

Exley Bank Slope Stabilisation with Geomac System

Halifax, West Yorkshire



TYPE OF PROJECT
Slope Protection

YEAR OF CONSTRUCTION
2024

CLIENT
Calderdale Council

CONTRACTOR
Piletec Geotechnical Ltd

DESIGNER
WSP

PROD. RELATED
Reno Mattress Plus (250m2)

Challenge

At Exley Bank, the project presented a complex slope stabilisation and erosion control challenge requiring a durable, long-term solution. The existing slope was highly susceptible to soil erosion, posing risks to structural integrity and environmental stability. In addition to engineering performance, the scheme needed to support vegetation growth and deliver a natural, visually appealing finish that aligned with environmental and planning requirements. Conventional slope protection methods were unlikely to provide the necessary combination of erosion resistance, topsoil retention, and ecological integration. The design team also needed a solution that could be efficiently installed while coordinating multiple contractors on site.



Installation of GeoMac system



Close-up view of the GeoMac system

Solution

To overcome these challenges, WSP specified Maccaferri's Geomac System, an innovative and proven solution for slope stabilisation and erosion protection. The system incorporates large Geomac mattresses (3 m × 2 m × 0.23 m), which are engineered wire mesh units lined with Mactex H2800 geotextile filter fabric. These mattresses are filled with a combination of stone and soil and secured with a MacMat® R lid, creating a reinforced erosion control system that stabilises slopes while promoting vegetation growth.

Once installed and seeded, the Geomac system forms robust, interconnected panels that encapsulate topsoil, prevent surface erosion, and encourage rapid green cover establishment. The masonry wall base was strengthened using no-fines concrete backfill, providing essential support to the erosion control mattresses and ensuring long-term structural stability.

The project was delivered through a collaborative approach, with Sisk acting as the main contractor, Piletec Geotechnical Ltd carrying out the installation, and Maccaferri supplying the Geomac erosion control solution. Approximately 250 m² of Geomac mattresses were installed at Exley Bank, resulting in a high-performance slope stabilisation system.

The completed solution successfully combined engineering reliability with environmental sensitivity. It delivered effective erosion control, enhanced slope stability, and supported sustainable vegetation growth, creating a natural and visually attractive finish. This project demonstrates the effectiveness of Maccaferri's Geomac System in providing durable, eco-friendly slope protection solutions for challenging infrastructure environments.



MacMat erosion control layer



Completed Installation



GeoMac system installed



OPEN GOOGLE MAPS



OPEN GOOGLE EARTH