

C-51 Reservoir Project Update

By Ernie Cox

**South Florida Water Management District
Governing Board Meeting
March 14, 2013**

Final Draft Report for C-51 Project prepared jointly by:

- Lake Worth Drainage District
- Palm Beach County
- Broward County
- SFWMD

Final Draft June 2012

Documents 2011 Analysis

Includes recommendations
and some next steps

C-51 RESERVOIR – PRELIMINARY DESIGN AND COST ESTIMATE – FINAL REPORT



Prepared By:
Lake Worth Drainage District
Palm Beach County
Broward County
South Florida Water Management District
February 2013

Current Phasing

Phase I

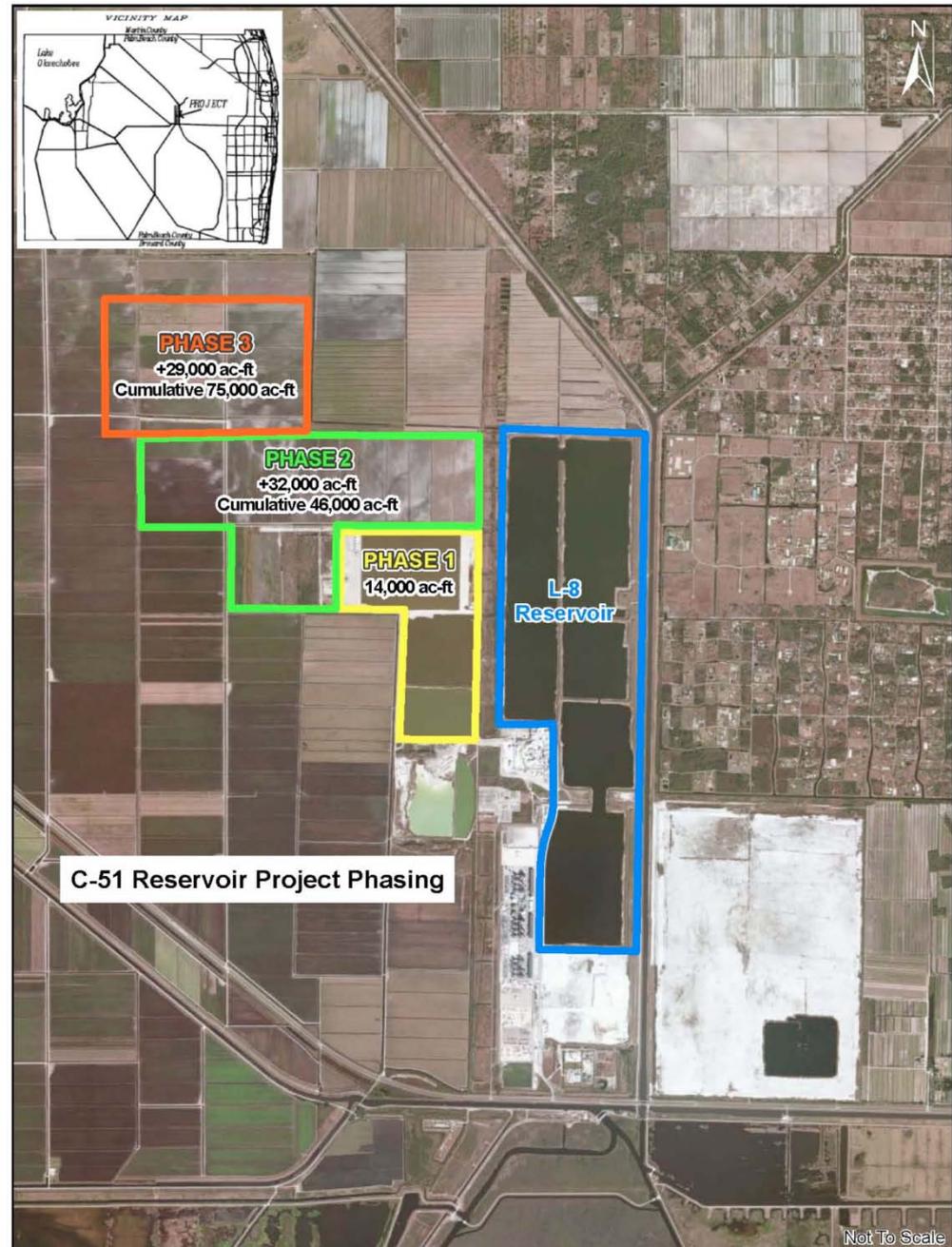
- 14,000 Acre Feet Storage
- Control Elevation 16.5' NAVD
- 2.5 years to construct
- 35 mgd for water supply
- Majority of Excavation Already Completed

