



WE KNOW SERVICES

ARBORICULTURAL METHOD STATEMENT

WINDY ARBOR PLAYING
FIELD
WINDY ARBOR ROAD
WHISTON
L35 3PN

MAY 2021

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Ref: Windy Arbor

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1.0 Discussion

- 1.1 Most of the root system, of a tree, is in the surface 600mm of the soil, extending radically for distances frequently more than the trees height. Beyond the main structural roots (close to the base of the trunk), the root system rapidly sub-divides into smaller diameter roots: off this main system, a mass of fine roots develops.
- 1.2 The shape of the main structural roots develops in response to the need for the tree to have physical stability. Beyond these major roots, root growth and development is influenced by the availability of water and nutrients. Unless conditions are uniform around the tree, which would be unusual, the extent of the root system will be very irregular and difficult to predict. It will not generally show the symmetry seen in the branch system.
- 1.3 The parts of the root system, which are active in water and nutrient uptake, are very fine, typically less than 0.5mm diameter. They are short lived, developing in response to the needs of the tree, with the majority dying each winter. It is essential that conditions in the soil remain conducive to the healthy growth of these fine roots so that the water and nutrients necessary for healthy tree growth can be absorbed.
- 1.4 All parts of the root system, but especially the fine roots, are vulnerable to damage. Once they are damaged, water and nutrient uptake will be restricted until new roots have regenerated. Vigorous young trees will be capable of rapid regeneration, but over mature trees will respond slowly, *if at all*.
- 1.5 To live and grow, roots need oxygen from the soil. Respiration by the roots and other soil organisms depletes this oxygen and increases carbon dioxide levels in the soil; a correct balance of these gases is normally maintained by diffusion between the soil and the atmosphere. Anything, which disturbs this balance, will affect the condition of the root system.
- 1.6 The factors that most commonly affect this diffusion adversely, and therefore damage roots, are the following: -
 - a) Compaction of the ground, which reduces the space between soil particles. This is particularly important on clay soils. A single passage by heavy equipment on clay soils or storage of heavy materials can cause significant damage.
 - b) Changing soil levels, even for a few weeks.
 - c) Covering the root area with impervious surfaces.
 - d) A rise in the level of the water table. Roots can tolerate submersion for short periods. But a permanent rise will deplete the soil of oxygen.
- 1.7 Serious damage is often caused during preliminary site works by stripping the topsoil. For this reason, such works should be avoided until protective fencing has been erected.

- 1.8 Excavations in the rooting area can sever roots. Because most roots are in the surface 600mm, even shallow excavations can cause damage.
- 1.9 Excavations for foundations, landscaping or service trenches are usually sufficiently deep to sever most of the roots, and it should therefore be assumed that all parts of the root system beyond the excavation would no longer serve the tree.
- 1.10 Excavation or soil stripping which sever or damage the roots may impair the stability of the tree and make it dangerous.

2.0 Method Statement

2.1 Tree Works

- 2.1.1 Before any form of development commences on the site the following works should be undertaken: -

Tree No.	Proposed Works
T2, T3, T4	Remove trees as detailed on plan
G5	Crown raise to 5m above existing hard standing.

2.2 Installation of Protective Fencing

- 2.2.1 All fencing used on the site should fully comply with BS 5837:2012 (Trees in Relation to Construction – Recommendations)- refer to Appendix 2.0.
- 2.2.2 The fencing should be strong and suitable for local conditions. It should also consider the degree of construction activity on the site.
- 2.2.3 The fencing should be at least 2.3m in height and should be erected with both a vertical and horizontal scaffolding framework capable of withstanding impact, with vertical tubes spaced at a maximum of 3 m. This should support either weldmesh panels which should be securely fixed with wire or scaffold clamps.
- 2.2.4 Notices should also be erected on the fencing stating 'Protected Area - No operations within fenced area'.
- 2.2.5 The positioning of the protective fencing is also very important and should be erected in the proposed location identified in Appendix 1.0. Once the fence has been erected it should never be crossed and particular care should be taken to store any materials or soil within the protected area.
- 2.2.6 Where it is demonstrated that there is a presence of underground services, an alternative arrangement is acceptable using boots to support the vertical sections of the fence and a stabilizer strut mounted on a block tray.

2.3 Methodology for the Construction of Hard Standing

2.3.1 The following methodology supports the drawing indicating the construction of the car parking spaces within the RPA of G5. The methodology is prepared based on the sequence of operations necessary to complete the construction of the driveway and footpaths with the minimum damage to the trees proposed for retention.

