DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
COCOA REGULATORY OFFICE
400 HIGH POINT DRIVE, SUITE 600
COCOA, FLORIDA 32926

REPLY TO
ATTENTION OF:

February 19, 2008

Regulatory Division
SAJ-2004-3931(NW-JSC)

Craig Tepper
Seminole Tribe of Florida
6300 Stirling Road
Hollywood, Florida 33024

Dear Mr. Tepper:

Your application for a Department of the Army permit received on April 1, 2004, has been assigned number SAJ-2004-3931. This permit authorizes the mechanical removal of exotic/nuisance vegetation and establishment of the Big Cypress Advanced Mitigation Program (AMP). The AMP is located within the 14,723 acre "Native Area" of the Big Cypress Seminole Indian Reservation (BCSIR), Hendry County, Florida (Attachment 1).

Your project, as depicted on the enclosed drawing, is authorized by Nationwide Permit (NWP) Number 27. In addition, project specific conditions have been enclosed. This verification is valid until December 20, 2009. Please access the U.S. Army Corps of Engineers' Jacksonville District's Regulatory web address at *http://www.saj.usace.army.mil/regulatory/permitting/nwp/nwp.htm* to access web links to view the Final Nationwide Permits, Federal Register Vol. 72, dated March 12, 2007, the Corrections to the Final Nationwide Permits, Federal Register 72, May 8, 2007, and the List of Regional Conditions. These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 27.

You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project

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within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. **Reporting Address:** All reports, documentation and correspondence required by the conditions of this permit shall be submitted to the following address: U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, FL 32232. The Permittee shall reference this permit number, SAJ-2004-3931(NW-JSC), on all submittals.

2. **Compensatory Mitigation:** The Tribe is authorized to complete the following mitigation objectives, in accordance with the approved compensatory mitigation plan (Attachment 2), for the purpose of generating mitigation credit that may be used to offset wetland impacts within the BCSIR:

Onsite Mitigation

The AMP (Attachment 2) is authorized in the 14,723 acre native area of the BCSIR. The AMP includes primarily exotic vegetation removal within six wetland enhancement areas (totaling approximately 4,144 acres).

3. **Performance Standards:** To meet the objectives of the approved compensatory mitigation plan, the Tribe shall achieve the following performance standards:

a. At least 80 percent cover by appropriate wetland species (i.e., FAC or wetter).

b. Cover of Category I and II invasive exotic plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at http://www.fleppc.org, and the nuisance species primrose willow (Ludwigia peruviana), dogfennel (Eupatorium capillifolium), Bermudagrass (Cynodon spp.), Bahiagrass (Paspalum notatum), and cattail (Typha spp.). shall total less than 5 percent.

c. Less than 20 percent mortality of planted wetland species.

The Tribe shall achieve the above performance standards by the end of the 10-year monitoring period, with no maintenance during the 10th year of monitoring. In the event that the above performance standards have not been achieved, the Tribe shall undertake a remediation program approved by the Corps in accordance with the **Remediation** Special Condition of this permit.

4. **Monitoring and Reporting Timeframes:** To show compliance with the performance standards the Tribe shall complete the following:

a. Perform a time-zero monitoring event of the wetland mitigation area(s) within 60 days of completion of the compensatory mitigation objectives identified in the **Compensatory Mitigation** Special Condition of this permit.

b. Submit the time-zero report to the Corps within 60 days of completion of the monitoring event. The report will include at least one paragraph depicting baseline conditions of the mitigation site(s) prior to initiation of the compensatory mitigation objectives and a detailed plan view drawing of all created, enhanced and/or restored mitigation areas.

c. Subsequent to completion of the compensatory mitigation objectives, perform annual monitoring of the wetland mitigation areas for a total of no less than 10 years of monitoring.

d. Submit annual monitoring reports to the Corps within 60 days of completion of the monitoring event. The AMP credit/debit ledger shall be included in the annual report.

e. Monitor the mitigation area(s) and submit annual monitoring reports to the Corps until released in accordance with the **Mitigation Release** Special Condition of this permit.

5. **Remediation:** If the compensatory mitigation fails to meet the performance standards 10 years after completion of the compensatory mitigation objectives, the compensatory mitigation will be deemed unsuccessful. Within 60 days of notification by the Corps that the compensatory mitigation is unsuccessful, the

Tribe shall submit to the Corps an alternate compensatory mitigation proposal sufficient to create the functional lift required under the permit. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of wetland function associated with the unsuccessful compensatory mitigation activities. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Tribe will complete the alternate compensatory mitigation proposal.

6. **Mitigation Release:** The Tribe's responsibility to complete the required compensatory mitigation, as set forth in the **Compensatory Mitigation** Special Condition of this permit will not be considered fulfilled until mitigation success has been demonstrated and written verification has been provided by the Corps. A mitigation area which has been released will require no further monitoring or reporting by the Permittee; however the Permittee, Successors and subsequent Transferees remain perpetually responsible to ensure that the mitigation area(s) remain in a condition appropriate to offset the authorized impacts in accordance with General Condition 2 of this permit.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact Jeffrey S. Collins by telephone at 321-504-3771.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to take a few minutes to visit

the following link and complete our automated Customer Service Survey: http://regulatory.usacesurvey.com/. Your input is appreciated - favorable or otherwise.

Sincerely,

David S. Hobbie
Chief, Regulatory Division

Enclosures

U.S. Army Corps of Engineers
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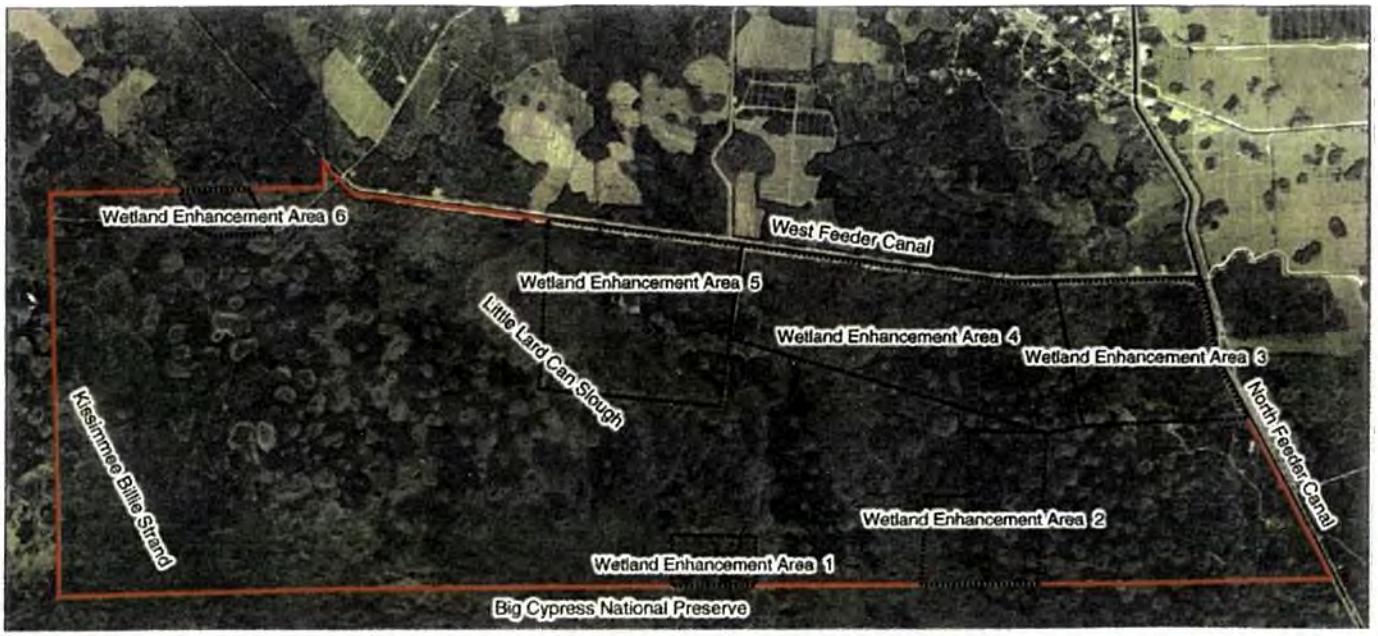
Big Cypress Seminole Indian Reservation
Advanced Mitigation Program



Prepared by:
The Phoenix Environmental Group, Inc.
and
Environmental Affairs Consultants, Inc.

Prepared for:
Seminole Tribe of Florida

March 16, 2005

U.S. Army Corps of Engineers
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Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
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Big Cypress Seminole Indian Reservation
Advanced Mitigation Program

1.0 INTRODUCTION

The proposed Big Cypress Advanced Mitigation Program (AMP) will provide for enhancement of 4,144.64 acres of habitat contained in six discrete wetland enhancement areas (WEA's) distributed within the 14,000 acre (approximate) "Native Area" of the Big Cypress Reservation (see Figure 1 – Location of WEA's in the Native Area). The selected management area boundaries encompass degraded wetland resources that exhibit reduced functional capacities as documented in the report entitled *Prospectus For Wetland Enhancement* (The Phoenix Environmental Group, Inc., July, 2004). Alterations to regional hydrologic patterns and heavy infestation by exotic species have resulted in the disruption of native plant associations and overall community structure. Key exotic species targeted for eradication and control by the AMP are melaleuca (*Melaleuca quinquenervia*) and old world climbing fern (*Lygodium microphyllum*), both classified as Category I invasive species by the Florida Exotic Pest Plant Council (1999). The Council defines Category I species as those " ...that are invading and disrupting native plant communities in Florida."

The AMP provides detailed specifications for exotic species eradication and control as well as protocols for implementation, monitoring, maintenance and adaptive management. Pursuant to stipulations in the South Florida Water Management District's Sixth Amendment to the Sixteenth Annual Work Plan (2004) the AMP will include elements detailing the *assignment of wetland lift/credits, threatened and endangered species mitigation credit, determination of service area, success criteria, monitoring and maintenance plan and administration and tracking.*

The Seminole Tribe ("Tribe") is committed to the implementation of a comprehensive mitigation and ecosystem management plan within the designated WEA's that will result in a measure of functional, ecologic lift. The lift, in turn, will be translated into mitigation credits to offset wetland impacts incurred within the Big Cypress Reservation (see *Assignment of Wetland Lift/Credits, Threatened and Endangered Species Mitigation Credit,* and *Determination of Service Area* elements of the AMP).

Attaining the desired lift will require aggressive exotic species control, coupled with comprehensive monitoring and maintenance, to ensure successful enhancement and restoration of ecological functions in the targeted areas. Given the expansive area involved and variability in onsite conditions, the Tribe will integrate chemical, biological and mechanical processes into the exotic species control plan to derive the most beneficial results. Likewise, an adaptive management approach will be utilized to guide decision making through each phase of the AMP implementation.

Fundamentally, the AMP subscribes to the ecosystem management themes incorporated into the South Florida restudy Science Subgroup's report *South Florida Ecosystem Restoration – Scientific Information Needs* (September 9, 1994). These themes were adapted, in part, from R. E. Grumbine's treatment of the subject "*What is ecosystem management?*" (Conservation

Biology, 8:27-38, 1994). The following key points (with emphasis added) provide a synopsis of the "…dominant themes of ecosystem management" presented in the restudy report:

> "Ecosystem management mandates examining a problem at more than one hierarchical scale and seeking connections between all levels. A major tenet of ecosystem management is conservation of **ecological integrity**. Ecological integrity is conserved by protecting native diversity and the ecological patterns and processes that maintain diversity."
>
> "Ecosystem management requires more research and data collection. Managers must track the results of their actions so that success or failure can be evaluated quantitatively. Monitoring creates an ongoing **feedback loop** of useful information."
>
> "**Adaptive management** is part of the ecosystem approach. It assumes that scientific knowledge is provisional and focuses on management as a learning process for continuous experiment in which incorporating the results of previous actions allows managers to remain flexible and **adapt to uncertainty**."
>
> "Humans are part of the ecosystem and cannot be separated from it in ecosystem management."
>
> "Management requires working across **administrative political boundaries** to address issues within **ecological boundaries**."

2.0 ADVANCED MITIGATION PROGRAM CRITERIA

The Big Cypress AMP will substantially conform to the criteria presented as *Fundamental Requirements of Mitigation Banks in the State of Florida* (State/Federal Mitigation Review Team Process For Florida, Operational Draft, October 1998). Although technically not a commercial mitigation bank, the AMP will provide similar services within a proprietary framework and will require approval from the South Florida Water Management District (SFWMD), U.S. Army Corps of Engineers, U.S. Environmental Protection Agency and U.S. Fish and Wildlife Service.

Subsections 2.1 through 2.10 provide narrative assessments of the design, operational, maintenance, legal and financial criteria.

2.1 Will Improve Ecological Conditions Of The Regional Watershed

The AMP will focus enhancement and management efforts on six WEA's that are located within the Big Cypress Reservation (see Figure 1 – Location of WEA's in the Native Area). The encompassing Native Area is bounded to the south by the Big Cypress National Preserve, to the west by private lands, to the north by the West Feeder Canal and to the east by the North Feeder Canal (L-28 Interceptor). It is also situated at the northern boundary of the "L-28 Tie-Back Basin", an Everglades western basins watershed. Historically, seasonal flows moved through the Native Area (generally from the northwest to the southeast) within the Kissimmee Billie and

Little Lard Can slough systems and via overland sheet-flow. Depressional areas would remain ponded throughout an average year while intervening strands and wet prairies would experience a "dry season" during which the water table receded below ground surface allowing accumulated organics to desiccate and volatilize. After completion of the West Feeder and North Feeder canals under the Central and South Florida Flood Control District administration, surface flow and water table regimes were significantly altered. In addition to diverted flows and accelerated runoff rates, mechanical control of water levels within the feeder canal system has had the net affect of reducing the level and duration of seasonal water tables within the regional watershed.

The Native Area is a mosaic of hydric and mesic communities ranging from deep cypress swamps to South Florida pine flatwoods (see Figures 2-7). Community types within the WEA's are designated by conventional FLUCCS codes (Florida Land Use, Cover and Forms Classification System, Florida Department of Transportation, 2nd ed., 1999) on the WEA maps. Despite the affects of altered seasonal hydrology, overall landscape patterns within the Native Area remain intact. This phenomenon was also observed by the South Florida restudy science subgroup when comparing maps of the Everglades region made in the 1980's with those made in the 1800's. However, the 2004 *Prospectus* report (The Phoenix Environmental Group, Inc.) documented that numerous wetland communities in the Native Area have been invaded by melaleuca (see Figures 8-13), some to the point of being ecologically impaired. Conditions frequently observed within old growth melaleuca stands include the stress and die-off of native canopy trees; crowding and displacement of subcanopy (shrub) species; shading, crowding and displacement of native groundcover species; and abatement of native species propagation. All of these factors have contributed to the overall decline in the ecological integrity of WEA habitats through the loss of native diversity as well as ecological patterns and processes.

