ARBORICULTURAL IMPACT ASSESSMENT

Site:

Bucklands Road Site A,
London,
TW11 9QR

By:

Landscape Planning Limited
4 The Courtyards
Wyncolls Road
Colchester
CO4 9PE

27 July 2015 v2

Our Job Ref: 55491

CONTENTS

APPENDICES

1.0 EXECUTIVE SUMMARY

1.1 This report relates to a proposal for demolition of existing garage buildings and erection of a 5 unit 2 storey residential building and associated parking and landscaping at Bucklands Road in Twickenham, TW11 9QR.

1.2 The site is currently occupied by five rows of garage buildings and areas of hardstanding.

1.3 The trees potentially affected by the development are: a large Ash tree (T2), a Laurel (T3), four Maple Trees (T4 to T6 & T8), a Silver Birch (T7) and Hawthorn (T9). There is a Silver Birch (T1) to the south that is unlikely to be affected by the development.

1.4 Subject to appropriate controls Ash T2 can be successfully retained within the development, subject to required tree protection measures to be installed using tree protection fencing and 'no-dig' sub-base surfacing within its theoretical root protection area (RPA).

1.5 Laurel T3 and G1, mixed shrub group, is located within the proposed parking court and should therefore be removed to enable the development. Silver Birch, T7, should also be removed due to its poor condition and should be replaced as part of a landscape scheme for the site.

1.6 The RPAs of Maples T4, T5, T6, T8 & Hawthorn T9 extend slightly into the development space it is considered that these trees can be adequately protected by protective measures such as fencing and ground protection.

1.7 Works are recommended to boundary trees to minimise overhang into the site. Any tree works to third party vegetation should first obtain the consent of the tree owner.

1.8 Overall it is concluded that subject to appropriate controls the development can be implemented without undue impact on the highest amenity value trees. These controls should be detailed within an Arboricultural Method Statement that should be submitted to and agreed in writing by the Local Planning Authority prior to the commencement of the development, as a condition of any consent.

2.0 REPORT PROCEDURES

2.1 This Report has been prepared in accordance with Landscape Planning Ltd.'s quality system procedures as follows:

Methodology relating to Arboricultural Impact Assessments

2.2 File creation, field survey, data capture procedures and report production follows the specific methodologies, technical approach and quality systems of Landscape Planning Ltd. The aim is to provide "fit for purpose" deliverables based on the client brief. Our approach broadly follows the guidance contained in "Trees in relation to Demolition, Design and Construction – Recommendations" (BS 5837:2012). However, the use of any terms or concepts contained therein does not imply Landscape Planning Ltd.'s acceptance of their accuracy or scientific validity and the use of any section or concept contained within the standard is on the principle of its advisory status as guidance.

Report and Findings

2.3 The Report and Findings have been quality checked prior to issue to the client.

Signed

Paul Allen
Principal Consultant
Landscape Planning Ltd

Dated: 30 January 2014 revised 27 July 2015

3.0 PREFACE

3.1 Landscape Planning Ltd has surveyed the key trees on and adjacent to the site and has provided guidance within this report on the measures necessary to ensure successful tree retention during any development with recommendations for tree removal and / or tree works as necessary.

The Brief

3.2 To visit the site and complete a survey of trees, shrubs, hedgerows and other vegetation that may materially be of interest relative to development proposals.

3.3 To assess the likely impacts of the development on the trees and make 'in principle' recommendations relating to tree removals, tree retention and tree protection during development.

3.4 To make any other observations or recommendations as required based on the survey

Plans and Reference Documents

3.5 Bucklands Road - Location Plan – Richmond Housing Partnership – 11.09.13. Ref: SK27-01.

3.6 Bucklands Road– Site Layout – Richmond Housing Partnership - 11.09.13 Ref: SK27-02.

Stage in the Planning Process

3.7 We understand that the scheme is currently at the pre-application stage. This report was revised in response to changes in the proposed layout.

Purpose

3.8 The purpose of this report is to: collate the tree related information; inform proposal design and layout; and make preliminary recommendations for the protection of trees during development. These recommendations was subsequently revised and updated in July 2015 due to proposed layout changes.

4.0 DISCUSSION AND ANALYSIS

The Proposal

4.1 The Proposal is for the demolition of existing garage buildings and erection of a 5 unit 2 storey residential building and associated parking and landscaping.

The Site Survey

4.2 A tree survey was undertaken on 8th January 2014 by Adele Devonshire of Landscape Planning Limited.

- The survey data is contained in the Tree Tables at APPENDIX 3.
- Selected photographs from the survey are at APPENDIX 4.
- The Tree Survey plan is at APPENDIX 5 and shows the trees' locations in relation to the existing layout of the site.
- The Tree Constraints Plan is at APPENDIX 6 and shows the notional root protection areas (RPAs) calculated in accordance with BS5837:2012. The RPAs represent the areas within which the potential impacts of ground disturbance associated with the development are to be considered and avoided or mitigated as appropriate.

4.3 The site is located at Bucklands Road in Twickenham, TW11 9QR within the London Borough of Richmond-Upon-Thames. The site is currently occupied by five rows of garage buildings and areas of hardstanding. The site is surrounded by blocks of flats and areas of amenity grassland with ornamental planting. Towards the southern corner of the site is a large Ash tree (T2) and along the eastern boundary of the site is a grassed verge with three Maple Trees (T4 to T6) and a Silver Birch T7. Outside but near to the site boundary is a Silver Birch T1 and a Maple T8.

Tree Specific Issues

Silver Birch T1

4.4 Silver Birch T1 is located off site away from the development area and should be unaffected by the development.

Ash T2

4.5 Ash T2 is a mature tree and prominent on the street scene and is located in the southern corner of the site.

4.6 The proposed car parking area extends into the theoretical rooting area of the RPA for this tree, but the area is currently occupied by the existing garages.

4.7 The foundations and floor slab will have acted as an obstruction for root growth and it is anticipated that the garages can be demolished and new surfaces constructed with minimal disturbance of the root zone beneath the existing garages.

