ENVIRONMENTAL CONSULTANTS

Date: May 2022
Contract Ref: 2257

BS5837:2012 ARBORICULTURAL IMPACT ASSESSMENT & METHOD STATEMENT

LAND AT TAPPERS FARM,
OXFORD ROAD, BODICOTE, BANBURY,
OXFORDSHIRE, OX15 4BN

for

GREENSQUARE HOMES LTD

Focus Environmental Consultants
Unit 2
Ball Mill Top Business Park
Worcester
WR2 6PD
Email: quotes@focus-enviro.com
Tel. 01905 780700

CONTROL SHEET

GreenSquare Homes Ltd

Land at Tappers Farm,

Oxford Road, Bodicote, Banbury, Oxfordshire, OX15 4BN

BS5837:2012 Arboricultural Impact Assessment (AIA) & Method Statement

	Name	Position
Surveyor(s)	Callum Andrew BSc (Hons) MArborA	Senior Arboriculturalist
Author	Edward Cleverdon BSc (Hons) MArborA	Senior Arboriculturalist

Contract No.	Project Contact	Revision No.	Date of Issue
2257	Callum Andrew	01	11 May 2021
2257	Callum Andrew	02	21 May 2021
2257	Edward Cleverdon	03	27 January 2022
2257	Edward Cleverdon	04	18 May 2022

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Overview & Client Brief

Focus Environmental Consultants was commissioned by GreenSquare Homes Ltd to undertake an Arboricultural Survey, Impact Assessment (AIA) and Method Statement (AMS) of the Land at Tappers Farm, Bodicote in accordance with BS5837:2012 - *Trees in Relation to Design, Demolition and Construction*.

The following documents were supplied by the client:

- Topographical survey (Drawing No: S18-225; Date: April 2018)
- Planning Layout (Drawing No: 0737-102 C.D2 Planning Layout-A1L)

1.2 Personnel & Quality Assurance

The site was surveyed by an experienced arboricultural consultant (Callum Andrew BSc (Hons) MArborA) from Focus Environmental Consultants on 20 April 2021 and subsequently revisited by the author in December 2021.

1.3 Site Location

The site is located on the west side of Oxford Road, Bodicote, Banbury, Oxfordshire, OX15 4BN. The site is centred on Ordnance Survey grid reference SP 461 383.

Figure 1: Location Plan, with approximate red-line survey boundary.

1.4 Planning Policy & Guidance

This report has been produced in accordance with the recommendations of British Standard 5837:2012 - *Trees in Relation to Design, Demolition and Construction*.

Trees are a material consideration in the UK planning system. This report provides an assessment to help facilitate the correct application of the Town and Country Planning Act 1990 (sections 197 and following).

1.5 Development Proposals

It is understood that the development proposals are for the demolition of the existing buildings and erection of up to no. 46 dwellings, with associated works and provision of open space in accordance with the terms of the application, Ref 18/00792/OUT, dated 4 March 2018.

1.6 Assessment Method

Trees, groups and hedgerows onsite or immediately adjacent to the site have been assessed for their quality and value. This has been done according to the BS5837:2012 categorisation method (Annex 5.4).

The position of each tree, group and hedgerow with unique ID number, retention category, canopy spread, root protection area (RPA) and shade arc are shown on the Tree Constraints Plan (Annex 5.3).

Category ‘A’ and ‘B’ trees are usually considered to provide an important contribution to the landscape and should be retained as part of the proposed development, wherever possible. Category ‘C’ trees are not usually considered to be a constraint to the development. Category ‘U’ trees have been assessed as having a very limited future contribution due to their poor structural and/or physiological condition.

2. RESULTS

2.1 Tree Preservation Orders & Conservation Areas

Eight onsite trees are protected by a Tree Preservation Order (TPO) (TPO Ref: 01/1993) (Annex 5.6) (T1, T3, T4, T5, T7, T8, T9 and T40 in this report).

In the case of trees that are subject of TPO or planning application procedures it is essential that Cherwell District Council's advice is sought and where necessary consent obtained prior to undertaking any tree removal or pruning operations.

2.2 Site Description

The site, an area of approximately 2.2 ha, currently stands as a relatively flat grassland field with a cluster of derelict buildings and hardstanding situated in the south-west corner. The field is dominated by a number of mature, open-grown trees and bound by hedgerows on its north, east and part of its south side. A line of offsite lime and field maple trees provide a prominent focal point along the site's western boundary that includes an existing hardstanding access road to the derelict buildings. The site borders Oxford Road to the north and east, residential properties to the south, and Bishop Loveday C of E Primary School to the west.

Plate 1: A north-westerly view of the site's north-westerly quarter taken from the site's central region.

Plate 2: A northerly view of the site's north/north-eastern quarter taken from the site's central region.

Plate 3: A south-easterly view of the site's eastern boundary taken from the site's northern region.

Plate 4: A south-westerly view along the site's southern boundary taken from the site's eastern corner.

Plate 5: A south-westerly view of the site's south-western corner taken from the site's southern boundary.

Plate 6: A westerly view of the site's western boundary.

Plate 7: A north-westerly view along the site's western boundary.

2.3 Site Geology

2.3.1 Data Search

Geology of Britain viewer (GoBV) has been used to check the prevailing soil type in the area (http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html?).

2.3.2 Bedrock

The underlying bedrock consists of marlstone rock formation – ferruginous limestone.

2.3.3 Superficial Deposits

No information regarding the superficial deposits was available.

2.4 Tree Stock

The tree stock is made-up of forty trees, one group and seven hedgerows. This includes seven Category ‘A’, twenty-three Category ‘B’, seventeen Category ‘C’ and one Category ‘U’ item. The age range of the tree stock includes three semi-mature, twenty-three early-mature and twenty-two mature specimens. Twelve different tree species were recorded during the survey.

A categorised summary of the existing trees, group and hedgerows situated on, and immediately adjacent to the site has been provided in accordance to BS5837:2012 (Table 1). The details of all surveyed trees, groups and hedgerows are listed in the Tree Survey Schedule (Annex 5.1).

Table 1: summary of tree stock with reference to BS5837:2012 retention categories.

	Total	**A**	**B**	**C**	**U**
Trees	40	7	20	12	1
Groups	1	0	0	1	0
Hedgerows	7	0	3	4	0
	48	7	23	17	1

3. ARBORICULTURAL IMPACT ASSESSMENT (AIA)

3.1 Development Proposals

It is understood that the development proposals are for the demolition of the existing buildings and erection of up to no. 46 dwellings, with associated works and provision of open space in accordance with the terms of the application, Ref 18/00792/OUT, dated 4 March 2018.

The following assessment only considers the impact of these proposals upon the surveyed trees, group and hedgerows. This is with regard to the direct and/or indirect impacts of the proposals, including assessment of above and below ground constraints. The assessment is based on the surveyor's findings and drawings provided by the client's architect.

This section of the report should be read in conjunction with the Arboricultural Impact Assessment Plan (Annex 5.3).

3.2 Tree Removal

The removal of one Category 'B' horse chestnut tree (T8 TPO), one Category 'C' hawthorn (T6), one Category 'C' holly (T14), one Category 'C' field maple (T15), two Category 'C' hawthorn hedgerows (H10 & H11), and a section of two mixed-species hedgerows (H2 & H39) is required to facilitate the proposed development.

Extensive design options were explored with the view of retaining the horse chestnut tree T8 based on guidance from the local authority that they would not accept the tree located within private gardens, nor the complicated arrangement of proposed dwellings around the tree then presented, which were required to retain the tree within an appropriate level of public amenity space.

Given the significant design constraints posed by the tree, the site was revisited and the condition of the tree reviewed, in order to weigh the design constraints against the useful life expectancy of the tree.

The species *Aesculus x carnea* (Red horse chestnut) is a grafted hybrid, not true to species, and is well known for developing extensive cankers into maturity which coupled with the inherent characteristics of brittle wood and acute angle branch attachments mean the species are liable to significant limb or whole crown failure in later life stages.

Close inspection of the tree found basal damage and decay from livestock impacts, bark necrosis and major stem canker formation on the main stem, seven large diameter target cankers on co-dominant stems and the scaffold limbs of the tree; two of which were at the base of major stem of scaffold limbs unions.

The tree has also been reduced / topped to keep a compact form, which will have further reduced the structural integrity of the crown, and coupled with the location of the tree within the centre of the site, limits the landscape prominence of the tree.

Aesculus x carnea is not a long-lived species and given the life stage of the tree and structural defects noted on the stem and within the crown, it is unlikely that the tree has more than 10 years useful life expectancy remaining. As such, extensive redesigning of the site to retain the tree within a public open space is likely to result in a dead or partially collapsed tree within a focal position of the site within 10 years.

Furthermore, the loss of the tree will not have a significant impact on the character and appearance of the wider area, and therefore the proposed development seeks to remove and replace the tree to improve the quality of the layout of the site and provide an improved replacement TPO tree for future generations.

3.3 Mitigation greening

The proposed development has made provision for an extensive landscaping scheme which includes 61 new trees, 2,139 new shrubs, 220m^2 of new beech hedgerows, 160m^2 of new native hedgerows and 87m^2 of native hedgerow interplanting. This equates to a significant increase in canopy cover on the site as well as several landscape and ecological enhancements.

The proposed tree planting strategy includes 44 heavy or extra heavy standard trees (12 – 16cm girth, 4 – 6m height) which will have an instant impact on the site.

The loss of the horse chestnut tree T8 has been specifically considered within the landscape proposals, with a clear stem *Liquidambar* tree (14 – 16cm girth, 4.5 – 5m height) planted as a specimen tree within public open space south of Plot 43 to provide internal visual amenity benefits. Given the proximity to the front garden of Plot 43 and concerns this may present future requests for crown management, the replacement TPO has been presented west of the site entrance, the walnut tree (*Juglans regia* 14 – 16cm, 4.5 – 5m) which has ample room from adjacent plots and is located within a prominent position framing the site entrance.

Plate 8: central location and reduced form of T8.


Plate 9 & 10: bark necrosis and major canker formation on the stem of T8 (left) root damage and basal decay (right).


Plates 11 & 12: target cankers at the base of and within acute angle co-dominant stem attachments on T8.

Plates 13 & 14: further cankers and structural defects noted within the crown of T8.

Plate 15: A Category 'C' hawthorn (T6) proposed for removal.

Plate 16: A Category 'C' holly (T14) and field maple (T15) proposed for removal.