Ecological conditions within the regional watershed will be improved as a result of enhancing (and in some cases restoring) native diversity and productivity in the targeted WEA's. These improvements will require efforts on two fronts. The first entails implementation of an exotic species control plan (see Section 3.0). This effort will utilize a suite of proven techniques to eliminate dense stands of melaleuca growth, quarantine and stop the outward expansion of melaleuca into transitional and upland habitats, and reestablish native plant species coverage. Secondly, hydrologic conditions will be improved. Coincident with implementation of the AMP, construction of Big Cypress Critical Project features WRA1-E, WRA2-W and WRA3 north of the West Feeder Canal will result in the installation of three siphons allowing excess, treated stormwater from the reservoirs to be bypassed into the Native Area. These increased flows will help offset the watershed diversion and drainage affects of the feeder canal system by augmenting seasonal water levels and returning historic northerly to southerly sheet flow patterns needed for the successful enhancement of reclaimed wetland areas.

Following is a summary of cumulative benefits that will accrue to the regional watershed as a result of exotic plant removal/control and hydrologic enhancement:

Exotic seed and spore sources will be eliminated and controlled in proximity to the Big Cypress National Preserve.

Threatened and endangered species habitat (eg. panther and panther prey base components) will be enhanced within the WEA's through the restoration of extensive cypress/flatwoods ecotonal fringes and other significant habitat types including mixed forested wetlands.

Compatibility with overall CERP (Comprehensive Everglades Restoration Project) objectives including delivery of clean surface water to the Big Cypress National Preserve and enhancement of significant wetland resources within the Everglades region.

2.2 Will provide viable and sustainable ecological and hydrological functions for the proposed mitigation service area

The AMP will provide advanced mitigation for unavoidable wetland impacts experienced within the Big Cypress Reservation service area and also has the potential to provide mitigation for impacts to threatened/endangered species habitat on Tribal lands (see *Determination of Service Area, Assignment of Wetland Lifts/Credits, and Threatened and Endangered Species Mitigation Credit* elements of the AMP). The AMP provides for the level of habitat enhancement, adaptive assessment and management needed to ensure sustainable ecological and hydrological functions (see *Success Criteria and Monitoring and Maintenance Plan* elements). Credits for impacts in the mitigation service area will be derived from the "lift" in overall ecological function of similar habitat types in the WEA's.

2.3 Will be effectively managed

Effective management of the AMP will be facilitated by a Tribal Council resolution approving the program and allocating Tribal resources for its implementation. The Seminole Water Resource Management Department (WRMD) will provide the necessary administration, oversight and quality assurance/quality control evaluations to ensure that all elements of the AMP are properly executed. These elements will include all phases of exotic species control and habitat restoration, data collection and reporting, maintenance and adaptive management assessments as well as program administration and mitigation credit tracking.

The WRMD will coordinate with other Tribal departments to ensure compatibility of their programs with the AMP objectives. This will entail close communication with the Bureau of Indian Affairs Forestry Department that manages an ongoing controlled burn program within the Native Area. The WRMD will coordinate communication with appropriate state and federal agencies

2.4 Will not destroy areas with high ecological value

The overarching objective of the AMP is to provide habitat impact mitigation by restoring the ecological integrity of habitats degraded by melaleuca and old world climbing fern invasion within the WEA's. A fully integrated exotic species eradication and control program will be employed utilizing the most effective techniques for specific habitats types and levels of infestation. Areas of higher ecological value within the WEA's, and Native Area at large, will be protected from collateral damage during operations that require the deployment of heavy

machinery or aerial application of herbicides. Every effort will be made to conduct eradication efforts in the dry season and to utilize existing roads and fire trails to access the targeted treatment areas. Staging, burn and/or mulching sites will be carefully located to minimize the potential for disturbing surface water flow patterns or adversely impacting wildlife utilization of preferred habitats. Natural contours will be restored in all areas of mechanical disturbance to discourage establishment of exotic/nuisance plant species and to facilitate restoration. Monitoring and maintenance protocols specified in the AMP provide assurance that any irregularities posing a threat to areas of high ecological value will be identified and remedied in a timely manner (see *Success Criteria and Monitoring and Maintenance Plan* elements). This level of protection will be further reinforced through interdepartmental communication within the Tribe.

Another significant factor that also warrants the protection and maintenance of valuable ecological resources within the WEA's and Native Area at large, is the religious and cultural use of indigenous natural resources by traditional Tribal members.

2.5 Will achieve mitigation success

The AMP Monitoring and Maintenance Plan specifies quantitative data collection methods that will be employed throughout all four phases of the program to ensure that it is moving toward success pursuant to the criteria stipulated by SFWMD in the Sixth Amendment to the Sixteenth Annual Work Plan. The monitoring and maintenance plan is structured to allow a "feedback loop" whereby monitoring data are continuously assessed and used by managers to manage the overall program. This allows for the adaptive assessment of pretreatment data to be used in determining the most effective treatment methodology for specific scenarios and for post-treatment monitoring data to be used for the prescription of maintenance activities.

Additional assurances that will facilitate attainment of success include the Tribe's Council resolution adopting the AMP and allocation of Tribal resources for implementation and maintenance, interdepartmental coordination, and enhanced hydrology resulting from construction of the Big Cypress Critical Project.

2.6 Will be adjacent to lands that will not adversely affect the viability of the Advanced Mitigation Plan due to unsuitable land uses or conditions

The proposed WEA's will not be adversely affected by incompatible land use activities. Management goals for the Big Cypress National Preserve located to the south are consistent with the goals of the AMP. The existing west and north feeder canals provide a linear buffer along the northern and eastern boundaries of the Native Area. Lands along the western border of the Native Area will have significant regulatory obstacles to any major development plans.

2.7 Will meet the requirements of all other applicable state or federal law

The proposed AMP will be reviewed and approved by the South Florida Water Management District and the U.S. Army Corps of Engineers (including appropriate consultations with EPA and USFWS). Authorization for execution of the enhancement/restoration activities proposed in

the AMP will be provided by the Sixth Amendment to the Sixteenth Annual Work Plan from the state and either an individual Section 404 permit, NWP 27, Memorandum Of Agreement, or other form of consent from the federal government. The Tribe will provide water quality certification as necessary.

2.8 Will be implemented to ensure that any surface water management system constructed, altered, operated, maintained, abandoned, or removed within the mitigation area will meet the requirements of state and federal law

The proposed AMP does not include construction or operation of a surface water management system. Hydrologic improvement integral to the AMP will result from the development of Critical Project water management facilities authorized by a federal Section 404 permit (Permit No. 199800622 IP-SS) and Annual Work Plan approved by the South Florida Water Management District.

2.9 Applicant has sufficient legal or equitable interest in the property to ensure protection and management of the land within a mitigation area

The proposed WEA's are located within the Big Cypress Reservation, a federal reservation held in trust for use by the Seminole Tribe of Florida. The proposed AMP will be officially approved by the Seminole Tribe in a Tribal Council resolution.

2.10 Can meet the financial responsibility for implementing and maintaining the Advanced Mitigation Program

Implementation and operation of the proposed AMP will be financially secured by a Tribal Council resolution and allocation of Tribal resources for undertaking the physical works and administration required in the program.

3.0 EXOTIC SPECIES CONTROL PLAN

3.1 Melaleuca Control

Wetland enhancement will generally consist of the removal of melaleuca from the six WEAs. The University of Florida, Institute of Food and Agricultural Sciences (IFAS, 2005) lists the following mechanisms as an example of herbicide treatment. "Melaleuca will be removed in areas where it is the dominant species and in large areas of partially disturbed wetland and transitional wetland ecotypes. As described by Woodall (1981 a), a melaleuca control program should consist of a quarantine strategy. The least infected areas should be treated first, to eliminate potential seed trees from the outer fringes of the treatment areas and stop continued infestation from occurring. This can be done by hand-pulling trees less than two meters in height (average dbh $\leq$ 0.1'). A follow through method of manual application of herbicide to smaller groups of trees may be used to eradicate the small to medium stands. Larger trees (average dbh $\geq$ 1.0') should be addressed with larger doses of herbicide and felling the individual trees, followed by other selective control methods. Monoculture stands (melaleuca infested areas greater than 75%) need to be identified for aerial application. A follow up treatment in 90 days

is recommended after initial treatment to assure adequate control. Certified-use herbicides will be selected for specific FLUCCS or ecosystem types and will only be used under the supervision of a qualified and licensed herbicide applicator".

"If melaleuca trees are mixed in a forest with native species (such as slash pine or pond cypress), selectively killing melaleuca trees by hand might be the best choice. To accomplish this, the corky bark is cut away and herbicide is sprayed onto the cambium. This technique is often called "hack-and-squirt". For large stands of melaleuca trees (acres) with relatively few native plants, aerial application of herbicides is often used. The South Florida Water Management District mixes imazapyr and glyphosate with water (3 quarts/3 quarts/20 gallon solution), plus surfactant".

IFAS (2005) references the following mechanical control methods that the Tribe may be able to employ in conjunction with herbicide treatments. "While somewhat labor intensive, hand-tools, such as, machetes and chainsaws, are very good for removal of exotics when there is a lot of native vegetation present. Vegetation control companies that utilize the hand-tool/herbicide application method have found successful ways to keep labor costs down. The cut and stack method is utilized for small or larger trees. A follow-up treatment after 90 days should follow. When most people think of mechanically controlling melaleuca, they usually think of heavy machinery".

"In South Florida, the use of specialized tree-clearing equipment to clear melaleuca is common. Heavy machinery includes bulldozers, stump grinders, and specialized equipment such as the clear-more chipper/stumper, feller-buncher, and brontosaurus attachment for backhoes. While these methods also often include herbicide application, it may not always be necessary. It is possible (though yet not studied) that mulching of the tree trunks and branches will prevent seedling establishment, and grinding the stump will prevent the tree from re-growing".

It is often recognized that controlled burns are an added benefit for controlling melaleuca. However, it must be timed in the dry season and when the trees are not seeding. Utmost care will be taken to contain controlled burns within small treatment areas and to prevent their escape into deep cypress swamps and mesic oak hammocks. It is recommended that a control burn program be developed between the Bureau of Indian Affairs Forestry Department in Big Cypress and the WRMD. The program would specifically include a burn schedule, specifications and reporting protocol.

In additional to the traditional chemical and mechanical eradication/control methods, a measure of success is being experienced with the deployment of biological control agents. The Tribe may elect to use the melaleuca weevil (*Oxyops vitiosa*) and psyllid larva (*Boreioglycospis melaleuca*) in conjunction with traditional methods or as the preferred method in selected treatment areas.

The phasing sequence for implementation of the Exotic Species Control Plan is presented in the Success Criteria and Monitoring and Maintenance Plan.

3.2 Old World Climbing Fern Control

Old world climbing fern occurs in the Native Area and adjacent Big Cypress National Preserve. The vertical growth rate for this species averages 1.16 meters per year within the Big Cypress Region (Volin et al, 2004). Ground transect data from within the Native Area indicate that infestations in the understory currently average 31.5 individuals plants established per km^2 (Volin et al, 2004). Within the next 10 years, canopy coverage could exceed 30% within the most susceptible habitats within the Native Area (D. Owen, personal communication). Therefore, old world climbing fern areas that are found during the initial site survey, in Phase I, will be treated with herbicides. Biological control may be employed as the preferred treatment method for dealing with widespread, chronic levels of infestation and areas that are difficult to access. The USDA Agriculture Research Service (ARS) has approved release of the "lygodium moth" (*Austromusotima camptonozale*) in Florida to help stop the rampant spread of old world climbing fern. According to the ARS "...caterpillars of this moth eat Lygodium leaves...killing small plants and reducing the competitiveness of larger plants."

3.3 Supplementary Enhancement Processes

Phase III may include soil scrape down in areas where dense melaleuca stands exist. Soil scrape down is considered as a means to discourage melaleuca re-establishment by removing the seed source and lowering the ground elevation to enhance hydroperiod conditions. Soil scrape down is also beneficial for the regeneration of native wetland plant species. This option should be carefully considered for optimal wetland enhancement in WEA #3 where hydrology has been severely modified by the proximity of the feeder canals.

It is anticipated that natural recruitment will improve ground cover in the melaleuca removal areas. If monitoring indicates a lack of native ground cover development, then native seed planting will be initiated to achieve 80% coverage of desirable herbaceous species. The Tribe also anticipates the need to plant canopy and/or subcanopy species (eg. cypress, oak, maple, pond apple, etc.) within selected depressional wetlands where these species have been displaced by melaleuca.

Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
Assignment of Wetland Lift/Credits

The amount of wetland functional value "lift" derived from the implementation of the Advanced Mitigation Program (AMP) for Big Cypress Seminole Indian Reservation (Reservation) is based upon the functional value attained from removal of exotic plant species and hydrologic enhancement within the six (6) designated Wetland Enhancement Areas (WEA) that lie within the Reservation and contain approximately 4,144.64 acres. These six areas are located in the "Native Area" which is south of the West Feeder Canal and west of the North Feeder Canal/L-28 Interceptor. The Wetland Rapid Assessment Procedure (WRAP) was used to determine the amount of lift within each of the areas.

The amount of "credit" derived has been determined using the results of the WRAP and evaluation of other societal related intangible considerations that help determine the overall importance of these functions. Due to the fact upland development adjacent to wetlands can result in secondary impacts to those wetland areas, the credits derived from the implementation of the AMP reflect appropriate consideration for the overall landscape in the context of an ecosystem and not just wetlands.

An initial WRAP was conducted by the staff biologist and environmental consultants for the Seminole Tribe of Florida (Tribe) in April of 2004. Melaleuca (*Melaleuca quinquenervia)* infestation within the 4,144.64 acre area is an ongoing problem that has increased in severity over recent years and threatens the ecological integrity of the Native Area, as well as portions of the Big Cypress National Preserve (BCNP), which lies along the southern border of the Reservation. Mitigation credit derived from the establishment of the AMP results primarily from the removal of this exotic/nuisance species and anticipated hydrologic enhancement within the areas as a result of the Critical Project. The results of the WRAP revealed an average lift of 0.12 would be attained, once removal of the melaleuca was completed. Scores ranged from a high of 0.17 within wetland coniferous forests to a low of 0.06 within some wetland prairie areas. For further WRAP and site location details, refer to the figures and WRAP data sheets attached.

To account for societal and overall regional ecological intangible considerations, such as direct and indirect benefits to the BCNP that are associated with water quality, removal of exotic plant species seed sources and other important ecological benefits, a multiplier of 1.5 was applied to the overall average WRAP score of 0.12, for a final credit value of 0.18 within the AMP program area. Therefore, each acre within the 4,144.64 acre AMP area may be utilized for mitigation at a rate of 0.18 functional value units per acre, to replace each 0.18 functional value unit of wetland loss outside the AMP (results in a no-net-loss of wetland functional value on the Reservation). Based upon this proposed Big Cypress Seminole Indian Reservation AMP, the six WEAs will ultimately produce a total of 746.03 functional units of credit.

In accordance with agreed upon required mitigation conditions for previous permitted wetland impacts associated with the new motorcross facility on the Reservation, a total of 54.11 acres of exotic/nuisance species removal must be completed within Area #5. In addition to mitigation for the motorcross project, 2.61 acres of mitigation are required for the construction of the Mitchell Cypress Trail Of Fitness. The Tribe will also deduct this amount of acreage/credit from the total remaining available acreage in Area #5.