4.8 Nonetheless, the method of demolition should be controlled in order to avoid unnecessary impacts on Ash T2 – see guidance at Demolition below. Further, new hard standing, e.g. for the parking court, should be constructed within the depth of the existing garage foundation and floor slab, by use of reduced dig methods if required – see guidance at Levels and Surfaces below.

4.9 The details of sub-base design for the driveway and methodology for installation should be detailed within an Arboricultural Method Statement as a (pre-commencement) condition of consent.

4.10 Following removal of existing garage buildings, floor slabs and hard surfaces and until such time as new surfaces are constructed, it will be necessary to protect the ground within the RPA of Ash T2 by means of suitable ground protection, as detailed at APPENDIX 9.

4.11 The crown of T2 extends over the access way and may therefore require minor pruning to create working space and prevent damage to the trees branches.

4.12 In this way, Ash T2 can be successfully retained as part of the development.

Laurel T3 and G1

4.13 Laurel T3 and mixed shrub group G1 is located within the proposed parking court and should therefore be removed to enable the development.

Maples T4, T5 & T6

4.14 Maples T4, T5 & T6 are located in a grassed verge area along the southern boundary of the site and although the RPA extend slightly into the development space it is considered that these trees can be adequately protected by protective fencing and by following the guidance in levels and surfaces below.

Silver Birch T7

4.15 Silver Birch T7 was a small tree with a cavity on the stem and decay from previous pruning. This tree should be removed due to poor condition and should be replaced as part of a landscape scheme for the site.

Maple T8

4.16 The RPAs and crown of Maple T8 extends into the footprint of a proposed unit. The area of RPA affected is minimal and rooting in this area will in any case have been impeded by the existing hard surfaces. It is considered that this tree can be adequately protected by suitable Tree Protective Fencing, with no additional controls in the affected area of the RPA.

Hawthorn T9

4.17 The RPA of T9 extends into an area of proposed footpath and cycle storage.

4.18 The area of RPA affected is low. Nonetheless, in order to minimise impacts, the footpath within the RPA of T9 should be constructed in accordance with the guidance for 'reduced-dig' surfaces at Levels and Surfaces below.

4.19 Pruning of these boundary trees may also be required to enable working space and to avoid damage to branches by the development.

Enabling Tree Works

4.20 Recommended tree works are detailed within the Tree Survey Tables at APPENDIX 3.

4.21 In summary, the works comprise:

- Removal of Silver Birch T7 due to poor condition.
- Pruning of boundary trees to facilitate the development.
- Removal of Laurel T3 to enable the development.
- Removal of G1 to enable the development.

4.22 It should be noted that any recommended tree removals / works to off-site trees are based on first obtaining the written consent of the tree owner.

Tree Protective Fencing

4.23 A Preliminary Tree Protection Plan is contained at APPENDIX 7.

4.24 A specification for Tree Protective Fencing is contained at APPENDIX 8.

Site Access

4.25 Access for operations associated with the development will be via the southern and north eastern existing driveway access.

Site Facilities

4.26 All delivery and storage areas, cement/plaster mixing areas etc., should be sited outside of the RPAs of trees to be retained.

Demolition

4.27 Demolition of the existing garages should take care not to cause damage to the retained trees which cannot be adequately protected by fencing prior to demolition. Fencing in the vicinity of these trees as shown on the tree protection plan should be erected at the earliest opportunity following removal of the adjacent structures. Machinery shall be restricted to operating from areas outside of the RPAs of trees to be retained. Care shall be taken to ensure vehicle cabs and hydraulic arms etc., do not cause impact damage to adjacent trees. Where appropriate, this may require the use of a banksman.

4.28 Where practicable, the existing garage buildings should be demolished onto their own footprints in order that there is no compaction of the RPA of the trees to be retained. Where possible, any existing foundations within the RPAs of trees to be retained should be retained in order to avoid disturbance of roots. However, where removal of foundations within the RPAs of trees to be retained is required, care shall be taken to limit the extent of disturbance to surrounding soil. Suitable techniques include removal using hand tools or use of micro-diggers fitted with toothless buckets and supervision of works by a suitably competent arboriculturist. Other techniques may be required. E.g. 'rolling-in' of hard surfaces where excavators etc always work from existing hard surfaces, and away from exposed soft surfaces.

Services

4.29 Where possible, all services should be located outside of the RPAs of trees to be retained. If services are proposed to pass through the RPAs of trees to be retained, the guidance available in "Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2)" (NJUG, 2007, www.njug.org.uk/publication/51/) should be followed.

Levels and Surfaces

4.30 The site is relatively level and it is anticipated that finished levels are likely to match current finished levels. However, where existing hard surfaces within the RPAs of trees to be retained are to be replaced, they should be removed by controlled methods to avoid compaction of the underlying ground and avoid direct damage to roots. Ideally, the profile of new surfaces within the RPAs of trees to be retained should be kept within the depth of profile for existing surfaces. Where existing profile depths are insufficient or there is no existing hard surface, the depth of sub-base to hard surfaces might be minimised by use of cellular confinement systems, e.g. CellWeb, details of which are included at APPENDIX 9.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 We have surveyed the trees on the site to consider the impact of demolition and development proposals and given advice on how any adverse impacts can be mitigated.

5.2 The key arboricultural feature on site is Ash T2, which subject to appropriate controls can be successfully retained within the development

5.3 Laurel T3 and mixed shrub group G1 is located within the proposed parking court and should therefore be removed to enable the development and Silver Birch T7 should be removed due to poor condition and should be replaced as part of a landscape scheme for the site

5.4 The RPAs of Maples T4, T5, T6, T8 & Hawthorn T9 extend slightly into the development space it is considered that these trees can be adequately protected by protective measures such as fencing and ground protection.

5.5 Overall it is concluded that subject to appropriate controls the development can be implemented without undue impact on trees. These should be detailed within an Arboricultural Method Statement that should be submitted to and agreed in writing by the Local Planning Authority prior to the commencement of the development, as a condition of any consent.

