

Miami-Dade Stormwater Treatment Distribution Area, Florida

civil engineering



The Stormwater Treatment Distribution Area (STDA) is a Demonstration Project (Project) that was constructed as part of the Comprehensive Everglades Restoration Plan (CERP). The Project was planned by the Miami-Dade Department of Environmental Resource Management (DERM). Coastal Systems provided surveying, civil/structural engineering, and construction administration services for the Project. STDA is an 88-acre site in Miami-Dade County within a degraded wetlands area east of Homestead Air Reserve Base. The purpose of the Project is to provide improvements in water quality and timing of freshwater discharges to Biscayne Bay. The Project will provide important information on the functioning of filtering wetlands systems required for future restoration on a more regional scale.

The monitoring results of the Project will develop water quality, flood protection, and biological criteria to determine wetland area requirements to treat and detain canal discharge. The 88-acre wetland basin was created with approximately 8,600 feet of levees by utilizing the south levee along Military Canal, along with two new levees designed along the east and west boundaries. The north boundary of the basin was created by raising the existing levee along SW 296th Street. The interior of the created wetlands basin was enhanced to promote sheet flow through the wetlands through small distribution canals. The existing drainage ditches were eliminated, and exotic vegetation removed.

Coastal Systems coordinated the aerial photogrammetric mapping of the area, and performed control and topographic surveying along the levees and in Military Canal. Coastal Systems also coordinated a full geotechnical investigation for the design of the new east-west levees along with the modification of existing north and south levees. Coastal Systems designed the pump station and supporting steel sheet piling with concrete structures that included an underwater concrete slab for the pump intake structures. The pump station was designed to pump water from Military Canal during the design discharge event with two 18,000 GPM line shaft axial flow pumps. A comprehensive system of telemetry that included water level and flow sensors at multiple locations was designed to provide remote access to all systems including the pump station controls. A master control system was specified for the pump station that is connected via wireless modem to all the site sensors. The master control system can be accessed by DERM operational personnel through a secure internet connection and interface. Coastal Systems prepared construction plans and technical specifications for the Project and assisted DERM with construction administration services. Coastal Systems also assisted with the environmental permitting for the Project through the South Florida Water Management District and the U.S. Army Corps of Engineers.



Pump Station and Levee



Levee and Site Construction Progress

Client:	Miami-Dade County DERM
Location:	Miami-Dade County, Florida
Date of Completion:	2007
Construction Cost:	\$2.8M

