

Martin County Projects Within Cypress Creek (Flow Way 3)



**Presentation to the Loxahatchee River PDT
March 19, 2015**



**Michael Yustin, Martin County Engineering Department,
Project Manager**

Introduction



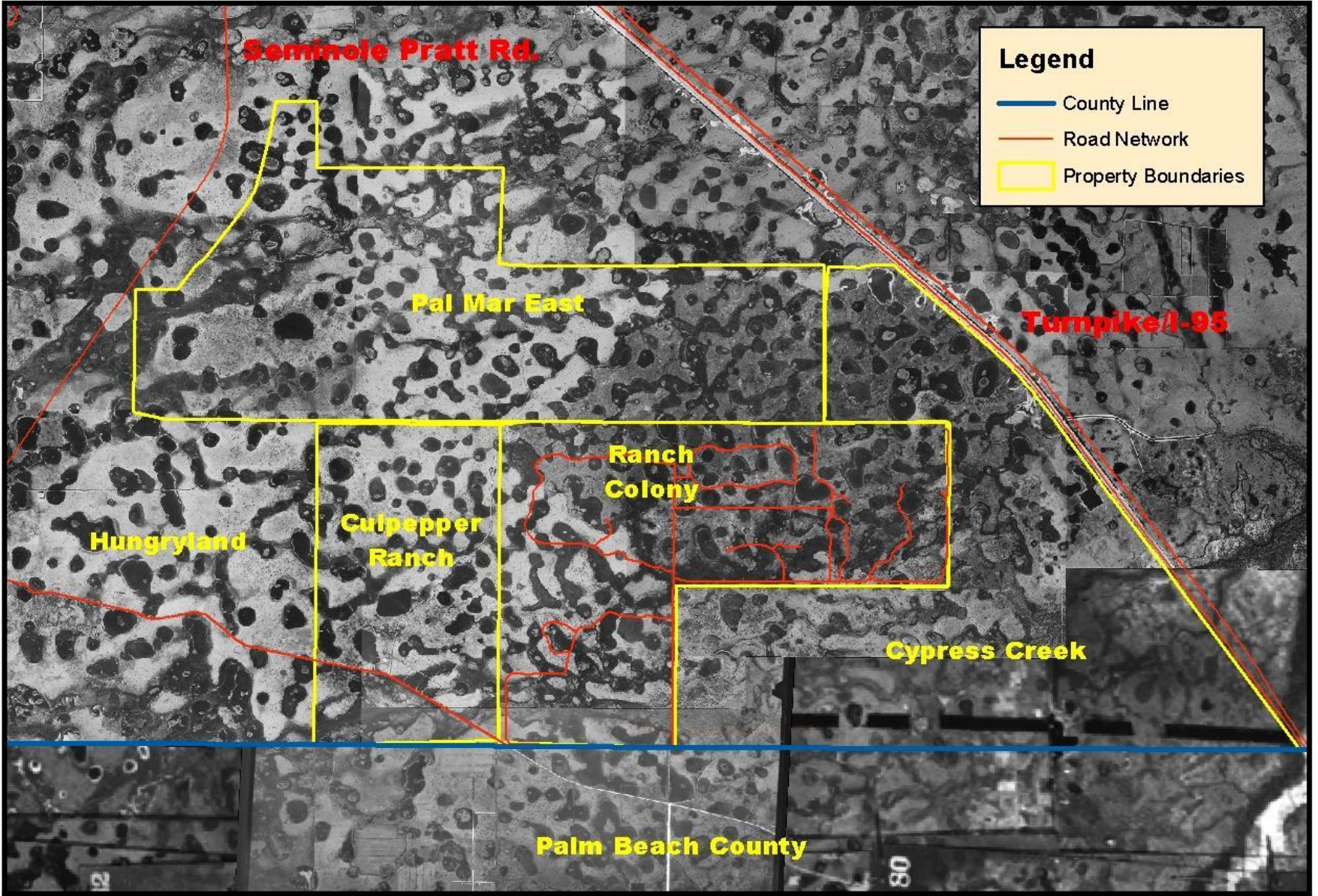
- **Cypress Creek/ Pal Mar includes over 20,000 acres of wetland and slough systems.**






