

**MARTIN COUNTY, FLORIDA**

**PRESERVE AREA MANAGEMENT PLAN**

**For:**

**McArthur West Golf Course**

**Gomez Grant, Township 39S, Range 42E**

**Prepared by:**

**EW Consultants, Inc.**

**Approved by/Date: \_\_\_\_\_**

**A Preserve Area Management Plan (PAMP) is required of all applicants for development approval on sites which contain wetland or upland preserve areas, pursuant to provisions of Section 4.36.A.1 of the Martin County Land Development Regulations, Martin County Code.**

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## **1.0 GENERAL**

The owner of the lands to be preserved and maintained by this Preserve Area Management Plan (PAMP) and the developer of the McArthur West Golf Course successors and assigns, and their environmental consultants and contractors, will implement and comply with all portions of this PAMP.

Compliance with the terms of this PAMP includes submittal of all Monthly Monitoring Reports on PAMP compliance throughout all phases of project construction and submittal of all Annual Monitoring Reports following completion of project construction, pursuant to Section 10.17 of the Martin County Land Development Regulations. The owner of the lands to be preserved/maintained shall have ultimate responsibility for the submittal of all Monthly and Annual Monitoring Reports, according to the format and schedule requirements of Section 10 of this PAMP.

As noted in Section 9 of this PAMP, the Martin County Environmental Planning Administrator shall be notified in writing within thirty (30) days of transfer of ownership of any lands to be preserved/maintained under the terms of this PAMP. Failure to notify shall be considered as non-compliance with the terms of this PAMP

This PAMP will not be altered or amended by either Martin County or the owner/developer of the McArthur West Golf Course, except by an alteration or amendment agreed to by both the Martin County Environmental Planning Administrator and the owner/developer of the McArthur West Golf Course. Such alterations and amendments shall be inserted into the PAMP and the final revised document shall be recorded by the Martin County Clerk of Courts. The revised PAMP will be labeled with the appropriate O.R. Book and Page Number. Three copies of the revised document shall be provided to the Martin County Environmental Planning Administrator within thirty (30) days of the Recording date.

## **2.0 ENVIRONMENTAL ASSESSMENT**

The Environmental Assessment (EA) includes maps and text which accurately depict the site's location, soils, uplands, listed species, previous impacts, preserve area locations and boundaries, and any other significant natural resource features. It is attached to this Preserve Area Management Plan.

**2.1 Location** – A location map is included in the EA.

**2.2 Soils** – Soil types on the property were classified using a Soils Survey of Martin County Area, Florida and a copy of the appropriate map is included as an attachment. Please refer to the attached Environmental Assessment for a detailed description of soils present on the property.

**2.3 Habitats** – Vegetative community classifications were mapped based on the Florida Land Use Cover and Forms Classifications System (FLUCCS), and the Florida Natural Areas Inventory (FNAI). Field reconnaissance and aerial photograph interpretation were employed in the mapping effort of the vegetative communities on the subject property.

Please refer to the attached Environmental Assessment for a detailed description of the habitats present on the property.

## **2.4 Listed Species Evaluation**

Please refer to the attached Environmental Assessment and associated attachments and tables for a description of the listed species evaluation for this property.

## **2.5 Previous Impacts**

Please refer to the attached Environmental Assessment for a detailed description of the existing land covers and previous impacts.

## **2.6 Agency Correspondence**

A database search of the Florida Fish and Wildlife Conservation Commission's online resources has been made for the project site. The findings are included in the attached Environmental Assessment.

An updated wetland jurisdictional determination (JD) has been performed by the SFWMD for the project site and is included in the Environmental Assessment.

## **3.0 IDENTIFICATION OF PRESERVE AREAS**

**3.1 Site Plan - All Preserve Areas, right-of-ways and easements are shown on the McArthur West Golf Course Site Plan, a copy of which is included in this PAMP. The Site Plan will contain the notation: "PRESERVE AREAS ARE NOT TO BE ALTERED WITHOUT WRITTEN PERMISSION OF THE MARTIN COUNTY BOARD OF COUNTY COMMISSIONERS."**

**3.2 Legal Recording - The final the McArthur West Golf Course Site Plan will be recorded with the PAMP by the Martin County Clerk of Courts. The Site Plan and the PAMP will be labeled with the appropriate O.R. Book and Page Number and copies of each recorded document will be provided to the Martin County Environmental Planning Administrator within thirty (30) days of the Recording date.**

## **4.0 SURVEYING, MARKING AND BARRICADING REQUIREMENTS**

All Preserve Areas shown on the Site Plan for the McArthur West Golf Course will be surveyed and marked in the field with appropriate survey markers and signage. During the clearing and construction phases of the project, Preserve Area boundaries will be marked by physical barriers. No plant material will be removed from the Preserve Areas to facilitate surveying, fencing or soil boring/sampling without prior permission from the Martin County Environmental Planning Administrator.

**4.1 Preserve Area Surveying Requirements – Each Preserve Area will be surveyed and marked with permanent monuments at each corner and at other sites necessary for locating the boundary of the Preserve Area. These permanent monuments will be constructed under the supervision of a Registered Land Surveyor and will be shown on the Site Plan. Map coordinates of each Preserve Area will be provided to the Martin County Environmental Planning Administrator, in a form compatible for use in the County's GIS mapping system.**

**4.2 Preserve Area Boundary Markers and Signs - Preserve Areas will be posted with permanent signs and boundary markers. Boundary Markers will be placed at the corners of residential**

lots abutting Preserve Areas. Signs will be at least 11 x 14 inches in size and will be posted in conspicuous locations along the Preserve Area boundary, at a frequency of no less than one (1) sign per 500 feet. All boundary markers and signs will be approved by the Martin County Environmental Planning Administrator and they will be in place prior to issuance of a building permit for construction on the site. NOTE: Preserve area signs will be inspected during the summer months on an annual basis in order to ensure that they remain in good condition. Should any of the required signage be destroyed or damaged, they will be replaced in that same calendar year in which the inspection takes place.

- 4.3 Barricading Requirements** - Prior to clearing, the developer will ensure that all Preserve Areas are protected with physical barriers during all clearing and construction activities in accordance with the following guidelines. Barricades will be inspected by County Environmental Division staff prior to work approval. Removal of the barricade materials will be done upon issuance of the final Certificate of Occupancy with authorization from appropriate County staff.

Barricades (not including turbidity screens) will be high-visibility orange safety fence extending from the ground to a height of at least 4 feet. Barricades will not be attached to vegetation.

All barricades and turbidity screens will be upright and maintained intact for the duration of construction.

Where areas are proposed for clearing (i.e. building envelope, utilities, drainage, road right-of-way, etc.) the bright orange barricades and silt fences will be offset at least 5 feet outside the Preserve Area or placed at the dripline of the canopy trees, whichever is greater.

All native vegetation not slated for removal as part of the development plans will be retained in their undisturbed state and will be barricaded at or outside the dripline of the trees.

Cut or fill will meet existing grade without encroaching into Preserve Areas.

It is the responsibility of the owner and developer of the McArthur West Golf Course to inform all contractors of these Marking and Barricading Requirements. Failure to comply with these Marking and Barricading Requirements will be considered a violation of the Site Plan approval. Further work on the project may be stopped until compliance with the Marking and Barricading Requirements is achieved, and the owner or developer may be required to appear before the Code Enforcement Board.

## **5.0 USE OF PRESERVE AREAS**

- 5.1 Activities Allowed in Preserve Areas** – Activities allowed in preserve areas are bird watching and nature enjoyment, as well as limited access for golf cart paths as shown on the site plan. In addition, there is a north-to-south drainage easement within the central portion of the wetland slough on-site (Wetlands T and U). Should it become necessary in the future to maintain or improve drainage conditions upstream (north), this easement may be cleaned of vegetation in order to facilitate improved flows within the slough.

- 5.2 Activities Prohibited In Preserve Areas** - Activities prohibited in Preserve Areas or easements within Preserve Areas include, but are not limited to: construction or placing of

building materials on or above the ground (other than for golf cart paths); dumping or placing soil or other substances such as garbage, trash, and cuttings; removal or destruction of native trees, shrubs or other native vegetation excavation, dredging or removal of soil materials unless associated with the drainage easement referenced in Section 5.1 above; diking or fencing; vehicular traffic including use by non-motorized vehicles, recreational vehicles and off-road vehicles except for work within the drainage easement; permanent irrigation; trimming (other than for line-of-sight for golf play as shown on the site plan and described below), pruning, or fertilization; and any other activities detrimental to drainage, flood control, water conservation, erosion control or fish and wildlife conservation and preservation.

#### **“Line-of-Sight” Areas –**

The site plan associated with the McArthur West Golf Course shows areas within the preserves in which vegetation will be selectively cut and/or trimmed for “line-of-sight” allowing for the flight of the golf ball over the retained native vegetation. Such areas will be managed identically to all other preserve areas on-site, less the vegetation cutting and trimming activity. All line-of-sight areas as shown on the accompanying site plan will be kept free of exotic and nuisance vegetation in perpetuity in accordance with this PAMP. There will be no dredging, filling, or fencing within these areas, nor will cut/trimmed vegetation or any other debris remain within any of the line-of-sight areas. It is anticipated that canopy trees within such areas will be flush-cut and removed, and native understory bushes will be cut and maintained to a height of approximately 3-feet above natural grade. Native groundcover will remain undisturbed. Any exotic vegetation within these areas will be flush-cut and removed, as well. All such cutting and trimming activities will be done by hand-tools; no heavy equipment will be used in the line-of-sight areas. It should be noted that the applicant may seek the assistance of the Florida Forestry Service in potentially conducting controlled burns within line-of-sight areas (as well as other preserve areas on-site) where appropriate prior to or in combination with construction activities.

No hazardous material other than fuel for refueling on-site heavy equipment will be stored during the construction phases. On-site fuel tanks shall not be located within twenty-five (25) feet of any Preserve Areas and shall be removed upon completion of construction work.

Buildings proposed to be located adjacent to Preserve Areas shall be set back a minimum of ten (10) feet to allow for construction and maintenance without encroaching into the Preserve Area. All other structures (e.g. pools, sheds, decks, fences) shall be set back a minimum of five (5) feet from the Preserve Area boundary.

Development activities such as the construction of building pads for associated structures, swales, or culverts for surface water management shall not alter the hydrology of adjacent Preserve Areas other than that described in Section 6.0 below. Nor shall any activities increase non-point source pollution in Preserve Areas.

## **6.0 RESTORATION AND MAINTENANCE ACTIVITIES**

Except for approved restoration and maintenance activities, Preserve Areas will be left undisturbed. All maintenance of Preserve Areas will be in accordance with this PAMP for the McArthur West Golf Course. Maintenance and management activities will be performed by or under the supervision of a qualified environmental professional and must be approved by the Martin County Environmental Planning Administrator. The following restoration and



maintenance activities may be allowed within Preserve Areas with prior written approval from the Environmental Planning Administrator: exotic plant removal, re-vegetation or planting native vegetation, and removal of dead, diseased, or safety hazard plant material.

- 6.1 **Exotic Vegetation Removal** – Exotic vegetation shall be removed from the Preserve Areas by the least ecologically-damaging method available. Such methods include hand pulling, hand spading, cutting with hand or chain saws and in-situ treatment with appropriate herbicides. No debris, including dead plants, plant clippings or wood scraps, shall be allowed in Preserve Areas. In addition, all dead plant material and exotic plant debris removed from Preserve Areas shall be disposed of in a County-approved recycling facility.
- 6.2 **Re-vegetation** - Any re-vegetation which might be necessary as a result of exotic vegetation removal or site construction activities shall consist of native plant species representative of the existing native plant communities on-site. This will ensure that the Preserve Areas maintain indigenous plant associations. **NOTE:** Ditch-fill areas within wetland buffers as shown on the associated site plan and within this PAMP will be planted with native pine flatwood species in accordance with the attached Typical Pine Flatwood Planting Plan. This “typical” will also be used for all the wetland buffer impacts resulting from the installation of required storm water control structures within the wetland areas. In addition, there is a Typical Slough Re-Planting Plan included in this PAMP for the proposed bridge crossing over W-U/W-T. Currently, these two wetlands, which are part of the larger north-to-south forested slough system on-site, are separated by a filled dirt path with a single culvert. This dirt path will be removed and replaced with a bridge spanning the entire width of the wetland slough in the same location as the current path. The area where the path is being removed will be re-graded to match the natural grades within W-U and W-T, and will be re-planted in accordance with the attached Typical Slough Re-Planting Plan graphic.
- 6.3 **Vegetation Removal** - Dead or diseased plant material shall be removed from Preserve Areas upon approval by the Martin County Environmental Planning Administrator. Re-vegetation may be required for any removed plant material. No debris, including dead plants, plant clippings or wood scraps, shall be allowed in Preserve Areas. All dead plant material and debris removed from Preserve Areas shall be disposed of in a County-approved recycling facility.

**“Line-of-Sight” Areas –**

The site plan associated with the McArthur West Golf Course shows areas within the preserves which will be selectively trimmed for “line-of-sight” allowing for the flight of the golf ball over the retained native vegetation. Such areas will be managed identically to all other preserve areas on-site, less the vegetation trimming activity. Such line-of-sight areas will be kept free of exotic and nuisance vegetation in perpetuity in accordance with this PAMP. There will be no dredging, filling, fencing within these areas, nor will cut/trimmed vegetation or any other debris remain within any of the “line-of-sight” areas.

**25-Foot Native Sand/Native Vegetation Areas Adjacent to Golf Course & Wetland Buffers –**

As depicted on the McArthur West Golf Course site plan, there will be areas outside of and adjacent to the wetland buffers which consist of native sands or retained/planted native vegetation. Such areas are 25-feet in width, and will contain either native sands found on-site, or native pine flatwood vegetation typically found on-site. Such vegetation may be retained in-situ, or installed in accordance with an approved planting plan. These areas will NOT contain turf grass, and no herbicides or pesticides will be used other than to control



exotic and nuisance vegetation. As with the “line-of-sight” areas, these 25-foot swaths will be maintained in perpetuity in accordance with this PAMP. Please note that, since these areas may contain open native sandy areas, the vegetative success criteria found in this PAMP does not apply.

**Bridge Crossing over Slough (between W-U and W-T) –**

Also depicted on the McArthur West Golf Course site plan, a bridge will replace the existing dirt path currently crossing the slough at the southern end of the property which divides W-U and W-T. This path will be removed and re-graded in order to match the existing grade of the slough. A re-planting plan for this area, which covers 0.48 acres, is included in this PAMP. It should be noted that several large slash pines are within this restoration area. Care will be taken as to avoid impacts to such trees.

- 6.4 Prescribed Burns - Martin County considers prescribed burns an acceptable habitat management tool. When approved by the Martin County Environmental Planning Administrator, they will be conducted by a certified burn manager who will be responsible for obtaining all appropriate permits from State and local agencies.
- 6.5 Hydrology – Most of the wet prairies and freshwater marshes on-site are in their natural condition with very little man-made impacts to their hydrologic functions. Exceptions include the drainage system in-place surrounding the remnant tomato fields. Such ditches will either be left as-is, partially filled for wetland mitigation as detailed in the attached Environmental Waiver Supplement, or completely filled and restored to pine flatwoods as shown on the site plan and detailed in this PAMP.

Previous or potential drainage impacts will be corrected to the extent technically feasible. Wetlands and waterbodies on adjacent properties shall be protected from adverse impacts, as necessary. NOTE: Wetland V (0.20 acres) will be completely restored along with the associated 50-foot buffer due to historic impacts.

- 6.6 Mitigation Plan – Wetland crossings resulting from golf cart paths will cause shading impacts to wetlands and adjacent buffers in four locations on-site. The Environmental Waiver Supplement is included in this PAMP for reference and specific details on the proposed wetland mitigation.

