Erosion Control Brampton, ON

CASE STUDY

Year of Construction: 2021
Location: Brampton, ON — Countryside Villages
Product Installed: Flexamat + Terraweb

CHALLENGE

Implementing spillway features for a residential SWM pond that seamlessly integrate with and protect the surrounding Credit River Watershed.

SOLUTION

Flexamat Plus was the design choice for the spillways, offering robust protection while facilitating vegetative growth. Terraweb, filled with soil and seed, was also included in some sections of a spillway.

PROJECT OVERVIEW

Stormwater Management (SWM) ponds are crucial assets for communities, offering effective stormwater management, reducing flooding risks and improving water quality. They also contribute to the local environment by supporting ecosystems and enhancing the visual appeal of residential developments, making them valuable long-term investments.

During the design stages, the project engineer did not want to consider traditional methods such as rip rap and articulated concrete block mats as these approaches did not promote the project's aesthetic goals. To address this, Flexamat Plus, a tied concrete block mat system, was selected as an innovative solution.

Flexamat Plus consists of concrete blocks interconnected with a bi-axial geogrid, underlaid with wood fibre (curlex) erosion control blanket and turf reinforcement mat (polypropylene). The 38mm spacing between the blocks ensures flexibility and allows vegetation growth, with roots providing additional protection alongside the mat's weight of 48.8 kg/sqm. Tested to ASTM D6460, Flexamat has performance ratings of 1149 Pa of shear and 9.1m/s of flow under unvegetated conditions.

In addition to Flexamat, Terraweb was employed in specific sections of a spillway. This lightweight, flexible, polyethylene confinement system features a honeycomb-like structure of three-dimensional cells. The cells were filled on site with soil and seed. After a few weeks, the vegetated Terraweb enhanced mild slope protection by reinforcing the roots zones and facilitating water drainage through its perforated cell walls.

This combination of technologies not only ensured the integrity of the spillways but also contributed to the project's goal of creating a naturally aesthetic landscape as well as contributing to the protection of the Credit River Watershed.