

Flood Protection



Lake Apopka Levee Repair | Orange County, FL | March 2011

Project Partners:

Contractor: Turnbull, Westwind

Engineer: SJRWMD

Owner: SJRWMD

Max Depth:

15 ft 4.57 m

Length:

500 ft 152.4 m

Products:

ShoreGuard® SG-325



Background

Before 1940, Lake Apopka was a 30,000-acre lake in Orange County, Florida. In the 1940's, the land was converted to farmland by using a makeshift levee built out of whatever material farmers had available. In 1996, St. Johns River Water Management District (SJRWMD) bought the land with intentions to restore it as a wetlands area. Field studies reported that the levee surrounding the future wetland had given into many piping channels and seepage areas due to mature root systems and rodent piping.

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Why CMI

Several repair designs were considered. ShoreGuard® vinyl sheet piling was chosen as the solution due to its cost effectiveness. The first phase of the project consisted of repairing 500 ft of the most compromised section of the levee. SJRWMD was eager to determine what the actual cost of installation would be and to test the effectiveness of the designed solution.



Performance

The project was an overwhelming success due to the effectiveness in cutting off the seepage that prompted the project. Also, it created a barrier for other small seepage channels which were found during the repair. SJRWMD plans to expand the ShoreGuard® cut-off wall along the full length of the levee and is working on allocating the funds for the future phases of this project.



Installation

The soils at the site were diverse. As the levee was constructed decades ago by local farmers, it contained a wide variety of materials including roots, rocks, hard clays, muck, peat and as rumor has it, a whole school bus. This project made use of a trencher. This piece of equipment is often used in sock drain dewatering systems. The trencher had the capability to cut up to a foot wide by 20 ft depth ditch and was powerful enough to cut through anything suspected to be in the levee. Once a 13 ft deep, one foot wide trench was made the length of the installation area, 15 ft long, 24 inch wide sheets of SG-325 were placed and leveled. An excavator with a large bucket was used to finish driving the sheets two additional feet to the desired depth. The cut-off wall was backfilled using material from the trench. Installation using a three-man crew and a trench operator took less than three workdays.