



GEOFABRICS CASE STUDY



GEOGRID REINFORCEMENT TURNS STEEP SLOPE INTO COMMUNITY SPACE

PRODUCTS USED

Miragrid® GX Geogrid

- A geogrid made from polymer coated high tenacity polyester yarns with a flexible structure to ensure effective interlocking and soil interaction
- Offers high tensile strength at low elongation and a minimal tendency to creep
- Resistant to chemical, biological and construction damage with an optimised grid structure

MIRAGRID® is a registered trademark of Solmax.

Slope Reinforcement Geogrid

- High strength geogrid for soil reinforcement
- Manufactured from discrete bundles of parallel high strength synthetic fibres in a tough and durable polymeric sheath
- Extremely durable and well suited for steep slopes and extreme pH soil conditions

PROJECT DESCRIPTION

Halls Farm is one of the latest residential subdivisions to take place in North Auckland. The client wanted to fill a large gully in the area for aesthetic and functional purposes. Geofabrics explored several possible solutions to stabilise the slope surface so that a grassed walking path could be provided for the community.

OUR SOLUTION

A high-water table and the use of an on-site fill over a relatively weak alluvium soil layer required the use of geogrid reinforcement and a 3m deep shear key to form the 2H:1V slope for the gully infill.

The initial design incorporated multiple geogrid layers at close spacing to form the 22m high slope. Geofabrics proposed an alternative solution using a higher strength geogrid at a wider spacing to satisfy the slope stability requirements with shorter length secondary geogrid to address facing stability.

The combination of different geogrids reduced overall product quantities, cost, and installation time.

Miragrid GX geogrid was used as an economical wraparound system to secure the slope and contain the topsoil which would eventually be grassed. This proved to be more cost effective than using geocells to hold topsoil on the slope. The choice of a slope reinforcement geogrid provided the contractor the flexibility to construct the slope using lime treated fills. Utilising less geogrid in the slope created shorter installation timelines for the contractor and fast tracked the project for the client.

The construction was straightforward with the forming of the shear key followed by the first layer of slope reinforcement geogrid. The secondary layer of Miragrid GX was placed and cut to a length that allowed it to extend up the face and return into the slope at the next reinforced geogrid layer, located 3m above. This was followed by compacted fill and shorter lengths of Miragrid GX at 500 millimetres spacing terminated at the face.



We approached Geofabrics with a design which was both time consuming and costly. After discussing possible alternatives, we put forward the use of a slope reinforcement geogrid and Miragrid GX to the designers which was approved. With assistance from Geofabrics during installation, installing the slope reinforcement geogrid and Miragrid across this large area created a simple, cost-effective and time saving solution.

Dempsey Wood New Zealand



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