APPENDIX 1

Disclaimers

General - Trees

Unless otherwise stated tree observations have been undertaken from ground level and using non-invasive techniques only.

Unless otherwise specified, no checks have been carried out in respect of statutory controls that may apply, e.g. Tree Preservation Orders, Conservation Areas or planning conditions. In addition, prior to undertaking any tree works, it is necessary to ensure due diligence is followed in respect of protected species and habitats.

Copyright & Non-Disclosure Notice

Third Party Disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by Landscape Planning Ltd at the instruction of, and for the use by, our client named within the report. This report does not in any way constitute advice to any third party who is able to access it by any means. Landscape Planning Group Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the content of this report.

Not a Design Statement or Method Statement

This report has been prepared in respect of development impacts on trees. The report provides details and makes in principle recommendations relating to tree protection, which may have implications for design, construction, materials and methods to be employed in the development. Any such recommendations should be approved by the relevant designer / competent person.

APPENDIX 2

Generic Tree Protection Advice

The following provides key principles and sequencing for operations based on development proceeding and the key assumptions in relation to authority

Tree works: All enabling tree works should be carried out as the first operation on site, in accordance with the specification in the Tree Tables. Tree work is a hazardous occupation. All tree work contractors should be required to provide evidence that they are competent to undertake the required works and are adequately insured. The contractor should also be asked to provide a site specific risk assessment prior to commencement of any tree works. All tree works should be in accordance with "Tree Work – Recommendations" (BS 3998: 2010) or current best practise.

Tree Protective Fencing: Prior to commencement of development, tree protective fencing should be erected in accordance with the approved plans and documents. Fencing shall be sufficiently robust to withstand impacts from development traffic and fixed such that they cannot be casually moved. The area within the Tree Protective Fencing is known as the Tree Protection Area, within which all development activity is prohibited unless otherwise specifically authorised. This includes prohibition of all excavations, cultivation, level changes and storage of materials. No mixing of cement, plaster, additives, chemicals, fuels, tar or other oil based materials, or wash-out areas should be sited within 10m of any Tree Protection Area. No fires should be lit within 20m of any Tree Protection Area. Tree Protective Fencing should be clearly marked with signs to the effect of: "Tree Protection Area - no access without authorisation". (In certain circumstances and subject to approval by a suitably qualified arboriculturalist, it is possible to undertake works within Tree Protection Areas without compromising successful tree retention. All such works should be undertaken in accordance with an agreed method statement). The Tree Protective Fencing should not be removed, breached or altered without prior written authorisation from the local planning authority or client arboriculturist, but shall remain in a functional condition throughout the entire development, until all development related machinery and materials have been removed from site. If such protection measures are damaged beyond effective functioning then works that may compromise the protection of trees shall cease until the protection can be repaired or replaced with a specification that shall provide a similar degree of protection.

Toolbox Talks: Commonly, the main contractor on site may change as the development phase moves from demolition, to ground work to construction. At each stage, a site meeting should be held between the arboricultural consultant and current contractor to discuss the required tree protection measures and site operations that have implications for trees. It is the responsibility of the current site manager / foreman to inform all employees, contractors and sub-contractors visiting and or working on the site of the tree protection requirements so as to avoid causing damage to retained trees.

Site Supervision: Regular site visits by an Arboricultural Consultant to monitor tree protection during development provides a means by which: the Client and the Local Planning Authority can be kept informed of compliance with tree protection conditions; and the contractor can raise practical issues of tree protection as they arise.

Ground protection: On occasions existing hard surfaces around trees tree can be retained during development in order to protect the ground from disturbance. Alternatively soft surfaces can by ground protection, the aim of which should be to avoid or minimise disturbance, compaction and contamination.

Protection/prevention of damage to retained tree canopies during construction: Installation of above ground services, lighting columns and the construction of roofs require the use of cranes, which can cause damage to the crowns of retained trees. The tree protective fencing will be securely positioned to resist intrusion into the Tree Protection Area at ground level, but damage can still occur to the aerial parts of the tree. Care should be taken when operating cranes, excavators or installing above ground services so as to avoid impact damage or the need for pruning. The use of a banksman to oversee works close to trees may be necessary.

Services location and excavations: No details of the type and route of underground utilities are available at this stage. All other excavations shall accord to "Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance 0f Utility Apparatus in Proximity to Trees (Issue 2)" (NJUG, 2007).

Earthworks and site levelling (storage of topsoil): Unless specifically agreed, no excavations will occur within the RPAs of trees to be retained. Storage of removed topsoil should be located outside of the RPAs of retained trees and away from those parts of the site allocated for soft landscaping.

Site finishing: The tree protection measures shall not be dismantled until all construction related machinery and materials have been removed from site and not without written authorisation from the local planning authority or client arboriculturist. Once authorisation has been given the protection measures can be removed by hand and transported off site. During which time, no machinery or vehicles shall enter the area previously protected. No excavations, storage of materials, soil stripping, the raising or lowing of levels or the laying of hard surfacing without prior approval of the arboricultural consultant and / or the local planning authority.

APPENDIX 3

Key to Tabulated Data

Age Range	**YO**	Trees from seedling, up to Advanced Nursery Stock size (14/16cm girth)
	SM	More than 10 years post-establishments but capable of being moved using a large tree spade (up to 22/24cm diameter).
	EM	Early indictors of maturity in bark tissue, reproductive tissue, leaf and crown morphology may be present. (Notably, excurrent shoot growth, not readily transplantable and still likely to increase significantly in size).
	MA	Strong indicators of maturity in bark tissue, reproductive tissue, leaf and crown morphology will be present. Shoot growth decurrent. (Middle aged phase of growth when the tree has effectively reached up to 90% of its ultimate size for the species and location).
	FM	Bark tissue, reproductive tissue, leaf and crown morphology will all exhibit mature characteristics. Strongly decurrent shoot growth and reduced shoot extension. No specific signs of senescence. (A tree that has now achieved over 90% of its ultimate life for the species and location).
	OM	Trees in senescence. Although not directly in decline from disease, decay, root death, structural or stability. Problems are primarily resulting from old age. (Senescence is an age related category, i.e. a younger tree subject to disease and decay because of, for example, an impact injury would not be senescent. Characteristically, senescent trees are likely to be reducing in mass and becoming stag headed.

