



Landmark Trees

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**ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:**

44 & 46 Hampstead Lane  
London  
N6 4LL

**INSTRUCTING PARTY:**

Harrison Varma Ltd  
Unit 1 South  
Oxgate Centre  
Oxgate Lane  
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**Ref:** HVL/44HSL/AIA/01d

**Date:** 25<sup>th</sup> January 2023

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## DOCUMENT HISTORY

| Revision | Status   | Comments                                      | Date     |
|----------|----------|-----------------------------------------------|----------|
| Rev 0    | DRAFT    | For Internal Review<br>(Client / Design Team) | 12/06/21 |
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| Rev b    | APPROVED | For External Issue<br>(Planning)              | 15/07/22 |
| Rev c    | DRAFT    | For Internal Review<br>(Client / Design Team) | 27/07/22 |
| Rev d    | DRAFT    | For External Issue<br>(Planning)              | 25/01/23 |

## 1. SUMMARY

- 1.1 The existing site includes 2 detached properties with substantial rear gardens containing a number of trees potentially constraining development. The proposal includes the replacement of the dwellings with a dementia care home.
- 1.2 There are 39 trees on the property and adjoining land outside of the application boundary that are within close proximity to the development and need to be assessed. These are judged mostly moderate and low-quality trees, but with high quality tree T26 as a standout high quality specimen. All trees are material constraints on development, but this latter requires particular consideration. At the other end of the spectrum, T10a requires removal regardless of development as a poor-quality specimen.
- 1.3 This report, which updates HVL/44HSL/AIA/01a to take account of modifications to the scheme following discussions with the local planning authority, HVL/44HSL/AIA/01b to take account of a further minor amendment made by the client and HVL/44HSL/AIA/01c to take account of further LPA feedback, has assessed the impacts of the revised development proposals and concludes there would be at most a low impact on the resource: a small portion of trees will be removed or pruned to facilitate construction. Those removed generally have more collective than individual specimen value, such that their loss could be mitigated with new planting, bringing its own benefits to a relatively unmanaged resource. Similarly, though pruning here is to serve development, if undertaken to best practice, the scale envisaged should not be altogether untoward in an occupied site.
- 1.4 Whilst the default position is that structures be located outside the Root Protection Area\* (RPA) of trees to be retained, there are some encroachments that could not be avoided in the design of the scheme. The report has demonstrated that the trees can remain viable (subject to the findings of further investigations) and that the area lost to encroachment can be compensated for elsewhere, contiguous with the RPA; the report also proposes a series of mitigation measures to improve the soil environment that is used by the tree for growth. Net impacts are assessed therefore as being low.
- 1.5 Notwithstanding the above assurances, the report sets out a series of recommendations prior and during construction. This includes the need for trial pits prior to construction to confirm the extent or absence of tree roots within the application site, and a Full Arboricultural Method Statement with Tree Protection Plan to reconcile construction activities with the tree protection measures. These can be secured by planning condition, though we recommend the trial pits be undertaken now.
- 1.6 Trial pits may require some (minor) root pruning be agreed with the local authority as necessary. It would be prudent to undertake the trial pits ahead of planning.
- 1.7 In conclusion, the proposal, through following the above recommendations, will have no, or very limited, impact on the existing trees and is acceptable.

\* British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

## 2. INTRODUCTION

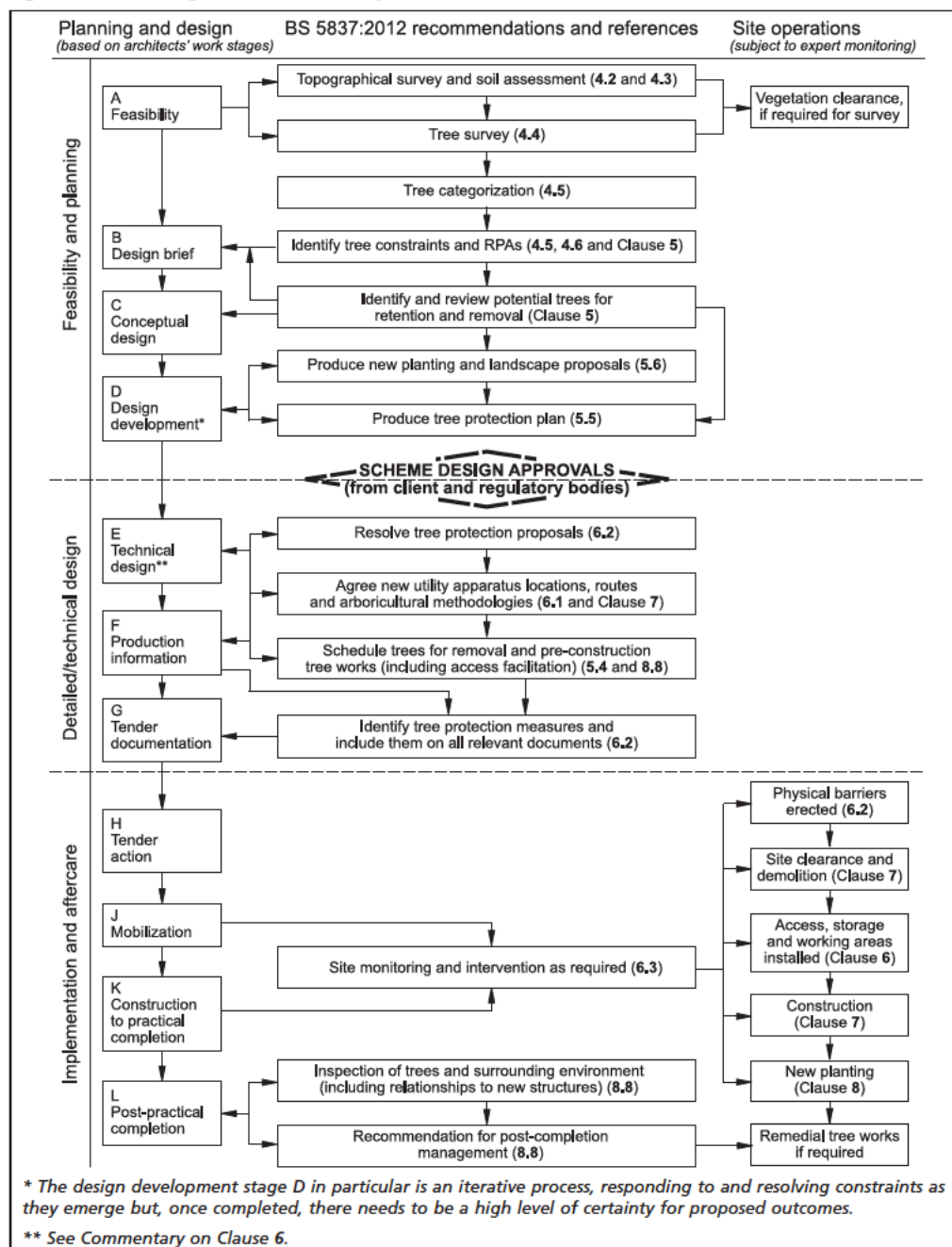
### 2.1 Terms of Reference

- |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1.1 | This Arboricultural Impact Assessment report has been prepared by Landmark Trees (LT) on behalf of Harrison Varma Ltd ('the Applicant'), to support a full planning application submitted to the London Borough of Haringey ('LBH').                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2.1.2 | The application relates to the redevelopment of the site to provide a dementia care home of 66 beds in number, with en-suite bedrooms and communal facilities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2.1.3 | This report updates our earlier report, HVL/44HSL/AIA/01a, which took account of modifications to the scheme which had been made in the light of discussions with LBH's planning officers which have resulted in scaling back the proposal (reducing from 80 beds); HVL/44HSL/AIA/01b to take account of a further minor amendment made by the client; and HVL/44HSL/AIA/01c to take account of further LPA feedback. This report will assess the impact on trees and their constraints, identified in our survey. It will highlight how the changes have addressed in particular concerns raised by Alex Fraser, Tree & Nature Conservation Manager; the subsequent proposed changing of the boundary treatment facing Courtenay Avenue; it also refers to a further comment from the tree officer about potential implications for street trees. Although the proposals were known at the time of the survey, Landmark Trees endeavour to survey each site blind, working from a topographical survey, wherever possible, with the constraints plan informing their evolution. The purpose of the report is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention. |
| 2.1.4 | Trees are a material consideration for a Local Planning Authority when determining planning applications, whether or not they are afforded the statutory protection of a Tree Preservation Order or Conservation Area. British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and new developments. The Standard recommends a sequence of activities (see Fig.1 overleaf) that starts in the initial feasibility and design phase (RIBA Stage 2 'Concept Design') with a survey to qualify and quantify the trees on site and establish the arboricultural constraints to development (above- and below-ground) to inform the design in an iterative process, and continues with an assessment of the arboricultural impacts of the final design and measures to mitigate such impacts should they be negative. Detailed technical specifications for mitigation and protection measures are devised in the design phase that follows (RIBA Stage 3-4 'Developed and Technical design'), and the sequence ends with the Implementation and Aftercare phase (RIBA Stages 5-7) with the implementation of those measures once planning permission is                                   |

granted, guided by Arboricultural Method Statements (RIBA Stage 4-5, 'Technical Design and Construction) and professional guidance where appropriate.

2.1.5 This report is produced to support the Design Team to the Scheme Design Approvals stage in the process chart below.

Figure 1 The design and construction process and tree care



## 2.2 Drawings Supplied

- 2.2.1 The drawings supplied by the client and relied upon by Landmark Trees in the formulation of our survey plans are:
- Existing site survey: 44-46 Hampstead Lane survey
- Proposals: 1627-PL-199-E - Proposed Site, 1627-PL-201-E - Proposed Lower Ground Floor & 1627-PL-202-E - Proposed Ground Floor

## 2.3 Scope & Limitations of Survey

- 2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on 29<sup>th</sup> May 2021, recording relevant qualitative data in order to assess both their suitability for retention and their constraints upon the site, in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837:2012].
- 2.3.2 Our survey of the trees, the soils and any other factors, is of a preliminary nature. The trees were SURVEYED on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). LT have not taken any samples for analysis and the trees were not climbed but inspected from ground level.
- 2.3.3 The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development. Tree surveys undertaken after a detailed design has been prepared can identify significant conflicts: in such cases, the nature of and need for the proposed development should be set against the quality and values of affected trees. The extent to which the design can be modified to accommodate those trees meriting retention should be carefully considered. Where development is subject to planning control, a tree survey should be regarded an important part of the evidence base underpinning the design & access statement.
- 2.3.3 A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.
- 2.3.4 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

