

SWM Pond & Forebay Erosion Protection

Year of Construction: 2023

Location: Hamilton, ON

Product Installed: Flexamat Plus

Category: Erosion and Sediment Control

CASE STUDY

CHALLENGE

Designing erosion protection for multiple locations within a new stormwater management (SWM) pond and forebay, including pond access points, overflow weirs, and overflow channels. The solution needed to withstand hydraulic forces while supporting long-term vegetation establishment and maintain a natural appearance.

SOLUTION

Flexamat Plus, a tied concrete block mat, was selected to provide robust erosion protection while enabling vegetative growth. The system combines interconnected concrete blocks reinforced with a biaxial geogrid, and a combined underlayment of a wood fibre erosion control blanket and a synthetic turf reinforcement mat. The openblock design promotes root development, creating a reinforced vegetated surface over time while blending naturally into the surrounding landscape.

SPECIAL NOTE

A total of 11 locations throughout the SWM pond and forebay were protected using custom-fabricated Flexamat Plus rolls. Roll widths ranged from 1.22m to 4.88m, with lengths from 6.1m to 22m, allowing installation to be tailored to site conditions. Prior to installation, the prepared bedding layer was seeded to encourage vegetation establishment through the mat system.

Adjacent rolls were connected using 450mm U-shaped rebar anchors to provide continuous reinforcement across the installation. At the pond access locations, stainless steel zip ties were used in lieu of rebar connections. The project was completed efficiently using an excavator and a four person ground crew.

The 38mm openings between the concrete blocks facilitate vegetation growth while maintaining flexibility. Tested in accordance with ASTM D6460, Flexamat Plus provides shear resistance up to 1,149Pa and can withstand flow velocities of up to 9.1m/s under unvegetated conditions, delivering long-term protection for critical stormwater infrastructure.

