Annual Assessment Report | December 2014
U.S. Army Corps of Engineers Permit SAJ-1994-04745 (IP-MEP)
Submitted to **Peter Peduzzi at Sarasota County Public Works Department**

Annual Monitoring Report
for Celery Fields Mitigation Site

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(IP-MEP)

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Sarasota County
Florida

Prepared for: **Peter Peduzzi, Project Manager**
Sarasota County Government Public Works
1001 Sarasota Center Blvd,
Sarasota, FL 23240

Prepared by:

8043 Cooper Creek Boulevard, Suite 201
University Park, Florida 34201
(941) 351-8986

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Introduction

The U.S. Army Corps of Engineers (ACOE) authorized 415.94 acres of permanent impacts to highly altered wetlands for the Celery Fields Regional Stormwater Facility (CFRSF) through ACOE Permit SAJ-1994-4745(IP-MEP). This permit was revised in 2003 through a permit modification that required the creation of 87.7 acres of open-water habitat, 96.82 acres of herbaceous wetland, 5.32 acres of forested wetland, 12.64 acres of upland buffer habitat, and 1.09 acres of existing upland preservation. The ACOE permits also called for implementation of an environmental education program that includes educational signage and passive recreational use through the creation of elevated boardwalks with terminal gazebos, a hiking trail, and specific wildlife habitat improvements for native wildlife species.

Permit number SAJ-1994-4745 was subsequently modified two times to include a re-issued permit and mitigation plan changes. In October 2010, the permit modifications allowed for a redesign of the CFRSF to provide for an additional 12.44 acres of mitigation needed to comply with the originally-issued permit. The deficit mitigation acreage was created in the Walker Tract Mitigation Area, a previously unvegetated open water area of the CFRSF. The Walker Tract was not previously used for other mitigation purposes and was not originally designed with grades and planting appropriate for a wetland environment. In October 2014, Modification #3 was issued to allow Sarasota County to use an adaptive management plan to more aggressively manage nuisance/exotic plant species and replant forested wetland areas, upland buffers, and floating-leaved deep-water zones. This plan will be implemented in the Spring of 2015.

Earthwork, excavation, and planting of the Celery Fields Mitigation Site (both the South Cell and Walker Tract Mitigation Areas) were originally conducted from September 2009 through December 2010 for the CFRSF Phase III construction project. Warranty replanting, exotic plant maintenance, recreational improvements, and wildlife habitat enhancements were all completed during 2011 and 2012. The final warranty replanting for the mitigation site occurred in January 2012. Semiannual monitoring has been conducted since March 2011. This report is intended to comply with the annual monitoring requirement of the permit and includes the results of the April and September 2014 semi-annual monitoring events.

Mitigation Success Criteria

Semi-annual vegetation monitoring events conducted in March and September of each year are summarized in annual reports due in January of each year. ACOE Permit SAJ-1994-4745 (IP-MEP) for Phase III of the CFRSF project requires the following success criteria be evaluated:

1. A minimum of 70% total cover of desirable wetland plant species in herbaceous wetland zones in South Cell and Walker Tract Mitigation Areas;
2. A minimum of 50% total cover by desirable plant species of the water lily-dominated D-Zones of the South Cell Mitigation Area;
3. A minimum of 30% canopy coverage and 30% desirable herbaceous vegetative cover for the forested wetland zones;
4. Nuisance/exotic plants species must not exceed 10% total cover;
5. Herbaceous wetland zones must be able to be classified as *Palustrine Emergent Wetland* according to the U.S. Fish and Wildlife Service's (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (CWDHUS); and
6. Forested wetland zones must be able to be classified as *Palustrine Scrub-Shrub Wetland* according to the USFWS's CWDHUS.

The Celery Fields Mitigation Site will also be deemed successful when the permittee implements a nuisance/exotic species maintenance program. Sarasota County has already complied with the intent of this condition by instituting a maintenance-control program for nuisance/exotic plant species for the South Cell and Walker Tract Mitigation Areas. The County has used a combination of in-house and contracted maintenance crews to control nuisance/exotic plant species. According to the permit, the final annual report can only be submitted to the ACOE once the mitigation areas have been deemed successful for three consecutive years.

Site Description

The CFRSF is located in Sarasota County (Sections 19, 20, 29, and 30 of Township 36 South, Range 19 East), south of Fruitville Road and east of Interstate 75 (**Figure 1**). The Celery Fields Mitigation Site, the southern part of the CFRSF, is located south of Palmer Boulevard, west of Raymond Road, east of Sarasota County Canal Main C, and north of Canal Lateral CA.

The Celery Fields Mitigation Site is comprised of the South Cell Mitigation Area, located just south of Palmer Boulevard, and the Walker Tract Mitigation Area, located just south of the South Cell and separated from the South Cell by a berm and Water Control Structure S-15 (**Figure 2**). The South Cell is comprised of 84.40 acres of created marsh, 3.80 acres of created forested wetland, 19.50 acres of open water habitat, 10.84 acres of created upland buffer, and 2.08 acres of upland preservation (**Figure 3**).

The Walker Tract Mitigation Area for the aforementioned ACOE permit modification is comprised of a total of 11.43 acres of created herbaceous wetland, 1.57 acres of created forested wetland, 1.67 acres of open-water habitat, and 1.80 acres of upland buffer (**Figure 4**). It is important to note that a combined 9.20 acres of wetland, open water habitat, and upland buffer that exist on the west side of the Walker Tract adjacent to Canal Main C are not currently being used for wetland mitigation for any local, State, or federal agency permit requirements.

Summary of Construction, Planting, and Maintenance Activities

Restoration Earthwork

Earthmoving operations for the South Cell and Walker Tract Mitigation Areas commenced in September 2009 and final grades in the mitigation areas were substantially completed by December 2010. The mitigation design called for grading down to various target elevations in numerous planting subzones to create a diversity of habitats with different hydroperiods. In the South Cell, eight different planting zones of varying depth ranges were created. Similarly, a total of ten planting zones were created in the Walker Tract. All finished grades in the South Cell and Walker Tracts included a layer of organic soil greater than six inches in depth. Donor soil locations were inspected for organic content and minimal exotic/nuisance plant species presence and approved by a Professional Wetland Scientist. After parts of the site were dewatered to allow for final grading and organic soil placement, the site was subsequently flooded to promote survival and active growth of planted and other desirable wetland plant species. Eroded banks and wetland zones were periodically repaired during the construction phase of the project.

\\Flsadata\projects\65848.00\GIS\project\Figure 1 Location Map r1.mxd

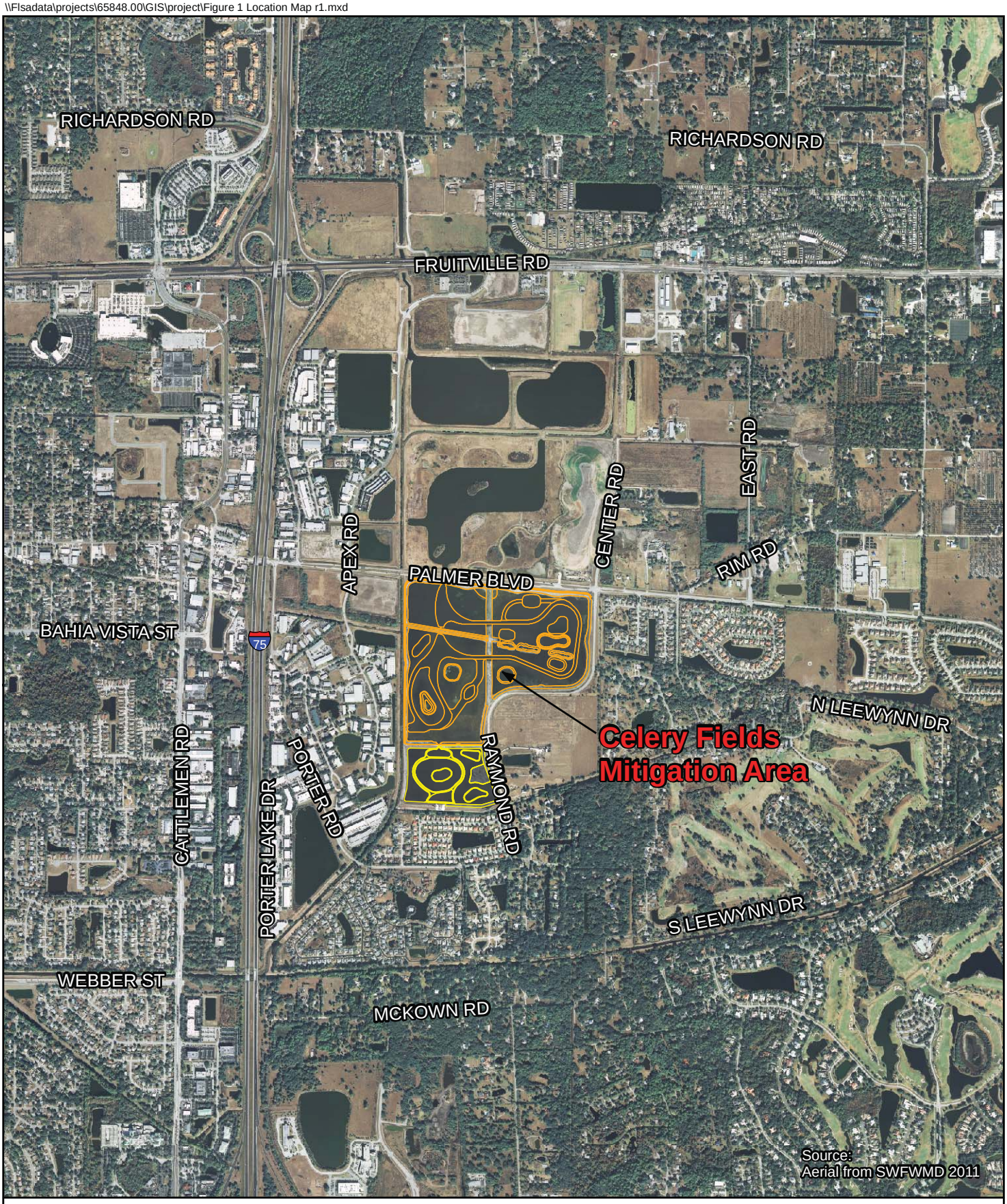

Figure 1

Celery Fields Mitigation Site Location Map

Vanasse Hangen Brustlin, Inc.
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University Park, Florida 34201
941.351.8986

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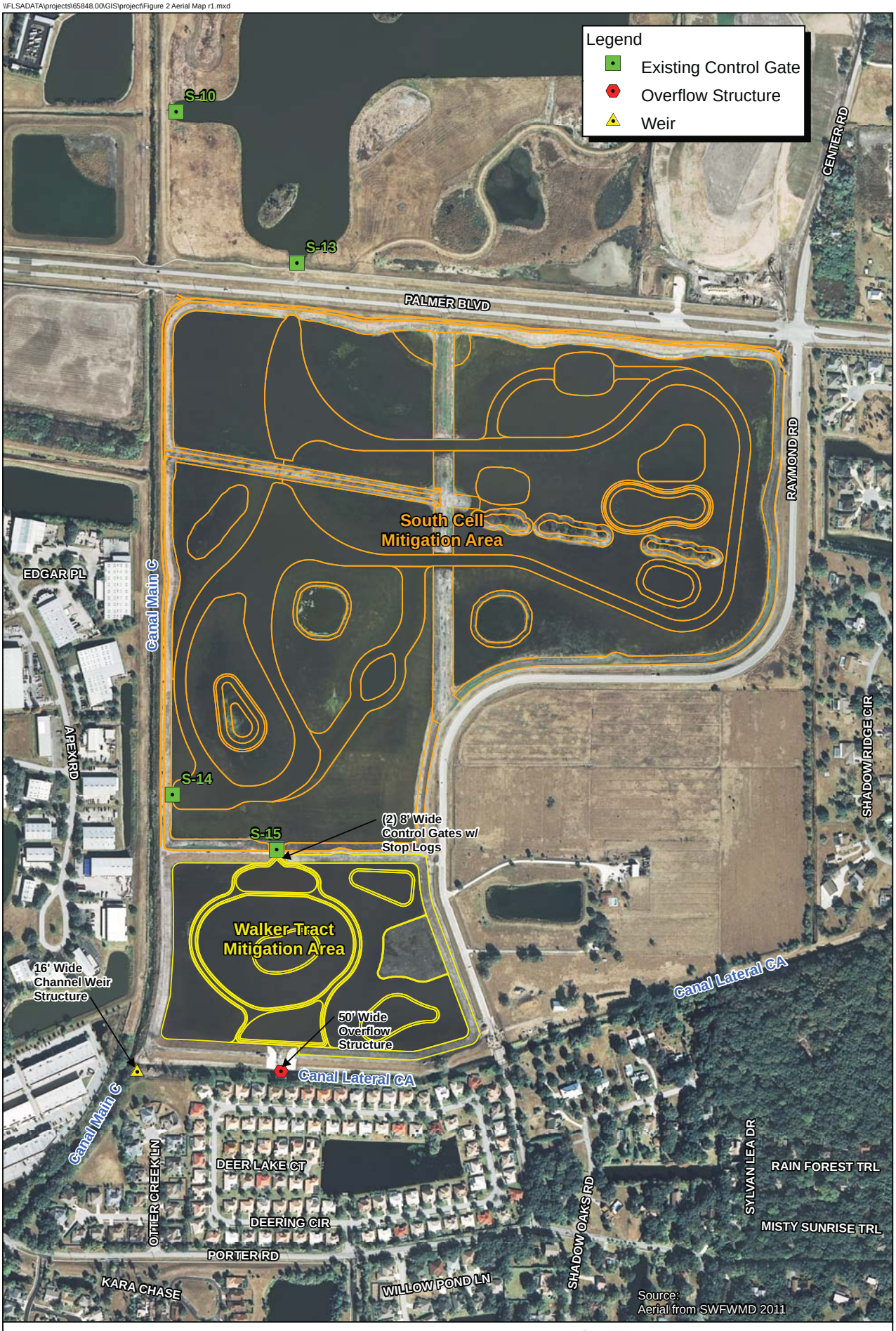

Figure 2

South Cell and Walker Tract Mitigation Areas Locations within Celery Fields Mitigation Site

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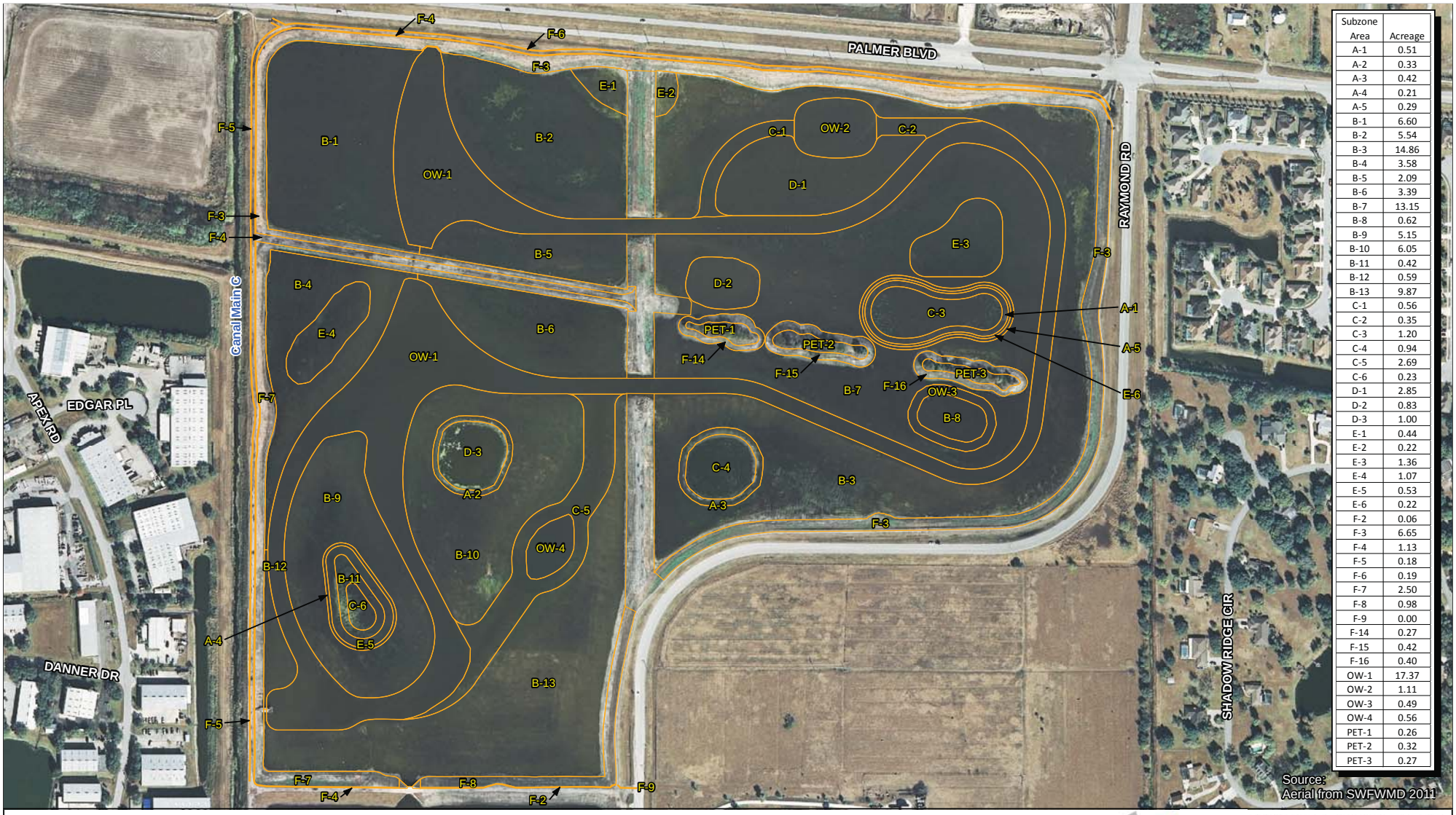
0 200 400 800 Feet

\\flsadata\projects\65848.00\GIS\project\Figure 3 South Cell.mxd



Subzone Area	Acreage
A-1	0.51
A-2	0.33
A-3	0.42
A-4	0.21
A-5	0.29
B-1	6.60
B-2	5.54
B-3	14.86
B-4	3.58
B-5	2.09
B-6	3.39
B-7	13.15
B-8	0.62
B-9	5.15
B-10	6.05
B-11	0.42
B-12	0.59
B-13	9.87
C-1	0.56
C-2	0.35
C-3	1.20
C-4	0.94
C-5	2.69
C-6	0.23
D-1	2.85
D-2	0.83
D-3	1.00
E-1	0.44
E-2	0.22
E-3	1.36
E-4	1.07
E-5	0.53
E-6	0.22
F-2	0.06
F-3	6.65
F-4	1.13
F-5	0.18
F-6	0.19
F-7	2.50
F-8	0.98
F-9	0.00
F-14	0.27
F-15	0.42
F-16	0.40
OW-1	17.37
OW-2	1.11
OW-3	0.49
OW-4	0.56
PET-1	0.26
PET-2	0.32
PET-3	0.27

Figure 3

Locations of South Cell Mitigation Area Planting Subzones

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\\Flsadata\projects\65848.00\GIS\project\Figure 4 Walker Tract.mxd