- All work within the RPA will be carried out under a watching brief from a qualified arboricultural consultant.
- The surface layer is to be scraped off (no more than 50mm). This can be done either by hand or by very small machinery.
- Erect protective fencing to the edge of the construction area.
- Spread a sub grade material to fill any small ruts.
- Construct edging using treated timber if required.
- Lay geotextile mat over smoothed area.
- Extend the Geoweb perforated tree root protection system with sufficient overlap such that kerbs can be constructed on top of the Geoweb.
- Fill the voids within the Geoweb with reduced fines Type 1 material working into the site over the top of the Geoweb.
- Lay edgings and surface over the Geoweb such that the construction binds itself together.
- Construct finished surface as required in line with specifications detailed on the Tree Protection Plan at **Appendix 1.0**.

2.4 Additional Precautions Outside Fences Areas.

2.4.1 Oil, bitumen, cement, or other material likely to cause damage to the tree will not be stacked or discharged within 10m of the trees stem or within the protective area. Also, materials in general will not be stacked or discharged within the exclusion zone.

2.4.2 Concrete mixing and washing will not be carried out within 10m of any retained trees.

2.4.3 Fires will not be lit beneath the foliage or in a position where the flames could extend to within 5m of the foliage, branches, or trunk. If the fire is large, then this may necessitate a distance of at least 20m.

2.4.4 Trees that are to be retained will not be used as anchorage for equipment.

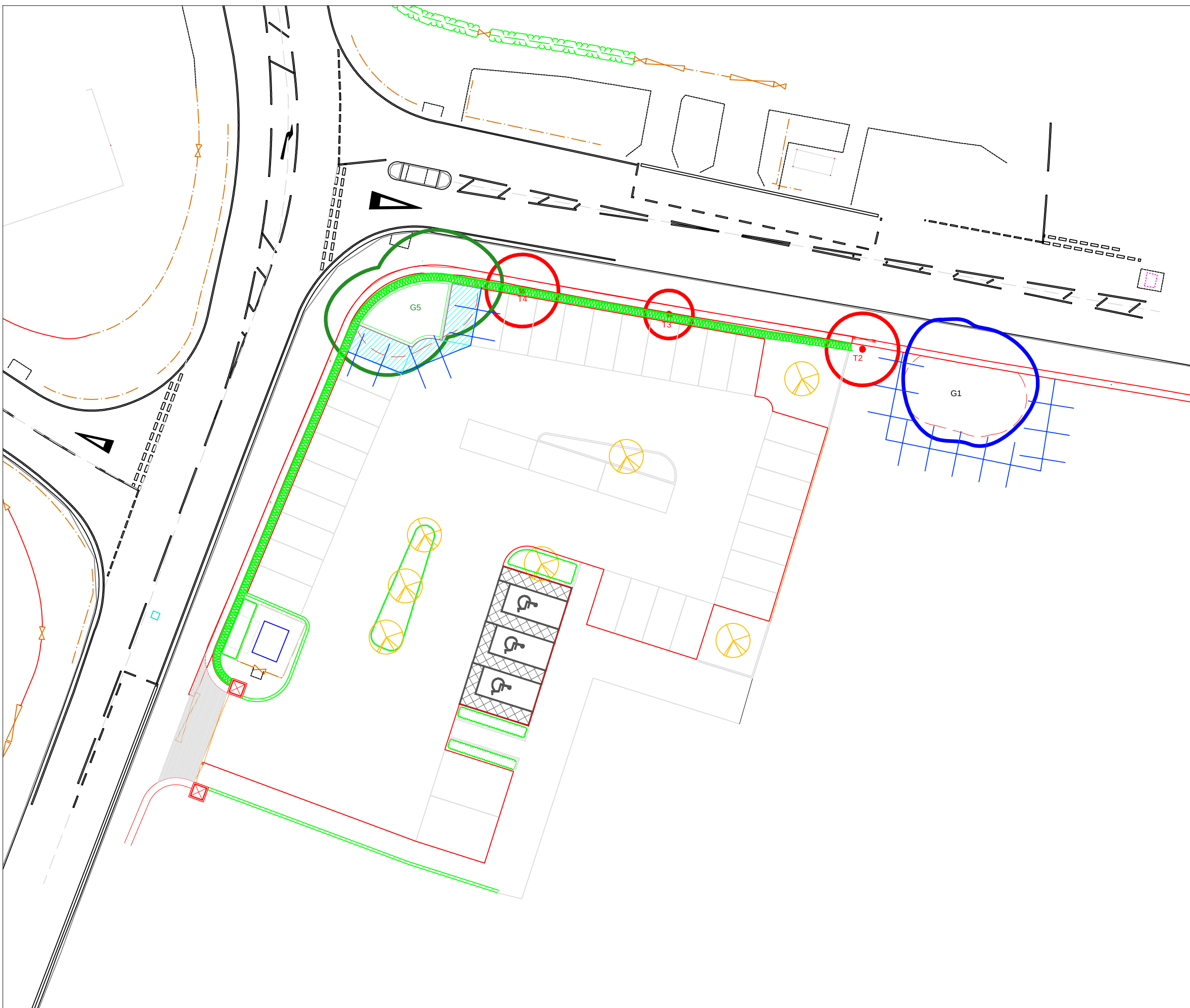
- 2.4.5 Notice boards, telephone cables, or other services will not be attached to any part of the retained tree.
- 2.4.6 Care should be taken when using cranes or other equipment near the canopy of the retained trees. Also, any trees to be felled in proximity to the retained trees should be done so with particular care.

