

HOEL PENTRE FELIN, LLANGY FELLACH SWANSEA, WALES

RETAINING STRUCTURES

Product: MacWall

Problem

The Client wished to develop a sloping site in west Wales to accommodate new and exclusive housing. Numerous configurations of houses were considered before it was decided to create a series of terraces onto which the new houses would be built. Three parallel retaining walls, up to a maximum of 3.5m high, were required to run the length of the site. Gentle curves in the walls would also provide a feature and interest to the future homeowners.

In order to embrace sustainability of scarce resources and to reduce import and export of site materials, an optimum solution would be able to reuse site won material. A 'materials balance' for the project site was a target.

Solution

Maccaferri were approached by George Brown Consultancy to offer alternative retaining structure solutions to meet the clients brief and budget.

The wall had to be aesthetically pleasing as it would form boundaries to many of the houses. Ultimately, MacWall Diamond was selected as the most appropriate retaining wall. This is a segmental concrete blockwork system features a 'split-face' finish and the Basalt colour that was chosen blended well with local surroundings.

MacWall Diamond consists of pre-cast concrete block facing units in combination with polymeric geogrid soil reinforcement. The geogrids are sandwiched between courses of the concrete facing blocks and extend horizontally towards the slope to be retained. Structural backfill is then compacted upon the geogrids. This reinforced soil block acts to retain the terraces and roads above it.

Consulting Engineer:

GEORGE BROWN CONSULTANCY, CARDIFF

Main contractor:

CELTIC HOME & BUILDERS LTD, DYFED

Designer:

MACCAFERRI LTD

Product used:

MACWALL DIAMOND, PARAGRID

Construction date:

SUMMER 2006 & SPRING 2007



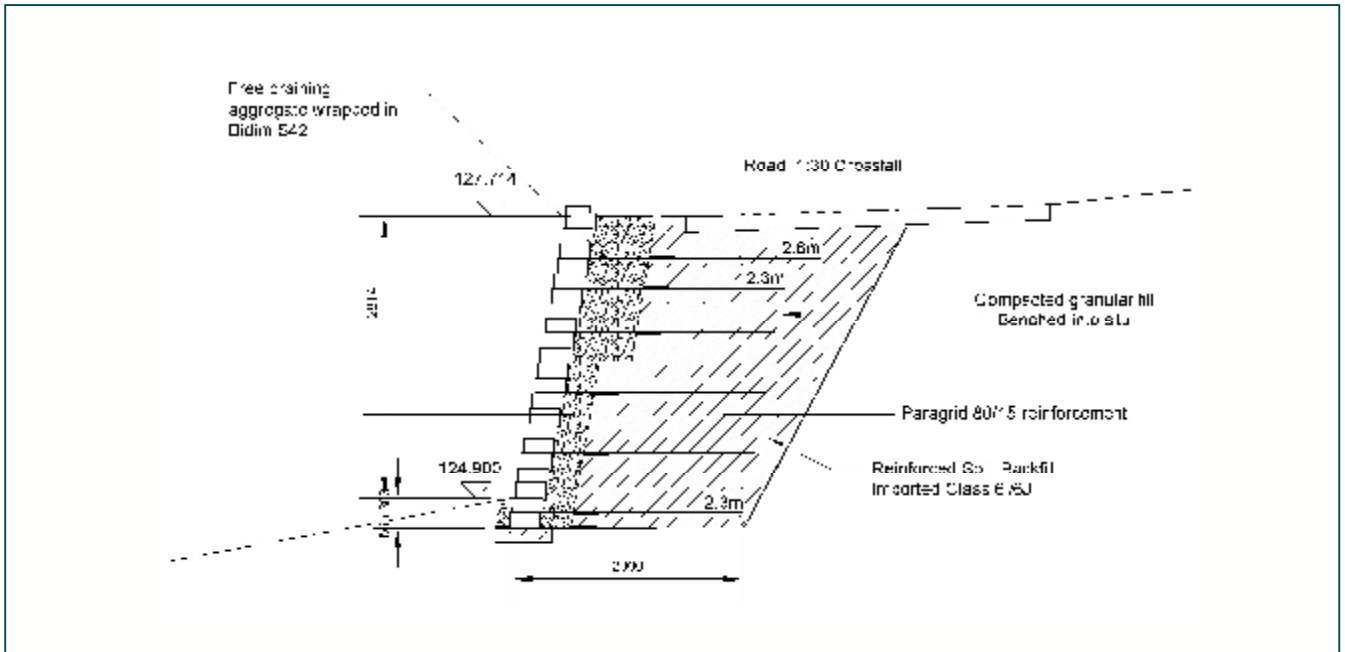
During construction



During construction



Post construction



During construction

The Paragrid geogrid reinforcement is a polyester geogrid sheathed in a tough polyethylene coating. This, and the grid's structure enable it to be used successfully and efficiently with more marginal fills. Trials on the site-won material proved, that following selection, it would be suitable for use as structural backfill to the geogrid reinforcement. This reduced the need for the client to either export material off-site, or import expensive structural backfill material, saving money. Consistent positioning and therefore wall face angle of the MacWall Diamond blocks is achieved by a locator cast on the block. This makes construction of the wall rapid and straightforward.

Drainage provision is important in segmental retaining walls, and this was achieved by the addition of a granular drain immediately to the rear of the blockwork fascia. From here water was vented into the site surface water drainage system.

Where the MacWall Diamond walls supported roads on the development, vehicle impact barriers (designed by others) were positioned to the rear of the segmental retaining walls.



During construction

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