Installation of tree root protection systems for low-impact surfacing

Key Recommendations

1) The use of cellular confinement systems can be effective in protecting soils and tree root systems when new hard surfacing is required near trees. However, in this context the installation of geocell sub-bases inevitably involves working on top of tree root systems and as such there will be an elevated risk of damaging tree roots and the structure of the soil. Therefore, careful working procedures are required to ensure that trees are suitably protected when the installation works are carried out.

2) The installation of cellular confinement systems should be directed by a project-specific arboricultural method statement. The arboricultural method statement should list any aspect of the proposed construction project that has the potential to adversely impact adjacent trees and detail appropriate methodologies for how the works will be undertaken in ways that would minimise those impacts.

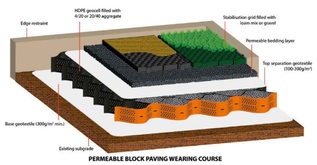
3) Tree roots can be directly damaged as the ground is levelled in advance of laying down a cellular confinement system and so it is recommended that this part of the process is carried out under arboricultural supervision. The use of a tracked excavator within a tree's root protection area should only be permitted if it is supervised by a suitably qualified arboriculturist.

4) The cellular confinement system must be filled with clean angular stone that contains no fine material. To protect the geocell membrane it is advised that geocells are overfilled by a minimum of 25mm. In order to function effectively it is crucial that all of the cells are fully expanded and filled to capacity. Therefore, if there is insufficient space for a cell to be expanded it should be cut away and discarded.

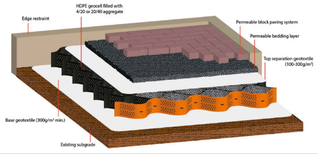
5) When cellular confinement systems are installed within tree root zones it is important that the wearing course is permeable so that air and water can reach the soil beneath. Systems should be put in place to ensure that the surface is regularly cleaned so that it maintains its porosity.

6) The means to successfully prevent ground compaction during construction need to be planned from the conceptual stages of a building project. It may be that the no-dig surface needs to be installed and used during construction, and in other situations the ground may need to be protected until it is time to install the cellular confinement system. Therefore, the project arboriculturist needs to work with the architect, the project engineer, and the building contractor during the planning stages as well as during the construction of the surface. Examples of low-impact surfacing design principles below are taken from the Arboricultural Association guide to good practice booklet 'The use of cellular confinement systems near trees' (*Images courtesy of Core LP*)

STABILISATION GRID WEARING COURSE FILLED WITH SOIL OR GRAVEL



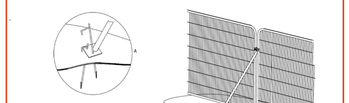
PERMEABLE BLOCK PAVING WEARING COURSE



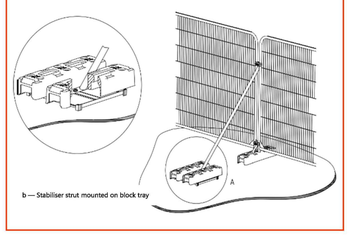
Tree Protection Guidance
Examples of alternative protective barriers

As set out in clause section 6.2.2.3 of the British Standard BS5837:2012 a range of alternative methods can be used to protect the trunks and underlying soil but whatever the choice of method, the end result must be fit for purpose to prevent the protected area from being breached by the construction activities.

Extract from BS5837: 2012 Figure 3: Example of above-ground stabilizing systems.



