Tree Survey

&

Arboricultural Impact Assessment

Q9762

by

Jason Harker

Arboricultural Consultant

ProHort Limited

Studio 16 Sutherland Institute

Lightwood Road

Longton

Stoke-on-Trent

ST3 4HY

For

Joshua Moran

Cherry Wood

Stanley Road

Stockton Brook

ST9 9LL

28th April 2023

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Contents

1.0 Introduction – Purpose and Scope 3
2.0 Site and Surroundings 5
3.0 Development Proposals 11
4.0 Statutory Protection and Guidance 12
5.0 Hedgerow Guidance 12
6.0 Tree Protection Requirements 16
7.0 Protected Species 17
8.0 Tree Population 18
10.0. Management Recommendations 29
11 Summary 33
11.0 Survey Method 34
Appendix 1: Arboricultural Survey Data Sheet 43
Appendix 2: Tree Protective Fencing Method 44
Appendix 3: "Construction Exclusion Zone – Keep Out" sign 45
Appendix 4: BS 5837:2012 Terms and Definitions 46

Studio 16 Sutherland Institute
Lightwood Road
Longton
Stoke-on-Trent
ST3 4HY

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

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1.0 Introduction – Purpose and Scope

Prohort Limited have been commissioned by Joshua Moran to conduct an Arboricultural Survey and Impact Assessment of the land at Cherry Wood, Stanley Road, Stockton Brook, ST9 9LL. This report details the Arboricultural Impact of the trees on the site, subsequent mitigation, recommendations and protective measures.

The survey was carried out on Cherry Wood, Stanley Road, Stockton Brook, ST9 9LL by means of inspection from ground level by a qualified Arboriculturist Consultant. Trees were assessed in accordance with *BS 5837:2012 Trees in relation to design, demolition, and construction – Recommendations.*

Under the British Standard, the assessment of trees is made objectively and without influence by the client. The categorisation method identifies the quality and value of the trees that may be potentially influenced by any proposed works to a site as well as the impact of the tree upon the site.

This report's purpose is to allow the local planning authority (LPA) to assess the tree information as part of the planning submission. It is also to aid layout design and to demonstrate to the LPA that appropriate consideration has been given to the issue of trees as part of the planning process. It assesses the quality and value of the trees so should trees need to be removed to facilitate development, these can be restricted to the less significant specimens on site.

It contains a draft Arboricultural method statement (AMS) heads of terms in accordance with recommendations in Table B1 of BS 5837. It is recommended that a detailed AMS is produced in response to a planning condition following planning consent. This will be a working document describing how retained trees will be protected from the development and methods of work close to trees.

It is only concerned with Arboricultural issues although other disciplines such as engineering and ecology may be mentioned where relevant. It is important to gain advice from the appropriate expert on these matters.

1.1 Summary

Proposed buildings are within the influence of the trees surveyed.

A total of 4 Individual trees (T1 – T4) were surveyed and mapped (refer to Drawing 1). All Arboricultural information recorded within the survey is presented within Appendix 1.

The composition of the soils on site was not assessed during the survey. The possibility of soil movement due to tree root activity can't be discounted.

This report provides the results of the survey and includes the following:

- A schedule of all trees located within and externally to the site that may influence the proposed and existing property (Appendix 1)
- An assessment based on *BS 5837:2012*, of the trees in terms of their potential value within any future development.
- On the basis of this assessment, the trees have been categorised into one of four categories: A, B, C or U.
- Advice on removal, retention, and management of the trees (Section 9).
- A tree Constraints Plan detailing tree quality categories, for all trees surveyed (Appendix 1); and A Tree Removal and Protection Plan detailing the development proposals, trees to be retained and removed and temporary tree protection fencing alignment (Drawing 1 & Appendix 1).
- An Arboricultural Impact Assessment.

2.0 Site and Surroundings

2.1 The area surveyed is located at Cherry Wood, Stanley Road, Stockton Brook, ST9 9LL. The plot is part of a residential property. It comprises of the front and rear garden of the property with peripheral tree cover and a tree located adjacent to the property on the neighbouring car park. Site access is via an existing highway Stanley Road.

2.2 Weather conditions during the survey were overcast.

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ST3 4HY

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2.3 Images

Image 1 – T1, Sycamore, situated in rear garden.



Studio 16 Sutherland Institute
Lightwood Road
Longton
Stoke-on-Trent
ST3 4HY

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

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Image 2 – T2, Sycamore, situated in rear garden.



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Stoke-on-Trent
ST3 4HY

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Website: www.prohort.co.uk

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Image 3 – T3, Lime tree, Situated at the front of the property.



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ST3 4HY

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Image 4 – T4, Sycamore, located on the Rose and Crown public house car park, to the right-hand side of the property.



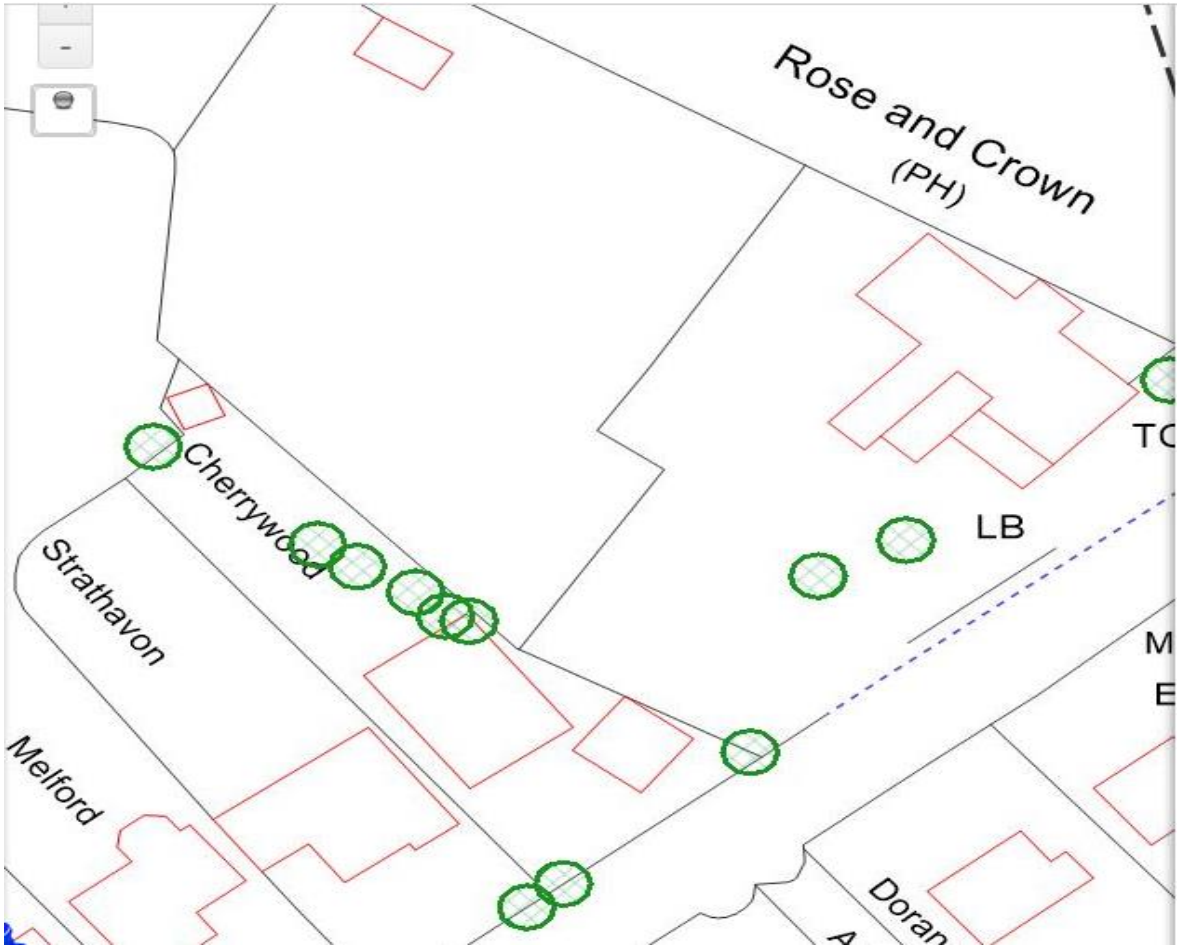
Studio 16 Sutherland Institute
Lightwood Road
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Stoke-on-Trent
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Image 5 – Image taken from Staffordshire Moorlands District Council TPO Register, found on their website (www.staffsmoorlands.gov.uk/article/768/Trees-in-conservation-ares). Trees marked with green circles are subject to TPO's.

