Tree Survey Report

BS5837:2012 (Trees in Relation to Design, Demolition and Construction) Format

Simon House, Wavell Rd, Wythenshawe, Manchester M22 5QZ

Produced For: Fergal McDonnell

Author: R. Rainford

Date: 24/02/2022

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1. Introduction

1.1 Instruction

Rainfords Tree Care have been instructed by the Fergal McDonnell, to undertake a survey to BS5837 standard to the site at Wavell Rd, Wythenshawe, Manchester M22 5QZand to provide advice and recommendations to demolition of the current office building, in preparation for redevelopment.

The site was surveyed on 7th of February 2023, the weather was dry and sunny.

1.2 Purpose of the Report

This report provides an analysis of the impact of any proposed development and local amenity regarding the trees and to provide realistic management measures appropriate for the site. This report can be used to support a planning application for tree works and accompany planning applications for demolition and/or construction. During the planning process this document will be publicly available, therefore the aim is to provide the information in a clear, concise, and understandable manner for the layman.

1.3 Provided Documents

No formal plans have been provided prior to the writing of this report, the plans for the site are generally landscaping, and verbal discussion proved adequate in this situation.

1.4 Tree Data Collection

All the trees on site have been numbered and species identified, as necessary. Each tree has been inspected and analysed in accordance with the requirements of BS5837. This includes information on height, diameter at breast height (DBH), crown spread to 4 cardinal points, maturity, condition, and recommendations. Each tree has been classified as category A, B, C or U. This classification is described below, with further information on classification in the appendices.

Category	Description
A – High	Good specimen trees, with long life expectancy, high amenity value.
B – Moderate	Specimens that will add to the area in time or are not an ideal specimen. Medium Amenity
C - Low	Trees that have poor crown structure/form i.e., suppressed. Low Amenity Value
U or R	Tree diseased or dying, unsuitable for location. Fell.

1.5 Interpretation of Tree Data

Within section 5 of BS5837, the DBH is used to determine the size of the Root Protection Area (RPA). This area can be interpreted to observe any design constraints on site, to allow architects and planners to ensure trees being retained a part of a development are adequately protected.

Included in this report are some supporting documents and plans:

- Tree Constraints Plan, this identifies all the trees on site.
- Tree Retention Plan, this identifies trees to be retained and trees to be removed.
- Tree Protection Plan, this identifies the calculated RPA for trees being retained.

2 Site Context

2.1 Site Overview

This site is a single office building, currently disused. The site is primarily covered by the building, with all remaining space taken up by parking for building users. There is little greenspace available on this site.

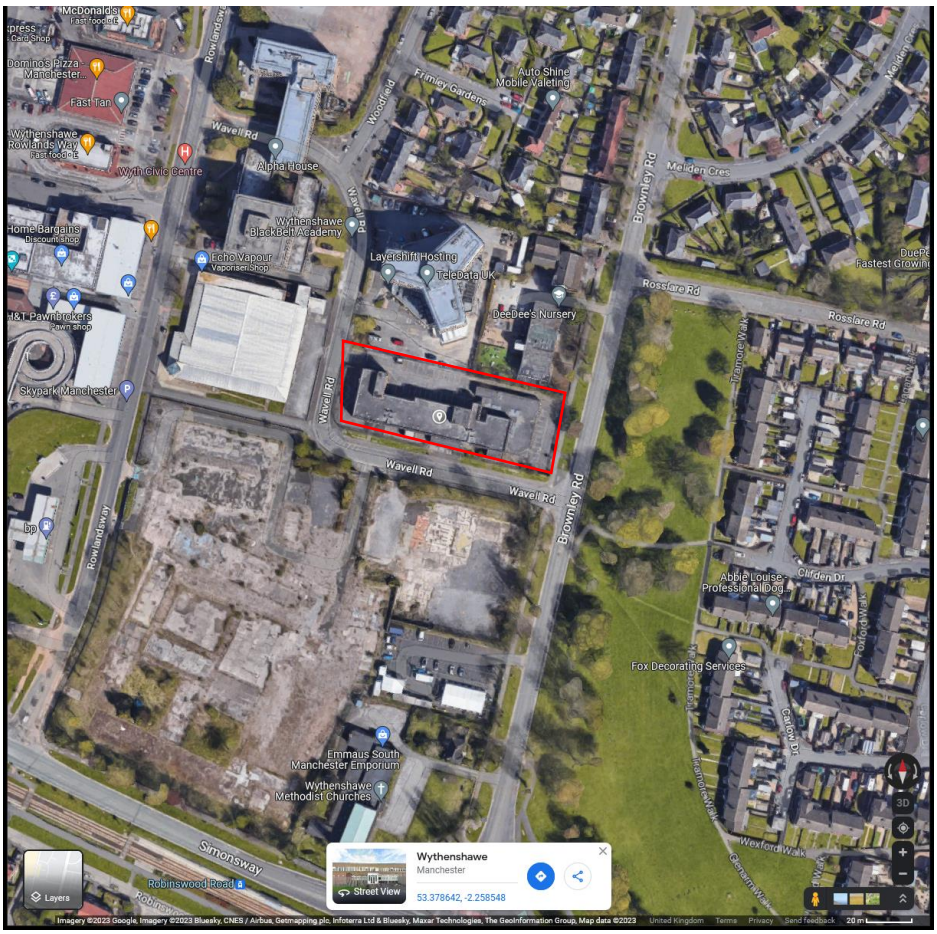


FIGURE 1: SITE CONTEXT, CENTRED IN IMAGE, FROM GOOGLE EARTH/STREET VIEW

2.2 Treescape

The treescape at this site consists of a mix of native species. Some self-seeded along the boundary of the Nursery to the north East of the site, and planted trees at the site entrance and in available space around the site.

In the North East corner of the site are Elm and Ash trees which are likely self-seeded in this position.

Remaining trees on site include *Sorbus spp*. and a semi mature Cherry outside the site entrance.

2.3 Surrounding Area

The surrounding area is a mixture of business units, offices and residential. Across Brownley Road to the East is some public open space with numerous mature trees.

