

Compensatory Mitigation Plan
ERP G Lands Reclamation Units

1.0 Introduction

White Springs Agricultural Chemicals, Inc. is an indirect subsidiary of Nutrien, Ltd. (WSA). This compensatory mitigation plan outlines the strategy proposed by WSA to offset 492.9 acres of unavoidable wetland impacts resulting from the proposed ERP G Lands phosphate mining project in Hamilton County, Florida (see **Appendix A** for a location map). Wetland impacts will occur within four separate Reclamation Units (RUs) associated with ERP G Lands, resulting in a total functional loss of 382.37 units as determined by the Uniform Mitigation Assessment Methodology (UMAM). To offset functional loss from the project, a total of 1,260.6 acres of onsite wetland creation, resulting in 382.40 functional gain units, is proposed as summarized in **Table 1** below. The reclaimed wetland habitats were classified using the *Florida Land Use, Cover, and Forms Classification System* (FLUCFCS) (FDOT 1999). Maps of pre-mining FLUCFCS boundaries, pre-mining impacted wetlands, and post-reclamation wetlands (with FLUCFCS) associated with the project are provided in **Appendix A**. UMAM summary tables (for proposed mitigation) for each RU are provided in **Appendix B**.

Table 1
Summary of Onsite Mitigation Wetlands

Reclamation Unit ID	Wetland Acreage	FLUCFCS Code ¹	FLUCFCS Description
HC-RCS-18	63.1	630	Wetland Forested Mixed
HC-RCS-19	66.9	630	Wetland Forested Mixed
HC-RCS-20	373.0	630	Wetland Forested Mixed
HC-HC-13	0.7	617	Mixed Wetland Hardwoods
	32.4	620	Wetland Coniferous Forest
	92.6	630	Wetland Forested Mixed
HC-RCS-10	209.0	630	Wetland Forested Mixed
HC-RCS-11	9.1	630	Wetland Forested Mixed
HC-RCS-16	5.4	617	Mixed Wetland Hardwoods
	408.3	630	Wetland Forested Mixed
Total	1,260.6		

¹Florida Land Use, Cover and Forms Classification System. Third edition. Florida Department of Transportation, 1999.

All mined and disturbed lands associated with this project will be reclaimed in accordance with the State of Florida’s Mandatory Phosphate Mine Reclamation Statutes, Chapter 211 and Chapter 378. The proposed reclamation was also designed in accordance with standards of Chapter 62C-16 F.A.C. and the Hamilton County Mining Ordinance. The post-mitigation land use plans and drainage basin configurations were developed to restore the pre-mining flow characteristics within each drainage basin. The proposed mitigation will ultimately return all mined and disturbed lands to viable economic and environmental productivity, compatible with the surrounding unmined areas.

This mitigation plan is consistent with the Conventional Reclamation Standards for all lands mined after January 1, 2002. The post-mitigation landscape has been designed to harmonize with undisturbed areas with emphasis on recreating a variety of vegetation and wildlife systems.

2.0 Objectives

The reclamation goals of the Master Mining Plan are to:

- Restore pre-mining drainage basins and hydrologic function;
- Protect the water quality of the Suwannee River and its tributaries; and
- Produce landforms that will support a variety of agriculture, silvicultural, wildlife and recreational uses.

The mine property will support a variety of landforms once reclamation is complete. Post-mitigation landforms within the four RUs will include silviculture, wildlife habitat, and recreation. To offset permanent wetland impacts resulting from proposed mining activities, a variety of wetland habitats will be created within the G Lands project area. The created wetland types, sizes and locations have been integrated into the post-reclamation landscape to support unmined wetland habitat value and hydrologic function. Wetlands will be established adjacent to creek floodplains, adjoining unmined wetlands, adjacent to upland areas, and as isolated systems within an upland hardwood-conifer and pine plantation matrix.

The post-reclamation (mitigation) conditions will be designed to mimic the pre-mine hydraulic and hydrologic conditions and wetland diversity and function. Additional details concerning proposed mitigation activities are provided in the following sections.

2.0 Mitigation Work Plan

Once mining is concluded within each of the four RUs, earth moving equipment including bulldozers, scrapers and excavators will regrade and recontour the soils to create the approved reclamation landforms. Wetlands will be graded so that water fluctuations will promote zones of emergent and transitional vegetation. Additionally, micro habitats will be incorporated into the mitigation design, which will consist of small areas constructed at slightly higher elevations within the overall reclaimed wetland to support the diversification of the vegetative assemblage. Based on previous successful wetland reclamation sites, tree species planted on these 'micro habitats' have grown at an accelerated rate, creating pockets of unique habitat within the larger overall wetland system. To enhance the vegetative composition of existing onsite wetlands, a large variety of tree canopy and sub canopy species will be used to achieve the desired FLUCFCS wetland type, including up to 39 different tree species.

Upon completion of recontouring (and prior to planting) within each mitigation area, a hydraulic assessment will be conducted to provide further assurance that the targeted hydrology for each wetland will be sufficiently achieved and maintained. This is comprised of a two-step process; first, the elevations established by the recontouring will be incorporated into a quantitative model that will simulate the hydroperiods within the reclamation wetlands to ensure that the projected fluctuations would sustain the targeted vegetative community. If the hydroperiods are not appropriate, engineering controls built into the overall stormwater management system in the form of check dams, etc. would be deployed to make changes either by increasing resonance time or discharging sooner to ensure that the hydrology matches the vegetative community. This analysis would be shared with the FDEP and approved prior to the revegetation stage of the reclamation process.

Upland areas will be contoured to provide crucial base flow and surface water runoff. Where practical, a greenbelt consisting of native trees and shrubs will be established around wetlands. These greenbelt bands will be at least 120 feet in width. During the establishment of the wetlands, hydrologic support will be provided as necessary by pumping from nearby water bodies to insure the survival and growth of the planted vegetation.

Most of the upland areas will be reclaimed as commercial forest plantations. Silviculture operations will provide economic value and stabilization to the clay settling sites. Slash pine (*Pinus elliottii*) and loblolly pine (*Pinus taeda*) are the preferred pines used for silviculture operations in North Florida.

The grassing program may include legumes in the grass mixture for nitrogen enrichment and wildlife benefit (cover and food source). Planting legumes or providing other soil amendments will be based upon need, as delineated by location and wildlife enhancement programs. Legumes suitable for the revegetation program include white clover (*Trifolium repens*), sweet clover (*Metililotus sp.*), alfalfa (*Medicago sativa*) and hairy indigo (*Indigofera hirsuta*).

The RUs delineated as sand-tailings fill areas will also be re-contoured with a variety of earthmoving equipment. Initially the tailings will be pumped into the voids between the overburden spoil peaks. Dozers and scrapers will fill in low areas and level off the high spots. Dozers will then contour the tracts to final grade, resulting in the tailings being capped with the overburden. Once earthmoving within the RUs has been finished to final grade, the revegetation will begin. The method of revegetation on these tracts is dependent upon land use and the type of species required for each area.

After final grading, some areas will be seeded with grasses for erosion control. This program will consist of revegetation with rapidly growing annuals in combination with permanent grasses. Slopes will be seeded at higher application rates than level areas. Mulch or other soil coverage techniques may be necessary on the slopes and fertilizing may be required to attain rapid germination and stabilization.

Once the ground surface is stabilized, trees will be planted in sufficient numbers to obtain a minimum density of 200 trees per acre by the end of the first year following planting. Appropriate species will be planted based on the design elevations, the results of the hydrology monitoring, and the goals of the mitigation. Tier 1 (forested) wetlands will typically be planted at a density of 650 trees per acre, using mechanical tree planters when possible. Available overburden will be spread across the entire site. Potted and/or bare root trees will be planted by hand in areas not suitable for mechanical planting.

Trees are either hand or machine planted, and the stock may be bare root seedlings and/or tublings. If deemed necessary to promote tree growth, water levels will be fluctuated or irrigation provided. Additional plantings of shrubs and shade tolerant herbaceous vegetation will occur after establishment of suitable canopy/subcanopy cover (by year 7) within reclaimed forested wetlands. A planting menu of individual tree and shrub species proposed for the reclamation wetlands, by wetland FLUCFCS type and ground elevation range, is provided in **Appendix C**.

The reclamation standards were designed to maximize the savings available for the land acquisition program, while still protecting important ecological values. No variances from water quality standards were allowed, and strict standards for restoration of hydrology were followed.

Clay and sand tailings management and reclamation goals for the Hamilton County Mine include maximizing the use of existing and future settling areas, creating recreational lands, maintaining the hydrologic function of area creek systems, and protecting the quality of surface water going to the Suwannee River. Overburden will be used to cap sand tailings fill areas prior to revegetation. Sand tailings will be utilized as fill material within RCS-20. Within the remaining RUs (RCS-18, RCS-19, and HC-13), the fill material to be used during reclamation will be excavated from uplands located within the project area and adjacent, previously permitted areas.

For those areas adjacent to mining operations, WSA will use a variety of techniques to protect the natural resources in the preservation areas from disturbance. The mine plan results in an alternating pattern of mined and unmined areas. Undisturbed parcels adjacent to mined areas will provide habitat for displaced animals. Wherever possible, clearing operations conducted prior to mining will progress toward wetlands and unmined areas to allow wildlife an escape route.

2.1 Surface Water Quality Protection

To protect surface drainage patterns and the water quality of downstream wetlands and other surface waters, areas to be disturbed will be isolated by a perimeter ditch and berm system designed to maintain groundwater levels similar to pre-mining conditions in adjacent undisturbed areas. The berm will prevent runoff from the mined areas that might adversely affect water quality in adjacent areas. Additionally, the top of the outside berm will be constructed at an elevation that is sufficiently higher than the designed height of the interior berm between the recharge ditch and the mine-cut to ensure that overflow of the recharge ditch, if any, is directed to the mine cut (away from undisturbed areas). The protective ditches and berms will remain in place until mining operations and reclamation have been completed and the FDEP has determined that the reclaimed wetlands are adequately stabilized and sufficiently acclimated to ambient hydrological conditions.

Best management practices will also be implemented and maintained throughout the duration of construction to prevent siltation and turbid discharges. Methods to contain turbidity may include the use of staked filter cloth, silt-control polymers, sodding, seeding, mulching, and the deployment of turbidity screens around the immediate project site, as appropriate for each disturbance area. Erosion and turbidity control devices will be inspected and maintained on a regular basis during all phases of mining operations and reclamation.

Existing vegetative cover and relatively flat topography across the property help to prevent erosion in undisturbed areas. Disturbed lands adjacent to the preservation areas will be integrated into the natural, undisturbed landform to enhance and complement the existing natural resources.

2.2 Construction Methodologies and Timeline

WSA has a thorough understanding of wetland hydrology and the variables that control the hydrologic performance of reclaimed wetlands on mined land. Design elevations for created wetlands will be based on results from modeling (ICPR version 4) performed minewide. Created wetlands will be graded and capped with several inches of wetland topsoil in order to achieve desired design elevations. The elevations would generally match adjacent forested wetlands so that water fluctuations and sheet flow promote hydrophytic vegetation growth. Final design would be adjusted (as necessary) to meet desired hydroperiod targets for each wetland type. The planting elevation range of each proposed FLUCFCS type within each RU is provided in **Appendix C**.

Reclaimed wetlands will be planted with vegetative species in the richness and dominance range appropriate for the design elevations and community type. Wetland reclamation activities will begin immediately following completion of dragline operations within each RU, as described below.

