North Fort Myers. At the time of purchase, the site was approved for a 325 unit Mobile Home Planned Development. Purchasing the property was important for providing drainage and flood protection to developments to the north. SFWMD and Lee County Division of Natural Resources funded water management improvement projects on this site, including creation of man-made filter marshes.

Since urban areas surround the Preserve and it is small in size, it serves as a neighborhood preserve. The Preserve is open for hiking, bird watching and photography and bicycling on the one mile loop created by the berming around the filter marshes. Trails will be maintained where existing trails are located in the Preserve.

Staff and volunteers have conducted numerous field trips with various community groups and general visitors, to educate the public on the importance of conservation, native plant communities, birding and other natural history topics.

The Cape High Environmental Club, under the leadership of teacher Liz Kominar, conducts trash pickup, gopher tortoise surveys and other work at this site as part of their club activities. Their ongoing efforts greatly assist staff in their management efforts.

Information concerning this and all C20/20 preserves can be found on the website along with copies of their associated stewardship plans when available: [www.conservation2020.org](http://www.conservation2020.org). Staff may mail newsletters when activities are scheduled to take place that the Preserve neighbors may be interested in.

## **V. FACTORS INFLUENCING MANAGEMENT**

### **A. Natural Trends and Disturbances**

Natural trends and disturbances influencing native communities and stewardship at PCP include the pattern of wet and dry periods, flooding, occasional freezes, hurricanes and wildfire. Implementation of the Management Action Plan will take into consideration the possibility of these factors and their influence on projects at PCP. For example, a tropical storm or hurricane could damage large amounts of vegetation. It may be necessary to remove or mulch downed vegetation following a hurricane if it increases the chance of negative impacts to wildlife habitat from a wildfire.

Wildfires caused by lightning strikes are a natural occurrence in Florida. The Florida Forest Service (FFS) – Caloosahatchee District has been provided a map of the Preserve showing the locations of gates, firebreaks and management units. The FFS will utilize existing firebreaks to contain wildfires at PCP whenever possible. No new firebreaks, such as plow lines, will be created unless there is potential for the wildfire to harm property outside the PCP boundary.

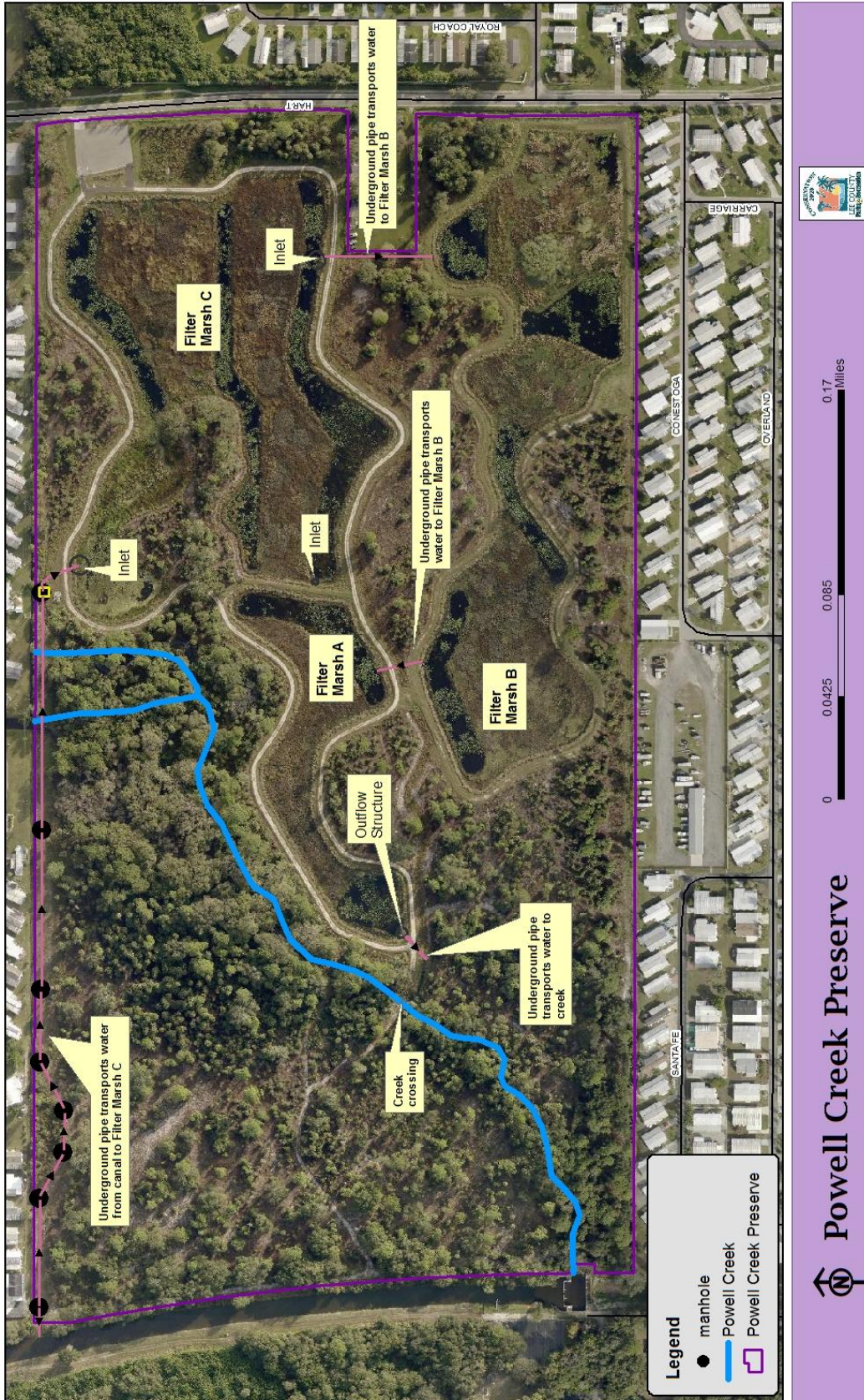
Management (exotic plant control, prescribed burning, etc.) of PCP is influenced by seasonal hydroperiods. The use of heavy equipment will be limited to the dry season for the majority of the site. The timing of prescribed burns will also be influenced by seasonal rain, weather and wind patterns.



## **B. Internal Influences**

Few alterations were done on this site prior to acquisition. In 2012 work began on the construction of the filter marsh system. Excavation of the filter marsh cells and construction of berms is the greatest internal alteration to occur on the site. A pump system, pipes, weirs, manholes and bollards were installed as part of the construction. To provide stability and minimize impact, a low water crossing was constructed across the creek. Figure 24 shows some of the visible mechanical components as well as the present day filter marsh and berm system. When mowing/disking firelines these structures need to be avoided.

Figure 24: Internal Influences



### **C. External Influences**

In November 2004, neighbors to the south in the Carriage Village subdivision requested that the county clear a portion of the wetland at the southeast corner of the property that was eroding their property and pulling down the fence. After a site visit, Land Stewardship staff determined that the neighbor's fence was approximately eight feet onto county property and the neighboring property was not in jeopardy. In the fall of 2005 the fence was moved to the actual property line.

The majority of the exotic plant species found on-site were common landscape/house plants introduced from neighbors disposing of them across the fence or spreading growth across the fenceline from backyards. Controlling non-native landscape and houseplants species on the Preserve will be an on-going challenge.

The western boundary of PCP is bordered by the Powell Creek drainage canal and the Powell Creek bypass canal. The Powell Creek drainage canal connects to a LCDNR project just south of Mellow Drive in North Fort Myers. The Bayshore Lateral drainage canal originates to the north at Mellow Drive and travels due south to connect into the original creekbed of Powell Creek which bisects the western half of the preserve. A drainage weir is located adjacent to the southwest corner of PCP and in dry season serves as a crossing point for dirt bikes and atvs. This is an area where fence is occasionally cut in dry season for illegal access.

PCP is a perfect example of a wildland urban interface situation. The fire dependent communities within the preserve boundary are bordered by a high number of mobile homes which requires additional preparation and consideration in smoke screen planning during prescribed burn planning. Another mobile home community is directly east of Hart Road. An additional external influence that must be considered during burn planning is the canal on the western boundary. This canal is not crossable with vehicles and the high amount of fuel directly across the canal poses a danger both from wildfires starting across the canal and spreading onto the preserve and from a prescribed fire spotting into this inaccessible area. Figure 25 shows the location of the external influences.



## D. Legal Obligations and Constraints

### *i. Permitting*

Land stewardship activities at PCP may involve obtaining permits from regulatory agencies. Any proposed hydrologic improvements may require obtaining permits from the Florida Department of Environmental Protection (FDEP), the U.S. Army Corps of Engineers (USACOE) and SFWMD. Hydrological and/or habitat restoration projects requiring heavy equipment or tree removal required notification to the Lee County Department of Community Development (LCDCD). Burn authorization from FFS is required for all prescribed burns conducted on PCP. LCDNR maintains responsibility for permit requirements related to the construction of the filter marshes. A copy of the initial and modified permit applications for the filter marsh project can be found in Appendix D.

### *ii. Other Legal Constraints*

Figure 26 shows the recorded easement locations described below.

In 1990, a conservation easement was granted to the Florida Department of Environmental Regulation (renamed FDEP) on approximately 10 acres of the property. This easement was granted to maintain the land in its natural vegetative and hydrologic conditions. The easement covered the creek bed throughout the entire property and the floodplain on the northern part of the creek. In 2012, as part of the construction of the filter marsh system, the conservation easement was altered and is now recorded as 3.88 acres. Any management activities in this area of the Preserve must be permitted by terms of the easement. A copy of the updated conservation easement is located in the filter marsh permit in Appendix D.

There is a 15 foot wide drainage easement along the western border starting at the southwest corner running to 35 feet north of the outfall of the creek. This is associated with the drainage weir structure. There is also a 10 foot wide utility easement that lies to the west of the right of way of Hart Road that crosses the property boundary on the east side in several locations. The survey prepared by Bean, Whitaker, Lutz and Kareh, Inc. on July 18, 2003 states that the location of this easement is questionable so it is not identified on Figure 26.

A 50 foot by 50 foot easement for LCEC maintenance of an electric pole is located approximately midway along the northern boundary line (Appendix E). LCEC accesses this pole through the double gates off the parking area.

Records show that between May 1987 and November 1988, five wells were installed on the Preserve. It is believed that these wells were installed for on-site irrigation for the proposed mobile home development on the property. In January 2005, the well use permit came up for renewal through SFWMD and the permit was not renewed by staff.

Figure 26: Easements Map



### *iii. Relationship to Other Plans*

The Lee Plan, Lee County's comprehensive plan, is written to depict Lee County as it will appear in the year 2030. Several themes have been identified as having "great importance as Lee County approaches the planning horizon" (LCDCD 2011). These themes are:

- The growth patterns of the county will continue to be dictated by the Future Land Use map.
- The continued protection of the county's natural resource base.
- The diversification of the county's traditional economic base.
- The expansion of cultural, educational and recreational opportunities.
- A significant expansion in the county's physical and social infrastructure.

The entire Lee Plan is found on the Internet at:

<http://www.leegov.com/gov/dept/dcd/Planning/Documents/LeePlan/Leeplan.pdf>. The sections of the Lee Plan which may pertain to Conservation 20/20 Preserves have been identified in the LSOM.

In October 2005, Lee County Division of Natural Resources hired a consultant to develop the North Fort Myers Surface Water Master Plan, which covers the area between Highway 41 and State Road 31 in the North Fort Myers area. Information gathered for this master plan was used to guide the permitting and construction of the filter marshes on PCP.

### **E. Management Constraints**

The principle stewardship constraints for PCP include the Preserve's urban location, limited funding, designated public use, and surrounding smoke sensitive areas.

Urbanization pressures increasingly affect stewardship activities and boundary security. Fire management is a vital tool used to keep fuel loads down, to ensure biological diversity, to maintain functional habitat value for wildlife and to reduce the severity of wildfires. Smoke management will be one of the greatest factors in planning prescribed fires. The adjacent mobile home communities on the north and south boundary and across Hart Road to the east greatly restrict parameters for conducting prescribed burns on PCP.

Neighboring residential properties have exotic and non-native plants on their properties, which are a seeds source to the Preserve. Land Stewardship staff will encourage neighbors to control their exotic plants to limit new introductions to the Preserve.

When restoration activities and prescribed burns which could be dangerous to visitors are in progress, signs will be installed at designated entrance gates to warn the public that the area is temporarily closed.

The filter marsh partnership with LCDNR brings a second party into management planning. Consideration must be given for impact to the filter marsh nutrient load when treating exotics and burning. LCDNR is responsible for meeting permit requirements in the filter marsh area and oversees exotics treatment for the filter marsh portion of the preserve.

The conservation easement, discussed in detail in the Other Legal Constraints section of this plan is another item to be taken into consideration on this site.

## F. Public Access and Resource-Based Recreation

The majority of the historic recreation that occurred at the current Powell Creek Preserve was from unlawful trespassers. In decades past, the Preserve was utilized for cattle grazing and the associated fencing prevented most of the general public from entering.

Since Lee County has purchased the Preserve, evidence of both hunting and ORV use has been documented. The Parks and Recreation Ordinance, 02-12 (<http://www.lee-county.com/ordinances/PDF/2002/02-12.pdf>) prohibits both of these activities. Staff and volunteers regularly patrol the boundaries to look for and repair fence cuts.

Pets and on-leash dog walking are not allowed at PCP. There are several criteria which staff has determined would NOT make on-leash dog walking compatible with the protection of the natural resources including preserves that:

- ✓ Have a large population of waterbirds or shorebirds
- ✓ Have large herpetofauna populations
- ✓ Have active gopher tortoise colonies
- ✓ Consist mainly of wetlands
- ✓ Have minimal staff or no volunteer presence
- ✓ Are adjacent to public lands that do not allow dogs

Staff and volunteers continue to explain the rules with visitors who bring their dogs despite the signs indicating “no pets allowed”.

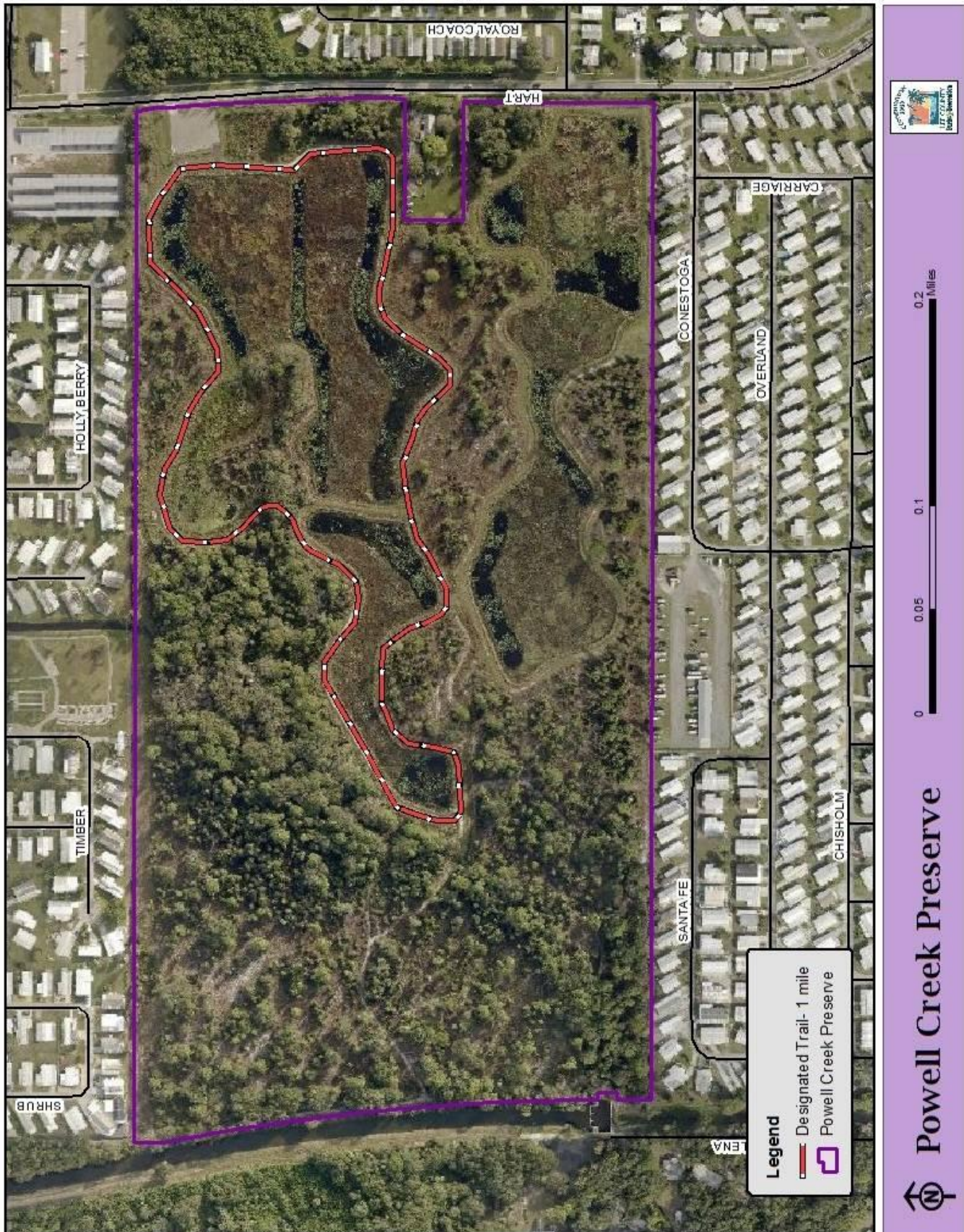
In 2005 the perimeter fence was replaced and a walk-through gate was installed. The trail system was unmarked, following firelines and old two-tracks. As part of the filter marsh construction, a formal one mile long loop trail was designated along the berm around the main filter marsh. Public use drastically increased after a small parking area was installed. An informational kiosk, interpretive panels, bike rack and benches were installed. A small portion of the shell trail was paved in 2015 to provide ADA access from the parking area to a companion bench providing an accessible area for bird watching. Neighboring citizens expressed concern about after-hours access possibly encouraging crime in the area. Since the parking area and walk through gate were installed staff has received no complaints of overnight activity or increased neighborhood crime due to the public access.

Bicycling was not originally a planned allowable use at PCP, but after construction of the berm trail system around the filter marsh many visitors began riding bikes on it. Staff did not feel this would be detrimental to the site and added bicycling as an allowable use.

No additional trails, recreational offerings or other public use activities will be added to PCP. Figure 27 shows the current trail system.



Figure 27: Current Trail Map



## **G. Acquisition**

Powell Creek Preserve was purchased through the C20/20 program in August 2003 for \$618,000 after being nominated to the program in the spring of 2002 by Royal Palm Estates LLC.

There are no additional undeveloped parcels of land in the vicinity of PCP that would be beneficial to pursue for acquisition. Both the South Florida Water Management District and Lee County Division of Natural Resources supported the acquisition of this site for its regional potential for water quality enhancements and flood protection. Prior to acquisition, during the secondary site review process, it was stated that the wetlands were considered to be non-functional.

Currently, the future land use for the 77-acre Preserve is "Conservation Lands Uplands," while it is still zoned as mobile home planned development "MHPD" for 325 units (See Figures 28 & 29). The STRAP number for the parcel is 36-43-24-00-00002.0000. Land Stewardship staff recommends that the future land use be changed to "Conservation Lands Wetlands" for the creek and filter marsh portions and the zoning category be changed to "Environmentally Critical." Staff will coordinate with LCDP to change the zoning to "Environmentally Critical" for the entire Preserve.

The STRAP number for the parcel is 36-43-24-00-00002.0000. The legal descriptions are located in Appendix F.

Figure 28: Future Land Use Map

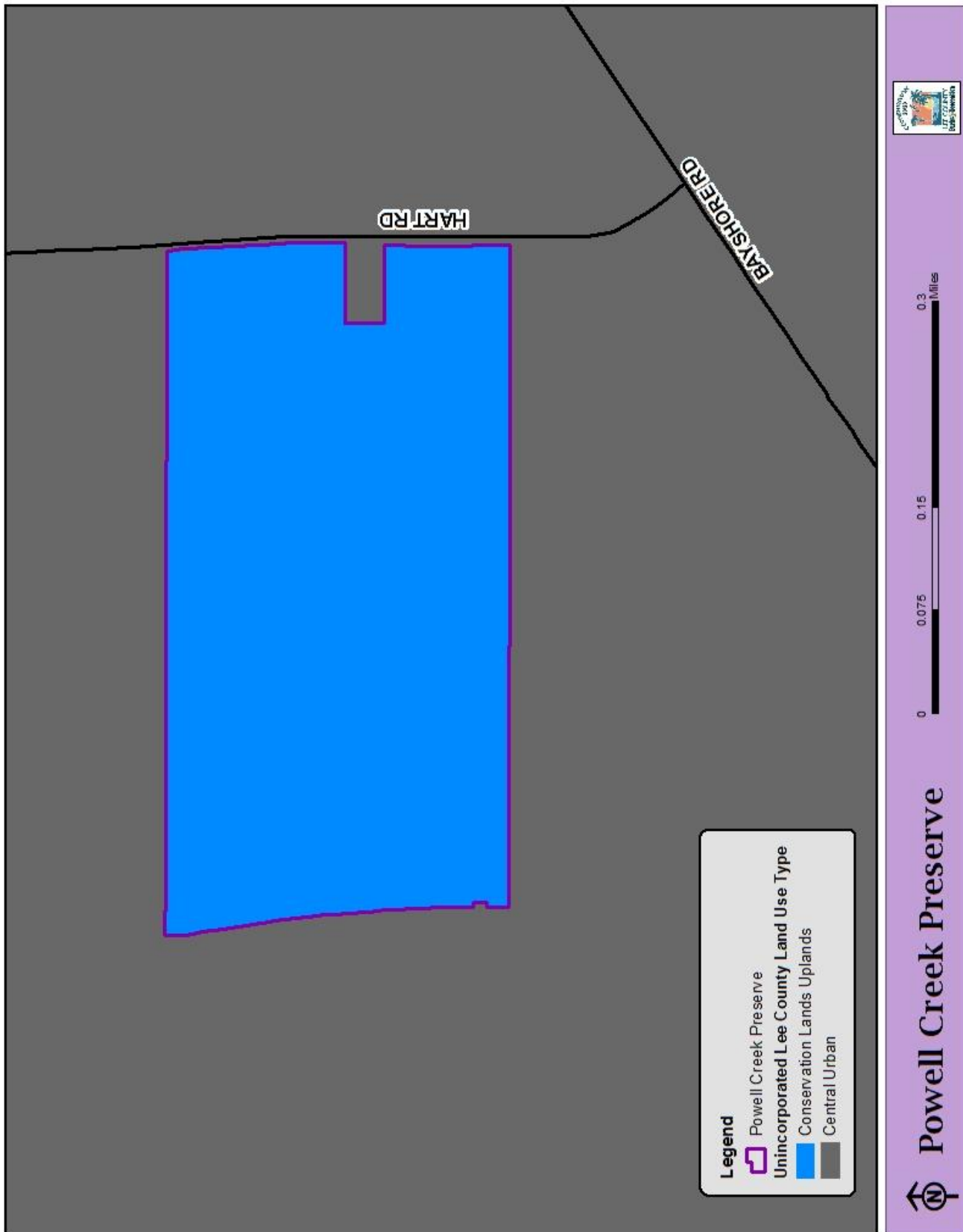
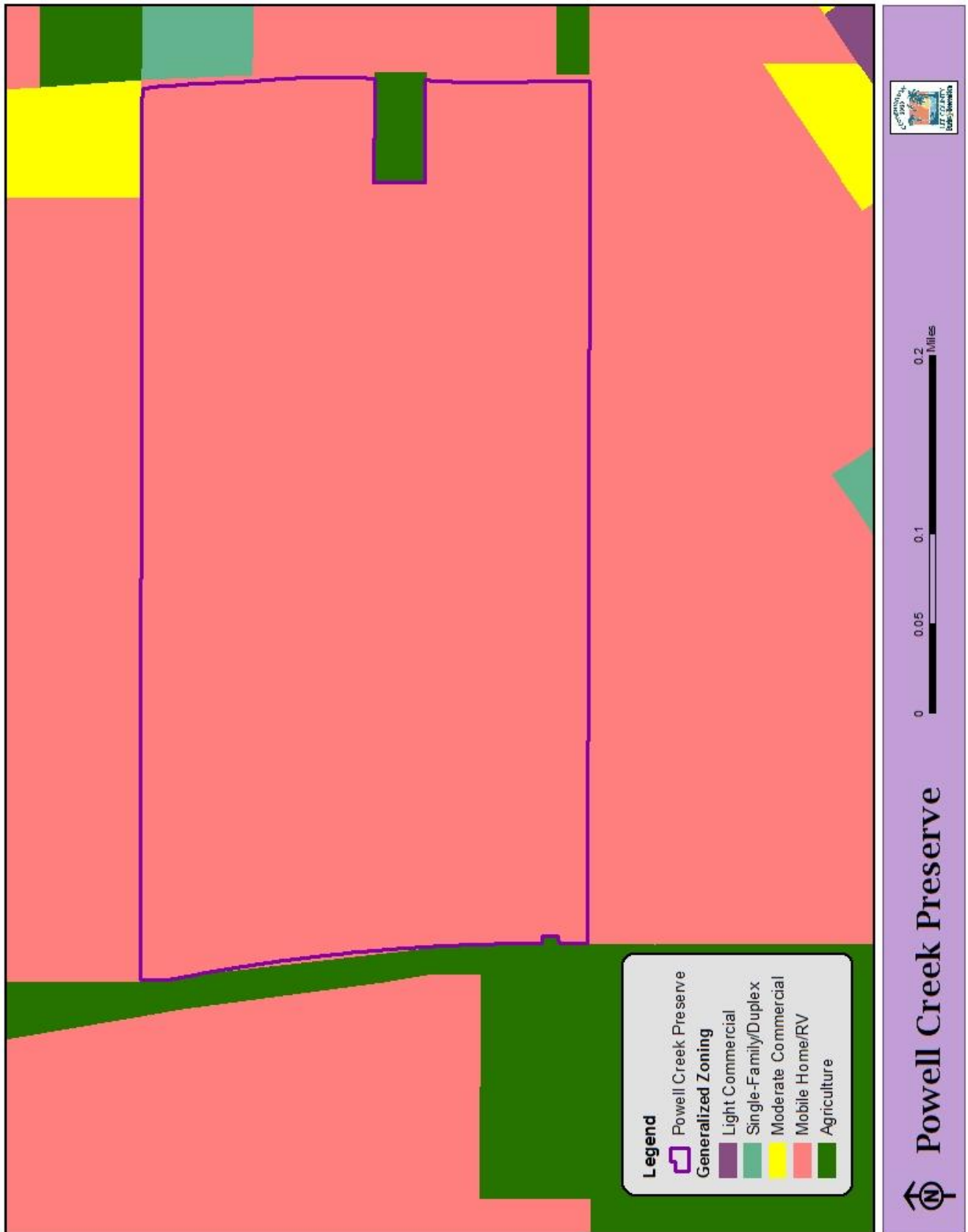


Figure 29: Zoning Map



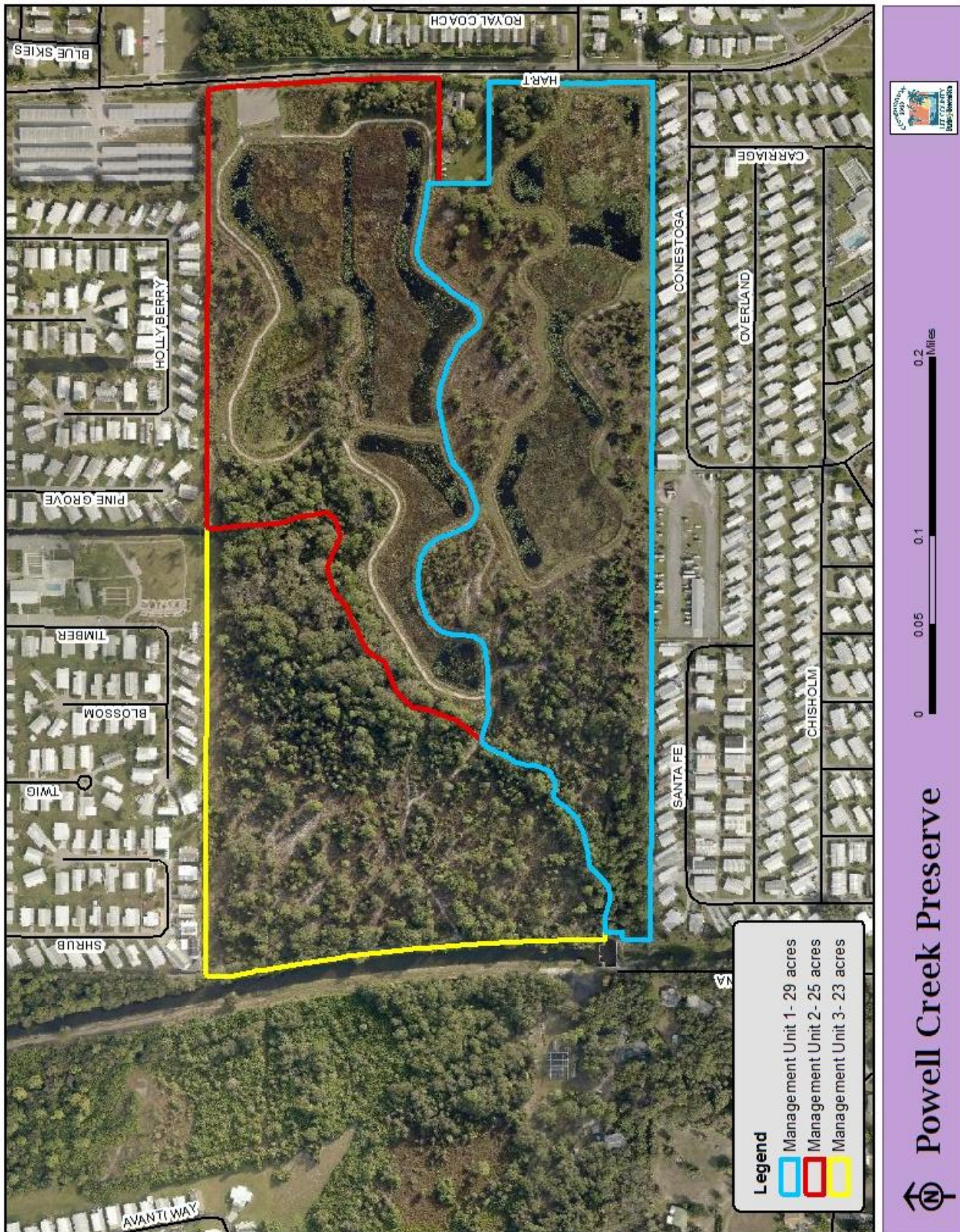
## VI. MANAGEMENT ACTION PLAN

### A. Management Unit Descriptions

Powell Creek Preserve has been divided into three management units (MU) to better organize and achieve management goals. Figure 30 delineates the management units that were created based on existing trails, the creek and plant communities.

- Management Unit 1 – 29 acres  
Management Unit 1 is located in the southern part of the Preserve. It is bordered to the north by MU 2, the west by Powell Creek, the south by the property boundary and the east by Hart Road. The majority of this unit is mesic flatwoods and filter marsh cell B. Work in this unit will involve sweeps for invasive exotic vegetation, grapevine control and prescribed burning in the flatwoods.
- Management Unit 2 – 25 acres  
Management Unit 2 is located in the northeast corner. It is bordered to the north by the property boundary, the west by Powell Creek, the south by MU 1 and the east by Hart Road. Ninety percent of this MU has been altered by the construction of the filter marsh and related parking area and trail. All of the designated public use trail is within this MU. The majority of work within this unit will be done by LCDNR staff and will involve invasive exotic plant treatments.
- Management Unit 3 – 23 acres  
Management Unit 3 is located in the western part of the Preserve. This unit is bordered to the north by the property boundary, the west by a drainage canal, and the south and east by Powell Creek. This unit contains scrubby flatwoods, mesic flatwoods, hydric and the slough area of Powell Creek. Management activities will focus on exotic control, grapevine control, and prescribed fire or other brush control strategies. The plant communities in this MU and the high density of gopher tortoises present will only be maintained long-term with the initiation and continuation of a burn regime of every 3-4 years.

Figure 30: Management Unit Map



## **B. Goals and Strategies**

The primary management objectives for PCP are natural community improvements, continued treatment of invasive exotic plants and prescribed burning. Work will be prioritized in order of importance and ease of accomplishment and include the following tasks.

### **Natural Resource Management**

- ✓ Exotic plant control/maintenance
- ✓ Prescribed fire management
- ✓ Mechanical brush reduction
- ✓ Monitor and protect listed species
- ✓ Exotic and feral animal removal

### **Overall Protection**

- ✓ Install/maintain fire breaks
- ✓ Boundary fence maintenance
- ✓ Boundary sign maintenance
- ✓ Change Zoning and Future Land Use categories
- ✓ Prevent dumping

### **Volunteers**

- ✓ Assist volunteer group(s)

The following is a description of how each of these goals will be carried out, the success criteria used to measure accomplishment of each goal and a projected timetable outlining which units each activity will take place in and when.

### **Natural Resource Management**

#### **Exotic plant control and maintenance**

The most current Florida Exotic Pest Plant Council's (FLEPPC) List of Invasive Species will be consulted in determining the invasive exotic plants to be controlled in each management unit. The goal is to remove/control these exotic species, followed with treatments of resprouts and new seedlings as needed. This goal will bring the entire Preserve to a maintenance level, defined as less than 5% invasive exotic plant coverage. PCP is currently at maintenance level for invasive exotic plant coverage. This site will require annual treatments to prevent establishment of exotics from adjacent seed sources and neighbor dumping of vegetation onto the preserve.

Prior to each invasive exotic plant control project at PCP performed by contractors, a Prescription Form (located in the LSOM) will be filled out by the contractor(s), then reviewed and approved by the C20/20 staff. Final project information will be entered into the GIS database as time allows.

#### **Prescribed fire management**

A prescribed fire program will be implemented that as closely as possible mimics the natural fire regimes for the different plant communities to increase plant diversity and ensure tree canopies remain open. Prescribed fire may be utilized for exotic plant control of seedling/sapling in areas previously treated. The high number of gopher tortoise, a fire dependent species, dictate that

prescribed burns must be done on this site in order to maintain viable habitat including forage species.

Due to the close proximity of several smoke sensitive areas, including two adjacent mobile home communities and major roads, burning opportunities are very limited. When weather conditions are right, staff will shutdown the public use access with very short notice. The designated access gate will be closed during the burn and may remain closed for several days afterwards during mop-up to ensure the site is safe for visitors.

The timing of prescribed burning will be influenced by seasonal rain, staff and equipment availability, listed species requirements and wind patterns. The C20/20 Burn Team Coordinator has coordinated with the FFS and finalized the C20/20-wide Fire Management Plan that applies to all Preserves. C20/20 staff will inform adjacent neighbors of the possibility of burning each year in a neighbor letter prior to burn season.

### **Mechanical brush reduction**

Lack of fire allows saw palmetto to become thick and high. Mechanical work, including roller chopping and mowing, will reduce vegetation height which in turn will reduce fuel loads across the site. Mechanical work will also encourage plant diversity. Mechanical work will be done if planned prescribed burning is delayed and only during the coldest part of the year due to the high concentration of gopher tortoises on the site. Mechanical work may also be done to decrease grapevine coverage. Although native, grapevine is problematic in the scrubby and mesic flatwoods areas. Grapevine can shade out groundcover plants and can be an impediment to gopher tortoise movement.

### **Monitor and protect listed species**

There are several listed species that have been documented on the Preserve including gopher tortoise, wood stork and giant airplant. These species will benefit from exotic plant control, prescribed burns, and mechanical brush reduction activities. During stewardship activities, efforts will be made to minimize negative impacts to listed species.

PCP is part of a countywide tri-annual site inspection program conducted for all C20/20 preserves. The site inspection spreadsheet is available on the LCPR's computer server ("S" drive). These inspections allow staff to monitor for impacts and/or changes to each preserve and includes lists of all animal sightings and plant species that are found. If, during these inspections, staff finds FNAI listed species not previously documented, they will be reported using the appropriate forms.

### **Exotic and feral animal removal**

C20/20 staff is primarily concerned with the feral hog (*Sus scrofa*). Hogs are occasional occurrences on PCP and are trapped for removal when noticed. Due to its small size, lack of hogs and proximity to residences this preserve will not be part of the hog hunts proposed for some C20/20 preserves.

This Preserve, like other C20/20 preserves, does not contain nor will it support feral cat colonies. FWC's Feral and Free Ranging Cats policy is "*To protect native wildlife from predation, disease, and other impacts presented by feral and free-ranging cats*" (FWC 2003). Any feral cats will be trapped and taken to Lee County Animal Services. C20/20 staff will continue to work with the Animal Services staff to not allow establishment of feral cat colonies adjacent to preserves.



## Overall Protection

### **Install/maintain fire breaks**

Perimeter fire breaks have been installed and are maintained annually by staff. When burns are planned the burn boss will evaluate the need for disking temporary lines.

### **Boundary fence installation and interior fence removal**

The perimeter of the Preserve is fenced to prevent activities such as dumping and the illegal use of motorized vehicle on the west and east boundary. Fencing along the north and south line is owned and maintained by the mobile home communities.

### **Boundary sign maintenance**

Boundary signs have been installed every 500 feet along the entire perimeter boundary to further protect the Preserve. C20/20 rangers and staff will check for boundary signs during their patrols and replace missing ones.

### **Change Zoning categories**

Staff will coordinate with LCDP staff to change the zoning category for PCP. The zoning designation will be changed to "Environmentally Critical" from "Mobile Home/RV".

### **Prevent dumping**

During tri-annual site inspections, any smaller objects that are encountered will be removed. C20/20 rangers will also assist with removing small items when they are on patrol at the Preserve.

## Volunteers

### **Assist volunteer group(s)**

The LSOM identifies the Land Stewardship Volunteer Program's mission statement as:

*To aid in the management and preservation of Lee County resource-based public parks and preserves and to provide volunteers with rewarding experiences in nature.*

Lee County Bird Patrol volunteer group perform bird monitoring surveys at PCP on a monthly basis.

If there is interest from the community to form a volunteer group, staff will work with them to assist with the many diverse stewardship activities that will be associated with this Preserve, such as wildlife monitoring and other land stewardship projects.

The following "Prioritized Projected Timetable for Implementation" is based on obtaining necessary funding for numerous land stewardship projects. Implementation of these goals may be delayed due to changes in staff, extreme weather conditions or a change in priorities on properties managed by Lee County.

## C. Management Work to Date

In November 2003, neighbors in the Carriage Village subdivision to the south of the Preserve called with concerns of the lack of a firebreak between the properties and their risk of wildfire. Because of this concern, the Preserve was listed as high priority for installing firebreaks. In September 2004, firebreaks were installed on the eastern and southern boundaries of the Preserve and along the northern boundary from the eastern corner to the creek. The line was created using a Brontosaurus mulching machine and is approximately 15 feet wide. Mowing twice a year and disking as needed for prescribed fire and wildfire protection will maintain firebreaks. At the same time the firebreaks were installed, and approximately 3.5 acres on the southeast corner were cleared of Brazilian pepper.

In November 2004, neighbors to the south in the Carriage Village subdivision requested that the county clear a portion of the wetland at the southeast corner of the property that was eroding their property and pulling down the fence. After a site visit, Land Stewardship staff determined that the neighbor's fence was approximately eight feet onto county property and the neighboring property was not in jeopardy. The fence was moved to the actual property line in the fall of 2005.

The 1991/1992 Lee County Surface Water Management Master Plan recommended cleaning tributaries of the Caloosahatchee River for optimum performance of outfalls and flood prevention. Starting in 2002, Lee County Division of Natural Resources received funding from SFWMD for Caloosahatchee River Tributaries Maintenance. SFWMD provided \$50,000 for the fiscal year October 2002 – September 2003. Starting September 2003, \$200,000 per year was issued for maintenance and will continue through the fiscal year starting October 2006. With this funding, exotic plants and other debris were removed from the portions of Powell Creek on the Preserve in 2001.

In early 2005, portions of the fence which existed at time of purchase was replaced with new fencing that was installed around portions of the boundary for added protection.

In April 2009 Cooper Timber Harvesting conducted pine thinning on the preserve. This timber sale was part of a larger timber sale contract overseen by what was then the Florida Division of Forestry. The timber harvest opened the canopy for gopher tortoise habitat improvement and removed some pines that had been killed as a result of hurricane Charley which hit the area in 2004. During that hurricane multiple carports and aluminum roofs and gutters were torn from adjacent mobile homes and wrapped around trees in the preserve by the high winds. Staff conducted workdays to remove truckloads of storm debris from the preserve after the storm. Figure 31 shows an example of the debris on the preserve.

Construction of the filter marshes occurred in 2012 as a partnership with Lee County Natural Resources with grant funding. The dirt from excavation of the marsh cells was transported to Lakes Regional Park as part of a LCDNR water quality project at that location. Construction included installation of a small paved parking area, interpretive signage about the filter marsh, benches and a solar powered walk-through gate. After the public started using the site C20/20 staff noticed bikes being chained to the fence and added a bike rack. A companion bench, an additional ADA feature, was installed to overlook one marsh and the path was paved to provide ADA access to the bench.

Although the dominant upland invasive exotic plants at PCP are Brazilian pepper, air potato and Caesar's weed, there were more than thirty-five others at the writing the first LSP 10 years ago. Twenty-four of the thirty-five exotic plant species have been eradicated from the preserve to date. The preserve receives annual sweeps for listed invasive exotics.

Figure 31: 2004 Post Hurricane Charley Aerial Photograph



**VII. PROJECTED TIMETABLE FOR IMPLEMENTATION**

Management Activity	Jan-16	April-16	July-16	Oct-16	Jan-17	April-17	July-17	Oct-17	Jan-18	April-18	July-18	Oct-18	Jan-19	April-19	July-19	Oct-19	Jan-20	April-20	July-20	Oct-20	2021 or later	
<b>Natural Resource Management</b>																						
<b>Mechanical tree and brush reduction</b>																						
Mechanical brush reduction					X																	
<b>Prescribed fire management</b>																						
Conduct prescribed burning			X											X								→
<b>Exotic plant control/maintenance</b>																						
Maintenance treatment	X					X						X			X				X			→
<b>Maintenance (On-going/Annual)</b>																						
Gopher tortoise burrow survey				X								X								X		→
Exotic animal removal	If needed	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Fire break mow/disk		X				X				X				X					X			X
<b>Overall Protection</b>																						
Trash removal	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→
Change Zoning categories															X							
<b>Volunteers</b>																						
Assist volunteer group	On-going	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→	→

## **VIII. FINANCIAL CONSIDERATIONS**

The Conservation 20/20 Program is funded by the county's general fund in accordance with ordinance 13-09 (as amended). This annual allocation funds restoration, maintenance of the preserves and C20/20 staff costs. Funds not used in the annual allocation rolls over to the following year for maintenance and restoration.

Other possible funding for exotic plant treatment and restoration projects may be requested through grants from agencies such as SFWMD, FDEP, FWC, and USFWS or include additional mitigation opportunities. Projected costs and funding sources are listed in Appendix G.

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## **X. APPENDICES**

Appendix A: Soils Chart

Appendix B: Plant Species List

Appendix C: Wildlife Species List

Appendix D: Filter Marsh Permit (initial and modified)

Appendix E: LCEC Easement

Appendix F: Legal Description

Appendix G: Expended and Projected Costs and Funding Sources

## Appendix A: Soils Chart

**Table 2: Soil Type**

Soil Types	Total Acres	% of Preserve	Habitats (Range Site)	Physical Attributes						Biological Attributes				Limitations for Recreational Paths & Trails	
				Wetland Class (1)	Hydrologic Group (2)	Surface Permeability	Subsurface Permeability	Water Table within 10" of surface	Water Table below 10-40" of surface	% Organic Matter	Potential as habitat for wildlife in--	Openland	Woodland		Wetland
Boca Fine Sand	0.1	0.17	south Florida flatwoods		B/D	rapid	rapid	2-4 months	6 months	1-3%	fair	poor	fair	good	Severe: wetness, too sandy
Felda Fine Sand, Depressional	1.78	3.09	fresh water marshes/ponds	P	B/D	rapid	rapid	3-6+ months (ponded)	4-6 months	1-4%	very poor	very poor	good	--	Severe: wetness, too sandy
Immokalee Sand	14.2	24.66	south Florida flatwoods		B/D	rapid	rapid	1-3 months	2-6 months	1-2%	poor	poor	poor	--	Severe: wetness, too sandy
Oldsmar Sand	11.3	19.62	south Florida flatwoods		B/D	rapid	rapid	1-3 months	> 6 months	1-2%	fair	fair	poor	--	Severe: wetness, too sandy
Pineda Fine Sand	19.9	34.56	sloughs	S	B/D	rapid	rapid	2-4 months	> 6 months	.5-6%	fair	poor	fair	--	Severe: wetness, too sandy
Oldsmar Fine Sand, Limestone Substratum	10.3	17.89	cabbage palm flatwoods		B/D	rapid	rapid	2-4 months	> 6 months	1-2%	fair	fair	poor	fair	Severe: wetness, too sandy

**Color Key:**  
Wet  
Wetter  
Wettest

- (1) S - Slough (sheet flow): A broad nearly level, poorly defined drainage way that is subject to sheet-flow during the rainy season.  
P - Ponding: Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.
- (2) B - Soils having a moderate infiltration rate (low to moderate runoff potential) when thoroughly wet.  
D - Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet.

