



Steep Slope Stabilization

City of Calgary Cliff St. & 23 Ave. SW

The City of Calgary and Golder Associates elected to use Tough Cell® (formerly PRS-Neoweb) Geocell products to assist in stabilizing the subject slope that experienced repeated and progressive sloughing at the toe. The Tough Cell® installation work was supervised by the representatives of the City of Calgary (Project Owner) and Golder Associates (Consulting Engineers) during construction.

In September 2013, Paradox Access Solutions supplied Tough Cell® Geocells to Green Patch Inc. for roadside slope remediation work at Cliff Street SW near 23rd Avenue SW intersection in Calgary. The slope was graded and terraced prior to the installation of Tough Cell® and later mulched to stimulate natural growth remediation of the area.

The project eliminated an environmental risk by applying Novel Polymeric Alloy (NPA) Geocell reinforcement to dramatically improve slope stability, thereby enhancing the overall sustainability of the area and safety of the adjacent neighborhoods.

FROM THE SITE SUPERVISOR:

"The performance of Tough Cell® (formerly PRS-Neoweb) in slope stabilization and erosion control applications has been satisfactory and meets the expectations. Therefore, Paradox Access Solutions requested that Tough Cell® be awarded the status of "Approved Product" with Alberta Transportation."

- R. Karki, Site Supervisor and Inspector, October 2014

CASE STUDY



LOAD SUPPORT

PROJECT AT A GLANCE

APPLICATION:

Steep slope, municipal infrastructure

LOCATION

Alberta, Canada

DATE OF INSTALL:

September, 2013

CLIENT:

Green Patch Environmental Consulting



A Canadian owned and operated company that supplies the Energy, Mining, Erosion/Sediment Control, Construction, Reclamation and Containment industries, providing innovative construction solutions with an added environmental benefit.

CONSTRUCTION:

Paradox Access Solutions



The authorized Tough Cell® Master Distributor in North America, specializing in the supply and installation of high quality access solutions and services to customers in the pipeline, utility, municipal, general construction and oil & gas industries.

ENGINEERING DESIGN

Stratum Logics Inc.



Global geotechnical engineering design specialists exceptionally proficient in the deployment of cutting-edge geosynthetics for civil engineering across North America in all types of challenging soils and climates.



GRUMPY'S LANDSCAPING LTD.
CONSTRUCTION, RECLAMATION, ENVIRONMENTAL

Project Highlights

Road-side Steep Slope Remediation on Cliff St. SW near 23 Avenue intersection

THE CHALLENGE

A steep hill located in a residential area suffered from repeated sloughing, creating drainage concerns and safety hazards for nearby residents. The objective was to find a reliable earth-retention and erosion control solution that would mitigate the immediate problem and require minimal repair or maintenance going forward. The treated slope area was approximately 400 m², with a length of 23 m and width varying from 8 to 23 m. The existing native clay subgrade contributed to the slope failure. Chronic surface erosion by precipitation and natural runoff further weakened the area.

THE SOLUTION

A single layer of 150 mm height Type C Tough Cell® Geocells was installed over the prepared, graded and terraced slope. The geocells were infilled with 10cm of soil, and the final reinforced slope mulched and later seeded for additional protection against future erosion.

Total area: 400m², single layer

Product(s): 330-150 Type C Tough Cell® Geocells;

Infill: 100mm resident soil

Completion: With proximity to residences and natural area, the installation was performed with minimal disturbance and backfilled with a compact dozer-front track loader

Site restoration: Mulch applied post install, subsequent hydro-seeding

THE BENEFITS

The solution performed to expectations showing zero failure and robust flora regrowth one year post install. The City benefited from cost savings, rapid installation with minimal traffic impediment, and a maintenance-free solution with an expected design life of >75 years. The area boasts an aesthetically pleasing natural appearance, with no negative environmental impact.



Top of slope



Graded and terraced slope



(top) Anchoring of Tough Cell® to ground
(bottom) Installation in progress



Tough Cell® installed



Infilling of Tough Cell® geocells



Remediated slope 1 year after install