Arboricultural Impact Assessment

in Relation to Proposed Construction of Office/Workshop Building with Associated Plant and Materials Storage and Car Parking at

Land Opposite Woodfield Garage, Longsight Road, Clayton le Dale, Lancashire, BB2 7JA

Prepared by:

Bowland Tree Consultancy Ltd

January 2019

ARBORICULTURAL IMPACT ASSESSMENT
LAND OPPOSITE WOODFIELD GARAGE, CLAYTON LE DALE

Control sheet

Project No.:	BTC1692
Site:	Land opposite Woodfield Garage, Longsight Road, Clayton le Dale
Client:	O'Callaghan Ltd
Agent for Client:	Judith Douglas Town Planning Ltd
Council:	Ribble Valley Borough Council
Survey Dates:	12 October 2017 & 11 December 2018
Surveyors:	Phill Harris MSc BSc(Hons) HND MArborA CEnv MICFor & Jennie Keighley PhD MSc MArborA
Report Prepared by:	Jennie Keighley PhD MSc MArborA
Report Checked by:	Phill Harris MSc BSc(Hons) HND MArborA CEnv MICFor
Date of Issue:	15 January 2019
Status:	Finalised
Version No:	1

Contact Details

Bowland Tree Consultancy Ltd
Unit Two
First Floor
11 Cannon Street
Preston
Lancashire
PR1 3NR

T: 01772 437150
E: info@bowlandtreeconsultancy.co.uk

DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques, in sufficient detail to gather data for and inform the design of the current project only. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or located in areas of restrictive ground vegetation, cannot therefore be expected. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only. Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regard to tree structural integrity, and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters and other measurements of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potential risk to persons and/or property has been identified during our survey or, if applicable, where permissible works are required to implement a proposed development. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will inform the relevant Council of the matter. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted by the arboriculturist at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

This document is intended as a guide to identify key tree related constraints to site development only, and the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

Third Parties: Any disclosure of this document to a third party is subject to this disclaimer. The report was prepared by Bowland Tree Consultancy Ltd at the instruction of and for use by our client. This report does not in any way constitute advice to any third party who is able to access it by any means. Bowland Tree Consultancy Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the contents of this report.

CONTENTS **Page**

APPENDICES

PLANS

1.0 INTRODUCTION

Terms of Reference

1.1 Bowland Tree Consultancy Ltd were instructed to:

a) Survey, as individuals or by group, all trees having reasonable potential to affect or to be adversely affected by the proposed development of the site under consideration;
b) Annotate the proposed site plan to produce a Tree Impact Plan, identifying tree retention categories, crown spreads, Root Protection Areas, trees to be removed, etc.;
c) Prepare a tabulated Tree Survey Schedule based on guidance specified BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations;
d) Evaluate the potential tree related impacts and design conflicts of the proposals, based on the supplied development proposal plan;
e) Advise on removal, retention and management options for the trees in the current context and in the context of the proposed development;
f) Advise on suitable retained tree protection measures required during development; and
g) Produce an Arboricultural Impact Assessment report outlining the main tree related issues and reasonably foreseeable tree impacts in relation to the proposals and indicating suitable mitigation provisions and retained tree protection measures.

Scope and Purpose of Report

1.2 By detailing foreseeable tree related issues this report is intended to assist the Local Planning Authority (LPA), in this case Ribble Valley Borough Council, in their review of the proposed development and, as such, should be supplied to them in support of the planning application to which it pertains. Essentially, the report provides an initial analysis of the impacts that the proposed development is projected to have on trees located both within the site and, where practicable, on land immediately adjacent to its boundaries. It also offers guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

Site Visit, Data Collection and Tree Plans

1.3 Further to the instruction, a review of the previous tree survey, dated 12 October 2017, was carried out on 11 December 2018, in accordance with the preceding disclaimer. All tree data collected on site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix One which, for ease of interpretation, should be read alongside the appended BS5837:2012 Table 1.

1.4 The survey identified eleven individual trees (prefixed ‘T’), 13 groups of trees (prefixed ‘G’), and five hedges (prefixed ‘H’), which have been numbered accordingly on the appended Tree Impact Plan (TIP). The TIP, which details the existing site with an overlay of the proposed development, along with the readily definable tree constraints and projected impacts, is based on a topographical survey-based proposal plan, which was provided in electronic format by the architects, Sunderland Peacock. In turn, for the purpose of this report, it is presumed that the provided plan’s details are accurate.

1.5 The purpose of the TIP is to give an initial indication of the impacts that the proposed development is projected to have on trees, as well as to highlight areas where special construction and/or protection considerations may be necessary. It should subsequently be used by the LPA’s tree specialist to preliminarily assess if the proposed development can potentially be constructed in accordance with BS5837:2012 and, along with the information provided in this report, as a basis for the LPA to request further details regarding specific matters relating to trees at suitable stages in the planning process.

2.0 STATUTORY PROTECTION IN RESPECT OF TREES AND ASSOCIATED WILDLIFE

Tree Preservation Orders and Conservation Area Designations

2.1 The Town & Country Planning Act (1990) (the Act) and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a Conservation Area (CA). Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or to remove trees within a CA that are not protected by a TPO.

2.2 According to Ribble Valley Borough Council's website, the site does not stand within a CA. However, the website does not contain details of specific TPOs and it is therefore essential that the presence of any statutory tree protection be checked directly with the council's planning department prior to scheduling or carrying out any tree works that are not directly related to, and subsequently authorised in accordance with, the implementation of a detailed (i.e. full) planning permission.

Protected Species

2.3 Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981) (as amended) and their potential presence should therefore be considered when clipping hedges, removing climbing plants and pruning and removing trees. The breeding period for woodlands runs from March to August inclusive. Hedges provide valuable nesting sites for many birds and clipping should therefore be avoided during March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.4 All bat species and their roosts are protected under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). In this respect, it should be noted that it is possible that unidentified bat habitat features may be located high in tree crowns and all personnel carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are identified, then it is essential that works are halted immediately and that a suitably qualified and experienced ecologist investigates and advises on appropriate actions prior to works continuing.

Felling Licences

2.5 Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A felling licence is, however, not required for the felling of trees immediately required for the purpose of carrying out development authorised by a full planning permission granted under the Town and Country Planning Act 1990.

3.0 THE SITE AND THE SURROUNDINGS

3.1 The site under consideration is located on the south side of the A59 Longsight Road approximately 12 kilometres south-west of the town of Clitheroe and within the administrational boundaries of Ribble Valley Borough Council.

3.2 It currently consists of several hard-surfaced and unmade areas of ground that are used for the storage of vehicles and construction materials. The proposed site boundary then extends north-east of this area, through a field of pastureland, until it meets with the A59 at its northern extreme. The site is bordered to the east, south and west by fields of pastureland and to the north-west by the A59 and a further storage area. There are several trees and hedges located around the site boundaries.

3.3 The topographical survey plan provided indicates that ground levels within the site vary by up to approximately 2 metres between the highest point close to the site's north and the lowest point to the south.

4.0 THE TREE POPULATION

4.1 As noted previously, a total of eleven individual trees, 13 groups of trees, and five hedges were surveyed for the purpose of this appraisal. They range from young to mature in age, with heights of up to 17 metres, maximum diametrical crown spreads of up to approximately 16 metres, and stem diameters of up to approximately 1000 millimetres. Detailed tree dimensions and other pertinent information, such as structural defects and physiological deficiencies, are included in the Tree Survey Schedule (TSS) at Appendix One.

