

LANDSLIPS WITH MINERAL TERRAMESH AT EUREKA BEND TAKAKA, GOLDEN BAY, NEW ZEALAND

Reinforced Soil Walls and Slope Reinforcement

Problem

In November 2006, a major slip formed along State Highway 60 (SH60) on the western side of Takaka Hill, a mountain pass at an elevation of 791m above sea level, located at the south eastern end of Golden Bay in New Zealand's South Island. It is the only road in and out of Golden Bay, and it was imperative that it remained open for residents and tourists.

The slip was directly below a tight hairpin bend, Eureka Bend, which is a switchback corner on SH60 near the bottom of the Takaka Hill, creating a major safety hazard. A temporary Bailey Bridge, a versatile kit-form bridge system that is quick to erect and dismantle, was installed as a short-term solution until such time that the road could be reinstated with a long-term solution to address the landslide. The work to restore Eureka Bend required dewatering, establishing a strong foundation base, drainage measures, reinforcing the hillside using a steep Reinforced Soil Slope (RSS) and a new pavement.

Solution

Geofabrics New Zealand (GNZ) partner of Maccaferri worked with consulting engineer GHD to design the Mineral Terramesh® system. The Mineral Terramesh® was supplied as a modular unit with triangular brackets set at 70 degrees angle whose front face is rock filled.

The stability analysis for both static and seismic load cases was carried out using Maccaferri in house software MacStars W.

The contractor, Fulton Hogan removed the landslide site materials, and the exposed face was trimmed. Soil nails were installed at various lengths from top down, concurrent with the excavation and prior to the construction of the RSS. Maccaferri MacMat R was also used at the face between nail heads and the cut slope profile. Drainage was installed to intercept any groundwater via pipes directly into the slope as well as drainage behind the wall.

It is the largest Mineral Terramesh® structure in the Tasman and Golden Bay region and stands as a testament to those involved in the design and construction and is a valuable asset to NZTA (New Zealand Transport Agency). Every effort was made to minimise inconvenience to road users and the local community.

Client:

Designer / Consultant: GHD Ltd

Contractor: Fulton Hogan Ltd

Products used (Qty.)

- Green Terramesh	1200 units
- MacMat R - Steel	1500 mq

Date of construction: 02/2009 - 03/2010



Picture 1



Picture 2



Picture 3



Picture 4