BS 5837 Arboricultural Report

Impact Assessment & Method Statement

at
Flat 1
26 Belsize Avenue
London
NW3 4AU

Dated
29th November 2022

CROWN
Tree Consultancy
Branching out through England and Wales

Contents

1. Introduction

1.1. Instruction

1.1.1. We are instructed by Alessandra Zattoni of Roar Architects to:

- Undertake a Tree Survey to BS 5837 at 26 Belsize Avenue 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.
- Produce a Tree Protection Plan and Arboricultural Method Statement specifying how the retained trees will be protected from accidental damage by demolition or construction activity.

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. The accompanying Arboricultural Method Statement aims to facilitate the discharge of planning conditions relating to a consented development (Reference 2022/1945/P). It specifies how the trees shall be protected from accidental damage by demolition and construction activities.

1.2.4. 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 23rd of November 2022 by Ivan Button and 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 drawings are based on a measured drawing of the site supplied to Crown Tree Consultancy. This drawing had the tree positions already plotted. Where applicable, additional trees have been plotted by us 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. 26 Belsize Avenue is a block of flats with small gardens to the front and rear.

2.1.2. The front garden contains a Retention Category B lime tree (T5). Surfaces consist primarily of grass with an asphalt and tiled walkway. In an adjacent front garden is another Retention Category B Lime (T4). The RPA of this tree extends into the site.

2.1.3. The area of rear garden owned by Flat 1 contains several shrubs and hedges. surfaces consist primarily of paving. The wider garden contains a Retention Category C cypress and several other small trees and shrubs. These are mostly located away from any development proposals.

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°32'57.20"N 0°10'9.82"W, and the altitude is approximately 24m above sea level[1].

2.3. Survey Extent

2.3.1. The area indicated below[2] shows the extent of our survey.

[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. The trees were all deemed to be in an acceptable condition, and no significant defects were observed. Consequently, no remedial works have been recommended.

3.1.2. We recommend the trees are re-inspected every 3 years or sooner if there is a noticeable decline in their condition or following extreme weather events.

3.2. Species Present – Additional Information

3.2.1. 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.

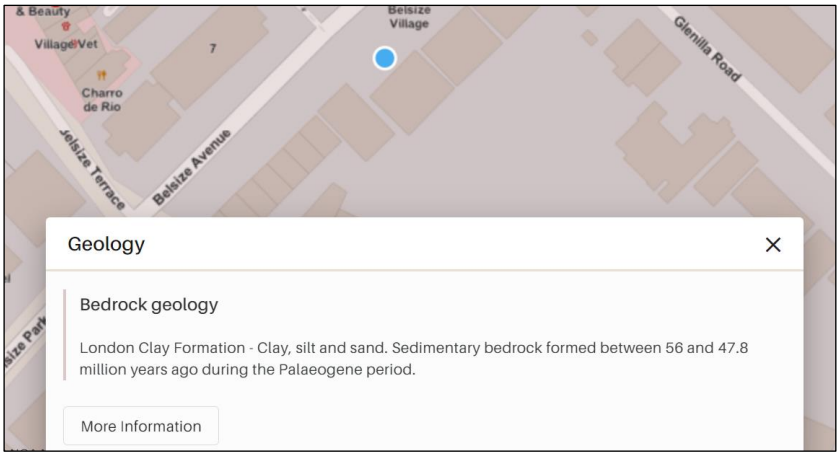
Species	Typical Height at Maturity (m)	Typical Canopy Spread at Maturity (m)	General Notes
Cherry Laurel	10	8	Large evergreen shrub, native to Asia Minor to Iran, Bulgaria and Serbia. Bright, glossy green large leaves. White flowers in erect tails in mid spring and with black 15mm cherry-like fruits (toxic if eaten in bulk). Commonly planted as a hedge though it tends to sprawl. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Prunus+laurocerasus for more info.
Lawson Cypress	40	10	Erect, narrowly conical evergreen tree native to Southwest Oregon and N. W. California. Introduced to Britain in the 1850's and now a common tree in gardens and parks. Makes an excellent dense hedge. Many varieties are available including golden and miniature varieties. Easily distinguished from Leyland cypress by the presence of small cones. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Chamaecyparis+lawsoniana for more info.
Lime	25	12	Very common street tree. Several species exist; the one most often found in woods is 'common lime' which produces a mass of suckers at the stem base, making it very cheap to propagate. Limes have non-symmetrical heart shaped leaves which are much loved by aphids (hence the sticky honeydew on cars parked beneath). Limes are tolerant of heavy pruning and are often managed as pollards. Old limes tend to support a lot of small dead branches. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Tilia+x+europaea for more info.
Tree Of Heaven	25	18	Fast growing deciduous tree native to northern China with ash-like pinnate leaves and fat twigs sporting small round buds. Bark is smooth and grey with white vertical 'snakes'. Tolerant of a wide range of soils and conditions including drought and pollution. Visit http://www.pfaf.org/user/Plant.aspx?LatinName=Ailanthus+altissima 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.