2.4 Geological Details

LandIS describes the site as "*Soilscape 18: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils"*

Bedrock formation here is described by the British Geological Survey as: *"Bollin Mudstone Member - Mudstone. Sedimentary bedrock formed between 247.1 and 241.5 million years ago during the Triassic period.."*

Superficial deposits around this site are described by the British Geological Survey as *"Till, Devensian - Clay, sandy, gravelly, cobbly. Sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period."*

3 Statutory Controls

The presence of a Tree Preservation Order or Conservation Area constraint against trees on this site can indicate the wishes of the Local Authority to retain significantly visible and valuable trees within the landscape they serve. If these constraints are present, it does increase the chance for a tree to be retained and strong argument made for such a case. Trees with a TPO or within a conservation area can be removed, given adequate justification and mitigation within a development scheme, as the scheme can provide greater benefits than the presence of the trees alone.

In the presence of any TPO or CA constraints, written permission must be granted before any tree work is carried out.

3.1 Tree Preservation Orders

An enquiry was made with Manchester City Council's via email on 24/02/2023 to ascertain the presence of TPOs at this site, no response had been received at the time of writing.

3.2 Conservation Areas

An enquiry was made with Manchester City Council's via email on 24/02/2023 to ascertain the presence of CAs at this site, no response had been received at the time of writing.

3.3 Felling Licence

Large scale tree felling is restricted under the Forestry Act 1967. Under this act, there is an exemption from the need for a felling licence if planning permission is in place,

"Felling trees immediately required for the purpose of carrying out development authorised by planning permission (granted under the Town and Country Planning Act 1990)"

The trees on this development would be exempt from protection under the Forestry Act 1967 if full planning permission is obtained.

4 Planning Policies

4.1 National Planning Policy Framework (NPPF)

When determining planning applications, Local Planning Authorities (LPAs) should apply the following principles:

- If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternate site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
- Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons, and a suitable compensation strategy exists.
- Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity (paragraph 175).

The trees within this development are not considered to be aged or veteran, rendering the principles within the NPPF not applicable in this situation.

5 Arboricultural Impact Assessment

5.1 Summary of Tree Impact Assessment

All the trees within the affected area of the development were surveyed. Within the area of the proposed development, there is a total of 14 Individual trees included in the survey, the Hedge is counted in tree totals below, these were classified as follows:

- 0 Category **A** Trees
- 0 Category **B** Trees
- 11 Category **C** Trees
- 3 Category **U** Trees

5.2 Detailed Impact Assessment

Please refer to attached documents Tree Data and Tree Constraints Plan when reading below information:

5.2.1 Category A Trees and Groups (High Quality)

- 0 Category **A** trees or groups require work.

5.2.2 Category B Trees and Groups (Moderate Quality)

- 0 Category **B** trees or groups require work.

5.2.3 Category C Trees and Groups (Low Quality)

- 2 Category **U** trees or groups require work.

5.2.4 Category U Trees and Groups

- 3 Category **U** trees or groups require work.

5.3 Comments on Tree Conditions

General tree condition on this site is average, the Elms in the corner of the site are in a deteriorating condition. The selection of trees along the north boundary which are behind the fence and appear to belong to the nursery are in a good condition however they are not in a good location and are beginning to cause fence damage and occlude sections where the fence rubs against the tree.

5.4 Previous Tree Works

No significant previous tree works were noticed at the time of survey.

5.5 Proposed Tree Works

5.5.1 Arboriculturally Necessary Tree Works

T10 and T12 are dead trees and need removing for safety reasons. T11 will become somewhat exposed, its poor form with a moderate growth angle and phototropic habit render it unsuitable for retention at this site.

T2, T3, T4, T5, T6, T7, T8, and T9 are in a poor location and are self-seeded trees. Their current locations are against the dividing fence of the office site and nursery site and are likely to damage the boundary in the near future, as these trees are young with significant growth potential remaining.

T14 is recommended to be removed, as it appears to have been planted but ha shifted shortly afterwards and is now growing at an unsuitable angle. This tree can be removed and replaced with nursery stock.

5.5.2 Works to Facilitate Development Implementation

Once the identified trees have been removed in line with the Arboriculturally necessary works, there are no works required to facilitate implementing the process to demolish this building.

5.6 Impact on Local Amenity

The biggest impact on the tree aspect would be the removal of T10, T11 and T12. However there are justified reasons for the removal of these trees and their amenity value is already minimal.

5.7 Development Impact on Current and Remaining Tree Stock

The trees which stand to be impacted the most by the demolition of the site are the third-party trees located in the nursery site. Works should not encroach across the boundary for safety reasons and doing so should not affect the trees.

Where hard surfaces are in place which re currently parking or pathways, where they are lifted it near trees care must be taken to ensure roots are not dug out from nearby trees when working close to or within marked Root Protection Areas.

5.8 Proposals to Mitigate Impact

The loss of the dead trees is unavoidable at this point, and where the two remaining trees which are live but not suitable, these can be replaced with suitable nursery stock. It is recommended that the replacement of these trees is designed into the rebuilding of the site. As no plans are currently available for a site redesign, it is not possible to suggest quantities or locations of new tree stock.

6 Arboricultural Method Statement

6.1 Introduction

This method statement has been designed to assist the client, developer, and Local Authority with overseeing the construction project and the impact on the trees around it. As part of planning conditions, it is recommended that there is a monitoring process in place agreed by Rainfords, the client and the Local Authority prior to any works taking place. If works are required within or directly adjacent to an RPA, there should be on site supervision to ensure the RPAs are not encroached unless necessary.

This document lists the trees which require works and is supported by the attached schedule of tree data and the Tree Constraints Plan.

6.2 Tree Management Programme

The tree management scheme at this property is to be broken down into 5 steps as follows:

- Stage 1: Carry out all Arboricultural Works as per schedule.
- Stage 2: Implement tree protection to adequate standard.
- Stage 3: Carry out all building works as required.
- Stage 4: Remove tree protection.
- Stage 5: Consult with Arboriculturist and LA Tree Officer to ensure all standards have been met during the process.