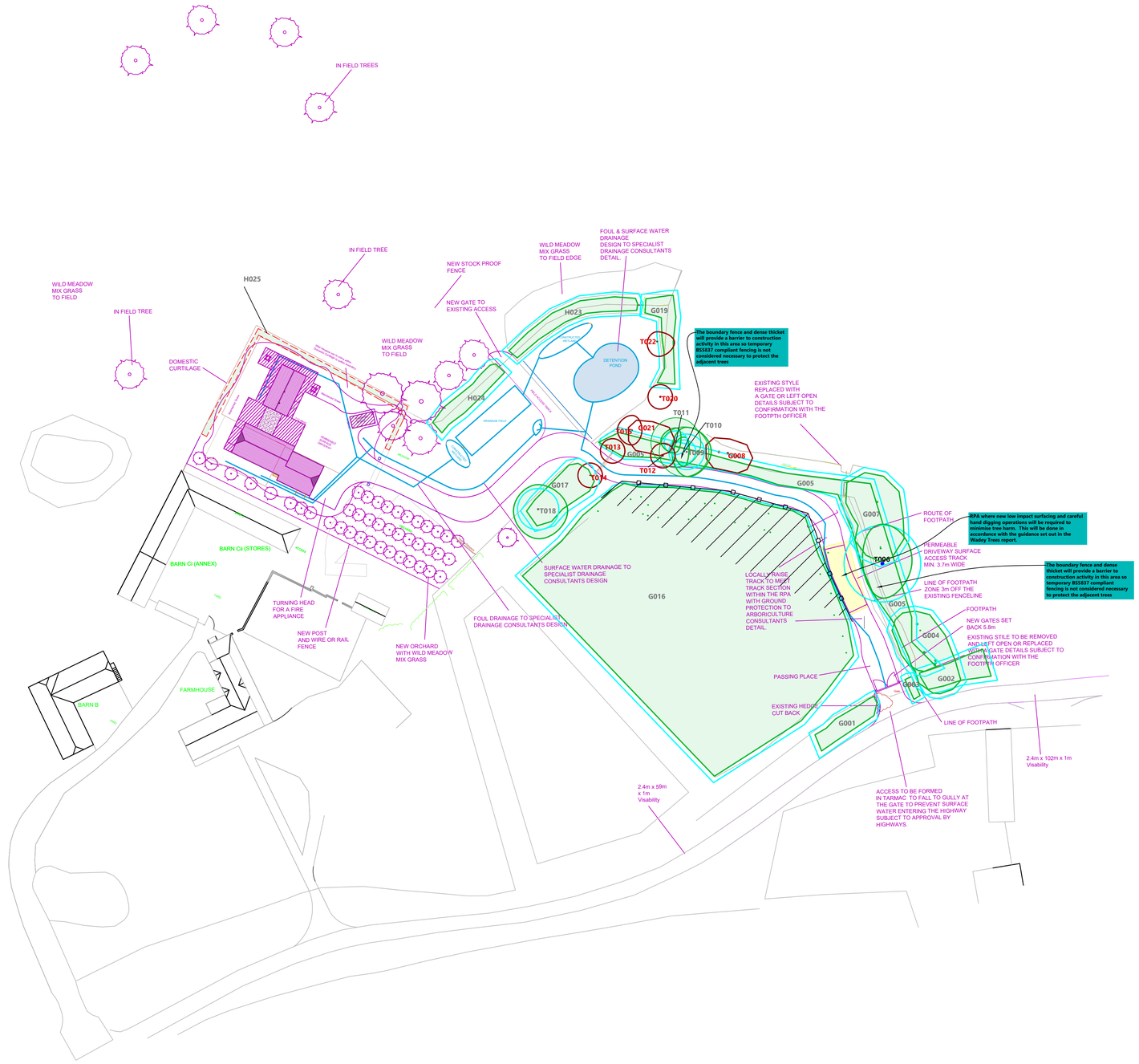
a. Stabilizer strut with base plate secured with ground pins.



b — Stabiliser strut mounted on block tray



In this case, an alternative protection option (as set out in clause section 6.2.2.3 of the British Standard BS5837:2012) can be used to minimise harm. For example, 2m tall, welded mesh panels on rubber feet (Appendix 3 of the Wadey Trees report) or a protective barrier using wooden supports and orange mesh (image above) should be used and retained at the locations shown on the plan until construction is completed. Provided that either of these barrier options is properly installed and maintained, there is unlikely to be any significant adverse effects on the health or amenity value of adjacent trees.



0 Metres 5 10 15 20 25

Scale: 1:500 @ A1

Key:

- T001 — Trees - colour coded by BS 5837 category
- A — BS category - Trees of high quality
- B — BS category - Trees of moderate quality
- C — BS category - Trees of low quality
- U — BS category - Trees unsuitable for retention
- Notional BS 5837 RPA boundaries
- Offset BS 5837 RPAs taking account of pre-existing barriers to root growth
- Trees to be removed
- Tree canopies
- Existing layout
- Proposed layout
- Construction exclusion zone (CEZ) to be protected by BS 5837 compliant fencing
- Precautionary area
- Drainage

For further information, refer to the WT tree schedule. Do not scale from this drawing (unless for planning purposes), please check all dimensions on site, and notify us of any discrepancies. Wadey Trees Ltd cannot be held responsible for inaccuracies in the topographical plan on which this drawing is based. © Wadey Trees Ltd 2020.
This drawing is designed to reflect only the principles of layout and/or design insofar as these relate to the protection of trees to be retained, and should NOT be read as a definitive engineering or construction method statement. Reference should be made to the architect or structural engineer, as appropriate, over any matters of construction detail or specification, or any engineering standards or regulatory requirements relating to proposed structures, hard surfaces or underground services.