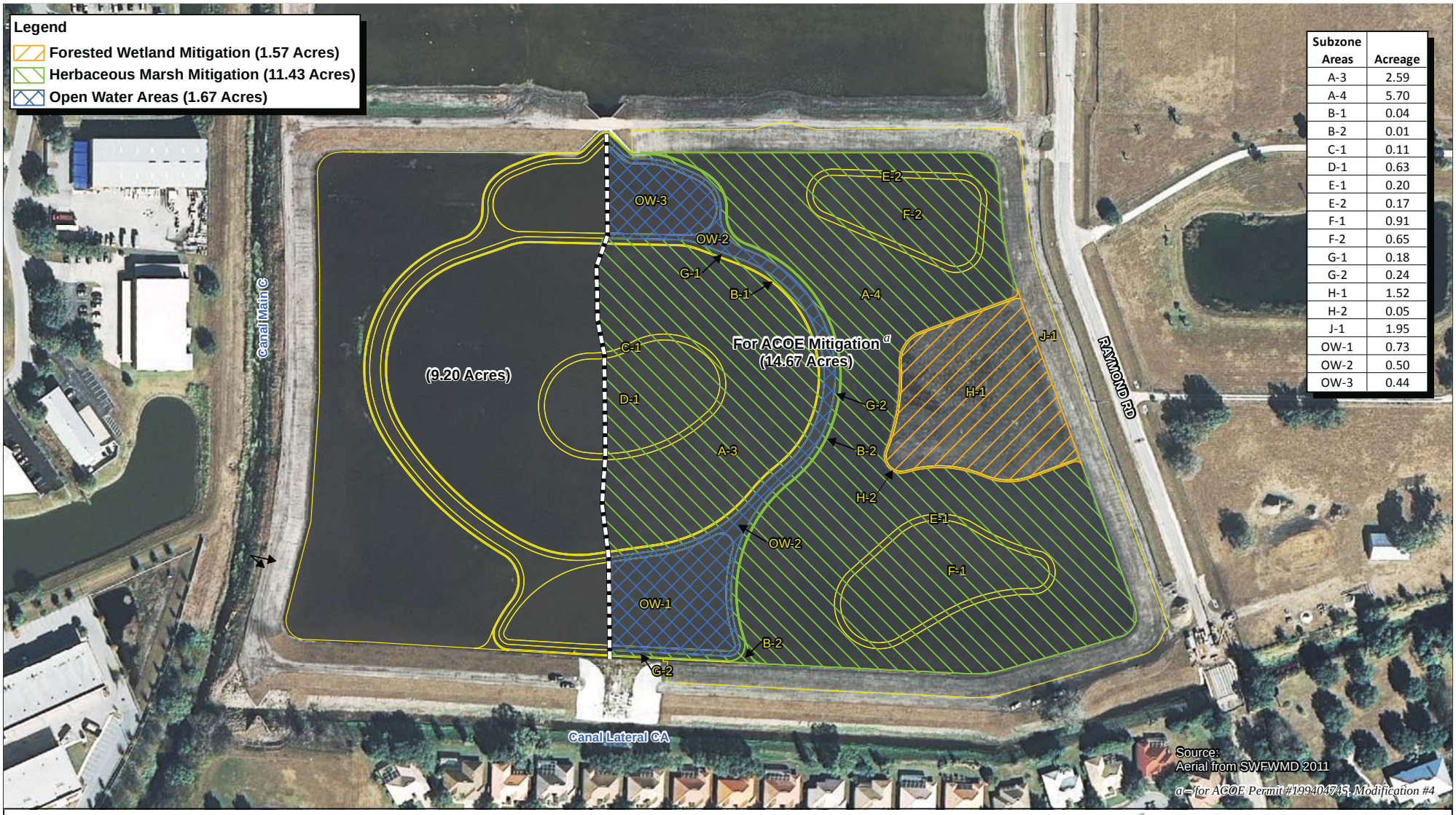

Figure 4
Location of Walker Tract Mitigation Area Planting Subzones

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University Park, Florida 34201
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Water Flow and Control Structure Operation

Water level in the Celery Fields Mitigation Site is intended to reach the control elevation of 14.5 ft NGVD when the wetlands are close to full pool. Water enters the mitigation site under Palmer Boulevard through Water Control Structure S-13 (Figure 2) and flows through the South Cell in a sinuous fashion to increase water-holding residence time before it is discharged at 14.5 ft NGVD into the Walker Tract through Water Control Structure S-15. Water Control Structure S-14, located in the South Cell, allows water to flow directly into the Canal Main C during periods of extreme high water. In the Walker Tract, water then flows circuitously to the south where it discharges at 14.5 ft NGVD over Water Control Structure S-16, a fabri-form outflow weir located at the south end of the Walker Tract. From the Walker Tract, water flows into Canal Lateral CA through canal rip rap and a 16-ft wide channel weir control structure where water is discharged into Canal Main C at elevation 10.0 ft NGVD through Structure S-17.

The overflow weir and the rest of the water control structures were completed by September 2010 and have been in operation since that date. As part of the standard operating procedures and management of the CFRSF, the control structures are adjusted for maintenance and water level manipulations to maintain natural hydroperiods for compartmentalized cells, and to increase the water holding capacity of the site in anticipation of large storm events.

In August 2011, significant leakage was documented through the control structure at Palmer Boulevard. At Water Control Structure S-13 (just north of Palmer Boulevard), soil had eroded under the entire length of the control structure footer and one of the wing walls, thereby allowing water to flow under the control structure. As a result, the stop logs at Water Control Structure S-13 were removed on September 22, 2011 to prevent further erosion and to allow for repair of the undermined footer wing wall on the north side of the structure. When the stop logs were removed, water levels in the South Cell and Central Cell (north of Palmer Boulevard) were allowed to equalize for the period September 22, 2011 through June 20, 2012. On May 31, 2011, the control structure repairs started. The functionality of Water Control Structure S-13 was completely restored when the removed stop logs were reinstalled on June 20, 2012.

Water control structures have also been adjusted over the last three years for three different storms (Tropical Storm Irene, Tropical Storm Debby, and Tropical Storm Isaac). In late August 2011, Control Structures S-6 (at the entrance to the CRFSF) and S-10 (in the South Cell) were opened for a few days to allow water to flow from the site in anticipation of the significant storm event associated with Tropical Storm Irene. On June 25-26, 2012, the control structures of CFRSF were manipulated in anticipation of Tropical Storm Debbie. Later that year in late August of 2012, minor adjustments were made to Water Control Structures S-6, S-10, and S-13 in anticipation of Tropical Storm Isaac.

The Walker Tract was also dewatered through two deep-water sump drainage pipes in March of 2012 and from April through September 2014 to promote survival of wetland trees and shrubs in Zone H which was designed at approximately 14.25 ft NGVD (0.25 foot below the control elevation). The Celery Fields Control Structure Operations Logs for all storms and intentional dewatering are provided as **Appendix A**.

Planting

The South Cell and Walker Tract were separated into different planting zones based on the range of water depths that would be experienced when the Celery Fields Mitigation Site water level is at the control elevation. Initially, a total of 24 wetland and upland species were planted in a total of 37 planting subzone areas in the South Cell (**Table 1**). A total of 22 wetland and upland species were planted in 16 planting subzone areas in the Walker Tract (**Table 2**). All herbaceous wetland plants were installed on 3-ft centers, with the exception of water lilies (*Nymphaea odorata*) which were planted on 5-ft centers in the South Cell. All herbaceous plant materials were installed at the quart-equivalent or comparable size. All upland shrub and tree species were nursery-grown and provided in 1-gallon containers. Wetland shrub and tree species were all 3-gallon nursery-grown stock. In addition to the trees and shrubs planted in Upland Buffer Zone of the South Cell and part of Walker Tract, 61,178 (2-inch container grown) sand cordgrass (*Spartina bakeri*) were planted on 3-ft centers to provide an understory and some erosion control on the banks of these upland areas. A total of 2,000 sand cordgrass, 1,500 muhly grass (*Muhlenbergia capillaris*), and 1,776 broomsedge (*Andropogon* spp.) were planted in the Tree Preserve Islands of the South Cell to provide some understory cover and erosion control in areas that were previously dominated by exotic/nuisance plant species.

All plants installed at the Celery Fields Mitigation Site were inspected for quality and size requirements before installation. Planting commenced in the South Cell in September 2010 and was substantially completed by November 2010. In the Walker Tract, the planting started in October 2010 and was substantially completed by November 2010. The planting contractor had an 85% plant survival guarantee for one year for all woody species and a 100% survival guarantee for all herbaceous species. In December 2010, VHB conducted a final plant inspection to verify survival of all species and proper plant placement in appropriate subzones. To comply with the plant survival warranty, replanting plans for the South Cell and Walker Tract were implemented (**Tables 3 and 4,** respectively). In December 2010, the Walker Tract replanting was implemented, and in March 2011, the South Cell replanting was completed.

Mortality of plants in the herbaceous and forested wetlands was again assessed in April 2011, and a replanting was conducted in July 2011 to comply with survival guarantees (**Table 5**). In the forested wetland in the Walker Tract, a plant substitution of cypress (*Taxodium distichum*) was allowed. Because sawgrass (*Cladium jamaicense*) was not available and had to be grown to the appropriately-sized nursery grown plants, 7,000 sawgrass were installed at a later date (September 2011).

In August 2011, the upland buffers were inspected for warranty survival of trees, shrubs, and sand cordgrass. As a result of a mutually agreed-upon compromise between the planting contractor and Sarasota County Public Works Department, a total of 3,440 grasses, 200 shrubs, and 45 trees was installed in the upland buffer in September 2011 (Table 5). As part of the replanting plan, the upland buffer plant diversity was increased by adding Fakahatchee grass (*Tripsacum dactyloides*), muhly grass, bushybeard bluestem (*Andropogon glomeratus*), Florida privet (*Forestiera segregata*), and American elm (*Ulmus americana*).

In January 2012, a final replanting to meet the one-year warranty guarantee was implemented (**Table 6**). During this final planting, 400 shrubs and 250 trees were replanted in the forested wetland (Zone H) in the Walker Tract, and a total of 12,400 herbaceous plants were planted in six herbaceous zones to fill in the gaps with high plant mortality. In addition, the South Cell was replanted with 6,600 herbaceous plants in two wetland areas and 100 Fakahatchee grass in the upland buffer.

Table 1. Subzone Planting Plan for South Cell Area of Celery Fields Mitigation Site.

						A-1	*A-2*	*A-3*	*A-4*	*A-5*
Zone A Planting	*Total Acreage*	*1.80*		*Sub-Zone Acreage*		*0.512*	*0.333*	*0.422*	*0.211*	*0.289*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**				
Polygonum punctatum	smartweed	A	quart	3	1,302	370	240	305	152	235
Cladium jamacense	sawgrass	A	quart	3	2,604	741	481	610	305	467
Spartina bakeri	sand cordgrass	A	quart	3	2,170	617	401	508	254	390
Panicum hemitomon	maidencane	A	quart	3	435	123	80	101	50	81
Coreopsis leavenworthii	tickseed	A	quart	3	2,170	617	401	508	254	390

						B-1	*B-2*	*B-3*	*B-4*	*B-5*	*B-6*	*B-7*	*B-8*	*B-9*	*B-10*	*B-11*	*B-12*	*B-13*
Zone B Planting	*Total Acreage*	*71.90*		*Sub-Zone Acreage*		*6.530*	*5.543*	*14.861*	*3.673*	*2.056*	*3.443*	*13.155*	*0.622*	*5.145*	*6.052*	*0.418*	*0.592*	*9.795*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**												
Pontederia cordata	pickerelweed	B	quart	3	104,394	9,481	8,047	21,577	5,333	2,985	4,999	19,099	903	7,470	8,786	607	859	14,248
Sagittaria lancifolia	lance-leaf arrowhead	B	quart	3	104,394	9,481	8,047	21,577	5,333	2,985	4,999	19,099	903	7,470	8,786	607	859	14,248
Cladium jamaicense	sawgrass	B	quart	3	34,800	3,160	2,682	7,192	1,777	995	1,666	6,366	301	2,490	2,929	202	286	4,754
Eleocharis interstincta	knotted spikerush	B	quart	3	104,394	9,481	8,047	21,577	5,333	2,985	4,999	19,099	903	7,470	8,786	607	859	14,248

						C-1	*C-2*	*C-3*	*C-4*	*C-5*	*C-6*
Zone C Planting	*Total Acreage*	*6.00*		*Sub-Zone Acreage*		*0.560*	*0.347*	*1.201*	*0.942*	*2.687*	*0.235*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**					
Thalia geniculata	alligator flag	C	quart	3	14,520	1,355	839	2,907	2,280	6,503	636
Scirpus validus	softstem bulrush	C	quart	3	14,520	1,355	839	2,907	2,280	6,503	636

						D-1	*D-2*	*D-3*
Zone D Planting	*Total Acreage*	*4.70*		*Sub-Zone Acreage*		*2.850*	*0.830*	*1.000*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**	**Sub-Zone Quantities**	**Sub-Zone Quantities**
Nymphaea odorata	fragrant water lily	D	quart	5	8,189	4,966	1,446	1,777

Table 1. (continued). South Cell Subzone Planting Plan.

Scientific Name	Common Name	Zn	Size	centers (ft)	Total Zone Quantities	Sub-Zone Quantities					
Fraxinus caroliniana	Carolina ash	E	3 gallon	5	3,310	379	190	1,188			
Cephalanthus occidentalis	buttonbush	E	3 gallon	5	3,310	379	190	1,188			
Panicum hemitomon	maidencane	E	quart	3	18,392	2,107	1,057	6,601			

						F-1	*Berm Toe of Slope*
Zone F Planting	*Total Acreage*	*12.64*		*Sub-Zone Acreage*		12.640	
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**	
Sabal palmetto	cabbage palm	F	1 gallon	scattered	300	300	
Pinus ellottii	slash pine	F	1 gallon	scattered	700	700	
Quercus virginiana	live oak	F	1 gallon	scattered	500	500	
Magnolia virginiana	sweetbay	F	1 gallon	scattered	500	500	
Myrica cerifera	wax myrtle	F	1 gallon	scattered	200	200	
Celtis laevigata	sugarberry	F	1 gallon	scattered	500	500	
Viburnum obovatum	Walter's viburnum	F	1 gallon	scattered	300	300	
Serenoa repens	saw palmetto	F	1 gallon	scattered	500	500	
Ilex glabra	gallberry	F	1 gallon	scattered	1,000	1,000	
Spartina bakeri	sand cordgrass	F	quart	scattered	61,178	61,178	3,760

						PET-1	*PET-2*	*PET-3*
Tree Islands	*Total Acreage*	*2.08*		*Sub-Zone Acreage*		0.568	0.797	0.715
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**		
Spartina bakeri	sand cordgrass	PET	quart	3	2,000	546	766	688
Muhlenbergia capilaris	muhly grass	PET	quart	3	1,500	410	575	516
Andropogon spp.	broomsedge	PET	quart	3	1,776	485	681	611

Table 2. Subzone Planting Plan for Walker Tract Area of Celery Fields Mitigation Site.

			Subzone Areas	A-1	A-2	A-3	A-4	B-1	B-2	C-1	D-1	E-1	F-1	F-2	G-1	G-2	H-1	H-2
			Acreage	0.01	3.82	5.53	5.70	0.09	0.14	0.18	0.93	0.20	0.91	0.65	0.37	0.50	1.52	0.05
			Number of plants	49	18,489	26,766	27,588	436	678	872	4,502	968	4,405	3,146	1,791	2,420	8,020	242
Scientific Name	**Common Name**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**													
Acer rubrum	red maple	3-gallon	10	**221**													221	
Bacopa monierri	bacopa	qt-equiv	3	**4,800**		800	2,000	2,000										
Cephlanthus occidentalis	buttonbush	3-gallon	10	**663**													663	
Eleocharis interstincta	spikerush	qt-equiv	3	**15,309**		3,189	5,000	3,000				700	100	500	500		320	2,000	
Fraxinus caroliniana	popash	3-gallon	10	**221**													221	
Nymphaea odorata	water lilly	qt-equiv	3	**6,200**							100	500	200	2,000	1,000	1,000	1,000	
Nyssa sylvatica	swamp tupelo	3-gallon	10	**221**													221	
Panicum hemitomon	maidencane	qt-equiv	3	**17,921**	20	4,000	5,000	4,000	236		272	1,500		405	246			2,000	242
Polygonum punctatum	smartweed	qt-equiv	3	**15,671**		4,000	6,000	4,000		278	100	502	368						
Pontederia cordata	pickerelweed	qt-equiv	3	**14,576**	19	1,500	4,000	5,000	200		200	500	200	500	500	200	400	1,357	
Sagittaria lancifolia	arrowhead	qt-equiv	3	**12,091**		1,500	3,000	5,000		200		500	100	500	500	391	400		
Scirpus californicus	bullrush	qt-equiv	3	**5,600**		500	1,000	2,000		200	200	300		500	400	200	300		
Spartina bakeri	sand cordgrass	qt-equiv	3	**8,364**	10	3,000	766	2,588										2,000	

Table 3. Subzone Replanting Plan for South Cell Area of Celery Fields Mitigation Site (Implemented on March 2011).

						A-1	*A-2*	*A-3*	*A-4*	*A-5*
Zone A Planting	*Total Acreage*	*1.80*		*Sub-Zone Acreage*		*0.512*	*0.333*	*0.422*	*0.211*	*0.289*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**				
Polygonum punctatum	smartweed	A	quart	3	1,302	30		200		
Cladium jamacense	sawgrass	A	quart	3	2,604	70	300	610		100
Spartina bakeri	sand cordgrass	A	quart	3	2,170	60	100	200	100	
Panicum hemitomon	maidencane	A	quart	3	435	20	40	100	50	
Coreopsis leavenworthii	tickseed	A	quart	3	2,170	600	401	500	250	390

						B-1	*B-2*	*B-3*	*B-4*	*B-5*	*B-6*	*B-7*	*B-8*	*B-9*	*B-10*	*B-11*	*B-12*	*B-13*
Zone B Planting	*Total Acreage*	*71.90*		*Sub-Zone Acreage*		*6.530*	*5.543*	*14.861*	*3.673*	*2.056*	*3.443*	*13.155*	*0.622*	*5.145*	*6.052*	*0.418*	*0.592*	*9.795*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**												
Pontederia cordata	pickerelweed	B	quart	3	104,394	3,000	400	1,500	500	600	1,000	2,000	90	500	1,600	100	80	700
Sagittaria lancifolia	lance-leaf arrowhead	B	quart	3	104,394	1,000	400	1,500	500	600	1,000	2,000	90	1,000	1,600		80	700
Cladium jamaicense	sawgrass	B	quart	3	34,800	1,000	200	1,000	800	800	500	600	30	500	600	100	100	500
Eleocharis interstincta	knotted spikerush	B	quart	3	104,394		400	1,000					90	1,400	400	100		

						C-1	*C-2*	*C-3*	*C-4*	*C-5*	*C-6*
Zone C Planting	*Total Acreage*	*6.00*		*Sub-Zone Acreage*		*0.560*	*0.347*	*1.201*	*0.942*	*2.687*	*0.235*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**					
Thalia geniculata	alligator flag	C	quart	3	14,520	100	80			650	40
Scirpus validus	softstem bulrush	C	quart	3	14,520	100	80			650	40

Table 3 (continued). Subzone Replanting Plan for South Cell.

						D-1	D-2	D-3
Zone D Planting	*Total Acreage*	*4.70*		*Sub-Zone Acreage*		*2.850*	*0.830*	*1.000*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**		
Nymphaea odorata	fragrant water lily	D	quart	5	8,189	993	289	0

						E-1	E-2	E-3	E-4	E-5	E-6
Zone E Planting	*Total Acreage*	*3.80*		*Sub-Zone Acreage*		*0.435*	*0.218*	*1.364*	*1.070*	*0.530*	*0.221*
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**					
Fraxinus caroliniana	Carolina ash	E	3 gallon	5	3,310					restaked	
Panicum hemitomon	maidencane	E	quart	3	18,392		200			2,000	

						F-1
Zone F Planting	*Total Acreage*	*12.64*		*Sub-Zone Acreage*		12.640
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**
Spartina bakeri	sand cordgrass	F	quart	scattered	61,178	6,178

						PET-1	PET-2	PET-3
Tree Preserve Islands	*Total Acreage*	*2.08*		*Sub-Zone Acreage*		0.568	0.797	0.715
Scientific Name	**Common Name**	**Zn**	**Size**	**centers (ft)**	**Total Zone Quantities**	**Sub-Zone Quantities**		
Spartina bakeri	sand cordgrass	PET	quart	3	2,000	300	400	400

Table 4. Replanting Plan for Walker Tract (Approved in December 2010 and Implemented in January 2011).

Subzone Areas	Acreage	Number Planted Per Plans	Total Number Replanted by Species												
			Scirpus californicus	*Pontederia cordata*	*Sagittaria lancifolia*	*Eleocharis interstincta*	*Polygonum punctatum*	*Bacopa monierri*	*Panicum hemitomon*	*Spartina bakeri*	*Nymphaea odorata*	*Acer rubrum*	*Fraxinus caroliniana*	*Nyssa sylvatica*	*Cephalanthus occidentalis*
			bullrush	pickerelweed	arrowhead	spikerush	smartweed	water hyssop	maidencane	sand cordgrass	water lily	red maple	popash	swamp tupelo	buttonbush
A-1	0.01	49													
A-2	3.82	18,489	100	200	200	300			200						
A-3	5.53	26,766		400	300	300			200						
A-4	5.70	27,588		300	250	150			200						
B-1	0.09	436													
B-2	0.14	678													
C-1	0.18	872													
D-1	0.93	4,502	30	100		100			300		200				
E-1	0.20	968													
F-1	0.91	4,405	50	50	50						100				
F-2	0.65	3,146	200	250	250	200			200		500				
E-2	0.17	823													
G-1	0.37	1,791													
G-2	0.50	2,420													
H-1	1.52	8,020													663
H-2	0.05	242													
Replanting Totals		**6,343**	**380**	**1,300**	**1,050**	**1,050**	**0**	**0**	**1,100**	**0**	**800**	**0**	**0**	**0**	**663**
Total Plants Installed		**101,195**	**5,600**	**14,576**	**12,091**	**15,309**	**15,671**	**4,800**	**17,921**	**8,364**	**6,200**	**221**	**221**	**221**	**663**

Table 5. Replanting Plan Implemented for South Cell and Walker Tract Mitigation Areas from July 2011 through September 2011.

