

BS 5837 Arboricultural Report

Impact Assessment



at
4 Rothville Place
Hursley Road
Chandlers Ford
SO53 5LS

Dated
4th November 2022



CROWN
Tree Consultancy

Branching out through England and Wales

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1. Introduction

1.1. Instruction

1.1.1. We are instructed by Alan Osborne of 4 Rothville Place to:

- Undertake a Tree Survey to BS 5837 at 4 Rothville Place and assess all trees potentially within influencing distance of proposed development within the site.
- Plot the trees on a Tree Constraints Plan and record the data in a Tree Data Schedule.
- Provide an overview of the site and any management recommendations.
- Determine if any trees are growing within a conservation area or are protected by a tree preservation order.
- Assess the potential impact of the development proposals and provide guidance as to appropriate mitigation measures.
- Produce an Arboricultural Impact Assessment for submission to the local authority.

1.2. Purpose of this Report

- 1.2.1. This report is produced according to the guidance and recommendations within *BS 5837: 2012 - Trees in Relation to Design, Demolition, and Construction*. It is tailored to accompany a planning application. It assesses the impact of all proposed construction works on the tree population. Tree removal, canopy pruning, and the impact upon roots from various groundworks are all considered in detail. Best practice mitigation is specified wherever appropriate.
- 1.2.2. Consideration is also given to the impact of the changed juxtaposition between trees and buildings and how that may influence future tree management.
- 1.2.3. This document should not be used to inform management decisions relating to liability or risk management. Such decisions should be based on a more detailed inspection of the trees than was carried out for this report.

1.3. Survey Details

- 1.3.1. A visual ground-level assessment of all trees was undertaken on the 28th October 2022 by Carl Lothian. No climbed inspections or specialist decay detection were undertaken. Details of how the survey was undertaken can be found in Appendix 1.
- 1.3.2. The tree locations shown on the accompanying plans have been plotted according to measurements taken on site.

1.4. Author

- 1.4.1. This report was compiled by Carl Lothian BSc (Hons) Arboriculture. Details of the author's experience that qualify him to produce such a report are detailed in Appendix 4.

2. Site Overview

2.1. Brief Site Description

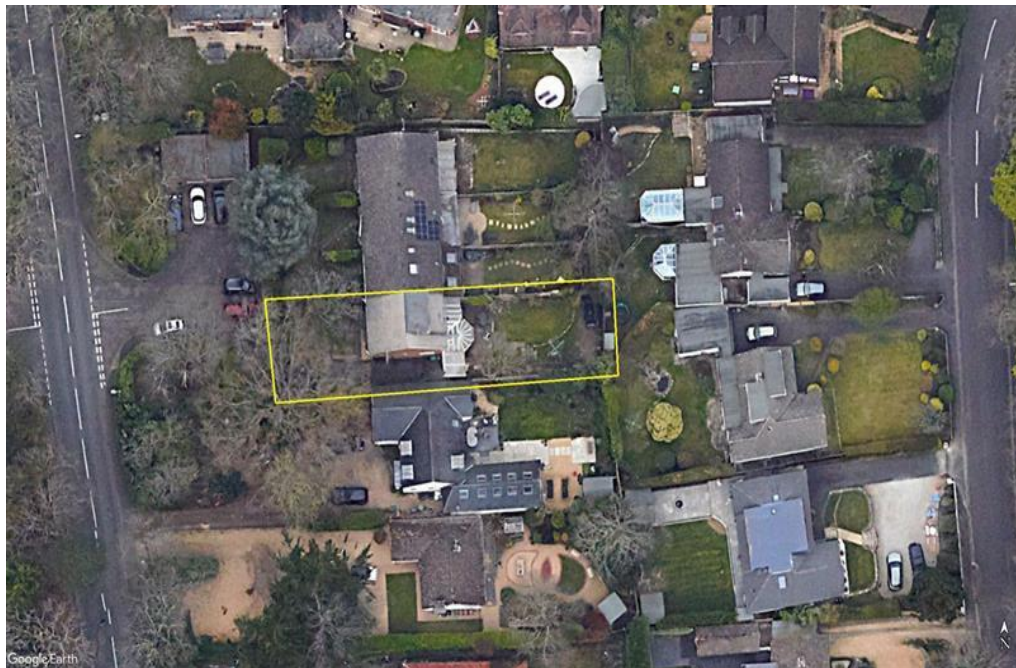
- 2.1.1. Number 4 Rothville Place is a semi-detached residential property with gardens to front and rear.
- 2.1.2. To the front of the property (see Photographs 1 & 2) is a lawn area and asphalt driveway. Situated within the lawn is a Retention Category B sweet chestnut and small Retention Category C Japanese maple. Outside of the red-line boundary are Retention Category B and Retention Category A oak trees. These trees are situated away from any proposed development.
- 2.1.3. The rear garden (see Photographs 3 - 5) is made up of both lawn and paving, with timber fencing around the perimeter. Situated within the garden are several Retention Category C trees.
- 2.1.4. The Tree Constraints Plan and Tree Data Schedule (see Appendix 6) should be referred to for descriptions and locations of all trees.

2.2. Coordinates

- 2.2.1. The site coordinates are 51° 0'13.02"N 1°23'31.60"W, and the altitude is approximately 65m above sea level¹.

2.3. Survey Extent

- 2.3.1. The area indicated below² shows the extent of the site. Our survey included all trees within the curtilage of the property and those adjacent to it.



¹ To access satellite imagery and street views of the site these co-ordinates may be entered into: <http://maps.google.co.uk/>

² Image taken from Google Earth and may not be current

3. Vegetation Overview (independent of proposals)

This section summarises all the recommendations within the Tree Data Schedule regardless of whether trees are to be retained, felled or pruned to facilitate the proposed development. It does not specify works that may be required to facilitate the development proposals.

