

## EUREKA BEND SLOPE REINSTATEMENT, SH60 TAKAKA HILL, GOLDEN BAY

### GREEN TERRAMESH BRIDGE STRUCTURE

**Product:** Green Terramesh, Tensar Geogrid, Macmat-R, Enkadrain SL & Megaflo

#### Problem

Located in the Tasman region, SH60 over Takaka Hill, is famous for its steep mountainous terrain. The occurrence of a major slip near the Eureka Bend in November 2006 resulted in the closure of only access road to Golden Bay. A temporary Bailey bridge was installed to the inner lane as an interim measure to provide access to the local community. To make matters worse, the slip occurred almost immediately after a hairpin bend creating a major safety hazard for road users.

#### Solution

Maccaferri NZ was contacted to assist with the initial concept of reinstating the road. Together with the consulting engineer - GHD Ltd, Maccaferri developed a solution incorporating the Green Terramesh system. A face inclination of 65 to 70 degrees was proposed to avoid 'chasing' the formation level on the downhill slope. This still required a 12m high structure founded on the colluvium/fractured rock layer. A gentler profile was discounted as it would have resulted in an even higher structure along a huge increase in earthworks volumes, time and associated costs. The stability analysis for both static and seismic case were carried out using MacStars software.

The final solution incorporated an in-situ stabilisation method using soil nailing to maintain surface stability of the cut face and to facilitate the construction of the Green Terramesh structure, while keeping the one lane open. Soil nails were installed at various lengths from top down, concurrent with the excavation. MacMat-R was used at the face between nail heads and the cut slope profile, this type of facing option is considered as 'flexible structural facing' according to CIRIA report C637.

The entire Green Terramesh structure was completed with a construction period of less than 2 months. This covers a wall face area of approximately 1,000m<sup>2</sup>. The overall project was completed ahead of time and under the allocated budget.

The reinstatement of Eureka Bend won the Goughs Excellence Award for a Minor Road Project at the 2009 Roading Excellence Awards for Fulton Hogan, GHD and NZTA.

Client name:

NZTA

Main contractor name:

FULTON HOGAN

Engineers name:

GHD LTD

Product used:

GREEN TERRAMESH UNIT, TENSAR GEOGRID  
MACMAT-R, ENKADRAIN SL, MEGAFLO 300

Construction date:

MARCH 2009



Slip before repair



Soil nailing work in progress



Construction of Green Terramesh structure



Completed Green Terramesh structure



Completed project and road reopened

## Maccaferri NZ Ltd.

14 Goodman Place, P.O. BOX 12536, Penrose, Auckland, New Zealand  
Tel. (+64) 9 6346495 - Fax (+64) 9 6346492, FREEPHONE 0800 60 60 20  
E-mail: sales@maccaferri.co.nz - Web site: www.maccaferri.co.nz  
Quality System AS/NZS ISO 9001:2000

The information presented herein is, to the best of our knowledge and belief, correct and is subject to periodic review and revision. The validity of the information relative to the subsoil, hydraulic and other engineering conditions must be ascertained by a suitably qualified person. No warranty is either expressed or implied. Unauthorised reproduction or distribution is prohibited. Copyright is vested in Maccaferri or Maccaferri's Principal where applicable.