6.2.1.1 Stage 1: Carry out all Arboricultural Works as per schedule.

Trees to be felled: **T10, T11, T12, T14.**

Trees to be pruned: **T13**

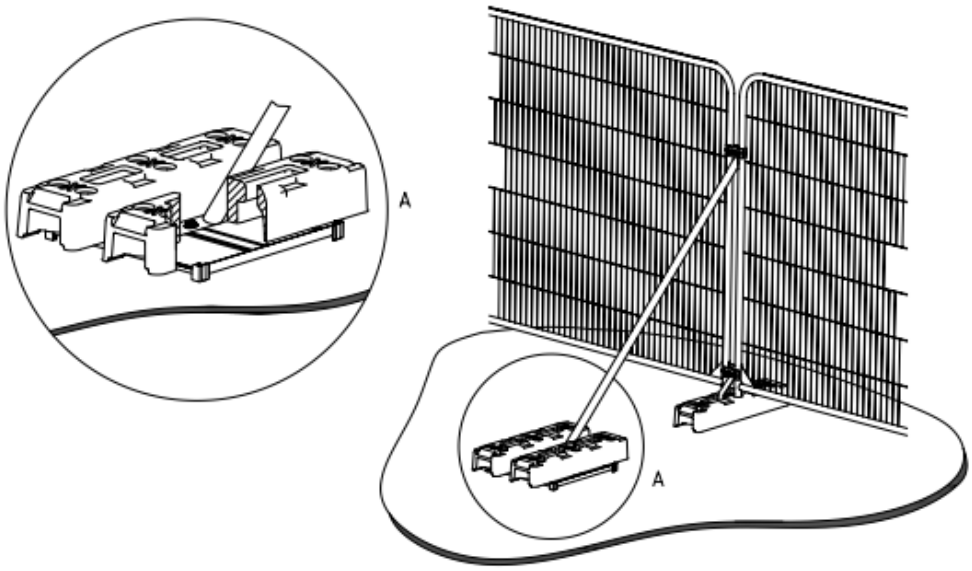
All tree works recommended are to be carried out prior to any site personnel being present or commencing works or any materials being delivered. This is to ensure that the site is prepared and ready for the demolition and/or construction processes to commence.

Tree work recommended by the schedule can be carried out at any point before the development begins, as it will allow access for scaffolding and commencement of building works.

A competent Arboricultural who has a minimum of £1,000,000 of public liability insurance must carry out all tree works in accordance with BS3998:2010 – Recommendations for Tree Works.

6.2.1.2 Stage 2: Implement Tree Protection to Adequate Standard

Protective fencing anchored with rubber feet and supported by block trays with diagonal supports are required at this site to protect T1 and T13 root areas during the works.



b) Stabilizer strut mounted on block tray

FIGURE 2: PROTECTIVE FENCING - BS5837:2012 EXCERPT

6.2.1.3 Specification for Prohibition area

- No construction works shall begin until the tree protection is installed.
- During construction phases the tree protection may not be breached or moved without prior advice from Rainfords, and until consent is granted by the council.
- No mechanical excavation or scraping is permitted within an RPA.
- No fires are to be lit within a 10m radius of a retained trees canopy.
- No machinery, plant, or vehicles are to be washed down within 5m of a CEZ.
- No leaning against or attaching of objects to a tree is permitted.
- No substances that may be harmful to a tree may be stored, mixed, or discharged within a CEZ.
- Hard surfacing treatment can only begin, where within a CEZ once construction has been completed.
- Only on the completion of construction can the tree protection be removed.
- Any excavations, which must be undertaken within the RPA, must be carried out carefully by hand, avoiding damage to protective bark covering larger roots.
- While roots are exposed, they should be covered with dry, clean hessian sacking to prevent desiccation, and to protect from rapid temperature changes.
- Roots smaller than 25mm in diameter can be pruned back by cutting cleanly either with bypass secateurs, or a hand saw.
- Roots larger than 25mm should only be severed after consultation with a qualified Arboricultural consultant, as they may be essential to the tree's health and stability.
- Prior to back filling, any hessian sacking should be removed and retained roots should be surrounded with sharp sand (builders' sand should not be used because of its high salt content which is toxic to tree roots).
- Where concrete foundations are installed near the RPA of a retained tree, they must be isolated using a plastic membrane or cardboard barrier. This is to prevent toxic substances from the concrete from leeching into the soil around the roots.

Please Note: *We are qualified tree specialists and not structural engineers. We are neither qualified, nor insured to make comment on the technical specifications of foundation systems. Further information about this should be obtained from the installing contractors.*

6.2.1.4 Tree Protection Plan

The tree protection plan outlines all areas and types of protection to be established prior to commencement on site. The protection plan is held within Appendix D.

6.2.1.5 Stage 3: Carry Out all Building Works as Required

Once the tree protection has been established and deemed suitable, all building works can commence as normal. It is vital that during the construction process all members of staff on site are aware of the need for the tree protection and the measures they need to be taking to ensure the criteria for tree protection are met with their work activities.

6.2.1.6 Stage 4: Remove Tree Protection

Once all construction work is complete the tree protection can be removed as it is no longer necessary, where there are parts of a fence are installed into the ground, they should not be removed using heavy machinery as this could cause root damage.

6.2.1.7 Stage 5: Consult with Arboriculturist and LA Tree Officer

The final stage of the process, once all works are completed, the LA tree officer should be invited to site with the planner and Rainfords present to ensure all works are to a good standard and to identify any remedial works that may be deemed necessary.

6.3 Services

Any services to be installed must have their runs designed so as not to interfere with the RPA of any trees, where this cannot be avoided any sections dug within protective fencing must be done by hand to prevent major mechanical root damage. The client is advised to consult with the Arboriculturist before undertaking any excavation works within an RPA.