Due to the fact the Tribe has been able to mitigate for secondary wetland impacts in the past by setting aside "upland" areas within lands south of the West Feeder Canal, in accordance with the Water Rights Compact (does not apply to federal jurisdictional wetlands), the Tribe proposes to eliminate the need to maintain a separate ledger for this upland mitigation, by merging the current upland mitigation acreage requirement of approximately 418.94 acres with the new AMP at a rate of one (1) wetland acre of mitigation for each ten (10) acres of uplands that have been designated for mitigation in the past. Doing so will result in an added 41.9 acres of required exotic/nuisance species removal within the Native Area and further enhance the overall ecological value of the region. In addition, this action will further enable the Tribe to avoid wetland impacts associated with future development on the Reservation by reducing problematic constraints associated with development of upland areas on the Reservation.

As a result of these previous commitments associated with required mitigation and the proposed change to the upland mitigation ledger (requires a total of 98.62 acres), a balance of 4,046.02 acres of mitigation credit will remain in the AMP and available at a mitigation value of 0.18 per acre (total of 728.28 functional units). This credit will be utilized by the Tribe for projects that contain unavoidable impacts to jurisdictional wetlands on the Reservation.

The overall value of this portion of the Reservation, for purposes of wildlife utilization is recognized and appreciated by all members of the Tribe, as well as all regulatory agency staff that are familiar with this Reservation and its resident wildlife inhabitants. The area contains threatened and endangered plant and animal species and is generally recognized as prime habitat for the endangered Florida panther (*Felis concolor coryi).* A predominance of melaleuca throughout large portions of the six areas within the AMP, arguably result in a significant loss of overall habitat value for the Florida panther, as well as many other threatened/endangered species and non threatened species. Therefore, the removal of this nuisance species will greatly enhance the value of this habitat for this rare animal.

Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
Threatened and Endangered Species Mitigation Credit

Negotiations are currently taking place between the Tribe and the U.S. Fish and Wildlife Service (FWS) in an effort to have threatened and endangered species mitigation credits included as an element of the AMP. The Tribe and FWS have agreed that the designated WEA's will provide threatened and endangered species (habitat impact) mitigation as well as wetland mitigation credits.

Details for this element and a U.S. Army Corps of Engineers general permit are under development at this time and will be forthcoming in the near future.

Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
Determination of Service Area

The service area associated with this Advanced Mitigation Program (AMP) shall be the Big Cypress Seminole Indian Reservation, for purposes of wetland mitigation. The AMP may also be used to meet mitigation requirements associated with impacts to threatened/endangered species habitat, on other lands owned by the Seminole Tribe within Florida.

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Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
Monitoring and Maintenance Plan

Six subplots within the Native Area (NA) are identified as potential Wetland Enhancement Areas (WEAs) proposed by the Seminole Tribe of Florida (STOF) for advanced mitigation purposes. The various wetlands found within this area include: cypress domes and strands, hardwood wetland forests, wet prairies and marshes that are interspersed with *Melaleuca quinquenervia* (melaleuca) and *Lygodium microphyllum* (lygodium).

These areas will receive a variety of treatment methods for the removal of exotic plant species. Native vegetation is expected to improve considerably with control/removal of exotics, regeneration of native vegetation, re-establishment of scheduled burning events and utilization of a long-term maintenance plan.

A general outline of the program is as follows:

Phase I --- year one, will involve initial ground confirmation of acreages and locations of the WEAs. A biological survey will also be conducted during this phase to determine the optimal control procedures for areas within each WEA.

Phase II --- will consist of exotic species control, mainly for melaleuca and *Lygodium microphyllum* (old world climbing fern).

Phase III --- enhancement procedures will include: continued monitoring for native recruitment, soil scrape down in selected areas (if necessary), replanting (if necessary) and re-seeding (if necessary).

Phase IV --- will entail post-treatment monitoring of the success criteria for vegetative, biological, and hydrological goals. For example, exotic species abundance should be below 10% and native animals should frequent the area.

MONITORING PROGRAM

PRE-TREATMENT MONITORING

Color aerial photography from 2004, was rectified with Arc View GIS 8.3 software and overlaid with Florida Land Use Cover Classification System (FLUCCS) community boundaries (developed from past 1998 aerial surveys), which depict melaleuca distributions. Initial site visits will be made to identify random areas for transect setup. Monitoring transects will encompass a hydrological and vegetative gradient. Setup and monitoring for pre-existing conditions is suggested before Phase II, exotic removal, is begun. Transects will be monitored throughout Phases I - IV and will help determine overall program success. Pre-treatment procedures (**Table 1**) include setting up fixed photo points that will be randomly selected within exotic species removal sites. Identification and setup of monitoring transects, chosen to encompass a hydrological and vegetative gradient, will be

established before work begins. Once the monitoring and fixed photo areas are established, monitoring for pre-existing conditions will follow. A biological survey within the transects will be conducted quantitatively and the data will be used to statistically measure success. Monitoring techniques will address the following: timelines, guidelines, success criteria, monitoring, adaptive management plan and equipment use.

Table 1: Description of procedures prior to initiation of mitigation work

WEA	Setup fixed photo points	Identify and setup monitoring transects	Survey of pre-existing vegetative conditions	Survey of pre-existing biological conditions	Hydrological monitoring (digital well installation)
1 - 6	Phase I	Phase I	Phase I	Phase I	Phase I
	These efforts should be staggered within WEAs 1 - 4, and 6.				

According to the US Army Corps of Engineers, examples of acceptable procedures are as follows:

- Line intercept transects are commonly used to measure shrub or tree cover, species composition, density, height, and frequency. Line intercept is most appropriate for sampling shrubs and trees with well-defined, dense crowns. Line intercept transect sites should be randomly selected if the study area is large and the shrub/tree communities are homogeneous. If the study area consists of communities that have widely diverse structural components (i.e., species composition, density, and plant height), it may be preferable to select representative sites in proportion to the amount of the area occupied by each.

- Aerial photographs can be used to detect differences in plant densities and distributions. Transects may be randomly or systematically located at a site but must be spaced far enough apart to prevent sampling overlap. Line transect length varies but is generally from 10 to 100 meters long (35 to 350 feet). A 15-meter (49.21-foot) transect line is sufficient for sampling areas with an estimated 15 to 60 percent canopy cover or more.

- Line point transects are often used to measure understory vegetation, such as grasses and forbs. These transects are normally between 30 and 46 meters (100 and 150 feet) long where vegetative cover is from 35 to 60 percent. The transect should be long enough to sample the plant community, but it should not connect two different vegetation types. Line point transects may be randomly or systematically located along a compass bearing or another route that can be duplicated in the future. Plants, litter and bare ground or rock are recorded at measured or paced intervals along the transect line. A wire loop, 1 inch in diameter or a notch in the toe of a boot, are often used to mark the point to be recorded.

- Many short transect lines are preferable to a few long lines. Chambers and Brown (1983) stated that a minimum of 5 to 10 transect lines is required for adequate sampling.

- Plots may be used for monitoring shrub and tree habitats, as well as grasses and forbs. Several plot sizes are commonly used. Plots of one-tenth acre are frequently used to sample trees and shrubs, because they are convenient to use and data is easy to analyze. Plots of 0.96, 9.6, and 96 square feet are commonly used to sample grasses depending on the density of the vegetation to be sampled. The smaller plot sizes are used for dense, continuous vegetation. Circular plots are frequently used, but they may also be square or rectangular. Plots should be randomly located along a fixed compass bearing for statistical integrity and convenience. Smaller plots may be combined with vegetative cover estimates and photographs to quickly record plant succession. These types of plots should be permanently marked in order to make statistically sound estimates of vegetative condition and trend over time.

- Baseline vegetation data would be collected before work is started at each project. There should be more than one transect located within the immediate vicinity of each project site and at least one transect located outside the project vicinity to serve as a reference site. Permanent photographic points may be established if the sponsor or a contributing agency expresses a need. Whether permanent plots or transects are used or not, one photo should be taken from the beginning end of every transect looking toward the other end. Two additional photos should be taken at the beginning end of the transect, offset to the left and right of the transect by approximately 15 degrees. Transects would be measured and recorded during the same summer month (e.g., August) each year.

HYDROLOGICAL MONITORING

Where adequate monitoring well data is not available, wells will be installed within each WEA and will be monitored as a part of each regularly scheduled monitoring effort, as described in **Table 2**.

POST-TREATMENT MONITORING

Inspection of the monitoring sites within the melaleuca stands and other reference sites is needed to ascertain the level of exotic species eradication and degree of natural recruitment. It is expected that as more sites are completed throughout the NA, it will be possible to stagger the monitoring efforts and focus on the treated areas. A biannual monitoring sequence (wet and dry season) for two years after initial exotic species removal, and then annually for years three through five is necessary to document effective project success. All monitoring efforts will include biological and vegetative surveys as well as groundwater monitoring well readings.

Table 2: Description of procedures for monitoring work

Timetable	WEA Description	Fixed Photo Points	Monitoring Transects	Vegetative Survey	Biological Survey	Hydrological Monitoring (Well Reading)
Phase I will be completed in year 1 Phases II-III will be completed in years 2-4 Phase IV will be completed in years 2-5.	WEA #5 Acreage: 1,119.26 Melaleuca Coverage: 99.08 acres (min.)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				
Work on WEAs will not be completed concurrently. After completion of WEA #5, work on the remaining areas will be staggered every 2 years according to the WEA Enhancement Schedule.	WEA #1 Acreage: 148.20 Melaleuca Coverage: 31.95 acres (min)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				
	WEA #2 Acreage: 544.14 Melaleuca Coverage: 11.69 acres (min)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				
	WEA #3 Acreage: 756.31 Melaleuca Coverage: 127.43 acres (min)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				
	WEA #4 Acreage:1459.71 Melaleuca Coverage: 91.10 acres (min)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				
	WEA #6 Acreage: 117.02 Melaleuca Coverage: 61.02 acres (min)	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV	Phase II - IV
		Photos to be taken after exotic species removal w/biannual vegetative and biological surveys conducted first two years into project, then annually thereafter.				

MONITORING REPORTS

As Phases I and II are completed, results will need to be reported. The monitoring reports are due at the same time as completion of pre-monitoring work (Phase I) and completion of exotic species removal (Phase II). The schedule for the reports will then follow an annual sequence for five years. The reports will be inclusive of all monitoring efforts and will include a comparison of previous monitoring report results as well as an update on the status of work in all phases, maintenance activities undertaken during the reporting interval, recommendations for future maintenance and an estimation of the current degree (%) of success attainment. Each report will follow a logical sequence that STOF utilizes for other compliance reports. These reports will be reviewed by STOF

staff (wildlife biologist or environmental scientist) to ensure project success. If the data, site condition, ecosystem function or recruitment goals are not met, then development of an action/recommended adaptive management plan will follow suit (according to the success criteria developed for each WEA enhancement goal).

MAINTENANCE PROGRAM

It is necessary to maintain wetland enhancement procedures for the entire life cycle of the Mitigation Bank. An Operations and Maintenance Plan will be documented for all WEAs, using tribal resources. If enhancement procedures are included in this portion of the plan, modules will be created for soil enhancement and native seed recruitment procedures. Native recruitment, biological and vegetative establishment are important keys in maintaining the WEAs and therefore, will need ongoing monitoring. Other specifics for ongoing monitoring will include fixed photo points, biological and vegetative monitoring, and ongoing hydrological monitoring (**Table 3**).

Table 3: Description of procedures for monitoring and maintenance

WEA #	Procedure Description	Maintenance Program Phase I	Maintenance Program Phases II - IV	Maintenance Program Continuation for Lifecycle of Project
1 - 6	Wildlife monitoring	Establish areas within vegetative quadrants Creation of data sheets	Biannual monitoring for first two years after exotic treatment, annually thereafter	Annual monitoring for minimum of 5 years Determine if reports establish success of project according to established success criteria. Utilize adaptive management plan strategies in order to come into compliance, if needed.
	Quantitative vegetation monitoring	Establish quadrants or line vegetative monitoring areas	Biannual monitoring for first two years after exotic treatment, annually thereafter	
	Hydrological monitoring	Placement of wells in deepest areas of WEAs	Biannual monitoring for first two years after exotic treatment, annually thereafter	
	Fixed photo point pictures	Establish photo points	Immediately after exotic species treatment, biannual monitoring for first two years after exotic treatment, annually thereafter	

REFERENCES CITED

1. Fixed Area Plot Sampling for Forest Inventory: Section 6.2.4, U.S. Army Corps of Engineers Wildlife Resources Management Manual, Technical Report EL-95-27, 1995. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

2. U.S. Army Corps of Engineers. Upper Salmon River Aquatic Ecosystem Restoration Challis. Idaho: Detailed Project Report and Environmental Assessment. Internet. February 5, 2005. http://www.nww.usace.army.mil/salmonriver/appk.pdf

Big Cypress Seminole Indian Reservation
Advanced Mitigation Program
Administration and Tracking

Administration of the overall Advanced Mitigation Program (AMP) and the tracking of mitigation credits/acreages associated with this program will fall within the management oversight of the Seminole Tribe of Florida (Tribe), Water Resource Management Department. The day-to-day administration of the program may be assigned to other entities within the Tribe, so long as no delegation of authority or relinquishment of ultimate responsibility for the management of the program results.

A ledger will be maintained by the Tribe for the purpose of tracking the distribution of mitigation credits/acreages. This ledger will be made available to the South Florida Water Management District (SFWMD), U.S. Army Corps of Engineers (Corps) and other federal agencies. Annually (beginning March 1, 2006), an updated ledger and any written recommendations and/or requests to modify the administration and/or tracking procedures associated with the AMP will be provided to these agencies. The ledger shall consist of the following information:

- Permitted Project Name & Reservation
- Corps Application/Permit Number
- Date of Permit
- Permitted Impact Acres
- Wetland Mitigation Credit/Acreage Required - Debit
- Wetland Mitigation Credit/Acreage Balance Remaining in AMP
- Threatened and Endangered Species Mitigation Credit/Acreage Required - Debit
- Threatened and Endangered Species Mitigation Credit/Acreage Balance Remaining in AMP
- AMP Credit(s)/Acreage(s) Added or Subtracted (based upon work completed)

It is recognized that administration and tracking procedures associated with the AMP are subject to change, as more effective and/or efficient methods of administering the program are discovered and approved by the Tribe and agencies involved.