**7.0 PROTECTIVE MEASURES FOR LISTED SPECIES**

- 7.1 Gopher tortoises have been confirmed on-site. In Florida, gopher tortoises are protected as Threatened. Under Florida law, no person may take, possess, transport or sell a Listed Species. No land clearing or construction shall occur until all tortoises which will be impacted are relocated to upland preservation areas or to off-site receiver areas as permitted by the FFWCC. A gopher tortoise agent registered with the Florida Fish and Wildlife Conservation Commission will supervise clearing in the areas of the gopher tortoise burrows. Tortoises inhabiting burrows in areas to be developed will be captured and relocated following guidelines set forth below. Tortoise burrows may be bucket trapped or excavated using methodology approved by the Florida Fish and Wildlife Conservation Commission and conducted by an authorized gopher tortoise agent possessing a valid relocation permit. During clearing and grubbing operations, equipment operators will be notified of the occurrence of gopher tortoises on-site and instructed to observe for roaming and foraging individuals. Should gopher tortoises be seen during the clearing and grubbing,

all equipment operations will be stopped and the gopher tortoises will be captured and relocated into a Preserve Area of the project away from the immediate clearing activities. Once the tortoise(s) have been safely relocated to a Preserve Area and restrained by tortoise fencing, equipment operation can resume.

7.2 Endemic Species – If necessary, all gopher tortoise relocation efforts will include trapping of protected endemic species that may live in the burrow. These endemic species include but are not limited to the Florida mouse (*Peromyscus floridana*), gopher frog (*Rana aerolata*) and Eastern indigo snake (*Drymarchon corias couperi*).

7.3 Relocation of Tortoises - The Martin County Environmental Planning Administrator will be notified and will be provided with a copy of the Gopher Tortoise Relocation Permit from the Florida Fish and Wildlife Conservation Commission. All relocations shall be carried out by a gopher tortoise agent licensed for gopher tortoise relocations. The responsible party shall have access to literature pertaining to gopher tortoise preservation and shall be encouraged to preserve additional areas and to landscape with native vegetation.

## 8.0 MISCELLANEOUS PROVISIONS AND RESTRICTIONS

The project will comply with the Martin County/State of Florida “Firewise” program. Please refer to the site plan for details.

## 9.0 TRANSFER OF RESPONSIBILITIES

The property owner(s) and developers of the McArthur West Golf Course are responsible for implementation of all requirements of this Preserve Area Management Plan until such time as the developer transfers responsibility to the owners or a successor. The Martin County Environmental Planning Administrator will be notified in writing within thirty (30) days of transfer of ownership of any lands to be preserved under this PAMP. Failure to notify will be considered as non-compliance with the terms of this PAMP. At such time as the developer is ready to transfer control of the McArthur West Golf Course to the property owners or another appropriate entity, whether the developer retains ownership of the lots/parcels in the project or not, an environmental professional shall certify, in writing, to the Martin County Environmental Planning Administrator, that the Preserve Areas are in full compliance with this PAMP.

The developer and/or successor will be responsible for maintaining the Preserve Areas in their existing natural condition with the periodic removal of invasive exotic vegetation. After transfer of responsibilities, funding for all maintenance and management programs will be the responsibility of all successors.

## 10.0 MONITORING, REPORTING AND INSPECTIONS

10.1 Monthly Construction Reports – During construction of the McArthur West Golf Course, the developer will be responsible for submitting a monthly report on the progress of the McArthur West Golf Course, which will address all aspects of the site construction relative to the Preserve Areas. Information regarding construction and maintenance of the Preserve Areas, such as placement of barriers and signage, removal of exotic vegetation, re-vegetation, prescribed burns, etc. will be described and supported with photographs, where appropriate.

## **10.2 Annual Monitoring Reports/Hydrobiological Monitoring -**

Based on discussions with Martin County Environmental Division staff, the monitoring program for the wetland preserves on the McArthur West Golf Course project site will be more intense and detailed than typical efforts. Rather than using SFWMD ERP wetland monitoring guidelines, this program will follow the guidelines outlined in the SFWMD Consumptive Use Permitting (CUP) manual which utilizing the Hydrobiological Monitoring protocol. In addition to the standard ERP wetland monitoring (vegetative species and coverage, observed wildlife usage, and standing water levels) the hydrobiological monitoring protocol for CUP's also includes a network of sub-surface automated water level recorders installed in or at the edges of various wetlands within the study area. In the case of the McArthur West Golf Course project, such a network will be designed in consultation with a Professional Geologist (P.G.), and includes both shallow monitoring wells (less than 6 feet below grade), and deep monitoring wells (20 feet below grade). The exact locations of such wells will be determined in consultation with SFWMD and Martin County staff, and will likely include prairie wetlands located in close proximity (within 200 feet) of constructed lakes within the golf course.

Monitoring and reporting will be conducted annually by a qualified environmental professional for a period of five years from the date of completion of the project or project phase encompassing the monitored area. Annual monitoring will be conducted at the end of the wet season (usually by November 30) and a report of the monitoring will be submitted to the Martin County Environmental Planning Administrator within 30 days of the completion of the monitoring.

The Annual Monitoring Reports will document changes in vegetation including encroachment and/or overgrowth of noxious or exotic vegetation. Fixed-point photos of all Preserve Areas will be included in each report. The reports will include recommendations for exotic vegetation removal, re-vegetation, and any additional enhancement activities necessary to maintain the Preserve Area. A timetable for action within 90 days of the report will be prepared and followed.

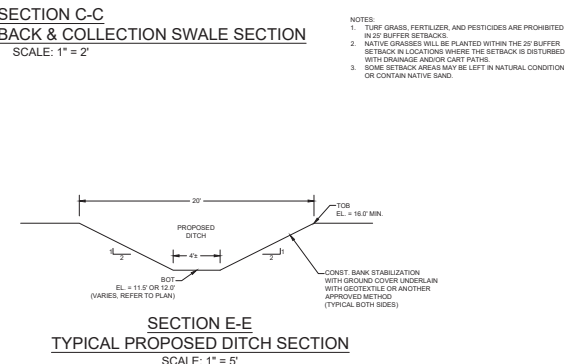
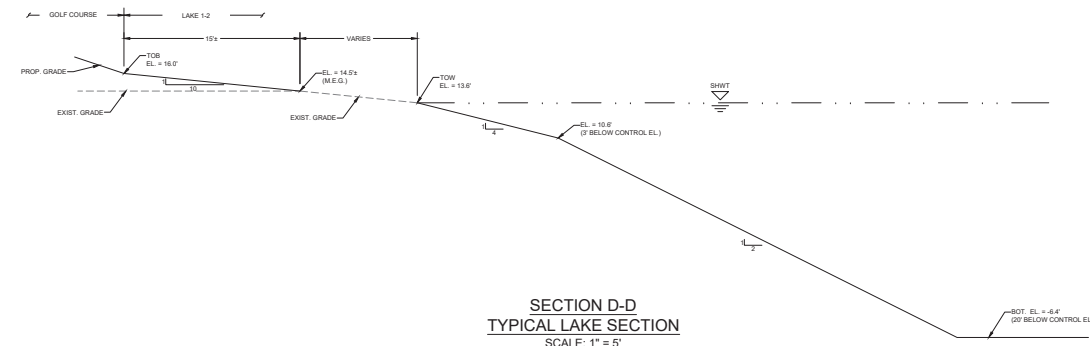
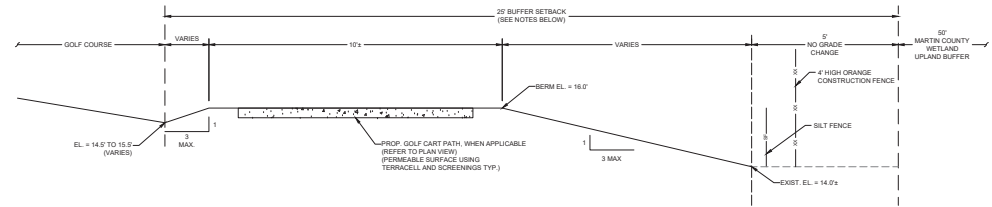
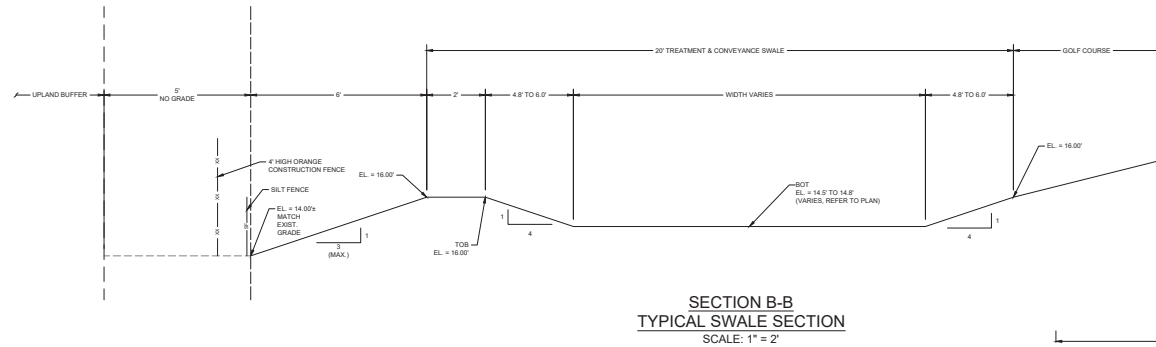
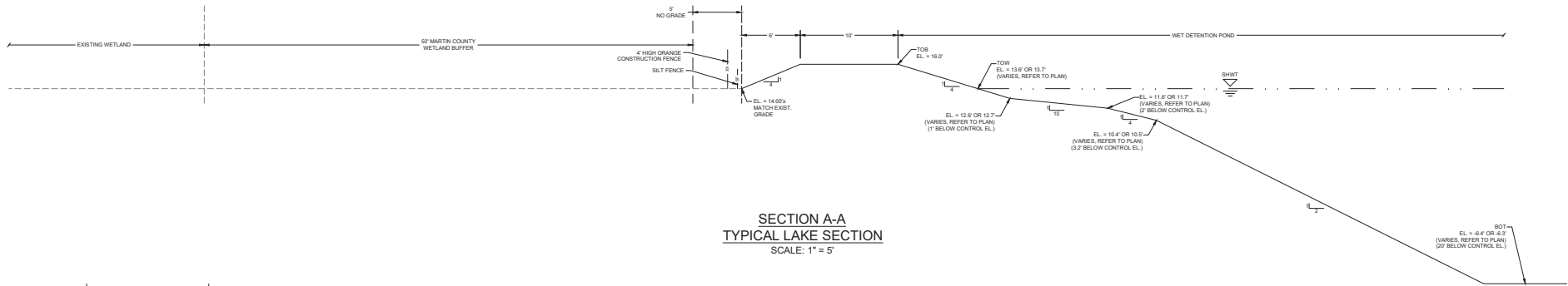
A copy of the proposed Annual Monitoring Report format is attached to this PAMP as an Appendix. This format may be modified separately from the PAMP, as necessary, upon written approval from the Martin County Environmental Planning Administrator.

Upon request, Martin County Environmental Planning staff may meet with the responsible parties to review the annual monitoring report findings and supply technical assistance and support for stewardship. Should the hydrobiological monitoring effort reveal unacceptable trends in surface/groundwater water levels, vegetative coverage, or other abnormalities, corrective actions to remedy these issues will be implemented as recommended in the Conclusion section of the applicable annual monitoring report.

The first Annual Monitoring Report due in compliance with this PAMP will be submitted to the Martin County Environmental Planning Administrator no later than \_\_\_\_\_. Subsequent Annual Monitoring Reports will be due on the same date for the next four years.







- NOTES:
1. TURF GRASS, FERTILIZER, AND PESTICIDES ARE PROHIBITED IN 25' BUFFER SETBACKS.
  2. NATIVE GRASSES WILL BE PLANTED WITHIN THE 25' BUFFER SETBACK IN LOCATIONS WHERE THE SETBACK IS DISTURBED WITH DRAINAGE AND/OR CART PATHS.
  3. SOME SETBACK AREAS MAY BE LEFT IN NATURAL CONDITION OR CONTAIN NATIVE SAND.



THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BOWMAN CONSULTING GROUP, LTD., SHALL BE WITHOUT LIABILITY TO BOWMAN CONSULTING GROUP, LTD.

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**Bowman**  
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STATE OF FLORIDA LICENSE NO. 010751-01-001

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McARTHUR WEST GOLF COURSE  
TYPICAL CROSS SECTIONS  
FLORIDA  
MARTIN COUNTY

PROJECT NO  
010751-01-001

L.B. LEONARD, PE  
FL LICENSE NO. 61737  
PLAN STATUS  
01/13/21 RESUBMITTAL

DATE	DESCRIPTION
AV	DESIGN
GMC	DRAWN
LBL	CHKD

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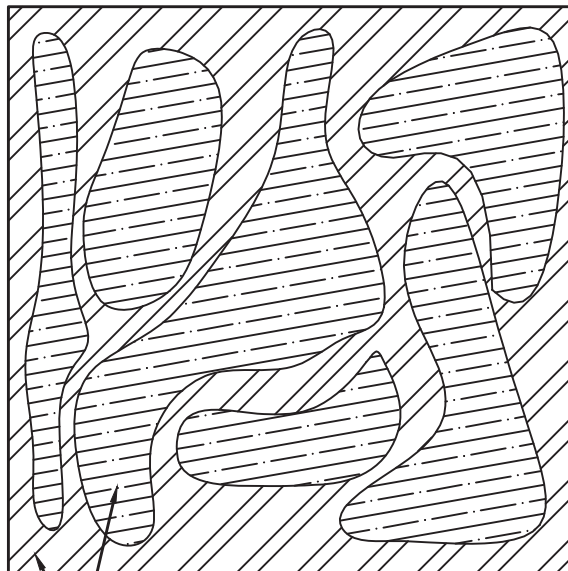
JOB No. 010751-01-001

DATE SEPTEMBER 2020

FILE No. 010751-01-001-P00

**C23**  
SHEET

## TYPICAL WET PRAIRIE PLANTING PLAN



**Groundcover - BR, 2' o.c.**

Tracy's beakrush - *Rhynchospora tracyi*

Blue Flag Iris - *Iris virginica*

Blue Maidencane - *Amphicarpum muhlenbergianum*

Swamp Fern - *Blechnum serrulatum*

QUANTITY OF PLANTS WILL BE DETERMINED BY SIZE OF  
RESTORATION AREA AND SPACING (O.C.) OF SELECTED PLANTS.

REFERENCED SPECIES MAY BE SUBSTITUTED WITH OTHER  
APPROPRIATE NATIVE SPECIES BASED ON AVAILABILITY.

NOTE: PLANTS TO BE INSTALLED AS TO MIMIC NATURAL  
OCCURRENCE.

