

Corkscrew Woods

Map and Text Amendments

Case CPA2011-00018



Lee County
Local Planning Agency
April 23, 2012

CORKSCREW WOODS

Applicant:

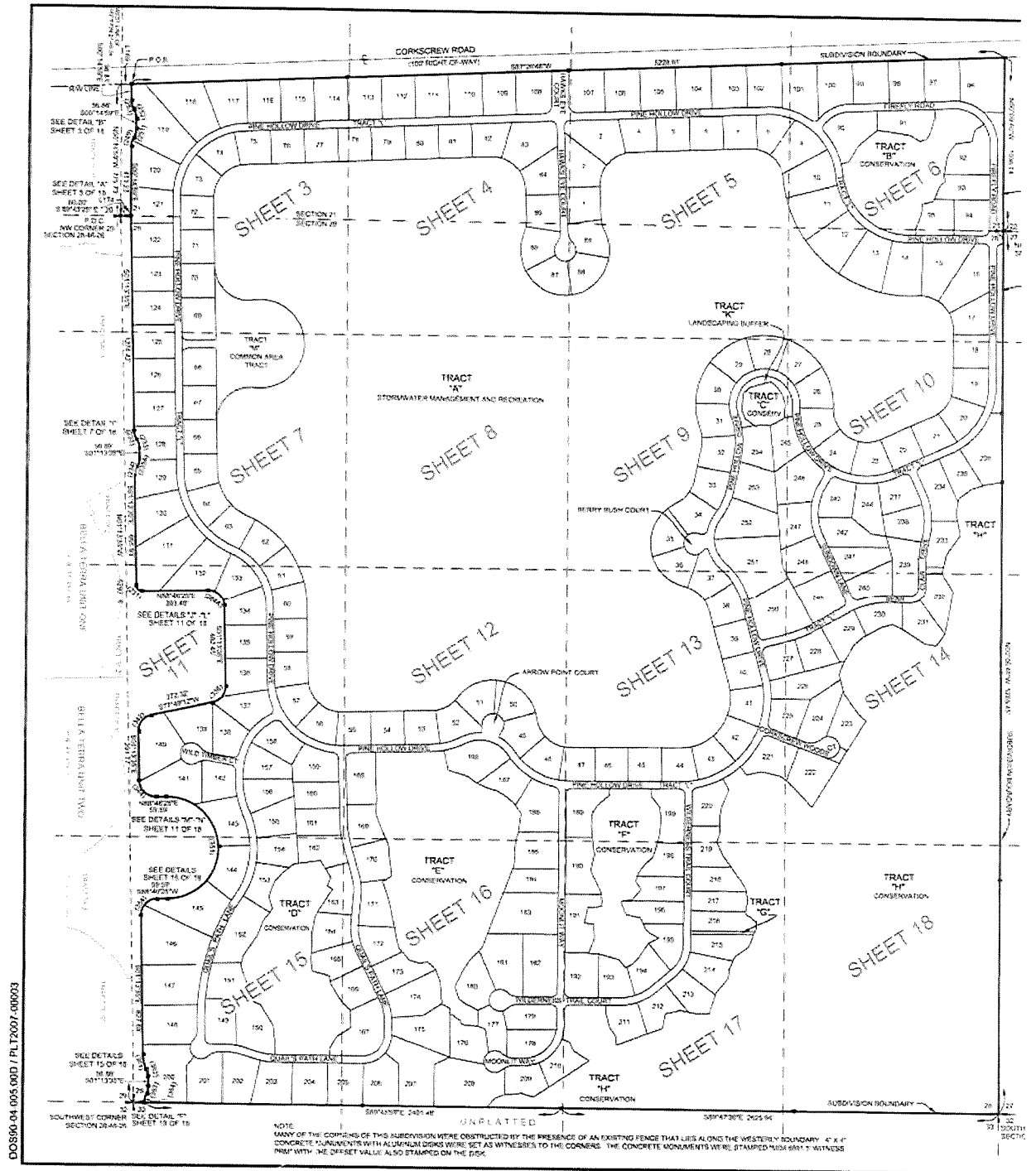
Lakes of
Corkscrew,
LLC.

Location:

South side of
Corkscrew
Road, adjacent
to Bella Terra;
±3.5 miles east
of I-75



- Existing Plat
 - 722 Acres
 - 222 Acre Lake
 - 254 Large Lots
 - Well/Septic
 - Bonds posted for infrastructure
 - Building Permits available *now*



EXISTING APPROVALS

- Case 96-02-319.06S
 - On May 3, 1996, Approved Special Exception Excavation Mining
- Perpetual Easement
 - March 10, 1997 to Lee County for Potable Water wells and associated mains
- DO 96-09-256.08L
 - April 11, 1997 Approved \pm 227.84 acre lake excavation
- ERP 36-03254-P
 - July 10, 1997 Approval, Surface Water Management System
- Case 96-02-319.06S 02.01
 - January 29, 1998 Approved Amendment to Special Exception – added 2.89ac and max. depth at 70ft
- Conservation Easement
 - July 18, 2000 to South Florida Water Management District
- LDO960925608L
 - July 24, 2003 5 year renewal of operational permit and existing excavation.
- NPDES Permit
 - August 2, 2007 Approved
- Surety Bond
 - September 10, 2007 Approved with DOS900400500D
- Instrument 2007000289772
 - **September 13, 2007 Record Plat for 254 lot Single Family Subdivision**
- DO 90-04-005-00D
 - September 23, 2007 Approved construction of subdivision
 - Significant construction already undertaken in support of recorded plat and local development order

Buffer —

- 57 acres in yellow to be permanent conservation
- Restoration of uplands & wetlands
- Restoration of flowways-removal of \pm 1 mile of roads
- Added buffer to CREW lands
- Added buffer to Bella Terra



1.) Applicant's Request:

Future Land Use Amendment

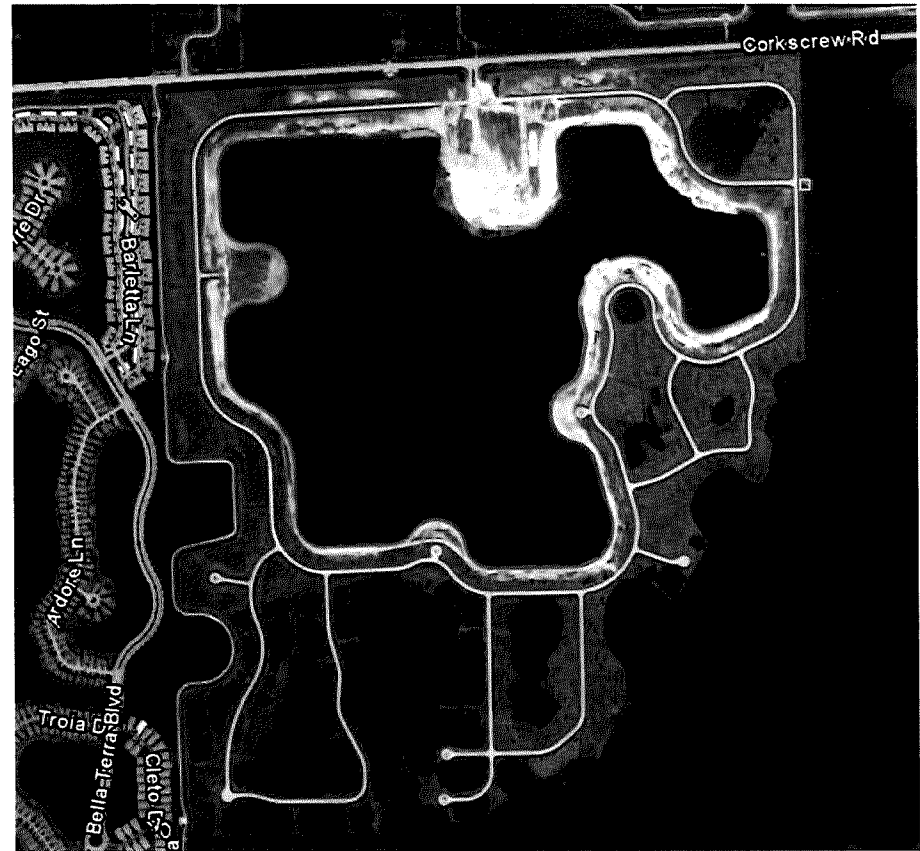
- a) Amend the Future Land Use Map 1 to Suburban and Conservation
- b) Amend the Future Land Use Map 1 page 2 of 8, Special Treatment Areas
- c) Amend the Future Land Use Map Series 6 & 7, Lee County Utilities
- d) Amend the Future Land Use Map Series 16, Planning Communities
- e) Amend Policies 1.1.5 Suburban and 1.4.6 Conservation