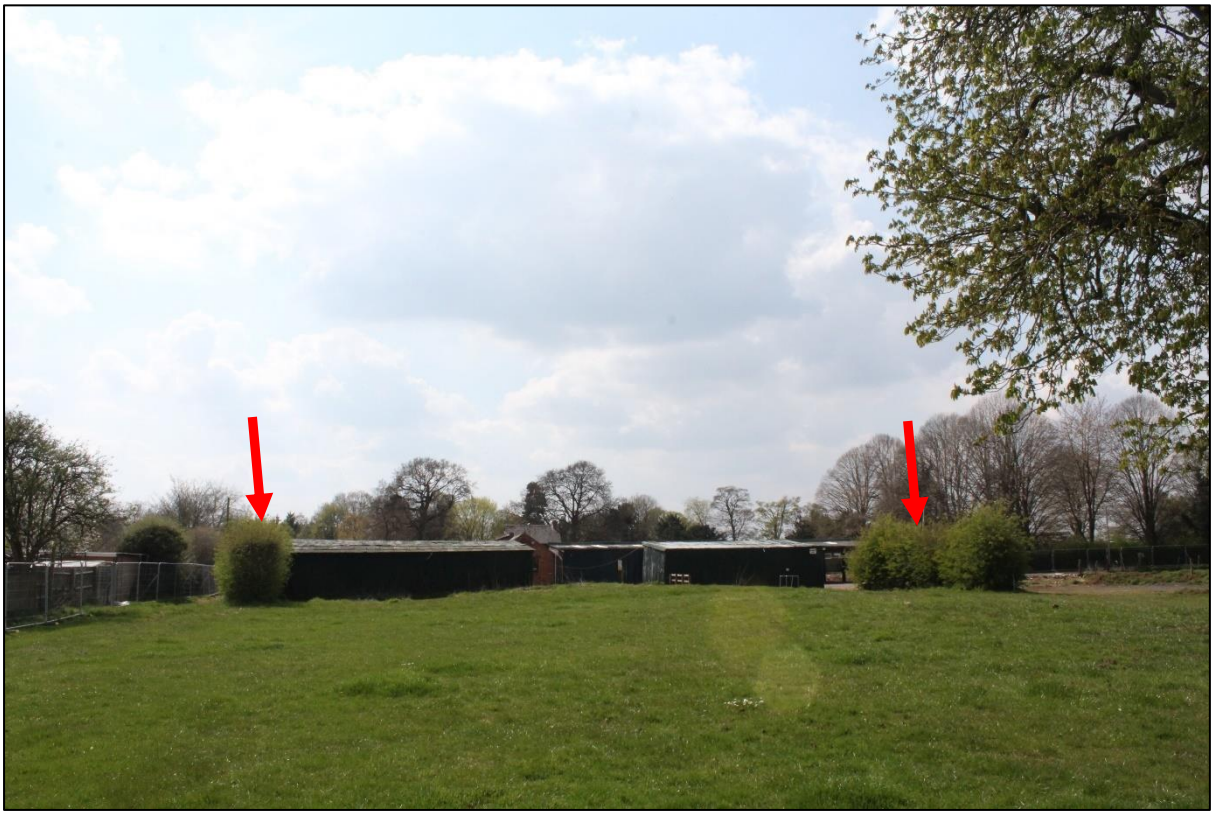


Plate 17: Two Category 'C' hawthorn hedgerows (H10 & H11) proposed for removal.

Plate 18: extract from the lancdsape plan showing proposed planting to the north of the site.

Plate 19: extract from the landscape plan showing the south of the site. Full detail may be found within the landscape submission by Bridges Design Associates Ltd.

3.3 Below Ground Conflicts

3.3.1 Root Protection Area Breaches

The proposed development has undergone extensive redesign to remove all significant RPA incursions as part of the scheme. The existing hard surfacing will be removed from within the RPA of T18 – T35 and one landscaped path will be installed within the RPA of the offsite tree T16 which will incorporate a low impact design with porous surface treatment (Table 2).

Table 2: The parts of the development that are proposed within the RPAs of trees that are highlighted for retention.

Tree ID (Species)	Retention Category	Part of Development Breaching RPA
T18 – T35	B	Removal of existing surfacing within RPAs to be undertaken using sensitive working methodology
T1 & T9 (English oak)	A	Low impact path located on the periphery of the RPA, no dig construction specified installed at the landscape stage.

3.3.2 Demolition Works

The removal of hard surfaces within the RPAs of T18 – T35 will be completed in a sympathetic manner. A machine-mounted mechanical breaker will be used to break up the hardstanding surfaces. The machine will be positioned either outside of the RPAs or upon the existing hardstanding, working its way backwards so that it does not need to move over areas of newly exposed ground. A machine no larger than two-tonnes with a flat edged bucket will then be used to carefully scrape away the broken-up debris and remove it from the RPAs, taking care to not disturb any of the soil below. Any smaller, more difficult parts that threaten to cause root damage/soil disturbance will be then removed manually, using hand-held tools. These works within the RPAs will be completed under the direct supervision of the ACoW.

3.3.2 Cellweb TRP System for Footpath in T1 & T9 RPA

The footpath proposed within the RPA of T1 & T9 will be installed using a Cellweb TRP or other low impact system, installed using ‘no-dig’ techniques as per the Cellweb

TRP manufacturer's instructions. Timber pegs and treated time board edging will be used to form the edge restraints of the Cellweb TRP system. These will be installed manually, using hand-held tools.

3.4 Above Ground Conflicts

3.4.1 Pruning to Facilitate the Development

The offsite lime trees T18 – T35 will be crown lifted to 4m over the site (the majority have already been lifted to this height). Branch tips within the upper canopy will be reduced back to 3.5m from the tree stems (an average crown reduction of circa 2m) to formalise the boundary, reduce shading / overhang of private amenity spaces and allow future cyclical management. The pruning specification is in line with both British Standard 3998: 'Tree Work Recommendations', and common law rights.

The oak tree T7 will have the western aspect of the crown reduced by 1.5 – 2m, depending on the most suitable branch junction, by pruning the extended lowest lateral limb which extends beyond the crown extent and will be managed to balance and the form of the tree within the proposed amenity space.

The extended lower lateral limb of T9 will also be reduced by 2m on the southern aspect of the crown to balance the form of the tree and provide clearance from the proposed road.

Plate 20: proposed 4m vertical clearance over site and 2m crown reductions to formalise boundary trees T18 – T35.

Plate 21: 2m crown reduction of extended lower lateral to balance form of T7.

Plate 22: 2m crown reduction of extended lower lateral to balance form of T9.

3.5 Indirect Impacts of Development

3.5.1 Non-influential Considerations

The potential indirect impacts posed by the retained trees on the proposed development have been considered. Potential issues such as amenity, privacy and screening, highway safety and visibility splays, lighting, signage, solar collectors, satellite dishes and CCTV sightlines are not considered an issue for this particular development proposal.

3.5.2 Shade

Some trees on the site will inevitably shade the private amenity spaces and to a lesser extent the habitable rooms of plots along the western boundary. The position of the dwellings has been adjusted to afford maximum separation from the boundary. Tree crowns will be managed to increase light infiltration to the site without impacting the landscape feature that the trees provide; and the units have been equipped with large dual-aspect windows to receive light from different sources.

3.5.3 Vegetation-Related Subsidence

The initial GoBV information suggests the presence of shrinkable clay-based soils onsite is unlikely (Section 2.3). However, the precise soil type can only be confirmed with further soil investigation/analysis.

If shrinkable clay-based soils are confirmed, the design and size of dwelling foundations proposed to be built within the vicinity of trees may need to be considered in line with NHBC Standards - *Chapter 4.2 'Building near trees'.* Structures built on shrinkable clay-based soils, within the proximity of trees and on inadequate foundations, could be left at risk from tree-related subsidence damage.

3.5.5 Aphid Honey-Dew Drip

The limes along the western boundary will cause aphid honey-dew drip during the growing season whilst bearing foliage. Parking bays have been positioned outside of crown spreads and the pruning back of T18 and T17's crown will help to minimise any problems caused by aphid honey-dew drip.

4. ARBORICULTURAL METHOD STATEMENT

This section describes how the trees highlighted for retention will be safeguarded during the development and should be read in conjunction with the Tree Protection Plan (TPP) (Annex 5.3).

4.1 Project Arboriculturalist

A qualified arboriculturalist will be instructed as the Arboricultural Clerk of Works (ACoW) for the site. The ACoW's responsibilities will include:

- Pre-commencement site meeting to inspect and sign-off the tree protection measures as well as providing the opportunity to work through this AMS with the site manager to ensure they are aware of, and understand all points within its contents.

- Supervision of all works required within the root protection areas (RPAs).

- Monthly site visits to inspect the tree protection and discuss any upcoming development stages with the site manager that may impact upon the trees and require further input from the ACoW.

- Maintain a progression log of all site visits and supervisions that can be presented to the LPA to show that the development has been completed in line with this AMS.

4.2 Facilitation Tree Works

The tree removal and pruning works required to facilitate the proposed development will be completed only once planning approval has been acquired from Cherwell District Council. The tree removal and pruning works will be completed prior to the commencement of other site works and before the installation of the tree protection.

4.2.1 Trees Highlighted for Removal

On receival of planning approval the following items will be removed as indicated on the Arboricultural Impact Assessment plan (Annex 5.3):

- T6, T8, H10, H11, T14, T15, section of H2, section of H39.

4.2.2 Tree/Hedgerow Pruning

The tree and hedgerow pruning specifications are provided in Section 3.4 above.

4.2.3 Tree Work Standards

The necessary tree removal and pruning will be carried out by a suitably qualified and fully insured arboricultural contractor in accordance with BS3998:2010 – *Recommendations for Tree Work*.

4.2.4 Nesting Birds

Where the removal of trees is required, removal of potential bird nesting habitat should be undertaken outside the bird nesting season (March – August inclusive) or otherwise under the direct supervision of a suitably qualified ecologist who will be able to identify nesting birds and advise of appropriate safe working distances.

4.3 Tree Protection Measures

4.3.1 Tree Protection Fencing

A tree protection fence will be erected prior to the commencement of any site works. It will be installed to the correct specification and positioned as specified by the dimensions on the TPP (Annex 5.3). The tree protection fencing will only be dismantled and removed from site following the completion of all works and the removal of all machinery and vehicles from site.

Once installed, the tree protection fencing will be defined as a Construction Exclusion Zone (CEZ) and will be sacrosanct throughout the development and no access within this area will be allowed. If tree protection fencing requires temporarily moving for unforeseen reasons, the ACoW will be firstly consulted and approval requested from Cherwell District Council if the proposals are considered viable.

Two tree protection fencing specifications are provided for this site. In areas of soft ground, the default tree protection fencing specifications will be installed and on areas of hardstanding the alternative tree protection fencing specifications will be installed.

4.3.2 Default Tree Protection Fencing Specification

A **vertical and horizontal scaffold framework**, well braced to resist impacts. The vertical tubes will be spaced at a maximum interval of 3m and driven securely into the ground. Onto this framework, **welded mesh panels should be securely fixed**. Fence panels will be joined together using a **minimum of two anti-tamper couplers**, installed so that they can only be removed from inside (tree side) the fence (Diagram in Annex 5.5).

4.3.3 Tree Protection Fencing Specification

The tree protection fencing will comprise of **2 metre high welded mesh panels** on **rubber feet**. The fence panels will be joined together using a **minimum of two anti-tamper couplers**, installed so that they can only be removed from inside (tree side) the fence. The distance between the fence couplers will be at least 1 metre and should be uniform through the fence. The panels will be supported on the inner side by **stabilizer struts** (one installed between every two fencing panels), which will be attached to a **base plate** secured with **ground pins** (Diagram in Annex 5.5).

4.3.4 Tree Protection Signage

The tree protection fencing will have A1 laminated signs attached to every fifth panel, stating that this is a Construction Exclusion Zone (CEZ) and that **NO WORKS** are permitted within the CEZ (Annex 5.5).

4.4 Demolition

4.4.2 Removal of Hard Surfaces within RPAs

The removal of hard surfaces within the RPAs of T18 – T35 will be completed in a sympathetic manner. A machine-mounted mechanical breaker will be used to break up the hardstanding surfaces. The machine will be positioned either outside of the RPAs or upon the existing hardstanding, working its way backwards so that it does not need to move over areas of newly exposed ground. A machine no larger than two-tonnes with a flat edged bucket will then be used to carefully scrap away the broken-up debris and remove it from the RPAs taking care to not disturb any of the soil below. Any smaller, more difficult parts that threaten to cause root damage/soil disturbance will be then removed manually, using hand-held tools. These works within the RPAs will be completed under the direct supervision of the ACoW.