3.1. Preliminary Management Recommendations

- 3.1.1. T4 is considered to be in an acceptable condition at present but has defects which require monitoring.
- 3.1.2. All other trees were deemed to be in satisfactory condition.

3.2. Future Inspections

- 3.2.1. The table below suggests a schedule of future inspections based on the condition and location of each tree:

Inspection Frequency (years)	Tree Number
0.5	None
1	None
1.5	T5
3	All other trees surveyed

- 3.2.2. The trees should be inspected sooner if there is a noticeable decline in their condition or following extreme weather events.

3.3. Species Present – Additional Information

- 3.3.1. The table below contains general information about the tree species (rather than the actual tree specimens) included in the survey. Its purpose is to assist readers who are unfamiliar with the characteristics of the various species.

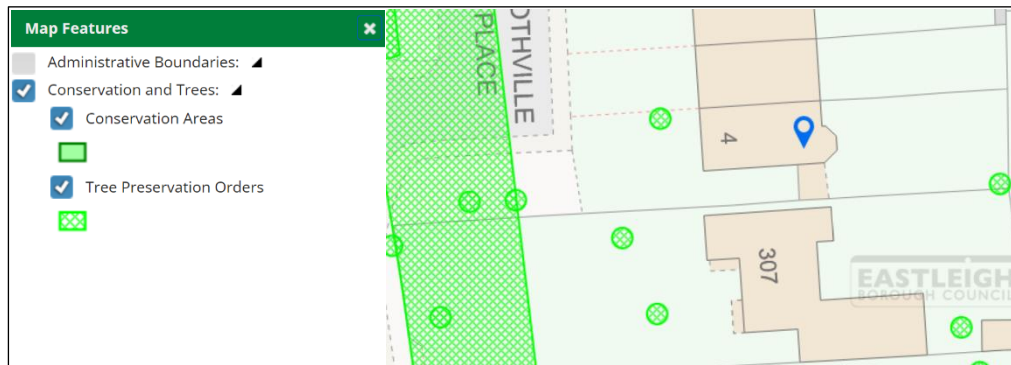
Species	Typical Height at Maturity (m)	Typical Canopy Spread at Maturity (m)	General Notes
Ash	25	18	Large deciduous tree with a straight bole and a high open domed crown. Native to Britain and commonly found in woodlands and adjacent roadsides. Not suitable for small gardens. Easily identified by its oppositely arranged pinnate leaves and black buds. Branches are relatively brittle resulting in a fairly high incidence of small branch failure in windy conditions. Visit also http://www.pfaf.org/user/Plant.aspx?LatinName=Fraxinus+excelsior for more info.
Cherry	8	10	Many cultivars available, bred for their abundance of spring flowers, edible cherries or ornamental bark (e.g. Tibetan Cherry). Usually white or pink flowering, often in very early spring. Usually with a single bole to around 2.5m and multi-stemmed thereafter. Most varieties have excellent autumn colour.
Holly	16	12	Evergreen tree native across Western Europe. Many cultivars available, often with variegated leaves. Females produce bright red berries. Good wildlife value. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Ilex+aquifolium for more info.
Oak	22	18	Deciduous, long lived tree native and common throughout Europe with very durable timber. Excellent habitat tree - provides food and shelter for thousands of native species. Can be very attractive as a mature open grown specimen though not particularly ornamental, having no autumn colour or showy flowers. Responds well to pruning. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Quercus+robur for more info.
Portuguese Laurel	6	6	Evergreen tree/shrub native to Portugal and Spain. Good hedging species.
Silver Birch	16	10	Deciduous native tree. A pioneer species requiring good lighting levels that will readily colonise open ground. Attractive white bark and graceful, delicate form make this a popular garden tree. Visit also http://www.pfaf.org/user/Plant.aspx?LatinName=Betula+pendula
Sweet Chestnut	30	20	Deciduous tree native to the Mediterranean. Many large unmanaged old coppices can be found across Southern Britain. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Castanea+sativa for more info.

The figures quoted regarding typical height and canopy spread should be treated as approximate. Actual heights and spreads vary according to several environmental factors such as soil conditions, climate, and the presence of competing vegetation. The figures quoted are not the maximum dimensions that the species may attain.

4. Statutory Protection – TPOs and Conservation Area Status

Before undertaking most works on trees protected by a tree preservation order³, consent needs to be formally obtained from the local authority. Where trees are in a conservation area (but not protected by a TPO), works are generally not permitted without first giving the local authority six weeks' notice of intention⁴. Unauthorised works to protected trees, or trees in a conservation area, may result in criminal prosecution and a fine. Where works are required to implement a fully approved development, no such consent or notice is required.

4.1. Desktop Research



4.1.1. On 14th October 2022, we accessed the local authority website. A screenshot is produced below:

4.1.2. This indicates that:

- The site is not within a conservation area.
- There are tree preservation orders affecting trees within the site. Trees affected are believed to be T3 and T7 (our numbering system).
- There are tree preservation orders affecting trees immediately adjacent to the site. T2 (our numbering system) is believed to be affected.

4.2. Felling Licences

4.2.1. Felling licences issued by the Forestry Commission are sometimes required before removing trees. However, these licenses are aimed toward woodland and forestry management. Felling licences are NOT required for any of the following:

- Lopping, topping or pollarding.
- Removal of small trees (stem diameter less than 8cm) or fruit trees.
- Works to any trees growing within domestic gardens, orchards, or the Inner London boroughs.
- Operations involving less than five cubic meters of timber in any quarter year.
- Thinning and understorey clearing operations.
- Dangerous trees, nuisance trees, some diseased trees.
- Where removal is required to enable a fully approved development.