Phase II

- +32,000 Acre Feet Storage
- Cumulative 46,000 Acre Feet
- Control Elevation 25' NAVD
- 120 mgd for water supply
- 2.5 years to construct

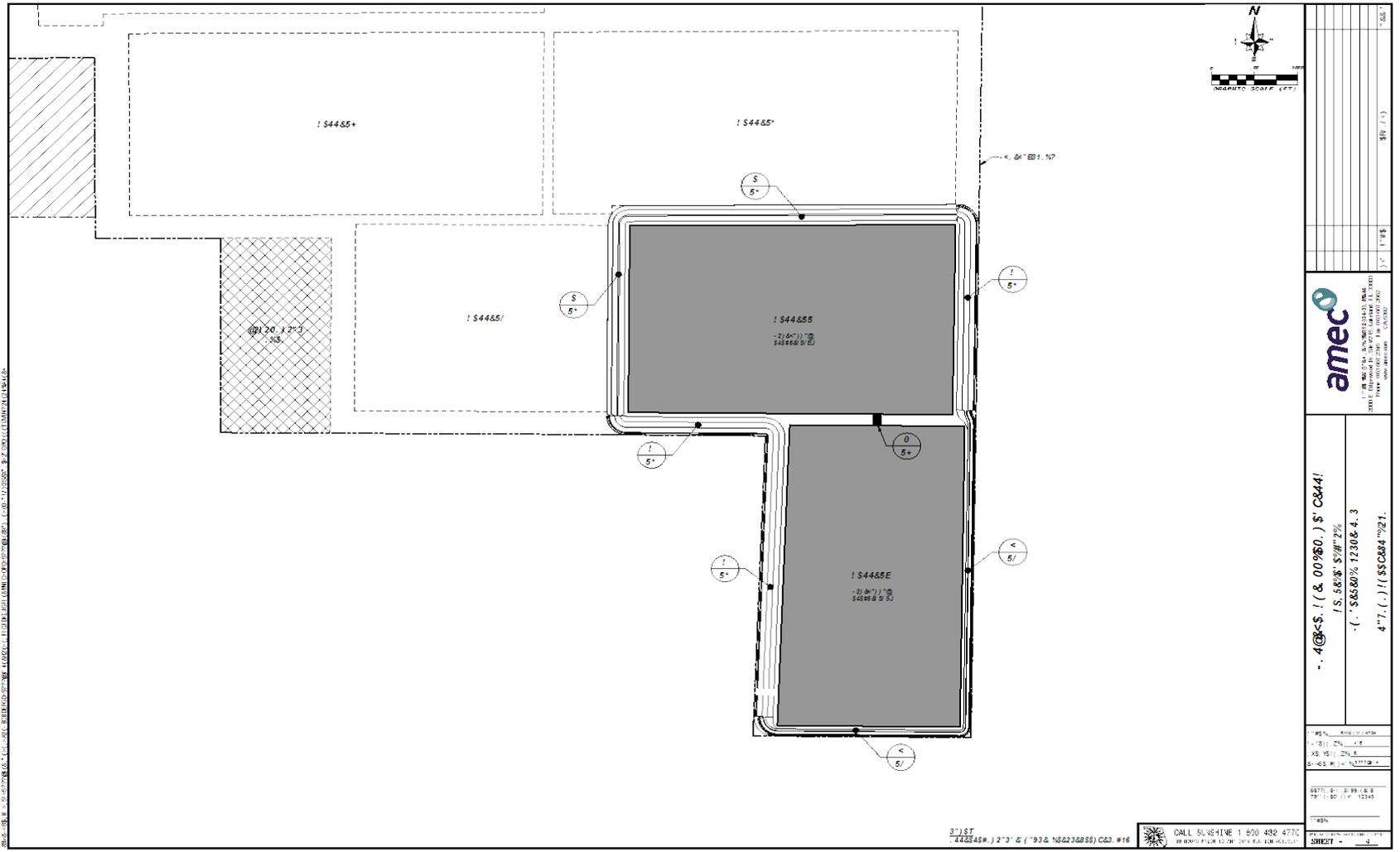
Phase III

- +29,000 Acre Feet Storage
- Cumulative 75,000 Acre Feet
- Control Elevation 25' NAVD
- 185 mgd for water supply
- 2 years to construct