2.5 Tree Planting

- 2.5.1 All imported soils should be uncontaminated and from a recognised supplier in accordance with *BS 3882:2015 Specification for Topsoil*.
- 2.5.2 Trees and shrubs planted shall comply with *BS 3936 Specification of Nursery Stock* and shall be planted in accordance with *BS 4428 General Landscape Operations* and *BS8545:2014 Trees from Nursery to Dependence in the Landscape*.
- 2.5.3 Bare root and root-balled stock to be planted in the dormant season (which typically extends between from mid-November to late-March). All planting stock to be clearly labelled on delivery with the full botanical name.
- 2.5.4 Tree pits to be dug 400mm larger than rootball in any direction. Organic soil improvement compost to be dug into all planting areas and used at 1m³ per 10m². All planting beds to be mulched in 75mm depth medium grade bark mulch immediately after planting.

Appendix 1.0

Tree Plan



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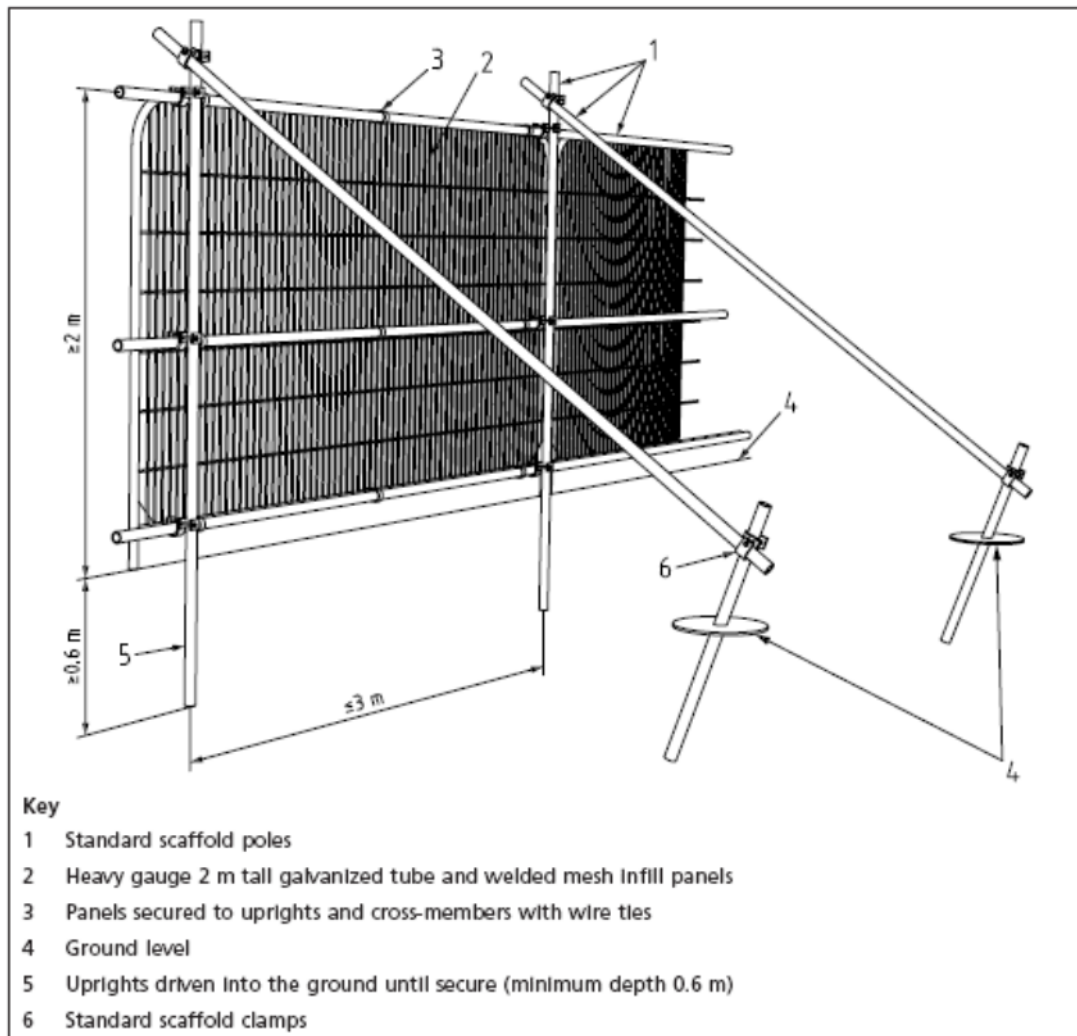
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Windy Arbor Road
Whiston
L35 3PN