Martin County

Project Name: culpepper ranch.mxd
Plot Location: g:\project\prdm\myustin\sites
Created By: Michael Yustin (ENG Dept)
Plot Date: October, 2010

Cypress Creek / Pal Mar 1958 Aerial



Legend

-  County Line
-  Road Network
-  Property Boundaries

Seminole Pratt Rd.

Pal Mar East

Tumpike I-95

Hungryland

Culpepper Ranch

Ranch Colony

Cypress Creek

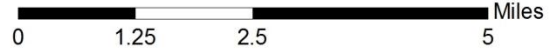
Palm Beach County



Martin County

Project Name: g:\projects\pdm\martin\lra\lra\dm\grade.mxd
Plot Location: g:\projects\pdm\martin\lra\lra\dm\grade.pdf
Created By: Michael Yustin (PSS) (DWS)
Plot Date: July, 2005

Cypress Creek Watershed

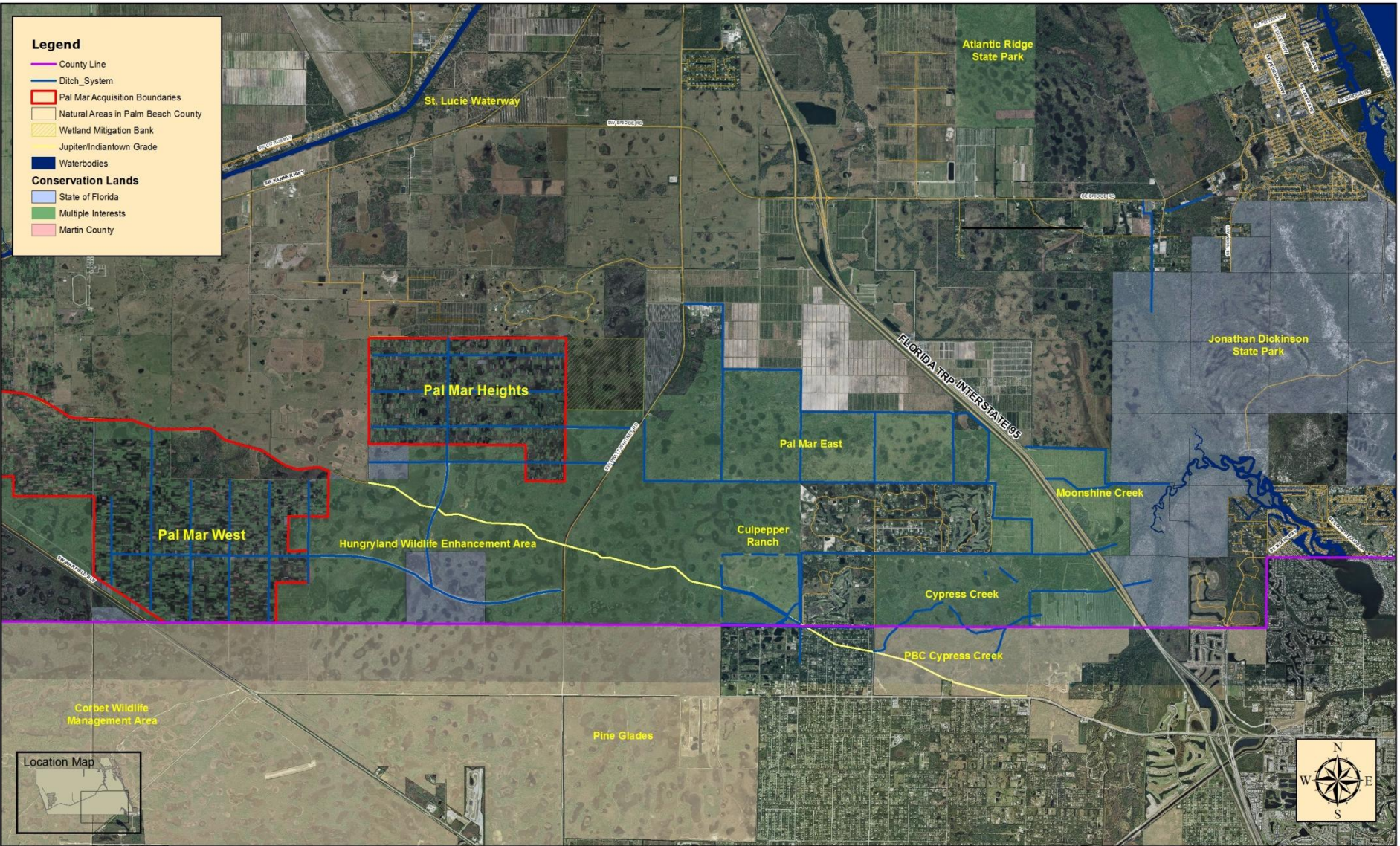


Legend

- County Line
- Ditch_System
- Pal Mar Acquisition Boundaries
- Natural Areas in Palm Beach County
- Wetland Mitigation Bank
- Jupiter/Indian town Grade
- Waterbodies

Conservation Lands

- State of Florida
- Multiple Interests
- Martin County



Enormous Restoration Potential of Watershed



- **At least 7,000 acres of publicly owned conservation lands have been significantly degraded by ditching and drainage.**
 - **1,600 acres of publicly owned lands being used for agriculture.**
- **Cypress Creek provides between 26-32% of the Loxahatchee River's Flows.**



Relocate drainage to north ditch

Ninegems (Palmar East Property)

Ranch Colony, Old Trail

Culpepper property

Cypress Creek Properties

Relocate drainage east