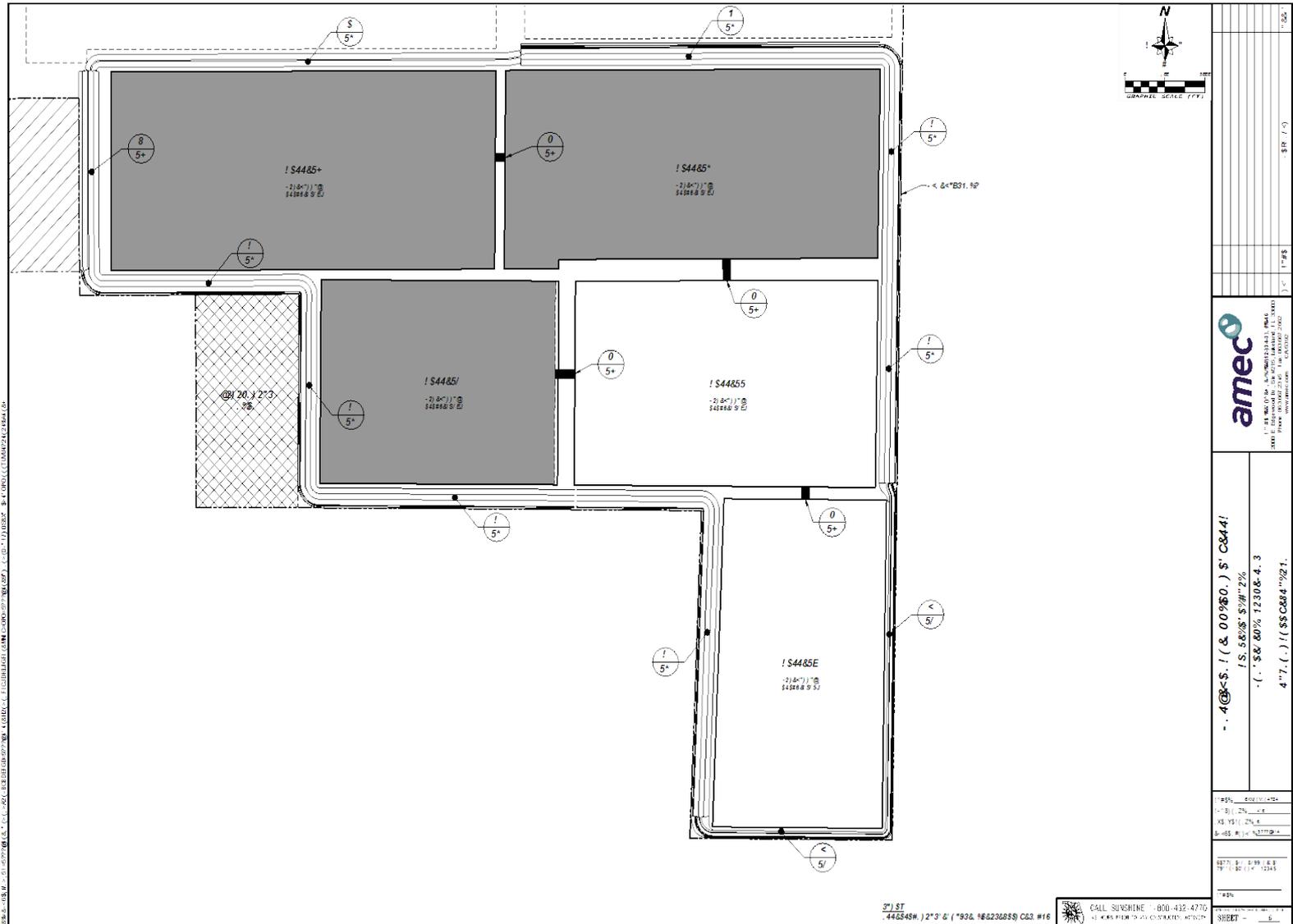


Phases can be constructed as needed

