



Landtech Soils Ltd

CU-Soil™ Suppliers

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Urban Greening Solutions

Cu-Structural Tree Soil - A New System to Integrate Trees and Pavement

The primary focus for the use of CU-Soil is to greatly expand the potential rooting volume under pavement for street trees, with the added advantage of its ability to promote root growth away from the pavement surface, thus reducing the potential for sidewalk heaving, as well as providing for healthier, long-lived trees.

CU-Structural Tree Soil is a designed tree rootzone growing medium which can meet or exceed engineering pavement design and installation requirements, while remaining root penetrable and supportive of healthy tree growth. CU-Soil was developed and patented as a result of years of testing by Cornell Universities's Urban Horticulture Institute and is focused on combining the essential Engineering Specifications, as well as Horticultural requirements, as required for both healthy trees and pavement construction.

CU-Soil is a gap-graded aggregate which is made up of crushed stone, clay loam, and a hydrogel stabilizing agent. For proper installation the material is installed in 6" (150mm) lifts and it must be compacted to meet the relevant pavement design requirements, while at the same time facilitating sustainable tree root growth. Cu-Soil essentially forms a rigid, load bearing stone lattice and partially fills the lattice voids with soil. CU-Structural Soil can provide a continuous foundation under pavements while providing an ideal substrate for tree root growth, shifting landscape design away from individual tree pits to an integrated, root penetrable, high strength pavement system.

Field tests have demonstrated that tree roots naturally tend to grow away from the pavement surface in CU-Structural Soil. Furthermore, Gap-graded CU-Soil has been proven to allow root penetration when fully compacted, it should be compacted to not less than 95% Proctor density (AASHTO T-99) and possess a California Bearing Ratio (CBR) greater than 40.

The installation depth of CU-Structural soil will depend on site conditions, with the preferred recommended depth being up to 1 metre (39"), a minimum depth of 600mm (24") is seen as essential for the tree rooting zone. Subject to the permeability of the subgrade, under-drainage, if required, should be provided beneath the CU-Structural Soil material.

Where the entire sub pavement excavation is not feasible, an acceptable minimum would be a trench, running continuous and parallel to the kerb, ideally up to 3 metres (9') wide and 1 metre (3') deep, this should be considered as the minimum adequate for continuous street tree planting, so as to ensure long term successful tree growth.

Underground Services and Utilities and the Tree Protection Zone.

CU-Soil is suitable for use as a backfilling material in and around underground services and Utility ducting, and when required, within the Tree Protection Zone.

CU-Structural Soil and Rain Water attenuation – SuDS

CU-Structural Tree Soil has been developed and extensively tested as a structural tree rooting medium, and it has an additional application whereby it can be installed with a secondary function option, to function as a rainwater attenuation area, and can help to comply with SuDS obligations for an urban development projects.

With up to 40% macro-pore spaces within the material, if the on-site space allows, the attenuation area can be sized to accommodate the rainfall run-off of even a 50 year rain fall event. This attenuation area can extend under most of the site, as it also forms a structural base for car parking areas, access roads and footpaths as well as the tree planting spaces

CU-Soil™ Specifications

- 1" gap-graded crushed stone
- Pro Soil and a hydrogel stabilizing agent
- Patent held by Cornell University
- Delivered in bulk or ton bags
- Available in Ireland and the UK

Benefits of CU-Soil™

- Satisfies Engineer's Structural Requirements
- Nearly eliminates the Heave Effect
- Improves a Urban Tree's Lifespan
- Increases a Trees Carbon Capacity
- Promotes Downward Growth