We found this map from the TPO register not up to date, as some of the green circled trees were no longer present on the property



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3.0 Development Proposals

3.1 The proposed development consists of a single storey residential extension.



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4.0 Statutory Protection and Guidance

National Planning Policy Framework (NPPF)

4.1.1 The NPPF assumes protection of all ancient woodland and veteran trees unless it can be clearly demonstrated that the need for or benefits of development outweighs the loss. In this respect, ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD. A veteran tree is one of exceptional value for wildlife, in the landscape, or culturally because of its great age, size or condition.

4.1.2 On this site, there are no ancient woodland or veteran trees.

5.0 Hedgerow Guidance

5.1. Hedgerow Legislation

5.1.1. Any hedgerow can be protected by the Hedgerow Regulations 1997. Under the Hedgerow Regulations 1997, it is prohibited to destroy or remove any hedgerows prior to obtaining consent from the Local Planning Authority (LPA); however, the regulations are not applicable to hedgerows within the curtilage, or marking the boundary, of a dwelling house.

5.1.2. If a hedgerow is over 30 years old and approximately 20m in length, permission is required prior to removing it.

5.1.3. To obtain permission, a Hedgerow Removal Notice must be submitted to the relevant LPA, in accordance with Schedule 4 of the Hedgerow Regulations 1997.

5.1.4. The removal of any hedgerow is permitted, in accordance with the Hedgerow Regulations 1997, if it is required for:

- Making a new opening in substitution for an existing opening that gives access to land, subject to the Hedgerow Regulations 1997.
- Obtaining temporary access to any land to give assistance in an emergency.
- Obtaining access to land where another means of access is not available or is available only at disproportionate.
- The purposes of national defence.
- Carrying out development for which planning permission has been granted or is deemed to have been granted, except development for which permission is granted by article 3 of the Town and Country Planning General Permitted Development Order 1995 (1) in respect of development of any of the descriptions contained in Schedule 2 to that Order other than Parts 11 (development under local or private Acts or orders) and 30 (toll road facilities).
- Carrying out, pursuant to, or under, the Land Drainage Act 1991 (2), the Water Resources Act 1991(3) or the Environment Act 1995 (4), work for the purpose of flood defence or land drainage.
- Preventing the spread of, or ensuring the eradication of either:
    - Any plant pest, in accordance with the Plant Health (GB) Order 1993(5), in respect of which any action is being, or is to be, taken under Article 22 or 23 of that Order.
    - Any tree pest, in accordance with the Plant Health (Forestry) (GB) Order 1993(6), in respect of which any action is being, or is to be, taken under Article 21 or 22.
- The carrying out by the Secretary of State of his functions in respect of any highway for which he is the highway authority (7) or in relation to which, by virtue of section 4(2) of the Highways Act 1980, he has the same powers under that Act as the local highway authority.
- Carrying out any felling, lopping or cutting back required/permitted as a consequence of any notice given/order made under paragraph 9 of Schedule 4 for the Electricity Act 1989 (8) (felling, lopping or cutting back to prevent obstruction of or interference with electric lines and plant or to prevent danger.
- The proper management of the hedgerow.

- Where the removal of a hedgerow to which these Regulations apply is permitted by these Regulations only by paragraph (1)(a), the person removing it shall fill the existing opening by planting a hedge within 8 months of the making of the new opening.

5.1.5. Work being permitted under these Regulations does not affect any prohibition or restriction imposed by or under any other enactment or by any agreement.

5.2. Assessment

5.2.1. The main purpose of the Hedgerow Survey is to establish the value of hedgerows that fall within the survey boundary, which will determine the 'importance' of the hedgerow, in accordance with the criteria set out in the Hedgerow Regulations 1997.

5.2.2. The Hedgerow Regulations 1997 outline a system to identify and protect any hedgerows deemed 'important'.

5.2.3. A hedgerow is defined as a line of trees and shrubs over 20 meters in length with a width less than 5 metres at the base. The length is determined by an intersection or termination, or by the presence of a junction.

5.2.4. The Hedgerow Regulations 1997 apply predominately to hedgerows in England and Wales; however, they do also apply to any hedgerow or adjoining common land, village greens, Sites of Special Scientific Interests, including protected land. They also apply to agricultural land and forestry as well as land utilised for the keeping and breeding of donkeys, horses and ponies, if:

- It has a continuous length of, or exceeding, 20 metres; or
- It has a continuous length of less than 20 metres **and** at each end, meets another hedgerow.
- The Hedgerow Regulations 1997 do not apply to garden hedges. Any hedges marking a boundary or within the curtilage of a dwelling house are exempt from these regulations.

5.2.5. To analyse the 'importance' of a hedgerow, the ecological, landscape and archaeological factors associated with the hedgerow will be considered. These are:

- Has the hedgerow existed for 30 years or longer?
- Does the hedgerow satisfy at least one of the criteria listed in Part 1 of Schedule 1 in the Hedgerow Regulations 1997?

5.2.6. To be considered 'important', a hedgerow must meet any of the criteria below.

5.2.7. **Archaeological and History**

- Marks a pre-1850 township or parish boundary.
- Incorporates and archaeological feature.
- Is part of, or associated with, an archaeological site.
- Marks the boundary of, or is associated with a pre-1600, estate or manor.
- Forms an integral part of a pre-Parliamentary system.