4.2 In respect of the survey it should be noted that tree quality is categorised within the existing context without taking any site development proposals into account. However, recommendations for works included in the TSS take both current site usage into consideration and the proposed site development where there are definable development related issues with regard to specific trees.

4.3 Under the UK's planning system trees are a material consideration in the planning and development process. Nonetheless, only trees of a suitable quality and value should be considered a material constraint to development. In this respect the TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix One). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality', and 'C' category trees are those considered to be of 'low quality' with a correlated low retention value. In turn, 'U' category trees are those that are considered to be 'unsuitable for retention'.

4.4 As detailed in Table B, below, one tree was categorised as high quality (i.e. 'A' category), four trees and four groups were categorised as moderate quality (i.e. 'B' category), four trees, five groups, and the five hedges were categorised as low quality (i.e. 'C' category), and two trees and four groups were categorised as unsuitable for retention ('U' category).

Table A: BS5837-2012 Retention Categories of the Surveyed Trees/Groups/Hedges

	Ret. Cats.	Tree/Group/Hedge Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	**'A'**	T9	*1 Tree*
	'B'	T2, T5, T6, T11 G3, G9, G11, G13	*4 Trees* *4 Groups*
Those of a low quality that should not be considered a material constraint to development	**'C'**	T1, T7, T8, T10 G1, G4, G7, G8, G10 H1, H2, H3, H4, H5	*4 Trees* *5 Groups* *5 Hedges*
Those that should be removed for sound management reasons regardless of site proposals	**'U'**	T3, T4 G2, G5, G6, G12	*2 Trees* *4 Groups*
			= 11 Trees, 13 Groups & 5 Hedges in Total

5.0 THE DEVELOPMENT PROPOSAL AND ITS PROJECTED ARBORICULTURAL IMPACTS

The Development Proposal

5.1 The proposed site plan (drawing no. 5365-05 D), as prepared by Sunderland Peacock, indicates that the planning application is for the construction of a commercial building accommodating an office and workshop, along with an associated hard-surfaced storage yard and vehicle parking, with an earth bund and paladin security fence around its perimeters and access from the A59 via a new driveway through the field that stands adjacent to the existing storage yard (see TIP). As also detailed on the TIP the proposals also include extensive new tree and hedge planting.

Projected Arboricultural Losses Relating to the Proposal

5.2 As detailed in Table B, below, it is projected that construction of the development as proposed will require the removal of a section of low quality (i.e. 'C' category) hedge and one group which is considered unsuitable for retention (i.e. 'U' category) regardless of the development proposals.

Table B: Arboricultural Impacts of Proposed Development & Other Tree Removal Proposals

	Ret. Cats.	Removals necessary to implement development	Removals recommended regardless of development	Total no. of tree removals
Those of a high quality that should be afforded appropriate consideration in the context of development	**'A'**	-	-	-
Those of a moderate quality that should be afforded appropriate consideration in the context of development	**'B'**	-	-	-
Those of a low quality that should be afforded appropriate consideration in the context of development	**'C'**	part of H3	-	*Part of 1 Hedge*
Those that should be removed for sound management reasons regardless of plans	**'U'**	-	G12	*1 Group*
Totals		*Part of 1 Hedge*	*1 Group*	***= Part of 1 Hedge and 1 Group in Total***

5.3 However, as detailed on the TIP, it is proposed that a section of hedge H2, the length of which should be confirmed by the highways consultant, is to be lifted and translocated back into the site in order to form the vehicular access and associated visibility splays. In this respect, it should be noted that the translocation of the section of hedge in question should be carried out in consultation with, and under the advice of, the project ecologist.

Compensation for Projected Tree Losses as Part of Site Landscaping

5.4 As detailed on the TIP, the proposed development includes the provision of new hedgerows to be planted along the site's north-eastern and south-western boundaries, alongside 22 new trees to be planted along the northern-eastern, south-eastern and south-western boundaries. In consideration of the site's rural location and the existing wider local landscape's tree cover it is subsequently recommended that any newly planted vegetation be of locally native shrub and tree species, with the hedgerow to be primarily Hawthorn, and the trees to include Common Oak and, where the ground is wet, Common Alder.

5.5 The provision of the new tree and hedge planting is, over time, projected to more than adequately mitigate for the very limited number of necessary losses and, in consideration of the current site usage and condition, provide both a more sustainable and visually attractive

landscape feature than the trees that currently stand within its boundaries.

5.6 In turn, the provision of specific species, numbers, planting locations and post-planting management, in the form of a detailed landscape plan, can be conditioned to a planning approval.

Special Materials and Working Methods for Proposed Construction within RPAs

5.7 As shown on the TIP, the proposed hard surface of the storage yard encroaches within the calculated RPAs of trees on neighbouring land T2, T6 and group G4. In this respect, section 7.4 of BS5837: 2012 recommends that, where the construction of hard surfaces cannot be avoided within RPAs, then a 'no dig' design, such as a three-dimensional cellular confinement system, should be used to avoid root loss and damage due to ground excavation and/or compaction. Accordingly, a manufacturer's brochure detailing the design and construction of a typical 'no dig' hard surface is included at Appendix Three for reference purposes.

5.8 In turn, specific details regarding the construction of the hard surface, where it encroaches within RPAs, should be discussed and established with a manufacturer of one of the 'no dig' products available on the market and/or a specialist and experienced contractor.

5.9 Consequently, in order to ensure adequate protection of retained trees, special materials and working methods for proposed construction within RPAs, including 'no dig' hard surfaces, as aforementioned, should be included in a suitably detailed Arboricultural Method Statement and Tree Protection Plan, the provision of which and adherence to can be conditioned to a planning permission (see paragraphs 6.6 and 6.7 for further details regarding Arboricultural Method Statements and Tree Protection Plans).

6.0 RECOMMENDATIONS FOR SUCCESSFUL TREE RETENTION IN THE CONTEXT OF DEVELOPMENT

Root Protection Areas and Construction Exclusion Zones

6.1 Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential if their long-term viability is to be assured. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that should be protected by temporary protective fencing as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance. Consequently, the RPA distances, as detailed in the TSS (see 6.2) and on the TIP, give an idea of the on-site below-ground constraints in respect of tree roots and assist in planning for appropriate tree retention in relation to feasible development.

6.2 The TSS includes two columns listing RPAs of individually surveyed trees and, where applicable, the largest tree in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as magenta coloured circles on the TIP.

6.3 With regard to CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works, should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix Two.

Underground Utilities and Drainage

6.4 The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication 'Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

6.5 We have not been provided with a proposed service routing plan for the development under consideration, upon which to base an assessment of potential tree related impacts. However, the provision of a service plan, with all service runs routed outside retained tree RPAs, or where not possible then with appropriate design and installation, can be conditioned to a planning approval.

Arboricultural Method Statement and Tree Protection Plan

6.6 Government guidance recommends that, where considered expedient by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing special mitigation construction issues in relation to the development under consideration. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process.