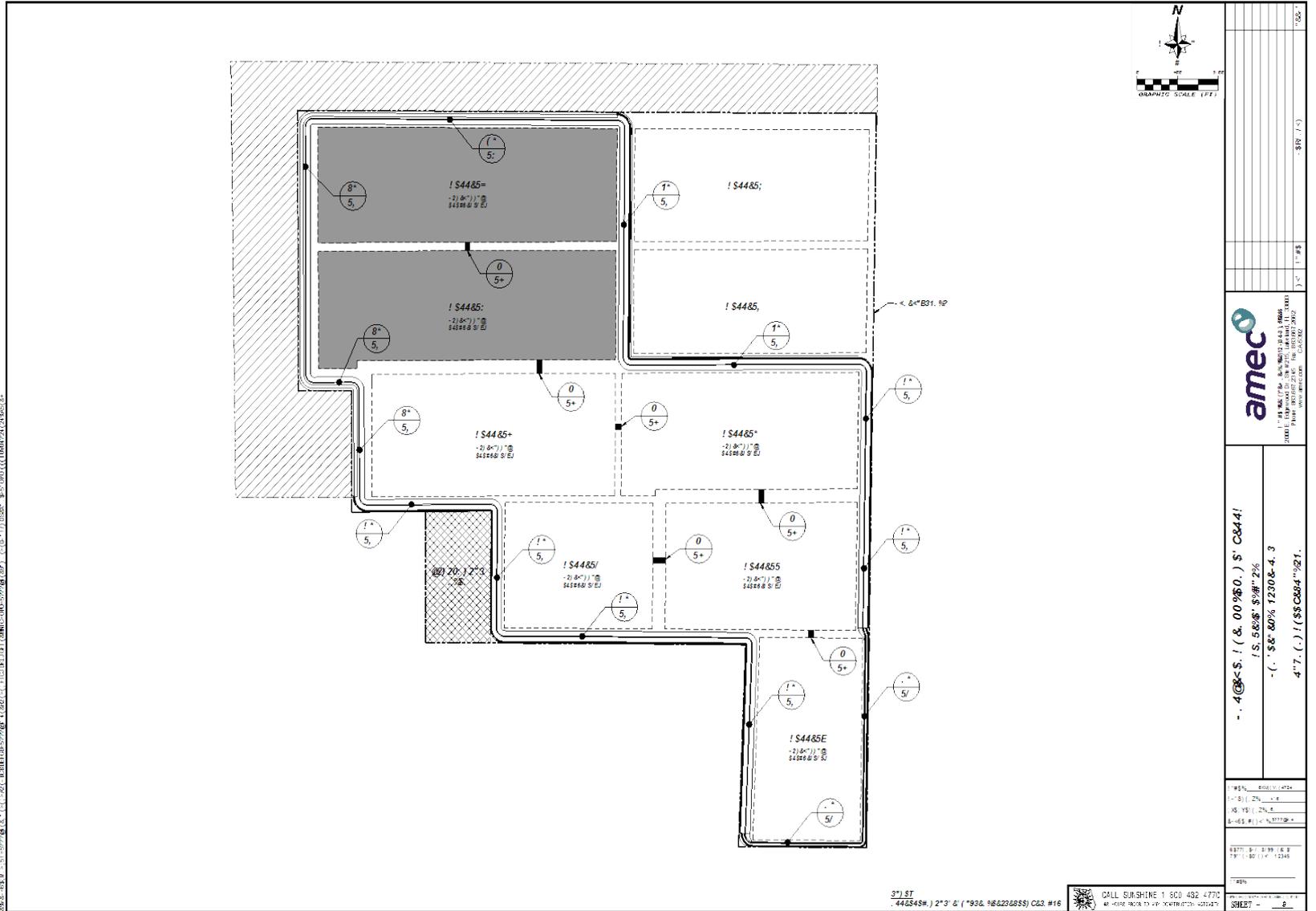
Stand-alone Phase 1 30% Construction Plan