5.2.8. **Wildlife and Landscape**

- Contains certain categories of bird, animal or plants listed in the Wildlife and Countryside Act or Joint nature conservation committee (JNCC) publications.
- Includes at least 7 woody species, on average, in a 30-metre length.
- Includes at least 6 woody species on average, in a 30-metre length to be associated with at least 3 of the following: Black Popular Tree, Large Leaved Lime, Small Leaved Lime, Wild Service Tree.
- At least 5 woody species on average, in a 30-metre length and be associated with at least 4 of the associated features.
- Hedgerows that are located adjacent to a footpath, bridleway, or road used as a public path or byway open to all traffic **and** include at least 4 specified woody species, on average, in a 30-metre length **and** has at least 2 of the associated features.

5.2.9. **Associated features**

- A bank or wall that supports the hedgerow along at least one half of its length.
- Gaps which in aggregate do not exceed 10% of the length of the hedgerow.
- On average, at least one tree per 50 metres.
- At least 3 woodland species of the 57 woodland plants.
- A ditch along at least half the length of the hedgerow.
- A number of connections to other hedgerows, woodlands or ponds.
- A parallel hedgerow within 15 metres.

5.3. Hedgerow Survey Results

5.3.1. No Hedgerows were surveyed.

6.0 Tree Protection Requirements

6.1. Tree Preservation Orders and Designations

6.1.1. Local authorities reserve the right to create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a single tree or group of trees. Where a TPO is in force, lopping, topping, felling, uprooting or wilful damage caused to a tree such actions are prohibited and such actions may be prosecuted and incur a fine of up to £20,000 per tree affected. Works to TPO protected trees must only be undertaken with the written consent of the local authority.

6.1.2. 4 trees were found to have a TPO on within the area surveyed.

6.1.3. There are certain circumstances where written permission from the local planning authority may not be necessary before undertaking works. These include;

- Making a tree safe if it is an imminent threat to people or property.

- Removing dead wood, or a dead tree.

Owners, managers or any persons wishing to undertake work as an exemption to the written permission process **are required** to provide the local planning authority with 5 days' notice prior to attending to a tree which they deem as being dead or dangerous; unless such works are required in an emergency. It is the tree owner's responsibility to provide proof that the tree was indeed dead or dangerous should this exception be challenged; hence, it is advisable always to request an inspection by the local authority Tree Officer prior to carrying out such operations. Furthermore, and even in the event of an emergency situation, there is still a duty to notify the local planning authority that work has been completed including supplying an explanation of the necessity.

7.0 Protected Species

7.0 Protected Species – Bats

7.0.1 Mature trees often contain cavities, crevices and hollows which are a potential habitat for roosting bats. Bats are afforded protection under Schedule 5 of the wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010 and as such causing damage to a bat roost constitutes an offence.

7.0.2 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken as part of the arboricultural survey. No trees were noted as having features suitable to support roosting bats.

7.0.3 Should the presence of a bat roost be suspected whilst undertaking works on any trees, operations must be halted until a licensed bat handler or ecologist can provide advice.

7.1 Protected Species – Birds

7.1.1 Trees are a potential habitat for nesting birds, which as well as their nests and eggs are protected under the *Wildlife and Countryside Act 1981* (as amended). This makes it an offence to intentionally or recklessly, damage or destroy an active bird's nest or any part thereof.

7.1.2 Due to the suitability of the trees within the vicinity of the survey boundary for nesting birds, all tree work should ideally be undertaken outside the bird nesting season (British bird nesting season: March to August inclusively). If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist prior to arboricultural works. Should an active nest be found (being built, containing eggs, or chicks) work must be halted until the nest becomes inactive.

8.0 Tree Population

8.1. Three individual trees (T1 – T3) were recorded that were growing within the boundaries of the surveyed site with one tree (T4) being on the adjacent car park which was also surveyed. A schedule of all trees and groups in terms of species, condition, age, management recommendations and *BS 5837:2012* quality categories is provided in Appendix 1.

8.2. The tree population recorded is not entirely confined within the site boundary with elements typical with its existing use as a residential garden. Tree cover is prevalent along the East boundary respectively.

8.3. Tree Quality Categorisation

8.3.1. Under *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations* trees and groups objectively assigned a quality category designed to quantify their value within any future development. Table 1, below, presents a summary of the categories presented in the British Standard.

Table 1: Summary of BS 5837:2012 tree quality categorisation criteria.

Category A	Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value.
Category B	Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have a higher value than they would as individuals; also trees with material conservation or other value.
Category C	Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits.
Category U	Trees with irremediable defects and anticipated early loss due to collapse; dead trees or those in immediate decline and those with infectious pathogens.

The rationale of this designation is to take account of individual trees or landscape features that may contain attractive or unusual qualities or characteristics, but are of poor form, poorly sited, or have a predicted lifespan of less than 20 years due to inherent weaknesses or faults as detailed in the *Schedule of Trees*.

9.0 Arboricultural Impact Assessment

9.1 The main focus of this section of the report is T1 – T4. Works are proposed within the root protection area of these trees. Specialist methods of design and construction are to be employed to minimise the impact on these important trees and to be acceptable to the local planning authority.

9.2 The proposed extension has been designed and positioned to minimise the impact on the tree and soil structure. Hard surfacing will be designed and constructed using a no-dig, porous system, also to have a minimal impact on the tree. The report contains a draft arboricultural method statement heads of terms in accordance with recommendations in Table B1 of BS 5837.

9.3 **Assessment of tree constraints**

9.3.1 A Tree Constraints Plan was produced during the initial design stage to allow for the proper assessment of tree constraints. These can be categorised in two areas as follows:

9.3.2 Below Ground Constraints - A root protection area (RPA) is a layout design tool indicating the minimum area surrounding the tree that contains sufficient rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. Clause 4.6.2 of BS 5837 states that the RPA may be changed in shape, taking into account local site factors, species tolerance, condition and root morphology. BS 5837 states that no construction works should be carried out within RPAs except in exceptional circumstances, which may need demonstrating.

9.3.3 Above Ground Constraints - These are indicated by the crown spread of trees to be retained, including their ultimate spread, along with a shade pattern shown for each tree, where relevant. This is shown as an arc from north-west to due east. This gives an indication of the patterns of shadows created by trees around midday in the summer. This is as recommended by BS 5837 (Section 5.2.2) however actual shade patterns throughout the year will vary widely. Where shading is likely to be a serious constraint, a more detailed analysis of shade pattern using proprietary software may be deemed necessary.

9.4 **Trees to be removed.**

BS 5837 category, tree number & species	Reason for removal	Impact
		.

