Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:

10a Oakhill Avenue

London

NW3 7RE

INSTRUCTING PARTY:

Private Client c/o AD Design Concepts

REPORT PREPARED BY

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Ref: ADC/10aOA/AIA/05a

Date:30th July 2024

PART 1: MAIN TEXT

PART 2 - APPENDICES

PART 3 - PLANS

DOCUMENT HISTORY

Revision	Status	Comments	Date
Rev 0	DRAFT	For Internal Review (Client / Design Team)	25/01/2024
Rev 01a	AUTHORISED	For External Issue	30/07/24

1. SUMMARY

1.1 The existing site is a residential property with substantial rear garden containing a number of trees potentially constraining development. The proposal includes internal alterations, rear and front extensions, erection of new basement and remodelling of existing facades and top floor.

1.2 There are 30 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, with the exception of 2 poor quality trees.

1.3 A number of previous planning applications on the site have been consented, the most relevant of which is 2015/1628/P which allowed for essentially the same layout as considered herein with the exception of that consent including a double level basement. Given that the tree constraints have not materially altered in the meantime, it follows that there is no material change in the impacts already consented. Notwithstanding this, this report will identify and assess these impacts below.

1.4 The report has assessed the impacts of the 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 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.

1.5 Whilst the default position is that structures be located outside the Root Protection Area* (RPA) of trees to be retained, there are some modest encroachments that could not be avoided in the design of the scheme. The previous trial excavations have allowed the report to demonstrate that the tree(s) can remain viable; 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.

1.6 Notwithstanding the above assurances, the report sets out a series of recommendations prior and during construction that will ensure impacts to trees are minimised. These are detailed in sections 6.3 and 8 of this report.

1.7 In conclusion, the proposal, through following the above recommendations, will have 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 AD Design Concepts instructed Landmark Trees (LT) to prepare this Arboricultural Impact Assessment on behalf of their client, to support a full planning application submitted to the London Borough of Camden ('LBC').

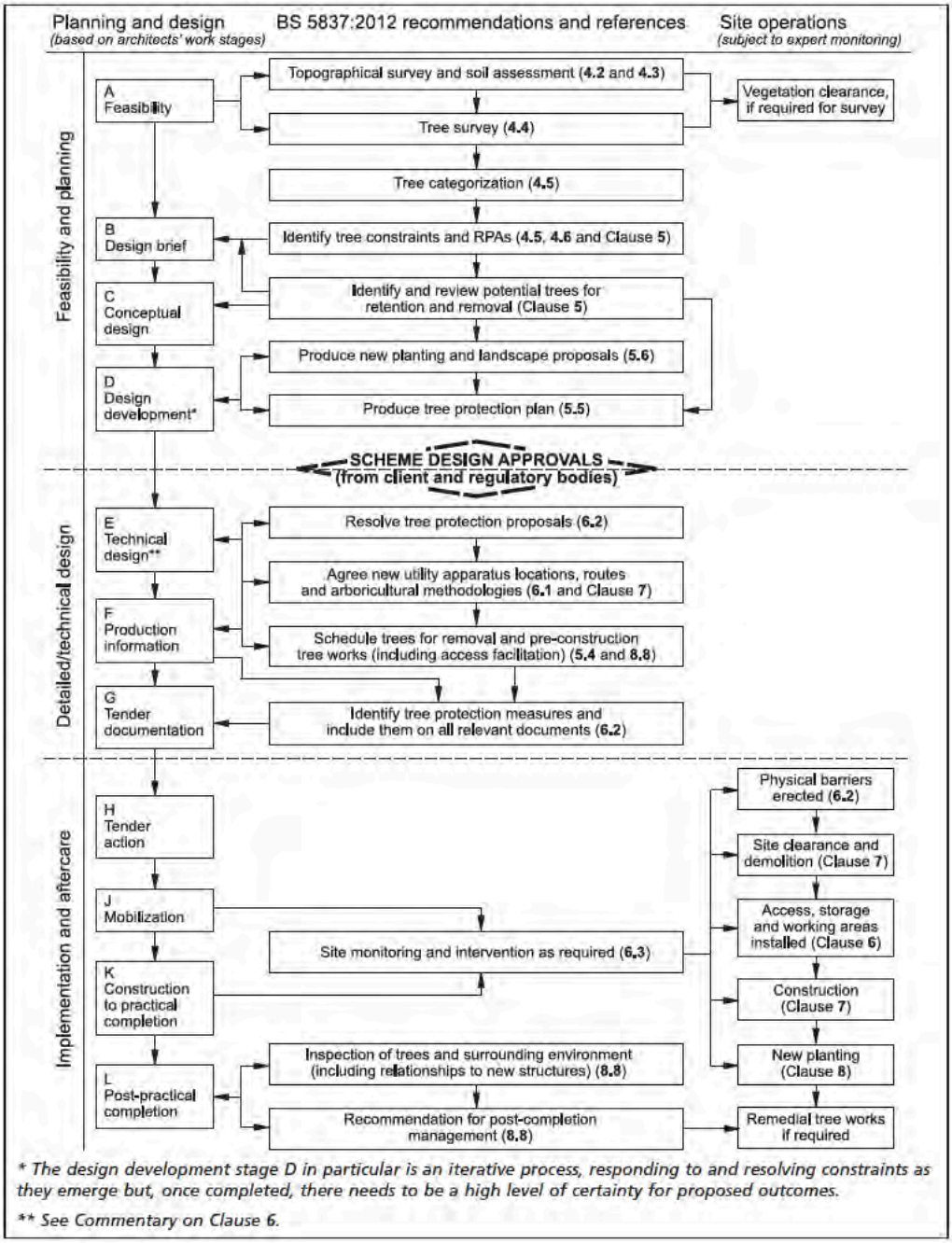
2.1.2 The application relates to internal alterations, rear and front extensions, erection of new basement and remodelling of existing facades and top floor.

2.1.3 This report will assess the impact on trees and their constraints, identified in our survey. 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' as defined in 2012) 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 overleaf.**

Figure 1 The design and construction process and tree care



** The design development stage D in particular is an iterative process, responding to and resolving constraints as they emerge but, once completed, there needs to be a high level of certainty for proposed outcomes.*

*** See Commentary on Clause 6.*

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: 95274- 10A OakhillAvenue-SiteSurvey

Proposals: 231114- plans

2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Adam Hollis surveyed the trees on site on the 18th of December 2023, 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 proposed development is subject to planning control, a tree survey should be regarded as an important part of the evidence base underpinning the design and access statement

2.3.4 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.

2.3.5 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. Physical measures required to protect trees during construction are then added to this plan to create an Outline Tree Protection Plan.

2.4.3 Whilst we endeavour to review all relevant documentation / plans prior to producing this Outline Tree Protection Plan, there may be instances where this is not possible or they are not available at the time of writing. Those responsible for designing elements including temporary works that may affect trees should recognise the primacy of the tree protection details contained herein and follow its provisions or alert us to potential conflicts.

2.4.4 General observations, discussion, conclusions and recommendations follow, below.

3. SITE CHARACTERISTICS

3.1 Property Description & Planning Context

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

3.1.1 The site at 10a Oakhill Avenue comprises an existing detached residential dwelling, situated on the north western side of the Avenue. Due to the local topography, the property has various level differences between the neighbouring properties and within the site itself. There is a split level front garden with two basement garage entrances and areas containing trees/scrub. The rear garden is relatively large with landscaped features including paths and hard standings.

3.1.2 The site levels vary over 2 metres in height across the site and between the neighbouring properties (see Photograph 2 below).