Stand-alone Phase 2 30% Construction Plan



Stand-alone Phase 3 30% Construction Plan



Phase 1 Standalone with Alternative 2A with L-8 Canal Structure Revised Cost Estimates and H&S Methodology

Reservoir, Pumps, Canals, etc.
Off Site Improvements

\$184.0 million
\$2.5 million

Total

\$186.5 million

14,000 ac-ft Phase 1 Alternative 2A Connection		Annual		20 Year Term		
Type of Cost	mgd	Capital Cost (millions \$)	O&M Cost (million \$)	Capital Cost In Dollars / Gal of Water Capacity	Annual O&M Cost in Dollars / 1,000 Gal. of Water	Total Cost / 1,000 Gal. of Water (a)
					(5) = ((3) x 1,000) / (mgd x 365)	
(1)	(2)	(3)	(4) = (2) / mgd		(6)	
Cost per Water Offset	35	\$186.5	\$0.5	\$5.33	\$0.04	\$1.31
Cost per Raw Water Provided	47	\$186.5	\$0.5	\$3.97	\$0.03	\$0.98
Cost per Potable Water Produced	40	\$186.5	\$0.5	\$4.66	\$0.03	\$1.15

Phase 1 Standalone Direct Connection To L-8 Reservoir Revised Cost Estimates and H&S Methodology

