

## Johnson Engineering, Inc. Presentation

### Sustainable Water Resources:

25 min

Historical and Early Efforts

Overview of property, elevation, swamp

Major Canals

Big Island Dike

Kitson and Partners Detailed Analysis

Land cover and habitat

Aquatic Faunal Sampling

Wetland hydroperiods

Avoidance and Minimization of Impacts to Wetlands

Curry Lake Restoration as an example (Laura to intro / Amy to present)

# Property Overview

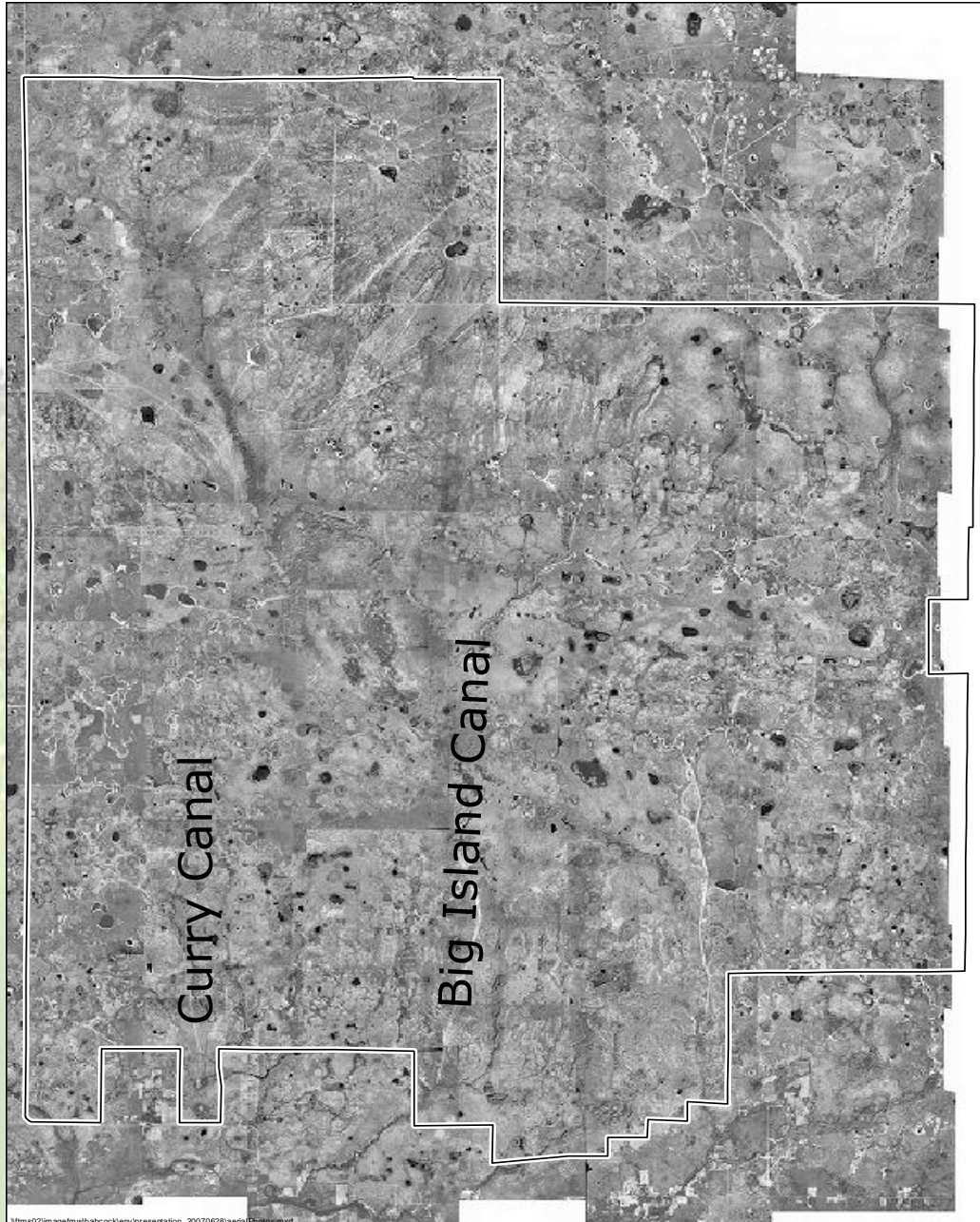


## Historical & Early Efforts...Babcock History

- E.V. Babcock began acquiring property in 1914
- Long leaf pine pitch
- 1930s Logging operations underway
- 1940s: Fred C Babcock, Agricultural production
- Wetland Conversion  
(Curry Canal, Big Island Canal)