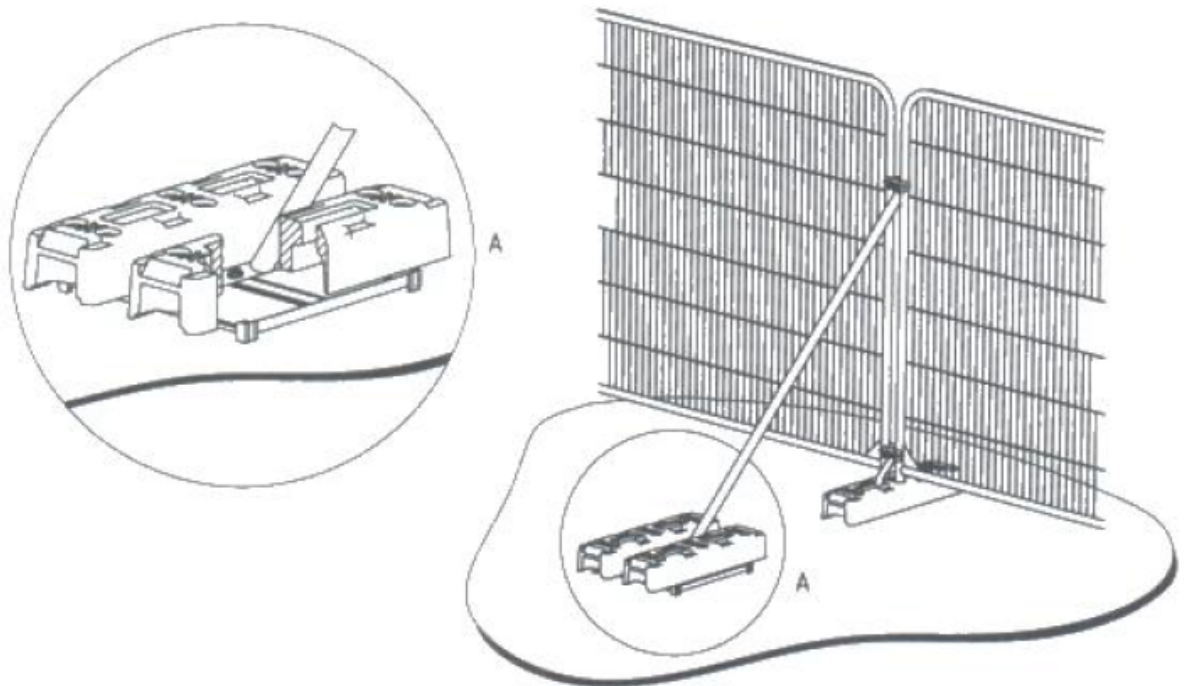
Drawing Title: Tree Protection Plan		Drawing No: WA/TPP
Date: 24/05/2021	Scale: 1:300@A3	Drawn by: JH

Note: Dimensions are not to be scaled from this drawing.
All written measurements are to be checked on site by the contractor. Copyright WeKnow Services.
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Appendix 2.0

Tree Protection Fencing





Fencing arrangement in the presence of underground services- vertical sections mounted in boots and stabilizer strut mounted on block tray