Improve existing berm

Pal Mar East (Nine Gems) Restoration



Becker Groves

**North-South
Lateral Ditches**

**Hobe Grove
Canal**

- **3,200 acre property**
- **Previously used extensively for agriculture**

Internal Drainage Features



Small ditches connect the different wetlands and perimeter ditches.

Water quickly leaves the property after rain events.



Impact on Natural Communities

**Cypress and
marsh
communities
giving way to
pine and upland
habitats.**

**Large scale
infestation of
exotic
vegetation.**

Placed over 140 ditch plugs throughout property to hold water in wetland areas.





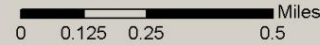
- **Increased hydroperiod on over 2,000 acres of land.**
- **Visible die off of uplands plants within wetlands areas.**



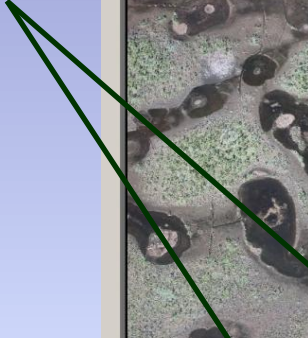
Martin County

Project Name: submerse of road
Plot Location: g project of rd in g in s in s in s
Created By: Michael Yustin (PRD Dept)
Plot Date: October, 2014

Culpepper Ranch



**Interior
Ditches**



**Historic
Jupiter
Indiantown
Grade**



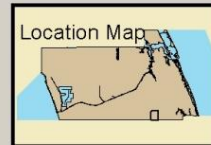
**84-inch
Culverts**



**48' and
60'
Culverts**



**Hungryland
Drainage
Ditch**



Aerial View of Ditch/Berm System



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**Twin 84-inch (7 foot) culverts rapidly drain water from property.
property.
These culverts are set at 6-foot below wetland elevation.**