Please note: it may be preferable to carry out these works prior to the installation of the tree protection fencing. In this instance this should be completed prior to all other site works using the same methodology as above. This will make the installation of the tree protection fencing easier and ensure it does not need to be moved during the development process. In this circumstance the default specification tree protection fencing would be a viable option for the entire site.

4.4.3 The Demolition of Existing Buildings

The existing buildings that are highlighted for removal are not positioned within tree RPAs. However, no debris from the demolished buildings will be piled up or stored within tree RPAs.

4.5 Construction

4.5.1 Garden Fence Installation

The proposed garden fencing within RPAs will be installed manually using hand-held tools. No machinery or plant will be permitted within the RPA. Fence post holes will be dug manually, using hand-held tools and then inspected by the ACoW.

These works will be carried out under the direct supervision of the ACoW who will prune any exposed roots that are < 25mm diameter back to the edge of the hole using a clean, sharp handsaw or secateurs. Roots that are > 25mm diameter will be not be pruned back. Fence post positions will be altered to avoid conflict with these roots.

Following the excavation work and prior to the pouring of postcrete, the fence post holes within RPAs will be firstly lined with a non-permeable geotextile membrane (*e.g.* Treetex Non-Woven Geotextile) to prevent the leaching of toxic particulates through the soil that can lead to root desiccation. All excavated spoil will be manually removed from the RPA or placed on temporary ground protection to be used for back filling upon completion. Any excess soil will then be removed from the RPA.

4.5.4 Cellweb TRP System for Footpath in T1 & T9 RPA

The footpath proposed within the RPA of T1 & T9 will be installed using a Cellweb TRP or other low impact system, installed using 'no-dig' techniques as per the Cellweb TRP Installation Guide (Annex 5.7). Timber pegs and treated time board edging will be used to form the edge restraints of the Cellweb TRP system. These will be installed manually, using hand-held tools.

The Cellweb TRP system is likely to sit slightly higher than the existing ground-level due to being a no-dig system. A clean top soil and grass seed mix will be used on either side of the Cellweb TRP system to gradually grade down the ground-level from the Cellweb TRP system to the existing ground-level. The soil will be laid and graded manually, using hand-held tools. This minor increase in soil levels is unlikely to have a detrimental impact upon the condition of the trees and hedgerows.

4.5.5 Works within Construction Exclusion Zones (CEZs)

Where works are required within CEZs (behind tree protection fencing) such as the installation of footpaths, fencing and patios, then these works will be carried out under the direct supervision of the ACoW. No tree protection will be moved to accommodate these works without the ACoW present on site. The tree protection will then be correctly re-instated to its correct position following the completion of the works and/or at the end of each working day, prior to the ACoW leaving site. The works will be carried out manually, using hand-held tools. No machinery will be allowed to access the CEZs.

4.6 Landscaping

Landscaping works will be carried out at the end of the development when major works are completed and tree protection fencing and temporary ground protection can be temporarily adjusted/re-positioned to facilitate the landscaping works. Where access behind tree protection fencing and/or beneath temporary ground protection is required to facilitate the landscape works, this will be carried out under the direct supervision of the ACoW. Tree protection will then be suitably re-instated at the end of the working day.

4.6.1 Grass Turf Laying and Seeding

Laying of turf and/or seeding within RPAs will be carried out sympathetically using hand-held tools within RPAs. Turf will not be laid over above-ground parts of trees (*e.g.* lower stem, buttress roots or exposed shallow surface roots).

4.7 Site Meetings

4.7.1 Pre-commencement Meeting

A pre-commencement site meeting, attended by the ACoW and site manager, will be carried out prior to the commencement of any site works. It is the responsibility of **THE SITE MANAGER** to arrange this meeting.

The meeting will be held following the installation of the tree protection, which will be inspected and signed-off by the ACoW, providing it has met the specifications set out within this report. Additionally, the ACoW will go through this AMS with the site manager to ensure they are aware of and understand all points within its contents.

4.7.2 Post-development Meeting

Following the completion of the development, the same two parties detailed above, will attend site to confirm that the development has been completed in line with this AMS. It will also give the opportunity to confirm all works have been completed and that all materials and machinery have been removed from site. The ACoW will then be able to give approval for the dismantling and removal of the tree protection fencing.

4.8 Supervision/Key Events

Site specific key events that will require input and supervision from the ACoW are provided below (Table 4). It is the responsibility of **THE SITE MANAGER** to inform the ACoW when these events are to be completed, providing a minimum of one-weeks' notice. This will allow the ACoW to suitably schedule in the supervision works.

Table 4: Key events that require supervision from the ACoW.

Task	Site Manager Signature	ACoW Signature
Pre-development Phase		
Pre-commencement meeting to check and sign-off tree protection.		
Confirmation site works can proceed.		
Demolition Phase		
Removal of existing hard surfaces in T18 – T35's RPA.		
Construction Phase		
Inspection of tree protective measures ahead of construction phase		

Path within T1 & T9 RPA		
Ground works for garden fence post holes in RPAs.		
Monthly site visits completed.		
Task	**Site Manager Signature**	**ACoW Signature**
Post Development Phase		
Post-development meeting to clarify that the development has been completed in-line with this AMS.		
Confirmation from ACoW that tree protection can be dismantled and removed from site.		

4.9 Arboricultural Monitoring

During the development process a monthly site visit will be completed and signed-off by the ACoW to ensure all tree protection still remains *in situ* and fit for purpose. Site visits will give the opportunity for the ACoW to highlight any concerns, and also give the site manager the opportunity to clarify any issues where they are unclear. The visits will be dated and signed-off by the ACoW using the Table 5 below.

Table 5: Arboricultural bimonthly monitoring sign-off table.

Site Visit Date	Site Manager Signature	ACoW Signature	Comments

Site Visit Date	Site Manager Signature	ACoW Signature	Comments

4.10 Contact Details

The details of the relevant parties involved in the project will be provided below (Table 6). This working document will be updated with the relevant details in due course as they are confirmed.

Table 6: Relevant party contact details.

Name	Role	Company/ Authority	Phone Number	Email
	Client			
	Site Manager			
	Arboricultural Clerk of Works			
	Tree Officer	Cherwell District Council		

5. ANNEXES

5.1 Tree Survey Schedule

5.2 Tree Survey Key

5.3 Plans

5.4 BS5837:2012 Cascade Chart for Tree Quality Assessment

5.5 Tree Protection Measures & Signage

5.6 Tree Preservation Order (Reference: 20/00777/TREEPO)

5.7 Cellweb TRP Installation Guide

5.8 Scope & Limitations

5.9 Survey Methods

5.10 Legislation, Planning Policy & Guidance

5.11 References & Bibliography

5.1 Tree Survey Schedule

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T1 (TPO)	Beech	*Fagus sylvatica*	Mature	19	940	11	11	9	10	3	Fair	Good	>40	A single-stemmed specimen with bark damage present. No accurate inspection could be completed due to ivy. Minor deadwood in crown. Old pruning wounds. **Sever and remove ivy, then re-inspect.**	A	11.3	400
H2	Hawthorn; Elder; Ash	*Crataegus monogyna*; *Sambucus nigra*; *Fraxinus excelsior*	Mature	2	100	See plan.				0	Good	Good	>40	A mixed-species boundary hedgerow providing screening from the highway and strong wildlife benefits.	B	1.2	5
T3 (TPO)	English oak	*Quercus robur*	Mature	16	800#	8.5	6	8	9	3	Good	Fair	>40	A single-stemmed specimen. No accurate inspection could be completed due to dense ivy and dense hedgerow. **Sever and remove ivy, then re-inspect.**	A	9.6	290
T4 (TPO)	Beech	*Fagus sylvatica*	Mature	18	830	9.5	8	12	12	2	Good	Good	>40	Minor wounding to buttress and soil compaction. Possesses a slight southerly lean and crown bias. Old pruning wounds and minor deadwood in crown.	A	10.0	312

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T5 (TPO)	Horse chestnut	*Aesculus hippocastanum*	Mature	21	1210	9.5	11	7.5	10	2	Fair	Fair	10 to 20	Minor livestock damage to buttress roots. Old pruning works with some major decaying cavities present. Major deadwood in crown but no immediate target. **If development occurs, monitor annually and remove deadwood from crown.**	B	14.5	662
T6	Hawthorn	*Crataegus* spp.	Mature	8	450	6	5.5	5	5	2	Poor	Fair	10 to 20	Livestock damage to buttress roots. Major decaying cavity present on south-side of stem base, no immediate target.	C	5.4	92
T7 (TPO)	English oak	*Quercus robur*	Mature	16	840	8	8	11	9	2	Good	Good	>40	Minor livestock damage to buttress roots. Well-formed tree with major deadwood in its crown, but no immediate target. **If development occurs, remove deadwood from crown.**	A	10.1	319
T8 (TPO)	Red horse chestnut	*Aesculus* x *carnea*	Mature	15	760	6.5	6.5	6	5.5	2	Poor	Fair	10 to 20	Livestock damage to buttress roots. Bark necrosis and canker formation on stem. Epicormic growth on stem. Extensive target cankers, cavities and deadwood present throughout structure.	B	9.1	261

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T9 (TPO)	English oak	*Quercus robur*	Mature	22	1230	15	15	16	14	3	Good	Good	>40	Minor livestock damage to buttress roots. Major deadwood in crown. **If development occurs, remove deadwood from crown.**	A	14.8	684
H10	Hawthorn	*Crataegus monogyna*	Early-mature	4	70	See plan.				0	Good	Good	>40	A small developing hedgerow of limited value.	C	0.8	2
H11	Hawthorn	*Crataegus monogyna*	Early-mature	4	50	See plan.				0	Good	Good	>40	A small developing hedgerow of limited value.	C	0.6	1
H12	Blackthorn; Hawthorn	*Prunus spinosa*; *Crataegus monogyna*	Early-mature	6	100	See plan.				0	Good	Good	20 to 40	A partially managed scrubby boundary hedgerow. Provides screening.	C	1.2	5
T13	Elder	*Sambucas nigra*	Mature	8	120 m/s x 9 stems#	3	4.5#	5#	5	2	Fair	Fair	10 to 20	Offsite. A multi-stemmed garden specimen.	C	4.3	58
T14	Holly	*Ilex aquifolium*	Semi-mature	8	190 180	2	2	2	2#	1	Good	Good	20 to 40	A twin-stemmed specimen of limited value growing against the boundary fence.	C	3.1	30