3.1.3 We are not aware of the existence of any Tree Preservation Orders*, but understand the site stands within the Redington and Frognal 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 and Policies A3, A5, D1 and D2 of the Camden Local Plan (adopted 3rd July 2017).

* If the client is aware of such, we ask that they confirm these details with us. A purchaser of a site will be informed of the existence of any TPOs during the conveyancing process; an existing owner of a site must be served with a copy of any TPOs made during their ownership. Landmark Trees can investigate the matter further on instruction from the client, but this is beyond our normal scope of instruction as it can take c. 28 days to fully discover this information (which is beyond our standard turnaround and will substantially delay the issue of the instructed report). Some LPAs maintain registers online and / or offer a more rapid telephone or email response. These services though are not wholly reliable and we have had experience of receiving incorrect advice.

3.2 Soil Description

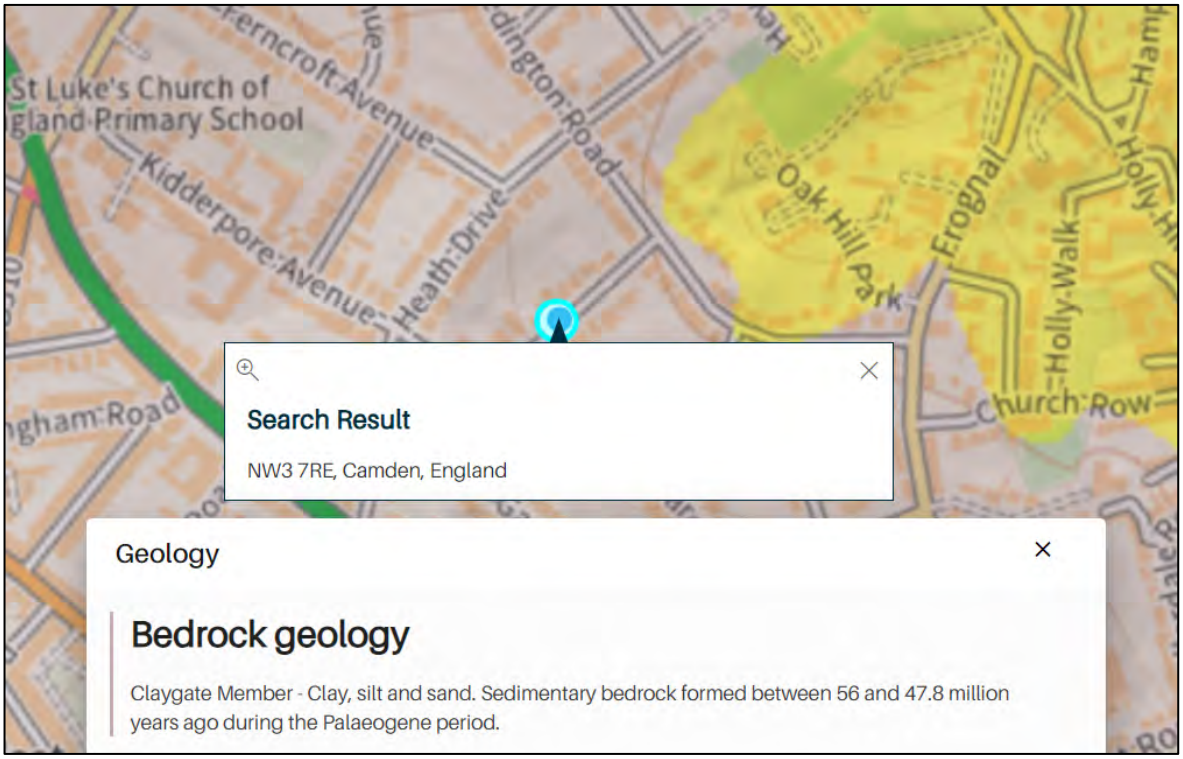


Figure 2: Extract from the BGS Geology of Britain Viewer

3.2.1 In terms of the British Geological Survey, the site overlies the Claygate Member / Beds (see dark area on plan extract above). As the youngest part of the London Clay, they form a transition between the clay and the sandier Bagshot Beds above (shown in yellow). Unlike the Bagshot Beds, more typical of Hampstead Heath, the associated soils are generally, highly shrinkable clay; e.g. slowly permeable seasonally waterlogged fine loam over clay. Such highly plastic soils are prone to movement: subsidence and heave.

3.2.2 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.

3.2.3 Clay soils are prone to compaction during development. Damage to soil structure can have a serious impact on tree health. Design of foundations near problematic tree species will also need to take into consideration subsidence risk.

3.3 Subject Trees

3.3.1 Of the 30 surveyed trees, 1 is category* A (High Quality), 11 are category* B (Moderate Quality), 16 are category C (Low Quality) and 2 are category U (Poor Quality).

3.3.2 The tree species found on the site comprise English oak, Leyland cypress, wild cherry, red oak, magnolia, silver birch, western red cedar, sycamore, Portuguese laurel, common beech, hawthorn, Lawson cypress and Norway maple.

3.3.3 In terms of age demographics there are predominantly semi-mature early mature specimens present with a few young and mature trees present.

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 a number of on- and off-site trees. These are listed in Appendix 2.

*page 9 of: British Standards Institute: Trees in relation to design, demolition and construction BS 5837: 2012 HMSO, London

Photograph 2: Extreme level changes within site (Source: Google Maps

4. 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 3). Alternatively, one need principally remember that RPAs are area-based and not linear – notional rather than fixed entities.

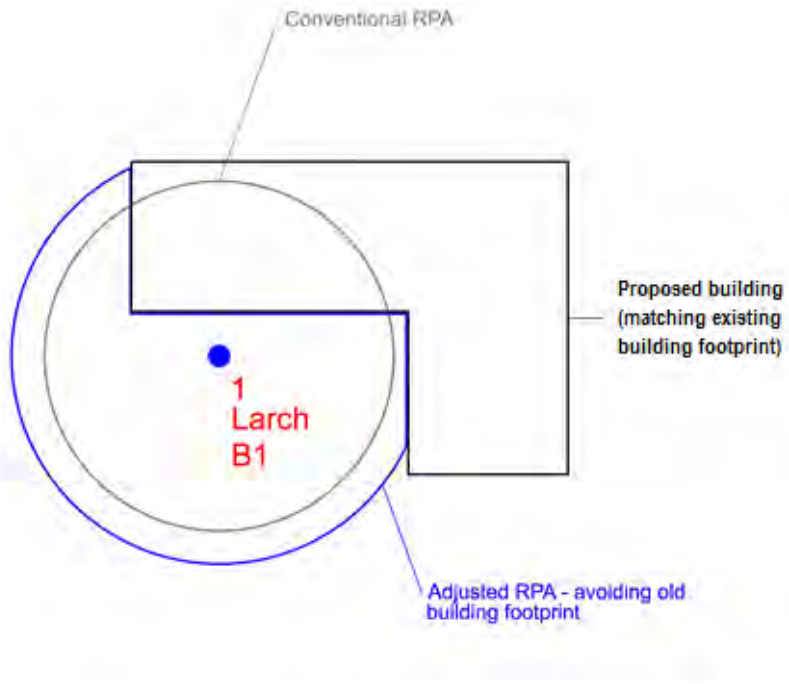


Figure 3 – Generic BS 5837 RPA Adjustments

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, the trial pit excavations undertaken to inform previous applications remain relevant and indicate that the existing structures and level changes in site's frontage present significant barriers to rooting. We have though not modified the RPAs of the trees in question as it would not be possible to designate the area specified in BS5837: 2012 without this crossing the barriers to rooting identified.

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."

4.1.7 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.