6.7 In order to ensure that any such special working methods are followed, and that the retained trees are adequately protected throughout the development process, the production of and adherence to an AMS and TPP can be conditioned to a planning approval.

7.0 OTHER RECOMMENDATIONS

Non-Development Related Tree Works and Recommendations

7.1 Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should therefore be carried out regardless of any site development proposals and potential changes in land usage. All tree works should be carried out in accordance with BS3998:2010 - Tree Work – Recommendations.

Tree Work Related Consents

7.2 No tree pruning or removal works should commence on site until necessary consents have been obtained from the LPA as part of a planning approval or in respect of any statutory tree protection (e.g. TPOs).

Arboricultural Contractors

7.3 All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current CE and UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

Contractors and Subsequently Identified Tree Defects

7.4 Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the client and subsequently confirmed to the consultant within five working days.

New Tree Planting

7.5 All tree planting at the site should be carried out in accordance with BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations, and in accordance with the guidance detailed in section 5.6 and Table A.1 of BS5837:2012.

Retained Tree Management

7.6 Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and site circumstances at the time of the survey. Trees are dynamic living organisms whose structure is constantly changing and even those evidently in good condition can succumb to damage and/or stress.

7.7 In this respect, it should be noted that, under the Occupiers' Liability Act (1957 & 1984), site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. In turn, it is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

8.0 SUMMARY AND CONCLUSIONS

8.1 Eleven individual trees, 13 groups of trees, and five hedges were surveyed in respect of a proposal to construct an office/warehouse building, plant and materials storage areas, and car parking at the site under consideration.

8.2 One tree was categorised as high quality, four trees and four groups were categorised as moderate quality, four trees, five groups, and the five hedges were categorised as low quality and two trees and four groups were categorised as unsuitable for retention.

8.3 An appraisal of the documentation provided to date identified that construction of the development as proposed will require the removal of a section of low quality hedge and one group which is considered unsuitable for retention regardless of the development proposals.

8.4 Nonetheless, it should be noted that two new native hedgerows and 22 new locally native trees are proposed, the provision of which is projected to more than adequately mitigate for the development-related losses and provide a more sustainable and visually attractive landscape feature than the trees that currently stand within its boundaries.

8.5 In turn, the provision of specific species, numbers, planting locations and post-planting management, in the form of a detailed landscape plan, can be conditioned to a planning approval.

8.6 It is also noted that a length of low value hedge will require translocation in order to form the vehicular access and associated visibility splays. In this respect it should be noted that the translocation of hedges should be carried out in consultation with the project ecologist.

8.7 The appraisal also identified that the proposed hard surfaced storage yard encroaches slightly into the RPAs of several retained trees, and that it will therefore be necessary for the proposed hard surface to be designed and constructed using 'no dig' methods and materials in accordance with BS5837: 2012. Consequently, the use an appropriate 'no dig' cellular confinement system can be conditioned to a planning approval.

8.8 Accordingly, in order to ensure adequate protection of retained trees, factors such as the construction of 'no dig' hard surfaces, should be included in a suitably detailed Arboricultural Method Statement and Tree Protection Plan, the provision of which and adherence to can be conditioned to a planning permission.

8.9 In addition to the above it is also concluded that, in order to ensure successful existing tree preservation over the long-term, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

8.10 Accordingly, in order to ensure adequate protection of retained trees, these factors should be included in a suitably detailed Arboricultural Method Statement and Tree Protection Plan, the provision of which and adherence to can be conditioned to a planning permission.

REFERENCES

BS8545:2014 - Trees: From Nursery to Independence in the Landscape – Recommendations. BSI British Standards, London.
BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.
BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI British Standards, London.
National House Building Council (2017). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.
National Joint Utilities Group (2007). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook.

APPENDICES

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL		Surveyors:	Phill Harris Chartered Arboriculturist & Jennie Keighley PhD MSc MArborA	Page: 1 of 5
Site:	Land opposite Woodfield Garage, Longsight Road, Clayton le Dale, Lancashire, BB2 7JA	Survey Dates:	12 October 2017 & 11 December 2018	
Client:	O'Callaghan Ltd	Job Ref:	BTC1692	

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
T1	Common Hawthorn	5	6x100 (ms) #	N E S W	3 3 3 3	N/A 0.5	EM	M	▪ Located beyond client's ownership boundary. ▪ Multi-stemmed from ground level. ▪ Crown showing signs of a substantial reduction in vitality.	▪ Located sufficiently beyond proposed development area that it is not projected to be impacted; no tree protection measures necessary.	10+	C1	27	2.94
T2	Common Oak	9.5	260	N E S W	2.5 3 3 2	1.5 1-NE	SM	G	▪ Located beyond client's ownership boundary. ▪ Growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac. ▪ Several broken branches in lower crown.	▪ Protect Root Protection Area (RPA) throughout development using Temporary Protective Fencing (specification appended) to form a Construction Exclusion Zone (CEZ). ▪ Construct proposed hard surface using 'no dig' methods and materials in accordance with s7.4 of BS5837:2012.	20+	B1	31	3.12
T3	Common Oak	7.5	180	N E S W	1.5 3 2 1.5	N/A 5	Y		▪ Located beyond client's ownership boundary. ▪ In advanced state of decline, with crown showing signs of a significant and evidently progressive reduction in vitality.	▪	<10	U	15	2.16
T4	Common Oak	8.5	250	N E S W	3 3 3 3	2 4	SM		▪ Located beyond client's ownership boundary. ▪ Stem bifurcates at a height of approximately 2m. ▪ In advanced state of decline with crown showing signs of significant and evidently progressive reduction in vitality.	▪	<10	U	28	3
T5	Common Oak	8.5	230	N E S W	2.5 2.5 2.5 2.5	2 2	Y	G	▪ Located beyond client's ownership boundary. ▪ Growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac. ▪ Number of large heavy stones around and very close to stem base.	▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	20+	B1	24	2.76

Headings and Abbreviations:

No. Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species: Common name
Height: In metres, to nearest half metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.: Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. MS = multi-stemmed, TS = twin-stemmed
Branch Spread: Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Branch & Canopy Clearances: Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-N) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Life Stage: Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC: Physiological Condition - a measure of the tree'(s)' overall vitality, i.e. D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
General Observations and Comments: Comments relating to the tree'(s)' overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc.
Management Recommendations: Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take exiting site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC: Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
Cat. Grade: Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA m²: Root Protection Area in m² - calculated area around the tree that must be appropriately protected throughout the development process in order avoid root damage
RPA Radius (m): Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
 # (Estimated Dimensions): Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL		Surveyors:	Phill Harris Chartered Arboriculturist & Jennie Keighley PhD MSc MArborA	Page: 2 of 5
Site:	Land opposite Woodfield Garage, Longsight Road, Clayton le Dale, Lancashire, BB2 7JA	Survey Dates:	12 October 2017 & 11 December 2018	
Client:	O'Callaghan Ltd	Job Ref:	BTC1692	