7 APPENDICES

8 APPENDIX A - Tree Data

BS5837:2012 Tree Survey

Rainfords Tree Care

Client: Fergal McDonnell
Project: Simon House
Survey Date: 07/02/2023
Surveyor: Robert Rainford

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
T1											
Wild Cherry *Prunus avium*	8	1	370	N 4 E 4 S 4 W 4	3 3 3 3	SM	A: 61.9 R: 4.43	Fair	C: Fair S: Fair B: Fair	No action :: Unspecified Possible third party tree. Decline in crown, not a long term asset to site.	C <10 yrs
T2										Estimated Measurements	
Sycamore *Acer pseudoplatanus*	9	1	190	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 16.3 R: 2.27	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T3										Estimated Measurements	
Common Ash *Fraxinus excelsior*	9	1	130	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 7.6 R: 1.55	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T4										Estimated Measurements	
Himalayan Tree-Cotoneaster *Cotoneaster frigidus*	5	1	75	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 2.5 R: 0.89	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

Page 1 TreeMinder 25 February 2023

All trees were inspected from ground level using the VTA technique unless specified.

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T5										Estimated Measurements	
Common Ash *Fraxinus excelsior*	9	2	220 (Eq)	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 21.9 R: 2.64	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal. Ash Dieback symptoms on tree	C 20 to 40 yrs
T6										Estimated Measurements	
Common Hawthorn *Crataegus monogyna*	5	1	75	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 2.5 R: 0.89	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T7										Estimated Measurements	
Common Ash *Fraxinus excelsior*	9	1	130	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 7.6 R: 1.55	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T8										Estimated Measurements	
Birch *Betula Spp.*	9	1	130	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 7.6 R: 1.55	Good	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T9										Estimated Measurements	
Common Ash *Fraxinus excelsior*	9	1	100	N 2 E 2 S 2 W 2	3 3 3 3	Y	A: 4.5 R: 1.19	Fair	C: Good S: Good B: Good	No action :: Unspecified Grown on third party site. Against fence and causing damage. Recommend removal.	C 20 to 40 yrs
T10										Estimated Measurements	
Wych Elm *Ulmus glabra*	14	2	424 (Eq)	N 4 E 4 S 4 W 4	3 3 3 3	SM	A: 81.4 R: 5.09	Dead	C: Poor S: Ivy B: Fair	Fell :: Fell and remove stump(s) Tree is dead	U n/a

Age Classifications: N Newly planted; Y Young; SM Semi-mature; EM Early Mature; M Mature; OM Over Mature

Condition: C Crown; S Stem; B Basal area

Stems: Ø Diameter; (Eq) Equivalent stem diameter using BS5837:2012 definition

ERC: Estimated Remaining Contributio

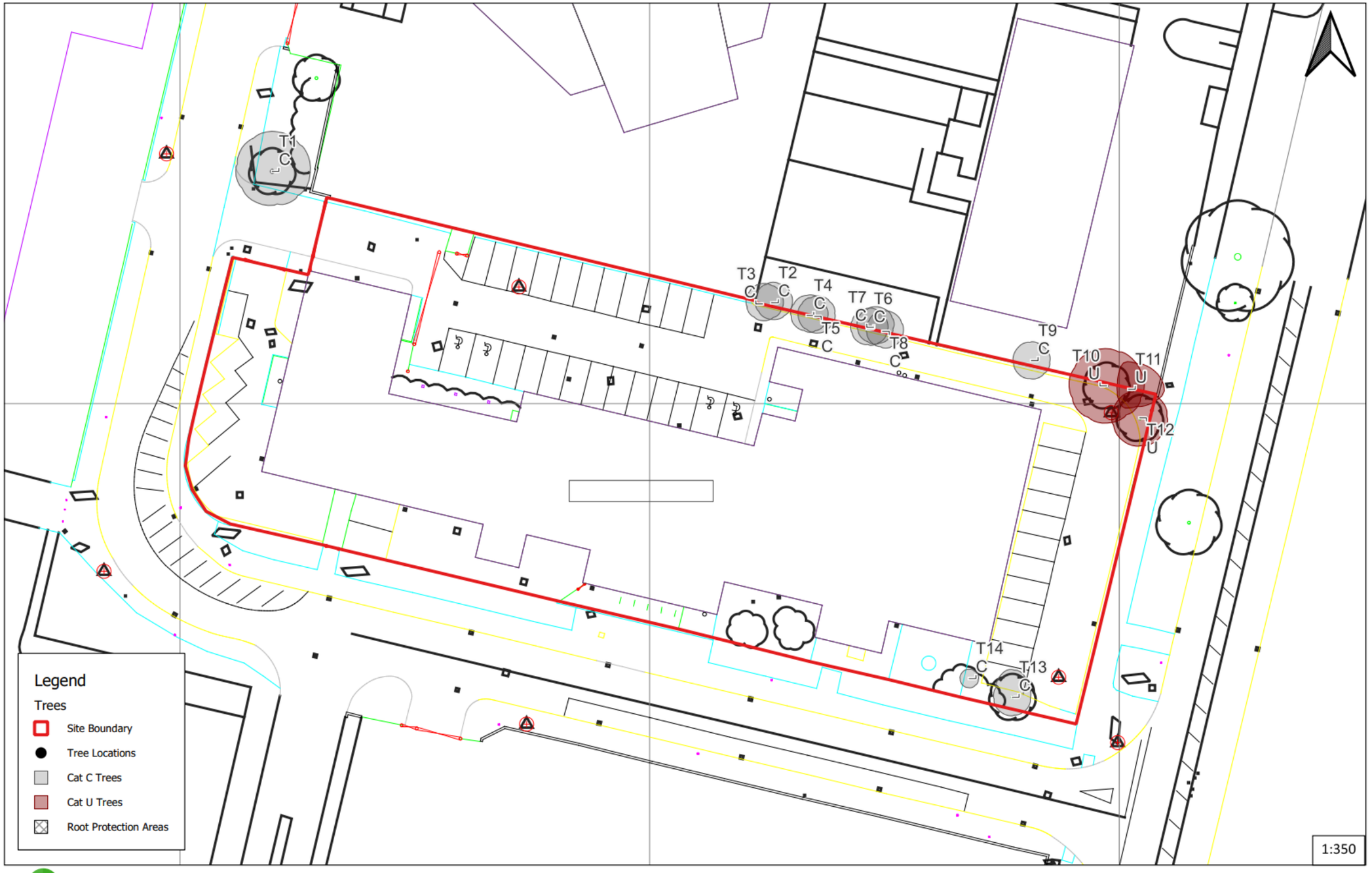
All trees were inspected from ground level using the VTA technique unless specified.