4.2.2. More detailed guidance can be found at <https://www.gov.uk/government/publications/tree-felling-getting-permission>

4.2.3. Hence a felling licence is **not** required relating to the trees surveyed.

³ <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

⁴ During this time, the local authority may elect to create a tree preservation order or to inform the applicant that they have no objection to the proposed works. If the local authority does not respond within six weeks, then the intended work may be undertaken. Note: the local authority cannot refuse consent for works to trees within a conservation area; they may only create a tree preservation order if they wish to have further control over what works are undertaken.

5. Arboricultural Impact Assessment

5.1. Overview

5.1.1. It is proposed to demolish the existing conservatory and construct an extension to the rear of the building, as indicated on the drawings in Appendix 6. The existing layout is indicated in black, the buildings to be demolished are indicated in blue, the footprint of the proposed layout is indicated in green.

5.1.2. The table below summarises the potential impact on trees due to various activities.

Activity	Trees Potentially Affected
Tree Removal: Retention Category A	None
Tree Removal: Retention Category B	None
Tree Removal: Retention Category C	T5
Tree Removal: Retention Category U	T4
Tree Pruning	None
RPA: Extension Foundations	None
RPA: Underground Services	None Anticipated
RPA: Soil Compaction	Trees adjacent the construction area (preventable by installing tree protection measures)

5.1.1. Other potentially damaging activities often associated with construction sites include demolition or the careless use of plant machinery, hazardous materials, or fires. All of the above potential impacts are considered in detail throughout this Section.

5.2. Tree Removal

5.2.1. All trees to be removed are indicated on the Impact Assessment Plan and are listed below:

5.2.2. **Retention Category A:** It is proposed to retain all Retention Category A trees

5.2.3. **Retention Category B:** It is proposed to retain all Retention Category B trees.

5.2.4. **Retention Category C:** It is proposed to remove T5.

This tree is located within a rear garden and is not visible from public vantage points. It has limited landscape value and a low amenity value. The tree also has symptoms of ash dieback and several included bark unions where it becomes multiple stemmed. Furthermore, the poor juxtaposition between it and both the existing and proposed buildings would eventually lead to pressure for the tree to be overly pruned or removed. Its removal shall not have a significant impact on the visual amenity of the locality, so it is not considered to be a material planning consideration.

5.2.5. **Retention Category U:** It is proposed to remove T4.

T4 is a small tree with low amenity value and in very poor structural condition. Its low useful life expectancy dictates that it is not a material planning consideration.

5.2.6. None of the trees to be removed are protected by a tree preservation order or considered worthy of special protection.

5.2.7. Details specific to each tree can also be found in the Tree Data Schedule.

5.3. Mitigation Planting

- 5.3.1. To maintain levels of biodiversity, it is proposed to plant a new tree towards the back of the rear garden to mitigate the loss of the ash tree.

5.4. Impact on Tree Canopies

- 5.4.1. The retained tree canopies are sufficiently far from proposed building works and high over access routes such that they should not be impacted by construction activity. Consequently, no pruning works are required to enable the build.

5.5. Impact on Tree Roots

Foundations:

- 5.5.1. No foundations are proposed within the Root Protection Area of any retained tree. Consequently, no restrictions on foundation design or implementation are considered necessary from an arboricultural perspective.

New Surfaces:

- 5.5.2. No new surfaces are proposed within the Root Protection Areas of any trees.

Underground Services:

- 5.5.3. The proposal requires no underground services to be excavated through any Root Protection Areas.

Changes in Ground Levels:

- 5.5.4. No changes to ground levels are proposed over Root Protection Areas.

Soil Compaction:

- 5.5.5. The majority of tree roots lie within the upper soil horizons. This is because the availability of oxygen decreases with depth, and roots need to breathe to stay alive. In addition, nutrients are more readily available in the form of organic matter close to the soil surface.
- 5.5.6. Healthy soils contain about 25% air space between solid particles. Increased loading of the soil caused by construction activity causes air to be squeezed out as the soil becomes compacted, preventing roots from breathing. Even an increase in pedestrian activity may cause some soil compaction.
- 5.5.7. It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase.



5.6. Demolition Activities

- 5.6.1. To avoid inadvertent damage to roots, branches or stems, care shall need to be taken when demolishing or removing surfaces close to T9. The use of a mechanical excavator shall be acceptable so long as it is carefully marshalled to avoid damaging the tree.

5.7. Waste and Materials Storage

- 5.7.1. All hazardous materials (including cement and petrochemical products) will need to be controlled according to COSHH regulations in order to ensure there is no detrimental impact on tree health. Provision shall need to be made to ensure that cement spillage avoids all Root Protection Areas.

- 5.7.2. Areas designated for the storage of building materials and waste products will need to be approved by the local authority. Root Protection Areas should be avoided. Where this is not possible, suitable ground protection measures will need to be installed.

5.8. Cabins and Site Facilities

- 5.8.1. Consideration should be given to the location of any site welfare facilities in terms of potential impact on trees. Where it is proposed to install cabins or site facilities in Root Protection Areas, the project arborist should be consulted, and approval obtained from the local authority.
- 5.8.2. There is limited room for the siting of cabins and storage of materials / spoil during the construction phase so the logistics of the development shall need to be well organised to ensure that there is adequate space outside of the Tree Protection Zones for construction activity.

5.9. Boundary Treatments

- 5.9.1. No changes are proposed to the existing boundary features that might impact upon trees.