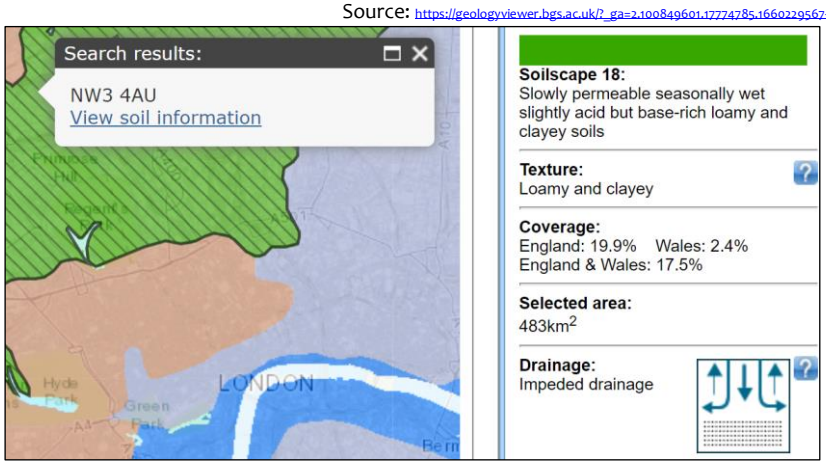
4. Local Geology and Soils

4.1. Desktop Research

4.1.1. Desktop research into local geology based on the postcode NW3 4AUobtained the following results:



Source: https://geologyviewer.bgs.ac.uk/?_ga=2.100849601.1777485.1660229567-1737936254.1660229567



Source: http://www.landis.org.uk/soilscapes/

4.2. Site Investigations

4.2.1. We are unaware of any specific investigations into soil properties at the site.

4.3. Conclusion and Relevance

4.3.1. Based on the information reproduced in Section 3.1, local soils are assumed to have a loamy and clayey texture.

4.3.2. Loamy soils contain a mixture of clay and sand. Soil compaction may occur due to vehicular activity on building sites, so ground protection is recommended wherever vehicles operate. Most tree species will grow well in loamy soils.

4.3.3. Clay soils may be especially prone to compaction and slurrying caused by general construction activity. Both of which significantly impair root function. This must be guarded against using boards to protect any soils where roots are growing. When planting new trees, species should be selected that can tolerate heavy soils.

4.3.4. Trees of most species are less likely to root deeply in clay soils. Any new surfacing over tree roots should avoid deep excavation and have good load-spreading properties.

5. Statutory Protection – TPOs and Conservation Area Status

Before undertaking most works on trees protected by a tree preservation order[3], 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 intention[4]. 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.

5.1. Desktop Research

5.1.1. We are informed, by Rav Curry of London Borough of Camden, via email correspondence on 29th November 2022 that:

- The site is within the Belsize Park Conservation Area.
- There are no tree preservation orders within the site
- There are no tree preservation orders immediately adjacent to the site.

5.2. Felling Licences

5.2.1. 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.

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

5.2.3. 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.

6. Arboricultural Impact Assessment

6.1. Overview

6.1.1. It is proposed to demolish the existing conservatory and construct a new rear extension 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.

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

Activity	Trees Potentially Affected
Tree Removal	Shrubs and hedges
RPA: Extension Foundations	None
RPA: New Hard Surface	None
RPA: New Soft Surface	S3
RPA: Underground Services	None Anticipated
RPA: Change of Ground Levels	None Anticipated
RPA: Soil Compaction	Trees adjacent the construction area (preventable by installing tree protection measures)

6.1.1. 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.

6.1.2. The accompanying Arboricultural Method Statement (duplicated in Appendix 6) specifies the measures proposed to minimise all possible potential risks of damage to the retained trees.

6.2. Tree Removal

6.2.1. Several small shrubs and hedges are to be removed to facilitate the proposal as illustrated on the Impact Assessment Plan.

6.3. Impact on Tree Canopies

6.3.1. Tree canopies shall be unaffected by the proposals.

6.4. Impact on Tree Roots

Foundations:

6.4.1. 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:

6.4.2. No new hard surfacing is proposed in any area where there currently exists soft ground.

6.4.3. The Impact Assessment Plan shows where it is proposed to replace an existing hard surface with soft ground over the RPA off S3. So long as the existing surface is removed carefully, there shall be no detrimental impact. Instead, there shall be an improvement in rooting conditions.

Underground Services:

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

Soil Compaction:

6.4.5. 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.

6.4.6. 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.

6.4.7. It is important therefore that ground compaction and soil disturbance over Root Protection Areas should be avoided during the construction phase. This may be done by installing protective fencing and ground protection measures as recommended within the accompanying Arboricultural Method Statement.

6.5. Demolition Activities

6.5.1. The tree protection measures specified within the accompanying Arboricultural Method Statement should be installed prior to the commencement of all demolition activities (including soil stripping) to prevent any detrimental impact on tree health. Where this is not practicable, demolition of structures within Construction Exclusion Zones shall be undertaken very early on in the demolition phase, and the protective barriers installed immediately thereafter.

6.6. Waste and Materials Storage

6.6.1. 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.

6.6.2. 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.

6.7. Cabins and Site Facilities

6.7.1. 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.

6.7.2. 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.

6.8. Boundary Treatments

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

6.9. Impact of Retained Trees on the Development

6.9.1. 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.

6.9.2. 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.

6.10. Summary

6.10.1. Only low quality, small shrubs and hedges are to be removed to enable the build. No trees of landscape value are to be removed.

6.10.2. No foundations are proposed within Root Protection Areas.

6.10.3. No hard surfacing is proposed in Root Protection Areas.

6.10.4. Replacement of the existing hard surface with a soft surface is proposed within the Root Protection Area of S3.

6.10.5. 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.

6.10.6. So long as suitable protection measures are implemented during demolition and construction stages, I see no arboricultural reasons why the proposal should not proceed.

6.11. Arboricultural Method Statement

6.11.1. The accompanying Arboricultural Method Statement specifies restrictions on construction activities to ensure minimal impact on retained trees. All of the potential impacts noted in this section are accounted for in the Arboricultural Method Statement. So long as these protection measures are fully implemented, there shall be no long-term detrimental impact on the health of the adjacent trees.