Tree and Tag No Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations Survey Comment	Cat ERC
T11										Estimated Measurements	
Common Ash *Fraxinus excelsior*	13	1	200	N 3 E 4 S 2 W 1	3 3 3 6	Y	A: 18.1 R: 2.4	Fair	C: Good S: Ivy B: Fair	Fell :: Fell and remove stump(s) Ivy covered stem. Unsustainable lean.	U <10 yrs
T12										Estimated Measurements	
Wych Elm *Ulmus glabra*	14	3	266 (Eq)	N 3 E 3 S 3 W 3	3 3 3 3	SM	A: 32 R: 3.19	Dead	C: Poor S: Ivy B: Fair	Fell :: Fell and remove stump(s) Tree is dead	U n/a
T13										Estimated Measurements	
Whitebeam *Sorbus aria*	7	1	190	N 3 E 2 S 2 W 2	2 2 2	M	A: 16.3 R: 2.27	Good	C: Good S: Ivy B: Good	Ivy :: Sever/remove ivy Good condition. Asymmetric canopy weighted into site	C 20 to 40 yrs
T14										Estimated Measurements	
Whitebeam *Sorbus aria*	3	1	100	N 1 E 1 S 1 W 1	2 2 2 2	Y	A: 4.5 R: 1.19	Good	C: Good S: Ivy B: Good	Fell :: Fell and remove stump(s) Tree has shifted after planting. Young tree easily replaced with nursery stock.	C 20 to 40 yrs

Age Classifications:	N	Newly planted	EM	Early Mature	**Condition:**	C	Crown	**Stems:** Ø Diameter
	Y	Young	M	Mature		S	Stem	(Eq) Equivalent stem diameter using BS5837:2012 definition
	SM	Semi-mature	OM	Over Mature		B	Basal area	**ERC:** Estimated Remaining Contributio

All trees were inspected from ground level using the VTA technique unless specified.

9 APPENDIX B - Tree Constraints Plan

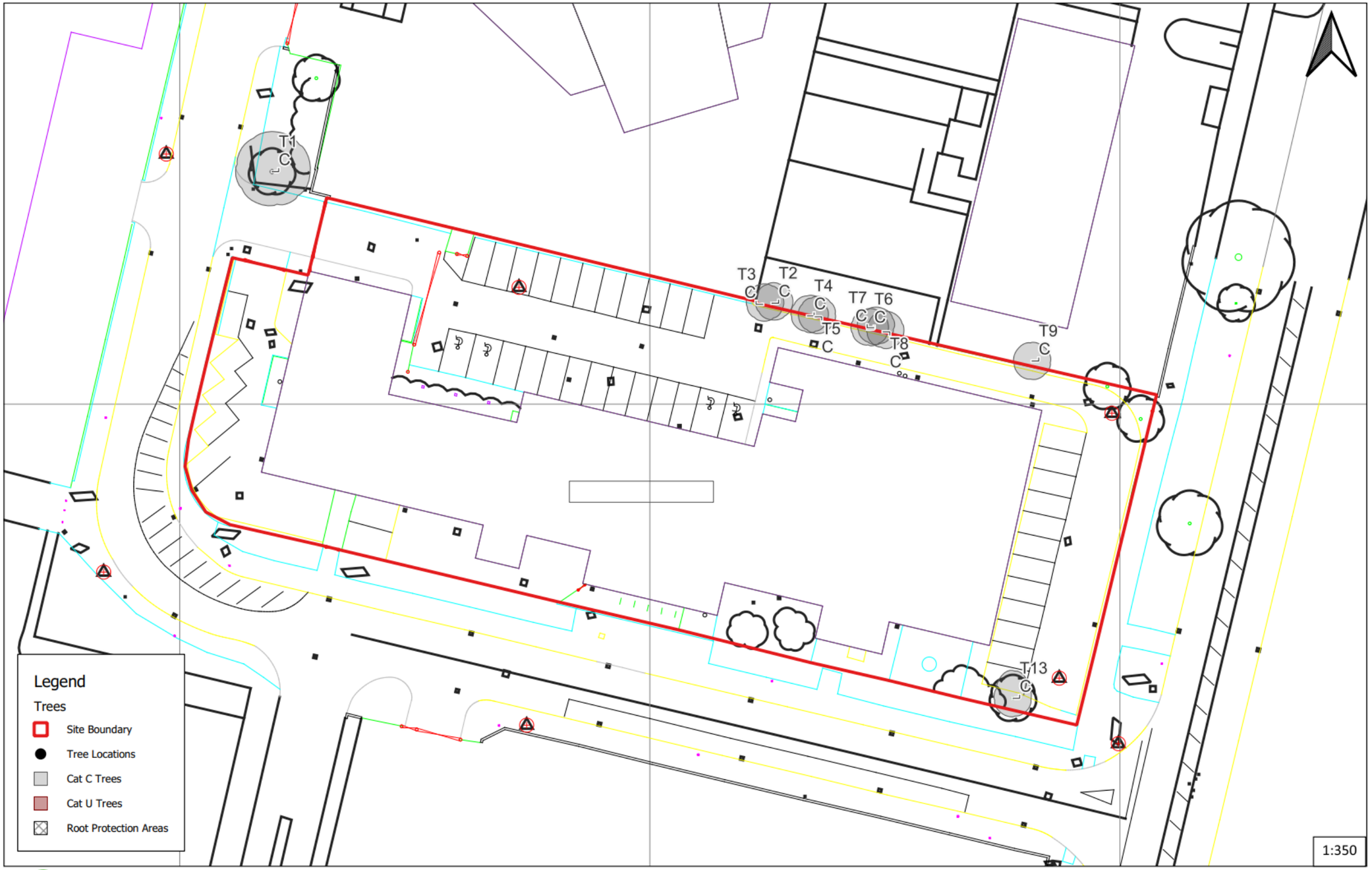


Simon House - Tree Constraints Plan

0 10 20 30 m

Surveyed By: R Rainford
Date Surveyed: 07/02/2023
Map 1 of 1
Simon House BS5837 Survey