Response: All mining, recontouring, and planting activities will be completed within the first five years of permit issuance and is referred to as Phase 1. Phases 2, 3, and 4 are comprised of compliance monitoring and have a duration of five years, respectively. Activities are broken down further below:

- HC-13 – Phase 1 (duration: 5 years) includes construction, baseline documentation of the mitigation areas (Year 3) and the first two annual monitoring events (Years 4-5). Construction will last 28 months (about 2.5 years) and is described as follows: Dragline 3 will be used to initiate mining activities that will be completed in 4 months, followed by 18 months of recontouring and 6 months of revegetation. Phase 2 (duration: 5 years) is comprised of the 3rd - 7th annual monitoring events (Years 6-10). Phase 3 (duration: 5 years) is comprised of the 8th - 12th annual monitoring events (Years 11-15). Phase 4 is comprised of the 13th - 15th annual monitoring events in Years 16-18, if deemed necessary.
- RCS-18 & RCS-19 – Phase 1 (duration: 5 years) includes 4 months of mining, followed by 18 months of recontouring and six months of revegetation. Phase 1 also includes baseline documentation of the mitigation areas (Year 3) and the first two annual monitoring events (Years 4-5). Phase 2 (duration: 5 years) is comprised of the 3rd - 7th annual monitoring events (Years 6-10). Phase 3 (duration: 5 years) is comprised of the 8th - 12th annual monitoring events (Years 11-15). Phase 4 is comprised of the 13th - 15th annual monitoring events in Years 16-18, if deemed necessary. A six-year schedule has been used for planning reclamation activities from the end of clay deposition to reclamation release. This schedule allows for a three-year dewatering period and two years for earthmoving and revegetation, with an additional year for establishment. Dewatering of the clay settling areas will continue during the earthmoving and revegetation phases.
- RCS-20 – Phase 1 (duration: 5 years) includes all construction activities and baseline documentation of the mitigation areas (conducted prior to the end of Year 5). Construction will last 52 months (about 4.3 years) and is described as follows: Dragline 5 will be used to initiate mining activities that will be completed in 16 months, followed by 12 months of tailings, 18 months of recontouring, and 6 months of revegetation. Phase 2 (duration: 5 years) is comprised of the 1st - 5th annual monitoring events in Years 6-10, respectively. Phase 3 (duration: 5 years) is comprised of the 6th - 10th annual monitoring events in Years 11-15, respectively. Phase 4 is comprised of the 11th - 15th annual monitoring events in Years 16-20, as deemed necessary.

3.0 Release Criteria

Establishment of reclaimed wetlands will be accomplished as specified in Section 62C-16.0051 (9) F.A.C. and Rule 62-331.130, F.A.C. FDEP personnel will conduct inspections on these areas during the regularly scheduled quarterly inspections. Individual reclaimed wetlands will be considered successful when the following criteria regarding water quality, water quantity, and vegetation have been achieved. At that time, the reclaimed wetlands must also be deemed jurisdictional pursuant to Rule 62-340, F.A.C. When these success criteria have been attained without intervention in the form of irrigation, dewatering, or replanting of desirable vegetation by the approved minimum establishment period (typically 1-2 years), an individual reclaimed wetland will be eligible for release. A discussion of specific parameters for the success criteria of reclaimed wetlands is provided below.

3.1 Water Quality

The water quality within each reclaimed wetland shall meet Class III standards (Chapter 62-302, F.A.C.).

3.2 Water Quantity

The created wetlands shall have hydroperiods and depths of inundation sufficient to support wetland vegetation of the target community type and that are within range of conditions in natural wetlands of that community type monitored elsewhere on the mine. The hydroperiod success criteria will be defined in the permit conditions based on the reclaimed wetland habitat type. The time frame in which these criteria shall be met will extend from the last day in spring to the first day in fall where temperatures are at or above 32 degrees Fahrenheit.

3.3 Vegetation

A minimum survival rate of 400 trees per acre that are \geq 12 feet tall and 33% tree canopy coverage shall be attained. The reclaimed wetlands shall also contain no more than 10% cover of nuisance/exotic vegetative species pursuant to the most current list established by the Florida Exotic Pest Plant Council (FLEPPC) at <http://www.fleppc.org>, and desirable species (including non-nuisance, non-invasive wetland species listed in rule 62-340.450, F.A.C) shall comprise at least 80% cover from natural recruitment or supplemental seeding.

For upland forested areas, a density of 200 trees per acre must be attained by the end of the first year to show establishment, with a maximum 10% cover of nuisance/exotic species. Wetlands will have an extended establishment period of five years.

The reclaimed wetlands shall also meet the following vegetative parameters specific to each target FLUCFCS community type.

FLUCFCS 617 (Mixed Wetland Hardwoods) – The canopy layer shall be dominated (>50% coverage) by hardwood species from the attached planting menu, which may include red maple (*Acer rubrum*), sweet bay, swamp bay (*Persea palustris*), loblolly bay (*Gordonia lasianthus*), water-tolerant oaks (*Quercus* spp.), and other appropriate hardwoods for this habitat type. Cypress and pine species may also occur in smaller amounts but shall be contained to appropriate thresholds necessary to maintain hardwood dominance. The shrub layer shall contain at least 3 of the species listed in the planting menu, with an average of \geq 50 shrubs per acre, and groundcover vegetation shall be dominated by native species typical of this community type.

FLUCFCS 620 (Wetland Coniferous Forests) - The canopy layer shall be dominated (>50% coverage) by pond cypress (*Taxodium ascendens*), bald cypress (*Taxodium distichum*), and various pine (*Pinus* spp.) species included in the attached planting menu. The shrub layer shall contain at least 3 of the species listed in the planting menu, with an average of \geq 50 shrubs per acre, and groundcover vegetation shall be dominated by native species typical of this community type.

FLUCFCS 630 (Wetland Forested Mixed) – The canopy layer shall be dominated (>50% coverage) by a mixture of appropriate tree species for this habitat type (refer to the planting menu), and neither hardwoods nor conifers may achieve a 66 percent dominance of the crown canopy composition. The shrub layer shall contain at least 3 of the species listed in the planting menu, with an average of \geq 50 shrubs per acre, and groundcover vegetation shall be dominated by native species typical of this community type.

3.0 Maintenance Plan

Maintenance activities to remove invasive and exotic plant species will be provided by a qualified professional designated by WSA. Maintenance techniques, such as cutting, hand removal, and selective herbicide application will be employed. Substantial herbicide applications will only be used if infestations are so severe that herbicide spray would be the only effective and efficient method. Chemical or manual removal of the exotic species will occur within the reclaimed wetland until success has been obtained and the wetlands are released. Supplemental tree/shrub plantings will be conducted if a mitigation wetland does not appear to be trending toward its required vegetative density.

4.0 Monitoring Schedule and Methodologies

WSA will implement a vegetative monitoring and maintenance program to promote the survivorship and growth of desirable species in all reclamation wetlands. This program will include annual inspections of mitigation wetlands for nuisance and exotic species; these inspections will be coordinated with FDEP staff. All currently required monitoring of impacts to wetland reclamation areas are being completed by WSA and submitted to the appropriate agencies.

The FDEP Mining and Mitigation Program conducts inspections at the Hamilton County Mine. The FDEP reviewer assigned to WSA inspects and reviews active and future reclamation units with regard to status and success. Any requests for release or modifications to existing plans and permits are also discussed during these inspections. This and other required monitoring at the Hamilton County Mine will be maintained for the periods specified in the applicable regulations.

Following Year 7 of monitoring, the reclamation sites will be comprehensively reviewed; if any of the mitigation wetlands are determined at that time to not be trending toward success, supplemental plantings will be conducted where necessary. The reclamation sites will be comprehensively reviewed again at Year 10; at which time additional supplemental plantings will occur as needed. Herbicidal treatment will be conducted annually within areas where nuisance/exotic species are observed until monitoring indicates a trend of <10% of these species within each given area.

4.1 Reporting Schedule

Monitoring reports for the reclaimed wetlands shall be submitted to FDEP beginning one year after planting and annually thereafter through year fifteen (or until released if sooner). Should any additional monitoring data be necessary after year fifteen, monitoring reports will be submitted to FDEP annually until the reclamation is deemed successful. Hydrology and water quality monitoring results will be submitted annually until the reclamation wetlands are released. Vegetation and hydrology monitoring reports shall include data reported separately for each reclaimed wetland.

Following revegetation of the reclaimed wetlands, a baseline monitoring report will be prepared for each reclamation area. The baseline report will include an inventory of plant species and quantities installed at each site, locations of permanent monitoring transects and photo stations, water depth instrumentation, and the post-construction (as-built) elevation survey. Specific methodologies to be used for field sampling events and documentation are further described in Section 4.2.

Each annual monitoring report submitted thereafter will summarize all monitoring and maintenance efforts from the previous year, provide an assessment of performance, and identify any deficiencies requiring

maintenance or additional adaptive management.

WSA will submit vegetation and hydrology monitoring plans, detailing specific sampling techniques and proposed sampling locations, to the Department for approval at least 60 days prior to sampling.

Tables 2A and 2B below summarize the anticipated monitoring schedule, by RU and corresponding Phase, for the reclaimed wetlands.

**Table 2A
Anticipated Monitoring Schedule for RCS-18, RCS-19, and HC-13**

Phase	Event	Schedule
1 (Years 1-5)	Baseline Monitoring	Within 30 days of revegetation (anticipated 2025)
	1 st Annual Monitoring	Spring 2026
	2 nd Annual Monitoring	Spring 2027
2 (Years 6-10)	3 rd Annual Monitoring	Spring 2028
	4 th Annual Monitoring	Spring 2029
	5 th Annual Monitoring	Spring 2030
	6 th Annual Monitoring	Spring 2031
	7 th Annual Monitoring	Spring 2032
3 (Years 11-15)	8 th Annual Monitoring	Spring 2033
	9 th Annual Monitoring	Spring 2034
	10 th Annual Monitoring	Spring 2035
	11 th Annual Monitoring	Spring 2036
	12 th Annual Monitoring	Spring 2037
4 (Years 16-18)	13 th Annual Monitoring	Spring 2038
	14 th Annual Monitoring	Spring 2039
	15 th Annual Monitoring	Spring 2040

**Table 2B
Anticipated Monitoring Schedule for RCS-20**

Phase	Event	Schedule
1 (Year 5)	Baseline Monitoring	Within 30 days of revegetation (anticipated 2027)
2 (Years 6-10)	1 st Annual Monitoring	Spring 2028
	2 nd Annual Monitoring	Spring 2029
	3 rd Annual Monitoring	Spring 2030
	4 th Annual Monitoring	Spring 2031
	5 th Annual Monitoring	Spring 2032
3 (Years 11-15)	6 th Annual Monitoring	Spring 2033
	7 th Annual Monitoring	Spring 2034
	8 th Annual Monitoring	Spring 2035
	9 th Annual Monitoring	Spring 2036
	10 th Annual Monitoring	Spring 2037
4 (Years 16-20)	11 th Annual Monitoring	Spring 2038
	12 th Annual Monitoring	Spring 2039
	13 th Annual Monitoring	Spring 2040
	14 th Annual Monitoring	Spring 2041
	15 th Annual Monitoring	Spring 2042

4.2 Methodologies

4.2.1 Vegetative Monitoring

Wetland monitoring data will be collected along pedestrian transects that shall be established prior to the first field sampling event and revisited throughout the duration of monitoring. Along each transect, photo stations shall be established and recorded using survey quality GPS; photographs will be taken in the four cardinal directions at each station. Qualitative and quantitative vegetation data shall be recorded along each transect, in addition to soil characteristics and wildlife observations. The number of transects and photo stations shall sufficiently represent the overall conditions within each reclamation site.

During each monitoring event, tree species will be counted and measured along the established transects. The tree density and canopy coverage within each reclaimed wetland will be calculated and presented in report format. Understory vegetation will be identified, and results calculated to determine percent coverage by desirable wetland species and nuisance or exotic species. Data recorded from established water level meters will also be collected. Total percent areal coverage will be estimated for native and Category I and II exotic vegetation, by stratum, during each monitoring event.

Summary data tables with the following information shall be also provided for each wetland:

Trees:

- The density of each species (numbers per acre)
- Height and dbh of each species

- Numbers recruited (if meeting specified tree definition)

Shrubs

- Percent cover of each species

Ground cover

- Percent cover of each species
- Percent cover of non-nuisance, non-exotic wetland species
- Percent cover of nuisance species
- Percent cover of upland species
- Percent of open water
- Percent of bare ground

If supplemental planting is performed, a table that lists species and quantities of individuals planted will be provided.

The quantitative data and qualitative assessment shall be used by the permittee to generate an annual monitoring and adaptive management assessment (MAMA) for each mitigation site.

4.2.2 Hydrology Monitoring

All piezometers, staff gauges, and flow meters to be used for wetland hydrologic monitoring will be installed at the established FDEP-approved locations within 30 days of completion of grading/contouring activities.

Hydrologic data will be collected weekly for each monitoring site and will be compiled, analyzed, and submitted in both tabular and graphical formats with the Annual Hydrology Reports. Initial assessment of site hydrology will be conducted for at least two (2) years after final contouring of each reclamation area. The results will be submitted to the Department for review and approval within 30 days of completion of the analysis. If the hydrology of the site does not meet the design objectives, WSA will submit a remedial action plan to the Department to ensure that design objectives will be met. Following the initial hydrologic assessment, annual monitoring of each reclamation area shall continue until the approved performance standards have been met.