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
T6	Common Oak	9	310	N E S W	4.5 4.5 4.5 4.5	1.5 2.5	SM	G	▪ Located beyond client's ownership boundary. ▪ Surrounded by construction materials and dense ground vegetation. ▪ No major structural defects visible.	▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ. ▪ Construct proposed hard surface using 'no dig' methods and materials in accordance with s7.4 of BS5837:2012.	40+	B1	43	3.72
T7	Common Oak	9	220	N E S W	3.5 1.5 3.5 3	1.5 2.5	Y	M	▪ Located beyond client's ownership boundary. ▪ Growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac. ▪ Crown showing signs of a moderate reduction in vitality.	▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	10+	C1	22	2.64
T8	Common Hawthorn	7	7x80 (ms)#	N E S W	2.5 2.5 2.5 2.5	N/A 1.5	M	M	▪ Located beyond client's ownership boundary. ▪ Multi-stemmed from ground level. ▪ Crown showing signs of a substantial reduction in vitality.	▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	10+	C1	20	2.54
T9	Common Oak	15	580	N E S W	7 6.5 6 6.5	2.5-S 1.25	EM	G	▪ No major structural defects visible.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	40+	A1/2	152	6.96
T10	Common Oak	10	470	N E S W	3.5 3.5 4 4	2-SW 2	EM	P/M	▪ Burred stem from base to crown. ▪ Stem bifurcates at a height of approximately 3m, with evidence that primary branch to south failed many years previously above this point. ▪ Majority of lower branches dead. ▪ Crown showing signs of a minor reduction in vitality.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	10+	C1	100	5.64
T11	Common Oak	13	750#	N E S W	8 6 8 6	3-N&S 3.5	EM	G	▪ Growing in Holly hedge and therefore unable to view stem. ▪ Hydraulic fluid drums stored within RPA. ▪ Frequent deadwood to a diameter of 100mm and length of 1.5m.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	20+	B1	254	9
G1	3no. Sycamore	≤ 9.5	≤ 240	N E S W	≤ 3 ≤ 3 ≤ 3 ≤ 3	N/A ≥ 1.5	Y	G	▪ Located beyond client's ownership boundary. ▪ Very closely spaced group growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac.	▪ Located sufficiently beyond proposed development area that it is not projected to be impacted; no tree protection measures necessary.	20+	C1	≤ 26	≤ 2.88

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
G2	Leyland Cypress, Silver Birch, Goat Willow	≤ 11.5	≤ 250	N E S W	≤ 2.5 ≤ 2.5 ≤ 2.5 ≤ 2.5	N/A ≥ 1	SM	D-G	▪ Located beyond client's ownership boundary. ▪ Very closely spaced group of approximately 40 Leylandii growing on earth mound. ▪ Small number of young Birch and Willow within. ▪ Number of trees close to centre of group are dead. ▪ Several Leylandiis within group have sustained partial root-plate failure. ▪ Most of the Leylandiis have included bark unions of branches.	▪	<10	U	≤ 28	≤ 3
G3	3no. Common Oak	≤ 8	≤ 180	N E S W	≤ 2 ≤ 2 ≤ 2 ≤ 2	1 ≥ 1.5	Y	G	▪ Located beyond client's ownership boundary. ▪ Very closely spaced group growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac.	▪ Protect RPAs throughout development using Temporary Protective Fencing to form a CEZ.	40+	B1	≤ 15	≤ 2.16
G4	2no. Goat Willow	≤ 11.5	≤ 9x190 (ms)#	N E S W	≤ 4.5 ≤ 4.5 ≤ 4.5 ≤ 4.5	N/A ≥ 0.5	SM-M	G	▪ Located beyond client's ownership boundary. ▪ Loose group growing on mound that is evidently formed from various materials including earth, construction rubble and crushed tarmac. ▪ All are surrounded by rubble and construction materials. ▪ All are multi-stemmed from ground level.	▪ Protect RPAs throughout development using Temporary Protective Fencing to form a CEZ. ▪ Construct proposed hard surface using 'no dig' methods and materials in accordance with s7.4 of BS5837:2012.	10+	C1	≤ 147	≤ 6.84
G5	approx. 3no. Goat Willow	≤ 7	≤ 50	N E S W	≤ 3 ≤ 2 ≤ 0 ≤ 2	N/A ≥ 1	Y	G	▪ Located beyond client's ownership boundary. ▪ Very closely spaced group growing through construction materials.	▪	<10	U	≤ 7	≤ 1.47
G6	approx. 4no. Goat Willow	≤ 9.5	≤ 300	N E S W	≤ 4 ≤ 4 ≤ 2 ≤ 3	N/A ≥ 3	M	D	▪ Located beyond client's ownership boundary. ▪ Closely spaced group in area of dense ground vegetation. ▪ All are dead.	▪	<10	U	≤ 41	≤ 3.6
G7	approx. 5no. Common Hawthorn	≤ 7	≤ 220	N E S W	≤ 2.5 ≤ 2.5 ≤ 2.5 ≤ 2.5	N/A ≥ 1	M	M	▪ Closely spaced group along boundary. ▪ Evidently formed from outgrown hedge.	▪ Located sufficiently beyond proposed development area that it is not projected to be impacted; no tree protection measures necessary.	10+	C1	≤ 22	≤ 2.64
G8	Common Alder, Goat Willow	≤ 8.5	≤ 5x100 (ms)#	N E S W	≤ 3.5 ≤ 3.5 ≤ 3.5 ≤ 3.5	0 ≥ 0	Y	G	▪ Closely spaced group of multi-stemmed young trees growing in centre of pond.	▪ Located sufficiently beyond proposed development area that it is not projected to be impacted; no tree protection measures necessary.	20+	C1	≤ 23	≤ 2.68

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL		Surveyors:	Phill Harris Chartered Arboriculturist & Jennie Keighley PhD MSc MArborA	Page: 4 of 5
Site:	Land opposite Woodfield Garage, Longsight Road, Clayton le Dale, Lancashire, BB2 7JA	Survey Dates:	12 October 2017 & 11 December 2018	
Client:	O'Callaghan Ltd	Job Ref:	BTC1692	

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
G9	3no. Common Oak	≤ 14	≤ 450#	N E S W	≤ 5.5 ≤ 5.5 ≤ 5.5 ≤ 5.5	3.5-W ≥ 1.5	SM	M-G	▪ Moderately spaced group growing in corner of field. ▪ No major structural defects visible.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	40+	B1	≤ 92	≤ 5.4
G10	3no. Common Oak, Hawthorn	≤ 9	≤ 2x200 (ts)	N E S W	≤ 4.5 ≤ 4.5 ≤ 4.5 ≤ 4.5	1-N ≥ 1	Y-EM	G	▪ May be partially located on neighbouring land. ▪ Fragmented group of Hawthorns growing along old boundary fence line, but in front of new post and wire fence that has been installed (ownership therefore unclear). ▪ Three young Oaks growing within group.	▪ Retain in context of proposed development. ▪ Protect RPAs throughout development using Temporary Protective Fencing to form a CEZ.	40+	C1	≤ 36	≤ 3.39
G11	Hawthorn, Holly, Common Oak, Common Alder	≤ 15	≤ 440	N E S W	≤ 6 ≤ 6 ≤ 6 ≤ 6	0-NE ≥ 0	Y-EM	D-G	▪ May be partially located on neighbouring land. ▪ Closely spaced linear group growing along eastern side of neighbouring public right of way.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	20+	B1	≤ 88	≤ 5.28
G12	6no. Common Alder	≤ 13	≤ 520	N E S W	≤ 5 ≤ 6 ≤ 6 ≤ 5.5	2-S ≥ 3	SM-EM	P	▪ Moderately to widely spaced group evidently growing along a recently disturbed watercourse. ▪ Gravel with fines and hardcore evidently recently laid over majority of Root Protection Areas. ▪ Recent branch tear wounds on all trees to a diameter of 300mm, leaving large exposed wounds. ▪ Frequent deadwood throughout group to a diameter of 100mm and length of 2m.	▪ Remove in order to construct development as proposed.	<10	U	≤ 122	≤ 6.24
G13	3no. Common Oak, Hawthorn, Holly, Elder	≤ 17	≤ 1000#	N E S W	≤ 7 ≤ 7 ≤ 8 ≤ 5	3.5-S ≥ 2.5	Y-M	G	▪ Moderately spaced linear group of semi-mature to mature Oaks growing along northern side of public right of way. ▪ Understorey of Holly, Hawthorn and Elder. ▪ Mature oak at eastern end of group has heavily burred stem and frequent deadwood to a diameter of 90mm and length of 3m.	▪ Retain in context of proposed development. ▪ Protect RPA throughout development using Temporary Protective Fencing to form a CEZ.	20+	B1	≤ 452	≤ 12
H1	Common Hawthorn	≤ 1.2	N/A	≤ 1.5 wide		N/A N/A	SM	G	▪ Length of managed hedge along road frontage.	▪ Located sufficiently beyond proposed development area that it is not projected to be impacted; no tree protection measures necessary.	10+	C1	N/A	≠ 1