2.) Staff Proposal:

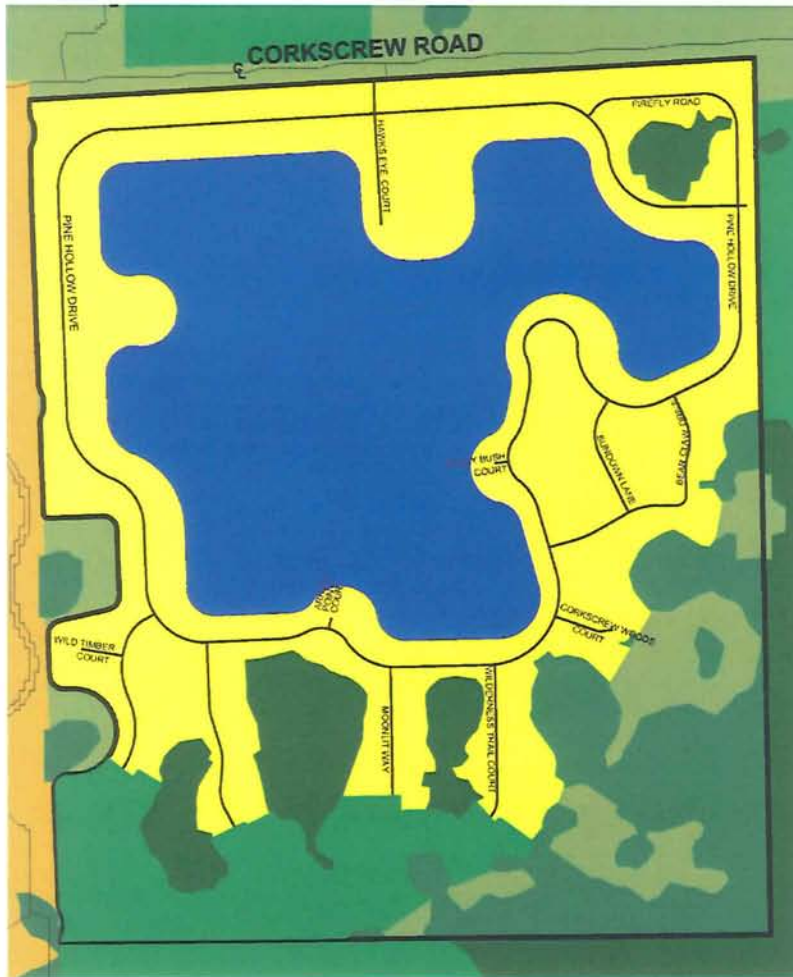
Improved Residential Communities Overlay Alternative

- a) Policy 33.3.3 revised to address Improved Residential Communities within the Density Reduction/Groundwater Resource Category
- b) Amend the Future Land Use Map Series 6 & 7, Lee County Utilities

CORKSCREW WOODS



Future Land Use Amendment – Applicant’s Request



- Map Amendment
 - Amend FLUM for ± 611.28 ac to Suburban and Conservation
 - Amend the FLUM series:
 - Special Treatment Areas
 - Lee County Utilities Future Service
 - Planning Communities
- Text Amendment
 - Policy 1.1.5 Suburban
 - Policy 1.4.6 Conservation
- ± 513 ac Suburban
 - ± 222 ac Existing Lake
- ± 98 ac Conservation
 - ± 41.03 ac Existing Wetland
 - ± 57 ac Proposed Restoration
- ± 110.84 ac DR/GR (not included)

Water Resources and CPA2011-00018

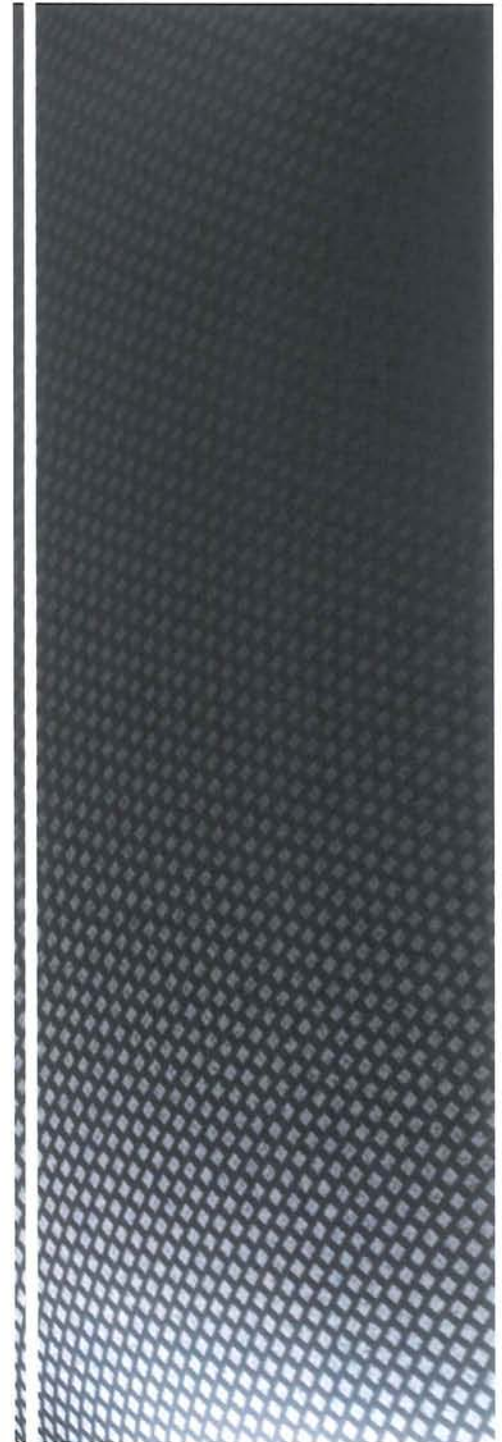
David J. Brown, P. G.