5.0 Adaptive Management Plan

If during any monitoring event the ecological monitor determines that any of the mitigation areas are not trending toward the success criteria detailed in the above section, appropriate corrective actions will be taken to reverse the trend. Failure to meet the success criteria will occur if a reclamation area has a tree density averaging less than 400 trees per acre with a height that is greater than or equal to 12 feet (or greater than or equal to 4 inches dbh), if any mitigation area has less than 80% cover by native wetland vegetation appropriate for the area, and if any mitigation area has more than 10% cover by Category I and II exotic vegetation pursuant to the most current list established by FLEPPC.

6.0 Financial Responsibility

Prior to the initiation of mining operations within ERP G Lands, the final version of the financial responsibility mechanism for the mitigation costs shall be provided to and approved by FDEP as required by rule 62-312.390, F.A.C. The financial responsibility mechanism will be equal to 110 percent of the estimated

mitigation costs for wetlands affected in the first three years of operation. For each year thereafter, the financial responsibility demonstration will be updated, including to provide an amount equal to the 110 percent of the estimated mitigation costs for the next year of operations for which financial responsibility has not already been demonstrated. The amount will be adjusted to reduce financial responsibility for areas complete through revegetation to the amount covering the remaining monitoring and maintenance costs for that area. The mitigation cost per acre shall be adjusted annually by five percent to accommodate rising costs due to inflation. These cost adjustments will be submitted with the annual status report. **Table 3** below summarizes the estimated costs of proposed wetland reclamation.

**Table 3
Summary of Mitigation Costs**

Reclamation Unit ID	Activity	Reclamation Acres	*Cost (Dollars)
HC-RCS-18	Contouring	63.1	292,847
	Planting		26,439
HC-RCS-19	Contouring	66.9	310,483
	Planting		28,031
HC-RCS-20	Contouring	373.0	1,731,093
	Planting		156,287
HC-HC-13	Contouring	125.7	583,374
	Planting		52,668
HC-RCS-10	Contouring	209	945,372
	Planting		85,350
HC-RCS-11	Contouring	9.1	42,233
	Planting		3,813
HC-RCS-16	Contouring	413.7	1,945,043
	Planting		175,603
Maintenance (7,700/year for 15 years)			115,500
Monitoring (138/acre for Year 1 and 110/acre for Years 2-15)			2,115,287
Silt Fence Installation (28,147 linear feet)			46,443
Total		1,260.6ac	\$8,655,866

*Contouring costs are estimated at \$4,641/acre and planting costs are estimated at \$419/acre

Appendix D includes recent contractor quotes utilized in the above calculations.

7.0 Long-Term Management

Following the initial 15-year monitoring period, ongoing monitoring activities will be documented annually in a status report, which WSA will use as a management decision tool for the mitigation wetlands. The status report will include a summary of findings at each site; including overall qualitative conditions, wetland hydrology, vegetative species cover and composition, presence and abundance of nuisance/exotic vegetation, soil erosion (if noted), and evidence and intensity of wildlife utilization. Photographic documentation will be provided at previously established reference photo stations and any other noted areas of concern. The report will also include locations and descriptions of any identified problem areas within the mitigation wetlands and recommended management actions and/or necessary corrective measures and associated costs.

7.1 Vegetation

Once success criteria have been achieved, ongoing documentation of habitat conditions within each wetland will be achieved through annual inspections and monitoring events. While it is not anticipated that major management actions will be necessary for long-term maintenance of the mitigation sites, corrective measures (such as herbicide application and mowing of excessive underbrush growth) may occasionally be needed to ensure long-term viability of the wetlands. The type of herbicide(s) to be used, method of application, and schedule for application will be determined based on the locations of the targeted wetlands and the particular invasive species to be controlled. It is assumed that no more than 20% of the mitigation wetlands will require herbicide treatment each year once the performance standards have been achieved.

Following the initial 15-year formal monitoring period, WSA will conduct at least one annual monitoring event of the reclamation wetlands each subsequent year. During each field inspection, general topographic conditions, hydrology, vegetative cover and composition, recruitment of nuisance/exotic vegetation, and observed soil erosion will be assessed via pedestrian transects. Evidence of wildlife utilization and any noted recent human activity will also be assessed. Photographs will be taken in the four cardinal directions at previously established photo stations selected during the initial 15-year monitoring period. Additional photos may be needed to demonstrate any problem areas selected for maintenance. Data collected during each annual monitoring event will be compiled into a status report and evaluated for potential issues and need for further management actions.

7.2 Hydrology

As previously noted, two water level meters will be installed for continuous monitoring of onsite hydrologic conditions of each wetland reclamation site. The locations of instrumentation will be established and recorded during the initial 15-year monitoring period. The installed water depth instrumentation will be set to record at 60-minute intervals, stored on site, and downloaded during each ongoing annual monitoring event. Following installation of the water level meters, no additional maintenance or replacement of the structures is anticipated. Overall hydrologic conditions and health will be assessed annually. If it is determined that intervention is necessary to maintain the viability of a targeted wetland, appropriate management measures will be evaluated at that time.

8.0 Financial Assurances:

WSA has set aside money to cover the mitigation and monitoring costs that will be incurred over the duration of the project, as stated in the attached Letter of Credit (**Appendix E**). Updated mitigation cost estimates and sufficient documentation of financial responsibility will be provided on an annual basis during the initial 15-year monitoring period.

9.0 Long Term Funding Mechanism

Once the reclamation wetlands have achieved their designated success criteria, long-term management costs of the mitigation wetlands will be paid through a Long-Term Management Fund, which will be maintained by WSA.

Table 4 below summarizes the anticipated costs of long-term management of the reclamation sites. These costs include estimates of time and funding needed to conduct the annual monitoring site inspections and reporting, and any recommended annual maintenance efforts.

**Table 4
Summary of Projected Annual Long-Term Management Costs**

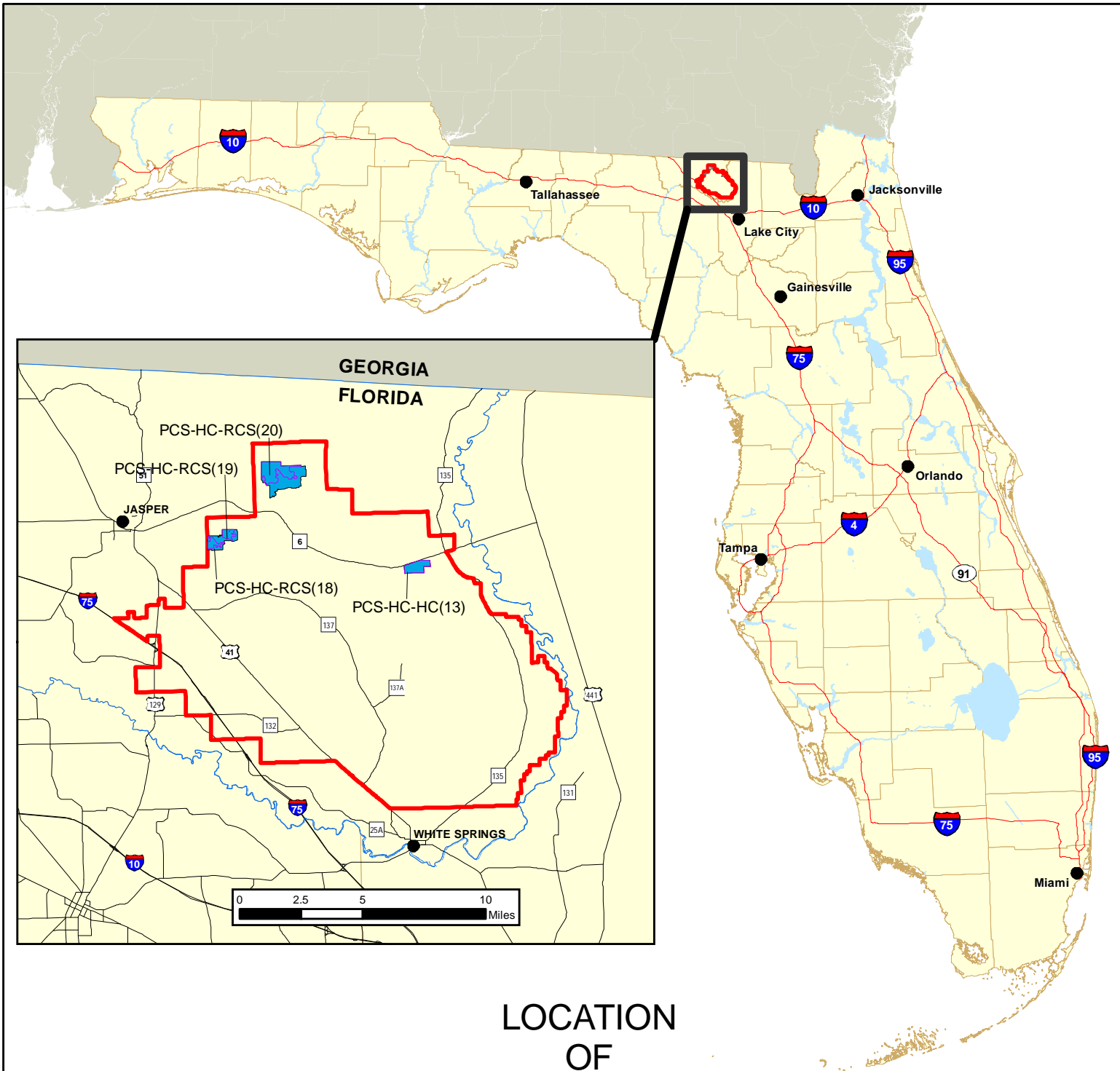
Reclamation Unit ID	Management Component	Reclamation Acres	Projected Cost per Acre	Total Projected Cost
HC-RCS-18	Annual Field Inspections	63.1	\$55	\$3,470
	Status Report Compilation		\$28	\$1,767
	Herbicide Application*		\$12	\$757
	Fire Hazard Reduction**		\$14	\$884
HC-RCS-19	Annual Field Inspections	66.9	\$55	\$3,680
	Status Report Compilation		\$28	\$1,873
	Herbicide Application		\$12	\$803
	Fire Hazard Reduction		\$14	\$937
HC-RCS-20	Annual Field Inspections	373.0	\$55	\$20,515
	Status Report Compilation		\$28	\$10,444
	Herbicide Application		\$12	\$4,476
	Fire Hazard Reduction		\$14	\$5,222
HC-RCS-10	Annual Field Inspections	209	\$55	\$11,204
	Status Report Compilation		\$28	\$5,704
	Herbicide Application		\$12	\$2,444
	Fire Hazard Reduction		\$14	\$2,852
HC-RCS-11	Annual Field Inspections	9.1	\$55	\$501
	Status Report Compilation		\$28	\$255
	Herbicide Application		\$12	\$110
	Fire Hazard Reduction		\$14	\$128
HC-RCS-16	Annual Field Inspections	413.7	\$55	\$22,759
	Status Report Compilation		\$28	\$11,587
	Herbicide Application		\$12	\$4,966
	Fire Hazard Reduction		\$14	\$5,793
Total Projected Annual Costs				\$123,720

*Assumed that 20% of mitigation area will require herbicide treatment based on annual inspections.

**Assumed that 20% of mitigation area will require mowing based on annual inspections.

Any subsequent transfer of responsibilities to a different entity than WSA will require written approval from the FDEP and will be incorporated into the LTMP by amendment.