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL	
Site:	Land opposite Woodfield Garage, Longsight Road, Clayton le Dale, Lancashire, BB2 7JA
Client:	O'Callaghan Ltd

Surveyors:	Phill Harris Chartered Arboriculturist & Jennie Keighley PhD MSc MArborA
Survey Dates:	12 October 2017 & 11 December 2018
Job Ref:	BTC1692

No.	Species	Height	Stem Diam.	Branch Spread	Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
H2	Common Hawthorn	≤ 1.2	N/A	≤ 1.5 wide	N/A N/A	SM	G	▪ Length of managed hedge along road frontage.	▪ Lift and translocate part of hedge in order to form proposed access point with sufficient visibility splays. Notes: length of hedge requiring removal to be confirmed by highways consultant; translocation of the section of hedge should be carried out in consultation with, and under the advice of, the project ecologist ▪ Ensure protection of retained and translocated hedge sections throughout development.	10+	C1	N/A	≠ 1
H3	Holly, Hawthorn, Goat Willow	≤ 1.75	N/A	≤ 1.5 wide	N/A N/A	EM	G	▪ Length of managed boundary hedge.	▪ Remove approximately half of hedge in order to form access point as proposed. ▪ Ensure protection of remainder of hedge throughout development.	10+	C1	N/A	≠ 1
H4	Common Hawthorn	≤ 1.75	N/A	≤ 2 wide	N/A N/A	M	G	▪ Length of managed boundary hedge.	▪ Ensure protection throughout development.	10+	C1	N/A	≠ 1
H5	Common Hawthorn	≤ 5	N/A	≤ 4 wide	N/A N/A	Y-SM	G	▪ Located beyond client's ownership boundary. ▪ Lines southern side of neighbouring public right of way. ▪ Laid in the past. ▪ Previously managed at heights from 1.5m to 2m.	▪ Ensure protection throughout development.	20+	C1	N/A	≠ 1

BS5837:2012 Table 1 – Cascade Chart for Tree Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those 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	▪ 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 it might be desirable to preserve; see BS5837:2012 paragraph 4.5.7.*			Red
	1. Mainly arboricultural qualities	**2. Mainly landscape qualities**	**3. Mainly cultural values, including conservation**	
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 within 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)	Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example, trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

- TEMPORARY PROTECTIVE FENCING & GROUND PROTECTION SPECIFICATION -

Construction Exclusion Zones (CEZs), shall be enclosed by **Temporary Protective Fencing** and/or, where necessary, **Temporary Ground Protection Measures**. The fencing/ground protection Type(s), locations, and extents shall be agreed, in writing, with the Local Planning Authority (LPA). In turn, the **Temporary Protective Fencing** and/or **Temporary Ground Protection Measures** shall:

1. be constructed as in accordance with the Type 1, Type 2 or Type 3 'Temporary Protective Fencing Construction' sections and, where applicable the 'Temporary Ground Protection Measures' section, as detailed herein and agreed, in advance with the LPA;
2. be retained in place throughout the development process until completion of the project, and only removed following receipt of written permission from the LPA;
3. be sited in the area(s) defined by the Root Protection Areas on the associated Tree Impact Plan, or as the CEZs on the Tree Protection Plan;
4. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
5. preclude any delivery of site accommodation and/or materials and/or plant machinery;
6. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties;
7. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance; and
8. be affixed with a 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1, below), at every 10.0 metre length of protective fencing.
9. Important: Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Figure 1: CEZ Warning Sign

– TREE PROTECTION AREA –
KEEP OUT!

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

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

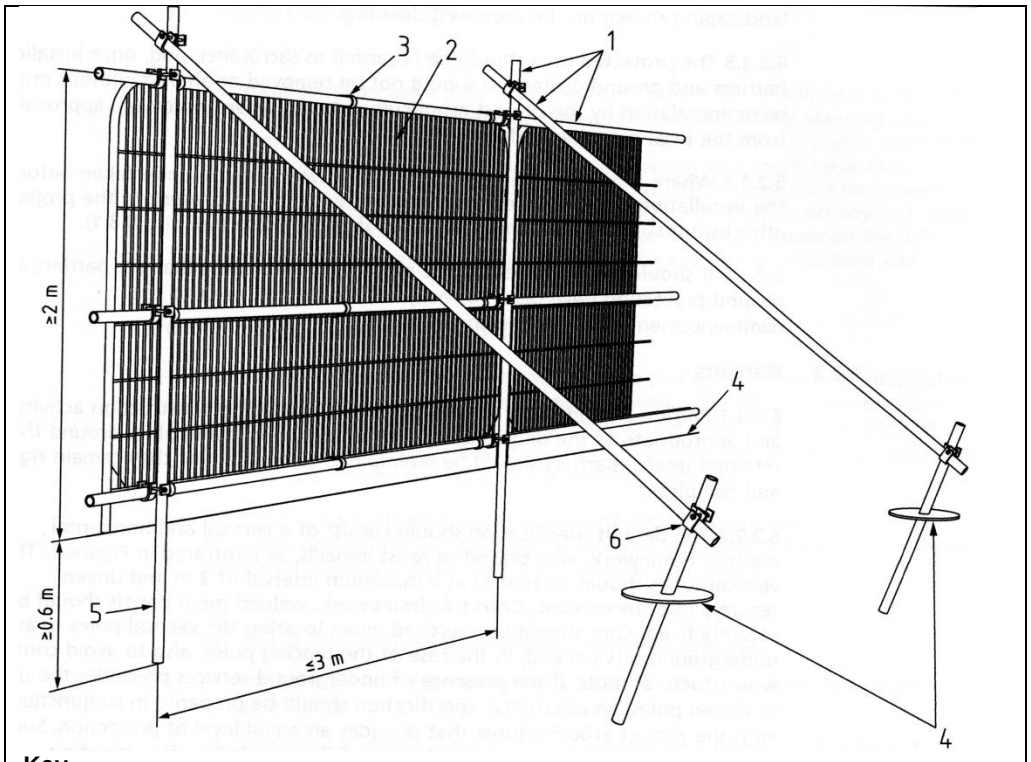
- THE PROTECTIVE FENCING MUST NOT BE MOVED
- NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE
- NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE
- NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE
- NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE
- NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE

ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Type 1 (i.e. 'Default') Temporary Protective Fencing Construction (see Figure 2, below)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per points 3 to 5 of Figure 2, overleaf.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per points 4 to 5.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45º angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

Figure 2: BS5837:2012 Default specification for protective barrier



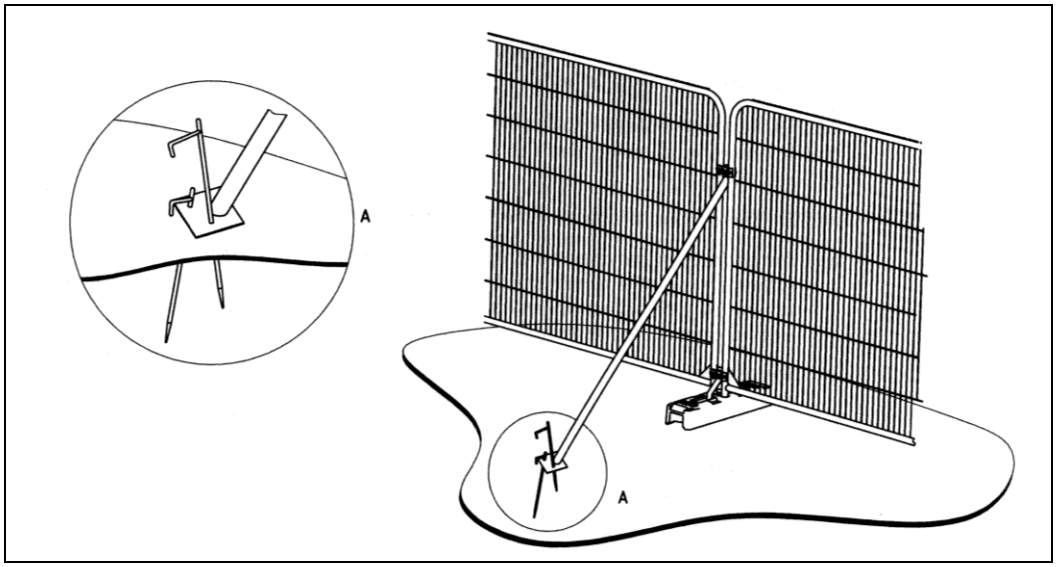
Key

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

Type 2 Temporary Protective Fencing Construction (see Figure 3(a), below)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall stand on rubber or concrete feet.
3. The panels shall butt together, and be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.
4. The distance between the fence couplers shall be at least 1.0 metre, and shall be uniform throughout the fence.
5. The panels shall be supported on the inner side by stabiliser struts, which shall be clamped to the scaffold framework at a 45º angle and extend back into the CEZ and shall be attached to a base plate, which shall be secured to the ground with pins (Figure 3a).
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

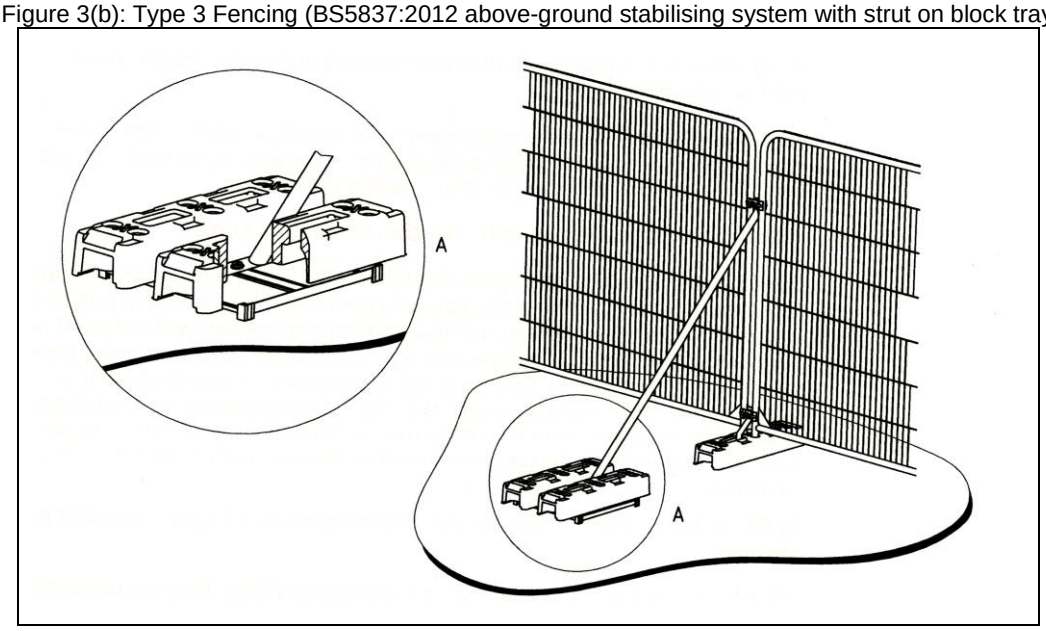
Figure 3(a): Type 2 Fencing (BS5837:2012 above-ground strut stabilising system with ground pins)



Type 3 Temporary Protective Fencing Construction (see Figure 3(b), overleaf)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall stand on rubber or concrete feet.
3. The panels shall butt together, and be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.
4. The distance between the fence couplers shall be at least 1.0 metre, and shall be uniform throughout the fence.
5. The panels shall be supported on the inner side by stabiliser struts, which shall be clamped to the scaffold framework at a 45º angle and extend back into the CEZ and shall be attached to a block tray base (Figure 3b).
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