## 2.4 Survey Data & Report Layout

- |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.4.1 | Detailed records of individual trees are given in the survey schedule in Appendix 1. General husbandry recommendations are distinguished at Appendix 2 from minimum requirements to facilitate development which form part of the planning application at Appendix 3. The former may still be relevant to providing a safe site of work, of course. Planning considerations notwithstanding, we trust these necessary recommendations are passed on to relevant parties with due diligence and the trees to be managed appropriately.                                                                                                                                                                   |
| 2.4.2 | A site plan identifying the surveyed trees, based on the Instructing Party's drawings / topographical survey is provided in Part 3 of this report. This plan also serves as the Tree Constraints Plan with the theoretical Recommended Protection Areas (RPAs), tree canopies and shade constraints, (from BS5837: 2012) overlain onto it. These constraints are then overlain in turn onto the Instructing Party's proposals to create a second Arboricultural Impact Assessment Plan in Part 3. Measures to protect trees during construction are then added to this plan to create an Outline Tree Protection Plan. General observations, discussion, conclusions and recommendations follow, below. |

### 3.0 SITE CHARACTERISTICS

#### 3.1 Property Description & Planning Context



Photograph 1: Aerial view of application site (Source: Google Earth)

- |       |                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.1.1 | The application site comprises Nos. 44 and 46 Hampstead Lane. It is positioned at the junction of Hampstead Lane and Courtenay Avenue and is approximately 71m wide and 59m deep.                                                                                                                                                                                                                            |
| 3.1.2 | There are a number of significant level changes throughout the site.                                                                                                                                                                                                                                                                                                                                         |
| 3.1.3 | LB Haringey's online mapping system shows that there are Tree Preservation Orders in place at No.42 and No. 46 Hampstead Lane but not No.44. We also understand the site stands within the Highgate Conservation Area, which will affect the subject trees: it is a criminal offence to prune, damage or fell such trees without permission from the local authority.                                        |
| 3.1.4 | Relevant local planning policies comprise Policies G1 and G7 of the London Plan 2021, Saved Policies UD3 (e) and OS17(c) of the Haringey Unitary Development Plan 2006 and Policies SP11 and SP13 of the Haringey Local Plan.                                                                                                                                                                                |
| 3.1.5 | In summary, the changes made to the scheme since the original submission that were addressed in HVL/44HSL/AIA/01b are as follows: <ul style="list-style-type: none"> <li>- wings at rear reduced</li> <li>- lower ground floor lightwell extended</li> <li>- bin store to south-west corner removed</li> <li>- central lightwell added to the south with rearrangement of car parking accordingly</li> </ul> |
| 3.1.6 | Alex Fraser's principal concerns related to:                                                                                                                                                                                                                                                                                                                                                                 |

- the lack of space for new planting
- large terrace encroachment of T32

- 3.1.7 There was then a proposed change to the boundary treatment facing Courtenay Avenue – the client wishing to move the position of a gate.
- 3.1.8 Subsequently, the case officer passed on a further query from the tree officer who raised concerns about potential implications for street trees.

## 3.2 Soil Description

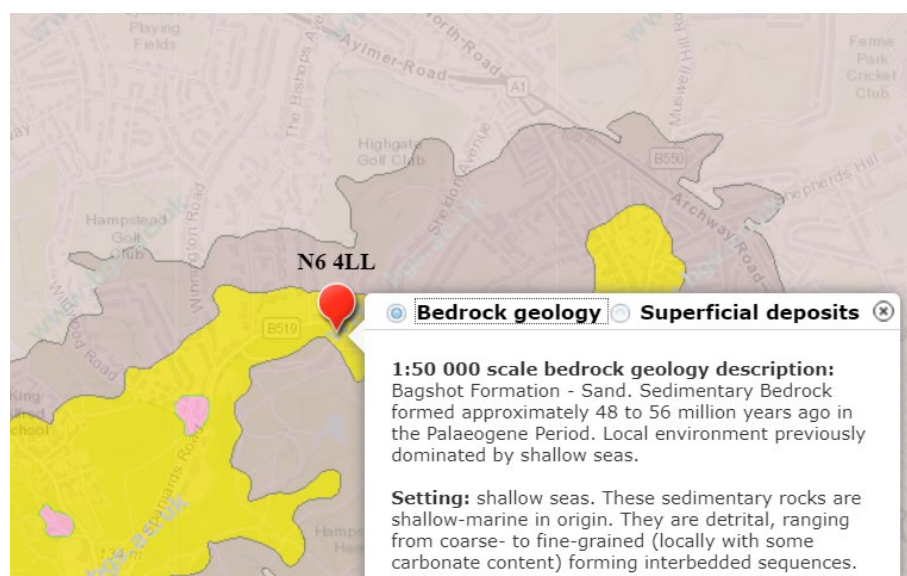


Figure 2: Extract from the BGS Geology of Britain Viewer

- 3.2.1 In terms of the British Geological Survey, the site overlies the Bagshot Beds (see indicated location on Fig.1 plan extract above) which are typical of Hampstead Heath. The actual limits of soil series are not as clearly defined on the ground as on plan and there may be anomalies between them. Further advice from the relevant experts on the specific soil properties can be sought as necessary.
- 3.2.2 Sand and gravel soils are less prone to compaction during development than clay soils, potentially reducing the threat to tree health from construction traffic.

### 3.3 Subject Trees

- |       |                                                                                                                                                                                          |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3.3.1 | Of the 39 surveyed trees, 1 is category* A (High Quality), 15 are category B (Moderate Quality), 22 are category C (Low Quality) and 1 is category U (Poor Quality).                     |
| 3.3.2 | The tree species found on the site comprise sycamore, oak, Leyland cypress, silver birch, London plane, magnolia, laburnum, cherry plum, wild cherry, black mulberry and various shrubs. |
| 3.3.3 | In terms of age demographics there is a broadly even mix of semi-mature, early mature and mature specimens present.                                                                      |

\*page 9 of: [British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London](#)

- |       |                                                                                                      |
|-------|------------------------------------------------------------------------------------------------------|
| 3.3.4 | Full details of the surveyed trees can be found in Appendix 1 of this report.                        |
| 3.3.5 | There are recommended works for 4 on-site trees (T3, T9, T10a & G1). These are listed in Appendix 2. |



Photograph 2: Existing hard standing within site

Arboricultural Impact Assessment Report: 44 & 46 Hampstead Lane, London N6 4LL

Instructing party: Harrison Varma Ltd, Unit 1 South, Oxgate Centre, Oxgate Lane, London NW2 7JA

Prepared by: Ann Currell & Adam Hollis of Landmark Trees, Holden House, 4th Floor, 57 Rathbone Place, London W1T 4JU



Photograph 3: Cypress T33



Photograph 4: Magnolia T28 with London plane T27 to rear, note level change from street

## 4.0 DEVELOPMENT CONSTRAINTS

### 4.1 Primary Constraints

- 4.1.1 BS5837: 2012 gives Recommended Protection Areas (RPAs) for any given tree size. The individual RPAs are calculated in the Tree Schedule in Appendix 1 to this report, or rather the notional radius of that RPA, based on a circular protection zone. The prescribed radius is 12-x stem diameter at 1.5m above ground level, except where composite formulae are used in the case of multi-stemmed trees.
- 4.1.2 Circular RPAs are appropriate for individual specimen trees grown freely, but where there is ground disturbance, the morphology of the RPA can be modified to an alternative polygon, as shown in the diagram below (Figure 2). Alternatively, one need principally remember that RPAs are area-based and not linear – notional rather than fixed entities.

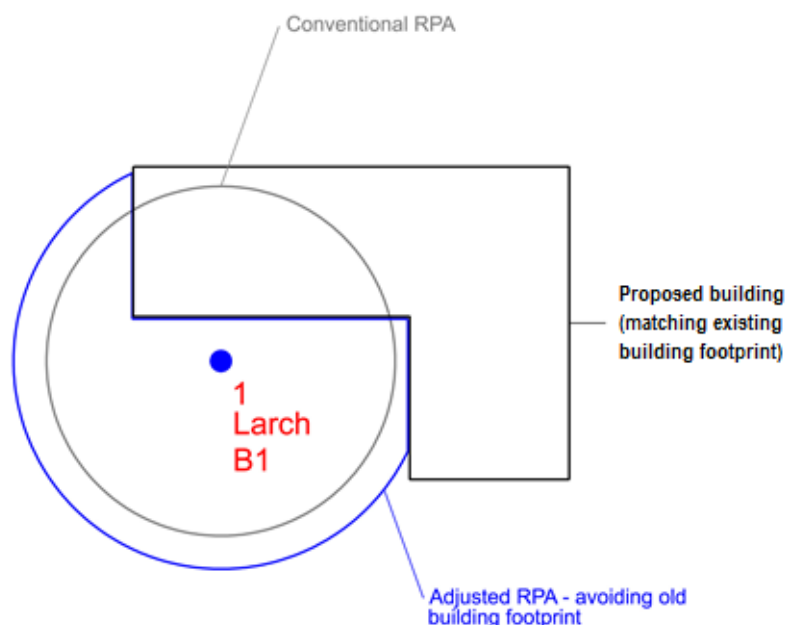


Figure 2 – Generic BS 5837 RPA Adjustments

- 4.1.3 In BS5837, paragraph 4.6.2 states that RPAs should reflect the morphology and disposition of the roots; where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution. This can be done as a desktop / theoretical exercise but is not altogether (scientifically) reliable and may also invite disagreement / differences of opinion as to that distribution.

- 4.1.4 **In this instance, *a priori* modifications have been made to a number of RPAs to reflect the effect of the existing built infrastructure (retaining walls, swimming pool and garage) on root morphology.**
- 4.1.5 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited useful life expectancy. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function.
- 4.1.6 At paragraph 5.1.1. BS5837: 2012 notes that “Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal.”

- 4.1.8 In theory, only moderate quality trees and above are significant material constraints on development. However, low quality trees comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting is generally considered appropriate.
- 4.1.9 In this instance, the high and moderate quality trees present have the potential to significantly constrain development of the site.

## 4.2 Secondary Constraints

4.2.1 The second type of constraint produced by trees that are to be retained is that the proximity of the proposed development to the trees should not threaten their future with ever increasing demands for tree surgery or felling to remove nuisance shading (Figure 3), honeydew deposition or perceived risk of harm.

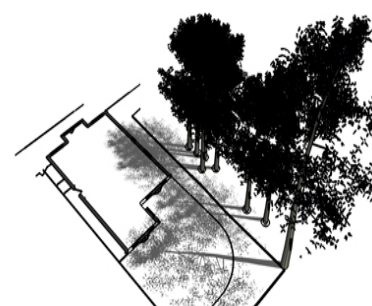


Figure 3 –  
Generic Shading Constraints

4.2.2 The shading constraints are crudely determined from BS5837 by drawing an arc from northwest to east of the stem base at a distance equal to the height of the tree, as shown in the diagram opposite. Shade is less of a constraint on non-residential developments, particularly where rooms are only ever temporarily occupied.

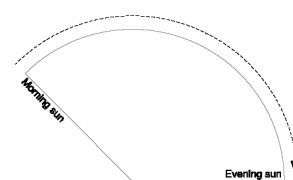


Figure 4 – Shading Arc

4.2.3 This arc (see Figure 4) represents the effects that a tree will have on layout through shade, based on shadow patterns of 1x tree height for a period May to Sept inclusive 10.00-18.00 hrs daily.