APPENDIX A – FIGURES



LOCATION OF PROPOSED RECLAMATION UNITS WHITE SPRINGS, FLORIDA



Legend	
	Proposed Reclamation Unit
	Project Area
	Mine Boundary CRP (G)
	County
	Suwannee River

**FIGURE 1 - LOCATION MAP
PROPOSED RECLAMATION UNITS
HAMILTON COUNTY MINE**

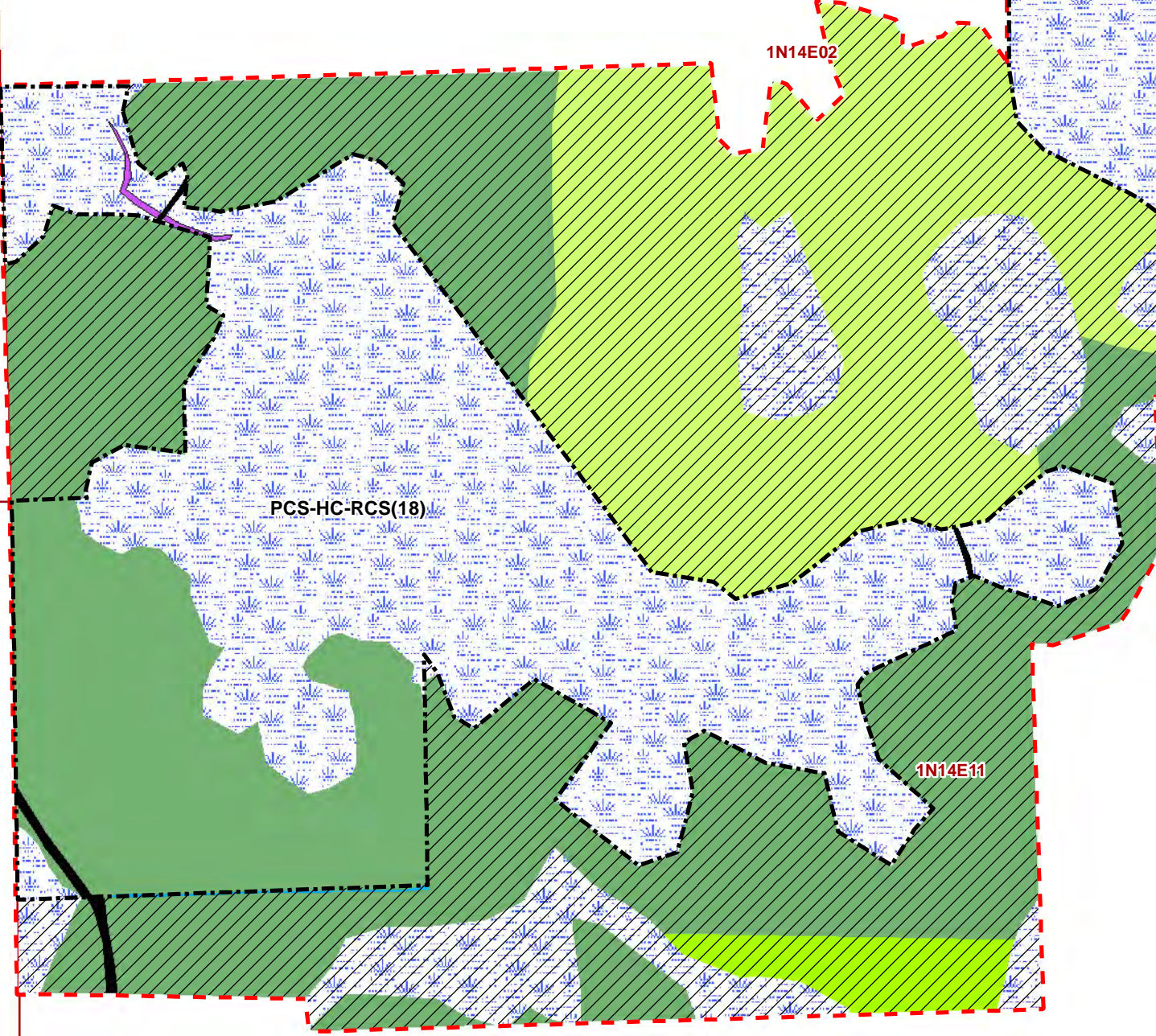
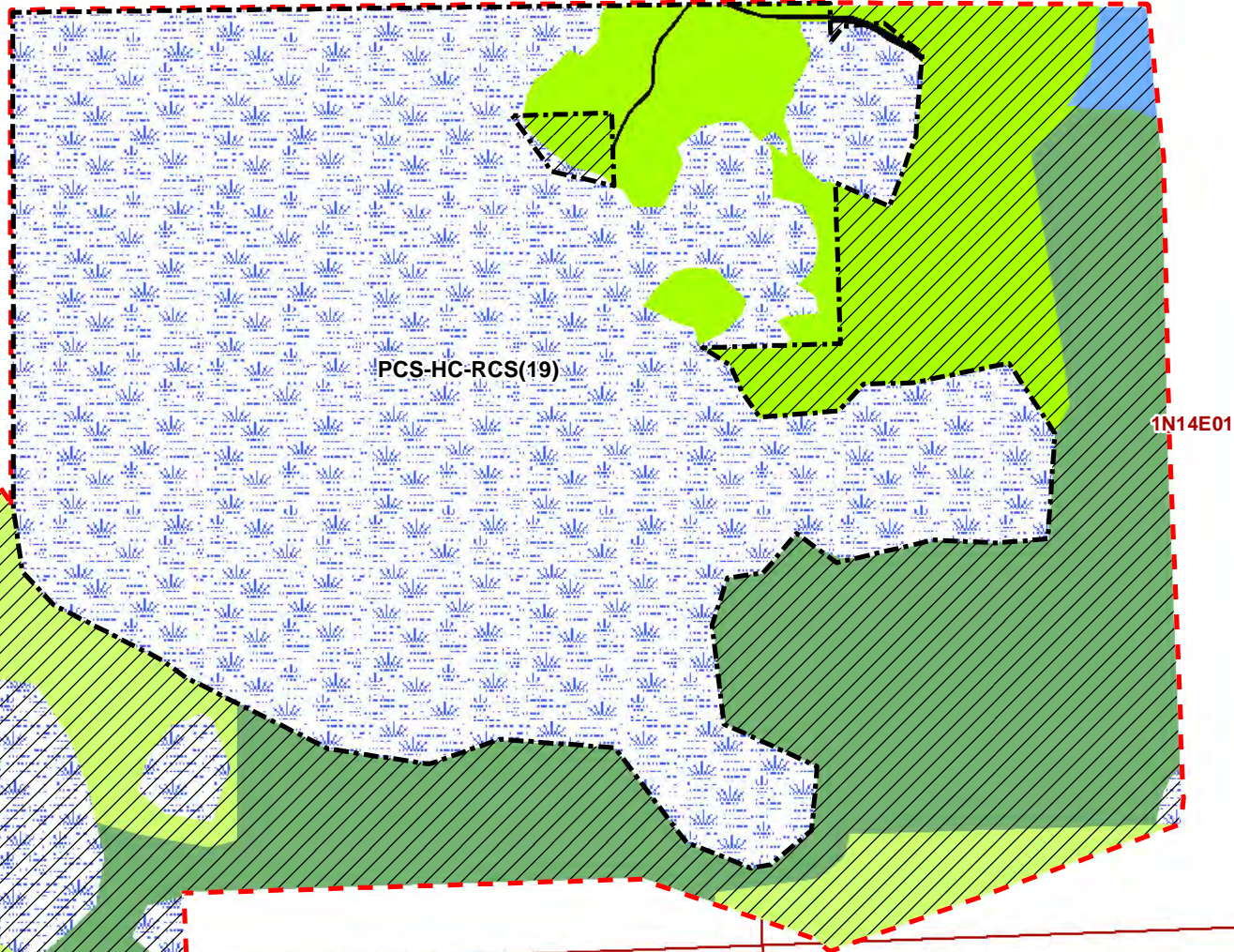
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Scale (main frame):	1" = 80 miles
Date:	3/28/2022
Requested By:	DAD
Drawn By:	SLW & RPF
Sketch No.:	A-9421
Name:	ALTS Location Map

PCS-HC-HC(18)		
FLUCFCS	LAND USE WITHIN RECLAMATION UNIT	ACRES
441	Coniferous Plantations	24.9
510	Stream and Waterways	0.2
514	Upland Cut Ditches	0.1
630	Wetland Forested Mixed	72.3
840	Unpaved Road	0.4
TOTAL		97.9



PCS-HC-HC(19)		
FLUCFCS	LAND USE WITHIN RECLAMATION UNIT	ACRES
434	Hardwood Conifer Mixed	7.9
630	Wetland Forested Mixed	100.7
840	Unpaved Road	0.2
TOTAL		108.8

Pre-Mining Land Use	
FLUCFCS, Description	
411, Pine Flatwoods	
434, Hardwood Conifer Mixed	
441, Coniferous Plantations	
510, Streams and Waterways	
514, Upland Cut Ditches	
611, Bay Swamps	
630, Wetland Forested Mixed	
814, Roads and Highways	



Legend	
	Proposed Reclamation Unit
	Project_Areas_PA
	Previously Permitted
	PLSS Sections

FIGURE 2A - PROPOSED RECLAMATION UNITS PCS-HC-RCS(18) & (19) PRE-MINING FLUCFCS TYPES HAMILTON COUNTY, FLORIDA

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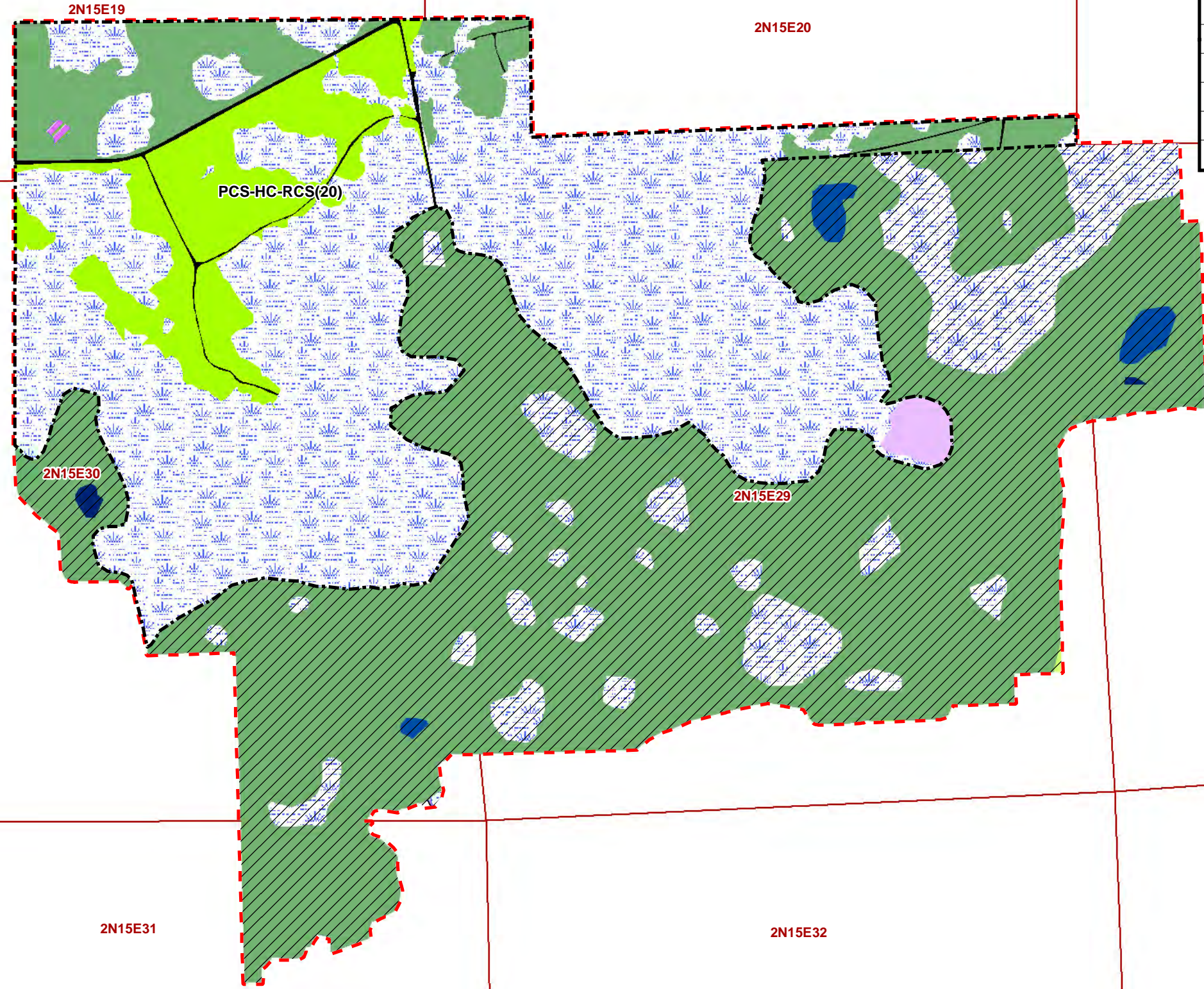
[SEE APPENDIX A COVER SHEET](#)

Scale:	1" = 500'
Date:	5/24/2022
Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9422
Name:	ALTS Pre LU

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PCS-HC-RCS(20)		
FLUCFCS	LAND USE WITHIN RECLAMATION UNIT	ACRES
434	Hardwood Conifer Mixed	67.9
441	Coniferous Plantations	52.6
621	Cypress	5.5
630	Wetland Forested Mixed	389.5
643	Wet Prairies	0.5
840	Unpaved Road	5.1
TOTAL		521.1



Pre-Mining Land Use	
FLUCFCS	Description
411	Pine Flatwoods
434	Hardwood Conifer Mixed
441	Coniferous Plantations
617	Mixed Wetland Hardwoods
620	Wetland Coniferous Forests
621	Cypress
630	Wetland Forested Mixed
643	Wet Prairies
814	Roads and Highways

Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by AECOM and FDEP 2019.