		Site				
		South Cell	**Walker Tract**	**Upland Buffer**	**Total**	Date Replanted
Sawgrass	*Cladium jamaicense*	6,300	700		**7,000**	9/13/2011
Maidencane	*Panicum hemitomon*	4,000	3,000		**7,000**	7/25/2011
Pickerelweed	*Pontederia cordata*	7,987	6,013		**14,000**	7/18-19/2011
Arrowhead	*Sagittaria lancifolia*	7,888	6,112		**14,000**	7/19-20/2011
Bullrush	*Scirpus californicus*	11,475	2,525		**14,000**	7/20-25/2011
Alligator flag	*Thalia geniculata*	11,487	2,513		**14,000**	7/22/2011
Sand cordgrass	*Spartina bakeri*	1,000	4,000	1,180	**6,180**	7/25/2011, 9/28/2011
Buttonbush	*Cephalanthus occidentalis*		200		**200**	7/20/2011
Swamp tupelo	*Nyssa sylvatica*		70		**70**	7/20/2011
Popash	*Fraxinus carolinana*		80		**80**	7/20/2011
Cypress	*Taxodium distichum*		221		**221**	7/20/2011
Florida privet	*Forestiera segregata*			100	**100**	9/28/2011
American elm	*Ulmus americana*			45	**45**	9/28/2011
Walter's viburnum	*Viburnum obovatum*			100	**100**	9/28/2011
Fakahatchee grass	*Tripsacum dactyloides*			504	**504**	9/28/2011
Muhly grass	*Muhlenbergia capillaris*			1,180	**1,180**	9/28/2011
Bushybeard bluestem	*Andropogon glomeratus*			576	**576**	9/28/2011
	Totals	**50,137**	**25,434**	**3,685**	**79,256**	

Table 6. Replanting to meet One-Year Warranty Guarantee for Celery Fields Mitigation Site (January – March 2012).

	Bullrush	Arrowhead	Pickerelweed	Alligator Flag	Water Lilly	Fakahatchee Grass	Popash	Cypress	Swamp Tupelo	Buttonbush
	Scirpus calfornicus	*Sagittaria lancifolia*	*Pontederia cordata*	*Thalia geniculata*	*Nymphaea odorata*	*Tripsacum dactyloides*	*Fraxinus caroliniana*	*Taxodium ascendens*	*Nyssa sylvatica*	*Cephlanthus occidentalis*
S-1	2,000									
S-2						100				
S-3					2,400					
S-4	200									
S-5					800					
S-6	1,000									
S-7	200									
Subtotal South Cell	**3,400**	**0**	**0**	**0**	**3,200**	**100**	**0**	**0**	**0**	**0**
W-1		400								
W-2				500						
W-3	1,000	1,000	1,000	1,000						
W-4							100	100	50	400
W-4a		750	750							
W-5	2,000	1,000	1,000	2,000						
Subtotal Walker Tract	**3,000**	**3,150**	**2,750**	**3,500**	**0**	**0**	**100**	**100**	**50**	**400**
Total	**6,400**	**3,150**	**2,750**	**3,500**	**3,200**	**100**	**100**	**100**	**50**	**400**

An additional planting has been approved and will take place in Spring 2015 to address areas (tree preserve islands/upland buffer, forested wetlands, and deep-water floating-leaved zones) that will need additional plants to comply with the ACOE permit.

Exotic/Nuisance Species Maintenance

The South Cell and Walker Tract Mitigation Areas have been regularly maintained for exotic/nuisance plant species from February 2010 to January 2012. All sites were carefully evaluated by VHB environmental scientists before and after the initial plantings and communicated to the maintenance contractor with detailed maps of nuisance species presence. From January 2012 through November 2013, the County conducted maintenance of exotic/nuisance plant species. County staff targeted mostly nuisance vines in the upland buffers and monoculture infestations. The County worked in conjunction with a maintenance contractor to maintain nuisance/exotic species in 2014. During the Celery Fields Integrated Management Plan meeting on July 30, 2014, the County stated its intention to hire a new maintenance contractor and/or dedicate additional County resources and personnel to effectively control and manage the nuisance plant problem within the Celery Fields Mitigation Site. The County intends to implement a long-term maintenance program for the entire CFRSF and will have maintenance contracted out by Spring 2015.

Exotic/nuisance species that are targeted for active maintenance on the Celery Fields Mitigation Site include all Category (CAT) I and CAT II Invasive Exotics listed on the most recent Florida *Exotic Pest Plant Council's List of Invasive Plant Species* and other aggressive nuisance species that can affect the success of the targeted restoration habitat. CAT I species are defined as all exotic invasive species that can alter native plant communities by displacing native species and can change community structures or ecological functions, or can hybridize with natives. CAT II species are all invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by CAT I species.

Wildlife Habitat and Recreational Improvements

Wildlife habitat improvements and recreational facilities were planned throughout the site (**Figure 5**). An osprey nesting platform was installed in Planting Subzone D-3 of the South Cell in September 2010. In December 2010, a total of nine cabbage palm (*Sabal palmetto*) trees (greater than 10-ft trunk length) were planted in the South Cell and Walker Tract to provide snags and perches for a variety of wading birds and birds-of-prey. In 2014, additional trees (mostly oaks and cabbage palms) were planted along the right of way at the north end of the South Cell. A total of seven wood duck boxes were mounted on posts at approximately 18.5 ft NGVD, or approximately 4 feet above normal full pool. The wood duck boxes were installed by County staff by March 2012. Sarasota County cleaned out the wood duck boxes and replaced nesting materials in November 2013. Starting in 2015, Sarasota Audubon Society will likely take over the role of wood duck box maintenance and nesting material replacement.

Sarasota County has created a trail system for the South Cell and Walker Tract that integrates this phase into other parts of the CFRSF, including a landscaped observation mound located in the Central Cell just north of Palmer Boulevard and west of Center Road. A 12-ft crushed-concrete path for bird watchers, hikers, and other recreationists has been installed along the berm on the outside of the South Cell and Walker Tract, and grass trails throughout the CFRSF have been routinely mowed for the benefit of passive-use recreation and maintenance of nuisance/exotic plant species. A mortise fence along Palmer Boulevard and Raymond Road was also installed to protect the plants and wildlife in mitigation areas from ATV use and other vandalism. Two boardwalks with terminal gazebos (Figure 5) were also installed in 2011 and 2012 to provide even more recreational opportunities. In cooperation with the Sarasota Audubon Society, the County has designed an environmental education program that includes numerous educational signs to help inform park recreational users about flood storage, water quality, and native wildlife habitat benefits of the CFRSF. Educational signage was installed in the Spring of 2014.

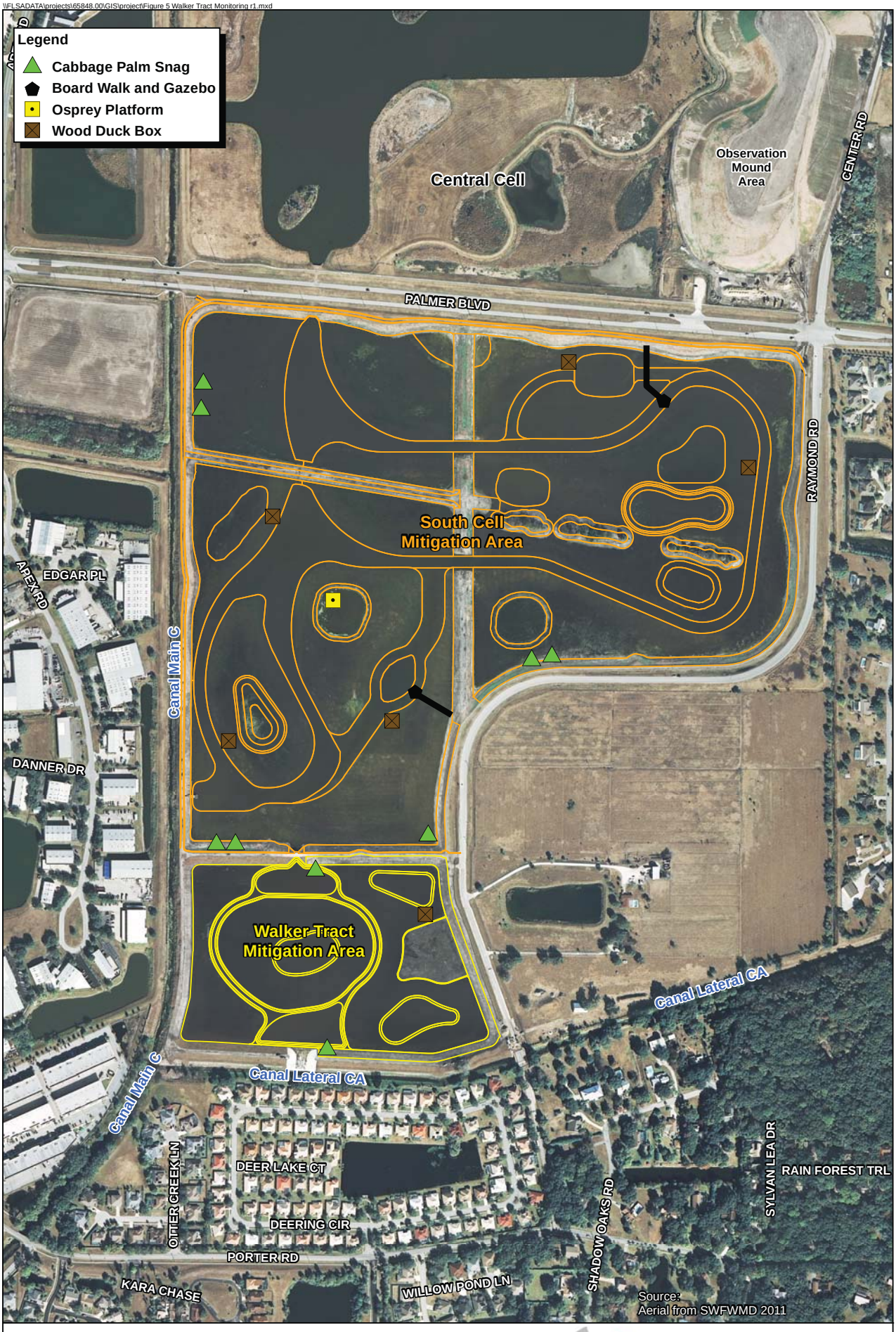

Figure 5

Wildlife Habitat and Recreational Improvements for Celery Fields Mitigation Site

Vanasse Hangen Brustlin, Inc.
8043 Cooper Creek Boulevard, Suite 201
University Park, Florida 34201
941.351.8986

Mitigation Monitoring Program

Hydrological Monitoring

Water levels have been monitored within stilling wells and at staff gauges at the Celery Fields Mitigation Site in deep, open-water zones from April 2011 through March 2013. The stilling wells were originally equipped with KPSI pressure transducers and dataloggers. Water levels were reported in 15-minute intervals to the nearest 0.01 ft, for this period. The continuous water level monitoring program was discontinued after March 2013. In May 2014, the County installed HOBO water level loggers in the South Cell and Walker Tract, and water levels have been monitored hourly in the North Cell, Central Cell, South Cell, and Walker Tract. Data from the water level loggers in South Cell and Walker Tract are included in the analysis for this report. One water level monitoring site was located in the South Cell at Water Control Structure S-15, and the other was located in the Walker Tract near the overflow weir. All staff gauges were surveyed by the Sarasota County Survey Department and water levels are reported in ft NGVD.

The data presented in this report includes the discontinuous period from April 2011through September 30, 2014. Water depths were also recorded at all wetland quadrat locations during the semi-annual sampling events to determine the variability in water level conditions in the different wetland zones. Rainfall data from the Sarasota County's Automated Rainfall Monitoring System (ARMS) were also evaluated for the same period to help explain the observed hydrologic conditions. Water levels are summarized for Years 1, 2 and 3, and the dry and wet seasons. Year 1 is the period from April 2011 through March 2012, Year 2 is from April 2012 through March 2013 and year 3 includes the period since monitoring restarted from May 29, 2014 through September 30, 2014. The dry season is defined as the period from October through May, and the wet season is from June through September.

Ecological Monitoring

Quantitative vegetation monitoring was conducted along ten transects (SC-1 through SC-10) in the South Cell Mitigation Area and along four transects (W-1 through W-4) in the Walker Tract Mitigation Area as shown in **Figures 6 and 7,** respectively. Vegetation was monitored in ten quadrats uniformly distributed along each transect for a total of 140 quadrats. Percent cover by species was recorded for each quadrat. The start and end points of all transects were permanently marked in the field with rebar and 2-inch PVC pipe with a red stripe at the top. Vegetation data and transect summaries for each of the monitoring transects for the April 2014 and September 2014 monitoring events are provided as **Appendices B and C,** respectively.

Color photographs were taken from the starting points of all herbaceous and forested wetland transects during each monitoring event. The April and September 2014 transect photos are provided as **Appendices D and E,** respectively. In addition, representative photos were taken of the Tree Preserve Islands in September 2014 (**Appendix F**).

Ecological monitoring included qualitative evaluations of the upland buffers and Tree Preserve Islands. Qualitative evaluations included survival of planted species, general health and growth of trees, shrubs and understory species, coverage of exotic/nuisance plant species, condition of soils, and any observations of soil erosion. Nuisance/exotic species were monitored in all wetlands and uplands. Maintenance activities are also summarized for the period from 2010 through 2014.

Wildlife use (mainly avian wildlife) of the entire CFRSF was documented monthly from April 2011 through March 2013 (**Appendix G**). During monthly bird surveys of the entire CFRSF (including the North Cell, Central Cell, South Cell and Walker Tract), numbers of all species were recorded during an approximately 5-hour survey conducted typically in the morning near the end of each month. Birds, mammals, reptiles, amphibians, and fish species were documented as incidental observations during semiannual vegetation monitoring. Wildlife habitat benefits, especially to listed species, are summarized for the mitigation site.

Mitigation Monitoring Results

Hydrologic Monitoring

Healthy natural wetlands in Southwest Florida should have seasonal fluctuations in water levels with annual minimums typically occurring in the late dry season usually in May or June. Wetlands should also have gradually changing water levels and should dry out either partially or entirely each year during normal or dry years. During extremely wet years, natural wetlands can remain inundated for the entire year, but this should not be a regular occurrence. In most freshwater wetlands in Southwest Florida, water depths should not exceed 4 ft for prolonged periods. The hydrologic goal for the created wetlands in the CFRSF is to mimic typical seasonal water level fluctuations as much as possible with a drying period for most zones during some years.

Water levels in the South Cell and Walker Tract mitigation areas have fluctuated with the wet and dry seasons similar to those of natural wetlands, but with less variability throughout the year and with less dry-out. In natural wetlands, the seasonal high water is typically reached some time during the wet season (June through September). In this flood control facility, a significant storm event during the dry season can easily increase the water levels to the seasonal high water level (control elevation). Water level fluctuations at the Celery Fields Mitigation Site ranged approximately 3.3 feet in the South Cell and approximately 2.9 feet in the Walker Tract for the period March 2011 through September 2014 (**Figure 8**). The observed hydrologic fluctuations of the different Celery Fields wetland zones has been somewhat lower than what is typically observed in natural wetlands of this type in most years.

Noticeable increases in wetland water levels at both the South Cell and Walker Tracts usually followed daily rainfall events greater than 0.5 inch. As expected, water level elevations in the South Cell were consistently higher than in the Walker Tract for most of the period of record. In April 2011, the difference between the South Cell and Walker Tract water levels was noticeably greater because water was diverted away from the Walker Tract prior to this period to allow for establishment of final grades and planting of the Walker Tract. Furthermore, water levels in the South Cell were also approximately 1.25 ft higher than those recorded in the Walker Tract during the end of June 2012. This period coincides with control structure adjustments made for Tropical Storm Debby by Sarasota County Operations. After this storm, record high discharges were recorded in both the South Cell and Walker Tracts as water levels were relatively close in elevation at both mitigation areas. In 2014, the Walker Tract was again dewatered to improve wetland tree survival and emergent herbaceous plant species in the deeper planting zones.

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Figure 6

Location and Actual Lengths of Vegetation Monitoring Transects for South Cell Mitigation Area

Vanasse Hangen Brustlin, Inc.
8043 Cooper Creek Boulevard, Suite 201
University Park, Florida 34201
941.351.8986

0 150 300 600 Feet

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Figure 7

Location and Actual Lengths for Vegetation Monitoring Transects for Walker Tract Mitigation Area

Vanasse Hangen Brustlin, Inc.
8043 Cooper Creek Boulevard, Suite 201
University Park, Florida 34201
941.351.8986

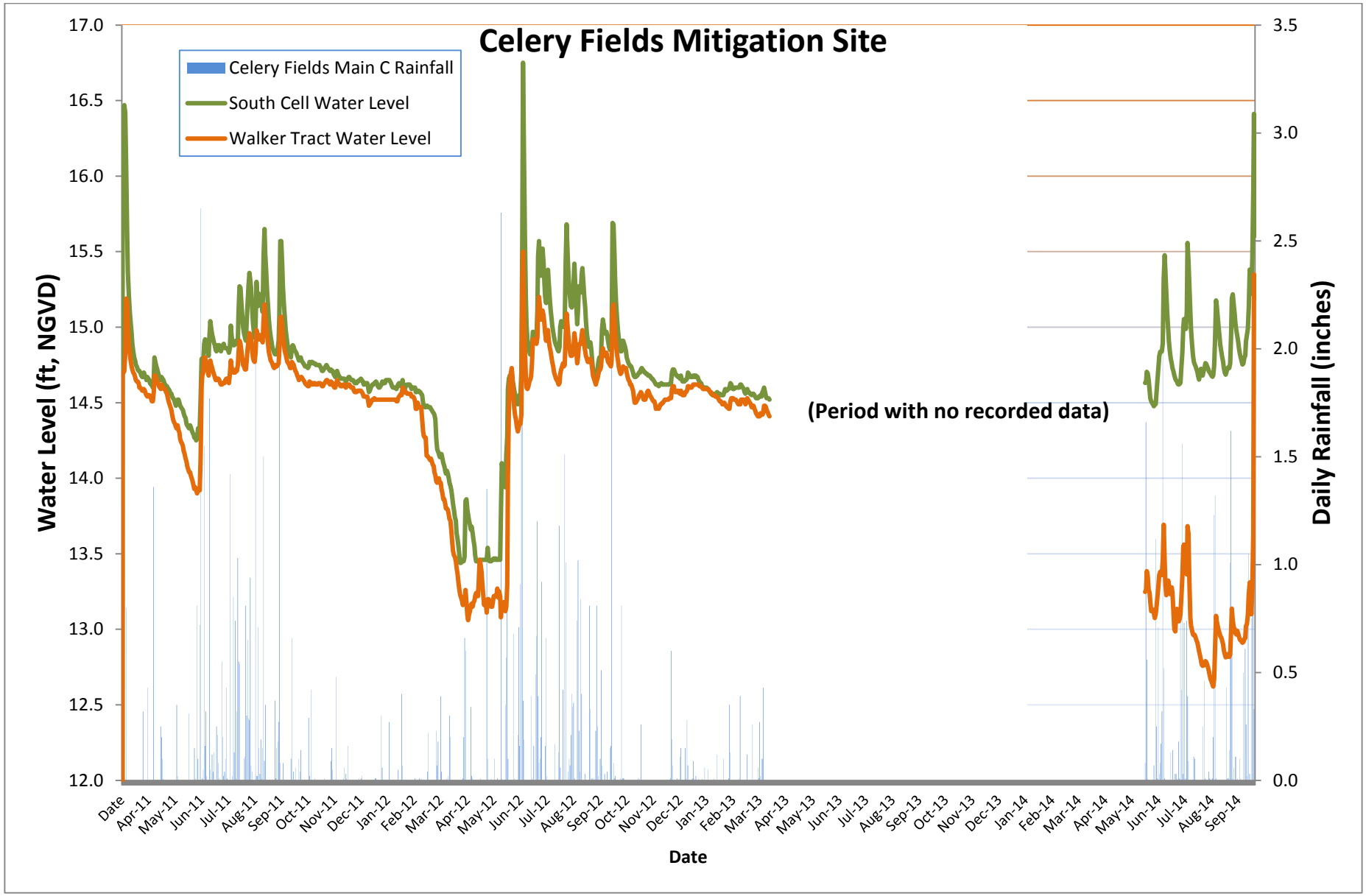


Figure 8. Celery Fields Mitigation Site Rainfall and Water Levels for the period April 1, 2011 to March 31, 2013 and May 29, 2014 to September 30, 2014.

The amount of dry out during the dry season is extremely important in helping to maintain a healthy, functioning freshwater marsh and forested swamp. In 2011, the water level minimums were reached during the end of the dry season (late June 2011), as desired. The water level minimums for 2012 followed the aforementioned intentional draining of the Walker Tract. During the end of the 2012 dry season (early March 2012 through early June 2012), the Walker Tract water levels reached approximately 13.0 ft NGVD (1.5 ft below the control elevation). During this time, all of the wetlands except the deepest planting zones completely dried out. During the period in which water level monitoring restarted in May 2014, the Walker Tract had considerably lower water levels than the South Cell because of the 2014 dewatering of the Walker Tract. The Walker Tract water levels reached a minimum of approximately 12.6 ft NGVD (1.9 ft below the control elevation) in August of 2014.