## **Appendix B: Plant Species List**

## Appendix B: Plant Species List for Powell Creek Preserve

Scientific and Common names were obtained from Wunderlin and Hansen, 2003

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<b>Family: Acanthaceae (acanthus)</b>						
<i>Ruellia tweediana</i>	Britton's wild petunia	exotic				
<b>Family: Adoxaceae (moschatel)</b>						
<i>Viburnum obovatum</i>	Walter's viburnum	native			I	
<b>Family: Agavaceae (agave)</b>						
<i>Yucca aloifolia</i>	Spanish bayonet	native				
<b>Family: Alismataceae (water plantain)</b>						
<i>Sagittaria lancifolia</i>	bulltongue arrowhead	native				
<i>Sagittaria latifolia</i>	duck potato	native				
<b>Family: Amaranthaceae (amaranth)</b>						
<i>Atriplex pentandra</i>	crested saltbush	native				
<b>Family: Amaryllidaceae (amaryllis)</b>						
<i>Crinum americanum</i>	string-lily	native				
<i>Hymenocallis palmeri</i>	alligatorlily	native				
<b>Family: Anacardiaceae (cashew)</b>						
<i>Rhus copallinum</i>	winged sumac	native				
<i>Schinus terebinthifolius</i>	Brazilian pepper	exotic	I			
<i>Toxicodendron radicans</i>	eastern poison ivy	native				
<b>Family: Annonaceae (custard-apple)</b>						
<i>Annona glabra</i>	pond apple	native				
<i>Asimina reticulata</i>	netted pawpaw	native				
<b>Family: Apiaceae (carrot)</b>						
<i>Eryngium yuccifolium</i>	button rattlesnakemaster	native			R	
<b>Family: Apocynaceae (dogbane)</b>						
<i>Allamanda cathartica</i>	golden trumpet	exotic				
<i>Asclepias tuberosa</i>	butterfly weed	native			R	
<i>Catharanthus roseus</i>	Madagascar periwinkle	exotic				
<b>Family: Araceae (arum)</b>						
<i>Caryota urens</i>	fishtail palm	exotic				
<i>Colocasia esculenta</i>	wild taro	exotic	I			
<i>Epipremnum pinnatum</i>	golden pothos	exotic	II			
<i>Lemna</i> ssp.	duckweed	native				
<i>Monstera deliciosa</i>	swiss cheese plant	exotic				
<i>Philodendron selloum</i>	philodendron	exotic				
<i>Pistia stratiotes</i>	water lettuce	exotic	I			
<i>Syngonium podophyllum</i>	arrowhead vine	exotic	I			
<i>Xanthosoma sagittifolium</i>	elephant ear	exotic	II			
<b>Family: Araliaceae (ginseng)</b>						
<i>Schefflera actinophylla</i>	Australian umbrella tree	exotic	I			
<b>Family: Arecaceae (palm)</b>						
<i>Phoenix reclinata</i>	Senegal date palm	exotic	II			
<i>Roystonea regia</i>	royal palm	native				
<i>Sabal palmetto</i>	cabbage palm	native				
<i>Serenoa repens</i>	saw palmetto	native				
<i>Syagrus romanzoffiana</i>	queen palm	exotic	II			
<b>Family: Asparagaceae (asparagus)</b>						
<i>Asparagus setaceus</i>	common asparagus-fern	exotic				
<b>Family: Asteraceae (aster)</b>						
<i>Ambrosia artemisiifolia</i>	common ragweed	native				
<i>Baccharis halimifolia</i>	groundsel tree	native				
<i>Balduina angustifolia</i>	coastalplain honeycombhead	native			R	

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Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<i>Bidens alba</i>	beggarticks	native				
<i>Chaptalia tomentosa</i>	pineland daisy	native				
<i>Cirsium horridulum</i>	purple thistle	native				
<i>Cirsium nuttallii</i>	Nuttall's thistle	native			I	
<i>Coreopsis leavenworthii</i>	Leavenworth's tickseed	native				
<i>Elephantopus elatus</i>	tall elephantsfoot	native			R	
<i>Emilia fosbergii</i>	Florida tasselflower	exotic				
<i>Eupatorium capillifolium</i>	dogfennel	native				
<i>Euthamia caroliniana</i>	slender flattop goldenrod	native				
<i>Flaveria floridana</i>	Florida yellowtops	native			I	
<i>Helenium amarum</i>	Spanish daisy	native				
<i>Helenium pinnatifidum</i>	southern sneezeweed	native			R	
<i>Liatris sp.</i>	gayfeather	native				
<i>Palafoxia feayi</i>	Feay's palafox	native			R	
<i>Pityopsis graminifolia</i>	silkgrass	native				
<i>Pluchea odorata</i>	camphorweed	native				
<i>Pluchea rosea</i>	rosy camphorweed	native				
<i>Pterocaulon pycnostachyum</i>	blackroot	native				
<i>Solidago fistulosa</i>	pinebarren goldenrod	native				
<i>Solidago stricta</i>	wand goldenrod	native				
<i>Sphagneticola trilobata</i>	wedelia	exotic	II			
<i>Vernonia angustifolia</i>	tall ironweed	native				
<i>Vernonia blodgettii</i>	Florida ironweed	native			R	
<b>Family: Aquifoliaceae (holly)</b>						
<i>Ilex glabra</i>	gallberry	native				
<b>Family: Bignoniaceae (trumpet creeper)</b>						
<i>Campsis radicans</i>	trumpet creeper	native				
<b>Family: Blechnaceae (midsorus fern)</b>						
<i>Blechnum serrulatum</i>	swamp fern	native				
<i>Woodwardia virginica</i>	Virginia chain fern	native			R	
<b>Family: Bromeliaceae (pineapple)</b>						
<i>Tillandsia balbisiana</i>	northern needleleaf	native		E		
<i>Tillandsia fasciculata var. densispica</i>	cardinal airplant	native		E		
<i>Tillandsia paucifolia</i>	potbelly airplant	native				
<i>Tillandsia recurvata</i>	ballmoss	native				
<i>Tillandsia usneoides</i>	Spanish moss	native				
<i>Tillandsia utriculata</i>	giant airplant	native		E		
<b>Family: Cactaceae (cactus)</b>						
<i>Opuntia humifusa</i>	pricklypear	native				
<b>Family: Cannaceae (Canna)</b>						
<i>Canna flaccida</i>	yellow canna	native				
<b>Family: Ceratophyllaceae (hornwort)</b>						
<i>Ceratophyllum demersum</i>	coontail	native				
<b>Family: Chrysobalanaceae (coco plum)</b>						
<i>Licania michauxii</i>	gopher apple	native				
<b>Family: Clusiaceae (mangosteen)</b>						
<i>Hypericum tetrapetalum</i>	fourpetal St. John's-wort	native				
<b>Family: Commelinaceae (spiderwort)</b>						
<i>Commelina diffusa</i>	common dayflower	exotic				
<i>Commelina erecta</i>	whitemouth dayflower	native				
<i>Tradescantia fluminensis</i>	small-leaf spiderwort	exotic	I			

## Appendix B: Plant Species List for Powell Creek Preserve

Scientific and Common names were obtained from Wunderlin and Hansen, 2003

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<i>Tradescantia spathacea</i>	oyster plant	exotic	I			
<b>Family: Convolvulaceae (morning-glory)</b>						
<i>Merremia dissecta</i>	noyau vine	exotic				
<b>Family: Crassulaceae (orpine)</b>						
<i>Kalanchoe daigremontiana</i>	devil's backbone	exotic				
<b>Family: Cucurbitaceae (gourd)</b>						
<i>Momordica charantia</i>	balsampear	exotic	II			
<b>Family: Cupressaceae (cedar)</b>						
<i>Taxodium distichum</i>	bald cypress	native				
<b>Family: Cyperaceae (sedge)</b>						
<i>Carex lupuliformis</i>	false hop sedge	native			I	
<i>Cladium jamaicense</i>	saw grass	native				
<i>Cyperus retrorsus</i>	pinebarren flatsedge	native			R	
<i>Cyperus surinamensis</i>	tropical flatsedge	native				
<i>Eleocharis interstrincta</i>	knotted spikerush	native				
<i>Rhynchospora latifolia</i>	giant whitetop	native				
<i>Scirpus sp.</i>	bulrush	native				
<b>Family: Dioscoreaceae (yam)</b>						
<i>Dioscorea bulbifera</i>	air-potato	exotic	I			
<b>Family: Droseraceae (sundew)</b>						
<i>Drosera ssp.</i>	sundew	native				
<b>Family: Ebonaceae (ebony)</b>						
<i>Diosporus virginiana</i>	persimmon	native				
<b>Family: Ericaceae (heath)</b>						
<i>Lyonia fruticosa</i>	staggerbush	native				
<i>Vaccinium myrsinites</i>	shiny blueberry	native				
<b>Family: Eriocaulaceae (pipewort)</b>						
<i>Eriocaulon compressum</i>	flattened pipewort	native			R	
<i>Eriocaulon decangulare</i>	tenangle pipewort	native			R	
<i>Lachnocaulon anceps</i>	whitehead bogbutton	native			R	
<i>Syngonanthus flavidulus</i>	yellow hatpins	native			R	
<b>Family: Euphorbiaceae (spurge)</b>						
<i>Bischofia javanica</i>	Javanese bishopwood	exotic	I			
<b>Family: Fabaceae (pea)</b>						
<i>Abrus precatorius</i>	rosary pea	exotic	I			
<i>Acacia auriculiformis</i>	earleaf acacia	exotic	I			
<i>Albizia lebeck</i>	woman's tongue	exotic	I			
<i>Chamaecrista fasciculata</i>	partridge pea	native				
<i>Crotalaria ssp.</i>	rattlebox	unknown				
<i>Desmodium tortuosum</i>	dixie ticktrefoil	exotic				
<i>Enterolobium contortisiliquum</i>	earpod tree	exotic				
<i>Galactia elliotii</i>	Elliot's milk pea	native				
<i>Indigofera hirsuta</i>	hairy indigo	exotic	I			
<i>Leucaena leucocephala</i>	white leadtree	exotic	II			
<i>Sesbania punicea</i>	rattlebox	exotic	II			
<i>Vigna luteola</i>	hairypod cowpea	native				
<b>Family: Fagaceae (beech)</b>						
<i>Quercus chapmanii</i>	Chapman's oak	native				
<i>Quercus laurifolia</i>	laurel oak	native				
<i>Quercus minima</i>	dwarf live oak	native			R	
<i>Quercus myrtifolia</i>	myrtle oak	native				

## Appendix B: Plant Species List for Powell Creek Preserve

Scientific and Common names were obtained from Wunderlin and Hansen, 2003

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<i>Quercus virginiana</i>	live oak	native				
<b>Family: Haemodoraceae (bloodwort)</b>						
<i>Lachnanthes carolina</i>	Carolina redroot	native				
<b>Family: Juncaceae (rush)</b>						
<i>Juncus effusus</i>	soft rush	native				
<b>Family: Lamiaceae (mint)</b>						
<i>Callicarpa americana</i>	American beautyberry	native				
<i>Clerodendrum indicum</i>	skyrocket	exotic				
<i>Hyptis spicigera</i>	marubio	exotic				
<b>Family: Lauraceae (laurel)</b>						
<i>Cassytha filiformis</i>	love vine	native				
<i>Persea palustris</i>	swamp bay	native				
<b>Family: Lentibulariaceae (bladderwort)</b>						
<i>Utricularia subulata</i>	zigzag bladderwort	native				
<b>Family: Lythraceae (loosestrife)</b>						
<i>Lythrum alatum</i> var. <i>lanceolatum</i>	winged loosestrife	native				
<b>Family: Malvaceae (mallow)</b>						
<i>Malva viscosa</i>	turkscap mallow	exotic				
<i>Melochia corchorifolia</i>	chocolateweed	exotic				
<i>Urena lobata</i>	Caesar's weed	exotic	I			
<b>Family: Marantaceae (arrowroot)</b>						
<i>Thalia geniculata</i>	alligatorflag	native				
<b>Family: Melastomataceae (melastome)</b>						
<i>Rhexia mariana</i>	pale meadowbeauty	native				
<b>Family: Menyanthaceae (floating hearts)</b>						
<i>Nymphoides aquatica</i>	big floatingheart	native				
<b>Family: Moraceae (mulberry)</b>						
<i>Ficus aurea</i>	strangler fig	native				
<b>Family: Myricaceae (bayberry)</b>						
<i>Myrica cerifera</i>	wax myrtle	native				
<b>Family: Myrtaceae (myrtle)</b>						
<i>Eugenia uniflora</i>	Surinam cherry	exotic	I			
<i>Melaleuca quinquenervia</i>	punktree	exotic	I			
<i>Psidium guajava</i>	strawberry guava	exotic	I			
<i>Syzygium cumini</i>	Java plum	exotic	I			
<b>Family: Nephrolepidaceae (sword fern)</b>						
<i>Nephrolepis cordifolia</i>	tuberous sword fern	exotic	I		I	
<i>Nephrolepis falcata</i>	fishtail swordfern	exotic				
<i>Nuphar luteum</i>	spadderdock	native				
<b>Family: Nymphaea (water lily)</b>						
<i>Nymphaea odorata</i>	fragrant water lily	native				
<b>Family: Oleaceae (olive)</b>						
<i>Fraxinus caroliniana</i>	pop ash	native				R
<b>Family: Onagraceae (eveningprimrose)</b>						
<i>Ludwigia octovalvis</i>	Mexican primrosewillow	native				
<i>Ludwigia peruviana</i>	Peruvian primrosewillow	exotic	I			
<b>Family: Orchidaceae (orchid)</b>						
<i>Encyclia tampensis</i>	Florida butterfly orchid	native				
<i>Habenaria quinqueseta</i>	longhorn false reinorchid	native				R
<i>Oeceoclades maculata</i>	monk orchid	exotic				
<i>Vanilla planifolia</i>	commercial vanilla	exotic				



## Appendix B: Plant Species List for Powell Creek Preserve

Scientific and Common names were obtained from Wunderlin and Hansen, 2003

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<i>Pleopeltis polypodioides</i>	resurrection fern	native				
<b>Family: Passifloraceae (passionflower)</b>						
<i>Passiflora incarnata</i>	purple passionflower	native				
<b>Family: Phytolaccaceae (pokeweed)</b>						
<i>Phytolacca americana</i>	American pokeweed	native				
<b>Family: Poaceae (grass)</b>						
<i>Amphicarpum muhlenbergianum</i>	blue maidencane	native				
<i>Andropogon glomeratus</i>	bushy bluestem	native				
<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	purple bluestem	native				
<i>Andropogon virginicus</i> var. <i>glaucus</i>	chalky bluestem	native			R	
<i>Aristida spiciformis</i>	bottlebrush threeawn	native			R	
<i>Aristida stricta</i>	wiregrass	native				
<i>Cenchrus gracillimus</i>	slender sandbur	native				
<i>Dichanthelium erectifolium</i>	erectleaf witchgrass	native			R	
<i>Echinochloa walteri</i>	coast cockspur	native				
<i>Eragrostis elliotii</i>	Elliott's lovegrass	native				
<i>Eragrostis spectabilis</i>	purple lovegrass	native			I	
<i>Eustachys petraea</i>	pinewoods fingergrass	native				
<i>Hymenachne amopexicaulis</i>	West Indian marsh grass	exotic	I			
<i>Imperata cylindrica</i>	cogongrass	exotic	I			
<i>Panicum hemitomon</i>	maidencane	native				
<i>Panicum hians</i>	gaping panicum	native			R	
<i>Panicum maximum</i>	Guineagrass	exotic	I			
<i>Panicum repens</i>	torpedograss	exotic	I			
<i>Panicum rigidulum</i>	redtop panicum	native				
<i>Rhynchelytrum repens</i>	rose natalgrass	exotic	I			
<i>Sacciolepis striata</i>	American cupscale	native			R	
<i>Spartina bakeri</i>	sand cordgrass	native				
<i>Sporobolus indicus</i>	smutgrass	exotic	I			
<i>Stenotaphrum secundatum</i>	St. Augustinegrass	native				
<i>Tripsacum dactyloides</i>	Fakahatchee grass	native				
<i>Urochloa mutica</i>	paragrass	exotic	I			
<i>Zea mays</i> subsp. <i>mays</i>	corn	exotic				
<i>Lantana camara</i>	lantana	exotic	I			
<i>Phyla</i> ssp.	fogfruit	unknown				
<b>Family: Polygonaceae (buckwheat)</b>						
<i>Antigonon leptopus</i>	coral vine	exotic	II			
<i>Polygonella polygama</i> var. <i>brachystachya</i>	October flower	native			I	
<i>Polygonum punctatum</i>	dotted smartweed	native				
<i>Rumex verticillatus</i>	swamp dock	native				
<b>Family: Pontederiaceae (pickerelweed)</b>						
<i>Pontederiaceae cordata</i>	pickerelweed	native				
<i>Bacopa monnieri</i>	smooth water-hyssops	native				
<b>Family: Portulacaceae (purslane)</b>						
<i>Portulaca amilis</i>	Paraguayan purslane	exotic				
<b>Family: Primulaceae (myrsine)</b>						
<i>Myrsine guianensis</i>	myrsine	native				
<b>Family: Proteaceae (protea)</b>						
<i>Grevillea robusta</i>	silkoak	exotic				
<b>Family: Rosaceae (rose)</b>						
<i>Eriobotrya japonica</i>	loquat	exotic				

## Appendix B: Plant Species List for Powell Creek Preserve

Scientific and Common names were obtained from Wunderlin and Hansen, 2003

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
<b>Family: Rubiaceae (madder)</b>						
<i>Cephalanthus occidentalis</i>	buttonbush	native				
<i>Psychotria nervosa</i>	wild coffee	native				
<i>Psychotria sulzneri</i>	shortleaf wild coffee	native				
<b>Family: Rutaceae (citrus)</b>						
<i>Citrus sinensis</i>	orange tree	exotic				
<b>Family: Salicaceae (willow)</b>						
<i>Salix caroliniana</i>	Carolina willow	native				
<b>Family: Sapindaceae (soapberry)</b>						
<i>Acer rubrum</i>	red maple	native				
<i>Cupaniopsis anacardioides</i>	carrotwood	exotic	I			
<b>Family: Smilacaceae (smilax)</b>						
<i>Smilax auriculata</i>	earleaf greenbrier	native				
<b>Family: Solanaceae (nightshade)</b>						
<i>Solanum capsicoides</i>	soda apple	native				
<i>Solanum diphyllum</i>	twoleaf nightshade	exotic	II			
<i>Solanum tampicense</i>	aquatic soda apple	exotic	I			
<i>Solanum viarum</i>	tropical soda apple	exotic	I			
<b>Family: Vitaceae (grape)</b>						
<i>Parthenocissus quinquefolia</i>	Virginia creeper	native				
<i>Vitis aestivalis</i>	summer grape	native				
<i>Vitis rotundifolia</i>	wild grape vine, muscadine	native				
<b>Family: Vittariaceae (shoestring fern)</b>						
<i>Vittaria lineata</i>	shoestring fern	native				
<b>Family: Xyridaceae (yelloweyed grass)</b>						
<i>Xyris</i> sp.	yelloweyed grass	native				
<b>Family: Zamiaceae (zamia)</b>						
<i>Zamia pumila</i>	coontie	native				

\*eradicated since writing of 1st LMP

\*planted as part of filter marsh construction

### Key

#### Florida EPPC Status

I = species that are invading and disrupting native plant communities

II = species that have shown a potential to disrupt native plant communities

#### FDACS (Florida Department of Agriculture and Consumer Services)

E = Endangered

T = Threatened

CE = Commercially Exploited

#### IRC (Institute for Regional Conservation)

CI = Critically Imperiled

I = Imperiled

R = Rare

#### FNAI (Florida Natural Areas Inventory)

G= Global Status

T= Threatened

CE= Commercially Exploited

## Appendix B: Plant Species List for Powell Creek Preserve

*Scientific and Common names were obtained from Wunderlin and Hansen, 2003*

Scientific Name	Common Name	Native Status	EPPC	FDA	IRC	FNAI
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- 1= Critically imperiled because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- 2= Imperiled because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- 3= Either very rare and local throughout its range (21-200 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.
- 4= Apparently secure
- 5= Demonstrably secure

## **Appendix C: Wildlife Species List**

## Appendix C: Wildlife Species List for Powell Creek Preserve

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
<b>MAMMALS</b>				
<b>Family: Dasypodidae (armadillos)</b>				
<i>Dasypus novemcinctus</i>	nine-banded armadillo *			
<b>Family: Sciuridae (squirrels and their allies)</b>				
<i>Sciurus carolinensis</i>	eastern gray squirrel			
<b>Family: Leporidae (rabbits and hares)</b>				
<i>Sylvilagus floridanus</i>	eastern cottontail			
<b>Family: Talpidae (moles)</b>				
<i>Scalopus aquaticus</i>	eastern mole			
<b>Family: Felidae (cats)</b>				
<i>Lynx rufus</i>	bobcat			
<b>Family: Suidae (old world swine)</b>				
<i>Sus scrofa</i>	feral hog *			
<b>BIRDS</b>				
<b>Family: Anatidae (swans, geese and ducks)</b>				
<b>Subfamily: Anatinae</b>				
<i>Cairina moschata</i>	muscovy duck *			
<i>Aix sponsa</i>	wood duck			
<i>Anas platyrhynchos</i>	mallard			
<i>Anas fulvigula</i>	mottled duck			
<i>Anas discors</i>	blue-winged teal			
<i>Aythya affinis</i>	lesser scaup			
<b>Family: Podicipedidae (grebes)</b>				
<i>Podilymbus podiceps</i>	pie-billed grebe			
<b>Family: Ciconiidae (storks)</b>				
<i>Mycteria americana</i>	wood stork	E	E	G4/S2
<b>Family: Phalacrocoracidae (cormorants)</b>				
<i>Phalacrocorax auritus</i>	double-crested cormorant			
<b>Family: Anhingidae (anhingas)</b>				
<i>Anhinga anhinga</i>	anhinga			
<b>Family: Ardeidae (herons, egrets, bitterns)</b>				
<i>Ardea herodias</i>	great blue heron			
<i>Ardea alba</i>	great egret			G5/S4
<i>Botaurus lentiginosus</i>	American bittern			
<i>Egretta thula</i>	snowy egret	SSC		G5/S3
<i>Egretta caerulea</i>	little blue heron	SSC		G5/S4
<i>Egretta tricolor</i>	tricolored heron	SSC		G5/S4
<i>Bubulcus ibis</i>	cattle egret			
<i>Butorides virescens</i>	green heron			
<b>Family: Threskiornithidae (ibises and spoonbills)</b>				
<b>Subfamily: Threshiornithinae</b>				
<i>Eudocimus albus</i>	white ibis	SSC		G5/S4
<i>Plegadis falcinellus</i>	glossy ibis			G5/S3
<b>Subfamily: Plataleinae</b>				
<i>Platalea ajaja</i>	roseate spoonbill	SSC		G5/S2
<b>Family: Cathartidae (new world vultures)</b>				
<i>Coragyps atratus</i>	black vulture			
<i>Cathartes aura</i>	turkey vulture			
<b>Family: Pandionidae (ospreys)</b>				
<i>Pandion haliaetus</i>	osprey			
<b>Family: Accipitridae (hawks, kites, accipiters, harriers, eagles)</b>				
<i>Elanoides forficatus</i>	swallow-tailed kite			G5/S2
<i>Haliaeetus leucocephalus</i>	bald eagle	T		G5/S3
<i>Circus cyaneus</i>	northern harrier			
<i>Accipiter cooperii</i>	Cooper's hawk			G5/S3

## Appendix C: Wildlife Species List for Powell Creek Preserve

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
<i>Buteo lineatus</i>	red-shouldered hawk			
<i>Buteo jamaicensis</i>	red-tailed hawk			
<b>Family: Rallidae (coots and gallinules)</b>				
<i>Gallinula chloropus</i>	common gallinule			
<i>Fulica americana</i>	American coot			
<b>Family: Aramidae (limpkins)</b>				
<i>Aramusguarauna</i>	limpkin	SSC		G5/S3
<b>Family: Charadriidae (plovers)</b>				
<b>Subfamily: Charadriinae</b>				
<i>Charadrius vociferus</i>	killdeer			
<b>Family: Scolopacidae (sandpipers and phalaropes)</b>				
<b>Subfamily: Scolopacinae</b>				
<i>Tringa melanoleuca</i>	greater yellowlegs			
<i>Tringa flavipes</i>	lesser yellowlegs			
<i>Calidris mauri</i>	western sandpiper			
<i>Gallinago delicata</i>	Wilson's snipe			
<b>Family: Laridae (gulls)</b>				
<b>Subfamily: Larinae</b>				
<i>Larus delawarensis</i>	ring-billed gull			
<b>Family: Columbidae (pigeons and doves)</b>				
<i>Columba livia</i>	rock pigeon*			
<i>Streptopelia decaocto</i>	Eurasian collared-dove *			
<i>Zenaida macroura</i>	mourning dove			
<i>Columbina passerina</i>	common ground-dove			
<b>Family: Strigidae (true owls)</b>				
<i>Bubo virginianus</i>	great horned owl			
<i>Strix varia</i>	barred owl			
<b>Family: Caprimulgidae (goatsuckers)</b>				
<b>Subfamily: Chordeilinae</b>				
<i>Chordeiles minor</i>	common nighthawk			
<b>Family: Apodidae (swifts)</b>				
<b>Subfamily: Chaeturinae</b>				
<i>Chaetura pelagica</i>	chimney swift			
<b>Family: Alcedinidae (kingfishers)</b>				
<i>Ceryle alcyon</i>	belted kingfisher			
<b>Family: Picidae (woodpeckers)</b>				
<b>Subfamily: Picinae</b>				
<i>Melanerpes carolinus</i>	red-bellied woodpecker			
<i>Picoides pubescens</i>	downy woodpecker			
<i>Colaptes auratus</i>	northern flicker			
<i>Dryocopus pileatus</i>	pileated woodpecker			
<b>Family: Falconidae (falcons)</b>				
<b>Subfamily: Falconinae (falcons)</b>				
<i>Falco sparverius</i>	American kestrel			
<b>Family: Tyrannidae (tyrant flycatchers)</b>				
<b>Subfamily: Fluvicolinae</b>				
<i>Contopus virens</i>	eastern wood-pewee			
<i>Sayornis phoebe</i>	eastern phoebe			
<i>Myiarchus cinerascens</i>	great-crested flycatcher			
<b>Family: Laniidae (shrikes)</b>				
<i>Lanius ludovicianus</i>	loggerhead shrike			
<b>Family: Vireonidae (vireos)</b>				
<i>Vireo griseus</i>	white-eyed vireo			
<i>Vireo solitarius</i>	blue-headed vireo			
<i>Vireo olivaceus</i>	red-eyed vireo			

## Appendix C: Wildlife Species List for Powell Creek Preserve

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
<b>Family: Corvidae (crows, jays, etc.)</b>				
<i>Cyanocitta cristata</i>	blue jay			
<i>Corvus brachyrhynchos</i>	American crow			
<i>Corvus ossifragus</i>	fish crow			
<b>Family: Hirundinidae (swallows)</b>				
<b>Subfamily: Hirundinidae</b>				
<i>Progne subis</i>	purple martin			
<i>Hirundo rustica</i>	barn swallow			
<i>Tachycineta bicolor</i>	tree swallow			
<b>Family: Troglodytidae (wrens)</b>				
<i>Troglodytes aedon</i>	house wren			
<i>Thryothorus ludovicianus</i>	Carolina wren			
<b>Family: Polioptilidae</b>				
<i>Polioptila caerulea</i>	blue-gray gnatcatcher			
<b>Family: Turdidae (thrushes)</b>				
<i>Catharus guttatus</i>	hermit thrush			
<i>Turdus migratorius</i>	American robin			
<b>Family: Mimidae (mockingbirds and thrashers)</b>				
<i>Dumetella carolinensis</i>	gray catbird			
<i>Mimus polyglottos</i>	northern mockingbird			
<b>Family: Sturnidae (starlings)</b>				
<i>Sturnus vulgaris</i>	European starling *			
<b>Family: Motacillidae</b>				
<i>Anthus rubescens</i>	American Pipet			
<b>Family: Parulidae (wood-warblers)</b>				
<i>Seiurus aurocapillus</i>	ovenbird			
<i>Geothlypis tristis</i>	common yellowthroat			
<i>Parula americana</i>	northern parula			
<i>Dendroica palmarum</i>	palm warbler			
<i>Dendroica pinus</i>	pine warbler			
<i>Dendroica coronata</i>	yellow-rumped warbler			
<i>Dendroica dominica</i>	yellow-throated warbler			
<i>Dendroica discolor</i>	prairie warbler			
<b>Family: Cardinalidae (cardinals, some grosbeaks, new world buntings, etc.)</b>				
<i>Piranga rubra</i>	summer tanager			
<i>Cardinalis cardinalis</i>	northern cardinal			
<b>Family: Icteridae (blackbirds, orioles, etc.)</b>				
<i>Dolichonyx oryzivorus</i>	bobolink			
<i>Agelaius phoeniceus</i>	red-winged blackbird			
<i>Molothrus ater</i>	brown-headed cowbird			
<i>Quiscalus quiscula</i>	common grackle			
<i>Quiscalus major</i>	boat-tailed grackle			
<i>Icterus galbula</i>	Baltimore oriole			
<b>Family: Fringillidae</b>				
<b>Subfamily: Carduelinae</b>				
<i>Carpodacus mexicanus</i>	house finch			
<i>Carduelis tristis</i>	American goldfinch			
<b>REPTILES</b>				
<b>Family: Emydidae (box and water turtles)</b>				
<i>Terrapene carolina bauri</i>	Florida box turtle			
<i>Pseudemys nelsoni</i>	Florida redbelly turtle			
<i>Pseudemys floridana peninsularis</i>	peninsula cooter			
<b>Family: Chelydridae (snapping turtles)</b>				
<i>Chelydra serpentina osceola</i>	Florida snapping turtle			
<b>Family: Testudinidae (gopher tortoises)</b>				

## Appendix C: Wildlife Species List for Powell Creek Preserve

Scientific Name	Common Name	Designated Status		
		FWC	FWS	FNAI
<i>Gopherus polyphemus</i>	gopher tortoise	T		G3/S3
<b>Family: Anguillidae (glass and alligator lizards)</b>				
<i>Ophisaurus ventralis</i>	eastern glass lizard			
<b>Family: Polychridae (anoles)</b>				
<i>Anolis carolinensis</i>	green anole			
<i>Anolis sagrei</i>	brown anole *			
<b>Family: Colubridae (colubrids)</b>				
<i>Nerodia fasciata pictiventris</i>	Florida water snake			
<i>Coluber constrictor priapus</i>	southern black racer			
<b>Family: Viperidae (vipers)</b>				
<b>Subfamily: Crotalinae (pit vipers)</b>				
<i>Crotalus adamanteus</i>	eastern diamondback rattlesnake			G4/S3
<b>AMPHIBIANS</b>				
<b>Family: Bufonidae (toads)</b>				
<i>Anaxyrus quercicus</i>	oak toad			
<i>Anaxyrus terrestris</i>	southern toad			
<b>Family: Leptodactylidae (tropical frogs)</b>				
<i>Eleutherodactylus planirostris planirostris</i>	greenhouse frog *			
<b>Family: Hylidae (treefrogs and their allies)</b>				
<i>Hyla cinerea</i>	green treefrog			
<i>Osteopilus septentrionalis</i>	Cuban treefrog *			
<b>Family: Microhylidae (narrowmouth toads)</b>				
<i>Gastrophryne carolinensis</i>	eastern narrowmouth toad			
<b>Family: Ranidae (true frogs)</b>				
<i>Lithobates sphenoccephalus sphenoccephalus</i>	Florida leopard frog			
<b>FISHES</b>				
<b>Family: Lepisosteidae (gar fish)</b>				
<i>Lepisosteus platyrhincus</i>	Florida gar			



## **Appendix D: Filter Marsh Permit**



**SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
 ENVIRONMENTAL RESOURCE  
 STANDARD GENERAL PERMIT NO. 36-07386-P  
 DATE ISSUED: September 6, 2011**

Form #0941  
 08/95

**PERMITTEE:** LEE COUNTY BOARD OF COUNTY  
 COMMISSIONERS  
 1500 MONROE STREET  
 FORT MYERS, FL 33901

**PROJECT DESCRIPTION:** This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 77.26-acre environmental restoration project known as Powell Creek Preserve Filter Marsh with discharge into Powell Creek.

**PROJECT LOCATION:** LEE COUNTY, SEC 36 TWP 43S RGE 24E

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

This is to notify you of the District's agency action concerning Notice of Intent for Permit Application No. 091030-14, dated October 30, 2009. This action is taken pursuant to Rule 40E-1.603 and Chapter 40E-40 , Florida Administrative Code (F.A.C.).

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

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 19 General Conditions (See Pages : 2 - 4 of 10),
3. the attached 28 Special Conditions (See Pages : 5 - 10 of 10) and
4. the attached 3 Exhibit(s)

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

**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a "Notice of Rights" has been mailed to the Permittee (and the persons listed in the attached distribution list) no later than 5:00 p.m. on this 6th day of September, 2011, in accordance with Section 120.60(3), Florida Statutes.

BY: \_\_\_\_\_  
 Ricardo A. Valera, P.E.  
 Regulatory Administrator  
 Lower West Coast Service Center

## NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

### **RIGHT TO REQUEST ADMINISTRATIVE HEARING**

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

### **Filing Instructions**

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

### **Initiation of an Administrative Hearing**

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

### **Mediation**

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

### **RIGHT TO SEEK JUDICIAL REVIEW**

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

## GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373, F.S.
2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.
3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.
4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.
5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.
6. Within 30 days after completion of construction of the permitted activity, the permittee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.
7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit

## GENERAL CONDITIONS

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

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.
9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.
10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.
11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..
12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.
13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.
14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.
15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit

## GENERAL CONDITIONS

application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.
17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.
18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.
19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

### SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on September 6, 2016.
2. Operation of the surface water management system shall be the responsibility of LEE COUNTY BOARD OF COUNTY COMMISSIONERS.

3. Discharge Facilities:

Basin: A

1-48" W X 3.1' H RECTANGULAR NOTCH with invert at elev. 9.2' NAVD 88.  
91 LF of 30" dia. REINFORCED CONCRETE PIPE culvert.  
1-4.3' W X 5.8' L drop inlet with crest at elev. 12.3' NAVD 88.  
1-4' wide X 4.3' high slide gate with invert at elev. 9.2' NAVD 88.  
Receiving body : Powell Creek  
Control elev : 9.2 feet NAVD 88.

Basin: C

70 LF of 24" dia. REINFORCED CONCRETE PIPE culvert.  
1-4.3' W X 5.8' L drop inlet with crest at elev. 10.5' NAVD 88.  
1-4' wide X 1.9' high slide gate with crest at elev. 8.6' NAVD 88.  
Receiving body : Filter Marsh C  
Control elev : 9.2 feet NAVD 88.

Basin: OFFSITE

112 LF of 18" dia. POLYVINYLCHLORIDE PIPE culvert.  
1-5.7' W X 8.4' L drop inlet with crest at elev. 11.8' NAVD 88.  
1-6cfs with pump on at elev. 5' NAVD 88 and with pump off at elev.  
3.5' NAVD 88.  
Receiving body : Filter Marsh C

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the surface water management system.
5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
9. The permittee shall provide routine maintenance of all of the components of the surface water management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that



## SPECIAL CONDITIONS

adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed surface water management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the surface water management system, if necessary, to eliminate the cause of the adverse impacts.

11. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.
12. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.
13. The Permittee shall utilize the Pump Operation Schedule as shown on Exhibit 2.1.
14. The permittee shall utilize the criteria contained in the Construction Pollution Prevention Plan (Exhibit No. 2.2) and on the applicable approved construction drawings for the duration of the project's construction activities.
15. The Urban Stormwater Management Plan shall be implemented in accordance with Exhibit No. 2.3.
16. The following exhibits for the permit are incorporated by reference herein and are located in the permit file. In addition, these exhibits can be viewed on the District's ePermitting website under this application number.

Exhibit No. 2.2: Construction Pollution Prevention Plan

Exhibit No. 2.3: Urban Stormwater Management Program

17. Mitigation for wetland impacts resulting from construction of the proposed project will include the enhancement of 3.88 acres of on-site forested wetlands. The 3.88 acre mitigation area is identified as Wetland I.D. Number 4 in Exhibit 3.2. The enhancement of the 3.88 acre mitigation area will compensate for the loss of 0.17 UMAM functional units associated with the wetland impacts for the project and provide a surplus of 0.33 UMAM functional units. The surplus 0.33 UMAM functional units may be used to offset future Lee County public works projects with approval from the District. The 3.88 acre mitigation plan is referred to as "Plan 1." Implementation of the mitigation activities shall be conducted in accordance with Exhibits 3.2-3.5.

In addition to the mitigation required to offset wetland impacts for this project, the applicant desires to conduct 64.86 acres of additional wetland enhancement, wetland creation, and upland preservation on-site beyond what is required as mitigation for this project. The intent is for this surplus mitigation to be used to offset future Lee County public works projects with the approval from the District. The 64.86 acres of surplus mitigation activities will be referred to as "Plan 2." Plan 2 will only be implemented for wetland mitigation purposes by Lee County provided these activities do not preclude the county's ability to obtain Total Maximum Daily Load (TMDL) credit for water quality improvements associated with the project. The location of the additional mitigation activities are shown in Exhibit 3.2 as polygon

## SPECIAL CONDITIONS

identification numbers 1, 2, 3, 5, 6, 12 through 25, and Up-1 through Up-21. In the event that implementation of the 64.86 acres of surplus mitigation activities may preclude the applicant from obtaining credit for water quality improvements for this project, the applicant reserves the right to remove the 64.86 acres of surplus mitigation from the proposed mitigation plan.

Plan 2 includes 2.77 acres of wetland enhancement, 18.18 acres of wetland creation and 43.91 acres of upland preservation. The locations of the 2.77 acres of surplus wetland enhancement are identified as polygon identification numbers 1, 2, 3, 5, 6, and 12, 13, and 14 in Exhibit 3.2. The wetland creation locations (18.18 acres) are identified as polygon identification numbers 15 - 25 on Exhibit 3.2. The upland enhancement/preservation locations (43.91 acres) are identified as polygon identification numbers Up-1 through Up-21 on Exhibit 3.2. The Phase 2 mitigation plan, if implemented, will be conducted in accordance with Exhibits 3.2-3.6 and Exhibit 3.7b.

The following are the guidelines that will be used for all exotic species removal and maintenance for the on-site enhanced wetlands and upland preserves: All Category I and II exotic species (those species identified by the current Florida Exotic Pest Plant Council's list of most invasive plant species) will be treated with an appropriate herbicide and will be manually removed from the site. All branches and stems from cut trees or shrubs that are not removed from the site will be further cut to maximum four foot length segments to promote decomposition. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing will be discussed during the pre-application meeting with District staff and is subject to District approval.

18. The District reserves the right to require remedial measures to be taken by the permittee if monitoring or other information demonstrates that adverse impacts to onsite or offsite wetlands, upland conservation areas or buffers, or other surface waters have occurred due to project related activities.
19. A monitoring program shall be implemented in accordance with Exhibit No. 3.5. The monitoring program shall extend for a period of 5 years with annual reports submitted to District staff. At the end of the first monitoring period the mitigation area shall contain an 80% survival of planted vegetation. The 80% survival rate shall be maintained throughout the remainder of the monitoring program, with replanting as necessary. If native wetland, transitional, and upland species do not achieve an 80% coverage within the initial two years of the monitoring program, native species shall be planted in accordance with the maintenance program. At the end of the 5 year monitoring program the entire mitigation area shall contain an 80% survival of planted vegetation and an 80% coverage of desirable obligate and facultative wetland species.

Monitoring of the 64.86 acre surplus mitigation areas (Plan 2) will initially be limited to a Baseline Monitoring Report and Time Zero Monitoring Report to document baseline conditions and time zero conditions of the Plan 2 mitigation areas immediately following the restoration activities. Additional annual monitoring events will initially not be required, as no mitigation credit is being granted by the District until a Conservation Easement over the Plan 2 mitigation areas is recorded in the Public Records of Lee County. To receive wetland mitigation credit for the Plan 2 surplus mitigation areas, the following will be required: annual monitoring events must be conducted to verify successful completion of the mitigation success criteria and a mitigation work schedule update must be submitted to the District; a Conservation Easement will need to be recorded; and written approval (permit modification) in accordance with Exhibit 3.7b must be provided by the District granting the appropriate mitigation credit release based on the terms of the Plan 2 Mitigation Credit Release Schedule as shown in Exhibit 3.4. Monitoring transects and photo stations within the Plan 2 surplus mitigation areas are depicted on Exhibit 3.5 and include transects T1 - T5 and photo stations 1 - 5 and 7 - 11.

## SPECIAL CONDITIONS

Transect T6 and photo station 6 will be used to monitor the 3.88 acre Plan 1 wetland enhancement area (Wetland ID Number 4). The locations of Transect T6 and photo station 6 are shown on Exhibit 3.5.

20. A maintenance program shall be implemented in accordance with Exhibit No. 3.5 for the enhanced/created wetland areas and the preserved upland areas on a regular basis to ensure the integrity and viability of those areas as permitted. Maintenance shall be conducted in perpetuity to ensure that the conservation area is maintained free from Category 1 exotic vegetation (as defined by the Florida Exotic Pest Plant Council at the time of permit issuance) immediately following a maintenance activity. Coverage of exotic and nuisance plant species shall not exceed 5% of total cover between maintenance activities. In addition, the permittee shall manage the conservation areas such that exotic/nuisance plant species do not dominate any one section of those areas.

### Maintenance of Mitigation Areas:

A maintenance program shall be implemented in the Plan 1 and Plan 2 mitigation areas on a regular basis to insure the integrity and viability of the mitigation activities. The applicant reserves the right to cease maintenance of the Plan 2 mitigation activities, inclusive of any areas not placed under a District Conservation Easement, in the event that implementation of Plan 2 may result in the inability to obtain credit for water quality improvements.

After the five year monitoring period, a final environmental compliance inspection will be scheduled with the District. In addition, periodic assessments of the site will be conducted no less than quarterly to identify any potential infestations that will require the attention of the maintenance crew; and periodic maintenance will be performed on a quarterly, semi-annual or annual basis, as appropriate for the species in question, to treat any exotic or nuisance plant species. Treatment may consist of, but not be limited to the use of EPA approved herbicides and/or the manual removal and disposal of the nuisance or exotic plant species.

21. The permittee shall be responsible for the successful completion of the mitigation work, including the monitoring and maintenance of the mitigation areas for the duration of the plan.
22. Prior to commencement of construction and in accordance with the work schedule in Exhibit 3.6 the permittee shall submit an electronic or hard copy version of the certified copy of the recorded conservation easement for the 3.88 acre Plan 1. Recordation of the Plan 2 conservation easement will not be required unless mitigation credit is requested for this area. Please see Special Condition 26. The electronic version of the recorded conservation easement, and associated GIS information described below, shall be submitted via the District's ePermitting/eCompliance website. The GIS data shall be supplied in a digital ESRI Geodatabase (mdb), ESRI Shapefile (shp) or AutoCAD Drawing Interchange (dxf) file format using Florida State Plane coordinate system, East Zone (3601), Datum NAD83, HARN with the map units in feet. A map depicting the Conservation Easement over the best available satellite or aerial imagery shall also be provided. If the information is provided via hard copy the GIS data shall reside on CD disk and be submitted to the District's Environmental Resource Compliance Division in the service area office where the application was submitted.

The recorded easement shall utilize the form attached as Exhibit 3.7a for the 3.88 acre conservation easement for Plan 1 or Exhibit 3.7b for the 64.86 acre conservation easement for Plan 2 as necessary. Any proposed modification to the approved form must receive prior written consent from the District. The easement must be free of encumbrances or interests in the easement which the District determines are contrary to the intent of the easement. In the event it is later determined that there are encumbrances or interests in the easement which the District determines are contrary to the intent of the easement, the permittee shall be required to provide release or subordination of such encumbrances or interests.

23. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss

## SPECIAL CONDITIONS

construction methods and sequencing, including the type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, phasing of construction, methods of vegetation clearing, construction dewatering if required, ownership documentation for eminent domain authority, coordination with other entities on adjacent construction projects, wetland/buffer protection methods, endangered species protection, etc. with the permittee and contractors. Please note that a meeting will be required for both Plan 1 and Plan 2 mitigation areas if not constructed at the same time. The permittee shall contact District Environmental Resource Compliance staff from the Lower West Coast Service Center at (239)338-2929 to schedule the pre-construction meeting.

24. Activities associated with the implementation of the mitigation, monitoring and maintenance plan(s) shall be completed in accordance with the work schedule attached as Exhibit No. 3.6. A complete maintenance and monitoring plan will be required at this time for the 3.88 acre Plan 1 mitigation area. For the remaining 64.86-acre Plan 2 mitigation area, a baseline monitoring report, exotic removal, and a time zero monitoring report are required to be implemented upon the commencement of construction, while additional monitoring/maintenance will only be required if wetland mitigation credit is requested for the Plan 2 mitigation areas. If wetland mitigation credit is requested for the Plan 2 areas, an updated mitigation work schedule will be required to be submitted. Any deviation from these time frames will require prior approval from the District's Environmental Resource Compliance staff. Such requests must be made in writing and shall include (1) reason for the change, (2) proposed start/finish and/or completion dates; and (3) progress report on the status of the project development or mitigation effort.
25. The use of the mitigation units from this project shall be limited to projects undertaken by the Lee County Board of County Commissioners, in which such entities have an ownership interest. The suitability of this mitigation area to offset impacts to any given project will be determined on a case-by-case review of the project for which impacts are proposed.
26. This permit outlines two potential plans for mitigation for this project. Plan 1 includes the enhancement of 3.88 acres of on-site forested wetlands as mitigation compensation for the 0.37 acres of wetland impacts associated with the project. The mitigation area will be put under conservation easement and will compensate for the total loss of 0.17 functional units by providing a gain of 0.50 functional units. These 0.33 surplus functional units may be used to offset future Lee County Public Works projects if deemed appropriate by District staff. A complete maintenance and monitoring plan will be required for the 3.88 acre mitigation area.

Lee County also intends to seek Total Maximum Daily Load (TMDL) credit for water quality improvements associated with the project. In addition to the mitigation required to offset wetland impacts for this project, Lee County desires to conduct the creation and enhancement of 20.95 acres of wetlands and the preservation of 43.91 acres of uplands beyond what is required as mitigation for this project. These activities, known as Plan 2, will only be implemented provided these activities do not preclude Lee County's ability to obtain TMDL credit for water quality improvements associated with this project. Plan 2 will result in a total of 7.99 surplus functional units that may be used to offset wetland impacts associated with future Lee County Public Works projects upon approval from District staff. An abridged version of maintenance/monitoring will be required for Plan 2 that includes a baseline monitoring report, exotic removal, and a time zero monitoring report. If Lee County chooses to implement Plan 2 for wetland mitigation purposes, the following will be required:

1. The remaining 64.86 acres will be placed under conservation easement, in accordance with Exhibit 3.7b.
2. A complete five year maintenance and monitoring program will be required for all new acreage placed under conservation easement
3. An updated work schedule for the new activities will be submitted to the District

### **SPECIAL CONDITIONS**

Under Plan 2, Lee County will be required to reach specific mitigation success and receive a modification to Permit No. 36-07386-P prior to the release of surplus credits as outlined in Exhibit 3.4. An outline of the maintenance and monitoring plans is attached as Exhibit 3.5 and the associated work schedule is attached as Exhibit 3.6.

Any future changes in land use or treatment of wetland and/or upland areas may require a permit modification and additional review by District environmental/engineering staff. Prior to the permittee instituting any future changes not authorized by this permit, the permittee shall notify the District of such intentions for a determination of any necessary permit modifications.

27. The Powell Creek Land Management Plan prepared by Lee County must be amended to incorporate this permit (Permit No. 36-07386-P) by reference.
28. Written notice must be provided to the District Environmental Resource Compliance staff from the Lower West Coast Service Center at least 48 hours prior to lowering the downward opening weir gate in CS-1 to perform maintenance activities.

**Last Date For Agency Action:** September 9, 2011

**GENERAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT**

**Project Name:** Powell Creek Preserve Filter Marsh  
**Permit No.:** 36-07386-P  
**Application No.:** 091030-14  
**Application Type:** Environmental Resource (New General Permit)  
**Location:** Lee County, S36/T43S/R24E  
**Permittee :** Lee County Board Of County Commissioners  
**Operating Entity :** Lee County Board Of County Commissioners  
**Project Area:** 77.26 acres

**Project Land Use:** Environmental Restoration

**Drainage Basin:** TIDAL CALOOSAHATCHEE

**Sub Basin:** POWELL CREEK

**Receiving Body:** Powell Creek

**Class:** CLASS III

**Special Drainage District:** NA

**Total Acres Wetland Onsite:** 6.06

**Total Acres Wetland Preserved Onsite:** 5.74

**Total Acres Impacted Onsite :** .32

**Total Acres Presv/Mit Compensation Onsite:** 68.74

**Conservation Easement To District :** Yes

**Sovereign Submerged Lands:** No

**PROJECT PURPOSE:**

This application is a request for an Environmental Resource Permit to authorize construction and operation of a surface water management system to serve a 77.26-acre environmental restoration project known as Powell Creek Filter Marsh with discharge to Powell Creek.

## **PROJECT EVALUATION:**

### **PROJECT SITE DESCRIPTION:**

The 77.26-acre site is located approximately  $\frac{3}{4}$  miles east of Business U.S. 41 and approximately  $\frac{1}{4}$  mile north of Bayshore Road in North Fort Myers, Lee County, Florida. The site is bordered by the Powell Creek Canal to the west, Hart Road to the east, the Forest Park residential development to the north and the Carriage Village residential development to the south. A location map is attached as Exhibit 1.0.

The property was purchased by Lee County Conservation 20/20 and is known as Powell Creek Preserve. The site has been disturbed and prior to its purchase by Lee County was utilized for logging of slash pines, stumping for turpentine, cattle grazing and off-road vehicles. The site was previously permitted for a residential development known as Royal Palms Estates Mobile Home Community. However, the permit expired and currently there are no active permitted surface water management facilities. Firebreaks have been constructed along the boundaries of the site adjacent to residential areas. The site currently includes dirt roads (Zircon Court, Turquoise Court, Aquamarine Drive, and Onyx Court), a 15-foot wide drainage easement in the southwest corner of the site, a 10-foot wide utility easement along Hart Road, and a 10.2-acre conservation easement to the Florida Department of Environmental Regulation (renamed Florida Department of Environmental Protection) that has been vacated. Powell Creek bisects the property on a north-southwest direction.

