Embankment Drainage
Starter Layer, Fildrain, FARRRS, Doncaster, UK

Project Description
The Finningley And Rossington Regeneration Route Scheme (FARRRS) is part of the UK government’s growth initiative improving the road network to reduce congestion and encourage local economic growth near Doncaster. The new 4.5km highway connects Doncaster airport to the M18. Journey times will be reduced and 2000+ new homes created in the Rossington and airport areas.

The Challenge
Phase one of the development required the rapid construction of an embankment on poor ground with high water table. The embankment needs a stable base layer which drains the water away increasing the rate of consolidation. A traditional starter layer consists of a thick (up to 600mm) granular layer (6C stone) with geotextiles to either side of the stone. Sourcing of stone, transport to and across site, placement and slow installation make this a costly process, both in monetary and environmental costs.

The Solution
Recent developments and extensive testing have shown that the specially designed drainage geocomposite ABG Fildrain is an equivalent to a thick layer of crushed stone used in a starter layer. ABG Fildrain has the two essential filter geotextiles tightly bonded to a proven compression resistant 7mm thick double cuspatated core. Fildrain removed time consuming stone sourcing and placement operations. Replacement fill is easily won from site. This resulted in significant cost and carbon savings. Supplied in 4.4m wide rolls, laid perpendicular to the line of the embankment, the Fildrain drainage starter layer reinforces the structure and aids stabilisation.

Project Information

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<th>Doncaster Council</th>
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<tr>
<td>Contractor</td>
<td>Carillion</td>
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<td>Consultant</td>
<td>Mott MacDonald</td>
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<td>Products</td>
<td>Fildrain 7DD/ST170</td>
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<td>Quantity</td>
<td>30,000m²</td>
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- Rapid installation
- Stone cost savings of 36,000T
- Maximum use of site soils
- Prevents rehydration above and below starter layer
- Carbon saving

ABG Fildrain is placed at base of embankment instead of traditional stone drainage layers
Fildrain is the only BBA approved geocomposite starter layer. This is an important factor for Early Contractor Involvement (ECI) project teams and designers, when value engineering similar sites for the government highways program. This innovative solution meant that phase one of the FARRRS project was completed on time with significant cost savings whilst being fully compliant with drainage regulations and guidelines, helping to ensure that the rest of the project ran on schedule to open in January 2016.

The ABG Service
ABG assisted with the ECI process providing proof calculations for this specific application in line with government highways requirements. ABG provided data on: in-plane flow under load, long term creep compression, Fildrain /soil interface shear. Deliveries from our UK factory were scheduled to suit site requirements.

Finished stable, drained and consolidated embankment

Contact ABG today to discuss your project specific requirements and discover how ABG past experience and innovative products can help on your project.