GEOWEB®

PERMEABLE ACCESS ROAD

Tree Root Protection

PROJECT TEAM

Owner:
Private Residence

Technical Support:
HACS Civil Engineers

Contractor:
The HACS Group

Material Supplier:
Greenfix UK

COPT HEWICK HALL SERVICE ROAD Ripon, North Yorkshire UK

Low-Impact Service Road Offers Access Over Soft Subgrade & Protection of Tree Roots

Project Background

Copt Hewick Hall is a privately owned Grade II listed building near Ripon, North Yorkshire, England. As part of an extensive renovation, a service road was created using the 150mm (6 in) deep GEOWEB 3D soil confinement system. With a permeable aggregate infill, such as that being used on this site, the GEOWEB system allows natural water infiltration. GEOWEB roadways also improve the load distribution characteristics of the structural fill—reducing base requirements at least 50% as well as reducing long-term maintenance requirements.

Without proper support, areas accessed by traffic would rapidly deteriorate to a point where they would become unusable. The relatively poor soil of the local area meant using the GEOWEB roadway system reduced excavation and aggregate requirements while minimizing the likelihood of settlement and deformation.

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Installation of the GEOWEB Access Roadway

Excavation: Because of the GEOWEB system's load distribution, only 200 mm (8 in) of subgrade needed to be excavated compared to the 500 mm (20 in) required for conventional road construction and subgrades of similar CBR value.

Geotextile Soil Separation Layer: A TRP3000 300gsm (10 oz) needle punched geotextile was installed to provide a suitable separation layer between the subgrade and the specified aggregate fill. This grade of geotextile was selected to provide the best balance between infiltration of water from the permeable surface to the subgrade, and strength required for the load support system to perform as expected.

GEOWEB Road Surface Layer: ATRA® Key connectors were used to join GEOWEB® panels together end to end rather than traditional staples.

ATRA Keys are permanent devices—3X stronger than stapling, substantially quicker to install, and safer.

The GEOWEB cell wall slots are designed to enable ATRA keys to create a locked connection (1.1kN tensile strength per connection) for the GEOWEB sections.

As the GEOWEB panels were expanded, they were temporarily anchored to hold them open for infilling. Bends in the roadway were accommodated by over-expanding the outer cells and under-expanding the inner cells until the desired radius was achieved.

Once secured in position, the GEOWEB panels were infilled with aggregate—the cells overfilled slightly to ensure the pavement layer would have a slight wear course (10mm (0.5 in)) once compaction was completed.

Technical support was provided to HACS Civil Engineers by Greenfix UK representatives on site to assist with the prompt completion of this project.

Permeable & Stable Access Road

The completed service road is ready for vehicle traffic. Finished with concrete decorative edging.

Project information and material supplied by GREENFIX UK

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