FIGURES

Legend

- Wetland Enhancement Area Boundary
- Native Area Boundary

1 inch equals 5,000 feet

N

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Checked By: RD
Job No.: G0434

FIGURE 1
Location of WEAs in the Native Area

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Big Cypress Seminole Indian Reservation
Advanced Mitigation Program

Code	Description
211	Improved Pasture
411	Pine Flatwoods
422	Brazilian Pepper
424	Melaleuca
426	Tropical Hammock
510	Streams & Waterways
610	Wetland Hardwood Forest
617	Mixed Wetland Hardwoods
620	Wetland Coniferous Forests
621	Cypress
621-2	Cypress - hatrack
625	Popash
630	Mixed Swamp
641	Freshwater Marsh
643	Wet Prairie
646	Wet Shrubs
740	Disturbed Lands
814	Roads

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Florida Land Use, Cover and Forms Classification System
Source: Florida Department of Transportation

Figure 1 A
FLUCCS Code Key

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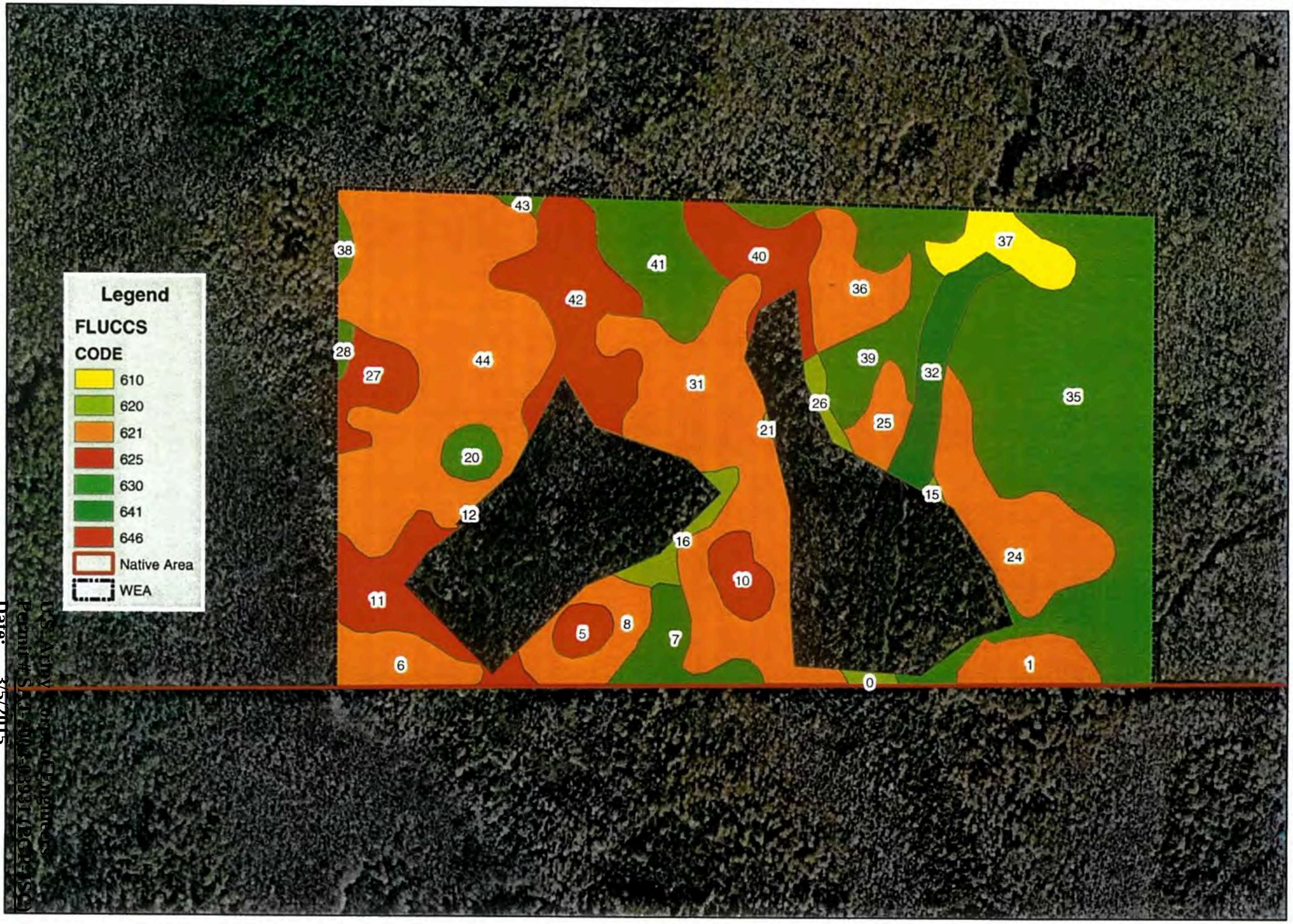

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Wetland Enhancement Area 1

1 inch equals 500 feet

FIGURE 2
FLUCCS Vegetative Communities in WEA 1

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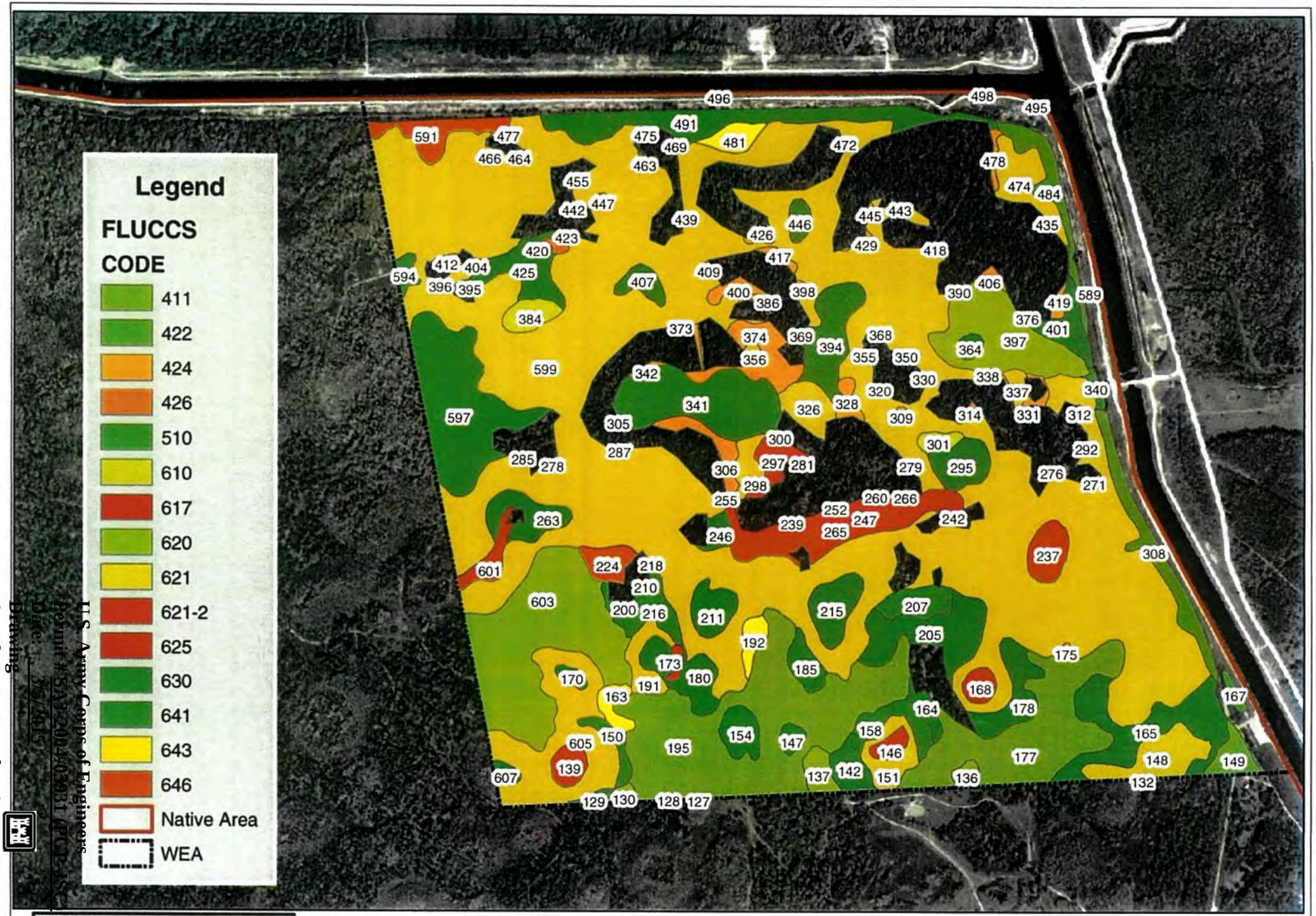
Wetland Enhancement Area 2
1 inch equals 1,000 feet

FIGURE 3
FLUCCS Vegetative Communities in WEA 2



U.S. Army Corps of Engineers
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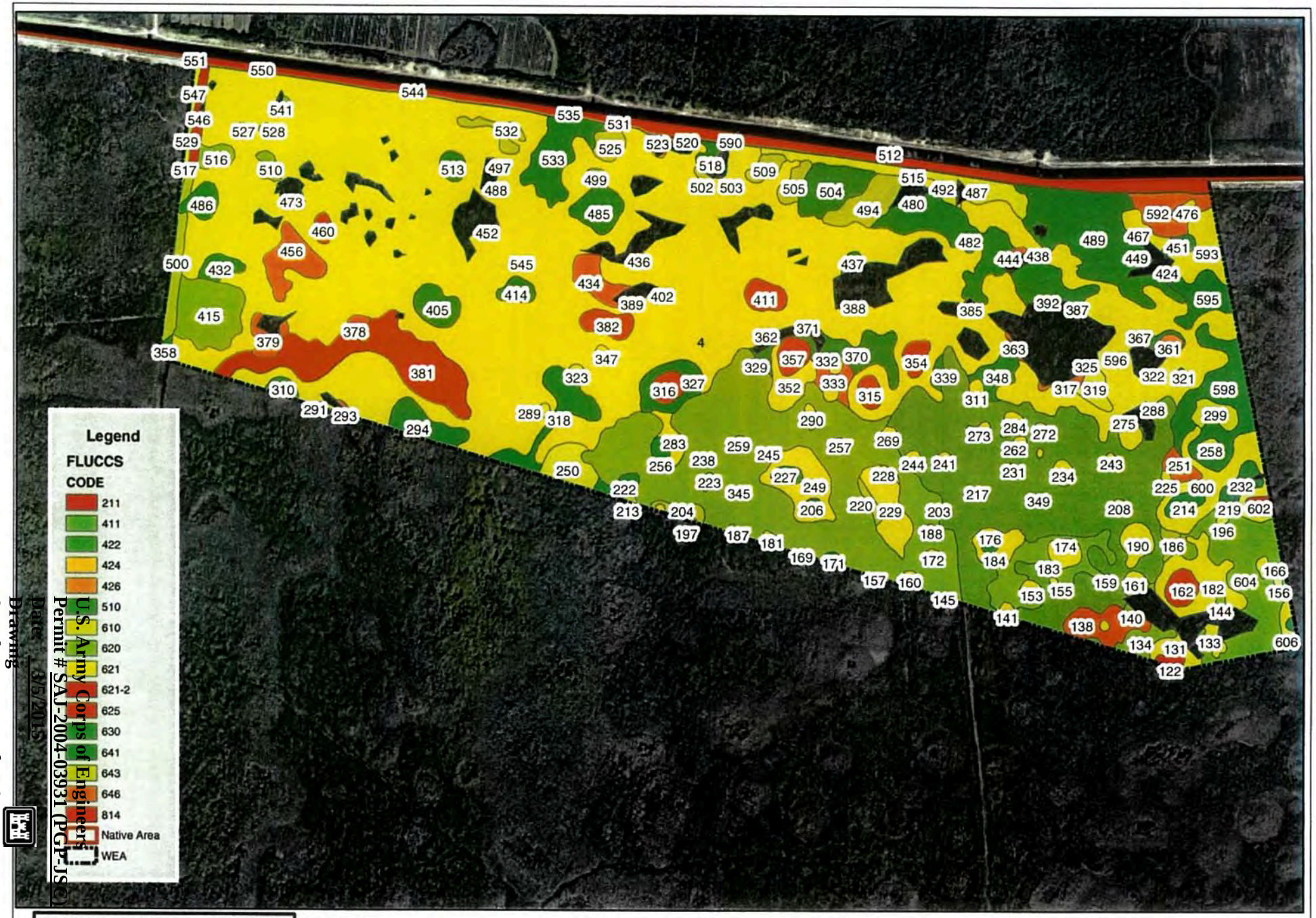

FIGURE 5
FLUCCS Vegetative Communities in WEA 4

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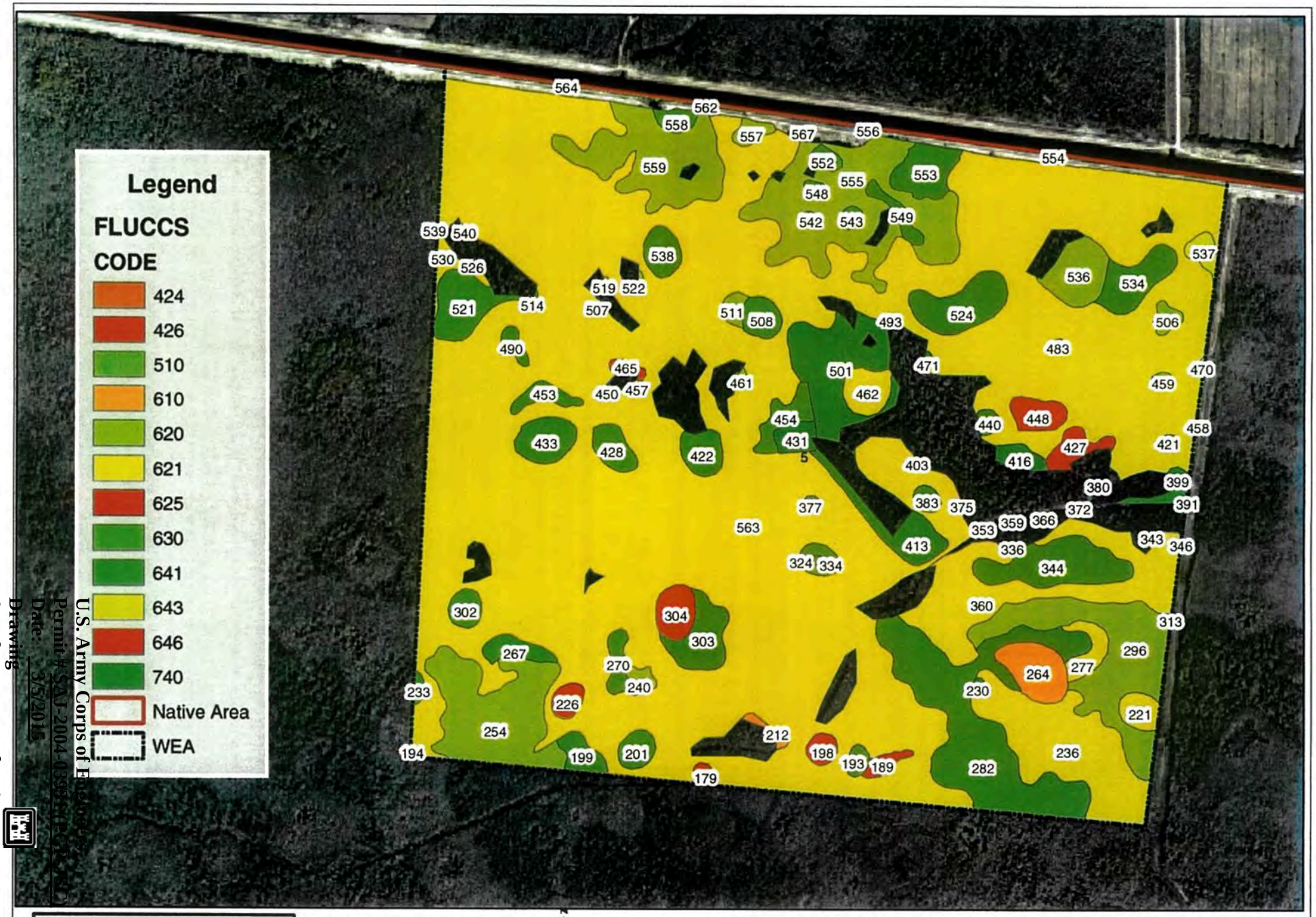
Drawing
Attachment 4 of 10



