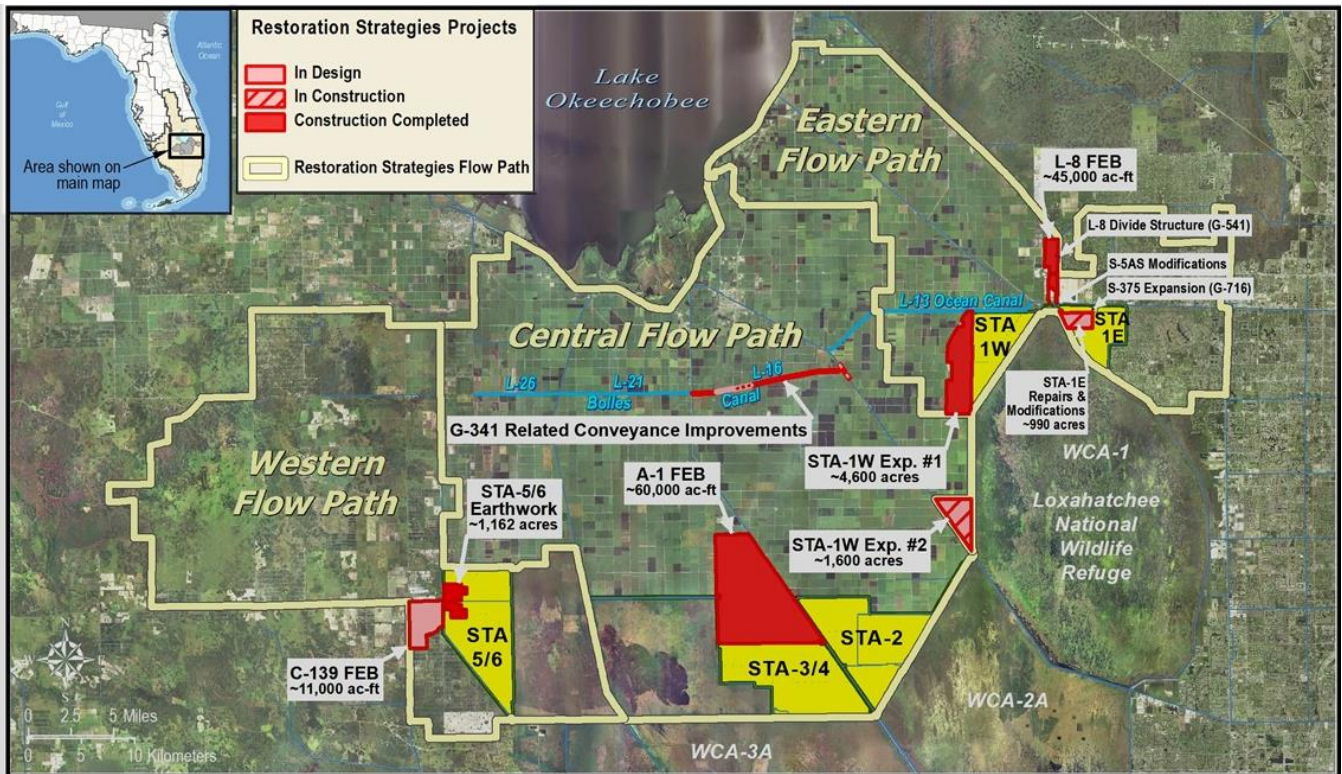


Restoration Strategies Program and Stormwater Treatment Area Enhancement Update October 2020

The South Florida Water Management District's (District) \$880 million Restoration Strategies Program will improve water quality flowing into America's Everglades by implementing a suite of flow equalization basins (FEB's), stormwater treatment area (STA) expansions, and conveyance improvement projects over a 13 year timeline. The program includes a robust Science Plan focused on investigating the critical factors that influence phosphorus reduction and a better understanding of improving treatment performance at low phosphorus concentrations. A third part of the program is investigation of additional sub-regional source controls – where pollution is reduced at the source – in areas where phosphorus levels in stormwater runoff have been historically higher.

In 2012, FDEP issued watershed National Pollutant Discharge Elimination System (NPDES) and Everglades Forever Act (EFA) permits to the District to continue to operate its STAs. At the same time, Consent Orders were issued with these permits that require the District to construct 13 projects on an aggressive timeline to be completed by December 2025 with specific milestone due dates for each project activity. The existing Everglades STAs, an essential component of Restoration Strategies, are unique constructed treatment wetlands designed to improve the quality of water flowing into the Everglades. Upon completion of all Restoration Strategies projects, the permits require each STA to meet the Water Quality Based Effluent Limit (WQBEL), to ensure that the State's water quality standard for the Everglades is achieved.

