

STEEP SLOPE PROTECTION

The site on SH 1 near Karapiro required a solution to protect the steep erodible face of unstable stratified alluvial pumice and soft rock. Continual erosion caused blockage of the concrete edge drains and partial obstruction of the left hand passing lane requiring regular maintenance.

Enkamat and **Rockfall** netting were



Enkamat and Rockfall Netting in place

selected to provide a reinforced erosion control system designed to hold a vegetative cover to the 70° slope.

After removal of existing vegetation **Enkamat 7018** was pinned to the prepared face. Maccaferri Galmac/PVC coated **Rockfall** netting was then laid down the face and adjacent panels laced together using the pneumatic lacing tool and high strength rings.

Both **Enkamat** and **Rockfall** netting were secured at the top of the slope by extending a lap of 1m over the top edge and pinning with reinforcing steel rods. The slope was hydroseeded in July 2000 achieving an excellent strike and resulting in a complete vegetated face 4 months from installation. The reinforced vegetated system has proved a very satisfactory technique in difficult conditions.

PROJECT SH1 Erosion Control
LOCATION Karapiro, Waikato
CLIENT Transit N.Z.
CONTRACTOR Davies Construction
CONSULTANT Opus International Consultants
DATE Q3 2000
PRODUCT ENKAMAT 7018/GALMAC-PVC ROCKFALL NETTING

URBAN SLOPE REPAIR IN WELLINGTON

Raroa Road is situated within the urban area of Wellington, New Zealand. The road follows a route up one of the many valleys and has been repaired in the past using a concrete crib wall. During the winter months of 1998 the slope supporting the road suffered further slippage and erosion to a point where the road was threatened with undermining. Tonkin &



Site view during construction

Taylor were engaged by the Wellington City Council.

The design suggestion submitted by Maccaferri considered the use of **Fortrac 35** geogrid to reinforce the fill along with **Enkadrain** as a sheet drainage layer and **Megaflo 150** as a collector drain.

To limit soil loss in the steep front face (68 degrees) a coir fibre matting, **Biomac-C300** was included between the **Fortrac 35** geogrid wrap around facing and reinforced soil zone.

This project was completed by Reagan Brothers, with detailed construction drawings and methodology provided in the Maccaferri submission to the Consultant. The choice of a **Fortrac** geogrid reinforced slope proved to be a cost effective and aesthetically natural solution in a built up residential area.

PROJECT Fortrac Geogrid Reinforced Fill
LOCATION Raroa Road, Wellington
CLIENT Wellington City Corp
CONTRACTOR Regan Bros
CONSULTANT Tonkin & Taylor
DATE Q3 1999
PRODUCT FORTRAC 35/20-20, BIOMAC C300, ENKADRAIN, MEGAFLO

PAVING FABRIC LONG TERM SUCCESS

Vivian St is part of a one way 2 lane state highway taking traffic to the Port of Taranaki with heavy traffic concentrated in the right hand lane. Traffic loading is 10,000 vehicles per day a high proportion of these being heavy vehicles.

The base construction was sound with very little evidence of rutting. The surface, especially on right hand side (seaward

side), had problems with flushing as a result of use of grader laid cold mix.

In Q1 1994 a section trialed with **Sealmac PF1** installed 75m x 8m width each lane. No fabric was laid in parking areas and the sections either side of the fabric seal treated with single coat chipseal SAMI Modified emulsion 5 parts SBS Polymer.

A visual inspection in February 1999 noted significantly less flushing in the fabric seal area than the SAMI seal sections which were completely flushed in the wheel paths. In some areas with fabric the chip is sitting low, but still having reasonable surface texture.

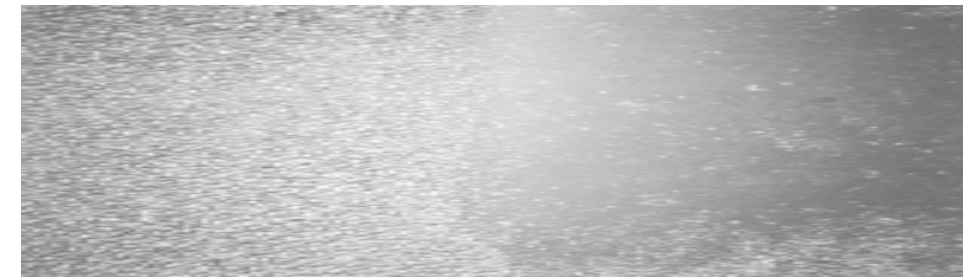
The Sealmac pavement treatment has worked extremely well and extended



View of Vivian St showing worn surface

the seal life with little maintenance in excess of 7 years from installation.

Please contact Maccaferri if you are interested in other successful Sealmac case studies solving a range of poor pavement seal conditions.