7. Photographs

Refer also to the Tree Constraints Plan for photo locations

Photo 1.

Photo 2.

Photo 3.

Photo 4.

Photo 5.

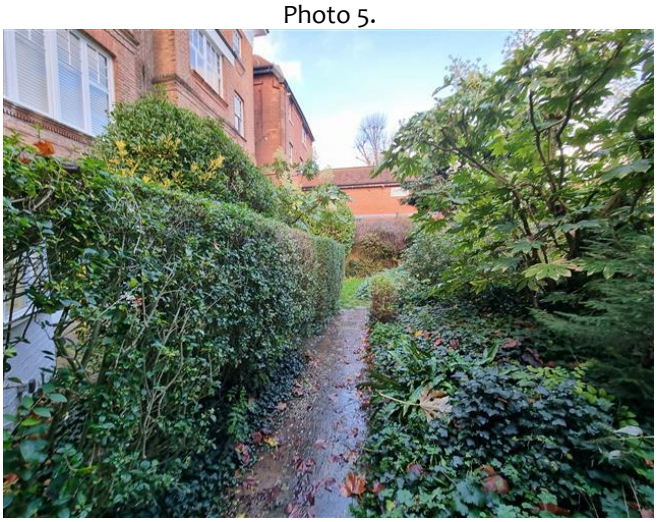


Photo 6.

Photo 7.

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. This 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 thatis unlikely to develop into a major defect.

Appendix 4: Surveyor's and Author's Qualifications

Qualifications & Experience of Ivan Button N.C.H. (Arb), FDSc (Arb), BSc (Hons), P.G.C.E., M. Arbor. A.

Early Career

Before and whilst attending college and university (1983 – 1990) Ivan worked as a gardener and also within the building industry where he received training in a broad range of building skills. In 1989 Ivan obtained a BSc (Hons) in psychology at Leeds University followed by a P.G.C.E at The University of Wales in 1990. After one year of teaching he returned to the construction activity and worked on new builds, refurbishments and groundworks until 1995.

Arboriculture

In 1996 Ivan obtained a NCH (Arboriculture) at the University of Lincoln and became a member of the Arboricultural Association. He then received further arboricultural consultancy training with Peter Wynn Associates for one year before establishing a tree surgery and landscaping business in 1998.

In 2005 Ivan commenced full time employment with JCA Ltd, an Arboricultural Association registered consultancy where he soon adopted a senior role responsible for five consultants. During this time he obtained a FDSc (Arboriculture) at the University of Lancashire, which he passed with distinction.

Since 2013, Ivan has been the Director and Principal Consultant of Crown Consultants Ltd which provides Arboricultural Reports for the purposes of Development, Safety, Management, Mortgage, Subsidence, Mitigation and Litigation. In 2015, he acted as tree officer for Barnsley Council and has since provided consultancy services to other local authorities.

He has obtained the LANTRA *Professional Tree Inspector* Qualification promoted by the Arboricultural Association and recognised as appropriate for all levels of tree inspection.

He is a long-standing member of the Consulting Arborist Society and has obtained CAS accreditations for Tree Inspection, Planning, Mortgage Reports (Subsidence Risk Assessment) and for his expert witness work.

At the time of writing, he has written approximately thirty CPR compliant reports (civil and criminal) covering a range of subjects including Subsidence Damage, Personal Injury, Direct Root Damage, Professional Negligence, TPO Breaches.

He has given written and oral evidence.

Ivan is a long-standing professional member of the Arboricultural Association and the International Society of Arboriculture.

He is a licensed Quantified Tree Risk Assessment user.

Ivan has undertaken Bond Solon expert witness training and has obtained the University of Cardiff Expert Witness certificate.

Between 2008 and 2017 he was registered as a Sweet and Maxwell Checked Expert Witness.

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.
BS 8004: 1986. Foundations.
BS 8103: 1995. Structural design of Low-Rise Buildings.
BS 8206: 1992. Lighting for Buildings.
BS 8545:2014. Trees: From nursery to independence in the landscape – Recommendations
BS 3882: 2015. Topsoil.
BS 4428: 1989. General Landscaping Operations (excluding hard surfaces).

Permission to do Works to Protected Trees / Tree Law

Forestry Commission (Edinburgh, 2003), *Tree Felling – Getting Permission*. Country Services Division - Forestry Commission. Downloadable at www.forestry.gov.uk/website/pdf.nsf/pdf/wgsfell.pdf/$FILE/wgsfell.pdf

Transport and the Regions (Department of the Environment, 2000), *Tree Preservation Orders, A Guide to the Law and Good Practice*. Downloadable at www.communities.gov.uk/publications/planningandbuilding/tposguide

C. Mynors, *The Law of Trees, Forests and Hedgerows* (Sweet and Maxwell, London, 2002)

Communities and Local Government website with numerous downloadable documents, from:
http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/

Lighting Levels

P.J. Littlefair, *B.R.E. 209: Site layout planning for daylight and sunlight A guide to good practice.* B.R.E. Bookshop, London.

British Standards Institution. Code of practice for day lighting. *British Standard* BS 8206: Part 2 (1992).

Chartered Institution of Building Services Engineers. *Applications manual: Window Design* (London, 1987).

NBA Tectonics. A study of passive solar housing estate layout. *ETSU Report* S-1126. Harwell, Energy Technology Support Unit (1988).

I.P. Duncan; D. Hawkes, Passive solar design in non-domestic buildings. *ETSU Report* S-1110. Harwell, Energy Technology.