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Wetland Enhancement Area 5
1 inch equals 1,200 feet

FIGURE 6
FLUCCS Vegetative Communities in WEA 5

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Wetland Enhancement Area 6
1 inch equals 500 feet

FIGURE 7
FLUCCS Vegetative Communities in WEA 6

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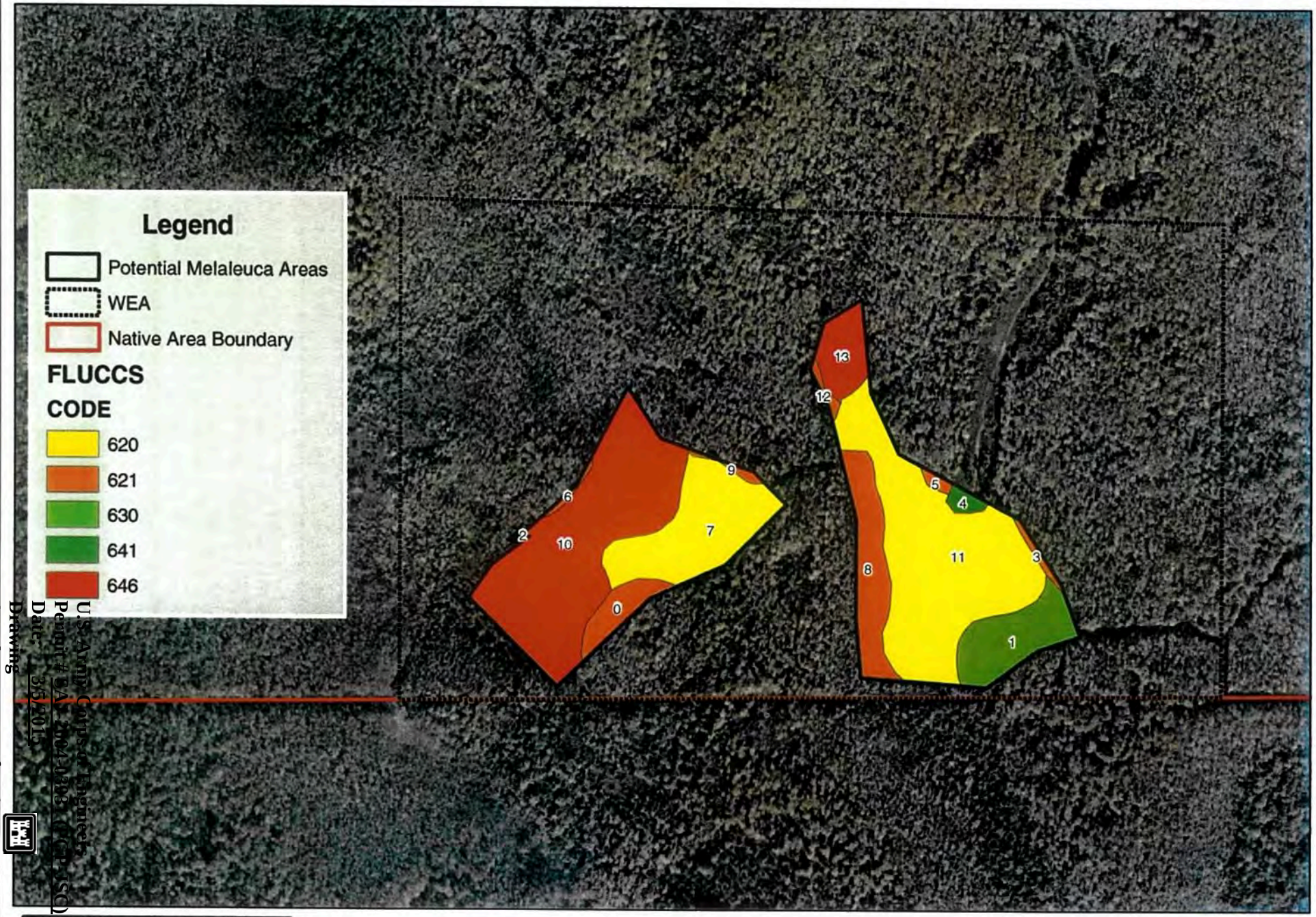
Date: 3/15/2005
Drawing
Attachment 4 of 10



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1 inch equals 500 feet

Wetland Enhancement Area 1
Wetland Enhancement Area = 148.20 Acres
Total Melaleuca Areas = 31.95 Acres

FIGURE 8
Community Types in WEA 1

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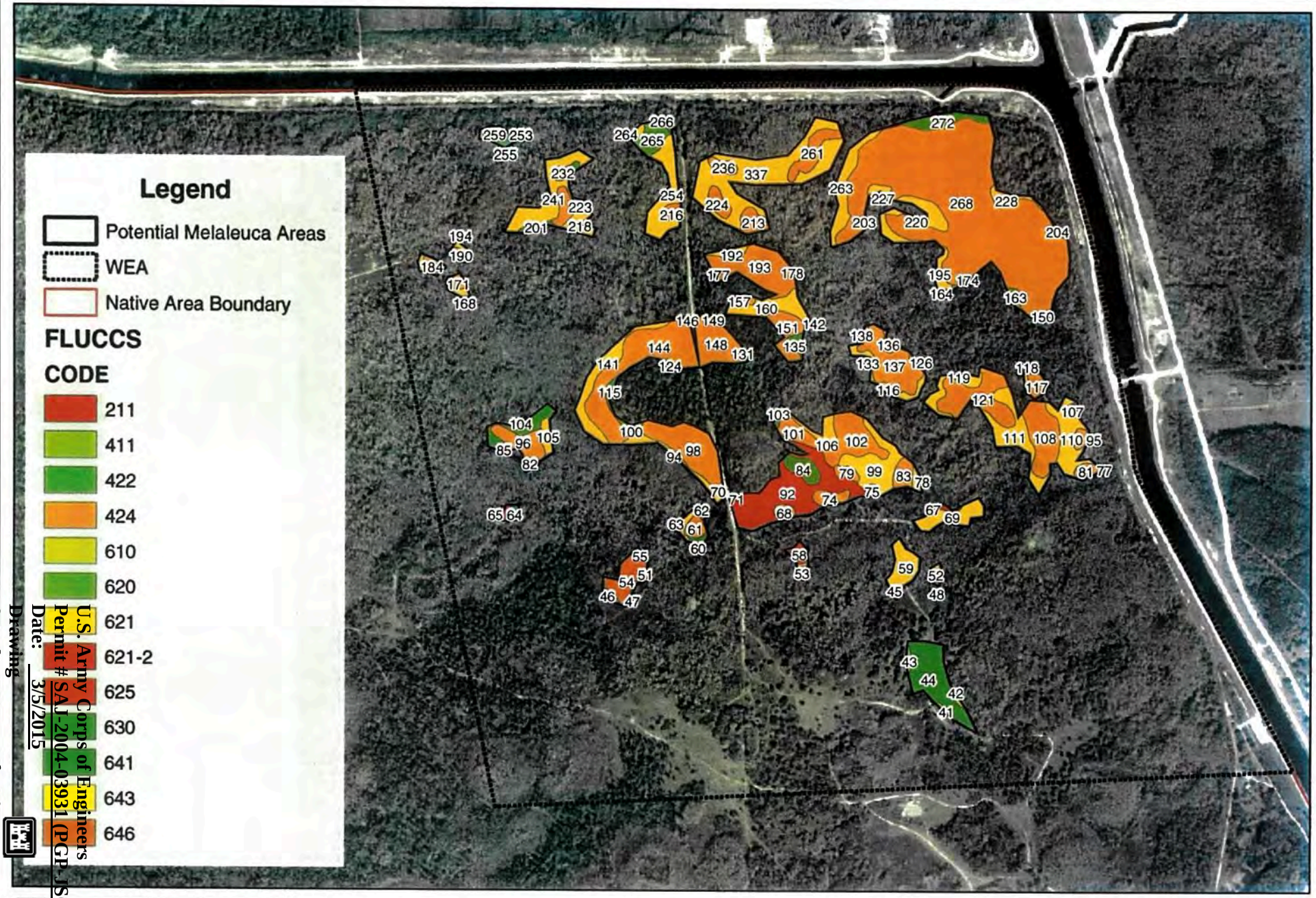
1 inch equals 1,000 feet

Mitigation Area 2
Wetland Enhancement Area = 544.14 Acres
Total Melaleuca Areas = 11.69 Acres

FIGURE 9
Community Types in WEA 2



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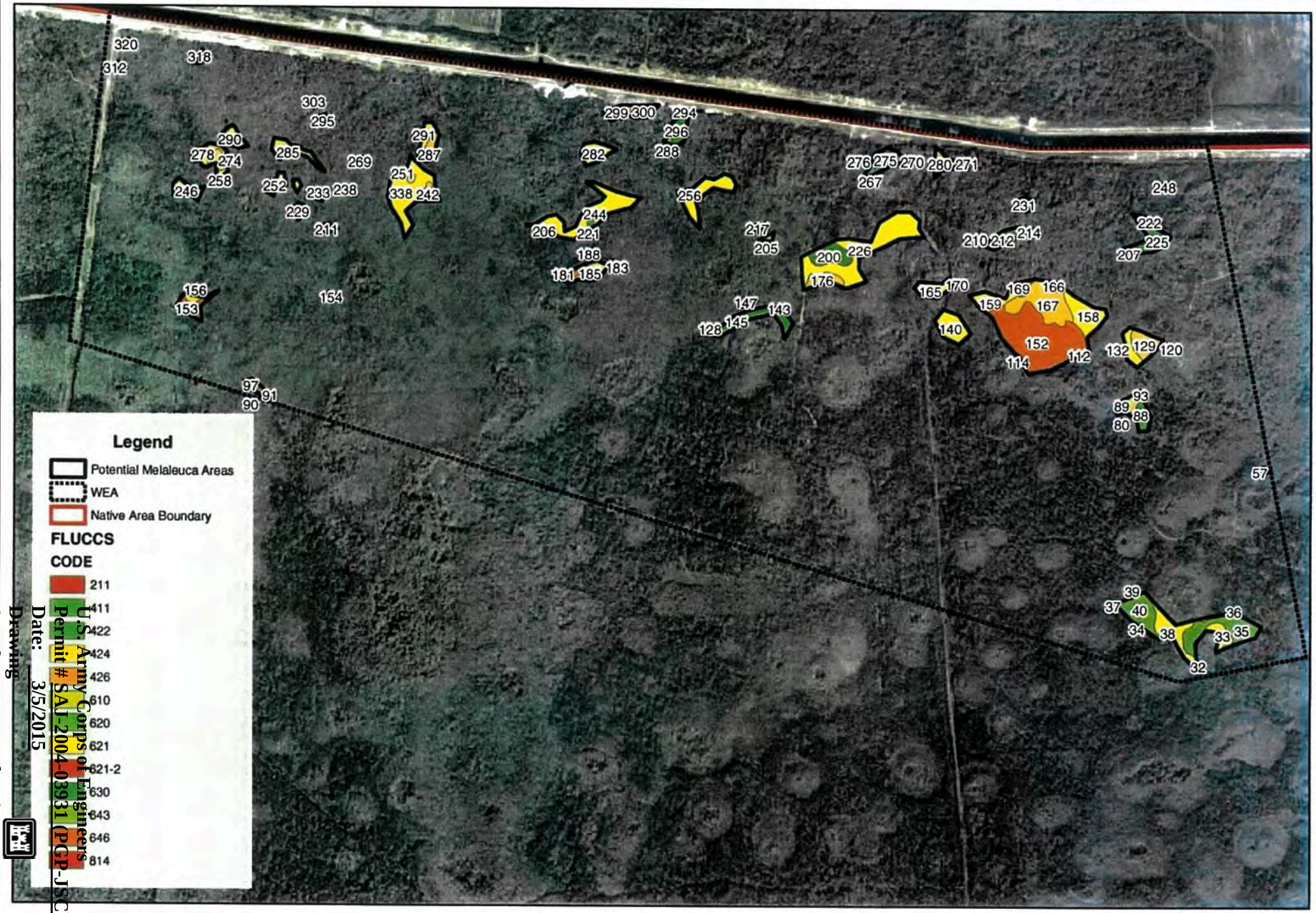
1 inch equals 1,000 feet

Wetland Enhancement Area 3
Area = 756.31 Acres
Total Melaleuca Areas = 127.43 Acres

FIGURE 10
Community Types in WEA 3



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1 inch equals 1,400 feet

Wetland Enhancement Area 4
Area = 1459.71 Acres
Total Melaleuca Areas = 91.10 Acres

FIGURE 11
Community Types in WEA 4

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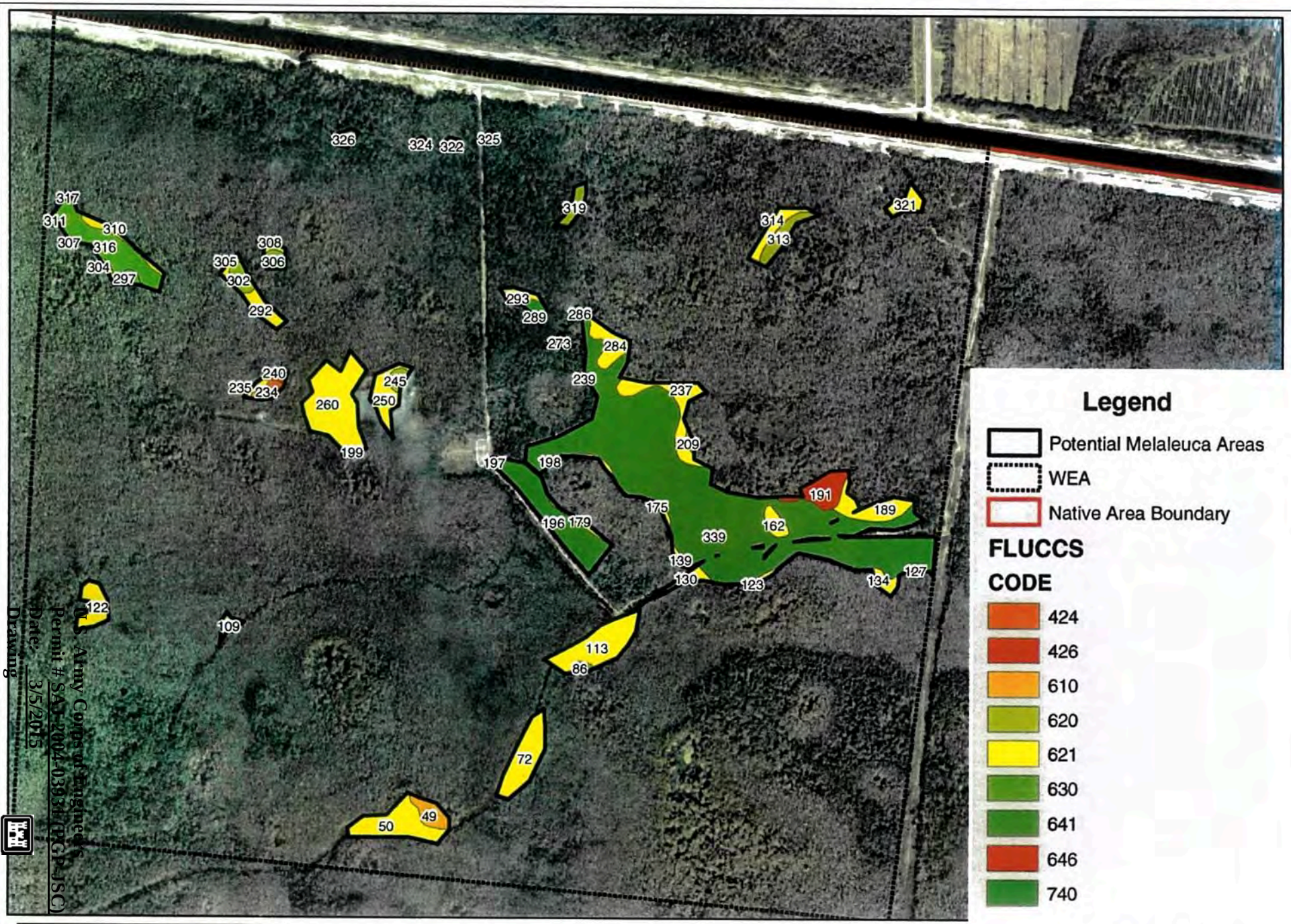