5.10. Impact of Retained Trees on the Development

- 5.10.1. The proposal does not significantly alter the current juxtaposition between buildings and retained trees, so there shall be no post-development pressures to overly-prune or remove them
- 5.10.2. The foundations and any new surfaces should be designed to accommodate all potential impacts due to future tree rooting activity. These include potential vegetation related subsidence, vegetation related heave, and lifting of surfaces / light structures due to direct root pressure.

5.11. Summary

- 5.11.1. Only low-quality trees are to be removed to enable the build. No Retention Category A trees, Retention Category B trees, or trees of landscape value are to be removed.
- 5.11.2. A new tree is to be planted to mitigate against the removal of T5
- 5.11.3. No pruning works are required to enable the proposal
- 5.11.4. No foundations are proposed within Root Protection Areas.
- 5.11.5. No new surfacing is proposed in RPAs.
- 5.11.6. The proposal does not significantly alter the current juxtaposition between the house and the retained trees, so there shall be no post-development pressures to overly-prune or remove them.

5.12. Arboricultural Method Statement

- 5.12.1. BS 5837 recommends that a detailed methodology is agreed in the form of an Arboricultural Method Statement, which shall ensure that trees are well protected during the construction phase. This should detail all tree protection measures and limitations on construction activity. All the issues raised within this Impact Assessment should be covered by the Method Statement.

6. Photographs

Refer also to the Tree Constraints Plan for photo locations

Photo 1.



Photo 2.



Photo 3.



Photo 4.



Photo 5.



Appendix 1: BS 5837: 2012 – Guidance Notes

This Standard prescribes the principles to be applied to achieve a satisfactory juxtaposition of trees and structures. It sets out to assist those concerned with trees in relation to design, demolition and construction to form balanced judgements.

It acknowledges the positive contribution trees may offer to a site, as well as the negative aspects of retaining inappropriate trees. It addresses the negative impacts that construction activity may have upon trees and offers mitigation strategies to minimise these impacts.

The Standard suggests a three stage approach to ensure best practice is followed when developing close to trees:

A1.1 Stage 1: Survey Details and Notes

A ground level visual survey was undertaken. No climbed inspections or specialist decay detection were undertaken. Only trees with a stem diameter over 75mm, which lie within the site boundary or relatively close to it, were included.

Where applicable, trees with significant defects have been highlighted and appropriate remedial works have been recommended. However, this report should not be seen as a substitute for a full *Safety Survey* or *Management Plan* which are specifically designed to minimise risk and liability associated with responsibility for trees.

Wherever practicable dimensions were obtained using diameter tapes, logger's tapes, distometers and clinometers. Where obstacles prevent accurate measurement, dimensions are estimated. Trees on privately owned third party are surveyed from the best available vantage point and observations relating to the condition of these trees should be treated accordingly. All height measurements should be regarded as approximate.

Data is recorded for each tree and is presented in a Tree Data Schedule. Each tree is allocated a **Retention Category** according to its size, amenity value, condition and safe useful life expectancy. The categories are allocated independently of development proposals. Our interpretation of the Retention Categories is explained below:

A1.1.1 Retention Categories

A Category: Trees of high quality and amenity value. Usually, mature trees with a significant life expectancy which would enhance any development. Retention of these trees is strongly encouraged.

B Category: Trees of moderate quality and amenity value. Usually these are maturing trees or younger trees with exceptional form. Retention of these trees is desirable though the removal of occasional specimens may be acceptable.

C Category: Trees of low quality or small specimens with a relatively low amenity value. These trees are not considered to be a material planning constraint and their removal will generally be seen as acceptable in order to facilitate development.

U Category: Trees of such low quality that their removal is recommended regardless of development proposals.

Occasionally trees are borderline and do not fall neatly into one of the categories A, B or C. In such cases we apply a superscript (+/-) such that:

C⁺ Indicates borderline C/B, though Category C is deemed to be most appropriate.

B⁻ Indicates borderline C/B, though Category B is deemed to be most appropriate.

The British Standard suggests that each of the A, B and C categories may be further subdivided (A1, A2, A3, B1, B2, B3 etc) such that subcategory 1 denotes mainly arboricultural values, subcategory 2 denotes mainly landscape values and subcategory 3 denotes mainly cultural values (including conservation). Multiple subcategories may be used.

Our experience suggests that these subdivisions lack clarity and can be confusing. Within this report subcategories are **not** denoted. Where appropriate, the use of phrases such as '*Part of a formal group*', or '*Has a high ecological value*', or '*Offers good screening to the site*' are incorporated into the observation section of the Tree Data Schedule. We believe this conveys all relevant landscape and cultural information without any confusion.

Tree Constraints Plan (TCP). This indicates the position, crown spread, Retention Category and Root Protection Area of each tree. It is used to inform where development may proceed without causing damage to trees.

Root Protection Area (RPA). This is the area around each tree likely to contain the majority of roots. It should ideally remain undisturbed to avoid a detrimental impact on tree health. For single stemmed trees It is calculated according to the formula “radius of RPA” = “12 x stem diameter”. Where a tree has more than one stem, the equivalent-single-stem diameter is usually recorded. This is calculated by adding the squares of the stems and then finding the square root of this total. The radius of the Root Protection Area is then calculated by multiplying the equivalent-stem-diameter by 12.

Shade Constraints. The previous Standard (BS 5837 2005) suggested that shade constraints should be indicated on the TCP. These are denoted as a circle-segment drawn northwest to due east with a radius equal to the height of the tree. These do not represent the actual shade pattern which varies through the seasons. Rather, they indicate the area most shaded by the tree throughout the course of the year. Ideally habitable room windows should be located outside of these shade constraints. Where we consider it appropriate, we will include shade constraints information on our Impact Assessment Plan or Proposed Layout Plan.

