ARBORICULTURAL IMPACT ASSESSMENT

Site:

Bucklands Road Site A,
London,
TW11 9QR

By:

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

20 November 2015 v3

Our Job Ref: 55491

CONTENTS

1.0 EXECUTIVE SUMMARY 3

2.0 REPORT PROCEDURES 4

Methodology relating to Arboricultural Impact Assessments 4
Report and Findings 4

3.0 PREFACE 5

The Brief 5
Plans and Reference Documents 5
Stage in the Planning Process 5
Purpose 5

4.0 DISCUSSION AND ANALYSIS 6

The Proposal 6
The Site Survey 6
Tree Specific Issues 6
Enabling Tree Works 8
Tree Protective Fencing 9
Site Access 9
Site Facilities 9
Demolition 9
Services 10
Levels and Surfaces 10

5.0 CONCLUSIONS AND RECOMMENDATIONS 11

APPENDICES

APPENDIX 1 Disclaimers
APPENDIX 2 Generic Tree Protection Advice
APPENDIX 3 Tree Survey Tables
APPENDIX 4 Annotated Photos
APPENDIX 5 Tree Constraints Plan
APPENDIX 6 Tree Protection Plan
APPENDIX 7 Tree Fencing Specification
APPENDIX 8 Proprietary information for 'ProtectaWeb'
APPENDIX 9 Temporary Ground Protection

1.0 EXECUTIVE SUMMARY

1.1 This report relates to a proposal for demolition of existing garage buildings and construction 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). Its open crown structure and small leaves produce dappled / light shading onto areas of the development due north of this tree.

1.5 Laurel T3 and G1, mixed shrub group, are 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 Root Protection Areas (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 tree protection measures such as fencing and temporary ground protection.

1.7 The potential shading from T4-T6 is due north and could affect the most northerly three units' southern elevations. The trees have historically been crown lifted, due to their location adjacent to the highway. However, they would take a light crown thin to allow more light to permeate through the crown.

1.8 Works are recommended to the northern boundary trees to minimise / trim overhanging branches into the site.

1.9 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 20 July 2015 & 20 November 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 planning submission 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 recommendations for the protection of trees during development.

3.9 These recommendations was subsequently revised and updated in July and November 2015 due to layout revisions.

4.0 DISCUSSION AND ANALYSIS

The Proposal

4.1 The Proposal is for the demolition of existing garage buildings and construction of 5 unit 2 storey residential buildings and associated car 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 Constraints plan is at **Error! Reference source not found.** and shows the trees' locations in relation to the existing layout of the site.
- The Tree Protection Plan is at APPENDIX 5 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 within a grassed highway verge are three Norway Maple Trees (T4 to T6) and a Silver Birch T7. Outside but near to the site boundary is a Silver Birch T1 and a Norway 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 highway verge area along the south eastern boundary of the site. Their RPAs extend slightly into the development are but it is considered that these trees can be adequately protected by protective fencing and temporary ground protection by following the guidance in levels and surfaces as described in this report.

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 Norway Maple, T8, extends into the footprint of the proposed new car parking area. 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 and / or temporary ground protection as required, with no additional controls in the affected area of the RPA.

Hawthorn T9

4.17 The RPA of T9 extends into the same car parking areas as for T8 above. The same controls should be applied of 'No-dig' surfacing and works within its RPA supervised by an arboricultural consultant from LPL.

4.18 The area of RPA affected is low. Nonetheless, in order to minimise impacts, the hard surfacing 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.
- Crown thinning of T4-T6 to enable more light penetration through their crowns
- Light trimming of overhanging branches from T8 and T9

4.22 It should be noted that any recommended tree removals / works to off-site trees are only undertaken on those branches which overhang the site boundary with the tree owner having been informed first out of courtesy.

Tree Protective Fencing

4.23 A Preliminary Tree Protection Plan is contained at APPENDIX 6.

4.24 A specification for Tree Protective Fencing is contained at APPENDIX 7.

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.

4.31 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. ProtectaWeb, details of which are included at APPENDIX 8.

4.32 The ground levels site side of T4-T6 are lower than the grass verge the trees are currently growing within. No new excavations into this grass verge should be made with the existing hard surfacing kept in position for as long as possible to maintain protection for any underlying tree roots.

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 The crowns of T4-T6 are proposed to be thinned by 20% crown volume to allow more light to permeate through their crowns. Given these trees heavy crown lifting previously, due to their close proximity to the public highway, it is concluded their crowns won't be too overburdening to the proposed new residential units.

5.6 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

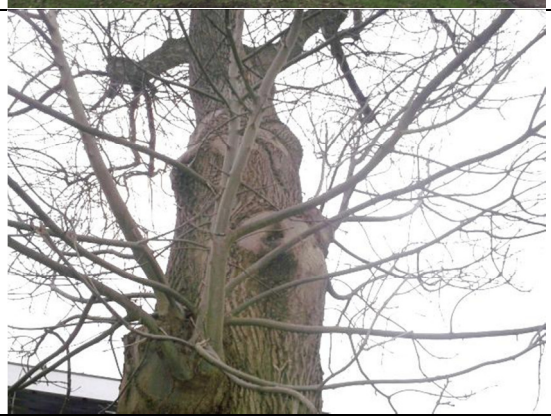
Condition	**G**	Good	A tree that is, by form, function and physiology, in optimum condition for the species (this may vary according to previous or existing management regimes, e.g. pollarding). No obvious defects.
	F	Fair	A tree with minor defects of no significant biological or hazard significance, 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
Recommendations Revised: 20/11/15