9.5 **Trees requiring tree surgery works.**

BS 5837 category, tree number & species	Work requirements and reason
T1, T2 and T4 - Sycamore	None
T3 – Lime Tree	None

9.5.1 Tree surgery works to be undertaken in accordance with *BS 3998:2010 Recommendations for tree works*, or industry best practice. Where appropriate, the arisings from tree felling and pruning should be retained on site as ecological features. The advice of the project ecologist should be sought. The Tree Protection Plan – Demolition stage, indicates the tree to be removed and those requiring tree surgery works. It can be found in Site Plan - Drawing 1.

9.6 **Root protection area incursions**

Compaction of compressible soils is probably the single most common cause of death or damage to retained trees on development sites. Soil compaction reduces soil pore space, which in turn reduces soil air, the passage of water and available nutrients. These anaerobic conditions prevent root growth and the proliferation of soil microbes essential to tree health. Symptoms in trees will include crown die-back, sparse, and small foliage, poor extension growth etc., however these may not be evident until well after the occurrence of compaction. Even one pass of a vehicle in wet conditions can cause irreparable soil compaction.

Any proposed incursions into RPAs has taken account of the recommendations set out in 5.3 of BS 5837 (reproduced below):

5.3 Proximity of structures to trees

5.3.1 The default position should be that structures (see 3.10) are located outside the RPAs of trees to be retained. However, where there is an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the tree(s) (see Clause 7). If operations within the RPA are proposed, the project arboriculturist should:

a) demonstrate that the tree(s) can remain viable and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA

b) propose a series of mitigation measures to improve the soil environment that

is used by the tree for growth

5.3.2 The cumulative effects of incursions into the RPA, e.g. from excavation for utility apparatus, are damaging and should be avoided. Where there is evidence that a tree has been previously subjected to damage by construction activity, this should be taken into account when considering the acceptability of further activity within the RPA.

9.6.1 The Root Protection Area of T1 – T4 do lie within the proposed development area. As such a technical solution has been developed to ensure the design of the foundations has taken this into account and a recommendation of air digging where required under the supervision of an arboriculturist should be sufficient to ensure minimal damage to any roots within this area.

9.6.2 Although the exact location of services is often difficult to establish until construction is in progress, services are likely to come from the existing building and should have a minimal impact if carefully planned. Trenchless installation should be the preferred option where within RPAs, but if that is not feasible, any excavation must be carried out by hand or using a compressed air lance under arboricultural supervision or by following the methodology in Appendix 5. Certain works will need describing in full in a detailed arboricultural method statement conditioned following planning consent.

9.6.3 On some sites, there may be a requirement to excavate soil as part of investigation or remediation works not directly connected to the development, such as archaeological investigations, contaminated soil or Japanese knotweed control etc. This has the potential to be very damaging to trees which must be considered in any proposals and the project arboriculturist should be consulted on any excavation within RPAs.

9.7 **Existing and proposed finished levels.**

9.7.1 During design, consideration should be given to changes in ground levels. This should be dealt with in the detailed AMS, however, it is important at the planning stage to recognise any significant changes. Even where this occurs outside the RPA of a retained tree it still has the ability to impact on the tree and methods of dealing with the change in levels such as retaining walls, slopes etc. should be achievable without incursion into the RPA.

Trees affected by RPA incursions

BS 5837 category, tree number & species	**RPA incursion, precautions & specialised methodology required**
B (moderate quality)	
T1 - Sycamore	Landscape stage may require minor excavation and soil moving within the RPA. Conventional construction methods have the potential to damage tree roots and soil structure. Works must be designed to minimise damage and may entail hand excavation to work around significant roots, bridging significant roots, the use of porous materials etc.
B (moderate quality)	
T2 - Sycamore	Landscape stage may require minor excavation and soil moving within the RPA. Conventional construction methods have the potential to damage tree roots and soil structure. Works must be designed to minimise damage and may entail hand excavation to work around significant roots, bridging significant roots, the use of porous materials etc.
B (moderate quality)	
T3 – Lime	Landscape stage may require minor excavation and soil moving within the RPA. Conventional construction methods have the potential to damage tree roots and soil structure. Works must be designed to minimise damage and may entail hand excavation to work around significant roots, bridging significant roots, the use of porous materials etc.
B (moderate quality)	
T4 - Sycamore	Landscape stage may require minor excavation and soil moving within the RPA. Conventional construction methods have the potential to damage tree roots and soil structure. Works must be designed to minimise damage and may entail hand excavation to work around significant roots, bridging significant roots, the use of porous materials etc.

9.8 Impact on public amenity to the local landscape

9.8.1 The protection of the retained trees and the specialist methods of construction to be employed, means the existing trees will continue to provide their current level of visual amenity.

9.9 Protection of retained trees

9.9.1 Protection measures, usually a combination of barriers and ground protection must be in place before any works, including site clearance or demolition, begin, and stay in place for as long as a risk of damage remains. The protection of trees must take account of the buildability of the proposal, including services, and ensure that all activities such as storage of materials, parking and the use of plant and vehicles can be accommodated outside of RPAs. Particular care and planning are necessary for the operation of excavators, lifting machinery and cranes to ensure all vehicle movements and lifting operations will not impact on retained trees. Details of tree protection barriers and ground protection can be found in Appendix 2 of this report. The position of the barriers should be confirmed by the project arboriculturist following the first site monitoring visit.

9.9.2 The trees T1, T2, T3 and T4 cannot be fully protected using barriers alone as the access for construction and most of the build area is within the RPA. Ground protection fit for the purpose of preventing damage to the soil structure beneath will be used, such as Protection matting.

9.10 Post-development pressures

9.10.1 It is recommended that the trees are regularly inspected by a competent arboriculturist and provided normal maintenance of the tree is carried out, the tree and building will be able to coexist successfully. Normal maintenance may include the removal of deadwood and crown-lifting the lower branches where they impact on the building or other use of the site.

9.11 New planting

9.11.1 Space is very limited and there is already high tree cover on site.

9.12 Arboricultural method statement

9.12.1 An arboricultural method statement (AMS) describes how operations which may affect trees will be carried out to minimise any adverse effect on them. Details of site management, detailed construction methods, materials etc. can only be finalised once the post-consent detailed design begins. For that reason, at this stage in the process, only a list of heads of terms summary is given and this will need more detailed consideration once consent is issued. This is as recommended in Table B1 of BS 5837 (reproduced courtesy of BSI below).

9.12.2 Delivery of Tree-related information into the planning system.

Stage of Process	Minimum Detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions) Tree retention/removal plan (finalised) Retained trees and RPAs shown on proposed layout. Strategic hard and soft landscaping design, including species and location of new tree planting. Arboricultural impact assessment.	Existing and proposed finished levels. Tree protection plan. Arboricultural method statement – heads of terms. Details for all special engineering withjin the RPA and other relevant construction details.
Reserved matters/ planning conditions	Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method. Dimensioned tree protection plan. Arboricultural method statement – detailed.	Arboricultural site monitoring schedule. Tree and landscape management plan. Post construction remedial works. Landscape maintenance schedule

	Schedule of works to retained trees, e.g. access facilitation pruning. Detailed hard and soft landscaping design.	

