

A93 CRAIGHALL GORGE PERTH & KINROSS, SCOTLAND, UNITED KINGDOM

Reinforced Soil Walls and Slope Reinforcement

Problem

On the southern fringes of Scotland's Cairngorms, the A93 Perth to Braemar road runs through the twisting and steeply wooded Craighall Gorge, a mile or so north of Blairgowrie.

The need to carry out improvement works to the section of the A93 between Craighall Bridge and Middle Mause Farm was first identified in 1985 when a Bailey-type bridge was used to replace a collapsed section of the existing retaining wall. Although installed as a temporary structure, this still carried over 3000 vehicle movements per day, to and from the Highlands.

Recently, engineering assessments of the area concluded that the slopes were not sufficiently stable to support new carriageway construction and the site was also too restricted to accommodate the works whilst keeping the existing road open to traffic. The Environment Services of Perth and Kinross therefore proposed that a completely new road be built to by-pass the bridge and on their instruction, Consulting Engineers Mouchel of Dundee, designed a 2.4km long single carriageway road running to the east of the gorge and broadly parallel to the existing route but at a higher level.

At the southern end of the works where the low-level old and higher-level new carriageways join up, Mouchel conceived a 130 m-long reinforced earth wall which would create a smooth transition from old to new.

Solution

Maccaferri submitted a design comprising a hybrid reinforced earth geogrid wrap-around structure, in conjunction with a hard, stone-faced Gabion Terramesh® wall, 2.5 - 7.0m high. Maccaferri Paragrid 80/15 uniaxial geogrid was chosen as the principal reinforcing element, sandwiched at 500mm and 1000mm vertical increments between layers of primarily site won, Class 6I compacted backfill. The Gabion Terramesh® system creates a rigid outer face and provides additional mass gravity reinforcement to the structure.

Gabion Terramesh® and Paragrid uniaxial Geogrid reinforcement have BBA Roads and Bridges Certification. The structure, therefore, satisfies the Scottish Executive requirement of a 120-year design life.

Client: Perth & Kinross Environment Services

Designer / Consultant: Maccaferri Ltd

Contractor: I & H Brown

Products used (Qty.)

Date of construction: 06/2008 - 09/2008

[Google Maps](#)

[Google Earth](#)



Installing Terramesh® soil reinforcement



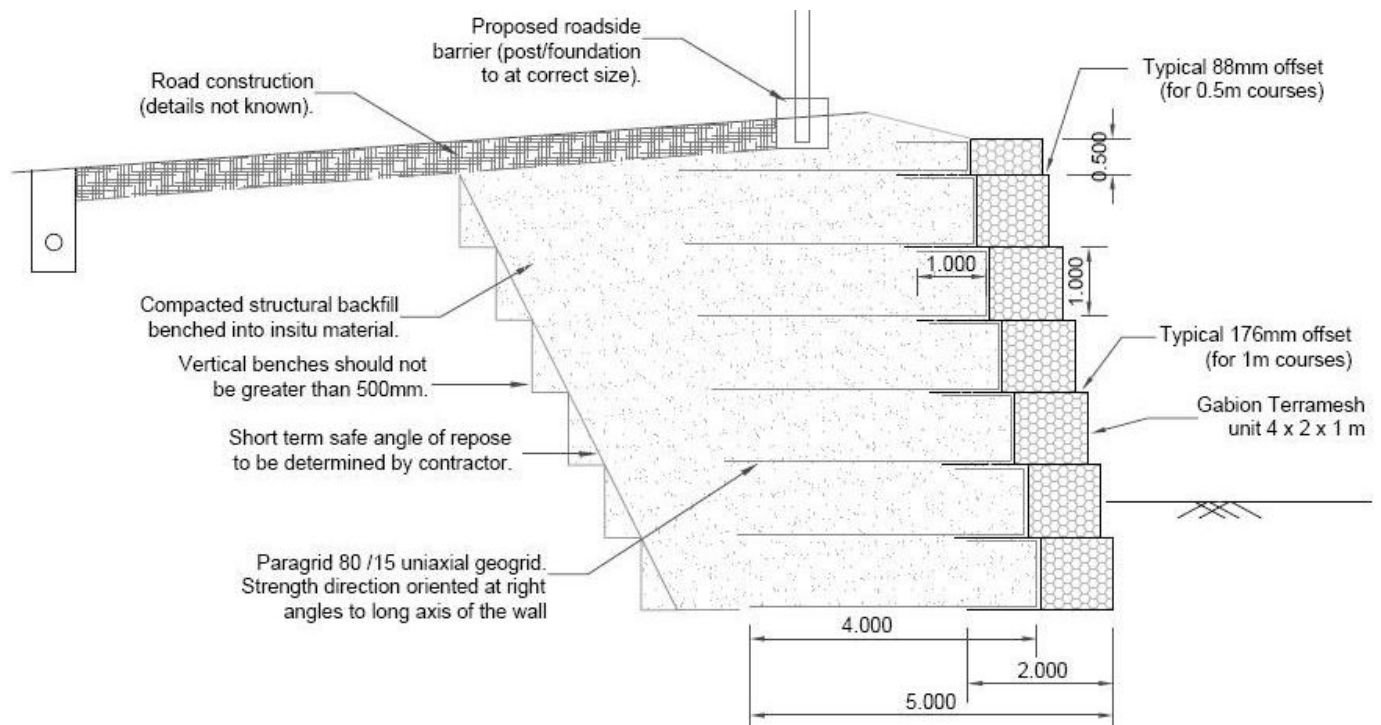
Filling of integral gabion facia



Completed Terramesh® units



Completed structure with highway above wall



Typical section drawing