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.	RPR (m)
					N	S	E	W					
T1	Silver Birch	MA	G	8	3	3	3	3	220	Within lawn area	Retain and protect.	B2	2.6
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	12
G1	Mixed Shrubs: Hebe, Laurel, Pyracantha	MA	G	2	3	3	3	3	MS	Average form, shape and condition.	Fell to facilitate Development	C2	3
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	3
T4	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn / verge area, co-dominent stems. Previously crown lifted by 4m above ground level	Retain and protect. Crown thin by 20% by crown volume	B2	5.5
T5	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn area / grass verge , co-dominent stems. Previously crown lifted by 4m above ground level	Retain and protect. Crown thin by 20% by crown volume	B2	5.5
T6	Purple Norway Maple	MA	G	10	6	6	6	6	460	Within lawn / grass verge area, co-dominent stems. Previously crown lifted by 4m above ground level	Retain and protect. Crown thin by 20% by crown volume	B2	5.5
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	1.8
T8	Norway maple	MA	F	13	6	6	6	6	470	Average form, shape and condition.	Retain and protect. Trim overhanging branches to site boundary.	B2	5.6
T9	Hawthorn	MA	F	7	3	3	3	3	MS	No access, behind fence, crown overhanging fence nearly reaching to garage.	Retain and protect. Trim overhanging branches to site boundary.	C2	3

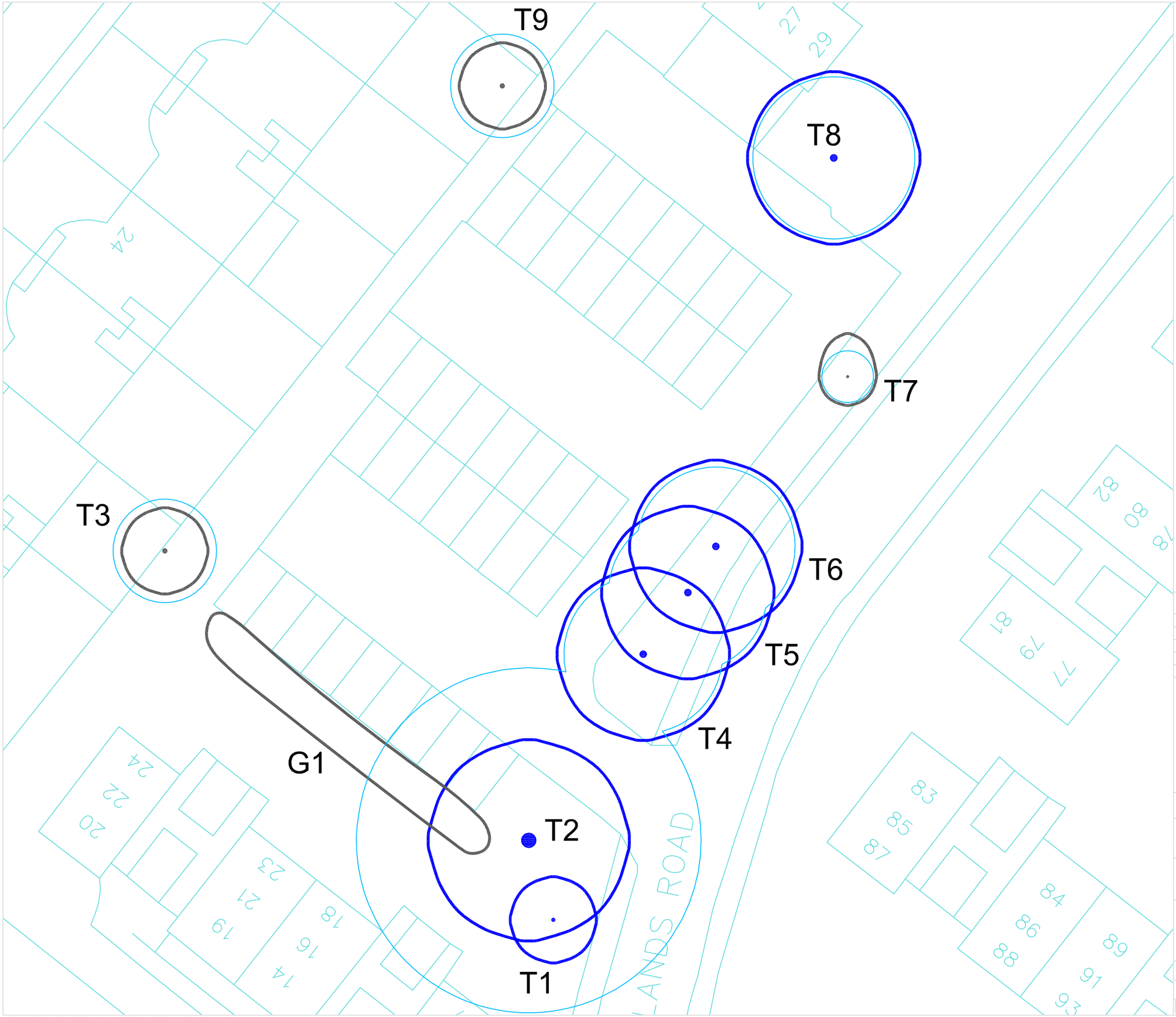
APPENDIX 4

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



KEY

'A' category trees

'B' category trees

'C' category trees

'U' category trees

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

REVISIONS

No	Description	By	Date	Chkd
A	Tree categories added	TF	07/12/15	PA

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Richmond Housing Partnership

LOCATION:
Buckland Road - site A

DRAWING TITLE:
Tree Constraints Plan

SCALE: 1:250 @ A3

DATE: Jan 2014

DRAWN BY: JS

CHKD BY: AD

DRAWING No: 55491-BRA-01

REV: A

J:\55491\Plans\DWG\Bucklands A\55491-BRA-01A TreeConstraints

APPENDIX 6

KEY

- Trees to be retained
- Trees to be removed
- Location of Protective Fencing
- RPA using the formula in accordance with BS5837:2012 Trees in relation to design, demolition and construction. Recommendations
- Shading arc
- Temporary ground protection / 'no-dig' surfacing

