

Method Statement - For the installation of Geoweb® Tree Root Protection System

Introduction

The Greenfix Geoweb® system is available in 5 depths for varying traffic loadings but each site should have a specific design detailed to ensure the correct depth of product is used. However, unless the existing ground conditions are very soft and have an extremely low CBR then the following can apply:

- 75mm - for Pedestrians, Cycleways, and vehicles up to 1.5 tons
- 100mm - for Cars, 4 Wheel Drives, Vans etc up to 6 tons
- 150mm - for Fire Appliances, Removal Vehicles and Dust Carts up to 20 to 30 tons
- 200mm - for construction vehicles, cranes etc 40 tons and above
- 300mm – For extra heavy construction use – Cranes, Piling Riggs etc.

It is important to ensure the correct Geoweb cell size and cell depth are specified and installed based on the anticipated pavement loads. These are calculated based on the following criteria:

- Traffic type and loading
- Frequency of traffic
- Subgrade strength (typically CBR, Ev2, Cu or SPT values)
- Infill type
- Type of surfacing (i.e. tarmac, block paving, grass / gravel pavers etc)
- Allowable settlement of the pavement (if necessary)

To assist you in determining the correct Geoweb specification please speak to our TRP team here at Greenfix.

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Geoweb Tree Root Protection System

Materials List:

- Geoweb 3-Dimensional Cellular Confinement System
- TRP4000 geotextile. Overlaps by minimum 300mm. Separation / Pollution Control Geotextile
- TRP1000 Separation Geotextile (depending on surface finish)
- Staking pins and Atra Clips 600mm long
- Atra Keys – to mechanically join expanded panels of Geoweb
- 4/20mm or 40/20mm Clean angular stone to Bs EN 13242 and 12620.
- Finish Surfacing Materials.

Stage 1 - Ground Preparation.

- Remove surface vegetation or treat with suitable herbicide to level – under the supervision of the project Arboriculturist
- Fill any hollows in the exposed ground with no fines 4/20mm clean angular stone.
- Place TRP4000 geotextile over the area to be protected ensuring a minimum overlap of 300mm.
- Allow adequate drainage as a separation layer between soft subgrade and GEOWEB® infill material
- Mark out the area to be protected with edging detail e.g. Timber boards / treated railway sleepers or Greenfix Recycled Plastic Edgings

Stage 2 – Installation of Geoweb

- Roll out TRP4000 geotextile to cover the area to be protected
- Insert x 4 equally spaced steel pins along the width of the first panel
- Expand Geoweb sections over the area to be protected and use temporary stakes or weights to hold sections open to prevent movement during infilling
- Pin along the length of the panel and along each side to achieve this
- If full panels are not being used, then ensure the cells have been expanded to their full dimension.
- The Geoweb panels can be cut to shape if required with a heavy-duty Stanley Knife
- Connect adjacent sections using ATRA® Keys. Position the sections so the slots are aligned, insert the key, and turn 90 degrees locking the panels together. ATRA® Keys provide a long-term connection that is safer, quicker, and stronger than staples or cable ties. In environmentally protected areas (SSSI in United Kingdom), ATRA® Keys can be used without the requirement for diesel-fuelled compressors

Stage 3 - Filling the Geoweb.

Using 4/ 20mm or 40/20mm clean angular stone to Bs EN 13242 and 12620 (depending on cell depth being used)

- For permeability, infill the fully connected Geoweb system with a well graded, angular stone such as a 4/20mm or 40/20mm clean angular stone.
- Allow 30mm overfill for any settlement of the stone into the cells during installation

- If the area is to be trafficked immediately slightly increase the amount of surcharge overfill to a max 50mm over the Geoweb with 4/20mm or 40/20mm clean angular stone
- Consolidate the fill material with conventional plant or non-vibratory plant when required. Fill should be maintained above the Geoweb system by a minimum of 10mm at all times or a permanent wearing course of blocks, porous asphalt or gravel installed.

Stage 4 – Finish Surfacing Detail.

The Geoweb TRP system can be surfaced with the materials listed below.

Finish 1 - Block Paving

- Place TRP1000 geotextile separation fabric over the filled Geoweb.
- Lay sand / gravel bedding material as per manufacturer's recommendations.
- Place porous / standard blocks as per manufacturer's instructions. (Such as Brett Paving)

Finish 2 - Porous and Standard Asphalt.