9.12.3 Generic tree protection information such as tree barriers and ground protection can be found in Appendix 2. This enables consideration to be given to this at an early stage. The preliminary location of tree protection barriers and any ground protection can be found on the tree protection plan, Site Plan – Drawing 1

.

9.13 Arboricultural Method Statement

9.13.1 The following sequences are governed by operational constraints and subject to change. The developers arboriculturist must be noted of any changes to this schedule:

9.13.2 **Pre-development Stage**

- Pre-commencement site meeting between Local Planning Authority, client and developer's architect. This meeting must take place before any development activity begins to confirm the timing and implementation of the agreed Tree Works and installation of Tree protection measures.
- Removal of tree directly/indirectly impacted by development.
- Pruning of tree directly/indirectly impacted by development: Removal of dead wood from all trees (and aerial investigation).
- Tree protection measures installed to trees.
- Site to be inspected by developer's arboriculturist.

9.13.3 **Development Stage**

- This stage is subject to site monitoring visits by the developers arboriculturist at intervals as agreed at the pre-commencement site meeting. These visits are to ensure that the agreed protection measures are functional and correctly achieving their purpose.
- Site accessible to demolition and construction traffic.

9.13.4 **Development**

- Removal of Protective Fencing as agreed by the developers arboriculturist.
- Landscape operatives to be briefed by project arboriculturist. Hard and soft landscaping implemented.
- Arboricultural supervision is to be carried out at all crucial stages throughout the development process to ensure detailed tasks are carried out as per the approved methodology. At points as detailed above and during:
- Any demolition of existing buildings near to trees or within RPA's.
- Any incursion into CEZ's for whatever reason. This supervision will require the arboriculturist to be present throughout the tasks, to ensure all the arboricultural objectives are met. If the task is to take a long period of time, provided the arboriculturist is satisfied, the supervision may be reduced to telephone contact between the site Project Manager and the arboriculturist.

The local authority arboriculturist will have free access to the site and pass any recommendations direct to the developers arboriculturist. Any alterations to the Protective Fencing should be approved by the developers arboriculturist and Local Authority arboriculturist.

9.13.5 **Root Protection Areas**

Based on the tree survey data, root protection areas (RPA's) have been determined for every retained tree. The RPA's are designed to protect at least a functional minimum of tree root mass in order to ensure that the trees survive the construction process.

It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

9.13.6 **Restrictions within Tree Protection Areas**

Inside the exclusion area of the Protective Fencing, the following shall apply:

- No mechanical excavation
- No excavation by any other means without arboricultural site supervision.
- No hand digging without a written method statement having first been approved by the developer's arboriculturist.

- No ground level changes whatsoever.
- No storage of plant or materials.
- No storage or handling of any chemicals.
- No vehicular access.

9.13.7 **Tree Protection Fencing**

The Tree Protection Plan (TPP) shows the position of the Tree Protection Fencing (TPF). This fencing comprises of one type as detailed below. Vertical banners should be erected and ground protection installed before any materials or machinery are brought onto site and before any demolition, development or stripping of soil commences.

Once erected, barriers and ground protection will be regarded as sacrosanct, and will not be removed or altered without prior agreement of an arboriculturist and approval of the local planning authority.

Barriers should be fit for the purpose of excluding constructive activity, and appropriate to the degree and proximity of work taking place around the retained tree. On all sites, special attention should be paid to ensuring that barriers remain rigid and complete.

In most cases, barriers should consist of a scaffold framework in accordance with Appendix 2 comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Onto this, weld mesh panels should be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet are not resistant to impact and should not be used.

Should any alternative method of barrier construction be proposed, consultation with the developers arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

Once the exclusion zone has been protected by barriers and/or ground protection, construction can commence. All weather notices should be fixed to the barriers with the words: ‘Construction exclusion zone – Keep out’ or similar.

10.0. Management Recommendations

10.1 **Tree Work**

10.1.1 All tree surgery including felling work should be carried out by a qualified contractor in accordance with *BS 3998:2010 Tree work- Recommendations*
.

10.1.2 All tree surgery works, once approved by the Local Planning Authority, will be carried out prior to any other site works.

10.2 **Retaining Trees**

10.2.1 **Cultural Implications for Retained Trees -** It is not necessary to undertake access facilitation pruning (AFP).

10.3 **Mitigation for the removal of trees**

10.3.1 One individual tree must be removed to facilitate the extension and improve the aesthetics of the site. This tree is of low value. Mitigation for its loss and associated habitats may be required in the form of replacement tree planting.

10.3.2 If trees are to be removed, then suitable species choice is likely to include small ornamental type and/or native trees (Prunus or Malus spp. etc.).

10.3.3 The National Planning Policy Framework (NPPF) is a material consideration in the planning process and promotes a presumption in favour of sustainable development. In terms of the natural environment, development should minimise impacts on biodiversity and provide a net gain in biodiversity where possible.

10.4 **Post Work Tree Care**

10.4.1 Hazard recommendations are based on observations at the time of the survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site

development, regular (annual or biennial) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

10.4.2 Aftercare is vital to the survival of any newly planted trees. Provision should be made for a minimum of two years maintenance of newly planted trees and include watering, formative pruning and the checking of tree ties and stakes.

10.5 Foundation Depth Calculations

10.5.1 This report has been written in accordance with, and to satisfy the requirement of *BS 5837:2012*.

10.5.2 The nature of the soils on site was not assessed during the survey. The possibility of soil movement due to tree root activity cannot be discounted.

10.6 General

10.6.1 It is recommended that a detailed arboricultural method statement is produced in response to a planning condition following planning consent. This will describe in detail how retained trees will be protected from the development and methods of work close to trees.

10.6.2 This report contains general details such as tree barriers and ground protection which are common to most developments. If the recommendations made within this report are followed, the development should be achievable in arboricultural terms and should be acceptable to the local planning authority.

10.7 Ground Protection

10.7.1 Any ground protection to be installed in locations shown on the TPP must be strong enough to support any predicted load and resist compaction and soil damage.

10.7.2 The primary method of protecting the ground when erecting scaffolding within RPA's is by installing geotextile fabric and side butting scaffolding boards on a compressible layer such as bark chippings on a geotextile membrane. The

scaffolding may be erected first with the uprights placed on spreader boards and the ground protection installed around the uprights.

10.7.3 The boarding will be left in place until the building works are finished. A single thickness of boarding laid on the soil surface will provide sufficient protection for pedestrian loads. However, for wheeled or tracked construction traffic movements within the RPA, ground, protection should be designed by the project engineer to accommodate the likely loading and may involve the use of proprietary systems such as three-dimensional cellular confinement systems and approved for use by the developers arboriculturist and local authority before any works start.

10.7.4 The ground beneath any protection boarding will be left undisturbed and will be protected with a porous geotextile fabric. If necessary, sand should be laid on the fabric to level the ground.