P. J. Littlefair, Measuring Daylight, *BRE Information Paper 23/93 f3.50.* (Advises on measuring daylight under the real sky or an artificial sky, allowing for the changing nature of sky light).

High Hedges

Communities and Local Government website with numerous downloadable documents, from:
http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/

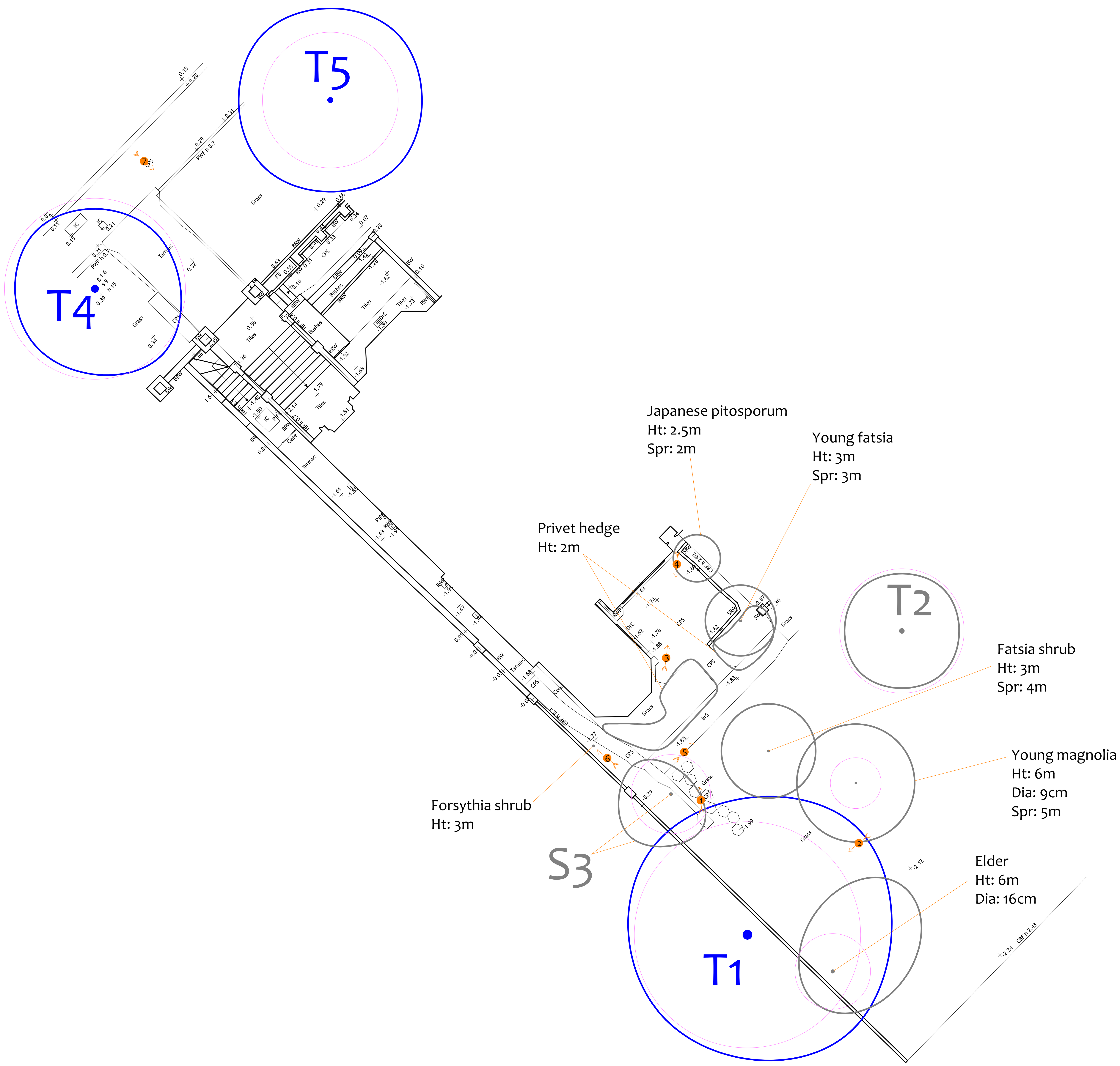
Tree Specific Websites

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) Priority	Inspect Freq (yrs)	Vigour / Physiological Condition / Structural Condition	Amenity Value / Life Expectancy (yrs) / Retention Category
T1	Early-Mature **Tree Of Heaven** Ailanthus altissima.	14	5	40	N 5.5, W 5, E 6.5, S 6		Position: Situated on third party land. Form: Twin-stemmed at 3m with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.** Other: Limited inspection, dimensions estimated.	No action required.	n/a / 3	Moderate / Good / Good	Moderate / 40+ / **B -**
T2	Semi-Mature **Lawson Cypress** Chamaecyparis lawsoniana.	6.5	2	22	N 2.5, W 2.5, E 2.5, S 2.5		Position: Situated on third party land. Form: Single stemmed and vertical with a balanced crown. History: Previously topped at 6.5m. **Defects: No significant defects observed.** Other: Limited inspection, dimensions estimated.	No action required.	n/a / 3	Moderate / Good / Good	Low / 40+ / **C**
S3	Semi-Mature **Cherry Laurel** Prunus laurocerasus.	3.5	0	14	N 2, W 2.5, E 1, S 2		Form: Shrub. History: Managed through cyclical trimming. **Defects: No significant defects observed.** Other: Recorded stem diameter is equivalent for two stems (11cm, 9cm).	No action required.	n/a / 3	Moderate / Good / Good	Low / 20-40 / **C**
T4	Semi-Mature **Lime** Tilia sp.	16	2.5	32	N 3.5, W 3.5, E 3.5, S 4		Position: Adjacent street. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required.	n/a / 3	Moderate / Good / Good	Moderate / 40+ / **B**
T5	Semi-Mature **Lime** Tilia sp.	16	2.5	24	N 4, W 4, E 4, S 4		Position: Situated on third party land. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required.	n/a / 3	Moderate / Good / Good	Moderate / 40+ / **B**