The average water depths during the period of record for the different planting zones in the South Cell Mitigation Area ranged from 0.45 ft in Zones A and E to 1.70 ft in Zone D (water lily zone) (**Table 7**). The average water depths in the different South Cell plant zones were 0.16 ft higher in Year 1 than in Year 2. Average water depths in the different South Cell plant zones were 0.28 ft higher in Year 3 than in Year 2. In all of the different Walker Tract wetland zones, average water depths for the period of record ranged from 0.03 feet in forested Wetland Zone H to 1.78 ft in herbaceous Zones F and G. Average water depths in Year 3 were slightly less than for Years 1 and 2. The average water levels for the South Cell and Walker Tract during the period of record are well within the ranges found for natural herbaceous and forested wetlands in Southwest Florida.

It is important that the emergent and forested plant zone water levels do not increase to extremely high levels (greater than 4 ft) for prolonged periods and especially during the dry season. If the facility is at the control elevation of 14.5 ft NGVD, then the deepest wetlands will have a maximum water level of 1.5 ft in the South Cell and 3.0 ft in the Walker Tract. For the three years of water level monitoring, water levels in the South Cell approached 16.5 ft for relatively short periods during the wet season and remained approximately 0.5 ft to 1.0 ft above the control elevation for most of the wet season. Water levels in the Walker Tract reached a maximum of 15.5 ft NGVD for relatively short periods of time during the wet season and remained between 0.25 ft and 0.75 ft above the control elevation during most of the wet season in Year 1 and Year 2. The Walker Tract during the wet season of Year 3 had water levels significantly below the levels recorded for the wet seasons in Year 1 and Year 2. Water levels in the Walker Tract reached a maximum of 15.4 ft NGVD at the end of the monitoring period following a very significant rainfall event. The water levels in the Walker Tract remained between 0.75 ft and 1.5 ft below the control elevation during the 2014 wet season. Water levels for most wetland zones in both mitigation areas did not exceed 4 ft for long periods of time during the three years of water level monitoring.

In addition to the variable hydrologic conditions observed throughout the year, the different zones provide variable hydrologic conditions within each of the sites. Nothing demonstrates this variability better than an evaluation of the observed water levels throughout each of the monitoring transects at different quadrat locations. The average water depth for the South Cell and Walker Tract wetlands combined were approximately 0.83 ft during the April 2014 monitoring event and 0.88 ft during the September 2014 monitoring event. During the April 2014 event, only 7.1% of the quadrat locations ranged from dry to just saturated soil conditions. During September 2014, 16.4% of quadrats had either dry or saturated soils conditions but no standing water. When compared to 2013, the April 2014 monitoring event had approximately the same percentage of monitoring quadrats that were dry or saturated, but the September 2014 monitoring event had a substantially greater percentage of dry or saturated monitoring quadrats. This greater percentage of dry or saturated quadrats in September are a result of the dewatering in the Walker Tract in 2014 and 81% of the total dry or saturated quadrats occurred in the Walker Tract.

Table 7. Water Level Statistics for the Different Planting Zones for the period April 1, 2011 through September 30, 2014.

	South Cell Zones					Walker Tract Zones							
	A	**B**	**C**	**D**	**E**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
Total Size (acres)	1.80	71.90	6.00	4.70	3.80	15.06	0.23	0.18	0.93	0.37	0.65	0.87	1.57
Highest Elevation (ft, NGVD)	14.50	14.00	13.50	13.00	14.25	14.00	14.00	14.00	13.00	13.50	12.50	13.50	14.25
Lowest Elevation (ft, NGVD)	14.00	14.00	13.50	13.00	14.25	14.00	13.50	13.00	13.00	12.50	12.50	11.50	14.25
Average Elevation (ft, NGVD)	14.25	14.00	13.50	13.00	14.25	14.00	13.75	13.50	13.00	13.00	12.50	12.50	14.25
Total Average	0.45	0.70	1.20	1.70	0.45	0.28	0.53	0.78	1.28	1.28	1.78	1.78	0.03
Year 1 Average	0.50	0.75	1.25	1.75	0.50	0.57	0.82	1.07	1.57	1.57	2.07	2.07	0.32
Year 2 Average	0.34	0.59	1.09	1.59	0.34	0.39	0.64	0.89	1.39	1.39	1.89	1.89	0.14
Year 3 Average	0.62	0.87	1.37	1.87	0.62	-0.89	-0.64	-0.39	0.11	0.11	0.61	0.61	-1.14
Dry Season Average	0.29	0.54	1.04	1.54	0.29	0.39	0.64	0.89	1.39	1.39	1.89	1.89	0.14
Wet Season Average	0.66	0.91	1.41	1.91	0.66	0.14	0.39	0.64	1.14	1.14	1.64	1.64	-0.11
Year 1 Minimum	-0.22	0.03	0.53	1.03	-0.22	-0.20	0.05	0.30	0.80	0.80	1.30	1.30	-0.45
Year 2 Minimum	-0.81	-0.56	-0.06	0.44	-0.81	-0.94	-0.69	-0.44	0.06	0.06	0.56	0.56	-1.19
Year 3 Minimum	0.23	0.48	0.98	1.48	0.23	-1.38	-1.13	-0.88	-0.38	-0.38	0.12	0.12	-1.63
Year 1 Maximum	2.22	2.47	2.97	3.47	2.22	1.19	1.44	1.69	2.19	2.19	2.69	2.69	0.94
Year 2 Maximum	2.50	2.75	3.25	3.75	2.50	1.50	1.75	2.00	2.50	2.50	3.00	3.00	1.25
Year 3 Maximum	2.16	2.41	2.91	3.41	2.16	1.35	1.60	1.85	2.35	2.35	2.85	2.85	1.10
Total Days Dried Out in Year 1	12	0	0	0	12	22	0	0	0	0	0	0	46
Total Days Dried Out in Year 2	68	61	35	0	68	69	66	61	0	0	0	0	70

Ecological Monitoring

Herbaceous Wetland Areas

Total cover of desirable wetland plant species in both the South Cell and Walker Tract improved from 2011 to 2012. From 2012 to 2013 for both March and September monitoring events, total cover of desirable species either remained relatively unchanged or improved slightly. From 2013 to 2014, total cover had a moderate increase. For the April 2014 monitoring event, total cover of desirable wetland plant species for the ten transects of the South Cell ranged from 28% to 105% (average of 73%) (**Table 8**). Similarly, total cover of desirable wetland species ranged from 28% to 133% (average of 81%) during the September 2014 event (**Table 9**). Total cover of desirable wetland plant species for the Walker Tract for the four transects ranged from 39% to 88% (average of 68%) during the April 2014 monitoring event and ranged from 48% to 99% (average of 76%) during the September 2014 event. To comply with the ACOE permit, the desirable vegetation must be greater than 70% for three consecutive years. Both the South Cell and Walker Tract wetlands currently have desirable vegetative cover at or near the required cover.

Most planted herbaceous wetland species had good survival with growth since the original plantings and subsequent warranty replantings. In particular, jointed spikerush (*Eleocharis interstincta*), arrowhead (*Sagittaria lancifolia*), pickerelweed (*Pontederia cordata*), alligator flag (*Thalia geniculata*), bulrush (*Scirpus californicus*), and smartweed (*Polygonum punctatum*) had excellent growth and coverage during the first four years of monitoring. Sawgrass and maidencane (*Panicum hemitomon*) had good survival and excellent growth in select areas, especially in higher areas with shorter hydroperiods. The drawdown in March 2012 and in 2014 for just the Walker Tract appeared to assist with plant growth and spread in the 2012 dry season and in the 2014 wet season for the Walker Tract. Relatively little to no dry out occurred in the South Cell during 2013 and 2014 and may have limited further expansion of desirable wetland plants throughout the South Cell and Walker Tract wetland areas.

Zone D (Water Lily Zone)

Water lily (*Nymphaea odorata*) coverage increased in most areas in the first year and then mysteriously died back during the second year despite replantings. The water lily zone in the South Cell was monitored in a total of 13 quadrats in two different monitoring transects. Average desirable cover for this deep water zone was 8% during March 2011 and 23% during September 2011. In March 2012, the desirable plant coverage in Zone D decreased to 12% and then remained relatively unchanged in September 2012 at 11%. In both March and September of 2013, lily zone coverage was less than 1%. Lilies appeared to have significant mortality since the middle of the 2012 wet season. Despite a replanting of 3,200 healthy water lilies in January 2012, water lilies have continued to die for unknown reasons. The desirable plant coverage in Zone D in the South Cell remained at less than 1% in April 2014 and increased to 14% in September 2014. The most recent increase was the result of rooted emergent species such as bulrush and jointed spikerush expanding into the deep water zones and is not indicative of water lily survival. The Walker Tract had one transect with a total of four quadrats located in the water lily zone. The desirable plant coverage in Zone D in the Walker Tract was at 20% in April 2014 and 29% in September 2014. This increase was again a result of an increase in emergent species such as bulrush and jointed spikerush and is not a reflection of water lily survival.

Forested Wetland Areas

The dominant understory species in the forested wetland areas were maidencane, arrowhead, and smartweed in the South Cell and alligator flag and spikerush in the Walker Tract. The tree/shrub stratum of the South Cell was comprised of popash (*Fraxinus caroliniana*) and buttonbush (*Cephalanthus occidentalis*), and this stratum in the Walker Tract was comprised of red maple (*Acer rubrum*), swamp tupelo (*Nyssa sylvatica*), popash, cypress, and buttonbush.

Table 8. Vegetation Transect Data Summary for Celery Fields Mitigation Site from April 2014 Monitoring Event.

		Total Cover	Total Desirable Cover	Total Undesirable Cover	Total Desirable Herbaceous Cover	Total Tree and Shrub Cover	Total Desirable Zone D Cover
South Cell Transects	SC-1	117	107	10	105	3	N/A
	SC-2	59	50	10	50	N/A	0
	SC-3	88	84	4	84	N/A	N/A
	SC-4	97	67	24	61	15	N/A
	SC-5	29	28	1	28	N/A	1
	SC-6	102	84	19	78	11	N/A
	SC-7	87	82	5	82	N/A	N/A
	SC-8	82	63	19	63	N/A	N/A
	SC-9	99	92	7	91	3	N/A
	SC-10	95	87	8	87	N/A	N/A
Walker Tract Transects	W-1	83	83	0	83	N/A	N/A
	W-2	99	92	7	88	4	N/A
	W-3	78	64	15	64	N/A	20
	W-4	45	39	7	39	N/A	N/A

Table 9. Vegetation Transect Data Summary for Celery Fields Mitigation Site from September 2014 Monitoring Event.

		Total Cover	Total Desirable Cover	Total Undesirable Cover	Total Desirable Herbaceous Cover	Total Tree and Shrub Cover	Total Desirable Zone D Cover
South Cell Transects	SC-1	128	103	25	101	2	N/A
	SC-2	70	53	17	53	N/A	6
	SC-3	142	133	9	133	N/A	N/A
	SC-4	88	71	17	65	10	N/A
	SC-5	31	28	3	28	N/A	22
	SC-6	97	83	15	77	11	N/A
	SC-7	95	89	6	89	N/A	N/A
	SC-8	118	84	34	84	N/A	N/A
	SC-9	106	91	15	91	5	N/A
	SC-10	104	94	10	94	N/A	N/A
Walker Tract Transects	W-1	95	93	1	93	N/A	N/A
	W-2	114	107	7	99	8	N/A
	W-3	100	65	35	65	N/A	29
	W-4	52	48	4	48	N/A	N/A

Although the hydrologic conditions (water depths, flooding frequency, and timing of inundation) described above are not ideal for these wetlands, the variable conditions experienced in the South Cell and Walker Tract were conducive to growth and spreading of a variety of wetland and aquatic plant species. As a result, plant cover increased steadily for the first two years since the initial planting in late 2010. The observed hydrologic conditions are also within the range of natural herbaceous and forested wetlands in Southwest Florida. Starting in Spring 2015, Sarasota County intends to modify the water control structure in the South Cell and plans to more actively manage water levels for both the South Cell and Walker Tract to simulate a more natural hydroperiod.

Forested wetland zones were monitored in a total of 26 quadrats, 16 from the South Cell and 10 from the Walker Tract. These forested wetland areas include Zone E in the South Cell and Zone H in the Walker Tract. The desirable herbaceous cover for the forested wetlands averaged 80% for both mitigation areas in April 2014. This is an increase from 72% from the previous year for the spring monitoring. In September 2014, the desirable herbaceous understory cover increased to an average of 89%. The noticeable increase in herbaceous species from the 2012 to 2013 monitoring is the result of the March 2012 replanting of herbaceous species and their subsequent spread in the Walker Tract forested area. The herbaceous species cover has further increased moderately from 2013 to 2014.

The average tree and shrub cover for the forested areas for both the South Cell and Walker Tract forested wetland areas was 5% in March 2011 and 7% in September 2011. The average tree and shrub cover decreased to 3% in March 2012 and then increased again to 8% in September 2012. The average tree and shrub cover decreased slightly from 2012 to 2013 and then increased again slightly in 2014. In the April and September 2014 monitoring events, trees and shrubs comprised a total of 7% with 8% cover, respectively. The 2013 losses in tree and shrub cover are a presumed result of the stress placed on trees from relatively high water levels during that dry season. The tree and shrub cover has increased from the 2013 losses. The South Cell increased in tree and shrub cover from 7.9% in 2013 to 8.3% in 2014. The Walker Tract had an increase in tree and shrub cover from 4.1% in 2013 to 7.5% in 2014. This increase in percent cover is expected to continue as these surviving species continue to mature and as additional trees and shrubs are planted in Spring 2015.

Upland Buffers

The upland buffer final grades were established by September 2010. In October to November of 2010, a mixture of 69,108 quart-sized equivalent and 2-inch herbaceous plugs of sand cordgrass were planted in the buffer and at the in the upland buffers of both mitigation areas. Some erosion took place in specific buffer areas around the Tree Preserve Islands and in the southeast corner of the Walker Tract. Rainfall since the original buffer plantings appeared to be adequate to keep the soils conditions moist enough for the herbaceous and woody species planned for this upland habitat. The County repaired eroded areas before April 2012 and replanted the areas with native upland species to further control erosion. Some sand cordgrass and other desirable herbaceous species died in 2014 due to herbicide non-target damage. These areas will be replanted in Spring of 2015.

A qualitative evaluation of the upland buffers was conducted in March and September in each of the last four years. Since the initial planting, survival of sand cordgrass, the primary groundcover species, was excellent (approximately 90%). In 2011, additional sand cordgrass and substitute grass species were planted to meet the 100% survival guarantee. These areas had been replanted with 1,180 sand cordgrass and several other species (504 Fakahatchee grass, 1,180 muhly grass, and 576 bushybeard bluestem) to provide some herbaceous plant diversity. Since March 2012, sand cordgrass cover was estimated at greater than 90% for most areas. Sand cordgrass has provided excellent cover for this tree/shrub zone at both the South Cell and Walker Tract mitigation areas. Several areas with lower coverage of sand cordgrass had high mortality related to non-target damage from nuisance vine treatments.

Nuisance exotic species have consistently been a problem in the herbaceous understory of this upland buffer. Littlebell (*Ipomoea triloba*), skunkvine (*Paederia foetida*), and other exotic vines have grown over sand cordgrass

clumps, trees, and shrubs. Over the last four years, exotic vines have been significantly reduced in total coverage by routine maintenance. Exotic/nuisance species in the upland buffer provided approximately 30% coverage in March 2011 and was reduced to 5% coverage in September 2011 and March 2012. Unfortunately, nuisance/exotic plants (mostly exotic vines) in the upland buffer comprised approximately 15 to 20% cover during the September 2012, March 2013, and September 2013 monitoring events. This percent cover of nuisance/exotic plants in the upland buffer has continued to increase into 2014, accounting for approximately 20 to 25% cover during the April and September 2014 monitoring events. Treatments after this monitoring event have reduced the nuisance/exotic plant cover in the upland buffer after monitoring was conducted by December 2014.

The tree/shrub zones of the upland buffer had good survival of slash pine (*Pinus elliotti*), sugarberry (*Celtis laevigata*), live oak (*Quercus virginiana*), sweetbay (*Magnolia virginiana*), and Walter's viburnum (*Viburnum obovatum*). In September 2011, a total of 45 American elm (*Ulmus americana*), 100 Walter's viburnum (*Forestiera segregata*), and 100 Florida privet were planted to increase diversity and total woody plant cover. Saltbush (*Baccharis* sp.) has also successfully recruited into the buffer area. Total cover of trees and shrubs was initially estimated at 5% for the entire site in September of 2011 and March of 2012 and grew to 10% in September of 2012. In March and September of 2013, tree and shrub cover was maintained at approximately 10%. In 2013, it appeared that some trees and shrubs had grown well but others had died. The April and September 2014 cover was still maintained at approximately 10%. During these monitoring events, it appeared that some tree and shrub species in the upland buffers were stressed due to excessive vine growth and coverage. The upland buffers will need more routine maintenance to keep these systems with good cover and nesting opportunities for a variety of wildlife species.

Tree Preserve Islands

The Tree Preserve Islands consisted of three areas comprising approximately 2.08 acres. Upland buffers surround each of the preservation areas. Photos of these upland preservation areas in September 2014 can be found in Appendix F. The soils on the Tree Preservation Islands remained fairly stable with little erosion despite a number of larger trees that had fallen when some root systems were undermined during grading of the surrounding slopes. The soils in these preservation areas have maintained good moisture and organic content to sustain desirable upland species. A qualitative evaluation of these preservation areas in the South Cell was conducted semi-annually since March 2011. The plant species composition from March 2011 through September 2014 has changed little with the exception of an increase in exotic vine coverage.

In 2014, the overstory was still dominated by sugarberry with a subdominance of cabbage palm (**Table 10**). One laurel oak (*Quercus laurifolia*) and several planted American elms were also a minor part of the overstory. Gaps in the canopy were restricted to the perimeter of these forested islands. The total tree canopy cover was estimated at approximately 75% desirable species. Carrotwood (*Cupaniopsis anacardioides*) and Brazilian pepper (*Schinus terebinthifolius*) were removed in 2011 and 2012 and have not been observed since.

The midstory was dominated by sugarberry with a total cover of approximately 55% shrub cover. Most of the shrub-sized sugarberry plants were located along the edges of the Tree Preserve Islands where light can penetrate to the ground level. Many of these perceived shrubs were growing from lateral roots of larger trees. Many of these shrubs are expected to grow to tree size during the next two years.

The understory was shaded in many areas with minimal cover. The total cover of desirable species in the understory increased slightly to 30% over the last year, mainly due to a high percent cover of recruited beggarticks (*Bidens alba*) located along the edges of the Tree Preserve Islands. Planted species (sand cordgrass, muhly grass, and bushybeard bluestem) were among the most infrequent species in the groundcover. Nuisance/exotic species

Table 10. Qualitative Vegetation Data for the Different Vegetative Strata for the Tree Preserve Islands in September 2014.

Stratum	Common name	Scientific Name	Type	Native/Exotic	Percent cover
Overstory	sugarberry	*Celtis laevigatus*	Preserved	Native	80
	cabbage palm	*Sabal palmetto*	Preserved	Native	5
	laurel oak	*Quercus laurifolia*	Preserved	Native	1
	American elm	*Ulmus americana*	Planted	Native	1
Midstory	sugarberry	*Celtis laevigatus*	Preserved	Native	55
	elderberry	*Sambucus canadensis*	Naturally Recruited	Native	2
Understory	sand cordgrass	*Spartina bakeri*	Planted	Native	3
	bushy beard bluestem	*Andropogon glomeratus*	Planted	Native	1
	muhly grass	*Muhlenbergia capilaris*	Planted	Native	1
	dayflower	*Commelina diffusa*	Naturally Recruited	Native	7
	beggarticks	*Bidens alba*	Naturally Recruited	Native	30
	guinea grass	*Panicum maximum*	Naturally Recruited	Exotic	1
	common sowthistle	*Sonchus oleracea*	Naturally Recruited	Native	1
	alligatorweed	*Alternanthera philoxeroides*	Naturally Recruited	Exotic	1
	dogfennel	*Eupatorium capillifolium*	Naturally Recruited	Native	5
	castorbean	*Ricinus communis*	Naturally Recruited	Exotic	10
	ragweed	*Ambrosia artemisiifolia*	Naturally Recruited	Native	5
	Canadian horseweed	*Conyza canadensis*	Naturally Recruited	Native	2
	fireweed	*Erechtites heiracifolia*	Naturally Recruited	Native	2
	yellow woodsorrel	*Oxalis stricta*	Naturally Recruited	Native	3
Vines	skunkvine	*Paederia foetida*	Naturally Recruited	Exotic	5
	creeping Cucumber	*Melothria pendula*	Naturally Recruited	Exotic	2
	air potato	*Dioscorea bulbifera*	Naturally Recruited	Exotic	1
	littlebell	*Ipomoea triloba*	Naturally Recruited	Exotic	15
	balsampear	*Momordica charantia*	Naturally Recruited	Exotic	7
	Virginia creeper	*Parthenocissus quinquefolia*	Naturally Recruited	Native	1

included guinea grass (*Panicum maximum*), castorbean (*Ricinus communis*), and alligatorweed (*Alternanthera philoxeroides*). Skunkvine, little bell, air potato, balsampear (*Momordica charantia*), and creeping cucumber (*Melothria pendula*) continue to be a problem for this preservation area and will need additional maintenance in 2015. During the September 2014 qualitative evaluation, exotic vines comprised greater than 40% total cover. These upland preserve areas will need to be maintained through selective herbicide applications and manual removal, if necessary.

Maintenance Activities

As discussed in the previous section, all of the Celery Fields Mitigation Site areas have been treated for nuisance/exotic plant species before, during, and after construction and planting activities. A total of 29 upland, wetland, and aquatic plant species are included in the maintenance control program for the mitigation site (**Table 11**). The upland buffers and the toe-of-slope areas have been the most challenging to maintain nuisance/exotic plant species. A total of 8 CAT I invasive exotic species, 5 CAT 2 invasive exotic species, and 16 aggressive nuisance species have been observed in the Celery Fields Mitigation Site. Balsampear, a CAT 2 invasive exotic, was added to the list of targeted species in 2014.

Nuisance/exotic plant species will continue to be controlled as part of the long-term maintenance control program. The program includes maintenance and routine mowing of adjacent areas and internal berms and recreational facilities not used for mitigation. In addition, wetland areas within the Walker Tract that are not included for mitigation for this ACOE permit or any modifications for the CFRSF will continue to be maintained with the same intensity as permitted areas to minimize exotic/nuisance seed source production and to maximize wildlife benefits.

Wildlife Use

A total of 107 different species of birds were documented during the monthly 5-hour surveys conducted since April 2011 (**Appendix G**)**.** Birds and other wildlife were observed using the uplands and wetlands of the CFRSF for a variety of reasons including cover, nesting, food, and water. During the winter months, the CFRSF always has a significant influx of migratory birds.

Common moorhen (*Gallinula chloropus*), sandhill cranes (*Grus canadensis*), black-necked stilts (*Himantopus mexicanus*), limpkin (*Aramus guarauna*), and black bellied whistling ducks (*Dendrocygna autumnalis*) have been documented nesting in the wetlands and shallow areas throughout the Celery Fields Mitigation Site. Both subadult and adult bald eagles (*Haliaeetus leucocephalus*) and several osprey (*Pandion haliaetus*) and kingfishers (*Ceryle alcyon*) feed daily on the plentiful fish present in the sparsely vegetated deeper wetland zones and open water areas.

A resident barn owl (*Tyto alba*) was observed utilizing the mature trees in the Tree Preserve Islands on two separate occasions. In addition, wood storks (*Mycteria americana*), roseate spoonbills (*Platalea ajaja*), glossy ibis (*Plegadis falcinellus*), and white ibis (*Eudocimus albus*) have been observed feeding in the shallow areas where prey items appeared to be concentrated in shallow isolated pools. Black-bellied whistling ducks and mottled ducks (*Anas fulvigula*) have been present in relatively high numbers year round, and large numbers of blue-winged teal (*Anas discors*) are using the South Cell and Walker Tract areas during the winter months. Between December 2010 and March 2011 and again in April 2012 and throughout the 2013 and 2014 winters, groups of white pelicans (*Pelecanus erythrorhynchos*) were sporadically observed herding fish in the open water areas, and several thousand migratory American coots (*Fulica americana*) were observed eating the tips of lush wetland vegetation. The mitigation site also provides excellent habitat for a number of wading birds, including the great egret (*Ardea alba*), great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), tricolored heron (*Egretta tricolor*), snowy egret (*Egretta thula*), and green heron (*Butorides virescens*). Dozens of snakebirds (*Anhinga anhinga*) and double-crested cormorants (*Phalacrocorax auritus)* can be observed diving and feeding on small fish on any given day.

Table 11. Exotic/Nuisance Species Included in Maintenance Program for Celery Fields Mitigation Site.

Common Name	Scientific Name	Exotic/Nuisance Category	Observation Notes
Carrotwood	*Cupaniopsis anacardioides*	CAT 1 Exotic Invasive Species	tree preserve islands
Water hyacinth	*Eichhomia crassipes*	CAT 1 Exotic Invasive Species	open water and spikerush zones
West Indian Marshgrass	*Hymenachne amplexicaulis*	CAT 1 Exotic Invasive Species	wet buffer areas and shallower zones
Primrose willow	*Ludwigia peruviana*	CAT 1 Exotic Invasive Species	toe-of-slope
Natalgrass	*Melinis repens*	CAT 1 Exotic Invasive Species	upland buffer
Skunkvine	*Paederia foetida*	CAT 1 Exotic Invasive Species	tree preserve islands
Torpedograss	*Panicum repens*	CAT 1 Exotic Invasive Species	shallow wetland zones and upland buffer
Brazilian pepper	*Schinus terebinthifolia*	CAT 1 Exotic Invasive Species	tree preserve islands
Alligatorweed	*Alternanthera philoxeroides*	CAT 2 Exotic Invasive Species	deeper zones and open areas
Crowfootgrass	*Dactyloctenium aegyptium*	CAT 2 Exotic Invasive Species	upland buffer and toe-of-slope
Balsampear	*Momordica charantia*	CAT 2 Exotic Invasive Species	upland buffer and tree preserve islands
Guineagrass	*Panicum maximum*	CAT 2 Exotic Invasive Species	tree preserve islands
Castorbean	*Ricinus communis*	CAT 2 Exotic Invasive Species	tree preserve islands
Bermudagrass	*Cynodon dactylon*	Aggressive Nuisance Species	upland buffer and toe-of-slope
Barnyardgrass	*Echinochloa* spp.	Aggressive Nuisance Species	toe-of-slope
Littlebell	*Ipomoea triloba*	Aggressive Nuisance Species	upland buffer and toe-of-slope
Sprangletop	*Leptochloa fusca var. fascicularis*	Aggressive Nuisance Species	toe of slope and shallow wetlands
Mexican primrose willow	*Ludwigia octovalvis*	Aggressive Nuisance Species	toe-of-slope
Floating primrose	*Ludwigia peploides*	Aggressive Nuisance Species	toe-of-slope and deeper wetland zones
Cheeseweed	*Malva parviflora*	Aggressive Nuisance Species	upland buffer
Chocolateweed	*Melochia corchorifolia*	Aggressive Nuisance Species	upland buffer
Hempvine	*Mikania spp.*	Aggressive Nuisance Species	upland buffer
Parrotfeather	*Myriophyllum aquaticum*	Aggressive Nuisance Species	deeper zones and open areas
Cuban bulrush	*Oxycaryum cubense*	Aggressive Nuisance Species	deeper zones and open areas
Carolina willow	*Salix caroliniana*	Aggressive Nuisance Species	sawgrass and popash zones
Rattlebox	*Sesbania* spp.	Aggressive Nuisance Species	toe-of-slope
Cattail	*Typha* spp.	Aggressive Nuisance Species	spikerush and deeper zones
Cowpea	*Vigna luteola*	Aggressive Nuisance Species	upland buffer
Stargrass	*Cynodon nlemfuensis*	Aggressive Nuisance Species	upland buffer

In addition to the diverse bird life, the site also provides home to numerous mammal, reptile, and amphibian wildlife. Mammals include the bobcat (*Lynx rufus*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), river otter (*Lutra canadensis*), opossum (*Didelphis virginiana*), and several unidentified rodents. Numerous turtle species have been observed, including the Florida box turtle (*Terrapene carolina bauri*), Florida softshell turtle (*Apalone ferox*), and Florida cooter (*Pseudemys floridana*). A pair of Florida snapping turtles (*Chelydra serpentina osceola*) were also documented mating in the Walker Tract wetlands. Incidental snake observations currently include the Florida water snake (*Nerodia fasciata pictiventris*) and black racer (*Coluber constrictor priapus*), and amphibians include cricket frogs (*Acris gryllus*), green tree frogs (*Hyla cinerea*), and Southern leopard frogs (*Lithobates sphenocephalus*). As the site develops and matures, we expect the wildlife diversity to increase. The goal for the management of the site will be to maintain numerous ecotones and micro-habitats for a number of species to coexist and thrive. Particular attention will be given to creating nesting opportunities for a number of wildlife species.

Success Criteria Compliance

ACOE Permit SAJ-1994-4745 (IP-MEP) for Phase III of the CFRSF project requires the success criteria be met for a total of three consecutive years. A summary of the more quantifiable success criteria are provided for the South Cell and Walker Tract mitigation areas (**Table 12)** and described below. Other more qualitative success criteria are discussed in the subsequent section.

1) A minimum of 70% total cover of desirable wetland plant species is required in the herbaceous wetland zones in South Cell and Walker Tract Mitigation Areas.

In 2011, the 70% criteria had not been met. In March 2012, the average desirable plant cover was 54%. In September 2012, the average increased to just above the minimum required. During the September 2012 monitoring, desirable plant cover averaged 73% for the South Cell and 66% in the Walker Tract with a combined average for both sites of 71%. In the most recent monitoring (September 2014), total desirable cover collectively averaged 80% for both mitigation areas.

2) A minimum of 50% total cover of the water lily-dominated D-Zones of the South Cell Mitigation Area is required.

In 2011, the water lily zones were trending towards success until water lilies mysteriously started dying during the 2012 wet season. In March 2011, the D-Zone cover was at 12%. This cover remained somewhat stable to September 2012 with 11% cover despite numerous replantings in 2011 and 2012. In September 2014, the total desirable plant cover in the water lily zones for the South Cell was at 14%. This number, however, reflects coverage of species such as bulrush and knotted spikerush and does not indicate water lily survival. The County will be replanting Zone D in Spring 2015 with a variety of floating-leaved species appropriate for this planting zone.

Table 12. Plant Cover Data Summaries for the March and September of 2011, 2012, 2013 and 2014 monitoring events.

	Success Criteria	March-2011			September-2011		
		Total	South Cell	Walker	Total	South Cell	Walker
Average Total Cover	N/A	13	15	6	56	61	45
Average Total Desirable Cover	> 70	12	15	5	55	60	44
Average Total Undesirable Cover	< 10	0	0	0	1	1	1
Average Tree/Shrub Cover in Forested wetlands	> 30	5	6	4	7	9	3
Average Herbaceous Cover in forested wetlands	> 30	7	11	0	25	28	21
Average D-Zone Cover	> 50	8	8	N/A	23	23	N/A

	Success Criteria	March-2012			September-2012		
		Total	South Cell	Walker	Total	South Cell	Walker
Average Total Cover	N/A	54	59	43	75	77	70
Average Total Desirable Cover	> 70	54	58	43	71	73	66
Average Total Undesirable Cover	< 10	1	1	0	4	4	4
Average Tree/Shrub Cover in Forested wetlands	> 30	3	1	4	8	5	10
Average Herbaceous Cover in forested wetlands	> 30	37	32	41	79	82	77
Average D-Zone Cover	> 50	12	12	N/A	11	11	N/A

Table 12. (continued) Plant Cover Data Summaries.

	Success Criteria	March-2013			September-2013		
		Total	South Cell	Walker	Total	South Cell	Walker
Average Total Cover	N/A	68	71	62	75	77	71
Average Total Desirable Cover	> 70	65	66	62	69	70	66
Average Total Undesirable Cover	< 10	3	4	1	6	7	4
Average Tree/Shrub Cover in Forested wetlands	> 30	5	6	3	6	7	4
Average Herbaceous Cover in forested wetlands	> 30	72	60	90	77	67	92
Average D-Zone Cover	> 50	0.4	0.4	N/A	0.4	0.4	N/A

	Success Criteria	April-2014			September-2014		
		Total	South Cell	Walker	Total	South Cell	Walker
Average Total Cover	N/A	83	86	76	96	98	90
Average Total Desirable Cover	> 70	73	74	69	82	83	78
Average Total Undesirable Cover	< 10	10	11	7	14	15	12
Average Tree/Shrub Cover in Forested wetlands	> 30	7	9	4	8	8	8
Average Herbaceous Cover in forested wetlands	> 30	80	75	88	89	82	99
Average D-Zone Cover	> 50	7	0.3	20	19	14	29

3) A minimum of 30% canopy coverage for the forested wetland zones is required.

The canopy cover in the forested wetland area in the South Cell has increased from 6% in March 2011 to 9% in September 2011. The canopy cover decreased to 3% in March 2012 but increased to 8% in September 2012 mostly because of supplemental plantings. In April and September of 2014, canopy cover in the forested wetland areas was less than 10%. The trees and shrubs in the Walker Tract (Zone H) have struggled despite two replantings. The County will be conducting an additional planting of tree and shrub species for the forested wetland zones in the Spring of 2015. The County may want to discuss species substitutions or moving the forested wetland areas to more appropriate areas if this planting is unsuccessful at increasing woody plant cover.

4) A minimum of 30% herbaceous vegetative cover for the forested wetland zones is required.

The herbaceous cover in the forested wetland areas in the South Cell and Walker Tract were below the success criteria requirement in 2011. In 2012, the herbaceous cover in these forested wetlands steadily increased to 79% in September 2012. In 2013, desirable herbaceous plant cover exceeded 70% and was at 89% for the September 2014 monitoring. The recent high cover in the Walker Tract in the last three years was the likely result of a substantial replanting in 2011 and the subsequent spread of groundcover species like spikerush and alligator flag. In addition, maidencane and spikerush increased significantly in the forested areas (Zone E) of the South Cell Mitigation Area. This success criterion will continue to be met in future years as long as maintenance is routinely conducted in these shallow wetlands.

5) Nuisance/exotic plants species must not exceed 10% total cover.

The total cover of undesirable plant species for the herbaceous and forested wetlands for both the March and September of 2011 monitoring events was less than 1%. The total cover of undesirable species increased to 4.3% in September 2012. In the latest monitoring (September 2014), total cover was 15% in the South Cell and 12% in the Walker Tract. The County has plans to aggressively manage exotic/nuisance species at maintenance control levels. The total undesirable cover of the Tree Preserve Islands and Upland Buffer in September 2014 were also greater than the 10% allowable. Contracted maintenance efforts will concentrate on localized infestations that could present long-term management problems for the Celery Fields Mitigation Areas.

6) Herbaceous wetland zones must be able to be classified as *Palustrine Emergent Wetland* according to the U.S. Fish and Wildlife Service's (USFWS) Classification of Wetlands and Deepwater Habitats of the United States (CWDHUS).

Currently, the site meets this general definition of herbaceous wetlands in regards to soils, hydrology, and vegetation. Sarasota County will need to manipulate water levels in both the South Cell and Walker Tract to maintain high ecological functions for this herbaceous wetland habitat.

7) Forested wetland zones must be able to be classified as *Palustrine Scrub-Shrub Wetland* according to the USFWS's CWDHUS.

As with the herbaceous wetlands, this generic definition for the forested mitigation area has been met with regards to soils, hydrology, and different vegetative strata. Again, Sarasota County will need to manipulate water levels in both the South Cell and Walker Tract to maintain high ecological functions for this forested wetland habitat.

The Celery Fields Mitigation Site will be deemed successful when the permittee implements a nuisance/exotic species maintenance program. Sarasota County has already complied with the intent of this condition by instituting a maintenance-control program for nuisance/exotic plant species for the South Cell and Walker Tract Mitigation Areas.

The South Cell and Walker Tract areas of the Celery Fields Mitigation Site are already exceeding expectations with regards to providing wildlife habitat to a diversity of mammal, bird, reptile, amphibian, and fish species. Clearly, this area has been improved for over 100 species of birds as documented by monthly bird surveys. Several wildlife habitat enhancements have been implemented to improve habitat for upland and wetland wildlife. Seven wood duck boxes were installed by early 2012, and numerous snags and an osprey platform have already been used by predatory birds, wading birds, and other species. In addition, an understory of sand cordgrass and upland grass, shrub, and tree species provide good cover for a number of upland-dependent wildlife species.

Appendix A

Celery Fields Control Structure Operation Logs

Celery Fields Control Structure Operations Log
Tropical Storm Debby

Structure	Site	Open				Close			Comments
		Date	Time	Stage	Dimensions	Date	Time	Stage	
S-6	**1**	6/25/2012	8:30am	16.35'	3' x3' Window				Opened (1.00')
S-6	**1**				3' x3' Window	6/25/2012	3:30pm	17.75'	Closed window
S-6	**1**				3' x3' Window	6/25/2012	5:45pm	17.65'	Window closed
S-6	**1**				3' x3' Window	6/26/2012	10:00am	17.50'	Window closed
S-6	**1**	6/27/2012	8:20am	17.10'	3' x3' Window				Window opened full
S-6	**1**				3' x3' Window	6/29/2012	9:00am	16.00'	Closed window
S-10	**3**	6/25/2012	8:30am	15.90'	2'x2' Window				Window open
S-10	**3**				2'x2' Window	6/25/2012	3:00pm	17.65'	Closed window
S-10	**3**				2'x2' Window	6/25/2012	6:00pm	16.60'	Window closed
S-10	**3**	6/27/2012	8:45am	16.90'	2'x2' Window				Window opened (1.00')
S-10	**3**				2'x2' Window	6/28/2012	1:40pm	16.00'	Closed window
S-13	**4**	6/25/2012	8:30am	15.80'	9' long x1' high Stop Logs				
S-13	**4**	6/25/2012	6:00pm	16.50'	9' long x1' high Stop Logs				
S-13	**4**	6/26/2012	8:15am	17.20'	9' long x1' high Stop Logs				
S-13	**4**	6/27/2012	8:35am	16.70'	9' long x1' high Stop Logs				
S-13	**4**	6/28/2012	9:00am	16.00'	9' long x1' high Stop Logs				
S-13	**4**	6/28/2012	1:30pm	15.90'	9' long x1' high Stop Logs				
S-14	**5**	6/25/2012	8:30am	15.20'	2-6'x2' and 2-6'x3' windows				All windows open
S-14	**5**				2-6'x2' and 2-6'x3' windows	6/25/2012	3:00pm	16.05'	All windows closed
S-14					2-6'x2' and 2-6'x3' windows	6/25/2012	6:00pm	16.35'	All windows closed
S-15	**6**	6/25/2012	8:30am	15.20'	2- 8'x8' Mechanical gates				***South Cell***
S-15	**6**				2- 8'x8' Mechanical gates	6/25/2012	3:00pm	16.05'	Closed both gates
S-15	**6**				2- 8'x8' Mechanical gates	6/25/2012	6:00pm	16.35'	Gates still closed
S-15	**6**				2- 8'x8' Mechanical gates	6/26/2012	8:00am	16.80'	Gates still closed
S-15	**6**	6/26/2012	11:30am	16.90'	2- 8'x8' Mechanical gates				Gates opened
S-15	**6**	6/26/2012	3:45pm	16.70'	2- 8'x8' Mechanical gates				Gates open
S-15	**6**								
S-15	**6**								
S-16		6/25/2012	8:45am	14.85'	Fixed 40' Weir / Elev. 14.50'				***Walker Parcel***
S-16		6/25/2012	6:00pm	?	Fixed 40' Weir / Elev. 14.50'				Elevation above guage
S-16		6/26/2012	8:00am	16.35'	Fixed 40' Weir / Elev. 14.50'				
S-16		6/26/2012	11:30am	15.30'	Fixed 40' Weir / Elev. 14.50'				
S-16		6/26/2012	3:30pm	15.60'	Fixed 40' Weir / Elev. 14.50'				
S-16					Fixed 40' Weir / Elev. 14.50'				

Celery Fields Control Structure Operations Log
Tropical Storm Isaac

Structure	Site	Open				Close			Comments
		Date	Time	Stage	Dimensions	Date	Time	Stage	
S-6	**1**	8/25/2012	10:30am	15.30'	3' x3' Window				Opened gate full
S-6	**1**				3' x3' Window	8/28/2012	2:00pm	15.65'	Post event / Closed gate
S-6	**1**				3' x3' Window				
S-6	**1**				3' x3' Window				
S-10	**3**	8/25/2012	11:00am	15.30'	2'x2' Window				Opened gates full, removed extra draw down plate
S-10	**3**				2'x2' Window	8/28/2012	2:00pm	15.55'	Post event / Closed gate/Installed draw down plate
S-13	**4**	8/22/2012	8:00am	16.20'	9' long x1' high Stop Logs				Remove 2 stop logs (center gate only) open to elev. 13.90'
	4				9' long x1' high Stop Logs	9/10/2012	10:00am	15:00'	Install 1 stop log (center gate) close to elev. 14.90'
	4				9' long x1' high Stop Logs	9/11/2012	9:00am	15:30'	Install 1 stop log (center gate) close to elev. 15.90'
S-14	**5**				2-6'x2' and 2-6'x3' windows				
S-15	**6**	8/25/2012	10:00am	15.20'	2- 8'x8' Mechanical gates				***Southern Cells***
S-15	**6**				2- 8'x8' Mechanical gates				

Celery Fields Control Structure Operations Log
Tropical Storm Irene

Structure	Site	Open				Close			Comments
		Date	Time	Stage	Dimensions	Date	Time	Stage	
S-6	1	8/23/2011	NA	15.45	3' x3' Window	8/26/2011	NA	15.10	Storm mostly missed us- with less than anticipated rain.
S-10	3	8/23/2011	NA	15.40	2'x2' Window	8/26/2011	NA	15.10	Storm mostly missed us- with less than anticipated rain.
S-13	4	8/23/2011	NA	15.30	9' long x1' high Stop Logs	8/26/2011	NA	15.00	Storm mostly missed us- with less than anticipated rain.

Appendix B

Vegetation Monitoring Data for Spring 2014

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-1

	Quadrats									
Quadrat (-Zone)	1-E	2-E	3-E	4-E	5-E	6-B	7-B	8-B	9-B	10-B
Species / Water Depth (inches)	Sat	5	4	4	4	6	7	8	9	8
Sagitaria lancifolia	5	5	50	5	20	75	70	50	70	60
Panicum hemitomon	10	40	30							
Eleocharis interstincta				80	5					
Cladium jamaicense					70					
Ludwigia octovalvis	30									
Filamentous Algae		30	15	10						2
Cephalanthus occidentalis	5									
Fraxinus caroliniana		10	1							
Bacopa monnieri	20									
Panicum repens	10									
Azolla caroliniana								15	15	5
Vicia acutifolia	10									
Ptilimnium capillaceum	1									
Cyperus sp.	2									
Pluchea odorata	2									
Mikania scandens	1									
Eupatorium capillifolium	1									
Baccharis halimifolia	1									
Erechtites hieracifolia	<1									
Phyla nodiflora	2									
Lemna minor		2	1	5	5	25	30	70	70	70
Pistia stratiotes						15	20	10	10	5
Total Cover	**100**	**87**	**97**	**100**	**100**	**115**	**120**	**145**	**165**	**142**
Total Desirable Cover	**59**	**87**	**97**	**100**	**100**	**100**	**100**	**135**	**155**	**137**
Total Undesirable Cover	**41**	**0**	**0**	**0**	**0**	**15**	**20**	**10**	**10**	**5**
Total Desirable Herbaceous Cover	**54**	**77**	**96**	**100**	**100**	**100**	**100**	**135**	**155**	**137**
Total Tree and Shrub Cover	**5**	**10**	**1**	**0**	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

white ibis, green heron, pig frog, moorhen, red-winged blackbird, roseate spoonbill, boat-tailed grackel

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-2

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-C	5-C	6-C	7-D	8-D	9-D	10-D
Water Depth (inches)	Sat.	4	4	5	8	12	18	18	19	18
Scirpus californicus				50	40	80				
Sagittaria lancifolia	40	50	50	20						
Filamentous Algae			2							
Panicum repens		20	5							
Thalia geniculata					30					
Althernanthera philoxeroides	5									
Pistia stratiotes					5					
Spartina bakeri	25									
Cyperus odoratus	5									
Lemna minor		5	5	10	2					
Amaranthus spinosus	2									
Cyperus sp.	2									
Mikania scandens	5									
Pista stratiotes	5	1	2	20	5	5				
Polygonum punctatum	5									
Ludwigia peploides	10	2	5							
Azolla caroliniana		45	30	1						
Total Cover	**104**	**123**	**99**	**101**	**82**	**85**	**0**	**0**	**0**	**0**
Total Desirable Cover	**79**	**100**	**87**	**81**	**72**	**80**	**0**	**0**	**0**	**0**
Total Undesirable Cover	**25**	**23**	**12**	**20**	**10**	**5**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**79**	**100**	**87**	**81**	**72**	**80**	**0**	**0**	**0**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**0**	**0**	**0**

Open Water

List of Wildlife Species Observed

least bittern (nesting), moorhen, limpkin, great egret, sandhill crane, alligator

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2013

Vegetation Monitoring Team: RVF/AO

Transect: SC-3

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-B	7-B	8-B	9-B	10-B
Water Depth (inches)	Sat.	3	5	5	3	3	3	4	5	6
Eleocharis interstincta			50	80				10	90	70
Pontederia cordata				2	5	5	5	80	5	5
Cladium jamaicense	60	90	40	10						
Polygonum punctatum	20			3	50	50	5	10		1
Sagitaria lancifolia	20	10	20							
Ludwigia peploides	5	2	2		5	2			2	1
Hymenachne amplexicaulis							5			
Ludwigia octovalvis				5						
Alternanthera philoxeroides	5									
Polygonum hydropiperoides			2							
Lemna minor					5	2	2	1	2	1
Sagitaria latifolia	1									
Vicia acutifolia	1									
Samolus valerandi	5									
Melothria pendula	1									
Eupatorium capillifolium	1									
Commelina diffusa	1									
Hydrocotyle umbellata	2									
Azolla caroliniana		10								1
Salix caroliniana				2						
Salvinia minima									5	1
Pistia Stratiotes										4
Total Cover	**122**	**112**	**114**	**102**	**65**	**59**	**17**	**101**	**104**	**84**
Total Desirable Cover	**111**	**110**	**112**	**95**	**60**	**57**	**12**	**101**	**102**	**79**
Total Undesirable Cover	**11**	**2**	**2**	**7**	**5**	**2**	**5**	**0**	**2**	**5**
Total Desirable Herbaceous Cover	**111**	**110**	**112**	**93**	**60**	**57**	**12**	**101**	**102**	**79**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

red-winged blackbird, moorhen

South Cell Quantitative Monitoring Data Sheet

Date: 4/29/2013

Vegetation Monitoring Team: RVF/AO

Transect: SC-4

Species	Quadrats									
Quadrat (-Zone)	1-C	2-C	3-C	4-A	5-E	6-A	7-B	8-E	9-E	10-E
Water Depth (inches)	13	13	10	4	4	4	7	4	7	5
Eleocharis interstincta							40	60	40	25
Polygonum punctatum				5	20	40	20	20	40	30
Scirpus californicus	50	40	2							2
Sagittaria lancifolia			5			40	40	2		
Fraxinus caroliniana					5			10		20
Ludwigia peploides			40	90	60	20	5	10	10	
Lemna minor	5	5	5	3	2	5	10	3	5	1
Cephalanthus occidentalis					10				15	
Cyperus alopercuroides										
Polygonum densiflorum										5
Thalia geniculata										5
Azolla caroliniana	1	3	2	2	2	5	5	3	2	
Pistia stratiotes		5	50		10					
Cyperus odoratus				3						
Spartina bakeri					2					
Hymenachne amplexicaulis							2			
Total Cover	**56**	**53**	**104**	**103**	**111**	**110**	**122**	**108**	**112**	**88**
Total Desirable Cover	**56**	**48**	**14**	**13**	**41**	**90**	**115**	**98**	**102**	**88**
Total Undesirable Cover	**0**	**0**	**40**	**90**	**60**	**20**	**5**	**10**	**10**	**0**
Total Desirable Herbaceous Cover	**56**	**48**	**14**	**13**	**26**	**90**	**115**	**88**	**87**	**68**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**15**	**N/A**	**N/A**	**10**	**15**	**20**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

tri-colored heron, glossy ibis, white ibis, limpkin, mottled ducks, red-winged blackbird, leopard frog, boat-tailed grackel, least bittern

South Cell Quantitative Monitoring Data Sheet

Date: 4/29/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-5

Species	Quadrat (-Zone)	Quadrats									
		1-B	2-D	3-D	4-D	5-D	6-D	7-D	8-D	9-D	10-D
	Water Depth (inches)	Sat.	6	18	21	21	20	21	21	20	21
Spartina bakeri		50			Open Water						
Eleocharis interstincta		30	95	95							
Panicum repens		5									
Pistia stratiotes				5							
Ludwigia peploides			5	2							
Azolla caroliniana			1								

Total Cover	**85**	**101**	**102**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Cover	**80**	**101**	**97**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Undesirable Cover	**5**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**80**	**101**	**97**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

List of Wildlife Species Observed

great egret

South Cell Quantitative Monitoring Data Sheet

Date: 4/29/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-6

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-E	7-E	8-E	9-E	10-E
Water Depth (inches)	0.5	7	9	7	8	7	6	6	6	6
Eleocharis interstincta			15			90	25	20	5	60
Pontederia cordata		60	70	90	20					
Spartina bakeri	80									
Polygonum punctatum		5			5	2	40	10		5
Scirpus californicus	30									
Fraxinus caroliniana						5	5		10	20
Pistia stratiotes								25	70	2
Cladium jamaicense					50					
Althernanthera philoxeroides	5	2				2	5	5		
Cephalanthus occidentalis								15		
Ludwigia peploides						5	20		2	40
Lemna minor			1	1	1	1		10	5	
Thalia geniculata								25		
Azolla caroliniana				1				30	20	
Panicum repens		2								
Eleocharis vivipara						2				
Polygonum densiflorum										1

Total Cover	**115**	**69**	**86**	**92**	**76**	**107**	**95**	**140**	**112**	**128**
Total Desirable Cover	**110**	**65**	**86**	**92**	**76**	**100**	**70**	**110**	**40**	**86**
Total Undesirable Cover	**5**	**4**	**0**	**0**	**0**	**7**	**25**	**30**	**72**	**42**
Total Desirable Herbaceous Cover	**110**	**65**	**86**	**92**	**76**	**95**	**65**	**95**	**30**	**66**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**5**	**5**	**15**	**10**	**20**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

red-winged blackbird, pig frog, limpkin, moorhen, black-necked stilts

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-7

Species	Quadrat (-Zone)	1-B	2-B	3-B	4-C	5-C	6-C	7-C	8-C	9-C	10-C
		Quadrats									
	Water Depth (inches)	Sat.	5	7	11	15	27	19	17	14	13
Thalia geniculata		30		80	95	95	Open Water	95	100	100	100
Sagittaria lancifolia			25								
Filamentous algae			5								
Althernanthera philoxeroides		20						1			
Ludwigia peploides			5								
Lemna minor			2	1	1						
Polygonum punctatum		50									
Azolla caroliniana			30								
Pluchea odorata		10									
Pistia stratiotes		5	10	5	2			2			
Total Cover		**115**	**77**	**86**	**98**	**95**	**0**	**98**	**100**	**100**	**100**
Total Desirable Cover		**90**	**62**	**81**	**96**	**95**	**0**	**95**	**100**	**100**	**100**
Total Undesirable Cover		**25**	**15**	**5**	**2**	**0**	**0**	**3**	**0**	**0**	**0**
Total Desirable Herbaceous Cover		**90**	**62**	**81**	**96**	**95**	**0**	**95**	**100**	**100**	**100**
Total Tree and Shrub Cover		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover		**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

white ibis, limpkin, moorhen, red shouldered hawk

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-8

	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-A	6-A	7-C	8-C	9-C	10-C
Species / Water Depth (inches)	Sat.	4	7	3	Sat.	6	8	10	12	12
Thalia geniculata				10			40	60	10	
Scirpus californicus									30	25
Eleocharis interstincta					60	2	5			
Pistia stratiotes		2	60				20	20	10	
Alternanthera philoxeroides	2				5					
Sagitaria lancifolia	5	50	30		2					
Cladium jamaicense				60						
Bacopa monnieri	40									
Lemna minor		10	20	2		5	10	10	10	10
Azolla caroliniana		5	20							
Amaranthus sp.	5									
Echinochloa walteri	20									
Phyla nodiflora	25				30					
Ludwigia octovalvis	1									
Pluchea odorata	1				2					
Ludwigia peploides		20	5	30	5	10				
Polygonum punctatum		5		1	2					
Salix caroliniana				2						
Polygonum densiflorum						10				
Total Cover	**99**	**92**	**135**	**105**	**106**	**27**	**75**	**90**	**60**	**35**
Total Desirable Cover	**96**	**70**	**70**	**75**	**96**	**17**	**55**	**70**	**50**	**35**
Total Undesirable Cover	**3**	**22**	**65**	**30**	**10**	**10**	**20**	**20**	**10**	**0**
Total Desirable Herbaceous Cover	**96**	**70**	**70**	**75**	**96**	**17**	**55**	**70**	**50**	**35**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

limpkin, glossy ibis, moorhen, great egret

South Cell Quantitative Monitoring Data Sheet

Date: 4/29/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-9

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-A	6-E	7-E	8-B	9-C	10-C
Water Depth (inches)	7	5	5	4	3	6	9	11	10	11
Eleocharis interstincta	50	100	50	30	25					
Scirpus californicus				40	35	50	40	75	60	60
Pistia stratiotes				2	2	10	5	2		
Lemna minor			40	5	5	20	5	20	20	5
Polygonum punctatum				30	30		1			
Thalia geniculata							50			
Pontederia cordata						5				
Ludwigia peploides	50									
Azolla caroliniana			5			20		15	20	2
Fraxinus caroliniana						5				
Total Cover	**100**	**100**	**95**	**107**	**97**	**110**	**101**	**112**	**100**	**67**
Total Desirable Cover	**50**	**100**	**95**	**105**	**95**	**100**	**96**	**110**	**100**	**67**
Total Undesirable Cover	**50**	**0**	**0**	**2**	**2**	**10**	**5**	**2**	**0**	**0**
Total Desirable Herbaceous Cover	**50**	**100**	**95**	**105**	**95**	**95**	**96**	**110**	**100**	**67**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**5**	**0**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

rail, least tern, moorhen, limpkin, great egret

South Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: SC-10

	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-B	7-B	8-B	9-B	10-B
Species / Water Depth (inches)	Sat.	5	6	7	5	5	7	7	6	7
Eleocharis interstincta				80	60	95	90	90	75	95
Pontederia cordata	1	75	50	5	5					
Polygonum punctatum	60									
Hymenachne amplexicaulis										
Ludwigia peploides	30								20	
Scirpus californicus	10									
Lemna valdiviana		35	30	5	2	<1	1	<1	1	<1
Apios americana	2									
Parietaria floridana	2									
Commelina diffusa	1									
Ambrosia artemisiifolia	1									
Amaranthus spinosus	2									
Typha sp.					25					
Total Cover	**109**	**110**	**80**	**90**	**92**	**95**	**91**	**90**	**96**	**95**
Total Desirable Cover	**79**	**110**	**80**	**90**	**67**	**95**	**91**	**90**	**76**	**95**
Total Undesirable Cover	**30**	**0**	**0**	**0**	**25**	**0**	**0**	**0**	**20**	**0**
Total Desirable Herbaceous Cover	**79**	**110**	**80**	**90**	**67**	**95**	**91**	**90**	**76**	**95**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

limpkin, glossy ibis, red-winged blackbird

Walker Cell Quantitative Monitoring Data Sheet									Date	4/23/2014
Vegetation Monitoring Team	RVF/AO								Transect	W-1
	Quadrats									
Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-E	6-F	7-F	8-F	9-F	10-F
Species / Water Depth (inches)	Sat.	8	12	15	24	22	23	25	25	24
Eleocharis interstincta	50	90	95	85	30	10			35	90
Filamentous Algae				5	5	2	2	1		
Sagittaria lancifolia	5				30	40	50	70	35	
Hydrocotyle bonariensis	10									
Lemna minor		2	2	1						
Polygonum punctatum	5									
Ludwigia peruviana	2									
Phyla nodiflora	2									
Galium tinctorium	35									
Vicia acutifolia	1									
Cyperus odoratus		10								
Azolla caroliniana		20	10							

Total Cover	**110**	**122**	**107**	**91**	**65**	**52**	**52**	**71**	**70**	**90**
Total Desirable Cover	**108**	**122**	**107**	**91**	**65**	**52**	**52**	**71**	**70**	**90**
Total Undesirable Cover	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**108**	**122**	**107**	**91**	**65**	**52**	**52**	**71**	**70**	**90**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

limpkin, moorhen, pig frog

Walker Cell Quantitative Monitoring Data Sheet

Date: 4/23/2013

Vegetation Monitoring Team: RVF/AO

Transect: W-2

Species	Quadrats									
Quadrat (-Zone)	1-H	2-H	3-H	4-H	5-H	6-H	7-H	8-H	9-H	10-H
Water Depth (inches)	4	6	5	5	6	5	4	5	6	6
Eleocharis interstincta	90	80	90	85	75	50	80	75	50	70
Thalia geniculata						30	20		25	
Fraxinus caroliniana				5		2			2	2
Ludwigia peploides						5		5	25	25
Hymenachne amplexicaulis						1				
Polygonum punctatum	10		1	1					5	10
Ludwigia octovalvis								5		
Taxodium ascendens		5	3				20			
Lemna minor	2	5	5	5	5	5	5			
Hydrocotyle umbellata	2									
Panicum hemitomon				1						
Pistia stratiotes										1

Total Cover	**104**	**90**	**99**	**97**	**80**	**93**	**125**	**85**	**107**	**108**
Total Desirable Cover	**104**	**90**	**99**	**97**	**80**	**87**	**125**	**75**	**82**	**82**
Total Undesirable Cover	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**10**	**25**	**26**
Total Desirable Herbaceous Cover	**104**	**85**	**96**	**92**	**80**	**85**	**105**	**75**	**80**	**80**
Total Tree and Shrub Cover	**0**	**5**	**3**	**5**	**0**	**2**	**20**	**0**	**2**	**2**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

pig frog, moorhen

Walker Cell Quantitative Monitoring Data Sheet

Date: 4/29/2014

Vegetation Monitoring Team: RVF/AO

Transect: W-3

Species	Quadrats									
Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-A	6-C	7-D	8-D	9-D	10-D
Water Depth (inches)	7	8	9	6	9	12	21	20	22	21
Scirpus californicus	35	70	80	70	5	5	Open Water	75	Open Water	Open Water
Eleocharis interstincta	40				30					
Ludwigia peploides			30	30	20			5		
Polygonum punctatum	20				10					
Lemna minor	5	10	20	20	2					
Thalia geniclata					5	50				
Salvinia minima	40									
Azolla caroliniana	5		10							
Eichhornia crassipes					20	5		5		
Pistia stratiotes					20	20		20		
Total Cover	**145**	**80**	**140**	**120**	**112**	**80**	**0**	**105**	**0**	**0**
Total Desirable Cover	**145**	**80**	**110**	**90**	**72**	**60**	**0**	**80**	**0**	**0**
Total Undesirable Cover	**0**	**0**	**30**	**30**	**40**	**20**	**0**	**25**	**0**	**0**
Total Desirable Herbaceous Cover	**145**	**80**	**110**	**90**	**72**	**60**	**0**	**80**	**0**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0**	**80**	**0**	**0**

List of Wildlife Species Observed

moorhen

Walker Cell Quantitative Monitoring Data Sheet

Date: 4/23/2014

Vegetation Monitoring Team: RVF/AO

Transect: W-4

Species	Quadrats									
Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-A	6-E	7-F	8-F	9-F	10-F
Water Depth (inches)	Sat.	8	9	12	18	24	24	25	25	27
Eleocharis interstincta			30	40	95	Open Water				
Sagittaria lancifolia	5	10								
Bacopa monnieri	40									
Thalia geniculata				40	5					2
Pontederia cordata	5	5	30							
Ludwigia peruviana	30									
Ludwigia octovalvis	30									
Ludwigia peploides		5	2							
Polygonum punctatum		5	5	5						
Lemna minor		10	1	1						
Althernanthera philoxeroides	2									
Eupatorium capillifoluim	1									
Azzolla caroliniana		30								
Filamentous algae			20							

Total Cover	**113**	**65**	**88**	**86**	**100**	**0**	**0**	**0**	**0**	**2**
Total Desirable Cover	**51**	**60**	**86**	**86**	**100**	**0**	**0**	**0**	**0**	**2**
Total Undesirable Cover	**62**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cove	**51**	**60**	**86**	**86**	**100**	**0**	**0**	**0**	**0**	**2**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List Wildlife Species Observed

black racer, red-winged blackbird, least tern, great blue heron

Appendix C

Vegetation Monitoring Data for Fall 2014

South Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: SC-1

Species	Quadrats									
Quadrat (-Zone)	1-E	2-E	3-E	4-E	5-E	6-B	7-B	8-B	9-B	10-B
Water Depth (inches)	Sat	5	5	5	5	9	10	9	10	10
Sagitaria lancifolia	5	20	5	2	30	50	50	40	20	60
Panicum hemitomon	1	2	2							
Eleocharis interstincta		60	70	40	10					
Cladium jamaicense					60					
Chamaecrista nictitans	10									
Ludwigia octovalvis	5									
Cephalanthus occidentalis	5		5							
Fraxinus caroliniana		10		2						
Bacopa monnieri	10									
Panicum repens	40				2					
Vicia acutifolia	1									
Mikania scandens	1									
Lemna minor		40	30	20	50	50	50	70	80	75
Pistia stratiotes			20	60	25	25	10	10	10	25
Eclipta alba	2									
Echinochloa sp.	5									
Commelina diffusa	2									
Symphyotrichum subulatum	2									
Ludwigia leptocarpa					1					
Ludwigia peploides					1					
Total Cover	**89**	**132**	**132**	**124**	**179**	**125**	**110**	**120**	**110**	**160**
Total Desirable Cover	**28**	**132**	**112**	**64**	**151**	**100**	**100**	**110**	**100**	**135**
Total Undesirable Cover	**61**	**0**	**20**	**60**	**28**	**25**	**10**	**10**	**10**	**25**
Total Desirable Herbaceous Cover	**23**	**122**	**107**	**62**	**151**	**100**	**100**	**110**	**100**	**135**
Total Tree and Shrub Cover	**5**	**10**	**5**	**2**	**0**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

