

**BLOSSOM FIELDS, LAND SOUTH OF  
COTEFIELD BUSINESS PARK,  
BODICOTE**

**CONSTRUCTION ENVIRONMENTAL  
MANAGEMENT PLAN: CONDITION 16 TREES AND  
BIODIVERSITY**

December 2017

- 
1. EXAMPLE NO DIG CELLULAR CONFINEMENT SYSTEM; UNDERHILL TREE CONSULTANCY
  2. TREE PROTECTION PLAN (UTC-0225-P04-TPP); UNDERHILL TREE CONSULTANCY (updated 20th July 2018)



## Appendix A - No-dig, cellular confinement systems

### Principles of no-dig hard surface construction

Cellular confinement systems (CCS) are constructed using a three-dimensional grid of plastic cells filled with no-fines angular aggregate. The system transfers vertical loads horizontally, thereby reducing ground pressure. The cells prevent sideways displacement of the aggregate.

Several manufacturers produce CCSs (see below). Cellweb™ Geosynthetics recommend a grid depth of:

- 100mm for domestic vehicles.
- 150mm for refuse vehicles, fire engines etc.
- 200mm for heavy construction vehicles.

Other than removal of surface vegetation and filling of ground irregularities with sharp sand, there is to be no preparation of the soil beneath the CCS with **NO COMPACTION** of soil by vehicles or plate compactors.

Between the soil and the CCS, a geotextile such as Treetex™ is laid. Apart from separating the soil from the aggregate, Treetex™ minimises the movement of oil pollution into the root zone beneath. A general geotextile such as Terram™, is not suitable.

The CCS cells are filled with a no-fines angular aggregate, such as Type 4/20 or Type 20/40. MOT Type 1 or Type 3 **MUST NOT BE USED**. The fine particles in these products prevents air and water diffusion.

The CCS edges can be retained by several methods, such as filling the outermost cells with concrete, mounding with soil, or by using railway sleepers or timber board edging. These methods can also be used to retain the wearing surface, or a system using aluminium edging, such as AluExcel™ or similar, can be fixed into the concrete in the outermost cells.

The wearing surface must be porous such as SuDS block paving using grit between blocks, porous Bitmac, porous resin-bound gravel using a porous binder course, loose gravel, or a proprietary product such as Golpla System infilled with gravel, or Sudscape.

