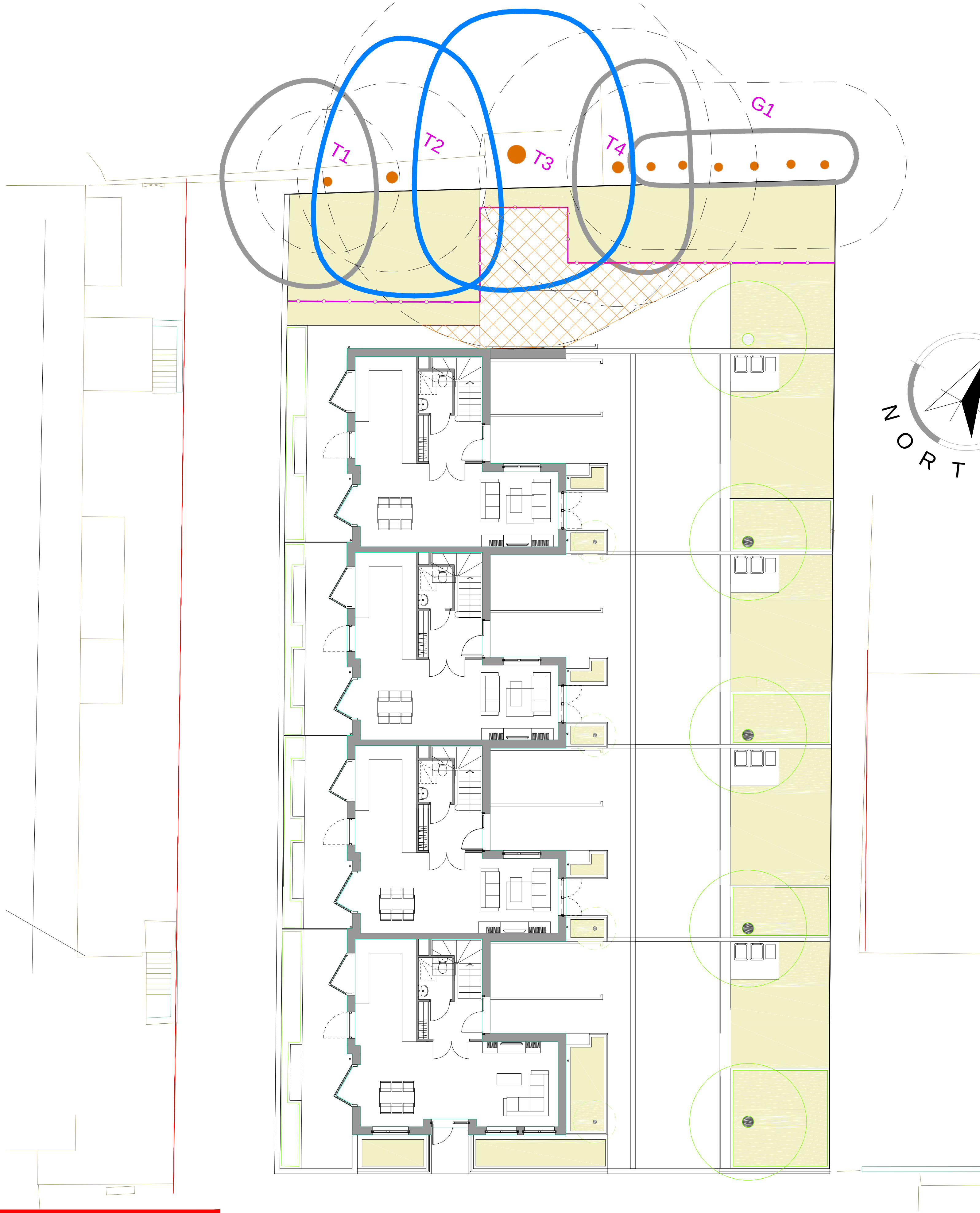




LEGEND

T1

Class A

Class B

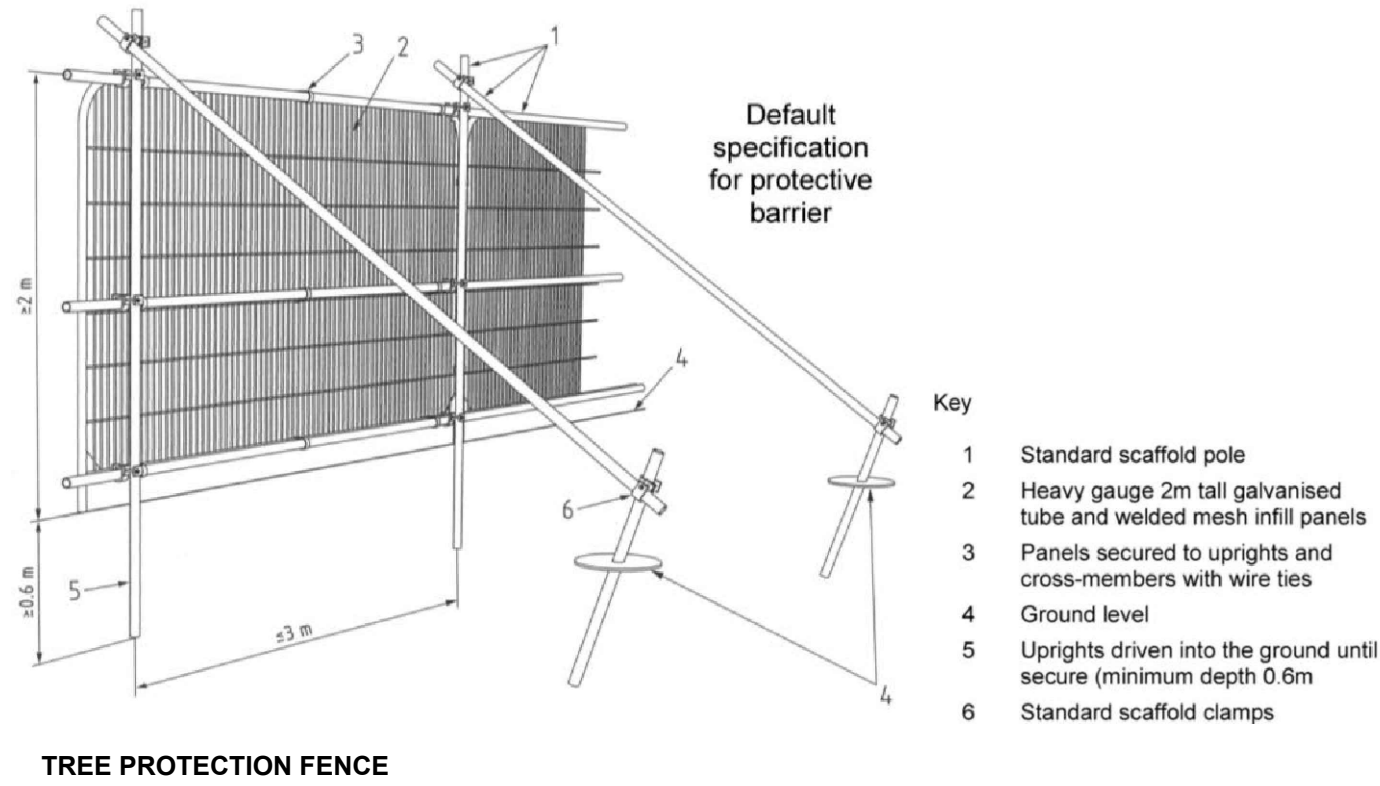
Class C

Class U

TREE PROTECTION FENCE

NO DIG ZONE

NOTE
POPLAR TREE MARKED T5 ON THE APPROVED
TREE SURVEY HAD FALLEN DOWN 12 MONTHS
AGO AND IS NOT SHOWN ON THIS DRAWING



GEOCELL FOR TREE ROOT PROTECTION
SPECIFICATION & INSTALLATION GUIDANCE
TERRAM GEOCELL CONFINEMENT SYSTEM FOR TREE ROOT PROTECTION

Terram Geocell is a geocellular sub-base confinement system designed for the protection of tree roots where the construction of roads, car parks and access routes are required in the vicinity of trees and where Tree Preservation Orders (TPO) may be enforced. The structure confines and stabilises the sub-base stone ensuring that vehicle loads are dissipated, rutting and soil compaction is prevented and damage to tree roots is avoided. When installed as advised, Terram Geocell will also allow the continued passage and circulation of air, water and nutrients to tree roots to sustain a healthy growing environment as recommended by the following 2 documents:

- British Standard BS5837: 'Trees in Relation to Construction' (2005).
- Arboricultural Advisory and Information Service: Practice Note 1 – 'Driveways Close to Trees' (APN1)

Tree Root Protection is supplied flat packed and opens to form a strong geocellular structure. It is simply pinned in place using metal fixing pins as described.

In this type of 'Reduced-Dig' or 'No-Dig' Tree Route Protection application, Terram Geocell is intended for use in conjunction with a water and gas permeable SuDS (Sustainable Drainage System) compliant pavement surface product such as BodPave®85 cellular plastic paving, Concrete Porous Block Paving or Porous Asphalt surfaces. Although Terram Geocell can be used by traffic in isolation for a very limited period when filled; it is not advised that Terram Geocell is used as the permanent surface finish for vehicle access routes. Exceptions may arise where Terram Geocell is installed as a temporary haul road for example as a site access route and may be removed and disposed of or fully re-surfaced after use. Refer to installation method details for further information.