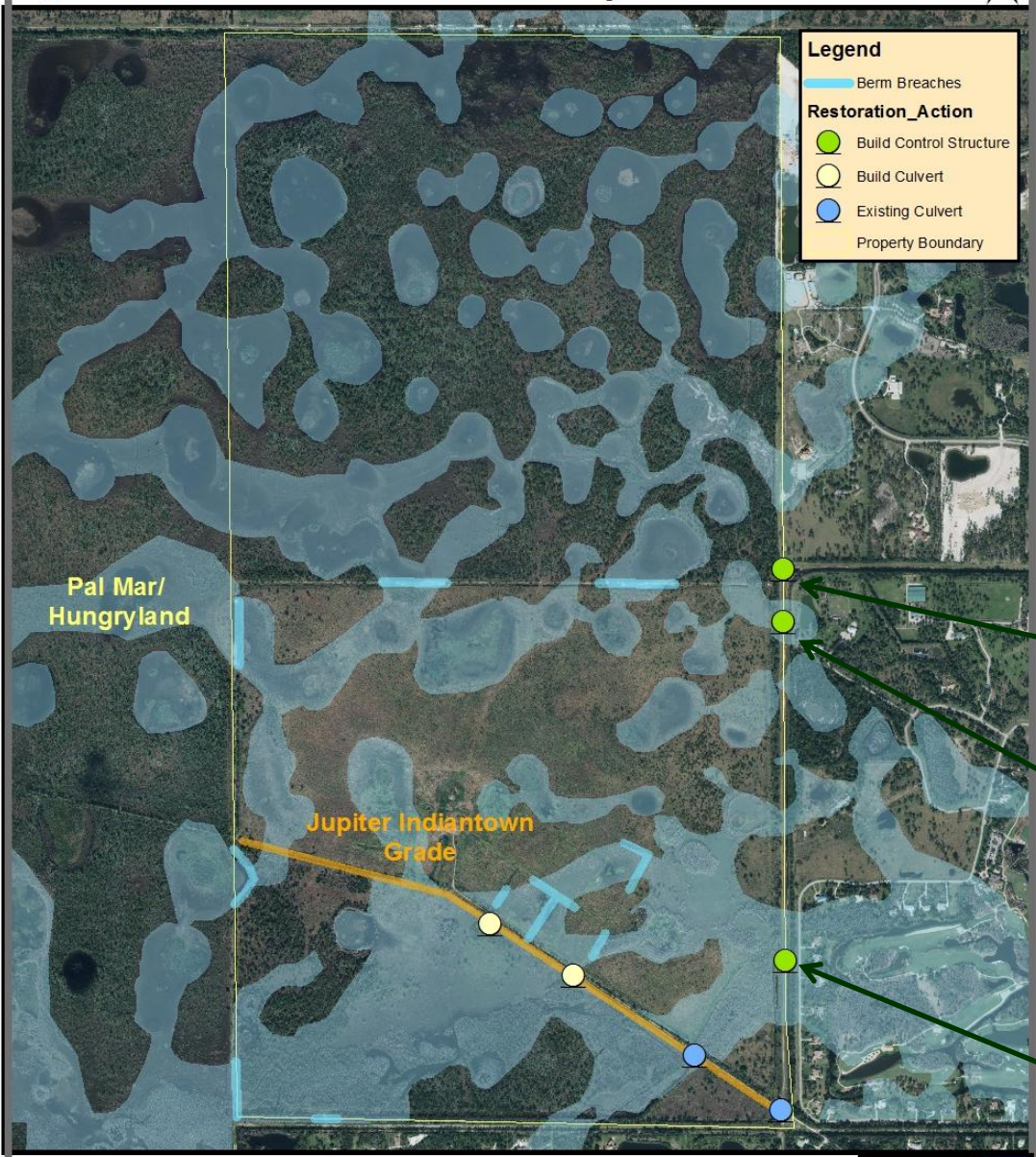


The movement of water into the culvert is so strong that it has cut a braided channel through the property.