## MCARTHUR WEST WET PRAIRIE PLANTING PLAN



**EW CONSULTANTS, INC.**

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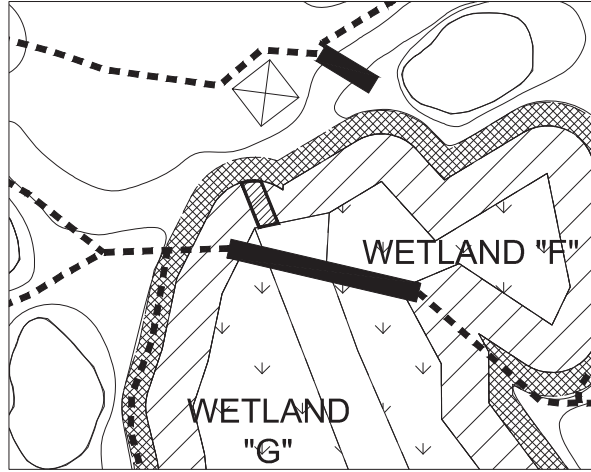
WWW.EWCONSULTANTS.COM

**JAN 2021**

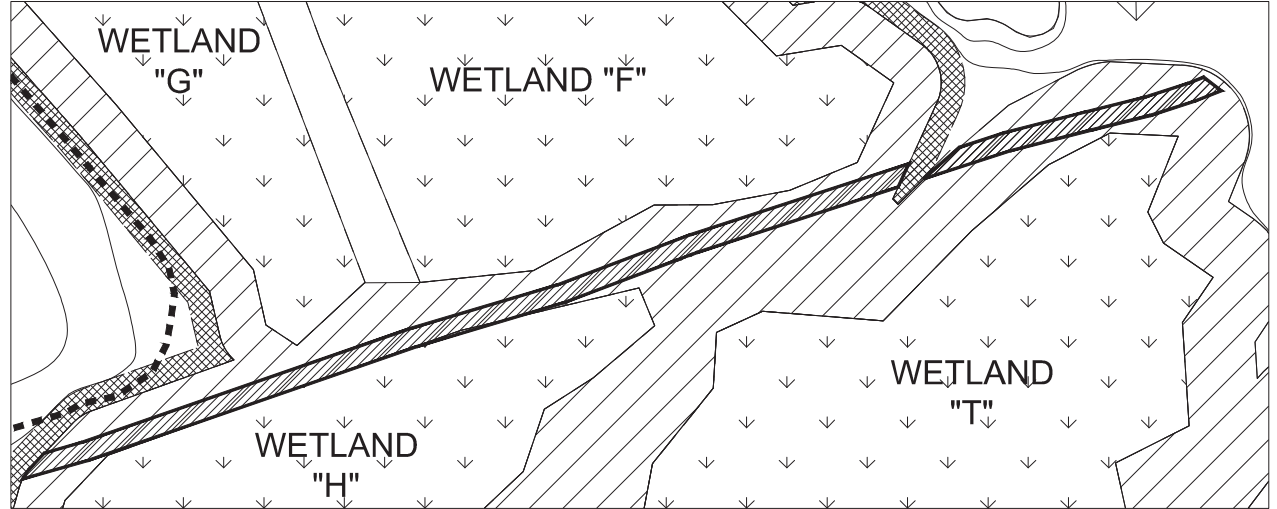
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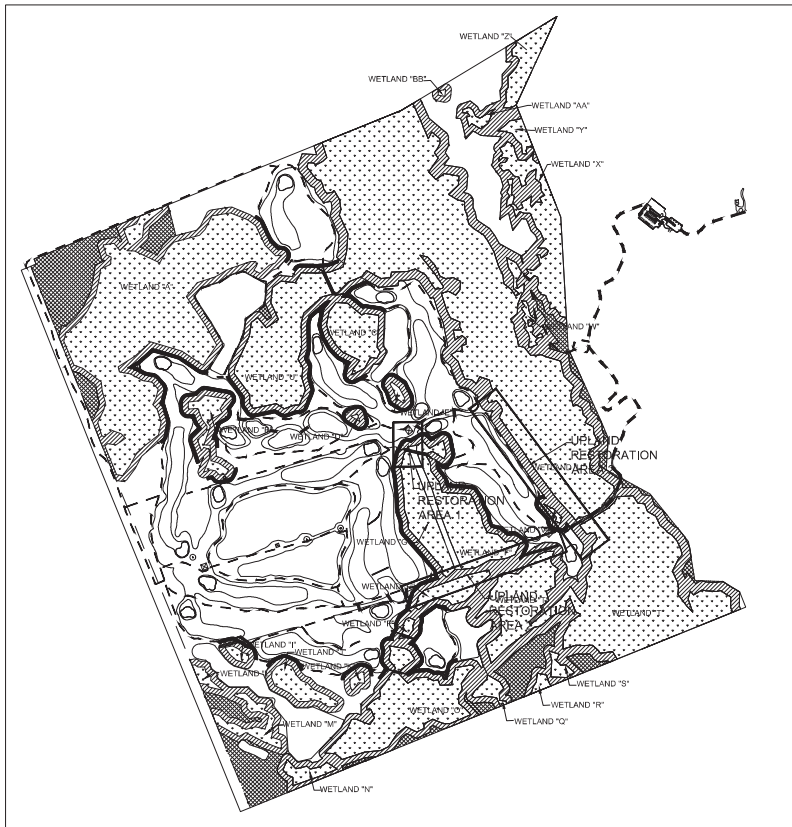
## UPLAND RESTORATION AREA 1 NTS







## UPLAND RESTORATION AREA 2 NTS



## KEY SHEET



## LEGEND

-  - WETLAND PRESERVE
-  - UPLAND BUFFER PRESERVE
-  - UPLAND PRESERVE
-  - UPLAND RESTORATION AREA



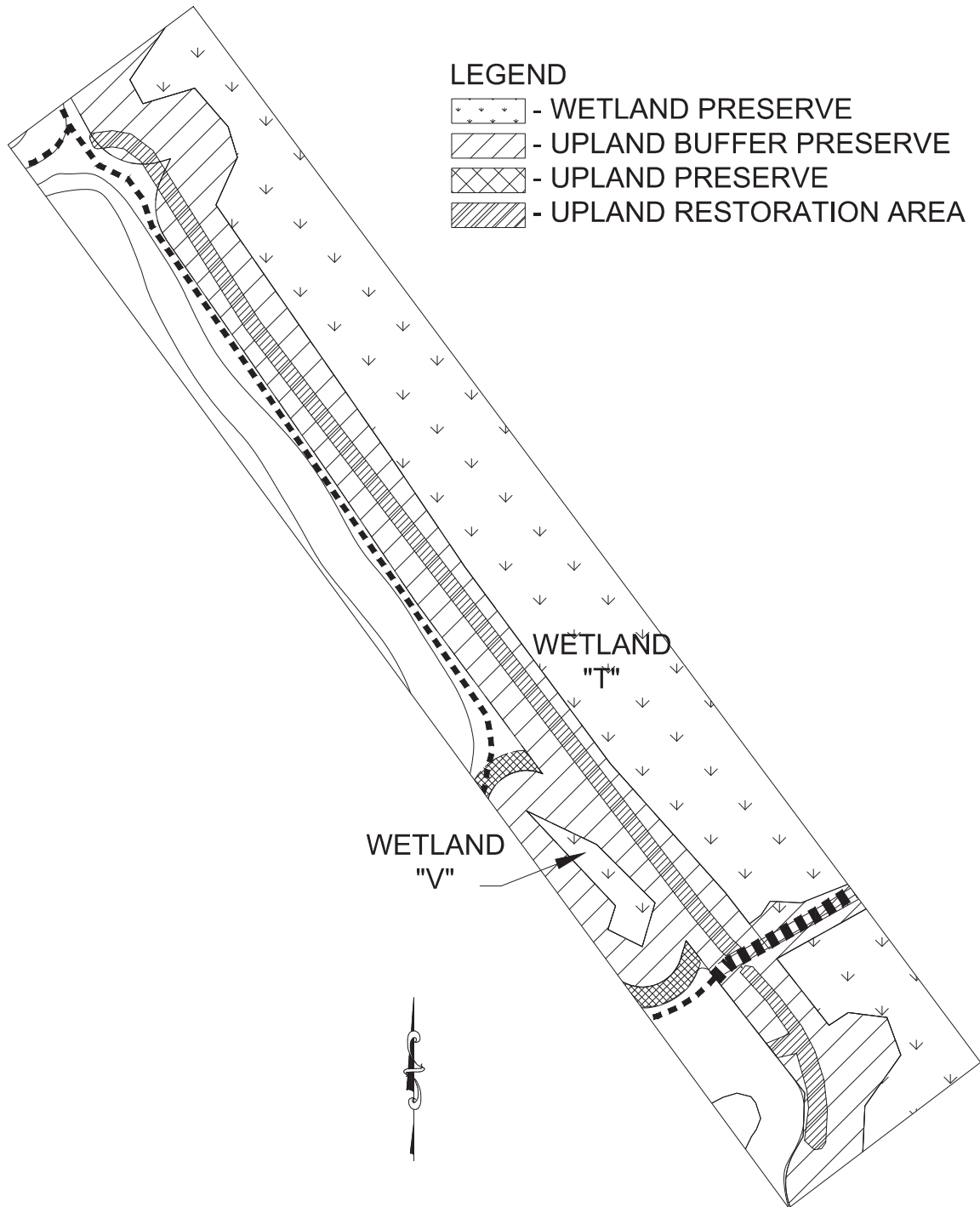
## MCARTHUR WEST UPLAND RESTORATION AREAS



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STUART, FL 34996  
772-287-8771 FAX 772-287-2988  
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JAN 2021  
FIGURE





# **MCARTHUR WEST** **UPLAND RESTORATION AREA**

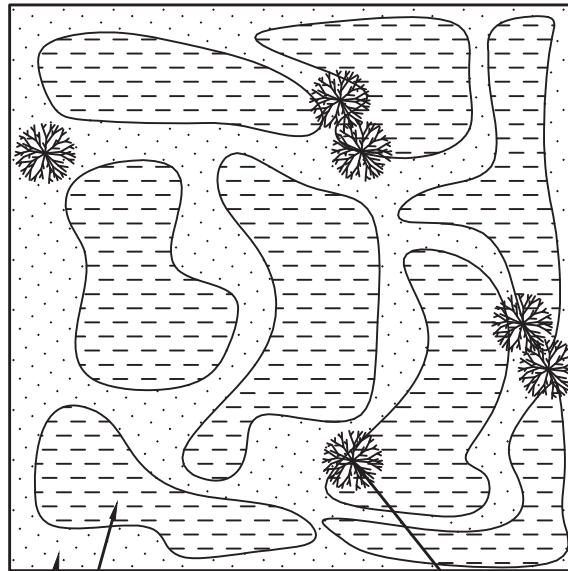
McArthur West.dwg UPLAND REST AREA 3



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**JAN 2021**  
**FIGURE**

# PINE FLATWOODS PLANTING PLAN



Understory - (7' o.c., 1 gal)  
*Serenoa repens* - Saw Palmetto  
*Myrica cerifera* - Wax Myrtle  
*Lyonia spp.* - Fetterbush  
*Ilex glabra* - Gallberry

Trees - (8' min. height)  
*Pinus elliotii* Slash Pine

Groundcover  
*Spartina bakeri* - Sand Cordgrass (4' o.c., gal)  
*Muhlenbergia capilaris* - Muhly Grass (4' o.c., gal)  
*Fakahatchee Floridana spp.* - Dwarf Fakahatchee (4' o.c., quart)

QUANTITY OF PLANTS WILL BE DETERMINED BY SIZE OF RESTORATION AREA AND SPACING (O.C.) OF SELECTED PLANTS.

REFERENCED SPECIES MAY BE SUBSTITUTED WITH OTHER APPROPRIATE NATIVE SPECIES BASED ON AVAILABILITY.

NOTE: PLANTS TO BE INSTALLED AS TO MIMIC NATURAL OCCURRENCE.

## MCARTHUR WEST PINE FLATWOODS PLANTING

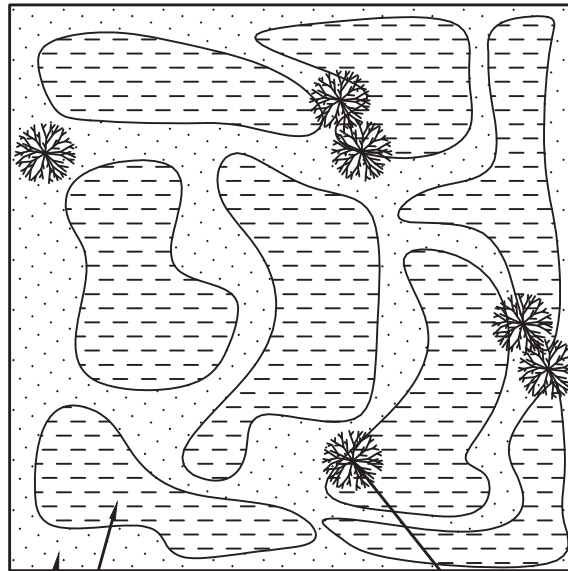


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**JAN 2021**

**FIGURE**

# BUFFER RESTORATION PLANTING PLAN FOR SWM CUTS



Understory - (7' o.c., 1 gal)  
*Serenoa repens* - Saw Palmetto  
*Myrica cerifera* - Wax Myrtle  
*Lyonia spp.* - Fetterbush  
*Ilex glabra* - Gallberry

Trees - (8' min. height)  
*Pinus elliotii* Slash Pine

Groundcover  
*Spartina bakeri* - Sand Cordgrass (4' o.c., gal)  
*Muhlenbergia capilaris* - Muhly Grass (4' o.c., gal)  
*Fakahatchee Floridana spp.* - Dwarf Fakahatchee (4' o.c., quart)

QUANTITY OF PLANTS WILL BE DETERMINED BY SIZE OF RESTORATION AREA AND SPACING (O.C.) OF SELECTED PLANTS.

REFERENCED SPECIES MAY BE SUBSTITUTED WITH OTHER APPROPRIATE NATIVE SPECIES BASED ON AVAILABILITY.

NOTE: PLANTS TO BE INSTALLED AS TO MIMIC NATURAL OCCURRENCE.

## MCARTHUR WEST PINE FLATWOODS PLANTING



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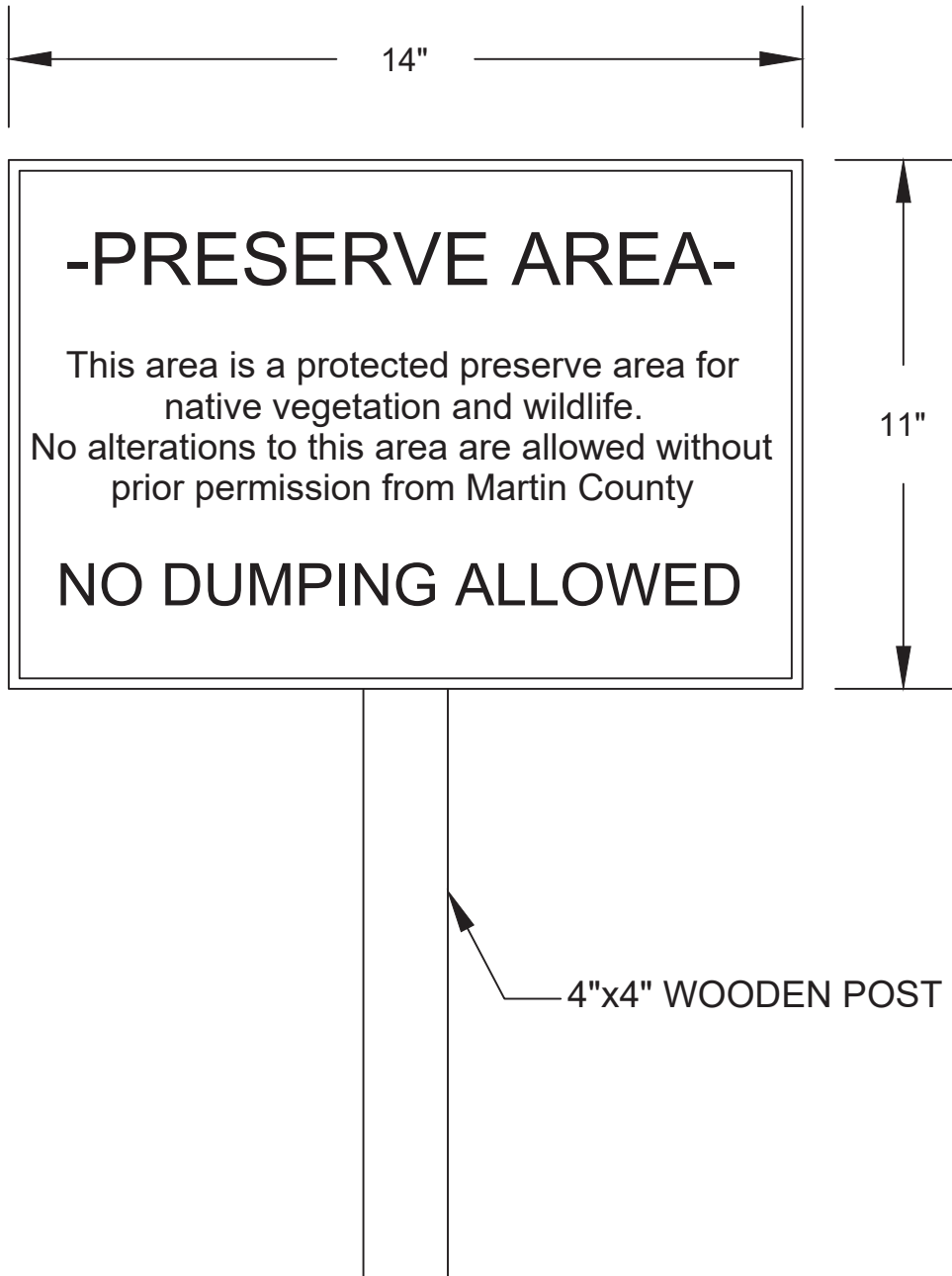
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**FIGURE**





