

REINSTATEMENT AND SUPPORT OF HIGHWAY 1 SONOMA COUNTY, CALIFORNIA, USA

SOIL REINFORCEMENT SLOPES

Product: Green Terramesh™

Problem

Due to continued deterioration and erosion of Highway 1, the California Department of Transportation began a detailed investigation of the existing construction and remediation works carried out to date.

Highway 1 had experienced a number of slip failures, above and below the road, which were attributed to overloading of the slope on which the road was constructed. Simply reconstructing the road had not relieved the problem.

The highway overlooks the Pacific Ocean as it heads north from San Francisco. A hard faced structure would have an undesirable visual impact.

Solution

Lightweight fill was selected as the optimum solution to provide support to the highway, with minimum additional load on the unstable slope below.

Maccaferri offered its Green Terramesh™ reinforced soil system, using the lightweight volcanic soil as structural backfill. The Green Terramesh™ solution offered the following benefits;

- Vegetating 'green' face for aesthetic appeal
- Ease of installation due to factory fitted integral reinforced face units
- Cost effective, and easier to install than traditional polymeric "wrapped face" geogrids
- Long design life

The lightweight free-draining structural backfill was compacted upon the Green Terramesh™ soil reinforcement panels locking them into place. A 400g/m² woven coir netting erosion control blanket (ECB) was installed behind the face to limit the backfill from washing out. A 800mm thick column of topsoil was installed behind the face of the unit, and in intimate contact with the coir net,

Client:

CALIFORNIA DEPT. OF TRANSPORTATION

Main contractor:

GORDON N. BALL, INC., ALAMO, CA

Consultant:

MARK THOMAS & CO, INC., WALNUT CREEK, CA

Product used:

GREEN TERRAMESH™, 400g/m² COIR NETTING

Date of building:

FALL 2001



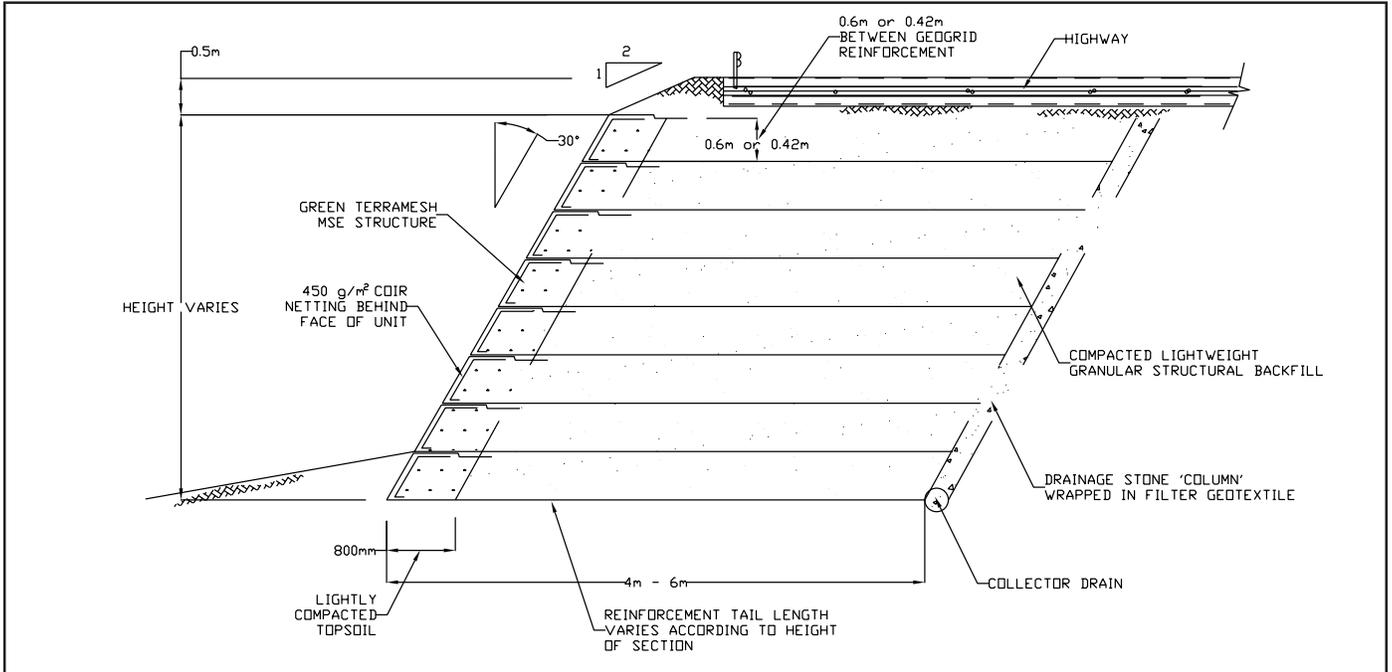
Installing coir netting at face of Green Terramesh™ units



Placing topsoil at the face of the units to sustain vegetation



Compacting structural backfill onto the geogrids



Typical Cross Section



Completing Green Terramesh™ layer

The coir net has 75% open area which allows intimate contact between the hydroseed and the quality topsoil, increasing the potential for seed germination.

To control the water run-off from the hillside above the highway, a drain was installed behind the structural reinforced earth block. This consisted of drainage stone wrapped within a filter fabric.

Maccaferri Green Terramesh™ has been evaluated by HITEC, an independent organization created through collaboration of the FHWA, TRB and the ASCE to assess innovative solutions for use in public sector Civil Engineering projects. This report is available from the HITEC website at www.cerf.org/hitec.



Completed structure immediately after hydroseeding



Vegetation establishing within completed structure

Headquarters - East Coast

10303 Governor Lane Blvd, Williamsport, MD, 21795
Tel.: (301) 223 6910 Fax: (301) 223 4356

MACCAFERRI INC.

E-mail: hdqtrs@maccaferri-usa.com
Web site: www.maccaferri.com

West Coast

3650 Seaport Blvd, West Sacramento, CA 95691
Tel.: (916) 371 5805 Fax: (916) 371 0764