Mules Hauling Freshly Cut Pine



## Historical Aerial 1944-46

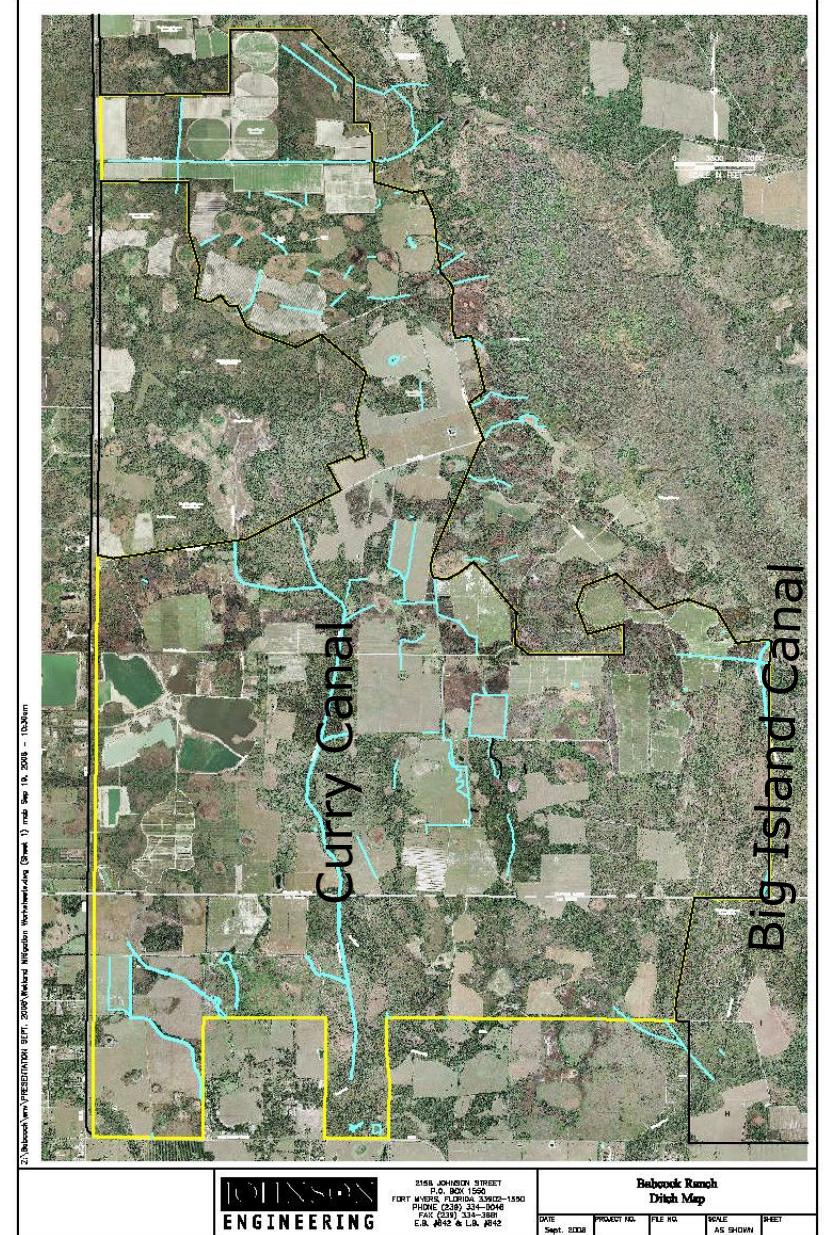
Major Canals on the Property are already present:

- Curry Canal
- Big Island Canal

# Current Ditch Map

# Curry Lake Canal

# Big Island Canal



## Fred Babcock 1970s Drought



# CONSTRUCTION PLAN FOR THE BIG ISLAND STRUCTURES

These structures, along with a low water ford and control structure at the north end of Telegraph Cypress Swamp, just east of the ranch Headquarters, were built in 1974 and the system has functioned as designed to the present day.

## INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
1	COVER
2	PLAN and SECTIONS
3	WEIR DETAILS
4	MISCELLANEOUS DETAILS

JUNE, 1974

PREPARED BY  
JOHNSON ENGINEERING INCORPORATED  
CIVIL ENGINEERS LAND SURVEYORS  
FORT MYERS, FLORIDA

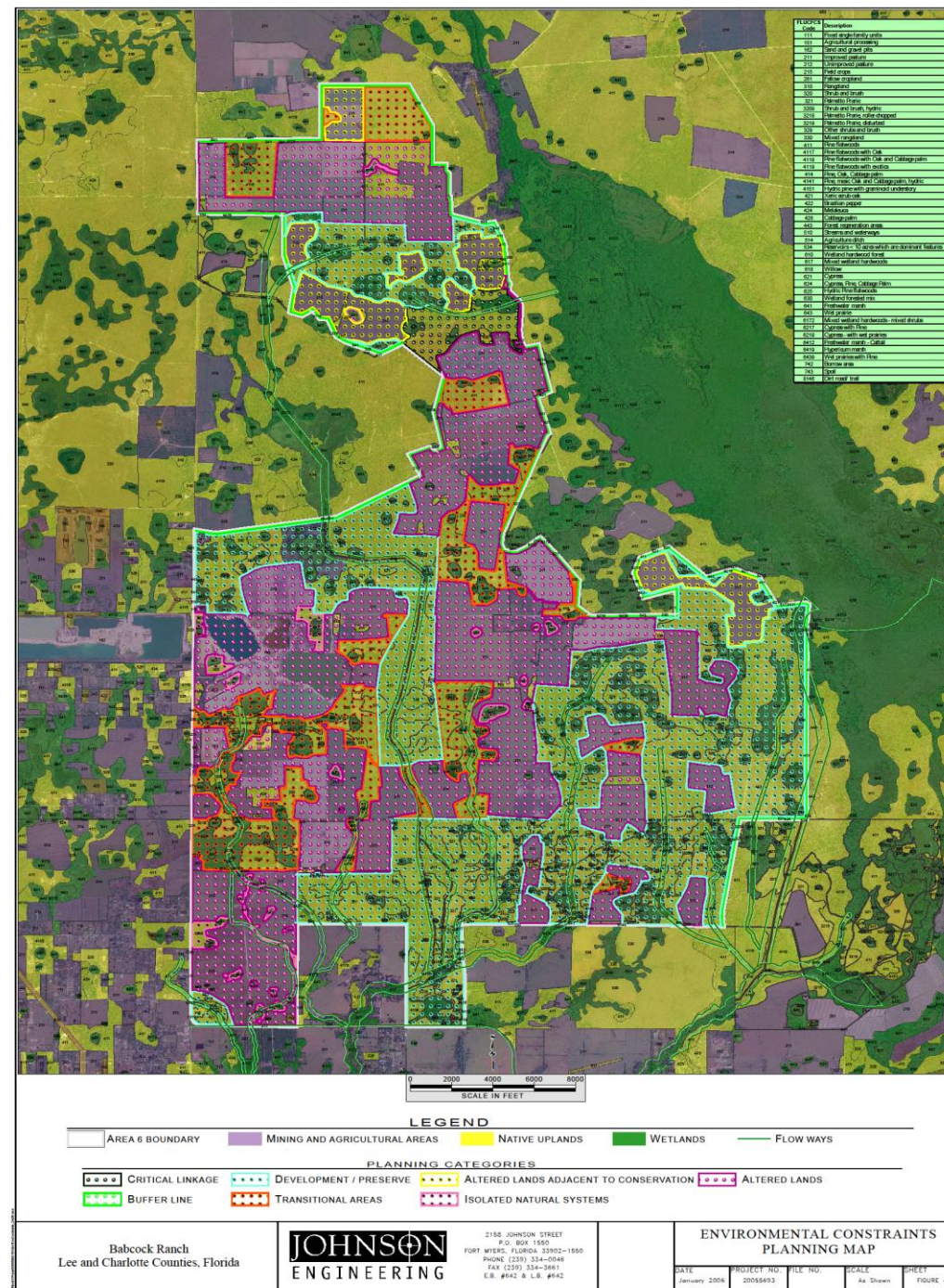
A.T. Grant  
A.T. GRANT

REGISTERED PROFESSIONAL ENGINEER  
FLORIDA CERTIFICATE #11861





# Kitson & Partners Detailed Analysis – Land Use Analysis



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# Kitson 2005

Area Removed  
from Conservation Sale



Area Added  
to Conservation Sale



2158 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (941) 334-0046  
FAX (941) 334-3661  
E.B. #642 & L.B. #642

