GEOFABRICS CASE STUDY

CONCRETE CANVAS ENHANCES DRAINAGE EFFICIENCY & STABILITY AT WAIKAWA BAY

PRODUCTS USED

Concrete Canvas® CCX Geosynthetic Cementitious Composite Mat (GCCM)

- Consists of two interconnected layers of geotextile that encapsulate a specially formulated dry concrete mix, backed by an LLDPE geomembrane to prevent seepage
- Can accommodate a high level of differential ground movement due to the fibre reinforcement embedded within its structure, which prevents crack propagation and retains high levels of impermeability
- Can be installed as rapidly as conventional geosynthetics and 24 hours from hydration will cure to create a hard-wearing concrete liner
- Reduces logistical footprint by up to 10x requiring fewer trucks and reducing operational overheads
- Long-term performance with a life expectancy more than 50 years

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PROJECT DESCRIPTION

In February 2023, construction began on a new subdivision at the base of the hills in Waikawa Bay, near Picton in the Marlborough Sounds. Native bush and trees formed the canopy on the slope, which required a cut-off trapezoidal drain along the base to capture and redirect run-off water, ensuring the stability and safety of the development.

The client approached Geofabrics New Zealand for advice and guidance on a product solution to mitigate soil erosion and ensure long-term slope stability.

OUR SOLUTION

The Geofabrics team recommended using Concrete Canvas CCX-U over shotcrete due to its numerous benefits, including fast installation and versatile application. Concrete Canvas easily conforms to the surface of the drain and offers simple deployment along a sloped surface.

To simplify the installation process, the contractor, Crafar Crouch Construction, chose to create the formwork needed to shape both the drain and the sides that required trenching. This formwork was attached to the end of a digger and cut into the shape required for the drain. The total width of the drain was 1.5 metres, with a length of 230 metres, and included 150mm overlaps at the joins. Concrete Canvas CCX-U was laid along the drain to minimise any wastage and overlaps. Geofabrics provided installation training and assistance, including on-site support.

Due to the wet weather, it took three days to shape the drain with the assistance of a 5-tonne digger.

Once the site was dry enough to resume work, a 12-tonne digger equipped with a dispenser and rolls of CCX-U completed the installation, pinning, and hydration of the product in under two days with a team of three. After the drain was fully hydrated, the sides were covered with topsoil and then seeded with grass.

The contractor was satisfied with the product and indicated a willingness to use it again. The installation was completed faster with Concrete Canvas than with shotcrete, and using a digger facilitated effective installation along the slope.

GEOFABRICS®
Sustainable solutions

1.5 x 230m long drain

Adapts to the surface of the drain

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