

# 03 Case Study



## Disston Avenue, Drainage Improvement Orlando, Florida

**STORM CAPTURE®**  
Stormwater Management System

### Project Overview

The City of Clermont and Lake County Water Authority collaborated on a \$599,110 project to capture and treat stormwater from the Disston Avenue drainage basin before it enters Lake Minnehaha. The project reduces pollutant loadings and maintains and improves water quality in Lake Minnehaha and the Clermont chain, while also providing an element of flood control.

The project is a treatment train system that includes precast concrete baffle boxes for pretreatment and then Storm Capture underground concrete storage and maintenance modules. The baffle boxes remove sediments, as well as floatables such as trash, leaves, and grass, to prevent them from entering the storage system and plugging the exfiltration surface. The Storm Capture modules capture and hold the stormwater, before allowing it to percolate through the sandy soil under the open bottom modules to remove unwanted nutrients before providing groundwater recharge.

### Precast Solution

Oldcastle Precast's scope of work involved 3 separate drainage systems on the project. Each system consisted of an upstream baffle box for initial treatment of the roadway surface stormwater runoff before entering a series of 22, 16, and 24 Storm Capture modules that provide detention and then exfiltration into the ground, in addition to access for maintenance. For the Disston Avenue project, the Storm Capture modules are 5' tall open bottom modules with internal conveyance passageways to allow stormwater to flow amongst all modules.

### Installation

The 3 systems are installed underground, down the middle of Disston Avenue, a heavily traveled residential street in Orlando. Installation of the entire system took 60 days. Trench boxes were used to support the sides of the excavation while the precast concrete baffle boxes and Storm Capture modules were installed using an excavator. Each of the 3 systems had to be installed individually with the roadway re-opened to local traffic between construction of each system.



### Design & Construction Team

OWNER: City of Clermont , Florida

Engineer: BESH Engineering  
Consultants

GC: Allstate Paving Inc.  
Orlando, Florida

PRECASTER:



MANUFACTURING FACILITY:

Oldcastle Precast - Orlando, Florida

Start Date : Mid-January 2012  
Completion Date April 2012

## SCOPE OF WORK

Oldcastle Precast provided structural design and submittal drawings for the precast treatment train system. Precast and other products provided included:

- \* 6 each modified curb inlets
- \* 1 each 5' diameter doghouse storm manhole
- \* 3 each 4' x 13'-8" x 7' baffle boxes
- \* 62 each Storm Capture modules
- \* 3 areas of Maintenance S/C modules, each area contains 2 maintenance modules.
- \* Cast iron frames and covers for all structures



## COMPLETED SYSTEM:

Oldcastle Precast provided all structures for the Disston Avenue Drainage Improvement project. Stormwater runoff flows into the storm drainage system through precast curb inlets before being piped through storm manholes, and eventually to the treatment train system consisting of the inline baffle boxes and Storm Capture modules. During storm events, the stormwater will exfiltrate from the modules into the ground to replenish local aquifers.

The baffle boxes are a non-proprietary design by BESH Engineers and allow for solids in the water to be removed through sedimentation and screening in the baffle boxes. Sediment and floatables can then be removed from the baffle boxes through any of the 3 access openings per box using a standard vac truck. By keeping sediments and debris out of the Storm Capture modules, system maintenance is confined primarily to the baffle boxes for significant simplification and efficiency. This prevents the exfiltration surface under the modules from plugging up and provides for maximum groundwater recharge as is intended with the Storm Capture modules. Access manways are also provided into the **Maintenance Storm Capture Modules** in the event future maintenance is required.

The Oldcastle Storm Capture System and pretreatment chambers provide a valuable dual function for Disston Avenue - a groundwater recharge and flood control system, with a long term design focused on accessibility for inspection and maintenance. System owners will be required to certify proper operation, as well as annual inspection and maintenance of the system in order to retain required permits.