- Registered Professional Geologist (P.G.) in the State of Florida
- Graduated from the University of Florida 1983
- Worked professionally for 29 years in SW Florida
- Former Senior P.G. and Manager at the Southwest Florida Water Management District
- Background in geology, groundwater, hydrology, water resource permitting and groundwater flow modeling.
- Testified as an expert on water use and groundwater modeling impacts in Administrative Hearings
- Currently a Managing Partner and Principal at Progressive Water Resources, LLC (PWR)



Progressive Water Resources

Integrated Water Resource Consultants



Hydrogeologic Setting

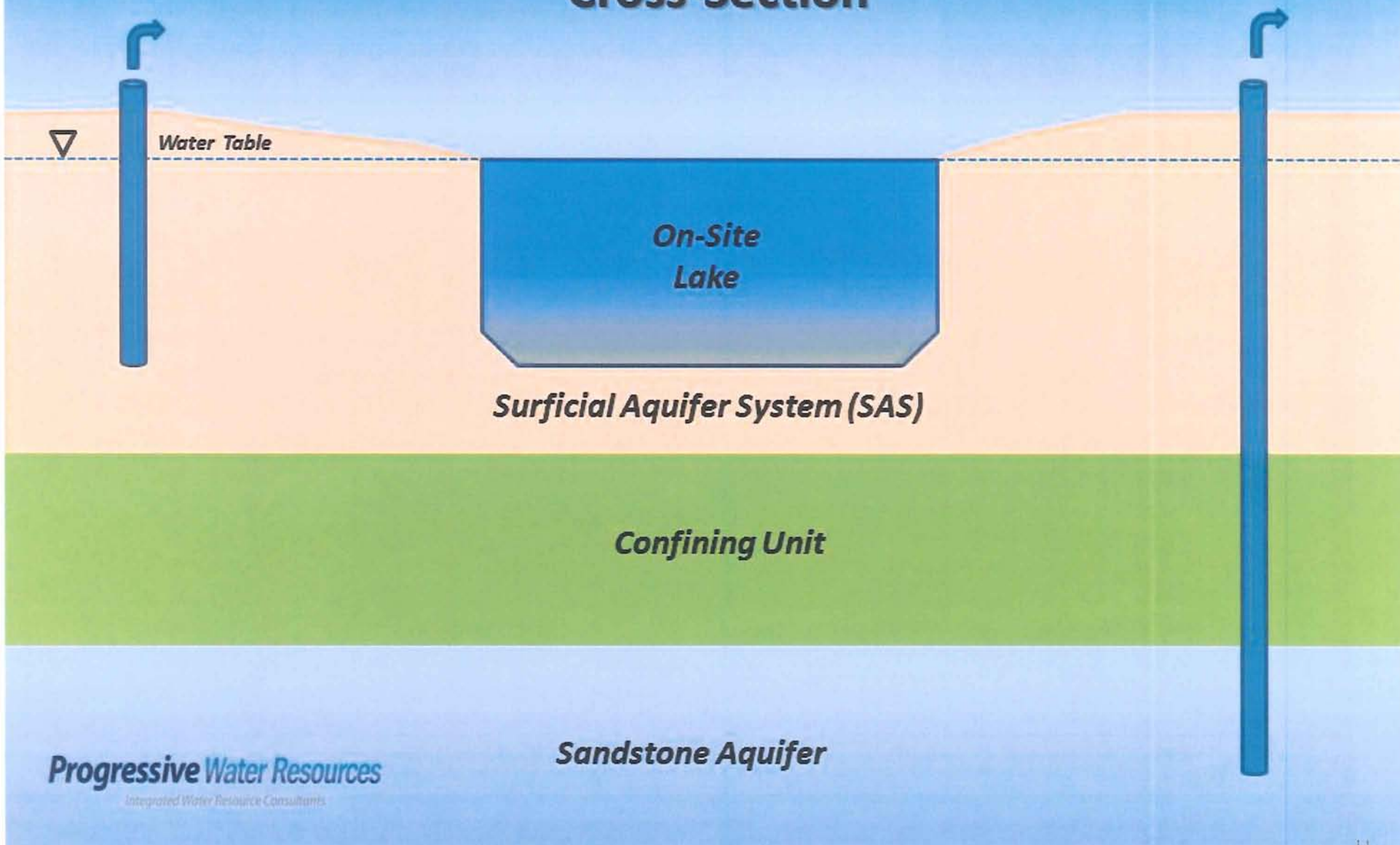
- Project site is within the Density Reduction/ Groundwater Resource (DR/GR) Area
- Site was historically mined for limestone and mining activities created an approximate 222 acre lake, reported to be approximately 50 to 70 feet deep.
- The mining operation excavated into the Surficial Aquifer System – Tamiami Formation
- Below the bottom of the mine pit is a confining unit marking the upper-most contact of the Intermediate Aquifer System, i.e., Peace River Formation of the Hawthorn Group
- The first “producing zone” within the IAS, below the confining unit is the “Sandstone Aquifer”
- The Sandstone Aquifer is predominately a freshwater aquifer found in five Southwest Florida counties.
- The Sandstone Aquifer is **regionally significant**



Generalized Hydrogeologic Cross-Section

**Surficial
Aquifer
Production
Well**

**Sandstone
Aquifer
Production
Well**





Legend

Corkscrew Woods

Lee County Public Supply Wells SOURCE

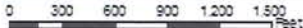
Sandstone Aquifer (5)

Surficial Aquifer System (5)

Scale: 1:12,000

4/12/2012

Image: 2011



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**Lee County
Public Supply Wells**







Approved Land Use

Estimated Peak Water Use Demands

- Total of 254 lots/units equaling approximately 291 acres with each lot having a self-supply well for irrigation and potable supply

- **Peak Month Non-Potable (Irrigation) Water Demands**
 - If half of total lot area was irrigated (145.5 acres)
 - SFWMD Peak Month (dry season - May) Irrigation Allocation of 4.89 inches
 - SFWMD also uses a 1.3 peaking factor

- **Potable Water Demands**
 - Assume 2.44 persons per unit (2010 Census)
 - 118 gallons per person per day (gpd) (IWRMP Report)
 - 1.3 peaking factor

- **Total Water Demands**
 - Total Estimated Peak Month withdrawal of approx. 905,200 gpd
 - Supplied from 254 individual Sandstone Aquifer wells



Approved Land Use

Peak Water Use Impact Analysis

- Analytical Model used consistent with SFWMD requirements
- Sandstone Aquifer was simulated as a confined aquifer system
- All 254 wells were simulated at a peak month withdrawal rate for 90 days
- The results of the analytical model indicate a maximum drawdown of approx. **11 feet** at the nearest Lee County **Sandstone Aquifer** production well.





