

Embankment Drainage

Rapid Consolidation, Fildrain, Ashton Moss, Manchester, UK



CASE STUDY



Project Description

Ashton Moss is a mixed use commercial and leisure development situated off J23 of the M60 near Manchester. The development covers 64 hectares and provides over 1M sq ft of commercial, retail and industrial space, along with a further 175,000 sq ft of leisure and green open space. (ref: Published paper "Advanced engineering solutions using geocomposite drainage for fast consolidation in compacted fill Robinson, N. et al. EuroGeo6 Sept 2016)

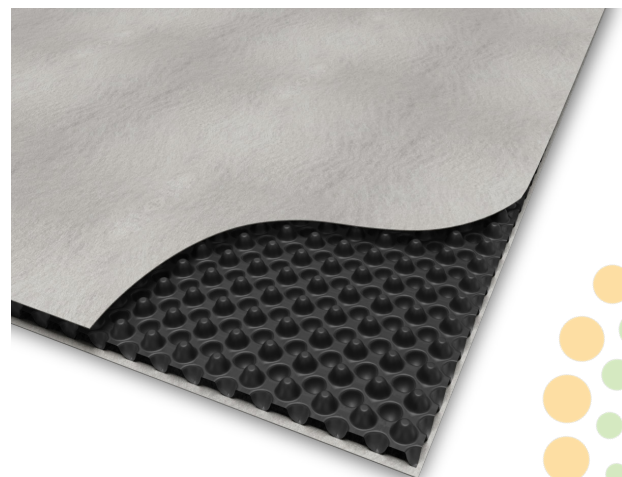
The Challenge

This large development needed to be completed very quickly to make the development financially viable. The site was a "mountain of pre-tipped inert waste" of very variable specification Construction, Demolition and Excavation Waste (CDEW) that had been stockpiled on a partially excavated and backfilled site, including areas of natural peat. It was constrained by the nearby M60, A635 and Ashton North Bypass.

The area was made up of peat and alluvial clays. Surprisingly, the stockpiled material was usable from a geotechnical and contamination point of view, but was too wet (23% moisture content) to compact adequately to meet specification requirements. This limited settlement to 25mm within 6 months and the tight construction timescale meant traditional surcharging was impractical and double handling of the material would have resulted in a massive increase in costs. To meet program, the 700,000m³ earthworks had to be completed over the winter with high rainfall expected.

Project Information

Client	Tameside MBC
Contractor	P Casey
Products	Fildrain 7DD
Quantity	250,000m ²
Benefits	<ul style="list-style-type: none">• Accelerated consolidation• Embankment reinforcement• Fast installation• Allows use of otherwise unsuitable CDEW material



ABG Fildrain layers installed for embankment drainage

ABG LTD

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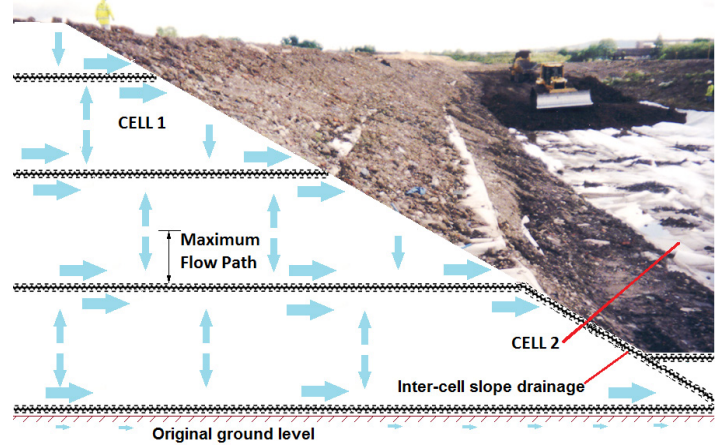


The Solution

A layer of Fildrain was placed every 1m of fill. Using **Fildrain 7DD** reduced the consolidation period by as much as 80%, with the specified settlement complete within 4 weeks. The double cusped drainage core drains from both sides, whilst also providing an impermeable barrier that allows vertical migration of pore water, but seals against rainfall ingress. **Fildrain 7DD** is easy to install, avoiding all the difficulties of placing layers of expensive gravel and it was observed that the lower layers were draining effectively, even before the upper layers were placed - consolidation starts immediately as the Fildrain is placed.

The ABG Service

ABG provided full technical support to propose and gain approval from the various authorities for the use of **Fildrain 7DD**. Deliveries were coordinated to fit the work schedule to avoid stockpiling on a tight site.



Cell 1 filled to full height to give maximum loading. Fildrain at optimised centres to reduce consolidation time by reducing the flow path up and down. Fildrain provided temporary reinforcement of the weak soils. Cell 2 being constructed in second phase



Saturated arisings from M60 cutting stockpiled and used in highlighted area with Fildrain reducing consolidation time by 80%



Fully consolidated landform ready for construction on time for developers

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