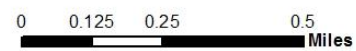
Restoration Plan

- **Remove berms and ditches adjacent to wetlands**
- **Add control structures to culverts to hold water on the property**



Legend

- Berm Breaches
- Restoration_Action**
 - Build Control Structure
 - Build Culvert
 - Existing Culvert
 - Property Boundary



Twin 84" Culverts

48" Culvert

60" Culvert

Regrading ditches and berms to reconnect wetlands



Southern Ditch Block Prevents Drainage of Hungryland (i.e. Pal Mar)



Phase II Construction of Twin 84's



Installation of Control Structures



Braided Channel Upstream of Twin 84's







Rehydrated Cypress Slough





Cypress Creek Property

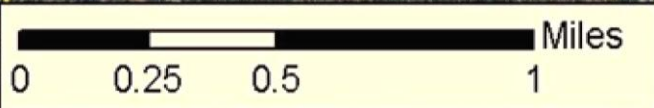
Legend

-  Ditch System
-  Cypress Creek Slough
-  County Line
-  Dirt Road

Ditch Plug Location

60-inch Control Structure

Replaced 72" Flashboard Riser



Photos of Ditch Plug Installation



Photos of Control Structure Installation



Next Steps



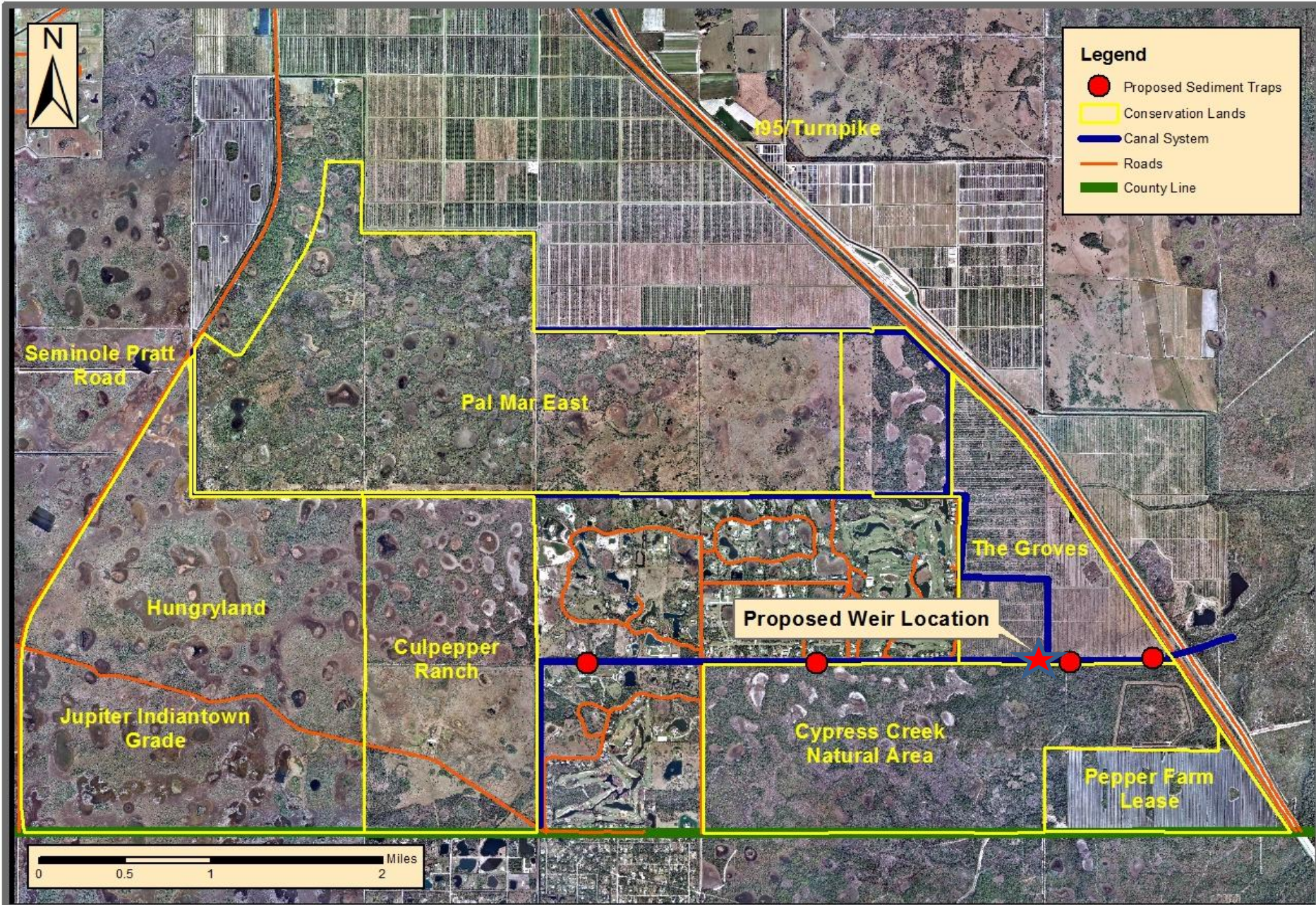
- **Although progress has been made towards restoring the watershed much more still needs to be done**
- **The construction of a weir and sediment traps within the Cypress Creek Canal are the County's next steps**