Scale: 1:15,000

04/12/2012

Image: 2011 Aerial

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Corkscrew Woods
 Approved Withdrawals @ 905,262 gpd for 90 days
 Sandstone Aquifer Drawdown



Proposed Land Use

Estimated Peak Water Use Demands

Total of 800 lots/units equaling approximately 209 acres none of which will have a self-supply well for irrigation and potable supply

Peak Month Non-Potable (Irrigation) Water Demands

- If half of total lot area was irrigated (104.5 acres)
- SFWMD Peak Month (May) Irrigation Allocation of 4.89 inches
- SFWMD 1.3 peaking factor
- Potable Water Demands
- All potable supplies to be provided by Lee County Utilities
- Total Water Demands
- Peak Month withdrawal of approx. 581,890 gpd
- All irrigation demands Served by onsite existing 222 acre lake

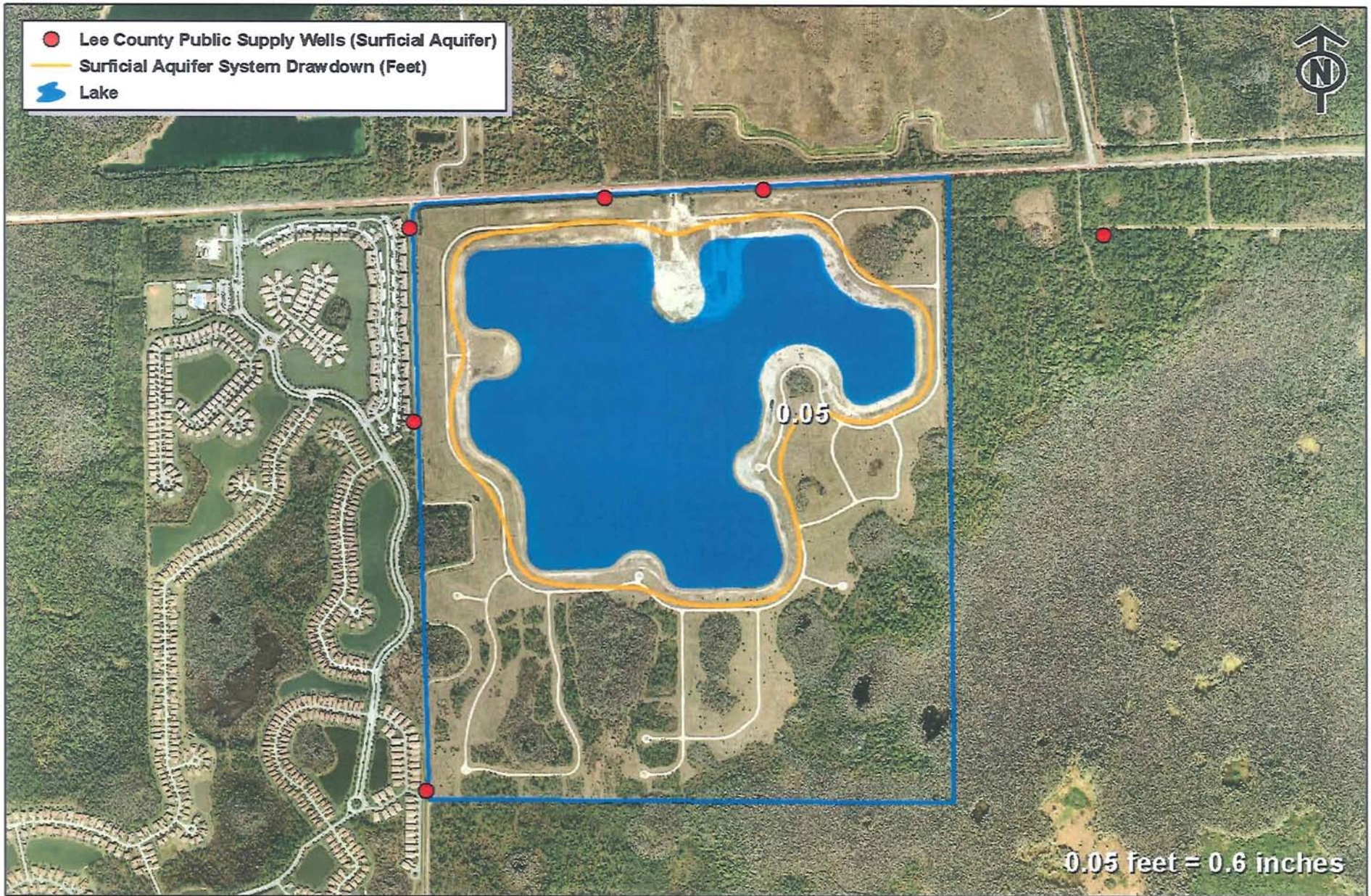


Proposed Land Use

Peak Water Use Impact Analysis

- Model used consistent with SFWMD requirements
- The surficial aquifer was simulated as an unconfined aquifer system
- One withdrawal was simulated as withdrawing 581,890 gpd from the on-site lake
- Simulation run for 90 days (March, April, May)
- The results of the numerical model indicate a maximum drawdown of **less than one inch** at the nearest Lee County **Surficial Aquifer** production well.





Scale: 1:15,000

04/12/2012

Image: 2008 Aerial

0 250 500 1,000 Feet

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Corkscrew Woods
 Proposed Surface Water Withdrawal @ 581,890 gpd for 90 days
 Surficial Aquifer Drawdown


Progressive Water Resources
 Integrated Water Resource Consultants

Summary of Proposed Land Use Benefits

- Reduces total irrigated area
- Eliminates 254 individual self-supply wells
- Eliminates 254 individual septic systems
- Consistent with the intent of the Density Reduction / Groundwater Resource (DR/GR) Area
- Essentially eliminates impact to the County's Public Supply Wells
- Protects the Groundwater Resources and shallow aquifers (Sandstone Aquifer – ½" versus 11' drawdown)
- Maximizes the use of Alternative Water Supplies for irrigation
- Helps maintain surface and groundwater levels
- Complete control on irrigation timing and duration