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET

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Kitson 2006

Area Removed  
from Conservation Sale

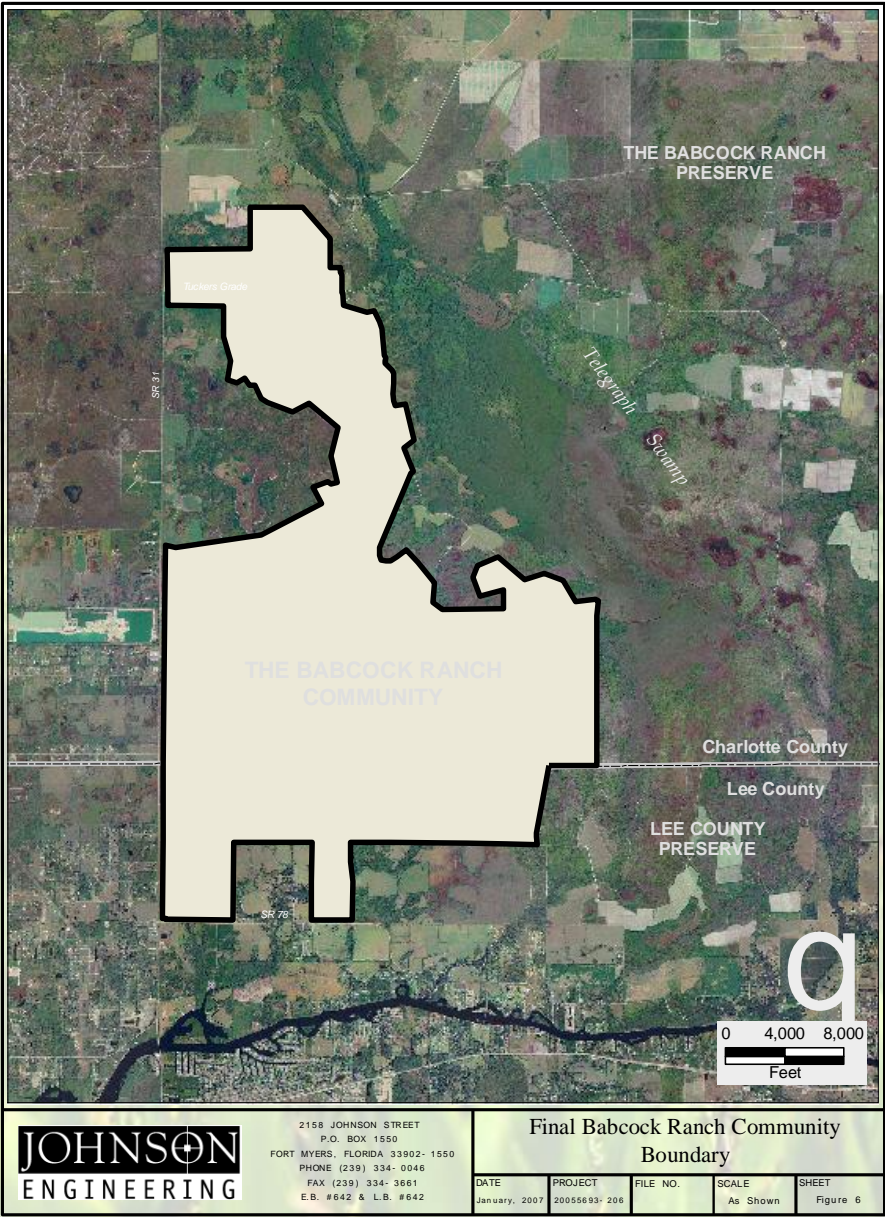
Areas Added  
to Conservation Sale



2158 JOHNSON STREET  
P.O. BOX 1550  
FORT MYERS, FLORIDA 33902-1550  
PHONE (941) 334-0046  
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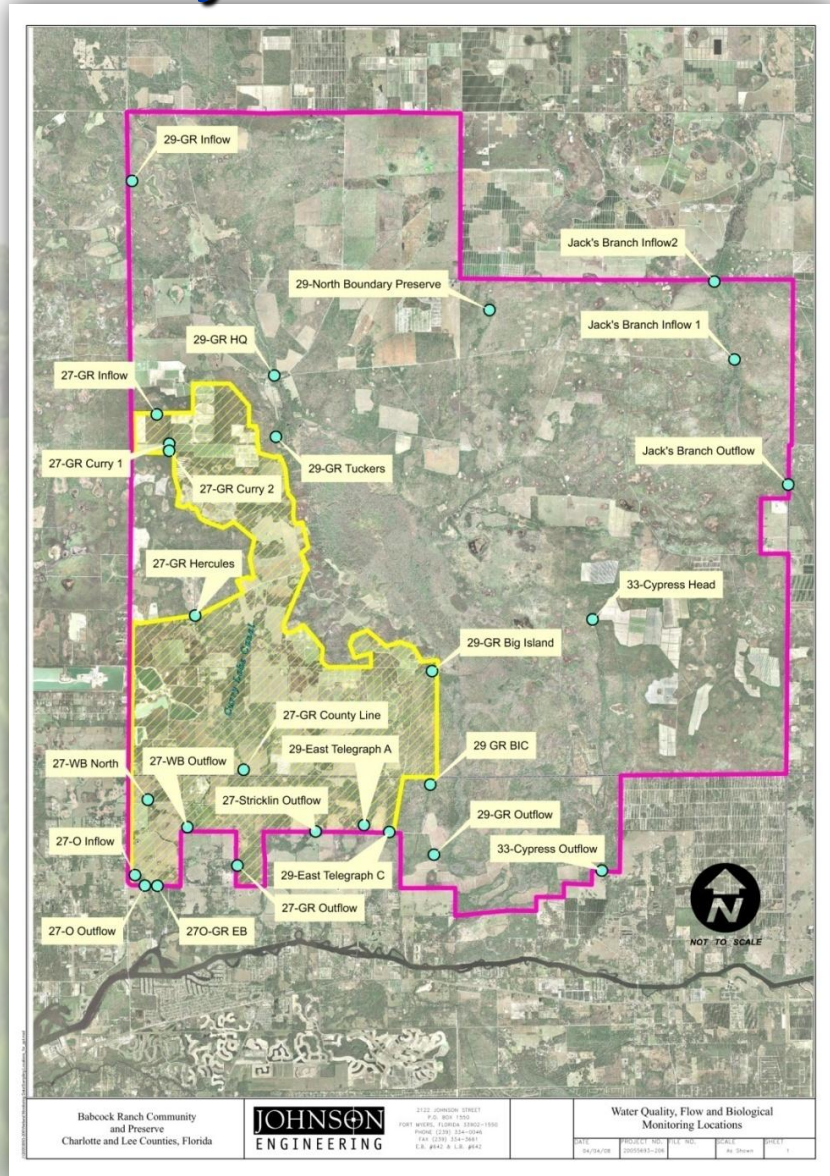
DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
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# Area 6 Final Boundary