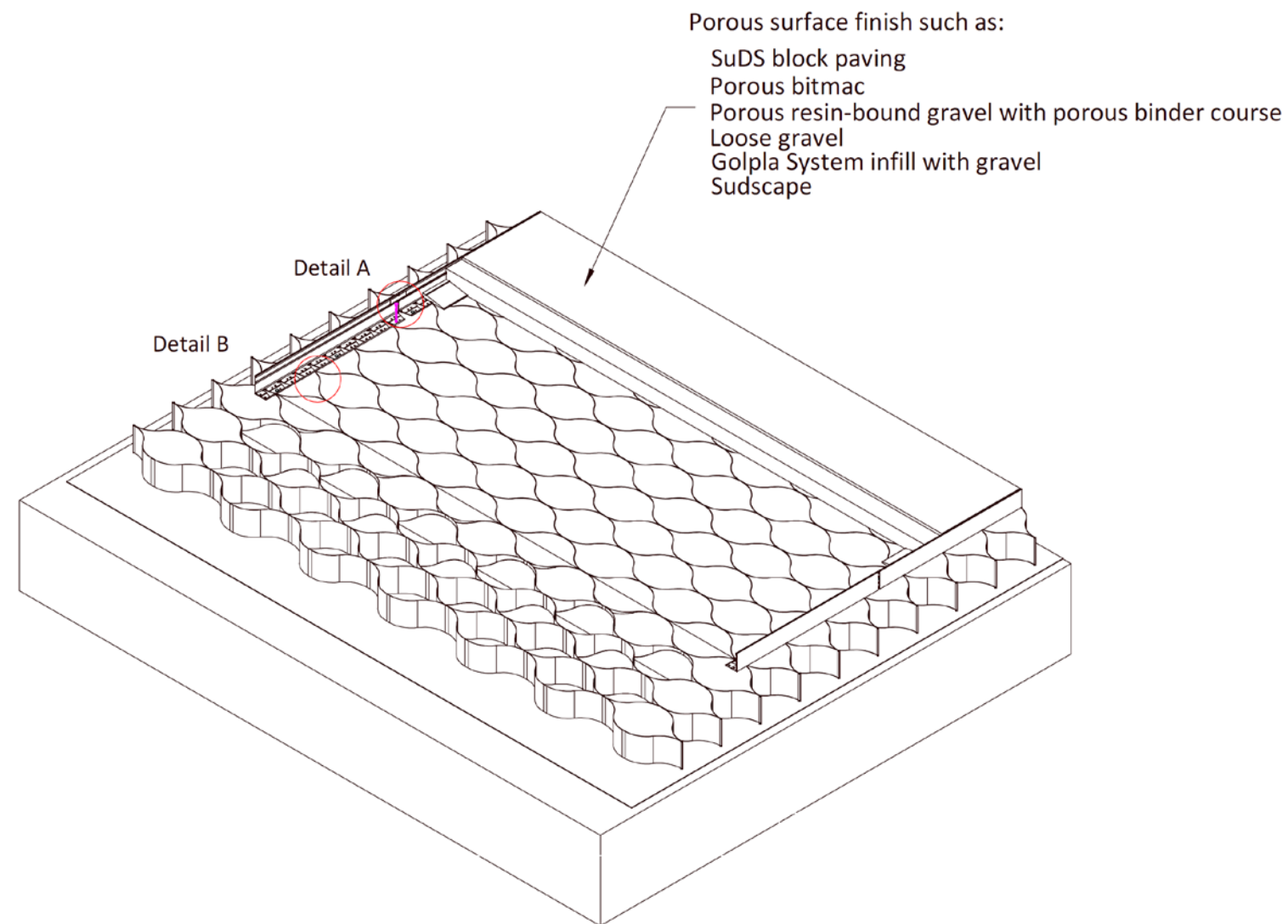
The suggested methods and products are for illustration only. A structural engineer or other professional, should be consulted to ensure suitability for the intended use and ground conditions. Some CCS manufacturers provide a design service.

The following is a list of manufacturers and suppliers of CCSs and edging materials. Other products and suppliers are available:

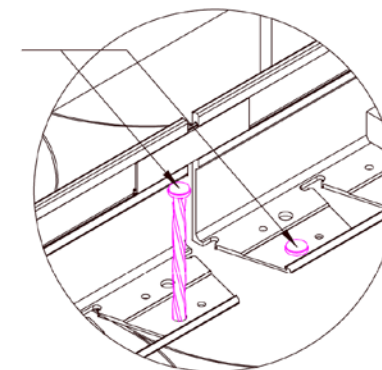
- Cellweb© - Geosynthetics [www.geosyn.co.uk/product/cellweb-tree-root-protection](http://www.geosyn.co.uk/product/cellweb-tree-root-protection)
- InfraGreen Solutions – Infraweb TRP <http://infragreen-solutions.com/tree-root-protection>
- ProtectaWeb™ - Wrekin [www.wrekinproducts.com/articles/protectaweb-meets-tree-root-protection-requirements](http://www.wrekinproducts.com/articles/protectaweb-meets-tree-root-protection-requirements)
- Treetex™ - Geosynthetics [www.geosyn.co.uk/wp-content/uploads/2015/08/cellweb-fact-sheet-4-60.pdf](http://www.geosyn.co.uk/wp-content/uploads/2015/08/cellweb-fact-sheet-4-60.pdf)
- AluExcel™ - Kinley <http://www.kinley.co.uk/products/edging/exceledge>
-