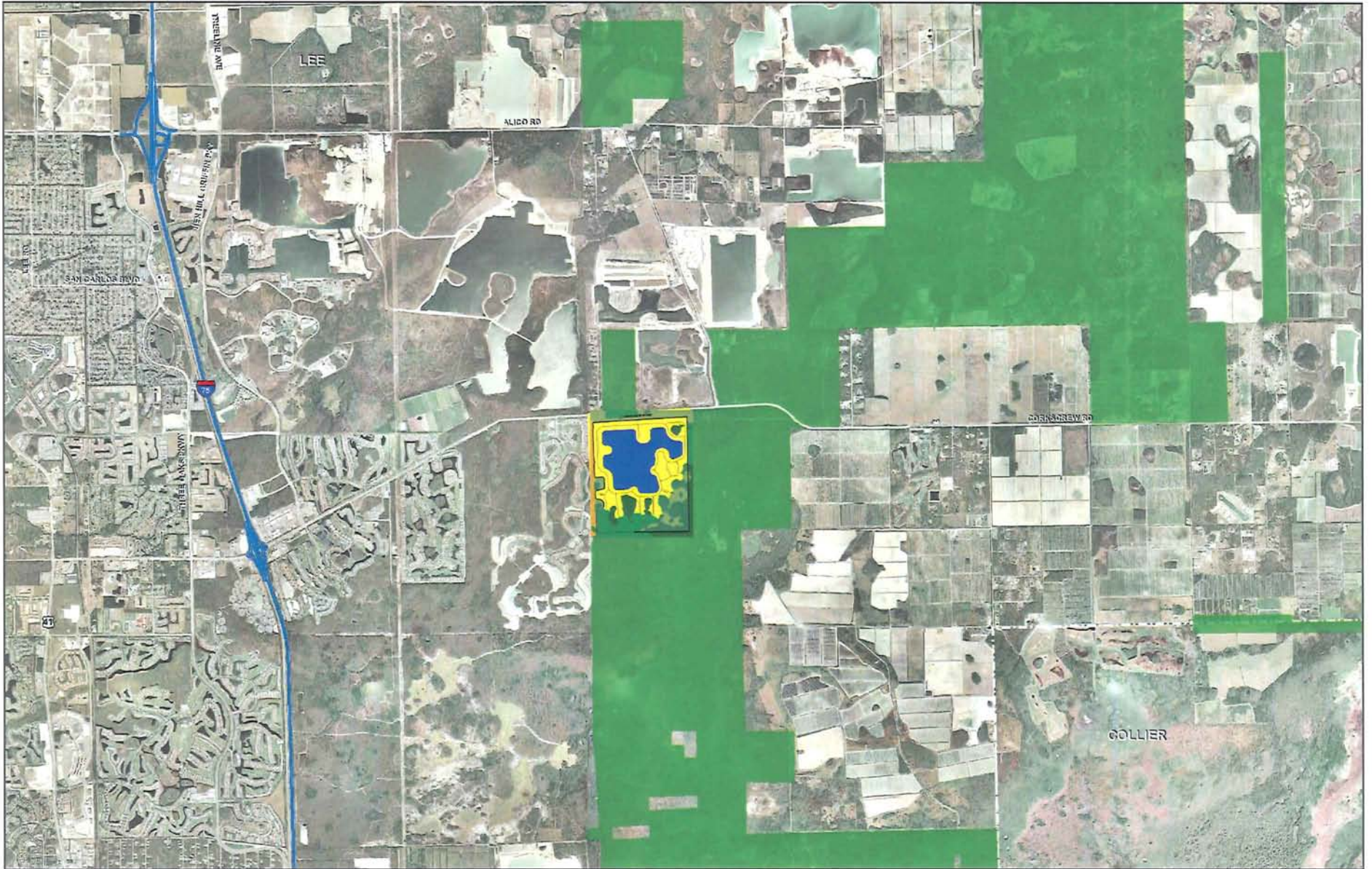
**Kenneth C. Passarella,
Principal**



Existing Site Conditions

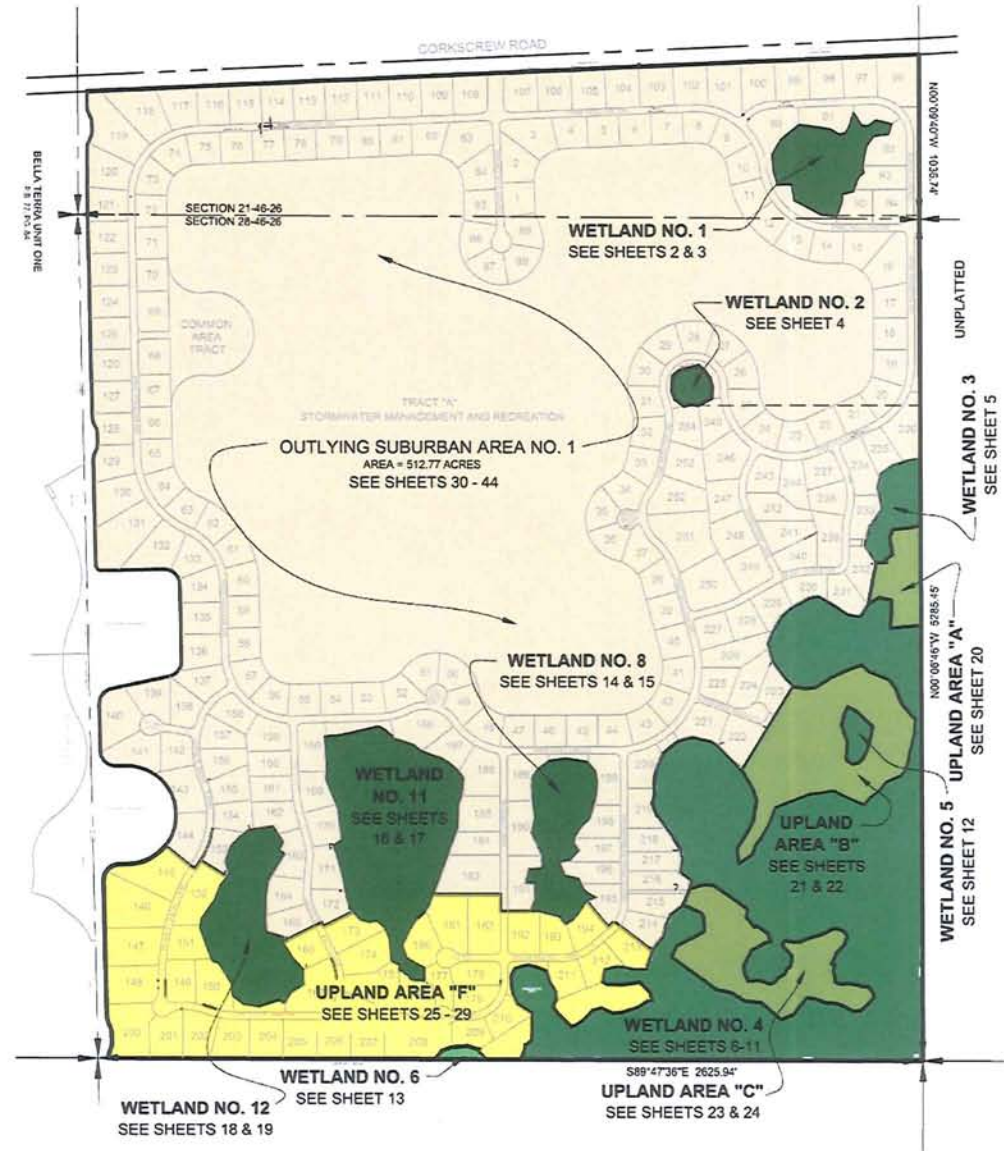
- Lee County Indigenous Vegetation
- Wetlands
- Adjacent Public Owned Lands





Proposed Restoration and Preservation Areas

- Existing development areas to be removed
- Native upland/wetland habitat to be restored



Significant Ecological Benefits

- Elimination of Development Adjacent to Public Owned Conservation Lands
- Improved Wetland Hydrology
- Restoration of Native Uplands and Wetlands
- Preservation of Additional Native Uplands
- Re-establishment of Connectivity Between Fragmented Habitats
- Improved Wildlife Habitat
- Significant Buffer to the Adjacent Conservation Lands



Lee Plan Analysis

David W. Depew, PhD, AICP, LEED® AP
Morris-Depew Associates, Inc.



Lee Plan Analysis

■ Policy 1.1.5 Suburban Future Land Use:

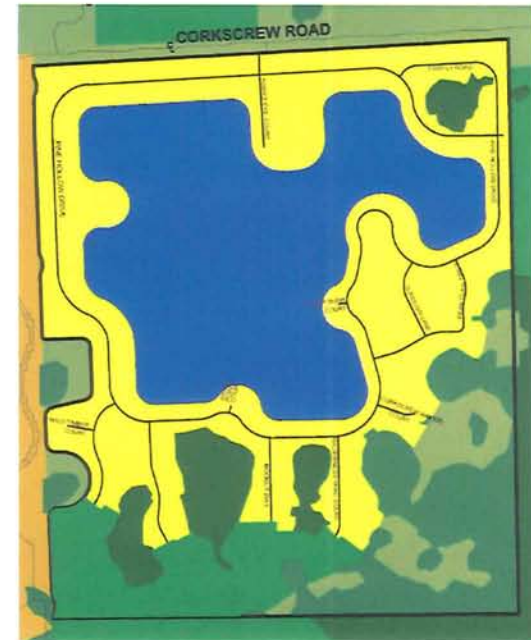
- Predominately residential
- Areas appropriate to protect existing residential
- Maximum density 6du/ac

■ Goal 19 Estero:

- Protect character, natural resources, and quality of life
- Evaluate adjacent uses, natural resources, etc.
- Encourage on-site preservation of indigenous plant communities
- Provide incentives (ex: increased density for protect of wetlands, flowways, native habitat, etc.)
- Support alternative irrigation sources
- Ensure future wellfield drawdown zones are protected

■ Proposed Amendment

- Limits density to subject property
- Caps density at an 800 unit maximum
- Requires connection to central utilities at 600 units
- Clusters development to reduce footprint
- Increases compatibility with existing, surrounding residential and conservation lands



Lee Plan Analysis

■ Policy 1.4.6 Conservation

- Long Range Conservation
- Uplands and Wetlands
- Mitigation areas for land development approvals
- May include natural resource based parks and ancillary uses

■ Objective 1.5 Wetlands

- Lands identified as wetlands through state delineation
- Recreational uses that do not adversely affect function
- Maximum density is 1 dwelling unit per 20 acres.

