

VAUXHALL WWTP EFFLUENT PUMPING STATION & BERM LONDON, ONTARIO, CANADA

Reinforced Soil Walls and Slope Reinforcement

Problem

The Vauxhall wastewater treatment plant and effluent pumping station is located beside the Thames River at the City of London, Ontario. The pumping station continuously receives treated effluent downstream of the existing UV Disinfection. The Vauxhall WWTP EPS discharges into an elevated channel which provides the necessary head to push the plant's effluent into the river during high river levels. In the past, the WWTP was flooded due to major rainstorm events. After evaluation of alternatives, the consulting firm recommended the construction of a double sided protection berm with clayey soils to make it impervious.

Solution

In order to optimize the construction footprint of the berm, a Maccaferri Green Terramesh MSE wall with Paradrain soil reinforcement was proposed.

The original solution proposed flatter side slopes at 27° which created a larger footprint. The Maccaferri solution minimized the foundation footprint with steeper side slopes oriented at 60° to the horizontal.

Green Terramesh® is an environmentally friendly modular system used to form a vegetated (green) soil reinforced slope or embankment. It consists of pre-fabricated units of double twisted wire mesh (8×10 type) lined with an erosion control blanket and stiffened with a welded wire mesh panel. The ParaDrain™ Geogrid is a high tenacity multifilament polyester yarn that is placed in tension and co-extruded with a polyethylene sheath into strips. The polyethylene sheath is profiled to provide a shaped drainage channel. The profiled element has a thermally bonded nonwoven geotextile strip bonded on the shoulders of the drainage channel. The ParaDrain™ advantage is that it allows dissipation of excess pore water pressure while using cohesive soils, and also ensures soil reinforcement strength in a uniaxial direction which is necessary for design.

The completed structure was an impervious clay reinforced berm fully vegetated that will protect the facility against future flooding events. The ends of the berm transitioned from 60° slopes to a 2:1 slope which was constructed and protected with Maccaferri MacMat N10 turf reinforcement mat to prevent surficial erosion and promote vegetation.

Client: The City of London

Designer / Consultant: Dillon Consulting

Contractor: Classic Excavating

Products used (Qty.)

- Green Terramesh	1,558 m ²
- ParaDrain	7,800 m ²
- MacMat	2,766 m ²

Date of construction: 08/2020 - 02/2020



Detail of Paradrain placement during construction of Green Terramesh



Berm fully constructed



View of finished Green Terramesh



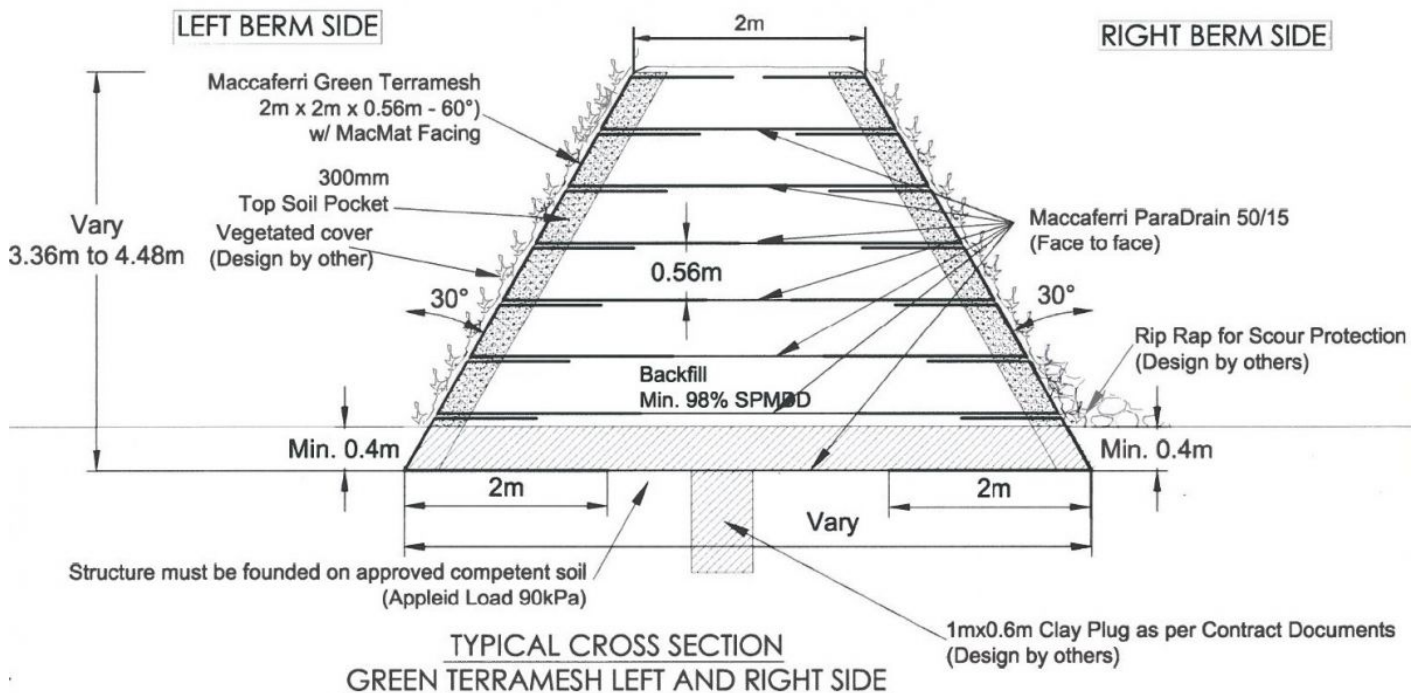
Detail of hydroseeding over Green Terramesh



Berm fully vegetated



Detail of finished Green Terramesh wrapping sheet pile wall



Berm cross section

Maccaferri Canada Ltd.
400 Collier MacMillan Dr. Unit B
Cambridge/ Ontario - N1R7H7 - Canada
Tel: 519-623-9990
E-mail: info.ca@maccaferri.com