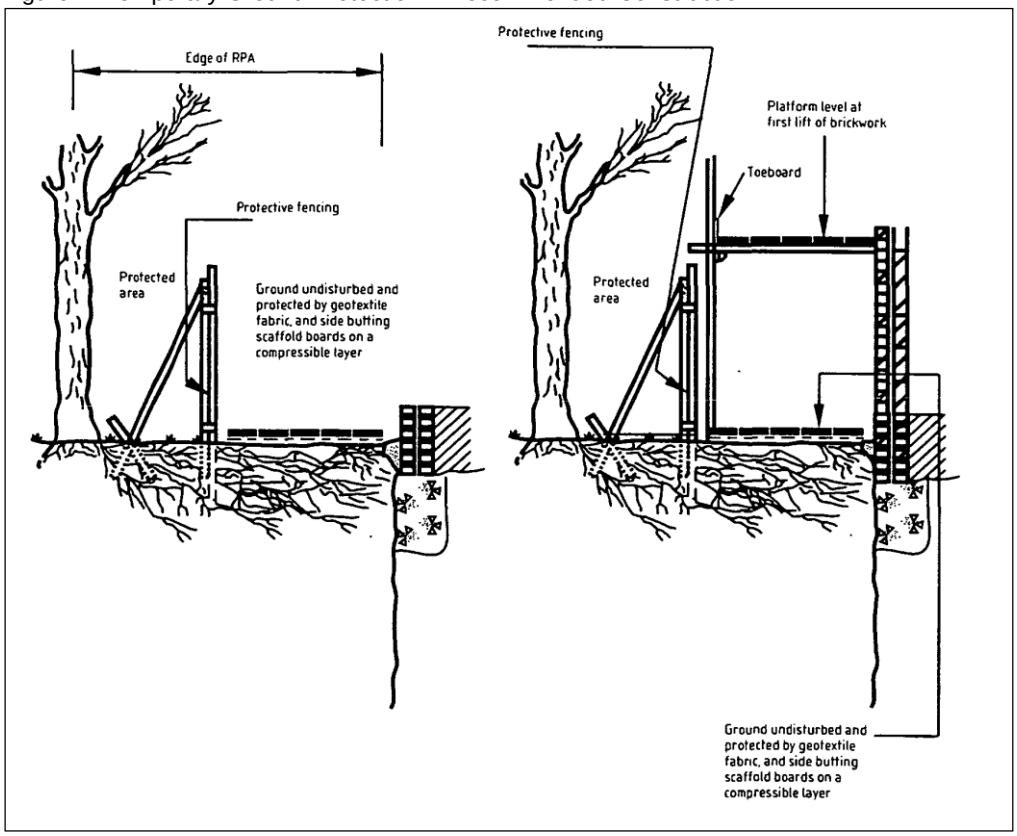
Figure 3(b): Type 3 Fencing (BS5837:2012 above-ground stabilising system with strut on block tray)



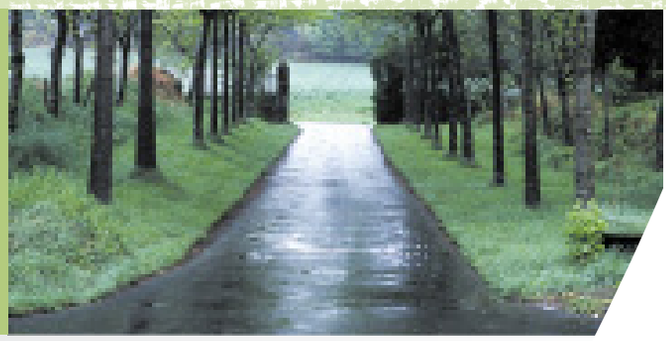
Temporary Ground Protection

1. Any necessary Temporary Ground Protection areas shall conform to Figure 4, below, unless otherwise agreed with the LPA.
2. The Ground Protection Area shall be left undisturbed and covered by a semi-permeable geotextile membrane which shall, in turn, be covered by a compressible layer consisting of a material such as woodchip.
3. Side-butting scaffold boards shall then be fitted to cover the Ground Protection Area.
4. On completion of installation, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Ground Protection.
5. The Temporary Ground Protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Figure 4: Temporary Ground Protection – Recommended Construction



CellWeb TRP®



Tree Root Protection Guaranteed

Geosynthetics

www.geosyn.co.uk

CellWeb TRP® System

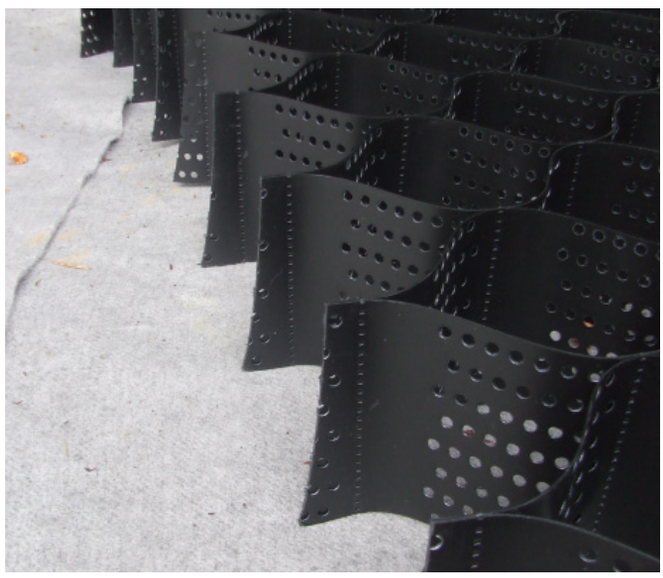
Tree Root Protection System



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.

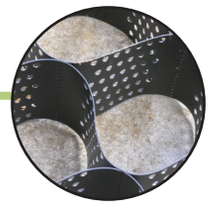
CellWeb TRP® Product Guarantee

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

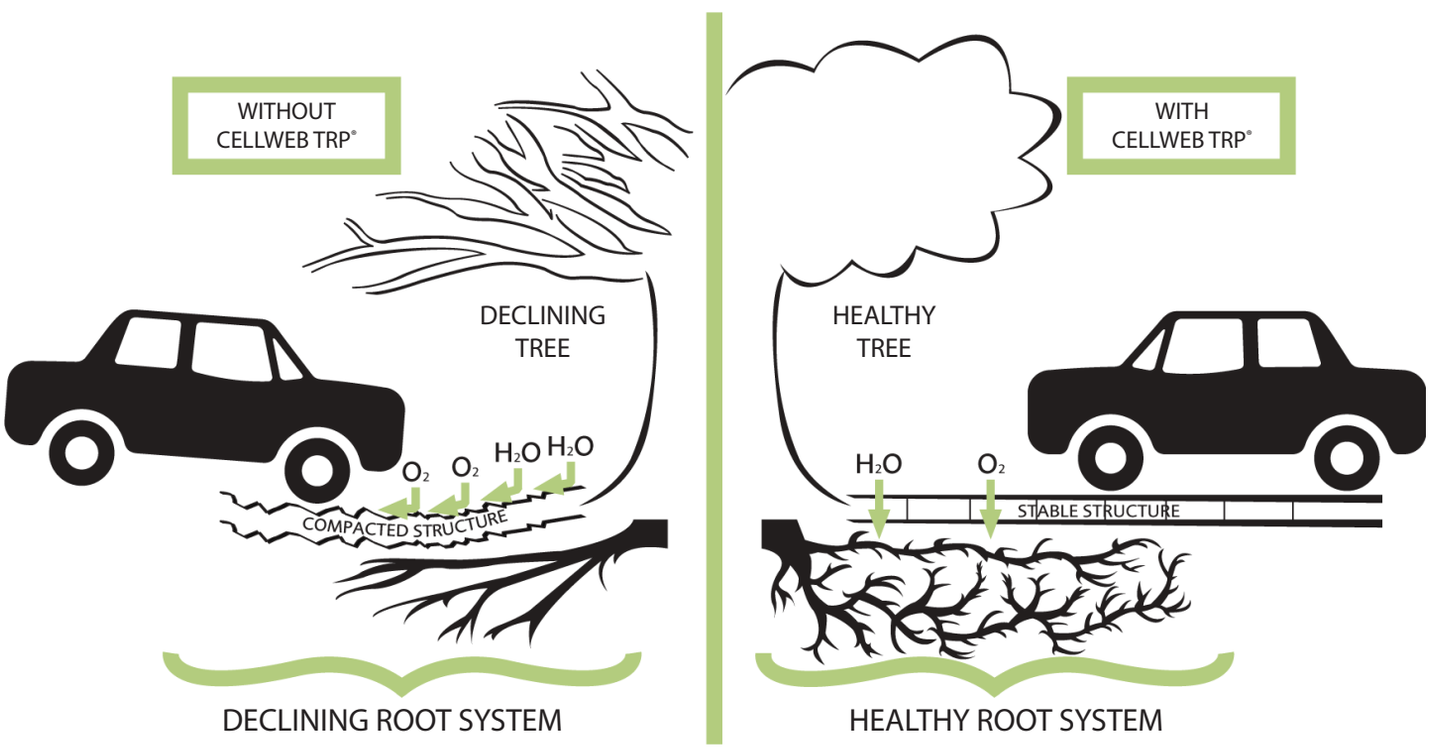
How the System Works



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.