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Drawn By: RAS
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1 inch equals 1,000 feet

Wetland Enhancement Area 5
Area = 1119.26 Acres
Total Melaleuca Areas = 99.08 Acres

FIGURE 12
Community Types in WEA 5

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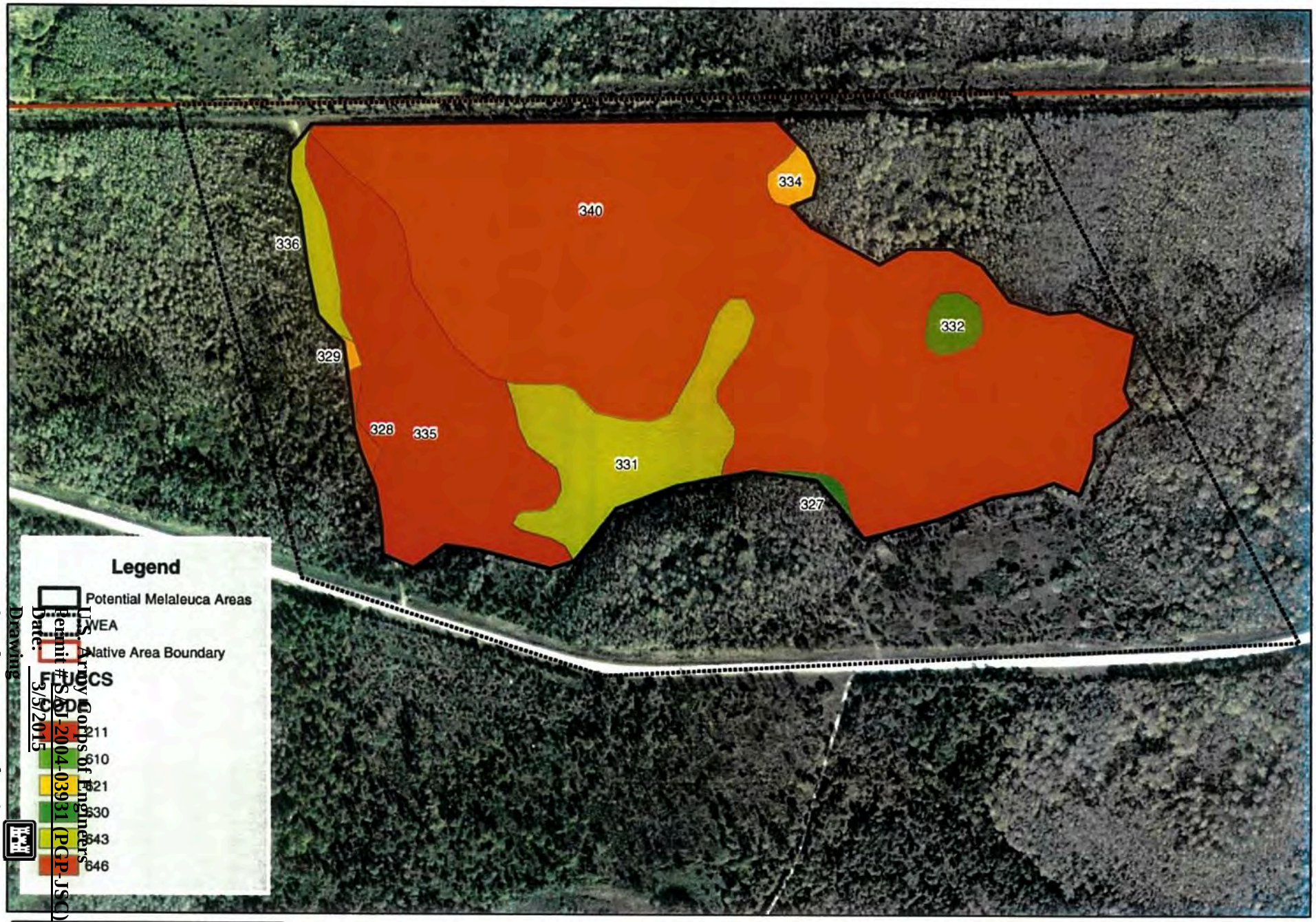

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1 inch equals 400 feet

Wetland Enhancement Area 6
Area = 117.02 Acres
Total Melaleuca Areas = 61.02 Acres

FIGURE 13
Community Types in WEA 6

Attachment 4 of 10
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APPENDIX II

Non-melaleuca Areas within each WEA

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
		Wetland Enhancement Area 1	
0	620	11,703	0.27
1	621	96,917	2.22
5	625	41,870	0.96
6	621	111,356	2.56
7	630	104,863	2.41
8	621	118,616	2.72
10	625	65,247	1.50
11	646	170,385	3.91
12	646	178	0.00
15	620	4,360	0.10
16	620	50,755	1.17
20	630	44,154	1.01
21	620	1,991	0.05
24	621	278,068	6.38
25	621	67,205	1.54
26	620	24,712	0.57
27	646	96,109	2.21
28	630	13,004	0.30
31	621	582,811	13.38
32	641	128,147	2.94
35	630	1,028,045	23.60
36	621	141,201	3.24
37	610	106,600	2.45
38	630	15,826	0.36
39	630	250,075	5.74
40	646	153,135	3.52
41	630	196,247	4.51
42	646	289,517	6.65
43	630	11,491	0.26
44	621	855,118	19.63
No. of Areas: **30**	Total Area:	**5,059,705**	**116.16**
		Wetland Enhancement Area 2	
2	630	129,382	2.97
3	620	180,824	4.15
4	621	85,689	1.97
9	621	116,212	2.67
13	630	288,552	6.62
14	625	56,829	1.30
17	620	30,229	0.69
18	621	12,099	0.28
19	621	58,953	1.35
22	621	17,914	0.41
23	630	538,836	12.37
29	621	849,785	19.51
30	630	57,796	1.33
33	621	77,289	1.77
34	621	245,394	5.63
45	625	28,014	0.64
46	630	91,108	2.09
47	621	0	0.00
48	630	14,175	0.33

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Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
49	621	67,514	1.55
50	630	85,501	1.96
51	643	34,949	0.80
52	630	53,124	1.22
53	621	600,679	13.79
54	621	2,420,167	55.56
55	620	1,192,634	27.38
56	621	47,817	1.10
57	620	2,365,730	54.31
58	643	51,398	1.18
59	621	247,205	5.68
60	621	17,507	0.40
61	641	182,425	4.19
62	630	156,343	3.59
63	641	43,696	1.00
64	621	13,783	0.32
65	646	31,674	0.73
66	621	212,184	4.87
67	641	98,148	2.25
68	621	32,836	0.75
69	621	1,582	0.04
70	411	290,341	6.67
71	620	364,929	8.38
72	621	8,305	0.19
73	621	137,024	3.15
74	643	28,212	0.65
75	620	9,841	0.23
76	621	561,550	12.89
77	620	306,393	7.03
78	620	35,349	0.81
79	621-2	717,144	16.46
80	620	368	0.01
81	620	1,238	0.03
82	621	103,728	2.38
83	621	127,956	2.94
84	625	30,819	0.71
85	620	10,914	0.25
86	621	387,357	8.89
87	621	20,902	0.48
88	411	4,336,577	99.55
89	646	113,507	2.61
90	621	132,651	3.05
91	630	27,541	0.63
92	641	89,777	2.06
93	621	326,827	7.50
94	625	59,442	1.36
95	630	65,028	1.49
96	621	60,860	1.40
97	621-2	273,868	6.29
98	621	197,622	4.54
99	621	417,725	9.59
100	646	15,670	0.36
101	621	1,370	0.03
102	621	25,365	0.58
103	621	21,046	0.48
104	621	147,858	3.39
105	621	7,948	0.18
106	620	1,239,032	28.44
107	641	10	0.00
108	625	3,140	0.07
109	621	69,724	1.60
110	620	1,397	0.03

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
111	621	40,138	0.92
112	411	689,184	15.82
113	630	6,559	0.15
114	620	131,415	3.02
115	621	81,491	1.87
116	621	128	0.00
117	630	26,769	0.61
118	621	1,232	0.03
119	641	5,171	0.12
120	621	8	0.00
121	620	572,230	13.14
No. of Areas: **92**	Total Area:	**23,193,657**	**532.43**

Wetland Enhancement Area **3**

126	621	2,027	0.05
127	641	3,475	0.08
128	620	9,016	0.21
129	641	23,415	0.54
130	620	31,349	0.72
132	630	3,188	0.07
136	620	35,617	0.82
137	620	81,448	1.87
139	625	79,179	1.82
142	630	119,714	2.75
146	625	46,089	1.06
147	630	37,147	0.85
148	621	245,350	5.63
149	411	107,407	2.47
150	641	62,922	1.44
151	621	143,040	3.28
154	630	109,732	2.52
158	641	123,903	2.84
163	643	69,856	1.60
164	630	53,568	1.23
165	630	472,954	10.86
167	422	25,919	0.60
168	625	63,218	1.45
170	630	29,807	0.68
173	617	22,577	0.52
175	424	8,310	0.19
177	411	917,006	21.05
178	630	193,449	4.44
180	630	195,414	4.49
185	630	91,418	2.10
191	621	113,601	2.61
192	643	63,605	1.46
195	411	1,630,581	37.43
200	646	3,752	0.09
205	630	352,315	8.09
207	641	127,869	2.94
210	646	1,780	0.04
211	630	125,630	2.88
215	630	170,394	3.91
216	641	163,040	3.74
218	646	639	0.01
224	646	99,301	2.28
235	424	1,172	0.03

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
237	625	128,721	2.96
239	424	918	0.02
242	621	1	0.00
246	630	52,775	1.21
247	630	6,110	0.14
252	424	4,369	0.10
253	424	2,131	0.05
255	621	234	0.01
260	621	4,352	0.10
261	621	1,742	0.04
263	630	169,537	3.89
265	621-2	485,415	11.14
266	424	12,503	0.29
268	424	34	0.00
271	424	8,761	0.20
274	424	34	0.00
276	424	2,283	0.05
278	424	159	0.00
279	424	898	0.02
281	630	415	0.01
285	424	3,492	0.08
287	424	842	0.02
292	424	101	0.00
295	630	152,397	3.50
297	621-2	108,530	2.49
298	621	88,215	2.03
300	424	751	0.02
301	610	45,433	1.04
305	424	9	0.00
306	424	94,183	2.16
308	422	246,924	5.67
309	424	11,746	0.27
312	630	4,473	0.10
314	424	14,188	0.33
320	424	195	0.00
326	621	138,194	3.17
328	424	44,248	1.02
330	424	128	0.00
331	424	21,313	0.49
337	621	45,393	1.04
338	424	8,666	0.20
340	641	25,238	0.58
341	630	568,671	13.05
342	424	15,507	0.36
350	424	1,199	0.03
355	424	212	0.00
356	621	22,607	0.52
364	630	34,563	0.79
368	424	665	0.02
369	424	1,140	0.03
373	424	1,109	0.03
374	424	203,532	4.67
376	424	118	0.00
384	610	93,932	2.16
386	621	8,998	0.21
390	424	0	0.00
393	424	129	0.00
394	630	274,225	6.30
395	424	2,030	0.05
396	424	1	0.00
397	620	518,428	11.90
398	424	10,411	0.24

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
400	424	59,305	1.36
401	630	132,745	3.05
404	424	345	0.01
406	424	30,150	0.69
407	630	76,626	1.76
409	424	4,855	0.11
410	424	129	0.00
412	424	16,813	0.39
417	424	20,549	0.47
418	424	1,227	0.03
419	424	23,287	0.53
420	426	31,938	0.73
423	424	477	0.01
425	630	210,987	4.84
426	424	10,589	0.24
429	424	12,634	0.29
430	424	7	0.00
435	424	429	0.01
439	424	2,779	0.06
442	424	803	0.02
443	424	530	0.01
445	424	5,239	0.12
446	630	49,848	1.14
447	422	8,218	0.19
455	422	2,827	0.06
463	422	6,101	0.14
464	422	11,678	0.27
466	643	258	0.01
468	422	9	0.00
469	422	27	0.00
472	424	1,516	0.03
474	621	201,133	4.62
475	422	9	0.00
477	643	10,895	0.25
478	424	20,029	0.46
481	643	81,528	1.87
484	422	174,337	4.00
491	630	504,333	11.58
495	510	1,921	0.04
496	510	15,445	0.35
498	510	1,945	0.04
589	211	1,537,967	35.31
591	646	169,861	3.90
594	641	43,454	1.00
597	630	760,145	17.45
599	621	11,224,364	257.68
601	625	88,194	2.02
603	620	1,175,686	26.99
605	621	660,880	15.17
607	630	33,385	0.77
No. of Areas: **155**	Total Area:	**27,382,398**	**628.59**

Wetland Enhancement Area **4**

122	625	47,676	1.09
123	621	114	0.00
124	620	0	0.00
125	610	45,774	1.05

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Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
131	621	135,818	3.12
133	621	69,709	1.60
134	620	161,080	3.70
135	621	12,115	0.28
138	646	308,776	7.09
140	620	26,470	0.61
141	621	29,510	0.68
143	620	401	0.01
144	620	22,177	0.51
145	621	14,360	0.33
152	620	5,942	0.14
153	621	67,079	1.54
155	621	10,349	0.24
156	621	13,891	0.32
157	643	2,351	0.05
159	621	12,512	0.29
160	621	16,639	0.38
161	621	72,019	1.65
162	625	145,094	3.33
166	621	31,365	0.72
169	621	4,379	0.10
171	630	35,626	0.82
172	621	30,377	0.70
174	621	125,371	2.88
176	630	35,718	0.82
181	621	28,470	0.65
182	621	471,211	10.82
183	620	536,612	12.32
184	621	181,229	4.16
186	643	65,754	1.51
187	643	23,027	0.53
188	621	16,077	0.37
190	621	157,853	3.62
196	621	15,293	0.35
197	621	21,308	0.49
202	621	9,923	0.23
203	621	11,915	0.27
204	643	77,680	1.78
206	630	33,370	0.77
208	621	25,097	0.58
209	621	5,466	0.13
213	643	22,971	0.53
214	630	104,196	2.39
217	621	7,455	0.17
219	641	27,003	0.62
220	643	51,770	1.19
222	630	96,044	2.20
223	643	35,776	0.82
225	621	14,975	0.34
227	630	58,549	1.34
228	643	17,144	0.39
229	621	353,473	8.11
231	621	5,891	0.14
232	630	119,467	2.74
234	621	67,374	1.55
238	621	15,679	0.36
241	621	33,051	0.76
243	621	24,431	0.56
244	621	43,432	1.00
245	643	19,236	0.44
248	621	7,375	0.17
249	621	435,640	10.00