10.8 Hard Surface Removal within Root Protection Areas (RPA)

10.8.1 The initial 'breaking up' of any surface may be carried out by low impact pneumatic tools (not breakers attached to diggers or JCB's, unless required due to the nature of the surface and if so, only when agreed with the supervising arboriculturist), or by hand if possible.

10.8.2 Removal of the surface will occur in 2m strips working from undisturbed surface. This will enable any roots exposed to be covered with a good quality top soil to avoid desiccation and the ground to be 'made good' as the operation progresses, avoiding the need for excessive travel on exposed ground.

10.8.3 Where practical subsequent removal of debris will be carried out by hand. Should mechanical means be required due to the size of the debris, then a small (1.5 ton) digger may be used providing that, when picking up the debris, no tines/teeth from the bucket should cause any damage to the underlying soil surface.

10.8.4 Once left with manageable size pieces, hand removal techniques will be used, where the digger is employed, it will only travel on the undisturbed hard surface (within the RPA), clearing debris as it progresses out of the RPA. No reduction in levels of the underlying soil surface will occur.

10.8.5 The underlying soil may be levelled by the addition of up to 100mm of good quality top soil to BS 3882: 1984. Hand tools only will be used for any levelling works; this work will not disturb the underlying soil. Should any roots over 25mm

diameter, have grown above the final soil level and be a hindrance to the final surface installation, their removal will only be carried out under arboricultural supervision and with the approval of the Local Planning Authority.

10.8.6 If the area around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid or soft landscaping implemented, then the line of protective fencing must be correctly re-established immediately after the hard surface removal work has been completed. If, for whatever reason there is a delay before the area is left exposed prior to awaiting a new surface, then a temporary surface must be implemented or the area fenced off.

10.8.7 If some construction with regards to the car parking spaces will be required within the RPA of the trees. This will be carried out employing the no dig method and the construction will be cellweb based with resin bonded gravel top surface.

10.9 Installation of Underground Services

10.9.1 Every effort has been made to ensure the routeing of services does not encroach into RPA's, if for whatever reason installation within RPA's is required, the developers arboriculturist and local authority must be notified prior to any tree protection barrier removal and the following details adhered to.

10.9.2 Trenching for the installation of underground services severs any roots present and may change the local soil hydrology in a way that adversely affected the health of the tree. For this reason particular care will be taken in the routeing and methods of excavation used. At all times where services are to pass within the Root Protection Area, detailed plans showing the proposed routeing will be drawn up in conjunction with an arboriculturalist. Such plans will also show the levels and access space needed for installing the services.

10.9.3 The preferable method for trenching within RPA's to avoid damage is via excavation using 'airspade' or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage. This approach should be utilised whenever possible.

10.9.4 Trenchless technology, such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPA's of the subject trees, the need for arboricultural supervision is limited.

10.9.5 Reference can ne made to National Joint Utilities Group Volume 4, Issue 2 for guidance, but any approach must be approved by the developers arboriculturist and brought to the attention of the local authority tree officer.

10.9.6 BS5837: 2005 states:
In order to avoid disturbances to the physical protection forming the construction exclusion zone once it is installed, it is essential to consider, make allowances for and plan all construction operations which will be undertaken in the vicinity of the trees, in particular:
a) Site construction access;
b) The intensity and nature of the construction activity;
c) Contractor's car parking;
d) Phasing of construction works;
e) The space needed for all foundation excavations and construction works;
f) The availability of special construction techniques;
g) The location and space needed for all service runs including foul and surface water drains, land drains, soakways, gas, oil, water, electricity, telephone, television or other communication cables;
h) All changes in ground level, including the location of retaining walls, steps and making adequate allowance for foundations of such walls and backfillings;
i) Spaces for cranes, plant, scaffolding and access during works;
j) Space for site huts, temporary latrines (including their drainage) and other temporary structures;
k) The type and extent of landscape works which will be needed within the protected areas and the effects these will have on the root system;
l) Space for storing (whether temporary or long-term) materials, spoil and fuel and the mixing of cement and concrete;
m) The effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.

11 Summary

10.1 A total of 4 individual trees, were recorded during the survey within the development area site boundary.

10.2. Based on an objective assessment made in accordance with *BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations* the trees were all valued as category B features.

10.3. The majority of the trees are confined to the periphery with one tree adjacent to the property, with elements commensurate with the previous formal use of the site.

10.4. At the time of the survey 4 trees within or immediately adjacent to the site were identified as being subject to Tree Preservation Orders.

10.5. No trees were found to have features suitable for roosting bats.

11.0 Survey Method

The survey of the tress was conducted from ground level only. The nature of the soils on site was not assessed. Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of the survey.

11.1 The following features of each tree, group of trees or wood have been recorded in the Arboricultural Survey Date Sheets at Appendix 1.

11.1.1. Species

The common name is given. The Latin name may also be given if further clarification is required.

11.1.2. Height

Top height of tree recorded in metres.

11.1.3. Stem Diameter

For single-stemmed trees, the measurement is taken at 1.5 metres above ground level and recorded in millimetres.

For multi-stemmed trees, an average of all stems measured at 1.5m above ground level is used.

For tree groups, a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.

11.1.4. No. of Stems

A count of stems arising below a height of 1.5 metres.

11.1.5. Crown Spread

The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.

11.1.6. Height of Lowest Branch

Crown clearance above ground level recorded in metres.

11.1.7. Direction of Lowest Branch

The direction of growth of the first significant branch from the point of attachment.

11.1.8. Maturity

Young:
Trees that can reasonably be relocated or replaced like for like, without undue cost.

Middle Age:
Trees in the established growth stage of their life with the potential to continue increasing in size.

Mature:
Trees that have reached their ultimate size, given their location and surrounding.

11.1.9. Condition

Good, Fair, Poor:
An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account.

11.1.10. Veteran

Trees that are in such a condition as in significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond that typical age range of species concerned.

11.1.11. Comments

A brief evaluation and description of the tress with comments on form, vitality, health and any significant defects or symptoms of ill-health.

11.2. BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A=High, B=Moderate, C=Low, U=Unsuitable for retention). Sub categories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

11.3. Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m^2) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Table D.1) and is based on a trees stem diameter. In some cased the RPA many need to be adapted to best reflect the likely area of the position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

11.4 Recommendations

Recommendations for arboricultural works, etc. are based on the current land use and take into account the tree or group attributes without bias to the proposed development.

Any tree surgery works proposed as part of this Survey are recommended to mitigate any identified problems that may be caused by trees in close proximity to the proposed/existing property, fences and hard paving. To this end, should these recommendations be overruled, this Survey stands as the opinion of ProHort Limited, and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the Local Planning Authority, cannot be the responsibility of this practice.

Whilst this is an arboricultural report, comments relating to non-arboricultural matters are given, such as built structures and soil data. Any opinion thus expressed should be viewed as provisional and confirmation from an appropriately qualified professional sought. Such points are clearly identified within the body of the report.