REVISIONS

No	Description	By	Date	Chkd

LANDSCAPE PLANNING LTD

ISSUE:
-

CLIENT:
Richmond Housing Partnership

LOCATION:
Bucklands Road - Site A

DRAWING TITLE:
Tree Protection Plan

SCALE:	DATE:		
1:250 @ A3	November 2015		
DRAWN BY:	CHKD BY:	DRAWING No:	REV:
TF	PA	55491-02	A

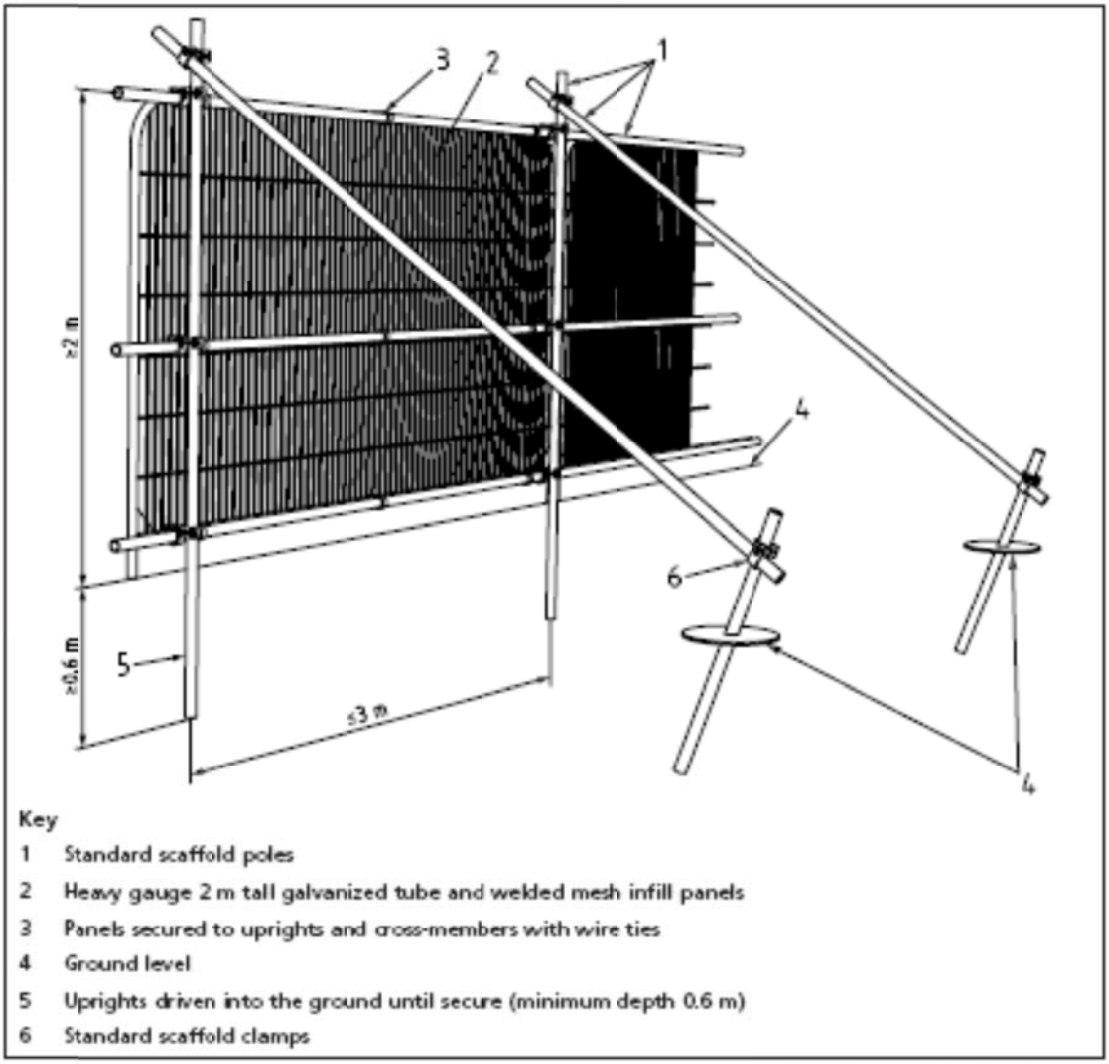
J:\55491\Plans\DWG\Bucklands A\55491-BRA-02A TreeProtection