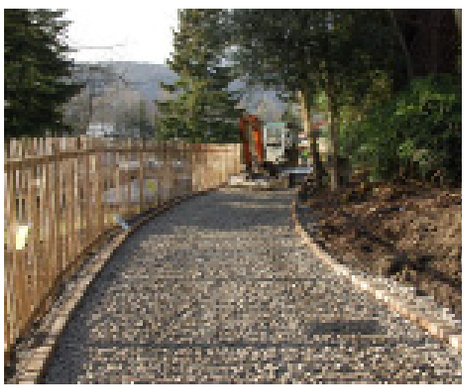
Geosynthetics CellWeb TRP® System:

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

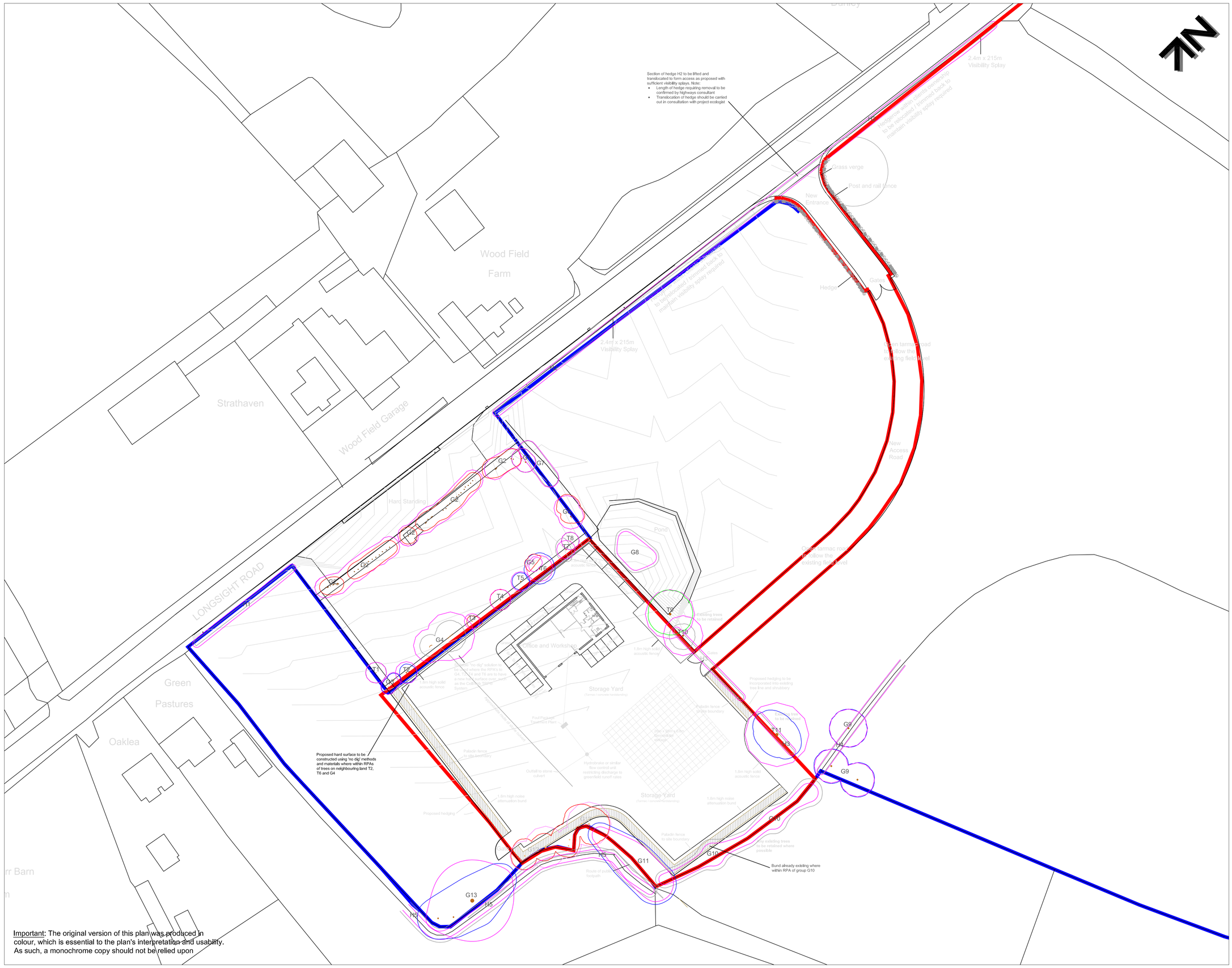
Tel: 01455 617139 Fax: 01455 617140

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.



Important: The original version of this plan was produced in colour, which is essential to the plan's interpretation and usability. As such, a monochrome copy should not be relied upon

KEY

T = Individual Tree
G = Group
H = Hedge

Please refer to associated Arboricultural Impact Assessment for specific details in respect of items below:

Tree Categorisations:

Those to be Considered for Retention:

Category 'A' Tree/Group/Hedge
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years

Category 'B' Tree/Group/Hedge
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years

Category 'C' Tree/Group/Hedge
Those of Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years, or Young Trees

Those Considered Unsuitable for Retention:

Category 'U' Tree/Group/Hedge
Those 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

Note 1: The stem locations of individual trees T9 to T11, groups G1 and G7 to G13, and hedges H3 to H5 were not included on the topographical survey plan provided, and were subsequently plotted by the arboricultural surveyor at the time of the survey using GPS siting. As such, the plotted locations of these trees cannot therefore be considered to be wholly accurate
Note 2: Trees with their identification numbers labelled in grey are recommended for removal in the context of the development

Root Protection Areas (RPAs):

RPAs
Area(s) of Ground Around Trees that Should be Protected Throughout Development Works with Protective Fencing to form a Construction Exclusion Zone - see Temporary Protective Fencing Specification

Project:
LAND OPPOSITE WOODFIELD GARAGE
LONGSIGHT ROAD
CLAYTON LE DALE
LANCASHIRE
BB2 7JA

Client:
O'CALLAGHAN LTD

Title:
TREE IMPACT PLAN
in Relation to Proposed Construction of Office/Workshop Building with Associated Plant and Materials Storage and Car Parking

Scale:	1:500@A1
Date:	January 2019
Drawn by:	JK
Checked by:	PH

Bowland Tree Consultancy Ltd
e: info@bowlandtreeconsultancy.co.uk
t: 01772 437150

Ref: BTC1692-TIP Rev: