Optimizing Space & Storage

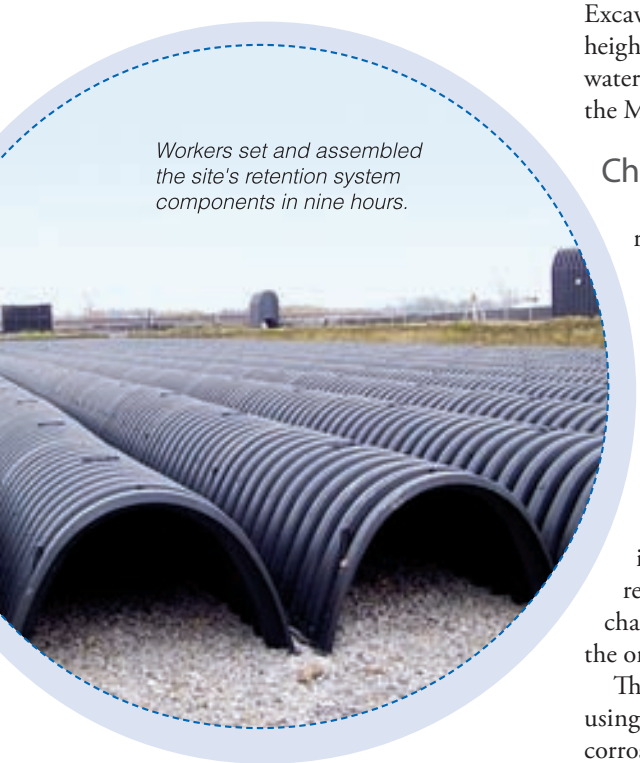
Plastic chamber system fits an Indiana medical facility's site constraints and storm water needs

By Eric Gustafson

Located off U.S. 31 at Veterans Parkway in Clarksville, Ind., the $42.8-million Kentuckiana Medical Center LLC site development project will include a 75,000-sq-ft physician-owned hospital building and a 40,000-sq-ft medical office building.

Parking for the new facility will be provided by the Medical Plaza Way lot. Because paved surfaces increase storm water runoff, developers were required to implement a storm water management solution that would meet the regulations and guidelines set by the U.S. Environmental Protection Agency and the Indiana Department of Environmental Management.

The town of Clarksville—like many Indiana communities—has implemented a storm water quality program, taking extra care to control the amount of contamination entering local waterways by storm water runoff.



Workers set and assembled the site's retention system components in nine hours.

Site Specifics

When developing the parking lot, the site engineer, Jacobi, Toombs and Lanz Inc., and the contractor, Excel Excavating Inc., looked for an effective storm water retention solution that would meet the requirements and fit the site's constraints.

A traditional above-ground retention pond was not economical due to the tight site. Installation of a pond would have limited the amount of parking, decreased the buildable area and increased site owner maintenance costs in the long run.

Large-diameter corrugated metal pipe and corrugated high-density polyethylene plastic pipe were also considered as possible solutions, but the site had a very shallow profile, leaving limited vertical space with which to work.

The team finally decided that a plastic chamber system would work best. "Chambers were selected for the project because they were the lowest-cost solution available in the market," said Patrick Howser of Excel Excavating. Chambers also offer a short height profile, which optimizes storm water storage on shallow sites such as the Medical Plaza Way lot.

Chambers Solution

Ultimately, the ChamberMaxx retention system manufactured by CONTECH Construction Products Inc. and distributed by CPI Supply was selected. Compared to the original chamber system that was specified, the ChamberMaxx system was more efficient because it offers 49 cu ft of storage per chamber. For this site, it was able to provide the required retention volume using 690 chambers versus the 707 chambers of the originally specified chamber.

The chambers are injection molded using structurally efficient and corrosion-resistant polypropylene resin. Their light weight allowed for placement without the use of heavy equipment.

"One reason why [the retention system] is cost-effective is because the chambers can be set by hand with lower labor costs, eliminating the need and expense of a crane," Howser said.

The system features integral end walls that are attached prior to installation. This provides superior structural integrity and fewer parts to handle during installation. Project engineers reshaped the chamber layout in order to hold more than 62,000 cu ft, enabling a quicker installation and overall cost savings.

Installation & Follow Up

"It only took nine hours to set and assemble all of the [retention system] components," Howser said. "The entire installation was completed in one and a half weeks, which included hauling all of the excavated material off site."

There are also five CONTECH aluminized steel 60-in. perforated detention systems installed across from the medical center. They were installed a year earlier at the Jeffersonville Town Center, where depth was not an issue.

Medical Plaza Way and the Kentuckiana Medical Center are due to open later this year. SWS

Eric Gustafson is detention product manager for CONTECH Construction Products Inc. Gustafson can be reached by e-mail at gustafsone@contech-cpi.com.

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