Reservoir, Pumps, Canals, etc.
Off Site Improvements

\$148.0 million
\$2.5 million

Total

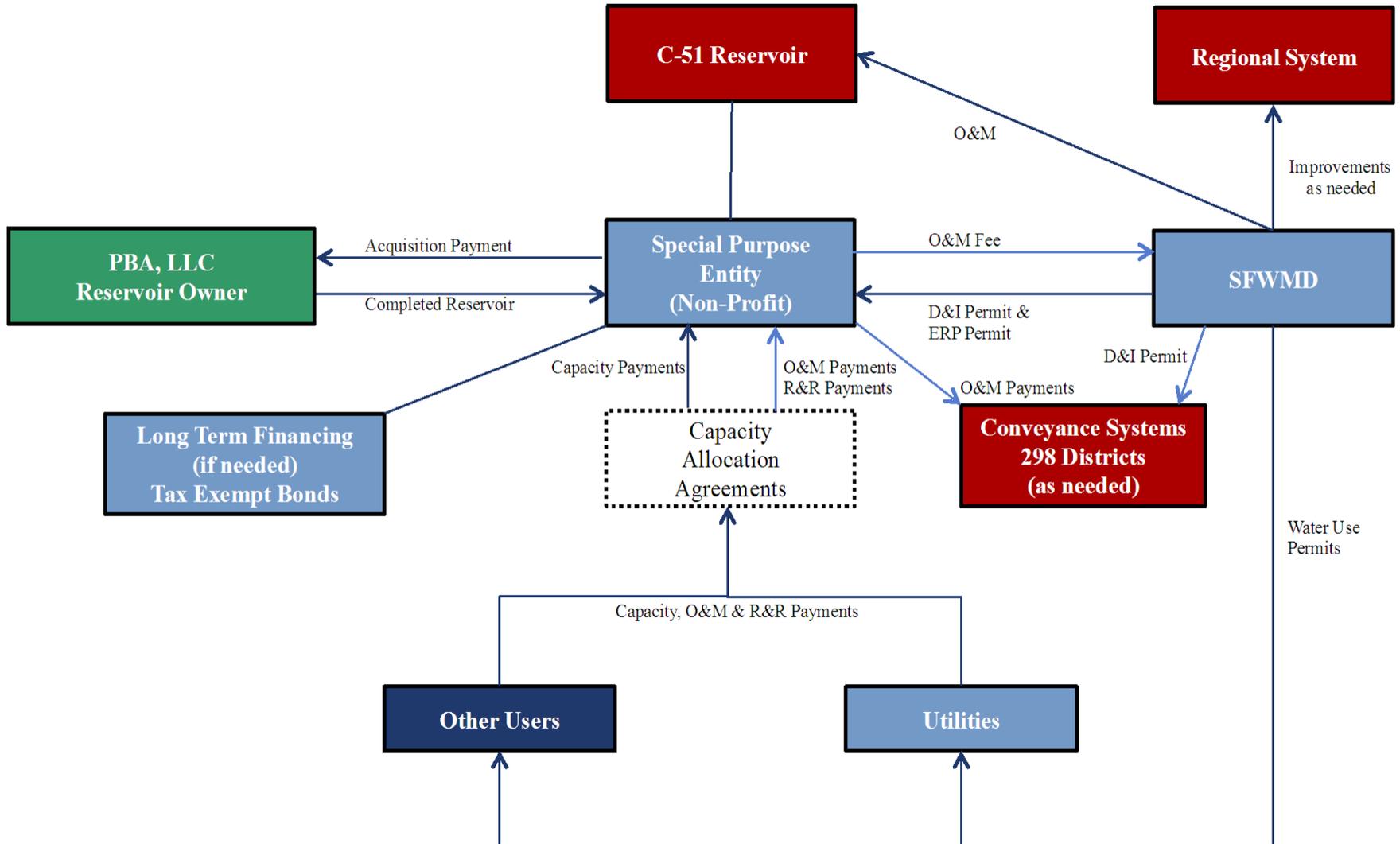
\$150.5 million

14,000 ac-ft Phase 1 Connect to L-8 Reservoir Option		Annual		20 Year Term		
Type of Cost	mgd	Capital Cost (millions \$)	O&M Cost (million \$)	Capital Cost In Dollars / Gal of Water Capacity	Annual O&M Cost in Dollars / 1,000 Gal. of Water	Total Cost / 1,000 Gal. of Water (a)
					(5) = ((3) x 1,000) / (mgd x 365)	
(1)		(2)	(3)	(4) = (2) / mgd		(6)
Cost per Water Offset	35	\$150.5	\$0.5	\$4.30	\$0.04	\$1.07
Cost per Raw Water Withdrawn	47	\$150.5	\$0.5	\$3.23	\$0.03	\$0.80
Cost per Potable Water Produced	40	\$150.5	\$0.5	\$3.79	\$0.03	\$0.94

Some Alternative Project Cost Comparisons Using H&S Methodology Similar to PDCER

Potable Water Produced - Alternatives		Annual	Capital Cost In	Annual O&M Cost	Total Cost /	
Project	mgd	Capital Cost (millions \$)	O&M Cost (million \$)	Dollars / Gal of Water Capacity	in Dollars / 1,000 Gal. of Water	1,000 Gal. of Water (a)
PHASE ONE OPTIONS ARE FOR HYBRID P3 APPROACH - RAW WATER - NO PAYMENT UNTIL PHASE COMPLETION						
C-51 Phase 1 to L-8 Reservoir 14,000 Ac-Ft (PBA 2013)	40	\$150.5	\$0.5	\$3.79	\$0.03	\$0.94
C-51 Phase 1 Alternative 2A 14,000 Ac-Ft (PBA 2013)	40	\$186.5	\$0.5	\$4.66	\$0.03	\$1.15
ALL PHASES OPTIONS ARE FOR COMPARISON TO PDCER - RAW WATER - CURENT PAYMENTS						
C-51 Connect to L-8 Reservoir 75,000 Ac-Ft (PBA 2013)	209	\$713.6	\$2.4	\$3.41	\$0.03	\$0.85
C-51 From 2012 PDCER 75,000 Ac-Ft (PBA 2012)	209	\$755.6	\$2.4	\$3.62	\$0.03	\$0.90
Reclaimed Water Recharge Hazen & Sawyer 2009	75	\$683.0		\$9.11	\$1.94	\$4.12
Miami-Dade Ground Water Recharge - reclaimed (Ph 1)	18.6	\$357.5		\$19.22	\$1.94	\$6.53
ALL PHASES OPTIONS ARE FOR COMPARISON TO PDCER - TREATED WATER - CURENT PAYMENTS						
Floridan Reverse Osmosis Hazen & Sawyer 2010	136	\$816.0		\$6.00	\$1.40	\$2.83
Floridan Reverse Osmosis Using \$10 Capial Cost/Gal	136	\$1,360.0		\$10.00	\$1.40	\$3.79