A1.2 Stage 2: Arboricultural Impact Assessment

After the initial survey and the production of the Tree Constraints Plan, arborists and designers are encouraged to work together to establish a design proposal with minimal impact on the high quality trees. An assessment should be made of all possible impacts including the impact that the trees may have upon the proposal. The arborist may recommend mitigation strategies to minimise these impacts and help achieve a more harmonious juxtaposition between buildings and trees.

A1.3 Stage 3: Arboricultural Method Statement

This type of report specifies the measures necessary to protect trees against damage from construction activity. The Method Statement should be written in a manner that it may be conditioned and enforced by the local authority upon granting of planning permission. The site manager should be familiar with all aspects of the Method Statement and should ensure that all persons working on the site are aware of those aspects which appertain to their work. This includes service installation engineers and operators of plant machinery.

Appendix 2: Survey Methodology

Ground level visual surveys are carried out using the *Visual Tree Assessment* technique described by Mattheck and Broeler (1994) and endorsed by the Arboricultural Association (LANTRA Professional Tree Inspection course, 2007).

Structural condition is assessed by inspecting the stem and scaffold branches from all angles looking for weak branch junctions or symptoms of decay. Particular attention is paid to the stem-base. Cavities are explored using a metal probe in order to assess the extent of any decay. If this is not possible further inspection is recommended in the form of a climbed inspection or using specialist decay detection equipment.

The physiological condition is assessed by inspecting the stem, branches and foliage for symptoms of disease. The overall vigour of the tree is also taken into account.

Where significant defects are observed, recommendations are made according to a scale of priority in order to reduce the likelihood of structural failure. The position of the tree and its potential targets are taken into account.

Measurements are obtained using a diameter tape, clinometer, distometer and loggers tape. Where this is not practical measurements are estimated.

Some trees are surveyed as groups, though this is usually avoided close to areas likely to be developed.

Finally, a *Retention Category* is allocated as described in Appendix 1.1.1.

Appendix 3: Explanation of Tree Data & Glossary

This section explains the terms used in the **Tree Data Schedule** (see Section 3 and Appendix 6).

A2.1 General Observations

Numbering System:	Each item of vegetation has its own unique number prefixed by a letter such that T1=Tree 1, G2=Group 2, H3=Hedge 3 and W4=Woodland 4, S5=Shrub 5.
Age Categories:	
Young	Usually less than 10 years old.
Semi-Mature	Significant future growth to be expected, both in height and crown spread (typically below 30% of life expectancy).
Early-Mature	Full height almost attained. Significant growth may be expected in terms of crown spread (typically 30-60% of life expectancy).
Mature	Full height attained. Crown spread will increase but growth increments will be slight (typically 60% or more of life expectancy).
Veteran	A level of maturity whereby significant management may be required in order to keep the tree in a safe condition.
Over Mature	As for veteran except management is not considered worthwhile.
Species:	Common names and Latin names are given.
Height:	Measured from ground level to the top of the crown.
Stem Diameter:	Taken at 1.5m above ground level where possible. On multi-stemmed trees this measurement may be taken at ground level, though usually an indication of the number of stems and average diameter is given, e.g. 3 x 30cm.
Crown Height:	Measured from ground level to the height at which the main crown begins. Where the crown is unbalanced it is measured on the side deemed to be most relevant. This is usually the side facing the area of anticipated development.
Tree Diagram:	This scaled drawing is computer generated based on measurements taken for stem diameter, crown height and spread, and overall height. It is designed to help the reader rapidly assess the data. It is not an accurate representation of the form of the tree.
Crown Spread:	Measured N, E, S & W, taken from the centre of the stem and usually rounded up to the nearest metre.
Observations:	If a tree's position is considered to be relevant it will be commented upon (e.g. overhanging a children's play area). Tree form and pruning history are also recorded along with an account of any significant defects. Defects and descriptive terms are dealt with in more detail at the end of this section.
Recommendations:	Usually based on any defects observed and intended to ensure that the tree is in an acceptable condition.
Priority Scale:	Depending upon the threat posed by the tree, and the likelihood of failure, recommendations should be carried out according to the following priority scale:
Urgent	To be carried out as soon as possible.
Very High	To be carried out within 1 month.
High	To be carried out within 3 months.
Moderate	To be carried out within 1 year.
Low	To be carried out within 3 years.
Inspection Frequency:	An interval of 6 months, 1 year, 1.5 years or 3 years is allocated before the next inspection is due. Wherever practical, consideration should be given to seasonal changes so that deciduous trees are not always surveyed in winter when they have no leaves, or in summer when leaves may obscure branches within the upper crown.
Vigour:	An indication of growth rate and the tree's ability to cope with stresses:
High	Having above average vigour.
Moderate	Having average vigour.
Low	Having below average vigour.
Very Low	Tree is struggling to survive and may be dying.
Physiological Condition:	
Good	Healthy and with no symptoms of significant disease.
Fair	Disease present or vigour is impaired.
Poor	Significant disease present or vigour is extremely low.
Very Poor	Tree is dying.
Structural Condition:	
Good	Having no significant structural defects.
Fair	Some defects observed though no high priority works are required.
Poor	Significant defects found. Tree requires monitoring or remedial works.
Very Poor	Major defects which will usually require significant remedial works or tree removal.
Amenity Value:	
Very High	Exceptional specimen, observable by a large number of people.
High	Attractive specimen, observable by a significant number of people.
Moderate	One of the above factors is not applicable.
Low	Unattractive specimen or largely hidden from view.
Life Expectancy:	The estimated number of years before the tree may require removal. Classified as (<10), (10 – 20), (20 – 40), or (40+).
Retention Category:	These are explained in detail in Appendix 1.