4.2.4 Assuming that they will be retained, the orientation of the on-site trees will ensure that shading constraints are minimal, with leaf deposition and honey-dew likely to be as it is today. However, the off-site trees have the potential to provide a variety of secondary constraints, including shading, organic deposition and the potential need to maintain crown clearance in the future. The significance of these constraints will vary depending on the location and proximity to the proposed re-development which is considered below (in Sections 5 & 6). As specified by BS5837, this section (4) of the report considers only the site as it is, not in the light of pending proposals.

| B.S. Cat | Tree No. | English Name                                          | Impact                                                        | RPA Affected       | Age Class | Growth Vitality | Species Tolerance | Impact on Tree Rating | Impact on Site Rating | Mitigation                                                        |
|----------|----------|-------------------------------------------------------|---------------------------------------------------------------|--------------------|-----------|-----------------|-------------------|-----------------------|-----------------------|-------------------------------------------------------------------|
| C        | 15       | Leyland Cypress                                       | Felled to Facilitate Development                              |                    | EM        | Normal          | N/a               | N/a                   | Low                   | New planting / landscaping                                        |
| C        | 17       | Common Oak                                            | Felled to Facilitate Development                              |                    | SM        | Normal          | N/a               | N/a                   | Low                   | New planting / landscaping                                        |
| C        | 18       | Cypress                                               | Felled to Facilitate Development                              |                    | SM        | Normal          | N/a               | N/a                   | Low                   | New planting / landscaping                                        |
| C        | 19       | Common Oak                                            | Terrace within RPA                                            |                    | SM        | Normal          | Good              | Low                   | Low                   | No-dig construction                                               |
| C        | 22       | Sycamore                                              | Hard Surfacing within RPA                                     |                    | SM        | Normal          | Moderate          | Low                   | Low                   | No-dig construction                                               |
| C        | 23       | Silver Birch                                          | Hard Surfacing within RPA                                     |                    |           | Normal          | Moderate          | Low                   | Low                   | No-dig construction                                               |
| C        | 24       | Silver Birch                                          | Hard Surfacing within RPA                                     |                    | SM        | Normal          | Moderate          | Low                   | Low                   | No-dig construction                                               |
| C        | 25       | London Plane                                          | Hard Surfacing within RPA                                     |                    | EM        | Poor            | Good              | Low                   | Low                   | No-dig construction                                               |
| A        | 26       | London Plane                                          | Building Construction within RPA<br>Hard Surfacing within RPA | 27.9 sqm/<br>6.04% | M         | Normal          | Good              | Low                   | Low                   | Pre-emptive root pruning & Arboricultural supervision             |
| B        | 27       | London Plane                                          | Hard Surfacing within RPA                                     |                    | M         | Normal          | Good              | Low                   | Low                   | No-dig construction                                               |
| C        | 28       | Magnolia                                              | Felled to Facilitate Development                              |                    | EM        | Normal          | N/a               | N/a                   | Low                   | New planting / landscaping                                        |
| C        | 29       | Laburnum                                              | Hard Surfacing within RPA                                     |                    | M         | Normal          | Moderate          | Low                   | Low                   | No-dig construction                                               |
| C        | 30       | Cherry Plum                                           | Hard Surfacing within RPA                                     |                    | EM        | Normal          | Moderate          | Low                   | Low                   | No-dig construction                                               |
| C        | 31       | Wild Cherry                                           | Building Construction within RPA & Canopy                     | 7.46sqm / 12.7%    | M         | Moderate        | Moderate          | Very low              | Very low              | Airspade / manual excavation & Remedial tree surgery (see App. 3) |
| B        | 32       | Sycamore                                              | Building Construction within RPA & Canopy                     | 2.99sqm / 1%       | M         | Normal          | Moderate          | Very low              | Very low              | Airspade / manual excavation & Remedial tree surgery (see App. 3) |
| B        | 33       | Cypress                                               | Felled to Facilitate Development                              |                    | M         | Normal          | N/a               | N/a                   | Medium                | New planting / landscaping                                        |
| C        | G1       | Cotoneaster, Apple, Cherry Plum, Cherry Laurel, Holly | Felled to Facilitate Development                              |                    | EM        | Moderate        | N/a               | N/a                   | Low                   | New planting / landscaping                                        |

## 6.0 ARBORICULTURAL IMPLICATIONS

### 6.1 Rating of Primary Impacts

- |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1.1 | The principal impacts in the current proposals are the removal of trees T15, T17, T18, and T33 as well as the group of shrubs G1. In terms of resource management, these comprise a relatively small portion of the whole. Those removed generally have more collective (Category C) than individual specimen value (Category A & B), with the only exception being T33. Overall though their loss could be mitigated with new planting, bringing its own benefits of enrichment and diversification to a relatively unmanaged and subsisting resource.                                                                                                                                                                                                                                                                                                                                                                                                |
| 6.1.2 | The revised scheme allows the retention of T28, the mature magnolia at the front of the site, which is clearly visible in the streetscene (see Photograph 4).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.1.3 | Similarly, though pruning of T9a and T31 is required here to serve development, undertaken to best practice, the scale envisaged should not be altogether untoward in a more managed and occupied site. We accept the level of pruning necessary to T9a exceeds that described by best practice but would note that the tree is growing in a poor long-term position and a similar level of pruning is likely necessary regardless of development proceeding.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 6.1.4 | Because of reduction / removal of the wings to the rear, the revised scheme no longer requires pruning of T20, T21, or T32 (all category B mature trees) to facilitate development as the need for clearance is obviated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6.1.5 | The immediate reduction in canopy cover through felling and / or pruning is therefore rated as a low impact unlikely to harm either the resource or the wider conservation area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 6.1.6 | Further impacts to retained trees comprise the encroachments of the RPAs of T31 (7.46m <sup>2</sup> / 12.7%) and T32 (2.99m <sup>2</sup> / 1%) by the new building. The larger encroachment of the two affects a wild cherry of 360mm and therefore still relatively robust. Thus in our view, the trees are of a species, age and condition sufficient to remain viable in the circumstances, given that the area lost to encroachment can be compensated for elsewhere, contiguous with the RPA, and provided the series of mitigation measures outlined below are followed to both reduce the immediate impact of working methods and also improve the soil environment that is used by the tree for growth. Supervision and monitoring of such measures will also be essential. Subject to these provisos, and the design being amended as necessary to reflect the findings of the further investigations, net impacts are assessed as being low. |
| 6.1.7 | There is also encroachment of the RPA of the street tree T26 (25m <sup>2</sup> / 5%) by the proposed basement – a relatively small incursion into an area already covered by existing hard standing which, as can be seen from Photograph 4, is somewhat lower than street level. This mature London plane is very large tree (1060mm stem diameter) of normal growth vitality and the species is noted for its good tolerance of development impacts. Again, in our view, the tree is of a species, age and condition sufficient to remain viable in the circumstances, provided the                                                                                                                                                                                                                                                                                                                                                                  |

series of mitigation measures outlined below are followed to both reduce the immediate impact of working methods and also improve the soil environment that is used by the tree for growth; supervision and monitoring will also be essential.

- 6.1.8 It should be noted that the revised scheme not only reduces the rear wing but also the large terrace in the vicinity of T32 – about which Alex Fraser expressed concern. His observation that *“the new terrace should be relocated elsewhere in the garden or significantly reduced in size to be less than 20% of the RPA”* has therefore been directly addressed (with current impact at closer to 10% of RPA encroachment).

- 6.1.9 Notwithstanding his acceptance that the previous incursions into the nominal RPAs for both T20 and T21 would have a minimal impact given the presence of the existing swimming pool, it is to be noted that the removal of the relevant rear wing in the revised scheme means that there would now be no encroachment attributable to the current proposal.

- 6.1.10 Following the modification of the RPA of T9a, there is no impact to this tree.

- 6.1.11 The RPAs of T22-T30 are also encroached upon by new hard surfacing but given the existing hard surfacing and potential to use a no-dig construction methodology, this is not considered likely to affect tree viability.

- 6.1.12 The new terrace within the RPA of T19 will require installation using a no-dig methodology.

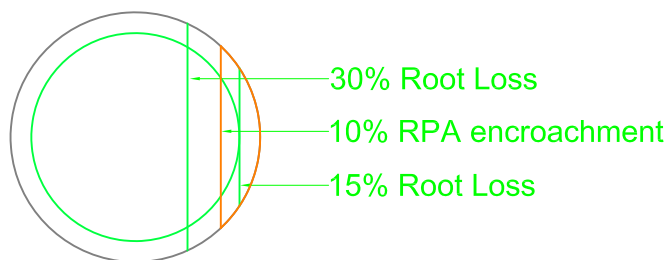
- 6.1.13 Alex Fraser previously expressed concern that loss of the trees / shrubs would have an impact locally and that *“because of the significant increase in the floorspace of the new development, there appears to be insufficient space for large specimen trees to be planted that would replace and enhance the tree canopy cover that would be lost.”* The reduction / removal of the rear wings in the revised scheme significantly increases the available space available for soft landscaping, providing sufficient space for the *“at least 5 semi-mature replacement trees to be planted”* which he expects by way of mitigation – again directly addressing his concern.

- 6.1.14 There has subsequently been a minor adjustment to the position of a small pedestrian gate opening onto Courtenay Avenue. It is now proposed that the gate be located between sycamore T32 and black mulberry T34 – thus moving the opening further away from T34 and providing greater clearance from this small tree. Whilst the new gateway is now moved further into the RPA of T32, the use of minimally invasive foundations (e.g. mini-piles) for the gate piers and no-dig construction for the associated pathway should ensure that any potential impact of this minimal additional incursion is minimised.

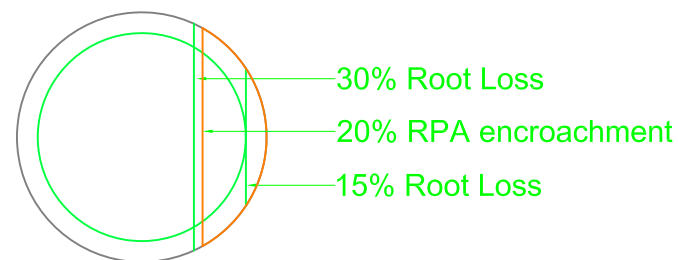
- 6.1.15 There is no set RPA encroachment that is immediately permissible. However, at para 5.3.a of BS5837, the project arboriculturist is charged with demonstrating that the tree(s) will remain viable in the instance of RPA encroachment. Whilst there is little research on RPA encroachment itself, there have been various commonly cited studies of root severance (see

overleaf). Whilst the RPA is not coextensive with the wider root system, one can make some correlations after Thomas (2014): in average (sic) conditions, a straight line tangential with a tree's canopy would transect 15% of the root system, for another mid-way to the trunk that figure would be 30%. In the current cases, **the impacts would be well below the lower of these two parameters** as can be seen in Plan 2 in the Appendix or where more irregular in profile, can be gleaned from the percentage RPA encroachments in Table 1. There is no precise correlation between % RPA and root impairment or loss. However, in our experience, most RPA tend to exceed the free-grown canopy spread a little (c. x 1.2 -1.5), suggesting by reference to both Thomas and Fig. 5a - 5c overleaf, RPA encroachments marginally understate the percentage root loss. The informal 20% RPA threshold may equate to c. 30% root loss, and 10% RPA encroachment to c. 20% root loss. The assumptions made here are relatively crude and apply more to open grown trees but are nonetheless illustrative.