- Slightly surcharge the Geoweb with 30mm of 4/20mm or 40/20mm clean angular stone.
- Place Base and wearing courses of Asphalt as per manufacturer's instructions.

Finish 3 - Resin Bound Gravels

- Place TRP1000 geotextile separation fabric over the filled Geoweb.
- Lay Asphalt carpet and resin bound gravel to the required thickness and as per manufacturer's instructions.

Finish 4 - Loose Gravels

- Option 1 is to slightly overfill the Geoweb with the clean angular stone by a maximum of 50mm.
- Option 2 is to place a 25mm thick decorative stone above the filled Geoweb.

Finish 5 – Gravel Retention System

- Place a TRP1000 geotextile separation over the filled Geoweb.
- Place 20mm bedding layer of 5mm single sized stone or grit sand and lightly tamp.
- Lay Park Pave gravel retention system and fill with a 10 to 14mm decorative gravel.
- Greenfix Park Pave is a versatile interlocking plastic paver which is ideal for grass or gravel infill. As part of a sustainable drainage system Park Pave can be used for either attenuation or infiltration requirements. Park Pave is a low maintenance, cost effective option which is also made from 100% recycled plastic.

Finish 6 - Concrete

- Place a TRP4000 geotextile separation layer over the filled Geoweb.
- Cast the concrete slab over the geotextile. (depth of slab to be designed by others)



GEOWEB® Tree Root Protection

INSTALLATION GUIDE
simplified version

- 1 Prepare subgrade. Remove debris, rocks.



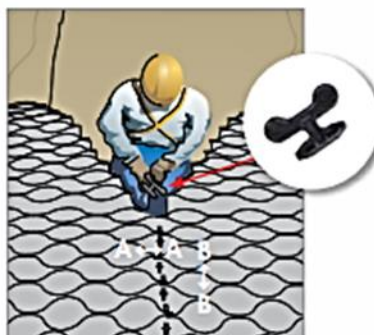
- 2 Install TRP4000 geotextile.
Overlaps by minimum 300 mm.



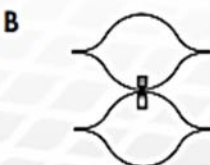
- 3 Partially expand GEOWEB® sections.



- 4 Connect GEOWEB® sections with ATRA® keys.



- 5 Connect side to side (A) and end to end (B).



- 6 Fully expand GEOWEB® sections.



7 Hold sections open. Use Options A, B, C or D.

A T-Bars



B ATRA® anchors



C Wood Stakes



D Infill Select Cells



8 Infill GEOWEB® cells.



9 Spread Infill ensuring a 25 mm overfill at all times.



10 If required, use a 4t smooth, non-vibrating roller on overfilled GEOWEB® system. Refill as needed to ensure a 25 mm overfill.



11 Surface option ready to install according to specification.



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Greenfix
Soil Stabilisation and
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Greenfix Infill material for Tree Root Protection
Clean Angular Stone 4-20mm

Specifications for open graded infill material for Greenfix surface and/or trench within tree root protection applications. The use of this material is to ensure high water runoff whilst ensuring the surface is stable and well-drained for tree root health.

Material to BS813:2005 or BS813:2005. Graded gravel is not permitted.

Properties of material	Test	Value
Grading of particle size	BS813:2005	Grading 4-20mm
Flow Control	BS813:2005	Is
Steeper Bottoms Index	BS813:2005	Plus
Resistance to fragmentation	BS813:2005	Is
Resistance to crushing	BS813:2005	Is
Water absorption rate BS813:2005 clause 7	BS813:2005	Is
For typical 4-20mm aggregate applications	BS813:2005	Is
Joint voids: maximum voids between stones	BS813:2005	Is
Joint voids: maximum voids between stones	BS813:2005	Is
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Stone size	Percentage of stones
40	100
10-15	100
10	100
10	100
10	100
10	100
10	100

GEOWEB®

All tested infill material and stone should be free from deleterious substances in accordance with BS813:2005, clause 7.9.

Sampling of materials for infill material and other required materials should meet requirements of the Environmental Materials Acceptance criteria for best practice when tested in accordance with BS813:2005.

On poor site conditions with regular inspection, this should be minimum 10 years of a smooth-surfaced surface of new weight 1000kg/m² without alterations.

For assistance on correct 4-20mm clean angular stone infill specification, please contact Greenfix technical team.