Innovative Water Resources Projects Through Alternative Delivery Methods

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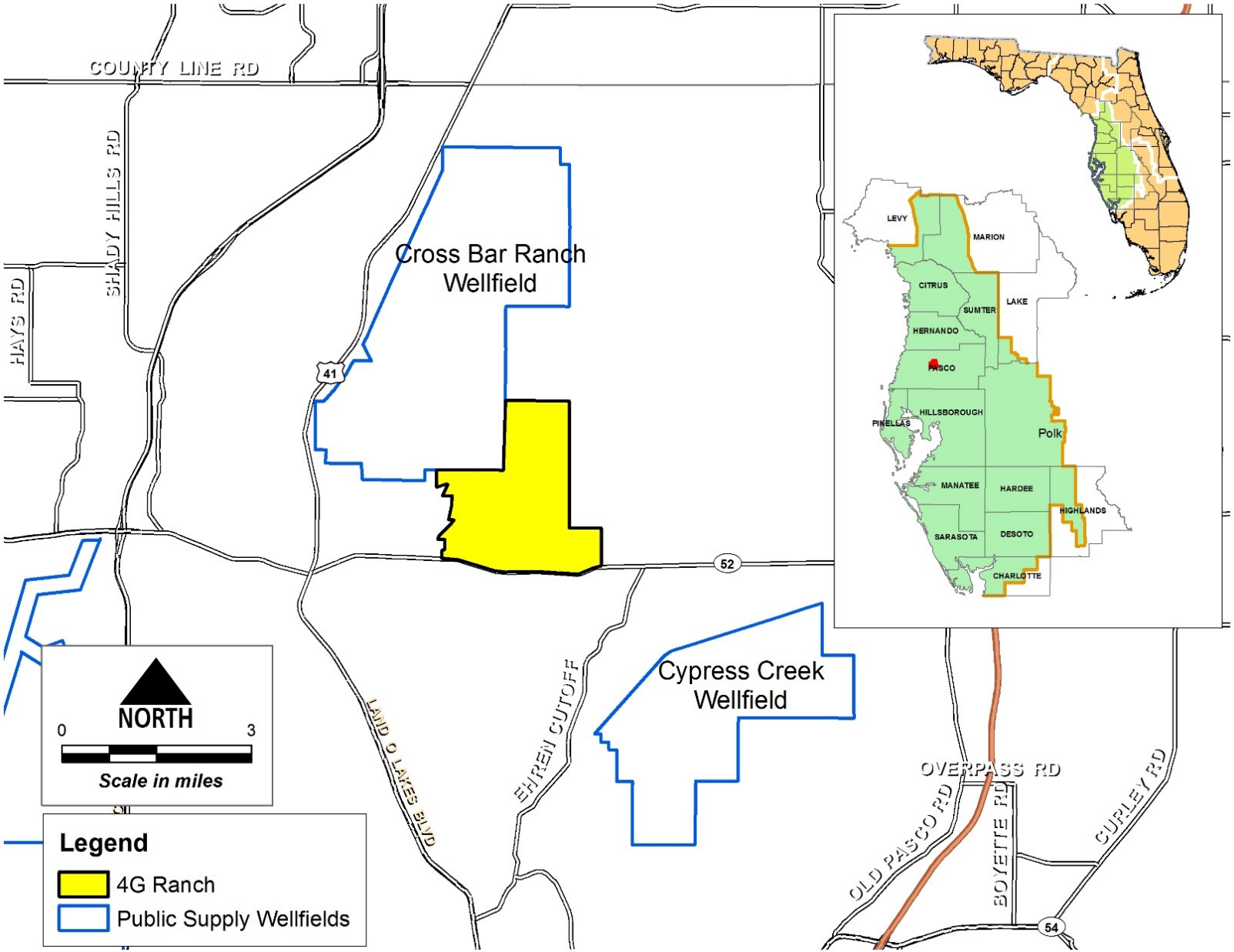
Pasco County Master Reuse System | 4G Ranch