4.1.8 In this instance, whilst the moderate quality trees have the potential to pose significant constraints to development of the site the previous trial excavations have shown that constraints are limited in practice.

4.3 Secondary Constraints

4.3.1 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 4), honeydew deposition or perceived risk of harm.

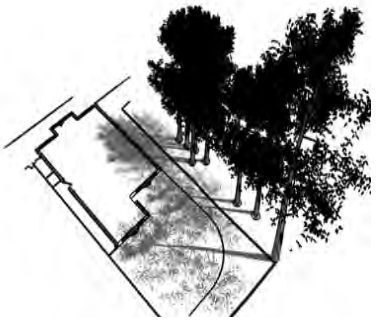


Figure 4 –
Generic Shading Constraints

4.3.2 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.

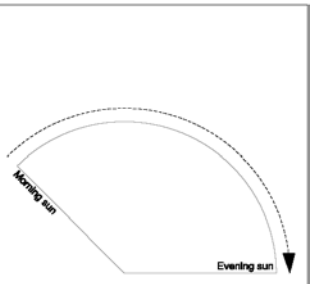


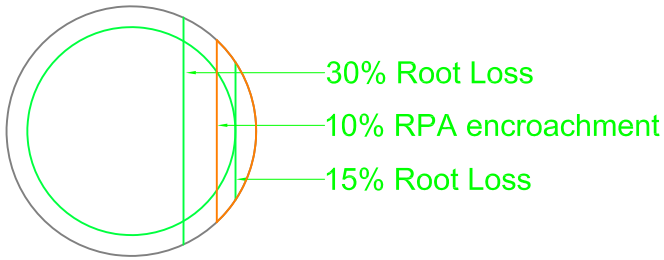
Figure 5 – Shading Arc

4.3.3 This arc (see Figure 5) 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.

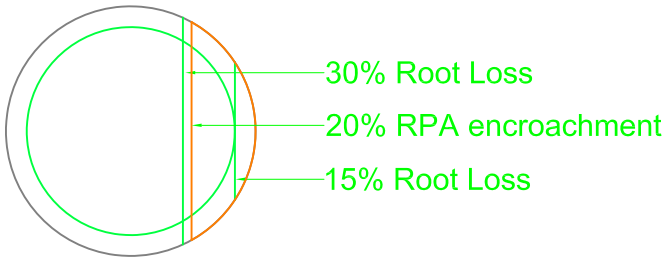
4.3.4 Assuming that they will be retained, the orientation of the on-site trees will ensure that shading constraints are minimal, with leaf deposition and honey-dew likely to be as it is today. The significance of these constraints will vary depending on the location and proximity to the proposed re-development 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.

Note: Sections 5 & 6 below will now assess the impacts of the proposals upon constraints identified in Section 4 above. Table 1 in Section 5 presents the impacts in tabular form (drawing upon survey data presented in Appendices 1 & 2). Impacts are presented in terms of whole tree removal and the effect on the landscape or partial encroachment (% of RPA) and its effect on individual tree health. Section 6 discusses the table data, elaborating upon the impacts' significance and mitigation.

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))

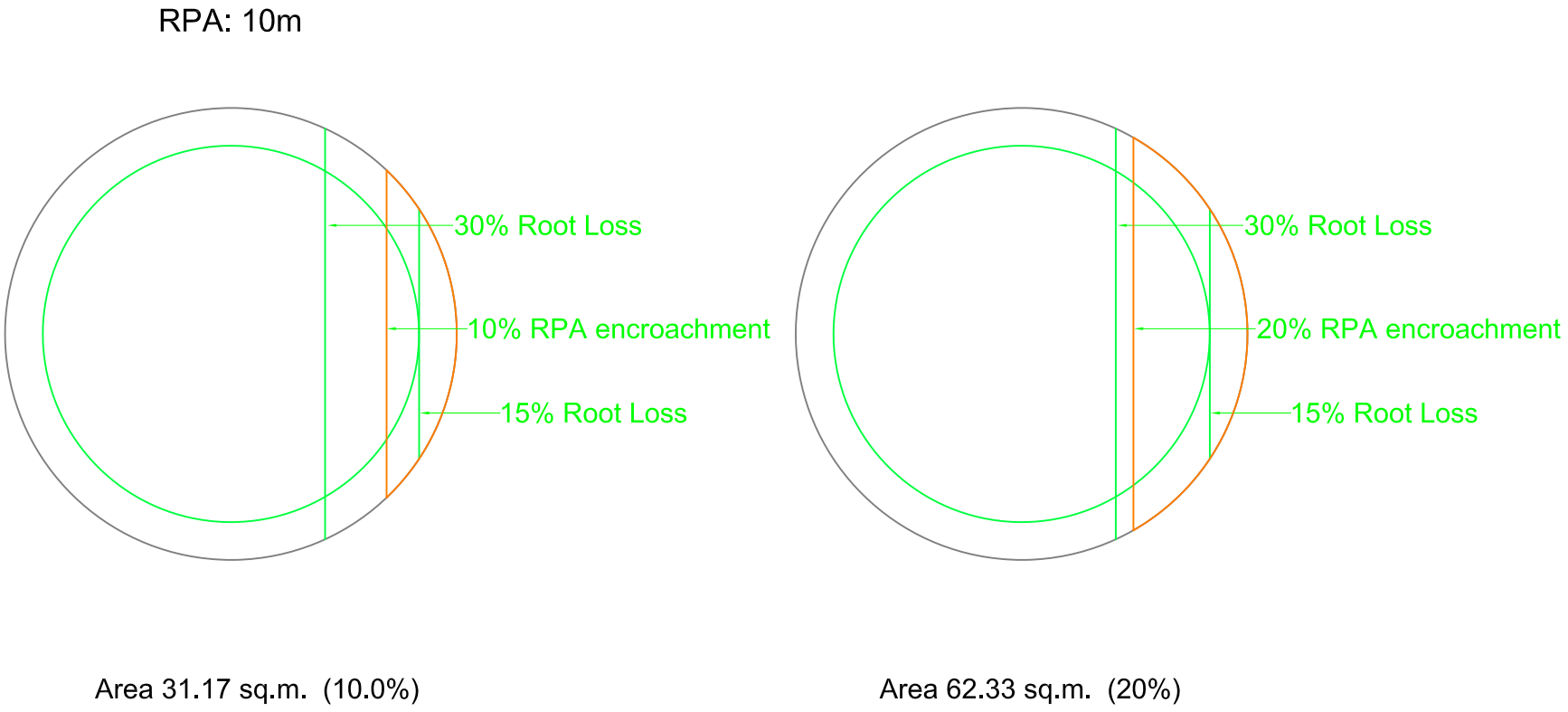


Figure 5b: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 10m RPA radius (after Thomas (2014))