N:\20055693\701\ENV\Exhibits for Church\Fig. Final BRC Babcock.mxd

# Kitson & Partners Detailed Analysis – Aquatic Faunal Sampling





# Kitson & Partners Detailed Analysis

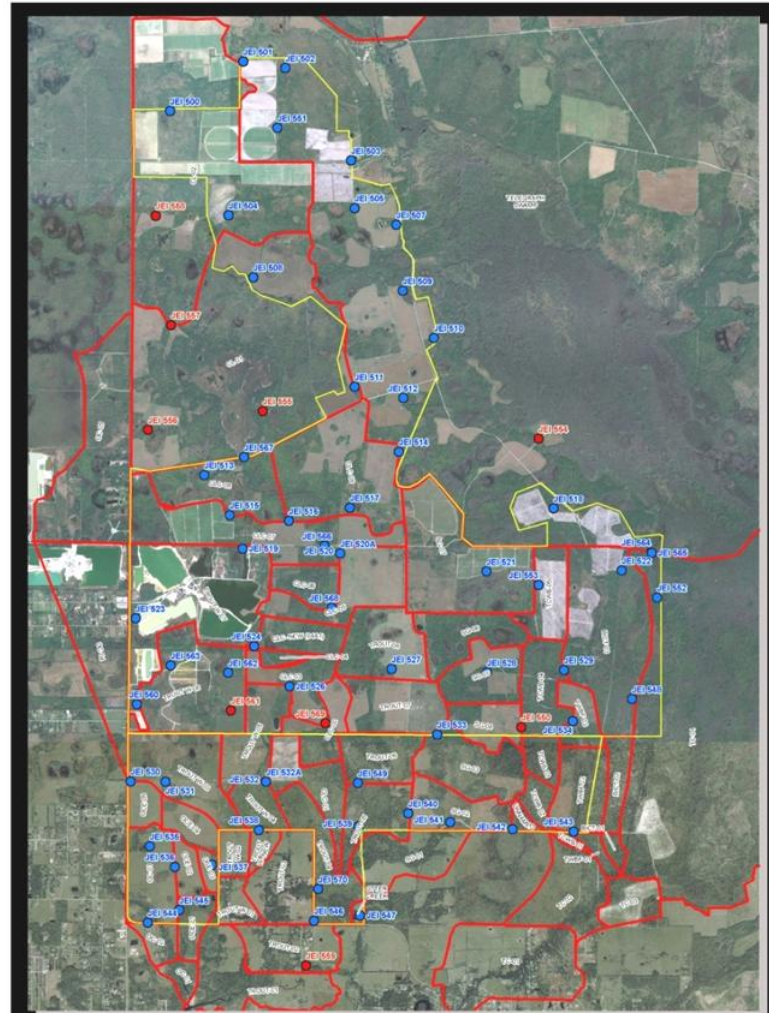
## Baseline Findings...

- Species richness for cypress domes lower than reported by Main et al. (2007) and generally lower than reported by Ceilley et al. (1999)
- The relative low species richness of fishes and macroinvertebrates and the rarity of long hydroperiod taxa at several sites appear to result from disturbance of natural wetland hydroperiods and stream flows
  - Supported by on-site well data