■ Proposed Amendment

- 57 acres placed in new conservation
- 36 acres restored
- 208 acres of total conservation with existing easements



Lee Plan Analysis

■ Goal 60

- Protect or improve quality of receiving waters and surrounding natural areas
- Protect or improve function of natural groundwater aquifer
- Provide flood protection for existing and future development

■ Corkscrew Woods

- Existing Development Order
- Functional Stormwater Management System
- Additional ± 57 acres preserved
- Conservation Area connection to existing stormwater management system.



Benefits

■ Clustered Development

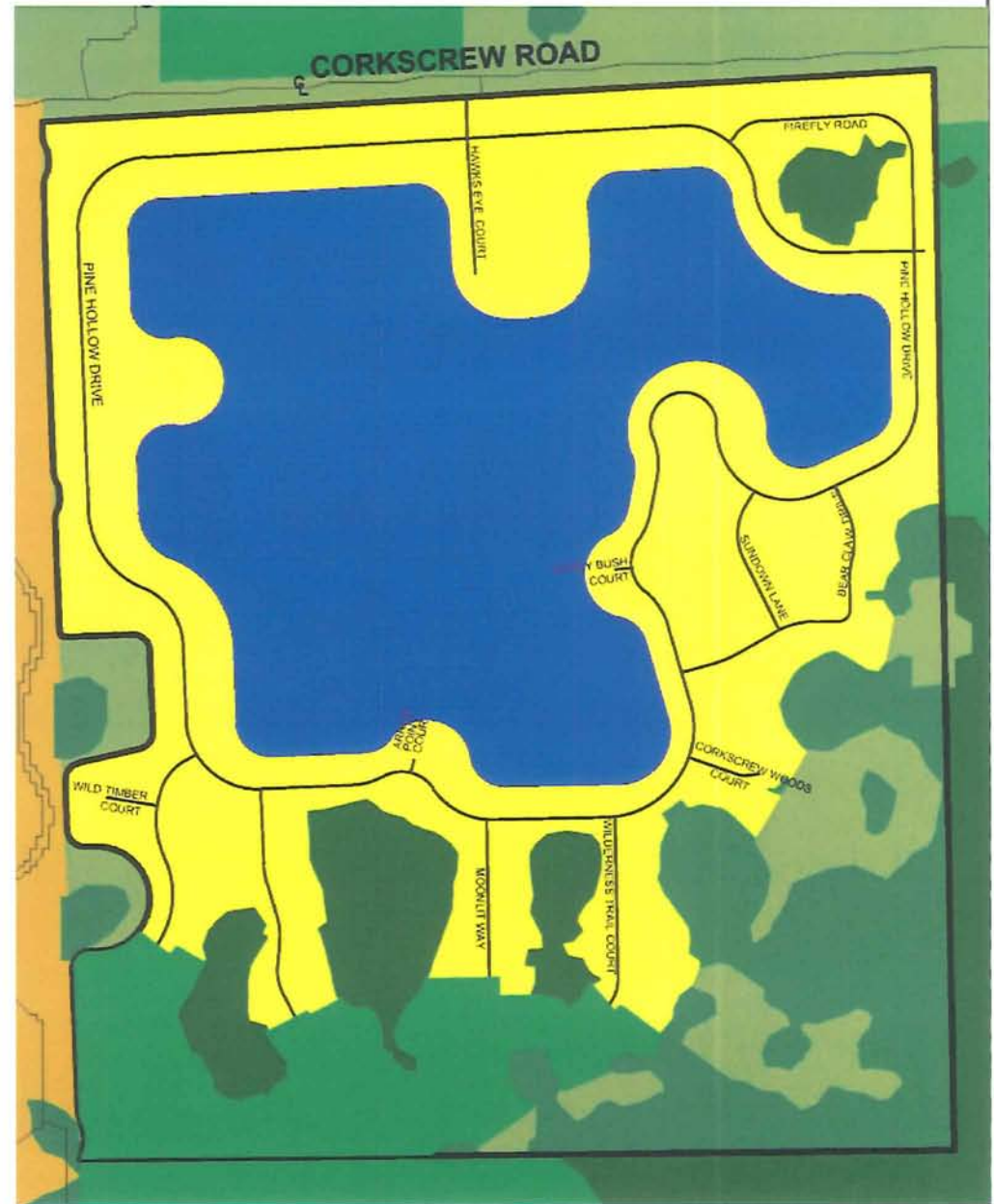
- ±513 acres of Suburban
- ±222 acres are existing mining lake.
- 2 dwelling units per acre
- Density limited to 800 units.

■ Central Utility Service

- Prohibits well and septic
- Connection required above 600 units
- Reduces regional drawdown
- Protects 5 existing County production wells
- Provides water connection to Bella Terra for service & fire flows

■ Restoration and Preservation

- ±57 acres to be placed in Conservation
- ±36 acres to be restored
- ±41 acres under existing conservation easement
- 208 total acres conserved & preserved
- Approx. 1 mile of roadway removed

