

# **Sustainable Water Resources Roundtable**

**Using Public-Private Partnerships  
To Solve Florida's Water Challenges**

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Family Lands Remembered LLC**

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# **P3 Case Study: C-51 Reservoir Project**

**Palm Beach and Broward Water Resource Task Forces**

**Lower East Coast Utilities**

**Lake Worth Drainage District**

**South Florida Water Management District**

**Local Governments in Lower East Coast**

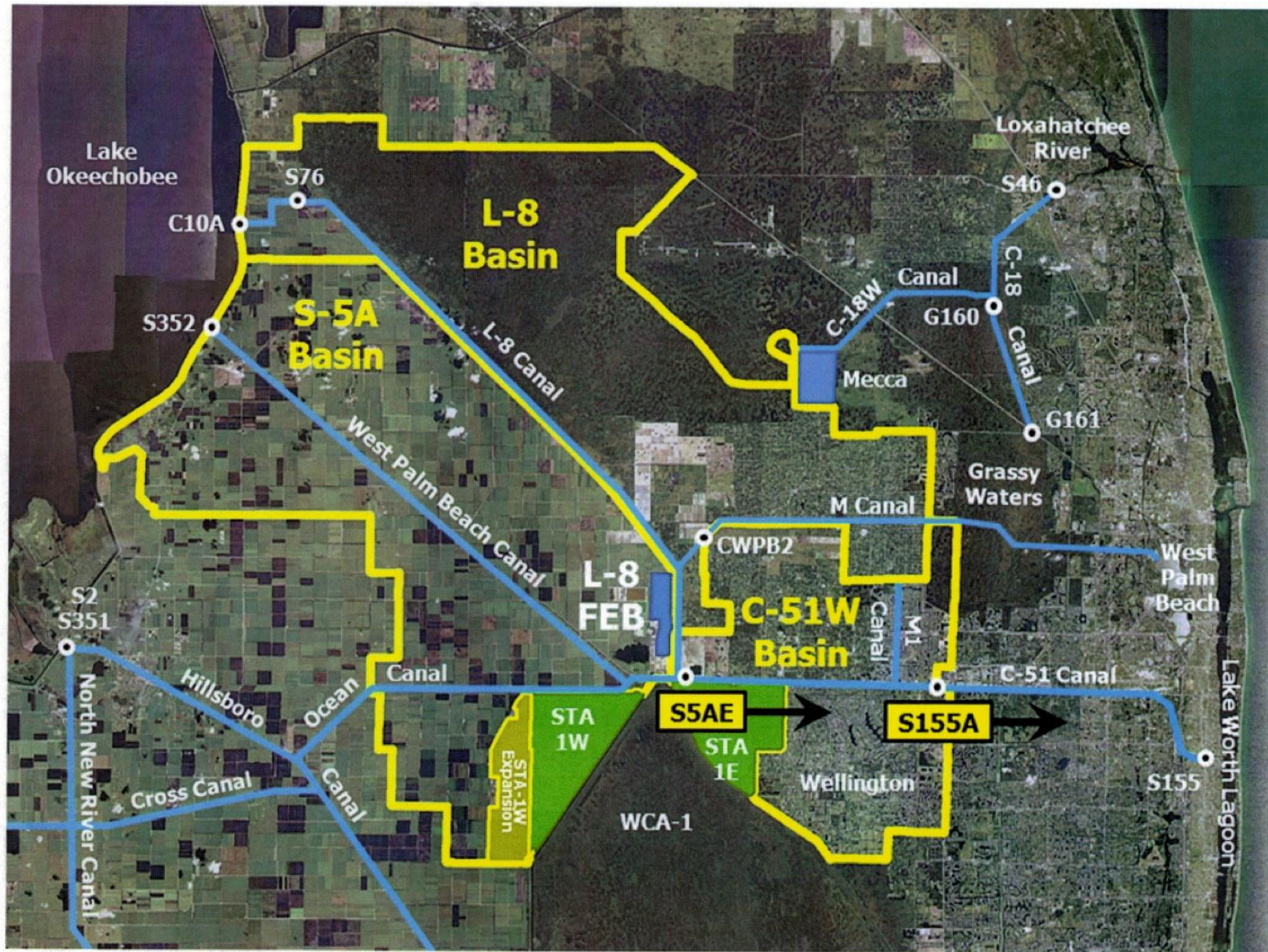
**Palm Beach Aggregates**

# Origins of the C51 Reservoir Concept

- Reservoir originally contemplated as part of CERP
- Response to 1992 Restudy
- Involves capture and diversion of freshwater flows discharging to Lake Worth Lagoon
- Dependent upon “unknown user”