## PRESERVE AREA SIGN

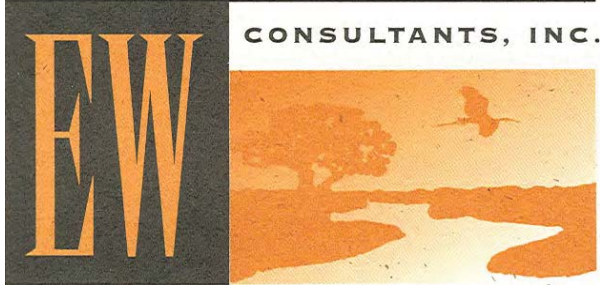


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**OCT 2013**

**FIGURE**

EW Consultants, Inc.  
Natural Resource Management, Wetland, and Environmental Permitting Services



# **ENVIRONMENTAL ASSESSMENT**

## **MCARTHUR WEST GOLF COURSE**

### **MARTIN COUNTY, FLORIDA**

**Prepared for:**

**McArthur Golf Course**

**Prepared by:**

**EW Consultants, Inc.**

**September 2020**

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## **INTRODUCTION -**

The McArthur West Golf Course project site covered by this Environmental Assessment comprises 518.1+/- acres. The site is located west of U.S. 1 and the existing McArthur Golf Course, south of the Poinciana Gardens plat, and north and east of portions of the Atlantic Ridge State Park (see Figure 1 in Appendix A, Location Map). The project site is situated in east-central Martin County, FL, in the Gomez Grant, Township 39S, and Range 42 East (see Figure 2 in Appendix A, USGS Quadrangle Map).

## **GENERAL PROPERTY DESCRIPTION -**

Just slightly less than half of the project site consists of native pine/mesic flatwoods upland habitat. There is a substantial amount of freshwater wetlands on-site, as well, including a large bay slough, wet prairies and marshes. The remaining portions of the site include a fallow tomato field, powerlines, and a small area of exotic vegetation. The property is surrounded by vacant wooded lands to the south, north and west, and the existing McArthur Golf Course to the east (see Figure 3, 2020 Aerial Photograph, in Appendix A for an aerial view of the project site and surroundings).

## **SOILS -**

A soils report for the site generated by the USDA/NRCS is included in Appendix B. The soils in this part of Martin County are generally poorly drained sands and depressional sands.

## **NATURAL COMMUNITIES AND LAND COVERS -**

The following is a summary of the land covers and vegetative communities found on the subject site. Land cover and vegetative community classifications were mapped based on the Florida Land Use, Cover and Forms Classification System (FLUCCS) and Florida Natural Areas Inventory (FNAI). The land cover mapping is based on the vegetative site conditions as of August 2020. Please refer to Figure 4 in Appendix A, for the approximate limits of the land cover categories described below.

Land cover categories present on-site include:

**#261: Fallow Crop Land** – Located in the west-central portion of the project site is a rectangular series of fallow row crop fields. This area once served as a tomato farm. These areas now consist of torpedo grass, broomsedge grasses, and exotic trees such as earleaf acacia and Brazilian pepper.



**#411: Pine/Mesic Flatwoods** – This common native upland vegetative cover consists of slash pine canopy, with saw palmetto, gallberry, fetterbush and wax myrtle in the understory, with wiregrasses in the groundcover layer. Native vines are also present such as wild grape and greenbrier. While most of this habitat is in good to very good ecological condition, portions of the pine flatwoods areas, generally adjacent to wetlands, contain the exotic downy rose myrtle bush. This land cover type is suitable habitat for the state threatened gopher tortoise, and evidence of their presence was observed during recent site visits.

**#424: Melaleuca** - This upland land cover includes a small wooded area in the north-central portion of the project site along the north property line. This land cover is dominated by the invasive exotic melaleuca tree. The forest floor in this area is generally devoid of vegetation, and contains leaf litter from the melaleuca canopy. This land cover provides very little wildlife utilization potential.

**#533: Reservoirs Less Than 10 Acres** – A small excavated pond occurs in the southwest portion of the project site. It appears to have been excavated prior to the farming activity on-site.

**#611/619: Bay Swamp/Exotic Wetland Hardwoods** – Running along the eastern portion of the project site in a north-to-south fashion is a large bay swamp. This wetland slough runs from Poinciana Gardens in the north to south of Bridge Road. It is in fair to poor ecological condition, containing a significant amount of woody exotic plant species, such as melaleuca and Brazilian pepper. Climbing fern drapes both native and non-native canopy trees within the slough.

**#641: Freshwater Marshes** – Scattered throughout the project site are long hydro-period freshwater wetlands. Such areas are dominated by desirable native wetland plants such as pickerelweed, duck potato, maidencane, and buttonbush. Such wetlands on-site provide foraging and nesting habitat opportunities for a variety of common and listed wildlife species, in particular wading birds during the dry season when the deep pocket of the marshes contain water. The landward extents of the wetlands on-site have been verified by the SFWMD (see Exhibit 1).

**#643: Wet Prairie** – Scattered throughout the project site are short hydro-period freshwater wetlands. Such areas are dominated by desirable native wetland plants such as St. John's wort, corkwood, little blue maidencane, bog buttons and hatpins. Such wetlands on-site provide foraging and nesting habitat opportunities for a variety of common and listed wildlife species, in particular wading birds during the wet season when water covers the wetland areas. The landward extents of the wetlands on-site have been verified by the SFWMD (see Exhibit 1).

**#832: Electrical Power Transmission Lines** - Running along the western boundary of the project site is a set of electrical power transmission lines. The ground beneath these lines is cleared for maintenance vehicle access, and consists of herbaceous wetland and upland plant species.

### **PREVIOUS IMPACTS -**

As described above, a portion of the project site was used for agricultural purposes (tomato fields). Such fields can be seen on Figure 5, a 1986 aerial photograph. The dirt road through the bay slough at the southern end of the project site was constructed in order to access these fields.

### **AGENCY COORDINATION –**

With the databases of the U.S. Fish and Wildlife Service (FWS) and the Florida Fish and Wildlife Conservation Commission (FWC) readily available on-line, Figures 6 and 7 represent the database downloads for these agencies. In addition, the landward extents of the wetlands on-site have been verified by the SFWMD (see Exhibit 1).

### **LISTED SPECIES -**

Due the various types of habitats found on-site, listed wildlife species may utilize the pine flatwoods and wetlands on-site for nesting and foraging opportunities.

A search of the FWC water bird colonies database is shown on Figure 6. The data reveal that several colonies within 20 miles of the project site have been documented. Since the foraging range of a wood stork is generally recognized as 18.6 miles from its colony, the project site is located within a wood stork foraging area. However, only minimal impacts to the on-site wetlands are proposed due to the necessary widening of the existing access road through the bay slough. Therefore, there will be no anticipated impacts to listed wading bird populations.

Although the bald eagle has been removed from the Endangered Species Act list, it remains protected under the Bald and Golden Eagle Protection Act. The subject property contains numerous mature slash pines that could provide potential nesting opportunities for bald eagles and is located within a few miles of major foraging areas, such as the Indian River Lagoon, St. Lucie River, and numerous local waterways. A mature bald eagle was observed in the northwestern portion of the site during field work in April of 2020. This individual was observed in-flight, perched in a large slash pine, and foraging within Wetland A. No eagle nest was observed within the project boundaries at this time or during follow-up site investigations. The closest eagle nest is located to the north of the site (MT010 in the Atlantic Ridge State Park). A graphic showing FWC documented bald eagle nest locations is attached as Figure 7 in Appendix A.

As mentioned previously, the state threatened gopher tortoise has been observed on-site. It is recommended that a full survey be conducted within the development footprint no more than 90 days prior to land operations. As for the listed wading birds observed on-site, it is recommended that systematic surveys be conducted within the on-site wetlands in accordance with FWC guidelines at the appropriate times of year prior to and during site development activities.

## APPENDIX A

Figure 1 – Location Map

Figure 2 – USGS Quadrangle Map

Figure 3 – 2020 Aerial Photograph

Figure 4 – FLUCCS/FNAI Land Cover Map


Figure 5 – 1986 Aerial Photograph

Figures 6 – FFWCC Wading Bird Colonies

Figure 7 – FFWCC Eagle Nest Locations



# LEGEND

 - SITE (518.1+/-AC)

0 2,000 Feet



## MCARTHUR WEST LOCATION MAP



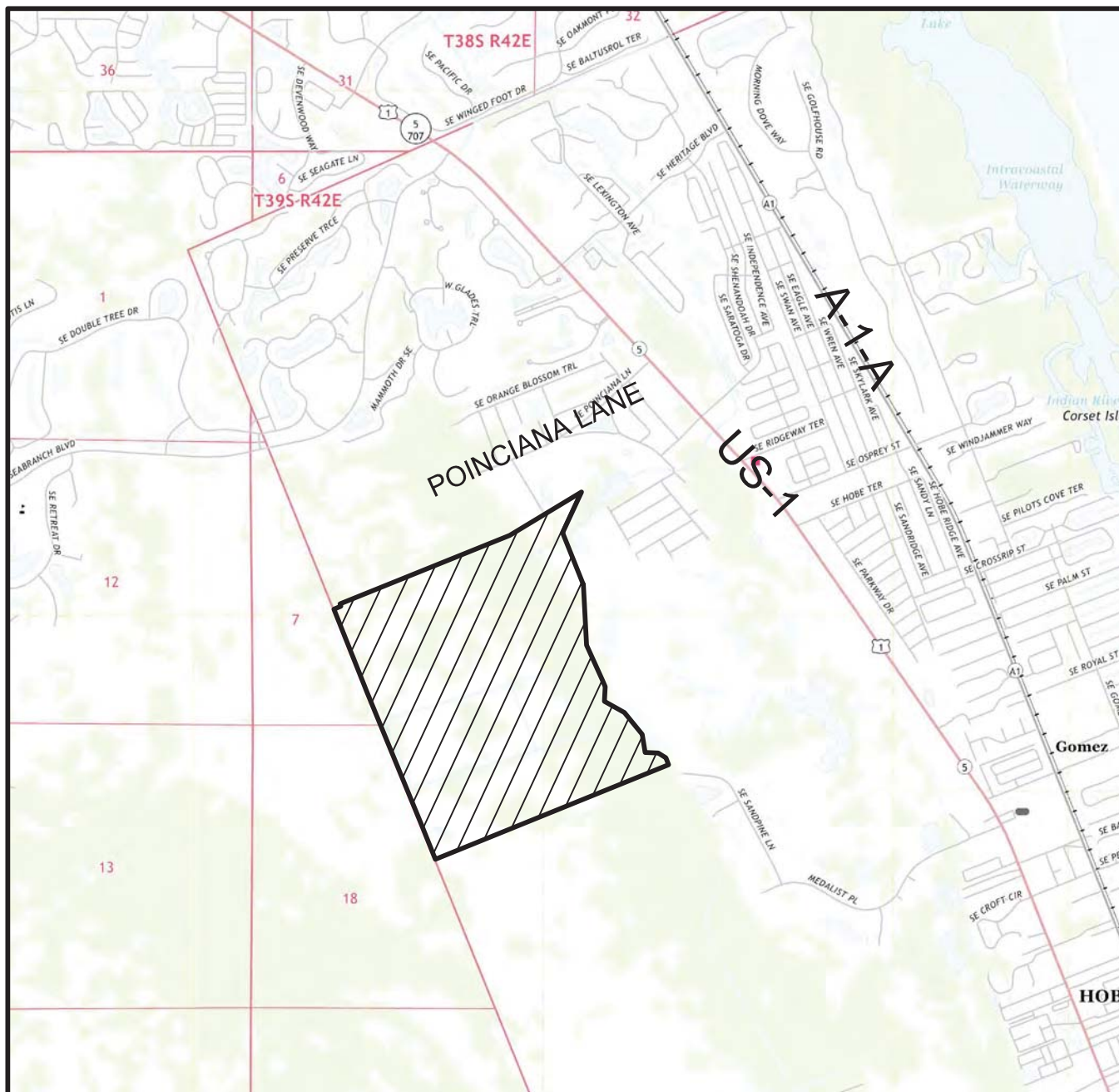
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**SEPT 2020**

FIGURE

**1**





USGS QUAD MAP "GOMEZ", GOMEZ GRANT, TOWNSHIP 39 SOUTH, RANGE 42 EAST, HOBE SOUND, MARTIN COUNTY, FLORIDA, LATITUDE 27°5'21" LONGITUDE -80°10'36"

## LEGEND

 - SITE (518.1± AC)

0 2000  
SCALE IN FEET

# MCARTHUR WEST QUAD

McArthur West.dwg QUAD



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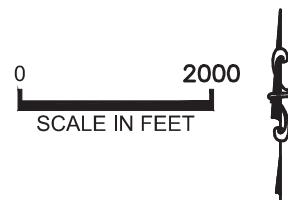
**FIGURE**

**2**





MARTIN COUNTY AERIAL DATED 2020



## MCARTHUR WEST AERIAL

McArthur West.dwg AERIAL



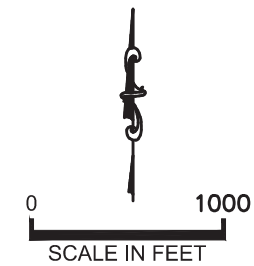
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**SEPT 2020**

**FIGURE**

**3**





#### LEGEND

261 - FALLOW CROP LAND (58.7± AC)  
 411 - PINE FLATWOODS (254.2± AC)  
 424 - MELALEUCA (0.9± AC)  
 533 - RESERVOIRS LESS THAN 10 ACS (0.5± AC)  
 611/619 - BAY SWAMP/EXOTIC WETLAND  
 HARDWOODS (91.5± AC)  
 641 - FRESHWATER MARSHES (68.4± AC)  
 643 - WET PRAIRIES (33.8± 0AC)  
 832 - ELECTRICAL POWER  
 TRANSMISSION LINES (10.1± AC)  
TOTAL SITE (518.1± AC)