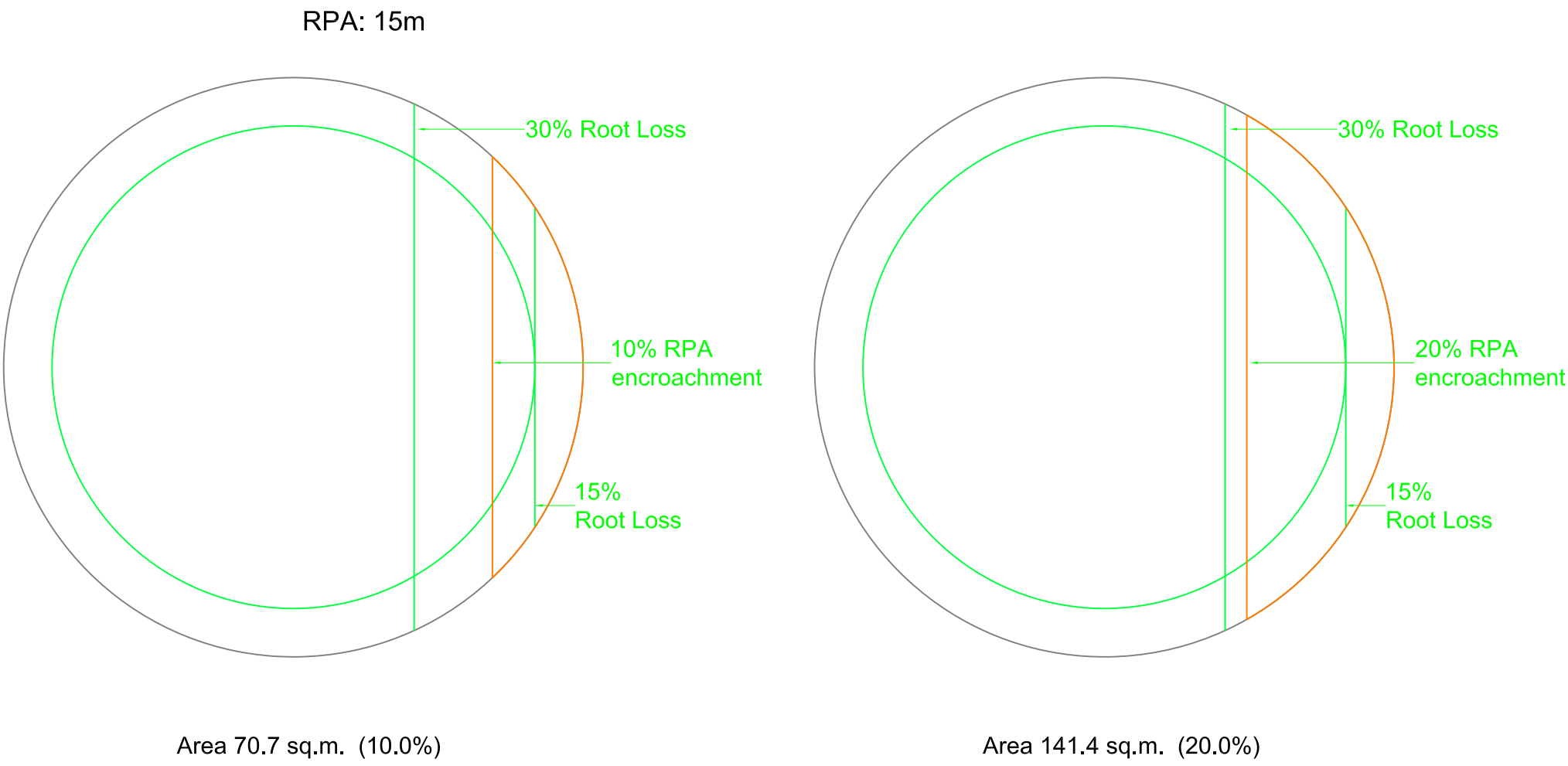


Figure 5c: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 15m RPA radius (after Thomas (2014))

6. ARBORICULTURAL IMPLICATIONS

6.1 Rating of Primary Impacts

6.1.1 The principal impacts in the current proposals are the removal of T2 and G10. In terms of resource management, these comprise a relatively small portion of the whole. Those removed have more collective than individual specimen value such that their loss could be mitigated with new planting, bringing its own benefits of enrichment and diversification to a relatively unmanaged and subsisting resource. Similarly, though pruning of a number of trees 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. 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.

6.1.2 The findings of the trial pits excavated (provided in Appendix 5) show that the on-plan encroachment by the basement of the RPAs to the front of the property will not result in the loss of significant roots / rooting in practice.

6.1.3 Further impacts to retained trees comprise the encroachments of the RPAs of the off-site T12, T13, 14 and 15. The owner of these trees have previously raised no objection to their being removed at the applicant's expense and they offer little / no public amenity. The encroachment of T15's RPA is low enough to not affect its ongoing viability.

6.1.4 Impacts to trees arising from the provision of replacement hard surfacing will be rendered moot through the use of a no-dig methodology.

6.1.5 In our view, the tree(s) are 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 of such measures will also be essential. Subject to these provisos the net impacts are assessed as being low.

6.1.6 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. 6a - 6c 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.

5.0 Table 1: Arboricultural Impact Assessment

Hide irrelevant | Show All Trees

(Impacts assessed prior to mitigation and rated with reference to From Matheny & Clark (1998))

Ref: ADC/10aOA/AIA

B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
B	1	Oak, English	Basement Construction within RPA	20.9 m^2 5.7 %	Mature	Normal	Moderate/ good	Very Low	Very Low	Hand-dig top 700mm through RPA
C	2	Cypress, Leyland	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	3	Oak, English	Basement Construction within RPA Current planter expanded - benefit to tree if undertaken manually	83.6 m^2 20.47 %	Mature	Poor	Moderate/ good	Very Low	Very Low	Hand-dig top 700mm through RPA Porous replacement surfaces/ landscaping
C	6	Birch, Silver	Basement Construction within RPA Basement Construction within Canopy	0.5 m^2 4.91 %	Young	Normal	Moderate	Very Low	Very Low	Hand-dig top 700mm through RPA Remedial tree surgery (see Rec. Works)
B	8	Oak, English	Basement Construction within RPA	18.7 m^2 4.13 %	Mature	Normal	Moderate/ good	Very Low	Very Low	Hand-dig top 700mm through RPA
C	H9	Leyland / Privet	Cut back to facilitate construction	m^2 N/A %	Young	Normal	Good	Very Low	Very Low	Remedial tree surgery (see Rec. Works)

5.0 Table 1: Arboricultural Impact Assessment

Hide irrelevant | Show All Trees

(Impacts assessed prior to mitigation and rated with reference to From Matheny & Clark (1998))

Ref: ADC/10aOA/AIA

B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
C	G10	Cypress, Leyland	Felled to Facilitate Development	m^2 N/A %	Semi-mature	Normal	N/A	N/A	Low	New planting / landscaping
B	11	Oak, English	Basement Construction within RPA	0.7 m^2 .46 %	Mature	Normal	Moderate/ good	Very Low	N/A	Hand-dig top 700mm through RPA
C	12	Western Red Cedar	Basement Construction within RPA Basement Construction within Canopy	8.9 m^2 19.19 %	Semi-mature	Normal	Good	Low	Very Low	Hand-dig top 700mm through RPA Remedial tree surgery (see Rec. Works)
C	13	Birch, Silver	Basement Construction within RPA Basement Construction within Canopy	5.3 m^2 18.74 %	Semi-mature	Normal	Moderate	Low	Very Low	Hand-dig top 700mm through RPA Remedial tree surgery (see Rec. Works)
U	14	Birch, Silver	Basement Construction within RPA Basement Construction within Canopy	24.7 m^2 44.56 %	Early Mature	Normal	Moderate	High	Very Low	Hand-dig top 700mm through RPA if tree retained Remedial tree surgery (see Rec. Works)
B	15	Sycamore	Basement Construction within RPA	3.2 m^2 3.49 %	Early Mature	Normal	Moderate	Very Low	Very Low	Hand-dig top 700mm through RPA

5.0 Table 1: Arboricultural Impact Assessment

Hide irrelevant | Show All Trees

(Impacts assessed prior to mitigation and rated with reference to From Matheny & Clark (1998))

Ref: ADC/10aOA/AIA

B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
B	27	Oak, English	Basement Construction within RPA	1.3 m^2 .29 %	Mature	Normal	Moderate/ good	Very Low	Very Low	Hand-dig top 700mm through RPA

6.1.7 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 that the retained trees can remain viable in the scheme before planning.