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T15	Field maple	*Acer campestre*	Semi-mature	7	130	2	2	2.5	2.5#	1	Fair	Fair	10 to 20	A single-stemmed specimen of limited value growing against the fence.	C	1.6	8
T16	English oak	*Quercus robur*	Mature	16	800#	7	7.5	8#	8#	2	Fair	Good	>40	Offsite. Significant specimen with major cavity in upper crown and major deadwood present. No accurate inspection could be completed due to location.	A	9.6	290
H17	Elder; Hawthorn; Holly	*Sambucas nigra*; *Crataegus monogyna*; *Ilex aquifolium*	Early-mature	2	100	See plan.				0	Good	Fair	20 to 40	A sporadic boundary hedgerow, providing some screening from the school.	C	1.2	5
T18	Lime	*Tilia* spp.	Mature	17	700#	6#	6	6	6#	1.5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	8.4	222
T19	Lime	*Tilia* spp.	Early-mature	17	450#	6#	6	6	6#	3	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T20	Lime	*Tilia* spp.	Early-mature	16	450#	5#	2	5	5#	2	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92
T21	Lime	*Tilia* spp.	Early-mature	18	550#	7.5#	7.5	7.5	7.5#	3	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	6.6	137
T22	Lime	*Tilia* spp.	Early-mature	18	450#	7.5#	5	7.5	5#	5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92
T23	Lime	*Tilia* spp.	Early-mature	16	450#	8	5	5.5	4#	5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
H24	Elder; Hawthorn	*Sambucus nigra*; *Crataegus monogyna*	Early-mature	2	100	See plan.				0	Good	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	1.2	5
T25	Lime	*Tilia* spp.	Early-mature	17	450#	5	6	6#	6#	2	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92
T26	Field maple	*Acer campestre*	Mature	14	350#	4	5	5#	5#	5	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	4.2	55
T27	Lime	*Tilia* spp.	Early-mature	17	400#	5	5	5#	5#	5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	4.8	72

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T28	Field maple	*Acer campestre*	Mature	16	400#	5	5.5	5#	4#	5	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	4.8	72
T29	Field maple	*Acer campestre*	Mature	14	300#	6	5	4#	5#	5	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	3.6	41
T30	Lime	*Tilia* spp.	Early-mature	14	450#	5	5	5#	5#	5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92
T31	Lime	*Tilia* spp.	Early-mature	19	500#	6	6.5	6#	6#	5	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	6.0	113

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T32	Lime	*Tilia* spp.	Early-mature	15	400#	6	6	6#	6#	3	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	4.8	72
T33	Lime	*Tilia* spp.	Early-mature	16	450#	6	6	6#	6#	4	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	5.4	92
T34	Lime	*Tilia* spp.	Early-mature	18	500#	5.5	7	7#	7#	5	Fair	Good	>40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	6.0	113
T35	Field maple	*Acer campestre*	Mature	18	550#	7	7	7#	7#	4	Fair	Good	20 to 40	An individual forming part of an offsite group/line of trees of collective value. Minor crown reduction and pruning works have previously been carried out. No accurate inspection could be completed due to location.	B	6.6	137

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T36	Horse chestnut	*Aesculus hippocastanum*	Early-mature	1.5	N/A	1	1	1	1	0	Poor	Poor	<10	Felled/Removed.	U	N/A	N/A
G37	Hawthorn; Elder	*Crataegus monogyna*; *Sambucus nigra*	Early-mature	6	150	See plan.				0	Fair	Fair	10 to 20	An offsite ivy covered cluster of scrubby trees. No accurate inspection could be completed due to dense ivy.	C	1.8	10
T38	English oak	*Quercus robur*	Mature	15	560	8	6.5	7.5	9.5	2	Good	Good	>40	A well-formed, developing road side tree with the potential to become a significant specimen.	B	6.7	142
H39	Hawthorn; Elder; Ash	*Crataegus monogyna*; *Sambucus nigra*; *Fraxinus excelsior*	Mature	2	100	See plan.				0	Good	Good	20 to 40	A mixed-species boundary hedgerow providing screening from the highway and strong wildlife benefits.	B	1.2	5
T40 (TPO)	English oak	*Quercus robur*	Mature	19	1020	11	14	12	11	3	Fair	Good	>40	A significant boundary specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	A	12.2	471
T41	Ash	*Fraxinus excelsior*	Semi-mature	17	460	6	4	4	4	5	Fair	Fair	10 to 20	Boundary specimen forming part of a group. No accurate inspection could be completed due to dense dead, previously severed ivy. **Remove ivy, then re-inspect.**	C	5.5	96

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T42	Ash	*Fraxinus excelsior*	Early-mature	17	200	7	3	7	6.5	3	Fair	Fair	10 to 20	A offsite specimen forming part of a group with a westerly crown bias. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	2.4	18
T43	Ash	*Fraxinus excelsior*	Early-mature	18	380 250 180	6	3	5	7	3	Fair	Fair	10 to 20	An offsite, triple-stemmed specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	5.9	109
T44	Sycamore	*Acer pseudoplatanus*	Early-mature	16	200	5	3	6	4.5	3	Fair	Fair	20 to 40	An offsite, single-stemmed specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	2.4	18
T45	Sycamore	*Acer pseudoplatanus*	Early-mature	15	280 230 180	6	3	5	4	4	Fair	Fair	20 to 40	An offsite, triple-stemmed specimen. No accurate inspection could be completed due to dense severed ivy. **Remove ivy, then re-inspect.**	C	4.9	75

ID	Common Name	Scientific Name	Maturity	Height (m)	Stem Diam (mm)	Crown Spread N/E/S/W				Ground Cl (m)	Structure/ Form	Physical Condition	Life Expectancy (yrs)	Observations **Recommendations**	Retention Category	RPA Radius (m)	RPA (M^2)
T46	Field maple	*Acer campestre*	Mature	10	480	1.5	2	5	5	4	Fair	Fair	10 to 20	An offsite, single-stemmed specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	5.8	104
T47	Field maple	*Acer campestre*	Mature	10	680	1	2	7	5	3	Fair	Fair	10 to 20	An offsite, single-stemmed specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	8.2	209
T48	Field maple	*Acer campestre*	Mature	10	510	6	2.5	1	2	3	Fair	Fair	10 to 20	An offsite, single-stemmed specimen. No accurate inspection could be completed due to dense ivy. **Sever and remove ivy, then re-inspect.**	C	6.1	118

5.2 Tree Survey Key

Table 7: Tree Survey Key

Reference Code	Description
ID	Each plotted position has been allocated a sequential reference number: T1, G1, H1. (TPO) - Tree is protected by a Tree Preservation Order.
Species	Listed by common name and scientific name.
Maturity	**Young** – not yet established, can be moved or replaced relatively easily and less than 1/3 of their potential mature size. **Semi-mature** – established in the landscape and approximately 1/3 of their potential mature size. **Early-mature** – approximately 2/3 of their potential mature size. **Mature** – considered to have reached mature size. **Veteran** – by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. **Dead** – Dead specimen.
Height (m)	Measured in metres from ground level.
Stem Diameter (mm)	Diameter is measured at 1.5m above ground level (DBH – diameter at breast height). For multi-stemmed (M/S) trees, the diameter of each stem is measured and the squares of the stems are added together. The square root of this figure is then calculated to give the equivalent single stem diameter. In some instances, this method may provide a misleading figure (*e.g.* for coppiced trees). The diameter at ground level may be recorded instead, or a diameter that provides a more appropriate RPA.
Crown Spread (m)	The spread of the crown is measured in metres on the north, east, south and west sides. This has been recorded either with a laser or by pacing, depending upon site conditions.
Ground Cl (m)	This is the clearance of the first significant branch from ground level, measured in metres.

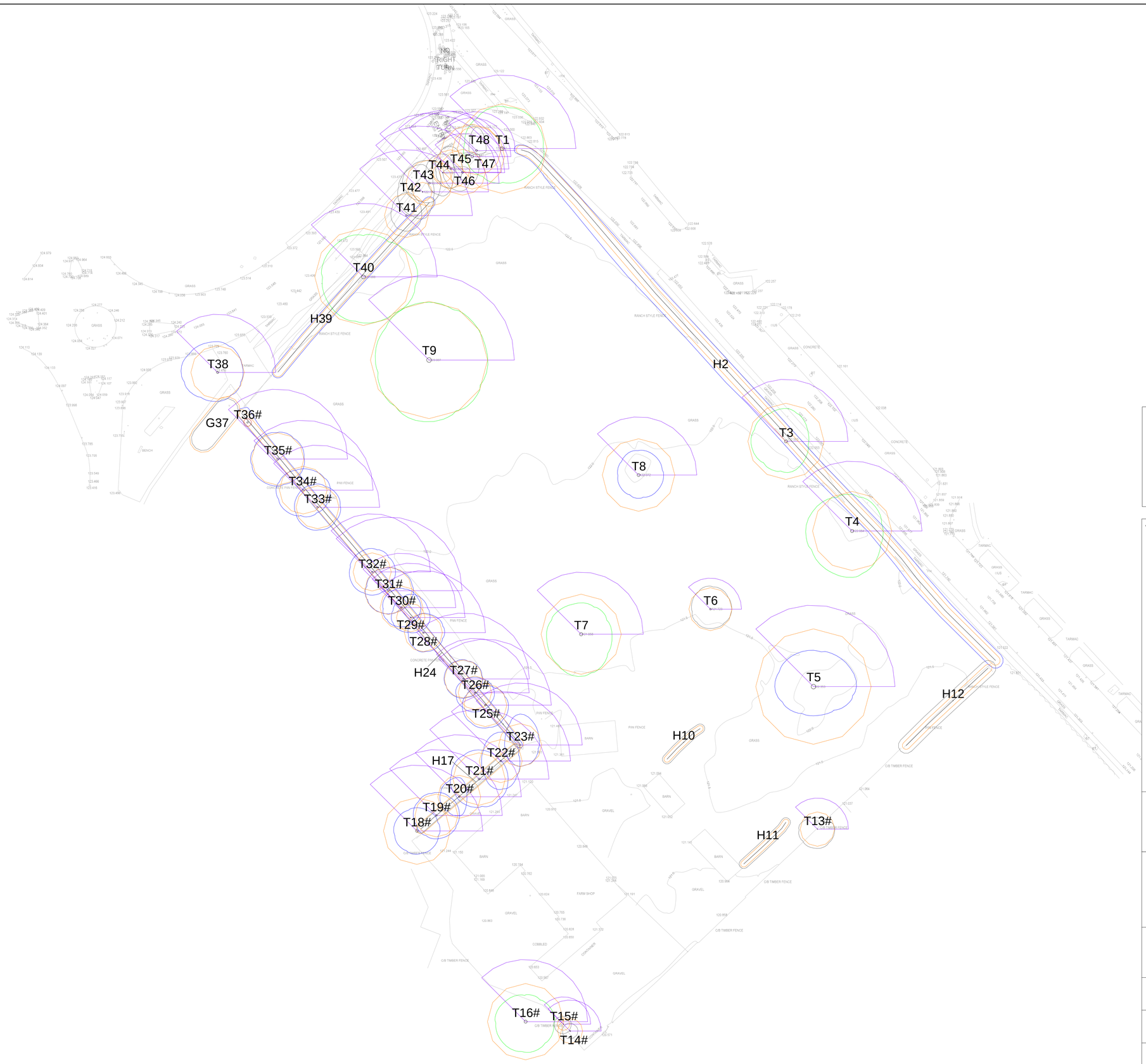
Reference Code	Description
Structure/form	An assessment of the form of the tree, with reference to any significant defects found (e.g. decay, weak forks, exposed roots). **Good** – No obvious major defects observed **Fair** – Minor defects present **Poor** – Major defects present
Physical condition	This refers to how well the tree is functioning as a living organism. Factors including: leaf size and condition; shoot growth; and presence of deadwood have provided an indication of its overall health. **Good** – Appears a healthy example of this species **Fair** – Early signs of stress present **Poor** – Not a healthy example of this species, with substantial signs of stress/decline evident **Dead** – No remaining contribution.
Life expectancy	The approximate remaining contribution in years has been assessed with consideration of the species and site. **<10** – less than 10 years remaining contribution **10 – 20** years remaining **20 – 40** years remaining **>40** – greater than 40 years remaining
Retention category	BS5837:2012 Table 1 categories (Annex 5.4) have been used to assess the quality and value of tree, tree groups and hedgerows. **A** – High **B** – Moderate **C** – Low **U** – In such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.
RPA (m^2)	Root Protection Area (in m^2) calculated as a circle with a radius of 12 x the stem diameter.
RPA (m)	The radius in metres of the Root Protection Area.