MARTIN COUNTY AERIAL DATED 2020

## MCARTHUR WEST FLUCCS



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JULY 2020

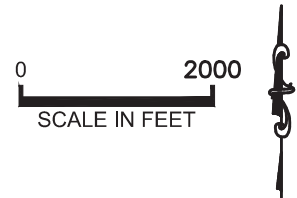
FIGURE

4



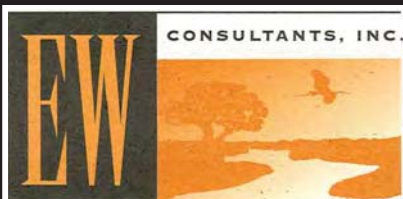


FDOT AERIAL DATED 1986



# MCARTHUR WEST 1986 AERIAL

McArthur West.dwg 1986 AERIAL

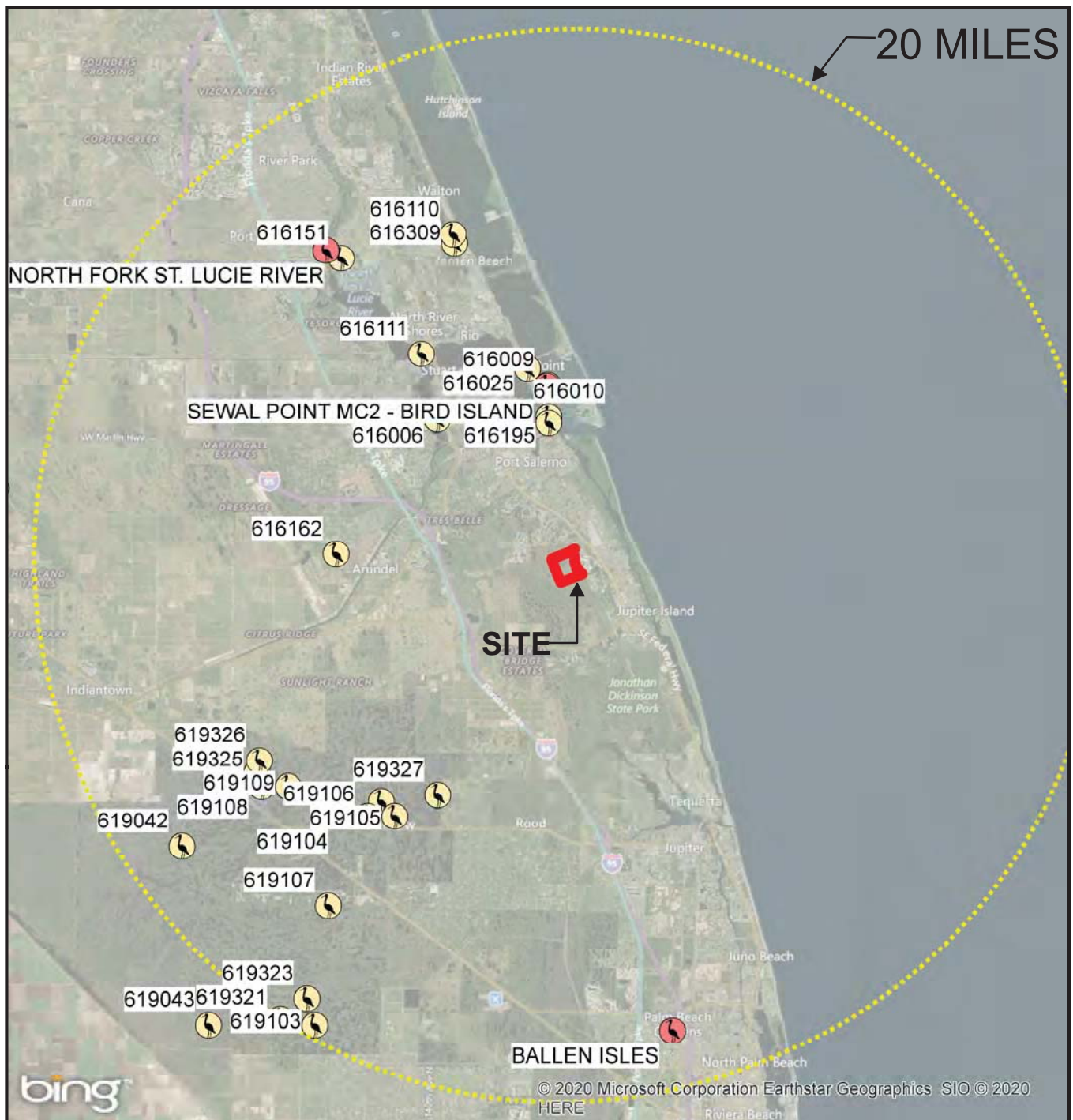


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**FIGURE**

**5**



## MCARTHUR WEST WOODSTORKS & WADING BIRDS



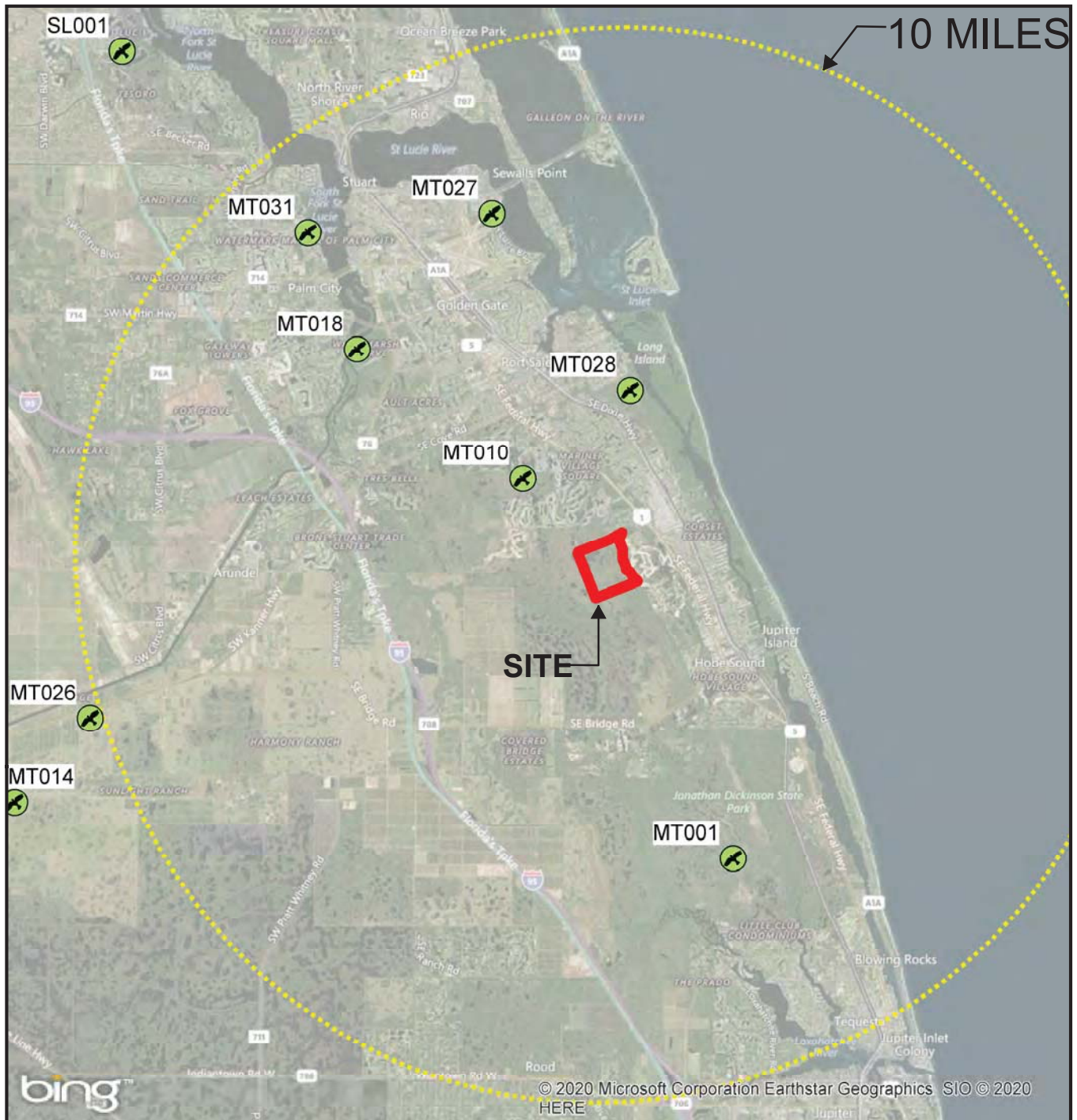
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**SEPT 2020**

FIGURE

**6**





## LEGEND



FWC EAGLE NESTING 2016 DATA

0 3 Miles



# MCARTHUR WEST EAGLE NESTING MAP



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**SEPT 2020**

FIGURE

7

# APPENDIX B

USDA/NRCS Soils Report



# Soil Map—Martin County, Florida (MCARTHUR WEST)



Map Scale: 1:14,800 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84



**Natural Resources  
Conservation Service**


Web Soil Survey  
National Cooperative Soil Survey

9/8/2020  
Page 1 of 3

Soil Map—Martin County, Florida  
(MCARTHUR WEST)

## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

### Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

### Water Features



Streams and Canals

### Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

### Background



Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Martin County, Florida

Survey Area Data: Version 19, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 25, 2019—Mar 28, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Waveland and Immokalee fine sands	42.8	8.3%
5	Waveland and Lawnwood fine sands, depressional	28.0	5.4%
16	Oldsmar fine sand, 0 to 2 percent slopes	314.2	60.7%
21	Pineda-Riviera fine sands association, 0 to 2 percent slopes	29.0	5.6%
35	Salerno sand	9.3	1.8%
40	Sanibel muck	35.0	6.8%
56	Wabasso and Oldsmar fine sands, depressional	48.0	9.3%
73	Samsula muck, frequently ponded, 0 to 1 percent slopes	11.7	2.3%
<b>Totals for Area of Interest</b>		<b>518.1</b>	<b>100.0%</b>



# EXHIBIT 1

SFWMD Wetland Determination



## SOUTH FLORIDA WATER MANAGEMENT DISTRICT

June 25, 2020

*\* Delivered via email*

Kevin Murphy \*  
McArthur Golf Club  
6550 SW Osprey Street  
Hobe Sound, FL 33455

**Subject: McArthur West GC  
Application No. 200624-3751  
Informal Wetland Determination No. 43-103615-P  
Martin County**

Dear Mr. Murphy:

The District reviewed your request for an informal determination of the jurisdictional wetland and other surface water boundaries within the subject property, which is located as shown on the attached Exhibit No. 1.0. A joint site inspection was conducted on June 12, 2020.

Based on the information provided and the results of the site inspection, jurisdictional wetlands and other surface waters as defined in Chapter 62-340, Florida Administrative Code, exist on the property. Exhibit No. 2.0, attached, identifies the boundaries of the property inspected and the approximate landward limits of the wetlands and other surface waters.

This correspondence is an informal jurisdictional wetland determination pursuant to Section 373.421(6), Florida Statutes, and Section 7.3 of Environmental Resource Permit Applicant's Handbook Volume I. It does not bind the District, its agents or employees, nor does it convey any legal rights, expressed or implied. Persons obtaining this informal jurisdictional determination are not entitled to rely upon it for purposes of compliance with provision of law or District rules.

Sincerely,

A handwritten signature in black ink that reads "Barbara Conmy".

Barbara Conmy  
Section Leader

c: Paul Ezzo, EW Consultants, Inc \*

### **Exhibits**




The following exhibits to this permit are incorporated by reference. The exhibits can be viewed by clicking on the links below or by visiting the District's ePermitting website (<http://my.sfwmd.gov/ePermitting>) and searching under this application number 200624-3751 .

[Exhibit No. 1.0 Location Map](#)

[Exhibit No. 2.0 Wetland and OSW Map](#)





Exhibit No: 1	Exhibit Created On: 2020-06-25	MARTIN COUNTY, FL	<div><div></div>Application</div> <div>Permit No: 43-103615-P</div> <div>Application Number: 200624-3751</div>	
<div><div> sfwmd.gov</div><div>REGULATION DIVISION</div><div>Project Name: McArthur West GC</div><div><div>00.2750.55</div><div><div></div></div>Miles</div><div>N</div></div>			<div>Created by</div> <div><div> IT GEOSPATIAL SERVICES</div><div>South Florida Water Management District</div></div>	

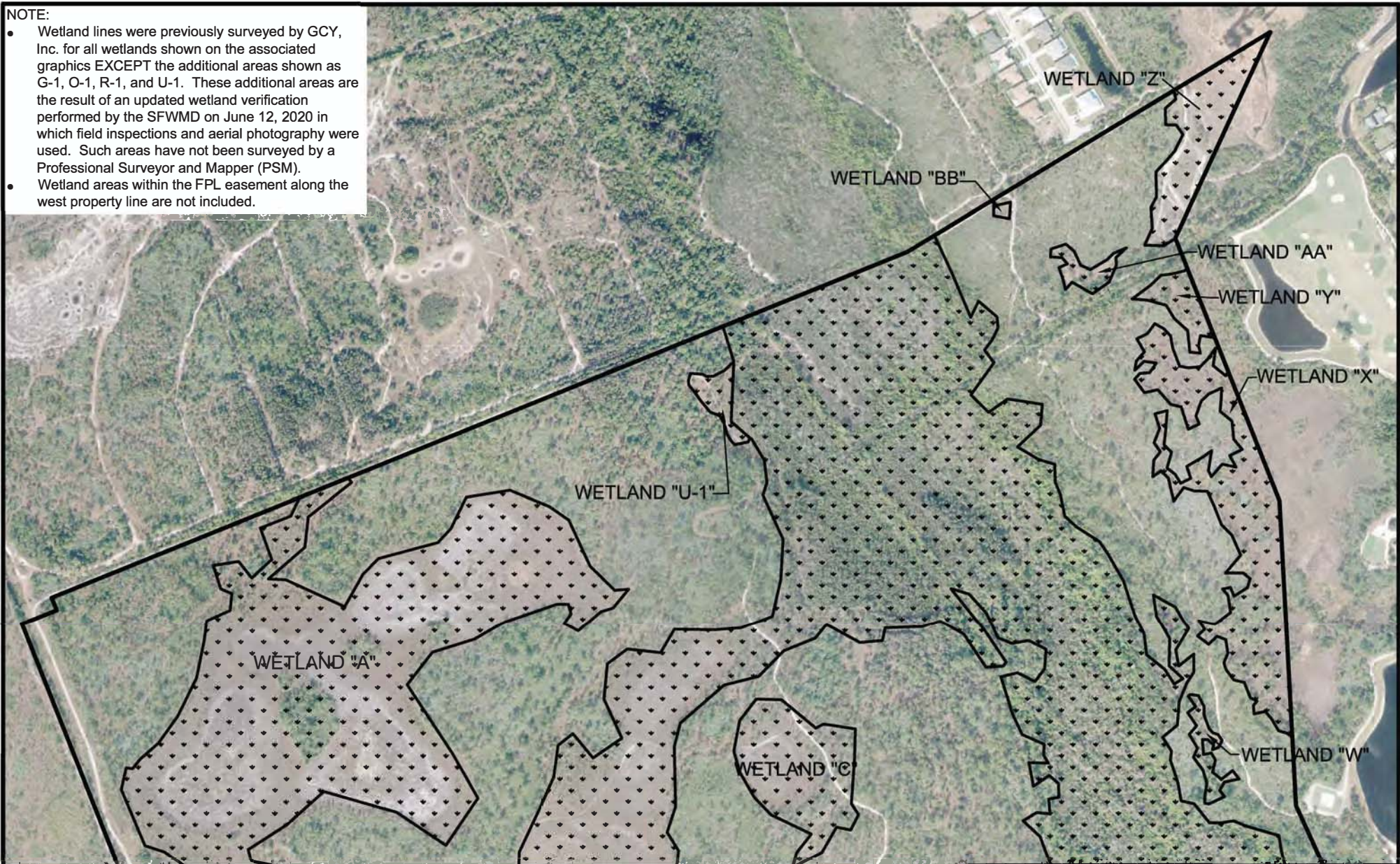






**NOTE:**

- Wetland lines were previously surveyed by GCY, Inc. for all wetlands shown on the associated graphics EXCEPT the additional areas shown as G-1, O-1, R-1, and U-1. These additional areas are the result of an updated wetland verification performed by the SFWMD on June 12, 2020 in which field inspections and aerial photography were used. Such areas have not been surveyed by a Professional Surveyor and Mapper (PSM).
- Wetland areas within the FPL easement along the west property line are not included.