Martin County

Project Name: < Cypress_Creek.mxd >
Created By: < Michael Yustin (ENG Dept) >
Plot Date: < August 2014 >

Martin County Cypress Creek Project Location



Cypress Creek Canal



- **Drains the entire watershed**
 - **There is no functioning control on this canal**
- **It leads directly into Cypress Creek and the Loxahatchee River**

Canal Impacts on Cypress Creek Natural Area



- **Artificially decreases water table**
- **Causes over-drainage in the Cypress Creek Natural Area**
- **Effective control elevation of canal is 2 feet above sea level, while it is between 15-16 feet in adjacent wetlands**

Canal Impacts of Culpepper Ranch Restoration



- **Extreme water level difference between Culpepper and canal**
 - **Creates erosion pressure on the Culpepper berm**
- **Reduced differential will allow water to be held for dry season Loxahatchee flows and increase wetland hydroperiod**

Erosion/ Shoaling Issues



- **Sediments from erosion form shoals in the Loxahatchee**
- **Creates flow impediments and is a major contributing factor to the formation of a new channel in the Loxahatchee**

Installing a New Cypress Creek Weir

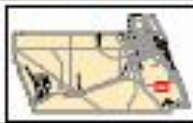
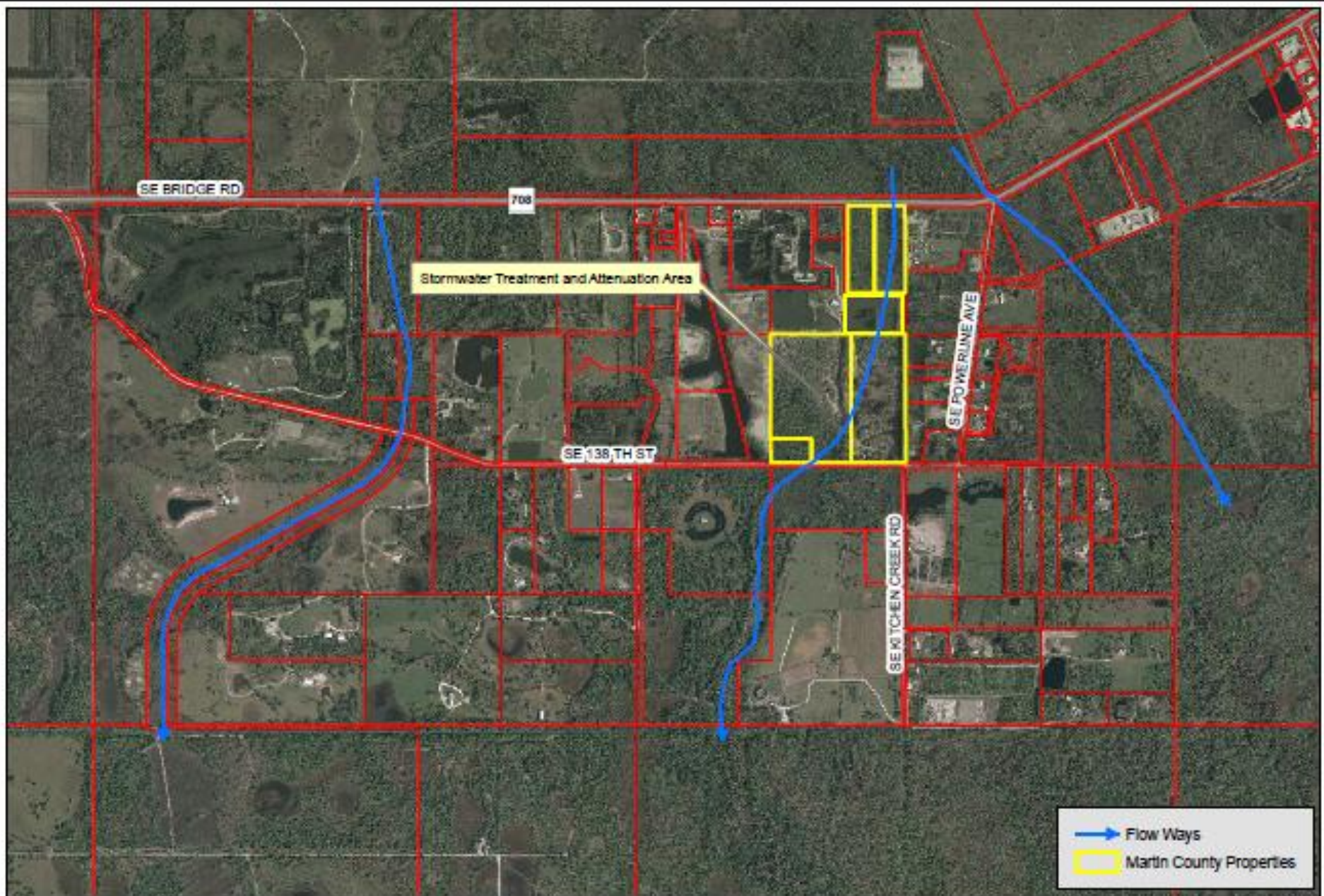


- **Alleviates erosion and shoaling problems**
- **Culpepper Ranch could hold more water thereby improving hydrology and providing dry season flows to the Loxahatchee**
 - **Increased water table in Cypress Creek Natural Area**

Sediments Traps



- **Reinforced earthen berms or rip rap structure to capture sediments**
- **Slow water and help prevent shoaling in the Loxahatchee**