Key to Tree Survey Tables Continued

Condition	**G**	Good	A tree that is, by form, function and physiology, in optimum condition for the species (this may vary according to previous or existing management regimes, e.g. pollarding). No obvious defects.
	F	Fair	A tree with minor defects of no significant biological or hazard significance, which can be managed by application of proper arboricultural practice.
	P	Poor	A tree with significant defects that require management intervention to ensure tree health, viability or for safety reasons. Or a tree with significant defects that cannot be adequately addressed by management intervention to enable its appropriate and/or safe retention
	D	Dead, Dying or Dangerous	An imminently hazardous tree that required management intervention as soon as contractually possible to make the tree safe.

ARBORICULTURAL IMPLICATIONS ASSESSMENT
TREE SURVEY TABLES
Surveyor: Adele Devonshire
Date Surveyed: 08/01/14

Bucklands Site A
Tree Survey Tables

LANDSCAPE PLANNING LTD

Tree No.	Species (English) Latin if any doubt	Age Range	Condition	Height (m)	Crown Spread (m)				Stem Diam @ 1.5m (mm)	Comments (incl. Structural condition)	Recommendations	BS Cat.
					N	S	E	W				
T1	Silver Birch	MA	G	8	3	3	3	3	220	Within lawn area	Retain and protect.	B2
T2	Ash	FM	F	20	7	7	7	7	1000	Slight lean towards garages. Cavities associated with past branch removal @ 4m on Northern side of stem and 5m on Eastern side of stem.	Retain and protect.	B2
G1	Mixed Shrubs: Hebe, Laurel, Pyracantha	MA	G	2			3		MS	Average form, shape and condition.	Fell to facilitate Development	C2
T3	Laurel	MA	G	7	3	3	3	3	MS	Crown just reaching corner of garages. Within proposed area of parking Court.	Fell to facilitate Development	C2
T4	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn area, co-dominent stems.	Retain and protect	B2
T5	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn area, co-dominent stems.	Retain and protect	B2
T6	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn area, co-dominent stems.	Retain and protect	B2
T7	Silver Birch	SM	P	5	3	2	2	2	150	Cavity and decay on stem from previous pruning.	Fell due to poor condition	C2
T8	Norway maple	MA	F	13	6	6	6	6	470	Average form, shape and condition.	Retain and protect	B2
T9	Hawthorn	MA	F	7	3	3	3	3	MS	No access, behind fence, crown overhanging fence nearly reaching to garage.	Retain and protect	C2

APPENDIX 4

Bucklands Road Site A Photos

View north across site.	
View of Silver Birch T1.	
View of Ash T2.	
Close up of stem of Ash T2 showing cavities in stem.	

View of shrubs G1 and Ash T2 in background.	
View of Maples T4, T5 & T6.	
View of Silver Birch T7	
Close up of stem of Silver Birch T7 showing decay.	

APPENDIX 5

T9

T8

T7

T6

T5

T4

T3

G1

T2

T1

KEY

Surveyed vegetation

N

REVISIONS

No	Description	By	Date	Chkd

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Richmond Housing Partnership

