

21 Case Study



Ultra-Green Inner-City Development - “Encore Tampa” Tampa, Florida

Storm Water Management - Rainwater Harvesting System

Project Overview

To assist in creating a sustainable, environmentally friendly community, Tampa Bay Housing Authority opted to install a unique storm water management - rainwater harvesting system and a solar panel array at their new Ultra-Green Inner-City Development known as “Encore Tampa” in Tampa, Florida. The elite storm water management system, located under the new community park, controls and harvests storm water runoff to irrigate the new green space park. The new \$ 450 million “Encore Tampa” venture is a 28-acre sustainable, mixed-use development that is designed to create an environmentally sensitive ecosystem, ultimately meeting the resident needs while preserving resources for future generations.



Construction Challenge

Oldcastle Precast designed and provided the modular underground retention structure for the new storm water management system, engineered by Clearwater, Florida based Cardno TBE, to store, treat, and harvest storm water runoff on the 28 acre ENCORE site. The precast concrete Storm Capture® retention system manages and controls the volume and discharge timing of storm water runoff. The engineered design maximizes storage volume while minimizing the project’s footprint and cost. Furthermore, the innovative design allowed for a quick and efficient installation.

Precast Solution

The 18,000 square foot, storm water retention-harvesting system includes a Storm Capture vault composed of (146) 10’ tall Storm Capture modules that can hold up to 33,000 cubic feet of water before recycling it for irrigation use, (2) Nutrient Separating Baffle Boxes (by Suntree Technologies) with adjacent sediment chambers for pretreatment, and a harvesting & irrigation equipment assembly (by John Deere – Green Tech). All surface storm water is collected from the site, piped into the Nutrient Separating Baffle boxes and sediment chambers, and stored in the Storm Capture modules for irrigating the site landscape.

Design & Construction Team

GENERAL CONTRACTOR:

Malphus and Sons, Inc.

OWNER:

Tampa Bay Housing Authority

Engineer of Record - Cardno TBE

Project Manager - ZMG Construction

PRECASTER:

Oldcastle Precast®

MANUFACTURING FACILITY:

Oldcastle Precast
Orlando, Florida

SCOPE OF WORK

Precast Structure

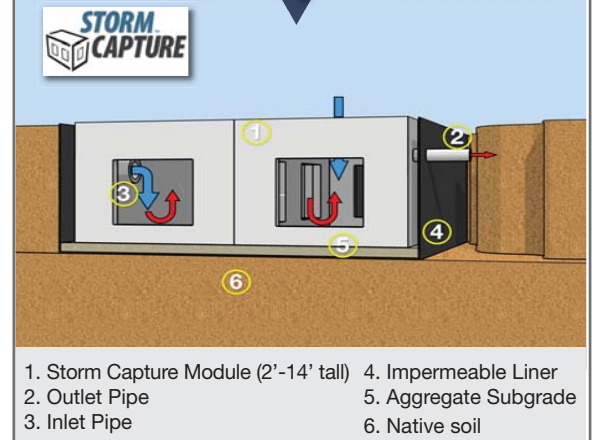
- A. Structural Engineering
Detailed engineering:
Drawings: Detailed drawings
- B. Precast Concrete Products
Manufacture & Installation of a new storm water management system included:
 - * (146) 10' Tall Storm Capture modules
 - * perimeter walls for the sand filter assembly
 - * precast ramp assembly into the sand filter.
 - * (2) Suntree NSBB vaults
 - * (2) sedimentation vaults

Oldcastle Precast also supplied precast perimeter walls for the sand filter assembly, precast ramp assembly for equipment access into the sand filter, sanitary manholes and inlets. Their sister company Oldcastle APG supplied 120,000 square feet of Belgard Hardscapes pavers and block for intricate hardscape paver walkways and permeable pavers for the center median of the main thoroughfare to reduce the heat island effect and aid in storm water management .

Key Points

- Storm Capture Modules Used for Storm water Retention and Harvesting
- Treatment Train System with Pretreatment, Storage, Polishing
- Maintenance Modules Allow Service for Long Term System Performance
- Impermeable Membrane Used to Provide Watertight System
- 15,000 SF Park Created on Top of Storm Capture Retention System

Retention-Harvesting Process Schematic



“One of the coolest features that we have done from a sustainability perspective. 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. Its 18,000 square feet of vault which accommodates 33,000 cubic feet of storm water”, said Marc Marlano, Assistant Director of Site Development – Cardno TBE, in a YouTube video featured on the ENCORE site. “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”.