Innovative Water Resource Projects Through Alternative Delivery Methods

- Panelists
  - Ernie Cox, Family Lands Remembered, Jupiter, Florida
  - Sara Phelps, Ph.D., Wood Group, Gainesville, Florida
  - Tom Willson, Phillips & Jordan, San Antonio, Florida

Pasco County 4G Ranch Beneficial Reuse Project

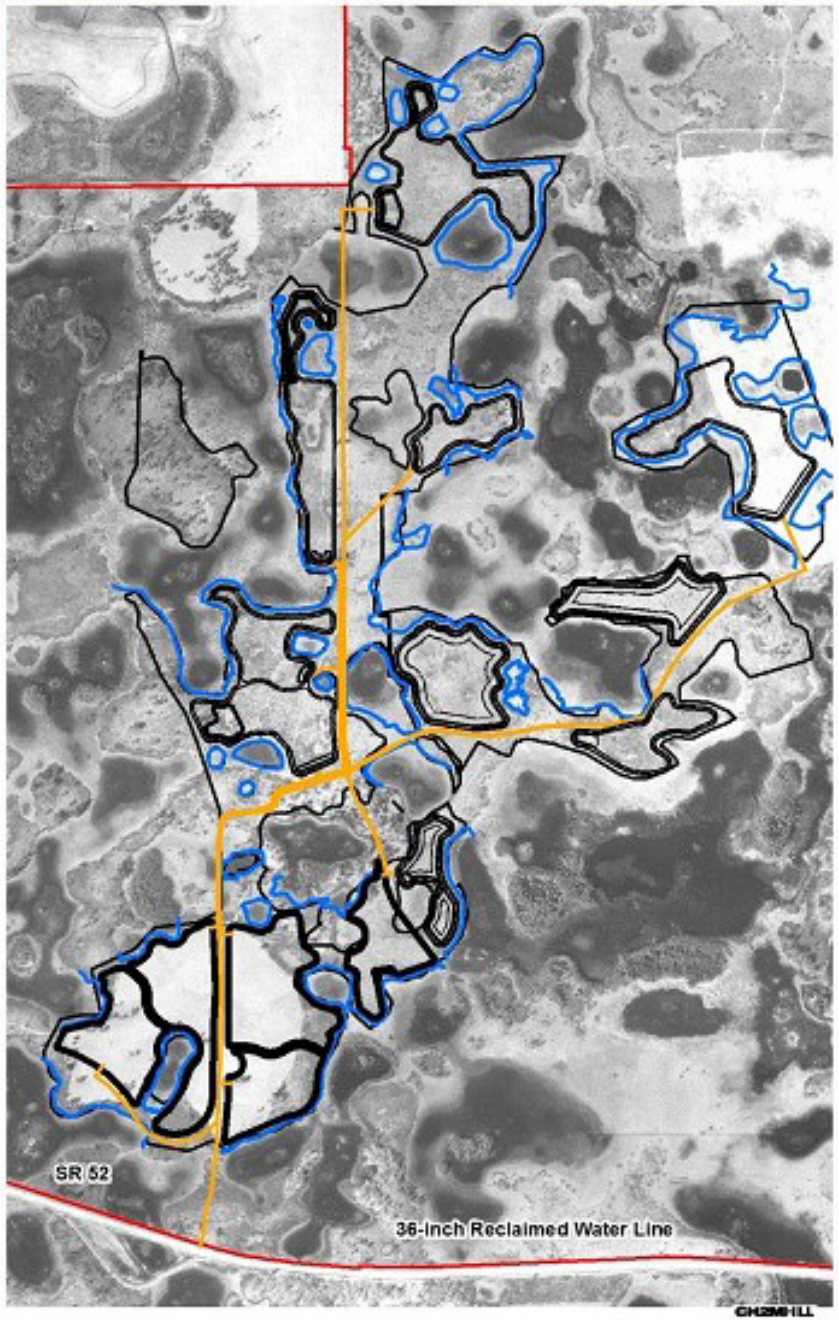
Project Location – 4G Ranch



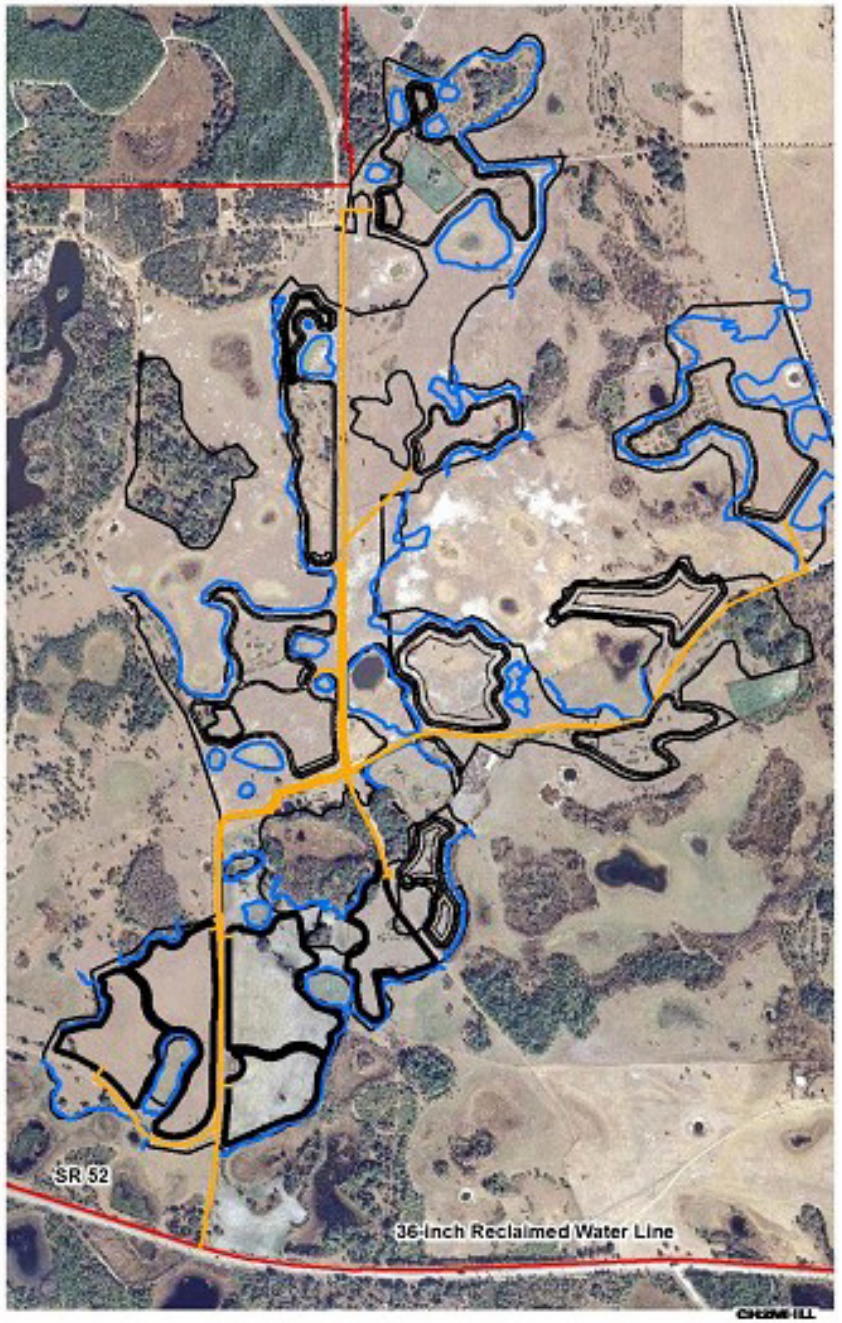
4G Ranch Project – Background and Overview