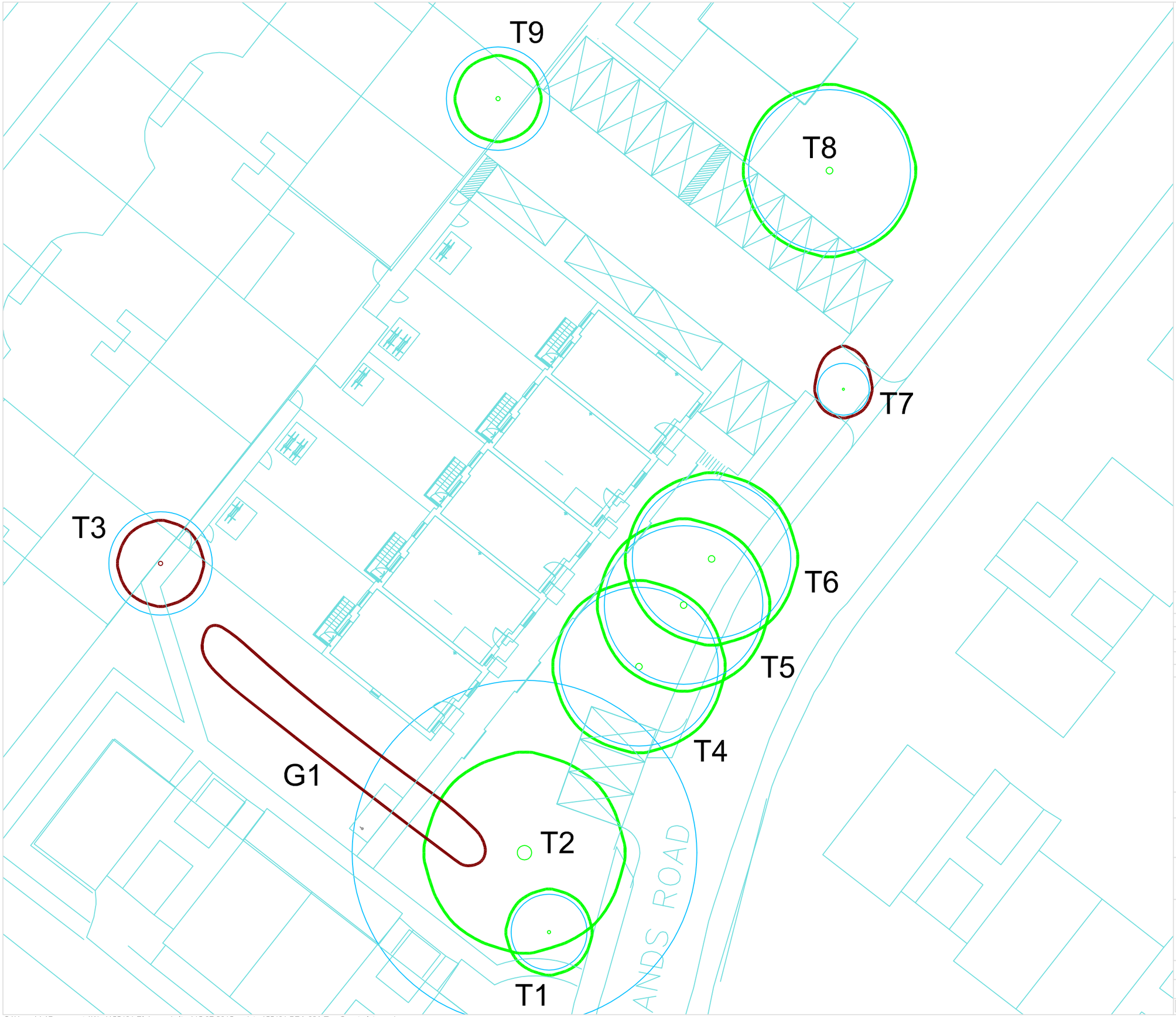
LOCATION:
Buckland Road - site A

DRAWING TITLE:
Tree Survey

SCALE:	DATE:		
1:250 @ A3	Jan 2014		
DRAWN BY: JS	CHKD BY: AD	DRAWING No: 55491-BRA-01	REV: -

F:_Work\Landscape\55491\55491-BRA-01 TreeSurvey-rev1

APPENDIX 6



KEY

Trees to be retained

Trees to be removed

RPA using the formula in accordance with BS5837:2012 Trees in relation to design, demolition and construction. Recommendations

REVISIONS

No	Description	By	Date	Chkd

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Richmond Housing Partnership

LOCATION:
Buckland Road - site A

DRAWING TITLE:
Tree Constraints

SCALE:	DATE:		
1:250 @ A3	July 2015		
DRAWN BY:	CHKD BY:	DRAWING No:	REV:
JS	AD	55491-BRA-02	A

C:\Users\Jo\Documents\Work\55491 Richmond sites\15.07.2015 updates\55491-BRA-02A TreeConstraints-rev1

APPENDIX 7

KEY

- Trees to be retained
- Location of Protective Fencing
- RPA using the formula in accordance with BS5837:2012 Trees in relation to design, demolition and construction. Recommendations
- 'Reduced dig'. Use of cellular confinement construction to protect RPA

REVISIONS

No	Description	By	Date	Chkd

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Richmond Housing Partnership

LOCATION:
Buckland Road - site A

DRAWING TITLE:
Tree Protection

SCALE:	DATE:		
1:250 @ A3	July 2015		
DRAWN BY:	CHKD BY:	DRAWING No:	REV:
JS	AD	55491-BRA-03	A

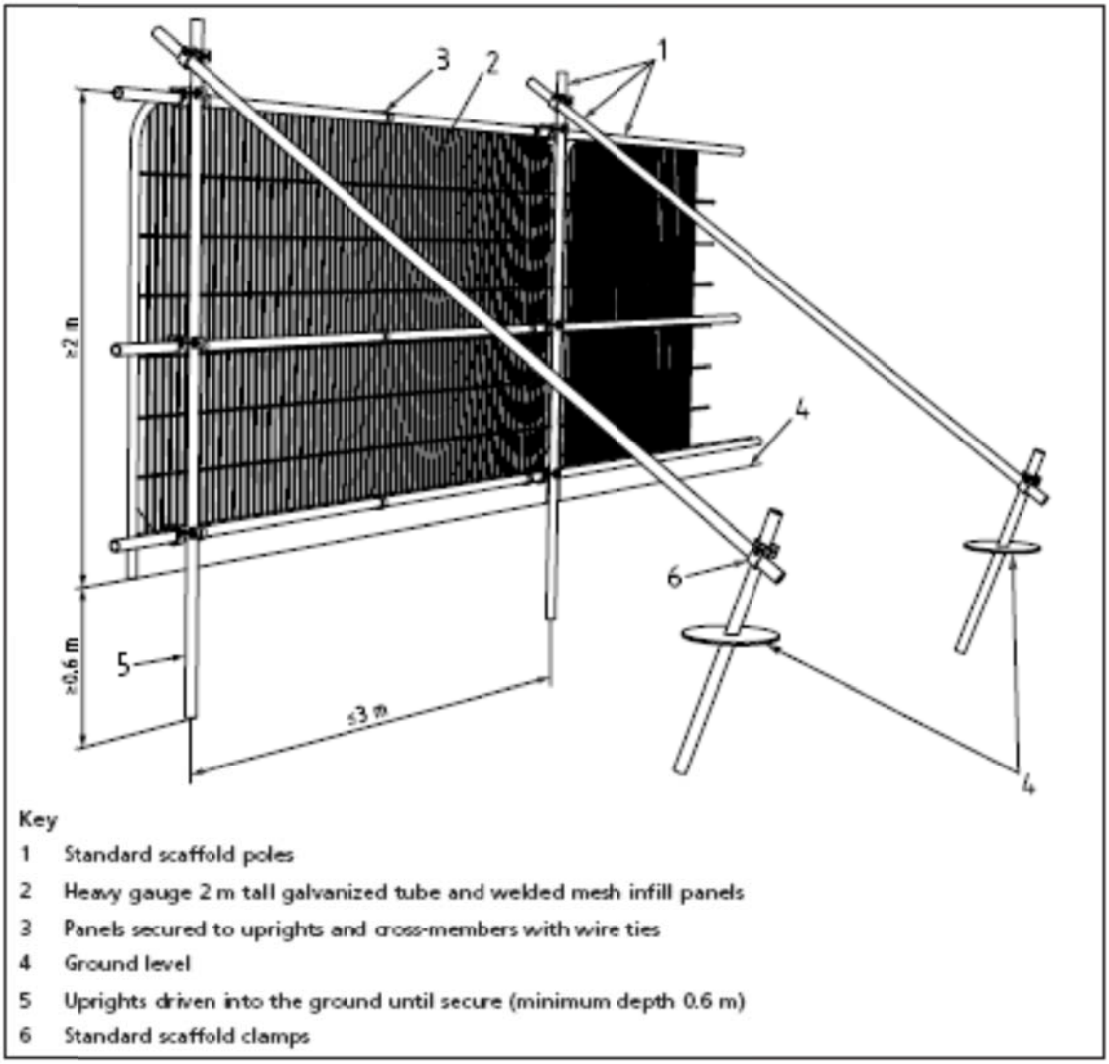
C:\Users\Jo\Documents\Work\55491 Richmond sites\15.07.2015 updates\55491-BRA-03A TreeProtection-rev1