10 APPENDIX C - Tree Retention Plan



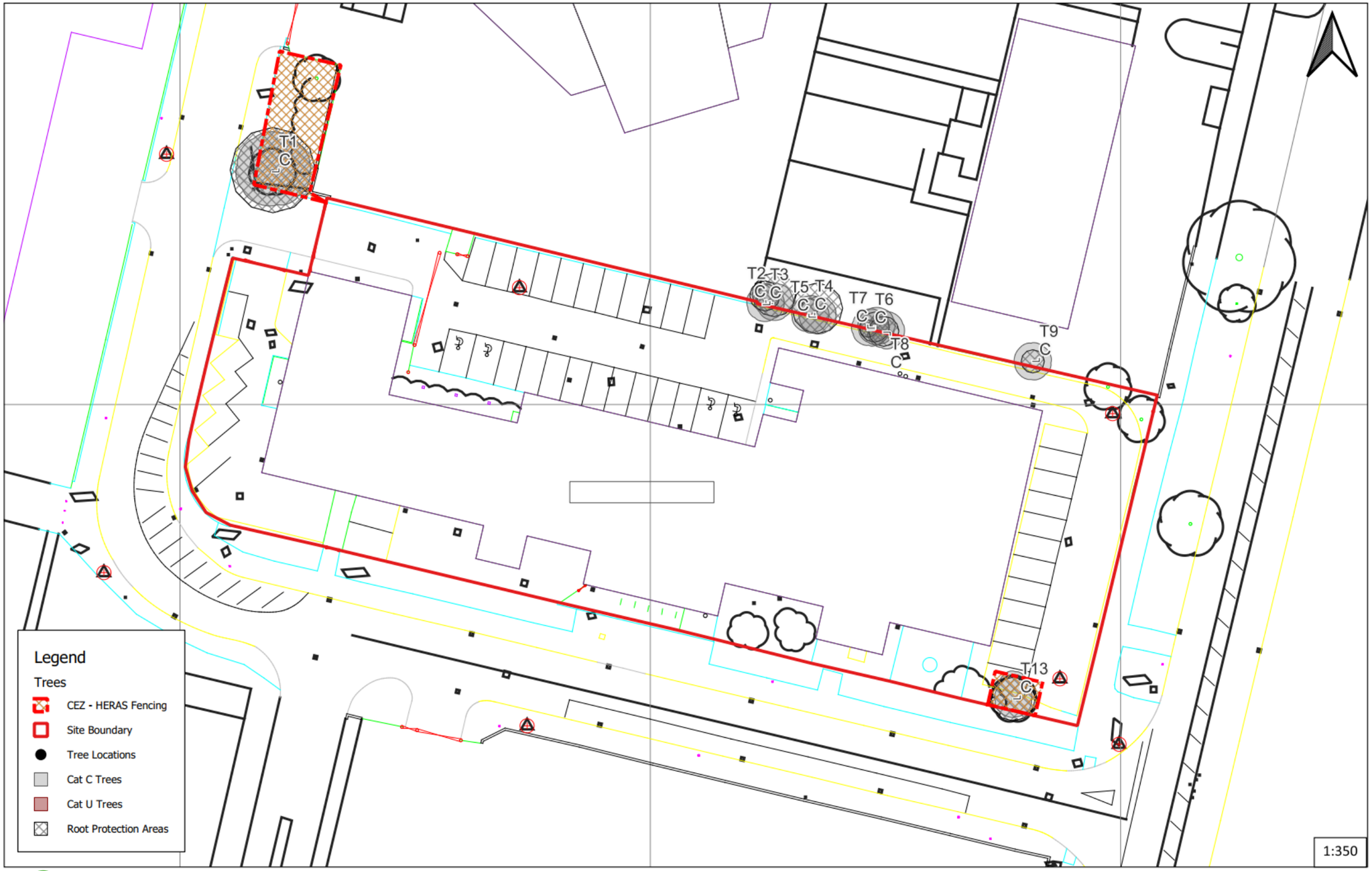
RAINFORDS Tree Care

Simon House - Tree Retention Plan

0 10 20 30 m

Surveyed By: R Rainford
Date Surveyed: 07/02/2023
Map 1 of 1
Simon House BS5837 Survey