# C-51 Reservoir Phasing



# C-51 Reservoir Project Concept

- Capture excess fresh water currently being sent to tide through the Lake Worth Lagoon from the C-51 Canal and reducing harmful discharges
- Storage for public drinking water supply and 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 to compliment and supplement current and future drinking water needs

# C-51 Reservoir Key Components

- Phase 1 Storage – 14,000 acre feet (@ 4.5 billion gallons) of static water storage (Phase 2 will add 46,000 ac-ft)
- Phase 1 Water Supply – 35 million gallons per day (@ 54 cfs) (Phase 2 will add @ 125mgd/194 cfs)
- Capital Cost Comparisons for 35 mgd capacity:
  - C-51 Reservoir - @ \$161 million (\$4.60 gal)
  - Floridan Aquifer RO - @ \$245 million (\$7.33 gal)
  - Reuse to Recharge - @ \$350 million (\$12.00 gal)
- Operations, Maintenance, R&R by SFWMD at their rates
- Phase 1 Completion within 24 months of Notice to Proceed
- Assist in meeting restoration targets of Northwest Fork of Loxahatchee River as a supplement to the Mecca Farms Reservoir (7,200 acre feet of storage) as a multi-purpose facility
- Assist in meeting Everglades water quality standards, combating salt-water intrusion and protecting existing water supply wellfields
- Assist in reducing harmful and wasteful discharges to tide



# Some C-51 Reservoir Milestones

- Hazen & Sawyer Feasibility Analyses
- Preliminary Design and Cost Estimate Report
- Project Protocol MOU With SFWMD
- Reservoir ERP and CUP NOI Issued By FDEP
- Conveyance Agreement With LWDD
- Letters of Intent from Broward County, Sunrise, Dania Beach, Lauderhill (14-19 mgd of capacity)
- Governance and Finance Work Group Final Report on Independent Cost Estimates and Non-Profit C-51 Reservoir, Inc. To Be Controlled By Participating Utilities Upon Completion
- Palm Beach County League of Cities Resolution

# C-51 Reservoir – P3 Structure

- Interlocal Agreements: Feasibility Studies, Cost Estimates, Etc.
- Formulating Task Forces and Working Groups
- Project Protocol Memorandum of Understanding
- Resolutions
- Letters of Intent
- Conveyance System Agreements
- Capacity Allocation Agreements
- Operation and Maintenance Agreement
- 501c3 Entity
- Transfer Agreements Upon Completion

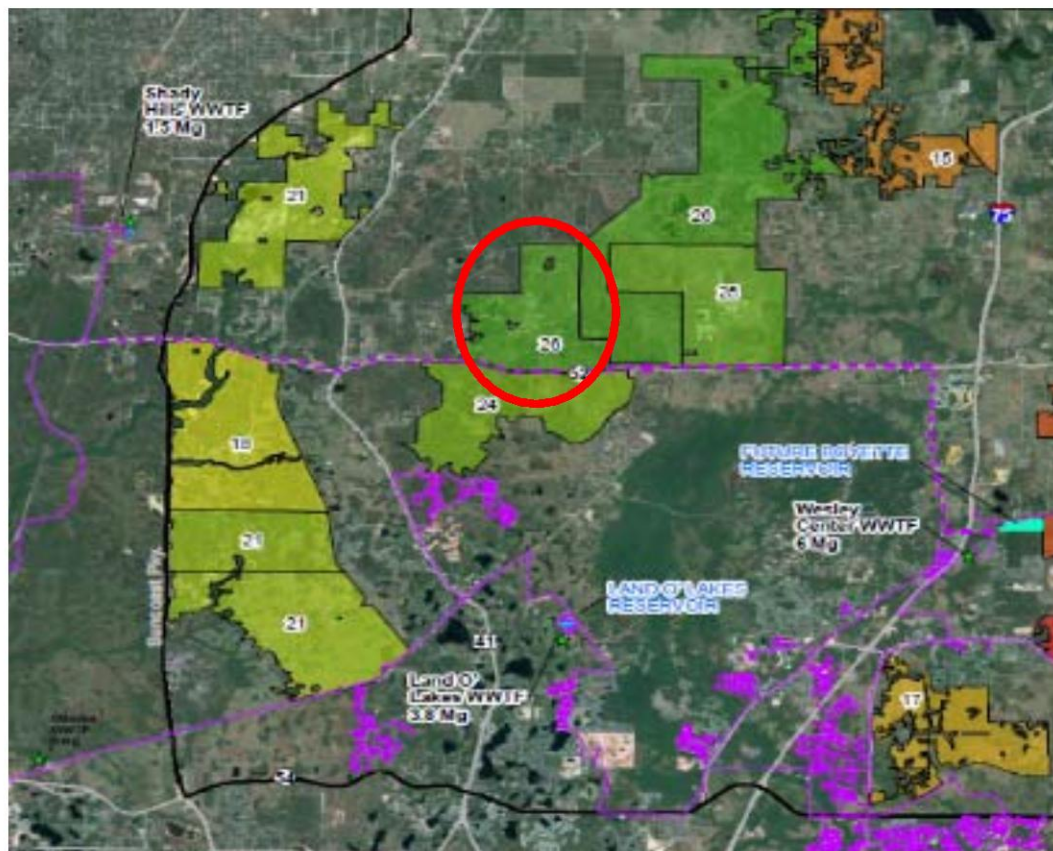
**P3 Case Study: 4G Ranch**  
**Pasco County Beneficial Reuse Natural Systems**  
**Treatment and Restoration Project**

**Pasco County Utilities**  
**Southwest Florida Water Management District**  
**Ted Phillips – Owner of 4G Ranch**  
**Phillips & Jordan**  
**Professionals**





# Project Background Feasibility Study, 2010



Infiltration Treatment Wetlands Feasibility Study

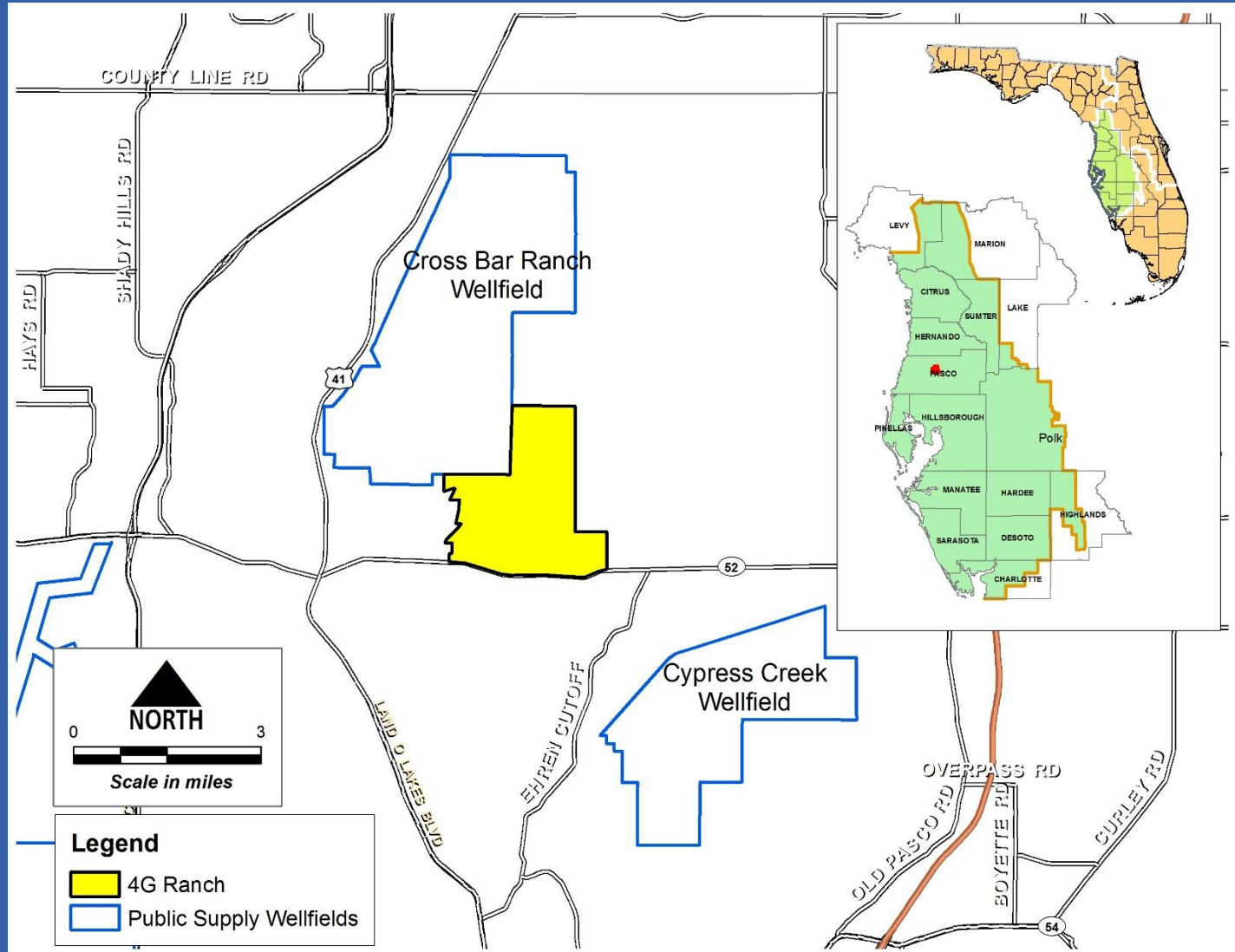
# Project Background

## Project Site

- 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 total
  - 15 cells from 5 to 15 acres each.
  - Design flow of 5 MGD
- Restore wetlands and lake hydrology
- Recharge Upper Floridan Aquifer
- Increase County water reuse capacity