# Kitson & Partners Detailed Analysis

## Wetland Hydroperiod Analysis

### Well Map

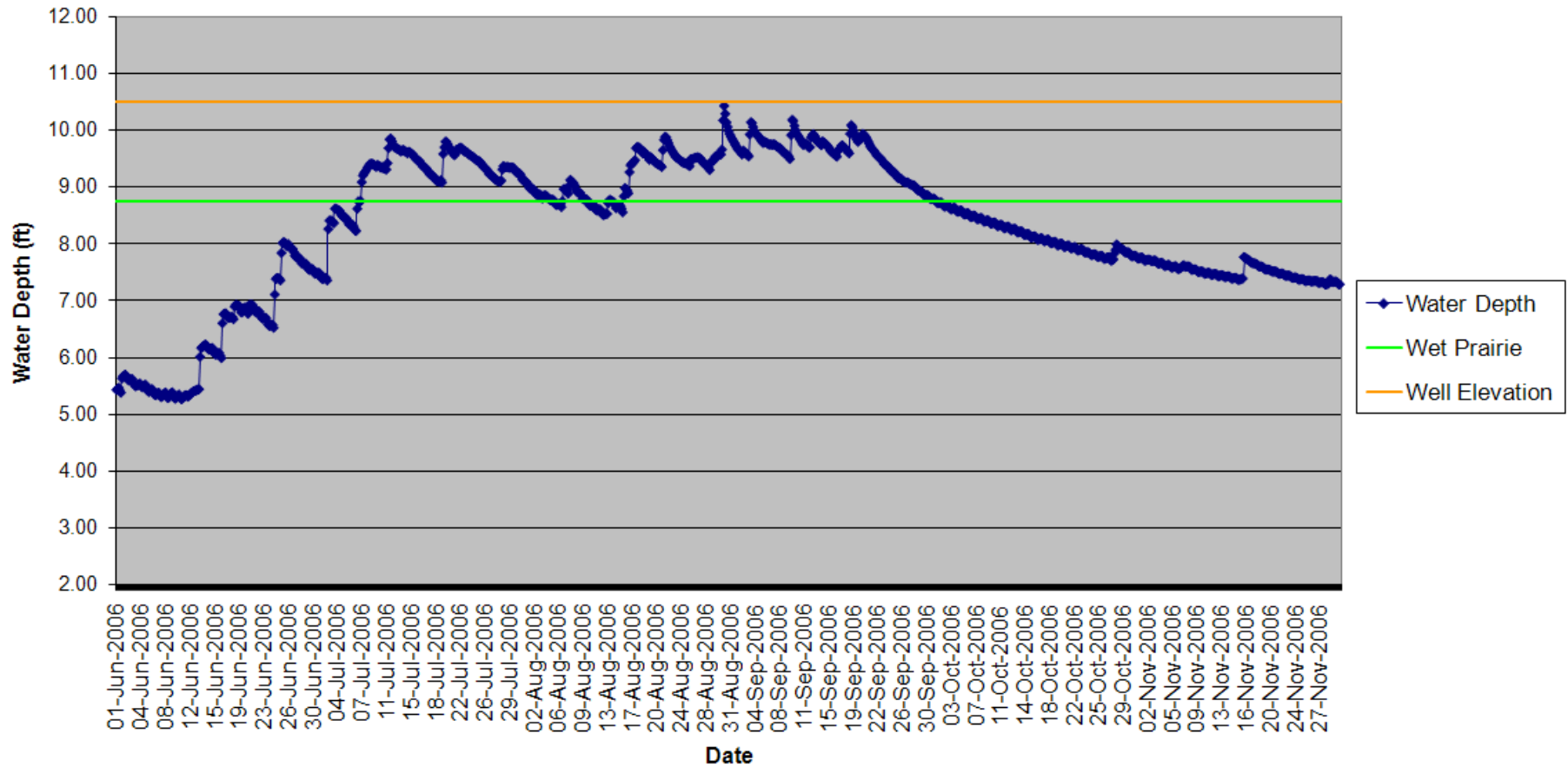


#### Legend

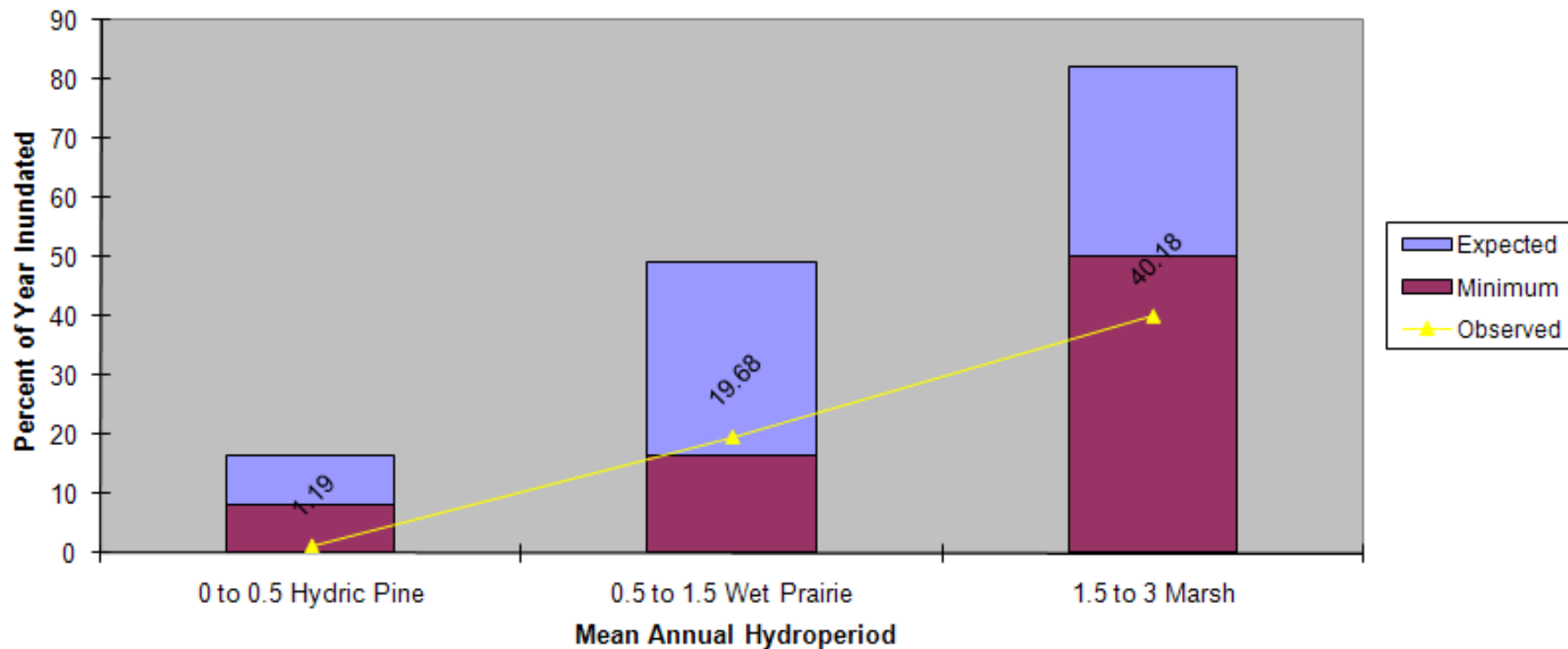
- Babcock Wells
- Utilized in Statistical Analysis
  - EXCLUDED FROM STAT
- Babcock Ranch Community Development Area 6
- Basin Boundaries