11 APPENDIX D - Tree Protection Plan

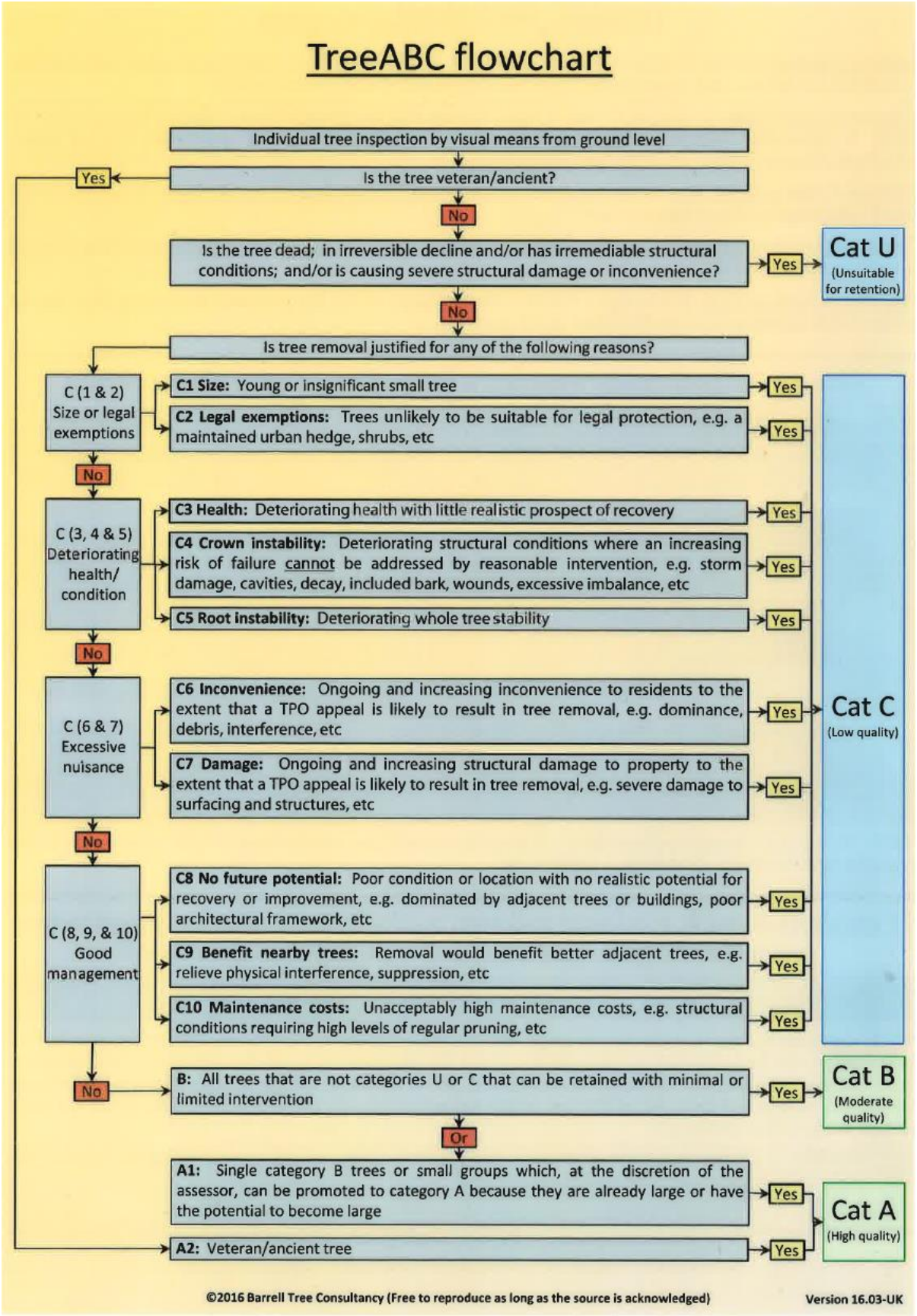


RAINFORDS Tree Care

Simon House - Tree Protection Plan

Surveyed By: R Rainford
Date Surveyed: 07/02/2023
Map 1 of 1
Simon House BS5837 Survey

12 APPENDIX E – Tree Survey Categorisation



13 APPENDIX F - Glossary of Arboricultural Terms

Absorptive roots	Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients
Adaptive growth	In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stress.
Adaptive roots	The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading
Adventitious shoots	Shoots that develop other than from apical, axillary or dormant buds; see also 'epicormic'
Anchorage	The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree
Architecture	In a tree, a term describing the pattern of branching of the crown or root system
Axil	The place where a bud is borne between a leaf and its parent shoot
Bacteria	Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms
Bark	A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem
Basidiomycota (Basidiomycetes)	One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools Most of the principal decay fungi in standing trees are basidiomycetes
Bolling	A term sometimes used to describe pollard heads
Bottle-butt	A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification
Bracing	The use of rods or cables to restrain the movement between parts of a tree
Branch:	- A first order branch arising from a stem - A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches - A third order branch, subordinate to a lateral or primary branch, or stem and usually bearing only twigs
Branch bark ridge	The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem
Branch collar	A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes applied also to the pattern of growth of the cells of the parent stem around the branch base
Brown-rot	A type of wood decay in which cellulose is degraded, while lignin is only modified
Buckling	An irreversible deformation of a structure subjected to a bending load
Buttress zone	The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions
Cambium	Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally
Canker	A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria
Canopy species	Tree species that mature to form a closed woodland canopy
Cleaning out	The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree
Compartmentalization	The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and/or active defences operating at the boundaries of the affected region
Compression strength	The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices
Compressive loading	Mechanical loading which exerts a positive pressure; the opposite to tensile loading
Condition	An indication of the physiological vitality of the tree. Where the term 'condition' is used in a report, it should not be taken as an indication of the stability of the tre
Construction exclusion zone	Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and/or ground protection
Crown/Canopy	The main foliage bearing section of the tree
Crown lifting	The removal of limbs and small branches to a specified height above ground level
Crown thinning	The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure
Crown reduction/shaping	A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape
Crown reduction/thinning	Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood	Dead branch wood, Branch or stem wood bearing no live tissues.
Decurrent	In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent)
Defect	In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment
Delamination	The separation of wood layers along their length, visible as longitudinal splitting
Dieback	The death of parts of a woody plant, starting at shoot-tips or root-tips
Disease	A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms
Distal	In the direction away from the main body of a tree or subject organism (cf. proximal
Dominance	In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also, the tendency of a tree to maintain a taller crown than its neighbours
Dormant bud	An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so
Dysfunction	In woody tissues, the loss of physiological function, especially water conduction, in sapwood
DBH (Diameter at Breast Height)	Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified
Endophytes	Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture
Epicormic shoot	A shoot having developed from a dormant or adventitious bud and not having developed from a first-year shoot
Excrescence	Any abnormal outgrowth on the surface of tree or other organism
Excurrent	In trees, a system of branching in which there is a well-defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)
Felling licence	In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber
Flush-cut	A pruning cut which removes part of the branch bark ridge and or branch-collar
Girdling root	A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue
Guying	A form of artificial support with cables for trees with a temporarily inadequate anchorage
Habit	The overall growth characteristics, shape of the tree and branch structure
Hazard beam	An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting
Heartwood/false-heartwood/ripe wood	Sapwood that has become dysfunctional as part of the natural aging processes
Heave	A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also, the lifting of pavements and other structures by root diameter expansion; also, the lifting of one side of a wind-rocked root-plate
High canopy tree species	Tree species having potential to contribute to the closed canopy of a mature woodland or forest
Incipient failure	In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part
Included bark (ingrown bark)	Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact
Increment borer	A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood
Infection	The establishment of a parasitic micro-organism in the tissues of a tree or other organism
Internode	The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches
Lever arm	A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch
Lignin	The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification
Lions tailing	A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end loading
Loading	A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure
Longitudinal	Along the length (of a stem, root or branch)
Lopping	A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting
Mature Heights (approximate):	

