# CASE STUD

## First 33 Commerce Center

Easton, Pennsylvania

Storage Required:	523,904 cu. ft.
Storage Provided:	530,234 cu. ft.
Area:	231,742 sq. ft.
Model:	Recharger <sup>®</sup> V8HD
Number of Units:	4,973
Installed:	Fall 2015
Engineer:	Liberty Engineering Allentown, Pennsylvania
Contractor:	Muschlitz Excavating, Inc. Bath, Pennsylvania

Recently, a 58-acre lot in Northampton County, PA, labeled by the town of Easton as 'First 33 Commerce Center', was developed into a subdivision containing three large land parcels. While two parcels of land were sold off, the third and largest parcel was transformed into a commerce park, housing two warehouses at just under 600,000 square feet total. Upon completion of the commerce park, the two warehouse buildings will face each other, and loading docks will run the length of the warehouses between the two buildings, with heavy semi-truck trailer traffic expected 24 hours a day, 7 days a week — the projected hours of warehouse operation. Such a large project required a robust stormwater management system, capable of holding up under difficult conditions. Knowing this stormwater system would be a major part of the project's groundwork, the project team prepared themselves for a lengthy installation process and high labor and equipment costs.





Seeking a way to increase project efficiency, contractors from Muschlitz Excavating considered multiple stormwater management options. Concrete systems, pipe systems and modular water systems were among systems considered — and finally, stormwater management chambers. Previous experience with CULTEC Stormwater Chambers encouraged the team at Muschlitz to recommend CULTEC's Recharger® V8HD stormwater chamber to the project's engineers. Due to the size of the system, the design team had considered nearly every stormwater management system — ultimately choosing a chamber system based on quality of product and return on investment. CULTEC's stormwater chambers have a proven record when installed for high volume traffic applications, as Muschlitz had directly seen, at a fraction of the cost of a concrete system. What the team did not realize,



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#### Easton, Pennsylvania

however, was that using CULTEC stormwater chambers would also decrease the project timeline by nearly half. Being able to save time on such a large project enabled the company to see a substantial decrease in labor costs, equipment rental/purchase costs, and additional associated costs as a result of continual construction. This reduction saved the company tens of thousands — potentially even hundreds of thousands — of dollars; and freed the company and crew to open their schedule to other potential customers.

Now that the project team had decided on the use of the CULTEC stormwater system, the next step was to specify the correct design. After an analysis of the greenspace at the site, it was determined that an infiltration basin was the best approach to stormwater control. With an infiltration basin, the stormwater gathered from a developed site is redirected into chambers and treated, and then 'forced' to infiltrate into the soil, recharging the groundwater. Typically, before a site is developed, the water infiltrates naturally into the soil since the area is 'pervious' — made up mostly of vegetation such as grass, brush, trees, plants, or other flora. However, after a site is developed and the area has become 'impervious' due to concrete, gravel, or another barrier, the water no longer infiltrates naturally. Because of this, the project team needs to develop a solution to force that infiltration. To force infiltration of the stormwater over such a large area, the project designers specified the CULTEC Recharger<sup>®</sup> V8HD Stormwater Chamber. This model could easily provide the required 523,904 cubic feet of storage by using just under 5,000 pieces. The V8HD model measures 32" high, 60" wide, has an installed length of 7.5 feet long and a bare chamber capacity of 8.7 cubic feet per linear foot. The system provides an overall storage of 530,234





cubic feet of combined 'active' and 'ponding' storage. As a flood prevention measure, the CULTEC system has an infiltrative storage of 158,000 cubic feet set below the outlet pipeline invert. Infiltrative storage detains the required volume of water for infiltration, controlling the amount of water released to downstream ponds. Instead of releasing downstream, this water is held within CULTEC chambers until is infiltrated into

#### **First 33 Commerce Center**

Easton, Pennsylvania

the soil. The system provided pond storage of 372,234 cubic feet above the outlet pipe invert. In order to reach the system requirements, a customized layout was provided. The CULTEC technical staff designed the CULTEC chamber rows with 12 inches of stone separation and a 3-foot stone border surrounding the entire system. In addition to its storage and infiltration, the V8HD model is able to withstand heavy and constant wheel loads — which was a major requirement, due to the operation hours and anticipated traffic of the proposed warehouse facility.

Lack of storage space on the construction site provided additional challenges. For this reason, contractors expected that the product would need continuous shipments to the site, resulting in significant increased shipping and labor costs. However, CULTEC's stormwater chambers are easily stacked and stored neatly on pallets, allowing the contractors to bring all the necessary chambers on-site in advance of the installation — saving time and money and stockpiling area. Additionally, Muschlitz's General Superintendent, Steven Goffredo, had modified an excavator to help move the chambers into position when he first saw the size of the CULTEC product — assuming it would be quite heavy. "We planned on investing substantial time and money into moving the chambers into position," said Goffredo. "However, due to the lightweight nature of the CULTEC product, my team was able to install them by hand; two men could easily take one of the chambers off the stack and put it into position."

Thanks to CULTEC's stormwater chambers and their ease of installation, The First 33 Commerce Center project completed months ahead of schedule in the fourth quarter of 2015. This underground stormwater management system is believed to be one of the largest underground stormwater systems in Eastern Pennsylvania.











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