5.3 Plans

5.3.1 Tree Constraints Plan

5.3.2 Proposed Layout and Removals Plan

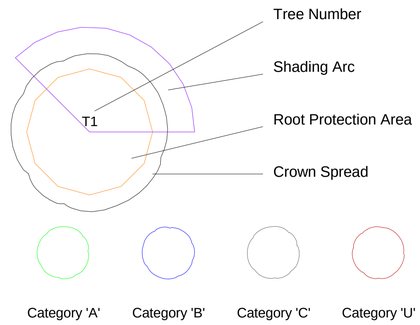
5.3.3 Tree Protection Plan



Note:

= The position of the tree is approximately plotted due to not being present on the topographical survey. In this situation the tree position from the original AWA Tree Consultants tree survey has been used.

Tree Legend



0 80m

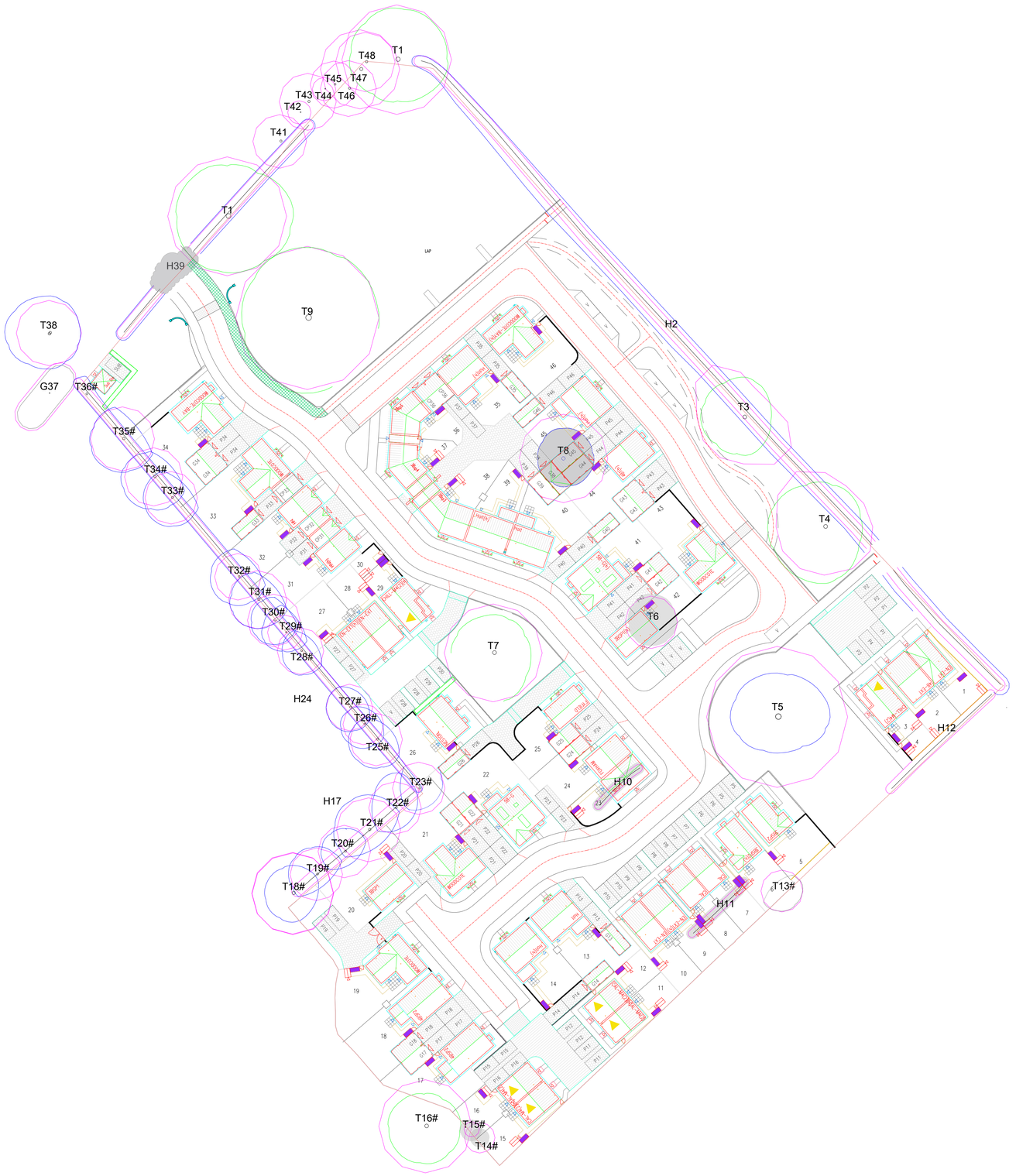
Focus Environmental Consultants

Unit 2, Ball Mill Top Business Park, Hallow, Worcester, WR2 6PD

Tel: 01905 780 700 Email: Quotes@focus-enviro.com

Tree Constraints Plan

SCALE : 1 : 500 @ A1	DATE : 05/05/2021	N
MAP FILENAME : 2257 - Land at Oxford Road, Bodicote		



The original of this drawing was produced in colour -a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.

Trees to be removed shown shaded

Proposed Layout and Tree Removals

Client
Greensquare Homes Ltd

Project
Land at Tappers Farm, Oxford Road, Bodicote

May 2022	Drawn by EC	Checked by -
Drawing No 2257-P-12	Rev e	Scale 1:500@A1

focus
ENVIRONMENTAL CONSULTANTS

ARBORICULTURAL METHOD STATEMENT

TREE WORKS

Only the tree works specified within this report may be undertaken, after the appropriate planning consents have been acquired and in order to implement the consent. In the event of any uncertainty regarding tree works, the retained arboricultural consultant will be consulted and where appropriate the Local Planning Authority.

All tree works will be undertaken, in accordance with the best-practice recommendations provided in BS 3998:2010. The statutory responsibilities as outlined in the Wildlife and Countryside Act 1981 (as amended) and the Habitat Regulations 2010 will also be complied with.

TREE PROTECTION FENCING

The tree protection fencing and (where appropriate) ground protection, will be installed as specified within this plan, prior to the commencement of any demolition and construction works. No plant or materials will be delivered to site prior to the construction of the tree protective fencing other than those required to install the tree protection fencing. On every third panel, a sign will be fixed that states "*Tree Protection Zone (TPZ). Keep out. Any incursion into this area must be agreed in advance with the retained arboricultural consultant and Local Planning Authority*." An example of this sign is provided within this plan.

The position of the tree protection fencing must not be amended and no individual panels will be uncoupled, without the agreement of the retained arboricultural consultant and/or Local Planning Authority.

SERVICES AND DRAINAGE

The installation of drainage runs, manholes, storage tanks, and utilities will be positioned outside the root protection areas of retained trees. If the installation of new services and drainage runs are required within the root protection areas (RPAs) of retained trees, all methods of working will follow the guidance within Table 3 of BS 5837 or the National Joint Utilities Group's (NJUG) Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (volume 4, issue 2).

Excavation works within the RPAs of retained trees will be undertaken manually with the use of hand tools only (under the supervision of the retained arboricultural consultant), unless otherwise agreed in advance by the retained arboricultural consultant. It is recommended that an air lance - and if required a soil vacuum - is used, to excavate service trenches within RPAs. If soil conditions are not suitable for this method of excavation, alternative hand tools can be used once agreed in advance by the retained arboricultural consultant.

All roots greater than 25mm in diameter will be retained and will immediately be wrapped in hessian or another appropriate material, to prevent desiccation and temperature fluctuations. Roots will be pushed aside to allow for runs to be installed, where this is practical and without causing root damage.

No machinery will be permitted within the TPZ, at any time, unless agreed in advance with the retained arboricultural consultant.

NO-DIG CONSTRUCTION AREAS

Areas that will require no-dig methods of construction are shown within this plan. Working methods within these areas will comply with the details outlined in the main report and in advance of works being undertaken will be agreed with the retained arboricultural consultant.

ARBORICULTURAL CLERK OF WORKS

The monitoring of activities at the Site will occur, at the following points:

- To sign-off the tree protection measures;
- To sign-off the tree works;
- At other points as specified within this Report and the TPP.

It will be the responsibility of the main contractor (or other managing individual or organisation) to confirm the date and time of attendance, providing at least five working days of notice so that the project arboriculturist can confirm attendance.

GENERAL PROTECTION METHODS

No fires will be permitted, within 20m of the crown of any tree or other area of vegetation that includes hedgerows and groups of trees.

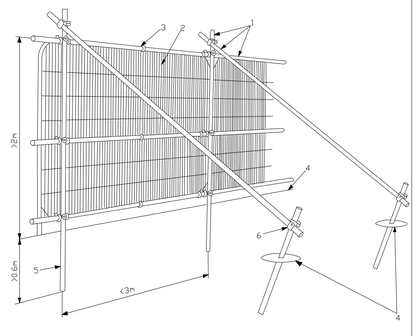
No changes in soil level will occur, within the TPZs and RPAs, without agreement in advance with the retained arboricultural consultant.

The TPZs will at all times remain free of liquids, materials, vehicles, plant, and personnel, without agreement in advance with the retained arboricultural consultant.

Any liquid materials spilled on site will immediately be cleared up. If liquids are spilled within 2m of any TPZ or RPA, the incident will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.