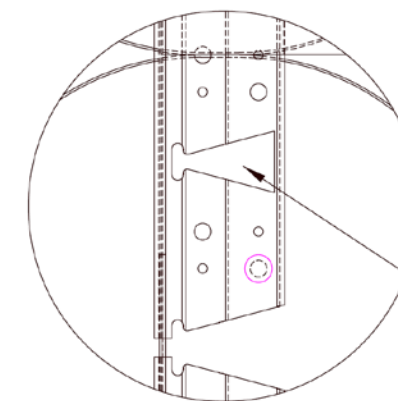
Images of cellular confinement system and edging detail



Ensure that fixing stakes are driven down fully, so that the underside of the head is flush with the top face of the extrusion foot

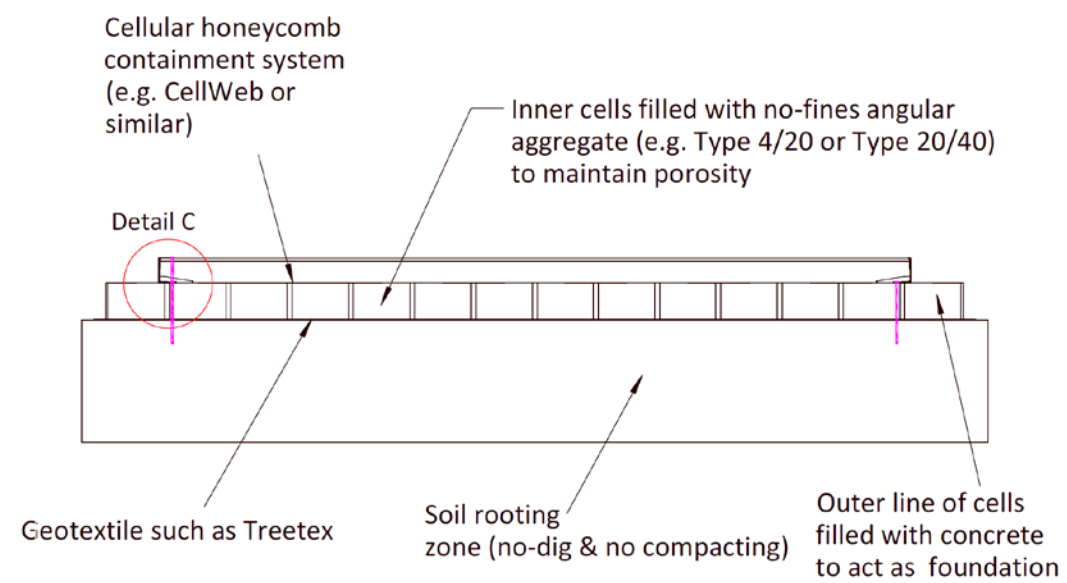
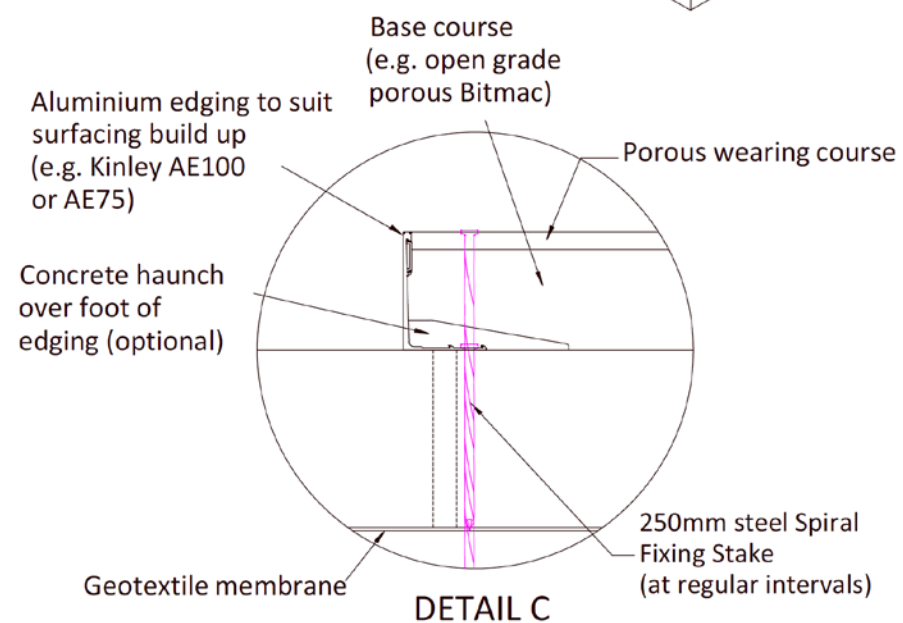