Overview of Potential P3 Structure for Phase One



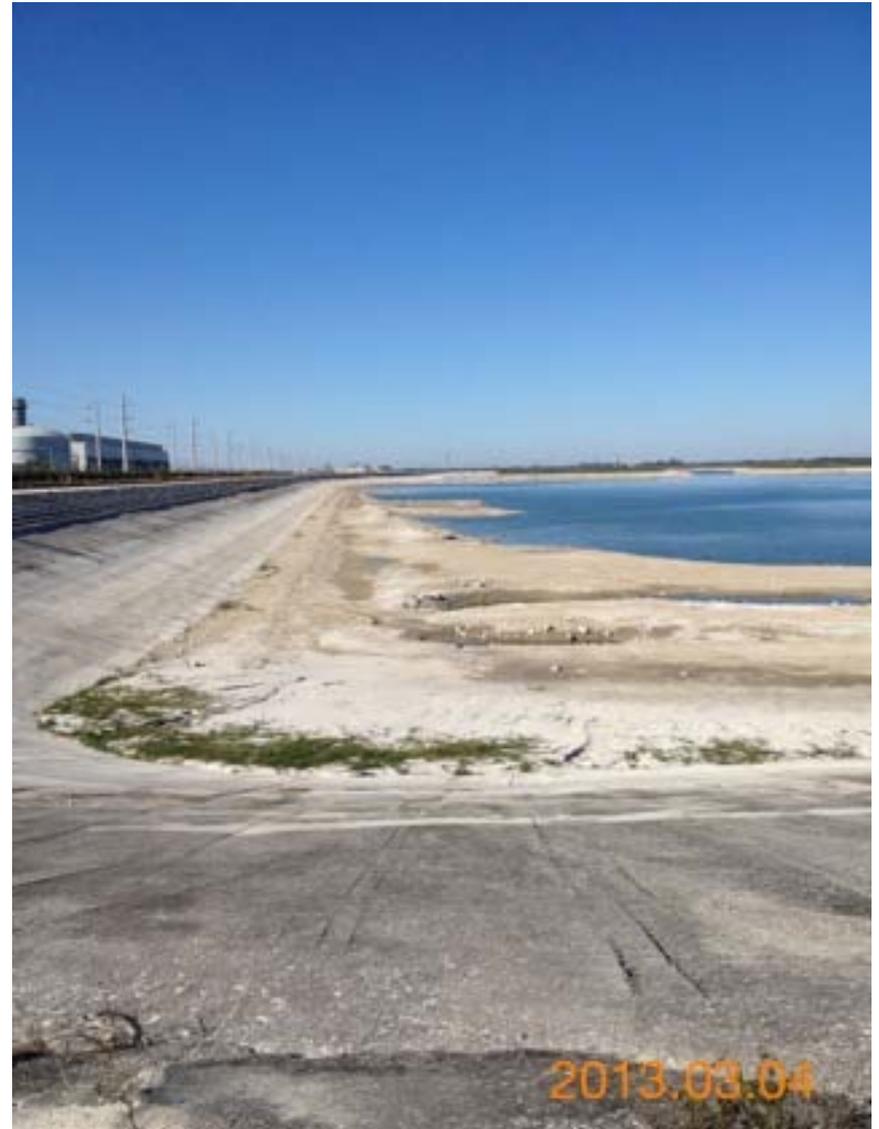
L-8 Canal (12 NAVD) and L-8 Reservoir (-3 NAVD)



L-8 Canal (11 NAVD) and L-8 Reservoir (-8 NAVD)



Recent Photographs of L-8 Reservoir



Recent Photographs of L-8 Reservoir



Recent Photographs of L-8 Reservoir



Next Steps & Continuing Discussions

- Utilities interested in storage allocations by Phase
- Lake Worth Drainage District and other 298 Districts
- SFWMD on proposed Project Protocol Agreement, Engineering and Operations
- Not-for-Profit and Project Structure concepts, timing