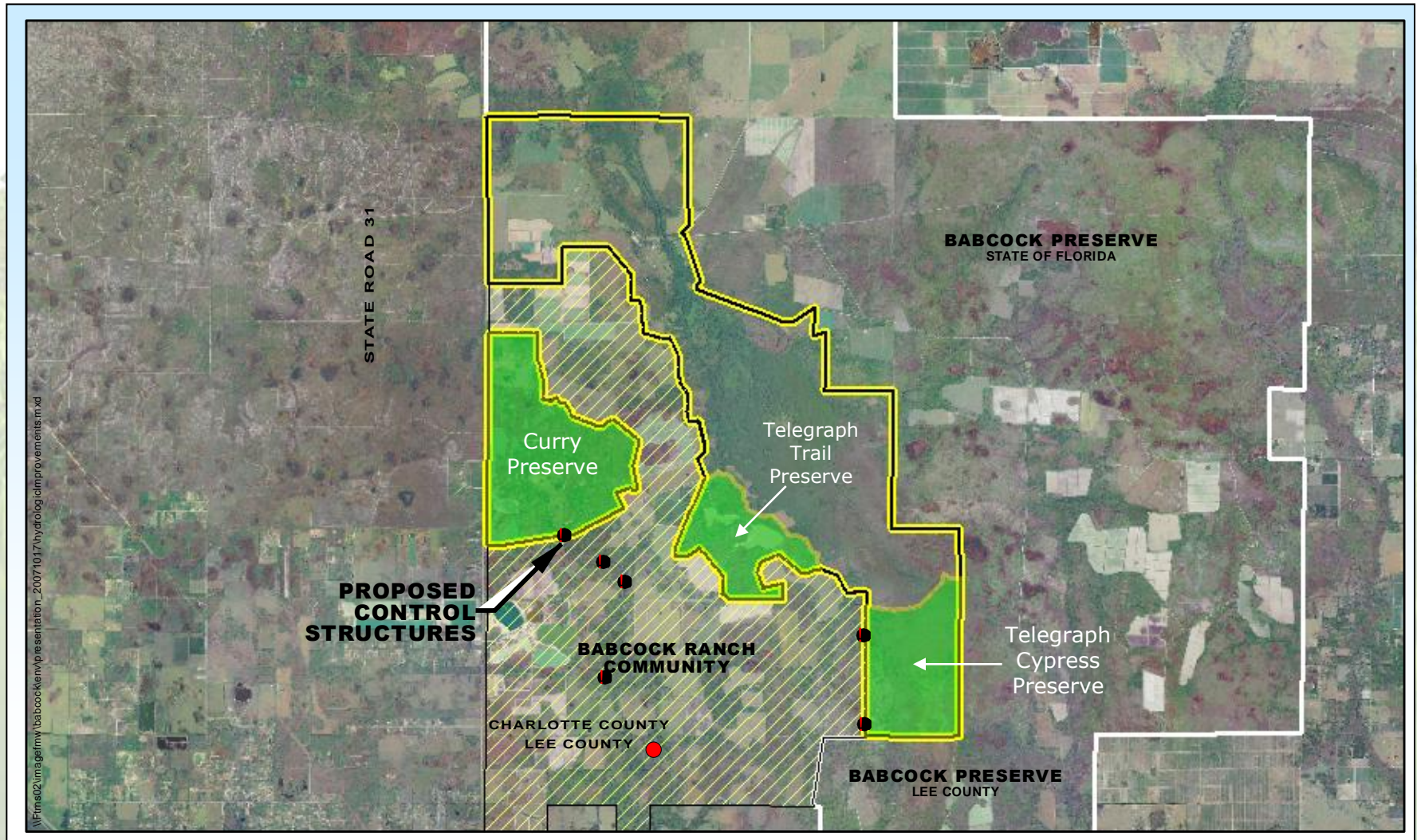
Hydrograph Well 545  
Owl Creek East Branch 1