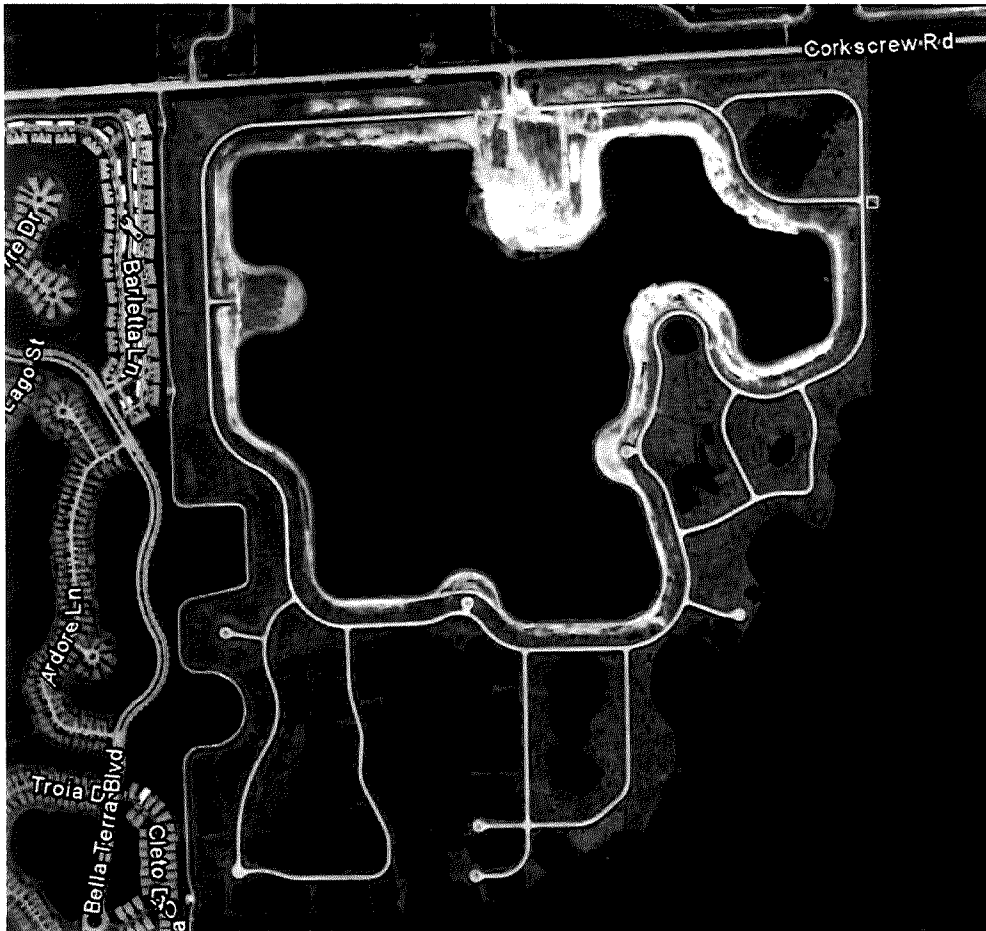


Amendments in the DR/GR

- Policies 2.4.2 and 2.4.3
 - Review of long and short term impacts to irrigation and domestic water
 - Data and Analysis of availability of irrigation and domestic water
 - Finding of no significant harm to present and future supplies
- Connection to Lee County Utilities
 - Reduce regional drawdown and water quality issues
 - Irrigation water provided by an on-site lake
 - No re-use water is available
- Lee County Utilities can provide service
- Irrigation water will be supplied from the existing on-site lake
- Reduces impacts to existing 5 Lee County production wells
- Irrigation withdrawal will not negatively impact hydroperiods
- Existing approval has a higher water demand



Staff Alternative: Improved Residential Communities in the DR/GR



- Alternative to FLU Amendment
- Address previously permitted developments
- Eliminate inconsistencies with DR/GR
- Reduce impacts to water resources
- Encourage redesign through:
 - Performance Criteria
 - Development Parameters
 - Density Incentives

Proposed Policy 33.3.3 - Prerequisites

- For certain properties with valid development approval meeting established criteria.
- Establishes incentives for re-design in the DR/GR lands.
- Applicable to all properties possessing all of the following criteria:
 1. Abuts a future urban area (excluding any public rights of way, easements or access roadways)
 2. Adjacent to, and abuts, existing development with public utilities service
 3. Two direct accesses to an arterial roadway
 4. Is not identified on Lee Plan Map 17

Proposed Policy 33.3.3 – Development Controls

Properties that qualify under all prerequisites would have the following development controls implemented through the Residential Planned Development process:

1. Demonstrate reduced stress to onsite potable aquifers and consistency with water resource goals
2. Increase conservation and open space with restoration elements and long term maintenance beyond original approval
3. Provide recreational amenities
4. Provides a net benefit to water resources and increase recharge rates beyond original approval including:
 - a. Decrease irrigation demand beyond original approval
 - b. Conform to the Lee County Well field Protection Ordinance
 - c. Florida native plantings
 - d. Extend public utilities to all dwelling units
 - e. Use reclaimed water where available
 - f. Improve opportunities for groundwater recharge
5. Provide Enhanced Lake Management for existing or created lakes including:
 - a. Best management for fertilizer and pesticide
 - b. Erosion control and bank stabilization
 - c. Lake maintenance requirements
 - d. Public well field protection
 - e. Enhanced littoral plantings and shoreline restoration of existing mine lake

Proposed Policy 33.3.5 – Density Calculations On-site Credits

- Density shall not exceed three dwelling units per gross acre of developable land.
- This shall include any existing lakes entirely within the boundaries of the property.

Criteria for additional density	Number of units
Acquisition of DR/GR property for Conservation	2
Acquisition of DR/GR property for Conservation Easement dedicated to Lee County	2
Onsite Conservation Easement	1.5
Onsite Restoration	
DR/GR Preserved Primary Panther Habitat	2
Protected onsite wetlands connected to a Regionally significant flowway	
Monetary Contribution to extinguish density or construct a planned large mammal crossing in the Southeast DR/GR	1

Corkscrew Woods

	Proposed Lee Plan Policy 33.3.3 Density Incentives	Acres	Contribution	Units
a.	2 DU's/acre for offsite DR/GR acquired + passive recreation options	0	0	0
b.	2 DU's/acre for offsite DR/GR put under conservation easement to Lee Co.	0	0	0
c.	1.5 DU's/acre for added onsite conservation easements	57	0	85.5
d.	1 DU/acre for onsite restoration	36	0	36
e.	2 DU's/acre for DR/GR preserved primary panther habitat	98	0	196
f.	2 DU's/acre for on-site wetlands connected to regionally significant flowway	41.6	0	83.2
g.	1 DU/\$8500 donated to extinguish density in DR/GR or construct mammal Crossing		\$1,235,000.00	145.29
	Existing Density			254
	TOTAL			799.99

Lee Plan Analysis



■ Policy 1.4.5

- Areas providing substantial recharge and most suitable for future wellfields
- Favorable locations for physical withdraw
- Minimal public facilities
- Requires compatibility with maintaining historic flows and elevations
- Significantly limited options for permitted land uses
- Maximum Density is 1du/10acres

■ Revised Policy 33.3.3

- Addresses impacts from vested developments at the periphery of the DR/GR
- Considers existing approvals to protect groundwater and aquifer recharge
- Retains the protections of the DR/GR Category
- Advances the policy's intent

Lee Plan Analysis

- Objective 2.4 Future Land Use Map Amendments
 - Criteria to review requested Map Amendments
 - Requires a special review for proposed changes in areas critical for future water supply
 - Asses the short and long term availability and impacts to irrigation and domestic water sources
 - Formal finding of no significant impact must be made
- Revised Policy 33.3.3
 - Requires connection to central utilities
 - Promotes improved recharge opportunities
 - Controls fertilizers and related chemicals
 - Encourages improvements to surface water management systems and water quality
 - Mandates a demonstration of protection for public potable water supplies
 - Requires connection to re-use water if available at time of DO
 - Promotes Florida native plantings
 - Incentivizes the conservation and preservation of land as well as the clustering of development