Appendix 3.0

Installation of Cellweb TRP

Cellweb® TRP Installation Guide



Step 1: Prepare Surface



Step 2: Lay out Treetex™



Step 3: Lay out Cellweb® TRP

- Cellweb® TRP is a NO DIG tree root protection measure and it is recommended that no excavation be performed without prior approval and guidance from the Local Authority Arboricultural Officer.
- Soil compaction from vehicles, machinery and materials is to be strictly prohibited during construction within Root Protection Areas (RPAs).
- Approval must be obtained from the Local Authority that the design and the method of construction is acceptable.
- Further information is available from the following two documents;
 - British Standard BS5837: 'Trees in Relation to Design, Demolition and Construction' (2012).
 - Arboricultural Advisory and Information Service: Practice note 12 – 'Through the Trees to Development' (APN12).

Installation Method

1. Prepare the Surface

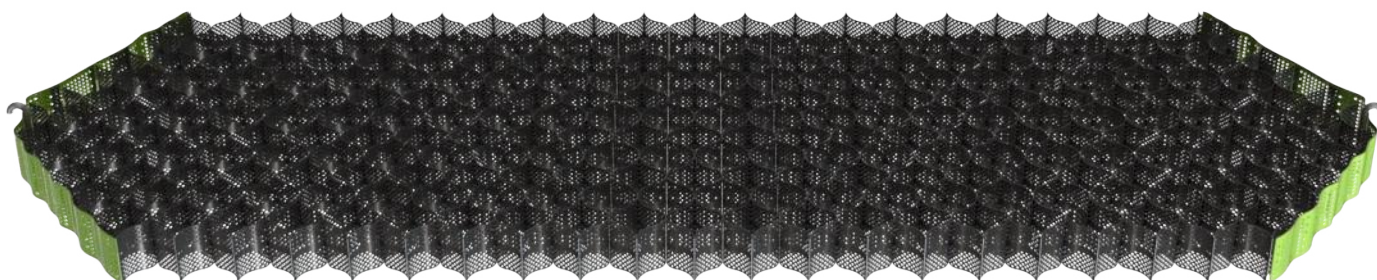
- Remove the surface vegetation using appropriate hand held tools or herbicide (see Note 1).
- Remove any surface rocks, debris and organic material.
- Create a level surface by filling any hollows with clean angular stone or sharp sand.
- Do not level off high spots or compact the soil through rolling.

2. Lay out the Treetex™ Non-Woven Geotextile

- Lay out the Treetex™ over the prepared area, overlaying the edges of the required area by 300mm.
- Overlap any joins by 300mm minimum or more, depending on soil structure (see Note 2).

3. Lay out the Cellweb® TRP Cellular Confinement System

- Lay out the collapsed Cellweb® TRP on-top of the Treetex™.
- Place one of the supplied J pins into the centre cell at the end of the panel and secure into the ground.