The site contains a mixture of vegetated communities. The northeast corner of the site contains 8.12 acres of abandoned farm field which is beginning to transition back to a mixed hardwood and conifer upland habitat (FLUCCS Code 261). It contains scattered slash pines, laurel oak, live oak, silk oak, wax myrtle, cabbage palm and Brazilian pepper. The site also contains 3.05 acres of herbaceous uplands located in the central/eastern portion of the site, containing broomsedge, dog fennel, blackroot, chocolate weed and other upland herbaceous vegetation (FLUCCS Code 310). The dominant vegetation community scattered throughout the site is 56.22 acres of upland hardwoods conifer mix with 1% - 25% exotic coverage (FLUCCS Code 434). This system contains slash pines, live oak, laurel oak, wax myrtle, cabbage palm, scattered Brazilian pepper and earleaf acacia. A portion of Powell Creek (0.96 acres) extends in a southwest direction across the site and intersects with the Powell Creek Bypass Canal at the west property line (FLUCCS Code 510). Cypress, swamp bay, laurel oak, Carolina willow, and cabbage palm can be found along the banks of the Creek. In addition, 3.92 acres of stream swamp with exotics can be found along the banks of Powell Creek (FLUCCS Code 615). This community contains laurel oak, swamp bay, cypress, bishopwood, popash, buttonbush, Brazilian pepper, swamp fern and creeping oxeye. 3.88 of the 3.92 total acres contains exotic levels from 26% - 50% and 0.04 acres contains exotic levels from 51% - 75%. 2.14 acres of disturbed freshwater marsh can be found in the southeast corner of the site (FLUCCS Code 641). Representative vegetation identified in this community includes primrose willow, southern cattail, Carolina willow, Alabama swamp sedge, paragrass, dog fennel, ragweed, Caesar weed, torpedo grass, pepper vine, pickerelweed and climbing hempweed. Exotic coverage within this wetland habitat ranges from 50% to 75%. Finally, a disturbed upland habitat of 2.79 acres is located in the southeast corner of the site on the fringes of the disturbed freshwater marsh habitat. This community contains scattered cabbage palm, groundsel tree, Caesar weed, ragweed, dog fennel, greenbrier, Spanish needles, virginia creeper and rosary pea.

Stormwater runoff from the property sheetflows to the existing onsite wetlands, Powell Creek, Powell Creek Canal or Hart Road. Powell Creek and Powell Creek Canal combine at the southwest corner of the site, south of the Valencia Weir, which has an invert elevation of 5.8 feet North American Vertical Datum of 1988 (NAVD 88) (7.0 feet National Geodetic Vertical Datum of 1929 - NGVD 29).

The project site is located within the Powell Creek Watershed with an allowable discharge rate of 20 cubic feet per second per square mile.

### **PROJECT BACKGROUND:**

The site received two previous permits for development. The first was issued on November 9, 1989 under Permit No. 36-01364-S/ Application No.890501-12. The second was issued on April 14, 1995 under Permit No. 36-02735-S/ Application No. 930615-2. Construction was never initiated for either project and both permits expired.

In May 1999, a new Environmental Resource Permit (ERP) Application No. 990507-12 (Royal Palms Estates Mobile Home Community) was submitted to the District for a similar surface water management system to serve a residential development. This application was denied in July 2005 for failure to be completed in accordance with Rule 40E-1.603(4)(d).

## **PROPOSED PROJECT:**

The applicant proposes stormwater management improvements on a Lee County 20/20 Preserve parcel to improve the water quality of Powell Creek by reducing its existing impairments. The project consists of constructing three filter marsh areas (A, B, C), 10-foot wide trails adjacent to the marshes to promote educational opportunities, and a 10-foot wide stabilized pedestrian crossing across Powell Creek to improve access to the western portion of the preserve site for recreation and maintenance. Proposed recreational activities will be discussed later in the wetland section of this staff report. Two gravity lines located in the northern side of the site will convey storm water from both Powell Creek and Powell Creek Canal into a wet well (via control structure CS-2 and a 24-inch reinforced concrete pipe (RCP); and a series of inlets, manholes, and 30-inch RCPs, respectively), and then be pumped to Filter Marsh C. Back flow to the creek will be prevented by flap gate on the gravity line and the configuration of the pump outlet within Filter Marsh C. Stormwater then will discharge into a deeper area of the marsh to allow sediments to settle, and then will flow through a series of shallow and deep wetland areas for treatment before discharging into Powell Creek via a control structure.

The pump will be operated under two operating schedules, wet season and dry season. The dry season operating schedule will followed at any time that water is not flowing over the Valencia Weir (Powell Creek canal elevation of 5.8 feet NAVD). A downward opening weir gate has been incorporated in the inlets from the creek to provide flexibility in operation to allow water into the marsh at creek and canal elevations lower than 8.6 feet NAVD. The proposed downward opening weir gates on structures S-A-100-009, S-A-100-011, and S-A-100-017 are internal to the surface water management system and will lower the water levels in the marsh areas during maintenance activities only; therefore, there is no schedule for their operation. The invert of the CS-2 weir will initially be set at 8.6 ft. NAVD to maintain hydroperiod in the adjacent wetlands. However, the structure configuration will allow some elevation flexibility to best maintain the creek and marsh. To protect the marsh vegetation and prevent impacts to Powell Creek the pump will shut-off when stages within the marsh exceed 10.2 ft. NAVD. A downward opening weir gate has been proposed for CS-1 to allow for flexibility in water levels for maintenance purposes only (see Special Condition 28).

This project also proposes a 0.37-ac parking area at the northeast corner of the property. However, no parking spaces are defined. Only one parking space will be marked at the time of construction and will be designated as a handicapped space. The surface in this area will be stabilized with limerock. Compensatory treatment volume for this area (0.08 ac-ft, based on 2.5 inches) will be provided in the created filter marsh areas. This area will allow buses and emergency vehicles to pull in and perform turn-around maneuvers without disturbing traffic along Hart Road.

Plan views of the proposed improvements, cross sections and details are included as Exhibit 2.0. The Pump Operation Schedule has been attached as Exhibit 2.1.

## **LAND USE:**

\*\* OTHER land use corresponds to Other Surface Waters.



**LAND USE:**

\*\* PERVIOUS includes upland areas.

\*\* WATER MGMT ACREAGE corresponds to the proposed filter marsh areas.

\*\* OFFSITE is located outside the proposed filter marsh areas.

**Construction:****Project:****Total Project**

Other	4.90	acres
Pervious	52.56	acres
Water Mgnt Acreage	18.20	acres
Wetland	1.60	acres
<b>Total:</b>	<b>77.26</b>	

**Basin : A****Total Basin**

Pervious	.70	acres
Water Mgnt Acreage	2.70	acres
<b>Total:</b>	<b>3.40</b>	

**Basin : B****Total Basin**

Pervious	2.00	acres
Water Mgnt Acreage	5.90	acres
Wetland	1.60	acres
<b>Total:</b>	<b>9.50</b>	

**Basin : C****Total Basin**

Pervious	2.30	acres
Water Mgnt Acreage	9.60	acres
<b>Total:</b>	<b>11.90</b>	

**Basin : OFFSITE****Total Basin**

Other	4.90	acres
Pervious	47.56	acres

Basin : OFFSITE

**Total Basin**

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**Total:** **52.46**

**WATER QUANTITY :**

**Discharge Rate :**

The project will discharge into Powell Creek via the proposed control structure CS-1. No adverse discharge impacts are anticipated as a result of the proposed project.

Discharge Storm Frequency : 25 YEAR-3 DAY

Design Rainfall : 11.5 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage ( ft, NAVD 88)
A	6.8	Conveyance Limitation	6.8	11.1

**Flood Plain/Compensating Storage:**

An evaluation of the proposed project's impact to the floodplain was conducted using a Hydrologic Engineering Centers River Analysis System (HEC-RAS) analysis and existing topography. In the pre-development condition the site produces a net runoff volume of 24.8 ac-ft and it is considered an exporter during the 100 year/3 day storm event. The proposed site will provide 66.9 ac-ft of storage, which represents an increase in storage of 42.1 ac-ft. The proposed development will not cause adverse impacts to the floodplain in the vicinity of the project area.

**Control Elevation :**

Basin	Area (Acres)	Ctrl Elev ( ft, NAVD 88)	WSWT Ctrl Elev ( ft, NAVD 88)	Method Of Determination
A	3.40	9.2	9.20	Wetland Indicator Elevation
B	9.50	9.2	9.20	Wetland Indicator Elevation
C	11.90	9.2	9.20	Wetland Indicator Elevation
OFFSITE	52.46	9.2	9.20	Wetland Indicator Elevation

**Receiving Body :**

Basin	Str.#	Receiving Body
A	CS-1	Powell Creek
C	CS-2	Filter Marsh C
Offsite	CS-2	Filter Marsh C
Offsite	Pump	Filter Marsh C

**Discharge Structures:** Note: The units for all the elevation values of structures are ( ft, NAVD 88)

**Bleeders:**

Basin	Str#	Count	Type	Width	Height	Length	Dia.	Invert Angle	Invert Elev.
A	CS-1	1	Rectangular Notch	48"	3.1'				9.2

**Discharge Structures:****Culverts:**

Basin	Str#	Count	Type	Width	Length	Dia.
A	CS-1	1	Reinforced Concrete Pipe		91'	30"
OFFSITE	Pump	1	Polyvinylchloride		112'	18"

**Gates:**

Basin	Str#	Count	Type	Width	Height	Invert Elev.
A	CS-1	1	Other	4'	4.3'	9.2

**Inlets:**

Basin	Str#	Count	Type	Width	Length	Dia.	Crest Elev.
A	CS-1	1	Fdot Mod E Drop Inlet	4.3'	5.8'		12.3
OFFSITE	Pump	1	Other	5.7'	8.4'		11.8

**Pumps:**

Basin	Str#	Count	Type	Capacity	Elev.
OFFSITE	Pump	1	Submersible	6cfs	5 (on) / 3.5 (off)

**Other Structures:** Note: The units for all the elevation values of structures are (ft, NAVD 88)

**Culverts:**

Basin	Str#	Count	Type	Width	Length	Dia.
C	CS-2	1	Reinforced Concrete Pipe		70'	24"

**Gates:**

Basin	Str#	Count	Type	Width	Height	Invert Elev.
C	CS-2	1	Other	4'	1.9'	

**Inlets:**

Basin	Str#	Count	Type	Width	Length	Dia.	Crest Elev.
C	CS-2	1	Fdot Mod E Drop Inlet	4.3'	5.8'		10.5

**WATER QUALITY :**

Powell Creek Filter Marsh is designed to provide a maximum water quality treatment volume of approximately 20.6 ac-ft. This is the volume of water in the filter marsh between elevations 9.2 ft. NAVD (4-ft bleeder elevation) and elevation 10.2 ft. NAVD. The latter is the stage at which the discharge rate exceeds the required maximum discharge of one inch of the detention volume in 24 hours plus the pump flow.

During day to day operations, the filter marsh will provide an average treatment volume of approximately 8.1 ac-ft. This is the volume of water in the filter marsh between the bleeder and elevation 9.6 ft. NAVD (the average stage that will be maintained in the marsh during operation).

An Urban Stormwater Management Program and Construction Pollution Prevention Plan specifications and guidelines are part of the required water quality. Construction and daily operation of the project shall be conducted in accordance with special conditions number 14 and 15. No adverse water quality impacts are anticipated as a result of the proposed project.

Basin	Treatment Method	Vol Req.d (ac-ft)	Vol Prov'd

Basin	Treatment Method		Vol Req'd (ac-ft)	Vol Prov'd
A	Treatment	Wet Detention	3.11	8.1

### WETLANDS:

The onsite wetlands total 6.06 acres and consist of 3.92 acres of stream swamp with exotics and 2.14 acres of disturbed freshwater marsh. Specifically, the 3.92 acres of stream swamp with exotics is a disturbed forested bottomland wetland that lies along Powell Creek just south of the offsite Forest Park development. It conveys channelized flows from the Forest Park residential community and discharges southwest through a segment of Powell Creek with relatively defined banks. Upper canopy vegetation includes: laurel oak, swamp bay, cypress, and scattered Bishopwood. Mid-canopy species noted include: popash, buttonbush, Walter's viburnum, groundsel tree, and varying degrees of Brazilian pepper. Herbaceous species include: day flower, paragrass, coastal cockspur, redbud panicum, primrose willow, goldenrod, white vine, marsh pennywort, taro, bog hemp, red ludwigia, swamp fern and creeping oxeye. The 2.14 acres of freshwater marsh is located in the southeast corner of the site and contains: primrose willow, southern cattail, Carolina willow, Alabama swamp sedge, paragrass, dog fennel, ragweed, Caesar weed, torpedo grass, arrowhead, pepper vine, white vine, pickerelweed, blue hyssop, climbing hempweed, and red ludwigia. Exotic coverage within this wetland habitat ranges from 50% to 75%. The abundance of ragweed, dog fennel, pepper vine, and Caesar weed around the perimeter of this wetland suggests it may be experiencing a reduced hydroperiod.

The site also contains 0.96 acres of other surface waters, which is the portion of Powell Creek that extends in a southwest direction across the site and intersects with the Powell Creek Bypass Canal at the west property line. Cypress, swamp bay, laurel oak, Carolina willow and cabbage palm can be found in the upper canopy along the creek banks. Mid-canopy species along the creek banks include Walter's viburnum, buttonbush, Brazilian pepper, and groundsel tree. Representative herbaceous species observed in the creek include: day flower, paragrass, coastal cockspur, redbud panicum, primrose willow, goldenrod, white vine, marsh pennywort, taro, bog hemp and red ludwigia. The total amount of onsite wetlands and other surface waters equals 7.02 acres. A FLUCCS map is attached as Exhibit 3.0.

### Wetland Impacts:

The applicant proposes to directly impact 0.37 acres of wetlands and other surface waters (OSW) onsite. The direct wetland and OSW impacts consist of 0.01 acres of OSW impacts for the installation of a 10 foot wide stabilized crossing over the Powell Creek located in the western portion of the site, 0.04 acres of OSW impacts for the installation of piping located along the northern property boundary, 0.04 acres of stream swamp impacts for the installation of piping along the northern property boundary, and 0.28 acres of disturbed freshwater marsh impacts for the construction of the perimeter berm in the southeast corner of the property.

Secondary wetland impacts have been assessed for the 25 foot wide areas immediately adjacent to portions of the direct wetland and OSW impacts described above. The secondary wetland impacts have been accounted for by the reduction of location and landscape support values for wetland enhancement areas 12, 13, and 14 in the Uniform Mitigation Assessment Method (UMAM) analysis shown in the Wetland Inventory Table below. There are a total of 0.28 acres of secondary impacts. They consist of 0.02 acres of OSW impacts adjacent to the 0.01 acres of OSW impacts for the installation of the 10 foot wide stabilized crossing over the Powell Creek located in the western portion of the site, and 0.26 acres of disturbed freshwater marsh impacts adjacent to the 0.28 acres of disturbed freshwater marsh impacts for the construction of the perimeter berm in the southeast corner of the property. A wetland impact map is attached as Exhibit 3.1.

## Mitigation Proposal:

Mitigation for wetland impacts resulting from construction of the proposed project will include the enhancement of 3.88 acres of on-site forested wetlands. The 3.88 acre mitigation area is identified as Wetland I.D. Number 4 in Exhibit 3.2 and is located in the north/central portion of the site. The 3.88 acres is comprised of a stream swamp habitat with 26% - 50% exotic coverage. The mitigation area will be cleared of exotics to enhance the wetland. It will not be incorporated into the filter marsh itself. The enhancement of the 3.88 acre mitigation area will compensate for the loss of 0.17 UMAM functional units associated with the wetland impacts for the project and provide a surplus of 0.33 functional units. The surplus 0.33 UMAM functional units may be used to offset future Lee County public works projects with approval from the District. The 3.88 acre mitigation plan is referred to as "Plan 1."

The following are the guidelines that will be used for all exotic species removal and maintenance for the on-site enhanced wetlands. All Category I and II exotic species (those species identified by the current Florida Exotic Pest Plant Council's list of most invasive plant species) will be treated with an appropriate herbicide and will be manually removed from the site. All branches and stems from cut trees or shrubs that are not removed from the site will be further cut to maximum four foot length segments to promote decomposition. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing will be discussed during the pre-application meeting with District staff and is subject to District approval.

In addition to the mitigation required to offset wetland impacts for this project, the applicant desires to conduct 64.86 acres of additional wetland enhancement, wetland creation, and upland preservation on-site beyond what is required as mitigation for this project. The intent is for this surplus mitigation to be used to offset future Lee County public works projects with the approval from the District (if mitigation is determined to be appropriate, on a case by case basis). The 64.86 acres of surplus mitigation activities will be referred to as "Plan 2." It is the applicant's desire that Plan 2 will only be implemented for wetland mitigation purposes if these activities do not preclude the ability of Lee County to obtain Total Maximum Daily Load (TMDL) credit for water quality improvements associated with the project. The location of the additional mitigation activities are shown in Exhibit 3.2 as polygon identification numbers 1, 2, 3, 5, 6, 12 through 25, and Up-1 through Up-21. In the event that implementation of the 64.86 acres of surplus mitigation activities may preclude the applicant from obtaining TMDL credit for water quality improvements for this project, the applicant reserves the right to remove the 64.86 acres of surplus mitigation from the proposed mitigation plan. While construction authorization is being granted with this application for the Plan 2 mitigation areas, mitigation credit for these areas is contingent upon completing additional tasks as identified in the monitoring/maintenance section of this staff report. The surplus mitigation generated by the Plan 2 mitigation areas is 7.99 UMAM functional units.

Plan 2 includes 2.77 acres of wetland enhancement, 18.18 acres of wetland creation and 43.91 acres of upland preservation. The locations of the 2.77 acres of surplus wetland enhancement are identified as polygon identification numbers 1, 2, 3, 5, 6, and 12, 13, and 14 in Exhibit 3.2. This wetland enhancement includes exotic/nuisance vegetation removal within stream swamp habitat type (FLUCCS Code 615E2) in the north/central portion of the property.

### Plan 2 - Wetland Creation (18.18 acres):

The wetland creation locations are identified as polygon identification numbers 15 - 25 on Exhibit 3.2. Wetland creation activities will entail the excavation of existing soil material to depths ranging from control elevation of 9.2' NAVD to elevation 5.0' NAVD. The control elevation for this project was set to be an additional 6 inches above the established wet season water table level of 8.6' NAVD. The additional 6 inches will allow for additional water quality treatment and hydration of the onsite wetlands. The project has a goal of storing a minimum of 1.5' of water in the wetlands over a period of 5 days. The grading activities will be conducted to create three different planting zones or ranges of depths. Following grading, the wetland creation area will be planted with native herbaceous species, as outlined in the Filter

Marsh Creation Planting Table shown on Exhibit 3.3. Planting Zone A is from Control elevation to 1.0' below control, and totals approximately 0.90 acres. Zone A will entail the planting of 4,356 medium hydroperiod wetland plant species on 3' average centers. Planting Zone B is from 1.0' below control elevation to 3.0' below control, and totals approximately 13.50 acres. Zone B will entail planting of 65,340 moderate to long hydroperiod, emergent wetland plant species on 3' average centers. Planting Zone C is from 3.0' below control elevation to 4.2' below control, and totals approximately 5.70 acres. Zone C will entail planting of 9,932 native wetland plant species on 5' average centers. Zone C will include plant species, such as fragrant water lily, big floatingheart and spatterdock, which are typical of long hydroperiod wetlands or permanently inundated conditions.

The applicant provided results of water quality tests conducted at the location of the proposed pump on the canal. It was determined that the canal water met Class III water standards. A settling pond will be constructed so that canal water will receive additional treatment prior to entering the filter marsh areas. The settling pond did not receive mitigation credit.

#### Plan 2 - Upland Preservation (43.91 acres):

The upland preservation locations are identified as polygon identification numbers Up-1 through Up-21 on Exhibit 3.2. Habitat types proposed for upland preservation include abandoned farm field, herbaceous, hardwood-conifer mix with exotics (1% - 25%) and disturbed land. Coverage of exotic and nuisance vegetation within these habitat types ranges from 0% to greater than 50%. Upland preservation will entail the eradication of all exotic and nuisance species similar to the methods used for wetland enhancement areas. Exotic vegetation may be mechanically harvested within upland preservation areas of dense (>75%) coverage upon prior approval from District compliance staff. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. A hydro-ax with a mowing attachment may be used to grind exotic trees and shrub material. Mechanized equipment will either have low tire pressure or be tracked. Areas mechanically cleared of exotics will be recontoured to natural grade if necessary. Following initial exotic and nuisance eradication, existing native habitats will be allowed to revegetate via natural recruitment.

This project will be incorporated into Lee County's 20/20 Land Management Plan. As such, the applicant proposes limited public access to the proposed project site. A 10 foot wide stabilized pedestrian trail surrounding the filter marsh will be constructed as well as a 0.37 acre parking area in the northeast corner of the property.

#### **Monitoring/Maintenance:**

##### Maintenance of Mitigation Areas:

A maintenance program shall be implemented in the Plan 1 and Plan 2 mitigation areas on a regular basis to insure the integrity and viability of the mitigation activities. The applicant reserves the right to cease maintenance of the Plan 2 mitigation activities for wetland mitigation credit purposes, inclusive of any areas not placed under a District Conservation Easement, in the event that implementation of Plan 2 for wetland mitigation may result in the inability to obtain TMDL credit for water quality improvements. The maintenance program for all mitigation areas placed under a conservation easement will be conducted in accordance with Exhibit 3.5.

##### Monitoring of Mitigation Areas:

Monitoring of the Plan 1 mitigation areas will commence upon issuance of this permit and project construction, pursuant to the schedule identified in Exhibit 3.5.

Monitoring of the 64.86 acre surplus mitigation areas (Plan 2) will initially be limited to a Baseline Monitoring Report and Time Zero Monitoring Report to document baseline conditions and time zero conditions of the Plan 2 mitigation areas immediately following the restoration activities. Additional annual monitoring events will initially not be required, as no mitigation credit is being granted by the District until a Conservation Easement over the Plan 2 mitigation areas is recorded in the Public Records of Lee County. To receive wetland mitigation credit for the Plan 2 surplus mitigation areas, the following will be required:

annual monitoring events must be conducted to verify successful completion of the mitigation success criteria and a mitigation work schedule update must be submitted to the District; a Conservation Easement will need to be recorded in accordance with Exhibit 3.7b; and written approval (permit modification) must be provided by the District granting the appropriate mitigation credit release based on the terms of the Plan 2 Mitigation Credit Release Schedule as shown in Exhibit 3.4. Monitoring transects and photo stations within the Plan 2 surplus mitigation areas are depicted on Exhibit 3.5 and include transects T1 - T5 and photo stations 1 - 5 and 7 - 11.

Transect T6 and photo station 6 will be used to monitor the 3.88 acre Plan 1 wetland enhancement area (Wetland ID Number 4). The locations of Transect T6 and photo station 6 are shown on Exhibit 3.5. The methodology of the monitoring is identified in Exhibit 3.5 and the work schedule outlined in Exhibit 3.6.

**Wetland Inventory:**

The following information corresponds to the table below:

Please note that the FLUCCS Code 200 listed on the table corresponds to the areas labeled as FLUCCS Code 261 (fallow crop land) in all environmental exhibits and referenced in this permit.

Please note that the total amount of surplus mitigation associated with Plan 1 is 0.33 UMAM functional units, not the 0.34 units listed on the table below. The discrepancy can be explained by rounding errors.

Please note that the total amount of surplus mitigation associated with Plan 2 is 7.99 UMAM function units, not the 7.97 units listed on the table below. The discrepancy can be explained by rounding errors.

**Wetland Inventory :**

## CONSTRUCTION NEW -Powell Creek Preserve Filter Marsh Plan 1

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
10	ON	510	Direct	.02	.63	.00				510	-.630	-.013
11	ON	641	Direct	.28	.43	.00				641	-.430	-.120
4	ON	615	Enhancement	3.88	.60	.77	2	1.25		615	.132	.512
7	ON	510	Direct	.01	.63	.00				510	-.630	-.006
8	ON	615	Direct	.04	.53	.00				615	-.530	-.021
9	ON	510	Direct	.02	.63	.00				510	-.630	-.013
<b>Total:</b>				4.25								.34

**Wetland Inventory :**

## CONSTRUCTION NEW -Powell Creek Preserve Filter Marsh Plan 2

Site Id	Site Type	Pre-Development				Post-Development						
		Pre Fluc cs	AA Type	Acreage (Acres)	Current Wo Pres	With Project	Time Lag (Yrs)	Risk Factor	Pres. Adj. Factor	Post Fluccs	Adj Delta	Functional Gain / Loss
1	ON	641	Enhancement	1.60	.43	.73	2	1.50		641	.194	.311
12	ON	641	Enhancement	.26	.43	.63	2	1.50		641	.129	.034
13	ON	510	Enhancement	.01	.63	.67	2	1.25		510	.031	.000
14	ON	510	Enhancement	.01	.63	.67	2	1.25		510	.031	.000
15	ON	434	Restoration/Creation	2.66						641		
16	ON	434	Restoration/Creation	1.31						641		
17	ON	310	Restoration/Creation	.21						641		
18	ON	434	Restoration/Creation	6.43						641		
19	ON	200	Restoration/Creation	2.98	.00	.80	2	2.00		641	.388	1.157
2	ON	510	Enhancement	.29	.63	.77	1	1.25		510	.112	.032
20	ON	310	Restoration/Creation	.22						641		
21	ON	310	Restoration/Creation	.03						641		
22	ON	434	Restoration/Creation	1.95						641		
23	ON	740	Restoration/Creation	.82	.00	.80	2	2.00		641	.388	.318
24	ON	434	Restoration/Creation	1.53						641		
25	ON	740	Restoration/Creation	.04	.00	.80	2	2.00		641	.388	.016
3	ON	510	Enhancement	.06	.63	.77	1	1.25		510	.112	.007
5	ON	510	Enhancement	.16	.63	.77	1	1.25		510	.112	.018
6	ON	510	Enhancement	.38	.63	.77	1	1.25		510	.112	.043
Up 1	ON	434	Preservation	11.19	.60	.80	2	1.25	.90	434	.140	1.564
Up 10	ON	434	Preservation	.77	.60	.80	2	1.25	.90	434	.140	.108
Up 11	ON	740	Preservation	1.46	.45	.70	6 - 10	1.50	.90	434	.120	.175
Up 12	ON	310	Preservation	.20	.60	.80	2	1.25	.90	310	.140	.028
Up 13	ON	434	Preservation	.54	.60	.80	2	1.25	.90	434	.140	.075



## CONSTRUCTION NEW -Powell Creek Preserve Filter Marsh Plan 2

Site Id	Site Type	Pre-Development				Post-Development						
Up 14	ON	310	Preservation	1.97	.60	.80	2	1.25	.90	310	.140	.275
Up 15	ON	434	Preservation	.33	.60	.80	2	1.25	.90	434	.140	.046
Up 16	ON	200	Preservation	1.03	.50	.75	6 - 10	1.50	.90	434	.120	.124
Up 17	ON	200	Preservation	2.61	.50	.75	6 - 10	1.50	.90	434	.120	.313
Up 18	ON	434	Preservation	.33	.60	.80	2	1.25	.90	434	.140	.046
Up 19	ON	434	Preservation	.90	.60	.80	2	1.25	.90	434	.140	.126
Up 2	ON	434	Preservation	7.47	.60	.80	2	1.25	.90	434	.140	1.044
Up 20	ON	740	Preservation	.04	.45	.70	6 - 10	1.50	.90	434	.120	.005
Up 21	ON	434	Preservation	.20	.50	.75	6 - 10	1.50	.90	434	.120	.024
Up 3	ON	434	Preservation	8.41	.60	.80	2	1.25	.90	434	.140	1.176
Up 4	ON	434	Preservation	.92	.60	.80	2	1.25	.90	434	.140	.129
Up 5	ON	434	Preservation	.92	.60	.80	2	1.25	.90	434	.140	.129
Up 6	ON	434	Preservation	2.30	.60	.80	2	1.25	.90	434	.140	.322
Up 7	ON	434	Preservation	1.19	.60	.80	2	1.25	.90	434	.140	.166
Up 8	ON	434	Preservation	.14	.60	.80	2	1.25	.90	434	.140	.020
Up 9	ON	434	Preservation	.99	.60	.80	2	1.25	.90	434	.140	.138
<b>Total:</b>				64.86								7.97

<u>Fluccs Code</u>	<u>Description</u>
200	Agriculture
310	Herbaceous
434	Hardwood - Conifer Mixed
510	Streams And Waterways
615	Stream And Lake Swamps (Bottomland)
641	Freshwater Marshes
740	Disturbed Lands

**Wildlife Issues:**

The project site currently does not contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. No wetland-dependent endangered/threatened species or species of special concern were observed onsite during a June 2009 Protected Species Survey. However, the proposed project will create 18.18 acres of wetlands and enhance 6.65 acres of wetlands that may potentially be suitable habitat for wetland-dependent endangered/threatened species or species of special concern. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

**LEGAL ISSUES:**

A total of 3.88 acres of wetlands will be placed under conservation easement to offset the functional loss associated with the proposed project. Please see the attached Exhibit 3.7a. If the applicant desires to conduct and receive surplus mitigation credits for the 64.86 acres of additional wetland enhancement, wetland creation, and upland enhancement/preservation on-site beyond what is required for mitigation for the project, the applicant must revise the conservation easement to include the additional acreage and record it in the Public Records of Lee County. This is reflected in Exhibit 3.7b.

**CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:**

It is suggested that the permittee retain the services of a Professional Engineer registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

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

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

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

**RELATED CONCERNS:****Water Use Permit Status:**

The applicant has indicated that irrigation and dewatering activities are not required for construction of this project.

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

**CERP:**

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

**Potable Water Supplier:**

Not applicable.

**Waste Water System/Supplier:**

Not applicable.

**Right-Of-Way Permit Status:**

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

**DRI Status:**

This project is not a DRI.

**Historical/Archeological Resources:**

The District has received correspondence from the Florida Department of State, Division of Historical Resources dated November 12, 2009 indicating that no significant archaeological or historical resources are recorded within the project area. Furthermore, because of the location and/or nature of the project, it is unlikely that any such site will be affected. This permit does not release the permittee from compliance with any other agencies' requirements in the event that historical and/or archaeological resources are found on the site.

**DCA/CZM Consistency Review:**

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

**Third Party Interest:**

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

**Enforcement:**

There has been no enforcement activity associated with this application.

**STAFF REVIEW:**

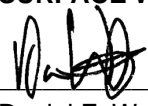
**DIVISION APPROVAL:**

**NATURAL RESOURCE MANAGEMENT:**

  
\_\_\_\_\_  
Laura Layman

**DATE:** 8/31/11

**SURFACE WATER MANAGEMENT:**

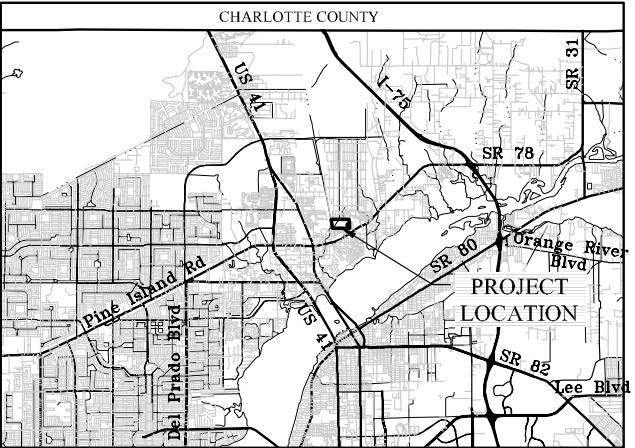
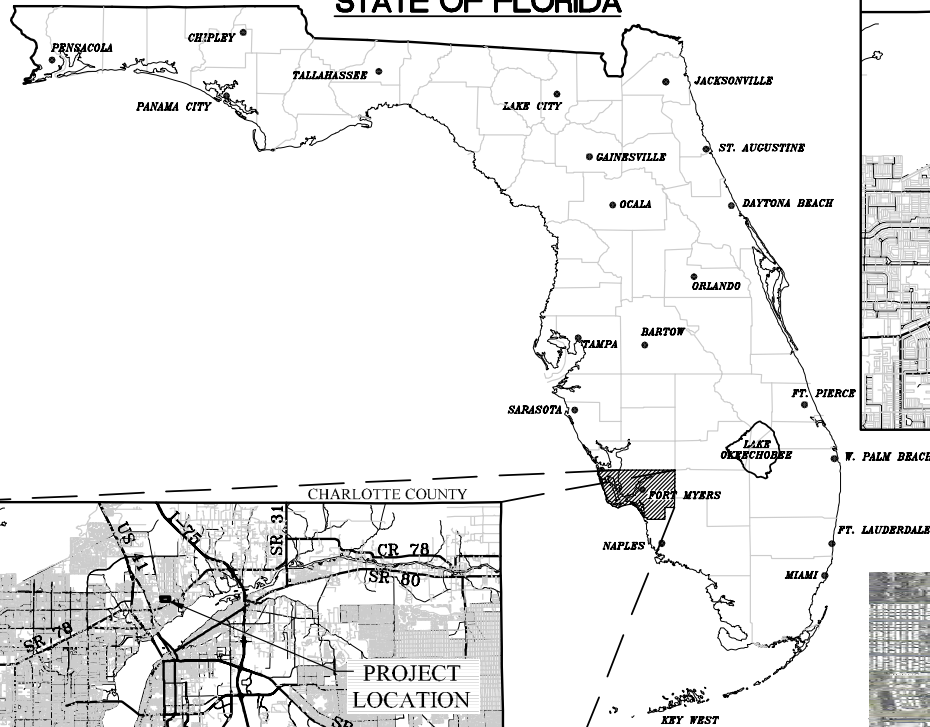
  
\_\_\_\_\_  
Daniel F. Waters, P.E.

**DATE:** 8/31/11

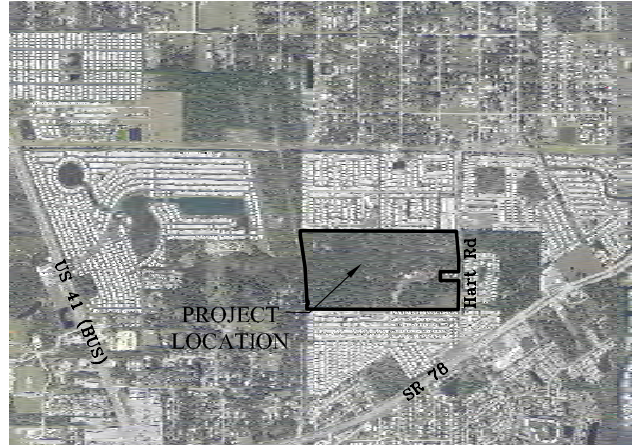
\\Fms01\proj-jet\20034378-04\DRAWINGS\DO Set\034378-04-LOCATION MAP.dwg (LEE-ERP) jet Apr 16, 2009 - 9:24am



**STATE OF FLORIDA**



**STREET MAP**  
N.T.S.



**VICINITY AERIAL**  
N.T.S.

SEC 36 - TSP 43S - RGE 24E  
LATITUDE N26°41'28", LONGITUDE W81°52'15"

*Gulf of Mexico*

**NOTES:**  
These Drawings are for Permitting Purposes only and are NOT intended for construction use.

**DRIVING DIRECTIONS:**  
From I-75, Go West on SR 78, Turn North onto Hart Rd. Project Location is ±1/4 mi. North of SR 78.

**LEE COUNTY**  
N.T.S.

**POWELL CREEK PRESERVE  
FILTER MARSH**



2122 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (239) 334-0046  
FAX (239) 334-3661  
E.B. #642 & L.B. #642

**LOCATION MAP**

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
APRIL, 2009	20034378-04	36-43-24	N.T.S.	1

**Exhibit 1.0**  
**Application No. 091030-14**  
**Page 1 of 1**

<b>OWNER</b>
LEE COUNTY P.O. BOX 398 FORT MYERS, FLORIDA 33902 PHONE: (239) 335-2269
<b>STRAP NUMBER</b>
36-43-24-00-00002.0000
<b>SIZE OF PARCEL</b>
TOTAL = 77.2 ACRES
<b>ZONING</b>
AG-2

# CONSTRUCTION PLANS FOR POWELL CREEK PRESERVE FILTER MARSH



**BOARD OF COUNTY COMMISSIONERS**

- BOB JANES (DISTRICT 1)
- BRIAN BIGELOW (DISTRICT 2)
- RAY JUDAH (DISTRICT 3)
- TAMMY HALL (DISTRICT 4)
- FRANK MANN (DISTRICT 5)

**COUNTY MANAGER**

KAREN B. HAWES

**PUBLIC WORKS DIRECTOR**

JIM LAVENDER, P.E.

**NATURAL RESOURCES DIRECTOR**

ROLAND OTTOLINI, P.E.

**COUNTY PROJECT MANAGER**

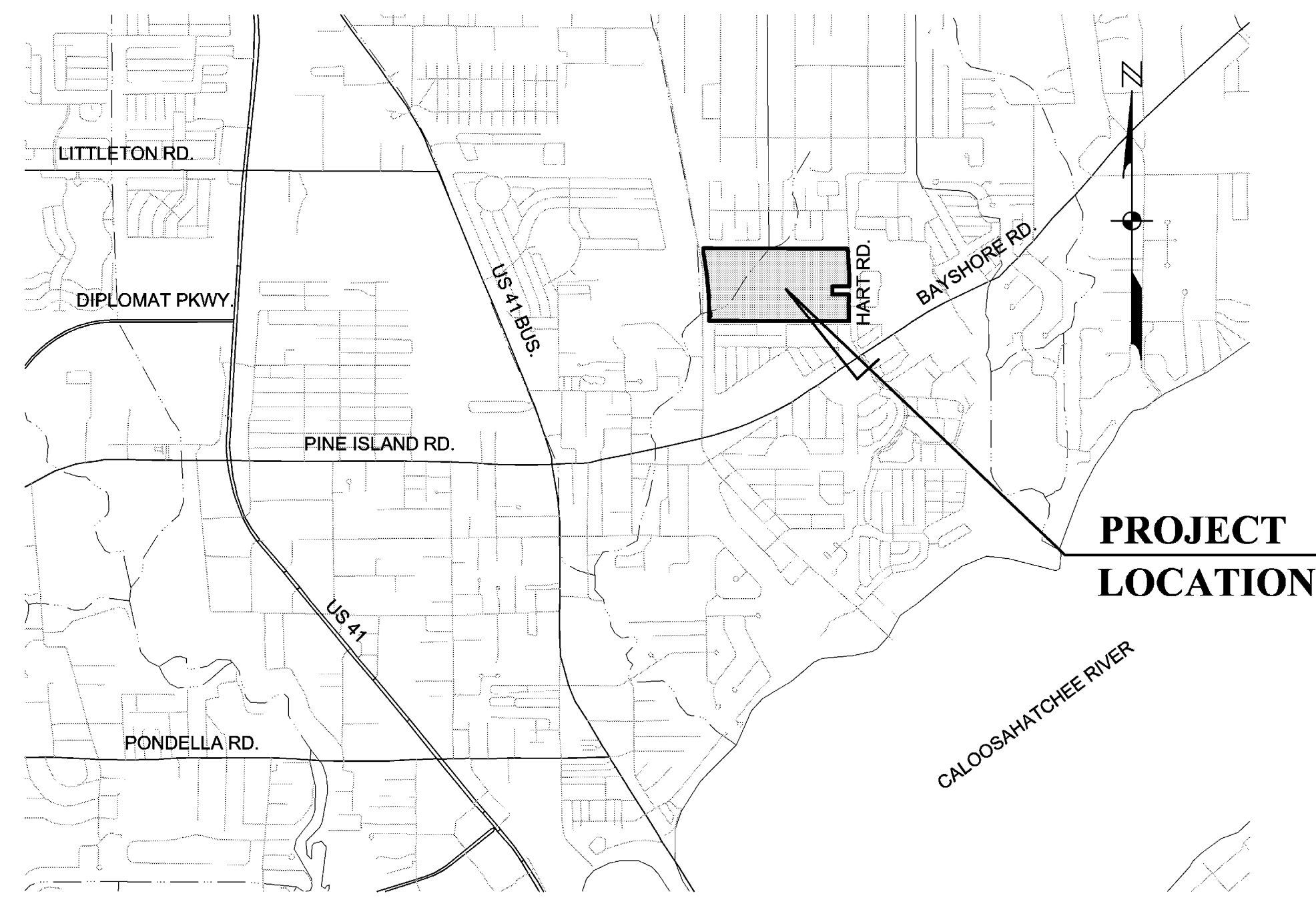
ANURA KARUNA-MUNI, P.E.

## SECTION 36, TOWNSHIP 43 S, RANGE 24 E LEE COUNTY, FLORIDA

**INDEX OF PLANS**

SHEET NO.	DESCRIPTION
C-01	COVER
C-02	GENERAL NOTES, LEGENDS AND ABBREVIATIONS
C-03	AERIAL MAP
C-04	TOPOGRAPHIC MAP
C-05	SOILS MAP
C-06	FEMA MAP
C-07	EXISTING CONDITIONS & FLUCFCS MAP
C-08	WETLAND IMPACT MAP
C-09	ONSITE MITIGATION PLAN
C-10	PROPOSED CONDITION MAP
C-11	MITIGATION PLANTING LOCATION MAP
C-12	EXISTING DRAINAGE MAP
C-13	EROSION CONTROL PLAN
C-14	SITE AND DRAINAGE PLAN
C-15	GRADING PLAN
C-16-C-18	TYPICAL SECTIONS
C-19-C-20	DRAINAGE DETAILS
C-21	SUBMERSIBLE ELECTRIC WATER PUMP DETAIL

**ATTACHMENTS:**  
R-01-R-02 FDOT STANDARD DETAILS



**LOCATION MAP**  
0 2000 4000  
SCALE IN FEET

SEPTEMBER, 2009  
REVISED: MARCH, 2010

THIS IS TO CERTIFY THAT THESE PLANS FOR THE ASSOCIATED CONSTRUCTION PROJECT ARE IN SUBSTANTIAL COMPLIANCE WITH THE LEE COUNTY LAND DEVELOPMENT CODE WITH THE EXCEPTION OF THE FOLLOWING DEVIATIONS WHICH HAVE BEEN APPROVED BY THE DIRECTOR OF PUBLIC WORKS.  
LIST OF DEVIATIONS:  
1) BANK SLOPES ON FILTER MARSH ARE 4:1 INSTEAD OF 6:1 AS REQUIRED IN LDC SEC 10-329 (d) (4) a

ENGINEER OF RECORD	DEVELOPMENT ORDER APPROVED
RICARDO ACOSTA, PE FLORIDA LICENSE NO. 69121	LEE COUNTY PUBLIC WORKS ADMINISTRATOR
DATE	DATE
	JIM LAVENDER DIRECTOR OF PUBLIC WORKS

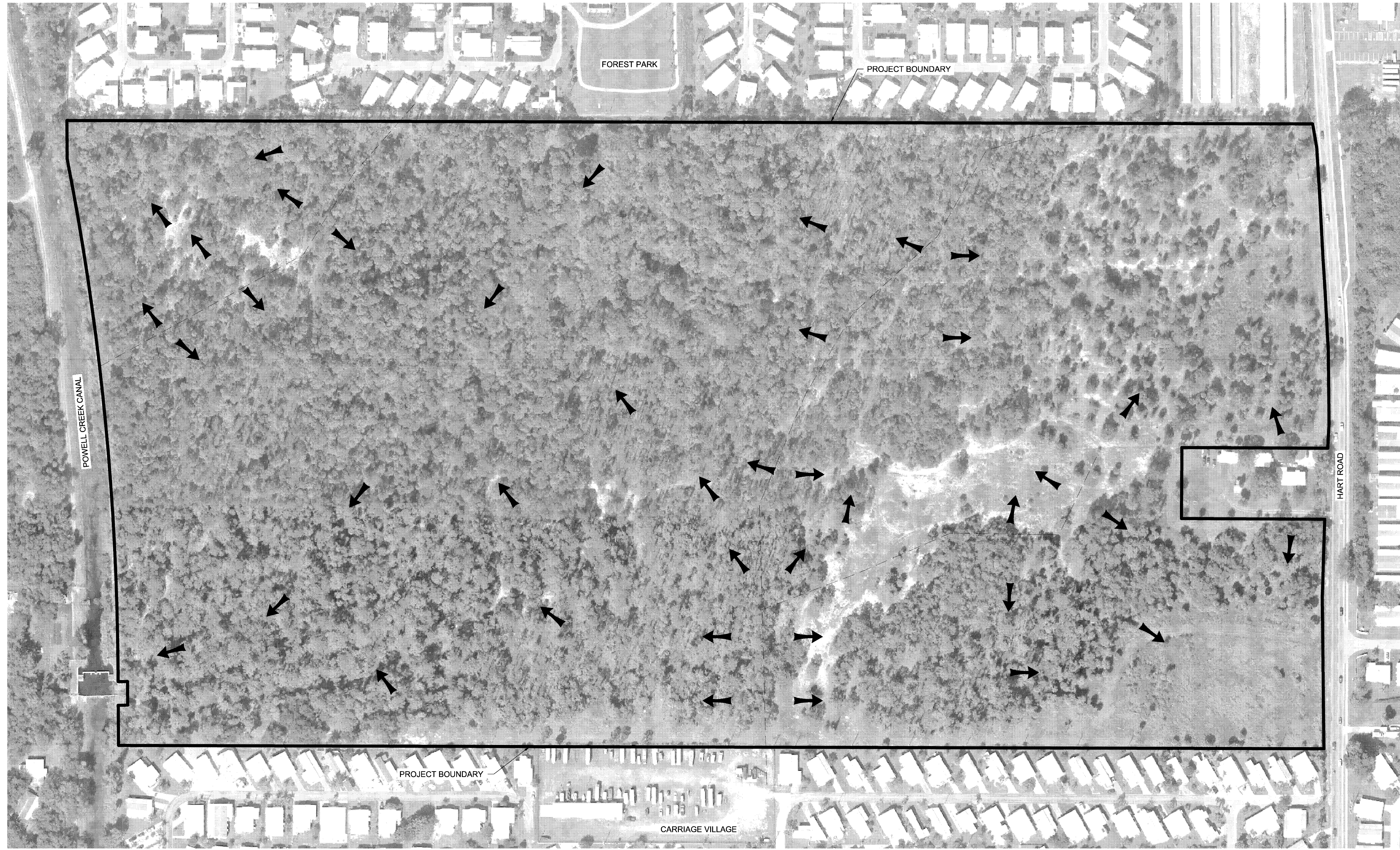


2122 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (239) 334-0046  
FAX (239) 334-3661  
E.B. #642 & L.B. #642

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SHEET NUMBER  
SFWMD PERMIT SET **C-01**





**JOHNSON ENGINEERING**  
 2122 JOHNSON STREET  
 P.O. BOX 1550  
 FORT MYERS, FLORIDA 33902-1550  
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 E.B. #642 & L.B. #642

RICARDO ACOSTA, PE  
 FL License No. 68121

Lee County Division  
 of Natural Resources

Powell Creek Preserve Filter Marsh  
 Lee County, Florida

NO.	DESCRIPTION	DATE
1	REVISIONS PERTAINING TO COMMENTS	08/20/09

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

EXISTING DRAINAGE MAP

SHEET NUMBER

C-12

\\flm01\geoparc\20034378-04\DRM\NGS\DO\_Set\034378-04-EDM.dwg (EDM) on May 12, 2011 - 11:50am



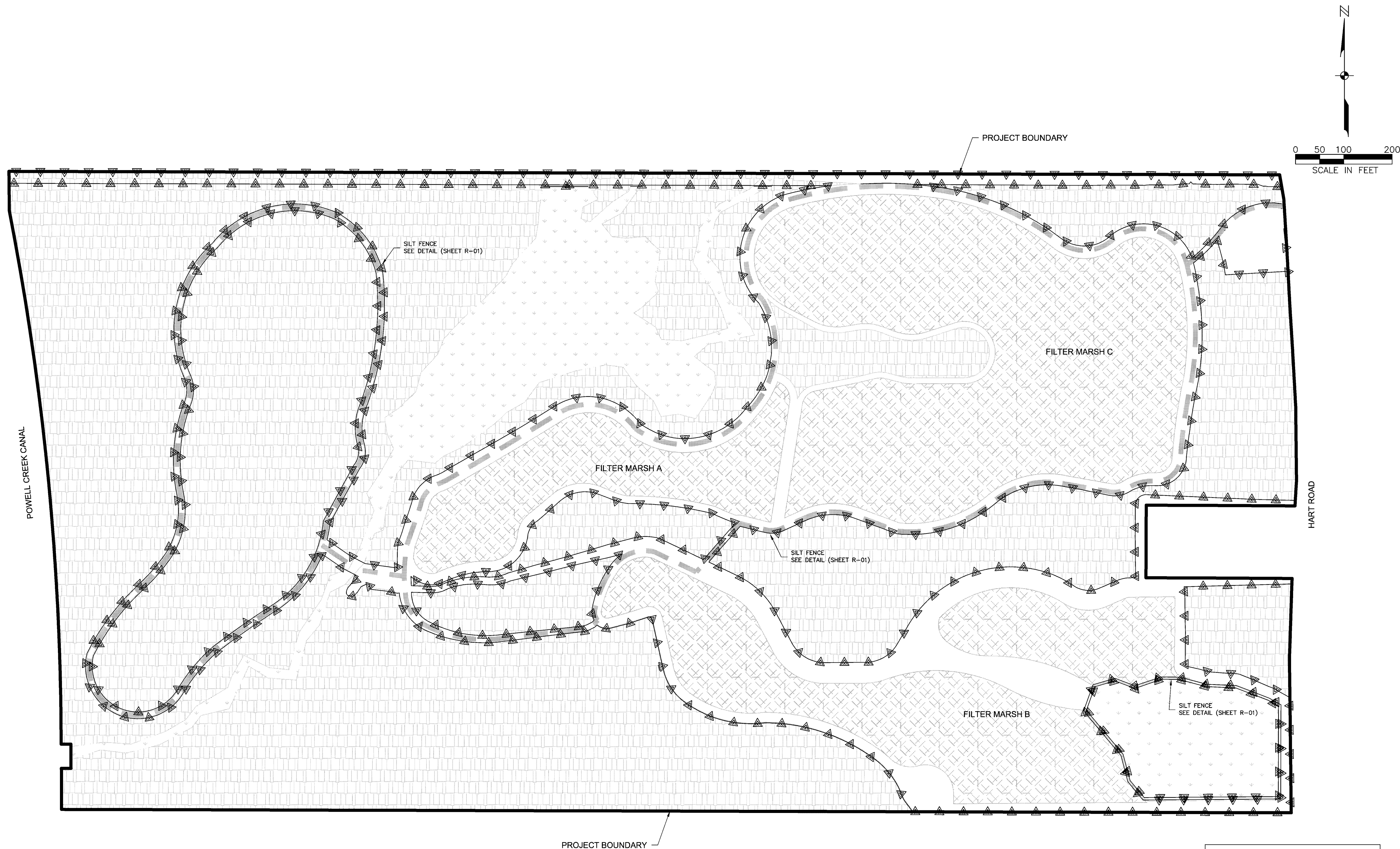
NO.	DESCRIPTION	DATE
1	REVISIONS PER PERMIT COMMENTS	08/20/11

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

EROSION CONTROL PLAN

SHEET NUMBER

C-13



**LEGEND**

	EXISTING UPLAND
	EXISTING WETLAND
	FILTER MARSH CREATION
	SILT FENCE

**NOTES:**  
 ALL EROSION CONTROL MEASURES SHOWN ARE RECOMMENDED AND MAY BE MODIFIED AS NEEDED BY THE CONTRACTOR DEPENDING ON SITE CONDITIONS.  
 ALL SILT FENCE AND SAFETY BARRIER/ SNOW FENCE TO REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION.  
 SILT FENCE AND/ OR SAFETY BARRIER/ SNOW FENCE TO BE PLACED AROUND ALL "NATIVE VEGETATION TO REMAIN".  
 TRAILS THROUGH NATURAL AREAS TO BE FIELD ADJUSTED AS NEEDED TO PRESERVE EXISTING VEGETATION.