- Located on the 4G Ranch (3,000 acres)
  - Highly managed pasture with cattle
  - Hydrologically-altered lakes and wetlands
- Constructed groundwater recharge treatment wetlands
  - 176 acres of created wetlands on 237 acre portion of ranch
  - 15 cells from 5 to 15 acres each
  - Design flow of 5 MGD
- Restore wetlands and lake hydrology
- Recharge Upper Floridian Aquifer
- Increase County water reuse capacity

1970s Historical Photo



Pre Project Photo

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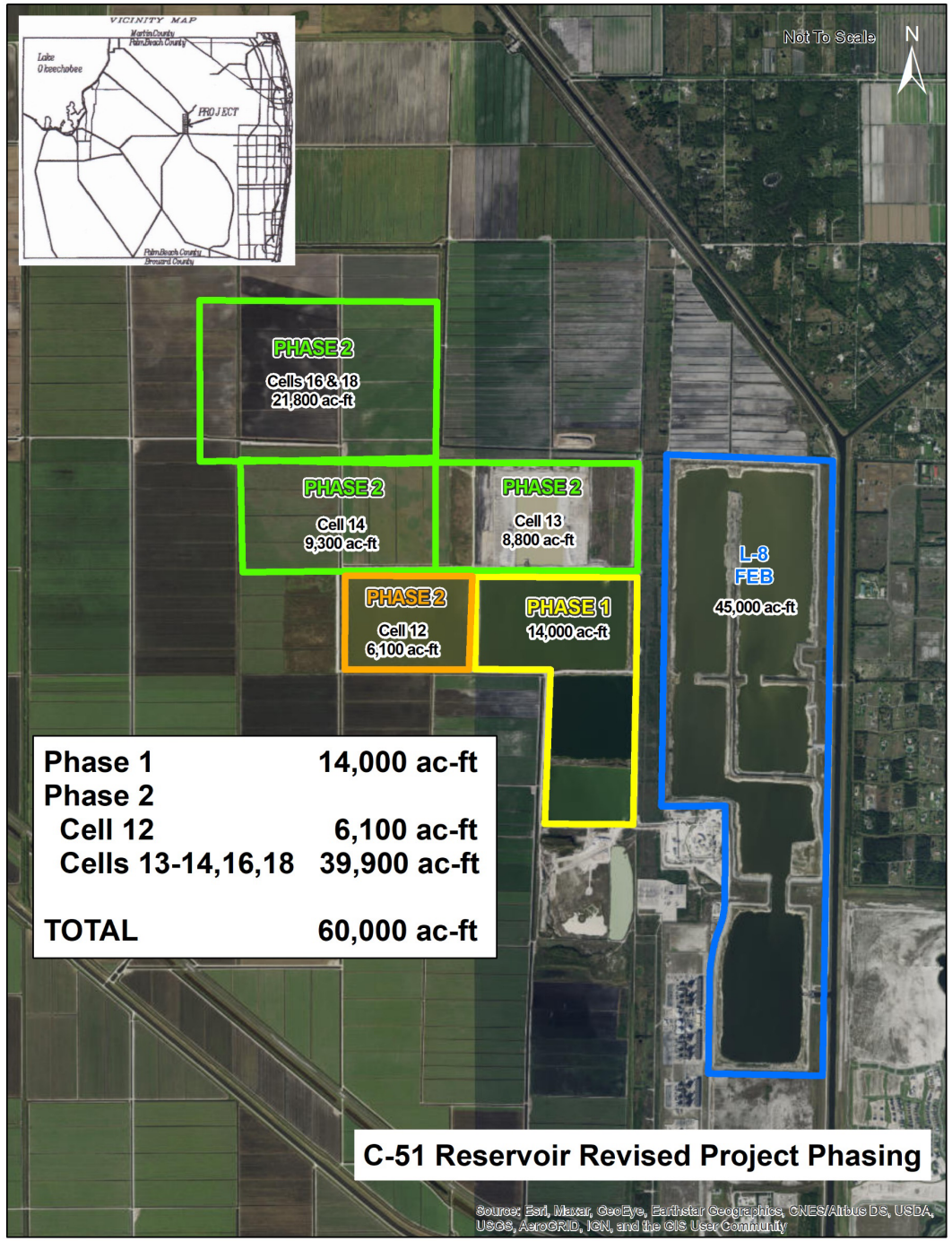
4G Ranch Key Project Components