Legend	
	Proposed Reclamation Unit
	Project Areas_PA
	Previously Permitted
	PLSS Sections

FIGURE 2B - PROPOSED RECLAMATION UNIT PCS-HC-RCS(20) PRE-MINING FLUCFCS TYPES HAMILTON COUNTY, FLORIDA

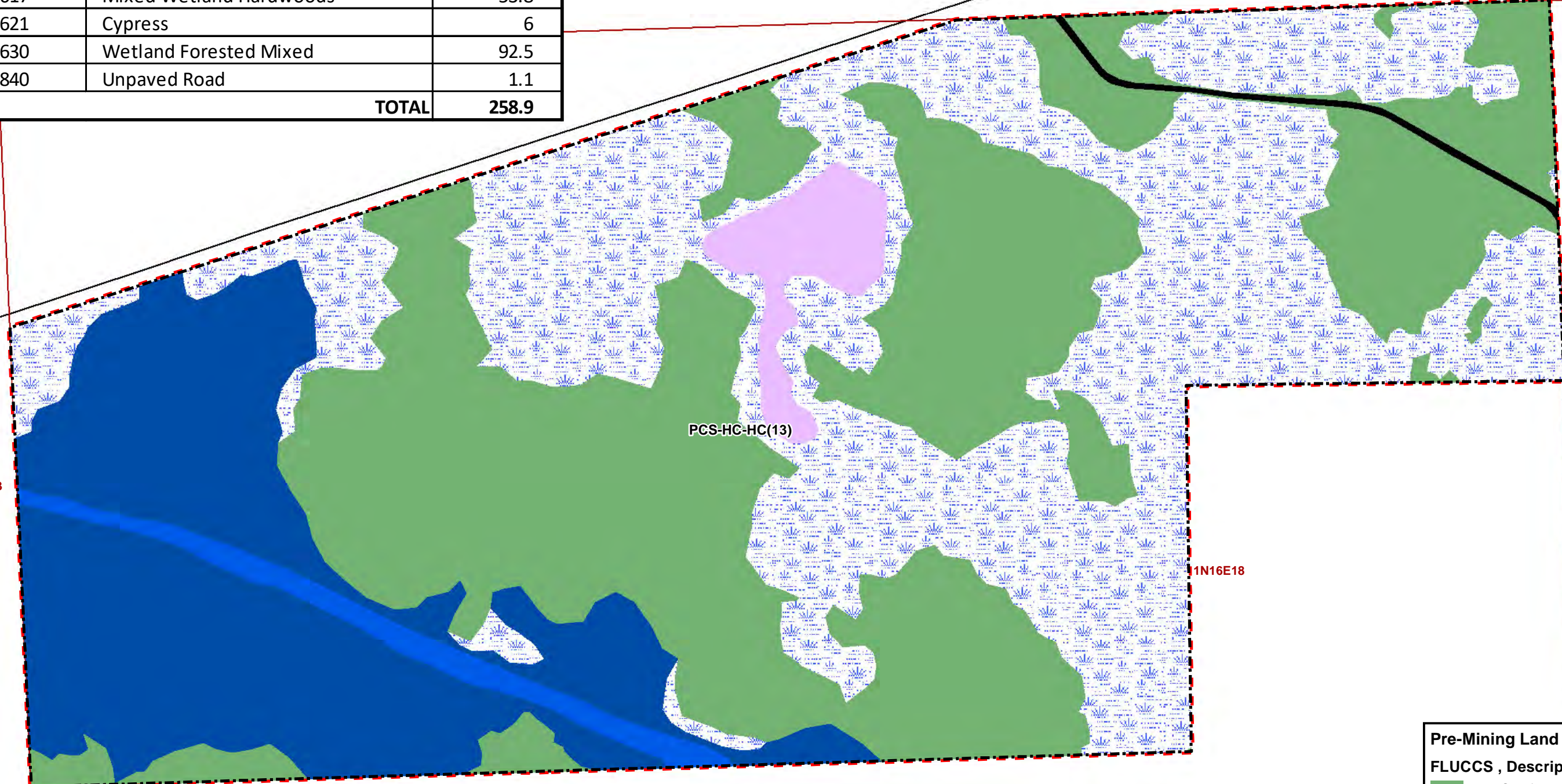
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[SEE APPENDIX A COVER SHEET](#)

Scale:	1" = 1,000'
Date:	5/24/2022
Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9423
Name:	ALTS Pre LU

PCS-HC-HC(13)		
FLUCFCS	LAND USE WITHIN RECLAMATION UNIT	ACRES
441	Coniferous Plantations	100.7
615	Stream and Lake Swamps (Bottomland)	4.8
617	Mixed Wetland Hardwoods	53.8
621	Cypress	6
630	Wetland Forested Mixed	92.5
840	Unpaved Road	1.1
TOTAL		258.9



Source: Suwannee River Water Management District / FDEP
Land Use and Cover 2018. Wetlands field verified by
AECOM and FDEP 2019.

Pre-Mining Land Use	
FLUCCS , Description	
■	441, Coniferous Plantations
■	615, Stream and Lake Swamps (Bottomland)
■	617, Mixed Wetland Hardwoods
■	621, Cypress
■ (with pattern)	630, Wetland Forested Mixed

Legend	
 	Proposed Reclamation Unit
 	Project Areas_PA
	Major Roads
	PLSS Sections

**FIGURE 2C - PROPOSED
RECLAMATION UNIT PCS-HC-HC(13)
PRE-MINING FLUCFCS TYPES
HAMILTON COUNTY, FLORIDA**

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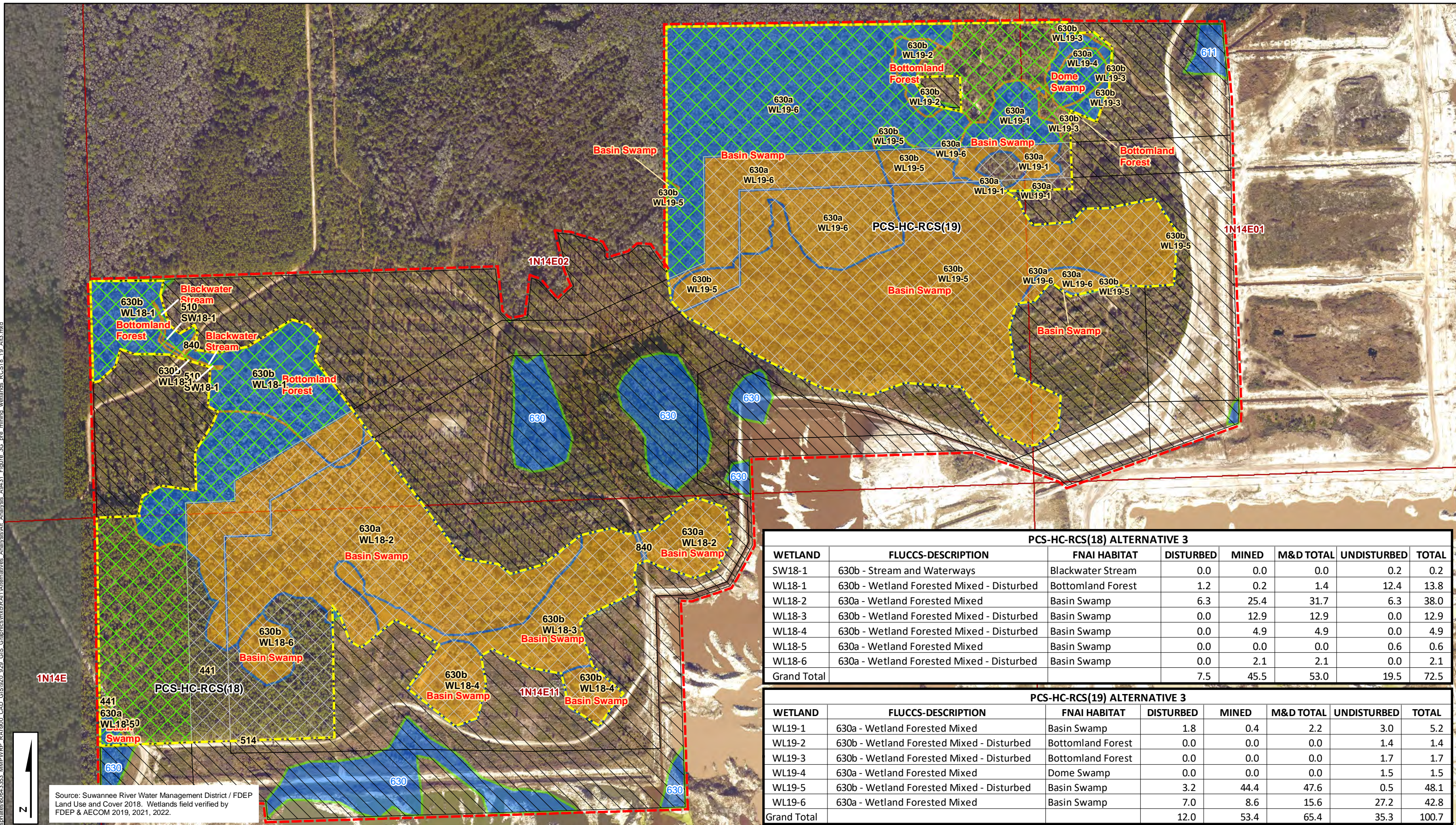


[SEE APPENDIX A COVER SHEET](#)

Scale:	1" = 400'
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Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9424
Name:	ALTS Pre LU

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Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by FDEP & AECOM 2019, 2021, 2022.

PCS-HC-RCS(18) ALTERNATIVE 3									
WETLAND	FLUCCS-DESCRIPTION	FNAI HABITAT	DISTURBED	MINED	M&D TOTAL	UNDISTURBED	TOTAL		
SW18-1	630b - Stream and Waterways	Blackwater Stream	0.0	0.0	0.0	0.2	0.2		
WL18-1	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	1.2	0.2	1.4	12.4	13.8		
WL18-2	630a - Wetland Forested Mixed	Basin Swamp	6.3	25.4	31.7	6.3	38.0		
WL18-3	630b - Wetland Forested Mixed - Disturbed	Basin Swamp	0.0	12.9	12.9	0.0	12.9		
WL18-4	630b - Wetland Forested Mixed - Disturbed	Basin Swamp	0.0	4.9	4.9	0.0	4.9		
WL18-5	630a - Wetland Forested Mixed	Basin Swamp	0.0	0.0	0.0	0.6	0.6		
WL18-6	630a - Wetland Forested Mixed - Disturbed	Basin Swamp	0.0	2.1	2.1	0.0	2.1		
Grand Total			7.5	45.5	53.0	19.5	72.5		

PCS-HC-RCS(19) ALTERNATIVE 3									
WETLAND	FLUCCS-DESCRIPTION	FNAI HABITAT	DISTURBED	MINED	M&D TOTAL	UNDISTURBED	TOTAL		
WL19-1	630a - Wetland Forested Mixed	Basin Swamp	1.8	0.4	2.2	3.0	5.2		
WL19-2	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.0	0.0	0.0	1.4	1.4		
WL19-3	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.0	0.0	0.0	1.7	1.7		
WL19-4	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	1.5	1.5		
WL19-5	630b - Wetland Forested Mixed - Disturbed	Basin Swamp	3.2	44.4	47.6	0.5	48.1		
WL19-6	630a - Wetland Forested Mixed	Basin Swamp	7.0	8.6	15.6	27.2	42.8		
Grand Total			12.0	53.4	65.4	35.3	100.7		

