



SOLENO

Mastering Storm Water

1ST
DEVELOPER
OF SUSTAINABLE SOLUTIONS
FOR MASTERING STORM WATER



EXPANSION OF BISHOP P. F. REDING CATHOLIC SECONDARY SCHOOL IN MILTON, ONTARIO

Construction of two underground storm water chamber systems under the parking lot of a catholic secondary school.

As part of the expansion of Bishop P. F. Reding Catholic Secondary School in the Town of Milton, Ontario, the contractor Drain Land Inc. was to build two underground storm water retention systems under the school's new parking lots. The benefits of this economical, simple and quick installation system convinced the Flora Designs Inc. design team and the contractor Drain Land Inc. to build the underground retention systems using HydroStor chambers.

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THE CONTEXT

Designed by the architectural firm Snyder Architects Inc., this expansion includes the addition of 29 classrooms, a fourth gymnasium, a new cafeteria and a daycare service. Mandated by the Halton Catholic District School Board as consulting engineers for the project, Flora Designs Inc. was to provide a durable, economical and suitable solution for the designated site, in addition to being resistant to load classes CL-625 (in accordance with CAN/CSA- S6) and HS-20 (in accordance with AASHTO). Following a meeting with Soleno representatives, the HydroStor chambers were approved on plans and specifications.

THE SOLUTION

In June 2019, the contractor Drain Land Inc. under the supervision of Mr. Alex Verkhovsky, Project Manager, built two retention systems using HydroStor underground storm water chambers. Installed on a stabilization geogrid, the two basins will store 112.9 m³ (3987 ft³) and 32.1 m³ (1133 ft³) of water respectively during heavy rainfall events. Occupying an area of 175.7 m² (1891 ft²), the first four-row basin has 48 HS75 chambers, all surrounded by clean stone. The second basin, with a surface area of 52.2 m² (562 ft²), has 12 HS75 chambers arranged over 3 rows, also surrounded by clean stone. A TX-90 non-woven separation geotextile has been installed on all excavated areas and also covers the clean stone.

THE BENEFITS

The underground storm water chamber systems receive storm water runoff from the parking lots, sidewalks and other hard surfaces via the storm sewer network where it is held allowing some of the storm water to infiltrate into the surrounding soils. Thanks to their modular design, the underground retention systems help to maximize the full development potential of a site and offer the best cost per cubic meter ratio of stored storm water. Manufactured in polypropylene (PP), the HydroStor retention chambers are easy to install, due to their lightness, and provide considerable savings in terms of time, manpower and heavy equipment requirement. Indeed, the installation of the first HydroStor retention basin was completed in a mere two days with a team of three labourers and a machinery operator. Their use can absorb heavy rains and avoid flash floods. HydroStor HS75 retention chambers, designed for large volume projects or when the available space is restricted, can store 1.31 m³ (74.9 ft³) of stormwater per chamber, which makes them more economical by greatly reducing the occupied area. The stabilization geogrid, installed under all chambers, distributes linear loads on a greater surface area, which reduces the risk of base stone displacement during high water flow events. Its use ensures a solid and stable foundation of the base of the system.



The realization of this project was made possible thanks to: the contractor [Drain Land Inc.](#)

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