

Inner-City Development Goes Ultra Green

To create a sustainable, environmentally friendly community, the Tampa Bay Housing Authority opted to install a storm water management/rainwater harvesting system and a solar panel array at its new ultra-green inner city development, Encore Tampa in Tampa, Fla. The challenge to the project's storm water designer, Cardno TBE of Clearwater, Fla., was to come up with a storm water management solution that would provide usable green space while maximizing developable land. To that end, the storm water management system was located under the new community park to control and harvest storm water runoff and irrigate the new green space above. The \$450-million Encore Tampa venture is a 28-acre sustainable, mixed-use development designed to create an environmentally sensitive ecosystem, ultimately meeting residents' needs while preserving resources for future generations.

In order to maximize storage under the green space footprint, Cardno worked with Oldcastle Precast to incorporate the Storm Capture modular retention system using 10-ft-tall precast concrete elements. The system is designed in a treatment-train fashion, with water being pretreated prior to entering storage through two nutrient-separating baffle boxes from Suntree Technologies of Cocoa, Fla., and two settlement chambers that were integrated into the system. During peak storm events, the system can hold water for the full 10-ft height, and is designed to retain the bottom 3 ft, with overflow discharging into an adjacent open-air sand filter. Retained water flows to a small pump chamber adjacent to the Storm Capture system, where a harvesting equipment assembly by John Deere Green Tech provides irrigation to the park's landscaped areas. Six of the storage modules were designed in a ramp configuration to provide equipment access into the sand filter for maintenance.

The 18,000-sq-ft storm water management system includes a Storm Capture vault composed of 146 10-ft tall Storm Capture modules that can temporarily hold up to 100,000 cu ft of water and retain 33,000 cu ft for harvesting and irrigation use; two nutrient-separating baffle boxes with adjacent sediment chambers for pretreatment; a pump chamber, harvesting and irrigation equipment assembly; and a 3900-sq-ft open-air sand filter constructed with a cast-in-place slab and precast perimeter walls. A solar array was installed on top of the sand filter to provide power back to the local power grid. Additionally, Oldcastle Architectural Products Group supplied 120,000 sq ft of Belgard Hardscapes pavers and block for intricate hardscape paver



walkways. Permeable pavers were used for the center median of the main thoroughfare to reduce the heat island effect and aid in storm water management.

"[This is] one of the coolest features that we have done from a sustainability perspective," said Marc Maritano, assistant director of site development for Cardno TBE, in a YouTube video featured on the Encore site. "I just don't think anything can top the storm water vault. This is one of the most unique storm water management systems in the state because of its size. It's 18,000 sq ft of vault [that] accommodates 33,000 cu ft of storm water. If they had used a conventional storm water system, they would have lost three developable sites. It is by far one of the slickest storm water harvesting features in the state. There is no question about it. It's just not done at this scale." **SWS**

Oldcastle Precast
888.965.3227 • www.oldcastleprecast.com
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