

### GREAT OCEAN ROAD ROCKFALL PREVENTION

Ch71.99km, VICTORIA, AUSTRALIA

#### ROCKFALL PROTECTION - DRAPERY SYSTEMS

##### Product: STEELGRID MO300

##### Problem:

The 79 year old Great Ocean Road is a major tourist attraction along the west coast of Victoria providing one of the most scenic drives in Australia. The 242km of road stretching from Torquay to Allansford provides a focus for local and overseas tourists. The Great Ocean Road attracts 8 million people a year and generates more than \$1.5 billion in annual tourism revenue.

The cuttings in the Kennett River area comprise weathered Otway Group sandstones with a stony, gradational soil profile developed over rock. When fresh, the Otway Group rocks are dark blue-grey sandstones and mudstones, as seen on the shore platforms along the coast from Wye River to Apollo Bay. The rocks become buff-coloured, pale orange-brown or grey-brown and fragmented when they are exposed to atmospheric conditions for a few years. Rockfalls in the region of the Kennett River were a safety risk to road users.

##### Solution:

A rockfall drapery system was required on a 125m long, 16m high cutting near Kennett River. The purpose of the drapery is to act like a curtain, hanging over the face of the rock slope. Any rock debris that detaches from the face of the rock slope will be captured by the mesh, and it will fall harmlessly and in a controlled manner to the foot of the slope behind the mesh. Due to the anticipated volume of debris, Victoria Roads, specified the **Maccaferri Steelgrid MO** drapery system for the works. Steelgrid MO consists of woven double twisted hexagonal mesh with integral steel cables woven into the mesh during the manufacturing process.

The standard mesh is heavily galvanised with a 'Galmac', zinc/aluminium alloy (Class A, 245g/m<sup>2</sup>) coating. On this project, the client also specified an additional PVC coating to the mesh.

A drapery system with high strength and low strain (deformation) was required due to the limited space between the toe of the slope and the road. Should a rockfall occur and a debris form, the pocket should not impede road users. Testing carried out by Maccaferri at the test facility at Pont Boset, Italy, revealed that under full scale driving loads, the Steelgrid MO has less deformation/elongation at load than high strength single twist mesh.

##### Client:

VICTORIA ROADS - GEOTECHNICAL SERVICES

##### Main contractor:

VICTORIA ROADS - GEOTECHNICAL SERVICES

##### Designer:

GEOTECHNICAL ENGINEERING

##### Products used:

STEELGRID BO150

##### Date of construction

April 2009



Steelgrid MO being installed



The slope from above



Detail at top-rope cable

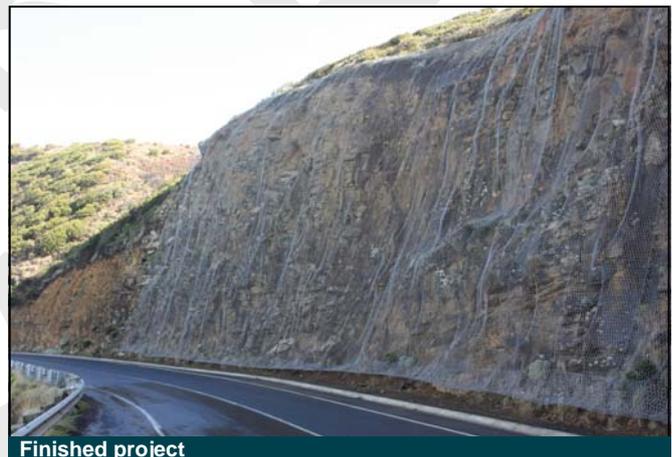


View of the remediation works at Kennett River, Great Ocean Road

**Geotechnical Engineering**, a specialist contractor, was awarded the installation contract for the rockfall protection. Geofabrics / Maccaferri Australasia work closely with specialist rockfall protection installers and engineers and our comprehensive Rockfall protection system portfolio ensures that clients are offered the most cost effective and technically sound solutions for rockfall mitigation.

Maccaferri Steelgrid is becoming increasingly popular as it offer high strength rockfall protection to slopes and is cost effective.

Traditional double twist mesh, which has been in use for over 50 years, is supplemented by high tensile steel cables, woven into the mesh at intervals. The spacing between steel cables is varied to alter the strength of the mesh required. Typical strengths are between 50 and 170kN/m. If required transverse high-tensile steel cables can also be woven into the mesh making the bi-oriented product; Steelgrid BO



Finished project

The double twist mesh in Steelgrid offers significant advantages over other meshing systems, for example, high tensile wire single twisted mesh systems;

- The double twist mesh is flexible. It can conform to the rock slope if needed without additional bolting
- It is easy to unroll on the rock-face, unlike single twist (chain link) style meshes, which can get caught upon themselves during deployment, causing delays and increased time on the slope face
- If wires within the mesh are damaged or broken, the double twist construction will not unravel and maintains 85% of its strength even when a wire is broken. Single twist meshes unravel when damaged
- Maccaferri MacRO 2 software assists the designer in the design of drapery on slopes
- Steelgrid does not require specially shaped, expensive anchor plates to work effectively.

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