11.5 Estimated Remaining Contribution

An estimation of the life expectancy as a healthy functioning tree. This will be influenced by species and the condition of the tree at the time of the survey.
Long > 40 years
Medium 20 – 40 years
Short less than 20years

Category	Description	Subcategory			Colour on Map
		Mainly arboricultural qualities	**Mainly landscape qualities**	**Mainly cultural values, including conservation**	
Trees unsuitable for retention					
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.*			Dark Red RGB Code - 127-000-000

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)	Light Green RGB Code - 000-255-000
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. the presence of significant though remediable defects, including unsympathetic past	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to	Trees with material conservation or other cultural value.	Mid Blue RGB Code - 000-000-255

		management and storm damage), such that they are unlikely to be suitable for retention beyond 40 years; or trees lacking the special quality necessary to merit the Category A designation.	make little visual contribution to the wider locality.		
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 the high categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value	Grey RGB Code - 091-091-091

Notes:

All young trees are assessed as quality category ‘C’ but this does not preclude their retention within a development.

11.6 Limitations & Qualifications

Tree inspection reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken.

The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. ProHort Ltd will not be responsible for the recommendations within this report where essential data is not made available or is inaccurate.

This report will remain valid for one year from the date of inspection but will become invalid if any building works are carried out upon the property, if soil levels altered in any way close to the trees surveyed, or if tree work is undertaken. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather or any other unreasonably foreseeable events.

If alterations to the property or soil levels are carried out, or tree work is undertaken, it is strongly recommended that a new tree inspection is carried out.

It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following: -

1. The need to avoid reasonable foreseeable damage.
2. The arboricultural considerations - Tree safety, Good Arboricultural practice (tree work) and aesthetics.

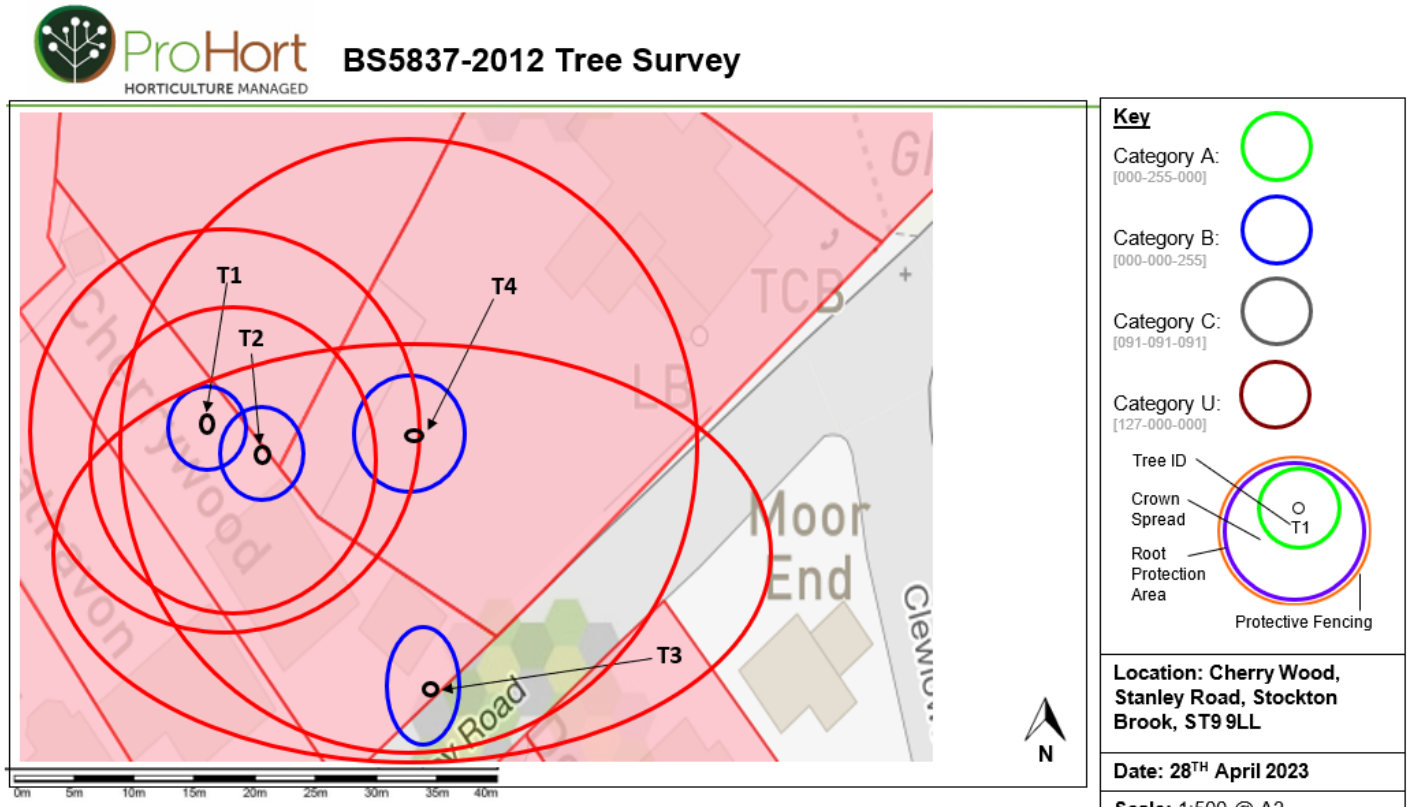
The client and their insurers are deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.



Jason Harker
Arboricultural Consultant
ProHort Limited

Site Plan – Drawing 1

Scaled plan of the existing Development along with all relevant Trees and Hedges plotted along with Root Protective Zone.