In addition to the Restoration Strategies projects, the District is enhancing the performance of the existing Everglades STAs through a series of construction projects to refurbish, rehabilitate, and renew large portions of the existing facilities, some of which have been in operation for the last 20 years.



Restoration Strategies Flow Paths and Projects

Restoration Strategies Program and Stormwater Treatment Area Enhancement Update October 2020

Eastern Flow Path

STA-1E Repairs and Modifications (Cells 5 and 7)

Earthwork to regrade Cell 5 and importing of soil in Cell 7 to correct topographic deficiencies in the original construction are ongoing. Project is on schedule and expected to be completed by October 2022.

STA-1W Expansion #1

Initial flooding and optimization period is underway and expected to be completed by December 2020. Earthwork for plugs to allow outflow through the Expansion #1 Discharge Canal is expected to start by November 2020.

STA-1W Expansion #2

Received Governing Board approval for civil works construction in August 2020. Underground pipe Installation under STA-1W Expansion #1 Discharge Canal to be completed by October 2020. Approval of pump station construction is scheduled for **December Governing Board**.

G-341 Related Conveyance Improvements

Construction of Segment 3 in Bolles East Canal is complete. Construction of Segment 4 is ongoing. Segment 5, the last segment, is in design and expected to start construction in 2021.

STA-1E Refurbishment

Degrade remnant farm roads and fill ditches in Cell 6. Purchase order for rental of amphibious excavator expected in October 2020.

STA-1W Refurbishment

Notice to Proceed issued September 2020 for various enhancements. Regrade 50 acres in Cell 3 and remove finger canals. Realign levee between Cells 5B and 2A for improved flow patterns. Remove levees and structures between Cells 2B and 4. Replace structures between Cells 1B and 3.

Central Flow Path

STA-2 Refurbishment

Notice to Proceed issued in October 2020 to regrade a 500-acre low-lying area, repair plugs in borrow canal, and other enhancements in Cell 2. Final Design nearing completion for about 40 cuts through remnant farm berms in Cell 3.

STA-3/4 Refurbishments

Energy dissipators were installed in each of 17 inflow culverts to deflect high flows away from emergent vegetation.

Western Flow Path

STA-5/6 Internal Improvements

Currently in initial flooding and optimization for Cells 2A and 3A.

C-139 Flow Equalization Basin (FEB)

USACE permit in process. Final Design deliverable received in August 2020. Request for Bids expected to be issued in October 2020. Approval to initiate construction is scheduled for **December Governing Board**.

Connection of STA-5/6 to Lake Okeechobee

Hydraulic Feasibility Study ongoing and will be completed by December 2020.

Restoration Strategies Program and Stormwater Treatment Area Enhancement Update October 2020

Restoration Strategies Science Plan

Of the fourteen Science Plan studies, seven have been completed and seven are in progress. Four additional study proposals have been approved and are ready to start.

<u>Ongoing Science Plan Studies</u>	<u>Completion By</u>
Vegetation Inundation Depth and Duration Sustainability	Sept 2020
Factors for Formation of Floating Tussocks in STAs	Sept 2021
L-8 FEB and STA Operational Guidance	Sept 2021
Improving Resilience of Submerged Aquatic Vegetation in STAs.....	Sept 2022
Effects of Faunal Species on P Cycling in STAs.....	Sept 2022
Periphyton and Phytoplankton P Uptake and Release	Sept 2023
Soil Amendments to Control P Flux	Sept 2023
<u>Additional Studies</u>	
Biomarker Study	Sept 2022
Fauna study.....	Sept 2023
Data Integration Study.....	Sept 2023
P Dynamics Study.....	Sept 2023



Westward view of a completed portion of Segment 4 in the Bolles East Canal as part of the G-341 Conveyance Related Improvements. Berms awaiting hydroseeding.