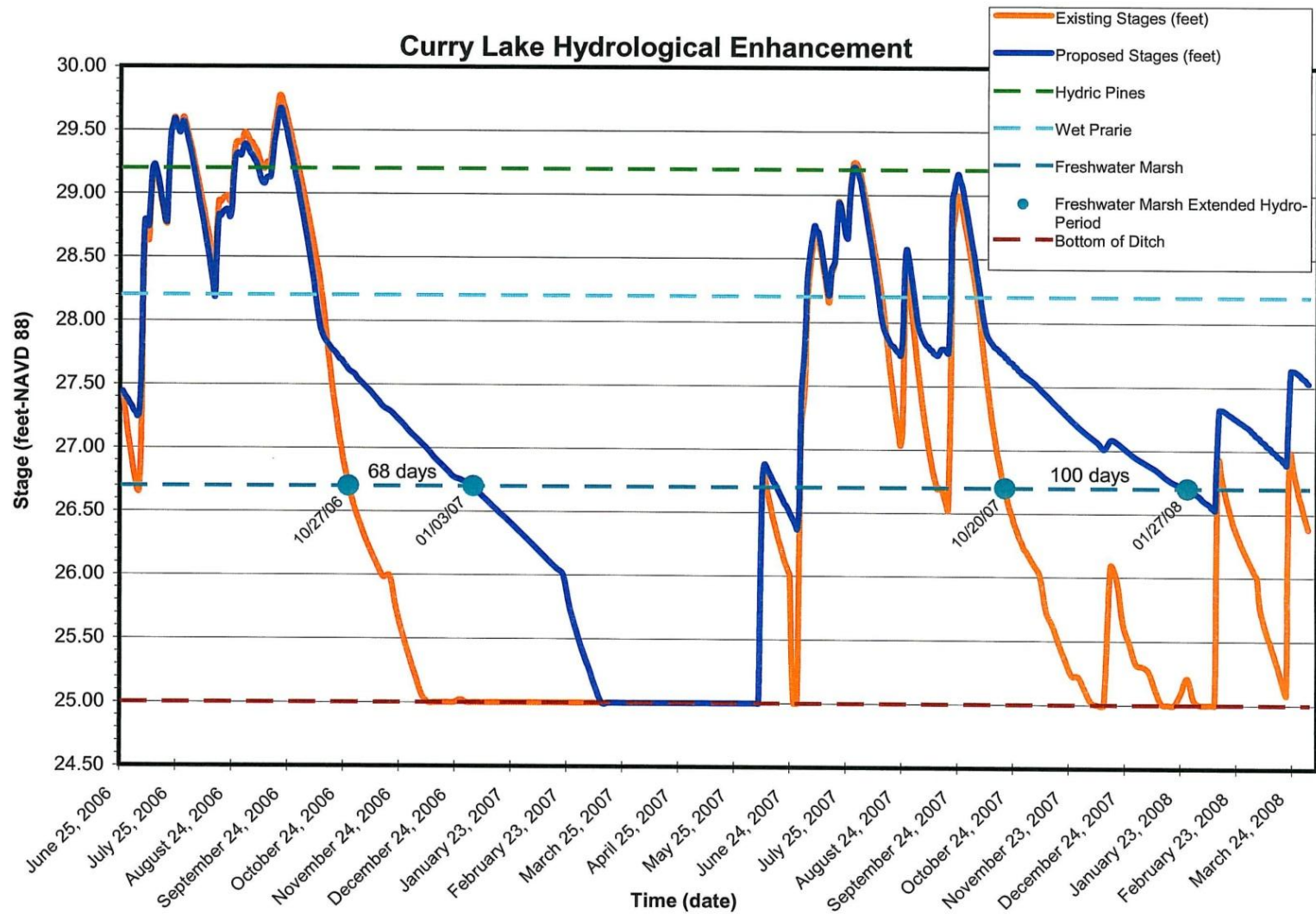


### Piezometer Hydroperiod Analysis



# Hydrologic Improvements

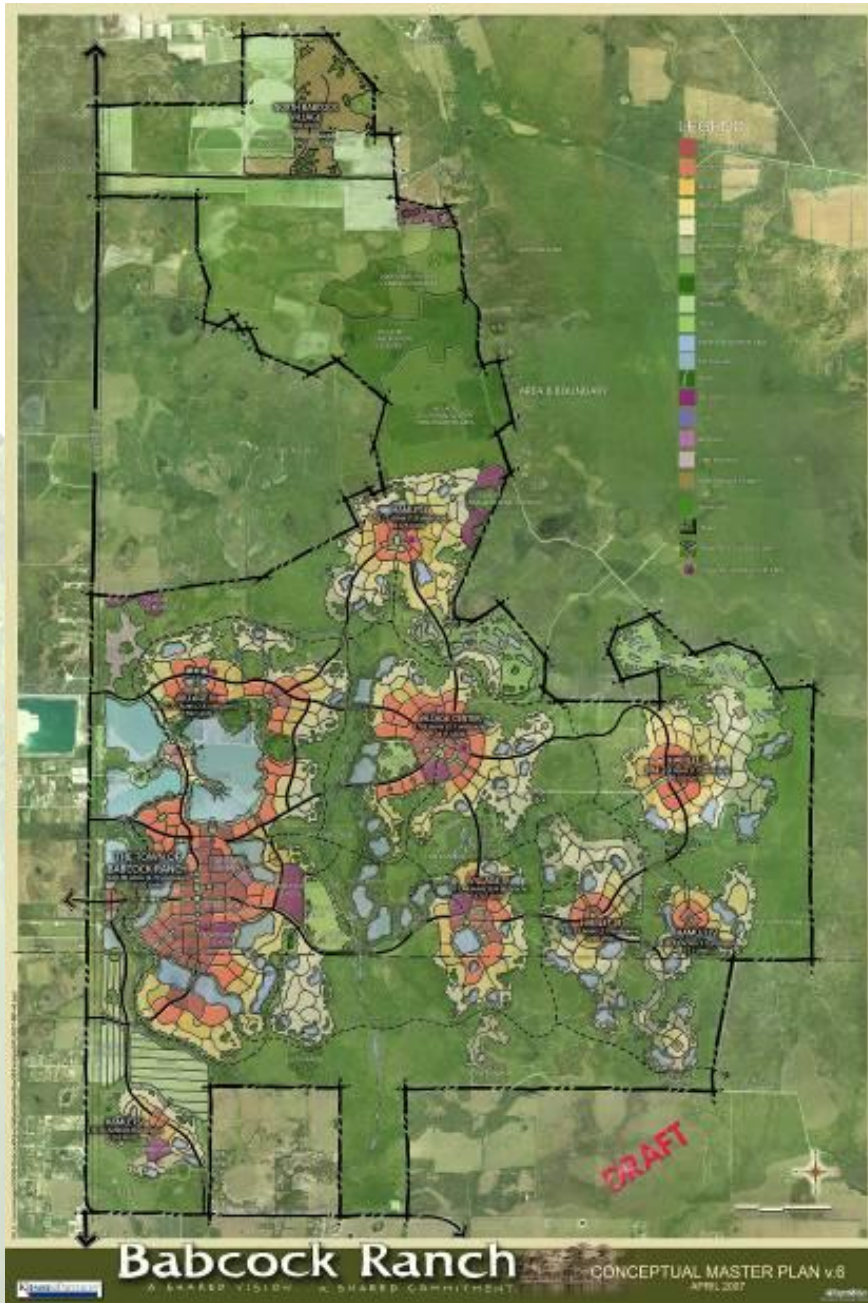






## Avoidance & Minimization of Wetland Impacts

2006 Site Plan  
1,047 acres of  
Wetland Impact



## Avoidance & Minimization of Wetland Impacts

2010 SFWMD Approval  
424 acres of  
Wetland Impacts

# Elimination and Reduction

rrp\_satt\_report.m

and to provide the State with additional natural lands as part of the Conservation Purchase. The addition of the two parcels along State Road 31 was significant because it increased the size of the linear connection between Conservation Purchase area and the Babcock-Webb Wildlife Management Area from 3,600 feet to 15,300 feet. The final Conservation Purchase resulted in the public acquisition of 73,238 acres. The most significant change in the site plan was the scaling back of the North Babcock Village from 1,714 acres to 350 acres which resulted in a significant reduction in wetland impacts. Not only did this site plan modification reduce wetland impacts, it also expanded the regional wildlife corridor connecting the Babcock Ranch Preserve to Babcock-Webb Wildlife Management Area by 1,354 acres. This connection will be maintained as native habitats and agricultural uses. This will greatly benefit large mammal movement between the preserves, primarily for the Florida black bear and the endangered Florida panther. The site design has concentrated preserve/mitigation areas to provide for long-term habitat connectivity both on and offsite, maintenance of existing flow-ways and significant supporting upland habitat to wetland preserve areas, resulting in a regionally significant mitigation plan. Development tracts have been designed to concentrate high density areas within central portions of the development tracts, with the lowest densities bordering adjacent preserves where feasible. Wetland impacts have been