6.1.8 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.

6.1.9 As per BS5837 recommendations (at 5.3.1a), the above assessment demonstrates that the tree(s) can remain viable. The guide also recommends (at 5.3.1b) the arboriculturist 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 some level of secondary impacts of honeydew / litter deposition and partial shade on this site, regardless of development. Given the proposals do not materially alter the existing relationship between trees and the built form, 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 low quality trees. 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 complement 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 Soft ground within the unaffected parts of encroached RPAs will be treated with a 75mm layer of mulch which will be maintained in place throughout the duration of construction activities.

6.3.3 The path of basement foundations through RPAs will be manually excavated to 750mm depth under arboricultural supervision; any roots encountered within the trenches / pits will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs back to a junction. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist.

6.3.4 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.

6.3.5 The immediate canopy encroachment can be avoided with a minor crown reduction, affecting a 2m horizontal clearance.

6.3.6 Nuisance deposition can be further mitigated with routine maintenance, light pruning / deadwooding and the fitting of filtration traps on guttering (see Figure 7 below).

6.3.7 The shading impacts can be mitigated by building design, with the provision of dual aspect windows and choice of room layout. Some minor crown reduction may be necessary, but not such as to impose a burden of frequent, repetitive management.

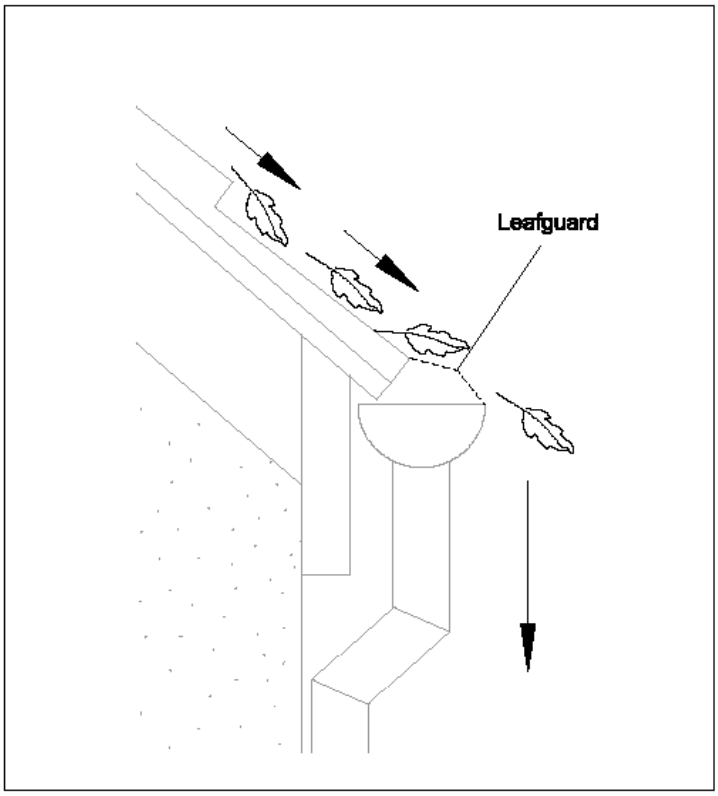


Figure 7: Filtration traps, as shown above, could be fitted on the gutters which can easily be maintained at 2-3m above ground.

7. 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; 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 and Policies A3, A5, D1 and D2 of the Camden Local Plan (adopted 3rd July 2017). Thus, with suitable mitigation and supervision the scheme is recommended to planning.

8. 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 tree T2 with a native crab apple (10-12cmg) grown as 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). 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. The areas behind the TPBs are to be treated as Construction Exclusion Zones (CEZ) where no access, material, spoil or plant storage is permitted.

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. Extant areas of RPA that cannot be fenced off and therefore lie outside the CEZ must be protected with fit-for-purpose ground protection. The location and type of ground protection is shown in the Tree Protection Plan in the Appendices

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.

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. 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
	Arboricultural impact assessment	
Reserved matters/ planning conditions	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.
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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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- 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

PART 2 – APPENDICES

APPENDIX 1

TREE SCHEDULE

Botanical Tree Names

Beech, Common	: Fagus sylvatica	Magnolia, Southern	: Magnolia grandiflora
Birch, Silver	: Betula pendula	Maple, Norway	: Acer platanoides
Cherry, Wild cherry /Gean	: Prunus avium	Oak, English	: Quercus robur
Cypress, Lawson	: Chamaecyparis lawsonia	Oak, Red	: Quercus rubra
Cypress, Leyland	: Cupressus × leylandii	Sycamore	: Acer pseudoplatanus
Hawthorn, Common	: Crataegus monogyna	Western Red Cedar	: Thuja plicata
Laurel, Cherry	: Prunus laurocerasus		
Laurel, Portuguese	: Prunus lusitanica		

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.

Site: 10a Oakhill Avenue, London NW3 7RE
Date: 18 12 2023

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
Tel: 020 7851 4544
Surveyor(s): Adam Hollis
Ref: ADC/10aOA/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Clear Stem Height	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
1	Oak, English	16	8645	12.0	10.0	900.0	Mature	10.8	Normal	Fair	B	3	>40	Pollard (Old) Cavity pockets in pruning wounds History of hard landscaping nr base; 2m retaining wall to East, minor die-back,
2	Cypress, Leyland	10	4.5	1.0	1.0	400.0	Early Mature	4.8	Normal	Fair	C	2	20-40	Pollarded
3	Oak, English	12	4636	4.0	4.0	950.0	Mature	11.4	Poor	Poor	C	3	10+	Pollard (Old) Cavity pockets in pruning wounds Basal cavity to 1m abg Roots against LGF garage, poor regrowth
3a	Cherry, Wild (Gean)	6	3215	4.0	4.0	0.0	Mature	0.0			C	2		A sparser than normal canopy Die-back stubs
4	Oak, Red	13	5425	2.0	2.0	323.4	Early Mature	3.9	Normal	Good	C	2	10-20	Unsuitable species for position Remote Survey (RS) Also --- 150mm stem 2m to SW
5	Magnolia (M. grandiflora)	6	3222	2.0	2.0	170.9	Young	2.1	Normal	Good	C	2	20-40	RS

Site: 10a Oakhill Avenue, London NW3 7RE
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Tree No.	English Name	Height	Crown Spread	Ground Clearance	Clear Stem Height	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
6	Birch, Silver	12	2.5	2.0	2.0	150.0	Young	1.8	Normal	Good	C	2	10-20	Unsuitable species for position RS As per 8 Oakhill TCP, delete this comment
7	Oak, English	12	4665	3.0	4.0	280.0	Semi-mature	3.4	Normal	Good	B	2	>40	
8	Oak, English	18	6836	6.0	6.0	1000.0	Mature	12.0	Normal	Fair	B	3	>40	Pollard (Old) RS
H9	Leyland / Privet	4	1.5	1.0	1.0	75.0	Young	0.9	Normal	Good	C	2	20-40	
G10	Cypress, Leyland	9	2	2.0	2.0	552.3	Semi-mature	6.6	Normal	Fair	C	2	20-40	Pollarded Outgrowing site / function as hedge
11	Oak, English	16	6464	6.0	6.0	583.1	Mature	7.0	Normal	Good	B	2	>40	RS