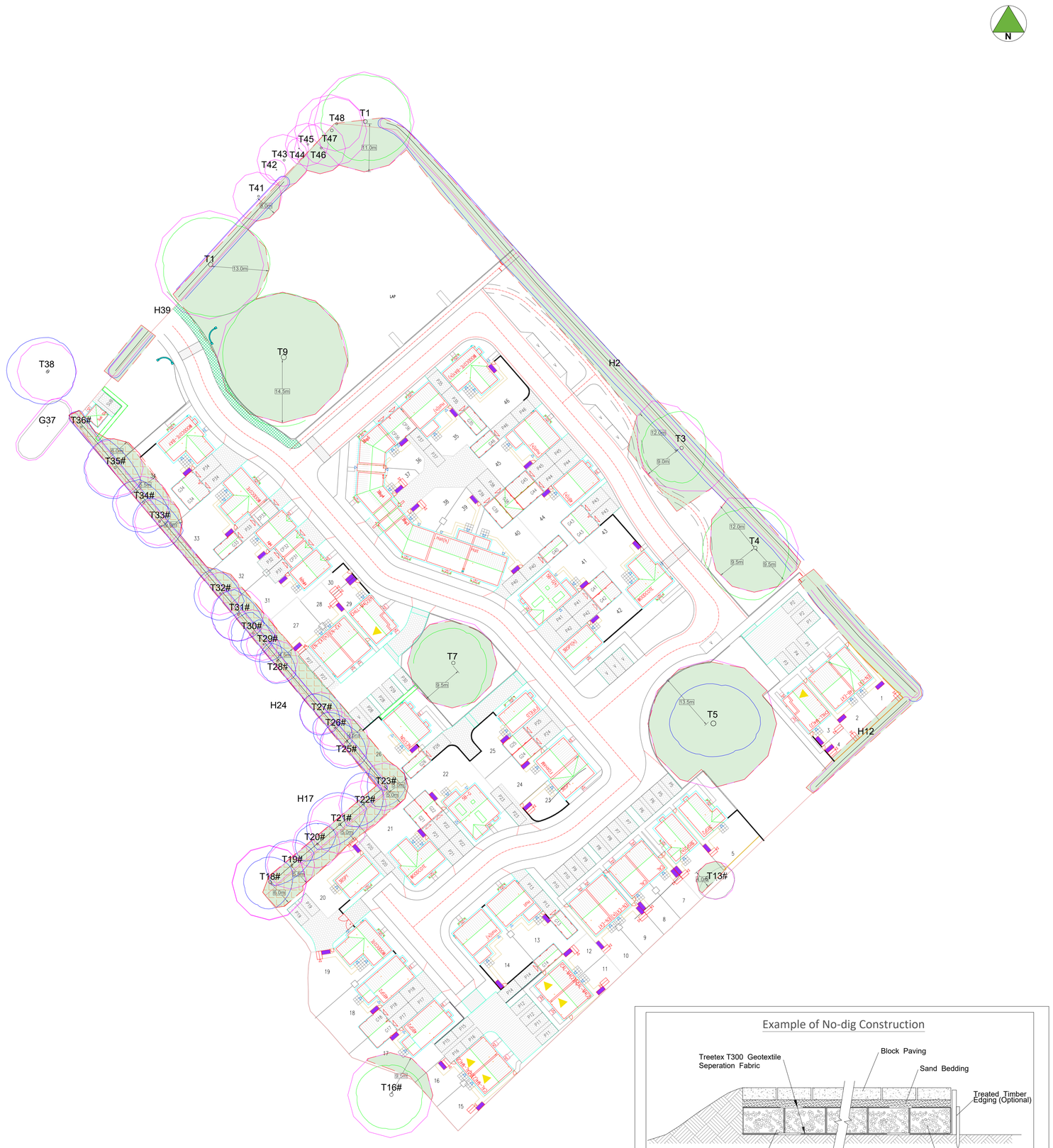
All damage to trees and other vegetation will immediately be reported to the retained arboricultural consultant, to determine the appropriate response.

Protective Fencing Specification

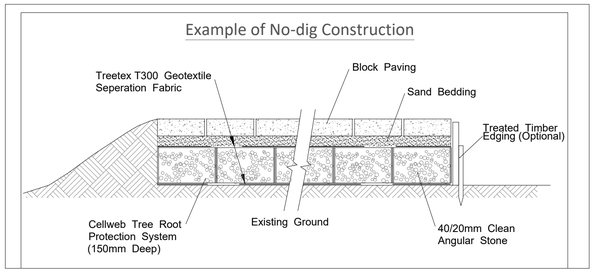


Key

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



Example of No-dig Construction



The original of this drawing was produced in colour -a monochrome copy should not be relied upon.

BS 5837:2012 TREE RETENTION CATEGORIES

Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.

Category U
Those in such a condition that the tree cannot realistically be retained as living trees in the context of the current land use for longer that 10 years.

BS5837 Root Protection Areas
Precautionary areas within which tree roots and soil structure must be protected. All works within these areas will require special methods of work.

Position of protective fencing and tree protection zones.

CellWeb or other Low impact path with porous surfacing, tree protective fencing adjusted to install at landscaping stage.

Existing hard surfacing be completed in a sympathetic manner. A machine mounted mechanical breaker will be used to break up the hardstanding surfaces. The machine will be positioned either outside of the RPAs or upon the existing hardstanding, working its way backwards so that it does not need to move over areas of newly exposed ground. A machine no larger than two-tonnes with a flat edged bucket will then be used to carefully scrap away the broken up debris and remove it from the RPAs taking care to not disturb any of the soil below.

Tree Protection Plan

Client
Greensquare Homes Ltd

Project
Land at Tappers Farm, Oxford Road, Bodicote

May 2022	Drawn by EC	Checked by -
Drawing No 2257-P-12	Rev e	Scale 1:500@A1

focus ENVIRONMENTAL CONSULTANTS

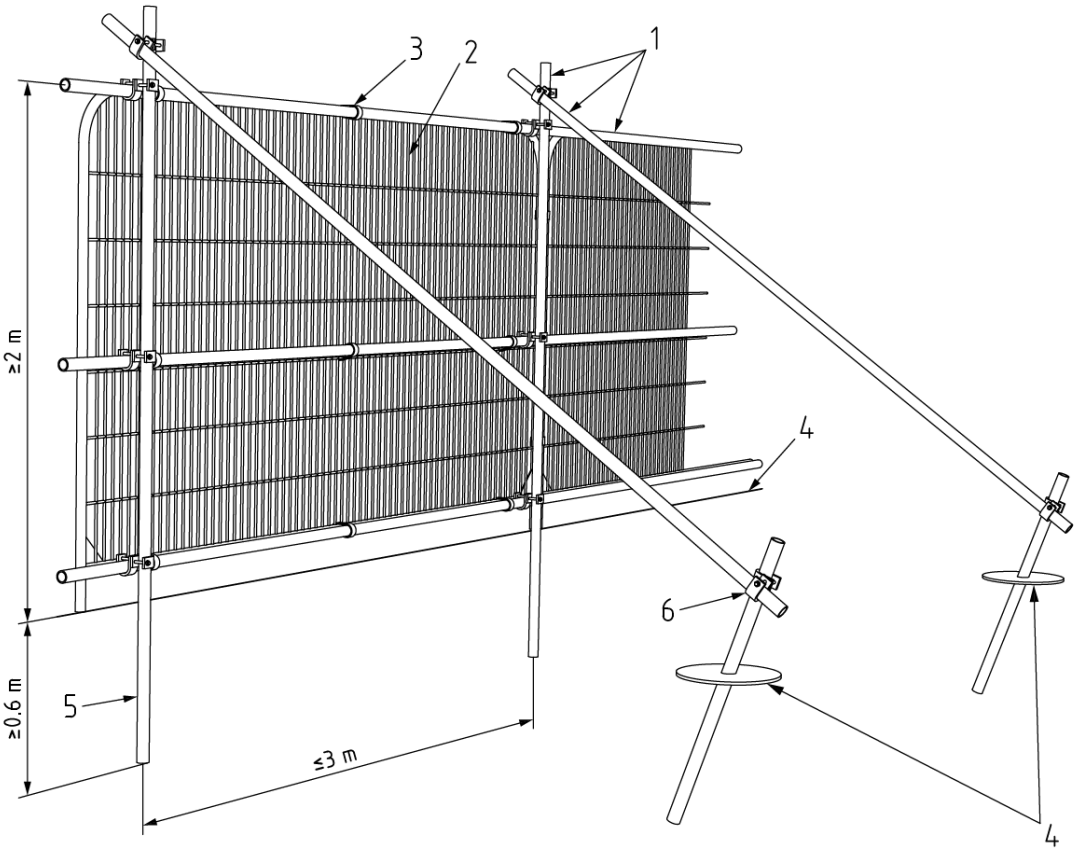
5.4 BS5837:2012 Cascade Chart for Tree Quality Assessment

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Tree unsuitable for retention (see Note)				
Category U Those in a such condition that they cannot realistically be retained as living trees in the context of the current land us for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (*e.g.* where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE: Category U trees can have existing or potential conservation value which might be desirable to preserve; see 4.5.7.*			See Table 2
	1 Mainly Arboricultural qualities	***2 Mainly landscape qualities***	***3 Mainly cultural values, including conservation***	**Identification on plan**
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (*e.g.* the dominant and/or principal trees with an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (*e.g.* veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (*e.g.* presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attach a higher collective rating than they might as individuals: or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them scientifically greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

5.5 Tree Protection Measures & Signage

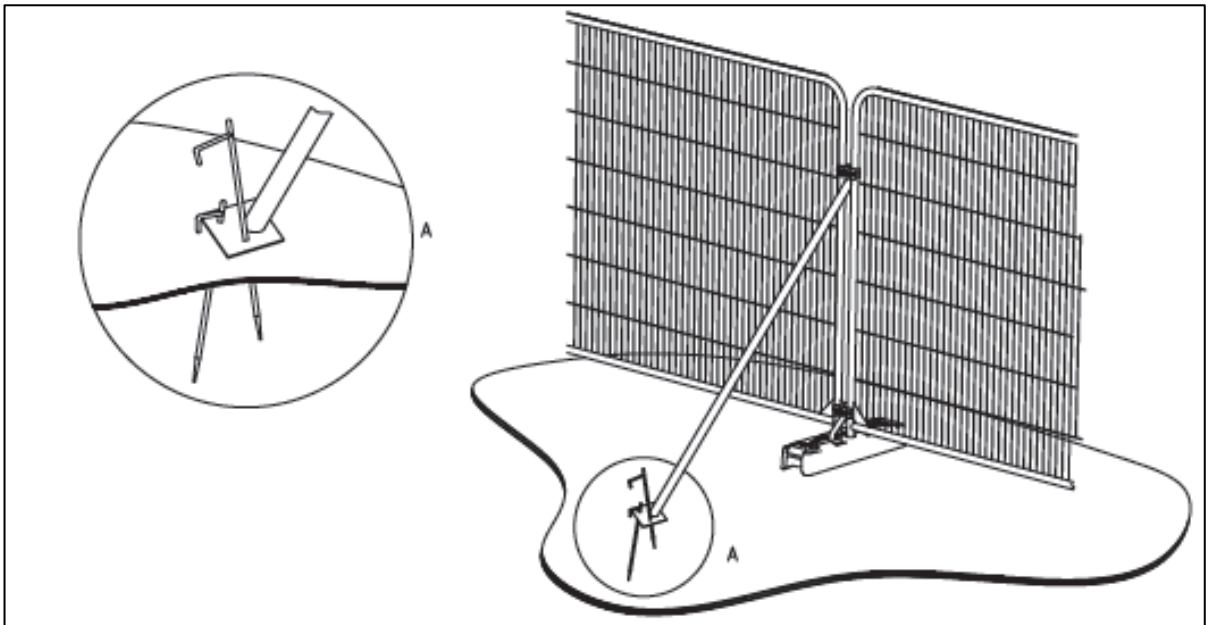
5.5.1 Default Tree Protection Fencing Design