Black bellied whistling ducks

South Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: SC-2

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-C	5-C	6-C	7-D	8-D	9-D	10-D
Water Depth (inches)	1	6	6	6	11	12	15	21	19	19
Scirpus californicus						90	25	Open Water	Open Water	Open Water
Sagittaria lancifolia	25	50	60	40						
Filamentous Algae			5	20						
Panicum repens		2	25							
Thalia geniculata					100					
Althernanthera philoxeroides	5									
Spartina bakeri	40									
Cyperus odoratus	5									
Lemna minor	25	30	5	10	1	1				
Mikania scandens	5									
Pista stratiotes	30	40	20	20	5	1	5			
Eichhornia crassipes							10			
Total Cover	**135**	**122**	**115**	**90**	**106**	**92**	**40**	**0**	**0**	**0**
Total Desirable Cover	**95**	**80**	**70**	**70**	**101**	**91**	**25**	**0**	**0**	**0**
Total Undesirable Cover	**40**	**42**	**45**	**20**	**5**	**1**	**15**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**95**	**80**	**70**	**70**	**101**	**91**	**25**	**0**	**0**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**25**	**0**	**0**	**0**

List of Wildlife Species Observed

Black bellied whistiling ducks, moorhen

South Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: SC-3

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-B	7-B	8-B	9-B	10-B
Water Depth (inches)	2	6	6	5	5	6	4	5	4	6
Eleocharis interstincta	10	25	50	40		10	60	60	80	90
Pontederia cordata		5	5	2	50	30	40	40	5	5
Cladium jamaicense	90	60								
Polygonum punctatum						40	30	10		
Sagitaria lancifolia	10	10	40	40						
Ludwigia peploides									2	
Lemna minor	2	5	2	2	2	2	2	1	2	1
Salix caroliniana								5		
Salvinia minima	20	40	20	40	60	40	40	40	40	30
Pistia stratiotes	5	10	40	20	5	1				5
Cyperus odoratus									2	
Total Cover	**137**	**155**	**157**	**144**	**117**	**123**	**172**	**156**	**131**	**131**
Total Desirable Cover	**132**	**145**	**117**	**124**	**112**	**122**	**172**	**151**	**129**	**126**
Total Undesirable Cover	**5**	**10**	**40**	**20**	**5**	**1**	**0**	**5**	**2**	**5**
Total Desirable Herbaceous Cover	**132**	**145**	**117**	**124**	**112**	**122**	**172**	**151**	**129**	**126**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

osprey, black bellied whistling ducks, great blue heron, moorhen

South Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: SC-4

Species	Quadrats									
Quadrat (-Zone)	1-C	2-C	3-C	4-A	5-E	6-A	7-B	8-E	9-E	10-E
Water Depth (inches)	15	15	6	6	9	6	4	7	7	6
Eleocharis interstincta					10	10	50	40	50	20
Polygonum punctatum			35	15	30	30	15	10	30	25
Scirpus californicus	20	40	10							2
Sagittaria lancifolia					10	30				
Fraxinus caroliniana					5		10	10		15
Ludwigia peploides			5	10	40	35	5	5		5
Lemna minor	5	5	15	10	10	10	5	15	5	5
Cephalanthus occidentalis					5	5			10	
Polygonum densiflorum								10		5
Pontederia cordata										5
Leptochloa fascicularis				5						
Thalia geniculata									15	5
Pistia stratiotes	20	25	5	5						
Cyperus odoratus					5			5		10
Hymenachne amplexicaulis							5			
Salix caroliniana								10		
Eleocharis vivipara								5		5
Ludwigia peruviana										5
Total Cover	**45**	**70**	**70**	**45**	**115**	**120**	**90**	**110**	**110**	**107**
Total Desirable Cover	**25**	**45**	**60**	**30**	**75**	**85**	**80**	**105**	**110**	**97**
Total Undesirable Cover	**20**	**25**	**10**	**15**	**40**	**35**	**10**	**5**	**0**	**10**
Total Desirable Herbaceous Cover	**25**	**45**	**60**	**30**	**65**	**80**	**70**	**95**	**100**	**82**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**5**	**10**	**10**	**10**	**15**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

tri-colored heron, mallards, red-winged blackbird, boat-tailed grackle, great blue heron, squirrel frog

South Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: SC-5

Species	Quadrat (-Zone)	Quadrats									
		1-B	2-D	3-D	4-D	5-D	6-D	7-D	8-D	9-D	10-D
	Water Depth (inches)	3	8	18	25	22	23	21	22	23	25
Spartina bakeri		50			Open Water						
Eleocharis interstincta		30	95	95							
Panicum repens		15									
Pistia stratiotes											
Luwigia peploides		5	10								
Lemna minor			5								

Total Cover	**100**	**110**	**95**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Cover	**80**	**100**	**95**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Undesirable Cover	**20**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**80**	**100**	**95**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**100**	**95**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

List of Wildlife Species Observed

limpkin, leopard frog

South Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: SC-6

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-E	7-E	8-E	9-E	10-E
Water Depth (inches)	1	8	6	11	10	12	10	9	9	9
Eleocharis interstincta			15	20	15	50	40	10		60
Pontederia cordata		80	60	50	10					
Spartina bakeri	80									
Polygonum punctatum						2	10	10		3
Scirpus californicus	30									
Fraxinus caroliniana						5	5	5	10	15
Pistia stratiotes								20	75	5
Cladium jamaicense					50					
Althernanthera philoxeroides	5	5				5	5			
Cephalanthus occidentalis							5	5	5	
Ludwigia peploides						5	10	2	2	5
Leptochloa fascicularis										
Lemna minor		5	5	7	20	25	20	20	10	30
Thalia geniculata								20		
Salvinia minima										10
Eleocharis vivipara						2				
Polygonum densiflorum										1
Vigna luteola	5									

Total Cover	**120**	**90**	**80**	**77**	**95**	**94**	**95**	**92**	**102**	**129**
Total Desirable Cover	**110**	**85**	**80**	**77**	**95**	**84**	**80**	**70**	**25**	**119**
Total Undesirable Cover	**10**	**5**	**0**	**0**	**0**	**10**	**15**	**22**	**77**	**10**
Total Desirable Herbaceous Cover	**110**	**85**	**80**	**77**	**95**	**79**	**70**	**60**	**10**	**104**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**5**	**10**	**10**	**15**	**15**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

limpkin, little blue heron, whistling duck

South Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: SC-7

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-C	5-C	6-C	7-C	8-C	9-C	10-C
Water Depth (inches)	Sat.	8	6	12	19	21	20	20	18	16
Thalia geniculata	30		80	95	95		95	100	100	100
Sagittaria lancifolia		30								
Althernanthera philoxeroides	10									
Ludwigia octovalvis										
Ludwigia peploides	5									
Lemna minor	40	5	10	5	2	5	5			
Polygonum punctatum	25									
Pistia stratiotes	10	10	15	2			2			
Hymenachne amplexicaulus	5									
Salvinia minima	5	40	20							
Total Cover	**130**	**85**	**125**	**102**	**97**	**5**	**102**	**100**	**100**	**100**
Total Desirable Cover	**100**	**75**	**110**	**100**	**97**	**5**	**100**	**100**	**100**	**100**
Total Undesirable Cover	**30**	**10**	**15**	**2**	**0**	**0**	**2**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**100**	**75**	**110**	**100**	**97**	**5**	**100**	**100**	**100**	**100**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

boat-tailed grackel

South Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: SC-8

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-A	6-A	7-C	8-C	9-C	10-C
Water Depth (inches)	Sat.	6	8	8	Sat.	7	10	13	12	13
Thalia geniculata						10	90	40		
Scirpus californicus									20	25
Eleocharis interstincta	1				50	50				
Pistia stratiotes						30	60	80	90	70
Alternanthera philoxeroides	2				10					
Sagitaria lancifolia	10	50	50	5	5					
Cladium jamaicense				90						
Bacopa monnieri	70				50					
Typha sp.										
Leptochloa fascicularis	10									
Aster subulatus	5									
Cynodon dactylon	1									
Lemna minor		50	60	20		15	15	5	2	1
Echinochloa walteri	1									
Lippia stoechadifolia	2				5					
Ludwigia octovalvis										
Pluchea odorata					1					
Ludwigia peploides										
Polygonum punctatum	2					1				
Ammannia coccinea					2					
filamentous algae										25
Total Cover	**104**	**100**	**110**	**115**	**123**	**106**	**165**	**125**	**112**	**121**
Total Desirable Cover	**101**	**100**	**110**	**115**	**113**	**76**	**105**	**45**	**22**	**51**
Total Undesirable Cover	**3**	**0**	**0**	**0**	**10**	**30**	**60**	**80**	**90**	**70**
Total Desirable Herbaceous Cover	**101**	**100**	**110**	**115**	**113**	**76**	**105**	**45**	**22**	**51**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

great blue heron, moorhen

South Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: SC-9

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-A	6-E	7-E	8-B	9-C	10-C
Water Depth (inches)	10	7	8	7	7	7	11	15	16	20
Eleocharis interstincta	45	95	80	20	35					
Scirpus californicus				30	20	30	30	60	60	40
Pistia stratiotes				10	2	10	25	30	20	
Lemna minor	10	5	10	5	5	5	5	20	15	20
Polygonum punctatum					30					
Thalia geniculata							30			
Pontederia cordata						35				
Eichhornia crassipes										
Ludwigia peploides	40	5		10						
Fraxinus carolinia						5				
Salvinia minima	10	10	30	40	25	30	20			

Total Cover	**105**	**115**	**120**	**115**	**117**	**115**	**110**	**110**	**95**	**60**
Total Desirable Cover	**65**	**110**	**120**	**95**	**115**	**105**	**85**	**80**	**75**	**60**
Total Undesirable Cover	**40**	**5**	**0**	**20**	**2**	**10**	**25**	**30**	**20**	**0**
Total Desirable Herbaceous Cover	**65**	**110**	**120**	**95**	**115**	**100**	**85**	**80**	**75**	**60**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**5**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

limpkin, great blue heron, anhinga, red-winged blackbird

South Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: SC-10

Species	Quadrats									
Quadrat (-Zone)	1-B	2-B	3-B	4-B	5-B	6-B	7-B	8-B	9-B	10-B
Water Depth (inches)	Sat.	6	7	8	7	6	6	6	6	6
Eleocharis interstincta		5			90	5	100	90	95	100
Pontederia cordata		90	90	70	10					
Alternanthera philoxeroides	10									
Hymenachne amplexicaulis										
Ludwigia peploides						20			5	
Leptochloa fascicularis	5									
Lemna valdiviana		5	40	5	1	70	2	1	2	1
Apios americana	10									
Ammania coccinea	2					5				
Commelina diffusa	3									
Vigna luteola	60									
Echinochloa walteri	5									
Pistia stratiotes		5								
Salvinia minima				40						
Total Cover	**95**	**105**	**130**	**115**	**101**	**100**	**102**	**91**	**102**	**101**
Total Desirable Cover	**25**	**100**	**130**	**115**	**101**	**80**	**102**	**91**	**97**	**101**
Total Undesirable Cover	**70**	**5**	**0**	**0**	**0**	**20**	**0**	**0**	**5**	**0**
Total Desirable Herbaceous Cover	**25**	**100**	**130**	**115**	**101**	**80**	**102**	**91**	**97**	**101**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

green tree frog, limpkin

Walker Cell Quantitative Monitoring Data Sheet									Date	9/16/2014
Vegetation Monitoring Team	RVF								Transect	W-1
	Quadrats									
Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-E	6-F	7-F	8-F	9-F	10-F
Species / Water Depth (inches)	Sat.	0.5	1	2	15	14	16	16	16	15
Eleocharis interstincta	40	90	95	90	90	30		20	90	90
Filamentous Algae					5	5		2	3	5
Sagittaria lancifolia					5	60	70	70	5	
Hydrocotyle umbellata	10									
Lemna minor				5	5	1	1			
Eclipta prostrata	5									
Polygonum punctatum	5									
Ludwigia peruviana	2	2								
Phyla nodiflora	10									
Galium tinctorium	2									
Cyperus odoratus	5	5								
Melothria pendula	5									
Erechtites hieraciifolius	2	10								
Vigna luteola	5									
Apios americana	2									

Total Cover	**93**	**107**	**95**	**95**	**105**	**96**	**71**	**92**	**98**	**95**
Total Desirable Cover	**81**	**105**	**95**	**95**	**105**	**96**	**71**	**92**	**98**	**95**
Total Undesirable Cover	**12**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cover	**81**	**105**	**95**	**95**	**105**	**96**	**71**	**92**	**98**	**95**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

anhinga, red-shouldered hawk

Walker Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: W-2

Species	Quadrats									
Quadrat (-Zone)	1-H	2-H	3-H	4-H	5-H	6-H	7-H	8-H	9-H	10-H
Water Depth (inches)	sat	sat	sat	sat	sat	sat	sat	sat	sat	sat
Eleocharis interstincta	70	90	50	90	90	60	80	90	75	50
Thalia geniculata			3			25	5			
Fraxinus caroliniana				5		3			7	5
Hymenachne amplexicaulis						10	10	2	10	5
Polygonum punctatum	30		40	5		25			15	50
Ludwigia octovalvis							10	15		
Taxodium ascendens		10			10	5	30			
Leptochloa fascicularis			5					5		
Hydrocotyle umbellata	10									
Cyperus odoratus	1		2					3		
Ammannia coccinea	2				3				2	
Polygonum densiflorum		5								
Pluchea odorata	1		5							
Ludwigia peruviana				10						
Echinochloa walteri									5	
Typha sp.									2	
Total Cover	**114**	**105**	**105**	**110**	**103**	**128**	**135**	**115**	**116**	**110**
Total Desirable Cover	**114**	**105**	**105**	**100**	**103**	**118**	**115**	**98**	**104**	**105**
Total Undesirable Cover	**0**	**0**	**0**	**10**	**0**	**10**	**20**	**17**	**12**	**5**
Total Desirable Herbaceous Cover	**114**	**95**	**105**	**95**	**93**	**110**	**85**	**98**	**97**	**100**
Total Tree and Shrub Cover	**0**	**10**	**0**	**5**	**10**	**8**	**30**	**0**	**7**	**5**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List of Wildlife Species Observed

Walker Cell Quantitative Monitoring Data Sheet

Date: 9/19/2014

Vegetation Monitoring Team: TJV

Transect: W-3

Species	Quadrats									
Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-A	6-C	7-D	8-D	9-D	10-D
Water Depth (inches)	sat	sat	sat	sat	sat	2	6	18	20	20
Scirpus californicus	15	70	75	30	15	5				Open Water
Eleocharis interstincta	20						20			
Ludwigia peploides		15	10	25	60	30	10	5	5	
Polygonum punctatum	70	15	30	60	35	80	15		5	
Lemna minor							5	5		
Thalia geniclata							15			
Eichochloa crassipes								10		
Pistia stratiotes							50	90	35	
Hydrocotyle umbellata		10								
Pontederia cordata									50	
Ludwigia peruviana			5							
Total Cover	**105**	**110**	**120**	**115**	**110**	**115**	**115**	**110**	**95**	**0**
Total Desirable Cover	**105**	**95**	**105**	**90**	**50**	**85**	**55**	**5**	**55**	**0**
Total Undesirable Cover	**0**	**15**	**15**	**25**	**60**	**30**	**60**	**105**	**40**	**0**
Total Desirable Herbaceous Cover	**105**	**95**	**105**	**90**	**50**	**85**	**55**	**5**	**55**	**0**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**55**	**5**	**55**	**0**

List of Wildlife Species Observed

limpkin, red-winged blackbird, boat-tailed grackle, great blue heron, roseate spoonbill

Walker Cell Quantitative Monitoring Data Sheet

Date: 9/16/2014

Vegetation Monitoring Team: RVF

Transect: W-4

Species	Quadrat (-Zone)	1-A	2-A	3-A	4-A	5-A	6-E	7-F	8-F	9-F	10-F
		Quadrats									
	Water Depth (inches)	dry	sat	0.5	6	13	15	16	16	16	16
Eleocharis interstincta				5	40	90	Open Water				
Sagittaria lancifolia		1									
Bacopa monnieri		40									
Thalia geniculata				50	50						5
Ludwigia octovalvis		40									
Ludwigia peploides				2							
Polygonum punctatum		5	50	50	25						
Hymenachne amplexicaulis				1							
Lemna minor					2	1					
Scirpus californicus			5								
Filamentous algae						5					
Ludwigia leptocarpa		5	50								

Total Cover	**91**	**105**	**108**	**117**	**96**	**0**	**0**	**0**	**0**	**5**
Total Desirable Cover	**51**	**105**	**105**	**117**	**96**	**0**	**0**	**0**	**0**	**5**
Total Undesirable Cover	**40**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Desirable Herbaceous Cov	**51**	**105**	**105**	**117**	**96**	**0**	**0**	**0**	**0**	**5**
Total Tree and Shrub Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Total Desirable Zone D Cover	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

List Wildlife Species Observed

anhinga, lmb, great blue heron

Appendix D

April 2014 Semi-Annual Mitigation Monitoring Photos

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014

South Cell Mitigation Area Photo-point SC-1

South Cell Mitigation Area Photo-point SC-2

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014

South Cell Mitigation Area Photo-point SC-3

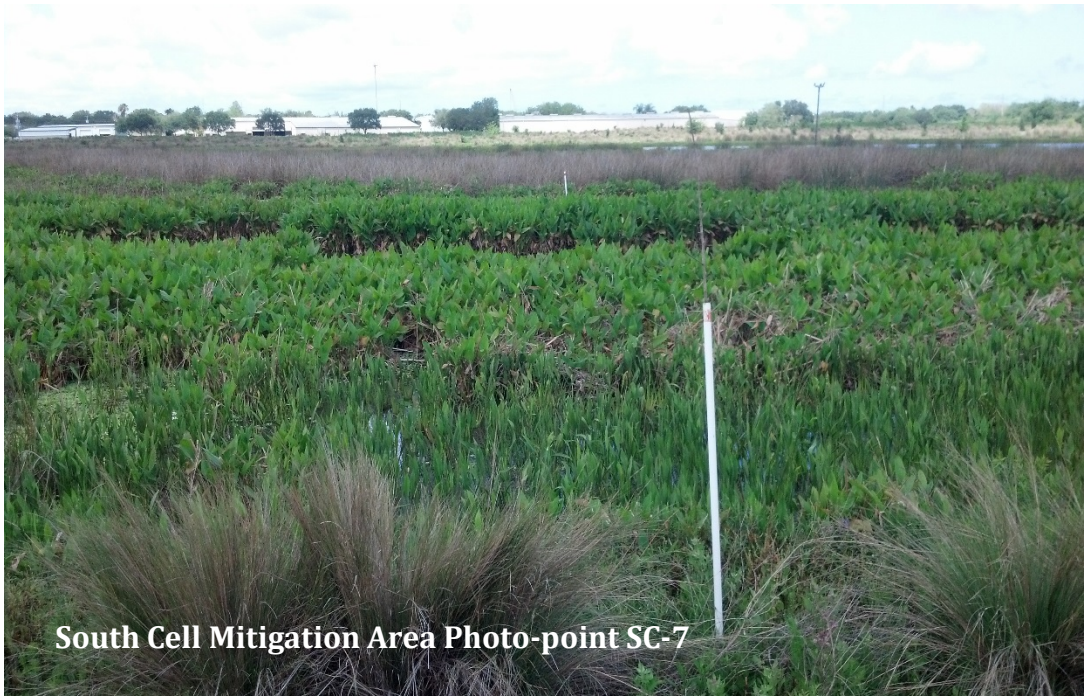
South Cell Mitigation Area Photo-point SC-4