Restoration Strategies Program and Stormwater Treatment Area Enhancement Update October 2020

EASTERN FLOW PATH			CENTRAL FLOW PATH		
STA-1W Expansion #2 (100864)			G-341 Related Conveyance Improvements (100802)		
Activity	Deadline		Activity	Deadline	
Complete land acquisition	3/31/2018	✓	Initiate design	10/1/2020	✓
Initiate design	10/1/2018	✓	Submit state and federal permit applications	8/1/2021	✓
Submit state and federal permit applications	8/1/2019	✓	Complete land acquisition (if required)	9/30/2021	
Complete design	7/31/2020	✓	Complete design	7/31/2022	
Initiate construction	11/30/2020	✓	Initiate construction	11/30/2022	✓
Construction status report	3/1/2021		Construction status report	3/1/2023	
Construction status report	3/1/2022		Construction status report	3/1/2024	
Complete construction	12/31/2022		Complete construction	12/31/2024	
Initial flooding and optimization period complete	12/31/2024				
STA-1W Expansion #1 (100818)			L-8 Divide Structure (100817)		
Activity	Deadline		Activity	Deadline	
Complete land acquisition	9/30/2013	✓	Initiate design	10/1/2012	✓
Initiate design	9/30/2013	✓	Complete design	9/30/2014	✓
Submit state and federal permit applications	7/30/2014	✓	Initiate construction	10/1/2016	✓
Complete design	7/30/2015	✓	Complete construction	9/30/2018	✓
Initiate construction	1/31/2016	✓			
Construction status report	3/1/2017	✓	COMPLETE		
Construction status report	3/1/2018	✓			
Complete construction	12/31/2018	✓	S-5AS Modifications (100822)		
Initial flooding and optimization period complete	12/31/2020		Activity	Deadline	
			Initiate design	10/1/2012	✓
			Complete design	9/30/2014	✓
			Initiate construction	10/1/2014	✓
			Complete construction	9/30/2016	✓
			S-375 Expansion (100819)		
			Activity	Deadline	
			Initiate design	9/30/2013	✓
			Complete design	7/30/2015	✓
			Initiate construction	1/31/2016	✓
			Complete construction	12/31/2018	✓
STA-1E Repairs and Modifications			LEGEND		
Activity	Deadline		Flow Equalization Basin		
PSTA Decommissioning complete	12/31/2022	✓	Stormwater Treatment Area		
Culvert repairs complete	12/31/2022	✓	Conveyance Improvement		
Cell 5 and 7 improvements complete	12/31/2022	✓	✓ Complete		
L-8 FEB (100813)			STA-2 Expansion: Compartment B		
Activity	Deadline		Activity	Deadline	
Submit state and federal permit applications	1/31/2014	✓	Initial flooding and optimization period complete	COMPLETE	5/31/2014
Construction status report	3/1/2014	✓	A-1 FEB (100706)		
Construction status report	3/1/2015	✓	Activity	Deadline	
Complete construction (begin multi-purpose ops)	12/31/2016	✓	Initiate design	4/1/2012	✓
Long term operations commence	12/31/2021	✓	Submit state and federal permit applications	12/1/2012	✓
			Design status report	3/1/2013	✓
			Complete design	8/1/2013	✓
			Initiate construction	6/30/2014	✓
			Construction status report	3/1/2015	✓
			Construction status report	3/1/2016	✓
			Complete construction	7/30/2016	✓
			Operational monitoring and testing period complete	7/29/2018	✓
			WESTERN FLOW PATH		
			STA-5/6 Internal Improvements (100868)		
			Activity	Deadline	
			Initiate design	10/31/2019	✓
			Submit state and federal permit applications	8/30/2020	✓
			Complete design	10/31/2021	✓
			Initiate construction	1/31/2022	✓
			Construction status report	3/1/2023	✓
			Construction status report	3/1/2024	✓
			Complete construction	12/31/2024	✓
			Initial flooding and optimization period complete	12/31/2025	
			STA-5/6 Expansion: Compartment C		
			Activity	Deadline	
			Initial flooding and optimization period complete	COMPLETE	5/31/2014
			C-139 FEB (100867)		
			Activity	Deadline	
			Initiate design	10/31/2018	✓
			Submit state and federal permit applications	8/30/2019	✓
			Complete design	10/31/2020	
			Initiate construction	December 2020 Governing Board	1/31/2021
			Construction status report	3/1/2021	
			Construction status report	3/1/2022	
			Construction status report	3/1/2023	
			Complete construction	12/31/2023	
			Operational monitoring and testing period complete	12/31/2024	

Total Projects = 13
 Projects Complete = 6

 Total Activities = 74
 Activities Complete = 54

 % Complete = 73%