

## MORNING STAR SUBDIVISION QUEENSTOWN

### REINFORCED SOIL SLOPES

**Product:** Green Terramesh, Tensar Geogrid, Grasstrike R300

#### Problem

The development of a new subdivision in the hills overlooking the Shotover river valley required gullies to be filled up to a height of 10m to form housing platforms and access roads.

The subdivision is near a famous Shotover River tourist site in Queenstown which necessitated the selection of a vegetated system that could blend in with the surrounding environment.

#### Solution

Green Terramesh was chosen for this site as the best option for establishing a vegetated structure that is both cost effective and easy to construct. The system combines the use of Green Terramesh front face units for facing stability with simple modular face construction and Tensar Geogrids as the main reinforcing layers behind the facing units to provide the primary reinforcement. A 60 degree front face angle for the Green Terramesh structure was chosen for this site by the engineers as the best balance between gain in usable level ground and the ability of the slope to capture both rainfall and sunlight to sustain long-term vegetation growth.

MacStars software was used for the stability analysis of the structure. This included checks on the internal stability taking into account the long-term reinforcement contribution of both the Green Terramesh units and Tensar geogrids. Additional checks for sliding and external global stability were also carried out. A seismic PGA of 0.2g was considered for this site. Just weeks upon completion of the structure, an earthquake measuring Richter Scale of 6.7 occurred off the coast of Milford Sound, some 150km from Queenstown.

The construction of the 60 degree face required the Green Terramesh units, which are supplied standard with a 70 degree face, to be stepped. This offered a greater degree of flexibility for the contractor to achieve the overall face angle.

Client:

PATERSON PITTS & PARTNERS

Main Contractor:

FULTON HOGAN LTD

Consultant:

TONKIN & TAYLOR

Product used:

GREEN TERRAMESH, GRASSTRIKE, TENSAR

Construction Date:

JULY - OCT 2007



Before construction

Date: July 2007



During Construction

Date: October 2007



After Construction

Date: November 2007

#### 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.