GEOCELL FOR TREE ROOT PROTECTION MIS 456 Issue 3: Feb 2012
INSTALLATION METHOD FOR PERMANENT ACCESS ROUTES AND CAR PARKS

1. Obtain the approval of the Local Planning Department and Arboriculture Officer that this method of construction is appropriate and acceptable for the application and to determine the limits of construction and proximity to the tree.
2. Prepare the site by carefully removing all debris and reducing surface levels to the allowable reduced dig as appropriate to the specification, whilst strictly avoiding soil compaction and tree root damage. Build-up directly on the existing surface levels may be necessary.
3. Ensure that the prepared surface is reasonably even and fill any localised depressions with sharp sand to achieve an even surface profile. Do not roll or consolidate the area.
4. Install tanalised timber edging boards or other approved edge retention to the perimeter of the construction zone as appropriate to the total layer profile thickness. Avoid damage to tree roots when placing fixing posts and pegs. Concrete kerbs are unlikely to be appropriate or allowed.
5. Install a layer of BGT100 Geotextile Fabric across the site, overlapping adjacent rolls by a minimum of 150mm. It may be necessary to lightly pin the Geotextile in place until the overlying layers are installed.
6. An optional layer of Tensar TX160 TriAx™ Geogrid may be required at this stage, possibly determined by the site soil strengths (i.e. weak CBR% strength*), the proposed application and applied load such as HGV's. In some cases the TX160 layer may also aid the reduction of the required layer thickness of Terram Geocell where an extremely limited allowable excavation or build-up has been applied. Place the Geogrid layer over the Geotextile Fabric layer and fix down using steel pins to hold flat. Overlap adjacent rolls by minimum 150mm. Avoid tree root damage and soil compaction.
7. Open out and lay the specified layer thickness of Terram Geocell (100mm/150mm/200mm deep) and pin in place between the edging boards. It may be necessary to cut the Terram Geocell to size using a sharp knife or it can be left uncut and folded up against the edgings if preferred.
8. Pin the Terram Geocell in place using Steel Fixing Pins or similar approved. The pins are generally used to maintain the cells in an open and fully expanded position whilst the cells are being filled and also to stop the structure from being pushed up by migrating aggregate during the filling process. Pin spacing will vary according to the site conditions, but will generally be required at 1m – 2m centres on flat surfaces, mainly placed around the perimeter of the area and where adjacent sections of Terram Geocell abut each other, with less in the middle of the area. Drive the pins in so that they are just touching the top of the cells but do not compress the fabric. Avoid tree root damage during the pinning process.
9. Fill the Terram Geocell, working toward the tree from the furthest point away and using the filled Terram Geocell as a platform. The cells must be filled with clean, open graded angular aggregate, normally in the particle size range of 5mm - 45mm. Not single sized or rounded aggregate. The project engineer may determine alternative fill materials such as clean 4/20 or 4/40 stone or a reduced-fines DoT Type 1X sub-base. It is not acceptable to use a standard DoT Type 1 Sub-base within the cells for tree root protection. Do not roll the surface, a light vibratory compaction plate (whacker) may be permitted to settle the stone into the cells, seek advice from the specifier or Tree Officer on this detail. Do not contaminate the filled cells with site debris, soil or mud.
10. Install the permeable pavement layer/wearing course i.e. BodPave®85, Block Paving, Porous Asphalt, on top of the Terram Geocell according to the manufacturers recommendations. Each porous pavement layer will have a specific design layer requirement; therefore for example, where a sand or sand/soil bedding layer is specified or a contaminant filtration layer is required, then a layer of BGT100 Geotextile Fabric shall be placed above the Terram Geocell prior to the pavement bedding layer being installed and finished according to manufacturers instructions. The Geotextile will stop the pavement bedding layer from migrating down into the aggregate voids within the Terram Geocell.

For installation recommendations for BodPave®85 cellular paving for Grass & Gravel, refer to BodPave®85 Specification and Installation Guidance Notes.

PLANNING

NOTE
This drawing is copyright.
Do not scale, use figured dimensions only.
The contractor is to check all dimensions on site before commencement of the works.
Discrepancies must be reported immediately to the architect before proceeding.

REV	DATE	DESCRIPTION	CHK.
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SCALE 1:100

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architects+
interiors

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PROJECT
RESIDENTIAL DEVELOPMENT

DRAWING TITLE
TREE PROTECTION PLAN

DRAWING NO. REV.
GWA-954-PL 51

SCALE	DATE	DRAWN	CHECKED
1:100@A1	AUG 20	ADB	