The site design has concentrated preserve/mitigation areas to provide for long-term habitat connectivity both on and offsite, maintenance of existing flow-ways and significant supporting upland habitat to wetland preserve areas, resulting in a regionally significant mitigation plan.

(UMAM). The UMAM analysis for this project is attached as Exhibit 4.4, which is incorporated by reference. The functional loss from the onsite wetland impacts 263.23 units. Preliminary estimated functional loss from external road construction that is required for the development is 115.67 units, for a total project functional loss of 378.90 units.

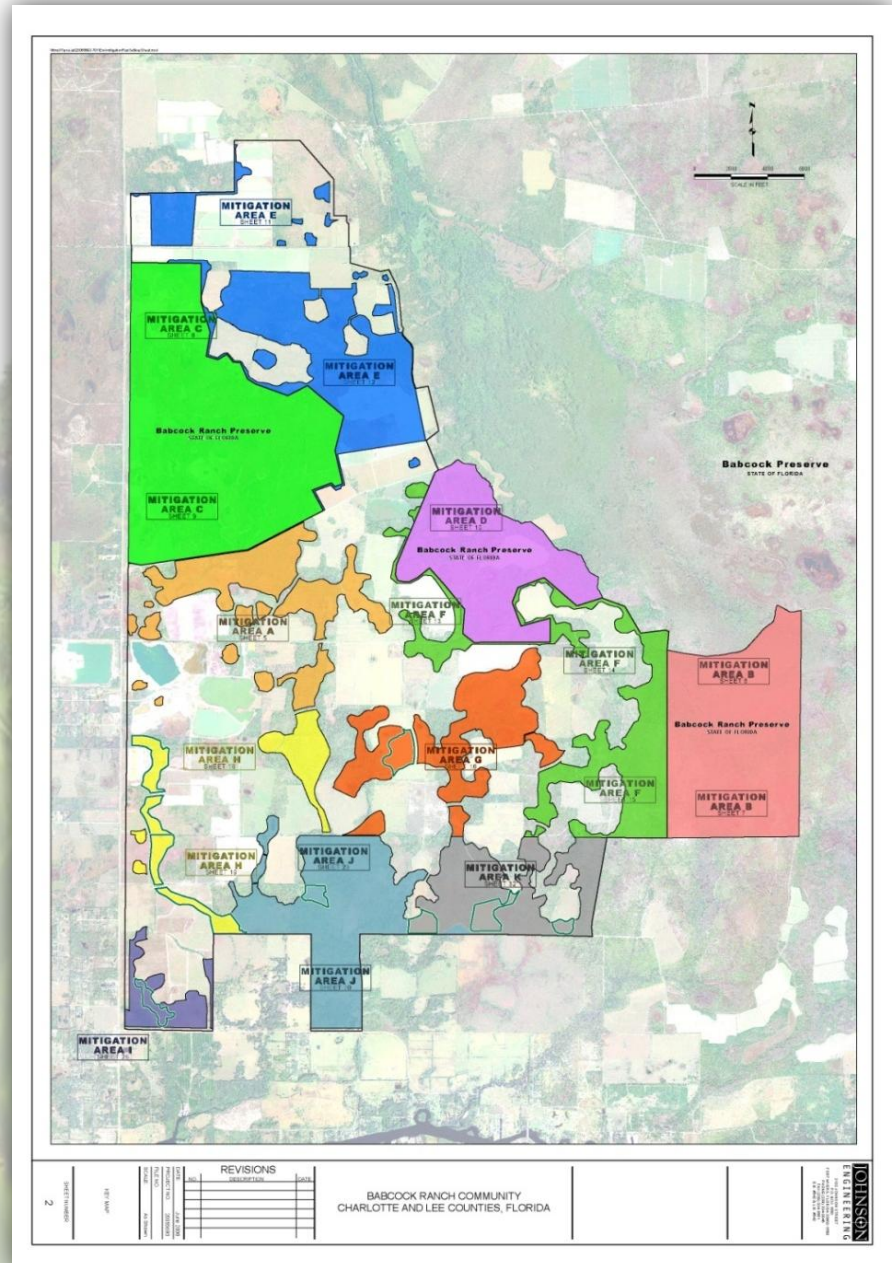
#### Mitigation Proposal:

The mitigation and preserve management plan for the BRC is a combination of onsite (within State-owned portion of Babcock Ranch) and offsite mitigation and includes wetland creation, wetland enhancement and preservation, and upland enhancement, restoration, and preservation involving eleven (11) different mitigation areas totaling 12,704.59 acres. Ecological burning appropriate for the various habitat types is an inherent component to the mitigation plan for all of the mitigation areas. All lands proposed for mitigation have been divided into Mitigation Areas A through K.

The offsite mitigation occurs on a portion of the Babcock Ranch Preserve (BRP) purchased by the State. Mitigation Areas J, C, and D form the 5,640 acre offsite mitigation areas and are referred to as Telegraph Swamp Preserve, Curry Lake Preserve, and Telegraph Trail Preserve, respectively. These offsite mitigation areas were established in order to provide mitigation for impacts to Florida panther habitat and

## SFWMD Mitigation

- Mitigation area is approximately 12,907 acres (Mitigation Areas A-K)
- 6,864 acres on-site mitigation
- 265 acres on-site wetland creation
- 5,840 acres offsite mitigation



# Mitigation To Date