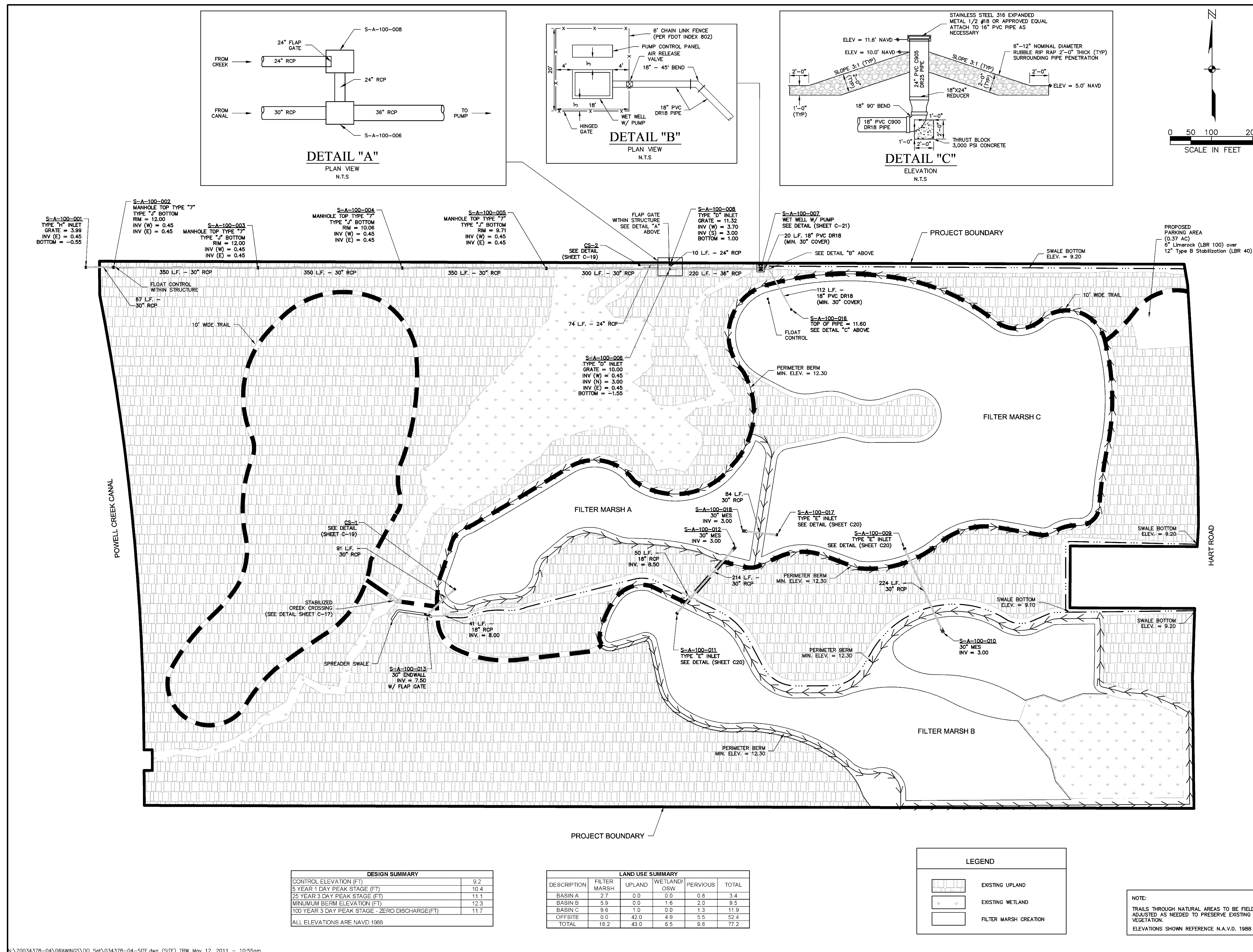
NO.	REVISIONS	DATE
1	REVISIONS PERFORMED COMMENTS	09/20/10

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034379-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

SITE AND DRAINAGE PLAN

SHEET NUMBER

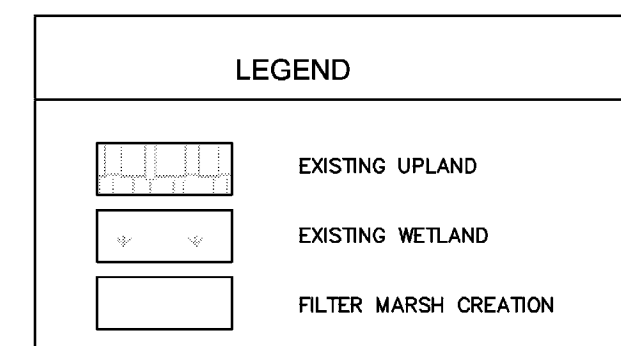
C-14



DESIGN SUMMARY	
CONTROL ELEVATION (FT)	9.2
5 YEAR 1 DAY PEAK STAGE (FT)	10.4
25 YEAR 3 DAY PEAK STAGE (FT)	11.1
MINIMUM BERM ELEVATION (FT)	12.3
100 YEAR 3 DAY PEAK STAGE - ZERO DISCHARGE (FT)	11.7

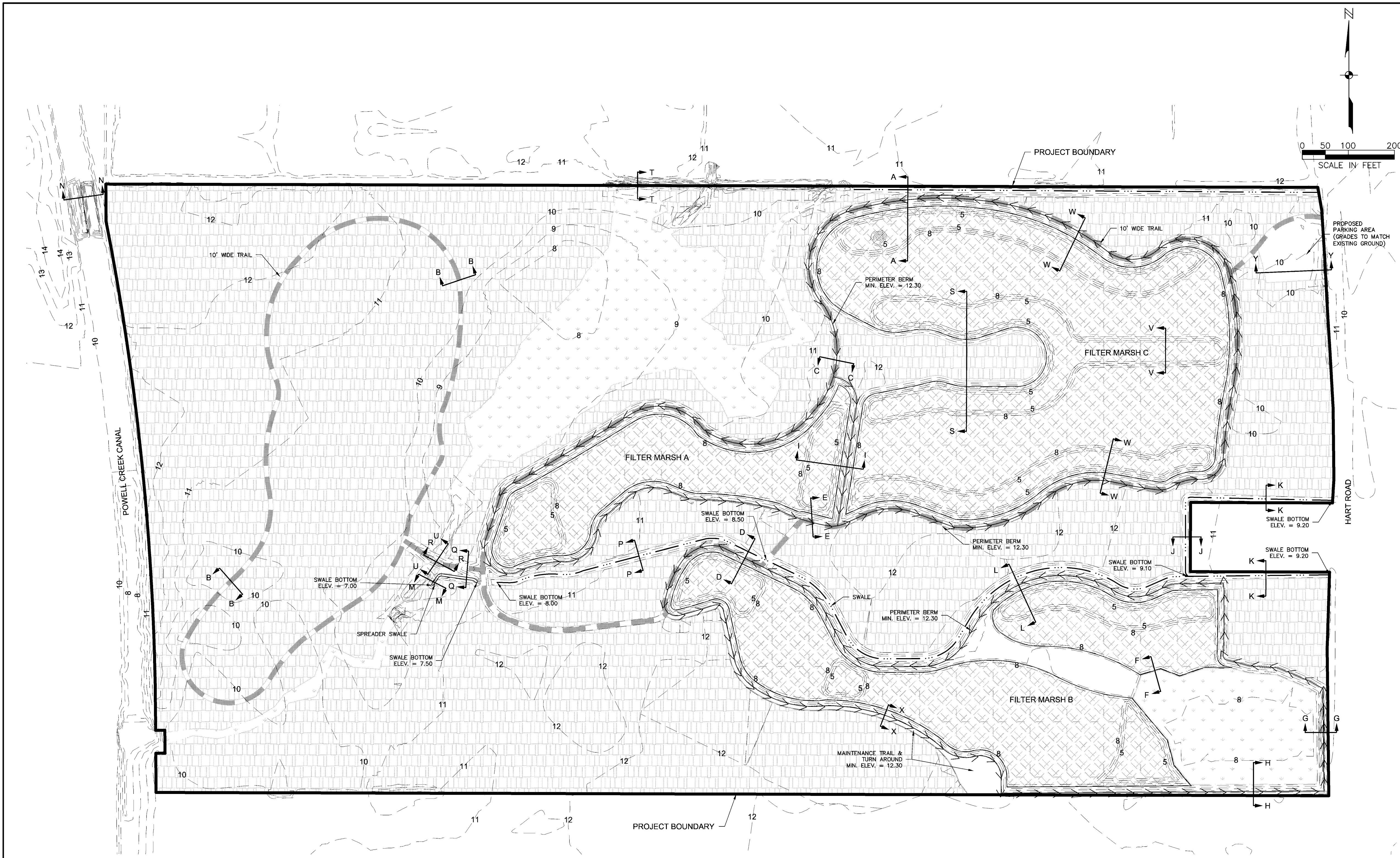
ALL ELEVATIONS ARE NAVD 1988

DESCRIPTION	LAND USE SUMMARY				TOTAL
	FILTER MARSH	UPLAND	(WETLAND) OSW	PERVIOUS	
BASIN A	2.7	0.0	0.0	0.8	3.4
BASIN B	5.9	0.0	1.6	2.0	9.5
BASIN C	9.6	1.0	0.0	1.3	11.9
OFFSITE	0.0	42.0	4.9	5.5	52.4
TOTAL	18.2	43.0	6.5	9.6	77.2



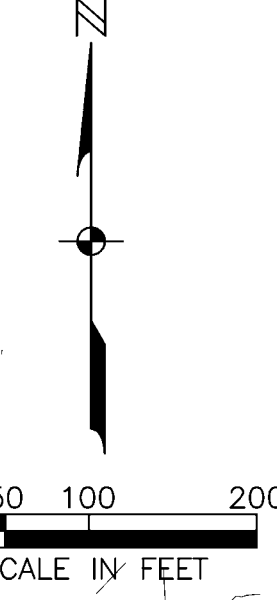
NOTE:  
 TRAILS THROUGH NATURAL AREAS TO BE FIELD ADJUSTED AS NEEDED TO PRESERVE EXISTING VEGETATION.  
 ELEVATIONS SHOWN REFERENCE N.A.V.D. 1988

N:\20034379-04\DRAWINGS\DO\_Set\034379-04-SITE.dwg (SITE) TRW\_May\_12\_2011 - 10:55am



**JOHNSON ENGINEERING**  
 2122 JOHNSON STREET  
 P.O. BOX 1550  
 FORT MYERS, FLORIDA 33902-1550  
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 FAX (239) 334-3661  
 E.B. #642 & L.B. #642

RICARDO ACOSTA, PE  
 FL License No. 68121



Lee County Division  
 of Natural Resources

Powell Creek Preserve Filter Marsh  
 Lee County, Florida

NO.	REVISIONS / DESCRIPTION	DATE
1	REVISIONS PERTAINING COMMENTS	08/20/09

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

GRADING PLAN

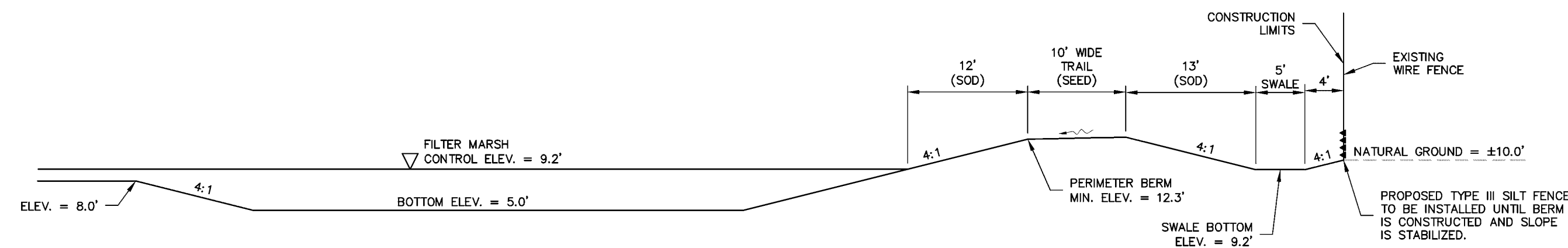
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**C-15**

LEGEND	
	EXISTING UPLAND
	EXISTING WETLAND
	FILTER MARSH CREATION
	PROPOSED TRAIL

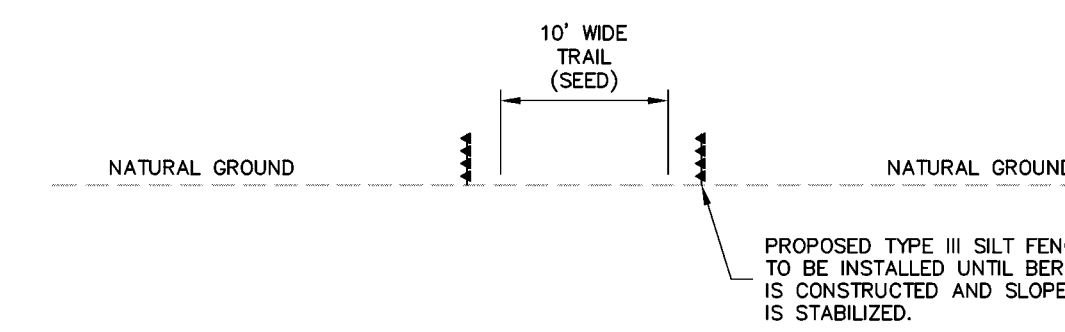
**A** A TYPICAL DRAINAGE SECTION  
 SEE SHEETS C-16, C-17 AND  
 C-18 FOR SECTIONS  
 ELEVATIONS SHOWN REFERENCE N.A.V.D. 1988

NOTES:  
 • TRAILS THROUGH NATURAL AREAS TO BE FIELD ADJUSTED AS NEEDED TO PRESERVE EXISTING VEGETATION.  
 • THE UPPER 6" OF TOP SOIL FROM IMPACTED WETLANDS AND UPLANDS WILL BE STOCK PILED AND USED IN FILTER MARSH CREATED AREAS.

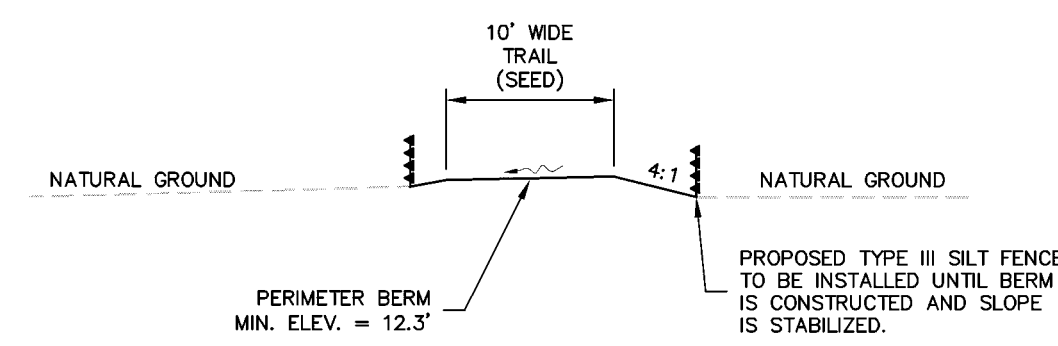
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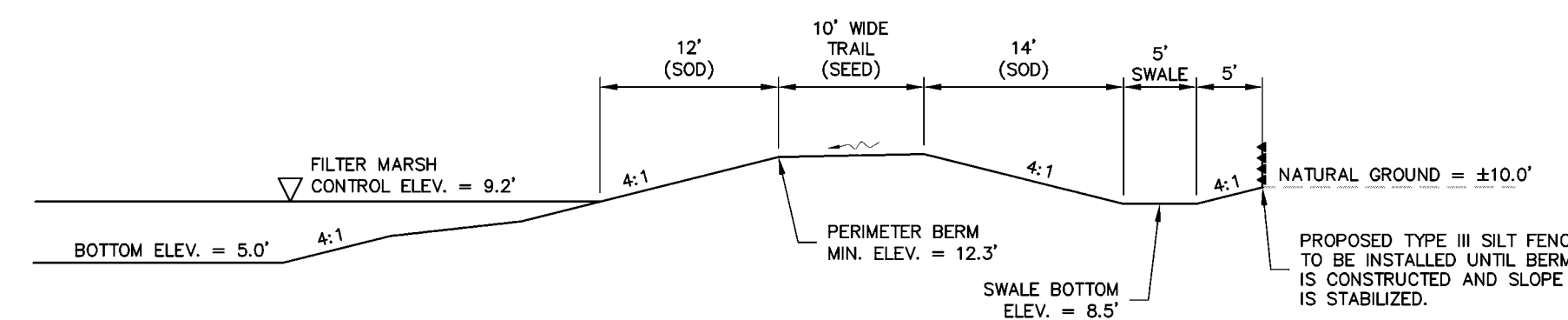
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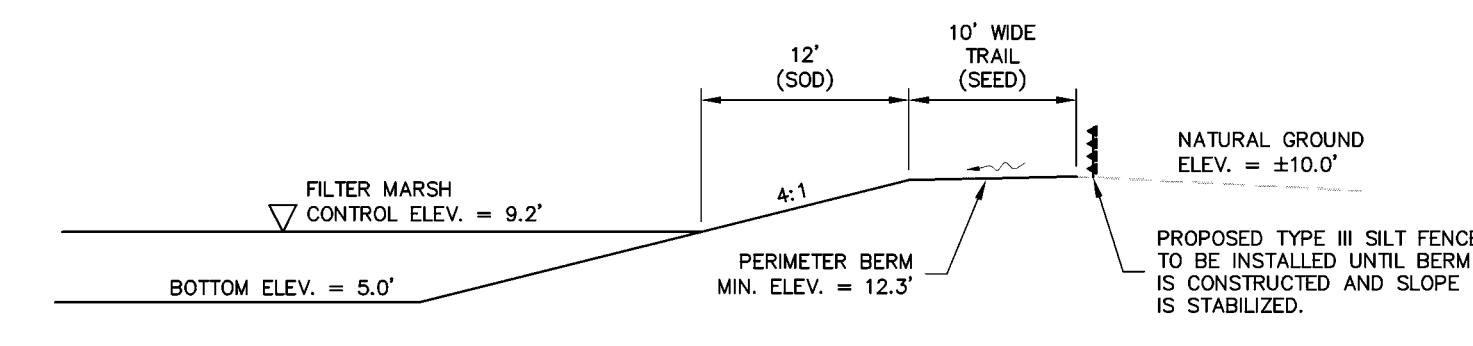
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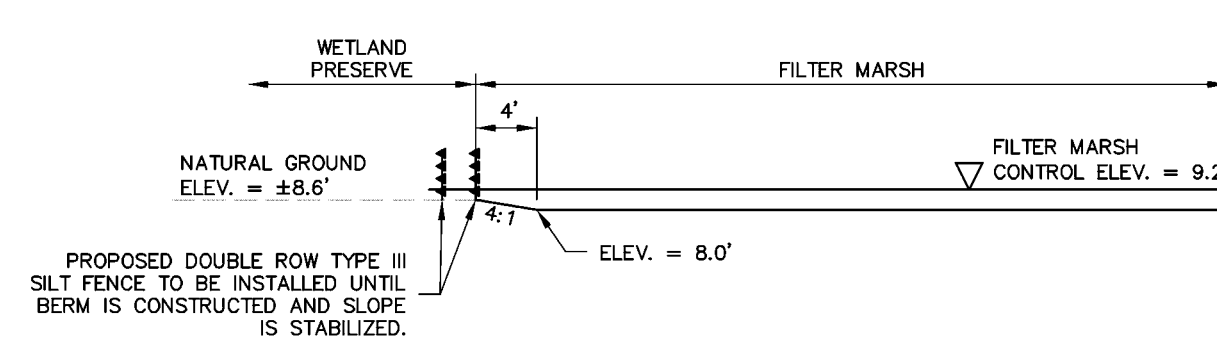
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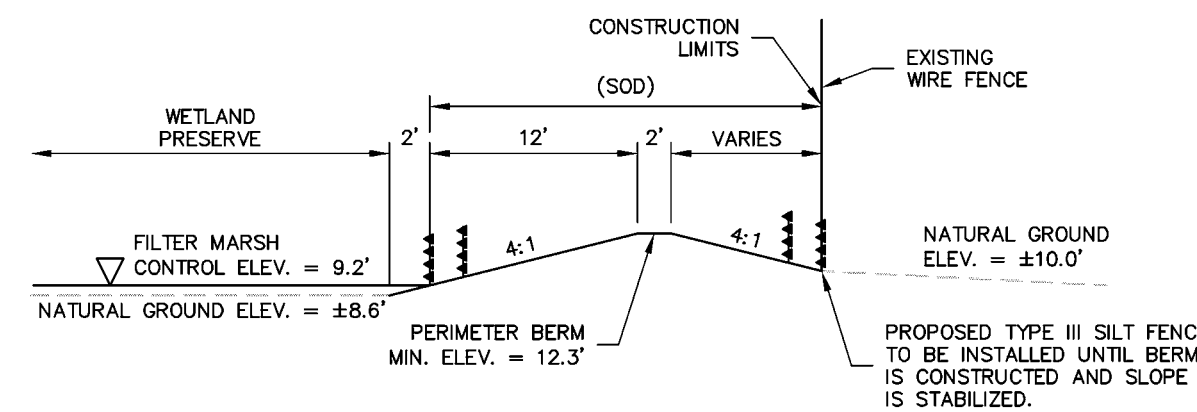
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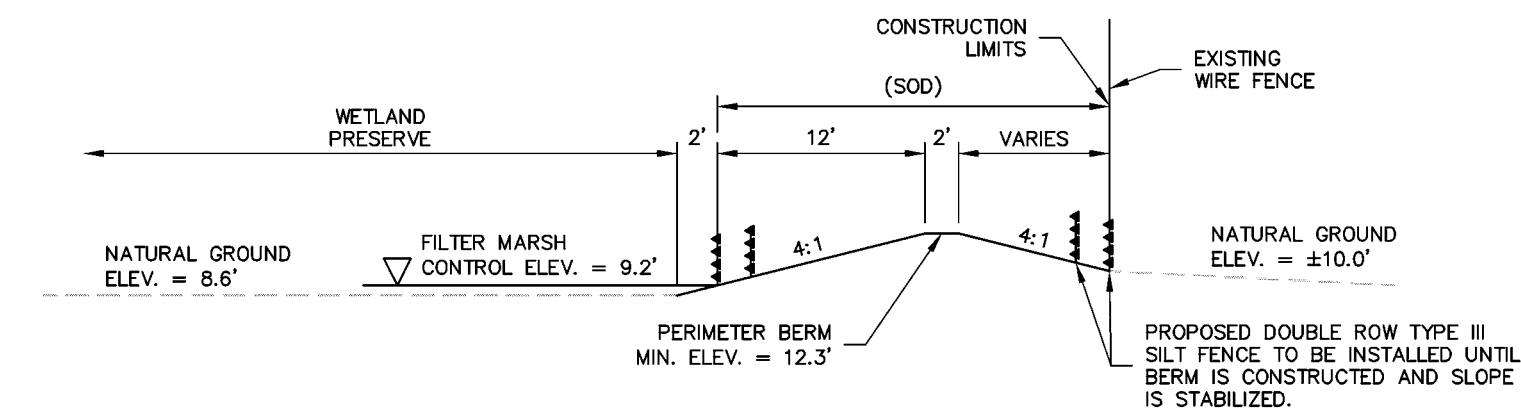
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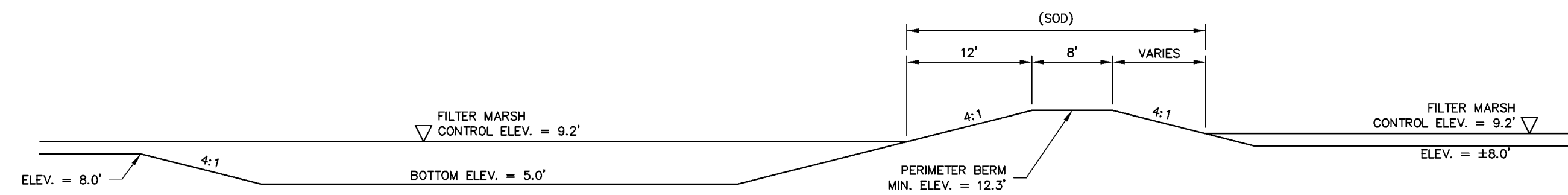
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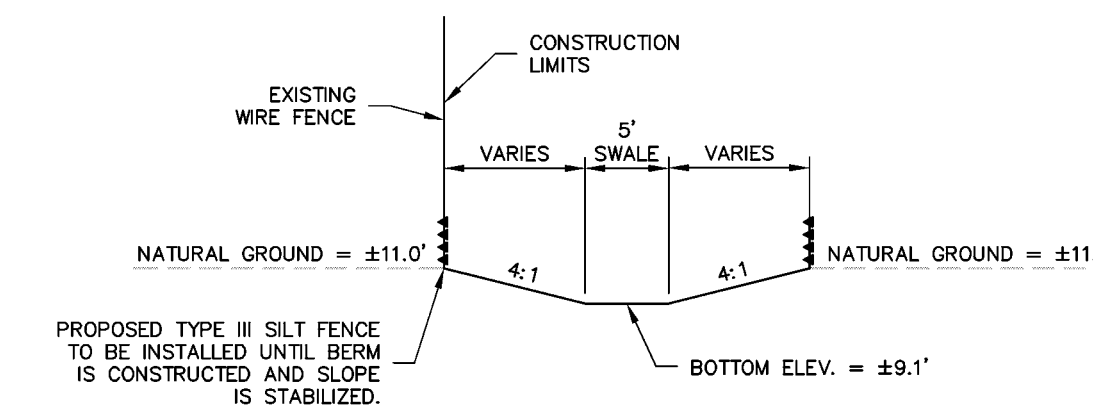
**SECTION G-G**  
 SCALE: 1" = 10'



**SECTION H-H**  
 SCALE: 1" = 10'



**SECTION I-I**  
 SCALE: 1" = 10'



**SECTION J-J**  
 SCALE: 1" = 10'

NO.	REVISIONS PERFORMED	DATE
1	REVISIONS PERFORMED COMMENTS	08/20/09

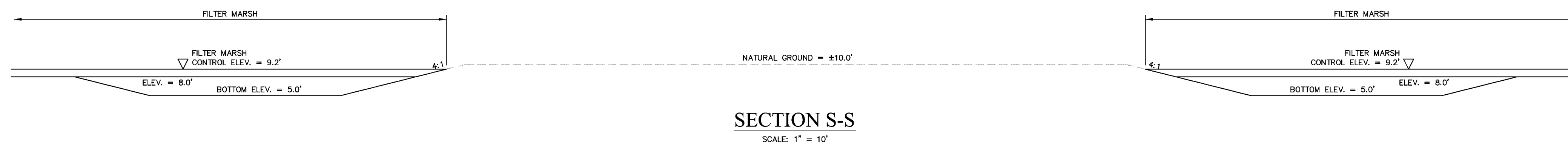
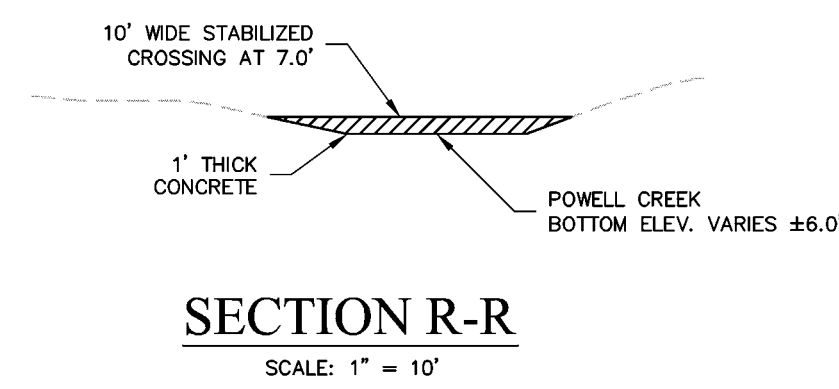
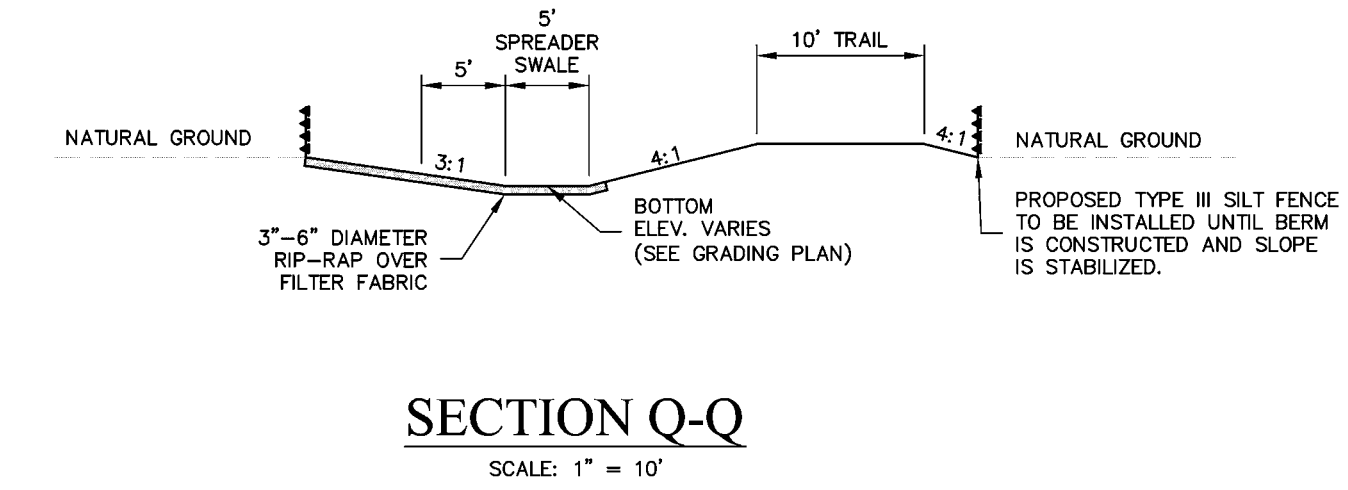
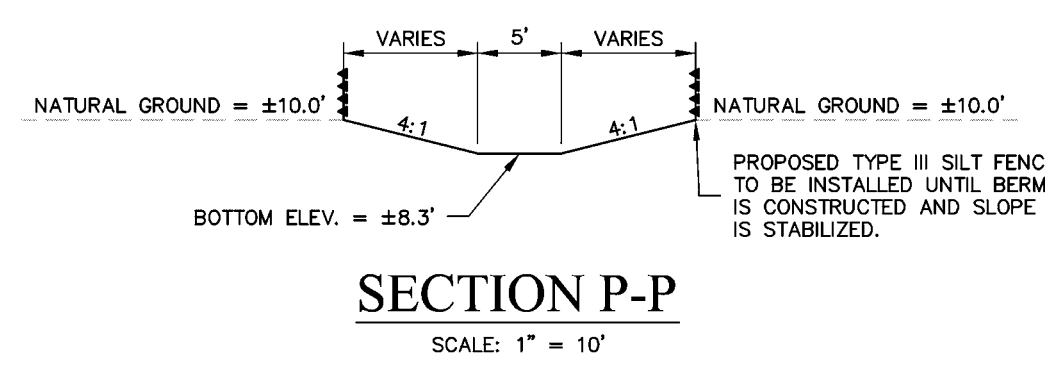
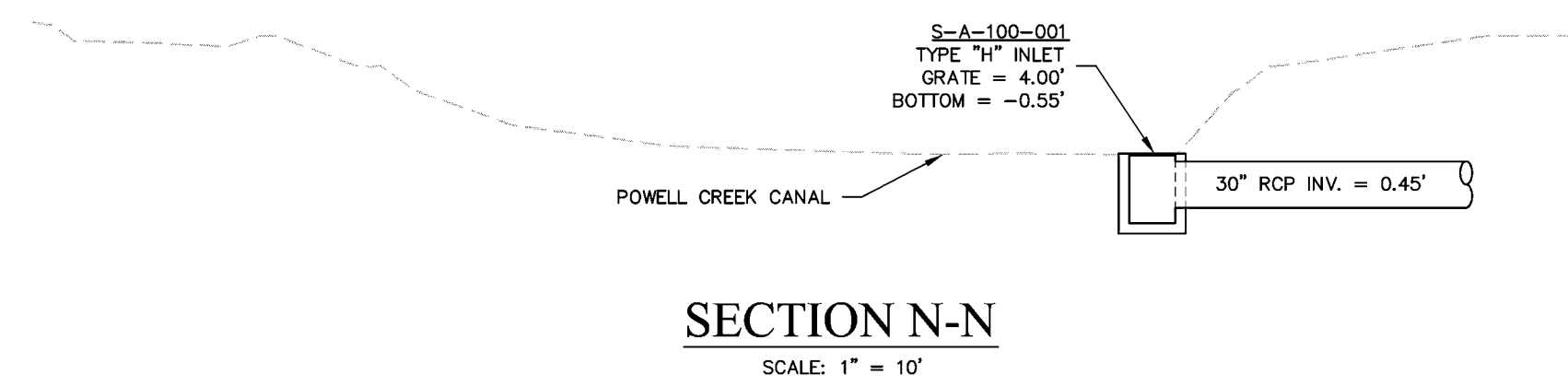
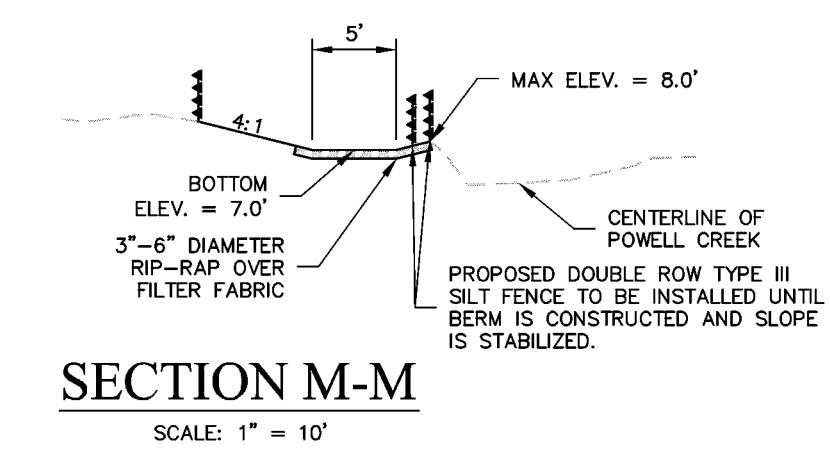
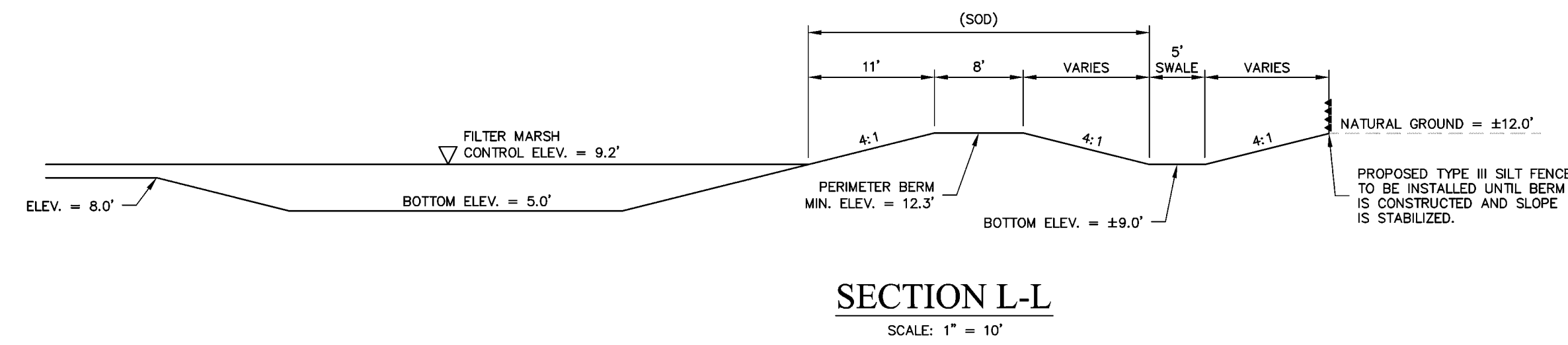
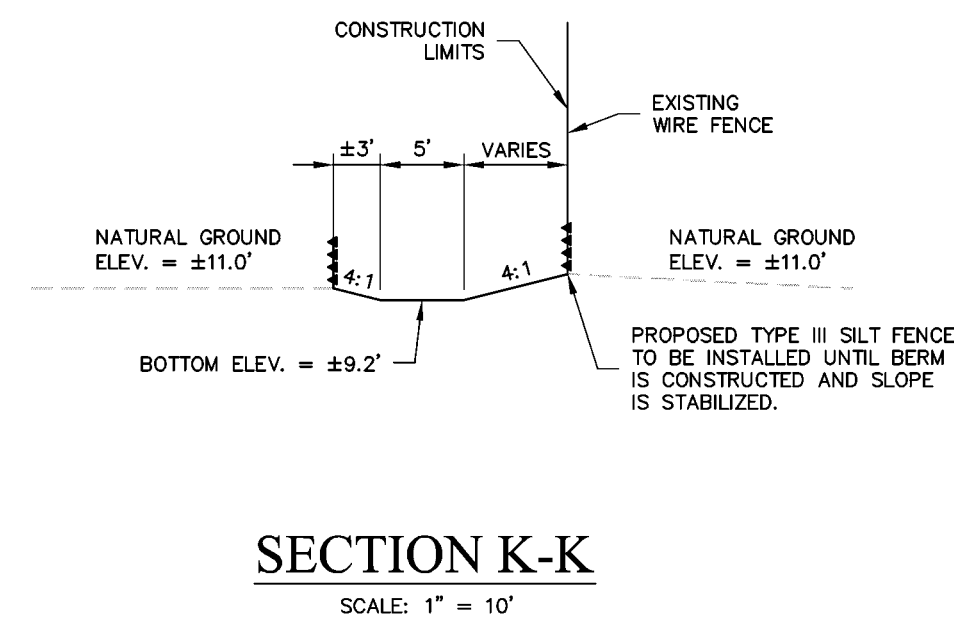
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 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: As Shown

TYPICAL  
 SECTIONS

SHEET NUMBER

**C-16**

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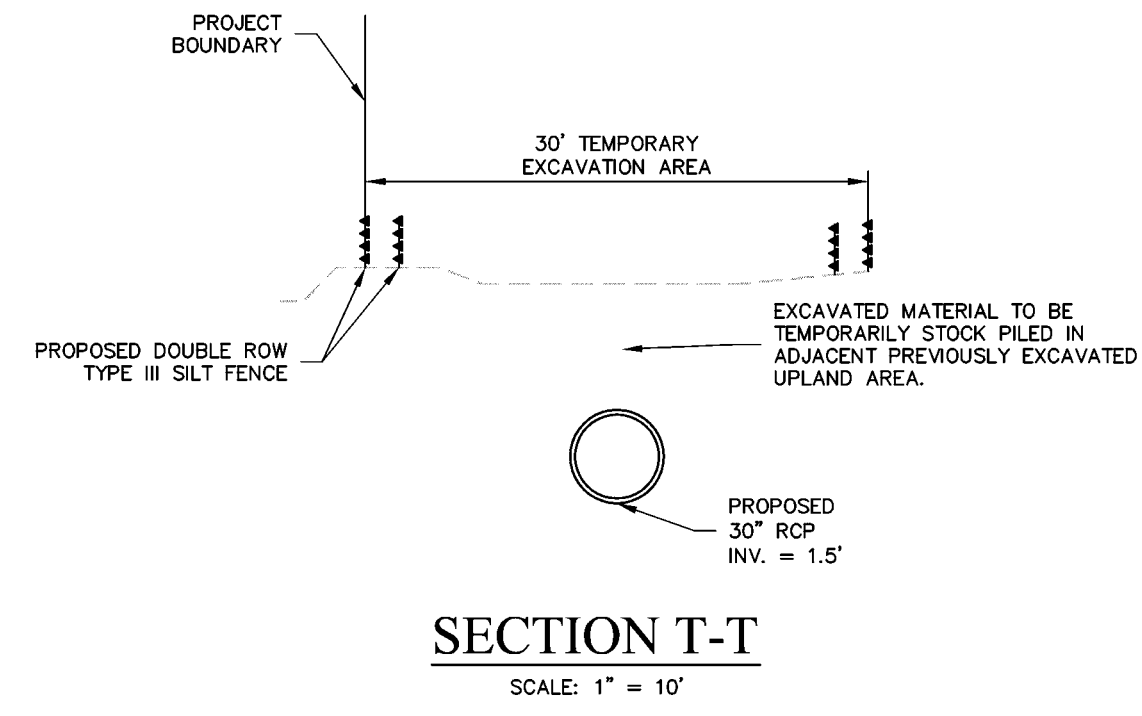
NO.	REVISIONS	DATE
1	REVISIONS PER PLAN COMMENTS	08/20/09

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: As Shown

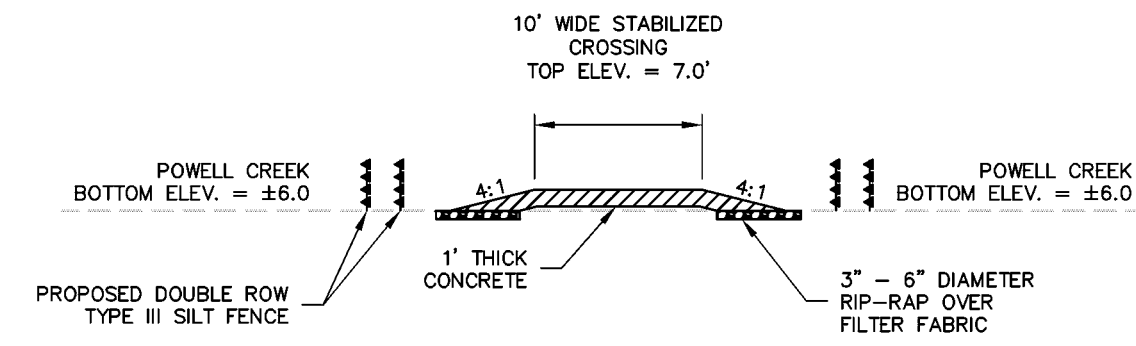
TYPICAL  
 SECTIONS

SHEET NUMBER  
**C-17**

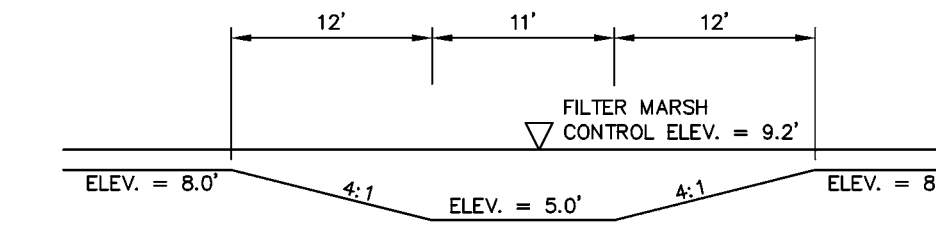
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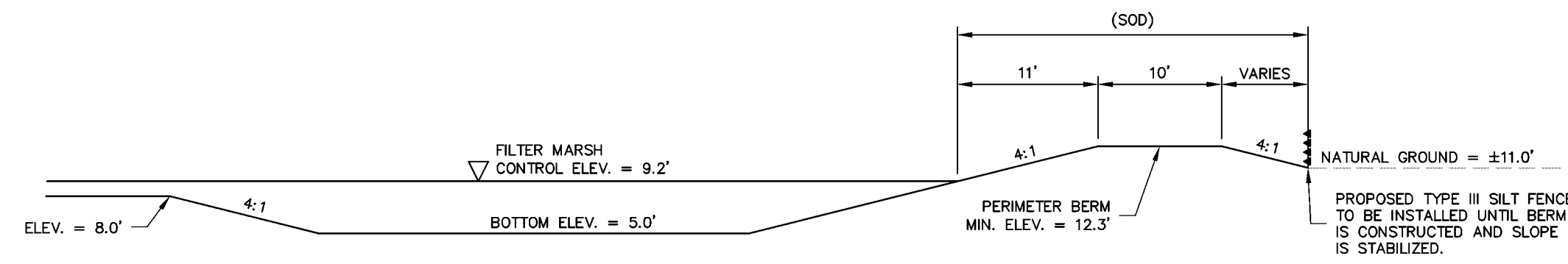
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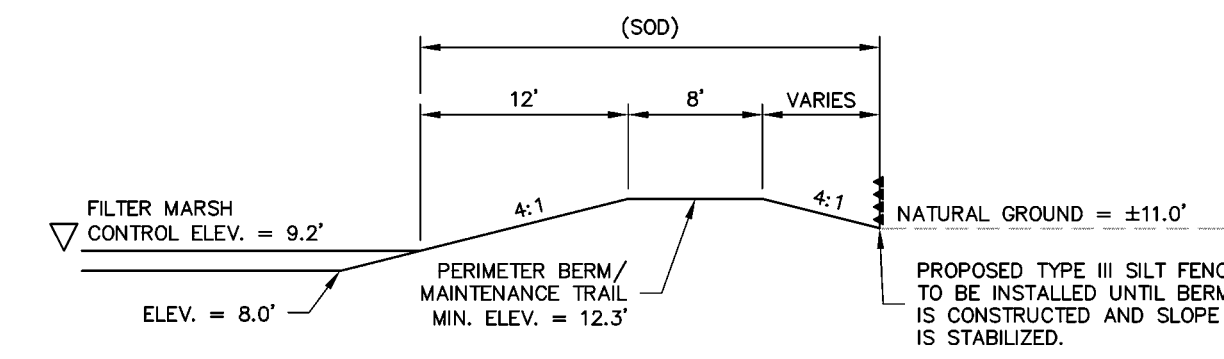
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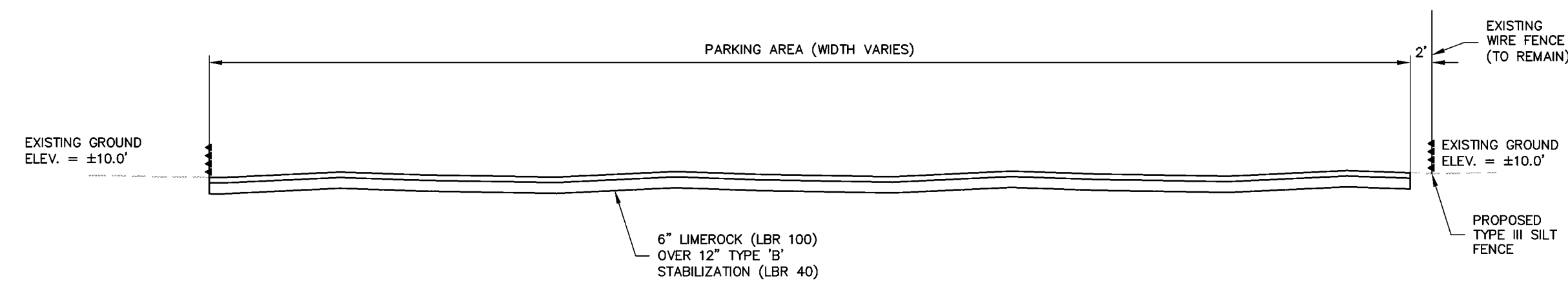
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**SECTION W-W**  
SCALE: 1" = 10'