Site: 10a Oakhill Avenue, London NW3 7RE

Date: 18 12 2023

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
Tel: 020 7851 4544
Surveyor(s): Adam Hollis
Ref: ADC/10aOA/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Clear Stem Height	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
12	Western Red Cedar	10	3553	0.0	1.5	320.2	Semi-mature	3.8	Normal	Fair	C	2	20-40	RS
13	Birch, Silver	16	2	7.0	7.0	250.0	Semi-mature	3.0	Normal	Good	C	2	>40	RS
14	Birch, Silver	17	5432	6.0	4.0	350.0	Early Mature	4.2	Normal	Poor	U		<10	Break out wound with cavity in main stem / lost lead stem Pruning cavity at 5m NE, remote survey only (RS)
15	Sycamore	18	4424	4.0	4.0	450.0	Early Mature	5.4	Normal	Good	B	2	>40	RS
17	Laurel, Portugese	7	3.5	1.0	1.0	226.3	Early Mature	2.7	Normal	Fair	C	2	20-40	Pollarded
18	Beech, Common	17	0	3.0	3.0	280.0	Semi-mature	3.4	Normal	Good	B	2	20-40	Root girdling by retaining wall Group canopy generated from T19 Remote survey only (RS)

Site: 10a Oakhill Avenue, London NW3 7RE
Date: 18 12 2023

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
Tel: 020 7851 4544
Surveyor(s): Adam Hollis
Ref: ADC/10aOA/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Clear Stem Height	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
19	Beech, Common	19	10	5.0	10.0	420.0	Early Mature	5.0	Normal	Good	B	2	20-40	Root girdling by retaining wall Group canopy generated from T19 RS
20	Beech, Common	19		5.0	4.0	530.0	Early Mature	6.4	Normal	Good	B	2	20-40	Root girdling by retaining wall Group canopy generated from T19 RS
21	Oak, Red	20	12	5.0	3.0	1500.0	Post-Mature	18.0	Normal	Good	A	2	>40	RS Dead branch overhanging site: 5m abg W
G22	Laurel	12	7	2.0	4.0	300.0	Mature	3.6	Normal	Poor	C	2	10-20	Broken branches still hung-up Over long, leaning stem to SE RS
23	Hawthorn, Common	12	4	4.0	3.0	282.8	Mature	3.4	Dead	Poor	U			Broken branches still hung-up RS
24	Cypress, Lawson variety	9	2	1.0	1.0	150.0	Semi-mature	1.8	Normal	Good	C	1	>40	RS

Site: 10a Oakhill Avenue, London NW3 7RE
Date: 18 12 2023

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
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Surveyor(s): Adam Hollis
Ref: ADC/10aOA/AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Clear Stem Height	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
25	Maple, Norway	7	4416	3.0	3.0	250.0	Semi-mature	3.0	Moderate	Poor	C/u	2	10-20	Leaning (significantly) & kinked Ivy smothered RS
26	Cypress, Lawson variety	10	2	0.0	0.0	300.0	Early Mature	3.6	Normal	Fair	B	2	40+	Remote survey only (RS)
27	Oak, English	15	?	5.0	5.0	1000.0	Mature	12.0	Normal	Fair	B	3	>40	Pollard (Old) RS
28	Oak, English	5	2	1.0		70.0	Young	0.8	Normal	Good	C	2	40+	Pollarded spring 2019 Remote survey only (RS)
29	Western Red Cedar	9	2	0.0		200.0	Semi-mature	2.4	Normal	Good	C	2	40+	Remote survey only (RS)
30	Oak, Red	12	4362	3.0		244.9	Semi-mature	2.9	Normal	Fair	B	2	40+	Multi stem

APPENDIX 2

RECOMMENDED TREE WORKS

Notes for Guidance:

Priority 1 - Urgent (ASAP), 2 - Standard (within 3 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.

Landmark Trees

Site: 10a Oakhill Avenue, London NW3 7RE

Date: 20 12 2023

Surveyor(s): Adam Hollis

Ref: ADC/10aOA/AIA

Recommended Tree Works

Show All Trees
Hide irrelevant

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works		Comments/ Reasons
1	Oak, English	16	900.0	8645	MON		Pollard (Old) Cavity pockets in pruning wounds History of hard landscaping nr base; 2m retaining wall to East, minor die-back, Recommended husbandry 3
3	Oak, English	12	950.0	4636	MON	FInv	Pollard (Old) Cavity pockets in pruning wounds Basal cavity to 1m abg Roots against LGF garage, poor regrowth Recommended husbandry 2
3a	Cherry, Wild (Gean)	6	0.0	3215	Mon		A sparser than normal canopy Die-back stubs Recommended husbandry 2
14	Birch, Silver	17	350.0	5432	Fell 3rd party tree?		Break out wound with cavity in main stem / lost lead stem Pruning cavity at 5m NE, remote survey only (RS) Recommended husbandry 2
18	Beech, Common	17	280.0	0	Mon Clr Bs		Root girdling by retaining wall Group canopy generated from T19 Advisable for good arboricultural practice
19	Beech, Common	19	420.0	10	Mon Clr Bs		Root girdling by retaining wall Group canopy generated from T19 Recommended husbandry 2
20	Beech, Common	19	530.0		Mon Clr Bs		Root girdling by retaining wall Group canopy generated from T19 Recommended husbandry 2

Landmark Trees

Site: 10a Oakhill Avenue, London NW3 7RE

Date: 20 12 2023

Surveyor(s): Adam Hollis

Ref: ADC/10aOA/AIA

Recommended Tree Works

Show All Trees
Hide irrelevant

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works			Comments/ Reasons
21	Oak, Red	20	1500.0	12	DWD			RS Dead branch overhanging site: 5m abg W Recommended husbandry 2
G22	Laurel	12	300.0	7	POL	5m		Broken branches still hung-up Over long, leaning stem to SE Recommended husbandry 2
23	Hawthorn, Common	12	282.8	4	Fell			Broken branches still hung-up Recommended husbandry 2
25	Maple, Norway	7	250.0	4416	Svr Ivy		Mon Svr Ivy Clr Bs	Leaning (significantly) & kinked Ivy smothered RS Recommended husbandry 2

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

Landmark Trees

Site: 10a Oakhill Avenue, London NW3 7RE

Date: 20 12 2023

Surveyor(s): Adam Hollis

Ref: ADC/10aOA/AIA

Recommended Tree Works to Facilitate Development

Show All Trees
Hide irrelevant

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works		Comments/ Reasons
1	Oak, English	16	900.0	8645	CB	2m	Pollard (Old) Cavity pockets in pruning wounds History of hard landscaping nr base; 2m retaining wall to East, minor die-back, Recommended to permit development
2	Cypress, Leyland	10	400.0	4.5	Fell		Pollarded Recommended to permit development
3	Oak, English	12	950.0	4636	CB	2m	Pollard (Old) Cavity pockets in pruning wounds Basal cavity to 1m abg Roots against LGF garage, poor regrowth Recommended to permit development
6	Birch, Silver	12	150.0	2.5	CB	2m	Unsuitable species for position RS Recommended to permit development
H9	Leyland / Privet	4	75.0	1.5	CB Cut back overhanging		Recommended to facilitate development
G10	Cypress, Leyland	9	552.3	2	Fell		Pollarded Outgrowing site / function as hedge Recommended to facilitate development
12	Western Red Cedar	10	320.2	3553	CL Crown-lift to 2m/cut back to boundary		RS Recommended to facilitate development

Landmark Trees

Site: 10a Oakhill Avenue, London NW3 7RE

Date: 20 12 2023

Surveyor(s): Adam Hollis

Ref: ADC/10aOA/AIA

Recommended Tree Works to Facilitate Development

Show All Trees
Hide irrelevant

Tree No.	English Name	Height	Stem Diameter	Crown Spread	Recommended Works		Comments/ Reasons
13	Birch, Silver	16	250.0	2	CB	2m	RS Recommended to permit development
14	Birch, Silver	17	350.0	5432	CB	2m	Break out wound with cavity in main stem / lost lead stem Pruning cavity at 5m NE, remote survey only (RS) Recommended to permit development

APPENDIX 4: A GUIDE TO TREE SELECTION FOR URBAN LOCATIONS

Table A4.1: Small Ornamental Tree Species

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

Table A4.2: Medium Specimen Tree Species

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

Table A4.3: Larger Specimen Tree Species

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

APPENDIX 5: TRIAL PIT FINDINGS

Root Excavation Report

10a Oakhill Avenue,

Hampstead

London,

NW3 7RE

Undertaken by

David Abbott, Arboraeration

27th January 2016

Introduction

Site Address: 10a Oakhill Avenue, Hampstead, London, NW3 7RE

One trial pit was excavated by David Abbott from ArborAeration on the 27th January 2016. Plots were excavated using an air spade and manual digging tools.

