



**GEOFABRICS®**

# WAIMAKARIRI BLUFFS ROCKFALL MITIGATION



## CASE STUDY



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## PRODUCTS USED

### MACCAFERRI STEELGRID HR

Maccaferri Steelgrid HR is a high strength, high stiffness steel composite netting/drapery system. It combines the versatility and practical benefits of double twist mesh with the excellent stiffness and mechanical durability of high tensile steel wire ropes.

Steelgrid HR can be used in simple drapery or pinned drapery systems. It can be applied in a variety of specialist geotechnical and engineering applications; including slope stabilisation, rockfall protection and surface protection applications.

- Unlike single twist mesh, the double twist mesh wire does not unravel if one wire is cut, making it a cost effective solution
- Flexible and versatile to match existing slope and rock profiles
- Increased durability in a wide range of environments with different levels of coating protection available
- Mesh is able to transmit load directly to the top anchors and consequently reduce stress on the mesh
- High strength at low strain and high punch resistance at low deformation (high stiffness)

## PROJECT DESCRIPTION

Waimakariri Bluff lies on the side of the SH73 State Highway which links Christchurch to the West Coast of New Zealand. These rock slopes are highly fractured and active with countless frittering rocks which would regularly fall on to the road surface. This created a significant hazard to road users as well as the highway maintenance team who were removing rock debris regularly.

NZTA wanted to address this hazard by installing a mesh netting/drapery that would control the displacement of any future rock falls. WSP were engaged to design a solution for the rock fall risk.

WSP visited the site to investigate and evaluate the topography and the size of rocks that could be of risk, this formed the basis of the design. Ensuing this, Geofabrics provided technical information about various Maccaferri mesh systems.

The tender was awarded to Abseil Access, a specialist geotechnical drilling and abseiling contractor. During the tender process, Abseil Access requested that Geofabrics modify the product and extend the vertical attachment ropes to aid an easier installation.

## OUR SOLUTION

The final design required 34 rolls (2,400m<sup>2</sup>) of Maccaferri Steelgrid HR. This is a simple netting/drapery mesh solution, anchored over the crest and covering the entire slope. Each rock is guided down the slope under the mesh and contained at the toe of the mountain.

Geofabrics NZ utilised Maccaferri MACRO software to select the mesh type and estimate anchor loadings based on the slope height, geometry and estimated debris volume.



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