- Multi-Use Project: Aquifer Recharge, Wetlands, Habitat, Recreation
- Partnerships: County; SWFWMD; Owner; Contractor; Consultants
- Early and Often Communication and Coordination on Everything
  - Transaction Structure, Modeling, Project Design, Constructability, Permitting, Cost Estimates, Third-Party Reviews, Gator Football
  - Weekly Project Calls, lots of meetings
- Structure - 25 Year Lease Agreement with three 10-year options
- Introductory Meeting to Construction in two years
- Construction completion in one year
- Fully operational in three years

C-51 Reservoir Regional Partnership Project



C-51 Reservoir Overview

Capture excess fresh water currently being sent to tide through the Lake Worth Lagoon from the C-51 Canal and reducing harmful discharges

Store **public drinking water supply** and create significant environmental benefits

Convey excess fresh water to reservoir, then use stored water to **recharge public drinking water** surficial aquifer well fields in Palm Beach, Broward, and Miami-Dade through existing canals

Allow for **reliable, cost-effective, additional drinking water** through alternative water supply source

Delivery of project in phases **as funding is available**

C-51 Reservoir February 2021

C-51 Reservoir July 2021

C-51 Reservoir July 2021

C-51 Reservoir – October 2021

C-51 Reservoir – October 2021

C-51 Reservoir – January 2022

C-51 Reservoir – January 2022

C51 Reservoir Key Project Components

- Multi-Use Project: Reduce Discharges, Aquifer Recharge, Water Supply
- Partnerships: Counties, Cities, SFWMD, LWDD, DEP, Legislature, Governor, Owner, Contractor, Consultants
- New things: 50 year water use permits, regional project
- Structure – Capacity Allocation Agreements, Public Private Partnership, Public and Private Financing, Non-Profit Entity to own after completion, O&M Agreement
- Complicated Multi-Disciplinary Project – Takes Longer

Alternative Delivery for Restoration Projects

Wood Case Studies

Sara Phelps, Ph.D.

February 8, 2022

Fisheating Creek Wetlands Reserve Program Project

Fisheating Creek Wetlands Reserve Program Project

- Largest contiguous private lands project (26,225 acres) in the country
  - Seven landowners
  - 8 miles of channelized Fisheating Creek
- Part of the Northern Everglades Watershed

Fisheating Creek Wetlands Reserve Program Project

Large-scale restoration requires a well-planned, systematic approach to ensure success within budget

Implemented Solutions

- Alternatives analysis
  - Involved engineering design team and wetland science team
- Coordination with all property owners
  - Reduced mobilization costs

Fisheating Creek Wetlands Reserve Program Project

Cost-savings measures to achieve restoration outcomes

Implemented Solutions

- Design innovation
  - Berm alignments
- Materials innovation
  - ACB mats poured on-site
  - Aluminum vs. RCP structures
  - Seed vs. sod

Ichetucknee Springshed Water Quality Improvement Project

Ichetucknee Springshed Water Quality Improvement Project

- Constructed wetlands for treating wastewater
  - Cellular treatment wetland in northern parcel
  - Subsurface treatment wetland in southern parcel
  - Historically a sprayfield system was used to polish effluent from WWTF

Ichetucknee Springshed WQ Improvement Project

Innovative projects and available land may have unexpected issues resulting in increased cost and construction delays

Implemented Solutions

- Engineering design team and contractor collaboration
- Engineering design team/wetland science team collaboration
- Value engineering analysis

Alternative Delivery Methods
Key Attributes

- Different approach - human resistance to different
- Tailor to each circumstance
- Need transparency, cost comparisons, patience
- Should be faster, more coordinated
- Turnover of elected officials and staff a challenge
- The more parties, the more complications
- Communication is the key - early and often
- Never Give Up