With Sealmac

Without Sealmac

PROJECT Vivian St Paving Fabric Trial
LOCATION Vivian St, New Plymouth
CLIENT Transit
CONTRACTOR Asphaltic Construction
DATE Q1 1994
PRODUCT SEALMAC PF1

TERRAMESH FOR QUARRY WALLS

Throughout the world, the **Terramesh** Gabion System is proving an ideal solution to many soil reinforced wall problems. In the Australasian Region alone, Maccaferri have completed several hundred wall structures using **Terramesh** Gabions.

In the last 10 years many of Maccaferri's clients have discovered the cost effective benefits of **Terramesh** gabions for quarry hopper dump walls with

numerous examples in Australia, New Zealand, Papua New Guinea and other South Pacific Island countries.

Three brief summaries from our Case Study Files (available on request) show the use of Maccaferri's **Terramesh** Gabion retaining wall system in quarry hopper dump wall applications.

The three case study examples range in wall height from 4m to 9m and are designed for heavy dump truck loadings. The availability at quarry sites of local rock and suitable backfill for the selected fill zone (over the reinforcing elements that are unique to **Terramesh** Gabions) means that construction can be achieved rapidly and inexpensively using local resources.



Pond Road Batching Plant for Fulton Hogan - Christchurch

PROJECTS Quarry Hopper Dump Wall Examples
LOCATION 1. Christchurch, NZ 2. Monaro A.C.T. Australia 3. Canberra, A.C.T. Australia
CLIENT 1. Fulton Hogan 2. Monaro Basalt Quarries 3. Boral Resources
PRODUCT TERRAMESH GABIONS



Terramesh Wing Walls - Hall Quarry - Boral Resources, Canberra



Monaro Basalt Quarries, A.C. T.

TENSAR DISTRIBUTION TO MACCAFERRI



- reprint of Mailout advice -

We are very pleased to advise you that Tensar International Limited have appointed Maccaferri New Zealand Limited as distributor for the Tensar range of geosynthetics for New Zealand and the South Pacific Islands. This appointment became effective from the 1st January 2003.

This relationship brings together 25 years of combined local regional knowledge and leading international geosynthetics expertise under one umbrella to ensure future services to the engineering community are maintained at the highest levels.

W. Stevenson & Sons Limited retain exclusivity to the Tensar RE Series geogrids used extensively with Stevenson Keystone Segmental Retaining Systems, with technical support from Maccaferri.

Maccaferri remain committed to servicing our current Customers and International Principals across all our business sectors:-

- retaining and soil reinforcement techniques
- solutions for road pavements
- sediment, erosion control and coastal protection
- civil, turf and structural drainage systems
- liner environmental systems for containment

Further information, including access to literature, technical support, application software and assistance, and site construction training in Maccaferri systems can be obtained from our new web site @ www.maccaferri.co.nz or by phoning 0800 60 60 20 or by contacting any of our Maccaferri offices nation wide.

We thank you for your past support and look forward to servicing your future needs in an enhanced and expedient manner. We wish you every success for 2003.

Yours sincerely,
The Team @ Maccaferri

CHRIS BROCKLISS

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INTRODUCING A NEW MEMBER TO THE MACCAFERRI TEAM



Don Munro
Sales Engineer - Bay of Plenty/Waikato and black-top Sealmac, Tensar ARG Specialist.

Don has joined Maccaferri this year with 9 years industry experience in geosynthetics. Don has particular strengths in pavements, including asphalt reinforcement and forestry roading.

For further information about these projects or any of the products listed freephone 0800 60 60 20



MACCAFERRI

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MACCNEWS

Issue 8

March 2003

PAVEMENT REINFORCEMENT ON KAWERAU MILL ROAD

The original concrete pavement for the log handling yard at the Kawerau Mill was badly cracked after years of heavy axle loadings from fork hoist and log loader operation.

Tensar ARG was proposed by Consultants BCHF to reduce reflective cracking and reinforce the new asphalt layer.

The unique features of Tensar ARG ensure that a mechanical interlock is set up with the aggregate in the bituminous layers. Loads are therefore transferred into the grid at very low strains.

The log handling yard stage was completed in Q3 2001 and the performance of the ARG has encouraged further use of the Tensar ARG product in the chip handling yard which is being reconstructed at



Tensar ARG being placed prior to A.C. overlay

present. The composite ARG consists of a geogrid and non-woven geotextile, which enables the product to be easily laid and ensures positive contact with the base surface.

A review of the initial Tensar ARG work in 2001 has shown that the reinforced pavement section is performing very well as expected with noticeable cracking in an unreinforced section showing up already.

PROJECT Norske Skog Mill
LOCATION Kawerau
CONSULTANT Beca Carter Hollings & Ferner, Tauranga
CONTRACTOR Waiotahi Contractors
INSTALLER Fulton Hogan, Tauranga
DATE Q1, 2003
PRODUCT TENSAR ARG



Laying of Asphalt over Tensar ARG

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