MARTIN COUNTY AERIAL DATED 2019

**LEGEND**

- WETLAND (193.72± AC)
- OTHER SURFACE WATERS (5.6± AC)

0 500  
SCALE IN FEET

**MCARTHUR WEST  
WETLAND & OSW**



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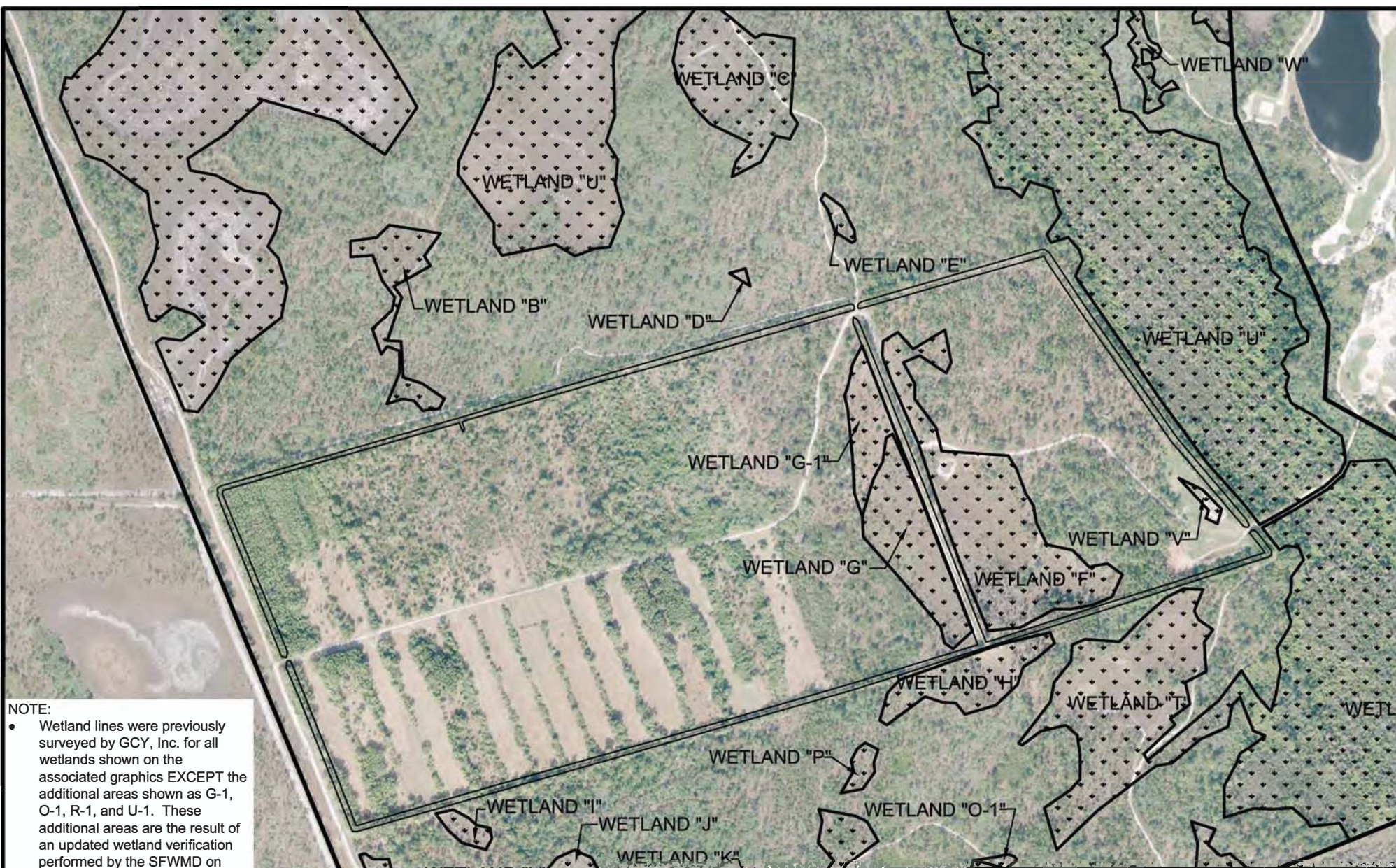
JUNE 2020

FIGURE

1



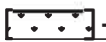
McArthur West.dwg WETLAND OSW 2




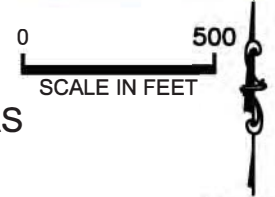
NOTE:

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**LEGEND**

 - WETLAND (193.72± AC)

 - OTHER SURFACE WATERS (5.6± AC)



MARTIN COUNTY AERIAL DATED 2019

# MCARTHUR WEST WETLAND & OSW

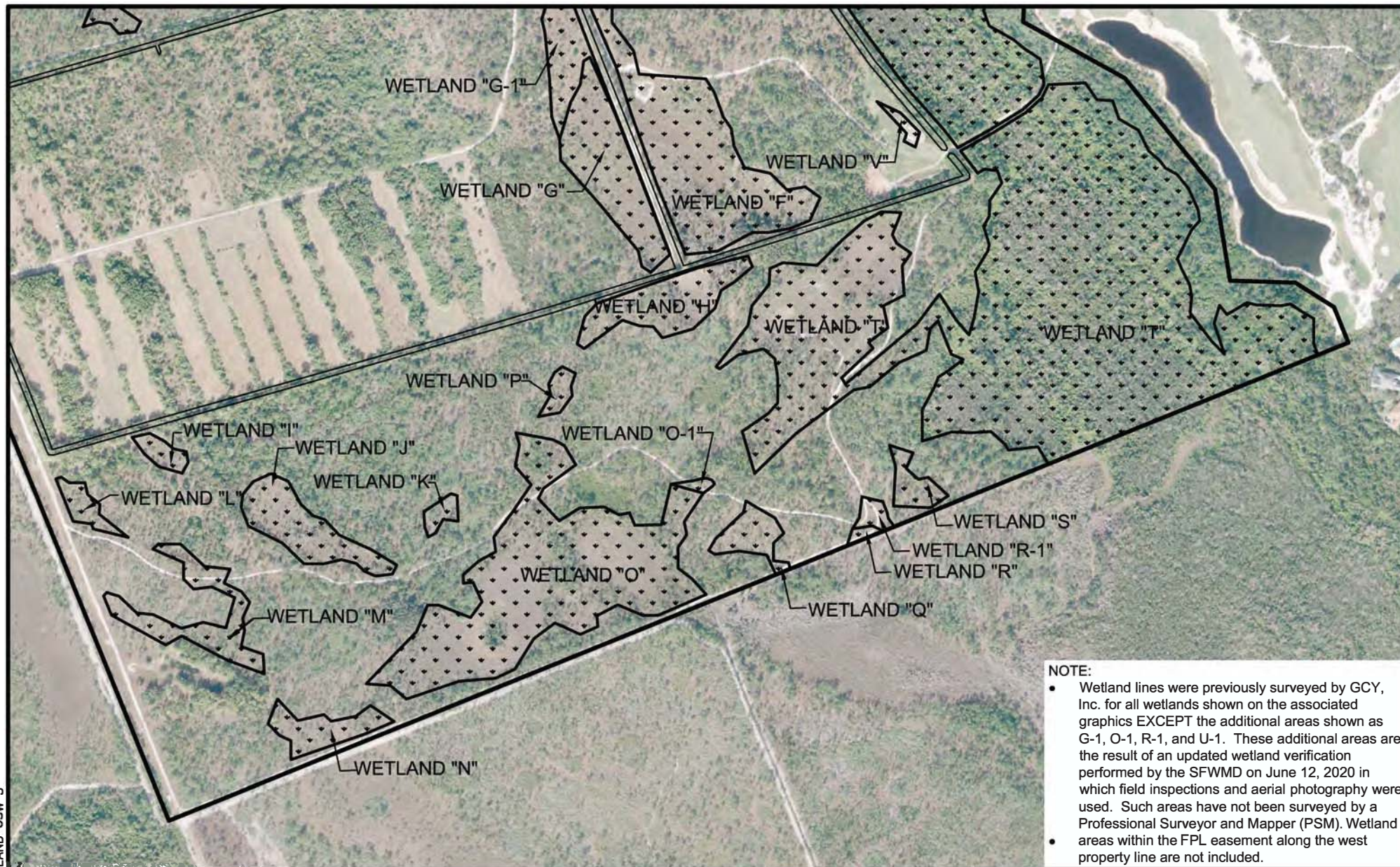


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**JUNE 2020**  
**FIGURE**  
**2**





McArthur West.dwg WETLAND OSW 3



MARTIN COUNTY AERIAL DATED 2019

#### LEGEND

-  - WETLAND (193.72± AC)
-  - OTHER SURFACE WATERS (5.6± AC)

0 500  
SCALE IN FEET

#### NOTE:

- Wetland lines were previously surveyed by GCY, Inc. for all wetlands shown on the associated graphics EXCEPT the additional areas shown as G-1, O-1, R-1, and U-1. These additional areas are the result of an updated wetland verification performed by the SFWMD on June 12, 2020 in which field inspections and aerial photography were used. Such areas have not been surveyed by a Professional Surveyor and Mapper (PSM). Wetland areas within the FPL easement along the west property line are not included.

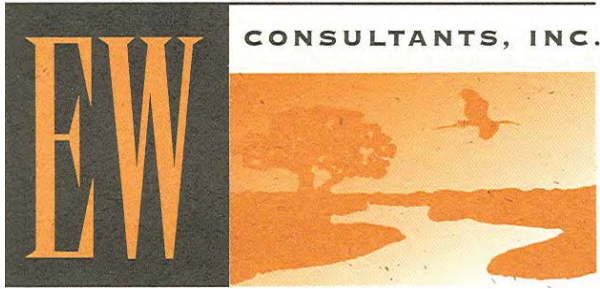
## MCARTHUR WEST WETLAND & OSW



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JUNE 2020  
FIGURE  
**3**





# **McARTHUR WEST GOLF COURSE**

## **DOCUMENTATION IN SUPPORT OF THE ENVIRONMENTAL WAIVER AND EXCEPTION APPLICATION**

**Prepared for:  
McArthur Golf Club**

**Prepared by:  
EW Consultants, Inc.**

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## **1.0 PROJECT DESCRIPTION -**

### **1.1 Introduction and Project Description -**

The McArthur West Golf Course project consists of 518.1± acres, located in unincorporated Martin County, Florida. It is west of the existing McArthur Golf Course in Hobe Sound. The project consists of a proposed 18-hole golf course, stormwater facilities, as well as extensive wetland and upland preserve areas.

The site contains wetland areas throughout (37% of the site), as well as pine flatwoods upland habitat, and a small upland melaleuca stand in its northern portion. There is an existing dirt road located in the southern portion of the project site which crosses a bay/maple slough.

As part of the site plan, there are four distinct areas in which wetlands will be crossed with golf cart paths along with corresponding wetland buffer (upland habitat) impacts. Such crossings and buffer impacts are necessary for golf course development, golf play, and eventual golf course maintenance. Therefore, the Access to Uplands provision in Martin County's Land Development Regulations (Section 4.3.B.2., LDR), is being utilized as part of the associated Environmental Waiver application.

As part of these access areas, there will be no (0.00 square feet) of dredging or filling within any of the wetland or buffer areas. The areal extent of the paths will "shade" 0.15 acres of wetland area and 0.39 acres of wetland buffer area, with approximately 0.002 acres of support pilings installed within the footprint of the elevated golf cart paths. Discussions regarding the location and alternatives to the proposed golf cart access paths are detailed in subsequent sections of this report.

### **1.2 General Environmental Conditions -**

The project site consists of a mosaic of pine flatwoods, freshwater wetlands, a fallow tomato field, and FPL power lines. Most of the native habitats on-site are in fair-to-good ecological condition, save for the bay slough which contains dense stands of exotic vegetation throughout. Other wetland areas contain mostly desirable native vegetation, although the exotic downy rose myrtle bush has established and now dominates drier portions of the wetlands on-site. The presence of this species can greatly reduce the potential for usage of the wetlands by wading birds, both listed and non-listed, and therefore will be eradicated in accordance with PAMP specifications.

The pine flatwoods on-site are generally in fair to good ecological condition. However, as with the ecotonal areas of the wet prairies on-site, the ecological value of this habitat has been diminished by the presence of the exotic downy rose myrtle bush, as well as earleaf acacia which has established within the fallow tomato fields and is spreading into the adjacent pine flatwood areas. Such species will be eradicated from the designated upland preserves on-site in accordance with the approved PAMP for the project.

The landward extents of all wetlands on the site have been verified by the South Florida Water Management District within the past year. Such documentation is included in the Environmental Assessment (EA) provided in the Preserve Area Management Plan (PAMP).

### **1.3 Proposed Wetland Impact (Shading and Pilings) -**

In order to access the upland portions of the proposed golf course throughout the property, golf cart paths measuring 12 feet in width (maximum) are proposed to cross wetlands at the following locations (from north to south) as shown on Figure 1:

- 1) From #4 tee to #4 fairway and from #5 tee to #5 fairway (over W-U)
- 2) From #18 tee to #18 fairway (over W-F and W-G)
- 3) From the #16 tee to #16 fairway (over W-P)
- 4) From #15 green to #16 green (over W-O)

Such crossings will result in the shading of 0.15 acres of freshwater wetlands, and contain approximately 0.002 acres of area in which piles will be driven for bridge support. While there will be no dredging or filling associated with these paths, it is anticipated that native vegetation beneath them will be negatively impacted. Other wetland functions and values, such as aquatic habitat, surface water storage/filtration, and aquifer recharge, will remain undisturbed other than within the areas where piling are driven.

### **1.4 Proposed Wetland Buffer Impacts (Shading and Pilings) -**

The proposed cart paths will impact 0.39 acres of wetland buffer area associated each side of the affected wetland area. As with the wetland crossing, such paths through the wetland buffers will be elevated above grade, eliminating the need to dredge or fill in these areas, minimally disturbing the vegetation.

## **2.0 GOLF CART PATH ALIGNMENT ALTERNATIVES -**

The associated February, 2021, site plan shows the preferred alternative alignments for all of the proposed golf cart paths. All of these locations have been reviewed and tweaked by the land planner and golf course architect in order to reduce the shading impact as much as practicable. For example, crossing 1) initially split-off into W-U at the north and south ends (see attached Figure 2). The proposed design eliminates these splits in the wetland, reducing the areal extent of the shading impact within W-U. This crossing serves four holes, which could have been accomplished by two separate crossings over W-U. It should be noted that all four crossings have been aligned with the narrowest portions of the affected wetland areas, further reducing the wetland shading footprint.



### **3.0 PROPOSED MITIGATION FOR WETLAND AND BUFFER IMPACTS -**

The proposed mitigation for the golf cart paths will be the creation of a minimum of 1.43 acres (or 9.5 times the 0.15 acres of shading impact) of freshwater wetland habitat from existing drainage ditches and associated ditch banks on-site. In particular, there is a north-south ditch which divides W-G from W-F (see Figures 3 and 4). Such ditches will be partially back-filled to match the existing grades of W-G and W-F using the dirt from the adjacent spoil piles (ditch banks) in order to connect them. This activity will result in 1.43 acres of wetland creation area. Once this area is re-graded, appropriately 16,000 native wetland plants will be installed in accordance with Figure 3, consisting of various wet prairie plants. This design will allow for a “seamless” merging of the two wetlands (G and F), providing appropriate hydrologic conditions for the created wetland area. Generally, getting the “hydrology” correct is the most difficult and most critical part of wetland creation; get it wrong, and the created area can be too dry for wetland plant survival or make it too deep nuisance plants like primrose willow and cattail may dominate. Creating a wetland area which combines adjacent wetlands, and essentially replicates historic conditions is the ideal technique in this situation.