RPA: 5m

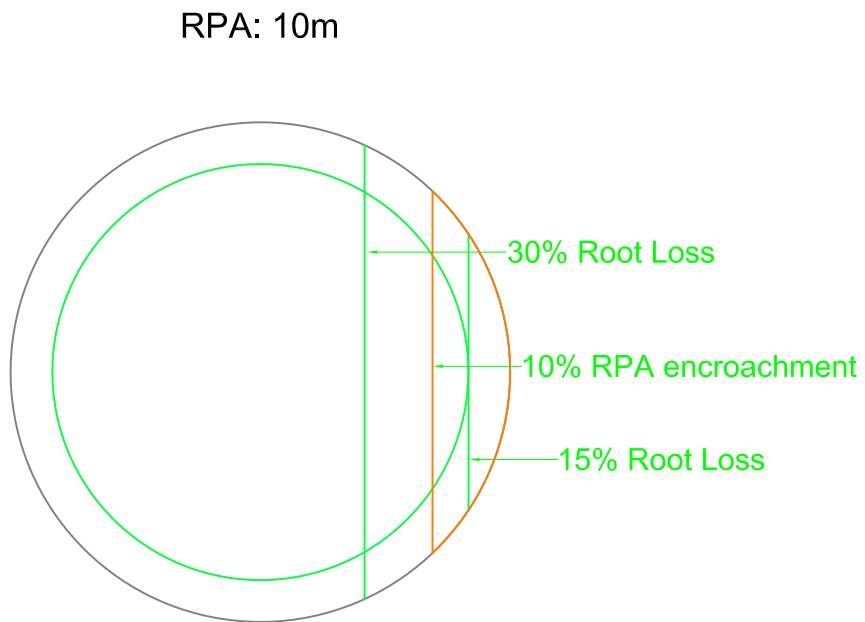


Area 7.98 sq.m. (10.0%)

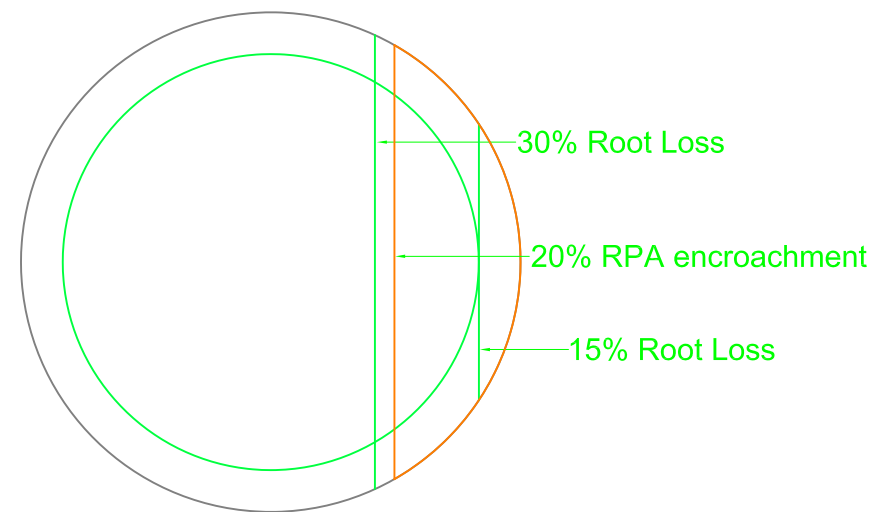


Area 15.96 sq.m. (20.0%)

Figure 5a: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 5m RPA radius (after Thomas (2014))



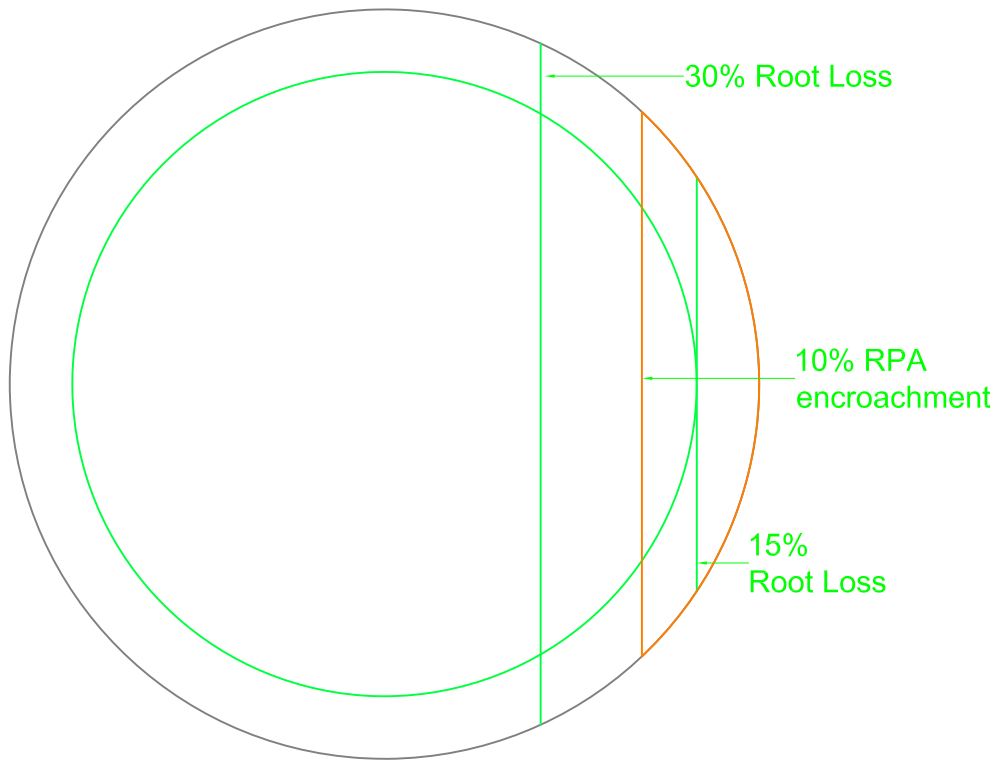
Area 31.17 sq.m. (10.0%)



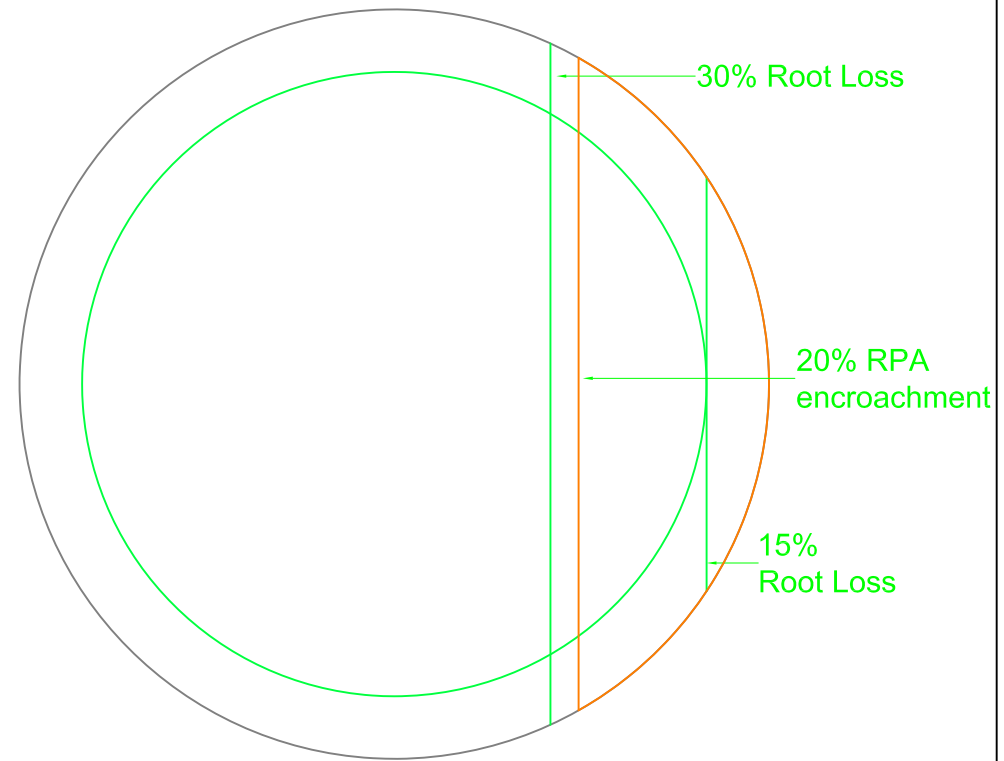
Area 62.33 sq.m. (20%)

Figure 5b: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 10m RPA radius (after Thomas (2014))

RPA: 15m



Area 70.7 sq.m. (10.0%)



Area 141.4 sq.m. (20.0%)

Figure 5c: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 15m RPA radius (after Thomas (2014))

- 6.1.16 Published references suggest healthy trees tolerating up to 30-50% root severance in general (Coder, Helliwell and Watson in CEH 2006). **"In practice 50% of roots can sometimes be removed with little problem**, provided there are vigorous roots elsewhere. Inevitably, this degree of root loss will temporarily slow canopy growth and even lead to some dieback" (Thomas 2014). Clearly, it is not the purpose of this report to sanction impacts to test a tree's physiological tolerance, where the guidance recommends the avoidance of impact / RPA encroachment as the default position. However, it has not proved possible at the design stage to avoid such encroachment altogether, and in that regard, the project arboriculturalist has determined (subject to the findings of further investigations informing design) that the retained trees can remain viable in the scheme before planning.
- 6.1.17 The trees in question are shown in Table 1 above to be healthy specimens of species with a good resistance to development impacts, and of an age quite capable of tolerating these limited impacts. Nor do the site characteristics suggest specific soil anomalies (e.g. heavy clay) having a bearing on such considerations, provided appropriate measures (e.g. ground protection) are taken.
- 6.1.18 As per BS5837 recommendations (at 5.3.a), the above assessment demonstrates that the tree(s) can remain viable and as per the equivalent hatching in Plan 2 of the Appendices that the area(s) lost to encroachment can be compensated for elsewhere. The guide also recommends (at 5.3.b) the arboriculturalist propose a series of mitigation measures (to improve the soil environment that is used by the tree for growth). These are provided at 6.3 below.

## 6.2 Rating of Secondary Impacts

- 6.2.1 There will always be marginal secondary impacts of honeydew / litter deposition and partial shade on this site, regardless of development and thus the status quo is unlikely to change with further development, which is the salient point for planning to consider. Thus, the secondary impacts of development are minimal.

## 6.3 Mitigation of Impacts

- 6.3.1 The replanting scheme will offer considerable enhancement and replaces mainly low quality trees. The removal of the wings will increase planting opportunities to the rear of the property. Replacement trees will have the advantage of being specifically selected for the proposed site, healthy and fit-for-purpose. Design can provide for a diverse range of native and ornamental species that will compliment rather than conflict with the proposals, so providing a more sustainable long-term resource for the future. A selection of tree species and cultivars for open and constricted sites is provided in Appendix 4.

