

GLASGOW TO EDINBURGH MAINLINE GLASGOW & EDINBURGH, SCOTLAND, UNITED KINGDOM

Mass Gravity Retaining Walls

Problem

Due to a serious landslide caused by protracted heavy rain in 2001, the main rail link between Glasgow and Edinburgh had to be closed for safety reasons causing major disruption to commuters.

It was necessary to have the line reopened as quickly as possible to remove this disruption and to reduce costs to the rail operators who would face significant costs for each day that the line was not operational.

Solution

Speed of installation was therefore of the essence and Maccaferri Construction working with First Engineering, Railtrack's appointed contractors, was invited to come up with a design and construct package in association with Donaldson Associates of Glasgow.

The wall design progressed on site while site clearance and the removal of slipped material were carried out. The design process was accelerated by using Maccaferri's MacSTARS software; is a programme developed to analyse the stability of mass gravity gabion walls according to Encode 7. The design also had to overcome the practical problems resulting from the exceptional amount of water in the burn.

The solution provided a Gabion wall of 4 metres in height, with a length of 16 metres and an additional low-height wall extending to a further 20 metres. An unusual feature was the provision of pre-filled Gabions "ReadyMacs" to make up the lower courses of the new wall, essential to the remainder of the wall was completed using conventional polymeric coated hexagonal woven mesh Gabions erected on-site and filled with 10-200mm stone.

This method of construction is ideal for 'difficult' locations with limited access and the site at Polmont, a deep ravine in a built-up area, presented a severe challenge in terms of access.

Maccaferri "ReadyMacs" are pre-filled gabion units. Built by Maccaferri to an exceptionally high standard to withstand the forces of transportation and lifting of the units, ReadyMacs are an ideal solution for these types of project. They are also used in situations where water and difficult access are encountered.

Working round the clock, Maccaferri employed two teams working in shifts to complete the job in less than the time allocated by Railtrack, allowing the line to be re-opened on time.

Client: Network Rail

Designer / Consultant: Donaldson Associates

Contractor: First engineering

Products used (Qty.)

Date of construction: 06/2001 - 06/2001

[Google Maps](#)

[Google Earth](#)



Pre-Filled Gabions in the quarry



ReadyMac being loaded



Installation in progress



After completion