Legend

- IMPACTED WETLANDS
- UNDISTURBED WETLAND
- PROJECT AREA
- PROPOSED RECLAMATION UNIT
- PLSS SECTIONS

ALTERNATIVE 3 AREAS

- UNDISTURBED
- MINED AND DISTURBED
- PREVIOUSLY PERMITTED

FIGURE 3G - PROPOSED RECLAMATION UNITS PCS-HC-RCS(18) & (19) PRE-MINING IMPACTED WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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Scale: 1" = 500'

Date: 5/25/2022

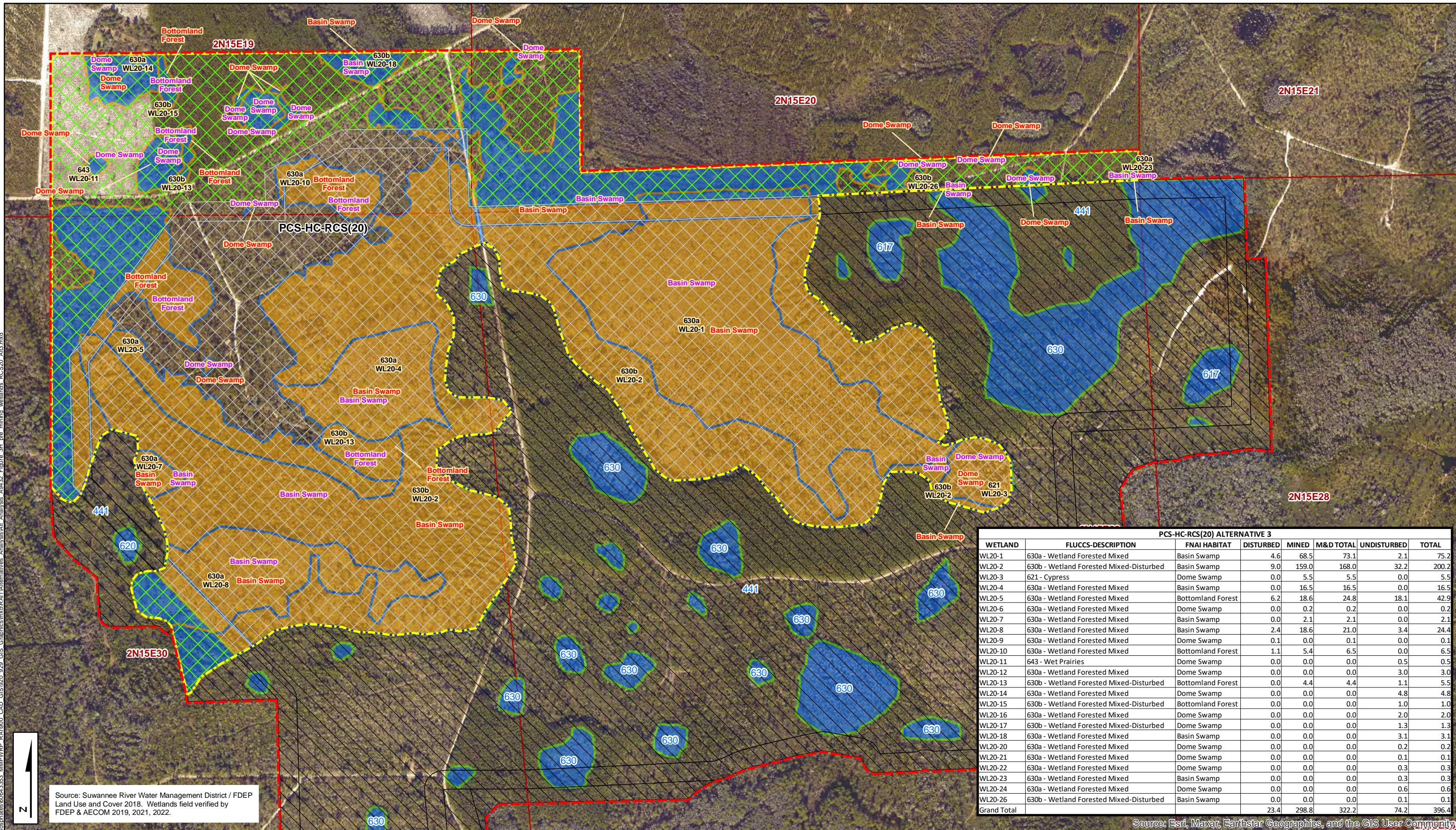
Requested By: DAD

Drawn By: RPF/ DAD

Sketch No.: A-9431

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Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by FDEP & AECOM 2019, 2021, 2022.

PCS-HC-RCS(20) ALTERNATIVE 3							
WETLAND	FLUCCS-DESCRIPTION	FNAI HABITAT	DISTURBED	MINED	M&D TOTAL	UNDISTURBED	TOTAL
WL20-1	630a - Wetland Forested Mixed	Basin Swamp	4.6	68.5	73.1	2.1	75.2
WL20-2	630b - Wetland Forested Mixed-Disturbed	Basin Swamp	9.0	159.0	168.0	32.2	200.2
WL20-3	621 - Cypress	Dome Swamp	0.0	5.5	5.5	0.0	5.5
WL20-4	630a - Wetland Forested Mixed	Basin Swamp	0.0	16.5	16.5	0.0	16.5
WL20-5	630a - Wetland Forested Mixed	Bottomland Forest	6.2	18.6	24.8	18.1	42.9
WL20-6	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.2	0.2	0.0	0.2
WL20-7	630a - Wetland Forested Mixed	Basin Swamp	0.0	2.1	2.1	0.0	2.1
WL20-8	630a - Wetland Forested Mixed	Basin Swamp	2.4	18.6	21.0	3.4	24.4
WL20-9	630a - Wetland Forested Mixed	Dome Swamp	0.1	0.0	0.1	0.0	0.1
WL20-10	630a - Wetland Forested Mixed	Bottomland Forest	1.1	5.4	6.5	0.0	6.5
WL20-11	643 - Wet Prairies	Dome Swamp	0.0	0.0	0.0	0.5	0.5
WL20-12	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	3.0	3.0
WL20-13	630b - Wetland Forested Mixed-Disturbed	Bottomland Forest	0.0	4.4	4.4	1.1	5.5
WL20-14	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	4.8	4.8
WL20-15	630b - Wetland Forested Mixed-Disturbed	Bottomland Forest	0.0	0.0	0.0	1.0	1.0
WL20-16	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	2.0	2.0
WL20-17	630b - Wetland Forested Mixed-Disturbed	Dome Swamp	0.0	0.0	0.0	1.3	1.3
WL20-18	630a - Wetland Forested Mixed	Basin Swamp	0.0	0.0	0.0	3.1	3.1
WL20-20	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	0.2	0.2
WL20-21	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	0.1	0.1
WL20-22	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	0.3	0.3
WL20-23	630a - Wetland Forested Mixed	Basin Swamp	0.0	0.0	0.0	0.3	0.3
WL20-24	630a - Wetland Forested Mixed	Dome Swamp	0.0	0.0	0.0	0.6	0.6
WL20-26	630b - Wetland Forested Mixed-Disturbed	Basin Swamp	0.0	0.0	0.0	0.1	0.1
Grand Total			23.4	298.8	322.2	74.2	396.4

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND

- IMPACTED WETLANDS
- UNDISTURBED WETLAND
- PREVIOUSLY PERMITTED WETLANDS
- PROJECT AREA
- PROPOSED RECLAMATION UNIT

ALTERNATIVE 3 AREAS

- UNDISTURBED
- MINED AND DISTURBED
- PREVIOUSLY PERMITTED
- PLSS SECTION

FIGURE 3H - PROPOSED RECLAMATION UNIT PCS-HC-RCS(20) PRE-MINING IMPACTED WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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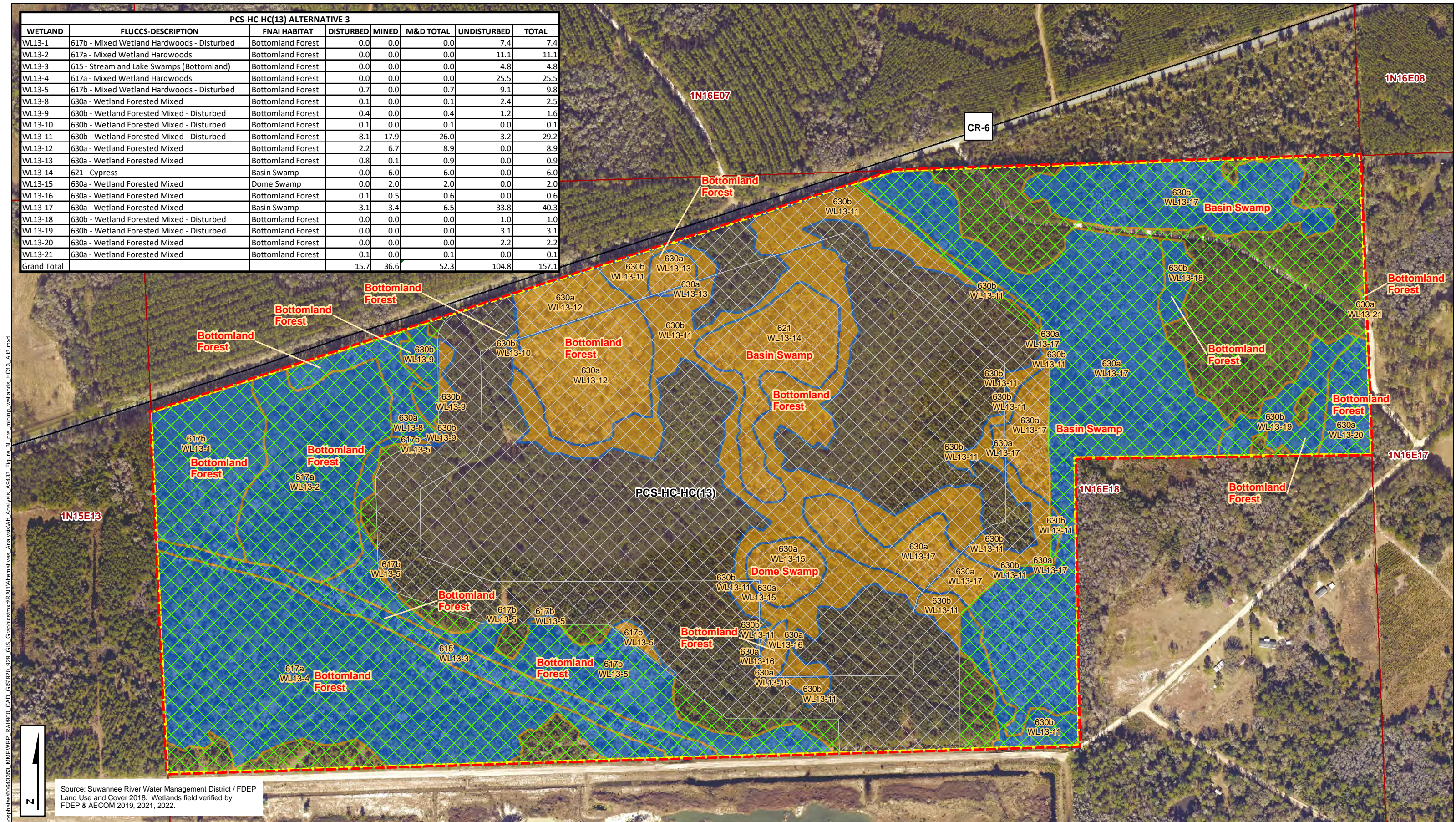
[SEE APPENDIX A COVER SHEET](#)



Scale:	1" = 700'
Date:	5/25/2022
Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9432
Name:	PRE-WL IMPACTS

PCS-HC-HC(13) ALTERNATIVE 3						
WETLAND	FLUCCS-DESCRIPTION	FNAI HABITAT	DISTURBED	MINED	M&D TOTAL	TOTAL
WL13-1	617b - Mixed Wetland Hardwoods - Disturbed	Bottomland Forest	0.0	0.0	0.0	7.4
WL13-2	617a - Mixed Wetland Hardwoods	Bottomland Forest	0.0	0.0	0.0	11.1
WL13-3	615 - Stream and Lake Swamps (Bottomland)	Bottomland Forest	0.0	0.0	0.0	4.8
WL13-4	617a - Mixed Wetland Hardwoods	Bottomland Forest	0.0	0.0	0.0	25.5
WL13-5	617b - Mixed Wetland Hardwoods - Disturbed	Bottomland Forest	0.7	0.0	0.7	9.1
WL13-8	630a - Wetland Forested Mixed	Bottomland Forest	0.1	0.0	0.1	2.4
WL13-9	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.4	0.0	0.4	1.2
WL13-10	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.1	0.0	0.1	0.1
WL13-11	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	8.1	17.9	26.0	3.2
WL13-12	630a - Wetland Forested Mixed	Bottomland Forest	2.2	6.7	8.9	0.0
WL13-13	630a - Wetland Forested Mixed	Bottomland Forest	0.8	0.1	0.9	0.0
WL13-14	621 - Cypress	Basin Swamp	0.0	6.0	6.0	6.0
WL13-15	630a - Wetland Forested Mixed	Dome Swamp	0.0	2.0	2.0	0.0
WL13-16	630a - Wetland Forested Mixed	Bottomland Forest	0.1	0.5	0.6	0.0
WL13-17	630a - Wetland Forested Mixed	Basin Swamp	3.1	3.4	6.5	33.8
WL13-18	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.0	0.0	0.0	1.0
WL13-19	630b - Wetland Forested Mixed - Disturbed	Bottomland Forest	0.0	0.0	0.0	3.1
WL13-20	630a - Wetland Forested Mixed	Bottomland Forest	0.0	0.0	0.0	2.2
WL13-21	630a - Wetland Forested Mixed	Bottomland Forest	0.1	0.0	0.1	0.1
Grand Total			15.7	36.6	52.3	104.8

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Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by FDEP & AECOM 2019, 2021, 2022.