- 6.3.2 RPA encroachments are shown in Plan 2 compensated for elsewhere on contiguous land. Soft ground within the unaffected parts of the RPA will be treated with a 75mm layer of mulch that will be maintained in place throughout the duration of construction activities.
- 6.3.3 Especially given the importance of the street London planes (T26 and T27) adjacent to the site frontage and the restricted site access for construction purposes, tree protection comprising self-supporting boxed hoarding, 2.4m in height, will need to be erected around these Council owned / maintained trees. A Full Arboricultural Method Statement with Tree Protection Plan to reconcile construction activities (including access, which will be a key consideration) as well as information about controlled working and site supervision and other tree protection measures expanding on the measures outlined in this report should be provided. Details can be secured by condition(s).

- 6.3.4 All plant and vehicles engaged in demolition works should either operate outside the RPA, or should run on a temporary surface designed to protect the underlying soil structure. The demolition of the building should proceed inwards in a “pull down” fashion. Hard surfacing can be lifted with caution by a skilled machine operator again working away from the tree.
- 6.3.5 The path of foundations through the RPAs of T26, T31 and T32 and the conventional, circular RPA of T9a will be undertaken manually to 750mm depth under arboricultural supervision; any roots encountered will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist.

- 6.3.6 Any new boundary walls and associated gate piers within RPAs will either use existing foundations or will require the use of specialised foundation techniques, such as mini-piling or pad and raised beam. The foundation pits within the RPA should be trial-excavated by hand under arboricultural supervision using a double-headed spade (“shove-holer”) or similar to minimise breadth of hole required for inspection. Any roots encountered will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist.
- 6.3.7 The replacement paving/hard landscaping will require a no-dig construction technique, either using a cellular confinement system with no fines aggregate for the sub-base or simply building upon the existing sub-base without disturbing the ground below. Choice of construction method will initially depend upon root penetration within the existing sub-grade. The key principle is not to excavate in the presence of roots and to provide a porous surface to promote healthy soil water relations for future root growth. A further consideration in the use of a more expensive cellular confinement system or similar, may be the claimed

reduction in risk of possible future slab / surface displacement by roots of trees growing in paved areas. The degree of encroachment (>20% of RPA) means that a permeable paving surface (e.g. gravel or block paving) is required. The finished section is likely to be up to 150mm above grade, depending on final specification, which will need to be factored into the overall finished site levels. The cellular confinement system with a temporary hard surface (e.g. road stone) can be used for site access during construction and the surface material replaced on completion of construction.

- 6.3.8 The terrace encroachment will require a no-dig construction technique, either using a cellular confinement system with no fines aggregate for the sub-base or simply building upon the existing sub-base without disturbing the ground below. Choice of construction method will initially depend upon root penetration within the existing sub-grade. The key principle is not to excavate in the presence of roots and to provide a porous surface to promote healthy soil water relations for future root growth. A further consideration in the use of a more expensive cellular confinement system or similar, may be the claimed reduction in risk of possible future slab / surface displacement by roots of trees growing in paved areas.

## 7.0 CONCLUSION

- 7.1 The potential impacts of development are all relatively low in terms of both quality of trees removed and also RPA encroachments of trees retained. In the latter case, the report has demonstrated as per BS5837 paragraph 5.3.1 (a) that the tree(s) can remain viable and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA; the report also proposes as per paragraph 5.3.1 (b) a series of mitigation measures to improve the soil environment that is used by the tree for growth.
- 7.2 The full potential of the impacts can thus be largely mitigated through design and precautionary measures. These measures can be elaborated in Method Statements in the discharge of planning conditions.
- 7.3 The species affected are generally tolerant of root disturbance / crown reduction and the retained trees are generally in good health and capable of sustaining these reduced impacts.
- 7.4 The trees that are recommended for felling are of little individual significance, such that their loss will not affect the visual character of the area.
- 7.5 Therefore, the proposals will not have any significant impact on either the retained trees or wider landscape thereby complying with Policies G1 and G7 of the London Plan 2021, Saved Policies UD3 (e) and OS17(c) of the Haringey Unitary Development Plan 2006 and Policies SP11 and SP13 of the Haringey Local Plan. Thus, with suitable mitigation and supervision the scheme is recommended to planning.

## 8.0 RECOMMENDATIONS

### 8.1 Specific Recommendations

- 8.1.1 Tree works recommendations in Appendix 2 are not part of the current application, but requirements of general maintenance that will need to be applied for (subject to para. 3.3 of this report and any other relevant constraints in planning or leasehold) by the client separately. Consent for the current planning application does not impart any consent for the Appendix 2 maintenance works. Please note, though, the owner and / or manager of a property have a duty to maintain a safe site of work and to protect occupiers of the surrounding land / members of the public from tree hazards. Works recommended in this report should be enacted in a timely fashion by the relevant party regardless of the progress of the development.
- 8.1.2 Recommendations for works required to facilitate development are found in Appendix 3 and a selection of columnar tree species cultivars for constricted sites provided in Appendix 4. Any tree removals recommended within this report should only be carried out with local authority consent.
- 8.1.3 Excavation and construction impacts within the RPAs of trees identified in Table 1 above, will need to be controlled by method statements specifying mitigation methods suggested in para 6.3 above and by consultant supervision as necessary. These method statements can be provided as part of the discharge of conditions.
- 8.1.4 Replace felled trees with native ornamental nursery stock under current best practice; i.e. conforming to and planted in accordance with the following:

- BS8545: 2014 Code of Practice for Trees from Nursery to Landscape
- BS 3936-1: 1992 Nursery stock. Specification for trees and shrubs; and
- BS 5236:1975 Cultivation and Planting of Trees in the Advanced Nursery Stock Category.
- All replacement stock should be planted and maintained as detailed in BS 4428:1989 (Section 7): Recommendations for General Landscape Operations.

### 8.2 General Recommendations for Sites Being Developed with Trees / Outline Arboricultural Method Statement

- 8.2.1 Any trees which are in close proximity to the proposed development should be protected with a Tree Protection Barrier (TPB). Protective barrier fencing should be installed immediately following the completion of the tree works, remaining in situ for the entire duration of the development unless otherwise agreed in writing by the Council. It should be appropriate for the intensity and proximity of the development, usually comprising steel, mesh panels 2.4m

in height ('Heras') and should be mounted on a scaffolding frame (shown in Fig 2 of BS5837:2012). Self-supporting boxed hoarding protection will also be erected around street trees on the site frontage. The position of the TPB can be shown on plan as part of the discharge of conditions, once the layout is agreed with the planning authority. The TPB should be erected prior to commencement of works, remain in its original form on-site for the duration of works and be removed only upon full completion of works.

- 8.2.2 A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA.
- 8.2.3 The use of heavy plant machinery for building demolition, removal of imported materials and grading of surfaces should take place in one operation. The necessary machinery should be located above the existing grade level and work away from any retained trees. This will ensure that any spoil is removed from the RPAs. It is vital that the original soil level is not lowered as this is likely to cause damage to the shallow root systems.
- 8.2.4 Any pruning works must be in accordance with British Standard 3998:2010 Tree work [BS3998].
- 8.2.5 Where sections of hard surfacing are proposed in close proximity to trees, it is recommended that "No-Dig" surfacing be employed in accordance with BS5837:2012 and 'The Principles of Arboricultural Practice: Note 1, Driveways Close to Trees, AAIS 1996 [APN1]'.
- 8.2.6 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.
- 8.2.7 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.

- 8.2.8 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:
- 1) Plan of underground services.
  - 2) Schedule of tree protection measures, including the management of harmful substances.
  - 3) Method statements for constructional variations regarding tree proximity (e.g. foundations, surfacing and scaffolding).

- 4) Site logistics plan to include storage, plant parking/stationing and materials handling.
- 5) Tree works: felling, required pruning and new planting. All works must be carried out by a competent arborist in accordance with BS3998.
- 6) Site supervision: the Site Agent must be nominated to be responsible for all day-to-day arboricultural matters on site. This person must:
  - be present on site for the majority of the time;
  - be aware of the arboricultural responsibilities;
  - have the authority to stop work causing, or may cause harm to any tree;
  - ensure all site operatives are aware of their responsibilities to the trees on site and the consequences of a failure to observe these responsibilities;
  - arrange with the retained arboricultural consultant an initial pre-start briefing to inspect tree protection measures and agree a schedule of monitoring thereof on an initial monthly basis to be reviewed over the duration of works.
  - give advance notice (ideally 2 weeks) to retained arboricultural consultant to arrange for supervision of any excavation (especially for services and foundations) within RPA
  - make immediate contact with the local authority and/or a retained arboricultural consultant in the event of any tree related problems occurring.

8.2.9 These points can be resolved and approved through consultation with the planning authority via their Arboricultural Officer.

8.2.10 The sequence of works should be as follows:

- i) initial tree works: felling, stump grinding and pruning for working clearances;
- ii) installation of TPB for demolition & construction;
- iii) installation of underground services;
- iv) installation of ground protection;
- v) main construction;
- vi) removal of TPB;
- vii) soft landscaping.

## 9.0 COMPLIANCE: Trees and the Planning System

- 9.1 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.
- 9.2 The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term “minimum detail” is intended to reflect information that local authorities are expected to seek, whilst the term “additional information” identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

- 9.3 This report delivers information appropriate to a full planning application and to these specific proposals as per BS5837 Table B.1 below, providing both minimum details and further additional material in the form of general tree protection recommendations and constructional variation.

Table B.1 Delivery of tree-related information into the planning system

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

## 10.0 REFERENCES

- Barlow JF & Harrison G. 1999. Shade By Trees, Arboricultural Practice Note 5, AAIS, Farnham, Surrey.
- British Standards Institute. 2012. Trees in Relation to Design, Demolition and Construction - Recommendations BS 5837: 2012 HMSO, London.
- Centre for Ecology & Hydrology. 2006. Tree Roots in the Built Environment, HMSO, London.
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- Lonsdale D 1999. Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management, HMSO, London.
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- Mattheck C. & Breloer H. 1994. Research for Amenity Trees No.2: The Body Language of Trees, HMSO, London.
- Thomas P, 2000 & 2014. Trees: Their Natural History, Cambridge University Press, Cambridge.
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**Landmark Trees**

#### **Caveats**

This report is primarily an arboricultural report. Whilst comments relating to matters involving built structures or soil data may appear, any opinion thus expressed should be viewed as qualified, and confirmation from an appropriately qualified professional sought. Such points are usually clearly identified within the body of the report. It is not a full safety survey or subsidence risk assessment survey. These services can be provided but a further fee would be payable. Where matters of tree condition with a safety implication are noted during a survey they will of course appear in the report.

A tree survey is generally considered invalid in planning terms after 2 years, but changes in tree condition may occur at any time, particularly after acute (e.g. storm events) or prolonged (e.g. drought) environmental stresses or injuries (e.g. root severance). Routine surveys at different times of the year and within two - three years of each other (subject to the incidence of the above stresses) are recommended for the health and safety management of trees remote from highways or busy access routes. Annual surveys are recommended for the latter.