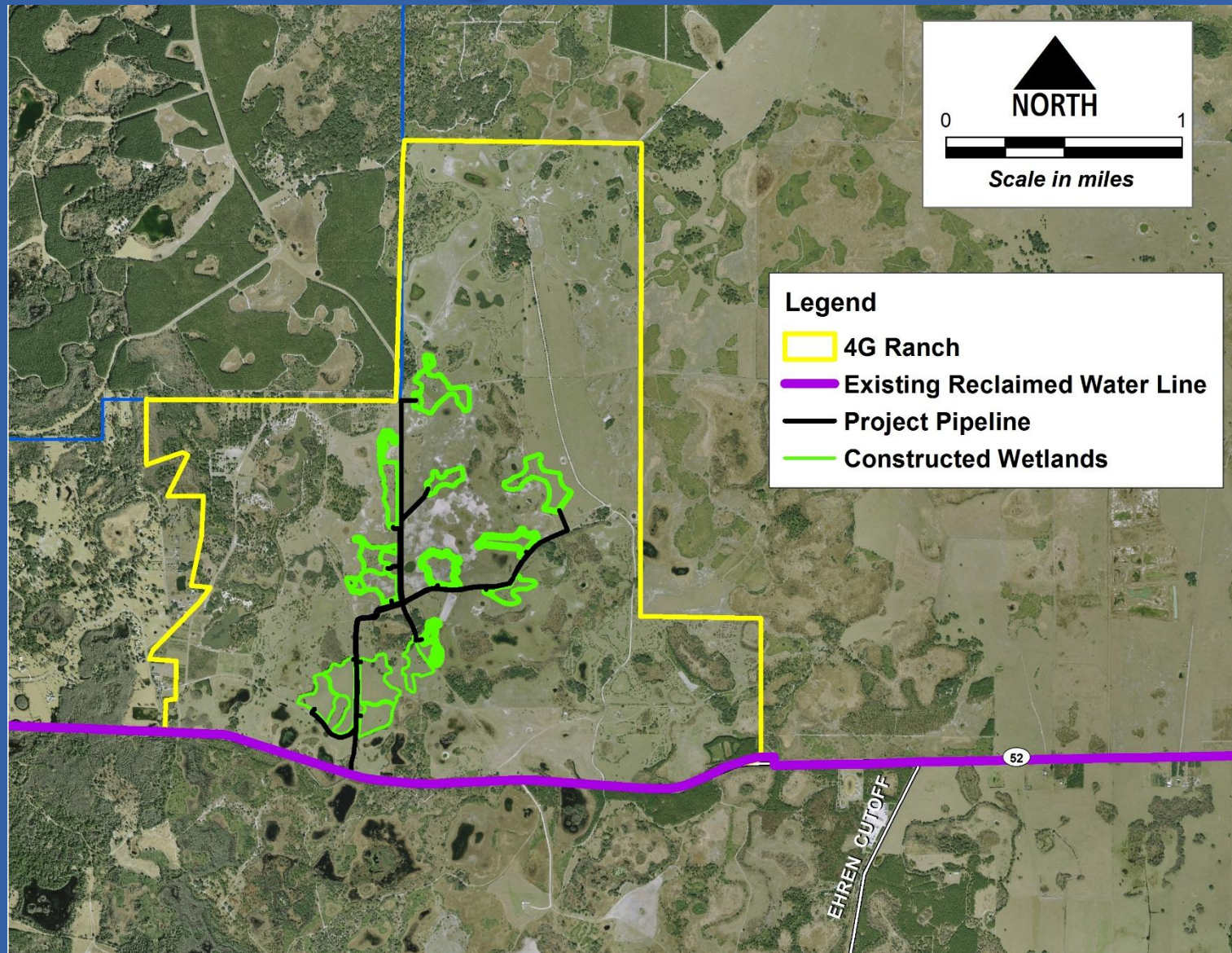


# Project Location – 4G Ranch





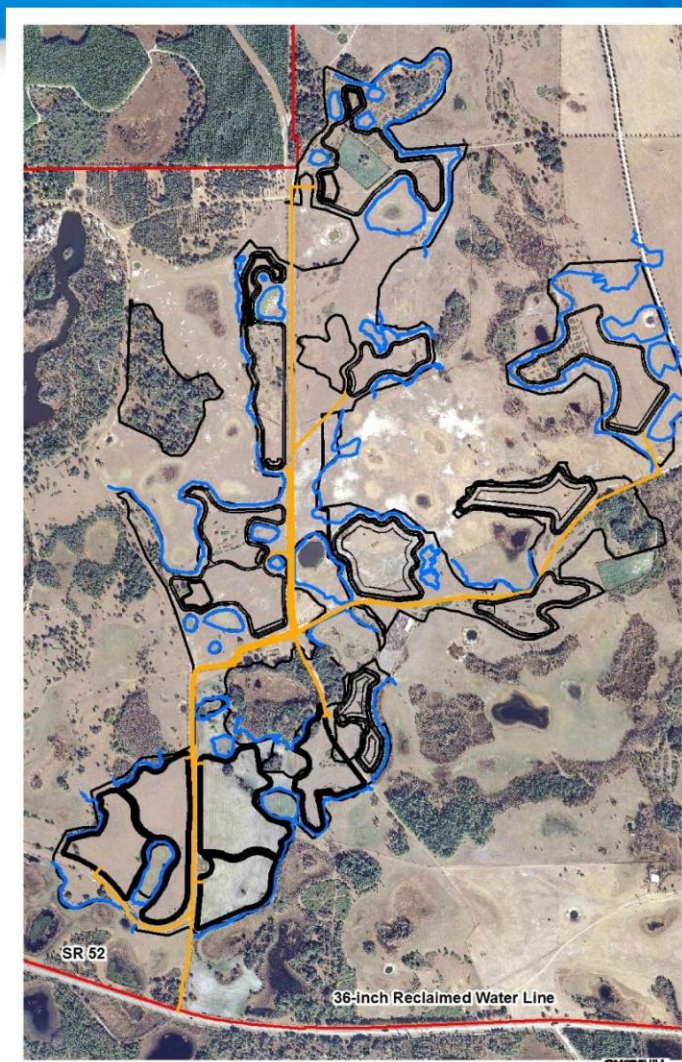
# Project Details



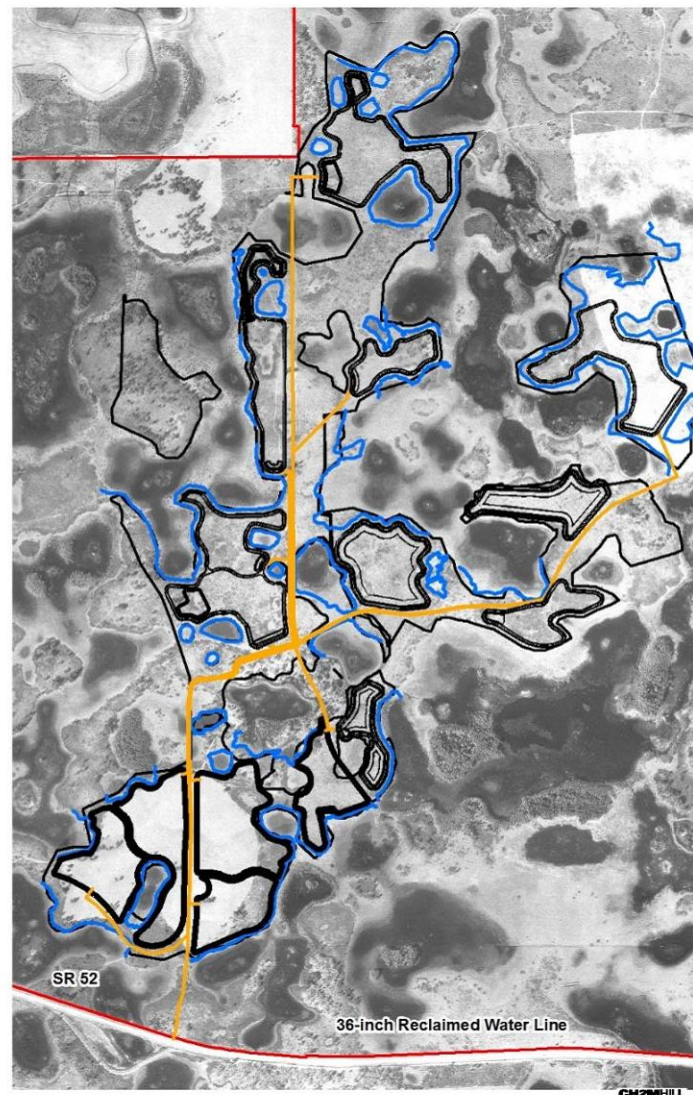




# Wetland Delineation: Recent Aerial Photography



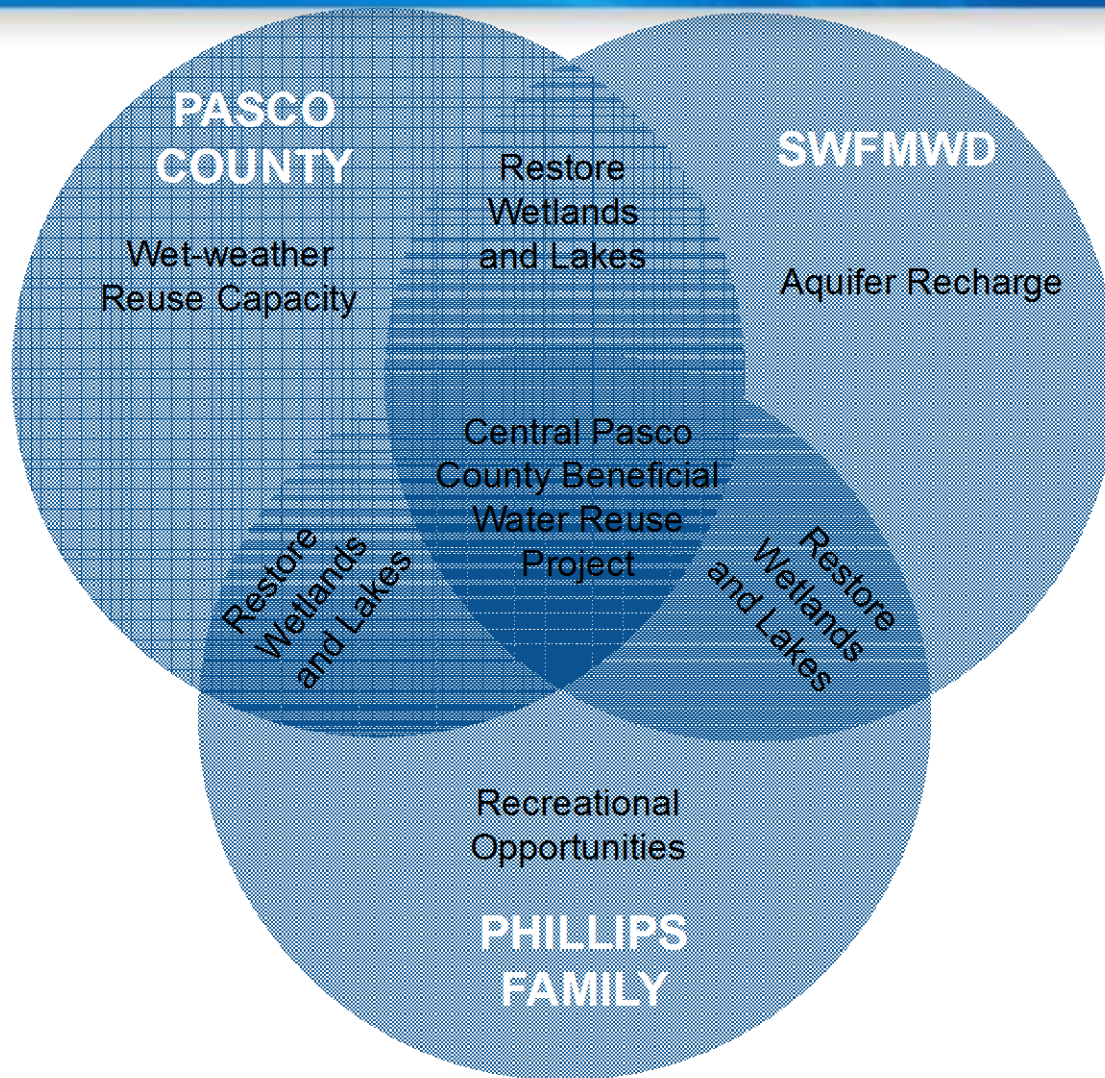
# Wetland Delineation: 1970s Historical Map







# Demonstrating Success through Common Interests Models the Way for Future Facilities





# P3 Case Study: 4G Ranch Cell 7





# P3 Case Study: 4G Ranch Cell 7





# P3 Case Study: 4G Ranch Cell 8





# P3 Case Study: 4G Ranch Cell 8





# P3 Case Study: 4G Ranch Cell 9





## P3 Case Study: 4G Ranch Cell 9





## P3 Case Study: 4G Ranch Cell 9





## P3 Case Study: 4G Ranch Cell 8





## P3 Case Study: 4G Ranch Cell 8





# **P3 Case Study: 4G Ranch**

## **Key Components**

- CH2M Feasibility Analyses
- SWFWMD Cooperative Funding Cycles
- Early and Often Communication and Coordination on Everything
  - Transaction Structure, Modeling, Project Design, Constructability, Permitting, Cost Estimating, Third-Party Reviews, Etc.
  - Weekly Project Calls
- 25 Year Lease Agreement with 3 10-year options
- Easement Securing Lease Agreement Terms