

ABG Abslope EM

A guide to the Abslope EM Reinforced Earth System
for constructing vegetated slopes of up to 45°

• Abslope EM - Introduction

Abslope EM is an economical and structurally flexible, sustainable earth retaining slope system developed for road & rail embankments, acoustic bunds, amenity slopes, flood alleviation schemes, reservoirs, land reclamation projects and housing developments to meet the demands of Engineers, Architects and Developers.

The system consists of proprietary ABG Geogrids and Erosamats deployed to construct slopes to a face angle of up to 45°. The reinforced fill and retained backfill typically utilise site-won materials and our design team will confirm the system build-up and the exact type and dimensions of ABG Geogrids and Erosamat required for the project.

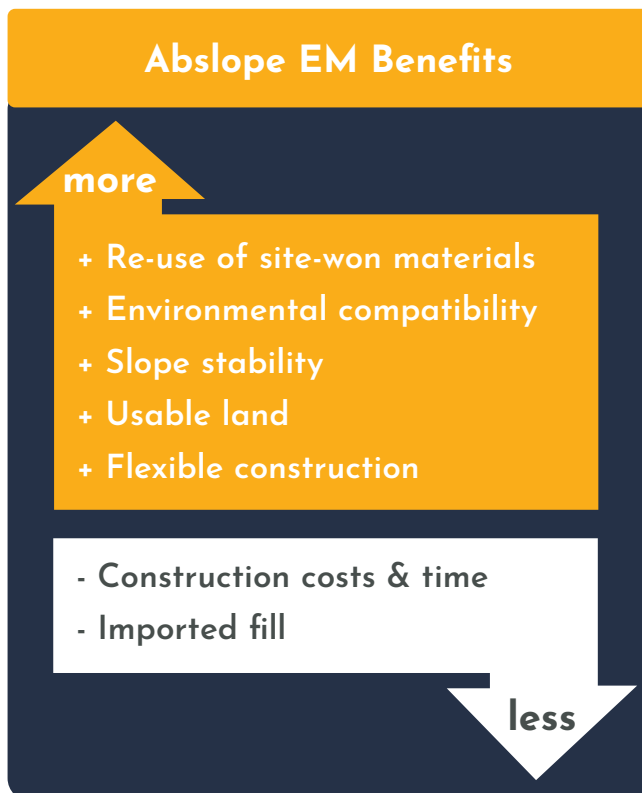
In order to maximise the available land on new developments and limit the impact on the surrounding landscape, it is often necessary to reinforce slopes so that they can be constructed to a steeper angle.

Abslope EM is a geogrid reinforced slope to enable the construction of embankments of up to 45° (or less) as required, with geogrids positioned throughout the fill to reinforce the structure.