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014

South Cell Mitigation Area Photo-point SC-5

South Cell Mitigation Area Photo-point SC-6

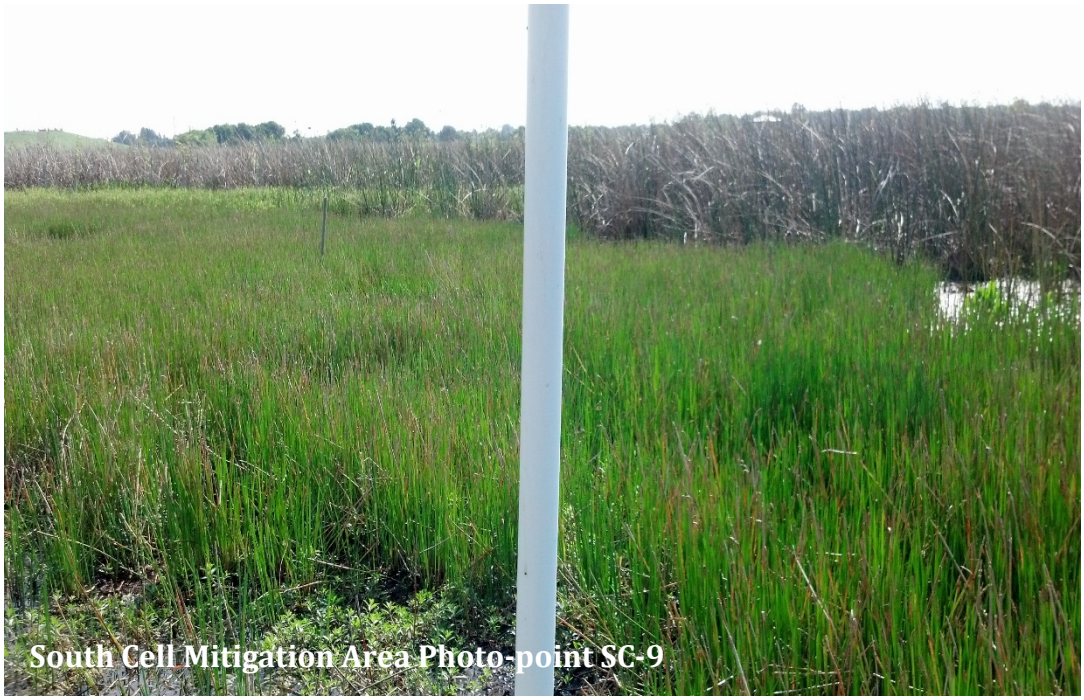
Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014



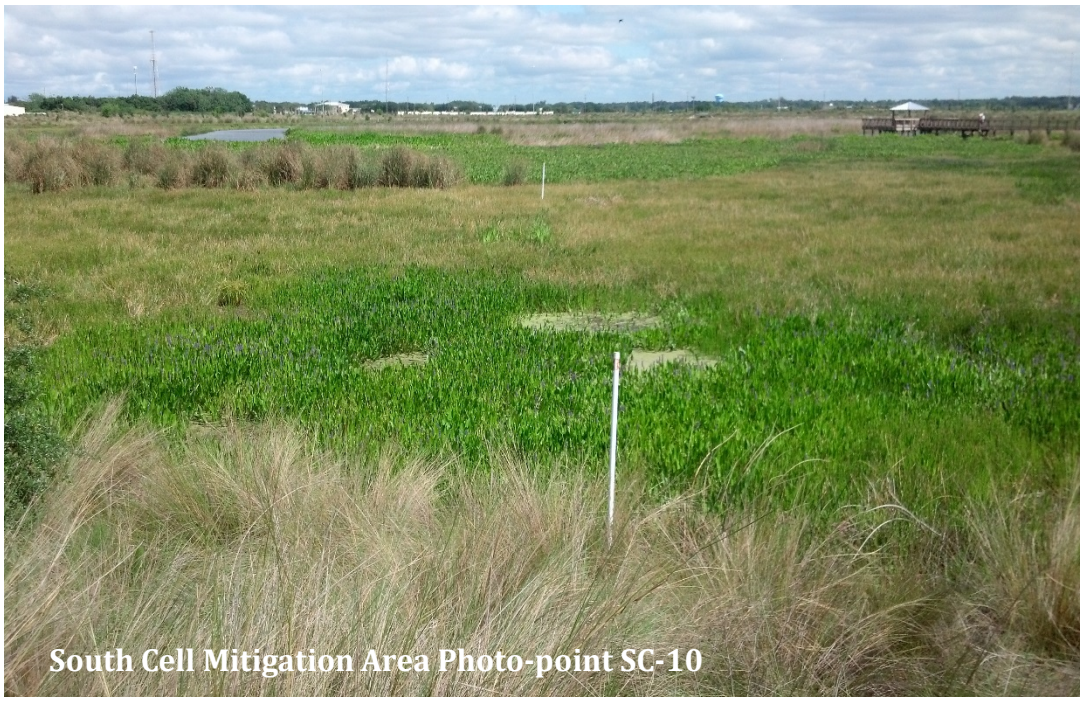
South Cell Mitigation Area Photo-point SC-7

South Cell Mitigation Area Photo-point SC-8

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014



South Cell Mitigation Area Photo-point SC-9



South Cell Mitigation Area Photo-point SC-10

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014

Walker Tract Mitigation Area Photo-point W-1

Walker Tract Mitigation Area Photo-point W-2

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken April 2014

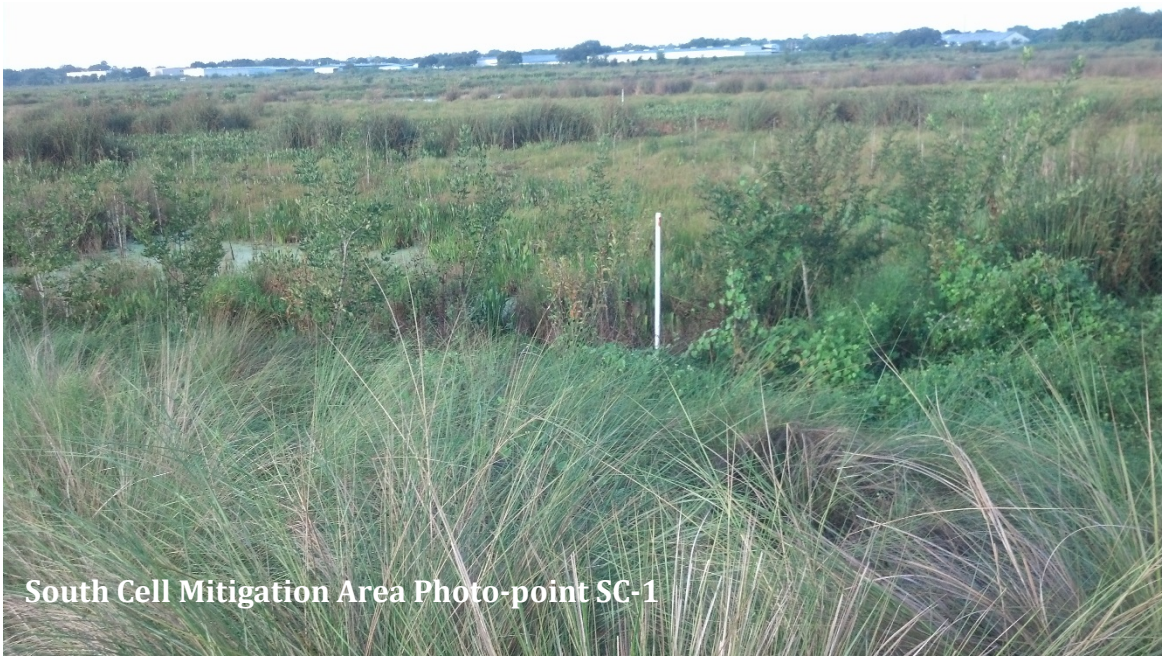
Walker Tract Mitigation Area Photo-point W-3

Walker Tract Mitigation Area Photo-point W-4

Appendix E

September 2014 Annual Mitigation Monitoring Photos

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014



South Cell Mitigation Area Photo-point SC-1

South Cell Mitigation Area Photo-point SC-2

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

South Cell Mitigation Area Photo-point SC-3

South Cell Mitigation Area Photo-point SC-4

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

South Cell Mitigation Area Photo-point SC-5

South Cell Mitigation Area Photo-point SC-6

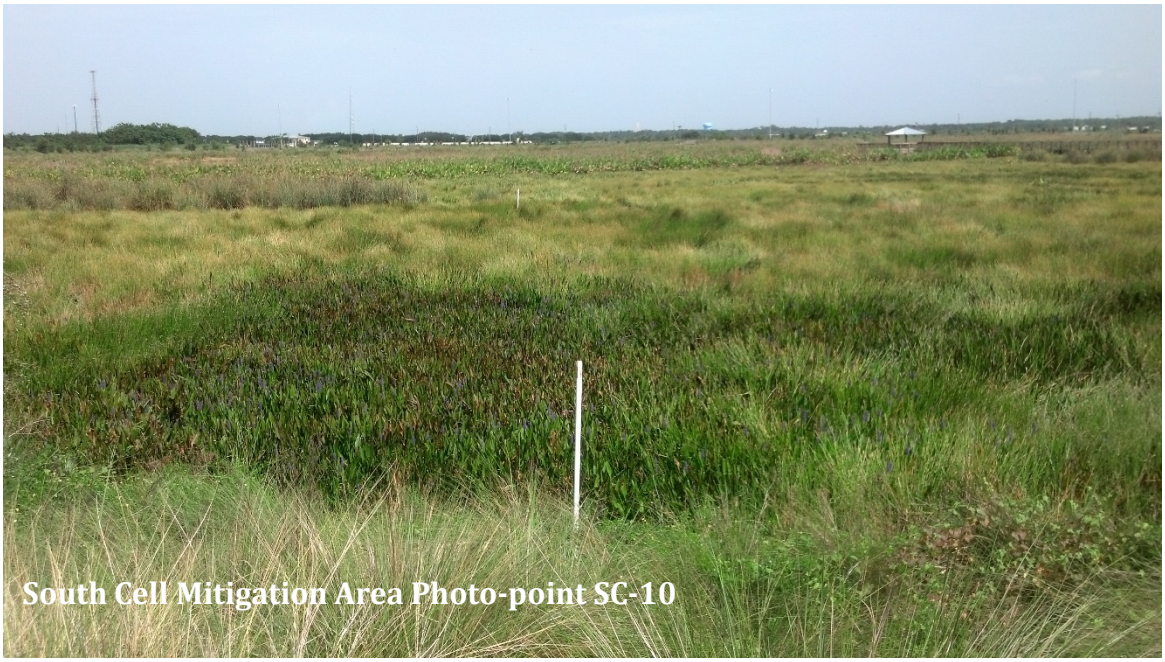
Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

South Cell Mitigation Area Photo-point SC-7

South Cell Mitigation Area Photo-point SC-8

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

South Cell Mitigation Area Photo-point SC-9



South Cell Mitigation Area Photo-point SC-10

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

Walker Tract Mitigation Area Photo-point W-1

Walker Tract Mitigation Area Photo-point W-2

Celery Fields Mitigation Site Annual Monitoring Report, Photos Taken September 2014

Walker Tract Mitigation Area Photo-point W-3

Walker Tract Mitigation Area Photo-point W-4

Appendix F

Tree Island Photos

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken September 2014

Tree Preserve Island, South Cell Mitigation Site

Tree Preserve Island, South Cell Mitigation Site

Celery Fields Mitigation Site Semi-Annual Monitoring Report, Photos Taken September 2014

Tree Preserve Island, South Cell Mitigation Site

Tree Preserve Island, South Cell Mitigation Site

Appendix G

Monthly Bird Survey Results

Monthly Bird Surveys for Celery Fields Regional Stormwater Facility from April 2011 through March 2013.

	Monthly Bird Surveys																							
	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11	Jan-12	Feb-12	Mar-12	Apr-12	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Totals
American Bittern			2															5			2				**9**
American Coot	13	1	1	5	12	9	24	59	149	101	88	64	18	4	2	1			24	18	23	43	16	54	**729**
American Crow		2				5		13	3		2					1	40				3			4	**73**
American Kestrel							1	2	4		2								1						**10**
Anhinga	8	15	41	47	25	37	45	57	22	49	36	21	28	28	42	30	24	23	45	36	39	36	30	10	**774**
Bald Eagle	2		2		1	2	3	3	2	1	1		7	2		1	1		3	2	1	2		2	**38**
Barn Swallow	6			6		30	30						30	3		13			30					56	**204**
Belted Kingfisher				1	2	6	5	8	1	3	3	2				6	3	10	5	9	4	4	1	2	**75**
Black Vulture	1	2		6	1	3	11	3	16	21	16		8	1	6	1	2	6	11	9	11	8	3	3	**149**
Black-bellied Whistling Duck	4	22	35	51	83	55	35	12	4					26	71	57	32	16	35	17	1				**556**
Black-crowned Night Heron				2		1			1			2		1	2		1								**10**
Black-necked Stilt	45	59	49	16		4						25	14	8	4										**224**
Blue-winged Teal	5				5	29	33	157	6	181	123	72	18						33	47	54	59	83	95	**1,000**
Boat-tailed Grackle	39	69	141	34	61	161	322	93	200	39	81	353	213	120	335	102	270	331	274	79	235	87	481	670	**4,790**
Brown-headed Cowbird				2					50																**52**
Bufflehead								2																	**2**
Cattle Egret	8	69	27	53	63	84	34	33	60	54	30	41	8	9	64	27	104	5	34	6	11	46	8	7	**885**
Chimney Swift				2																					**2**
Chipping Sparrow								1		5	5									4	2				**17**
Common Grackle								17	100																**117**
Common Ground Dove	5	1				1								2	7										**16**
Common Moorhen	14	41	84	54	46	38	30	19	2	13	38	14	17	75	47	38	64		30	38	40	26	22	42	**832**
Common Snipe							2												2	2	2				**8**
Common Tern						1																			**1**
Common Yellowthroat								5													3				**8**
Double-crested Cormorant	4	2		2	1	2	6	9	169	22	25	39	30	12	8	15	7	2	6	41	48	24	28	30	**532**
Eastern Meadowlark	2	1	1						1			1			4	1								1	**12**
European Starling		2		1		12		2	20																**37**
Fish Crow	2	2	1	1		5			2			1		2	1	1									**18**
Forster's Tern							5		3	4		4	22	6		2			5	6	8	2	10	5	**82**
Glossy Ibis	14	97	97	10	7	1	54	44	153	56	43	40	14	26	93	13	5	1	54	98	45	27	78	50	**1,120**
Great Blue Heron	10	6	10	17	12	8	17	21	7	8	12	14	18	16	19	9	18	15	17	21	13	19	13	19	**339**
Great Egret	36	28	36	44	40	45	37	43	28	31	39	79	53	55	70	32	45	41	37	44	31	46	52	110	**1,102**
Greater Yellowlegs	1								1															1	**3**
Green Heron			3	6			1								1		1	3	1	1		1		1	**19**
Green-winged Teal							1	8	4										1						**14**
Herring Gull		2	1																						**3**
Indigo Bunting							1												1						**2**
Killdeer	2	4		2		2		1	25	2				6		2				10	6	2		2	**66**
Laughing Gull	6	2	3	20	1	2	16	104	34	10	9	13	7	3	4	1	9	1	16	3	12	1	4	1	**282**
Least Bittern			2	9																1					**12**
Least Sandpiper							14		30	23									14						**81**

Monthly Bird Surveys for Celery Fields Regional Stormwater Facility from April 2011 through March 2013.

	Monthly Bird Surveys																							
	Apr-11	**May-11**	**Jun-11**	**Jul-11**	**Aug-11**	**Sep-11**	**Oct-11**	**Nov-11**	**Dec-11**	**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**	**Jan-13**	**Feb-13**	**Mar-13**	**Totals**
Least Tern	1	1												10	2	2	3			1	2	2	3		**27**
Lesser Yellowlegs	1								2	4		28	11				2				1				**49**
Limpkin*	5	26	15	32	32	46	55	61	25	36	71	35	30	41	68	26	44	33	55	20	44	36	13	23	**872**
Little Blue Heron	2	8	11	17	8	9	11	12	10	10	8	14	5	7	17	9	6	10	11	17	10	18	14	19	**263**
Loggerhead Shrike							3	1		1					2	1	2	1	3	2		2			**18**
Long-billed Dowitcher	73								3																**76**
Mallard Hybrid	1			5		6		2	4	2	9	8	9	5		3					2		9	3	**68**
Marsh Wren							16		2										16						**34**
Mocking bird		1																							**1**
Monk Parakeet				2																					**2**
Mottled Duck	15	33	24	60	77	63	26	66	12	39	53	38	44	58	49	13	21	17	26	15	11	20	13	51	**844**
Mourning Dove	7	22	28	61	46	9	16	1			1		7	90	6	13	8		16	2			3	2	**338**
Muscovy								4																	**4**
Northern Cardinal				1																					**1**
Northern Harrier						1		5	2	2	3	3	2							4	3	4	4	3	**36**
Northern Mockingbird				1	1		2	1	1				2	8	3				2				1	1	**23**
Northern Shoveler								5	4	1		2								2	2				**16**
Osprey		2	3	6	8	7	7	7	8	4	9	3	1	4	5	8	6	7	7	9	9	3	8		**131**
Palm Warbler							46	227	20	20	15	72	10					8	46	118	179	76	72	97	**1,006**
Pied-billed Grebe			4	2			6	7		13	9	7							6	22	39	35	21	17	**188**
Purple Gallinule				3	1	1														1					**6**
Purple Martin		3																							**3**
Red-shouldered Hawk	1	2	1		3	5	4		2	4	2		1	3	2	3	9	8	4	5	6	4	1	4	**74**
Red-tailed Hawk								4		1						1		1							**7**
Red-winged Blackbird	29	72	108	122	58	154	259	149	120	27	71	338	231	305	400	164	390	352	209	91	335	90	414	633	**5,121**
Roseate Spoonbill		11	8	2			1	4	1			21	11	7					1	10			15	12	**104**
Royal Tern				1	1			1						2											**5**
Sanderling	8												21												**29**
Sandhill Crane	3	6	6			1		8	28	1				6	5		4					2			**70**
Sandwich Tern	18				6							1													**25**
Savannah Sparrow							73	205	183		98	33	61						73	57	52	108	300	128	**1,371**
Semipalmated Sandpiper	20																								**20**
Short-billed Dowitcher								10				167	3												**180**
Snowy Egret	18	24	41	38	13	8	6	5	2	4	18	34	44	65	33	10	14	11	6	16	12	26	56	77	**581**
Spotted Sandpiper				1										1											**2**
Tree Swallow	1						1	150	1,200	82	135	46	22	1		1	26		1		190	6	135	8	**2,005**
Tricolored Heron	2	10	20	27	19	7	8	20	13	8	12	21	11	28	28	24	16	8	8	17	7	20	11	9	**354**
Turkey Vulture	6			1		2	2	1	22	6	22	8	7	2	11	1	2	19	2	21	20	44	24	29	**252**
White Ibis	5	24	29	40	26	26	86	68	268	36	30	22	14	24	263	28	4	38	86	64	24	91	118	49	**1,463**
Willet	4		1									1													**6**
Wood Duck				10		1																			**11**
Wood Stork	1		6	6		2	4	5	8	4	6	1	16	27	6		1	5	4	22	11	11	1	1	**148**

Monthly Bird Surveys for Celery Fields Regional Stormwater Facility from April 2011 through March 2013.

	Monthly Bird Surveys																							
	Apr-11	**May-11**	**Jun-11**	**Jul-11**	**Aug-11**	**Sep-11**	**Oct-11**	**Nov-11**	**Dec-11**	**Jan-12**	**Feb-12**	**Mar-12**	**Apr-12**	**May-12**	**Jun-12**	**Jul-12**	**Aug-12**	**Sep-12**	**Oct-12**	**Nov-12**	**Dec-12**	**Jan-13**	**Feb-13**	**Mar-13**	**Totals**
Yellow-crowned Night Heron			3																						**3**
Yellow-rumped Warbler							4												4						**8**
Yellow-throated Warbler								1																	**1**
Cinnamon Teal									1																**1**
Ring-necked Duck									4	17	3										1	14	6	2	**47**
Lesser Scaup									7	51	57										55	46	10		**226**
Hooded Merganser									6	11	10	2									6	8	4		**47**
Cooper's Hawk									1																**1**
Peregrine Falcon									1																**1**
King Rail									3																**3**
Sora									3																**3**
Ring-billed Gull									7																**7**
Caspian Tern									2			4	2												**8**
Sedge Wren									1																**1**
House Wren									1																**1**
Blue-gray Gnatcatcher									5																**5**
Swamp Sparrow									4																**4**
American White Pelican										2			7									3	4	50	**66**
Brown Pelican										1	2	1									5	3			**12**
Greater Scaup										6															**6**
Grasshopper Sparrow										165															**165**
Black Skimmer													1												**1**
Pileated Woodpecker													2												**2**
Carolina Wren																					1				**1**
Semipalmated Plover																								2	**2**
Subtotal	**448**	**672**	**844**	**829**	**659**	**891**	**1,363**	**1,746**	**3,083**	**1,181**	**1,197**	**1,695**	**1,080**	**1,099**	**1,680**	**660**	**1,184**	**977**	**1,265**	**1,008**	**1,621**	**1,105**	**2,089**	**2,385**	**30,761**

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