A2.2 Evaluation of Defects

Cavities, wounds, deadwood etc are all evaluated as follows:

Major	Such that structural integrity is, or will become, compromised and the tree is, or will inevitably become, hazardous.
Significant	A defect that may over time become a major defect, though not necessarily so. This will depend on the vigour of the tree and its ability to deal with decay etc.
Minor	A defect that is unlikely to develop into a major defect.

Appendix 4: Author's Qualifications

Qualifications & Experience of Carl Lothian – BSc (Hons) (Arboriculture).

Carl began his career undertaking a Level 3 extended diploma in arboriculture and forestry at Merrist Wood College in 2015. Upon completion of his diploma, Carl worked with several tree surgery firms completing a range of arboricultural works. In 2018 Carl began his BSc (Hons) in arboriculture and urban forestry, graduating with a first-class degree and attaining the Institute of Chartered Foresters student of the year award.

After graduating, Carl worked as a TreeRadar technician where he carried out tree root and decay surveys with specialist ground-penetrating radar equipment. During this time Carl was fortunate enough to work at prestigious sites, such as the Palace of Westminster and the National Maritime Museum.

Whilst working at Crown, Carl has undertaken a range of tree surveys and written reports relating to development, safety, subsidence, and decay detection. Carl is a professional member of the Consulting Arborist Society and an associate member of the Institute of Chartered Foresters.

Appendix 5: Further Information

Building Near Trees – General

National Joint Utilities Group publication # 10 (1995), *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees*. Downloadable at www.njug.demon.co.uk/pdf/NJUG%20Publication10.pdf

NHBC Standards Chapter 4.2., *Trees and Buildings*.

Horticulture LINK project 212. (University of Cambridge, 2004), *Controlling Water Use of Trees to Alleviate Subsidence Risk*.

Tree Planting and aftercare

See www.trees.org.uk/leaflets.php# for downloadable leaflets on selecting a garden tree, planting, aftercare and veteran tree management.

British Standards

BS 5837: 2012. *Trees in Relation to Design, Demolition and Construction – Recommendations*.

Bs 3998: 2010. *Recommendations for Tree Work*.

BS 3936: 1992. *Nursery Stock. Part 1: Specification for Trees and Shrubs*.

BS 3936: 1992. *Nursery Stock. Part 10: Specification for Groundcover Plants*.

BS 4043: 1989. *Transplanting Root-balled Trees*.

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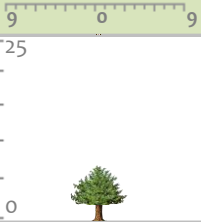
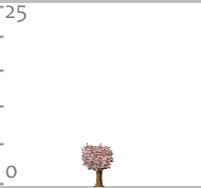
Tree Specific Websites

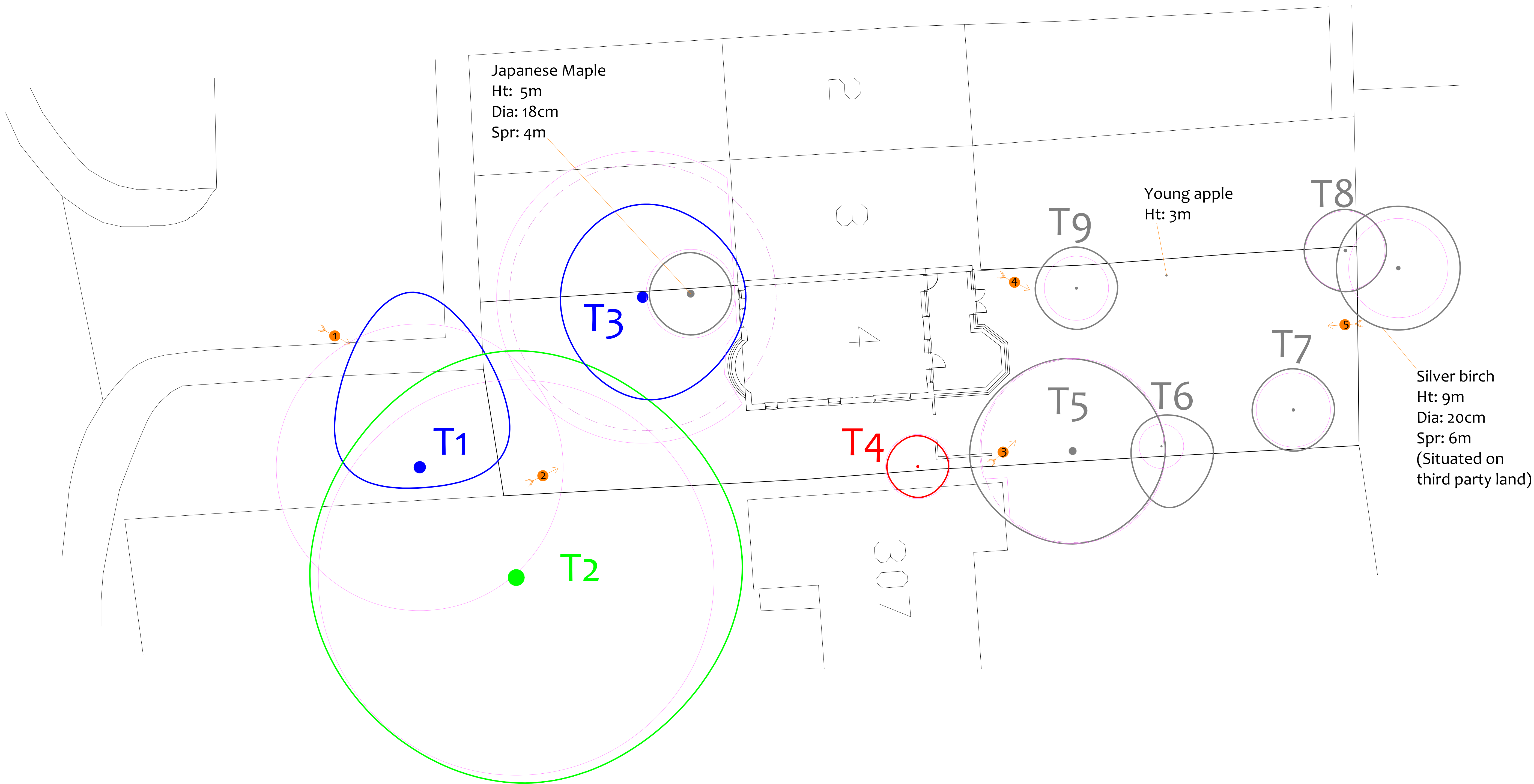
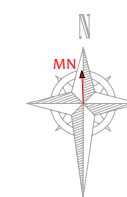
www.crowntrees.co.uk	Crown Consultants site containing useful information
www.trees.org.uk	Arboricultural Association
www.rfs.co.uk	Royal Forestry Society of England, Wales and N. Ireland
www.treehelp.info	The Tree Advice Trust
www.woodland-trust.org.uk	The Woodland Trust
www.treecouncil.org.uk	The Tree Council