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Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
250	610	270,199	6.20
251	646	126,774	2.91
256	630	60,097	1.38
257	621	15,502	0.36
258	621	51,344	1.18
259	643	20,236	0.46
262	621	19,339	0.44
269	621	44,380	1.02
272	621	25,392	0.58
273	621	36,089	0.83
275	424	11	0.00
280	621	16	0.00
283	621	122,421	2.81
284	621	61,210	1.41
286	424	2	0.00
288	424	8	0.00
289	610	18,902	0.43
290	621	37,628	0.86
291	610	18,954	0.44
293	646	23,056	0.53
294	630	289,174	6.64
299	610	149,980	3.44
307	621	31,730	0.73
310	630	76,403	1.75
311	621	30,956	0.71
315	625	95,041	2.18
316	625	124,577	2.86
317	646	55,162	1.27
318	630	413,070	9.48
319	610	136,001	3.12
321	641	15,812	0.36
322	424	2,189	0.05
323	610	41,477	0.95
325	646	419	0.01
327	630	259,117	5.95
329	621	15,912	0.37
332	621	31,794	0.73
333	646	143,331	3.29
335	424	114	0.00
339	630	49,599	1.14
345	620	5,376,040	123.42
347	610	38,155	0.88
348	630	197,175	4.53
349	411	5,526,306	126.87
351	424	2,679	0.06
352	621	240,320	5.52
354	625	103,720	2.38
357	625	144,231	3.31
358	641	35,679	0.82
361	426	65,734	1.51
362	630	2,813	0.06
363	646	11,018	0.25
367	630	40,028	0.92
370	630	427,971	9.82
371	630	390	0.01
378	646	76,953	1.77
379	646	115,414	2.65
381	621-2	1,263,162	29.00
382	625	168,483	3.87
385	630	490	0.01
387	424	932	0.02
388	424	10,259	0.24

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
389	424	5,416	0.12
392	424	33	0.00
402	424	2,481	0.06
405	630	218,204	5.01
408	424	753	0.02
411	625	157,184	3.61
414	630	109,239	2.51
415	620	597,155	13.71
424	422	4,190	0.10
432	630	123,790	2.84
434	646	218,613	5.02
436	422	16,286	0.37
437	630	47,041	1.08
438	630	62	0.00
441	422	372	0.01
444	646	43,828	1.01
449	422	9,154	0.21
451	630	66,894	1.54
452	424	997	0.02
456	646	348,811	8.01
460	625	63,694	1.46
467	621	117,105	2.69
473	424	5,327	0.12
476	621	43,374	1.00
479	424	687	0.02
480	422	12,521	0.29
482	630	1,055,299	24.23
485	630	253,064	5.81
486	630	143,905	3.30
487	621	14,252	0.33
488	424	1,978	0.05
489	630	1,335,459	30.66
492	621	31,494	0.72
494	643	331,933	7.62
497	424	528	0.01
499	620	35,585	0.82
500	643	242,766	5.57
502	643	26,125	0.60
503	630	2,597	0.06
504	630	406,341	9.33
505	643	111,084	2.55
509	643	102,695	2.36
510	620	70,638	1.62
512	510	1,618	0.04
513	630	91,843	2.11
515	610	482,743	11.08
516	620	108,285	2.49
517	621	34,823	0.80
518	630	75,014	1.72
520	630	4,926	0.11
523	646	41,957	0.96
525	643	117,036	2.69
527	424	13,542	0.31
528	424	11,717	0.27
529	643	19,461	0.45
531	510	5,692	0.13
532	643	127,778	2.93
533	630	499,393	11.46
535	510	287	0.01
541	620	25,700	0.59
544	510	6,028	0.14
545	621	22,342,809	513.92

Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
546	814	134,697	3.09
547	621	50,092	1.15
550	510	3,944	0.09
551	510	3	0.00
590	211	1,211,858	27.82
592	646	321,874	7.39
593	621	381,369	8.76
595	641	308,647	7.09
596	621	2,479,247	56.92
598	630	788,022	18.09
600	621	652,233	14.97
602	625	51,621	1.19
604	620	1,240,833	28.49
606	621	97,279	2.23
608	630	15,837	0.36
No. of Areas: **205**	Total Area:	**59,571,172**	**1,367.62**

Wetland Enhancement Area **5**

179	625	35,046	0.80
189	646	60,319	1.38
193	630	51,844	1.19
194	630	3,902	0.09
198	646	73,066	1.68
199	630	127,635	2.93
201	630	106,304	2.44
212	610	42,022	0.96
221	621	120,413	2.76
226	625	83,109	1.91
230	641	17,898	0.41
233	630	27,479	0.63
236	621	1,192,819	27.38
240	620	64,436	1.48
254	620	1,074,835	24.67
264	610	298,479	6.85
267	630	124,783	2.86
270	630	97,570	2.24
277	621	140,829	3.23
282	630	1,622,859	37.26
296	620	1,157,378	26.57
302	630	97,652	2.24
303	630	283,072	6.50
304	625	170,959	3.92
313	641	5,006	0.11
324	641	7,951	0.18
334	630	89,566	2.06
336	641	12,157	0.28
343	641	0	0.00
344	630	513,534	11.79
346	621	354	0.01
353	641	450	0.01
359	641	9	0.00
360	621	1,321,293	30.33
365	641	697	0.02
366	641	1,212	0.03
372	641	1,953	0.04
375	641	628	0.01
377	630	20,441	0.47

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Non-Melaleuca Areas Within Each Enhancement Area

Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
380	641	110	0.00
383	630	54,120	1.24
391	641	6,356	0.15
399	641	103,644	2.38
403	641	355	0.01
413	641	284,707	6.54
416	641	95,668	2.20
421	630	14,016	0.32
422	630	152,713	3.51
427	646	136,038	3.12
428	630	139,242	3.20
431	740	108,355	2.49
433	630	209,302	4.80
440	630	41,539	0.95
448	646	147,802	3.39
450	424	1,041	0.02
453	630	99,952	2.29
454	630	162,690	3.73
457	424	1,376	0.03
458	621	24,121	0.55
459	620	28,856	0.66
461	620	17,217	0.40
462	621	182,794	4.20
465	426	29,713	0.68
470	643	6,947	0.16
471	641	13,035	0.30
483	646	10,818	0.25
490	630	53,607	1.23
493	641	61	0.00
501	641	738,732	16.96
506	620	62,352	1.43
507	620	221	0.01
508	630	127,679	2.93
511	620	59,586	1.37
514	630	7,433	0.17
519	620	8,045	0.18
521	630	319,040	7.32
522	620	20,071	0.46
524	630	364,982	8.38
526	630	5,366	0.12
530	630	372	0.01
534	630	283,043	6.50
536	620	310,921	7.14
537	643	84,811	1.95
538	630	140,263	3.22
539	630	901	0.02
540	630	3,178	0.07
542	630	14,219	0.33
543	630	38,638	0.89
548	630	31,913	0.73
549	630	85,084	1.95
552	630	52,282	1.20
553	630	254,728	5.85
554	510	3,691	0.08
555	620	1,494,502	34.31
556	510	141	0.00
557	620	67,273	1.54
558	630	74,563	1.71
559	620	929,125	21.33
562	510	12,804	0.29
563	621	26,875,780	616.98
564	510	894	8.02

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Non-Melaleuca Areas Within Each Enhancement Area

	Area ID	FLUCCS	AREA (SQ. Ft.)	Area (Acres)
	567	211	821,519	18.86
No. of Areas:	**102**	Total Area:	**44,470,276**	**1,020.83**

Wetland Enhancement Area **6**

560	646	98,884	2.27
561	814	153,628	3.53
565	643	229,672	5.27
566	621	36,780	0.84
568	643	22,849	0.52
569	211	144,813	3.32
570	630	394,444	9.06
571	646	3,316	0.08
572	630	155,987	3.58
573	621	103,446	2.37
574	646	74,454	1.71
575	610	12,001	0.28
576	646	131,091	3.01
577	646	8,654	0.20
578	646	13,523	0.31
579	646	23,492	0.54
580	621	117,832	2.71
581	621	167,797	3.85
582	643	140,315	3.22
583	643	431	0.01
584	621	69,577	1.60
585	646	104,800	2.41
586	621	942	0.02
587	630	212,548	4.88
588	643	17,894	0.41
No. of Areas: **25**	Total Area:	**2,439,170**	**56.00**

APPENDIX III

Photographs

Composite Photo 1: Stations 1-6

WRAP Station #1---wetland coniferous forest (620)

WRAP Station #2---cypress (621)

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Composite Photo 1: Stations 1-6

WRAP Station #3---wetland forested mix (630)

WRAP Station #4---cypress (621)

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Composite Photo 1: Stations 1-6

WRAP Station #5---cypress (621)

WRAP Station #6---cypress (621)

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Composite Photo 2: Stations 7-12

WRAP Station #7---cypress (621)

WRAP Station #8---wet prairie (643)

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Composite Photo 2: Stations 7-12

WRAP Station #9---wet prairie (643)

WRAP Station #10---wetland forested mix (630)

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Composite Photo 2: Stations 7-12

WRAP Station #11---wet prairie (643)

WRAP Station #12---cypress (621)

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Composite Photo 3: Safari and Hunt Club Stations

Hunt Club Station #3---cypress (621)

APPENDIX IV

Wetland Rapid Assessment Procedure (WRAP) Sheets

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Wetland Coniferous Forests

Land Use	FLUCCS Code		Wetland Acreage
Native	620	Wetland Coniferous Forest	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	1.0	1.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.72

Field Notes: **26 26.757 N** **81 00.01 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress and pine with abundant Melaleuca.

Wetland Ground Cover (GC)

Sparse cover of ferns and gramenoids.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area has decreased significantly after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Sheet flow passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Wetland Coniferous Forests

Land Use: Native

FLUCCS Code: 620 Wetland Coniferous Forest

Wetland Acreage:

Wildlife Utilization (WU): 2.5

Wetland Canopy (O/S): 2.5

Wetland Groundcover (GC): 2.5

Field Hydrology (HYD): 2.5

WQ Input & Treatment (WQ)*: 3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL: 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total: 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total: 3.0

WRAP Score: 0.89

Field Notes: **26 26.757 N** **81 00.01 W** **Native Area**

Wildlife Utilization (WU)

Will increase significantly, usage by more deer, woodstork, bobcat, macro invertebrates and wading birds.

Wetland Canopy (O/S)

Cypress and pine abundant after melaleuca removal.

Wetland Ground Cover (GC)

Increased cover of ferns and gramenoids after melaleuca removal.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase significantly with creation of critical project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	1.0	1.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	1.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	2.5	1.0	3.0

PT Total 3.0

WRAP Score 0.69

Field Notes: **26 17.00N** **81 02.04 W** **Native Area**

Wildlife Utilization (WU)

Macro invertebrates.

Wetland Canopy (O/S)

Cypress that is dominanted by Melaleuca.

Wetland Ground Cover (GC)

None present under dense Melaleuca cover but, some normal fern and graminoid populations in more open areas.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area decreased as a result of adjacent canal system.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Low Intensity Commercial	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	2.5	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.89

Field Notes: **26 17.00N** **81 02.04 W** **Native Area**

Wildlife Utilization (WU)

Will increase significantly, usage by more deer, woodstork, bobcat, and wading birds.

Wetland Canopy (O/S)

Cypress will be in a healthier state after removal of Malaleuca.

Wetland Ground Cover (GC)

Normal fern and graminoid populations will recruit from adjacent areas in more open areas and under healthier conditions.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase significantly with creation of critical project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.94

Field Notes: **26 17.717 N** **81 04.901 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress and hardwoods with no exotics with healthy shrub layer.

Wetland Ground Cover (GC)

Ferns, graminoids, and herbadeous layer normal for cypress head.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected with creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0
		TOTAL	3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0
		LU Total	3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0
		PT Total	3.0

WRAP Score
0.97

Field Notes: **26 17.717 N** **81 04.901 W** **Native Area**

Wildlife Utilization (WU)

Will increase significantly, usage by more deer, woodstork, bobcat, macro invertebrates and wading birds.

Wetland Canopy (O/S)

Cypress and hardwoods with no exotics with healthy shrub layer.

Wetland Ground Cover (GC)

Ferns, graminoids, and herbadeous layer normal for cypress head.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase significantly with creation of critical project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	1.5	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score: 0.80

Field Notes: **26 17.78 N** **81 05.09 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress and a few shrubs, Melaleuca common to abundant.

Wetland Ground Cover (GC)

Ferns, graminoids and herbs normal.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area severely affected by Melaleuca and nearby canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	2.5	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score: 0.94

Field Notes: **26 17.78 N** **81 05.09 W** **Native Area**

Wildlife Utilization (WU)

Will increase significantly, usage by more deer, woodstork, bobcat, macro invertebrates and wading birds.

Wetland Canopy (O/S)

Cypress and a few shrubs. After removal of Melaleuca, area will be able to recruit cypress.

Wetland Ground Cover (GC)

Ferns, graminoids and herbs normal, will increase with removal of Melaleuca.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase significantly with creation of critical project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
1.5	0.5	2.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score: 0.67

Field Notes: **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress and shrubs with dense Melaleuca.

Wetland Ground Cover (GC)

Ferns and graminoids reduced by shading.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	2.5	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score

0.89

Field Notes: **Native Area**

Wildlife Utilization (WU)

Increase will occur as Melaleuca is removed, and habitat becomes suitable. Recruitment of wading birds, deer and macroinvertebrates will occur.

Wetland Canopy (O/S)

Cypress will increase through natural recruitment after removal of Melaleuca.

Wetland Ground Cover (GC)

Ferns and graminoids will increase after removal of Melaleuca.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase significantly with creation of critical project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	1.5	2.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score: 0.78

Field Notes: **26 27.46 N** **80 99.805 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress with a heavy invasion of Melaleuca.

Wetland Ground Cover (GC)

Graminoids and herb layer present, but reduced due to shading.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions ☑** (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Mamie Billie, Russ Danser & Martin Roessler	Cypress

Land Use: Native

FLUCCS Code: 621 Cypress

Wetland Acreage:

Wildlife Utilization (WU): 2.5

Wetland Canopy (O/S): 2.5

Wetland Groundcover (GC): 2.5

Field Hydrology (HYD): 2.5

WQ Input & Treatment (WQ)*: 3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL: 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total: 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total: 3.0

WRAP Score: 0.89

Field Notes: **26 27.46 N** **80 99.805 W** **Native Area**

Wildlife Utilization (WU)

Will increase significantly, usage by more deer, woodstork, bobcat, macro invertebrates and wading birds.