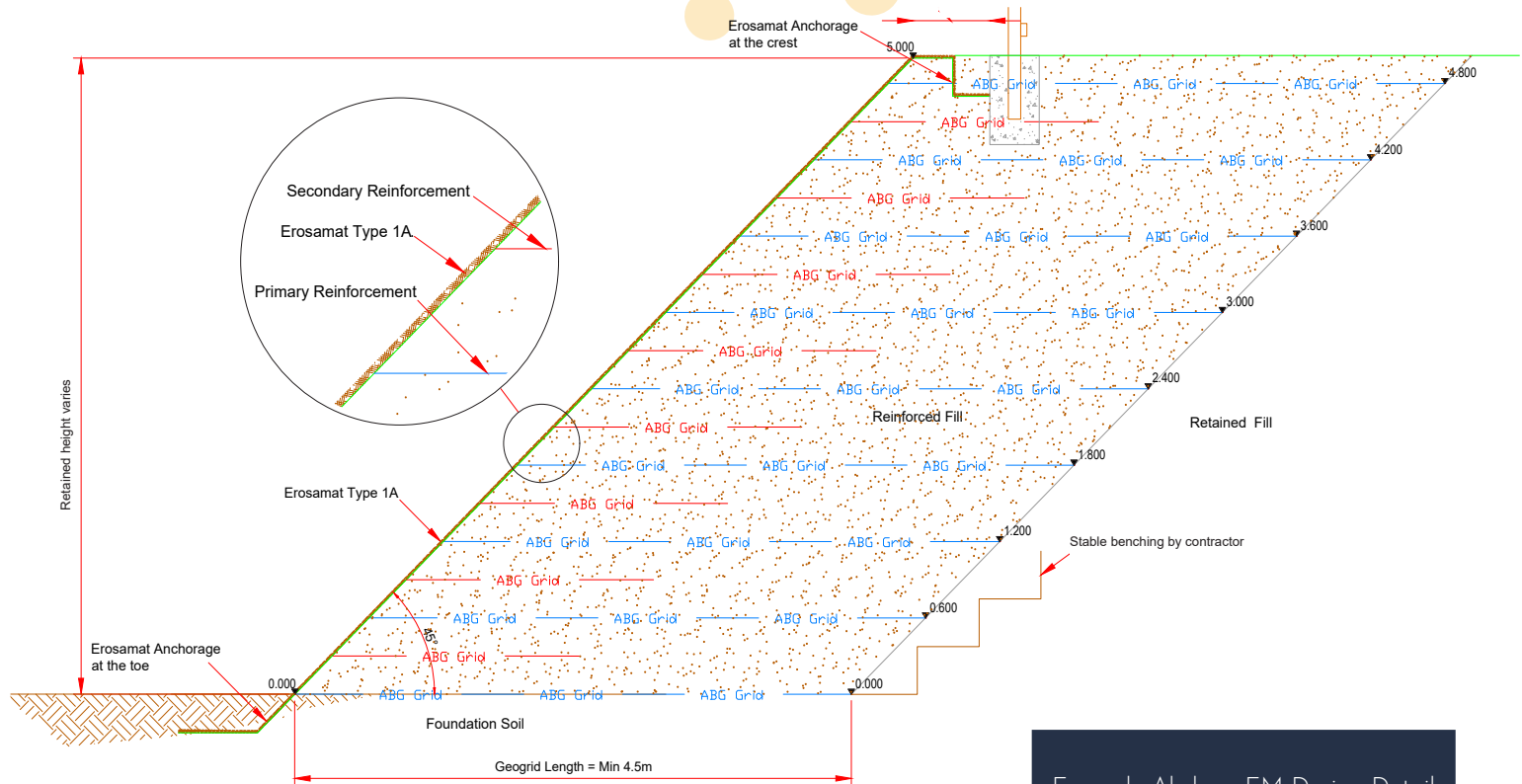
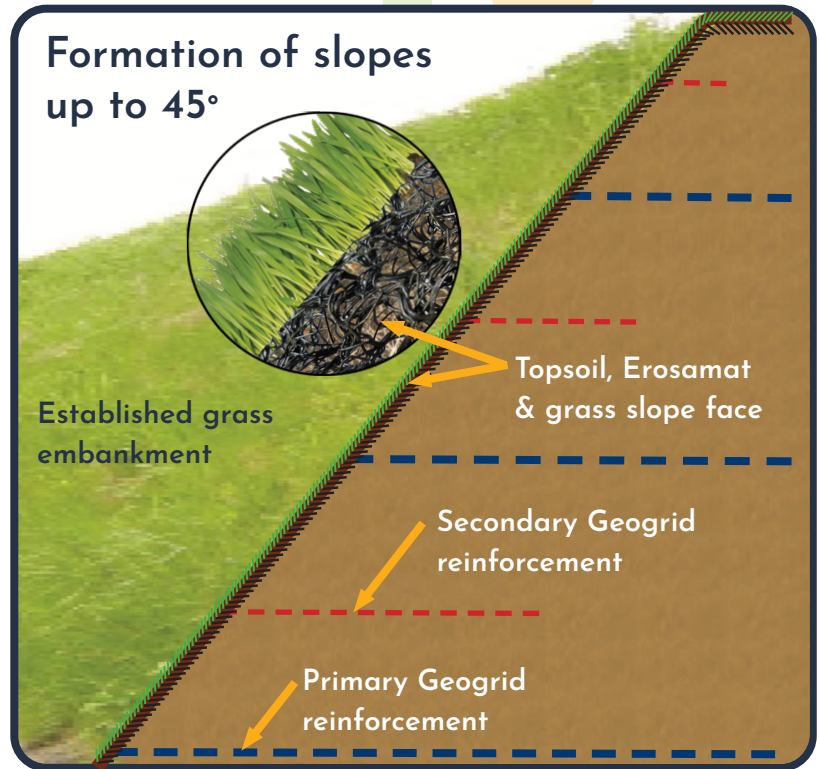
ABG offers three retained earth slope systems (including the Abslope SM system with steel mesh at the slope face and Webwall geocellular panel system with vegetated face).