Appendix 6: Tree Data Schedule and Drawings

The Tree Data Schedule and any drawings accompanying this report follow this page. They are also provided as separate documents for ease of printing and screen viewing.

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations (Independent of any development proposals)		Vigour	Amenity Value
								Priority	Inspect Freq (yrs)	Physiological Condition	Life Expectancy (yrs)
										Structural Condition	Retention Category
T1	Early-Mature Oak Quercus robur.	16	3	58	8.5 4 4.5 1		Form: Single stemmed and vertical with an unbalanced crown. History: No evidence of significant pruning. Defects: Occasional significant deadwood to 6cm diameter.	No action required.		Moderate Good Good	Moderate 40+ B
	n/a		3								
T2	Mature Oak Quercus robur.	16	5.5	80	11 10 11 10		Position: Situated on third party land. Form: Single stemmed and vertical with a balanced crown. History: Occasional pruning wounds due to crown reduction. Defects: No significant defects observed. Other: Limited inspection, dimensions estimated.	No action required.		Moderate Good Fair	High 40+ A
	n/a		3								
T3	Early-Mature Sweet Chestnut Castanea sativa.	11	3	54	4.5 4 5 5		Form: Single stemmed with a slight lean and a slightly unbalanced crown. History: Occasional pruning wounds due to crown lifting. Defects: No significant defects observed.	No action required.		Moderate Good Fair	Moderate 40+ B
	n/a		3								
T4	Semi-Mature Portuguese Laurel Prunus lusitanica.	3.5	1.5	13	1.5 1.5 1.5 1.5		Form: Single stemmed and vertical with a compact crown. History: Managed by cyclical pruning. Defects: Large failed stem decaying (acceptable condition at present), decay to living stem.	Monitor.		Moderate Good Very Poor	Low <10 U
	Low		3								
T5	Semi-Mature Ash Fraxinus excelsior.	11	2.5	37	4.5 5 4.5 4.5		Form: Triple-stemmed at 1m with a balanced crown. History: Occasional pruning wounds due to crown lifting. Defects: Symptoms of Chalara Ash Dieback are present (5% of canopy affected). Included bark and tight unions at stem junction. Other: Recorded stem diameter is equivalent for 3 stems (19cm, 20cm, 24cm).	No action required.		Moderate Fair Good	Low 10-20 C
	n/a		1.5								
T6	Young Silver Birch Betula pendula.	6	1.5	9	1.5 1.5 2.5 3		Form: Single stemmed with a slight lean and a weeping habit. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate Good Fair	Low 40+ C
	n/a		3								
T7	Semi-Mature Silver Birch Betula pendula.	13	2	15	2 2 2 2		Form: Single stemmed and vertical with a weeping habit. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate Good Good	Low 40+ C
	n/a		3								

Reference G = Group H = Hedge	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) N W E S	Scaled Tree Diagram (m)	Notes	Recommendations (Independent of any development proposals)		Vigour	Amenity Value
										Physiological Condition	Life Expectancy (yrs)
								Priority	Inspect Freq (yrs)	Structural Condition	Retention Category
T8	Semi-Mature Holly Ilex aquifolium.	6	1.5	16	2 2 2		Form: Single stemmed with a slight lean and a balanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate Good Fair	Low 40+ C
								n/a	3		
T9	Semi-Mature Cherry Prunus sp.	5	2.5	13	2 2 2		Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. Defects: No significant defects observed.	No action required.		Moderate Good Good	Low 20-40 C
								n/a	3		



Drawing No:	11300 / TCP Rev: 1
Title:	Tree Constraints Plan (Existing Layout)
Site:	4 Rothville Place SO53 SL5
Scale:	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 1100
Paper Size:	A1



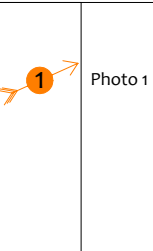
Tree Retention Categories	
Stems & canopies shown	
	Category A tree
	Category B tree
	Category C tree
	Category U tree

	Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.
	Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees.
	Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
	Trees unsuitable for retention due to their very poor condition.