As part of the wetland creation area, 1.33 acres will be wet prairie, and 0.10 acres will be hardwood forest due to the vegetative impacts to 0.07 acres of slough area within W-U as part of the “line-of-sight” clearing. No dredging or filling will occur within any of the line-of-site areas, and all vegetation to be cut and/or trimmed will be done so by hand; no heavy equipment will be permitting within the line-of-site alignments.

Martin County’s requirement for replacing both the “spatial” and “functional” loss of wetlands is summarized in Table 1 on the final page of this report. Using the Wetland Rapid Assessment Procedure (WRAP), the 0.15 acres of wetland impact (from shading/pilings) result in a functional loss of 0.0124 units while the 1.43-acre mitigation area will generate 1.0362 credits, approximately 84 times that of the functional loss.

As for the wetland buffer impacts, 0.39 acres of such habitat will be impacted by shading. With 254.2 acres of native pine flatwood habitat on-site, the required 30% upland preserve would be 76.26 acres (including wetland buffers). The site plan calls for 99.41 acres of upland preserve habitat (including wetland buffers, but excludes line-of-site and cart path impacts). Therefore, there 0.39 acres of wetland buffer impact will be satisfactorily offset.

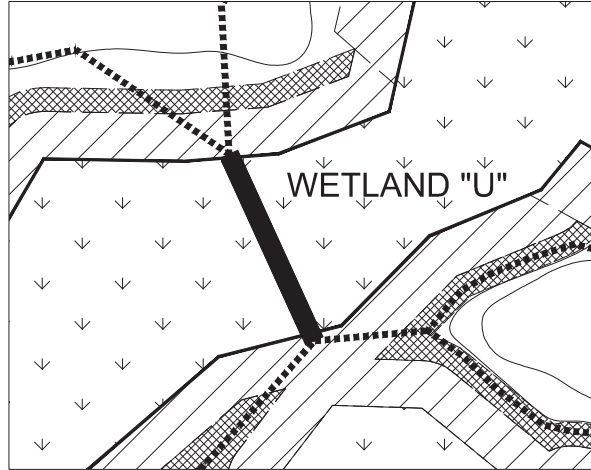
### **4.0 MONITORING OF CREATED WETLAND AREA -**

The vegetative success criteria for the wetland creation area will be consistent with the standards set forth in the Preserve Area Management Plan (PAMP) for the McArthur West Golf Course project. In addition, Figure 4 shows the specific transect and photo/data collection stations for the wetland creation area. The Time-Zero Monitoring Report will document the creation activities (backfill and planting), while the annual reports will document the success and/or remediation needs of the creation area based on the vegetative success criteria in the PAMP.

<b>TABLE 1</b>								
			<b>McARTHUR WEST GC</b>					
			<b>WETLAND MITIGATION SUMMARY</b>					
<b>SHADING IMPACTS</b>								
<b>Wetland #</b>	<b>AC</b>	<b>Type</b>	<b>Preserve</b>	<b>Impact</b>	<b>Imp Type</b>	<b>WRAP Pre</b>	<b>WRAP Post</b>	<b>Debits</b>
F	6.80	643	6.76	0.040	Shading	0.0200	0.017	0.0027
G	4.40	643	4.39	0.010	Shading	0.0047	0.004	0.0007
O	10.70	643	10.68	0.020	Shading	0.0127	0.011	0.0020
P	0.30	643	0.28	0.020	Shading	0.0127	0.011	0.0020
U	75.50	643	75.44	0.060	Shading	0.0320	0.028	0.0040
<b>TOTALS</b>	<b>97.70</b>		<b>97.55</b>	<b>0.15</b>				<b>0.0113</b>
<b>PILING IMPACTS</b>								
<b>Wetland #</b>	<b>AC</b>	<b>Type</b>	<b>Preserve</b>	<b>Impact</b>	<b>Imp Type</b>	<b>WRAP Pre</b>	<b>WRAP Post</b>	<b>Debits</b>
F	6.80	643	6.80	0.0004	Pilings	0.0002	0.000	0.0002
G	4.40	643	4.40	0.0001	Pilings	0.0000	0.000	0.0000
O	10.70	643	10.70	0.0002	Pilings	0.0001	0.000	0.0001
P	0.30	643	0.30	0.0003	Pilings	0.0002	0.000	0.0002
U	75.50	643	75.50	0.0010	Pilings	0.0005	0.000	0.0005
<b>TOTALS</b>				<b>0.0020</b>				<b>0.0011</b>
<b>GRAND TOTAL</b>								<b>0.0124</b>
<b>MITIGATION ID</b>	<b>AC</b>	<b>Target Type</b>	<b>Preserve</b>	<b>Impact</b>	<b>Imp Type</b>	<b>WRAP Pre</b>	<b>WRAP Post</b>	<b>Credits</b>
Ditch Bewteen F & G	1.33	643				0.2660	0.733	0.9753
Ditch Bewteen F & G	0.10	617				0.0200	0.733	0.0733
<b>TOTALS</b>	<b>1.43</b>							<b>1.0487</b>
<b>NET CREDITS</b>								<b>1.0362</b>
<b>NOTE:</b>								
EXCEL Rounding								

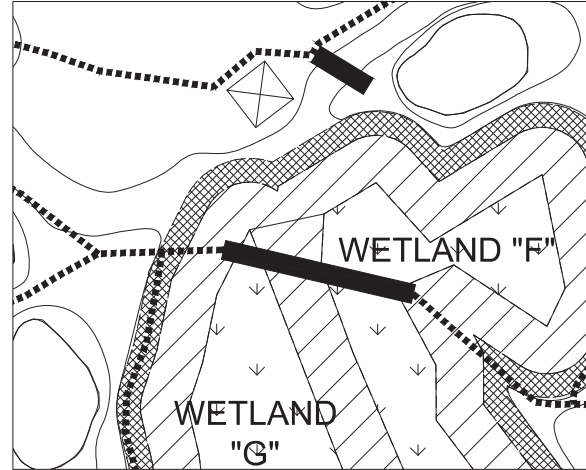
WETLAND CROSSING 1

NTS



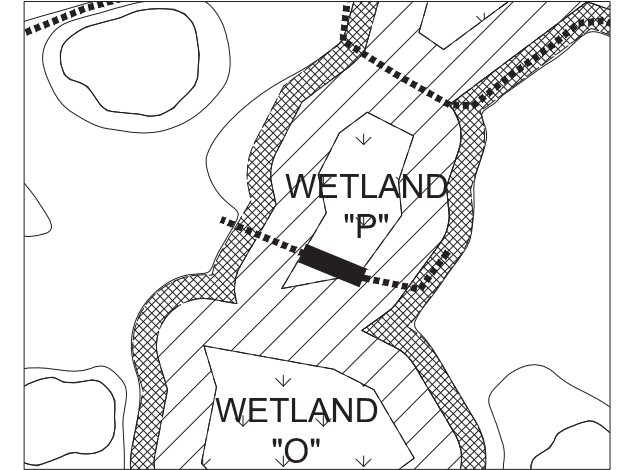
WETLAND CROSSING 2

NTS

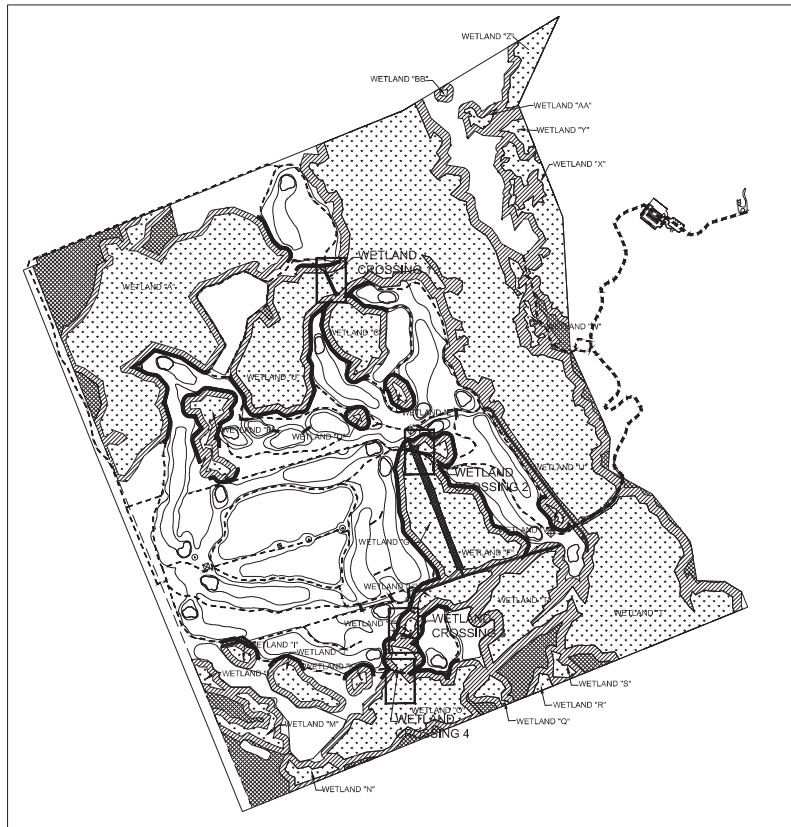


WETLAND CROSSING 3

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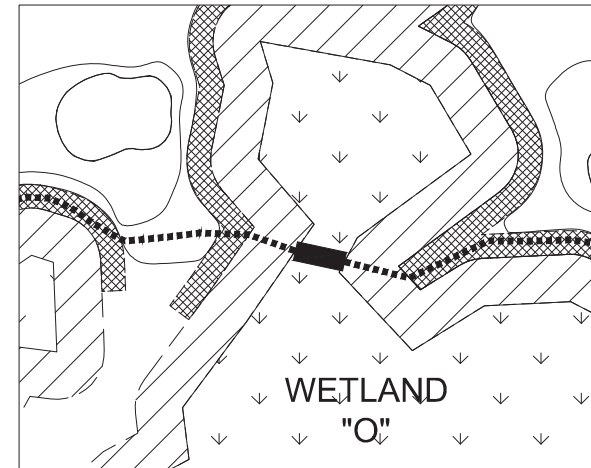


KEY SHEET



WETLAND CROSSING 4

NTS



# LEGEND

- WETLAND PRESERVE
- UPLAND BUFFER PRESERVE
- UPLAND PRESERVE

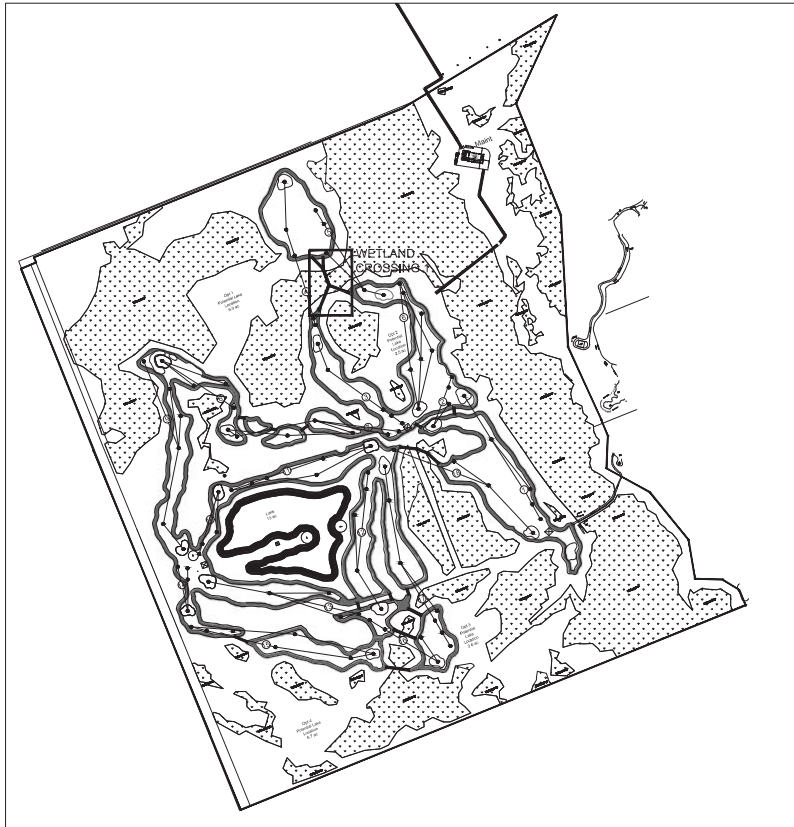
## MCARTHUR WEST WETLAND CROSSINGS



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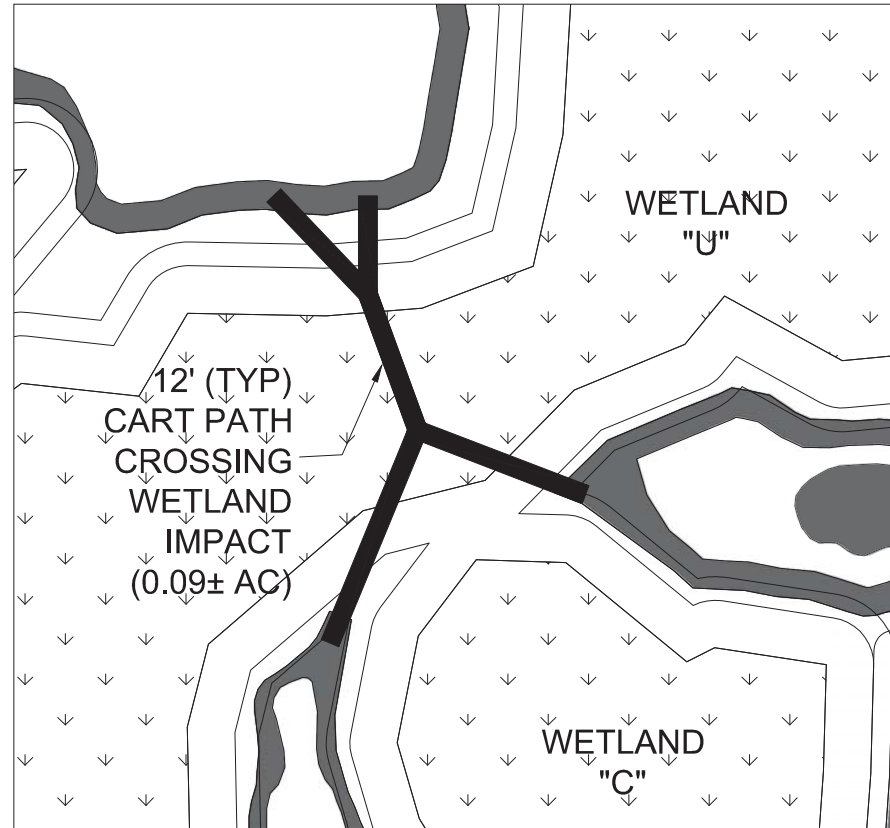
JAN 2021  
FIGURE