**SECTION X-X**  
SCALE: 1" = 10'



**SECTION Y-Y**  
SCALE: 1" = 10'

NO.	REVISIONS DESCRIPTION	DATE
1	REVISIONS PERTAINING TO COMMENTS	08/20/09

DATE: SEPTEMBER, 2009  
PROJECT NO. 20034378-04  
FILE NO. 36-43-24  
SCALE: As Shown

TYPICAL SECTIONS

SHEET NUMBER

C-18

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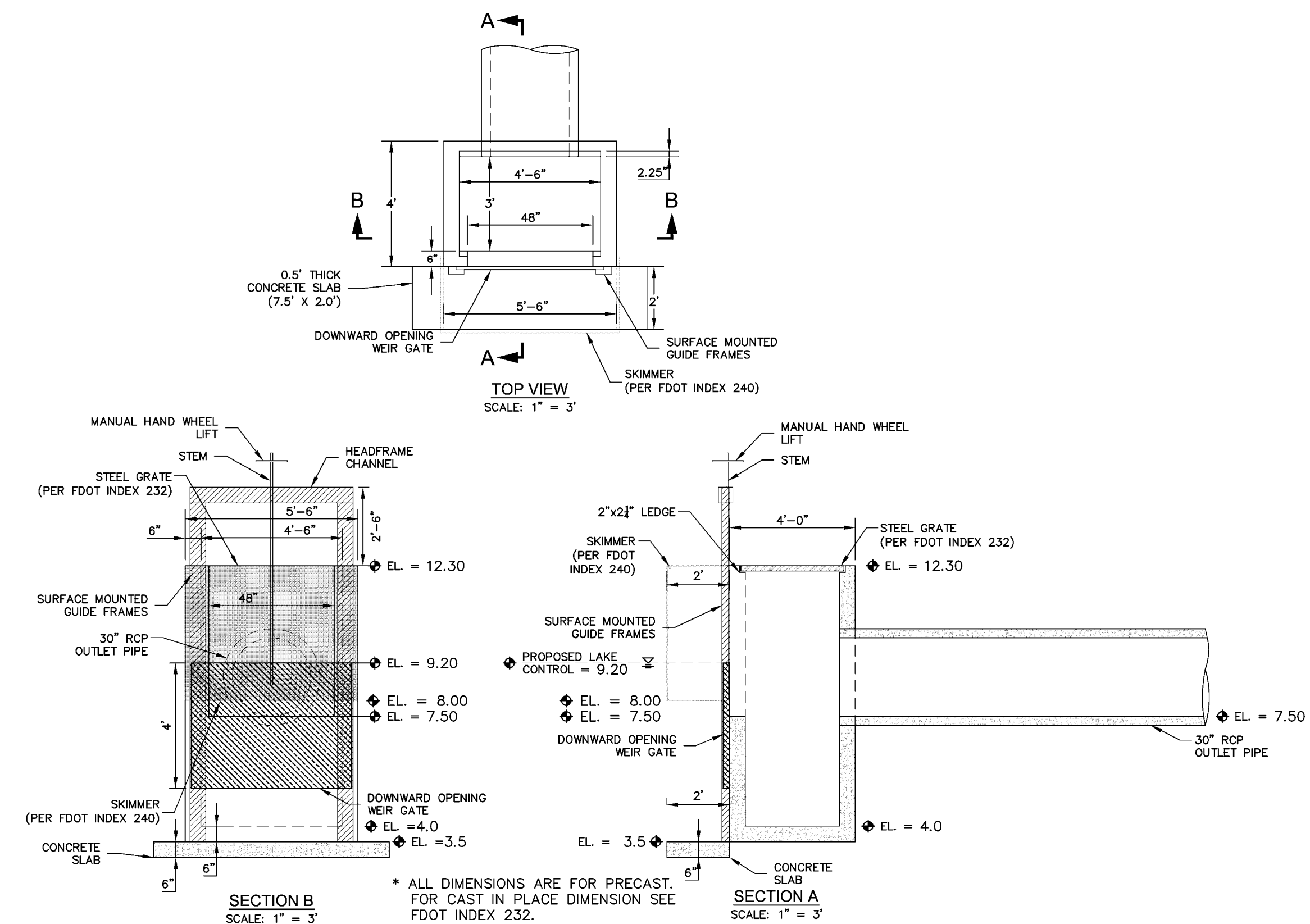
NO.	DATE	DESCRIPTION

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: As Shown

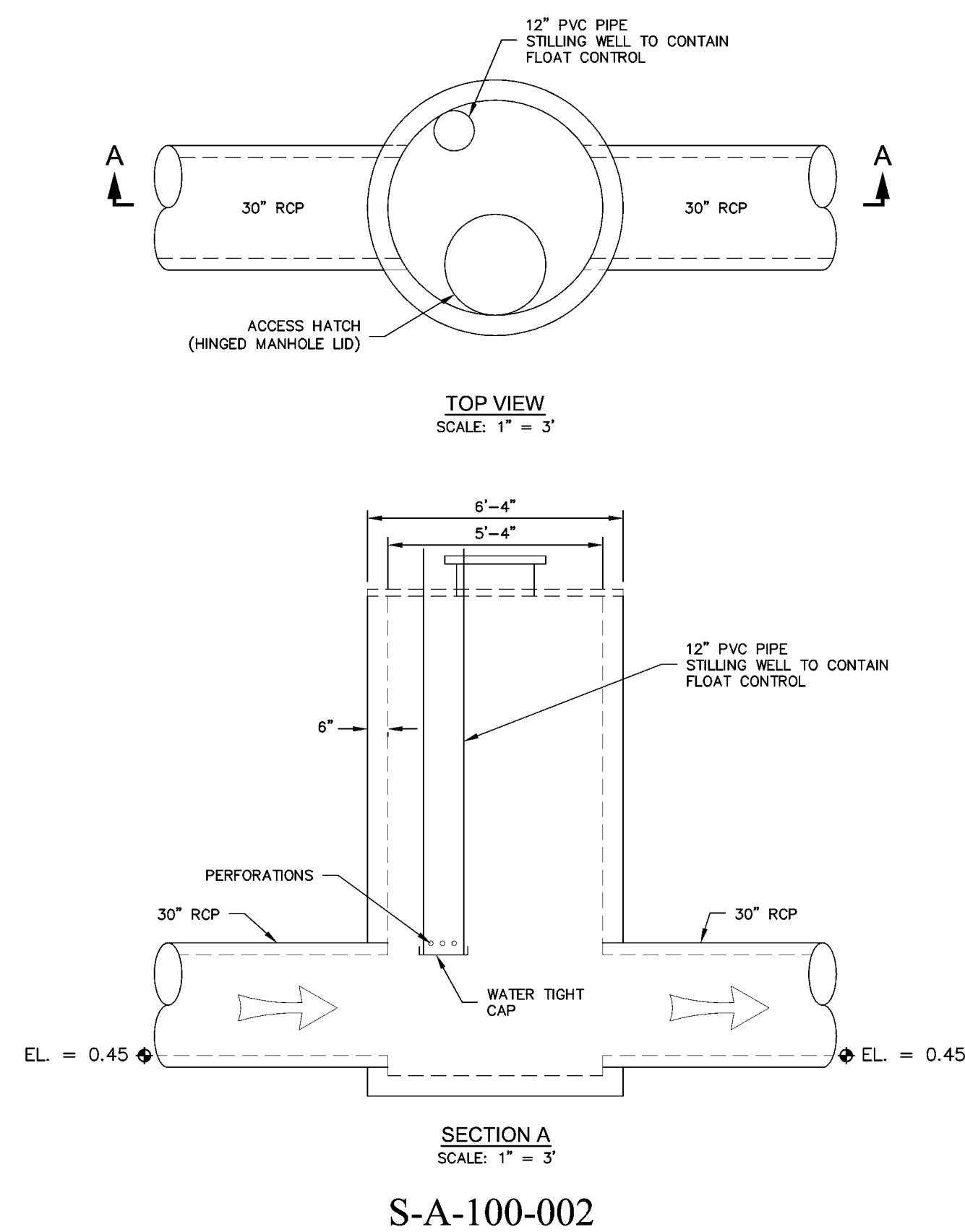
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 DETAILS

SHEET NUMBER

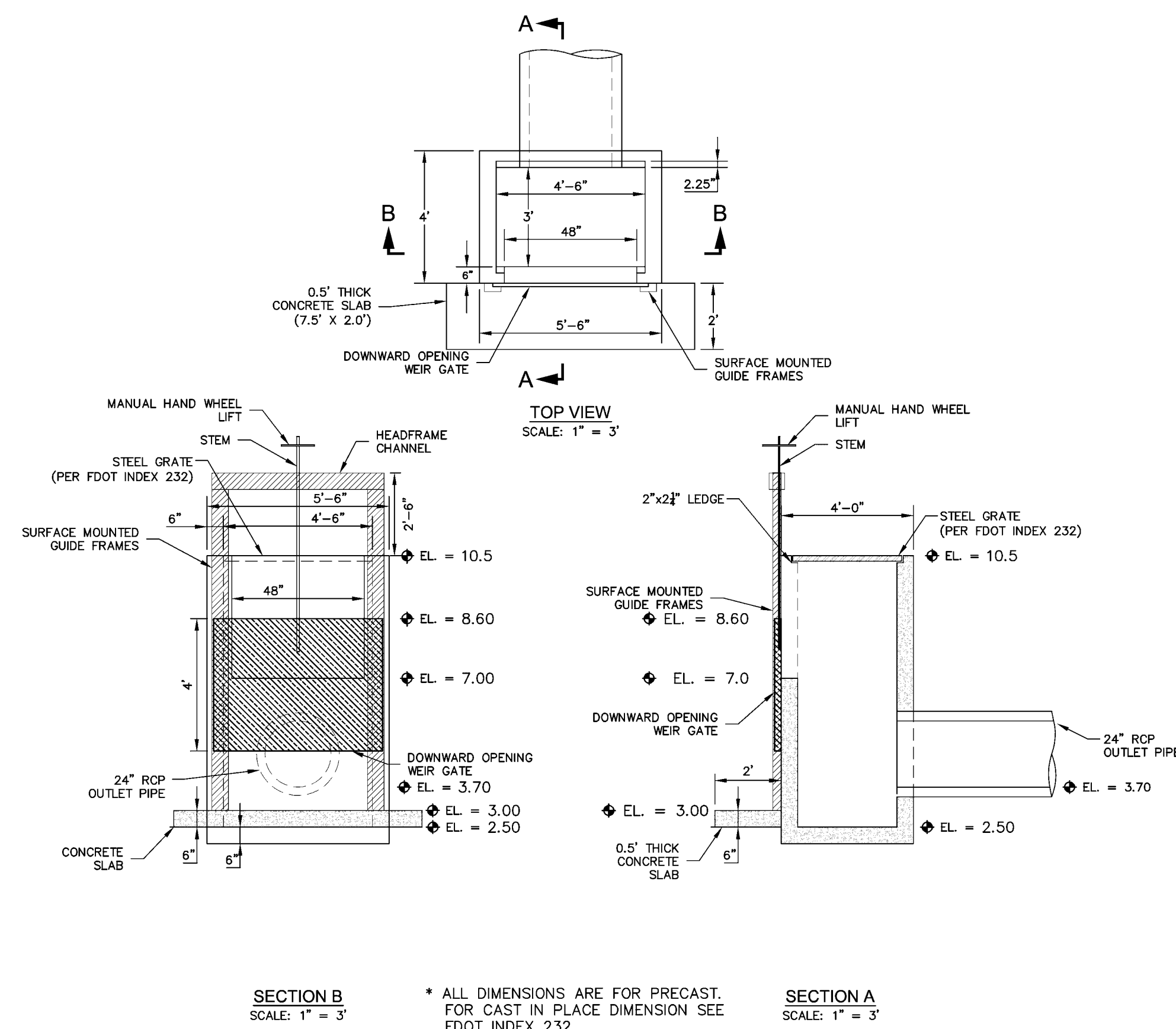
C-19



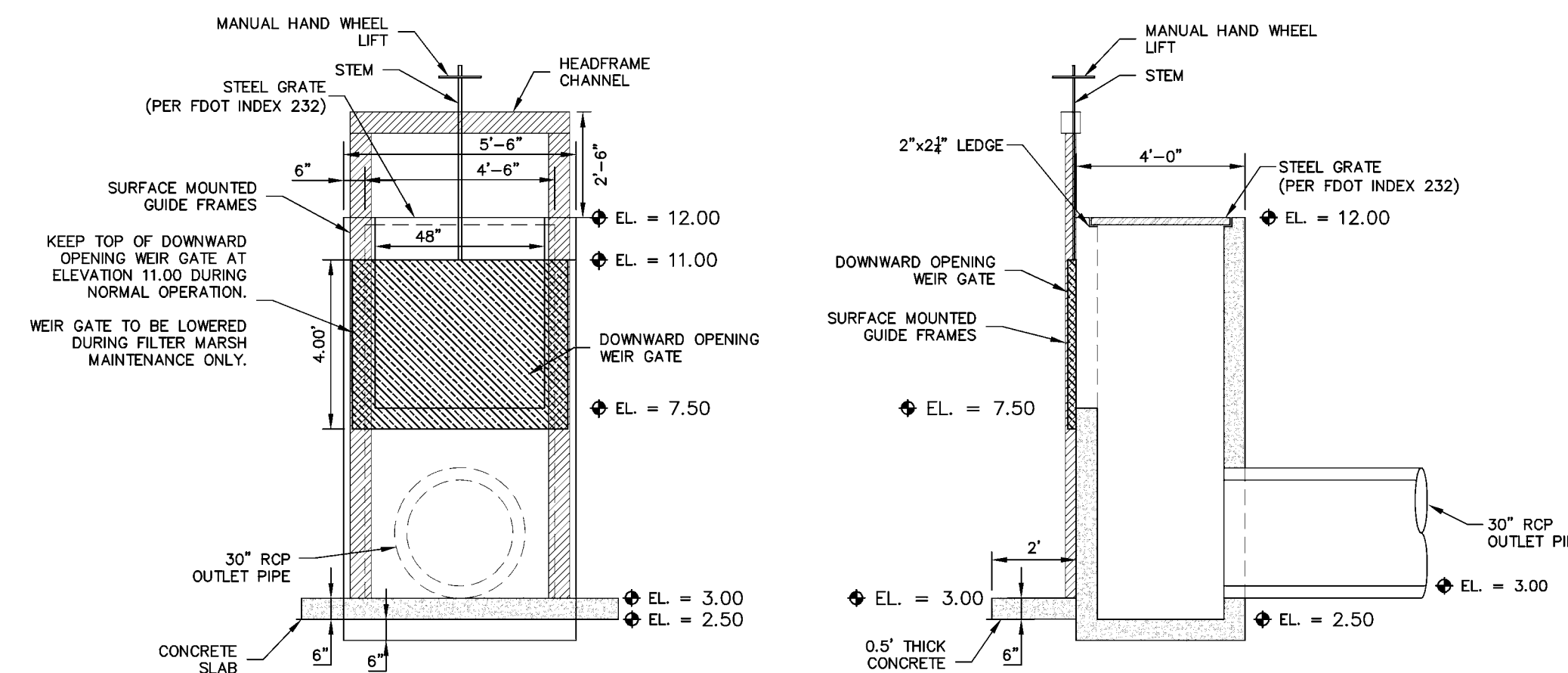
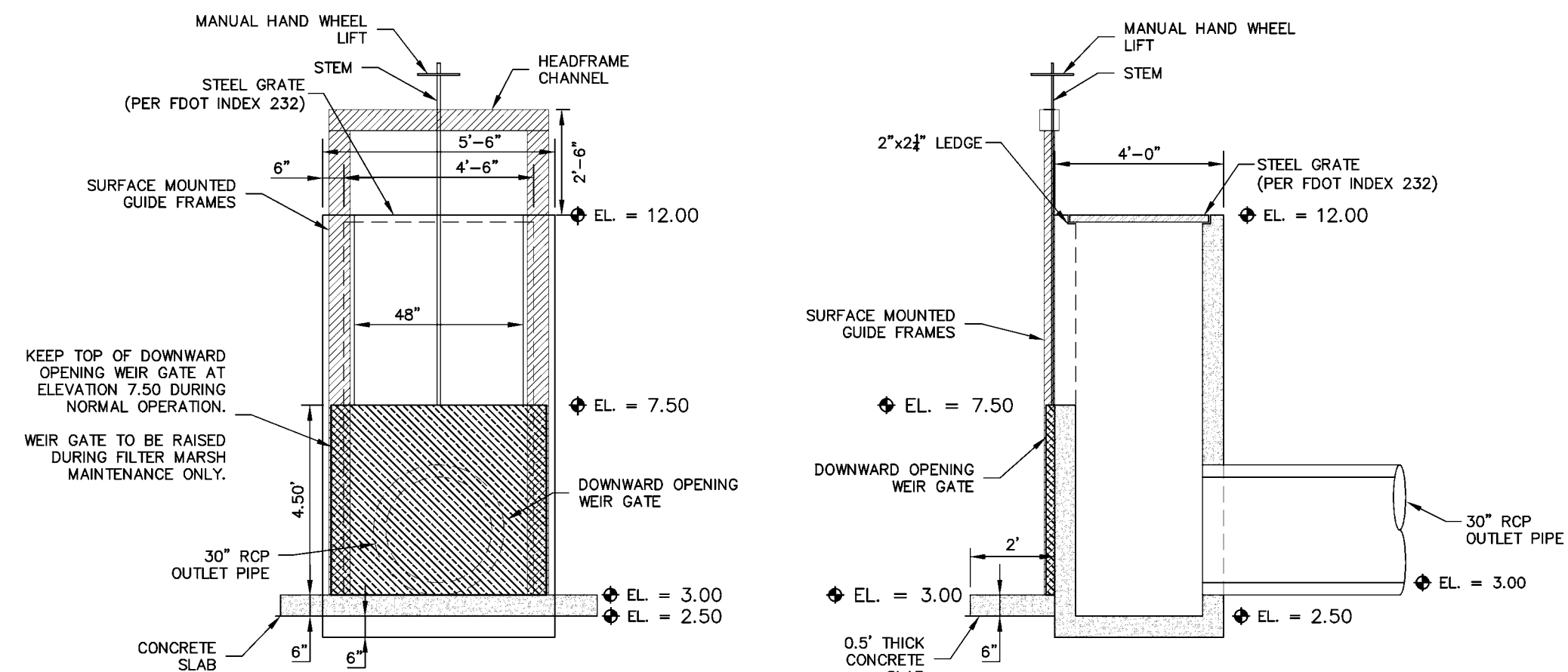
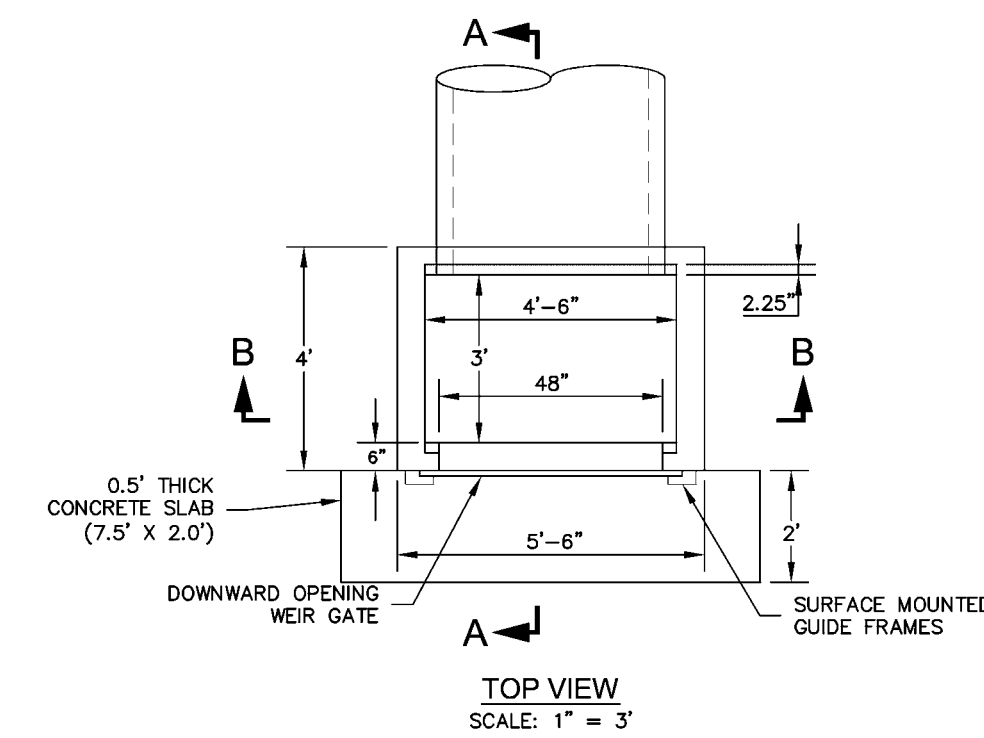
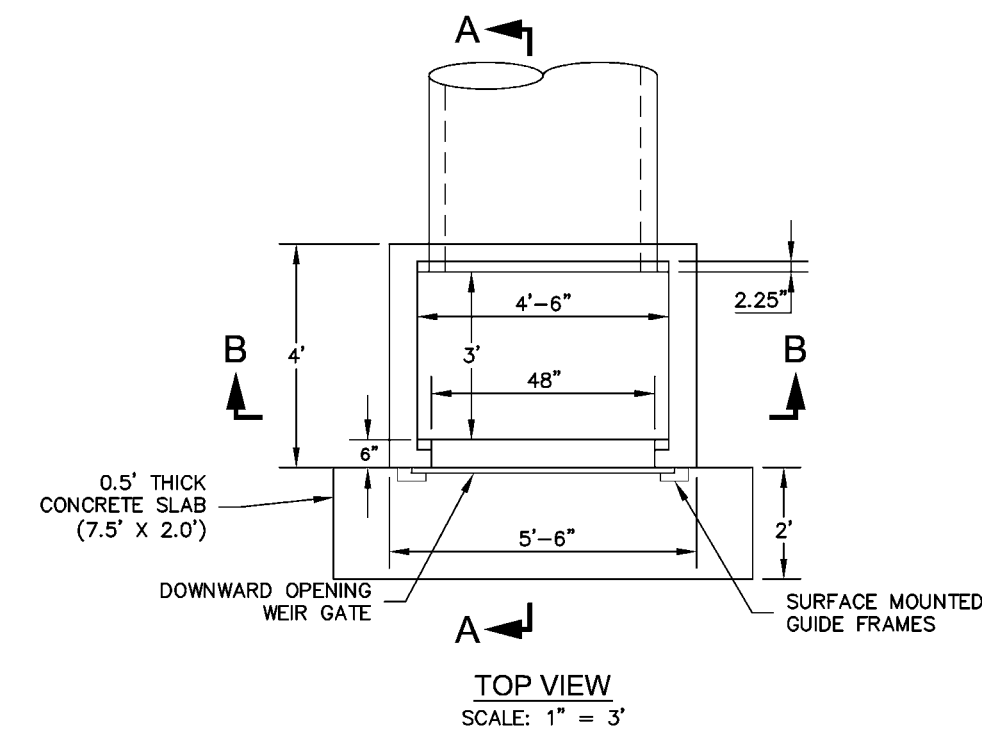
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 (PER FDOT INDEX 232)  
**CS-1**  
 SCALE: 1" = 3'



**S-A-100-002**



**MODIFIED FDOT TYPE "E" INLET**  
 (PER FDOT INDEX 232)  
**CS-2**  
 SCALE: 1" = 3'



SECTION B SCALE: 1" = 3'  
 SECTION A SCALE: 1" = 3'  
 \* ALL DIMENSIONS ARE FOR PRECAST. FOR CAST IN PLACE DIMENSION SEE FDOT INDEX 232.  
**MODIFIED FDOT TYPE "E" INLET**  
 (PER FDOT INDEX 232)  
**S-A-100-009, S-A-100-011**  
 SCALE: 1" = 3'

SECTION B SCALE: 1" = 3'  
 SECTION A SCALE: 1" = 3'  
 \* ALL DIMENSIONS ARE FOR PRECAST. FOR CAST IN PLACE DIMENSION SEE FDOT INDEX 232.  
**MODIFIED FDOT TYPE "E" INLET**  
 (PER FDOT INDEX 232)  
**S-A-100-017**  
 SCALE: 1" = 3'

NO.	REVISIONS	DATE

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: As Shown

DRAINAGE  
 DETAILS

SHEET NUMBER  
**C-20**





## Pump Operation Schedule

The pump operation will be controlled by water surface elevations (W.S.E.) at the Powell Creek Canal gravity line intake (Canal Intake), Filter Marsh and Pump Wet Well as follows:

Parameter	Wet Season Operations*	Dry Season Operations**
Filter Marsh W.S.E.	Pump On: W.S.E. $\leq$ 10.2 ft, NAVD Pump Off: W.S.E. $>$ 10.2 ft, NAVD	Pump On: 8.5 ft, NAVD $\leq$ W.S.E. $\leq$ 9.0 ft, NAVD Pump Off: W.S.E. $<$ 8.5 ft, NAVD or W.S.E. $>$ 9.0 ft, NAVD
Pump Wet Well W.S.E.	Pump On: W.S.E. = 5.0 ft, NAVD Pump Off: W.S.E. = 3.5 ft, NAVD	

Notes:

\*Wet Season Operations: Canal Intake W.S.E  $>$  6.4 ft, NAVD

\*\*Dry Season Operations: Canal Intake W.S.E  $\leq$  6.4 ft, NAVD

**APPLICATION #091030-14  
PERMIT NO. 36-07386-P  
Powell Creek Preserve Filter  
Marsh**

**EXHIBIT NUMBER 2.2  
Pages 1-10  
Construction Pollution Prevention Plan**

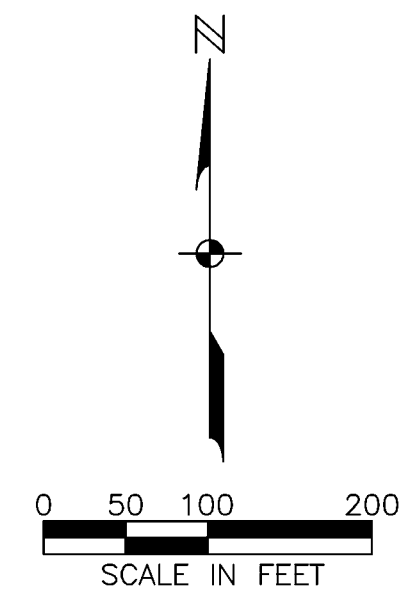
**EXHIBIT NUMBER 2.3  
Pages 1-5  
Urban Stormwater Management Program**

**INCORPORATED BY REFERENCE**

FLUCFCS CODE	DESCRIPTION	APPROX. ACREAGE	JURISDICTIONAL STATUS
261	Abandoned farm field	8.12	N
310	Herbaceous	3.05	N
434E1	Hardwood - conifer mix, exotics (0-25%)	56.22	N
510	Powell creek	0.96	W
615E2	Stream swamp, exotics (26-50%)	3.88	W
615E3	Stream swamp, exotics (51-75%)	0.04	W
641E3	Freshwater marsh, exotics (51-75%)	2.14	W
740	Disturbed land	2.79	N
Total Uplands		70.18	
Total Wetlands		7.02	
Total		77.20	

LEGEND  
 N= Non-jurisdictional  
 W= Wetland

- NOTES
- The FLUCFCS limits shown have been estimated from aerial photo interpretation and field observations on December 11, 2007, May 7, 9, and 23, 2008.
  - Wetland limits have been flagged in the field GPS survey located, and agency verified by Justin Hojnacki (SPWMD) on February 1, 2010.
  - Habitat mapping is based on the Florida Land Use Cover and Forms Classification System (FLUCFCS) methodology established by the Florida Department of Transportation (FDOT, 1999).
  - Parcel acreages and boundaries are based on property boundary survey completed by Johnson Engineering Inc.



**JOHNSON ENGINEERING**  
 2122 JOHNSON STREET  
 P.O. BOX 1550  
 FORT MYERS, FLORIDA 33902-1550  
 PHONE (239) 334-0548  
 FAX (239) 334-9891  
 E.B. #642 & L.B. #642

Lee County Division  
 of Natural Resources

**Powell Creek Preserve Filter Marsh**  
 Lee County, Florida

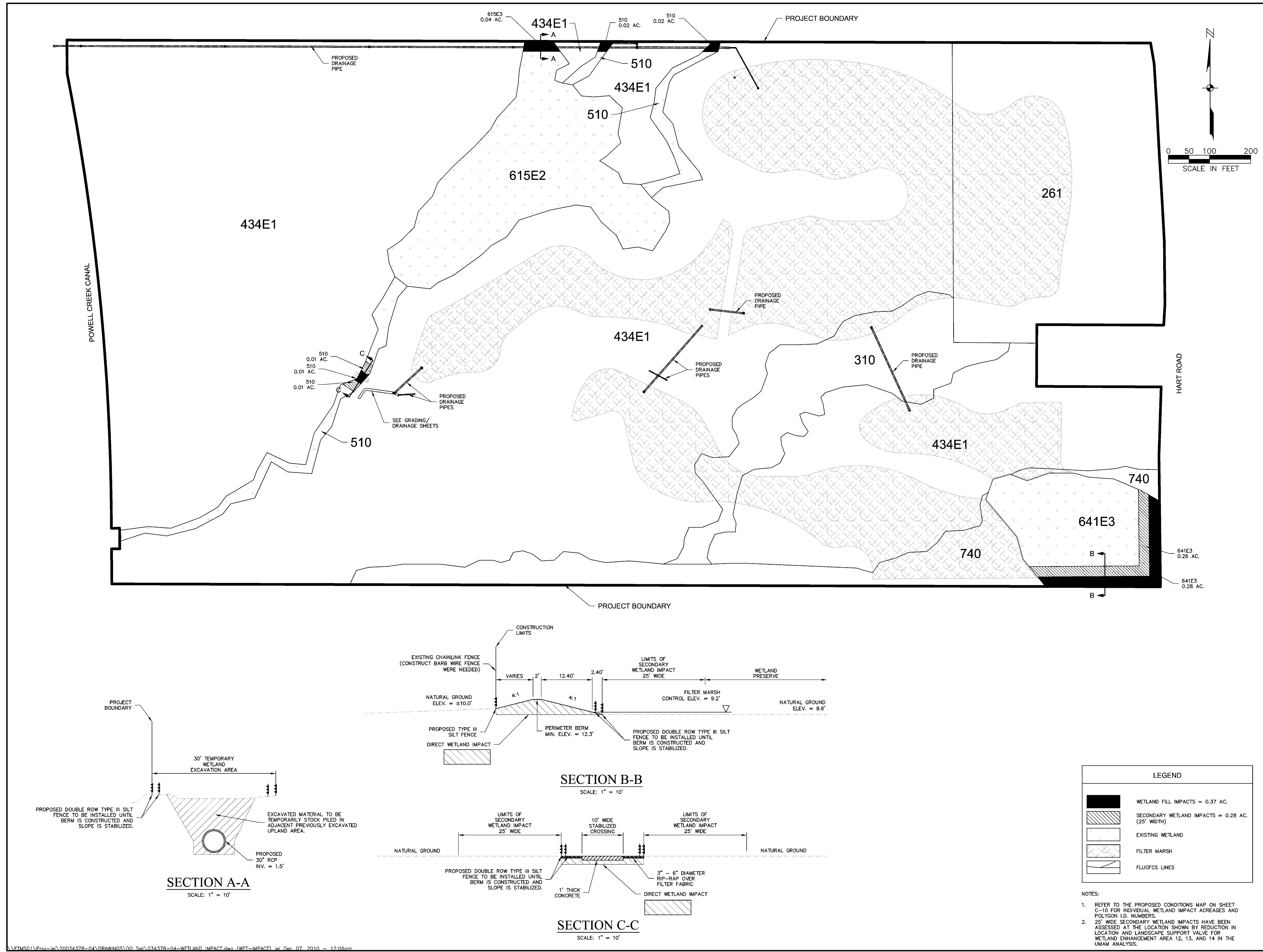
NO.	REVISIONS	DESCRIPTION	DATE
1	REVISIONS PER RAI #	COMMENTS	03/20/10

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

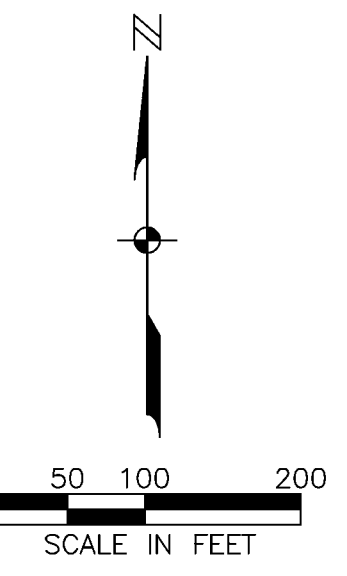
EXISTING  
 CONDITIONS &  
 FLUCFCS MAP

SHEET NUMBER  
**C-07**

N:\20034378-04\DRAWINGS\DO\_Set\034378-04-FLUCS.dwg (FLUCS) bwp Jun 16, 2010 = 2.59cm



**JOHNSON ENGINEERING**  
 2122 JOHNSON STREET  
 P.O. BOX 1550  
 FORT MYERS, FLORIDA 33902-1550  
 PHONE (239) 334-0506  
 FAX (239) 334-3661  
 E.B. #62 & B. #62



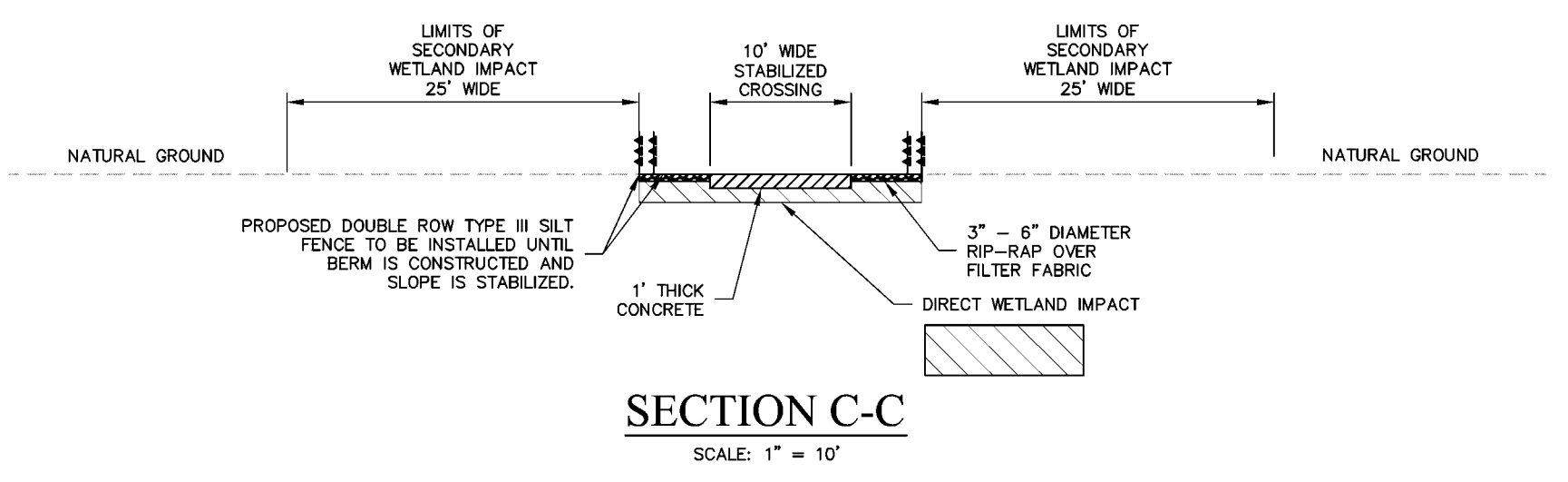
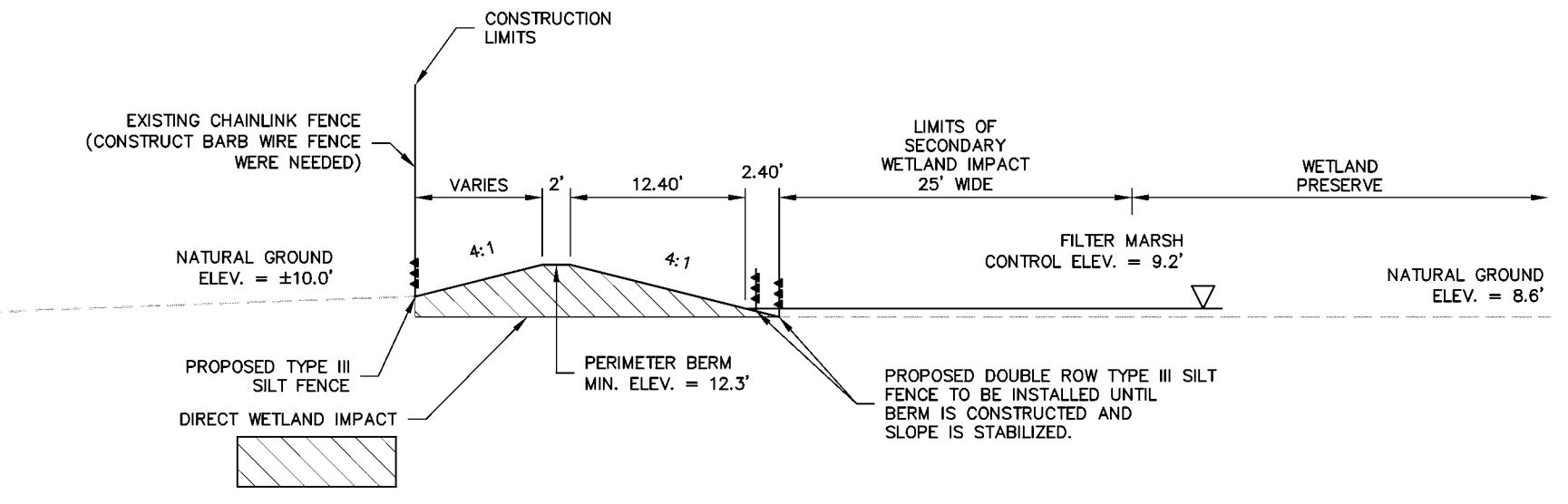
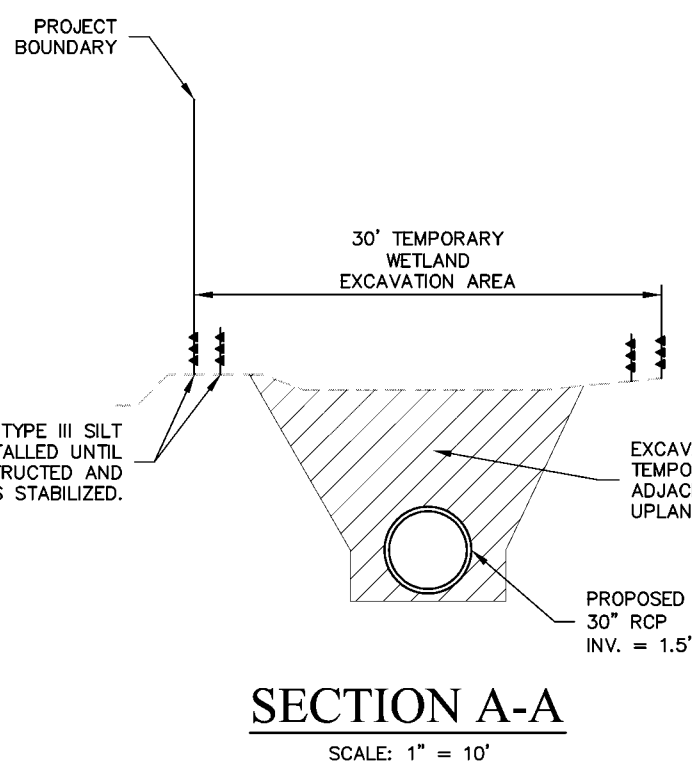
Lee County Division  
 of Natural Resources

**Powell Creek Preserve Filter Marsh**  
 Lee County, Florida

NO.	DATE	DESCRIPTION

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

WETLAND IMPACT MAP  
 SHEET NUMBER  
**C-08**



**LEGEND**

	WETLAND FILL IMPACTS = 0.37 AC.
	SECONDARY WETLAND IMPACTS = 0.28 AC. (25' WIDTH)
	EXISTING WETLAND
	FILTER MARSH
	FLUOCES LINES

**NOTES:**  
 1. REFER TO THE PROPOSED CONDITIONS MAP ON SHEET C-10 FOR INDIVIDUAL WETLAND IMPACT ACREAGES AND POLYGON I.D. NUMBERS.  
 2. 25' WIDE SECONDARY WETLAND IMPACTS HAVE BEEN ASSESSED AT THE LOCATION SHOWN BY REDUCTION IN LOCATION AND LANDSCAPE SUPPORT VALUE FOR WETLAND ENHANCEMENT AREA 12, 13, AND 14 IN THE UWAM ANALYSIS.

V:\M5013\Proj-16\20034378-04\DRAWINGS\DO Set\034378-04-WETLAND IMPACT.dwg (WET-IMPACT) .pl Dec 07, 2010 - 12:08pm

Lee County Division  
 of Natural Resources

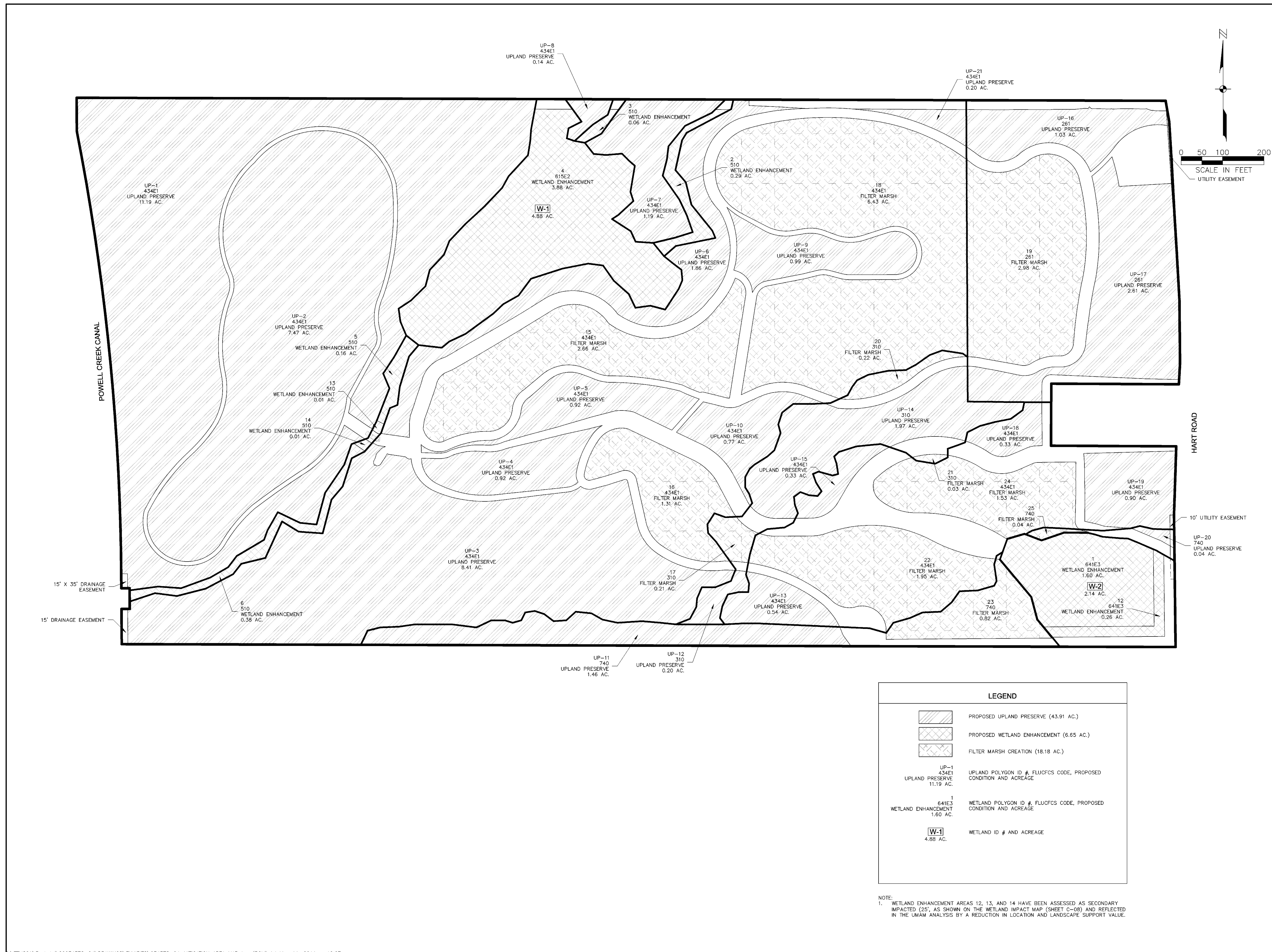
**Powell Creek Preserve Filter Marsh**  
 Lee County, Florida

NO.	DATE	DESCRIPTION
1	03/20/10	REVISIONS PER RA#1 COMMENTS

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

MITIGATION AREA  
 MAP

SHEET NUMBER  
**EXHIBIT 1**



LEGEND	
	PROPOSED UPLAND PRESERVE (43.91 AC.)
	PROPOSED WETLAND ENHANCEMENT (6.65 AC.)
	FILTER MARSH CREATION (18.18 AC.)
UP-1 434E1 UPLAND PRESERVE 11.19 AC.	UPLAND POLYGON ID #, FLUICFS CODE, PROPOSED CONDITION AND ACREAGE
1 641E3 WETLAND ENHANCEMENT 1.60 AC.	WETLAND POLYGON ID #, FLUICFS CODE, PROPOSED CONDITION AND ACREAGE
W-1 4.88 AC.	WETLAND ID # AND ACREAGE

NOTE:  
 1. WETLAND ENHANCEMENT AREAS 12, 13, AND 14 HAVE BEEN ASSESSED AS SECONDARY IMPACTED (2S), AS SHOWN ON THE WETLAND IMPACT MAP (SHEET C-08) AND REFLECTED IN THE UMAM ANALYSIS BY A REDUCTION IN LOCATION AND LANDSCAPE SUPPORT VALUE.

## **7.0 MITIGATION PLAN**

Mitigation for wetland impacts resulting from construction of the Powell Creek Preserve Filter Marsh will include the enhancement of 3.88 acres of on-site forested wetlands. The 3.88 acre mitigation area is identified as Wetland I.D. Number 4 in **Exhibit 1** and on sheet C-10 of the construction plans. Pursuant to coordination with SFWMD staff, enhancement of the 3.88 acre mitigation area will compensate for the loss of 0.17 functional units associated with the wetland impacts for the project and provide a surplus of 0.33 functional units. The surplus 0.33 functional units may be used to offset future Lee County public works projects if deemed appropriate by SFWMD staff. Details of the 3.88 acre mitigation plan are provided below and are referred to as “Plan 1”.