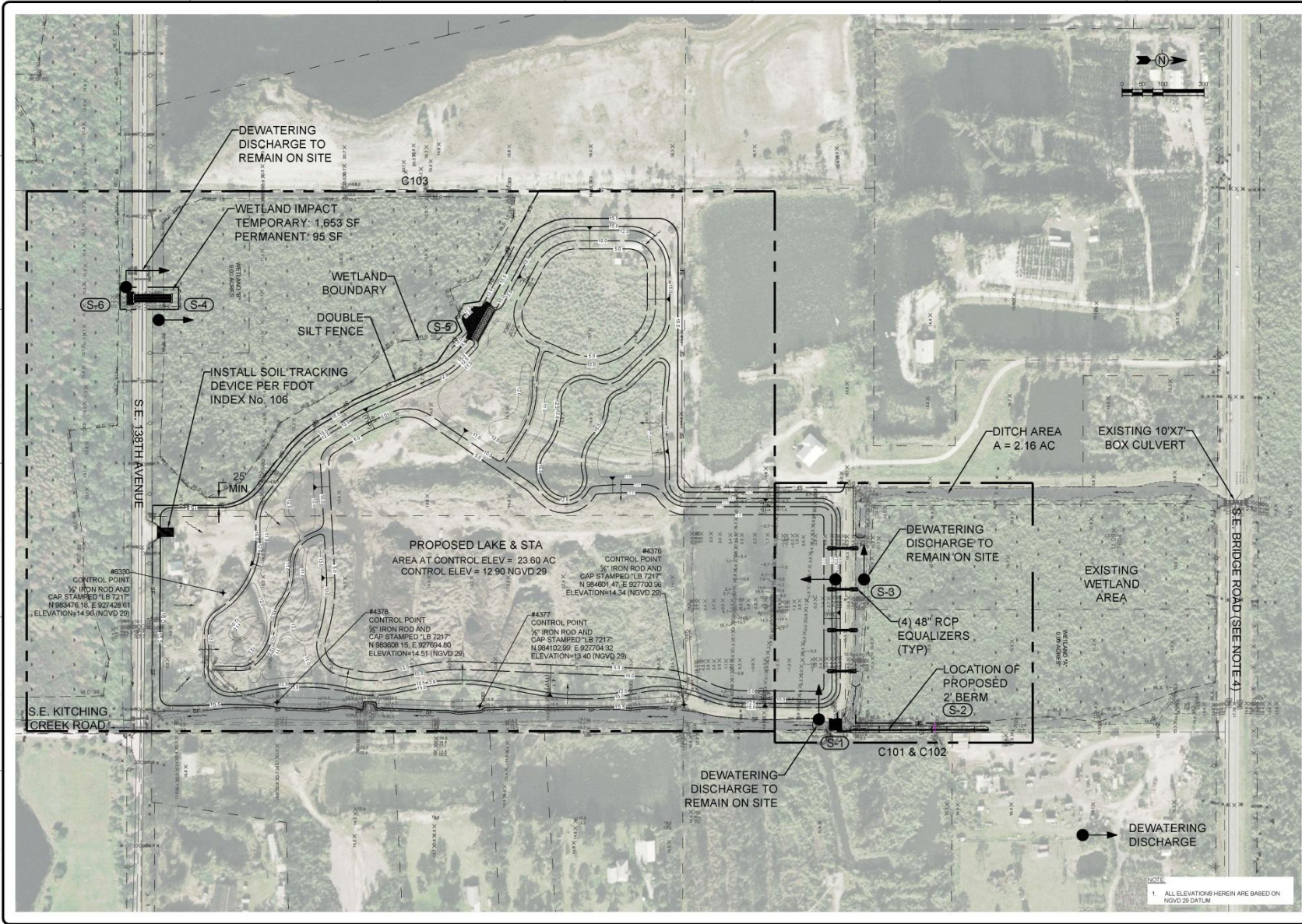


This is a visual planning tool used to illustrate approximate locations for the proposed flow ways and not a legal description.

Kitching Creek Restoration Project



4150203 5.46.18/PA P:\BENTON\20060406\1000\CAD\BENTON\KEY PLAN DWG - LOPEZ, HERMAN



NOTE:
1. ALL ELEVATIONS HEREIN ARE BASED ON NGVD 29 DATUM



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BY	DATE	DESCRIPTION

DESIGNED BY: RKC
DRAWN BY: JLS
CHECKED BY: RKC

C100

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PROJECT NO. 200-04548-1000
DESIGNED BY: RKC
DRAWN BY: JLS
CHECKED BY: RKC

KITCHING CREEK CENTRAL FLOWWAY RESTORATION PROJECT
OVERALL KEY PLAN & DEWATERING PLAN

A photograph of a sunset behind a line of trees. The sun is a bright orange-yellow orb partially obscured by the dark silhouettes of the trees. The sky is a gradient of dark orange to deep purple. The word "Questions?" is written in a bold, yellow, sans-serif font across the center of the image.

Questions?