Reason for trial pits

Trial pits were excavated to determine the extent of a rooting area belonging to trees growing within the property in relation to proposed building works.

One plot was fully excavated in total, located as per the plans.

Trial Pit Results

Plots as per location on supplied plans unless otherwise stated.

Trial Pit 1	2.1m Long, 30cm Wide, 75cm Deep* 1x 20mm root 1x 15mm root

Further Information

The root collar of the tree is located 2.1m from street level and 40cm of concrete was excavated before soil was reached.

*Trial pit was 75cm deep from the soil level (115cm from street level)

Photographic Evidence

Trial Pit 1

Plot Locations Sketch

Root Excavation Report

10a Oakhill Avenue

NW3 7RE

Undertaken by

James Abbott

Arboraeration

9th-13th May 2016

Introduction

Site Address: 10a Oakhill Avenue, NW37RE

1 Trial Pit was excavated at the from of the property. Plot was excavated using an air spade and manual digging tools.

Reason for trial pits

Trial plot was excavated to determine the extent of an oak tree rooting at the side of proposed excavations.

Trial Pit Results – numbered and located as per plans supplied

Trial Pit 1	7.5m Long, 0.4m Wide, up to 1m Deep. (at south end of pit) 3x 50mm Root 2x 40mm Root 6x 15-20mm roots (at north end of pit) 1x 25 mm Root Mass of fibrous roots

Further Information

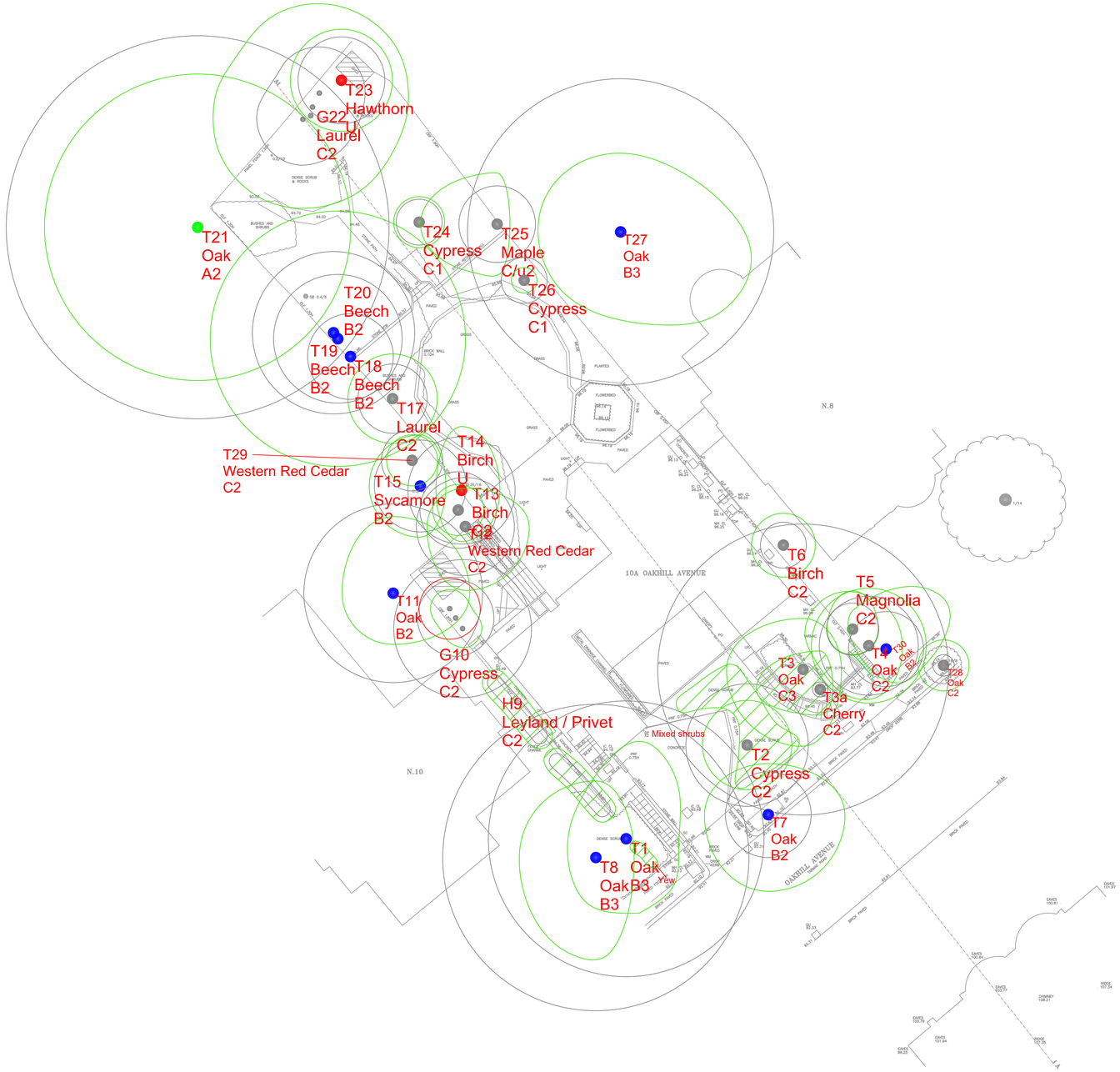
There was a large concentration of roots though a 50cm length of the trench at the south end.
The centre of the trench was excavated deeper than the ends as this was the section closest to the oak. Once complete the Trial pits were covered with hardwood boards.

Landmark Trees

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).

Landmark Trees

20 Broadwick Street, London, W1F 8HT
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 10a Oakhill Avenue	1:200 @ A1
Drawing Title: Tree Constraints Plan	January 2024