Tree works recommendations are found in the Appendices to this report. It is assumed, unless otherwise stated ("ASAP" or "Option to") that all husbandry recommendations will be carried out within 6 months of the report's first issue. Clearly, works required to facilitate development will not be required if the application is shelved or refused. However, necessary husbandry work should not be shelved with the application and should be brought to the attention of the person responsible, by the applicant, if different. Under the Occupiers Liability Act of 1957, the owner (or his agent) of a tree is charged with the due care of protecting persons and property from foreseeable damage and injury.' He is responsible for damage and/or nuisance arising from all parts of the tree, including roots and branches, regardless of the property on which they occur. He also has a duty under The Health and Safety at Work Act 1974 to provide a safe place of work, during construction. Tree works should only be carried out with local authority consent, where applicable.

Inherent in a tree survey is assessment of the risk associated with trees close to people and their property. Most human activities involve a degree of risk, such risks being commonly accepted if the associated benefits are perceived to be commensurate.

Risks associated with trees tend to increase with the age of the trees concerned, but so do many of the benefits. It will be appreciated, and deemed to be accepted by the client, that the formulation of recommendations for all management of trees will be guided by the cost-benefit analysis (in terms of amenity), of tree work that would remove all risk of tree related damage.

Prior to the commencement of any tree works, an ecological assessment of specific trees may be required to ascertain whether protected species (e.g. bats, badgers and invertebrates etc.) may be affected.



Landmark Trees

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## PART 2 – APPENDICES

## APPENDIX 1

### TREE SCHEDULE

#### Botanical Tree Names

|                           |                         |                  |                          |
|---------------------------|-------------------------|------------------|--------------------------|
| Apple                     | : Malus sp              | Laurel, Cherry   | : Prunus laurocerasus    |
| Birch, Silver             | : Betula pendula        | Magnolia, Saucer | : Magnolia × soulangeana |
| Cherry, Wild cherry /Gean | : Prunus avium          | Mulberry, Black  | : Morus nigra            |
| Cypress, Leyland          | : Cupressus × leylandii | Oak, English     | : Quercus robur          |
| Holly, Common/English     | : Ilex aquifolium       | Plane, London    | : Platanus acerifolia    |
| Locust, Honey             | : Gleditsia triacanthos | Plum, Cherry     | : Prunus cerasifera      |
| Laburnum, Common          | : Laburnum anagyroides  | Sycamore         | : Acer pseudoplatanus    |

#### Notes for Guidance:

1. Height describes the approximate height of the tree measured in metres from ground level.
2. The Crown Spread refers to the crown radius in meters from the stem centre and is expressed as an average of NSEW aspect if symmetrical.
3. Ground Clearance is the height in metres of crown clearance above adjacent ground level.
4. Stem Diameter (Dm) is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees. BS 5837:2012 formula (Section 4.6) used to calculate diameter of multi-stemmed trees. Stem Diameter may be estimated where access is restricted and denoted by '#'.
5. Protection Multiplier is 12 and is the number used to calculate the tree's protection radius and area
6. Protection Radius is a radial distance measured from the trunk centre.
7. Growth Vitality - Normal growth, Moderate (below normal), Poor (sparse/weak), Dead (dead or dying tree).
8. Structural Condition - Good (no or only minor defects), Fair (remediable defects), Poor - Major defects present.
9. Landscape Contribution - High (prominent landscape feature), Medium (visible in landscape), Low (secluded/among other trees).
10. B.S. Cat refers to (British Standard 5837:2012 section 4.5) and refers to tree/group quality and value; 'A' – High, 'B' - Moderate, 'C' - Low, 'U' - Unsuitable for retention. The following colouring has been used on the site plans:
  - High Quality (A) (Green),
  - Moderate Quality (B) (Blue),
  - Low Quality (C) (Grey),
  - Unsuitable for Retention (U) (Red)
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is Landscape and 3 is Cultural including Conservational, Historic and Commemorative.
12. Useful Life is the tree's estimated remaining contribution in years.

| Tree No. | English Name | Height | Crown Spread |     |     |     | Ground Clearance | Stem Diameter | Age Class | Protection Radius | Growth Vitality | Structural Condition | B.S. Cat | Sub Cat | Useful Life | Comments                                                                                                                     |
|----------|--------------|--------|--------------|-----|-----|-----|------------------|---------------|-----------|-------------------|-----------------|----------------------|----------|---------|-------------|------------------------------------------------------------------------------------------------------------------------------|
| 2        | Sycamore     | 17     | 5            | 5   | 4   | 4   | 2.5              | 620           | M         | 7.44              | Normal          | Fair                 | B        | 2       | 40+         | Large stem cavity SW side. 170cm x 15cm, heartwood degrading. Strong reactive growth. Near occluding. Lamp attached to stem. |
| 3        | Common Oak   | 17     | 8            | 9   | 7   | 8   | 2                | 1020          | M         | 12.24             | Normal          | Good                 | B        | 2       | 40+         | Beginning to stag head. Dieback in upper crown.                                                                              |
| 4        | Sycamore     | 16     | 6            | 6   | 4   | 4   | 1.5              | 420,270       | EM        | 5.99              | Normal          | Fair                 | C        | 1       | 40+         | Bifurcated from base. Of middling form.                                                                                      |
| 5        | Sycamore     | 16     | 5            | 4   | 5   | 5   | 2                | 470           | EM        | 5.64              | Normal          | Good                 | B        | 2       | 40+         | Phototropic growth form.                                                                                                     |
| 6        | Sycamore     | 12     | 5            | 4   | 5   | 5   | 2                | 280           | SM        | 3.36              | Normal          | Good                 | C        | 2       | 40+         | Historically lost apical growth . Poor form.                                                                                 |
| 7        | Sycamore     | 16     | 4            | 5   | 4   | 5.5 | 3                | 480           | EM        | 5.76              | Normal          | Good                 | B        | 2       | 40+         | Historically topped at approx. 6m. Bifurcated above.                                                                         |
| 8        | Sycamore     | 16     | 4            | 5   | 4   | 6   | 0.5              | 450           | EM        | 5.4               | Normal          | Good                 | B        | 2       | 40+         | Tree of middling form.                                                                                                       |
| 9        | Sycamore     | 20     | 8            | 6   | 8   | 8   | 3                | 670,670       | M         | 11.38             | Normal          | Good                 | B        | 1       | 40+         | Bifurcated from 1.00m, some static deadwood. Lamp attached to base.                                                          |
| 10A      | Sycamore     | 5      | 2            | 0   | 5   | 0   | 2                | 160           | SM        | 1.92              | Poor            | Poor                 | U        |         | <10         | Poor quality self set stem, leaning out to east. Dead top.                                                                   |
| 10       | Sycamore     | 7      | 5            | 4   | 5   | 5   | 2                | 270           | SM        | 3.24              | Moderate        | Fair                 | C        | 2       | 40+         | Suppressed by adjacent more dominant trees. Location approx.                                                                 |
| 11       | Sycamore     | 17     | 7            | 6   | 8   | 7   | 2.5              | 640           | EM        | 7.68              | Normal          | Good                 | B        | 2       | 40+         |                                                                                                                              |
| 12       | Common Oak   | 16     | 4            | 3   | 4   | 7   | 3                | 450           | M         | 5.4               | Poor            | Fair                 | B        | 2       | 20+         | Declining. Dieback in crown. Low bud/leaf density. Major deadwood in crown. Offsite . DBH estimated.                         |
| 13       | Sycamore     | 19     | 4            | 2.5 | 4   | 7   | 3.5              | 440           | EM        | 5.28              | Moderate        | Good                 | B        | 2       | 40+         | Slight apical dieback at tips.                                                                                               |
| 14       | Sycamore     | 21     | 5.5          | 3.5 | 3.5 | 8   | 1.5              | 500           | EM        | 6                 | Moderate        | Good                 | B        | 2       | 40+         | Slight apical dieback at very tips of crown.                                                                                 |

| Tree No. | English Name    | Height | Crown Spread |    |     |     | Ground Clearance | Stem Diameter | Age Class | Protection Radius | Growth Vitality | Structural Condition | B.S. Cat | Sub Cat | Useful Life | Comments                                                                 |
|----------|-----------------|--------|--------------|----|-----|-----|------------------|---------------|-----------|-------------------|-----------------|----------------------|----------|---------|-------------|--------------------------------------------------------------------------|
| 15       | Leyland Cypress | 13     | 4            | 4  | 4   | 4   | 0                | 400           | EM        | 4.8               | Normal          | Good                 | C        | 2       | 20+         | Remote Survey (RS)                                                       |
| 17       | Common Oak      | 11     | 4            | 4  | 4   | 4   | 2                | 280           | SM        | 3.36              | Normal          | Good                 | C2       | 2       |             | Remote Survey (RS)                                                       |
| 18       | Cypress         | 10     | 2            | 2  | 2   | 2   | 1                | 200           | SM        | 2.4               | Normal          | Good                 | C        | 2       |             | Remote Survey (RS)                                                       |
| 19       | Common Oak      | 10     | 4            | 4  | 4   | 3   | 2                | 280           | SM        | 3.36              | Normal          | Good                 | C        | 2       |             | Remote Survey (RS)                                                       |
| 20       | Common Oak      | 24     | 7            | 6  | 4   | 5   | 8                | 850           | M         | 10.2              | Normal          | Fair                 | B        | 2       |             | Remote Survey (RS)                                                       |
| 21       | Common Oak      | 18     | 3            | 8  | 6   | 5   | 8                | 950           | M         | 11.4              | Moderate        | Fair                 | B        | 2       |             | Remote Survey (RS)                                                       |
| 22       | Sycamore        | 9      | 2            | 3  | 3   | 3   | 3                | 180           | SM        | 2.16              | Normal          | Good                 | C        | 2       |             |                                                                          |
| 23       | Silver Birch    | 12     | 3            | 3  | 2   | 3   | 2                | 260           |           | 3.12              | Normal          | Good                 | C        | 2       |             |                                                                          |
| 24       | Silver Birch    | 11     | 3            | 3  | 3   | 2   | 2                | 230           | SM        | 2.76              | Normal          | Good                 | C        | 2       |             |                                                                          |
| 25       | London Plane    | 11     | 8            | 4  | 7.5 | 3   | 4                | 620           | EM        | 7.44              | Poor            | Fair                 | C        | 1       | 10+         | LPA maintained . Apical dieback. And dieback at. North west side.        |
| 26       | London Plane    | 26     | 8            | 10 | 7   | 8   | 6                | 1060          | M         | 12.72             | Normal          | Fair                 | A        | 2       | 40+         | LPA maintained ^.                                                        |
| 27       | London Plane    | 26     | 7            | 7  | 7   | 7   | 3.5              | 1010          | M         | 12.12             | Normal          | Fair                 | B        | 1       | 10+         | Dieback in crown. Low bud/leaf density. Apical dieback . LPA maintained. |
| 28       | Magnolia        | 5.5    | 5            | 3  | 5.5 | 5   | 1                | 210           | EM        | 2.52              | Normal          | Fair                 | C        | 1       | 40+         | Suppressed by adjacent more dominant plane.                              |
| 29       | Laburnum        | 7      | 3            | 5  | 3   | 2.5 | 1.5              | 420           | M         | 5.04              | Normal          | Fair                 | C        | 1       | 10+         | Included bark union at 2.00m. Minor static deadwood.                     |