	- Low maturing – less than 8 metres high - Moderately high maturing – 8 – 12 metres high - High maturing – greater than 12 metres high
Microdrill	An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density
Minor deadwood	Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree
Mulch	Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material
Mycelium	The body of a fungus, consisting of branched filaments (hyphae)
Occluding tissues	A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. wound wood)
Occlusion	The process whereby a wound is progressively closed by the formation of new wood and bark around it
Pathogen	A micro-organism which causes disease in another organism
Photosynthesis	The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products
Phytotoxic	Toxic to plants
Pollarding	The removal of the tree canopy, back to the stem or primary branches. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species.
Primary branch	A major branch, generally having a basal diameter greater than 0.25 x stem diameter
Primary root zone	The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2005) Guide for Trees in Relation to Construction
Priority	Works may be prioritised, 1 = high, 5 = low
Probability	A statistical measure of the likelihood that a particular event might occur
Proximal	In the direction towards from the main body of a tree or other living organism (cf. distal)
Pruning	The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs
Radial	In the plane or direction of the radius of a circular object such as a tree stem
Rams-horn	In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section
Rays	Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood
Reactive Growth/Reaction Wood	Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)
Removal of dead wood	Unless otherwise specified, this refers to the removal of all accessible dead, dying and diseased branch wood and broken snags
Removal of major dead wood	The removal of, dead, dying and diseased branch wood above a specified size
Respacing	Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees
Residual wall	The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues
Root-collar	The transitional area between the stem/s and roots
Root-collar examination	Excavation of surfacing and soils around the root-collar to assess the structural integrity of roots and/or stem
Root protection area	An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to Table 2 of BS5837 (2005) and shown in plan form in square metres
Root zone	Area of soils containing absorptive roots of the tree/s described The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree
Sapwood	Living xylem tissues
Secondary branch	A branch, generally having a basal diameter of less than 0.25 x stem diameter
Selective delignification	A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding	In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales
Silvicultural thinning	Removal of selected trees to favour the development of retained specimens to achieve a management objective
Simultaneous white-rot	A kind of wood decay in which lignin and cellulose are degraded at about the same rate
Snag	In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag usually tends to die back to the nearest growing point
Soft-rot	A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole
Spores	Propagules of fungi and many other life-forms; most spores are microscopic and dispersed in air or water
Shrub species	Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees
Sporophore	The spore bearing structure of fungi
Sprouts	Adventitious shoot growth erupting from beneath the bark
Stem/s	The main supporting structure/s, from ground level up to the first major division into branches
Stress	In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature
Stress	In mechanics, the application of a force to an object
Stringy white-rot	The kind of wood decay produced by selective delignification
Storm	A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes
Structural roots	Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree
Subsidence	In relation to soil or structures resting in or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots
Subsidence	In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight
Taper	In stems and branches, the degree of change in girth along a given length
Target canker	A kind of perennial canker, containing concentric rings of dead occluding tissues
Targets	In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it
Topping	In arboriculture, the removal of the crown of a tree, or of a major proportion of it
Torsional stress	Mechanical stress applied by a twisting force
Translocation	In plant physiology, the movement of water and dissolved materials through the body of the plant
Transpiration	The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem cells
Understorey	A layer of vegetation beneath the main canopy of woodland or forest or plants forming this
Understorey tree species	Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland
Vascular wilt	A type of plant disease in which water-conducting cells become dysfunctional
Vessels	Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally, not present in coniferous trees
Veteran tree	A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned
White-rot	A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded
Wind exposure	The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity
Wind pressure	The force exerted by a wind on an object
Windthrow	The blowing over of a tree at its roots
Wound dressing	A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites
Wound wood	Wood with atypical anatomical features, formed near a wound

14 APPENDIX G - Report Caveats

14.1.1.1 Full Legal Disclaimer

This report was prepared as a report of work instructed by the client (as specified). Neither Rainfords Tree Care nor any associated company, nor any of their employees, nor any of their contractors, subcontractors or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the report and its findings.

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Neither Rainfords Tree Care nor any of its associated companies, sub-contractors or suppliers will be responsible or liable for any claim of loss or damage resulting from the third party use of the information contained within this report.

14.1.1.4 Specific - Trees

All tree inspections, unless specified, have been undertaken from ground level and using non-invasive techniques. Comments contained within the report on the condition and risk associated with any tree relate to the condition of the tree at the date and time of survey. Please note that the condition of trees is subject to change. This change may occur from, but is not limited to; biological and non-biological factors as well as mechanical/physical changes to conditions in the proximity of the tree. Any freak weather events may cause physical changes to the structure of the trees beyond expectation or reasonable foreseeability, to which this report cannot be held to account. Trees should be inspected at intervals relative to identified site risks and in accordance with relevant HSE and Central Government guidance. Rainfords Tree Care can provide further information on this matter if required.

Please note no statutory control checks have been undertaken (unless specified). Where tree surgery works have been identified these works assume that planning is approved, no tree works should be undertaken prior to determination of this application without up-to-date confirmation of the Tree Preservation Order/Conservation Area Status of the vegetation.

All works should be undertaken in accordance with the appropriate Duty of Care. This should include, for example, site specific risk assessments and due diligence inspections for the presence of protected species.

Any comment relating to 3rd party trees has been made without full access to the tree(s). Should these trees have any impact on the proposed development we would advise you to instruct us to contact the 3rd party and undertake further inspection work.