LEGEND

- IMPACTED WETLANDS
- UNDISTURBED WETLAND
- PROJECT AREA
- PROPOSED RECLAMATION UNIT

ALTERNATIVE 3 AREAS

- MINED AND DISTURBED
- UNDISTURBED
- ROAD CENTERLINE
- PLSS SECTION

FIGURE 31 - PROPOSED RECLAMATION UNIT PCS-HC-HC(13) PRE-MINING IMPACTED WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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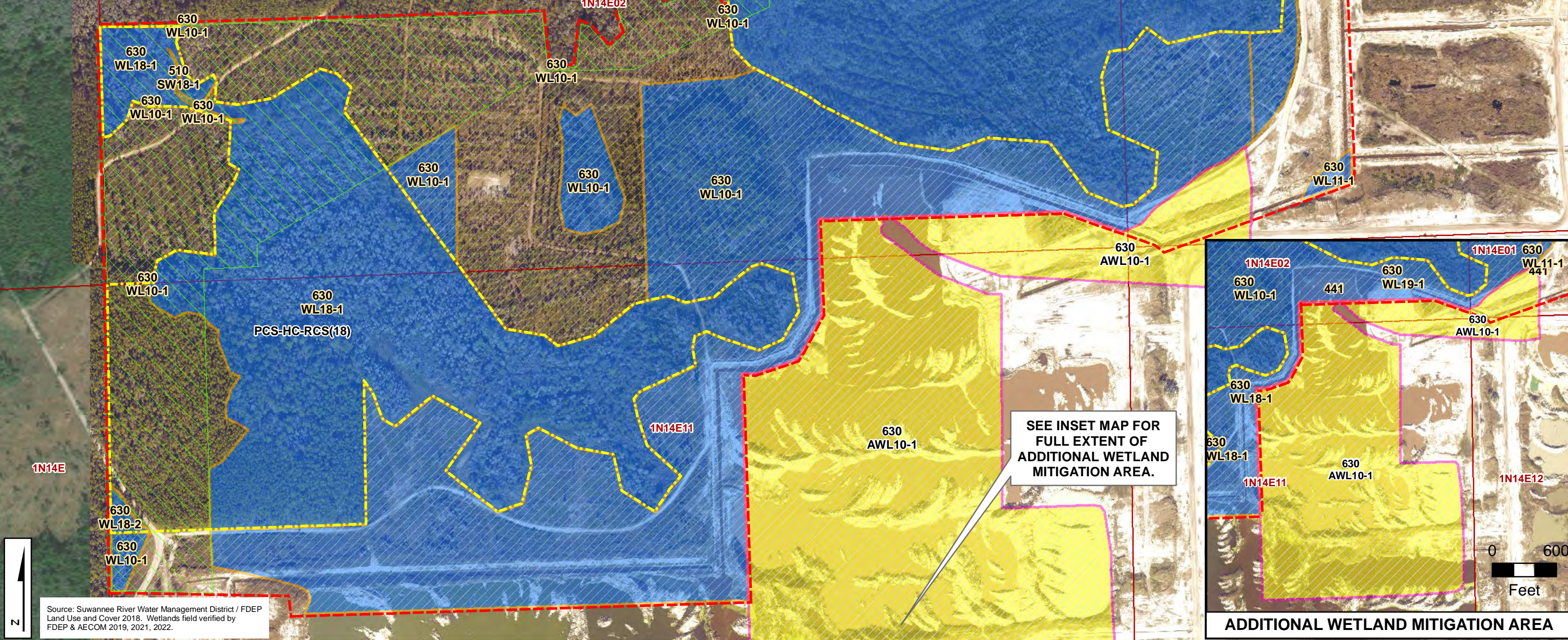
[SEE APPENDIX A COVER SHEET](#)



Scale:	1" = 400'
Date:	5/25/2022
Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9433
Name:	ALTS PRE-WL

PCS-HC-RCS(18) & (19) POST RECLAMATION WETLANDS - ALTERNATIVE 3				
WETLAND NO.	FLUCFCS - DESCRIPTION	WETLAND ACREAGES		
		AVOIDANCE	RECLAMATION	TOTAL
SW18-1	510 - Streams and Waterways	0.2	-	0.2
WL10-1	630 - Wetland Forested Mixed	1.0	104.0	105.0
WL11-1	630 - Wetland Forested Mixed	0.2	9.1	9.3
WL11-2	611 - Bay Swamps	1.2	-	1.2
WL18-1	630 - Wetland Forested Mixed	18.6	63.1	81.7
WL18-2	630 - Wetland Forested Mixed	0.6	-	0.6
WL19-1	630 - Wetland Forested Mixed	32.0	66.9	98.9
WL19-2	630 - Wetland Forested Mixed	3.2	-	3.2
AWL10-1*	630 - Wetland Forested Mixed	-	105.0	105.0
TOTAL:		57.0	348.1	405.1

* Additional Wetland Mitigation Predominantly Outside of Project Area



LEGEND

- WETLAND
- OTHER SURFACE WATER
- ADDITIONAL WETLAND MITIGATION OUTSIDE PROJECT AREA
- AVOIDANCE AREA
- PROJECT AREA
- PROPOSED RECLAMATION UNIT
- PLSS SECTIONS

FIGURE 4G - PROPOSED RECLAMATION UNITS PCS-HC-RCS(18) & (19) POST RECLAMATION WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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[SEE APPENDIX A COVER SHEET](#)

Scale: 1" = 500'

Date: 11/3/2022

Requested By: DAD

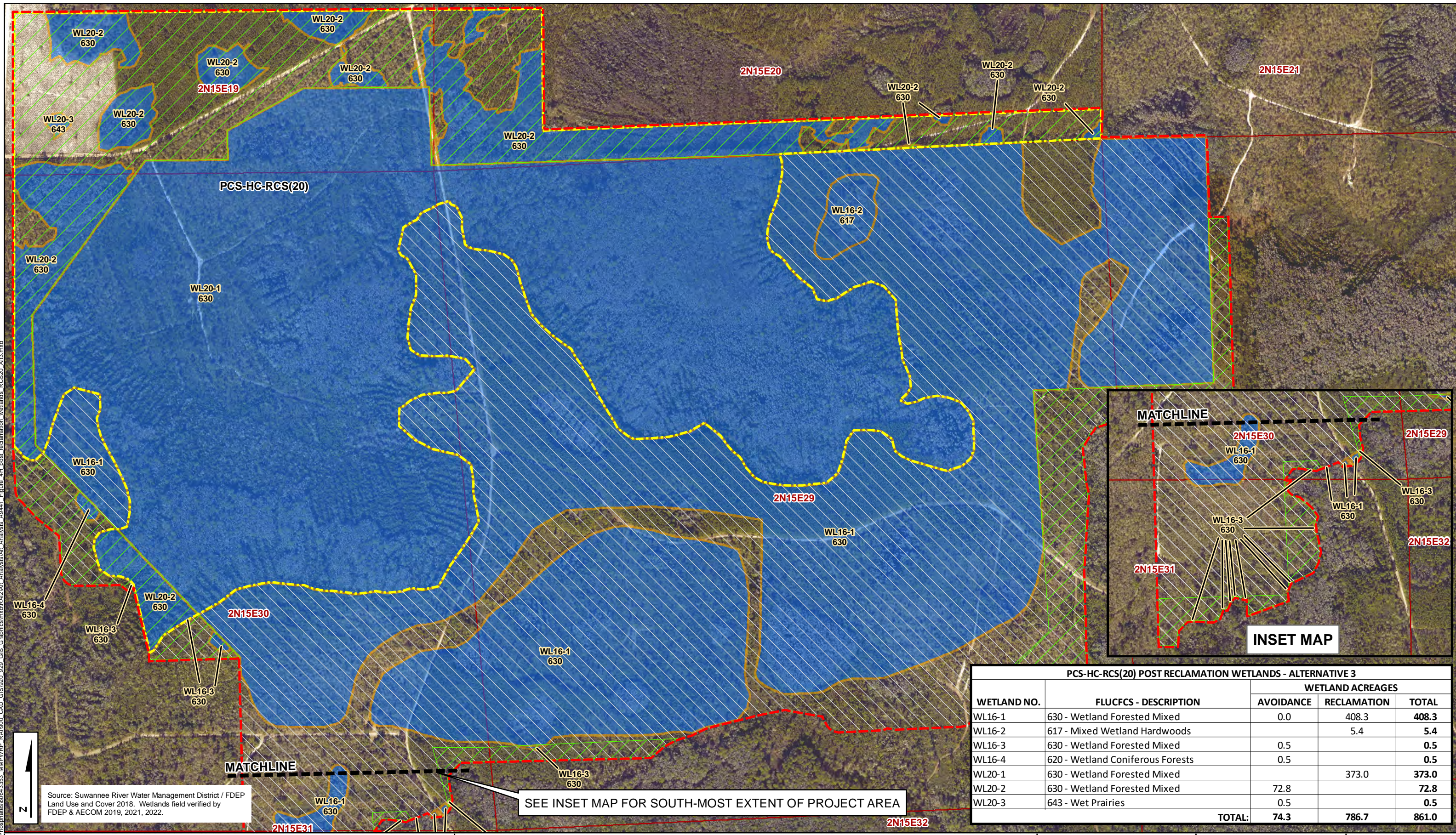
Drawn By: RPF/DAD

Sketch No.: A-9437

Name: PRE-WL IMPACTS

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Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by FDEP & AECOM 2019, 2021, 2022.

SEE INSET MAP FOR SOUTH-MOST EXTENT OF PROJECT AREA

PCS-HC-RCS(20) POST RECLAMATION WETLANDS - ALTERNATIVE 3				
WETLAND NO.	FLUCFCS - DESCRIPTION	WETLAND ACRES		
		AVOIDANCE	RECLAMATION	TOTAL
WL16-1	630 - Wetland Forested Mixed	0.0	408.3	408.3
WL16-2	617 - Mixed Wetland Hardwoods		5.4	5.4
WL16-3	630 - Wetland Forested Mixed	0.5		0.5
WL16-4	620 - Wetland Coniferous Forests	0.5		0.5
WL20-1	630 - Wetland Forested Mixed		373.0	373.0
WL20-2	630 - Wetland Forested Mixed	72.8		72.8
WL20-3	643 - Wet Prairies	0.5		0.5
TOTAL:		74.3	786.7	861.0

LEGEND

- WETLAND
- AVOIDANCE AREA
- PROJECT AREA
- PROPOSED RECLAMATION UNIT
- PLSS SECTION

FIGURE 4H - PROPOSED RECLAMATION UNIT PCS-HC-RCS(20) POST RECLAMATION WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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 License No. 46693
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 Tampa, FL 33607

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Scale: 1" = 700'


Date: 11/3/2022

Requested By: DAD

Drawn By: RPF/DAD

Sketch No.: A-9441

Name: PRE-WL IMPACTS



PCS-HC-HC(13) POST RECLAMATION WETLANDS - ALTERNATIVE 3				
WETLAND NO.	FLUCFCS - DESCRIPTION	WETLAND ACREAGES		
		AVOIDANCE	RECLAMATION	TOTAL
WL13-1	630 - Wetland Forested Mixed	47.8	92.6	140.4
WL13-2	620 - Wetland Coniferous Forests		32.4	32.4
WL13-3	615 - Stream and Lake Swamps (Bottomland)	4.8		4.8
WL13-4	617 - Mixed Wetland Hardwoods	53.0	0.7	53.7
TOTAL:		105.6	125.7	231.3



Source: Suwannee River Water Management District / FDEP Land Use and Cover 2018. Wetlands field verified by FDEP & AECOM 2019, 2021, 2022.