| Tree No. | English Name      | Height | Crown Spread |     |     |     | Ground Clearance | Stem Diameter | Age Class | Protection Radius | Growth Vitality | Structural Condition | B.S. Cat | Sub Cat | Useful Life | Comments                                                                                                                                                                                                                                                                                                                     |
|----------|-------------------|--------|--------------|-----|-----|-----|------------------|---------------|-----------|-------------------|-----------------|----------------------|----------|---------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 30       | Cherry Plum       | 7      | 4            | 1.5 | 3   | 1   | 1                | 210           | EM        | 2.52              | Normal          | Fair                 | C        | 2       | 20+         | Leaning East. Phototropic growth form.                                                                                                                                                                                                                                                                                       |
| n        | Wild Cherry       | 7      | 1            | 7.5 | 3.5 | 5   | 1.5              | 360           | M         | 4.32              | Moderate        | Fair                 | C        | 1       | 20+         | Leaning South. Minor deadwood, exposed surface roots.                                                                                                                                                                                                                                                                        |
| 32       | Sycamore          | 19     | 7.5          | 7.5 | 10  | 8   | 7.5              | 840           | M         | 10.08             | Normal          | Fair                 | B        | 1       | 40+         | Minor thinning/ dieback of apical growth, dead stubs in lower crown.                                                                                                                                                                                                                                                         |
| 33       | Cypress           | 15     | 3.5          | 3.5 | 3.5 | 3.5 | 1.5              | 610           | M         | 7.32              | Normal          | Good                 | B        | 1       | 40+         |                                                                                                                                                                                                                                                                                                                              |
| 34       | Black Mulberry    | 3      | 2            | 2   | 2   | 2   | 0                | 100           | SM        | 1.2               | Normal          | Fair                 | C        | 2       | 40+         |                                                                                                                                                                                                                                                                                                                              |
| G1       | Mixed shrubs      | 6      | 3.5          | 3.5 | 4   | 5.5 | 0                | 200           | EM        | 2.4               | Moderate        | Fair                 | C        | 2       | 40+         | Linear screening group, all of middling form and poor arboricultural quality as individuals. Comprise from N to S: Japanese cherry, pillar crab, holly and tree cotoneaster. The latter has a sprawling habit and decay in its lower limbs from lopping over the gate entrance, and the pillar crab has dieback at the tips. |
| 9a       | Sycamore          | 14     | 4            | 4   | 4   | 4   | 2.5              | 360           | SM        | 4.32              | Normal          | Fair                 | C        | 2       | 20+         | Unsuitable species for position, next to buildings. Competing low lateral. Remote survey only.                                                                                                                                                                                                                               |
| H10a     | Western Red Cedar | 6      | 0.5          | 0.5 | 0.5 | 0.5 | 0                | 100           | Y         | 1.2               | Normal          | Good                 | C        | 2       | 20+         | Occasional 30mm dia. stems collapsing outwards                                                                                                                                                                                                                                                                               |
| H11a     | Cypress, Leyland  | 6      | 1.5          | 1.5 | 1.5 | 1.5 | 0                | 320           | Y         | 3.84              | Normal          | Fair                 | C        | 2       | 20+         | Pollarded                                                                                                                                                                                                                                                                                                                    |
| 14a      | Hornbeam          | 12     | 3            | 4   | 4   | 4   | 1.5              | 255           | SM        | 3.06              | Normal          | Good                 | C        | 2       | >40         |                                                                                                                                                                                                                                                                                                                              |
| 15a      | Hornbeam          | 14     | 2            | 4   | 3   | 2   | 2                | 220           | SM        | 2.64              | Normal          | Good                 | C        | 2       | >40         |                                                                                                                                                                                                                                                                                                                              |

## APPENDIX 2

### RECOMMENDED TREE WORKS

#### Notes for Guidance:

#### **Husbandry 1 - Urgent (ASAP), 2 - Standard (within 6 months), 3 - Non-urgent (2-3 years)**

- CB - Cut Back to boundary/clear from structure.
- CL# - Crown Lift to given height in meters.
- CT#% - Crown Thinning by identified %.
- CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
- DWD - Remove deadwood.
- Fell - Fell to ground level.
- FInv - Further Investigation (generally with decay detection equipment).
- Pol - Pollard or re-pollard.
- Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
- Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

| Tree No. | English Name | Height | Crown Spread |     |   |     | Ground Clearance | B.S. Cat | Sub Cat | Comments                                                                                                                                                                                                                                                                                                                      | Preliminary Recommendations |
|----------|--------------|--------|--------------|-----|---|-----|------------------|----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 3        | Common Oak   | 17     | 8            | 9   | 7 | 8   | 2                | B        | 2       | Beginning to stag head. Dieback in upper crown.                                                                                                                                                                                                                                                                               | DWD - RH2                   |
| 9        | Sycamore     | 20     | 8            | 6   | 8 | 8   | 3                | B        | 1       | Bifurcated from 1.00m, some static deadwood. Lamp attached to base.                                                                                                                                                                                                                                                           | DWD - RH2                   |
| 10A      | Sycamore     | 5      | 2            | 0   | 5 | 0   | 2                | U        |         | Poor quality self set stem, leaning out to east. Dead top.                                                                                                                                                                                                                                                                    | Fell - RH2                  |
| G1       | Mixed shrubs | 6      | 3.5          | 3.5 | 4 | 5.5 | 0                | C        | 2       | Linear screening group, all of middling form and poor arboricultural quality as individuals. Comprised from N to S: Japanese cherry, pillar crab, holly and tree cotoneaster. The latter has a sprawling habit and decay in its lower limbs from lopping over the gate entrance, and the pillar crab has dieback at the tips. | CL3 cotoneaster only - RH2  |

## APPENDIX 3

### RECOMMENDED TREE WORKS TO FACILITATE DEVELOPMENT (See Table 1)

#### Notes for Guidance:

- RP - Pre-emptive root pruning of foundation encroachments under arboricultural supervision.
- CB - Cut Back to boundary/clear from structure.
- CL# - Crown Lift to given height in meters.
- CT#% - Crown Thinning by identified %.
- CCL - Crown Clean (remove deadwood/crossing and hazardous branches and stubs)\*.
- CR#% - Crown Reduce by given maximum % (of outermost branch & twig length)
- DWD - Remove deadwood.
- Fell - Fell to ground level.
- FInv - Further Investigation (generally with decay detection equipment).
- Pol - Pollard or re-pollard.
- Mon - Check / monitor progress of defect(s) at next consultant inspection which should be <18 months in frequented areas and <3 years in areas of more occasional use. Where clients retain their own ground staff, we recommend an annual in- house inspection and where practical, in the aftermath of extreme weather events.
- Svr Ivy / Clr Bs - Sever ivy / clear base and re-inspect base / stem for concealed defects.

\*Not generally specified following BS3998:2010

| Tree No. | English Name                                          | Height | Crown Spread |     |     |     | Ground Clearance | B.S. Cat | Sub Cat | Comments                                                                                                                                       | Works Recommended to Facilitate Development |
|----------|-------------------------------------------------------|--------|--------------|-----|-----|-----|------------------|----------|---------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| 15       | Leyland Cypress                                       | 13     | 4            | 4   | 4   | 4   | 0                | C        | 2       | Remote Survey (RS)                                                                                                                             | Fell                                        |
| 17       | Common Oak                                            | 11     | 4            | 4   | 4   | 4   | 2                | C2       | 2       | Remote Survey (RS)                                                                                                                             | Fell                                        |
| 18       | Cypress                                               | 10     | 2            | 2   | 2   | 2   | 1                | C        | 2       | Remote Survey (RS)                                                                                                                             | Fell                                        |
| 23       | Silver Birch                                          | 12     | 3            | 3   | 2   | 3   | 2                | C        | 2       |                                                                                                                                                | CL 5m                                       |
| 24       | Silver Birch                                          | 11     | 3            | 3   | 3   | 2   | 2                | C        | 2       |                                                                                                                                                | CL 5m                                       |
| 28       | Magnolia                                              | 5.5    | 5            | 3   | 5.5 | 5   | 1                | C        | 1       | Suppressed by adjacent more dominant plane.                                                                                                    | Fell                                        |
| 31       | Wild Cherry                                           | 7      | 1            | 7.5 | 3.5 | 5   | 1.5              | C        | 1       | Leaning South. Minor deadwood, exposed surface roots.                                                                                          | CB 2m                                       |
| 33       | Cypress                                               | 15     | 3.5          | 3.5 | 3.5 | 3.5 | 1.5              | B        | 1       |                                                                                                                                                | Fell                                        |
| G1       | Cotoneaster, Apple, Cherry Plum, Cherry Laurel, Holly | 6      | 3.5          | 3.5 | 4   | 5.5 | 0                | C        | 2       | Linear screening group, all of middling form and poor arboricultural quality as individuals . Prunus at north overhanging drive significantly. | Fell                                        |

## APPENDIX 4: TREE SELECTION FOR URBAN LOCATIONS

Table A4.1: Small Ornamental Tree Species

| Common Name          | Species                     | (Columnar Form for discrete usage) |
|----------------------|-----------------------------|------------------------------------|
| Hawthorn             | <i>Crataegus monogyna</i>   | Stricta                            |
| Cockspur             | <i>Crataegus prunifolia</i> | Splendens                          |
| Cherry               | <i>Prunus x hillieri</i>    | Spire                              |
| Bird cherry          | <i>Prunus padus</i>         | Albertii                           |
| Rowan / Mountain ash | <i>Sorbus aucuparia</i>     | Cardinal Royal                     |
| Swedish whitebeam    | <i>Sorbus intermedia</i>    | Brouwers                           |
| B. whitebeam         | <i>Sorbus x thuringiaca</i> | Fastigiata                         |

Table A4.2: Medium Specimen Tree Species

| Common Name            | Species                        | (Columnar Form for discrete usage) |
|------------------------|--------------------------------|------------------------------------|
| Chinese red bark birch | <i>Betula albosinensis</i>     | Fascination                        |
| Mongolian lime         | <i>Tilia mongolica</i>         |                                    |
| Hornbeam               | <i>Carpinus betulus</i>        | Fastigiata Frans Fontaine          |
| Turkish hazel          | <i>Corylus colurna</i>         |                                    |
| Maidenhair tree        | <i>Ginkgo biloba</i>           |                                    |
| Pride of India         | <i>Koelreuteria paniculata</i> | Fastigiata                         |
| European larch         | <i>Larix decidua</i>           | Sheerwater Seedling                |
| Tulip tree             | <i>Liriodendron tulipifera</i> | Fastigiata                         |

Table A4.3: Larger Specimen Tree Species

| Common Name      | Species                          | (Columnar Form for discrete usage) |
|------------------|----------------------------------|------------------------------------|
| English oak      | <i>Quercus robur</i>             | f. Koster                          |
| American elm     | <i>Ulmus americana</i> Princeton |                                    |
| Cedar of Lebanon | <i>Cedrus libani</i>             |                                    |



## PART 3 – PLANS

**PLAN 1****TREE CONSTRAINTS PLAN**



**NOTE:**  
This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.  
  
Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.  
  
Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees.



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|                                      |          |
|--------------------------------------|----------|
| Site: 44-46 Hampstead Lane           | 1-250@A1 |
| Drawing Title: Tree Constraints Plan | May 2021 |

Key:

- Category A High Quality
- Category B Good Quality
- Category C Moderate Quality
- Category R Poor Quality

Category

Root Protection Area

Tree Position Approximate (not shown on original survey)

Crown Spread

Tree Number

Species

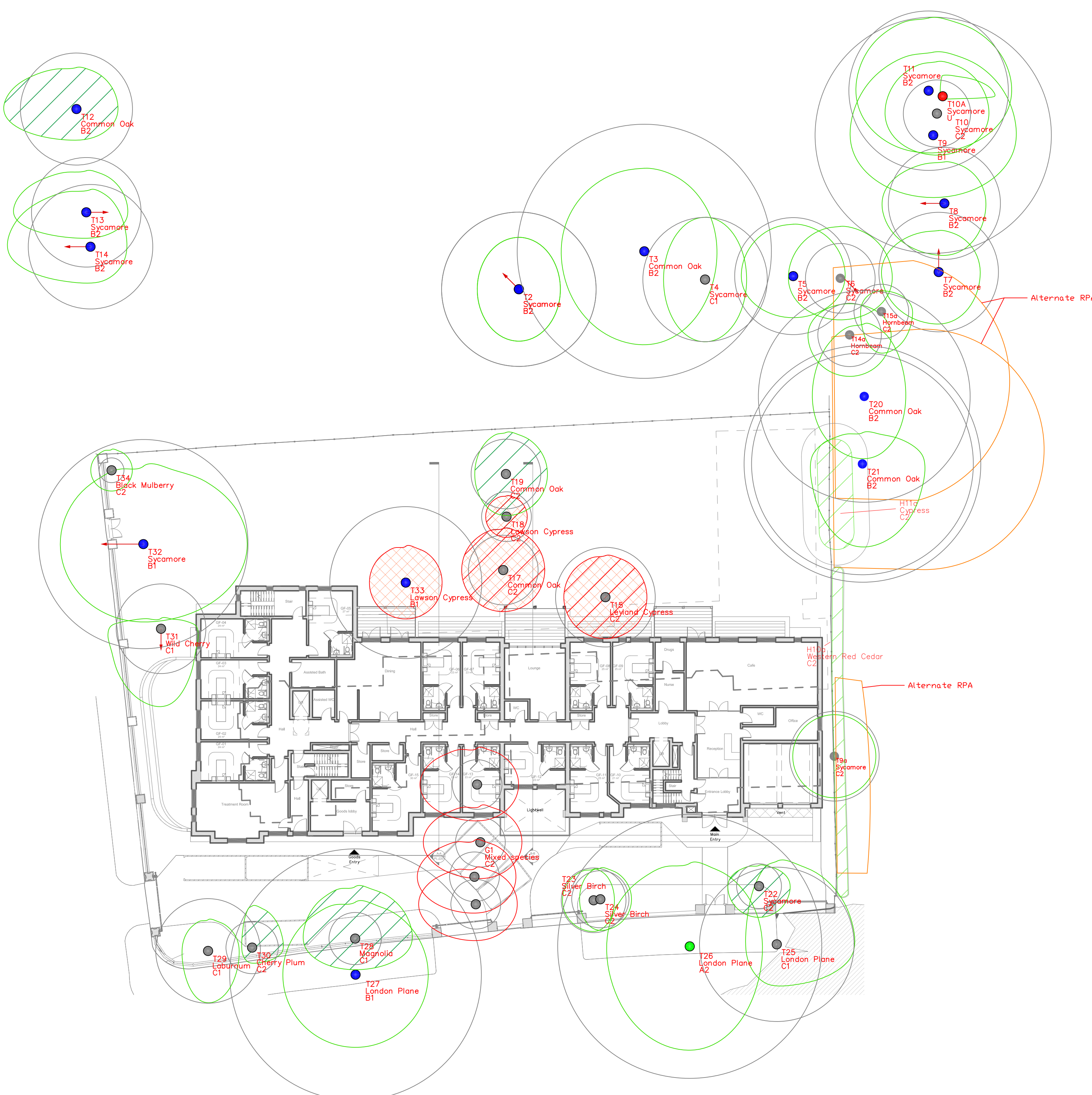
Category

**PLAN 2****ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)**

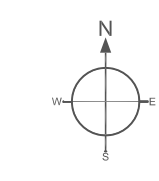
- i. Lower Ground Floor
- ii. Ground Floor
- iii. Site Plan



- Key
- Existing Property outline
  - 1.5m Cut line
  - 1.8m Cut line
  - Boundary line
  - Root Protection Zone
  - Existing Trees
  - Trees to be removed



Proposed Ground Floor Plan



NOTE:

This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.

Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees.

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|                                                  |           |
|--------------------------------------------------|-----------|
| Site: 44-46 Hampstead Lane                       | 1-250@A1  |
| Drawing Title: Arboricultural Impacts Assessment | July 2022 |

Key:

- Category A High Quality
- Category B Good Quality
- Category C Moderate Quality
- Category R Poor Quality
- Category R Tree Felled To Facilitate Development

Category

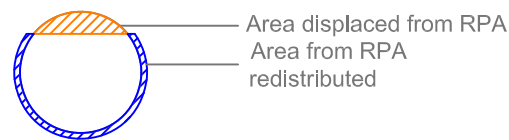
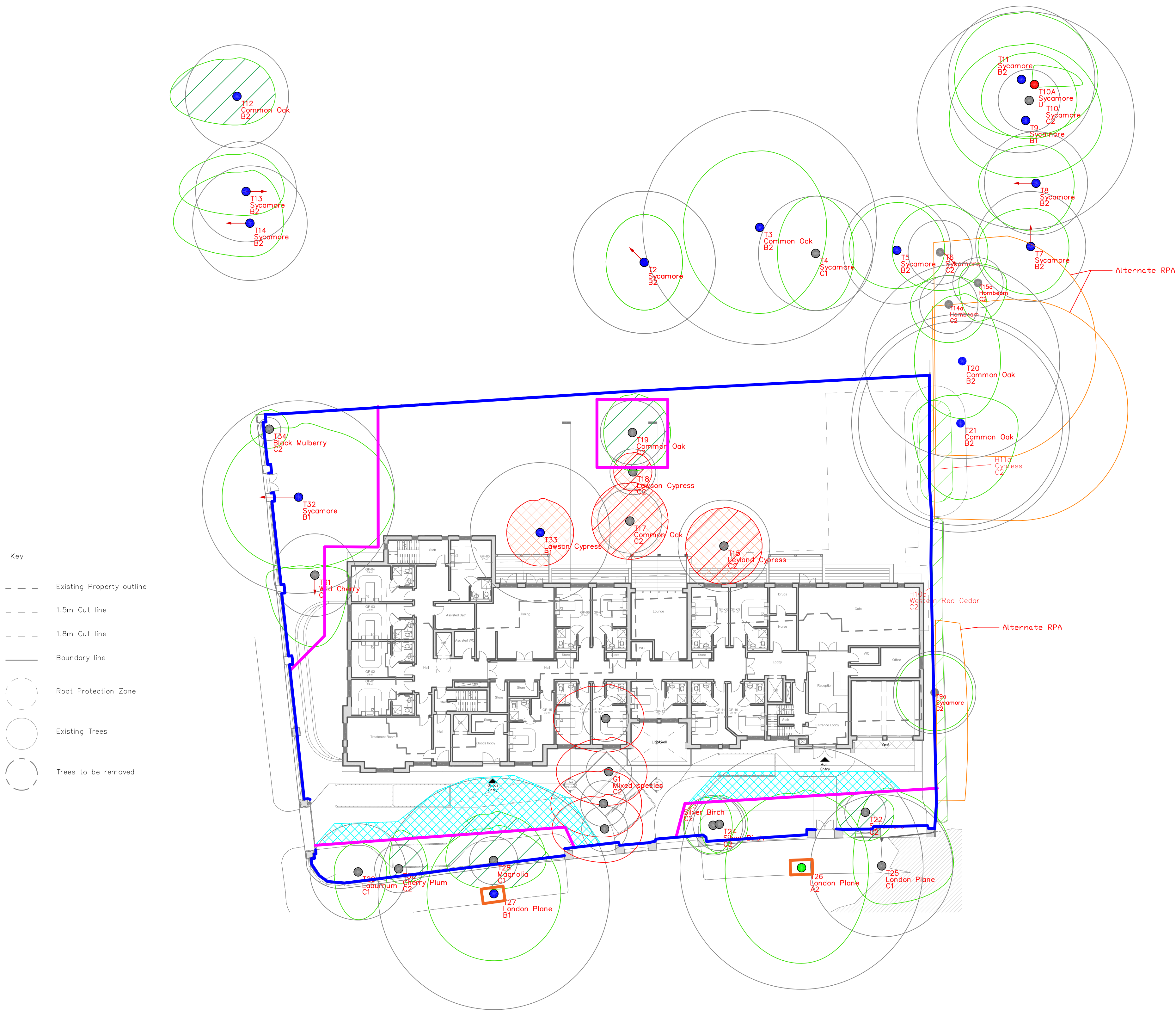
- Crown Spread
- Tree Number
- Species
- Category
- Root Protection Area
- Tree Position Approximate (not shown on original survey)

Note: Minor discrepancies between bases in existing and proposed plans may cause some approximation in tree locations



**PLAN 3**

**OUTLINE TREE PROTECTION PLAN**



**NOTE:**  
This survey is of a preliminary nature. The trees were inspected from the ground only on the basis of the Visual Tree Assessment method. No samples were taken for analysis. No decay detection equipment was employed. The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.  
Branch spread in metres is taken at the four cardinal points to derive an accurate representation of the crown.  
Root Protection Areas (RPA) are derived from stem diameter measured at 1.5 m above adjacent ground level (taken on sloping ground on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees.

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|                                     |              |
|-------------------------------------|--------------|
| Site: 44-46 Hampstead Lane          | 1-250@A1     |
| Drawing Title: Tree Protection Plan | January 2023 |

**Key:**

|                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category A<br>High Quality<br>Category B<br>Good Quality<br>Category C<br>Moderate Quality<br>Category R<br>Poor Quality<br>Tree Felled To Facilitate Development<br>Ground Protection<br>Self supporting boxed hoarding 2.4m in height | Category<br>Crown Spread<br>Tree Number<br>Species<br>Category<br>Root Protection Area<br>Tree Position Approximate (not shown on original survey)<br>Tree Protection Fencing<br>Tree Protection Fencing: construction of boundary walls and gate piers in accordance with s6.3.5 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note: Minor discrepancies between bases in existing and proposed plans may cause some approximation in tree locations