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DRAWN	CHECKED	DATE	REVISION
EJS	MJW	2 July 26	

LOCATION OF TREES CATEGORISATION & DEVELOPMENT AT: Pitts Farm, Sedgehill, Shaftesbury, SP7 9JB

DRAWING NO: WTP1 — DRAWING TITLE: Part 1: RPA Constraints

SCALE	SHEET SIZE	SHEET NUMBER
1:500	A1	

JOB PROJECT NO: WT 023-26 — STATUS: PUBLISHED

CLIENT PROVIDED PLAN REF: Planning Pack 01.07.2026

Tree No.	Species	Retention Category	RPA
G001	Blackthorn *(30%) (Prunus spinosa)* Hazel *(20%) (Corylus avellana)* Hawthorn *(50%) (Crataegus sp.)*	C1	Area: 89 sq m.
G002	Hazel *(20%) (Corylus avellana)* Hawthorn *(50%) (Crataegus sp.)* Blackthorn *(30%) (Prunus spinosa)*	C1	Area: 89 sq m.
G003	Holly *(50%) (Ilex sp.)* Blackthorn *(50%) (Prunus spinosa)*	C1	Area: 22 sq m.
G004	Ash *(100%) (Fraxinus sp.)*	C1	Area: 198 sq m.
G005	Hawthorn *(50%) (Crataegus sp.)* Blackthorn *(50%) (Prunus spinosa)*	C1	Area: 492 sq m.
T006	Ash *(Fraxinus sp.)*	B1	Radius: 7.8m. Area: 191 sq m.
G007	Ash *(100%) (Fraxinus sp.)*	C1	Area: 209 sq m.
G008	Elm *(100%) (Ulmus sp.)*	U	Area: 82 sq m.
T009	Ash *(Fraxinus sp.)*	C1	Radius: 3.6m. Area: 41 sq m.
T010	Elm *(Ulmus sp.)*	C1	Radius: 2.4m. Area: 18 sq m.
T011	Sycamore *(Acer pseudoplatanus)*	C1	Radius: 2.4m. Area: 18 sq m.
T012	Elm *(Ulmus sp.)*	U	Radius: 3.0m. Area: 28 sq m.
T013	Elm *(Ulmus sp.)*	U	Radius: 1.8m. Area: 10 sq m.
T014	Elm *(Ulmus sp.)*	U	Radius: 1.8m. Area: 10 sq m.
T015	Ash *(Fraxinus sp.)*	U	Radius: 1.8m. Area: 10 sq m.
G016	Hornbeam *(20%) (Carpinus betulus)* Field maple *(5%) (Acer campestre)* Oak *(40%) (Quercus sp.)* Hawthorn *(10%) (Crataegus sp.)* Cherry *(20%) (Prunus sp. 'Cherry')* Poplar *(5%) (Populus sp.)*	C1	Area: 2612 sq m.
G017	Hawthorn *(50%) (Crataegus sp.)* Blackthorn *(30%) (Prunus spinosa)* Hazel *(20%) (Corylus avellana)*	C1	Area: 89 sq m.
T018	Ash *(Fraxinus sp.)*	C1	Radius: 4.2m. Area: 55 sq m.
G019	Hawthorn *(50%) (Crataegus sp.)* Hazel *(20%) (Corylus avellana)* Blackthorn *(30%) (Prunus spinosa)*	C1	Area: 89 sq m.
T020	Elm *(Ulmus sp.)*	U	Radius: 3.6m. Area: 41 sq m.
G021	Elm *(100%) (Ulmus sp.)*	U	Area: 82 sq m.
T022	Ash *(Fraxinus sp.)*	U	Radius: 2.4m. Area: 18 sq m.
G023	Hawthorn *(60%) (Crataegus sp.)* Hazel *(10%) (Corylus avellana)* Field maple *(30%) (Acer campestre)*	C1	Area: 138 sq m.
G024	Hazel *(10%) (Corylus avellana)* Field maple *(30%) (Acer campestre)* Hawthorn *(60%) (Crataegus sp.)*	C1	Area: 138 sq m.
G025	Hawthorn *(60%) (Crataegus sp.)* Field maple *(30%) (Acer campestre)* Hazel *(10%) (Corylus avellana)*	C1	Area: 101 sq m.