APPENDIX 8

Tree Protective Fencing Specifications

1. Weld mesh panels on Scaffold Framework

Figure 2 Default specification for protective barrier



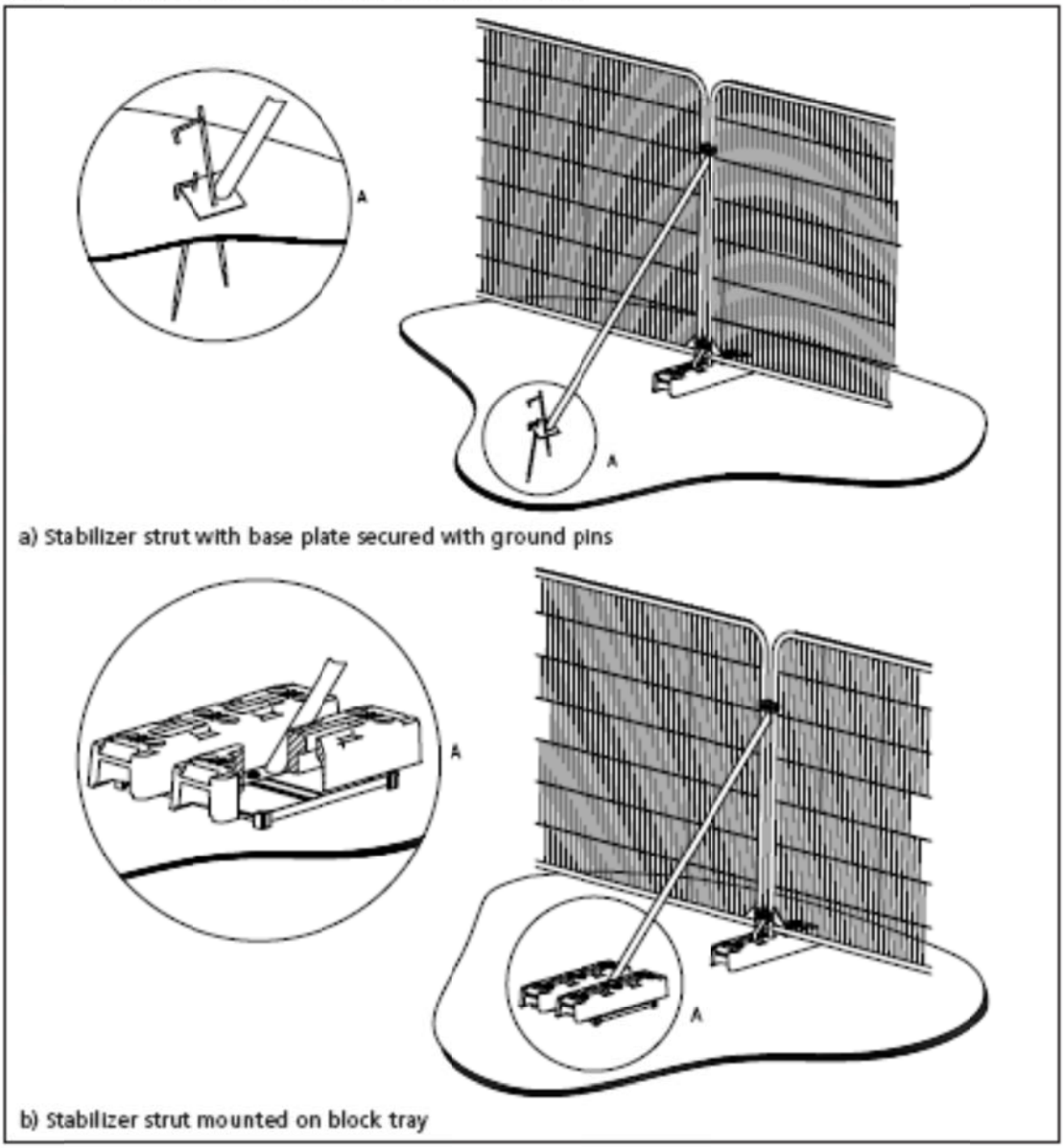
Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

All weather notice to be attached identifying Tree Protection Area – see below

2. 'Heras' type weld mesh fencing

Figure 3 Examples of above-ground stabilizing systems



All weather notice to be attached identifying Tree Protection Area – see below

Tree Protective Fencing Specification

3. Hoarding

#

All weather notice to be attached identifying Tree Protection Area – see below

TREE PROTECTION AREA
KEEP OUT !

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE PROJECT ARBORICULTURIST

CONTACT: Landscape Planning (South) Limited

TELEPHONE: 01206 752539

APPENDIX 9

CI/SfB

Common Arrangement R12

Uniclass
L81208/L81210

CellWeb™

Tree Root Protection System

Geosynthetics

CellWeb™

Tree Root Protection System

The CellWeb™ TRP cellular confinement system protects tree roots from the damaging effects of compaction and desiccation, while creating a stable, load-bearing surface for vehicular traffic.

Potential loss of existing tree due to poor construction techniques.

CellWeb™ offers an alternative to the traditional methods of constructing roadways and building foundations that involve excavation, which can result in tree root severance and soil compaction from the passage of vehicles. Such damage can severely influence tree health, and in extreme cases leads to death. CellWeb™ can be sensitively installed close to and under the canopies of trees without negative effects.