The Abslope EM system is an economical option that provides a structurally flexible earth retaining slopes to be constructed for:

- road & rail embankments
- bridge approach ramps
- acoustic bunds
- amenity slopes
- flood alleviation & reservoir embankments
- land reclamation projects
- housing developments & National Trust properties



ABG's Erosamat is installed to the slope surface to enable a natural grass face to establish. Erosamat is available in biodegradable or permanent formats, with Erosamat Type 3 providing a permanent three-dimensional mat of entangled HDPE fibres. This is specified for high flow velocity applications, such as flood embankments, in order to prevent surface slips and wash out. Biodegradable Erosamat Types 1 or 2 are available for lower surface water volume applications as required.



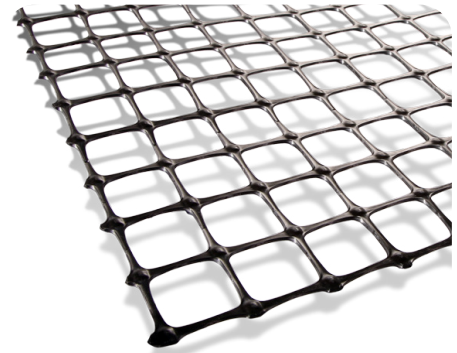
Example Abslope EM Design Detail

• Abslope EM - System Components

ABG Geogrids & Drainage Geocomposites

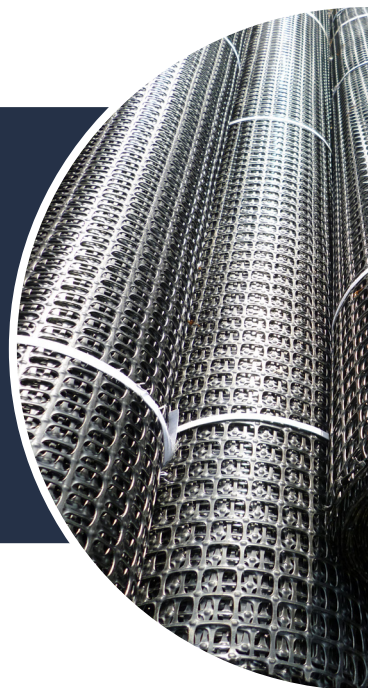
ABG Geogrids stabilise the reinforced earth fill and provide excellent tensile strength properties. The stiffness of the geogrid enables the backfill loads to be transferred effectively. Dependant on the type of soil fill used and the load it needs to support, different strengths of ABG Geogrids are available.

ABG drainage geocomposites are also sometimes specified to intercept seepage water from the backfill and cut-off pore water pressure from the reinforced fill.



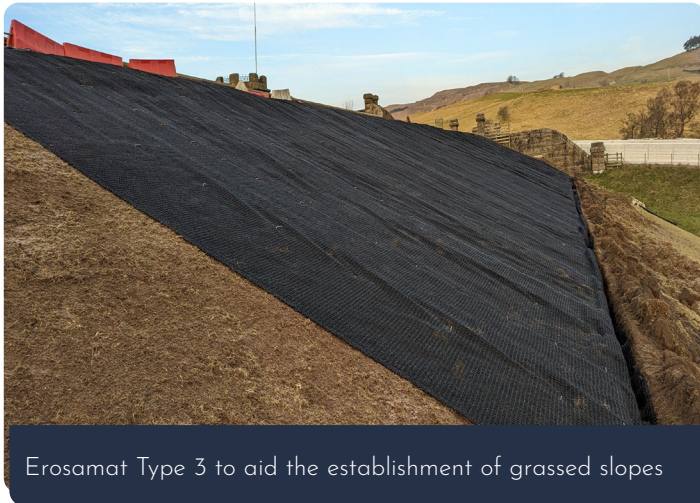
The main Abslope EM system components include:

- ABG Geogrids
- Erosamat vegetation liners
- Site-won fill, topsoil and
- Drainage geocomposites.