Drawing No: CCL 11342 / TCP Rev: 1

Title: Tree Constraints Plan (Existing Layout)

Site: 26 Belsize Avenue NW3 4AU

Scale: 1:100 (0 – 5) Paper Size: A1

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Arboricultural Consultants
01422 316660

Tree Retention Categories
Stems & canopies shown

- Category A 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.
- Category B tree — 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
- Category C tree — Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
- Category U tree — Trees unsuitable for retention due to their very poor condition.

Tree Constraints Plan

Status: Final

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising road or building.

Root Protection Area having been amended to account for for site conditions

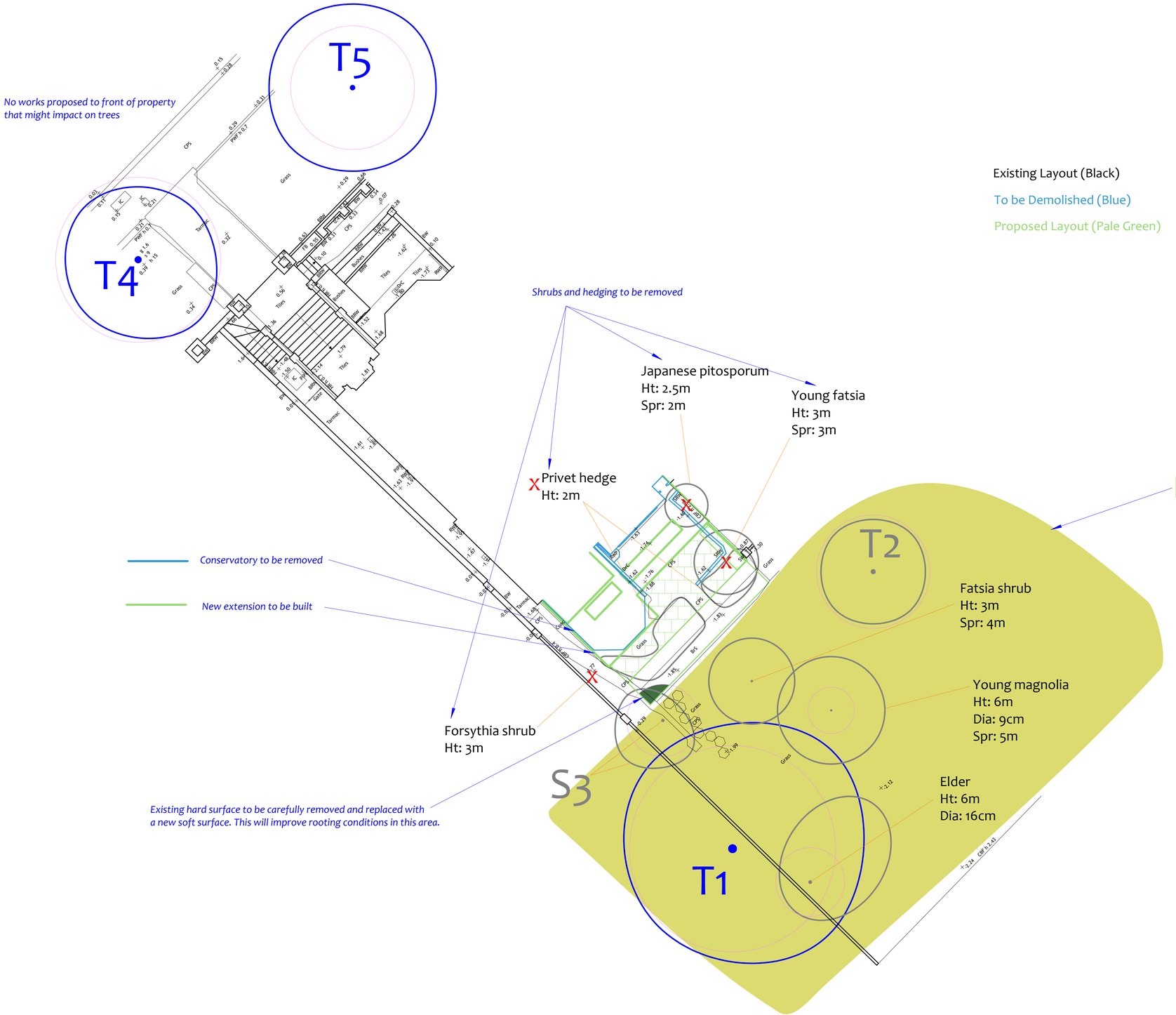
T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

Photo 1

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)	m²	Square (m)
T1	Tree Of Heaven	14	4.8	72	8.5
T2	Lawson Cypress	6.5	2.6	22	4.7
S3	Cherry Laurel	5	1.7	9	3.0
T4	Lime	16	3.8	46	6.8
T5	Lime	16	2.9	26	5.1



Drawing No:	CCL 11342 / IAP Rev: 1
Title:	Impact Assessment Plan
Site:	26 Belsize Avenue NW3 4AU
Scale:	1:100 (0 – 5)
Paper Size:	A1

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Arboricultural Consultants
01422 316660

Tree Retention Categories
Stems & canopies shown

Category A 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.
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Category C tree	Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
Category U tree	Trees unsuitable for retention due to their very poor condition.