APPENDIX 7

Tree Protective Fencing Specifications

1. Weld mesh panels on Scaffold Framework

Figure 2 Default specification for protective barrier



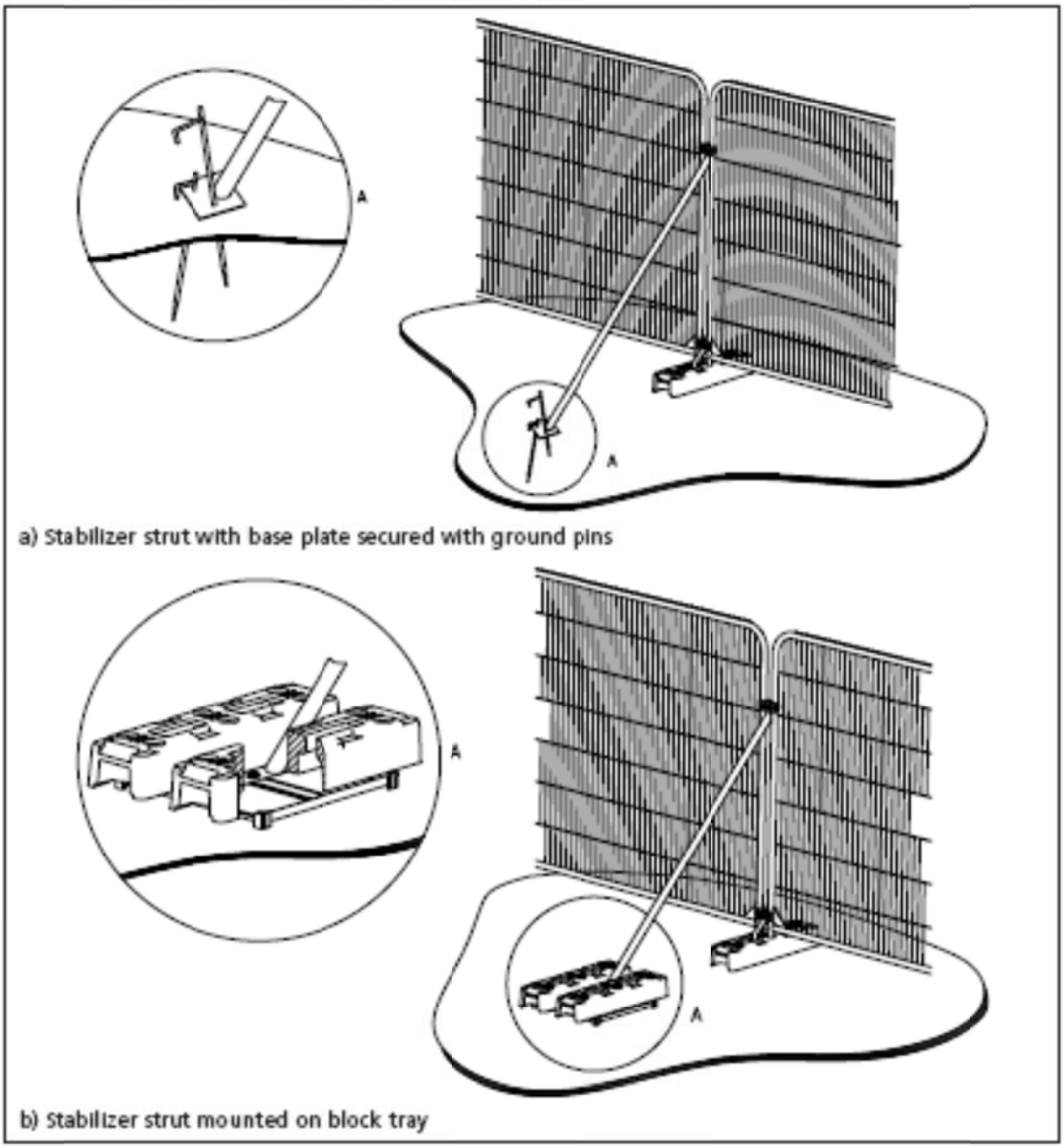
Key

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 8

ProtectaWeb Method Statement

For the installation of ProtectaWeb Tree Root Protection System

Introduction

The Wrekin Tree Root Protection System is available in 4 different depths for varied traffic loadings, each site should have a specific design detailied to ensure the correct depth of product is used.

However, unless the existing ground conditions contain very weak soils and have a low CBR the the following can apply:

- Footpath System- Geogrid and Geotextile combination with Asphalt/Resin- for Pedestrains and Cycleways, no vehicular traffic.
- 75mm- For Pedestrians Cycleways and Vehicles up to 1.5tons
- 100mm- For Cars, 4 wheel drives, vans etc up to 6tons
- 150mm- For Fire engines, removal vehicles and dust carts up to 20-30tons
- 200mm- For Contruction vehicles, cranes etc 40tons and all above.

No dig System
Material List:

- ProtectaWeb 3 Dimensional Cellular Confinement System
- Root-Tex 30 minimum separation and protection fleece
- Root-Tex 10 minimum separation geotextile
- Steel 700mm staking pins
- Stapler and Staples/heavy cable ties
- 4/20mm or 40/20mm Clean Angular Stone to Bs EN 13242 and 12620
- Finish porous surfacing materials are preferable

Stage 1-Ground Preparation

- Remove surface vegetation to treat with suitable herbicide to level-under the supervision of the project Arboriculturist.
- Fill any hollows that may be in the exposed ground with no fines 4/20mm clean angular stone.
- Place Root-Tex 30 Geotextile over the area to be protected ensuring laps with a minimum of 300mm.
- Mark out the area to be protected with edging detail. For Example: Timber boards.

Stage 2-Installation of ProtectaWeb TRP

- Roll out Root-Tex 30 Geotextile to cover the area to be protected.
- Insert 4 equally spaced steel pins along the the width of the panel.
- Expand the panel over the Root-Tex 30 and the pins, extend to the required length, then pin across the opposite panel end.
- Pin along the length of the panel each side.
- If full panels are not being used then ensure the cells have been expanded to their full dimension.
- Staple or cable tie any adjacent panels together.

The ProtectaWeb panels can be cut to shape if required with a heavy duty Stanley Knife.

1. Wrekin Products Ltd is continually seeking to improve our products and therefore reserves the right to alter product specifications without prior notice.
2. It is the responsibility of all users to satisfy themselves that the above data is current.
3. Wrekin cannot be held responsible for the performance of these products as conditions of use are beyond our control.