Cellweb® TRP - Installation Guide

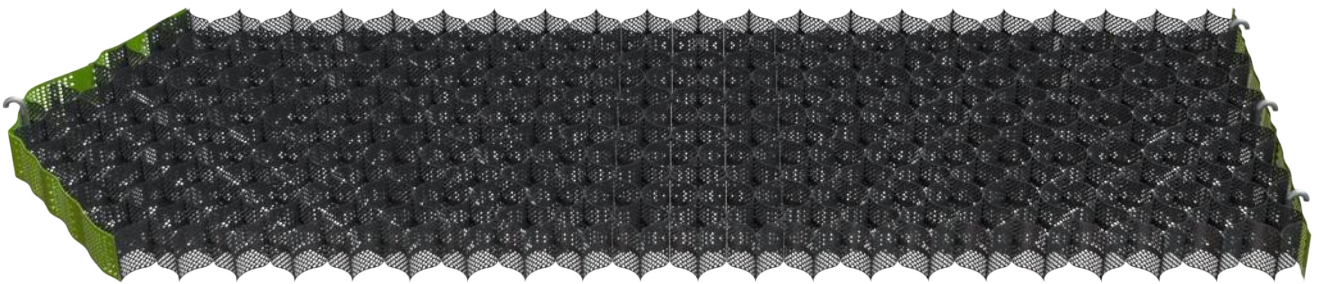


Step 3: Pinning Cellweb® TRP

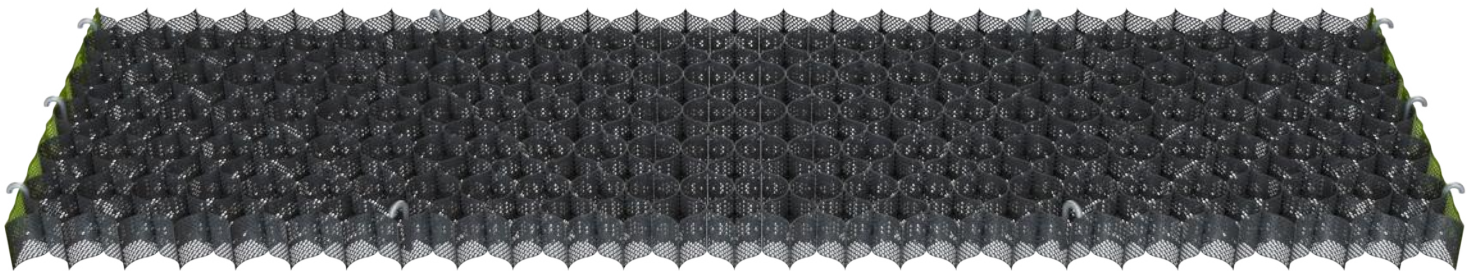


Step 3: Stapling Cellweb® TRP

- Pull out the Cellweb® TRP to its full 8.1m length and secure its length with another J pin.



- Now measure its width to 2.56m and secure in each of the corners with the J pins.
- Use 10 pins per panel to create a panel measuring 8.1m x 2.56m.



- This will produce a cell size of 259mm x 224mm which is the required cell diameter. Each cell must be fully extended and under tension.
- Staple adjacent panels together at each cell (see Note 3).
- If a curved path or shape is required, this should be cut when the Cellweb® TRP panel is pinned out to 8.1 x 2.56m, ensuring complete cells remain. Do not try to curve or bend the Cellweb® TRP panels into place.
- All cells must be fully opened to the required diameter.

Cellweb® TRP - Installation Guide



Step 4: Clean Angular Stone



Step 5: Edge Restraints



Step 6: Surface Options

4. Infill the Clean Angular Stone

- The infill material must be a clean angular stone, Type 4/20mm or Type 20/40mm (see Note 4).
- Do not use M.O.T type 1 or crushed stone with fines for tree root protection.
- Infill the Cellweb® TRP cells with the clean angular stone, working towards the tree and using the infilled panels as a platform.
- Minimum 25mm overfill of clean angular stone when used in conjunction with a hard surface.
- No compaction is required of the infill. Do not use a whacker plate or other means of compaction.
- Encourage settlement of the stone with the use of a light roller or with 2-3 passes of the construction plant used for installation.
- If the clean angular stone is being used as the final surface; regular maintenance will be required to ensure a minimum overfill of 50mm.

5. Edge restraints

- Excavations for kerbs and edgings should be avoided within the RPAs.
- Where edging is required for footpath and light structures, a peg and treated timber board edging is acceptable
- Other options include wooden sleepers, kerb edging constructed on-top of the Cellweb® TRP system, plastic and metal edging etc.

6. Surface options

- All surfaces in Root Protection Areas must be porous. Surfaces can include block paving, asphalt, loose gravel, grass and gravel retention systems (e.g Golpla), resin bound gravel, concrete etc.

NOTES

1. **Herbicide:** According to BS5837:2012 "The use of herbicides in the vicinity of existing trees should be appropriate for the type of vegetation to be killed, and all instructions, warnings and other relevant information from the manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained, species to be introduced, and existing sensitive habitats, particularly those associated with aquatic or drainage features."
2. **Geotextile:** We recommend the installation of a Treetex™ under the Cellweb® TRP, or under the sub-base, if installed. The overlapping between adjacent rolls of Geotextile should be: CBR > 3%: 300mm minimum, CBR between 1% and 3%: 500mm minimum. CBR ≤ 1%: 750mm minimum.
3. **Staples:** Number of staples per join: 200mm: 5 staples. 150mm: 4 staples. 100mm: 3 staples. 75mm: 3 staples.
4. **Granular Fill:** Open graded sub-base, clean angular stone Type 4/20 or Type 20/40. Please refer to BS7533-13:2009 and to the Design Manual for Roads and Bridges (DMRB), Volume 4 Geotechnics and Drainage, Section 1 Earthworks, HA44/91, Volume 7 – IAN 73/06 Design Guidance for road pavement foundations and Manual of Contract Documents for Highway Works (MCHW), Volume 1 Specification for Highway Works for the construction and maintenance of the fill material.