DETAIL A



Cut-out pattern in extrusion to allow internal and external curves to be formed

DETAIL B



**Underhill**  
 TREE CONSULTANCY

This drawing is copyright & must not be reproduced without consent from Underhill Tree Consultancy

01245 209928

mail@underhilltc.co.uk www.underhilltc.co.uk

Example no-dig cellular confinement system

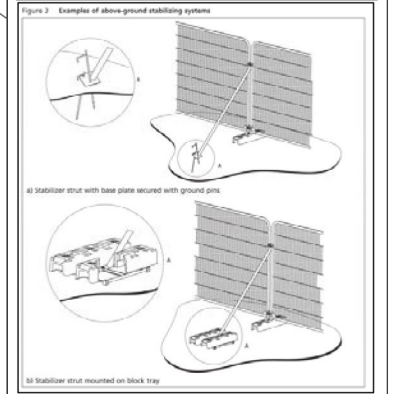
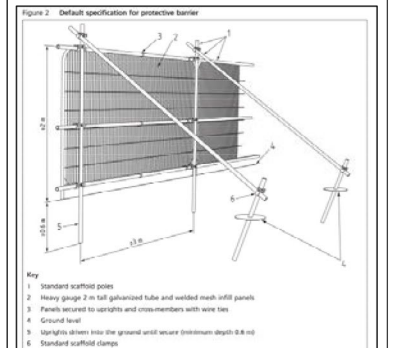
Scale: NTS







- T1 Category A - high quality & value
- T1 Category B - moderate quality & value
- T1 Category C - low quality & value
- T1 Category U- unsuitable for retention
- Tree to be retained
- Tree to be removed
- Root protection area
- Tree protection barrier
- Specialist methods of construction



- Rev D: Change to layout 20.07.18
- Rev C: Change to layout 18.07.18
- Rev B: Change to layout 14.06.18
- Rev A: Change to layout 29.01.18

# Underhill

## TREE CONSULTANCY

This drawing is copyright & must not be reproduced without consent from Underhill Tree Consultancy

01245 209928  
 mail@underhilltc.co.uk www.underhilltc.co.uk

Project:  
**Bodicote, Banbury**

Client:  
**Crest**

Title:  
**Tree Protection Plan**

Scale: **1:1000 @ A3**

Date: **06.12.17**

Drawing status: **Planning**

Drawing No:  
 UTC-0225-P04-TPP      Revision: **D**





**Stansted:**  
Unit 1, The Exchange,  
9 Station Road,  
Stansted, CM24 8BE

t +44 (0)1279 647044  
e office@lizlake.com  
www.lizlake.com

**Bristol:**  
1 Host Street,  
Bristol, BS1 5BU

t +44 (0)117 927 1786  
e office@lizlake.com  
www.lizlake.com

**Nottingham:**  
Suite 201,  
20 Fletcher Gate,  
Nottingham NG1 2FZ

t +44 (0)115 784 3566  
e office@lizlake.com  
www.lizlake.com

**LIZ LAKE**  
**ASSOCIATES**  
LANDSCAPE ARCHITECTS

- Landscape Design
- Urban Design
- Residential
- Public Realm
- Masterplanning
- Landscape Planning
- Heritage Landscapes
- Gardens and Estates
- Restoration and Conversion
- Places of Worship
- Expert Witness
- Hospitality
- Education
- Retail / Office
- Community
- Ecology
- Arboriculture
- 3D / Graphic Design