Wetland Canopy (O/S)

Cypress will increase after removal of Melaleuca.

Wetland Ground Cover (GC)

Graminoids and herb layer present but, will increase after removal of Melaleuca.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area will increase after creation of Critical Project.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	2.5	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.89

Field Notes: **26 27.420 N** **80 99.816 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Cypress with few Melaleuca.

Wetland Ground Cover (GC)

Herbaceous growth normal, with ferns and graminoids.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions ☑** (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Native	621	Cypress	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
3.0	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.00	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score

0.89

Field Notes: **26 27.420 N** **80 99.816 W** **Native Area**

Wildlife Utilization (WU)

Increase will occur as Melaleuca is removed, and habitat becomes suitable. Recruitment of wading birds, deer and macro invertebrates will occur.

Wetland Canopy (O/S)

Cypress canopy will increase after removal of Melaleuca.

Wetland Ground Cover (GC)

Herbaceous growth normal, with ferns and graminoids.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Most of this area will have increased sheet flow and re-hydration due to output from Critical Project water discharge.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Natural	621	Cypress	37.38

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.0	0.0	0.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
1.5	1.75

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Canal	1.0	0.50	0.50
Native	2.5	0.50	1.25

TOTAL 1.75

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural/open space	2.5	0.50	1.25
Low volume highway	2.0	0.50	1.00

LU Total 2.25

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	2.5	0.5	1.25
Berm Road	0.0	0.5	0.0

PT Total 1.25

WRAP Score

0.39

Field Notes: **26 17.302 N** **80 58.308W** **Hunting Adventures**

Wildlife Utilization (WU)

No tracks or indications of larger mammals. No indication of avifauna usage. Panther reports show telemetry of panther in area, not specifically within polygon.

Wetland Canopy (O/S)

Severely disturbed site with high Melaleuca growth, almost a monoculture. No cypress seedlings.

Wetland Ground Cover (GC)

Non-existent, with one blechnum found.

Habitat Support / Buffer

Adjacent habitat is enclosed within Hunting Adventures, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Severe dry out from Melaleuca and adjacent canal system.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions ☑** (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Cypress

Land Use	FLUCCS Code		Wetland Acreage
Natural	621	Cypress	37.38

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	2.0	2.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
1.5	1.75

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Canal	1.0	0.50	0.50
Native	2.5	0.50	1.25

TOTAL 1.75

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural/open space	2.5	0.50	1.25
Low volume highway	2.0	0.50	1.00

LU Total 2.25

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	2.5	0.5	1.25
Berm Road	0.0	0.5	0.0

PT Total 1.25

WRAP Score 0.64

Field Notes: **26 17.302 N** **80 58.308W** **Hunting Adventures**

Wildlife Utilization (WU)

Wildlife usage predicted to increase to normal levels. For example, after wetland enhancement, increased wading bird, deer, and panther usage.

Wetland Canopy (O/S)

Although low natural recruitment of cypress expected due to low hydrology and subsided soil; with planting of seedlings and monitoring of area, a good increase of establishment can be reached.

Wetland Ground Cover (GC)

Should increase significantly with natural recruitment from adjacent wetlands available.

Habitat Support / Buffer

Adjacent habitat is enclosed within Hunting Adventures, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Severe dry out from Melaleuca and adjacent canal system. If Melaleuca removed, some hydrology should be improved.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Wetland Forested Mix

Land Use	FLUCCS Code		Wetland Acreage
Native	630	Wetland Forested Mix	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	3.0	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals	
Natural undeveloped area	3.0	1.0	3.0	
				TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0
		LU Total	3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0
		PT Total	3.0

WRAP Score: 0.91

Field Notes: **26 27.496 N** **80 99.795 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Pine, oak, cypress and many shrubs.

Wetland Ground Cover (GC)

Good graminoid and herb layer.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions ☑** (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/14/04	Marnie Billie, Russ Danser & Martin Roessler	Wetland Forested Mix

Land Use	FLUCCS Code		Wetland Acreage
Native	630	Wetland Forested Mix	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
3.0	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score: 0.97

Field Notes: **26 27.496 N** **80 99.795 W** **Native Area**

Wildlife Utilization (WU)

Wildlife utilization, i.e. Macro invertebrates, will increase significantly with increased sheet flow.

Wetland Canopy (O/S)

Pine, oak, cypress and many shrubs.

Wetland Ground Cover (GC)

Good graminoid and herb layer.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Most of this area will have increased sheet flow and re-hydration due to output from Critical Project water discharge.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wetland Forest Mix

Land Use	FLUCCS Code		Wetland Acreage
Native	630	Wetland Forest Mix	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	2.81

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Low volume road	2.5	0.25	0.63

TOTAL 2.88

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	1.0
Low volume road	2.0	0.25	0.50

LU Total 2.75

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Berm	2.5	0.25	0.63

PT Total 2.88

WRAP Score 0.93

Field Notes: **26 17.68 N** **81 02.04 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

Mixture of laurel oak, popash, and shrubs with some cypress and cabbage palm.

Wetland Ground Cover (GC)

Ferns, herbs, and graminoids normal, but shaded by canopy.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Water to area affected after creation of north and west feeder canals.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wetland Forest Mix

Land Use	FLUCCS Code		Wetland Acreage
Native	630	Wetland Forest Mix	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	3.0	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	2.81

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Low volume road	2.5	0.25	0.63

TOTAL 2.88

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	1.0
Low volume road	2.0	0.25	0.50

LU Total 2.75

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Berm	2.5	0.25	0.63

PT Total 2.88

WRAP Score

0.96

Field Notes: **26 17.68 N** **81 02.04 W** **Native Area**

Wildlife Utilization (WU)

Wildlife utilization, i.e. macro invertebrates, will increase significantly with increased sheet flow.

Wetland Canopy (O/S)

Mixture of laurel oak, popash, and shrubs with some cypress and cabbage palm.

Wetland Ground Cover (GC)

Ferns, herbs, and graminoids normal, but shaded by canopy.

Habitat Support / Buffer

Habitat support buffer is undisturbed native area, creating congruent habitat.

Field Hydrology (HYD)

Most of this area will have increased sheet flow and re-hydration due to output from Critical Project water discharge.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Mixed Swamp

Land Use	FLUCCS Code		Wetland Acreage
Low Intensity Commercial	630	Mixed Swamp	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.0	0.0	1.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	2.06

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Mixed swamp (630)	2.0	0.50	1.00
Moderately used road	0	0.25	0.0
Highly disturbed pasture	0	0.25	0.0

TOTAL 1.00

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Mixed swamp (630)	2.0	0.50	1.00
Moderately used road	2.0	0.25	0.50
Highly disturbed pasture	2.5	0.25	0.625

LU Total 2.13

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.50	1.50
Berm	1.0	0.50	0.50

PT Total 2.00

WRAP Score 0.45

Field Notes: **26 19.569 N** **81 03.442 W** **Swamp Safari**

Wildlife Utilization (WU)

Macro inverts (dragonflies) and caracara.

Wetland Canopy (O/S)

Greater than 75% Melaleuca,.

Wetland Ground Cover (GC)

Coreopsis, dog fennel, next to Melaleuca site, although low groundcover in oak/Melaleuca polygon.

Habitat Support / Buffer

Adjacent habitat is enclosed within Swamp Safari, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system. On site pumps & drainage areas, has remenant wetland areas, but indications of drydown.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input.

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☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Mixed Swamp

Land Use	FLUCCS Code		Wetland Acreage
Low Intensity Commercial	630	Mixed Swamp	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.0	2.0	2.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	2.06

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Mixed swamp (630)	2.0	0.50	1.00
Moderately used road	0	0.25	0.0
Highly disturbed pasture	0	0.25	0.0

TOTAL 1.00

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Mixed swamp (630)	2.0	0.50	1.00
Moderately used road	2.0	0.25	0.50
Highly disturbed pasture	2.5	0.25	0.63

LU Total 2.13

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.50	1.50
Berm	1.00	0.50	0.50

PT Total 2.00

WRAP Score 0.61

Field Notes: **26 19.569 N** **81 03.442 W** **Swamp Safari**

Wildlife Utilization (WU)

Macro inverts (dragonflies) and caracara---will get more wading bird species, adjacent to rookery.

Wetland Canopy (O/S)

Once Melaleuca removed, area has natural recruitment for oak.

Wetland Ground Cover (GC)

Coryopsis, dog fennel, next to Melaleuca site, ground cover will recover from adjacent natural recruitment.

Habitat Support / Buffer

Adjacent habitat is enclosed within Swamp Safari, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system. On site pumps & drainage areas, has remnant wetland areas, but indications of dry down.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Marnie Billie, Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	N/A	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	1.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	2.5	1.0	3.0

PT Total 3.0

WRAP Score

0.97

Field Notes: **26 16.18 N** **81 01.55 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

N/A-although a few shrub and seedling pine present.

Wetland Ground Cover (GC)

Excellent graminoid and herb cover, Dog fennel, spermacocea, rhyncospora, juncus, coreopsis, pluchea, thistle and xyris.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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☑ Check One

Existing Conditions ☐ **Proposed Conditions ☑** (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Marnie Billie, Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	N/A	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	1.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	2.5	1.0	3.0

PT Total 3.0

WRAP Score

0.97

Field Notes: **26 16.18 N** **81 01.55 W** **Native Area**

Wildlife Utilization (WU)

Macro Invertebrates.

Wetland Canopy (O/S)

N/A.

Wetland Ground Cover (GC)

Excellent graminoid and herb cover---dog fennel, spermacocea, rhyncospora, juncus, coreopsis, pluchea, thistle and xyris.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system, improvement in wetland groundcover will occur as water is reintroduced to area.

WQ Input & Treatment (WQ)

Water passes through adjacent natural areas before reaching this area, creating a buffer for water treatment.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	N/A	1.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.86

Field Notes: **26 17.78 N** **81 05.09 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

N/A.

Wetland Ground Cover (GC)

Dog fennel, spermacocea, rhyncospora, juncus, coreopsis, pluchea, thistle and xyris.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Native area acts a buffer for water treatment/input.

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Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	N/A	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	3.0

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

LU Total 3.0

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.0	3.0

PT Total 3.0

WRAP Score 0.93

Field Notes: **26 17.78 N** **81 05.09 W** **Native Area**

Wildlife Utilization (WU)

Will increase with recruitment of hawks, wading birds, marsh rabbit and etc.

Wetland Canopy (O/S)

N/A.

Wetland Ground Cover (GC)

Dog fennel, spermacocea, rhyncospora, juncus, coreopsis, pluchea, thistle, and xyris.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

When ditch/canal system water held back, would introduce sheet flow to area.

WQ Input & Treatment (WQ)

Native area acts a buffer for water treatment/input.

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Date: 3/5/2015
Drawing
Attachment 4 of 10

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	N/A	1.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	2.63

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Low volume road	2.5	0.25	0.63

TOTAL 2.88

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.25	0.75
Low volume road	2.0	0.25	0.50
Low density residential	2.0	0.25	0.50
Unimproved pasture	2.5	0.25	0.63

LU Total 2.38

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Road	2.5	0.25	0.63

PT Total 2.88

WRAP Score 0.77

Field Notes: **26 17.78 N** **81 05.40 W** **Native Area**

Wildlife Utilization (WU)

None observed.

Wetland Canopy (O/S)

N/A---although Melaleuca invading area.

Wetland Ground Cover (GC)

Low due to Melaleuca seedling, herbacreous and graminoid layer normal.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected.

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Wetland Rapid Assessment Procedure

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Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	4/15/04	Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Native	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
3.0	N/A	3.0

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.5	2.63

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Low volume road	2.5	0.25	0.63
		TOTAL	2.88

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.25	0.75
Low volume road	2.0	0.25	0.50
Low density residential	2.0	0.25	0.50
Unimproved pasture	2.5	0.25	0.63
		LU Total	2.38

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	0.75	2.25
Road	2.5	0.25	0.63
		PT Total	2.88

WRAP Score: 0.93

Field Notes: **26 17.78 N** **81 05.40 W** **Native Area**

Wildlife Utilization (WU)

Will increase with removal of Melaleuca from area.

Wetland Canopy (O/S)

N/A.

Wetland Ground Cover (GC)

After Melaleuca removal, increase in native herbaceous and graminoid layer.

Habitat Support / Buffer

Adjacent habitat contains native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected, unless canal system blocked to increase sheet flow to area.

Wetland Rapid Assessment Procedure

☑ Check One

Existing Conditions ☑ Proposed Conditions ☐ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Unimproved Pasture	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	N/A	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	2.63

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Native	3.0	1.00	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Low intensity highway	2.0	0.50	1.00
Unimproved pasture	2.5	0.50	1.25

LU Total 2.25

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.00	3.0

PT Total 3.00

WRAP Score

0.84

Field Notes: **26 19.544 N** **81 02.989W** **Swamp Safari**

Wildlife Utilization (WU)

Macro inverts and caracara.

Wetland Canopy (O/S)

Less than 20% shrub/oak species.

Wetland Ground Cover (GC)

Ground cover exhibits herbaceous, but falls between 10% - 20% undesirable species indicative of hydrological impact.

Habitat Support / Buffer

Adjacent habitat is enclosed within Swamp Safari, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected.

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Wetland Rapid Assessment Procedure

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Existing Conditions ☐ **Proposed Conditions** ☑ (WRAP)

Application Number	Project Name	Date	Evaluator	Wetland Type
	Wetland Enhancement Area	5/6/04	Marnie Billie, Russ Danser & Martin Roessler	Wet Prairie

Land Use	FLUCCS Code		Wetland Acreage
Unimproved Pasture	643	Wet Prairie	

Wildlife Utilization (WU)	Wetland Canopy (O/S)	Wetland Groundcover (GC)
2.5	N/A	2.5

Field Hydrology (HYD)	WQ Input & Treatment (WQ)*
2.0	2.63

Habitat Support / Buffer

Buffer type	(Score) X	(% of area)	=Sub Totals
Native	3.0	1.00	3.0

TOTAL 3.0

* The value of WQ is obtained by adding the TOTAL scores of Land use Category and Pretreatment Category then by dividing by 2

Land Use Category (LU)

Land Use Category	(Score) X	(% of area)	=Sub Totals
Low intensity highway	2.0	0.50	1.00
Unimproved pasture	2.5	0.50	1.25

LU Total 2.25

Pretreatment Category (PT)

Pretreatment Category	(Score) X	(% of area)	=Sub Totals
Natural undeveloped area	3.0	1.00	3.0

PT Total 3.00

WRAP Score

0.84

Field Notes: **26 19.544 N** **81 02.989W** **Swamp Safari**

Wildlife Utilization (WU)

Macro inverts and caracara.

Wetland Canopy (O/S)

Less than 20% shrub/oak species.

Wetland Ground Cover (GC)

Ground cover exhibits herbaceous, but falls between 10% - 20% undesirable species indicative of hydrological impact.

Habitat Support / Buffer

Adjacent habitat is enclosed within Swamp Safari, with low volume access road to remote areas. Adjacent habitat contains non-native vegetative and mammalian species.

Field Hydrology (HYD)

Dry out from adjacent canal system.

WQ Input & Treatment (WQ)

Natural rainfall will account for most hydrological input. Low volume sheet flow suspected.