Impact Assessment Plan

Status: Final - for submission

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising road or building.

Root Protection Area having been amended to account for for site conditions

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

X Tree to be removed to facilitate the proposal

X Tree to be removed due to its low quality

Proposed pruning

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)	m²	Square (m)
T1	Tree Of Heaven	14	4.8	72	8.5
T2	Lawson Cypress	6.5	2.6	22	4.7
S3	Cherry Laurel	5	1.7	9	3.0
T4	Lime	16	3.8	46	6.8
T5	Lime	16	2.9	26	5.1

Arboricultural Method Statement

CROWN Tree Consultancy 08000 14 13 30

Site: Flat 1, 26 Belsize Avenue		Author: Carl Lothian BSc (Hons)	
Date: 29 / 11 / 2022	Revision: 1	CCL ref No: 11342	Client: Roar Architects

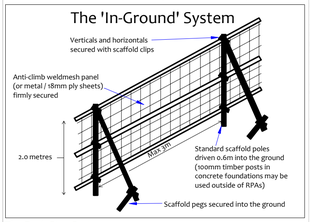
Tree Protection Barriers

The purpose of tree protection barriers is to keep construction activity away from Restricted Activity Zones or Construction Exclusion Zones. They should be appropriate to the nature and proximity of activity within the site. The barriers should be erected prior to the commencement of all activity including demolition, soil stripping and delivery of materials and demolition (except where existing structures require demolition to enable the barriers to be installed). Barrier systems are specified below and should be installed according to the legend on the Tree Protection Plan.

The In-Ground System

This system may be installed where indicated by a solid purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase.

Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Weldmesh panels (or similar – e.g. Heras type fencing panels, or 18mm+ plywood boards) are secured to this scaffold framework using sturdy clips e.g. standard scaffold clips. The system is illustrated in the diagram to the right and is based on BS 5837 guidelines.

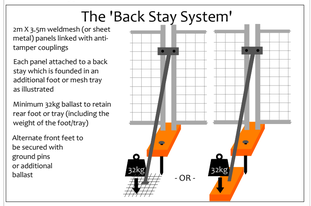


The Back-Stay System

This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within a Restricted Activity Zone. This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the site manager and the approval of the local authority.

Within this system, weldmesh fencing panels (minimum height 2m) are affixed into rubber or concrete feet and clipped together with anti-tamper couplers. Two couplers should be used, spaced at least 1m apart. Alternate panels should be attached to a diagonal back stay connected to an additional foot or baseplate secured with ground pins or additional ballast. Where ground pins are not used, the total weight of the foot/plate plus ballast should total not less than 32kg.

Where it is not possible to install diagonal struts (such as very close to a hedge) then the front feet shall be secured using ground pins or ballast.



Notices

Suitable weather-proof notices should be displayed to identify tree protection zones. They should state the purpose of the fencing and that it should not be moved, or traversed, other than by authorised personnel.

Removal of Tree Protection Barriers

Removal of protective fencing or ground protection measures shall be done after all major construction work is complete and their removal has been approved by the appointed arborist.

Ground Protection Measures

Within Restricted Activity Zones, soils containing roots may be subject to compaction due to general construction activity (including pedestrian activity and use of plant machinery). In order to minimise compaction, it is proposed to ensure that a suitable load-spreading surface is in place at all times.

Any existing hard surfacing may be retained where engineers consider it adequate to spread the load of construction traffic. Otherwise it shall be reinforced or replaced with adequate ground protection measures.

Unless specified otherwise, ground protection shall consist of 24mm OSB boards laid at double thickness and screwed together to prevent slippage. The ground shall first be made even by raking, or by adding a few centimetres of sand or woodchip. Where only pedestrian traffic will occur boards or planks may be supported by a scaffold framework. The scaffold may be founded on poles driven into the ground and/or onto blocks (to raise the scaffold) with additional couplings to make the framework secure.

Where engineers consider OSB boards to be inadequate (e.g. for large plant machinery where the tracks may chew up the timber) sturdier ground protection measures will be installed such as road plates, or 100mm of 7–40mm angular gravel installed in 3D cellular confinement system (e.g. Cellweb TM).

If a piling mat is required, engineer's specifications should be referred to.

The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.

Construction Exclusion Zones

Within Construction Exclusion Zones the following restrictions shall apply:

- Tree Protection Barriers shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and under the header -Tree Protection Barriers.
- These shall remain in place at all times except when authorised landscaping works are being undertaken. At such times, adequate ground protection measures shall be installed, and excavation shall be limited to that required for new planting. Furthermore, the project arborist shall be consulted prior to any works being undertaken in these zones.
- No construction activity or excavation shall occur unless agreed otherwise by the project arborist and local authority.
- No vehicles or plant machinery shall be driven or parked.
- No tree works, other than those specified on this document shall be undertaken.
- No alterations of ground levels or conditions shall occur.
- No chemicals or cement washings permitted.
- No temporary structures shall be installed.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.
- Removal of hard surfaces, structures or turf shall be done using hand operated tools only and supervised by the project arborist.

Tree Works Specification

The following table specifies the tree works which will be required prior to the commencement of construction activity:

Tree Reference	Action Required	Notes
Shrubs and hedges	Remove	As illustrated on the Impact Assessment Plan

Restrictions in Specific Zones

Restricted Activity Zone A

Within this zone, tree roots are likely to be present where access and loading will be required. The following restrictions shall apply:

- The existing hard surface shall be retained intact and undisturbed throughout the entirety of the project.
- No excavation shall occur in this zone.
- Storage of materials and spoil shall be permitted so long as it is retained within the hard surface and not permitted to spill over onto the adjacent soft surface.
- No fires shall be permitted.