106-1410A

WREKIN PRODUCTS LIMITED Europa Way, Britannia Enterprise Park, Lichfield, WS14 9TZ
www.wrekinproducts.com

T: 01543 440440
F: 01543 440444
E: sales@wrekinproducts.com

Stage 3-Filling the ProtectaWeb

Using 4/20mm or 40/20mm clean angular stone to Bs EN 13242 and 12620 (depending on the cell depth being used)

- Fill the cells of the ProtectaWeb with a 4/20mm or 40/20mm clean angular stone.
- Allow 25mm overfill for any settlement of the stone into the cells.
- If the area is to be trafficked immeadiately, slighly increase the amount of surcharge overfill to a maximumof 50mm over the ProtectaWeb with 4/20mm or 40/20mm clean angular stone.

Stage 4-Finish Surfacing Details

The ProtectaWeb TRP system can be surfaced with the materials listed below:

Finish 1- Block Paving

- Place Root-Tex 10 separtion fabric over the filled ProtectWeb
- Lay sand/gravel bedding material as per to manufacturers recommendations
- Place porous/standard blocks as per manufacturers instructions

Finish 2-Porous and standard Asphalt

- Slightly surcharge the ProtectaWeb with 25mm of 4/20mm or 40/20mm clean angular stone
- Place hot Asphalt as per to manufacturers instructions

Finish 3- Resin Bound Gravels

- Place Root-Tex 20 separation fabric over the filled ProtectaWeb
- Lay Asphalt carpet and resin bound gravel to the required thickness and as per the manufacturers instructions

Finish 4-Loose Gravel

- Option 1- Slightly overfill the ProtectaWeb with the clean angular stone
- Option 2- Place a 25mm thick decorative stone on top of the filled ProtectaWeb

Finish 5- CellTrack Gravel Retention System

- Place Root-Tex 10 separation geotextile over the filled ProtectaWeb
- 20mm bedding layer of 5mm single sized stone and lightly tamp
- Lay CellTrack porous pavers and fill with a 6-10mm decorative stone

Finish 6- CellTrack Grass Protection System

- Place Root-Tex 10 separation geotextile over the filled ProtectaWeb
- 70mm of Rootzone bedding layer (60% sand/40% soil) and lightly tamp
- Lay CellTrack porous pavers and fill with Rootzone mix, seed accordingly (please allow 4-6 weeks for the seed to germinate before trafficking)

NEW Finish 7- Trial-Flex

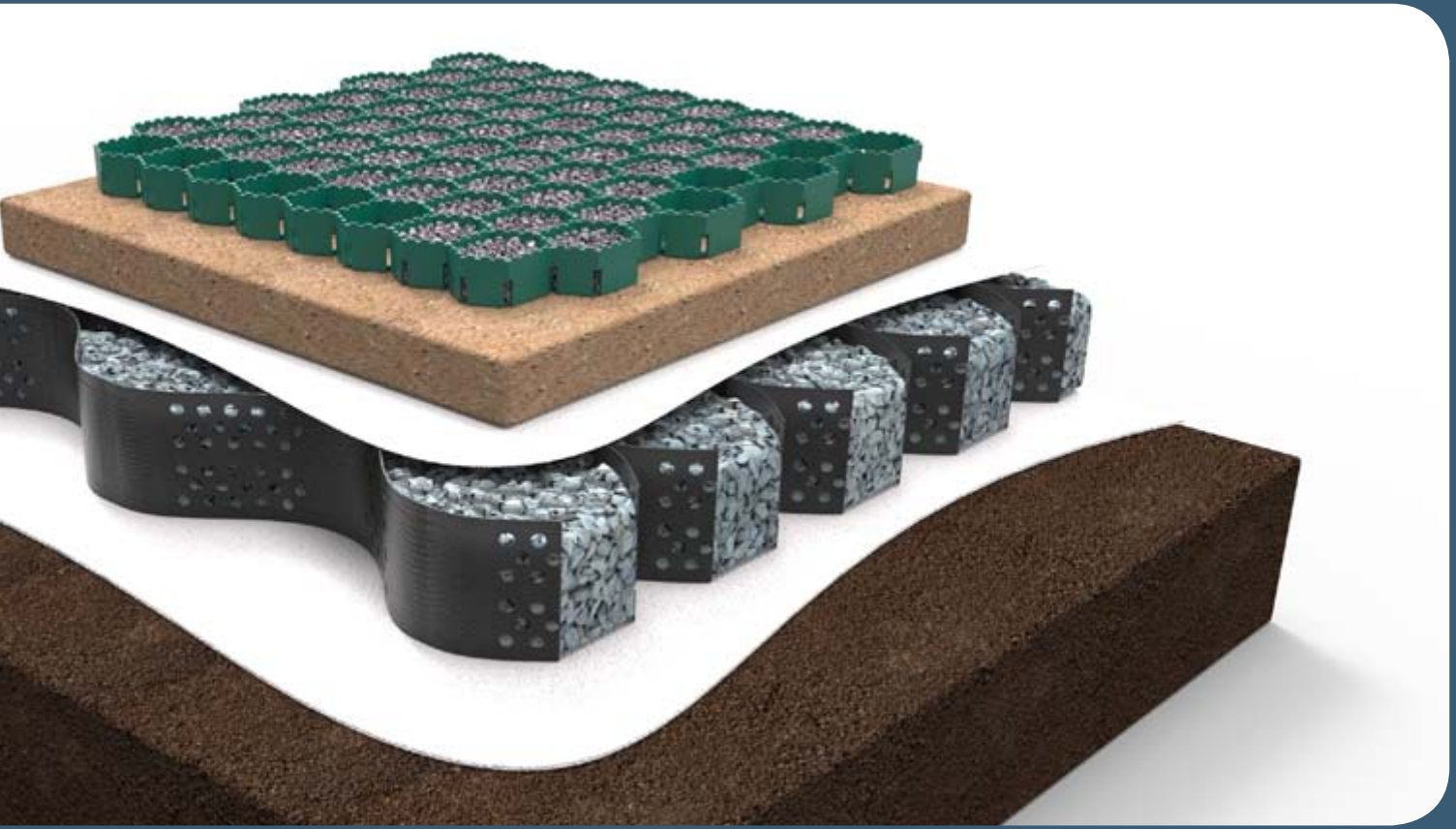
- Place Root-Tex 10 separation geotextile over the area for pedestrian protection.
- Roll over Egrid on top of the Geotextile (strength based per application)
- Cover to a depth of 50mm of TrialFlex porous flexible resin bound finish.