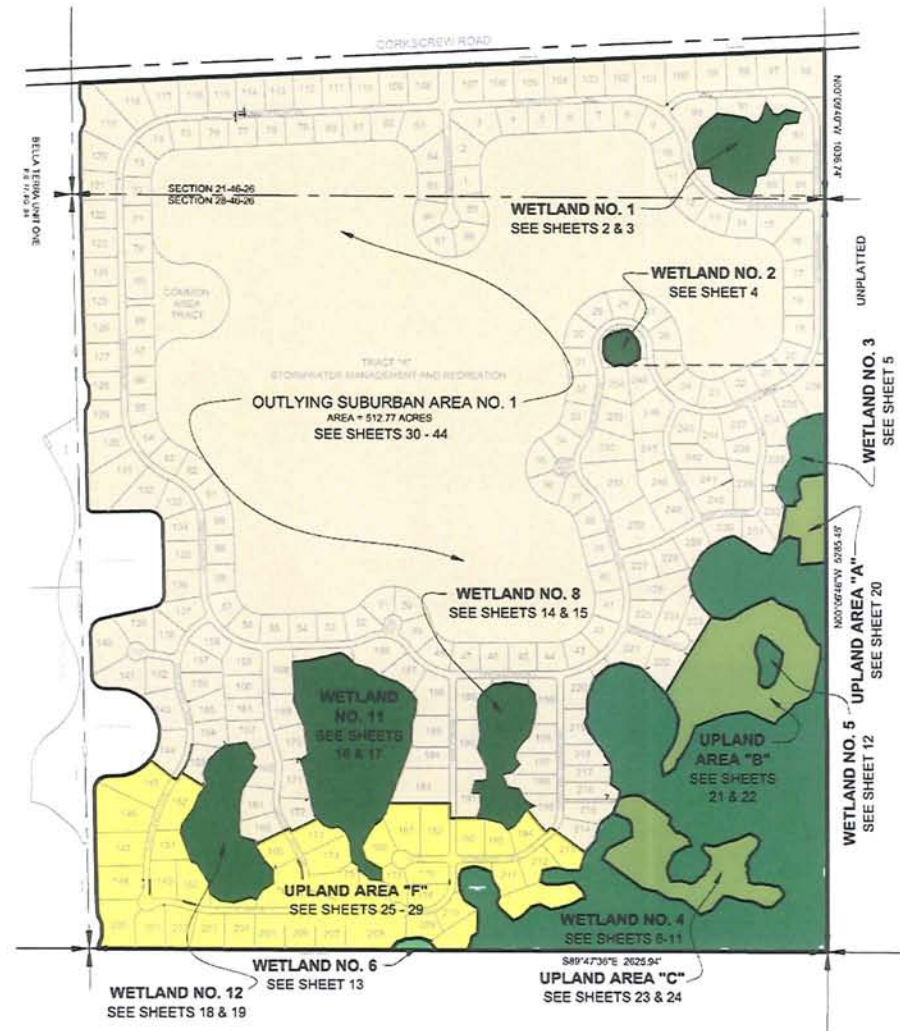
Revised Policy 33.3.3 – Benefits

- Increase consistency with DR/GR
- Reduce significant adverse impacts to surface and groundwater
- Performance criteria and density incentives provide strict review criteria
- Encourages conservation and preservation
- Requires connection to central utilities
- Florida native plantings are mandatory
- Restricts Overlay only to properties with prior approvals – no new development approvals are allowed
- Improves quality of receiving waters, surrounding natural areas, and the function of natural groundwater aquifer recharge
- Existing Acreage Subdivisions, Mixed Use Communities, and developments with density consistent with DR/GR are excluded
- Provides for resolution of uniquely vested development



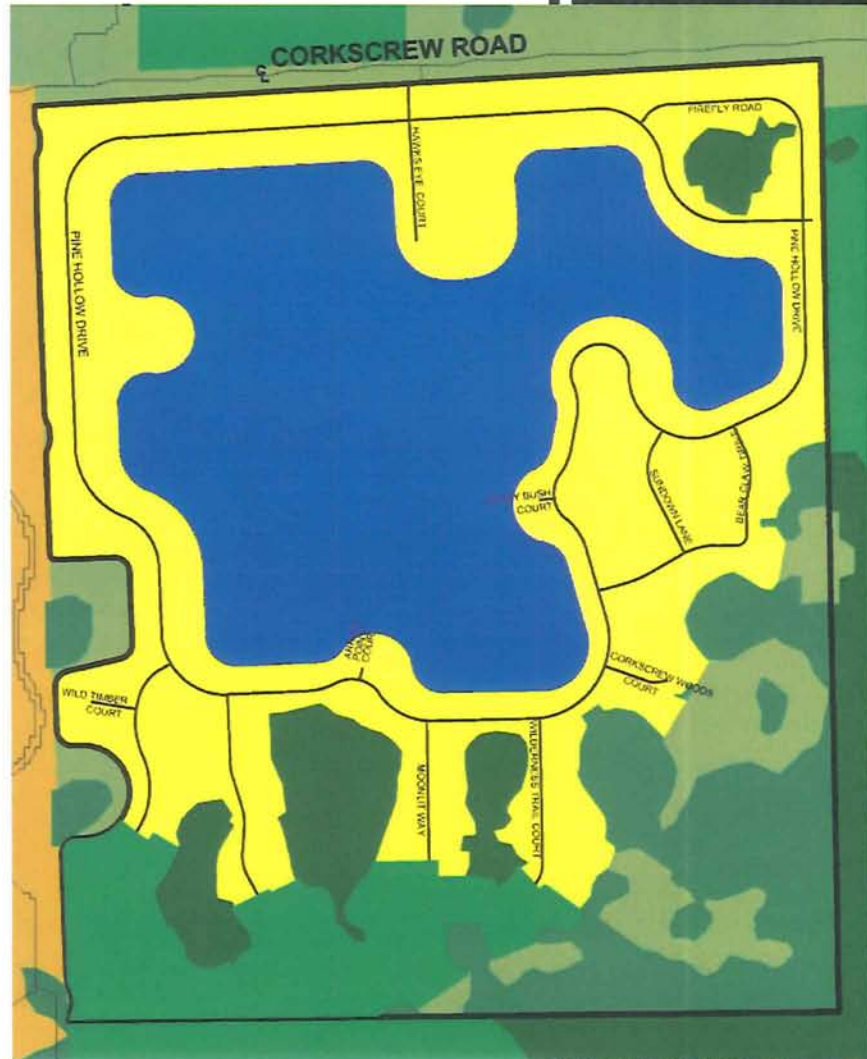
Corkscrew Woods – Benefits

- Unique opportunity
- Increases protection to Lee County public water supply wells.
- Eliminates the opportunity for individual use wells and septic systems to be constructed
- Companion rezoning further refines development details
- Clusters residential density
- Additional conservation land
- Sustainable and compatible with existing residential (Bella Terra) and conservation lands
- Smaller development footprint by $\pm 17\%$
- Density is capped at 800 units
- Eliminates underlying plat



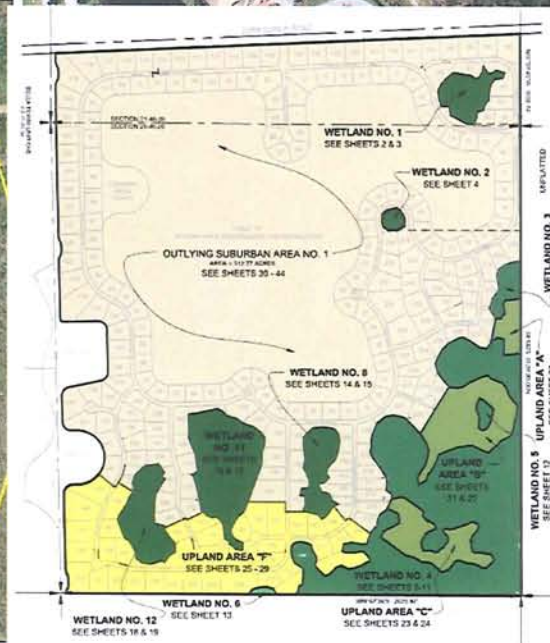
Corkscrew Woods

Conclusions:
Joe Cameratta & Ray Blacksmith



Lee County Staff's Reasons to Support Transmittal:

1. Provides a net overall benefit to groundwater levels
2. Provides additional conservation land adjacent to Flint Pen strand
3. Extends water & sewer to site
4. Eliminates 254 individual lots with wells and septic



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04/12/2012
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Corkscrew Woods
Approved Withdrawals @ 905,262 gpd for 90 days
Sandstone Aquifer Drawdown