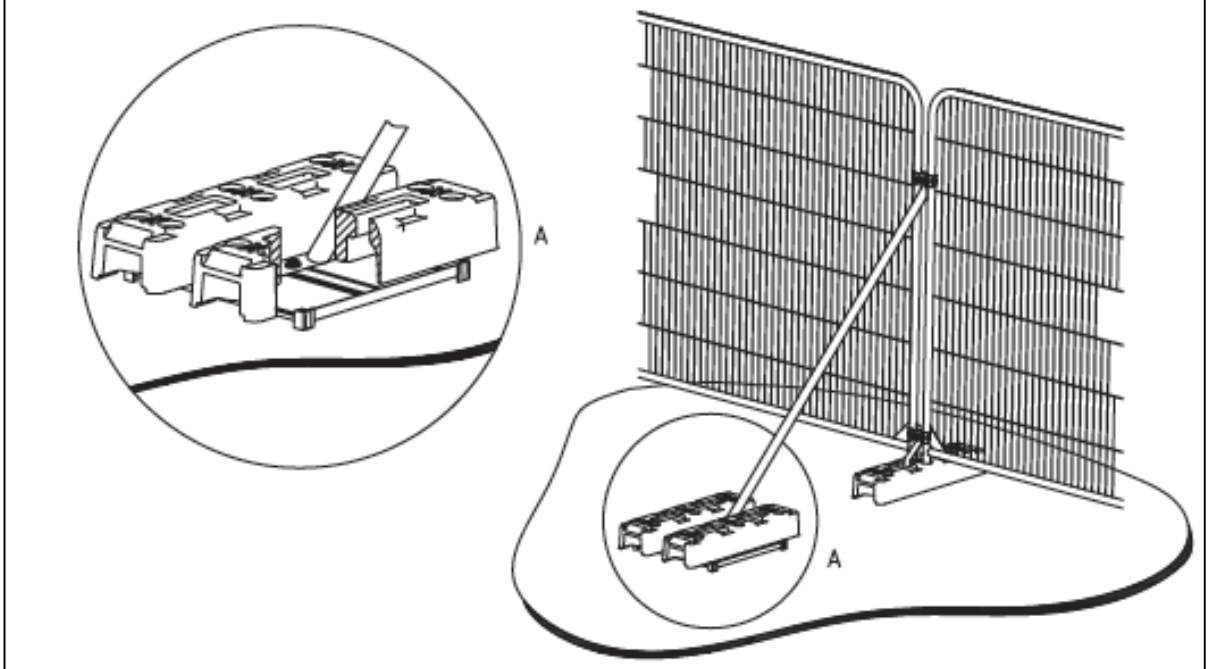
Key

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

5.5.2 Alternative Tree Protection Fencing Design



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

5.5.3 Signage for Tree Protection Fencing

5.5.4 Temporary Ground Protection

Temporary ground protection will be capable of tolerating pedestrian-operated plant up to a gross weight of 2 t. Machinery of a weight greater than 2 t will be prohibited from moving over these areas.

Installation Specification:

1. Timber edge rails at 200 mm high x 50 mm wide will be secured to the ground with timber stakes. Timber stake dimensions will be 50 x 50 x 500 mm and will be positioned at 1 m spacings. Timber edge rails will be installed at both sides of the ground protection's specified position.

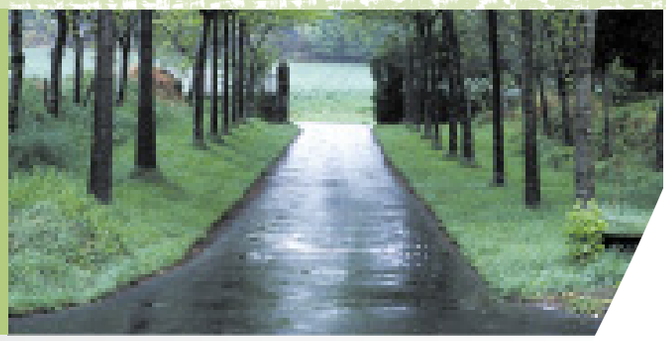
2. A geotextile membrane will be laid on the ground between the timber edge rails.

3. A layer of woodchip at a depth of 150 mm will be laid upon the geotextile membrane.

4. Proprietary ground protection boards at 1200 mm wide x 2400 mm long will be laid upon the woodchip. A single row of boards will be used to cover the areas specified for 1.2 m wide temporary ground protection. Two rows of boards laid next to each other with no gaps between will be required in areas specified for 2.4 m wide temporary ground protection.

5. The ground protection boards will be secured together using metal couplers.

CellWeb TRP®



Tree Root Protection Guaranteed

Geosynthetics

www.geosyn.co.uk

CellWeb TRP® System

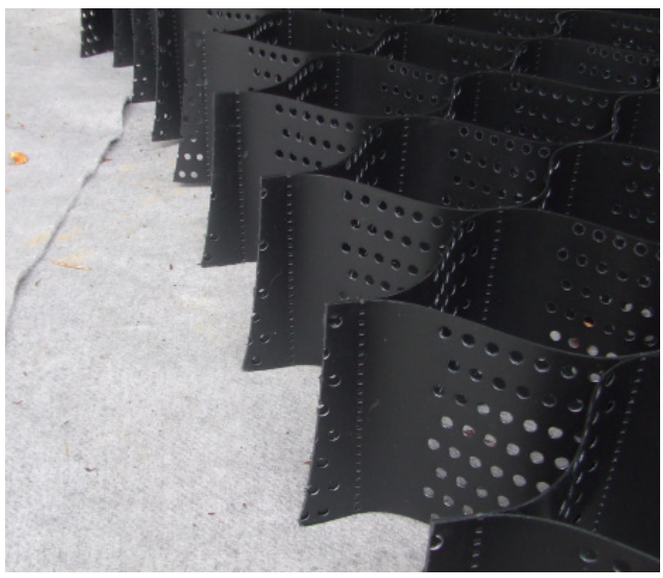
Tree Root Protection System



The Consquences Of Tree Root Damage During Construction

It is an offence to cut down, lop, uproot, top, wilfully damage or destroy a protected tree without authorisation. Trees can be protected under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999. Trees are protected when they are the subject of Tree Preservation Orders (T.P.O) or within Conservation Areas, subject to certain exemptions. Retention and protection of trees on development sites is also secured through the use of planning conditions.

On a construction site all trees with a Tree Preservation Orders need to be managed in accordance with BS5837 2012 (Trees in relation to construction); failure to comply with these orders can be a costly affair as many parties have discovered.



Fishponds, Ketton

There are two offences which apply equally to trees protected by Tree Preservation Orders and those within Conservation Areas:

- Firstly, anyone who cuts down, uproots or wilfully destroys a tree, or who lops, tops or wilfully damages it in a way that is likely to destroy it is liable, if convicted in the Magistrates Court, to pay a fine of up to £20,000. If the person is committed for trial in the Crown Court, they are liable on conviction to an unlimited fine. The Courts have held that it is not necessary for a tree to be obliterated for it to be "destroyed" for the purposes of the legislation. It is sufficient for the tree to have been rendered useless as an amenity.
- Secondly, anyone who carries out works on a tree that are not likely to destroy it is liable, if convicted in the Magistrates Court, to a fine of up to £2,500. In addition to directly carrying out unauthorised works on protected trees, it is an offence to cause or permit such works.

Developers and building contractors are often completely unaware that 'compaction of soils within the Root Protection Area (RPA)' constitutes wilful damage to the tree. When vehicular or pedestrian access within the RPA is necessary, either for the construction operation or final site access, the effects of this activity must be addressed and the ground must be protected. When tracked or wheeled traffic movements are involved, the ground protection system should be designed by an engineer and take into account the loading involved.

Shelton Road, Shewsbury

The Solution:

Geosynthetics CellWeb TRP® System



The Solution According to BS 5837:2012

"Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems ....."

(BS 5837 2012 section 7.4.2 Note 1)

The CellWeb TRP® Solution

CellWeb TRP® is the market leader in the United Kingdom and Ireland for tree root protection. 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. CellWeb TRP® complies with BS 5837:2012 and APN 12. It provides a no-dig solution, is tried and tested having been used successfully since 1998. It is the only tree root protection system which has been independently tested and it is the only tree root protection system which is guaranteed for 20 years. See page 6 for the full terms and conditions of the guarantee.

Fishponds, Ketton

Field Trials

Geosynthetics Limited are the only company in the UK and Ireland to carry out live, completely independent field tests on the performance of a 3 dimensional cellular confinement system when used in a no-dig tree root protection system application. The results prove that CellWeb TRP® significantly reduces the compaction of sub-soils within the root growth limiting parameters established by K D Coder, 'Soil damage from compaction'. University of Georgia. July 2000. A copy of the report is available upon request.

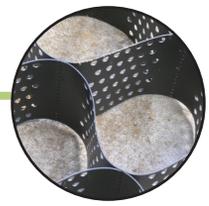
CellWeb TRP® Product Guarantee

Geosynthetics Limited prides itself on a providing a reliable, consistent service; including technical advice, on site support and installation guidance. Geosynthetics Limited provides a 20 year guarantee for the CellWeb TRP® tree root protection system. This guarantee gives the client, the tree officer and arboricultural consultant the confidence that the designed system will perform as intended without damaging the health of the tree.

See page 6 for the full terms and conditions of the guarantee.

CellWeb TRP® System

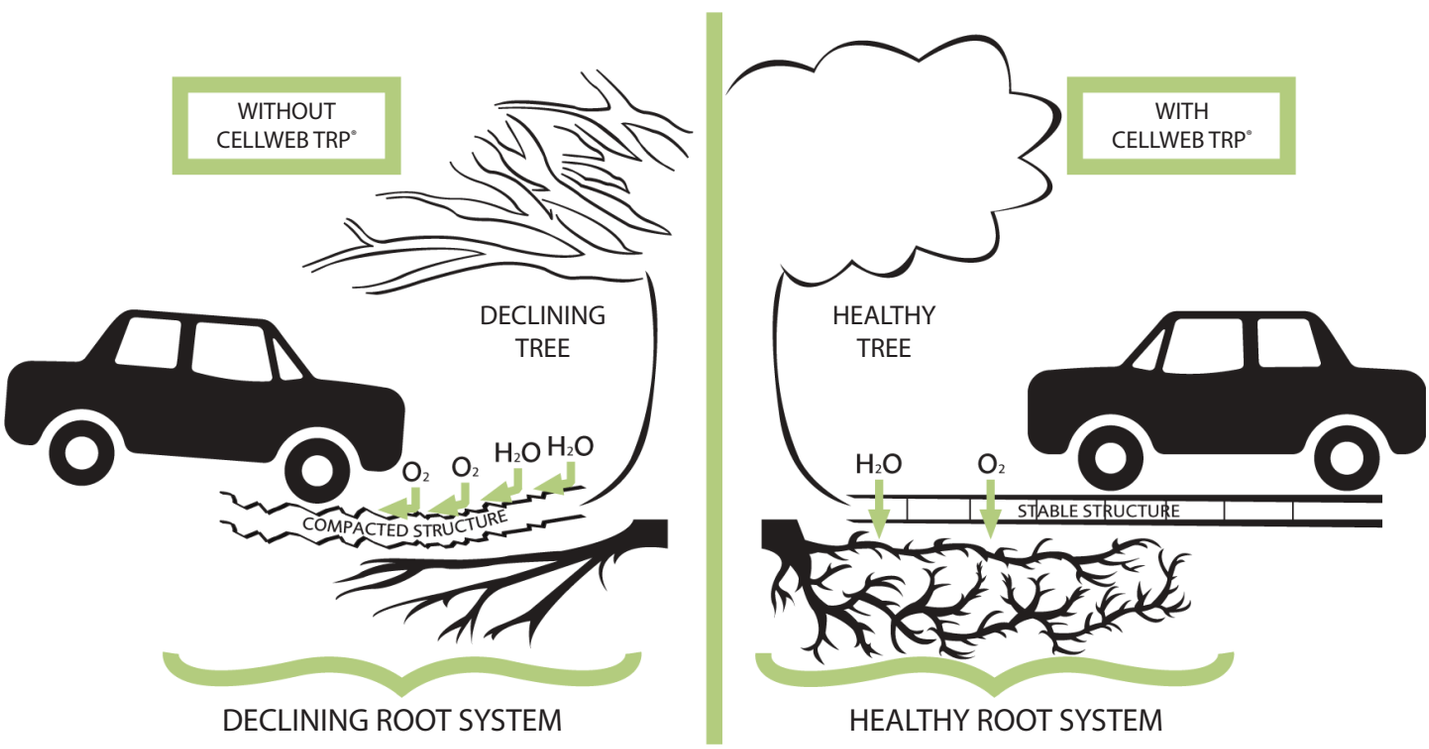
How the System Works



How CellWeb TRP® Works

CellWeb TRP® is a cellular confinement system that confines aggregate materials and makes them stronger, thus increasing the bearing capacity of the sub base materials. Research shows that CellWeb TRP® acts as a stiff raft to distribute wheel loads and reduce their magnitude at the base of the construction, thus maintaining the soil bulk density at levels that are suitable for tree root growth.