LEGEND

- WETLAND
- AVOIDANCE AREA
- PROJECT AREA
- PROPOSED RECLAMATION UNIT
- ROAD CENTERLINE
- PLSS SECTION

FIGURE 4I - PROPOSED RECLAMATION UNIT PCS-HC-HC(13) POST RECLAMATION WETLANDS ALTERNATIVE 3 HAMILTON COUNTY, FLORIDA

AERIAL PHOTOGRAPHY FLOWN FEBRUARY 26TH, 2019

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[SEE APPENDIX A COVER SHEET](#)



Scale:	1" = 400'
Date:	6/18/2022
Requested By:	DAD
Drawn By:	RPF/ DAD
Sketch No.:	A-9442
Name:	ALTS PRE-WL

Path: L:\DCS\Projects\Legacy\PCS Phosphates\60649363_MMP\WRP_RA\000_CAD_GIS\020_029_GIS_Graphics\mxd\RA11\Alternatives_Analysis\A9442_Figure_4I_post_reclamation_wetlands_HC13_A13.mxd

APPENDIX B – UMAM MITIGATION SUMMARY TABLE

UMAM MITIGATION SUMMARY TABLE

Mitigation Summary - Scenario 2 Blended															
Assessment Area	Mitigation Type	Location and Landscape Support		Water Environment		Community Structure		Mitigation Delta	Time Lag	Risk	PAF	RFG	Acres	Functional Gain	
		w/o Mit	w/Mit	w/o Mit	w/Mit	w/o Mit	w/Mit								
RU 20 - WFM HQ	630	0	8	0	7	0	8	0.77	1.46	2.25	0.00	0.233	124.03	28.95	
RU 20 - MWH	617	0	8	0	7	0	8	0.77	1.46	2.25	0.00	0.233	5.40	1.26	
RU 20 - WFM AQ	630	0	8	0	7	0	8	0.77	1.46	1.75	0.00	0.300	455.03	136.54	
RU 20 - WFM LQ	630	0	8	0	7	0	8	0.77	1.46	1.50	0.00	0.350	202.27	70.81	
RU 18, 19 - MFW HQ	630	0	8	0	7	0	8	0.77	1.46	2.00	0.00	0.263	60.18	15.80	
RU 18, 19 - MFW AQ	630	0	8	0	7	0	8	0.77	1.46	1.75	0.00	0.300	93.21	27.97	
RU 18, 19 - MFW LQ	630	0	8	0	7	0	8	0.77	1.46	1.50	0.00	0.350	89.71	31.41	
RU 13 - MFW AQ	630	0	8	0	7	0	8	0.77	1.46	1.75	0.00	0.300	60.72	18.22	
RU 13 - WCF	620	0	8	0	7	0	8	0.77	1.46	1.50	0.00	0.350	32.40	11.342	
RU 13 - MWH	617	0	8	0	7	0	8	0.77	1.46	2.00	0.00	0.263	0.70	0.184	
RU 13 - MFW HQ	630	0	8	0	7	0	8	0.77	1.46	2.00	0.00	0.263	31.88	8.370	
RU 10 - MFW	630	0	8	0	7	0	8	0.77	1.46	1.75	0.00	0.300	105.00	31.510	
TOTAL													1260.63	382.40	

Total Project Functional Loss = 382.37

Total Proposed Functional Gain = 382.40

APPENDIX C – PLANTING MENU AND ELEVATIONS

Planting Menu and Elevations (HC 13)

FLUCFCS: 617

Mixed Wetland Hardwoods

Elevation Range (NAVD): 117-124

Common Name	Scientific Name
Canopy Species	
Loblolly bay	<i>Gordonia lasianthus</i>
Sweet bay	<i>Magnolia virginiana</i>
Swamp bay	<i>Persea palustris</i>
Red bay	<i>Persea borbonia</i>
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Water oak	<i>Quercus nigra</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Water hickory	<i>Carya aquatica</i>
Water ash (pop ash)	<i>Fraxinus caroliniana</i>
Pond pine	<i>Pinus serotina</i>
Cottonwood	<i>Populus deltoids</i>
Dahoon holly	<i>Ilex cassine</i>
Sycamore	<i>Platanus occidentalis</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
Shrub Species	
Dahoon holly	<i>Ilex cassine</i>
Button bush	<i>Cephalanthus occidentalis</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 617) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted chain fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>
St. John's wort	<i>Hypericum</i> spp.

Planting Menu and Elevations (RCS 20)

FLUCFCS: 617

Mixed Wetland Hardwoods

Elevation Range (NAVD): 127-128

Common Name	Scientific Name
Canopy Species	
Loblolly bay	<i>Gordonia lasianthus</i>
Sweet bay	<i>Magnolia virginiana</i>
Swamp bay	<i>Persea palustris</i>
Red bay	<i>Persea borbonia</i>
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Water oak	<i>Quercus nigra</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Water hickory	<i>Carya aquatica</i>
Water ash (pop ash)	<i>Fraxinus caroliniana</i>
Pond pine	<i>Pinus serotina</i>
Cottonwood	<i>Populus deltoids</i>
Dahoon holly	<i>Ilex cassine</i>
Sycamore	<i>Platanus occidentalis</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
Shrub Species	
Dahoon holly	<i>Ilex cassine</i>
Button bush	<i>Cephalanthus occidentalis</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 617) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted chain fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>
St. John's wort	<i>Hypericum</i> spp.

Planting Menu and Elevations (RCS 18 and RCS 19)

FLUCFCS: 620

Wetland Coniferous Forests

Elevation Range (NAVD): 123-124

Common Name	Scientific Name
Canopy Species	
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Pond cypress	<i>Taxodium ascendens</i>
Red maple	<i>Acer rubrum</i>
Pond pine	<i>Pinus serotina</i>
Longleaf Pine	<i>Pinus palustris</i>
Slash Pine	<i>Pinus elliotii</i>
Cottonwood	<i>Populus deltoids</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Shrub Species	
Gallberry	<i>Ilex glabra</i>
Fetterbush	<i>Lyonia lucida</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>
Wax myrtle	<i>Myrica cerifera</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 620) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum spp.</i>
Spikerush	<i>Eleocharis spp.</i>
Bulrush	<i>Schoenoplectus spp.</i>
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria spp.</i>
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum spp.</i>
Royal fern	<i>Osmunda regalis</i>
Netted Chain Fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris spp.</i>
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>

Planting Menu and Elevations (RCS 20)

FLUCFCS: 620

Wetland Coniferous Forests

Elevation Range (NAVD): 128-129

Common Name	Scientific Name
Canopy Species	
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Pond cypress	<i>Taxodium ascendens</i>
Red maple	<i>Acer rubrum</i>
Pond pine	<i>Pinus serotina</i>
Longleaf Pine	<i>Pinus palustris</i>
Slash Pine	<i>Pinus elliotii</i>
Cottonwood	<i>Populus deltoids</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Shrub Species	
Gallberry	<i>Ilex glabra</i>
Fetterbush	<i>Lyonia lucida</i>
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>
Wax myrtle	<i>Myrica cerifera</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 620) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted Chain Fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>

Planting Menu and Elevations (HC 13)

FLUCFCS: 630

Wetland Forested Mixed

Elevation Range (NAVD): 120-122

Common Name	Scientific Name
Canopy Species	
Sweet bay	<i>Magnolia virginiana</i>
Swamp bay	<i>Persea palustris</i>
Swamp tupelo	<i>Nyssa sylvatica</i> var. <i>biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Water oak	<i>Quercus nigra</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Water hickory	<i>Carya aquatica</i>
Water ash (pop ash)	<i>Fraxinus caroliniana</i>
Pond pine	<i>Pinus serotina</i>
Cottonwood	<i>Populus deltoids</i>
Greenash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Sycamore	<i>Platanus occidentalis</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
Shrub Species	
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>
Wax myrtle	<i>Myrica cerifera</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 630) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted Chain Fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>
St. John's wort	<i>Hypericum</i> spp.

Planting Menu and Elevations (RCS 18 and RCS 19)

FLUCFCS: 630

Wetland Forested Mixed

Elevation Range (NAVD): 123-128

Common Name	Scientific Name
Canopy Species	
Sweet bay	<i>Magnolia virginiana</i>
Swamp bay	<i>Persea palustris</i>
Swamp tupelo	<i>Nyssa sylvatica var. biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Water oak	<i>Quercus nigra</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Water hickory	<i>Carya aquatica</i>
Water ash (pop ash)	<i>Fraxinus caroliniana</i>
Pond pine	<i>Pinus serotina</i>
Cottonwood	<i>Populus deltoids</i>
Greenash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Sycamore	<i>Platanus occidentalis</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
Shrub Species	
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>
Wax myrtle	<i>Myrica cerifera</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 630) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted Chain Fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>
St. John's wort	<i>Hypericum</i> spp.

Planting Menu and Elevations (RCS 20)

FLUCFCS: 630

Wetland Forested Mixed

Elevation Range (NAVD): 127-133

Common Name	Scientific Name
Canopy Species	
Sweet bay	<i>Magnolia virginiana</i>
Swamp bay	<i>Persea palustris</i>
Swamp tupelo	<i>Nyssa sylvatica</i> var. <i>biflora</i>
Water tupelo	<i>Nyssa aquatica</i>
Bald cypress	<i>Taxodium distichum</i>
Red maple	<i>Acer rubrum</i>
River birch	<i>Betula nigra</i>
Water oak	<i>Quercus nigra</i>
Sweetgum	<i>Liquidambar styraciflua</i>
Water hickory	<i>Carya aquatica</i>
Water ash (pop ash)	<i>Fraxinus caroliniana</i>
Pond pine	<i>Pinus serotina</i>
Cottonwood	<i>Populus deltoids</i>
Greenash	<i>Fraxinus pennsylvanica</i>
Overcup oak	<i>Quercus lyrata</i>
Sycamore	<i>Platanus occidentalis</i>
Yellow poplar	<i>Liriodendron tulipifera</i>
Shrub Species	
Swamp azalea	<i>Rhododendron viscosum</i>
Highbush blueberry	<i>Vaccinium corymbosum</i>
Walter's viburnum	<i>Viburnum obovatum</i>
Sweet pepperbush	<i>Clethra alnifolia</i>
Bluestem palmetto	<i>Sabal minor</i>
Wax myrtle	<i>Myrica cerifera</i>

Appendix C - Planting Menu and Elevations (FLUCFCS 630) (continued from page 1)

Common Name	Scientific Name
Groundcover Species	
White water lily	<i>Nymphaea odorata</i>
Spatterdock	<i>Nuphar luteum</i>
American lotus	<i>Nelumbo lutea</i>
Smartweed	<i>Polygonum</i> spp.
Spikerush	<i>Eleocharis</i> spp.
Bulrush	<i>Schoenoplectus</i> spp.
Sawgrass	<i>Cladium jamaicense</i>
Arrowhead	<i>Sagittaria</i> spp.
Maidencane	<i>Panicum hemitomon</i>
Buttonbush	<i>Cephalanthus occidentalis</i>
Swamp fern	<i>Blechnum serrulatum</i>
Cinnamon fern	<i>Osmunda regalis</i>
Wood oats	<i>Chasmanthium latifolium</i>
Knotweed	<i>Polygonum</i> spp.
Royal fern	<i>Osmunda regalis</i>
Netted Chain Fern	<i>Woodwardia areolata</i>
Yellow-eyed grass	<i>Xyris</i> spp.
Lizard's tail	<i>Saururus cernuus</i>
Pickerelweed	<i>Pontedaria cordata</i>
St. John's wort	<i>Hypericum</i> spp.