Tree Constraints Plan

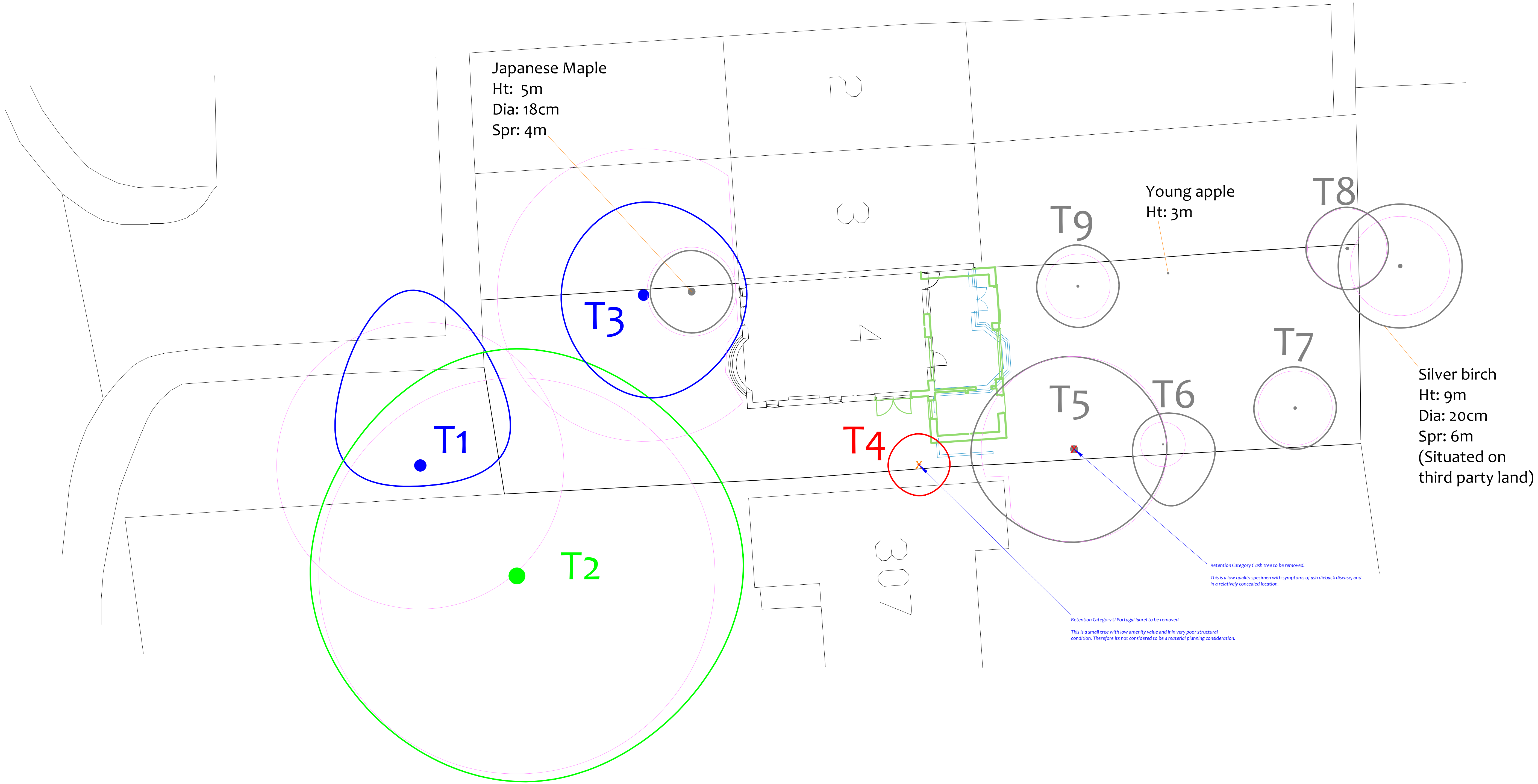
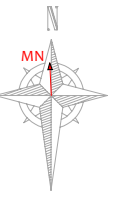
Status: Final

	BS 5837 Root Protection Area (radius = 1xstem diameter)
	Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.
	Root Protection Area having been amended to account for site conditions
T1 = Tree No 1	G2 = Group No 2 H3 = Hedge No 3



MN = Measured North:
Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N-S or E-W.

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m ²	Square (m)
T1	Oak	16	7.0	152	12.3
T2	Oak	16	9.6	290	17.0
T3	Sweet Chestnut	11	6.5	132	11.5
T4	Portuguese Laurel	3.5	1.6	8	2.8
T5	Ash	11	4.4	62	7.9
T6	Silver Birch	6	1.1	4	1.9
T7	Silver Birch	13	1.8	10	3.2
T8	Holly	6	1.9	12	3.4
T9	Cherry	5	1.6	8	2.8



Drawing No:	11300 / IAP Rev: 1
Title:	Impact Assessment Plan
Site:	4 Rothville Place SO53 5LS
Scale:	0 1:100 5 Paper Size: A1



Tree Retention Categories	
Stems & canopies shown	
	Category A tree
	Category B tree
	Category C tree
	Category U tree

	Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.
	Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees.
	Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
	Trees unsuitable for retention due to their very poor condition.

Impact Assessment Plan

Status: Final - for submission

	BS s837 Root Protection Area (radius = 1xstem diameter)
	Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.
	Root Protection Area having been amended to account for site conditions
T1 = Tree No 1	G2 = Group No 2 H3 = Hedge No 3

	Tree to be removed to facilitate the proposal
	Tree to be removed due to its low quality

MN = Measured North:
Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N-S or E-W.

Tree Ref.	Species	Height (m)	Root Protection Area		
			Radius (m)	m ²	Square (m)
T1	Oak	16	7.0	152	12.3
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T7	Silver Birch	13	1.8	10	3.2
T8	Holly	6	1.9	12	3.4
T9	Cherry	5	1.6	8	2.8