# CASE STUDY

## South Kent School
### South Kent, Connecticut

| | |
|---|---|
| Leaching Requirements: | 25,538.15 sq. ft. |
| Area: | 59,400 sq. ft. |
| Models: | Contactor® 100 |
| Number of Units: | 1,164 |
| Installed: | October 2012 |
| Project Engineer: | DYMAR, Corp.<br>Southbury, CT |
| Contractor: | HLC Excavation, LLC<br>Woodbury, CT |


South Kent School is a college preparatory school for boys in grades nine through 12, nestled in the hills of picturesque northwestern Connecticut. The facility houses dormitories, classrooms, a gymnasium, a hockey rink, several athletic fields and a library.

In recent years, the school has seen an expansion of its student and faculty population, creating a need for the facility to expand as well. In an analysis of the existing subsurface sewage disposal system (SSDS), it was determined that the population currently generates an estimated 15,000 gallons of sewage per day (GPD) and the existing system would not be able to handle the projected future flow of 18,300 GPD.

Engineers from DYMAR, Corp. of Southbury, CT, believed that a new SSDS would need to be constructed to handle the school's sewage flow needs. They chose to use over 1,100 CULTEC Contactor 100 plastic subsurface leaching chambers arranged in a side-by-side configuration in 56 rows. Each chamber measures 8" x 36" x 12.5"and has an effective leaching area of 5.90 SF/ft. The chambers have repeating support panels to add strength, feature a patented overlapping rib connection and have a greater contact

# South Kent School
## South Kent, Connecticut

with the primary leaching area, which promotes maximum infiltration.

Located beneath the school's existing lower athletic field, which is being reconstructed into a regulation-size soccer field, the system covers 4,329 linear feet of trenching, 8,658 linear feet of CULTEC Contactor 100 chambers, occupying a surface of area of 59,400 sq. ft. The subsurface chambers are being used for storage and dispersion of sewage effluent as it seeps into the native soils after conventional treatment to recharge the groundwater. In addition, there are approximately 240 linear feet of chambers being used as infiltration rechargers for the surface drainage of the soccer field and to provide nitrogen dilution. All of the chambers were placed on native material, and processed stone was placed above and on the sides of the chambers and topped off with common fill and topsoil.

A traditional septic system consists of a solid pipe from the building structure, the septic tank, a drain field and soil treatment. The school's system is comprised of gravity collection piping from numerous buildings and pretreatment septic tanks. Sewage water flows from the tanks to a centralized effluent pump station and meter pit that doses the CULTEC chambers using an electromagnetic flow meter to regulate valves and the flow controller. These flows are based on preset daily volumes to individual dispersal cells based on real time that is adjusted for temperature change for greater accountability of the flow. The metered flows are transmitted from a data logger to desktop computer and meter software that is customized for the school to obtain greater flow control, operational efficiencies and reporting to the Connecticut Department of Energy and Environmental Protection (CTDEEP), which regulates systems of this nature. The CULTEC disposal system operates passively, supported by the latest instrumentation technology to provide the school with flexibility, ease of operation and long-term performance. The modeling of the groundwater response to the new CULTEC disposal bed was based on a three-dimensional MOD-Flow model, DYMAR furnished the CTDEEP, with technical assistance from Leggette, Brashears & Graham, Inc., of Shelton, the

# South Kent School
## South Kent, Connecticut

oldest hydro-geological consultant in the country.

South Kent School occupies approximately 350 acres of land, and the area where the CULTEC system is being installed is the size of a baseball and football field combined. Because the site is so large, engineers chose to install the technically advanced metering system that includes a splitter box with multiple outlets to disperse the flow to set CULTEC trenches, segmenting the trenches into dispersal cells. This method provides better control of the effluent flow and long-term effect on the groundwater mound beneath the system. In this case, two three-inch lines from the pump station deliver water to the splitter box, alternating each line to distribute a set amount of flow. The flow then uses pressure to distribute the water through seven different lines to receiving distribution boxes. It is beneficial to use such a system on a large site because it allows extra control and manipulation over water flow, and individual sections can be manually shut off if necessary. This option is especially useful since the entire system will not be in use at the same time while South Kent School prepares for construction of future housing on the premises.

CULTEC's Contactor 100 leaching chambers can replace conventional pipe and stone or concrete leach fields and may be installed in trench or bed configurations according to acceptance by local regulations. The contact area is maximized by the fully open bottoms, perforated sidewalls and the use of CULTEC No. 410. Filter Fabric. In this case, the CULTEC chambers selected were based on CTDEEP regulations, which restrict the height of the chamber to a maximum of 12". The side-by-side Contactor 100 configuration has an equivalent rating to a 12" high concrete gallery trench system.

"The CULTEC chambers we used for this project were not only lightweight and simple to install, but they are durable and very reliable," said Mark Green, owner of Green Construction Management, LLC, a full-service environmental construction company specializing in septic system designs and installations. "A different product was originally specified for this project, but in working closely

# South Kent School
## South Kent, Connecticut

with DYMAR in value engineering options, we agreed CULTEC chambers were the best solution to satisfy the project and the school requirements. In addition, CULTEC provided us with field inspections, and a representative from the company was present to oversee the installation."

"We have specified CULTEC's chambers in a number of other septic system and stormwater management projects and have always been very pleased with the results," said Mark E. Lancor, P.E., Principal Engineer at DYMAR Corp. "CULTEC's products have a great reputation and we will continue to use them in the future."

CULTEC™

CULTEC, Inc.
878 Federal Road • P.O. Box 280 • Brookfield, CT 06804
Phone: 203-775-4416 • Toll Free: 800-4-CULTEC • Fax: 203-775-1462 • Web: www.cultec.com