Finish 8- Concrete

- Place Root-Tex 10 separation Geotextile over the filled ProtectaWeb
- Cast the concrete slab over the Geotextile

WREKIN PROTECTAWEB

1. Wrekin Products Ltd is continually seeking to improve our products and therefore reserves the right to alter product specifications without prior notice.
2. It is the responsibility of all users to satisfy themselves that the above data is current.
3. Wrekin cannot be held responsible for the performance of these products as conditions of use are beyond our control.



WREKIN PRODUCTS

ProtectaWeb™ Tree Root Protection System

ProtectaWeb™ Tree Root Protection System

With available land becoming an ever more precious commodity, the need to construct access roads, cycle tracks and footpaths in close proximity to established trees becomes an increasingly frequent challenge.

Furthermore, as we become more aware of environmental consequences, it is not acceptable to non selectively dig out or construct immediately adjacent to trees obstructing construction projects.

Wrekin Products tree root protection system provides an established and proven no-dig method of constructing access ways or parking areas in close proximity to nearby trees without inflicting the ground compaction that can cause stress and ultimately send the tree into decline

To ensure construction activities provide for the preservation of trees where appropriate, the following legislation has been developed:

- Town and Country Planning Act 1990
- Town and Country Planning (Trees) Regulations 1999
- Tree Preservation Orders (TPO)

ATTENTION:

If developers or contractors are found to have cut down or caused damage to trees subject to TPO's they may be prosecuted **up to the value of £20,000 per tree.**
To avoid this risk, trees subject to TPO's must be managed in accordance with BS5837 2012 (Trees in relation to construction) and Arboricultural Practice Note 12 (APN 12)

ProtectaWeb™ tree root protection system is an appropriate solution compliant with BS5837 2012 section 7.4.2 Note 1 which fulfils the following objectives:

- Provides a suitable, stable running surface for the required road and vehicle loadings reducing sub base depths
- A no-dig solution with no mechanical damage to the existing tree roots
- Significant reduction in the loads transferred from above to the tree roots
- Prevents harmful compaction of the soils in the root protection area
- Provides a porous, uncompacted structure that ensures the tree's essential supply of water and oxygen
- Eliminates the risk of a potential fine for causing damage or death to a tree subject to a TPO
- Long term performance for 75 years
- Available in 50mm, 75mm, 100mm, 150mm & 200mm depths
- CE marked product

Wrekin can also offer:

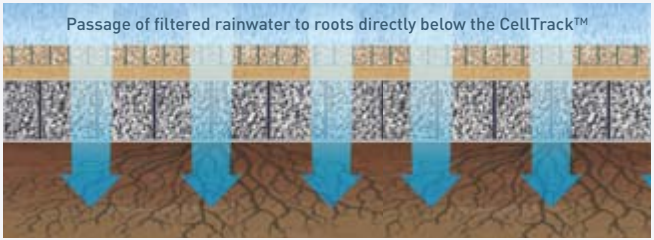
- Design solutions for your scheme depending on site conditions and loading requirements
- Seminars held at your offices
- On site installation support and sign off

How **ProtectaWeb™** works

Wrekin Products established and proven no-dig method of constructing access ways which provide the requisite protection to nearby trees.

ProtectaWeb™ 3D cellular confinement system includes non-woven separation geotextiles Root-Tex 30™ and Root-Tex 10™. Each of the geosynthetic elements to the system play a vital role in the system's efficiency:

ProtectaWeb™ is suitable for confining all types of granular infill and provides a stable, uncompacted platform. The angle of internal friction created significantly reduces the imposed loads on the soil and tree roots beneath. ProtectaWeb™ perforated cell walls provide lateral drainage, minimising hydrostatic build up and ensuring a maximum supply of water and air to the rooting zone.