Trees are valuable landscape features and a vital environmental resource. Increasingly, contractors are being required to ensure the health and survival of trees during and beyond the construction period. Although this is enshrined in BS 5837: Trees in Relation to Construction: Recommendations (2005) and Tree Preservation Order legislation, it presents several issues when implementing construction projects near to trees:

- Root severance caused by excavation, leaving trees open to decay, less stable and with a diminished capacity to utilise soil water and nutrients.
- Destruction of soil structure and compaction due to the passage of heavy vehicles, restricting the flow of water and air to tree roots.
- Need for construction access, new roadways and hard surfaces that require engineering-standard load-bearing foundations that meet building regulations.
- Need for high-performance, cost-effective driveways and roadways in the vicinity of tree roots.

The CellWeb™ system overcomes these issues and helps contractors to comply with tree health guidelines by creating a load-bearing base that is water-permeable, stable and durable.

With no need for excavation, the system is quick and easy to install, reducing construction time and saving costs and making it suitable for temporary and permanent solutions.

Glynebourne Wood.

Pedestrian path to recreational woodland built using a CellWeb™ foundation which was covered with DuoBlock and then filled with woodchip to create a porous surface.

Product features

CellWeb™ comprises an expandable cellular mattress that is then filled with a clean stone sub-base and above a Treetex T300 Geotextile.

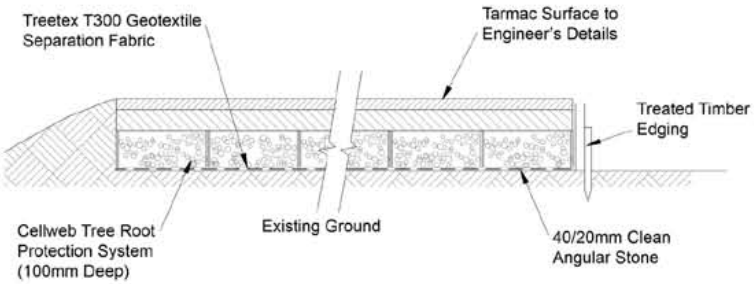
The honeycomb-like structure is made of robust high-density polyethylene (HDPE) that is simply stretched out and filled with clean angular material. Just like traditional roadways, the strength of the structure comes from the binding together of the infill, but with CellWeb™ this is achieved without compaction and without reduction in permeability.

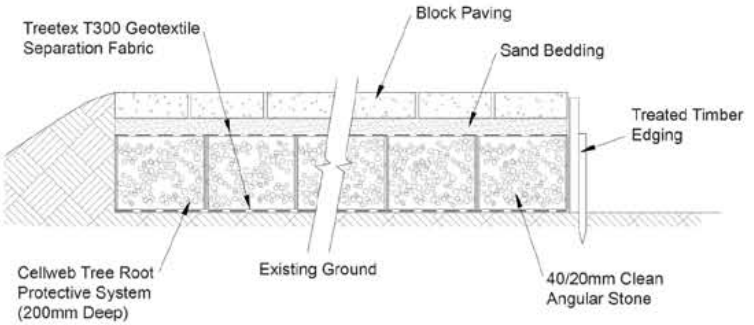
Perforated cell walls allow the angular infill to bind with the contents of the adjacent cell, but with sufficient space for the movement of water and air to nearby tree roots. As the infill contains no fines and the geotextile layers prevent clogging from particles washing into the system, the structure remains permeable to water over time and protects the roots for the lifetime of the tree.

As well as being quick and easy to install, CellWeb™ also dramatically cuts down the depth of sub-base required, in most cases by as much as 50%, further reducing costs. CellWeb™ significantly reduces surface rutting, increasing the long-term performance of the finished surface and ensuring that tree roots remain protected from vertical loads.

CellWeb can be used as a permanent solution or alternatively the system can be used in a temporary situation. In a temporary application the system can be used for the required period of time, then removed for use on another site or recycled, thereby adding to CellWeb's green credentials.

- No excavation – Soil structure remains undisturbed; risk of root damage minimised.
- Porous infill – Allows tree roots to conduct moisture and gas exchange.
- No compaction – No need to compact the infill to achieve a load-bearing structure.
- Lateral stability – Structure remains rigid to vertical loads.





Please call
01455 617 139
or email sales@geosyn.co.uk
for further information.

Wide product range

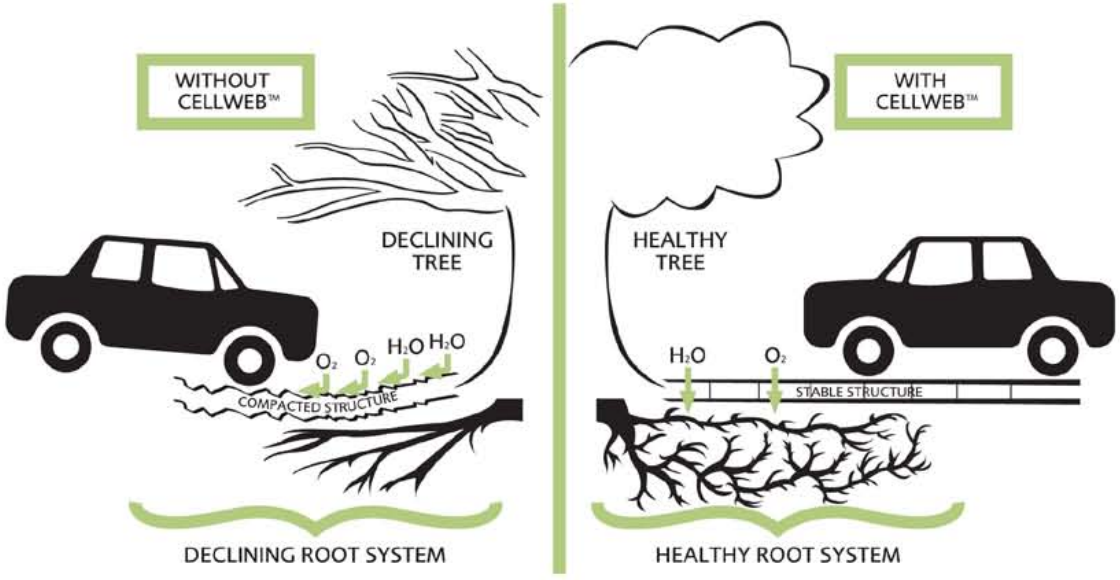
Large stock holding

Next day delivery

Hydrological benefits

Water is a shrinking resource in the urban environment. As the extent of the built environment increases, more and more ground is being covered by impermeable hard surfaces that repel rainwater runoff, preventing it from reaching the roots of vegetation, and in particular trees. Rapid water runoff stretches the capacity of stormwater drains and frequently results in drainage management issues that are rarely resolved in favour of adjacent trees.