## KEY SHEET



## WETLAND CROSSING

NTS



## LEGEND

 - WETLAND PRESERVE

## MCARTHUR WEST WETLAND CROSSING PREVIOUS SITE PLAN OPTION

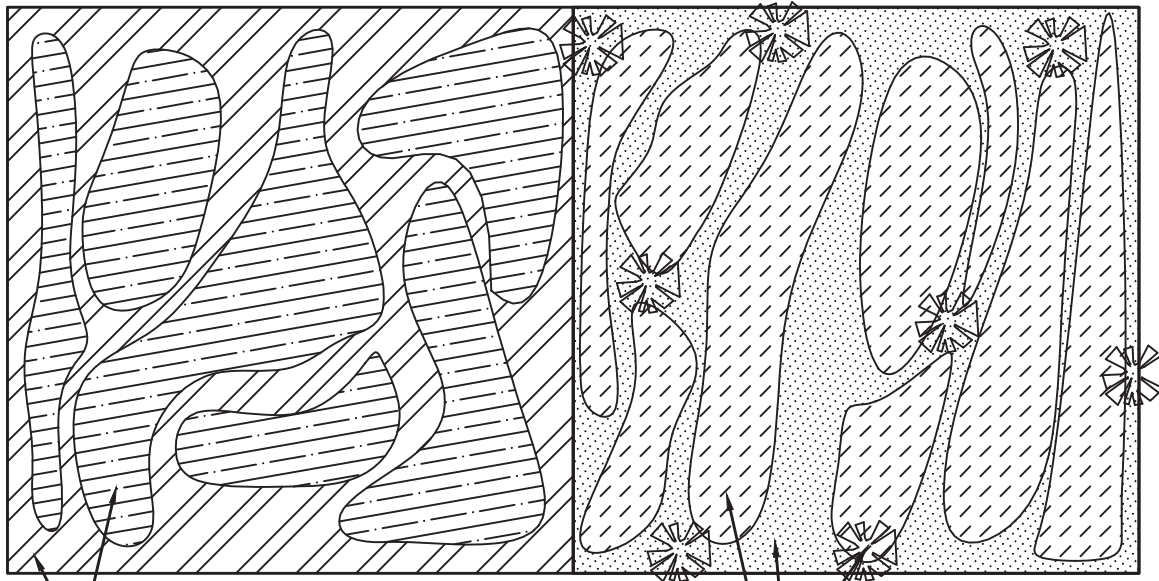


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JAN 2021  
**FIGURE**  
**2**



# WET PRAIRIE CREATION PLANTING PLAN



## **Groundcover - BR, 2' o.c.**

Tracy's beakrush - *Rhynchospora tracyi*  
 Blue Flag Iris - *Iris virginica*  
 Blue Maidencane - *Amphicarpum muhlenbergianum*  
 Swamp Fern - *Blechnum serrulatum*

## **Canopy Trees - 3 gal**

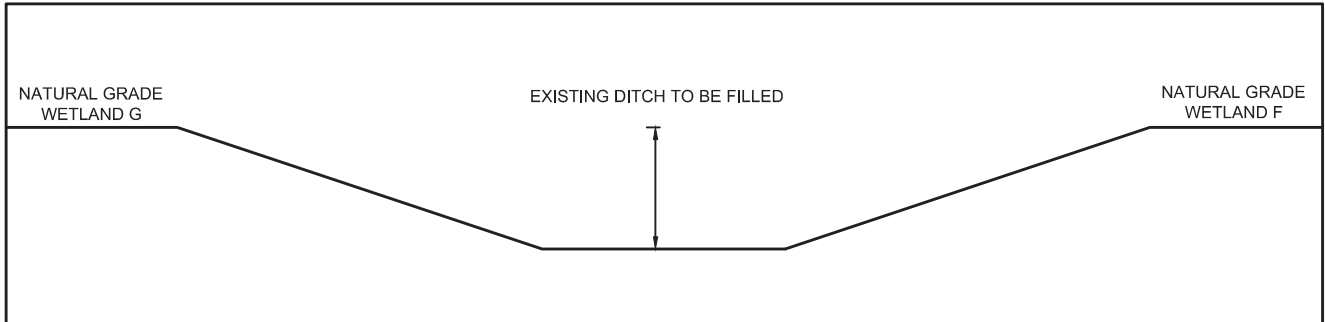
*Taxodium spp.* - Cypress  
*Gordonia lasianthus* - Loblolly bays  
*Acer rubrum* - Red maple  
*Persea borbonia* - Red bay

## **Groundcover**

*Pontederia Cordata* - Pickerel Weed  
*Sagittaria lancifolia* - Duck Potato

- QUANTITY OF PLANTS WILL BE DETERMINED BY SIZE OF RESTORATION AREA AND SPACING (O.C.) OF SELECTED PLANTS.
- REFERENCED SPECIES MAY BE SUBSTITUTED WITH OTHER APPROPRIATE NATIVE SPECIES BASED ON AVAILABILITY.
- NOTE: PLANTS TO BE INSTALLED AS TO MIMIC NATURAL OCCURRENCE.

## EXISTING & PROPOSED CONDITIONS SECTION



**MCARTHUR WEST GC**

## WETLAND CREATION PLANTING PLAN

**JAN 2021**

**FIGURE**

**3**



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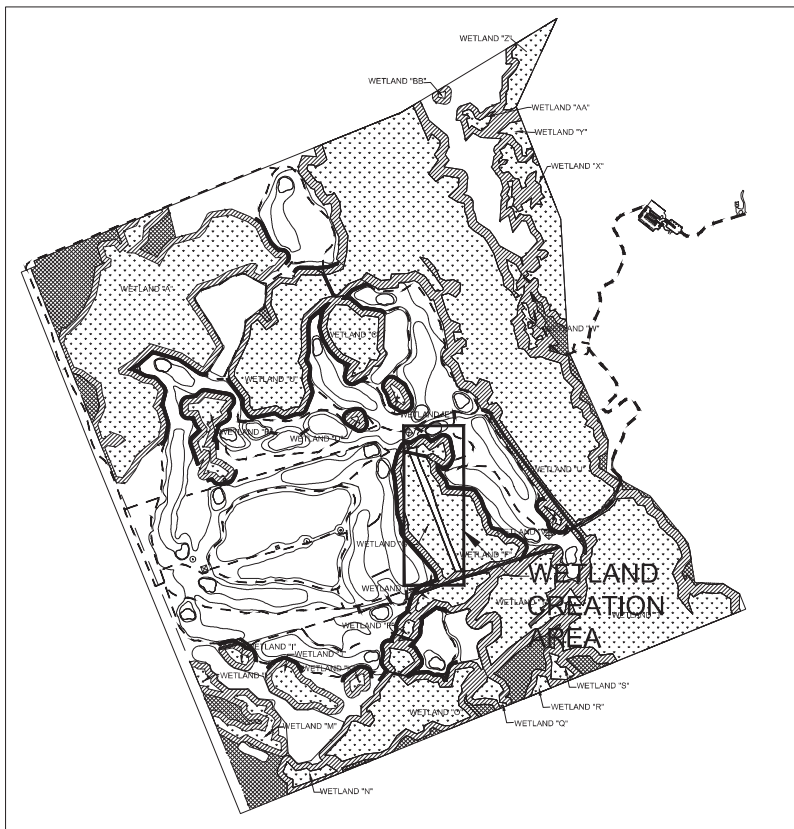
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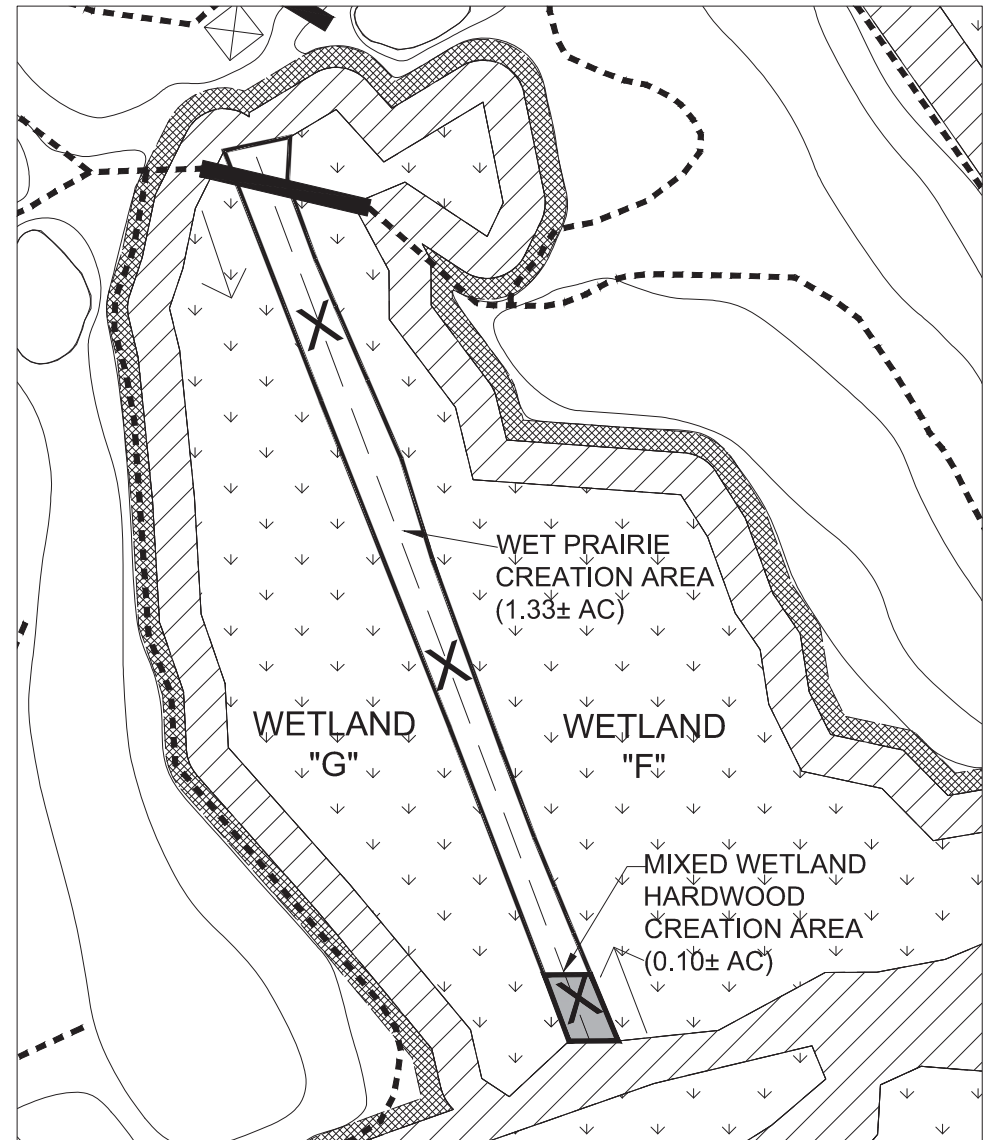
# LEGEND

-  - WETLAND PRESERVE
-  - UPLAND BUFFER PRESERVE
-  - UPLAND PRESERVE
-  - MONITORING TRANSECT WITH STATIONS
-  - PHOTO STATION

## KEY SHEET



## WETLAND CREATION AREA 1.43± AC



## MCARTHUR WEST GC WETLAND CREATION AREA MONITORING

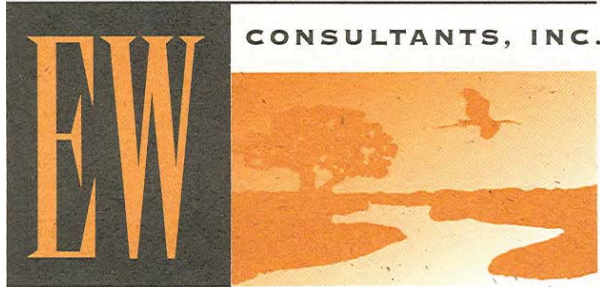


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JAN 2021  
FIGURE  
4

EW Consultants, Inc.

Natural Resource Management, Wetland, and Environmental Permitting Services



# **McARTHUR WEST GC**

## **LAKE AREA MANAGEMENT PLAN**

**Martin County, Florida**  
**January 2021**

The following Lake Area Management Plan is provided for the wet retention lakes within the McArthur West Golf Course project site. It is to be used in conjunction with the master site plan and lake planting plans provided by the project's landscape architect. This plan addresses standards set forth in the Martin County Excavation and Fill Ordinance.

### **Erosion Control and Water Management Provisions –**

The operator shall use Best Management Practices to minimize erosion. The use of native top-soils is encouraged, especially in areas reclaimed for aquatic or wildlife habitats. Where topsoil is not used, the operator shall use a soil or growing medium, including amendments, suitable for the type of vegetative communities planned. Should washes or rills develop after re-vegetation and before final release of the area, the operator shall repair the eroded areas and stabilize the slopes.

Best Management Practices also apply to water quality within the lakes so as to protect the health of the plant material. Turbid water will be kept to a minimum so that sunlight may reach the littoral shelf floor promoting aquatic grass recruitment. The water levels within the lakes have been designed to a specific elevation. Such elevations will be staked along the littoral shelf in order to provide the plant installation contractor a reference from which to install the appropriate plant material. Should water levels within the completed lakes drop to elevations potentially harmful to the planted littoral plants, temporary irrigation will be established by using a small pump and spray-rig situated within the lake. Water from the lake will be sprayed onto the planted littoral and upland transition zones as needed in order to keep such plants healthy.

**Installation of Native Plant Material –**

The installation of the native plant material within the lakes' littoral and upland transition zones will be in accordance with approved planting plans. Planting of such material will be conducted at the appropriate time after the lake banks are sloped in accordance with the approved Construction Drawings. Plants are to be installed in accordance with the spacing and quantities detailed on the approved landscape plans and littoral/UTZ/dry retention planting plans (to be submitted at a later date). All plant material will be of appropriate type for the soils found on site. An Environmental Professional familiar with aquatic plant installation shall oversee this activity.

**Maintenance of Littoral and Upland Transition Zone Areas -**

The littoral and upland transition zone and dry retention planting areas as shown on the approved landscape plans and planting plans will be kept free of nuisance and exotic vegetation in perpetuity. All Category I and II nuisance and exotic vegetation as listed by the Florida Exotic Pest Plant Council will be treated within such areas. All treatment events will be through the application of the appropriate herbicide approved for use within aquatic environments. The criterion for acceptance of eradication for Category I and II exotic vegetation will be 100 percent treatment/kill and 95 percent treatment/kill for nuisance species. If initial efforts do not achieve this criterion, follow up treatments will be conducted.

Transport of vegetative debris from the lake and retention areas to the staging area will be conducted in a fashion that minimizes the distribution and dispersal of seeds from such debris. No exotic or nuisance woody vegetative material will be left in the littoral and upland transition zone areas or within any of the dry retention areas. All herbicide application activity will be conducted under the supervision of a Florida Department of Agriculture certified applicator, licensed for application of aquatic herbicides. All herbicide applied within aquatic systems on-site must be properly labeled for such use. All herbicide applied must include a visible tracer dye in the mix to facilitate observation of treated vegetation. Within the littoral zones, the areal extent of desirable native plants shall cover at least 80% of the surface area by the end of the second year of monitoring after installation.



**MARTIN COUNTY, FLORIDA**  
**PRESERVE AREA MANAGEMENT PLAN**  
**ANNUAL MONITORING REPORT FOR (Year)**

- **Name and address of current owner of Preserve Area;**
- **Location of Preserve Area**
- **Date PAMP approved;**
- **Documentation of vegetation changes, including encroachment of exotic vegetation;**
- **Fixed-point panoramic photos of all Preserve Areas;**
- **Synopsis of maintenance activities conducted in compliance with the PAMP requirements such as exotic vegetation removal, re-vegetation, and additional enhancement activities necessary to maintain the Preserve Area;**
- **A timetable for action within 90 days of the report;**
- **A list of all violations of the PAMP; and**
- **Recommendations for remedial actions, with a proposed schedule for the coming year.**

**Signature/Date :** \_\_\_\_\_

**Typed Name/Title :** \_\_\_\_\_

**Company Name (if applicable) :** \_\_\_\_\_