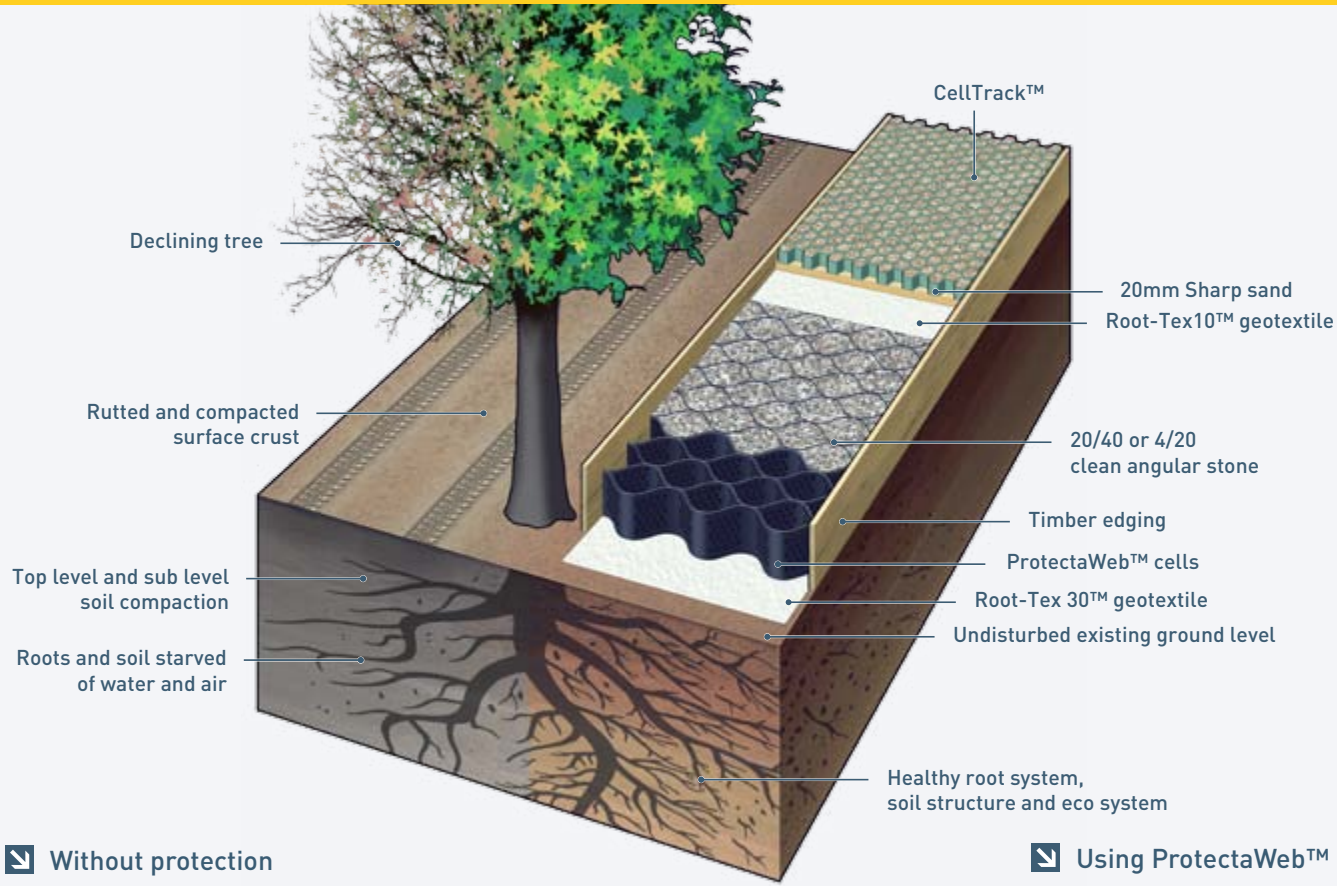


Root-Tex 30™ is laid below ProtectaWeb™ and prevents intermixing of the granular fill between the cells and the soil beneath. Root-Tex 30™ is robust & flexible to conform to the profile of the in-situ ground and infill, without damage.

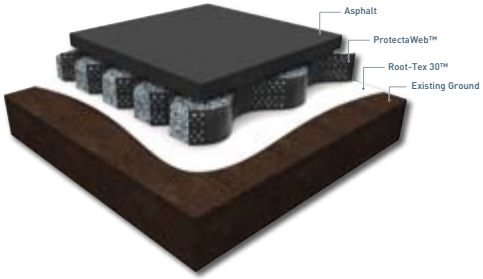
Its high permeability ensures the system does not restrict the supply of water to the roots. As well as the separation and filtration functions, its robustness is key, acting as a protection layer preventing damage to the delicate root matrix from the granular fill above. A Root-Tex 30™ geotextile removes 4 times more oils and contaminants than standard geotextiles.

The final element in the system is the choice of surfacing above the tree root protection system. Fundamental to this selecting permeable surface to maintain the supply of water and air to the tree roots. Suitable options are permeable paving, porous tarmac / resin bonded gravel or Wrekin's CellTrack™ Grass / Gravel paving system separated from the filled ProtectaWeb™ by Root-Tex 10™ geotextile.

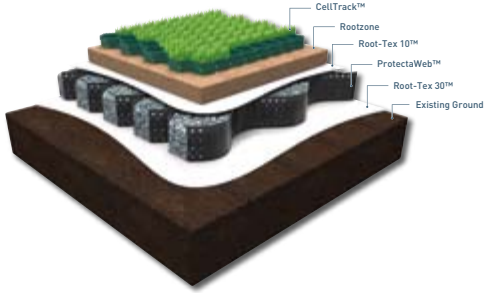
Our experienced team have over 20 years experience in the provision of solutions for tree protection systems, call our technical sales department on 01543 440440 for further information.


CellTrack™
Declining tree
20mm Sharp sand
Root-Tex10™ geotextile
Rutted and compacted surface crust
20/40 or 4/20 clean angular stone
Timber edging
ProtectaWeb™ cells
Top level and sub level soil compaction
Root-Tex 30™ geotextile
Undisturbed existing ground level
Roots and soil starved of water and air
Healthy root system, soil structure and eco system
Without protection
Using ProtectaWeb™

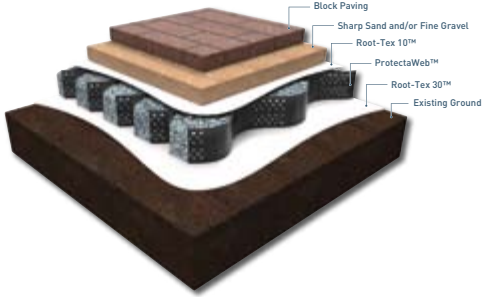
ProtectaWeb™ examples of construction detail