CellWeb TRP® is used around the world to provide cost effective hard surface construction over tree roots and is the system of choice for Tree Officers and Arboriculturists. For more information on this subject see CellWeb TRP® Fact Sheet No 1.



Water and Oxygen Transfer Through the CellWeb TRP® System

The CellWeb TRP® system is constructed using open aggregate infill and CellWeb TRP® has perforated cell walls. The pore spaces between the aggregate particles are greater than 0.1mm in diameter. This open structure is far more permeable than typical soils and allows the free movement of water and oxygen so that supplies to trees are maintained.

For more information on this subject see CellWeb TRP® Fact Sheet No 2.

CellWeb TRP® and Pollution

How CellWeb TRP® Deals With Catastrophic Oil Spills

How CellWeb TRP® Deals With Pollution

Where possible a permeable pavement system should always be constructed above the CellWeb TRP® system. The effective removal of pollution from runoff by permeable pavements is well known. Worldwide research has shown runoff that has passed through permeable pavements has low concentrations of pollutants.

Small spills of oil will be dealt with within the joints between the paving blocks and in the aggregate used within the system. However, large catastrophic spills are a different matter.

For more information on this subject see CellWeb TRP® Fact Sheet No 3.

Castle Gardens

Ambleside Lake District

Harcourt Aboretum

The Treetex® geotextile used in the CellWeb TRP® system has two functions. Treetex® separates the sub base aggregates from the soil beneath and it traps oil within its structure and allows it to degrade aerobically within the pavement construction. The structure, thickness and weight of Treetex® creates the perfect environment for this to happen. Most importantly tests prove that Treetex® will absorb 1.7 litres of oil per square metre, this is 4 times more effective than standard geotextiles.

Treetex® is an intrinsic part of the CellWeb TRP® system; and must be in conjunction with the CellWeb TRP® in order to guarantee the success of the system.

Please see page 6 for full details of the guarantee.

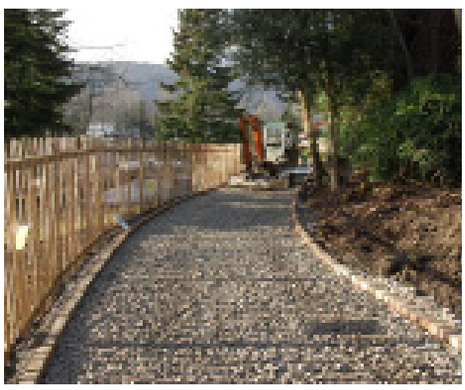
Geosynthetics CellWeb TRP® System:

A Proven No Dig Solution

Advice, Design and Product Selection

Geosynthetics Limited has been supplying the CellWeb TRP® system since 1998 and has vast 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 correct CellWeb TRP® 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, engineering calculations, CAD drawings and full instructions to help you from project conception to completion.



Fallbarrow Park, Windermere: Prior to CellWeb TRP® Installation

Fallbarrow Park, Windermere: CellWeb TRP® Installation

Fallbarrow Park, Windermere: Completed CellWeb TRP® Installation

Final Surfacing

The benefits of the CellWeb TRP® system can only be maintained if a suitably porous final surface is selected. An ideal surfacing is the Golpla 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.

Always Use CellWeb TRP®

The CellWeb TRP® system is the only research backed system of its kind in the UK with a 100% success rate. CellWeb TRP® has been specifically developed for the Tree Root Protection market. The system is supported by 15 years of data and thousands of installations making it the system of choice for the majority of Tree Officers and Arboriculturists in the UK.

CellWeb TRP® is uniquely identifiable. It is manufactured with a bright green panel on each side. When installed the green panels are laid adjacent, creating a green band across the construction.

Woodcock Hall, Yorkshire

Geosynthetics Limited

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

Tel: 01455 617139 Fax: 01455 617140

Email: sales@geosyn.co.uk
Web: www.geosyn.co.uk

Please call **01455 617 139**

or email sales@geosyn.co.uk for more technical advice.

Visit our website www.geosyn.co.uk for further information.

5.6 Scope & Limitations

The scope of this report is as follows:

- To undertake an updated BS5837: 2012 survey of trees and hedgerows within the site identified by the client as being subject to future development proposals.

- To provide a Tree Constraints Plan (See Annex 5.3) for the site, provided without reference to a detailed development design in order to inform and optimise future development proposals.

- To undertake a BS5837:2012 arboricultural impact assessment of trees and hedgerows within the area identified by the client as being potentially affected by future development proposals.

- To provide a series of tree impact plans for the site, which are provided with reference to a detailed development design in order to inform a planning application for this site.

This report is valid for a period of not more than 12 months from the date of the inspection or less in the event of significant changes to the condition of trees present on site (*e.g.* following major storm damage, fire or disease) or prevailing site conditions.

No detailed assessment has been undertaken as part of this report with regard to managing the trees in relation to their risk of failure (either parts of the trees or the entire trees).

Trees and hedgerows can support a variety of vertebrate and invertebrate fauna, including species that are afforded protection under wildlife legislation (*e.g.* The Wildlife and Countryside Act 1981 (as amended), The Conservation of Habitats and Species Regulations (2017).

Where the presence of legally protected species is known or suspected, advice should always be sought from an experienced ecological consultant and/or the relevant statutory nature conservation organisation (*e.g.* Natural England) for formal advice. Such detailed advice is beyond the remit of this report, but obvious wildlife constraints will be identified wherever feasible.

The author has relied on the accuracy of the drawings provided in the production of this report.

5.9 Survey Methods

The tree survey was carried out according to the methods set out in British Standard 5837:2012.

The survey was carried out from ground level. Binoculars were used where required. Measurements were taken with the use of electronic measuring equipment and measuring tapes. Crown spread dimensions were measured with a laser. Where measurements have been estimated, (*e.g*. for neighbouring trees), this will be indicated in the survey (#).

The survey was carried out at the site address or from public places, with no access to neighbouring properties.

The tree, group and hedgerow positions are those shown on the topographical survey provided. Positions have only been amended where obvious inaccuracies have arisen. Trees have been recorded as groups where they form cohesive features either aerodynamically, visually or culturally. Sequential reference ID numbers are given for plotted positions as described in Table 8, below:

Table 8: Summary of Reference Identification Codes.

Reference Code	Description
T1, T2, T3 *etc*.	Individual trees
G1, G2, G3	Tree groups
H1, H2, H3	Hedgerows

The stem diameter measurements were recorded at 1.5m above ground level. For stems growing on slopes, multi-stems and stems with unusual growth patterns the BS5827:2012 guidance was followed (Annex C). Trees with a diameter of less than 75mm were not recorded for this survey as they are likely to be replaceable or can be relocated.

5.10 Legislation, Planning Policy and Guidance

This report is principally designed to satisfy the requirements of BS5837:2012 - *Trees in Relation to Design, Demolition and Construction*.

The information and advice contained within this report will facilitate the correct application of The Town and Country Planning Act 1990 (specifically Part VIII 'Special Controls', Chapter 1 'Trees' S.197 and sequential).

Advice contained within this report is designed to address local plan policies in relation to trees in the planning process.

This advice contained within this report is also designed to address the requirements of updated The National Planning Policy Framework (NPPF) 2019. The framework states that "*planning policies and decisions should contribute to and enhance the local environment*" (paragraph 170).

Chapter 15 of the framework focusses on habitats and biodiversity. Specifically, paragraph 175 states:

"…*when determining planning applications, local planning authorities should apply the following principles*:

- *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused*;

- *development proposals whose primary objective is to conserve or enhance biodiversity should be supported;*

- *opportunities to incorporate biodiversity improvements in and around developments should be encouraged*;

- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists*.

5.11 References & Bibliography

British Standards Institute (2010). *British Standard 3998:2010 Tree Work – Recommendations.* BSI, London UK.

British Standards Institute (2012). *British Standard 5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations*. BSI, London UK.

British Standards Institute (2014). *British Standard 8545: 2014 Trees: from nursery to independence in the landscape – Recommendations*. BSI, London UK.

Geology of Britain Viewer: http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html? [accessed – 1 February 2021].

NHBC Standards (**2019).** *Chapter 4.2 Building near Trees*. NHBC, Milton Keynes UK. (https://nhbc-standards.co.uk/).

6. QUALIFICATIONS & EXPERIENCE

Focus Environmental Consultants® has the expertise to provide sure-fire environmental solutions to a wide range of projects. The company ethos forges the highest standards of professional scientific practice with a best value approach for our clients. Our core area of expertise is in the production of specialist environmental reports and advice to support planning applications. Our comprehensive services include tree constraints surveys, Arboricultural Impact Assessments (AIA) and Method Statements, Health and Safety tree assessments, reports to accompany insurance/mortgage applications and production of Woodland Management Plans. The arboricultural team at Focus Environmental Consultants are all members of the Arboricultural Association and Institute of Chartered Foresters. Our flexible approach, range of skills and broad project experience from major infrastructure contracts to small private developments allows us to adapt to your individual requirements. As well as offering a full suite of arboricultural services, Focus Environmental Consultants is able to provide expert ecological advice and reports and is building an enviable reputation for innovative habitat creation and management solutions. Focus Environmental Consultants is situated in Worcestershire, providing a convenient and central UK location.

Edward Cleverdon BSc (Hons) MArborA, ICF Associate
This report has been prepared by Edward Cleverdon. Edward is a senior arboricultural consultant dealing with trees in relation to all forms of human activity including the built environment. Edward is a professional member of the Arboricultural Association, an associate member of the Institute of Chartered Foresters, graduated with a BSc (hons) degree in Arboriculture from The University of Central Lancashire, is a LANTRA qualified professional tree inspector; and a registered user of Quantified Tree Risk Assessment.

This report has been checked for quality and content by:

Graham Davison BSc (Hons) MSc MCIEEM MRSB
Graham is an ecologist with over nineteen years of experience in the field of applied ecology. He holds a BSc (Hons) degree in Zoology and an MSc with distinction in Law and Environmental Science. Graham's Masters paper on legal and practical implications for mammal reintroductions was published by the IUCN. His ecological experience includes surveys to identify nationally and locally important sites for wildlife, ecological services to local planning authorities and provision of ecological reports to accompany major infrastructure projects, housing schemes, industrial developments and mineral extraction. Graham has appeared and delivered evidence as an expert witness for Planning Appeals and Public Inquiry. Graham has been interviewed for BBC local radio and TV programmes to provide specialist expertise on ecological topics.