Restricted Activity Zone B

The following additional restrictions shall apply when removing the existing hard surface and reinstating soft ground:

- Hand-operated tools shall be used to lift the existing surface.
- Excavation shall be limited to the existing surface and its sub-base.
- After removal of the hard surface and sub-base, no vehicles or driven machinery shall be permitted to enter this zone unless adequate ground protection measures have been installed as specified under the heading **Ground Protection Measures**. In the absence of such ground protection, the area shall be adequately fenced off and treated as a Construction Exclusion Zone.
- Any soils used to raise ground levels back to the original level shall be fertile granular topsoil. Ground levels shall not be raised above the original level of the hard surface.

General Restrictions - Throughout the Site

Preparatory Works

No demolition, removal of surfaces, or soil stripping shall commence until the protective fencing and ground protection measures are installed to the satisfaction of the local authority.

Fires

No fires shall be permitted beneath any tree canopy or within 5m of any tree stem, branch or foliage. No fires shall be permitted within any Construction Exclusion Zone or Restricted Activity Zone. No fires shall be permitted in the vicinity of any exposed tree roots.

Canopy Protection

In order to protect tree canopies the following restrictions shall apply throughout the site:

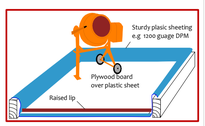
- No machinery in excess of 2m shall pass beneath the canopy of any tree without being carefully marshalled in order to ensure that no branches are damaged.
- If materials require installation or delivery beneath tree canopies, this shall be done without the use of overhead cranes.
- If materials are to be installed or delivered close to tree canopies (but not beneath them) and a crane is required, they shall be carefully marshalled in order to ensure that branches are not accidentally damaged.

Storage of Spoil and Materials

Storage of materials and spoil shall be avoided in any Construction Exclusion Zones and Restricted Activity Zones unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.

Hazardous Materials

Any mixing of cement based materials shall take place outside the Construction Exclusion Zones and Restricted Activity Zones. Where cement is to be mixed at considerable distances from trees and water run-off cannot enter Root Protection Areas, then no further special measures are required. Otherwise, provision shall be made to ensure that the mixing area is contained so that no water run-off enters the Root Protection Area of any trees (see diagram for example). Mixers and barrows shall be cleaned within this area.



All other chemicals hazardous to tree health, including petrol and diesel, shall be stored in suitable containers as specified by current COSHH Regulations, and kept away from Root Protection Areas.

Underground Services

No underground services (including soak-aways) shall be located in any part of the Construction Exclusion Zones or Restricted Activity Zones unless done so in a manner detailed in a specific Method Statement and approved by the local authority.

Site Hoarding

If site hoarding shall be installed over the Root Protection Area of any tree, the following restrictions shall apply:

- Ground levels shall be maintained as existing.
- Post holes shall not exceed 300mm x 300mm.
- No post hole shall be excavated within 0.5m of any tree stem.
- Post holes shall be excavated using hand tools or by a post-hole auger attached to plant machinery sited outside of Root Protection Areas.
- Roots in excess of 25mm shall be retained wherever possible.
- Roots in excess of 10mm shall be pruned with sharp secateurs.
- Pruning shall be minimal and only undertaken where absolutely necessary to facilitate the site hoarding. It shall be undertaken by a reputable tree surgeon working to BS 3998 (2010).

Site hoarding may be installed in place of the specified tree protection measures subject to the approval of the local authority with regard to its location and specification.

Siting of Cabins

Cabins shall be located outside of Construction Exclusion Zones and Restricted Activity Zones unless agreed otherwise by the project arborist. Where this is being considered, the project arborist shall be consulted and specific tree protection measures agreed. The following general restrictions will apply:

- All services to and from site cabins shall be installed above ground through any Root Protection Areas.
- No excavation shall occur within Root Protection Areas to enable cabins to be installed.
- The cabins shall be founded on a suitable load spreading surface.

Fence Posts or Decking Posts

If permanent fencing or decking is to be installed within Root Protection Areas, the following restrictions shall apply:

- All post holes shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).
- Exploratory post holes shall be dug before committing to post / panel positions. If any roots in excess of 25mm are encountered they are to remain intact and the post hole shall be relocated slightly. The fencing system must permit such flexibility (i.e. where fixed panel widths are used, all post holes must be excavated before committing to the final location).
- Any roots in excess of 10mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

Walls shall be avoided over Root Protection Areas unless their foundations may be spanned over roots using a beam system.

Hedges may be planted within Root Protection Areas using hand tools to minimise excavation.

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Timing of Operations

Activity within the site shall be phased according to the following chronology

Order	Phase	Activity
1st.	Pre-Construction Phase	Planning conditions relating to trees to be identified and discussed with the Project arborist and site manager.
2nd.		Shrubs and hedges to be removed as illustrated on the Arboricultural Impact Assessment Plan.
3rd.		Install the tree protection fencing (see header *-Tree Protection Barriers).*
4th.		Pre-Commencement site meeting: Tree protection barriers inspected. Additional protection measures to be agreed. Variances to be agreed. Boundary treatments to be agreed. Extents of excavation to be agreed. Scaffold restrictions to be agreed. Scope of future inspections / monitoring to be agreed.
5th.		Arboricultural Method Statement to be revised and approved if necessary.
		Protection measures confirmed acceptable by the project arborist
6th.	Demolition and Construction Phase	Demolish existing structures (conservatory and low garden walls) and remove existing hard surfaces where applicable.
7th.		Install new buildings and pedestrian paving.
8th.	Post-Construction Phase	Remove protective barriers (fencing and ground protection measures as applicable).
9th.		Undertake restricted landscaping operations within Root Protection Areas, including (where applicable) boundary treatments, pedestrian surfaces, decking and any proposed tree planting.