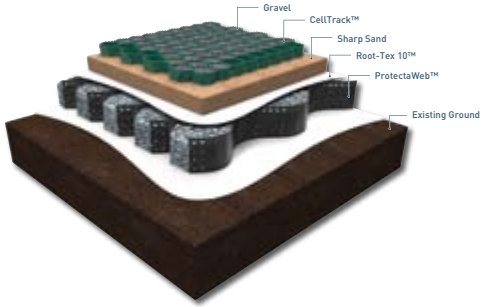
Asphalt



Grass

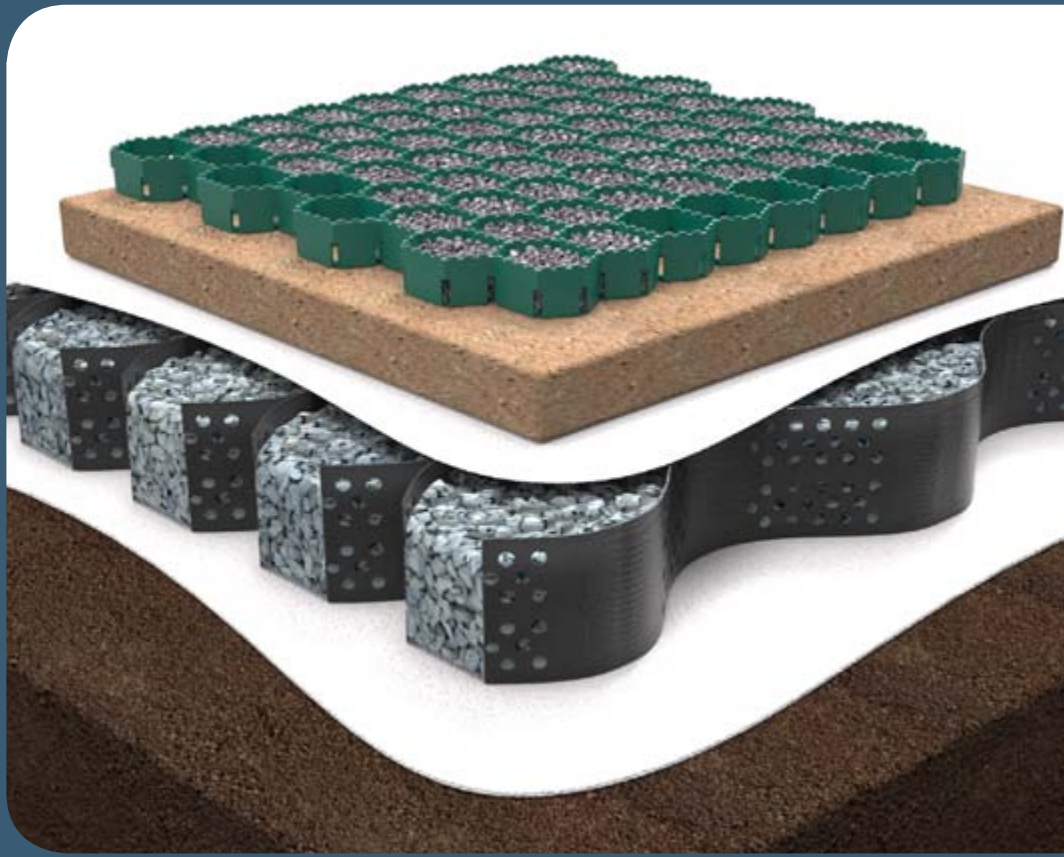


Block Paving



Gravel

intelligent products
for civil engineering



www.wrekinproducts.com

01543 440440

01543 440444

'wrekin products'

'wrekin products'

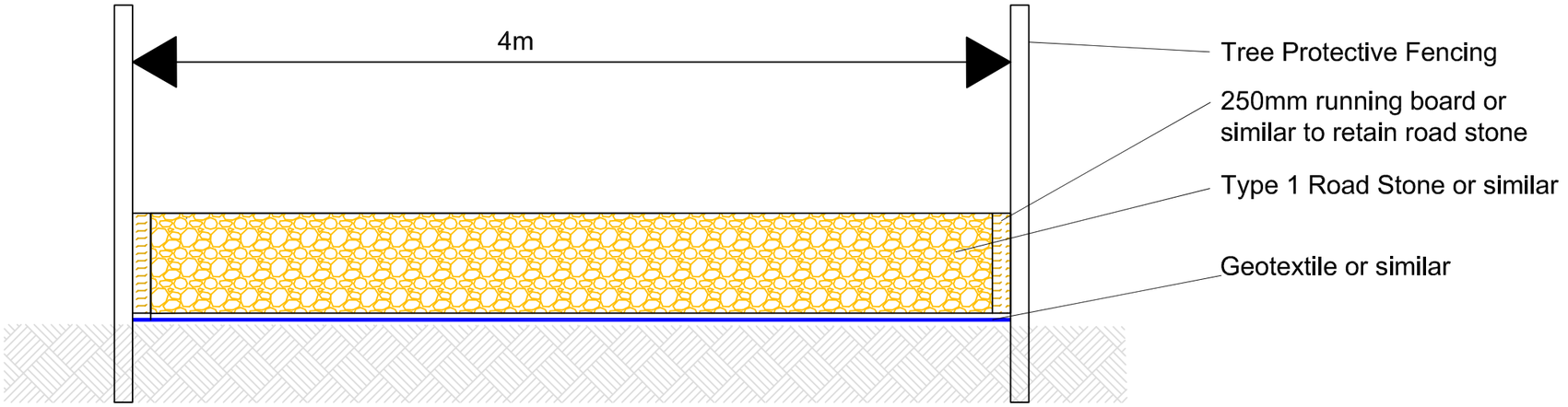
Wrekin Products Ltd.
Europa Way,
Britannia Enterprise Park,
Lichfield,
Staffordshire.
WS14 9TZ

WREKIN PRODUCTS

UVDB empowered by Achilles

APPENDIX 9

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	-

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

01206 752539

Info@landscapeplanning.co.uk

www.landscapeplanning.co.uk