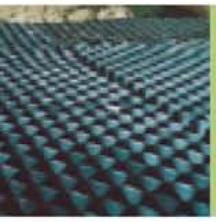
Using CellWeb™ mitigates these issues by promoting both the vertical and the lateral movement of water, whether the system is installed above or below ground. The 'pores' that are created by the spaces between the infill stones and the cell perforations even allow water to flow to adjacent tree roots that are effectively 'trapped' under areas of impermeable hard standing. CellWeb™ therefore helps to promote root growth and allows roots to continue to grow within areas of hard surfacing.



Design service

Onsite support

Geosynthetics



Design & installation

Final surfacing

The benefits of the CellWeb™ system to trees can only be maintained if a suitably porous final surface is selected. An ideal surfacing is the DuoBlocks grass reinforcement and gravel retention system, a visually attractive surface that has the advantage of being fully porous. Alternatives include block paviors, porous asphalts and loose or bonded gravel.

Call the Geosynthetics sales team on 01455 617 139 for more advice on surfacing options and other products and systems.

Advice and product selection

Geosynthetics Limited has been supplying the CellWeb™ system for many years and has acquired solid experience in its application. No two contracts are the same, and we understand the factors that need to be taken into account to specify the right CellWeb™ product.

We provide a FREE consultation, design and advisory service to find the solution that is most cost-effective and beneficial for your site. Our service includes product selection, CAD drawings and full instructions to help you from project conception to completion.

Call our sales office on 01455 617 139 for specification details and project-specific design assistance.

CellWeb™ in action:
Access road for the Lake District National Parks Authority.

Site before construction pictured above.

Installation of the CellWeb™ system.

Four years later.

Technical specification

Product Specifications

Properties	Standard Cell
Material	Virgin HDPE
Wall thickness	1.25mm
Seam welding	Ultrasonic to 100% of seam length
Cell depth	75, 100, 150, 200 and 300mm
Width of expanded panel	2.56m
Length of expanded panel	8.1m
Cell diameter (expanded)	259 x 224mm

Certified Quality

CellWeb™ is manufactured in accordance with the ISO 9001 Quality Management System in a comprehensive range of cell diameters and depths.

Geosynthetics Ltd

Geosynthetics

Geosynthetics Limited

Fleming Road, Harrowbrook Industrial Estate
Hinckley, Leicestershire LE10 3DU.

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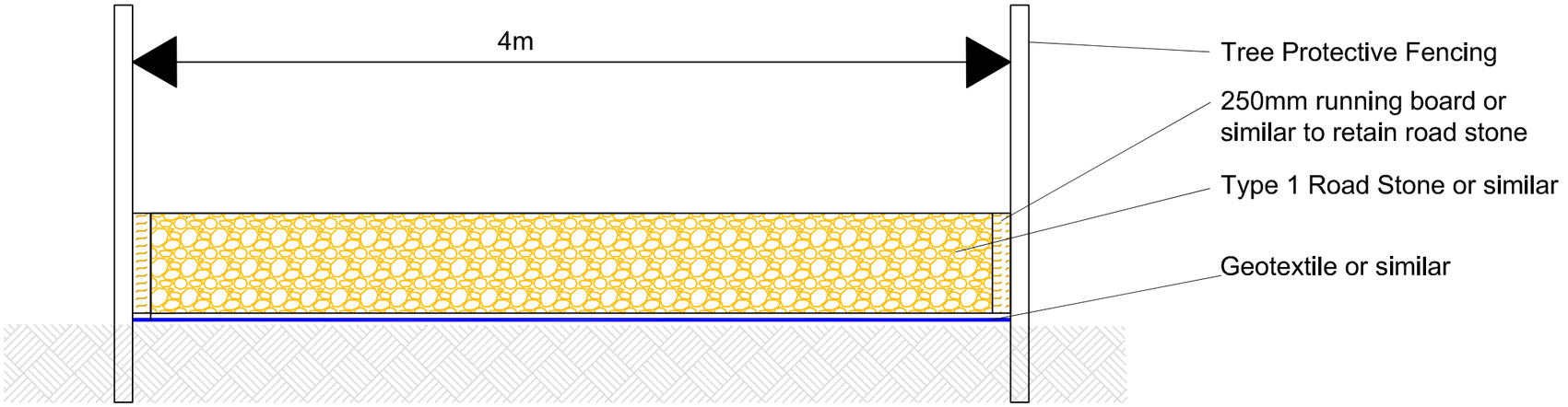
Email: sales@geosyn.co.uk

APPENDIX 10

Temporary Road Detail



Notes
Plan to be read in conjunction with the engineers and landscape drawings:

No measurements to be scaled off drawing. Worked from figured dimensions only.

All dimensions shown on drawing are shown in millimetres unless otherwise stated.

All dimensions and levels to be checked on site. Landscape Architect to be notified immediately of any discrepancies prior to the commencement of works.

REVISIONS

No	Description	By	Date	Chkd

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Generic LPL Detail

LOCATION:
Generic LPL Detail

DRAWING TITLE:
Indicative Designs for Ground Protection within the Root Protection Areas (RPAs) of trees to be retained

SCALE:		DATE:	
N/A		January 2014	
DRAWN BY:	CHKD BY:	DRAWING No:	REV:
OK	OK	L107.4	-

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