Vegetation Liner

ABG's Erosamat biodegradable or permanent vegetation liners are placed onto the slope face once a layer of topsoil has been trimmed to the correct depth. UV stabilised liner options are available to prevent degradation of the material before planting cover has been established*.



*Successful establishment of vegetation cover is the responsibility of the landscaping contractor.

Site-won fill & topsoil material

Generally the Abslope EM system permits the use of relatively low quality fill for slope construction projects. This provides project cost savings, reduces the environmental impact on the surrounding area and the need to transport marginal soils away from the site.

Locally available soil can be used for the fill material, provided it can be compacted adequately to an approved specification (e.g. MCHW). Additionally, good quality topsoil with adequate water retention capacity should be added along the slope face (minimum 100 mm thick).



● Applications & Design Service

Abslope for Highway & Rail applications

The cost effectiveness and adaptability of the Abslope EM system provides highway and rail engineers with a versatile, lower carbon footprint option compared to traditional stone facing methods. The geogrids are simply placed horizontally in layers on top of the compacted fill and terminated at the slope face. Compaction plant can then operate safely close to the crest edge of the slope.

Water sector applications

Abslope EM with a reinforced grass surface is suitable for flood alleviation & reservoir embankments and can provide resistance against grass wash out for overspill applications. Failures of slopes are a common problem, especially in areas of high water flow velocities and excess pore water pressure. For applications where embankments are exposed to potentially higher flow rates, Erosamat Type 3 provides a three dimensional matrix of HDPE fibres to support successful vegetation growth.

Building Developments

Where large building and enabling work projects (including supermarkets, logistics parks and housing developments) encompass site elevation changes, the Abslope system offers a natural aesthetic.



Design Service

ABG's experienced civil engineers are on hand to provide initial suitability assessments and standard design details to help create an outline budget cost.

If the system is deemed to be appropriate following the initial project assessment, a more detailed design and calculation report will be prepared, with drawings issued for construction, as well as specification and installation details.

Indemnified designs are available where required and the system can be built using ABG's certified geogrids.

The construction of Abslope EM requires no special foundations, apart from a stable formation, to provide the adequate bearing capacity, so construction time may be significantly reduced and the system can be built using standard construction plant.

Key Benefits

- Less imported fill & re-use of existing marginal fill
- Fast and cost effective to construct
- Reduced transportation and carbon footprint
- Erosion control and attractive grass slope face
- Plant can work close to the slope edge
- Minimises land take & reduces impact on the surrounding area
- Reduces the volume of off-site transport and disposal costs

● Associated Products

Erosion Control

ABG offer a range of temporary and permanent erosion control turf reinforcement mats and geocellular components for protection against erosion and for soil retention on slopes.



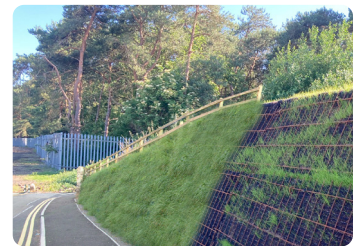
Drainage

ABG drainage geocomposites offer a very high flow capacity and provide a cost effective alternative to traditional stone groundwater drainage solutions.



Abslope SM

The ABG Abslope SM system enables the construction of steep vegetated slopes to angles of between 60° to 70° by incorporating steel mesh facing panels and geogrids to stabilise backfilled soil layers.



Webwall Retaining Walls

Webwall is a geosynthetic system designed for the construction of flexible retaining walls. It uses a geocellular mattress which is laid in layers, with each expanded and filled with site won materials in order to form a structure with a stepped vegetated face.





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