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

Unit 16 Sutherland Institute
Lightwood Road
Longton
Stoke on Trent
ST3 4HY

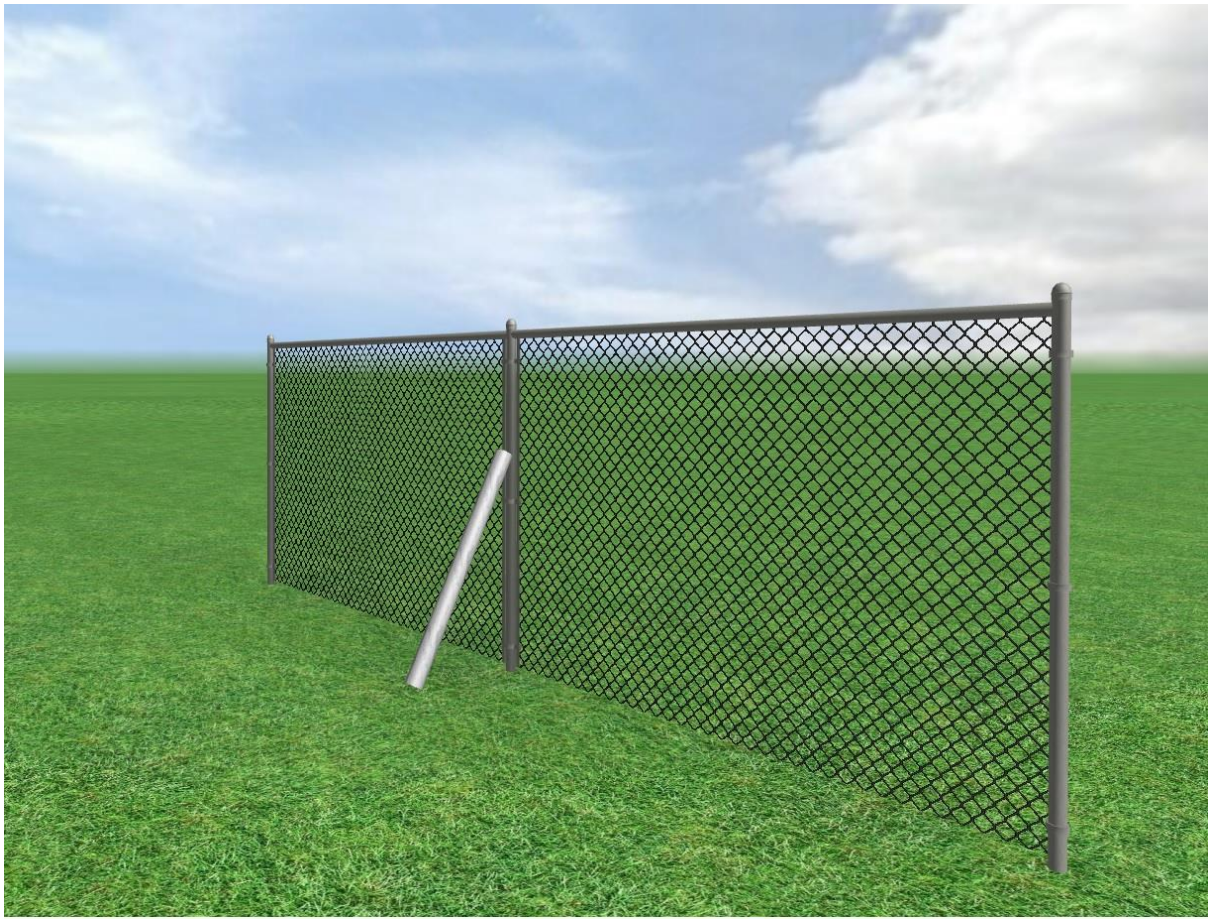
Telephone: 01782 479479
Email: info@ProHort.co.uk
Website: www.ProHort.co.uk

Appendix 1: Arboricultural Survey Data Sheet

Tree & Tag No Species	Height (m)	Stems		Crown		Age	RP A (m^2) R (m)		Physical Condition	Structural Condition		Preliminary Recommendations Survey Comment	Cat ERC
		No	Dia (mm)	Spread (m)	Clear (m)								
T1 - Sycamore *Acer Pseudoplatanus*	18	1	560	**N** 5	2.5	M	**A**	141.9	G			Previously Pollarded. TPO – LR011T009 Dated 22/12/1971.	B.1
				E 5	2					**C**	G		
				S 5	2		**R**	6.7		**S**	G		
				W 5	1.7					**B**	G		
T2 – Sycamore *Acer Pseudoplatanus*	18	1	460	**N** 4.5	4	M	**A**	95.7	G			Previously Pollarded. TPO - LR011T010 Dated 22/12/1971.	B.1
				E 5	4					**C**	G		
				S 6	4		**R**	5.5		**S**	G		
				W 3	4					**B**	G		
T3 – Lime Tree *Tilia*	20	1	740	**N** 7	0	M	**A**	247.8	G			TPO – LR011T007 Dated 22/12/1971	B.1
				E 6	0					**C**	G		
				S 6	0		**R**	8.9		**S**	G		
				W 5	0					**B**	G		
T4 – Sycamore *Acer Pseudoplatanus*	**15**	1	670	**N** 6	2	M	**A**	203.1	G			TPO – SM008T006 Dated – Not Stated.	B.1
				E 6	4					**C**	G		
				S 7	4		**R**	8		**S**	G		
				W 7	4					**B**	G		
				N			**A**						
				E						**C**			
				S			**R**			**S**			
				W						**B**			

Q8708

Appendix 2: Tree Protective Fencing Method



Heras Fencing with additional ground support to ensure the fencing will not be knocked over if accidentally knocked by machinery.

Protective fencing is not required for the proposed works contained within this report.

Unit 16
Sutherland Institute
Lightwood Road
Longton
Stoke-on-Trent
ST3 4HY

Telephone: 01782 479479
Email: info@prohort.co.uk
Website: www.prohort.co.uk

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Appendix 3: “Construction Exclusion Zone – Keep Out” sign



This sign must be minimum A4 size and at 1.5 metres above ground level.

These are not required for the work proposed in this report.

Unit 16
Sutherland Institute
Lightwood Road
Longton
Stoke-on-Trent
ST3 4HY

Telephone: 01782 479479
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Appendix 4: BS 5837:2012 Terms and Definitions

Access Facilitation Pruning

One-off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.

Arboricultural Method Statement (AMS)

Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

Arboriculturist

A person who has, through relevant education, training and/or experience, gained expertise in the field of trees in relation to construction.

Competent Person

A person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
NOTE - a competent person is expected to be able to advise on the best means by which the recommendations of this British Standard may be implemented.

Construction

Site-based operations with the potential to affect existing trees.

Construction Exclusion Zone

Area based on the root protection area from which access is prohibited for the duration of a project.

Unit 16
Sutherland Institute
Lightwood Road
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Stoke-on-Trent
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Root Protection Area (RPA)

Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

Service

Any above or below ground structure or apparatus required for utility provision.
NOTE - examples include drainage, gas supplies, ground source heat pumps, CCTV and satellite communications.

Stem

Principal above ground structural component(s) of a tree that supports its branches.

Structure

Manufactured object, such as a building, carriageway, path, wall, service run, and built or excavated earthwork.

Tree Protection Plan

Scale drawing, informed by descriptive text where necessary, based upon the finalized proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Veteran Tree

Tree that, 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.
NOTE - these characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem.

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Sutherland Institute
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Longton
Stoke-on-Trent
ST3 4HY

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Appendix 5: Air Lance Methodology

- All equipment should be pre-certified and then checked by a competent person when it arrives on site.
- Only trained and competent individuals should use the equipment.
- Using the Air-lance you can; loosen, aerate or agitate the ground.
- Loose aggregates are then ideally removed via suction.
- If removal by suction is not viable, then the aggregates can be carefully removed by hand, using a spade or shovel.
- If the soil is very hard, high-pressure water can be used to agitate the soil.
- The vacuum would then be used in conjunction with this to remove the loosened aggregates.
- The soil and aggregates removed can if appropriate be reused in backfilling the area excavated.
- If the soil or aggregate is contaminated this can be disposed of at a licensed landfill site or be taken for repurposing.

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