In addition to the mitigation required to offset wetland impacts for this project, Lee County desires to conduct 64.86 acres of additional wetland enhancement, wetland creation, and upland enhancement/preservation on-site beyond what is required as mitigation for this project. The intent is for this surplus mitigation to be used to offset future Lee County public works projects. For the purpose of this narrative, the 64.86 acres of surplus mitigation activities will be referred to as “Plan 2”. Plan 2 will only be implemented provided these activities do not preclude the ability to obtain Total Maximum Daily Load (TMDL) credit for water quality improvements associated with the project. The location of the additional mitigation activities are shown in **Exhibit 1** and on sheet C-10 of the construction plans as polygon identification numbers 1 through 3, 5 through 6, 12 through 25, and Up-1 through Up-21. In the event that implementation of the 64.86 acres of surplus mitigation activities may preclude Lee County from obtaining credit for water quality improvements for this project, Lee County reserves the right to remove the 64.86 acres of surplus mitigation from the mitigation plan and cease the activities indefinitely. Details of the 64.86 acres of surplus mitigation activities are described below and are referred to as “Plan 2”.

### **7.1 On-site Mitigation Activities**

#### **PLAN 1 (Mitigation for this project)**

- **Wetland Enhancement (3.88 acres)**

The locations of the 3.88 acre wetland enhancement area is shown in **Exhibit 1**, on sheet C-10 of the SFWMD construction plans and sheet 7 of the USACOE permit drawings. All Category I and II exotic species (those species identified by the Florida Exotic Pest Plant Council's 2009 list of most invasive plant species and incorporated herein by reference) will be treated with an appropriate herbicide and ~~either be~~ manually removed from the site ~~or allowed to die in place~~. All branches and stems from cut trees or shrubs that are not removed from the site will be further cut to maximum four foot length segments to promote decomposition. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. All eradicated nuisance and exotic vegetation including but not limited to melaleuca and Brazilian pepper will be removed from the preserved areas. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing ~~and stacking of felled debris~~ will be discussed during the pre-application meeting with District staff and is subject to District approval.

**PLAN 2 (Surplus mitigation to be reserved for future Lee County projects)**

- **Wetland enhancement (2.77 acres)**
- **Wetland creation (18.18 acres)**
- **Upland enhancement/preservation (43.91 acres)**

Plan 2 includes 2.77 acres of wetland enhancement, 18.18 acres of wetland creation and 43.91 acres of upland enhancement/preservation. Below is a description of each mitigation activity.

**Plan 2 Wetland Enhancement (2.77 acres)**

The locations of the 2.77 acres of surplus wetland enhancement are identified as polygon identification numbers 1 – 3, 5 – 6 and 12 – 14 in **Exhibit 1**, on sheet C-10 of the SFWMD construction plans and on sheet 7 of the USACOE permit drawings. All Category I and II exotic species (those species identified by the Florida Exotic Pest Plant Council's 2009 list of most invasive plant species and incorporated herein by reference)



will be treated with an appropriate herbicide and ~~either be~~ manually removed from the site ~~or allowed to die in place~~. All branches and stems from cut trees or shrubs that are not removed from the site will be further cut to maximum four foot length segments to promote decomposition. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. All eradicated nuisance and exotic vegetation including but not limited to melaleuca and Brazilian pepper will be removed from the preserved areas. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing ~~and stacking of felled debris~~ will be discussed during the pre-application meeting with District staff and is subject to District approval.

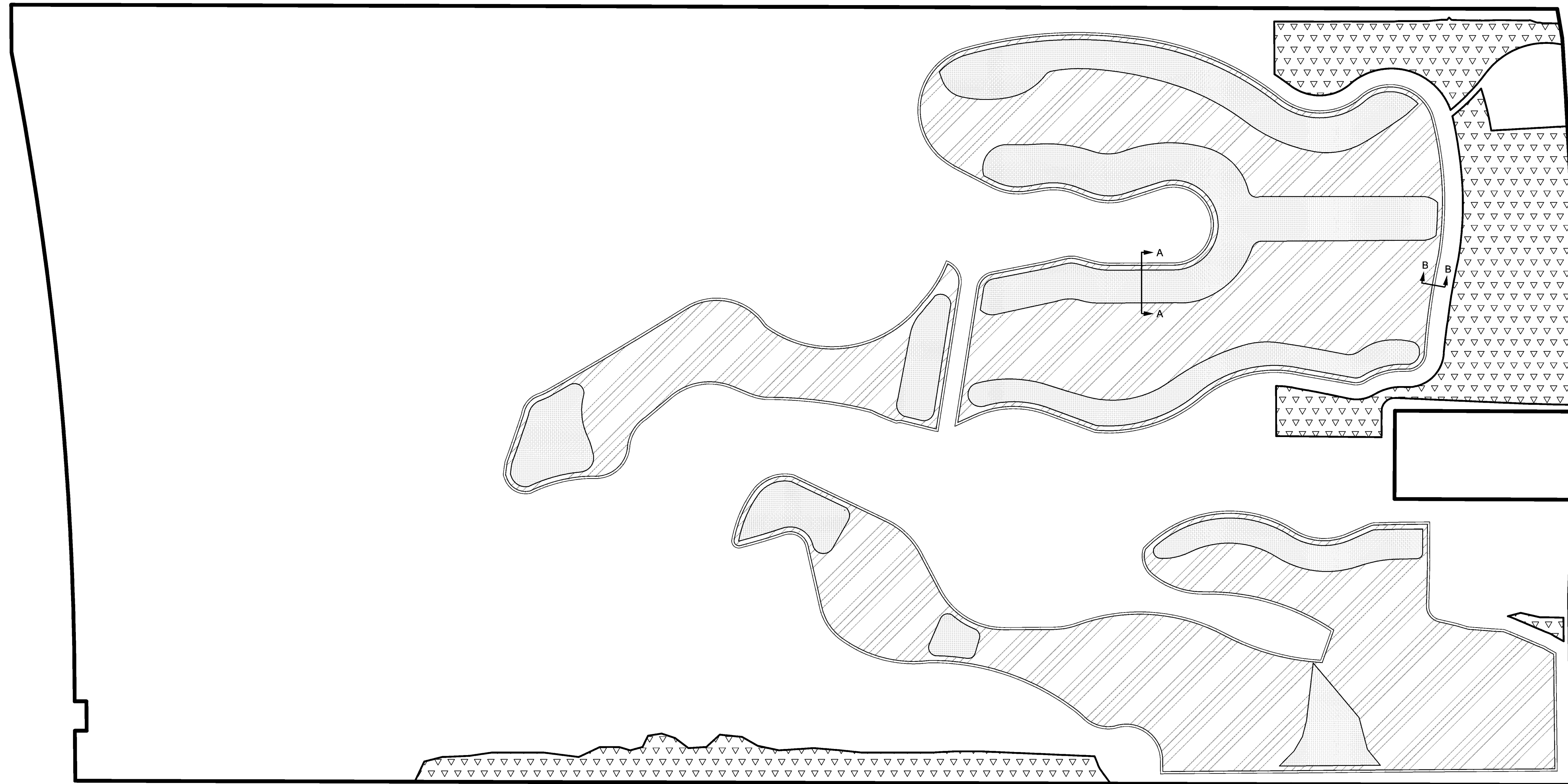
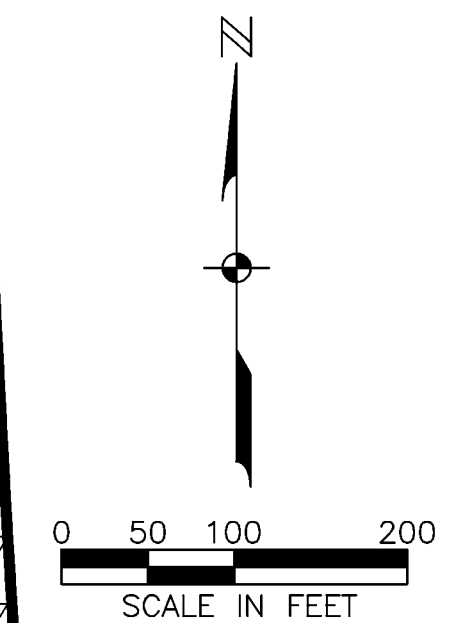
**Plan 2 Wetland Creation (18.18 acres)**

The wetland creation locations are identified as polygon identification numbers 15 – 25 on Exhibit 1 and on sheet C-10 of the SFWMD plans. Wetland creation activities will entail the excavation of existing soil material to depths ranging from control elevation of 9.2' NAVD to elevation 5.0' NAVD, as shown on sheet C-15 of the SFWMD construction plans and sheet 9 of the USACOE permit drawings. The grading activities will be conducted to create three different planting zones or ranges of depths. Following grading, the wetland creation area will be planted with native herbaceous species, as outlined in the Filter Marsh Creation Planting Table shown on sheet C-11 of the SFWMD construction plans and on sheet 10 of the USACOE permit drawings. Planting Zone A is from Control elevation to 1.0' below control, and totals approximately 0.90 acres. Zone A will entail the planting of 4,356 medium hydroperiod wetland plant species on 3' average centers. Planting Zone B is from 1.0' below control elevation to 3.0' below control, and totals approximately 13.50 acres. Zone B will entail planting of 65,340 moderate to long hydroperiod, emergent wetland plant species on 3' average centers. Planting Zone C is from 3.0' below control elevation to 4.2' below control, and totals approximately 5.70 acres. Zone C will entail planting of 9,932 native wetland plant species on 5' average centers. Zone C will include plant species, such as fragrant water

lily (*Nymphaea odorata*), big floatingheart (*Nymphoides aquatica*) and spatterdock (*Nuphar luteum*), which are typical of long hydroperiod wetlands or permanently inundated conditions. Additional details regarding the wetland creation planting plan, specific plant species, and sizes can be found on sheet C-11 of the SFWMD construction plan and sheets 9 and 10 of the USACOE permit drawings.

**Plan 2 Upland Enhancement/Preservation (43.91 acres)**

The upland enhancement/preservation locations are identified as polygon identification numbers Up-1 through Up-21 on Exhibit 1, sheet C-10 of the SFWMD plans and sheet 7 of the USACOE permit drawings. Habitat types proposed for upland enhancement/preservation include abandoned farm field (FLUCFCS Code 261), herbaceous (FLUCFCS Code 310), hardwood-conifer mix with exotics (1% - 25%) (FLUCFCS Code 434E1) and disturbed land (FLUCFCS Code 740). Coverage of exotic and nuisance vegetation within these habitat types ranges from 0% to greater than 50%. The degree of exotic and nuisance vegetation coverage for each habitat is reflected in the community structure scores in the attached UMAM Analysis. Upland enhancement areas will entail the eradication of all exotic and nuisance species similar to the methods used for wetland enhancement areas. All eradicated nuisance and exotic vegetation including but not limited to melaleuca and Brazilian pepper will be removed from the preserved areas. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing ~~and stacking of felled debris~~ will be discussed during the pre-application meeting with District staff and is subject to District approval. Exotic vegetation may be mechanically harvested within upland enhancement/preservation areas of dense (>75%) coverage upon prior approval from SFWMD staff. When prohibited exotic vegetation is removed, but the base of the vegetation remains, the base will be treated with an U.S. Environmental Protection Agency approved herbicide with a visual tracer dye applied. A hydro-ax with a mowing attachment may be used to grind exotic trees and shrub material. Mechanized equipment will either have low tire pressure or be tracked. Areas mechanically cleared of exotics will be recontoured to natural grade if necessary. Following initial exotic and nuisance eradication, existing native habitats will be allowed to revegetate naturally from the existing seed bank.



Lee County Division  
of Natural Resources

**Powell Creek Preserve Filter Marsh**

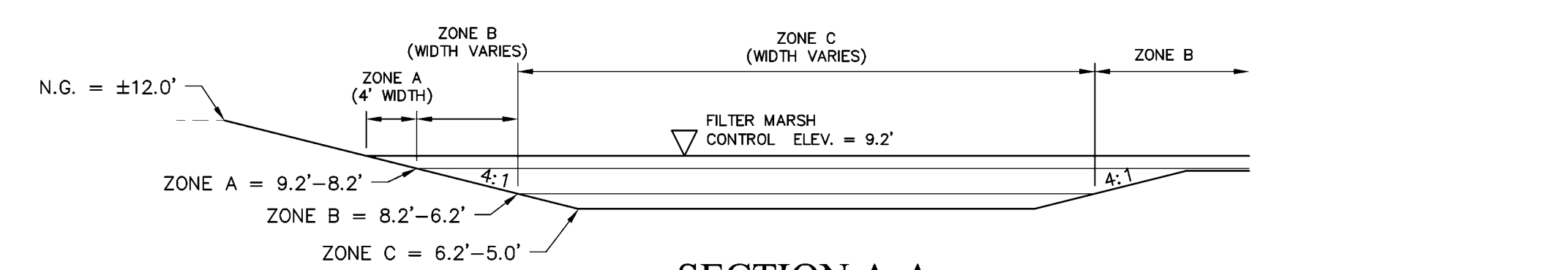
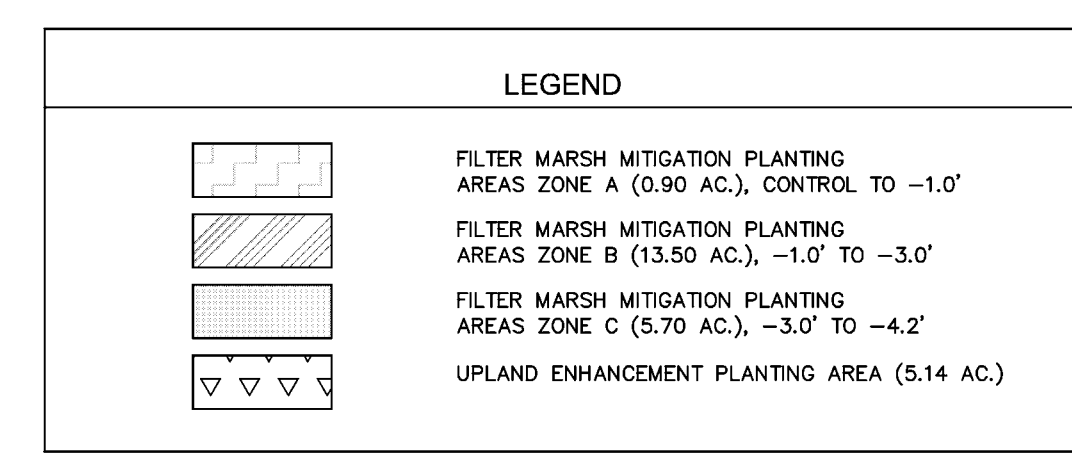
Lee County, Florida

Powell Creek Preserve Upland Enhancement Planting Plan (5.14 Ac) 06/14/2010				
Common Name	Scientific Name	Minimum Size	Spacing	Est. Quantity
<b>Trees</b>				
South Florida slash pine	<i>Pinus Elliottii var densa</i>	3 gallon / 4' - 6'	20' O.C.	130
South Florida slash pine	<i>Pinus Elliottii var densa</i>	7 gallon / 6' - 8'	20' O.C.	50
Dahoon holly	<i>Ilex cassine</i>	3 gallon / 4' - 6'	20' O.C.	30
Dahoon holly	<i>Ilex cassine</i>	7 gallon / 6' - 8'	20' O.C.	30
Live oak	<i>Quercus virginiana</i>	3 gallon / 4' - 6'	20' O.C.	10
Live oak	<i>Quercus virginiana</i>	7 gallon / 6' - 8'	20' O.C.	10
Laurel oak	<i>Quercus laurifolia</i>	3 gallon / 4' - 6'	20' O.C.	10
Laurel oak	<i>Quercus laurifolia</i>	7 gallon / 6' - 8'	20' O.C.	10
<b>Total:</b>				<b>280</b>
<b>Shrubs</b>				
Beautyberry	<i>Callicarpa americana</i>	1 gallon / 2'	20' O.C.	100
Gallberry	<i>Ilex glabra</i>	1 gallon / 2'	20' O.C.	90
Myrsine	<i>Myrsine guianensis</i>	1 gallon / 2'	20' O.C.	90
<b>Total:</b>				<b>280</b>
<b>Ground cover</b>				
Wire grass	<i>Aristida stricta</i>	Bare root	8' O.C.	1250
Gopher apple	<i>Licania michauxii</i>	Bare root	8' O.C.	1250
Reticulate pawpaw	<i>Asimina reticulata</i>	Bare root	8' O.C.	600
Blackroot	<i>Pterocaulon pycnostachyum</i>	Bare root	8' O.C.	400
<b>Total:</b>				<b>3,500</b>

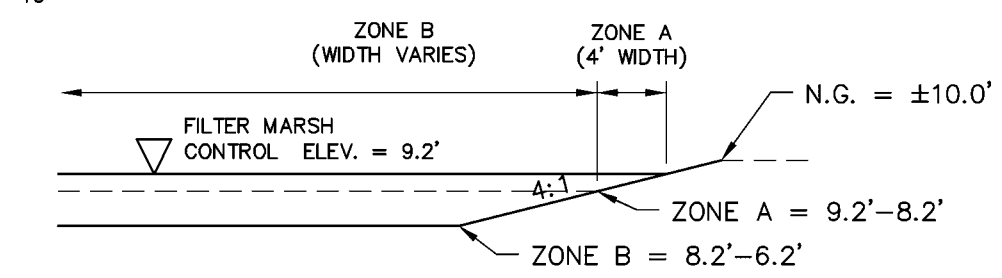
- Planting Notes**
- Plants to be installed in clusters in upland enhancement areas (previously disturbed habitats - FLUCFCS Codes 261 & 740) to augment existing native vegetation.
  - A minimum of three different plant species will be planted in each cluster.
  - Planted vegetation shall be from a FDEP approved and permitted, local or regional source.
  - Changes to plant species must be approved by the construction supervisor.
  - Plants are to be installed just prior to the wet season to facilitate establishment. If installation occurs during the dry season, the contractor will be responsible for irrigation until the plants become established.

Powell Creek Preserve Filter Marsh Planting Plan 02/12/2011				
PLANTING ZONE A, 0.90 ac. (-1.0' to -1.0')				
Common Name	Scientific Name	Minimum Size	Spacing	Est. Quantity
Sand cordgrass <sup>2</sup>	<i>Spartina bakeri</i>	1 gal. or bare root equivalent	3' O.C.	2,200
Maidencane	<i>Panicum hemitomon</i>	1 gal. or bare root equivalent	3' O.C.	440
Soft rush	<i>Juncus effusus</i>	1 gal. or bare root equivalent	3' O.C.	440
Muhly grass	<i>Muhlenbergia capillaris</i>	1 gal. or bare root equivalent	3' O.C.	440
Sawgrass	<i>Cladium jamaicense</i>	1 gal. or bare root equivalent	3' O.C.	440
Knotted spikerush	<i>Eleocharis interstincta</i>	1 gal. or bare root equivalent	3' O.C.	396
<b>Total:</b>				<b>4,356</b>
PLANTING ZONE B, 13.50 ac. (-1.0' to -3.0')				
Common Name	Scientific Name	Minimum Size	Spacing	Est. Quantity
Alligator flag	<i>Thalia geniculata</i>	1 gal. or bare root equivalent	3' O.C.	9,350
Pickersweed	<i>Pontederia cordata</i>	1 gal. or bare root equivalent	3' O.C.	9,350
Maidencane	<i>Panicum hemitomon</i>	1 gal. or bare root equivalent	3' O.C.	9,350
Soft rush	<i>Juncus effusus</i>	1 gal. or bare root equivalent	3' O.C.	9,350
Sawgrass	<i>Cladium jamaicense</i>	1 gal. or bare root equivalent	3' O.C.	9,240
Bulrush	<i>Scirpus sp.</i>	1 gal. or bare root equivalent	3' O.C.	9,350
Arrowhead	<i>Sagittaria lancifolia</i>	1 gal. or bare root equivalent	3' O.C.	9,350
<b>Total:</b>				<b>65,340</b>
PLANTING ZONE C, 5.70 ac. (-3.0' to -4.2')				
Common Name	Scientific Name	Minimum Size / Height	Spacing	Est. Quantity
Spatterdock	<i>Nuphar luteum</i>	1 gal. or 18 inches	5' O.C.	3,300
Big floatingheart	<i>Nymphaoides aquatica</i>	1 gal. or 18 inches	5' O.C.	3,300
Fragrant waterlily	<i>Nymphaea odorata</i>	1 gal. or 18 inches	5' O.C.	3,332
<b>Total:</b>				<b>9,932</b>

- Planting Notes**
- Control elevation = 9.2' NAVD.
  - Sand cordgrass is to be installed on 3' average centers along the top of slope around the perimeter of zone A.
  - Remaining zone A plants to be installed on 3' average centers.
  - Zone B plant material to be installed on 3' average centers.
  - A minimum of five different plant species will be planted in zones A and B.
  - Zone C plants are to be installed on 5' average centers, and must either be secured using ground staples or placed in biodegradable fabric and weighted to aid establishment in deep water areas.
  - Planted vegetation shall be from a FDEP approved and permitted, local or regional source.
  - Changes to plant species must be approved by the construction supervisor.



**SECTION A-A**  
SCALE: 1" = 10'



**SECTION B-B**  
SCALE: 1" = 10'

REVISIONS		DATE	DESCRIPTION
NO.	DESCRIPTION	DATE	DESCRIPTION
1	REVISIONS PER HALF COMMENTS	02/20/11	
2	REVISIONS PER SP/MD COMMENTS	02/20/11	

DATE: SEPTEMBER, 2009  
PROJECT NO.: 20034378-04  
FILE NO.: 36-43-24  
SCALE: 1" = 100'

**MITIGATION PLANTING LOCATION MAP**

SHEET NUMBER

**C-11**

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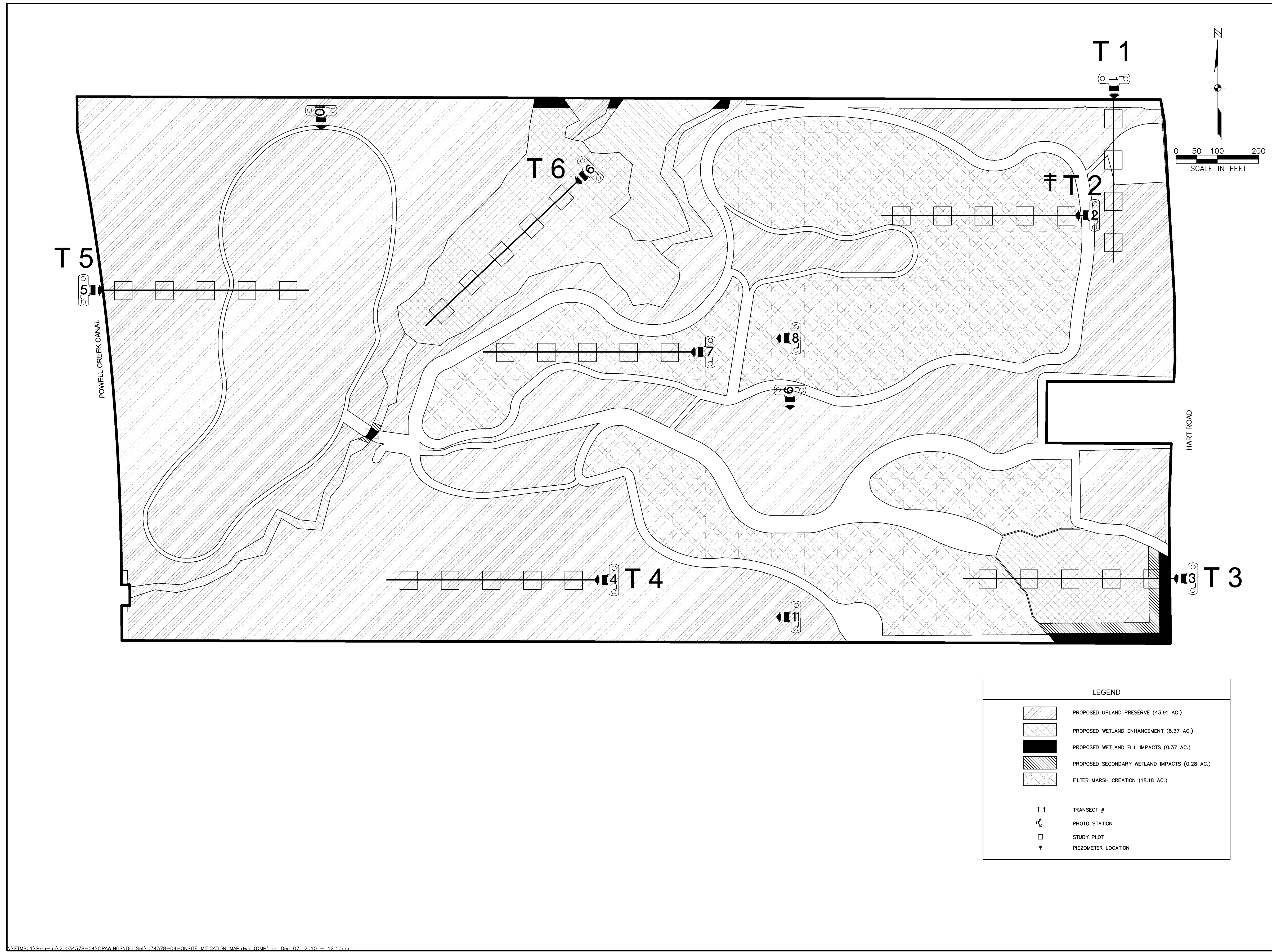
**Powell Creek Preserve Filter Marsh**  
**Plan 2 Mitigation Success Criteria and Credit Release Schedule**

**Upland Preserve/Enhancement Areas**

Ecological Parameter	Level 1 (33% Credit Release)	Level 2 (67% Credit Release)	Level 3 (100% Credit Release)
<b>COMMUNITY STRUCTURE</b>			
Maximum % cover by exotic plant species per acre (Florida EPPC Category 1 List, inclusive of any revisions)	5	3	1
Maximum % cover by nuisance plant species per acre	8	5	3
Minimum 80% survival of all planted trees and shrubs	Yes	Yes	Yes
Minimum % coverage by desirable native ground cover plants	30	50	80
Minimum number of desirable native upland ground cover species	3	5	10
<b>WILDLIFE UTILIZATION</b>			
Qualitative evidence of wildlife utilization, including sightings, tracks, scat, or other data	Yes	-	-
Qualitative evidence of wildlife utilization, including sightings, tracks, scat or other data. To include evidence of use by at least 1 avian species and 1 amphibian.	-	Yes	-
Qualitative and quantitative evidence of wildlife utilization, including sightings, tracks, scat or other data. To include a minimum of 2 avian species, 2 amphibian, and 2 mammals	-	-	Yes

**Filter Marsh Creation and Wetland Enhancement Areas**

Ecological Parameter	Level 1 (33% Credit Release)	Level 2 (67% Credit Release)	Level 3 (100% Credit Release)
<b>COMMUNITY STRUCTURE</b>			
Maximum % cover by exotic plant species per acre (Florida EPPC Category 1 List, inclusive of any revisions)	5	3	1
Maximum % cover by nuisance plant species per acre	8	5	3
Minimum % coverage by desirable native ground cover plants	30	50	80
Minimum number of desirable native wetland ground cover species	3	5	10
<b>HYDROLOGY</b>			
Saturated or inundated for 6 - 10 months of a typical rainfall year	Yes	Yes	Yes
<b>WILDLIFE UTILIZATION</b>			
Qualitative evidence of wildlife utilization, including sightings, tracks, scat, or other data	Yes	-	-
Qualitative and quantitative evidence of wildlife utilization, including sightings, tracks, scat or other data. To include evidence of use by at least 1 water dependent avian species and 1 amphibian.	-	Yes	-
Qualitative and quantitative evidence of wildlife utilization, including sightings, tracks, scat or other data. To include a minimum of 3 amphibian/reptilian species, 5 wetland dependent avian species, and 1 mammalian species.	-	-	Yes



**JOHNSON ENGINEERING**  
 2122 JOHNSON STREET  
 P.O. BOX 1550  
 FORT MYERS, FLORIDA 33902-1550  
 PHONE (239) 334-0548  
 FAX (239) 334-3661  
 E.B. #462 & L.B. #442

Lee County Division  
 of Natural Resources

Powell Creek Preserve Filter Marsh  
 Lee County, Florida

NO.	REVISIONS PER SAUF COMMENTS	DATE
1		03/20/10

DATE: SEPTEMBER, 2009  
 PROJECT NO. 20034378-04  
 FILE NO. 36-43-24  
 SCALE: 1" = 100'

ONSITE  
 MITIGATION PLAN

SHEET NUMBER  
**C-09**

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## **7.2 Maintenance of Mitigation Areas**

A maintenance program shall be implemented in the Plan 1 and Plan 2 mitigation areas on a regular basis to insure the integrity and viability of the mitigation activities. Lee County reserves the right to cease maintenance of the Plan 2 mitigation activities, inclusive of any areas not placed under a SFWMD Conservation Easement, in the event that implementation of Plan 2 may result in the inability to obtain credit for water quality improvements.

The maintenance program for all mitigation areas placed under a conservation easement will be conducted by Lee County in perpetuity to insure that total coverage of exotic and nuisance plant species (those species identified by the EPPC 2009 list) constitute no more than 5% total coverage. In addition, the mitigation areas will be managed so that exotic and nuisance plant species do not dominate any one section of the mitigation site. All eradicated nuisance and exotic vegetation including but not limited to melaleuca and Brazilian pepper will be removed from the preserved areas. All herbicides will be approved for aquatic application and applied by a licensed applicator. The use of Arsenal is prohibited. The limits of mechanical clearing and stacking of felled debris must be discussed with District staff and is subject to District approval. Mitigation areas will be exotic free immediately following treatment. After the five year monitoring period, a final environmental compliance inspection will be scheduled with the SFWMD and USACOE. A final inspection may be requested earlier if the mitigation activities are deemed to be successful prior to five years.

In addition:

- A. Periodic assessments of the site will be conducted no less than quarterly to identify any potential infestations that will require the attention of the maintenance crew; and
- B. Periodic maintenance will be performed on a quarterly, semi-annual or annual basis, as appropriate for the species in question, to treat any exotic or nuisance plant species. Treatment may consist of, but not be limited to:

1. The use of EPA approved herbicides applied by state licensed pesticide applicators in accordance with the applicable material safety data sheets and label directions;
2. The manual removal and disposal of the nuisance or exotic plant species;

### **7.3 Monitoring of Mitigation Areas**

Monitoring of the 64.86 acre surplus mitigation areas (Plan 2) will initially be limited to a Baseline Monitoring Event/Report and Time Zero Monitoring Event/Report to document baseline conditions and time zero conditions of the Plan 2 mitigation areas immediately following the restoration activities. Additional annual monitoring events will initially not be required, as no mitigation credit is being granted by SFWMD until a Conservation Easement over the Plan 2 mitigation areas is recorded in the Public Records of Lee County. To receive credit for the Plan 2 surplus mitigation areas, the following will be required: annual monitoring events must be conducted to verify successful completion of the mitigation success criteria; a Conservation Easement will need to be recorded; and written approval must be provided by SFWMD granting the appropriate mitigation credit release based on the terms of the Plan 2 Mitigation Credit Release Schedule provided in **Appendix B**. Monitoring transects and photo stations within the Plan 2 surplus mitigation areas are depicted on sheet C-09 of the SFWMD plans and include transects T1 – T5 and photo stations 1 - 5 and 7 – 11.

Transect T6 and photo station 6 will be used to monitor the 3.88 acre Plan 1 wetland enhancement area (Wetland ID Number 4). The locations of Transect T6 and photo station 6 are shown on sheet C-09 of the SFWMD plans. Additional details of the monitoring plan are summarized below.

#### **A. Introduction**

The purpose of the monitoring program is to evaluate the degree of success and trends for any given mitigation activity using established protocols and to evaluate and recommend changes to the mitigation and/or maintenance program. In order to successfully track the mitigation effort, four categories of monitoring are required as described below.

1. Baseline Monitoring

The goal of the baseline monitoring is to document the current condition of the mitigation areas and facilitate the tracking of the restoration program over time. The changes anticipated as a result of hydrologic restoration and wetland enhancement include shifts in vegetation species composition and cover, increased wildlife utilization, etc. Therefore, it is important that the baseline monitoring be both repeatable in methodology and sufficiently broad in scope to adequately document these anticipated changes. The principal components of the monitoring plan are vegetation, wildlife utilization, photographic documentation, and hydrology. Baseline monitoring is a one time event and is completed prior to initiation of the restoration activities.

2. Construction Monitoring

The goal of construction monitoring is to ensure the mitigation activities are undertaken in accordance with the approved design. Construction monitoring allows for potential errors and/or unforeseen problems to be identified early on and if required, corrective action taken immediately.

3. Time Zero Monitoring

The goal of time zero monitoring is to accurately document the conditions within created and restored wetlands/uplands at the time construction activities (i.e., exotic removal, grading, planting, etc.) are completed. This monitoring documents that the mitigation areas have been cleared of exotics and grading activities are appropriate. Time zero monitoring also provides a reference point from which plant survival, growth, and change in aerial percent coverage can be evaluated.

4. Post-Construction Monitoring

The goal of the post-construction monitoring is to track the progress of the mitigation area effort towards meeting the success criteria. Accurate and repeatable monitoring is needed to identify trends, respond to problematic situations, and to demonstrate the eventual success of the mitigation program.

**B. Monitoring Methodology**

1. Baseline Monitoring



The baseline event will consist of monitoring vegetation, wildlife utilization, photo documentation, and hydrology. Each component is described below:

a. Vegetation Monitoring

The mitigation areas consist of both herbaceous and forested components. Three strata will be sampled in each plot for representative baseline conditions and will be representative of habitat types within the mitigation areas. These strata are: overstory (plants >4 in. diameter breast height (DBH)), understory (plants <4 in. DBH and greater than 3 feet in height), and ground cover (all non-woody plants and woody plants less than 3 feet in height). The overstory and understory vegetation will be sampled in 10m<sup>2</sup> plots and the ground cover vegetation sampled in 1m<sup>2</sup> plots. For the overstory and understory strata, the relative canopy closure for each species will be recorded. The percent cover of groundcover species and bare ground will be estimated for the herbaceous study plots. Qualitative inspections will be conducted in all of the preserve areas, including uplands. The presence of exotic species will be noted and targeted for eradication.

b. Wildlife Utilization

Regular and periodic observations of wildlife will be made during all monitoring events and other site visits by qualified ecologists. This will consist of recording evidence and sign of wildlife (i.e., direct sightings, vocalizations, burrows, nests, tracks, droppings, etc.).

c. Photographic Documentation

Panoramic photographs provide physical documentation of the condition and appearance of the mitigation areas as well as any changes taking place within them. Panoramic photographs will accompany vegetation data in each report.

d. Hydrologic Monitoring

Current water levels at each monitoring plot/station will be recorded and rainfall data will be collected. This data will be included in the baseline monitoring report. Two piezometers will be installed during the time zero monitoring event to monitor water levels. One piezometer will be located within the 3.88 acre Plan 1 wetland enhancement area (Wetland ID Number 4) and the other will be installed in the northeast corner of the

Plan 2 filter marsh wetland creation area (Wetland ID Number 19). Pertinent discussion about the soil/weather conditions for the area will also be included.

e. Monitoring Report

The vegetation, wildlife, photographic, and hydrologic data collected during the baseline monitoring will be summarized and presented in the baseline monitoring report. Each mitigation area will be described and discussed in terms of these parameters. This report will be submitted to the agencies within sixty days of data collection.

2. Construction Monitoring

During the course of the mitigation activities, periodic observations will be made. Observations will begin when the mitigation areas are field staked and continue through the completion of mitigation activities. Evaluation of work in progress will be made and any potential problems noted. Immediate action will be initiated to correct deficiencies. Specific items to be checked will include:

- Exotic and nuisance species removal
- Water levels/soil moisture within mitigation areas
- Compliance with construction documents

Through these inspections the contractors, permit representatives, and/or agencies will be advised of the status of the construction efforts as necessary.

3. Time Zero Monitoring

As part of the time zero report, permanent site specific linear transects and quadrat locations will be established through representative sections of the mitigation areas. The time zero monitoring will consist of documenting existing vegetation, success of exotic species removal and various other creation, restoration and enhancement activities. Each component is described below. Quantitative time zero monitoring will target those restoration areas where large areas of exotics or nuisance species have been removed. Qualitative monitoring will be conducted in all exotic removal areas.

a. Quantitative Vegetation Monitoring

Within the herbaceous wetlands, 1m<sup>2</sup> study plots will be utilized. Relative coverage will be estimated for each species that occurs within each plot. In existing forested

communities, 10m<sup>2</sup> plots will be utilized. Data will be recorded as documented in the baseline methodology. Water levels within each plot will be recorded with a ruler.

b. Qualitative Vegetation Monitoring

Subsequent to the completion of the initial exotic removal effort, each mitigation area will be observed and documented. Any exotic species referenced in the 2009 EPPC list that was missed during the initial treatment, or that have re-sprouted from stumps, and/or that have colonized the mitigation area subsequent to the treatment will be clearly identified for immediate removal. Qualitative vegetation monitoring will also serve to identify and document any nuisance species colonization to be removed or chemically treated.

c. Photographic Documentation

Panoramic photographs will accompany the vegetation data in each report. Locations of photo stations will remain constant throughout the duration of the monitoring program.

d. Monitoring Report

The data and photographs collected during the time zero monitoring event will be compiled in a summary report. The report will be submitted to the agencies within sixty days of data collection.

4. Post-Construction Monitoring

The monitoring methodologies utilized for the baseline and time zero monitoring events will be used for all post-construction monitoring. The Plan 1 mitigation area will be monitored annually for a period of five years and will involve the submittal of seven reports to SFWMD and USACOE staff. Mitigation success criteria for the onsite preserves shall be reviewed by SFWMD and USACOE staff at the end of the five year monitoring period. The mitigation areas will achieve 80% coverage of desirable wetland species by the 5<sup>th</sup> annual monitoring event. Total coverage of exotic and nuisance plant species within the mitigation areas, including upland mitigation areas, may constitute no more than 5% total coverage.

South Florida Water Management District

Work Schedule Requirements

Application No : 091030-14

Page 1 of 1

**Mitigation Plan ID: POWELL CREEK**

<b>Activity</b>	<b>Due Date</b>
SUBMIT PAPER MAP OF CONSERVATION EASEMENT OVER AERIAL IMAGERY	01-NOV-11
SUBMIT GPS DISK OF BOUNDARIES OF CONSERVATION EASEMENT	01-NOV-11
SUBMIT GIS DISK	01-NOV-11
SUBMIT RECORDED CONSERVATION EASEMENT	01-NOV-11
SUBMIT SEALED BOUNDARY SURVEY OF CONSERVATION AREA	01-NOV-11

**Mitigation Plan ID: POWELL CREEK PLAN 1**

<b>Activity</b>	<b>Due Date</b>
SUBMIT BASELINE MONITORING REPORT	01-MAR-12
EXOTIC VEGETATION REMOVAL	30-MAR-12
SUBMIT TIME ZERO MONITORING REPORT	01-JUL-12
SUBMIT FIRST MONITORING REPORT	01-JUL-13
SUBMIT SECOND MONITORING REPORT	01-JUL-14
SUBMIT THIRD MONITORING REPORT	01-JUL-15
SUBMIT FOURTH MONITORING REPORT	01-JUL-16
SITE INSPECTION	01-JUL-17
SUBMIT FIFTH MONITORING REPORT	01-JUL-17

**Mitigation Plan ID: POWELL CREEK PLAN 2**

<b>Activity</b>	<b>Due Date</b>
SUBMIT BASELINE MONITORING REPORT	01-MAR-12
EXOTIC VEGETATION REMOVAL	30-MAR-12
SUBMIT TIME ZERO MONITORING REPORT	01-JUL-12

**SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

**DEED OF CONSERVATION EASEMENT**

Return recorded document to:  
South Florida Water Management District  
3301 Gun Club Road, MSC 4210  
West Palm Beach, FL 33406

THIS DEED OF CONSERVATION EASEMENT is given this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by Lee County, a political subdivision of the State of Florida ("Grantor") whose mailing address is P.O. Box 398, Fort Myers, Florida 33902 to the South Florida Water Management District ("Grantee"). As used herein, the term "Grantor" shall include any and all heirs, successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term "Grantee" shall include any successor or assignee of Grantee.

WITNESSETH

WHEREAS, the Grantor is the owner of certain lands situated in Lee County, Florida, and more specifically described in Exhibit "A" attached hereto and incorporated herein ("Property"); and

WHEREAS, the Grantor desires to construct Powell Creek Preserve Filter Marsh ("Project") at a site called Powell Creek Preserve, a Conservation 20/20 preserve located at 15601 Hart Road, N. Ft. Myers, FL, 33917, in Lee County, which is subject to the regulatory jurisdiction of South Florida Water Management District ("District"); and

WHEREAS, District Permit No. \_\_\_\_\_ ("Permit") authorizes certain activities which affect surface waters in or of the State of Florida; and

WHEREAS, this Permit requires that the Grantor preserve, enhance, restore and/or mitigate wetlands and/or uplands under the District's jurisdiction; and

WHEREAS, the Grantor has developed and proposed as part of the Permit conditions a conservation tract and maintenance buffer involving preservation of certain wetland and/or upland systems on the Property; and

WHEREAS, the Grantor, in consideration of the consent granted by the Permit, is agreeable to granting and securing to the Grantee a perpetual Conservation Easement defined in Section 704.06, Florida Statutes, over the area described on Exhibit "B" ("Conservation Easement").

NOW, THEREFORE, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt of which are hereby acknowledged, Grantor hereby grants, creates, and establishes a perpetual Conservation Easement for and in favor of the Grantee upon the property described on Exhibit "B" which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

The scope, nature, and character of this Conservation Easement shall be as follows:

1. Recitals. The recitals hereinabove set forth are true and correct and are hereby incorporated into and made a part of this Conservation Easement.

2. Purpose. It is the purpose of this Conservation Easement to retain land or water areas in their natural, vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetland and/or upland areas included in the Conservation Easement which are to be enhanced or created pursuant to the Permit shall be retained and maintained in the enhanced or created conditions required by the Permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

a. To enter upon the Property at reasonable times with any necessary equipment or vehicles to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and

b. To enjoin any activity on or use of the Property that is inconsistent with this Conservation Easement and to enforce the restoration of such areas or features of the Conservation Easement that may be damaged by any inconsistent activity or use.

3. Prohibited Uses. Except for restoration, creation, enhancement, maintenance and monitoring activities, or surface water management improvements, or other activities described herein that are permitted or required by the Permit, the following activities are prohibited in or on the Conservation Easement:

a. Construction or placing of buildings, roads, signs, billboards or other advertising, or other structures on or above the ground;

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials;

c. Removal or destruction of trees, shrubs, or other vegetation, except to conduct operation and maintenance activities associated with the filter marsh or to conduct the natural resource management activities outlined in the most current version

of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface except to conduct filter marsh operation and maintenance activities and carry out the natural resource management activities outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

e. Surface use except for purposes that permit the land or water area to remain in its natural or enhanced condition, activities associated with operation and maintenance of the filter marsh as authorized by SFWMD Permit Number \_\_\_\_\_ and natural resource based public access and recreation as outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners;

f. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and fencing except for activities associated with operation and maintenance of the filter marsh as authorized by SFWMD Permit Number \_\_\_\_\_ and natural resource management activities outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

g. Acts or uses detrimental to such aforementioned retention of land or water areas;

h. Acts or uses which are detrimental to the preservation of the structural integrity or physical appearance of sites or properties having historical, archaeological, or cultural significance.

4. Passive Recreational Facilities. Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein and that are not inconsistent with any District rule, criteria, the Permit and the intent and purposes of this Conservation Easement. Passive recreational uses that are consistent with the purpose of this Conservation Easement may be permitted upon written approval by the District.

a. The Grantor may conduct limited land clearing for the purpose of constructing such pervious facilities as docks, boardwalks or mulched/grassed/dirt walking trails.

b. The construction and use of the approved passive recreational facilities shall be subject to the following conditions:

i. Grantor shall minimize and avoid, to the fullest extent possible, impact to any wetland or upland buffer areas within the Conservation Easement Area and shall avoid materially diverting the direction of the natural surface water flow in such area;

ii. Such facilities and improvements shall be constructed and maintained utilizing Best Management Practices;

iii. Adequate containers for litter disposal shall be situated adjacent to such facilities and improvements and periodic inspections shall be instituted by the maintenance entity, to clean any litter from the area surrounding the facilities and improvements;

iv. This Conservation Easement shall not constitute permit authorization for the construction and operation of the passive recreational facilities. Any such work shall be subject to all applicable federal, state, District or local permitting requirements.

5. No Dedication. No right of access by the general public to any portion of the Property is conveyed by this Conservation Easement.

6. Grantee's Liability. Grantee shall not be responsible for any costs or liabilities related to the operation, upkeep or maintenance of the Property.

7. Property Taxes. Grantor shall keep the payment of taxes and assessments on the Easement Parcel current and shall not allow any lien on the Easement Parcel superior to this Easement. In the event Grantor fails to extinguish or obtain a subordination of such lien, in addition to any other remedy, the Grantee may, but shall not be obligated to, elect to pay the lien on behalf of the Grantor and Grantor shall reimburse Grantee for the amount paid by Grantee, together with Grantee's reasonable attorney's fees and costs, with interest at the maximum rate allowed by law, no later than thirty days after such payment. In the event Grantor does not so reimburse the Grantee, the debt owed to Grantee shall constitute a lien against the Easement Parcel which shall automatically relate back to the recording date of this Easement. Grantee may foreclose this lien on the Easement Parcel in the manner provided for mortgages on real property.

8. Enforcement. Enforcement of the terms, provisions and restrictions of this Conservation Easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor, shall not be deemed or construed to be a waiver of Grantee's rights hereunder.



9. Assignment. Grantee will hold this Conservation Easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this Conservation Easement except to another organization or entity qualified to hold such interests under the applicable state laws.

10. Severability. If any provision of this Conservation Easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this Conservation Easement shall not be affected thereby, as long as the purpose of the Conservation Easement is preserved.

11. Terms, Conditions, Restrictions, Purpose. The terms, conditions, restrictions and purpose of this Conservation Easement shall be inserted by Grantor in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Conservation Easement. Any future holder of the Grantor's interest in the Property shall be notified in writing by Grantor of this Conservation Easement.

12. Written Notice. All notices, consents, approvals or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

13. Modifications. This Conservation Easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns or successors-in-interest, which shall be filed in the public records in Lee County.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purposes imposed with this Conservation Easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor is lawfully seized of said Property in fee simple; that the Conservation Easement is free and clear of all encumbrances that are inconsistent with the terms of this Conservation Easement; and all mortgages and liens on the Conservation Easement area, if any, have been subordinated to this Conservation Easement; and that Grantor has good right and lawful authority to convey this Conservation Easement.

ATTEST:  
CLERK OF COURT

LEE COUNTY BOARD OF  
COUNTY COMMISSIONS

By: \_\_\_\_\_  
Deputy Clerk

By: \_\_\_\_\_,  
Chair

Approved as to Form:

By:  
Lee County Attorney's Office

Exhibit "A"



Bean, Whitaker, Lutz & Kareh, Inc.

13041 McGregor Boulevard  
Fort Myers, Florida 33919-5910  
email - fmooffice@bwllk.net  
(Ph) 239-481-1331 (Fax) 239-481-1073

Description of a Parcel of Land  
Lying in  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)

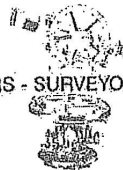
A parcel of land situated in the State of Florida, County of Lee, Section 36, Township 43 South, Range 24 East, and further described as follows:

Commencing at the southwest corner of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'30"E along the south line of said Northwest One-Quarter (NW 1/4) for 100.00 feet to the southeast corner of a parcel described in Official Records Book 1848 at Page 2195, public records of Lee County, Florida and to the Point of Beginning; thence N00°23'29"W along the east line of said lands, parallel with and 100.00 feet east of the west line of said Section 36 for 85.00 feet to the south line of a parcel described in Official Records Book 1052 at Page 620; thence N89°36'31"E along the south line of said parcel for 20.00 feet to the east line of said parcel; thence N00°23'29"W along the east line of said parcel for 50.00 feet to the northeast corner of said parcel; thence S89°36'31"W along the north line of said parcel for 20.00 feet to the east line of aforesaid parcel described in Official Records Book 1848 at Page 2195; thence N00°23'29"W along the east line of said parcel parallel with and 100.00 feet east of the west line of said Section 36 for 34.41 feet to the beginning of a curve to the left having a radius of 5779.60 feet; thence continue northwesterly along said curve and said east line through a central angle of 10°40'26" for 1076.70 feet to a Point of Non-Tangency on the west line of said Section 36; thence N00°23'29"W along said west line for 81.09 feet to the southwest corner of a parcel described in Official Records Book 781 at Page 574, said point also being the northwest corner of the south one-half (S 1/2) of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'28"E along the south line of said parcel and the north line of said fraction for 2631.00 feet to the west right-of-way line of Hart Road as vested in Lee County, Florida, pursuant to the provisions of Florida Statute 95.361(1) according to Road Plat Book 2 at Pages 41-48 and testimonial affidavits recorded in Official Records Book 3294 at Page 2191 and Official Records Book 3294 at Page 2200, public records of Lee County, Florida; thence S09°44'30"E along said westerly right-of-way line for 51.03 feet; thence S03°29'48"E along said westerly right-of-way line for 104.17 feet; thence S03°00'43"E along said westerly right-of-way line for 120.20 feet; thence S03°31'12"E along said westerly right-of-way line for 89.45 feet; thence S03°08'25"E along said westerly right-of-way line for 118.00 feet; thence S00°33'32"E along said westerly right-of-way line for 152.40 feet; thence S03°13'00"W along said westerly right-of-way line for 51.24 feet to the north line of a parcel described in Official Records Book 2287 at Page 1503; thence N89°43'57"W along the north line of said parcel for 308.08 feet to the northwest corner of said parcel; thence S00°16'03"W along the west line of said parcel for 150.00 feet to the southwest corner of said parcel; thence S89°43'57"E along the south line of said parcel for 302.46 feet to the aforesaid west right-of-way line of Hart Road; thence S01°49'04"W along said west right-of-way line for 165.99 feet; thence S00°38'43"E along said west

PRINCIPALS:

WILLIAM E. BEAN, PSM, CHAIRMAN  
SCOTT C. WHITAKER, PSM, PRESIDENT  
JOSEPH L. LUTZ, PSM  
AHMAD R. KAREH, PE, MSCE, VICE PRESIDENT

CONSULTING ENGINEERS - SURVEYORS AND MAPPERS - PLANNERS



ASSOCIATES:

TRACY N. BEAN, AICP  
CHARLES D. KIRCHIT, PSM  
W. BRITT POMEROY, JR., PSM  
STEPHEN H. SKORUPSKI, PSM  
JAMES A. HESSLER, PSM  
JEFFREY P. GAGNON, PSM  
RUDOLFA NORMAN, PE

Exhibit "A"

Bean, Whitaker, Lutz & Kereh, Inc.

Description of a Parcel of Land  
Lying In  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)  
(Continued)

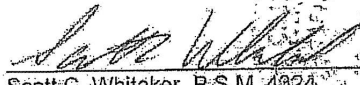
right-of-way line for 319.18 feet to the south line of the Northwest One-Quarter (NW 1/4) of said Section 36; thence N89°50'30"W along said south line and the north line of Carriage Village Units 1 and 4 for 2545.86 feet to the Point of Beginning.

Containing 77.20 acres, more or less.

Subject to easements, restrictions, reservations and rights-of-way (recorded and unrecorded, written and unwritten).

Bearings are based on the State Plane Co-ordinate System (North American Datum of 1983-1990 Adjustment) Florida West Zone with the West Line of the Northwest One-Quarter (NW 1/4) of Section 36 as bearing N00°23'29"W.

Bean, Whitaker, Lutz & Kereh, Inc. (LB4919)

  
Scott C. Whitaker, P.S.M. 4924

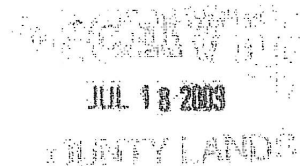
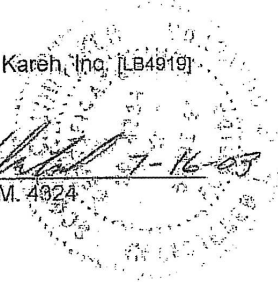
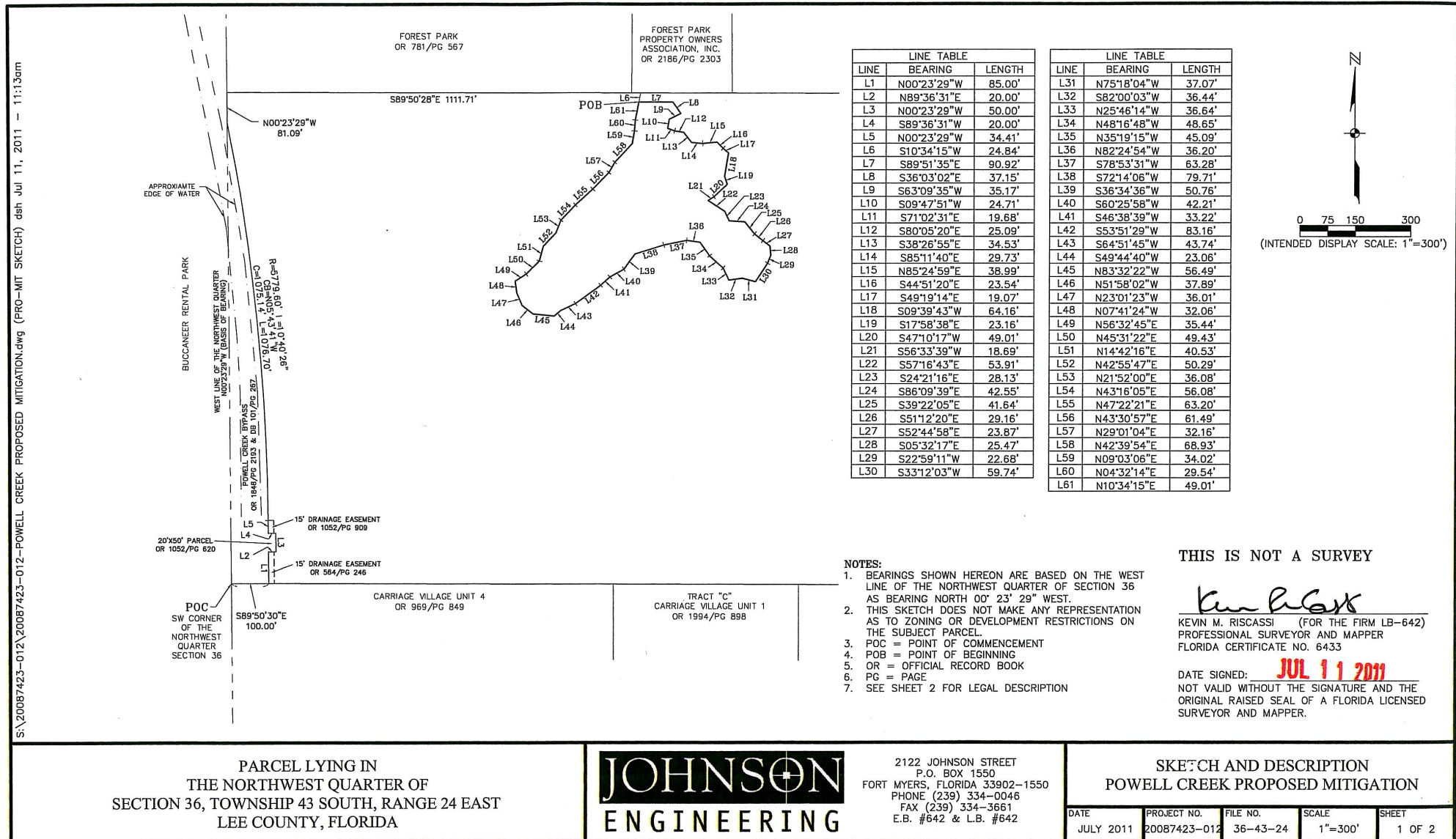


Exhibit "B"



LINE	BEARING	LENGTH
L1	N00°23'29"W	85.00'
L2	N89°36'31"E	20.00'
L3	N00°23'29"W	50.00'
L4	S89°36'31"W	20.00'
L5	N00°23'29"W	34.41'
L6	S10°34'15"W	24.84'
L7	S89°51'35"E	90.92'
L8	S36°03'02"E	37.15'
L9	S63°09'35"W	35.17'
L10	S09°47'51"W	24.71'
L11	S71°02'31"E	19.68'
L12	S80°05'20"E	25.09'
L13	S38°26'55"E	34.53'
L14	S85°11'40"E	29.73'
L15	N85°24'59"E	38.99'
L16	S44°51'20"E	23.54'
L17	S49°19'14"E	19.07'
L18	S09°39'43"W	64.16'
L19	S17°58'38"E	23.16'
L20	S47°10'17"W	49.01'
L21	S56°33'39"W	18.69'
L22	S57°16'43"E	53.91'
L23	S24°21'16"E	28.13'
L24	S86°09'39"E	42.55'
L25	S39°22'05"E	41.64'
L26	S51°12'20"E	29.16'
L27	S52°44'58"E	23.87'
L28	S05°32'17"E	25.47'
L29	S22°59'11"W	22.68'
L30	S33°12'03"W	59.74'

LINE	BEARING	LENGTH
L31	N75°18'04"W	37.07'
L32	S82°00'03"W	36.44'
L33	N25°46'14"W	36.64'
L34	N48°16'48"W	48.65'
L35	N35°19'15"W	45.09'
L36	N82°24'54"W	36.20'
L37	S78°53'31"W	63.28'
L38	S72°14'06"W	79.71'
L39	S36°34'36"W	50.76'
L40	S60°25'58"W	42.21'
L41	S46°38'39"W	33.22'
L42	S53°51'29"W	83.16'
L43	S64°51'45"W	43.74'
L44	S49°44'40"W	23.06'
L45	N83°32'22"W	56.49'
L46	N51°58'02"W	37.89'
L47	N23°01'23"W	36.01'
L48	N07°41'24"W	32.06'
L49	N56°32'45"E	35.44'
L50	N45°31'22"E	49.43'
L51	N14°42'16"E	40.53'
L52	N42°55'47"E	50.29'
L53	N21°52'00"E	36.08'
L54	N43°16'05"E	56.08'
L55	N47°22'21"E	63.20'
L56	N43°30'57"E	61.49'
L57	N29°01'04"E	32.16'
L58	N42°39'54"E	68.93'
L59	N09°03'06"E	34.02'
L60	N04°32'14"E	29.54'
L61	N10°34'15"E	49.01'

- NOTES:
1. BEARINGS SHOWN HEREON ARE BASED ON THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 36 AS BEARING NORTH 00° 23' 29" WEST.
  2. THIS SKETCH DOES NOT MAKE ANY REPRESENTATION AS TO ZONING OR DEVELOPMENT RESTRICTIONS ON THE SUBJECT PARCEL.
  3. POC = POINT OF COMMENCEMENT
  4. POB = POINT OF BEGINNING
  5. OR = OFFICIAL RECORD BOOK
  6. PG = PAGE
  7. SEE SHEET 2 FOR LEGAL DESCRIPTION

THIS IS NOT A SURVEY

*Kevin M. Riscassi*

KEVIN M. RISCASSI (FOR THE FIRM LB-642)  
PROFESSIONAL SURVEYOR AND MAPPER  
FLORIDA CERTIFICATE NO. 6433

DATE SIGNED: **JUL 11 2011**  
NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

PARCEL LYING IN  
THE NORTHWEST QUARTER OF  
SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST  
LEE COUNTY, FLORIDA



2122 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (239) 334-0046  
FAX (239) 334-3661  
E.B. #642 & L.B. #642

SKETCH AND DESCRIPTION  
POWELL CREEK PROPOSED MITIGATION

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
JULY 2011	20087423-012	36-43-24	1"=300'	1 OF 2

Exhibit "B"

S:\20087423-012\20087423-012-POWELL CREEK PROPOSED MITIGATION.dwg (PRO-MIT DESC) dsh Jul 11, 2011 - 11:14am

A TRACT OR PARCEL OF LAND LYING IN THE NORTHWEST QUARTER (NW-1/4) OF SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA, BEING DESCRIBED AS FOLLOWS:

COMMENCING THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER (NW-1/4) THENCE RUN S89°50'30"E ALONG THE SOUTH LINE OF SAID FRACTION FOR 100.00 FEET TO THE SOUTHEAST CORNER OF A PARCEL OF LAND DESCRIBED IN OFFICIAL RECORD BOOK 1848, PAGE 2193, IN THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA AND THE POINT OF BEGINNING.

FROM SAID POINT OF BEGINNING RUN N00°23'29"W ALONG THE EAST LINE OF SAID LANDS, 100.00 FEET EAST OF (AS MEASURED ON A PERPENDICULAR) AND PARALLEL WITH AND THE WEST LINE OF SAID SECTION 36 FOR 85.00 FEET TO THE SOUTH LINE OF A PARCEL DESCRIBED IN OFFICIAL RECORD BOOK 1052, PAGE 620, IN SAID PUBLIC RECORDS; THENCE RUN N89°36'31"E ALONG SAID SOUTH LINE FOR 20.00 FEET TO THE EAST LINE OF SAID PARCEL; THENCE RUN N00°23'29"W ALONG SAID EAST LINE FOR 50.00 FEET TO THE NORTHEAST CORNER OF SAID PARCEL; THENCE RUN S89°36'31"W ALONG THE NORTH LINE OF SAID PARCEL FOR 20.00 FEET TO THE EAST LINE OF THE AFORESAID PARCEL DESCRIBED IN OFFICIAL RECORD BOOK 1848, PAGE 2193; THENCE RUN N00°23'29"W ALONG THE EAST LINE OF SAID PARCEL, 100.00 FEET EAST OF (AS MEASURED ON A PERPENDICULAR) AND PARALLEL WITH THE WEST LINE OF SAID SECTION 36 FOR 34.41 FEET TO A POINT OF CURVATURE; THENCE CONTINUE NORTHWESTERLY ALONG SAID EAST LINE AND AN ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 5,779.60 FEET (DELTA 10°40'26") (CHORD BEARING N05°43'41"W) (CHORD 1,076.14 FEET) FOR 1,076.70 FEET TO AN INTERSECTION WITH THE WEST LINE OF SAID SECTION 36 AND A NON-TANGENT LINE; THENCE RUN N00°23'29"W ALONG SAID SECTION LINE FOR 81.09 FEET TO THE SOUTHWEST CORNER OF A PARCEL OF LAND DESCRIBED IN OFFICIAL RECORD BOOK 781, PAGE 567, IN SAID PUBLIC RECORDS, SAID POINT ALSO BEING THE NORTHWEST CORNER OF THE SOUTH HALF (S-1/2) OF SAID NORTHWEST QUARTER (NW-1/4); THENCE RUN S89°50'28"E ALONG THE SOUTH LINE OF SAID PARCEL, ALSO BEING THE SOUTH LINE OF FOREST PARK AND THE NORTH LINE OF SAID FRACTION FOR 1,111.71 FEET; THENCE RUN S10°34'15"W FOR 24.84 FEET TO THE POINT OF BEGINNING.

FROM SAID POINT OF BEGINNING RUN S89°51'35"E FOR 90.92 FEET; THENCE RUN S36°03'02"E FOR 37.15 FEET; THENCE RUN S63°09'35"W FOR 35.17 FEET; THENCE RUN S09°47'51"W FOR 24.71 FEET; THENCE RUN S71°02'31"E FOR 19.68 FEET; THENCE RUN S80°05'20"E FOR 25.09 FEET; THENCE RUN S38°26'55"E FOR 34.53 FEET; THENCE RUN S85°11'40"E FOR 29.73 FEET; THENCE RUN N85°24'59"E FOR 38.99 FEET; THENCE RUN S44°51'20"E FOR 23.54 FEET; THENCE RUN S49°19'14"E FOR 19.07 FEET; THENCE RUN S09°39'43"W FOR 64.16 FEET; THENCE RUN S17°58'38"E FOR 23.16 FEET; THENCE RUN S47°10'17"W FOR 49.01 FEET; THENCE RUN S56°33'39"W FOR 18.69 FEET; THENCE RUN S57°16'43"E FOR 53.91 FEET; THENCE RUN S24°21'16"E FOR 28.13 FEET; THENCE RUN S86°09'39"E FOR 42.55 FEET; THENCE RUN S39°22'05"E FOR 41.64 FEET; THENCE RUN S51°12'20"E FOR 29.16 FEET; THENCE RUN S52°44'58"E FOR 23.87 FEET; THENCE RUN S05°32'17"E FOR 25.47 FEET; THENCE RUN S22°59'11"W FOR 22.68 FEET; THENCE RUN S33°12'03"W FOR 59.74 FEET; THENCE RUN N75°18'04"W FOR 37.07 FEET; THENCE RUN S82°00'03"W FOR 36.44 FEET; THENCE RUN N25°46'14"W FOR 36.64 FEET; THENCE RUN N48°16'48"W FOR 48.65 FEET; THENCE RUN N35°19'15"W FOR 45.09 FEET; THENCE RUN N82°24'54"W FOR 36.20 FEET; THENCE RUN S78°53'31"W FOR 63.28 FEET; THENCE RUN S72°14'06"W FOR 79.71 FEET; THENCE RUN S36°34'36"W FOR 50.76 FEET; THENCE RUN S60°25'58"W FOR 42.21 FEET; THENCE RUN S46°38'39"W FOR 33.22 FEET; THENCE RUN S53°51'29"W FOR 83.16 FEET; THENCE RUN S64°51'45"W FOR 43.74 FEET; THENCE RUN S49°44'40"W FOR 23.06 FEET; THENCE RUN N83°32'22"W FOR 56.49 FEET; THENCE RUN N51°58'02"W FOR 37.89 FEET; THENCE RUN N23°01'23"W FOR 36.01 FEET; THENCE RUN N07°41'24"W FOR 32.06 FEET; THENCE RUN N56°32'45"E FOR 35.44 FEET; THENCE RUN N45°31'22"E FOR 49.43 FEET; THENCE RUN N14°42'16"E FOR 40.53 FEET; THENCE RUN N42°55'47"E FOR 50.29 FEET; THENCE RUN N21°52'00"E FOR 36.08 FEET; THENCE RUN N43°16'05"E FOR 56.08 FEET; THENCE RUN N47°22'21"E FOR 63.20 FEET; THENCE RUN N43°30'57"E FOR 61.49 FEET; THENCE RUN N29°01'04"E FOR 32.16 FEET; THENCE RUN N42°39'54"E FOR 68.93 FEET; THENCE RUN N09°03'06"E FOR 34.02 FEET; THENCE RUN N04°32'14"E FOR 29.54 FEET; THENCE RUN N10°34'15"E FOR 49.01 FEET TO THE POINT OF BEGINNING.  
CONTAINING 169,099 SQUARE FEET OR 3.88 ACRES, MORE OR LESS.

PARCEL LYING IN  
THE NORTHWEST QUARTER OF  
SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST  
LEE COUNTY, FLORIDA



2122 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (239) 334-0046  
FAX (239) 334-3661  
E.B. #642 & L.B. #642

SKETCH AND DESCRIPTION  
POWELL CREEK PROPOSED MITIGATION

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
JULY 2011	20087423-012	36-43-24	N/A	2 OF 2

# SOUTH FLORIDA WATER MANAGEMENT DISTRICT

## DEED OF CONSERVATION EASEMENT

Return recorded document to:  
South Florida Water Management District  
3301 Gun Club Road, MSC 4210  
West Palm Beach, FL 33406

THIS DEED OF CONSERVATION EASEMENT is given this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by Lee County, a political subdivision of the State of Florida ("Grantor") whose mailing address is P.O. Box 398, Fort Myers, Florida 33902 to the South Florida Water Management District ("Grantee"). As used herein, the term "Grantor" shall include any and all heirs, successors or assigns of the Grantor, and all subsequent owners of the "Property" (as hereinafter defined) and the term "Grantee" shall include any successor or assignee of Grantee.

### WITNESSETH

WHEREAS, the Grantor is the owner of certain lands situated in Lee County, Florida, and more specifically described in Exhibit "A" attached hereto and incorporated herein ("Property"); and

WHEREAS, the Grantor desires to construct Powell Creek Preserve Filter Marsh ("Project") at a site called Powell Creek Preserve, a Conservation 20/20 preserve located at 15601 Hart Road, N. Ft. Myers, FL, 33917, in Lee County, which is subject to the regulatory jurisdiction of South Florida Water Management District ("District"); and

WHEREAS, District Permit No. \_\_\_\_\_ ("Permit") authorizes certain activities which affect surface waters in or of the State of Florida; and

WHEREAS, this Permit requires that the Grantor preserve, enhance, restore and/or mitigate wetlands and/or uplands under the District's jurisdiction; and

WHEREAS, the Grantor has developed and proposed as part of the Permit conditions a conservation tract and maintenance buffer involving preservation of certain wetland and/or upland systems on the Property; and

WHEREAS, the Grantor, in consideration of the consent granted by the Permit, is agreeable to granting and securing to the Grantee a perpetual Conservation Easement defined in Section 704.06, Florida Statutes, over the area described on Exhibit "B" ("Conservation Easement").

NOW, THEREFORE, in consideration of the issuance of the Permit to construct and operate the permitted activity, and as an inducement to Grantee in issuing the Permit, together with other good and valuable consideration, the adequacy and receipt of which are hereby acknowledged, Grantor hereby grants, creates, and establishes a perpetual Conservation Easement for and in favor of the Grantee upon the property described on Exhibit "B" which shall run with the land and be binding upon the Grantor, and shall remain in full force and effect forever.

The scope, nature, and character of this Conservation Easement shall be as follows:

1. Recitals. The recitals hereinabove set forth are true and correct and are hereby incorporated into and made a part of this Conservation Easement.

2. Purpose. It is the purpose of this Conservation Easement to retain land or water areas in their natural, vegetative, hydrologic, scenic, open, agricultural or wooded condition and to retain such areas as suitable habitat for fish, plants or wildlife. Those wetland and/or upland areas included in the Conservation Easement which are to be enhanced or created pursuant to the Permit shall be retained and maintained in the enhanced or created conditions required by the Permit.

To carry out this purpose, the following rights are conveyed to Grantee by this easement:

a. To enter upon the Property at reasonable times with any necessary equipment or vehicles to enforce the rights herein granted in a manner that will not unreasonably interfere with the use and quiet enjoyment of the Property by Grantor at the time of such entry; and

b. To enjoin any activity on or use of the Property that is inconsistent with this Conservation Easement and to enforce the restoration of such areas or features of the Conservation Easement that may be damaged by any inconsistent activity or use.

3. Prohibited Uses. Except for restoration, creation, enhancement, maintenance and monitoring activities, or surface water management improvements, or other activities described herein that are permitted or required by the Permit, the following activities are prohibited in or on the Conservation Easement:

a. Construction or placing of buildings, roads, signs, billboards or other advertising, or other structures on or above the ground;

b. Dumping or placing of soil or other substance or material as landfill, or dumping or placing of trash, waste, or unsightly or offensive materials;

c. Removal or destruction of trees, shrubs, or other vegetation, except to conduct operation and maintenance activities associated with the filter marsh or to conduct the natural resource management activities outlined in the most current version



of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

d. Excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance in such manner as to affect the surface except to conduct filter marsh operation and maintenance activities and carry out the natural resource management activities outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

e. Surface use except for purposes that permit the land or water area to remain in its natural or enhanced condition, activities associated with operation and maintenance of the filter marsh as authorized by SFWMD Permit Number \_\_\_\_\_ and natural resource based public access and recreation as outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners;

f. Activities detrimental to drainage, flood control, water conservation, erosion control, soil conservation, or fish and wildlife habitat preservation including, but not limited to, ditching, diking and fencing except for activities associated with operation and maintenance of the filter marsh as authorized by SFWMD Permit Number \_\_\_\_\_ and natural resource management activities outlined in the most current version of the Powell Creek Preserve Land Stewardship Plan approved by the Lee County Board of County Commissioners, including exotic and nuisance plant control, hydrologic improvements, prescribed fire management, brush reduction, and boundary fence installation and maintenance;

g. Acts or uses detrimental to such aforementioned retention of land or water areas;

h. Acts or uses which are detrimental to the preservation of the structural integrity or physical appearance of sites or properties having historical, archaeological, or cultural significance.

4. Passive Recreational Facilities. Grantor reserves all rights as owner of the Property, including the right to engage in uses of the Property that are not prohibited herein and that are not inconsistent with any District rule, criteria, the Permit and the intent and purposes of this Conservation Easement. Passive recreational uses that are consistent with the purpose of this Conservation Easement may be permitted upon written approval by the District.

a. The Grantor may conduct limited land clearing for the purpose of constructing such pervious facilities as docks, boardwalks or mulched/grassed/dirt walking trails.

b. The construction and use of the approved passive recreational facilities shall be subject to the following conditions:

i. Grantor shall minimize and avoid, to the fullest extent possible, impact to any wetland or upland buffer areas within the Conservation Easement Area and shall avoid materially diverting the direction of the natural surface water flow in such area;

ii. Such facilities and improvements shall be constructed and maintained utilizing Best Management Practices;

iii. Adequate containers for litter disposal shall be situated adjacent to such facilities and improvements and periodic inspections shall be instituted by the maintenance entity, to clean any litter from the area surrounding the facilities and improvements;

iv. This Conservation Easement shall not constitute permit authorization for the construction and operation of the passive recreational facilities. Any such work shall be subject to all applicable federal, state, District or local permitting requirements.

5. No Dedication. No right of access by the general public to any portion of the Property is conveyed by this Conservation Easement.

6. Grantee's Liability. Grantee shall not be responsible for any costs or liabilities related to the operation, upkeep or maintenance of the Property.

7. Property Taxes. Grantor shall keep the payment of taxes and assessments on the Easement Parcel current and shall not allow any lien on the Easement Parcel superior to this Easement. In the event Grantor fails to extinguish or obtain a subordination of such lien, in addition to any other remedy, the Grantee may, but shall not be obligated to, elect to pay the lien on behalf of the Grantor and Grantor shall reimburse Grantee for the amount paid by Grantee, together with Grantee's reasonable attorney's fees and costs, with interest at the maximum rate allowed by law, no later than thirty days after such payment. In the event Grantor does not so reimburse the Grantee, the debt owed to Grantee shall constitute a lien against the Easement Parcel which shall automatically relate back to the recording date of this Easement. Grantee may foreclose this lien on the Easement Parcel in the manner provided for mortgages on real property.

8. Enforcement. Enforcement of the terms, provisions and restrictions of this Conservation Easement shall be at the reasonable discretion of Grantee, and any forbearance on behalf of Grantee to exercise its rights hereunder in the event of any breach hereof by Grantor, shall not be deemed or construed to be a waiver of Grantee's rights hereunder.

9. Assignment. Grantee will hold this Conservation Easement exclusively for conservation purposes. Grantee will not assign its rights and obligations under this Conservation Easement except to another organization or entity qualified to hold such interests under the applicable state laws.

10. Severability. If any provision of this Conservation Easement or the application thereof to any person or circumstances is found to be invalid, the remainder of the provisions of this Conservation Easement shall not be affected thereby, as long as the purpose of the Conservation Easement is preserved.

11. Terms, Conditions, Restrictions, Purpose. The terms, conditions, restrictions and purpose of this Conservation Easement shall be inserted by Grantor in any subsequent deed or other legal instrument by which Grantor divests itself of any interest in the Conservation Easement. Any future holder of the Grantor's interest in the Property shall be notified in writing by Grantor of this Conservation Easement.

12. Written Notice. All notices, consents, approvals or other communications hereunder shall be in writing and shall be deemed properly given if sent by United States certified mail, return receipt requested, addressed to the appropriate party or successor-in-interest.

13. Modifications. This Conservation Easement may be amended, altered, released or revoked only by written agreement between the parties hereto or their heirs, assigns or successors-in-interest, which shall be filed in the public records in Lee County.

TO HAVE AND TO HOLD unto Grantee forever. The covenants, terms, conditions, restrictions and purposes imposed with this Conservation Easement shall be binding upon Grantor, and shall continue as a servitude running in perpetuity with the Property.

Grantor hereby covenants with said Grantee that Grantor is lawfully seized of said Property in fee simple; that the Conservation Easement is free and clear of all encumbrances that are inconsistent with the terms of this Conservation Easement; and all mortgages and liens on the Conservation Easement area, if any, have been subordinated to this Conservation Easement; and that Grantor has good right and lawful authority to convey this Conservation Easement.

ATTEST:  
CLERK OF COURT

LEE COUNTY BOARD OF  
COUNTY COMMISSIONS

By: \_\_\_\_\_  
Deputy Clerk

By: \_\_\_\_\_  
, Chair

Approved as to Form:

By:

Lee County Attorney's Office

Exhibit "A"



Bean, Whitaker, Lutz & Kareh, Inc.

13041 McGregor Boulevard  
Fort Myers, Florida 33919-5910  
email - fmoffice@bwlk.net  
(Ph) 239-481-1331 (Fax) 239-481-1073

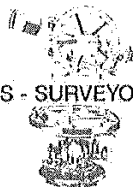
Description of a Parcel of Land  
Lying in  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)

A parcel of land situated in the State of Florida, County of Lee, Section 36, Township 43 South, Range 24 East, and further described as follows:

Commencing at the southwest corner of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'30"E along the south line of said Northwest One-Quarter (NW 1/4) for 100.00 feet to the southeast corner of a parcel described in Official Records Book 1848 at Page 2195, public records of Lee County, Florida and to the Point of Beginning; thence N00°23'29"W along the east line of said lands, parallel with and 100.00 feet east of the west line of said Section 36 for 85.00 feet to the south line of a parcel described in Official Records Book 1052 at Page 620; thence N89°36'31"E along the south line of said parcel for 20.00 feet to the east line of said parcel; thence N00°23'29"W along the east line of said parcel for 50.00 feet to the northeast corner of said parcel; thence S89°36'31"W along the north line of said parcel for 20.00 feet to the east line of aforesaid parcel described in Official Records Book 1848 at Page 2195; thence N00°23'29"W along the east line of said parcel parallel with and 100.00 feet east of the west line of said Section 36 for 34.41 feet to the beginning of a curve to the left having a radius of 5779.60 feet; thence continue northwesterly along said curve and said east line through a central angle of 10°40'26" for 1076.70 feet to a Point of Non-Tangency on the west line of said Section 36; thence N00°23'29"W along said west line for 81.09 feet to the southwest corner of a parcel described in Official Records Book 781 at Page 574, said point also being the northwest corner of the south one-half (S 1/2) of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'28"E along the south line of said parcel and the north line of said fraction for 2631.00 feet to the west right-of-way line of Hart Road as vested in Lee County, Florida, pursuant to the provisions of Florida Statute 95.361(1) according to Road Plat Book 2 at Pages 41-48 and testimonial affidavits recorded in Official Records Book 3294 at Page 2191 and Official Records Book 3294 at Page 2200, public records of Lee County, Florida; thence S09°44'30"E along said westerly right-of-way line for 51.03 feet; thence S03°29'48"E along said westerly right-of-way line for 104.17 feet; thence S03°00'43"E along said westerly right-of-way line for 120.20 feet; thence S03°31'12"E along said westerly right-of-way line for 89.45 feet; thence S03°08'25"E along said westerly right-of-way line for 118.00 feet; thence S00°33'32"E along said westerly right-of-way line for 152.40 feet; thence S03°13'00"W along said westerly right-of-way line for 51.24 feet to the north line of a parcel described in Official Records Book 2287 at Page 1503; thence N89°43'57"W along the north line of said parcel for 308.08 feet to the northwest corner of said parcel; thence S00°16'03"W along the west line of said parcel for 150.00 feet to the southwest corner of said parcel; thence S89°43'57"E along the south line of said parcel for 302.46 feet to the aforesaid west right-of-way line of Hart Road; thence S01°49'04"W along said west right-of-way line for 165.99 feet; thence S00°38'43"E along said west

PRINCIPALS:  
WILLIAM E. BEAN, PSM, CHAIRMAN  
SCOTT C. WHITAKER, PSM, PRESIDENT  
JOSEPH L. LUTZ, PSM  
AHMAD R. KAREH, PE, MSCE, VICE PRESIDENT

CONSULTING ENGINEERS - SURVEYORS AND MAPPERS - PLANNERS



ASSOCIATES:  
TRACY N. BEAN, AICP  
CHARLES D. KNIGHT, PSM  
W. BRITT POMEROY, JR., PSM  
STEPHEN H. SKORUPSKI, PSM  
JAMES A. HESSLER, PSM  
JEFFREY P. GAGNON, PSM  
RUDOLFA NORMAN, PE

Exhibit "A"

Bean, Whitaker, Lutz & Kareh, Inc.

Description of a Parcel of Land  
Lying in  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)  
(Continued)

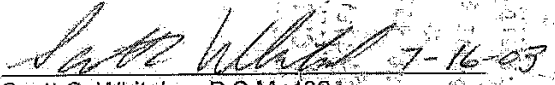
right-of-way line for 319.18 feet to the south line of the Northwest One-Quarter (NW 1/4) of said Section 36; thence N89°50'30"W along said south line and the north line of Carriage Village Units 1 and 4 for 2545.86 feet to the Point of Beginning.

Containing 77.20 acres, more or less.

Subject to easements, restrictions, reservations and rights-of-way (recorded and unrecorded, written and unwritten).

Bearings are based on the State Plane Co-ordinate System (North American Datum of 1983-1990 Adjustment) Florida West Zone with the West Line of the Northwest One-Quarter (NW 1/4) of Section 36 as bearing N00°23'29"W.

Bean, Whitaker, Lutz & Kareh, Inc. [LB4919]

  
Scott C. Whitaker, P.S.M. 4324

JUL 18 2003



Exhibit "B"

A TRACT OR PARCEL OF LAND LYING IN THE NORTHWEST QUARTER (NW-1/4) OF SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST, LEE COUNTY, FLORIDA, BEING DESCRIBED AS FOLLOWS:

COMMENCING THE SOUTHWEST CORNER OF SAID NORTHWEST QUARTER (NW-1/4) THENCE RUN S89°50'30"E ALONG THE SOUTH LINE OF SAID FRACTION FOR 100.00 FEET TO THE SOUTHEAST CORNER OF A PARCEL OF LAND DESCRIBED IN OFFICIAL RECORD BOOK 1848, PAGE 2193, IN THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA AND THE POINT OF BEGINNING.

FROM SAID POINT OF BEGINNING RUN N00°23'29"W ALONG THE EAST LINE OF SAID LANDS, 100.00 FEET EAST OF (AS MEASURED ON A PERPENDICULAR) AND PARALLEL WITH AND THE WEST LINE OF SAID SECTION 36 FOR 85.00 FEET TO THE SOUTH LINE OF A PARCEL DESCRIBED IN OFFICIAL RECORD BOOK 1052, PAGE 620, IN SAID PUBLIC RECORDS; THENCE RUN N89°36'31"E ALONG SAID SOUTH LINE FOR 20.00 FEET TO THE EAST LINE OF SAID PARCEL; THENCE RUN N00°23'29"W ALONG SAID EAST LINE FOR 50.00 FEET TO THE NORTHEAST CORNER OF SAID PARCEL; THENCE RUN S89°36'31"W ALONG THE NORTH LINE OF SAID PARCEL FOR 20.00 FEET TO THE EAST LINE OF THE AFORESAID PARCEL DESCRIBED IN OFFICIAL RECORD BOOK 1848, PAGE 2193; THENCE RUN N00°23'29"W ALONG THE EAST LINE OF SAID PARCEL, 100.00 FEET EAST OF (AS MEASURED ON A PERPENDICULAR) AND PARALLEL WITH THE WEST LINE OF SAID SECTION 36 FOR 34.41 FEET TO A POINT OF CURVATURE; THENCE CONTINUE NORTHWESTERLY ALONG SAID EAST LINE AND AN ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 5,779.60 FEET (DELTA 10°40'26") (CHORD BEARING N05°43'41"W) (CHORD 1,075.14 FEET) FOR 1,076.70 FEET TO AN INTERSECTION WITH THE WEST LINE OF SAID SECTION 36 AND A NON-TANGENT LINE; THENCE RUN N00°23'29"W ALONG SAID SECTION LINE FOR 81.09 FEET TO THE SOUTHWEST CORNER OF A PARCEL OF LAND DESCRIBED IN OFFICIAL RECORD BOOK 781, PAGE 574, IN SAID PUBLIC RECORDS, SAID POINT ALSO BEING THE NORTHWEST CORNER OF THE SOUTH HALF (S-1/2) OF SAID NORTHWEST QUARTER (NW-1/4); THENCE RUN S89°50'28"E ALONG THE SOUTH LINE OF SAID PARCEL, ALSO BEING THE SOUTH LINE OF FOREST PARK AND THE NORTH LINE OF SAID FRACTION FOR 2,631.00 FEET TO THE WEST RIGHT-OF-WAY LINE OF HART ROAD AS VESTED IN LEE COUNTY, FLORIDA, PURSUANT TO THE PROVISIONS OF FLORIDA STATUTE 95.361(1) ACCORDING TO ROAD PLAT BOOK 2, PAGES 41 THROUGH 48, AND TESTIMONIAL AFFIDAVITS RECORDED IN OFFICIAL RECORD BOOK 3294, PAGE 2191 AND OFFICIAL RECORD BOOK 3294, PAGE 2200, IN SAID PUBLIC RECORDS; THENCE RUN S09°44'30"E ALONG SAID RIGHT-OF-WAY LINE FOR 51.03 FEET; THENCE CONTINUE ALONG SAID RIGHT-OF-WAY LINE S03°29'48"E FOR 21.05 FEET TO AN INTERSECTION WITH A NON-TANGENT CURVE; THENCE DEPARTING SAID RIGHT-OF-WAY LINE RUN WESTERLY ALONG AN ARC OF SAID CURVE TO THE LEFT, HAVING A RADIUS OF 118.67 FEET (DELTA 67°02'08") (CHORD BEARING S70°23'42"W) (CHORD 131.06 FEET) FOR 138.85 FEET TO A POINT OF REVERSE CURVATURE; THENCE RUN SOUTHWESTERLY ALONG AN ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 372.36 FEET (DELTA 03°56'10") (CHORD BEARING S38°50'44"W) (CHORD 25.58 FEET) FOR 25.58 FEET TO AN INTERSECTION WITH A NON-TANGENT CURVE; THENCE RUN SOUTHERLY ALONG AN ARC OF SAID CURVE TO THE RIGHT, HAVING A RADIUS OF 488.50 FEET (DELTA 08°39'35") (CHORD BEARING S13°38'21"E) (CHORD 73.76 FEET) FOR 73.83 FEET; THENCE RUN N86°44'57"E FOR 129.77 FEET TO AN INTERSECTION WITH SAID WESTERLY RIGHT-OF-WAY LINE OF HART ROAD; THENCE RUN ALONG SAID RIGHT-OF-WAY LINE THE FOLLOWING COURSES: S03°00'43"E FOR 74.89 FEET; S03°31'12"E FOR 89.45 FEET; S03°08'25"E FOR 118.00 FEET; S00°33'32"E FOR 152.40 FEET; S03°13'00"W FOR 51.24 FEET TO THE NORTH LINE OF A PARCEL DESCRIBED IN OFFICIAL RECORD BOOK 2287, PAGE 1503, IN SAID PUBLIC RECORDS; THENCE RUN N89°43'57"W ALONG THE NORTH LINE OF SAID PARCEL FOR 308.08 FEET TO THE NORTHWEST CORNER OF SAID PARCEL; THENCE RUN S00°16'03"W ALONG THE WEST LINE OF SAID PARCEL FOR 150.00 FEET TO THE SOUTHWEST CORNER OF SAID PARCEL; THENCE RUN S89°43'57"E ALONG THE SOUTH LINE OF SAID PARCEL FOR 302.46 FEET TO THE AFORESAID WESTERLY RIGHT-OF-WAY LINE OF HART ROAD; THENCE RUN S01°49'04"W ALONG SAID WESTERLY RIGHT-OF-WAY LINE FOR 165.99 FEET; THENCE CONTINUE ALONG SAID WESTERLY RIGHT-OF-WAY LINE S00°38'43"E FOR 319.18 FEET TO THE SOUTH LINE OF THE NORTHWEST QUARTER (NW-1/4) OF SAID SECTION 36; THENCE RUN N89°50'30"W ALONG SAID SOUTH LINE AND THE NORTH LINE OF CARRIAGE VILLAGE UNITS 1 AND 4 FOR 2,545.86 FEET TO THE POINT OF BEGINNING. PARCEL CONTAINS 3,346,525 SQUARE FEET OR 76.83 ACRES, MORE OR LESS.

LESS AND EXCEPT THE LAND ENCUMBERED BY THE FOLLOWING EASEMENTS:

DRAINAGE EASEMENT RECORDED IN OFFICIAL RECORD BOOK 564, PAGE 246, DRAINAGE EASEMENT RECORDED IN OFFICIAL RECORD BOOK 1052, PAGE 909 AND UTILITY EASEMENT RECORDED IN OFFICIAL RECORD BOOK 2877, PAGE 4095, ALL IN THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA.

S:\20034378-04\CONSERVATION EASEMENT 3-30-11.dwg (CE 8X14 SH 2) girm Apr 07, 2011 - 9:12am

PARCEL LYING IN  
THE NORTHWEST QUARTER OF  
SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST  
LEE COUNTY, FLORIDA



2122 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (239) 334-0046  
FAX (239) 334-3661  
E.B. #642 & L.B. #642

SKETCH AND DESCRIPTION  
POWELL CREEK PRESERVE FILTER MARCH  
CONSERVATION EASEMENT

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
APRIL 2011	20034378-04	36-43-24	N/A	2 OF 2



## STAFF REPORT DISTRIBUTION LIST

POWELL CREEK PRESERVE FILTER MARSH

**Application No:** 091030-14

**Permit No:** 36-07386-P

### **INTERNAL DISTRIBUTION**

- X Carmen Quan, P.E.
- X Justin M.Hojnacki
- X Laura Layman
- X Daniel F. Waters, P.E.
- X ERC Engineering
- X ERC Environmental
- X Fort Myers Backup File
- X Permit File

### **EXTERNAL DISTRIBUTION**

- X Permittee - Lee County Board Of County Commissioners
- X Engr Consultant - Johnson Engineering, Inc.
- X Owner - Lee County Natural Resources Division

### **GOVERNMENT AGENCIES**

- X Div of Recreation and Park - District 4 - FDEP
- X South District, Florida Dept. of Environmental Pr. - Lucy Blair

### **OTHER INTERESTED PARTIES**

- X Audubon of Florida - Charles Lee

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ottolire@leegov.com

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Div of Recreation and Park - District 4 - FDEP  
1843 South Tamiami Trail  
Osprey FL 34229  
chris.becker@dep.state.fl.us

South District, Florida Dept. of Environmental Pr. - Lucy  
Blair  
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P.O. Box 2549  
Fort Myers FL 33902-2549

Audubon of Florida - Charles Lee  
1101 Audubon Way  
Maitland FL 32751  
chlee2@earthlink.net

**CONSTRUCTION POLLUTION PREVENTION PLAN**  
for  
**Powell Creek Preserve Filter Marsh**

SITE DESCRIPTION			
Project Name and Location: (Latitude, Longitude, or Address)	Powell Creek Preserve Filter Marsh 15601 Hart Road North Fort Myers, FL	Owner Name and Address:	BOCC, C20/20
Description: (Purpose and Types of Soil Disturbing Activities)	<p>Construction in this project will generally consist of site clearing, marsh excavation, and construction of berms.</p> <p>Soil disturbing activities will include: clearing and grubbing, installing a stabilized construction entrance, perimeter berming and other erosion and sediment controls; grading; excavation for the filter marshes, construction of low water crossing of Powell Creek; installation of inlets, pipes and pump; and preparation for final planting, sodding, seeding and mulching.</p>		
Runoff Coefficient:	0.3		
Site Area:	77.3 ac		
Sequence of Major Activities:			
The order of activities will be as follows:			
<ol style="list-style-type: none"> <li>1. Installation of stabilized construction entrance.</li> <li>2. Partial clearing and grubbing.</li> <li>3. Install perimeter berm(s) or silt fences with straw bale barrier(s) adjacent to wetland areas Continue clearing and grading.</li> <li>4. Continue clearing and grading</li> <li>5. Construction of filter marshes</li> <li>6. Stockpile excavated soil.</li> <li>7. Stabilize denuded areas and stockpiles within 21 days of last construction activity in that area.</li> <li>8. Install inlets, pipes and pumps</li> </ol>	<ol style="list-style-type: none"> <li>9. Install Inlet sediment filters</li> <li>10. Complete landscape grading and install permanent seeding and plantings.</li> <li>11. When all construction activity is complete and the site is stabilized, remove temporary earth berms, straw bale barriers, silt fences, inlet filters and turbidity barriers and re-seed any areas disturbed by their removal.</li> </ol>		
Name of Receiving Waters:	Powell Creek		
CONTROLS			
Erosion and Sediment Controls			
Stabilization Practices			
<p>Temporary Stabilization: Top soil stock piles and disturbed portions of the site where construction activity temporarily cease for at least 21 days will be stabilized with temporary seed and mulch no later than 14 days from the last construction activity in that area. The seed shall be Bahia, millet, rye, or other fast-growing grasses. Prior to seeding, fertilizer or agricultural limestone shall be applied to each area to be temporarily stabilized. After seeding, each area shall be mulched with the mulch disked into place. Areas of the site which will be paved will be temporarily stabilized by applying limerock subgrade until bituminous pavement can be applied.</p> <p>Permanent Stabilization: Disturbed portions of the site, where construction activities permanently cease, shall be stabilized with sod, seed and mulch, landscaping, and/or other equivalent stabilization measures (e.g., rip-rap, geotextiles) no later than 14 days after the date of the last construction activity. The sod shall typically be Floratam or Bahia sod. Prior to seeding, fertilizer or agricultural limestone shall be applied to each area to be temporarily stabilized. After seeding, each area shall be mulched with the mulch disked into place.</p>			

**CONTROLS (Continued)**

**Structural Practices**

Silt Fence will be constructed along those areas of the project that border adjacent wetlands. Floating turbidity barriers with weighted skirts that extend to within 1' of the bottom will be installed around the Powell Creek and Powell Creek Canal inlets.

Straw Bale Drop Inlet Sediment Filter - will be placed around all constructed storm drain inlets immediately upon completion of construction and shall remain in-place until the contributing drainage area is stabilized. Alternatively, grate inlets can be covered with filter fabric material until stabilization.

**Storm Water Management**

The project will utilize a system of filter marshes to provide the required water quality treatment and attenuation. Discharges into the water management system will be regulated by a pump. Discharges from the water management system will be regulated by a water control structure. The control structure and pump will be used to maintain water levels in the proposed marshes that will maintain or restore the hydroperiod in the wetlands and flowways. The water control structure will also be used to restrict the discharges from the project as described above.

**DISCHARGE RATES**

6.7 cfs

**OTHER CONTROLS**

**Waste disposal:**

Waste Materials:

All waste materials will be collected and stored in a trash dumpster which will meet all local and State solid waste management regulations. All trash and construction debris from the site will be deposited in this dumpster. The dumpster will be emptied as required due to use and/or State and local regulations, with the trash disposed of at the appropriate landfill operation. No construction waste materials will be buried onsite. All personnel will be instructed regarding the correct procedure for waste disposal. Notices stating these practices will be posted in the construction office trailer.

Hazardous Waste:

All hazardous waste materials will be disposed of in the manner specified by local or State regulation or by the manufacturer. Site personnel will be instructed in these practices.

Sanitary Waste:

All sanitary waste will be collected from the portable units by a local, licensed, City of Fort Myers sanitary waste management contractor, as required by local regulation.

**Offsite Vehicle Tracking:**

A stabilized construction entrance has been provided to help reduce vehicle tracking of sediments. Dump trucks hauling material from the construction site will be covered with a tarpaulin.

**TIMING OF CONTROLS/MEASURES**

Installation of hay bail / silt fence barriers (around wetlands and perimeter berms) and stabilized construction entrance will be constructed prior to extensive clearing or grading of any other portions of the site. Areas where construction activity temporarily ceases for more than 21 days will be stabilized with a temporary seed and mulch within 14 days of the last disturbance. Once construction activity ceases permanently in an area, that area will be stabilized with permanent sod, seed and mulch, landscaping, and/or other equivalent stabilization measures (e.g., rip-rap, geotextiles). After the entire site is stabilized, the silt fence / straw bale barriers can be removed.

**CERTIFICATION OF COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS**

The storm water pollution prevention plan reflects the United States Environmental Protection Agency and the South Florida Water Management District (SFWWD) requirements for storm water management and erosion and sediment control, as established in the Chapter 40E-4 FAC and Chapter 373 FS.

## MAINTENANCE/INSPECTION PROCEDURES

### Erosion and Sediment Control Inspection and Maintenance Practices

These are the inspection and maintenance practices that will be used to maintain erosion and sediment controls.

- ◆ All control measures will be inspected at least once each week and following any storm event of 0.5 inches or greater.
- ◆ All measures will be maintained in good working order; if a repair is necessary, it shall be corrected as soon as possible, but in no case later than 7 days after the inspection.
- ◆ Built up sediment will be removed from silt fence when it has reached one-half the height of the fence.
- ◆ Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.
- ◆ Temporary seeding and permanent sodding and planting will be inspected for bare spots, washouts, and healthy growth.
- ◆ A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached.
- ◆ The Owner will appoint one individual who will be responsible for inspections, maintenance and repair activities, and for completing the inspection and maintenance reports.
- ◆ Personnel selected for inspection and maintenance responsibilities will receive training from the site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

### Non-Storm Water Discharge

It is expected that the following non-storm water discharges will occur from the site during the construction period:

- ◆ Water from water line flushings.
- ◆ All non-storm water discharges will be directed to the storm water management facilities prior to discharge.

### INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present onsite during construction:

- |                             |                            |
|-----------------------------|----------------------------|
| ◆ Concrete                  | ◆ Fertilizers              |
| ◆ Detergents                | ◆ Petroleum Based Products |
| ◆ Paints (enamel and latex) | ◆ Cleaning Solvents        |
| ◆ Metal Studs               | ◆ Wood                     |
| ◆ Asphalt                   | ◆ Masonry Block            |
| ◆ Roofing Shingles          | ◆ Clay or concrete bricks  |

## SPILL PREVENTION

### Material Management Practices

The following are the materials management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff.

#### Good Housekeeping:

The following good housekeeping practices will be followed onsite during the construction project:

- ◆ An effort will be made to store only enough product required to do the job.
- ◆ All materials stored onsite will be stored in a neat, orderly manner in their appropriate containers, and if possible, under a roof or other enclosure.
- ◆ Products will be kept in their original containers with the original manufacturer's label.
- ◆ Substances will not be mixed with one another unless recommended by the manufacturer.
- ◆ Whenever possible, all of a product will be used up before disposing of the container.
- ◆ Manufacturers' recommendations for proper use and disposal will be followed.
- ◆ The site superintendent will inspect to ensure proper use and disposal of materials onsite.

#### Hazardous Products:

These practices are used to reduce the risks associated with hazardous materials:

- ◆ Products will be kept in original containers unless they are not resealable.
- ◆ Original labels and material safety data will be retained; they contain important product information.
- ◆ If surplus product must be disposed of, manufacturers' or local and State recommended methods for proper disposal will be followed.

### Product Specific Practices

The following product specific practices will be followed onsite:

#### Petroleum Products:

All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which will be clearly labeled. Any asphalt substances used onsite will be applied in accordance with the manufacturer's recommendations and standard construction practices.

#### Fertilizers:

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

#### Paints:

All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be properly disposed of according to manufacturers' instructions and/or state and local regulations.

## SPILL PREVENTION (Continued)

### Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

- ◆ Manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- ◆ Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite. Equipment and materials will include--but not be limited to--rags, gloves, goggles, kitty litter, sand, and plastic and metal trash containers specifically for this purpose.
- ◆ All spills will be cleaned up as soon as possible after discovery.
- ◆ The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- ◆ Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.
- ◆ The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included.
- ◆ The Contractor's site superintendent will be responsible for the day-to-day site operations and will be the spill prevention and cleanup coordinator. He will designate at least two other site personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of responsible spill personnel will be posted in the material storage area and in the office trailer onsite.

**POLLUTION PREVENTION PLAN CERTIFICATION**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION**

I certify under penalty of law that I understand, and shall comply with, the terms and conditions of the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities and this Stormwater Pollution Prevention Plan prepared there under.

Signature	For	Responsible for
_____ Date: _____		
_____ Date: _____		
_____ Date: _____		
_____ Date: _____		



CONSTRUCTION POLLUTION PREVENTION PLAN  
for

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**Inspection And Maintenance Report Form**

*(To be completed every 7 days and within 24 hours of a rainfall event of 0.5 inches or more)*

INSPECTOR: \_\_\_\_\_ DATE: \_\_\_\_\_

INSPECTOR'S QUALIFICATIONS:

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Days since last rainfall: \_\_\_\_\_ Amount of last rainfall \_\_\_\_\_ inches

**STABILIZATION MEASURES**

Area	Date Since Last Disturbed	Date of Next Disturbance	Stabilized? (yes / no)	Stabilized With	Condition

Stabilized required:

---

---

To be performed by: \_\_\_\_\_ on or before: \_\_\_\_\_





CONSTRUCTION POLLUTION PREVENTION PLAN  
for

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**Inspection And Maintenance Report Form**

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

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REASONS FOR CHANGES:

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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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Signature

---

Date

The above signature also shall certify that this facility is in compliance with the Stormwater Pollution Prevention Plan and the State of Florida Generic Permit for Stormwater Discharge from Large and Small Construction Activities if there are not any incidents of non-compliance identified above.

May, 2011

## URBAN STORMWATER MANAGEMENT PROGRAM

Powell Creek Preserve Filter Marsh

### 1.0 Introduction

This document provides details of the Urban Stormwater Management Program for the Powell Creek Preserve Filter Marsh in North Fort Myers. This Plan discusses non-structural controls, intended to improve the quality of stormwater runoff by reducing the generation and accumulation of potential stormwater runoff contaminants at or near the respective sources for each constituent, along with significant structural components of the primary stormwater treatment system. Although many of the methodologies and procedures outlined in this document are general Best Management Practices (BMP's) which can be useful in attenuating pollutants in many types of urbanized settings, the implementation of these practices has been optimized, to the maximum extent possible, to reflect the unique character of the Powell Creek Preserve Filter Marsh and the surrounding hydrologic features.

Pollution prevention guidelines are provided for the areas of (1) nutrient and pesticide management; (2) solid waste management; (3) operation and maintenance of the stormwater management and treatment system; and (4) construction activities. A discussion of each of these activities is given in the following sections.

### 2.0 Nutrient and Pesticide Management

Nutrient and pesticide management consists of a series of practices designed to manage the use of fertilizers and pesticides so as to minimize loss of these compounds into stormwater runoff and the resulting water quality impacts on adjacent waterbodies. Implementation of a management plan will also maximize the effectiveness of the nutrients and pesticides that are applied.

The property owner must commit to the practice of responsible and careful landscape design and maintenance of the property to prevent contamination of surface waters. The guidelines included in this section are intended to help the owner make educated environmental choices regarding the maintenance of the property. These maintenance and management guidelines are meant to promote an attractive neighborhood that preserves the health of adjacent waterways and environmental features.

#### 2.1 General Requirements

Commercial applicators of chemical lawn products must register with the property owner annually and provide a copy of their current occupational license, proof of business liability insurance, and proof of compliance with applicable education and licensing requirements. Individual employees working under the direction of a licensed commercial applicator are exempt from the educational requirements.

All chemical products must be used in accordance with the manufacturer's recommendations. The application of any chemical product within five (5) feet of any surface water including but not limited to ponds, lakes, drainage ditches or canals, is prohibited. The use of any chemical product in a

manner that will allow airborne or waterborne entry of such products into surface water is prohibited. This rule shall not apply to the use of chemical agents, by certified lake management specialists, for the control of algae and vegetation within the filter marshes.

## **2.2 Nutrient Management Program**

Management and application of nutrients and fertilizers in the Powell Creek Preserve Filter Marsh will adhere to the following guidelines:

- A. All fertilizers shall be stored in a dry storage area protected from rainfall and ponding.
- B. No fertilizer containing in excess of 2% phosphate/phosphorus ( $P_2O_5$ ) per guaranteed analysis label (as defined by Chapter 576, Florida Statutes) shall be applied to turf grass unless justified by a soil test.
- C. Fertilizer containing in excess of 2% phosphate/phosphorus ( $P_2O_5$ ) per guaranteed analysis label shall not be applied within 5 feet of the edge of water or within 5 feet of a drainage facility.
- D. All fertilizer shall be applied such that spreading of fertilizer on all impervious surfaces is minimized.
- E. Liquid fertilizers containing in excess of 2% phosphate/phosphorus ( $P_2O_5$ ) per guaranteed analysis label shall not be applied thorough an irrigation system within 10 feet of the edge of water or within 10 feet of a drainage facility.
- F. Liquid fertilizers containing in excess of 2% phosphate/phosphorus ( $P_2O_5$ ) per guaranteed analysis label shall not be applied through high or medium mist application or directed spray application within 10 feet of the edge of water or within 10 feet of a drainage facility.

## **2.3 Pest Management Program**

Proper maintenance of plants and turf areas will minimize the ability of pests to successfully attack landscaping. Several general guidelines follow:

- A. Apply fertilizer and water only when needed and in moderate amounts. Excessive amounts of either can cause rapid growth that is attractive to insects and disease.
- B. Mow St. Augustine grass to a height of 3-4 inches. If cut shorter, the plants may become stressed and more vulnerable to pest infestation. Each mowing should remove no more than one-third of the leaf blade, and those cuttings should remain on the lawn to decompose.
- C. It is recommended that pesticides, fungicides, and herbicides be used only in response to a specific problem and in the manner and amount recommended by the manufacturer to address the specific problem. Broad application of pesticides, fungicides and herbicides as a preventative measure is strongly discouraged.

The use of pesticides, fungicides, or herbicides is limited to products that meet the following criteria:

- A. Must be consistent with the USDA-NRCS Soil Rating for Selecting Pesticides
- B. Must have the minimum potential for leaching into groundwater or loss from runoff
- C. Products must be EPA-approved
- D. The half-life of products used shall not exceed seventy (70) days

### **3.0 Solid Waste Management**

In general, solid waste management involves issues related to the management and handling of urban refuse, litter and leaves that will minimize the impact of these constituents as water pollutants.

Maintenance of adequate sanitary facilities for temporarily storing refuse on private premises prior to collection is considered the responsibility of the owner. Information will be distributed as necessary stating specifications for containers, separation of waste by type, where to place containers prior to collection, and established collection schedules.

Fallen tree leaves and other vegetation, along with grass clippings, may become direct water pollutants when they are allowed to accumulate in swales and street gutters

### **4.0 Stormwater Management and Treatment System**

The stormwater management system for the Powell Creek Preserve Filter Marsh is designed to maximize the attenuation of stormwater generated pollutants prior to discharge to Powell Creek. Operational details and maintenance requirements of the various system components are given in the following sections.

#### **4.1 Marsh Areas and Marsh Interconnect Pipes**

The basic element of the stormwater management system consists of a series of interconnected marshes that provide stormwater treatment through a variety of physical, biological, and chemical processes. The marsh areas temporarily detain stormwater runoff, allowing opportunities for treatment processes to occur, prior to slow controlled discharge of the treated water through the outfall structure.

Maintenance of the marshes will consist of an annual inspection. During each annual inspection, the following items will be reviewed and corrected as necessary:

- A. Inspect the outfall structure and weirs to ensure free-flowing conditions and overall engineering stability of the outfall system.
- B. Review the marsh banks to ensure proper side slope stabilization and inspect for signs of excessive seepage that may indicate areas of excessive groundwater flow and possible subsurface channeling.

At the completion of the inspections, a written inspection report will be prepared, listing any deficiencies that need to be addressed or corrected by the owner.

#### **4.2 Inlets, Pipes and Culverts**

The grates should be unobstructed and the bottom, inside the inlet, should be clean. Check for any accumulation of sediment, trash such as garbage bags, or debris in the culverts connecting these inlets. Flushing out with a high-pressure hose may clean some sediment. Any noted blockage (due to a possible obstruction, or broken pipe, etc.) should prompt further investigation. Crushed or corroded culverts should be replaced with new ones of the same size.

### **4.3 Swales and Grassed Water Storage Areas**

These provide for conveyance and/or above-ground (or surface) storage of stormwater. With age, these areas usually fill in with vegetation and sediment. Swales may need to be regraded and/or revegetated. It is a good idea to compare the existing slope and dimensions of the swale with the permitted design plans prior to the removal of excess sediment or regrading. Areas that show erosion should be stabilized with appropriate material such as sod, planting, rock, sand bags, or other synthetic geotextile material.

Regular mowing of grass swales is essential. These areas also improve water quality by catching sediment and assimilating nutrients, and recharge the underground water table. Remove any undesirable exotic vegetation. Culverts underneath driveways should be checked for blockage, and, if necessary, flushed with a high-pressure hose. After a storm, swales may remain wet for an extended period of time. This is normal and the water will recede gradually.

### **4.4 Ditches or Canals**

Fill material, yard waste, clippings and vegetation, sediment, trash, appliances, garbage bags, shopping carts, tires, cars, etc. should be completely removed. Also check to make sure there are no dead trees or any type of obstructions which could block the drainage flow way.

Maintenance cleaning/excavation must be limited to the same depth, width and side slope as approved in the current permit. Making a ditch deeper or wider may trigger a need for a permit modification. Provisions must also be made to prevent any downstream silting or turbidity (*Contact the SFWMD Resource Compliance staff if you are unsure or need clarification.*) Be sure to dispose of all removed material properly so it won't affect any other water storage or conveyance system, environmental area, or another property.

### **4.5 Outfall Structure (also called the Discharged Control Structure or Weir)**

The outfall structure should be routinely inspected to determine if any obstructions are present or repairs are needed. Trash or vegetation impeding water flow through the structure should be removed. The structure should have a "baffle" or trash collector to prevent flow blockage and also hold back any floating oils from moving downstream. Elevations and dimensions should be verified annually with all current permit information. Periodic inspections should then be regularly conducted to make sure these structures maintain the proper water levels and the ability to discharge.

### **4.6 Earthen Embankments (Dikes and Berms)**

Check for proper elevations, width and stabilization. Worn down berms - especially if used by all-terrain vehicles or equestrian traffic – and rainfall – created washouts should be immediately repaired, compacted and re-vegetated.

### **4.7 Pump**

A pump will be used to discharge water from the Powell Creek Canal and Powell Creek into the marsh areas. Check float controls for proper pump operation and float elevation settings, quarterly to ensure proper water levels are maintained in the marsh areas. Electrical control panel to have an elapsed run time meter. Elapsed time meter to be read and recorded monthly.



Monthly readings to be reviewed for abnormalities in pump run time operation.

Abide by manufacturer's operation and maintenance manual.

## **5.0 Construction Activities**

A Construction Pollution Prevention Plan (CPPP) has been prepared for construction activities to minimize activities contamination that may be caused by erosion and sedimentation during the construction process. The plan includes provisions related to soil stabilization, structural erosion controls, waste collection disposal, offsite vehicle tracking, spill prevention and maintenance and inspection procedures. A copy of the CPPP is attached hereto and made a part of hereof.



## SOUTH FLORIDA WATER MANAGEMENT DISTRICT

LOWER WEST COAST REGIONAL SERVICE CENTER 2301 McGregor Boulevard, Fort Myers, FL 33901  
(239) 338-2929 • 800-248-1201 • Suncom 748-2929 • Fax (239) 338-2936 • [www.sfwmd.gov/lwc/](http://www.sfwmd.gov/lwc/)

Regulation

**Application No.:** 111019-6

October 28, 2011

LEE COUNTY BOARD OF COUNTY COMMISSIONERS  
LEE COUNTY NATURAL RESOURCES DIVISION  
1500 MONROE STREET  
FORT MYERS, FL 33901

Dear Permittee:

**SUBJECT: PERMIT NO.: 36-07386-P**

**Project :** POWELL CREEK PRESERVE FILTER MARSH - SITE PLAN MODIFICATIONS

**Location:** Lee County, S36/T43S/R24E

District staff has reviewed the information submitted October 19, 2011, for modifying the upland areas of the permitted site plan due to a recent gopher tortoise survey that showed more than 45 gopher tortoise burrows currently exist within 25 feet of the limits of construction of the site plan approved under Permit No. 36-07386-P, Application No. 091030-14. The revised site plan (Exhibit 1.0) will impact fewer than 10 gopher tortoise burrows. Lee County is coordinating with the Florida Fish and Wildlife Conservation Commission regarding impacts to the gopher tortoise burrows. The changes will be limited to upland areas without modifying the existing wetland areas onsite. Therefore there will be no changes to the approved wetland impacts or mitigation required for impacts associated with this project. However, the proposed modifications will affect the wetland mitigation value of areas shown as future mitigation on-site and a future Environmental Resource General Permit modification will be required to reassess the mitigation value taking into account the reconfigured marsh layout. Supporting information has been submitted by Rick Acosta, P.E. from Johnson Engineering. No other changes to the surface water management system are authorized by this modification.

Based on that information, District staff has determined that the proposed activities are in compliance with the original environmental resource permit and appropriate provisions of FAC Rule 40E-4.331(2)(b). Therefore, these changes have been recorded in our files.

Please understand that your permit remains subject to the General Conditions and all other Special Conditions not modified and as originally issued.

Should you have any questions concerning this matter, please contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Waters".

Daniel F. Waters, P.E.  
Section Leader  
Lower West Coast Service Center

DW/cq

c: Johnson Engineering Inc  
Lee County Board Of County Commissioners

## NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

### **RIGHT TO REQUEST ADMINISTRATIVE HEARING**

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

### **Filing Instructions**

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

### **Initiation of an Administrative Hearing**

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

### **Mediation**

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

### **RIGHT TO SEEK JUDICIAL REVIEW**

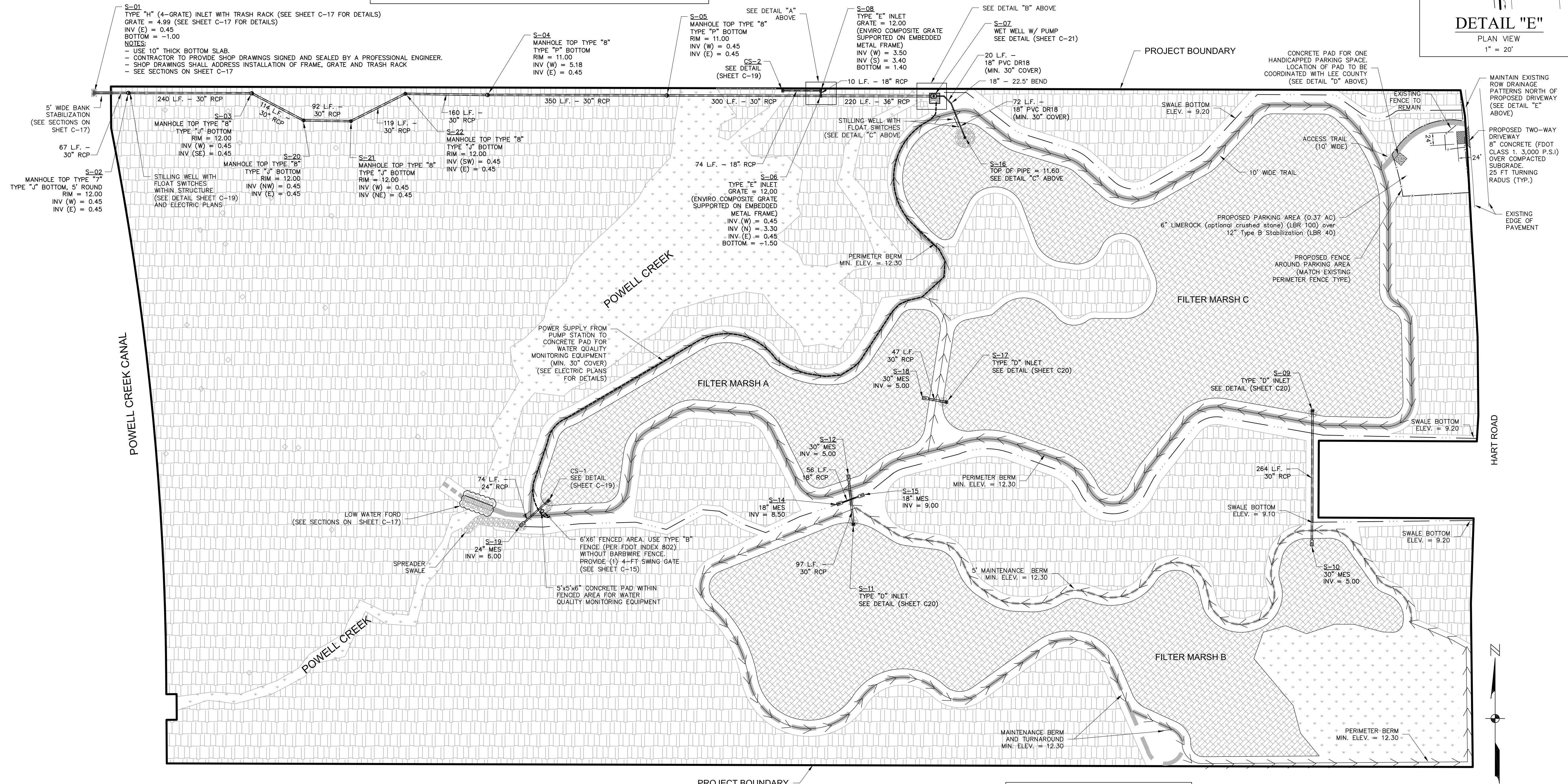
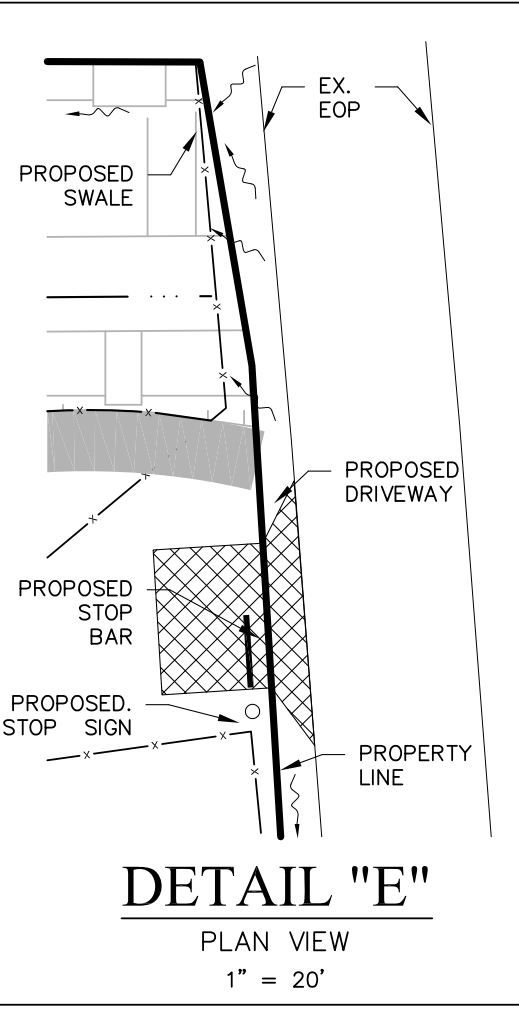
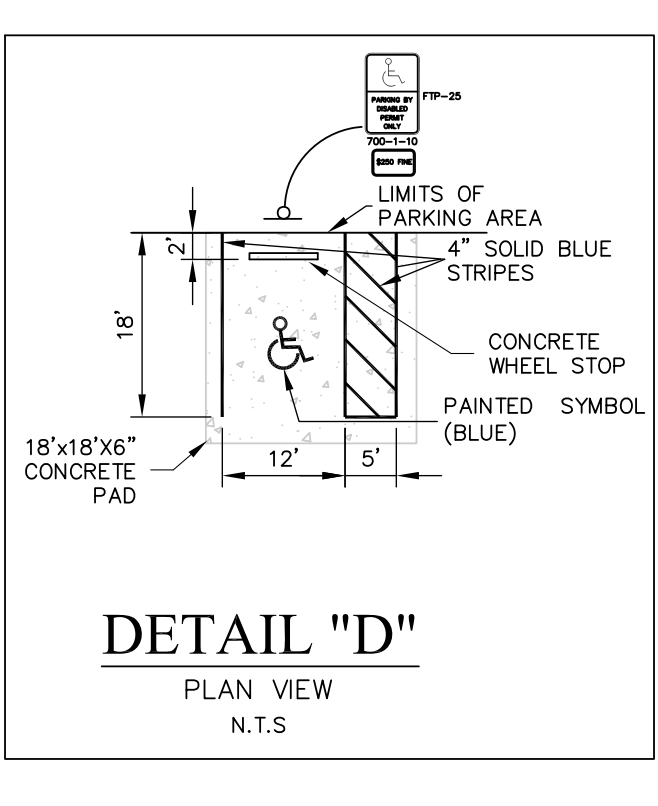
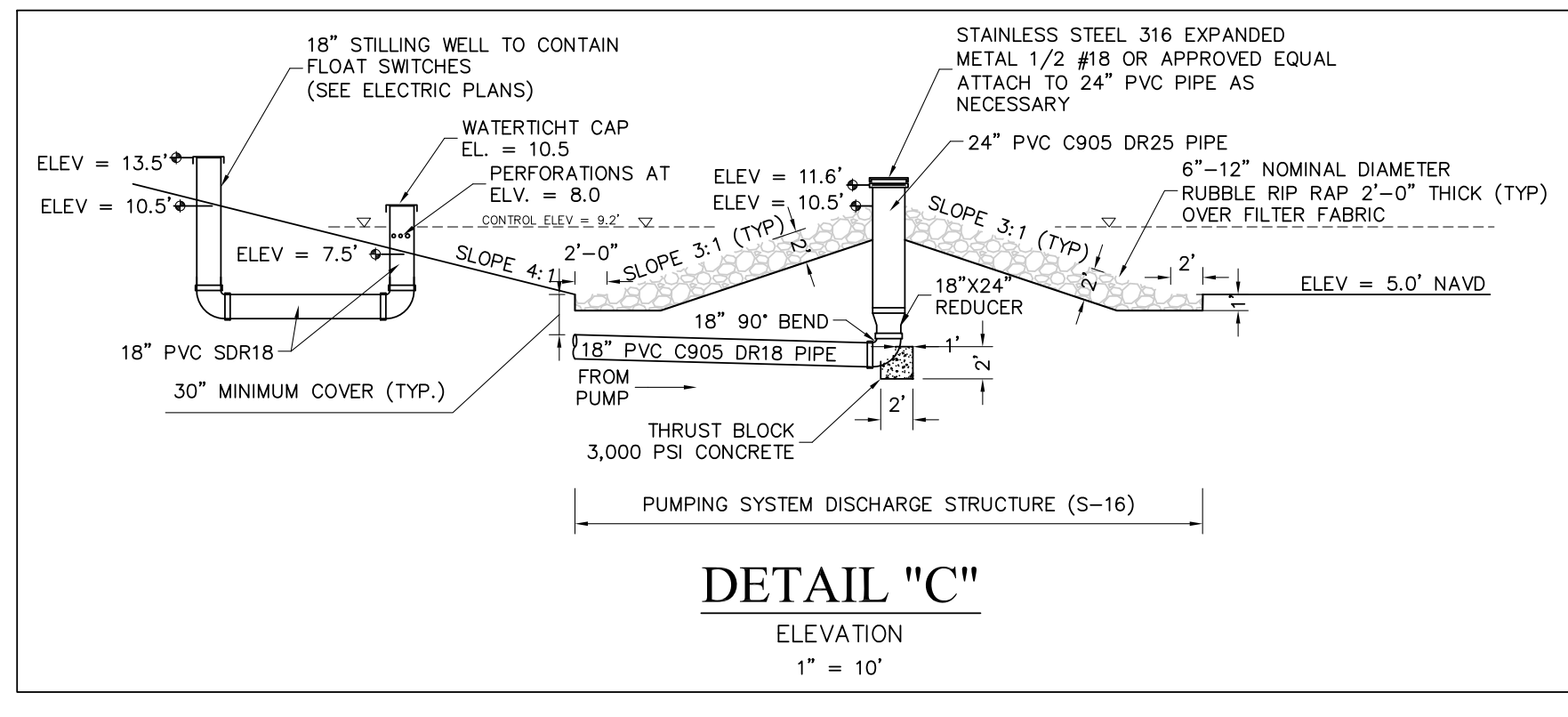
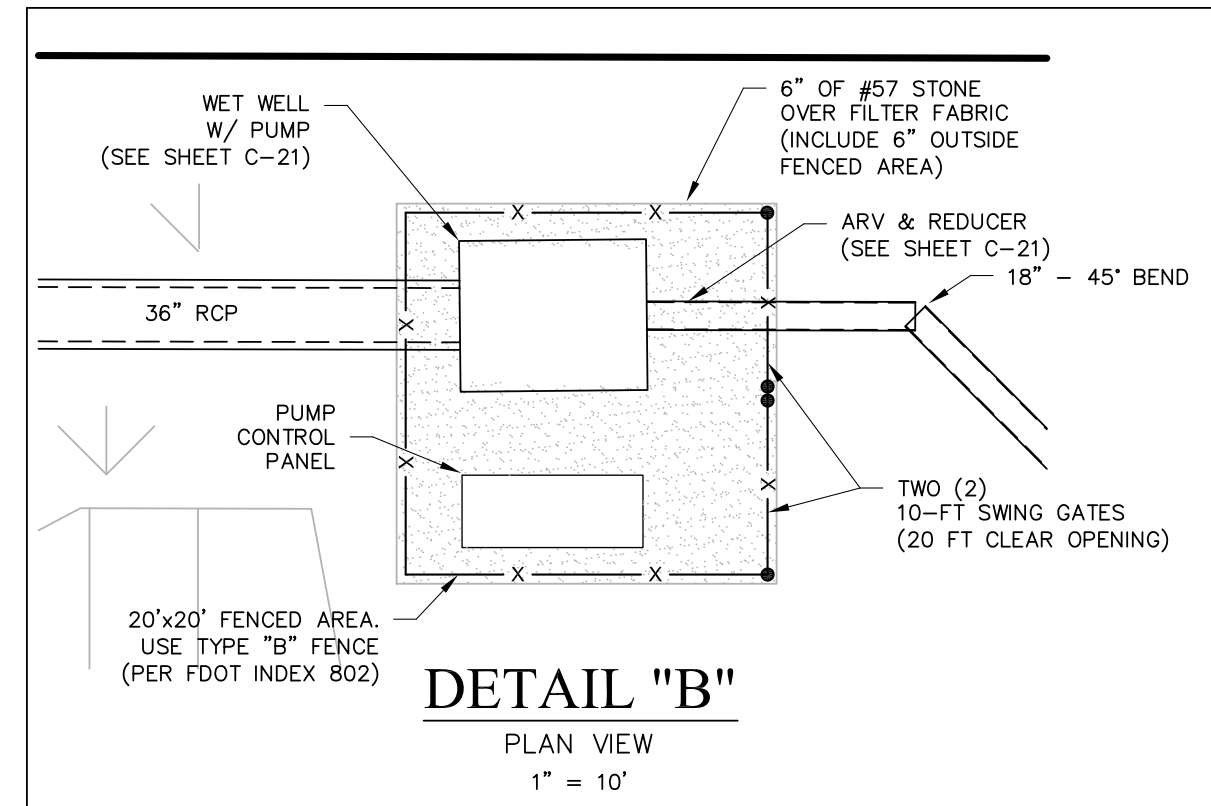
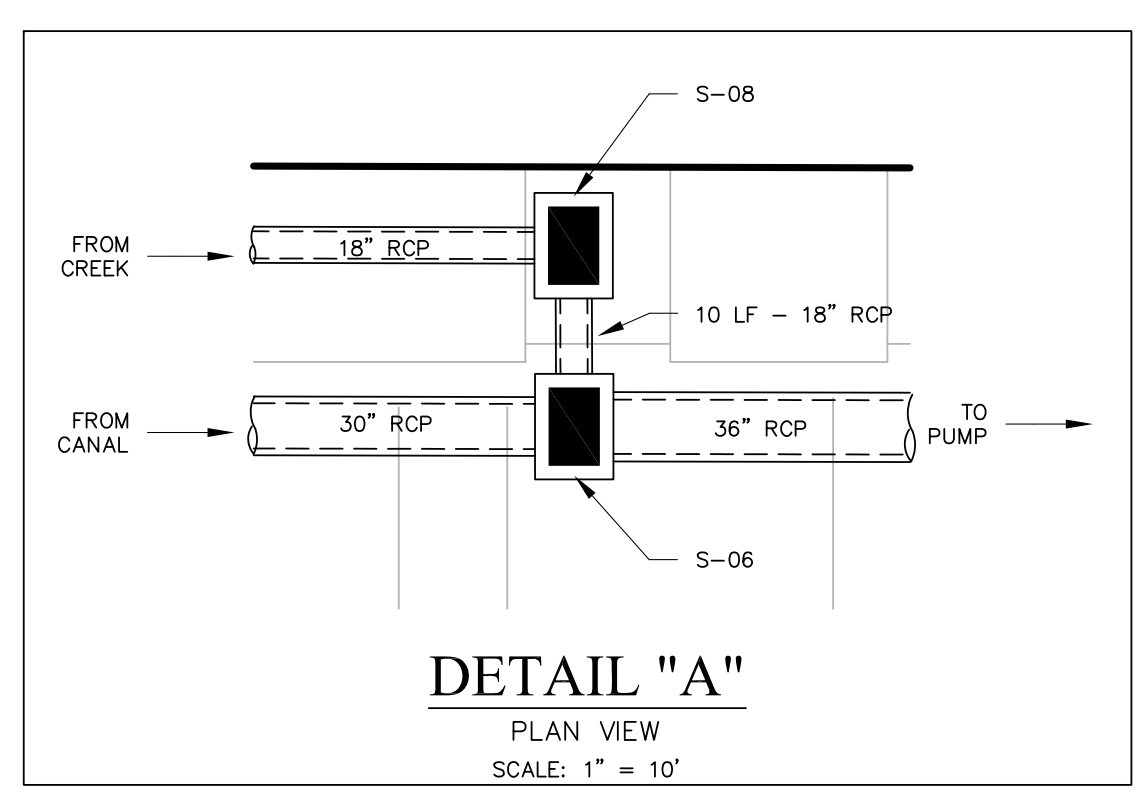
Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

DATE	DESCRIPTION

DATE: OCTOBER, 2011  
 PROJECT NO.: 20034378-04  
 FILE NO.: 36-43-24  
 SCALE: 1" = 100'

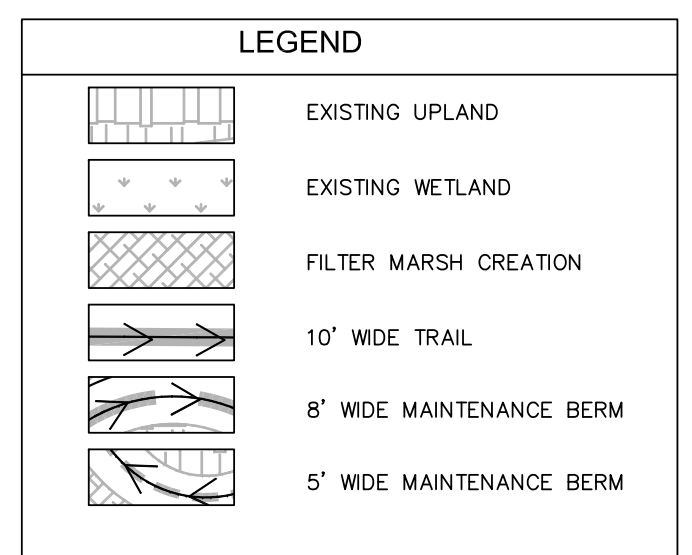
SITE AND DRAINAGE PLAN

SHEET NUMBER  
**C-14**

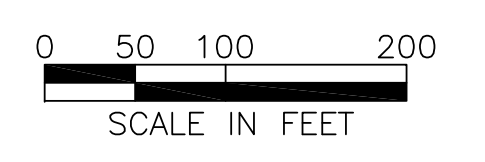


DESIGN SUMMARY	
CONTROL ELEVATION (FT)	9.2
5 YEAR 1 DAY PEAK STAGE (FT)	10.4
25 YEAR 3 DAY PEAK STAGE (FT)	11.1
MINIMUM BERM ELEVATION (FT)	12.3
100 YEAR 3 DAY PEAK STAGE - ZERO DISCHARGE (FT)	11.7
ALL ELEVATIONS ARE NAVD 1988	

DESCRIPTION	LAND USE SUMMARY				TOTAL
	FILTER MARSH	UPLAND	WETLAND/CSW	PERMOLUS	
BASINA	2.6	0.0	0.0	0.9	3.5
BASINB	6.2	0.0	1.8	1.6	9.6
BASINC	9.4	1.2	0.0	1.7	12.3
OFFSITE	0.0	41.6	4.9	6.3	51.8
<b>TOTAL</b>	<b>18.2</b>	<b>42.8</b>	<b>6.7</b>	<b>9.5</b>	<b>77.2</b>



NOTES:  
 1. USE 6" OF BANK RUN SHELL AT TOP OF 10' WIDE TRAIL AND ACCESS TRAIL.  
 2. ELEVATIONS SHOWN REFERENCE N.A.V.D. 1988

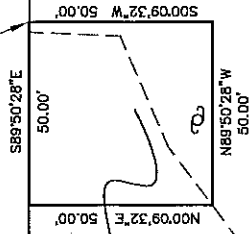


\\20034378-04\DRAWINGS\DD\_Site\034378-04-SITE.dwg (SITE).rvt Oct 19, 2011 - 7:28pm

## **Appendix E: LCEC Easement**

FOREST PARK  
BLOCK B  
OR 943 PG 228

POINT OF  
BEGINNING



CONSERVATION EASEMENT  
O.R. 2174 PG 4079-4086

PART OF S 1/2 OF NW 1/4 OF SECTION 36  
PARCEL RECORDED IN O.R. 1476 PG 1561.  
PER BWLK SURVEY DATED 7-11-03  
STRAP # 36-43-24-00-00002.0000

OR 2790 PG 2873  
OR 650 PG 186

POINT OF COMMENCEMENT  
N.E. CORNER OF PARCEL  
RECORDED IN O.R. 1476 PG 1561.  
PER BWLK SURVEY DATED 7-11-03,  
FOUND IRON ROD LB4619  
N 897598.32  
E 698584.68

HART ROAD

N LINE OF S 1/2 OF NW 1/4  
OF SECTION 36

DESCRIPTION:

LYING IN SECTION 36, TOWNSHIP 43 SOUTH, RANGE 24 EAST AND BEING A PORTION OF THAT PARCEL RECORDED IN O.R. 1476, PG 1561 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF THAT PARCEL RECORDED IN O.R. 1476, PG 1561 OF THE PUBLIC RECORDS OF LEE COUNTY, FLORIDA, SAID POINT BEING ON THE NORTH LINE OF THE S 1/2 OF THE NW 1/4 OF SECTION 36; THENCE RUN ALONG SAID LINE N89°50'28"W FOR 1041.30 FEET TO THE POINT OF BEGINNING.

FROM SAID POINT OF BEGINNING RUN S00°09'32"W FOR 50.00 FEET; THENCE RUN N89°50'28"W FOR 50.00 FEET; THENCE RUN N00°09'32"E FOR 50.00 FEET; THENCE RUN S89°50'28"E FOR 50.00 FEET TO THE POINT OF BEGINNING.

CONTAINS 2500 SQ FT OR 0.06 Ac, +/-

- NOTE:  
1. BEING BASIS IS THE STATE PLANE SYSTEM, FLORIDA WEST ZONE (NAD 83-1989 ADJUSTMENT) WITH THE NORTHWEST ONE QUARTER (NW 1/4) OF SECTION 36 BEARING N00°23'25"W.  
2. UNDERGROUND STRUCTURES, IF ANY, NOT INCLUDED.  
3. SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.  
4. THIS CERTIFICATION IS ONLY FOR LAND DESCRIBED HEREON.  
5. NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

I hereby certify that, to the best of my knowledge and belief, the sketch and description represented hereon, made under my direction on May 9, 2012, is in accordance with Minimum Technical Standards as set forth by the Florida Board of Professional Surveyors & Mappers in Chapter 51-17, Florida Administrative Code, pursuant to Section 472.027 Florida Statutes.

NAME	DATE
STOUTENCRAMER	
PROFESSIONAL SURVEYOR	
STATE OF FLORIDA	
15-0051	

STOUTENCRAMER  
PROFESSIONAL SURVEYOR  
15-0051

STATE OF FLORIDA  
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STATE OF FLORIDA  
15-0051

STOUTENCRAMER  
PROFESSIONAL SURVEYOR  
15-0051

STATE OF FLORIDA  
15-0051

## **Appendix F: Legal Description**





## Bean, Whitaker, Lutz & Kareh, Inc.

13041 McGregor Boulevard  
Fort Myers, Florida 33919-5910  
email – fmoffice@bwlk.net  
(Ph) 239-481-1331 (Fax) 239-481-1073

Description of a Parcel of Land  
Lying in  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)

A parcel of land situated in the State of Florida, County of Lee, Section 36, Township 43 South, Range 24 East, and further described as follows:

Commencing at the southwest corner of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'30"E along the south line of said Northwest One-Quarter (NW 1/4) for 100.00 feet to the southeast corner of a parcel described in Official Records Book 1848 at Page 2195, public records of Lee County, Florida and to the Point of Beginning; thence N00°23'29"W along the east line of said lands, parallel with and 100.00 feet east of the west line of said Section 36 for 85.00 feet to the south line of a parcel described in Official Records Book 1052 at Page 620; thence N89°36'31"E along the south line of said parcel for 20.00 feet to the east line of said parcel; thence N00°23'29"W along the east line of said parcel for 50.00 feet to the northeast corner of said parcel; thence S89°36'31"W along the north line of said parcel for 20.00 feet to the east line of aforesaid parcel described in Official Records Book 1848 at Page 2195; thence N00°23'29"W along the east line of said parcel parallel with and 100.00 feet east of the west line of said Section 36 for 34.41 feet to the beginning of a curve to the left having a radius of 5779.60 feet; thence continue northwesterly along said curve and said east line through a central angle of 10°40'26" for 1076.70 feet to a Point of Non-Tangency on the west line of said Section 36; thence N00°23'29"W along said west line for 81.09 feet to the southwest corner of a parcel described in Official Records Book 781 at Page 574, said point also being the northwest corner of the south one-half (S 1/2) of the Northwest One-Quarter (NW 1/4) of said Section 36; thence S89°50'28"E along the south line of said parcel and the north line of said fraction for 2631.00 feet to the west right-of-way line of Hart Road as vested in Lee County, Florida, pursuant to the provisions of Florida Statute 95.361(1) according to Road Plat Book 2 at Pages 41-48 and testimonial affidavits recorded in Official Records Book 3294 at Page 2191 and Official Records Book 3294 at Page 2200, public records of Lee County, Florida; thence S09°44'30"E along said westerly right-of-way line for 51.03 feet; thence S03°29'48"E along said westerly right-of-way line for 104.17 feet; thence S03°00'43"E along said westerly right-of-way line for 120.20 feet; thence S03°31'12"E along said westerly right-of-way line for 89.45 feet; thence S03°08'25"E along said westerly right-of-way line for 118.00 feet; thence S00°33'32"E along said westerly right-of-way line for 152.40 feet; thence S03°13'00"W along said westerly right-of-way line for 51.24 feet to the north line of a parcel described in Official Records Book 2287 at Page 1503; thence N89°43'57"W along the north line of said parcel for 308.08 feet to the northwest corner of said parcel; thence S00°16'03"W along the west line of said parcel for 150.00 feet to the southwest corner of said parcel; thence S89°43'57"E along the south line of said parcel for 302.46 feet to the aforesaid west right-of-way line of Hart Road; thence S01°49'04"W along said west right-of-way line for 165.99 feet; thence S00°38'43"E along said west

#### PRINCIPALS:

WILLIAM E. BEAN, PSM, CHAIRMAN  
SCOTT C. WHITAKER, PSM, PRESIDENT  
JOSEPH L. LUTZ, PSM  
AHMAD R. KAREH, PE, MSCE, VICE PRESIDENT

CONSULTING ENGINEERS - SURVEYORS AND MAPPERS - PLANNERS



#### ASSOCIATES:

TRACY N. BEAN, AICP  
CHARLES D. KNIGHT, PSM  
W. BRITT POMEROY, JR., PSM  
STEPHEN H. SKORUPSKI, PSM  
JAMES A. HESSLER, PSM  
JEFFREY P. GAGNON, PSM  
RUDOLF A. NORMAN, PE

Description of a Parcel of Land  
Lying in  
Section 36, Township 43 South, Range 24 East  
Lee County, Florida  
(Lee County Conservation Lands Parcel No. 217)  
(Continued)


right-of-way line for 319.18 feet to the south line of the Northwest One-Quarter (NW 1/4) of said Section 36; thence N89°50'30"W along said south line and the north line of Carriage Village Units 1 and 4 for 2545.86 feet to the Point of Beginning.

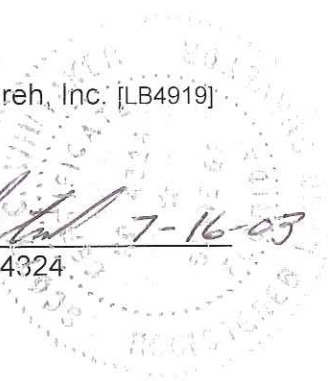
Containing 77.20 acres, more or less.

Subject to easements, restrictions, reservations and rights-of-way (recorded and unrecorded, written and unwritten).

Bearings are based on the State Plane Co-ordinate System (North American Datum of 1983-1990 Adjustment) Florida West Zone with the West Line of the Northwest One-Quarter (NW 1/4) of Section 36 as bearing N00°23'29"W.

Bean, Whitaker, Lutz & Karch, Inc. [LB4919]

  
Scott C. Whitaker, P.S.M. 4324



## **Appendix G: Projected Costs and Funding Sources**

## EXPENDED \$

### Public Amenities

Item	Funding Source	Costs
Entrance walk-through gate install	C20/20	\$2,655
Maintenance supplies	C20/20	\$35
Benches	C20/20	\$2,199
Kiosk	C20/20	\$593
Entrance walk-through gate repairs	C20/20	\$3,737
Paving ADA compliant section of trail	C20/20	\$17,503
Parking area mowing (fiscal year 2014-2015)	C20/20	\$1,549
Mulch for landscape plants	C20/20	\$47
ADA parking space striping	C20/20	\$600
<b>total</b>		<b>\$28,918</b>

### Resource Enhancement and Protection

Item	Funding Source	Costs
Filter marsh construction*	DEP grant	\$440,000
	LCDNR	\$1,629,297
Electrical cost for filter marsh pump operation (8/2012 - 12/2015)	LCDNR	\$6,207
Exotic plant treatment **	C20/20	\$78,349
Rip-rap natural wetland (prior to filter marsh construction)	C20/20	\$23,000
<b>total</b>		<b>\$2,176,853</b>

### Overall Protection

Item	Funding Source	Costs
Fireline installation	C20/20	\$2,350
Fence installation	C20/20	\$24,486
Hazard tree removal	C20/20	\$700
Fence repair	C20/20	\$800
Trash disposal	C20/20	\$1,400
Management plan writing (staff time)	C20/20 in-house	\$4,200
<b>total</b>		<b>\$33,936</b>

### **TOTAL COST TO DATE**

**\$2,239,707**

\* Cost total includes 5 years of monitoring reports, permitting, on-site gopher tortoise relocation, design and construction

\*\* Lee County Division of Natural Resources is responsible for costs associated with exotics treatment in filter marsh area. Their cost is not included in this total.

## PROJECTED \$

### Annual Public Amenities Maintenance

Item	Funding Source	Costs
Parking area mowing	C20/20	\$1,550 per year
Maintenance supplies	C20/20	\$100 per year
Landscape maintenance/mulch	C20/20	\$100 per year
<b>total</b>		<b>\$1,750 per year</b>

### Resource Enhancement and Protection

Item	Possible Funding Source	Costs
	C20/20	
Fire break maintenance	C20/20 in-house	\$344 per year
<b>total</b>		<b>\$344 per year</b>

### Overall Protection

Item	Possible Funding Source	Costs
Fence repairs	C20/20 in-house	\$100 per year
Trash removal	C20/20 in-house	\$50 per year
Boundary sign replacement	C20/20	\$30 per year
<b>total</b>		<b>\$180 per year</b>

### Site Management and Maintenance

Item	Possible Funding Sources	Costs
Exotic plant maintenance	C20/20	\$2,500 per year
Prescribed fire regime (every 4-5 years)	C20/20	\$1,500 in house
Electrical cost for filter marsh pump operation (8/2012 - 12/2015)	LCDNR	\$690 per year
Fence repairs	C20/20	\$500 per year
<b>total</b>		<b>\$5,190 per year</b>