Personnel and Accountability

This table should be completed at the Pre-Start Meeting or earlier

Position	Name	Contact Phone & email	Roles
Project Manager	Insert Details	Insert Details	Liaising with site manager & project arborist regarding any potential issues relating to trees. Scheduling of meeting, excavations and inspections. Overseeing this monitoring schedule. Instructing the project arborist and arranging access. Liaising with local authority regarding discharge of planning conditions and variances to the Arboricultural Method Statement.
Site Manager	Insert Details	Insert Details	Day to day monitoring of tree protection measures. Fortnightly supply of site photographs showing all tree protection measures. Induction of all contractors. Reporting to the Appointed Arborist of any incidents or potential variations to the agreed tree protection measures.
Project Arborist	Crown Tree Consultancy	08000 14 13 30 0203 797 7449 Info@crowntrees.co.uk	Liaising with LPA Tree Officer over all arboricultural matters. Initial inspection and signing off of tree protection barriers including ground protection measures. Monthly site visits and inspections. Reporting to the local authority following site inspections and any variation or incidents.
Local Authority	London Borough of Camden	Insert Details	Receipt of reports from the appointed arborist. Liaising with the appointed arborist to agree suitability of tree protection measures and any variations. Enforcement. Advice and assistance with the discharge of planning conditions relating to trees.
Additional Contact	Insert Details	Insert Details	Insert Details
Additional Contact	Insert Details	Insert Details	Insert Details

Site Monitoring Schedule

Inspection	Site Attendees	Comments
Pre- Start Desk-top To occur prior to any works taking place on the site.	N/A.	Project Manager and Site manager to study this Method Statement & contact the Project Arborist to agree all protection measures.
Pre-Start Meeting After vegetation clearance & tree protection barriers installed. Prior to any other activity, inc. demolition & soil stripping.	Site manager, project arborist. Tree Officer invited.	Tree protection fencing locations & specification checked. Contractors to be inducted to all relevant aspects of the Arboricultural Method Statement. Responsibilities checked and acknowledged. Adherence to the Arboricultural Method Statement to be discussed and agreed.
Monthly Inspection and Reporting To occur once per calendar month throughout the entirety of the project until the local authority agree that tree protection measures may be removed	Site manager and project arborist.*	Tree protection fencing locations & specification checked. Past month, present and future month – activities and adherence to Arboricultural Method Statement discussed and checked.

* Where agreed with the L.A. it may be acceptable to supply photographs of the fencing to avoid the necessity for a site visit.

Tree Schedule

Reference (C = Group H = Hedge)	Age & Species	Height (m)	Crown Ht (m)	Diameter (cm)	Crown Spread (m) W	N	E	S	Scaled Tree Diagram (m)	Notes	Recommendations (independent of any development proposals) Priority	Project Tree (yes)	Vigour Physiological Condition	Structural Condition	Amenity Value Life Expectancy (yrs)	Retention Category
T1	Early-Mature **Tree Of Heaven** Ailanthus altissima.	14	5	40	5	5.5	6.5	6		Position: Situated on third party land. Form: Twins-stemmed at 3m with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.** Other: Limited inspection, dimensions estimated.	No action required. n/a	3	Moderate Good	Good	Moderate 40+	**B -**
T2	Semi-Mature **Lawson Cypress** Chamaecyparis lawsoniana.	6.5	2	22	2.5	2.5	2.5	2.5		Position: Situated on third party land. Form: Single stemmed and vertical with a balanced crown. History: Previously topped at 6.5m. **Defects: No significant defects observed.** Other: Limited inspection, dimensions estimated.	No action required. n/a	3	Moderate Good	Good	Low 40+	**C**
S3	Semi-Mature **Cherry Laurel** Prunus laurocerasus.	3.5	0	14	2.5	2	1	2		Form: Shrub. History: Managed through cyclical trimming. **Defects: No significant defects observed.** Other: Recorded stem diameter is equivalent for two stems (11cm, 9cm).	No action required. n/a	3	Moderate Good	Good	Low 20-40	**C**
T4	Semi-Mature **Lime** Tilia sp.	16	2.5	32	3.5	3.5	3.5	4		Position: Adjacent street. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	Moderate Good	Good	Moderate 40+	**B**
T5	Semi-Mature **Lime** Tilia sp.	16	2.5	24	4	4	4	4		Position: Situated on third party land. Form: Single stemmed and vertical with a balanced crown. History: No evidence of significant pruning. **Defects: No significant defects.**	No action required. n/a	3	Moderate Good	Good	Moderate 40+	**B**

Tree Protection Plan

CROWN Arboricultural Consultants 01422 316660

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of exising road or building.

Root Protection Area having been amended to account for for site conditions

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

Tree Retention Categories
Stems & canopies shown

Category A 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.
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Category U tree	Trees unsuitable for retention due to their very poor condition.

Drawing No:	CCL 11342 / TPP Rev: 1
Title:	Tree Protection Plan (Existing Layout with Proposals Overlaid)
Site:	26 Belsize Avenue NW3 4AU
Scale: 1:100	Paper Size: A1