TERRAM
Geosynthetics you can trust

Installing TERRAM Composite drains

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TERRAM composite drains are used for drainage around structures and in soils. This document provides general guidance for their installation.

Fixing the composites to structures

The composite must be held in position while backfilling is in progress. Any of the following methods can be used:

- Nailing (see *Accessories*) through wooden battens is probably the easiest method of fixing onto concrete (>40N/mm^2). Care must be taken not to strike the reinforcement.
- Where direct nailing is not recommended, plugs (see *Accessories*) can be driven into pre-drilled holes.
- Scaffold poles can be temporarily suspended horizontally from the top of the structure.

Backfilling procedure

TERRAM geotextile characteristics are pre-determined and factory controlled. This means that the backfill can be selected from a wide range of materials, but the fill must not form a barrier by becoming less permeable than the soil being drained.

- First place any pipe-surround material.
- Backfill with suitable excavated or other material. Ensure there are no voids between the side of the trench and the composite which would result in uneven stress. This precaution is important at the base near the crown of the pipe.

Precautions

Care must be taken to ensure that large stones are not allowed to damage the surface of the geotextile filter(s). The composite can be temporarily protected by scaffold boards to avoid scuffing by the wheel rims of compaction machinery.

Horizontal drains

The choice of composite can be critical if there is no pore water head. The potential flow through the composite can be very low and will be affected by blockages or undulations within its plane hence:

- The composite must be kept flat – no lumps or undulations - to prevent *ponding*.
- All joints need to be precisely executed.
- Design with an adequate fall (use SF= 10).
- Sufficient outlets must be provided at frequent intervals.
- Select the composite which has the ideal capacity and flow rate.

General Guidance

Orientation of the drainage composite

Lay the composite with the roll length running down a slope.

Cutting

The composites are easy to cut with a sharp cutter (e.g. Stanley knife) in unrolled form. Some composites lend themselves to cutting whilst rolled i.e. log fashion with a saw.

Overlapping and jointing

All TERRAM composites are provided with overlap edges which allow butt jointing (see Figs 1 and 2). Stapling provides positive fixing but tapes will perform adequately in dry conditions.
Well-formed and enclosed butt joints are considered essential where continuity of flow is required.
Figure 2 illustrates a method for jointing TERRAM 1BZ to maintain the barrier function.

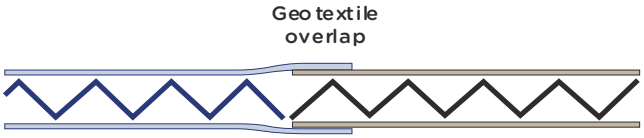

Fig 1

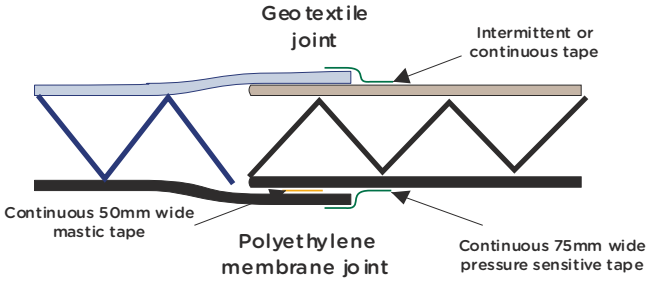

Fig2

Edge finishing

Exposed edges of the composites can be finished by peeling back the geotextile filter by (say) 75mm, trimming back the exposed core and folding this *flap* around the edge of the composite.
Alternatively, wrap any spare geotextile lengths around exposed edges.

UV exposure

The composites are delivered to site in polyethylene wrapping to protect against the effects of ultra-violet radiation. It is recommended that the products remain wrapped until their installation.
Once unwrapped, the products should be completely covered with fill within 14 days to avoid exposure to UV radiation.

Fiberweb Geosynthetics Ltd offers a wide range of geosynthetic products. For further information please call our Customer Services 01621 874200 or visit www.terram.com to download case studies, design guidance, installation procedures and product data sheets.

Recommended accessories

Nails:
Typical specification: Hilti NK27512 pin plus R36 washer fired from OX 450 cartridge tool using red cartridges.
Hilti (GB) Ltd., 1 Trafford Wharf Road, Trafford Park, Manchester M17 IBY.
Tel: 0800 886100 Fax: 0800 886200 www.hilti.co.uk

Plugs:
Typical specification: Drive fastener 219-03-3332 into pre -drilled 7mm 0 holes, 25mm depth.
QEF Global (UK), East Shawhead Enterprise Park, 35 Hagmill Road, Coatbridge ML5 4XD
Tel: 01236 429444
Fax: 01236 429888
www.qefglobal.com

Staplers:
An appropriate stapling device is the Rosetto Carton Stapler, model DWS 27 available from BEA Fastening Systems Ltd., Waterside Road, Beverley, N. Humberside HU17 OST
Tel: 01482 889911
Fax: 01482871804
sales@uk.bea-group.com
www.bea.uk.com

Tapes:
To fix geotextile to geotextile, geotextile to polythene or polythene to polythene, using discrete spots/strips:

Sellotape IDL 0310 adhesive strip (2mm x 12mm).
For advice on local suppliers contact:
Sellotape heavy-duty polythene tape 1408.
For advice on local suppliers contact:
Scapa UK Ltd
Unit 15, The Woodside Estate, Dunstable LU5 4TP
Tel: 01582 478111
Fax: 01582 471085
www.scapa.com

For water-proof joints: Standard Denso Tape.
For advice on local suppliers contact:
Winn & Coales (Denso) Ltd., Denso House, Chapel Road, London SE27 OTR.
Tel: 0208 670 7511
Fax: 0208 761 2456
mail@denso.net
www.denso.net

N.B. Tapes are most effective in dry conditions.