Weholite stormwater system helps preserve one of earth's natural resources

With climate change and the environment factoring as priorities on a worldwide basis, Weholite is a prime example of a down-to-earth solution.

The York Region School for Athletics together with the Toronto Regional Conservation Authority (TRCA) needed to move forward with a solution for water control and irrigation, while at the same time demonstrating a firm commitment to the local environment.

The project is situated close to a major watershed area servicing the greater Toronto area. Like many rivers and streams in the region, signs of extreme environmental stress are evident, and the TRCA raised concerns about the impact of potential contaminants being washed off this site and into the nearby river. By harvesting and reusing the rainwater, in this case for irrigation, the owner wanted the project to be recognized as a LEED (Leadership in Energy and Environmental Design) project, demonstrating energy efficiency and environmental protection.

The naturally high ground water table on this site posed a design and construction challenge for the massive rainwater storage tank.

The original design for this project involved an array of 36" (914 mm) diameter double-wall pipe to be installed under the sports field itself to store rainwater. The rainwater was to be collected by a network of small-diameter perforated pipes just under the finished grade, and the ground water was to be lowered by a network of small-diameter perforated pipes below the storage pipes. Distributor Terrafix® Geosynthetics Inc., in conjunction with KWH Pipe, provided the owners, engineers, architects and the contractor with a detailed proposal to replace the three layers of pipes with a single large tank of equivalent volume storage capacity.

The redesign took into account the buoyancy uplift resulting from the high ground water table and the redesign of the associated piping system and pumps required.

A "green" solution and a wise use of natural rainfall

Lightweight, leak-free Weholite was ideal for this project. Approximately 600 feet (183 m) of 120" (3,000 mm) RSC250 was customized for the project. The piping was fabricated, shipped and installed with minimal environmental impact on the site.

The tank sections were installed in granular bedding and assembled using a leak-free joining method. The lightweight properties of Weholite enabled the contractor to handle and place each tank section quickly and easily, using lifting equipment commonly found at most construction sites. Each of the 120" (3,000 mm) DN/ID Weholite sections weighed approximately 13,000 lbs (5,900 kg) and were assembled to form a single stormwater holding tank capable of storing in excess of 350,000 US gallons (1,325 m^3) of rainwater. The result was a cost-efficient solution for the project and a non-invasive application for the environment.

It is easy to foresee future prospects for this type of project. Underground storage tanks mean more land available for construction, which is especially valued in urbanized areas where land is scarce and expensive. With the high level of importance placed on LEED certification for new buildings and building sites, underground storage tanks play an important role. In locations where maintaining the integrity of the environment is crucial, a post-project run-off which is less than pre-development run-off is an important achievement.

With Weholite, KWH Pipe provides environmentally friendly "green" solutions for project owners.