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

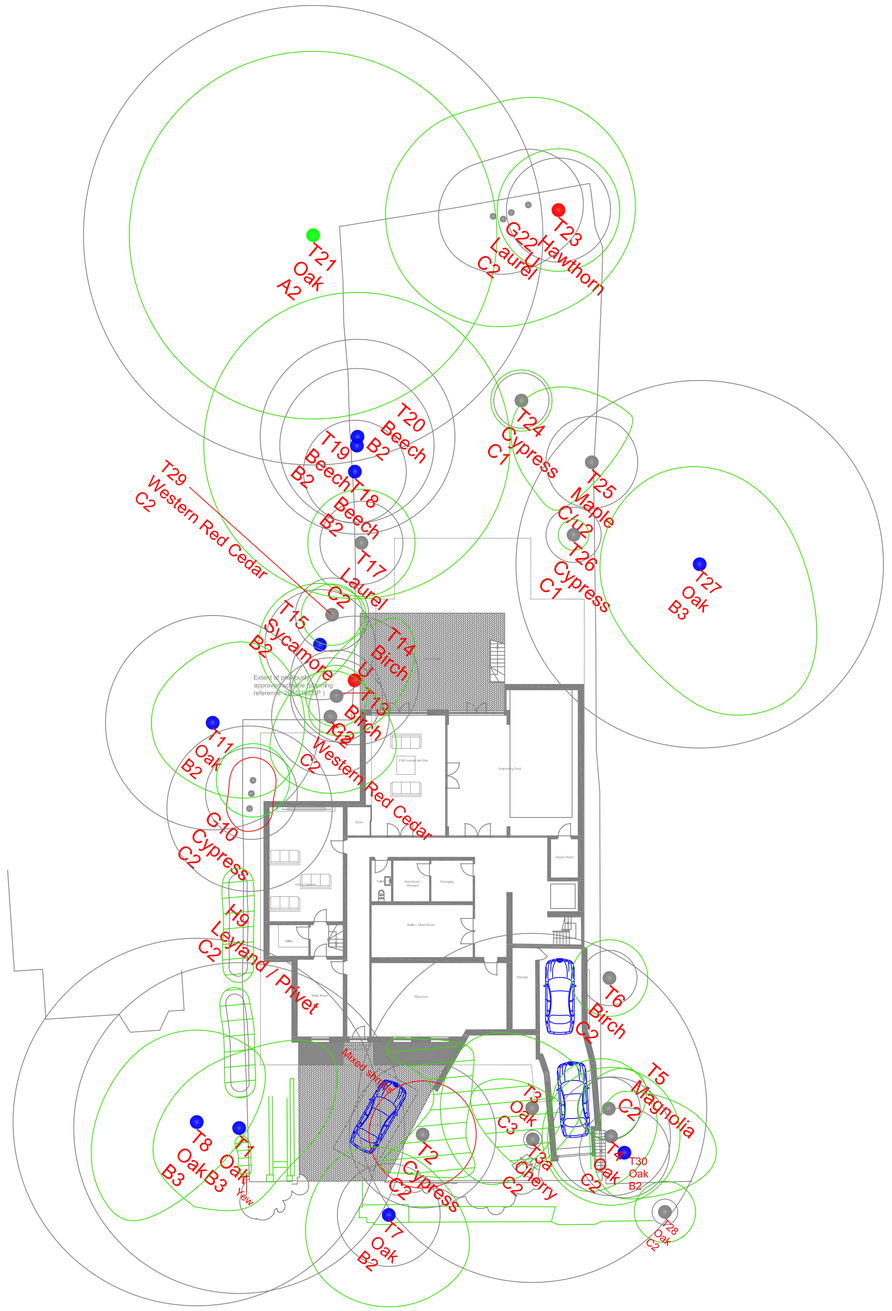
Category · Crown Spread · Root Protection Area · Tree Number · Species · Category

Tree Position Approximate (not shown on original survey)

PLAN 2

ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)

i. Lower Ground Floor
ii. Ground Floor



Proposed Basement 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).

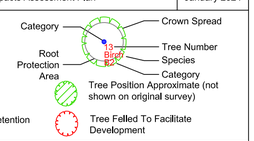
Landmark Trees

20 Broadwick Street, London, W1F 8HT
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

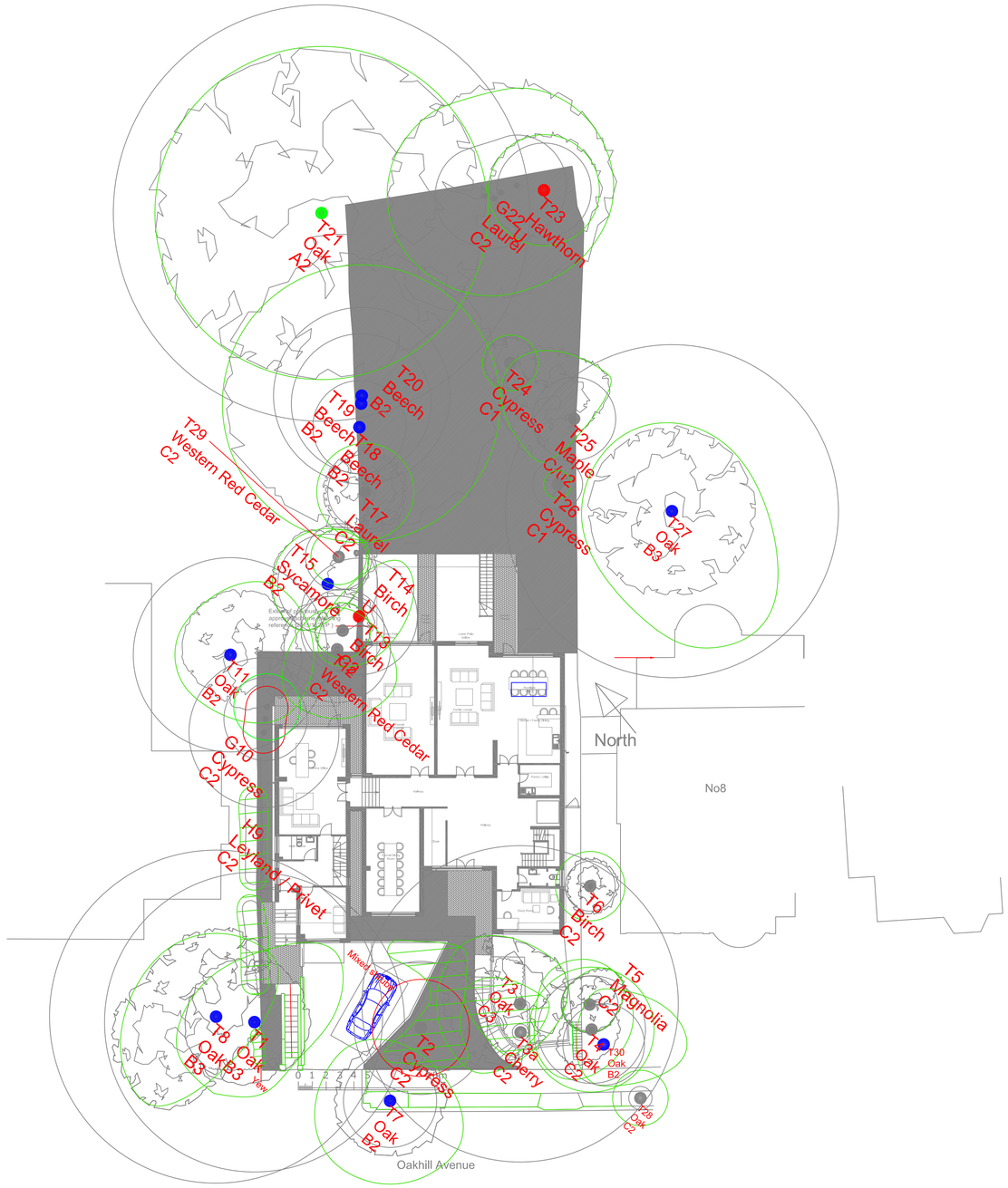
Site: 10a Oakhill Avenue	1:200 @ A1
Drawing Title: Arboricultural Impacts Assessment Plan	January 2024

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention



- Tree Position Approximate (not shown on original survey)
- Tree Felled To Facilitate Development



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).

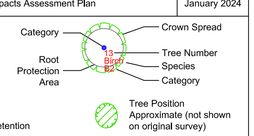
Landmark Trees

20 Broadwick Street, London, W1F 8HT
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 10a Oakhill Avenue	1:200 @ A1
Drawing Title: Arboricultural Impacts Assessment Plan	January 2024

Key:

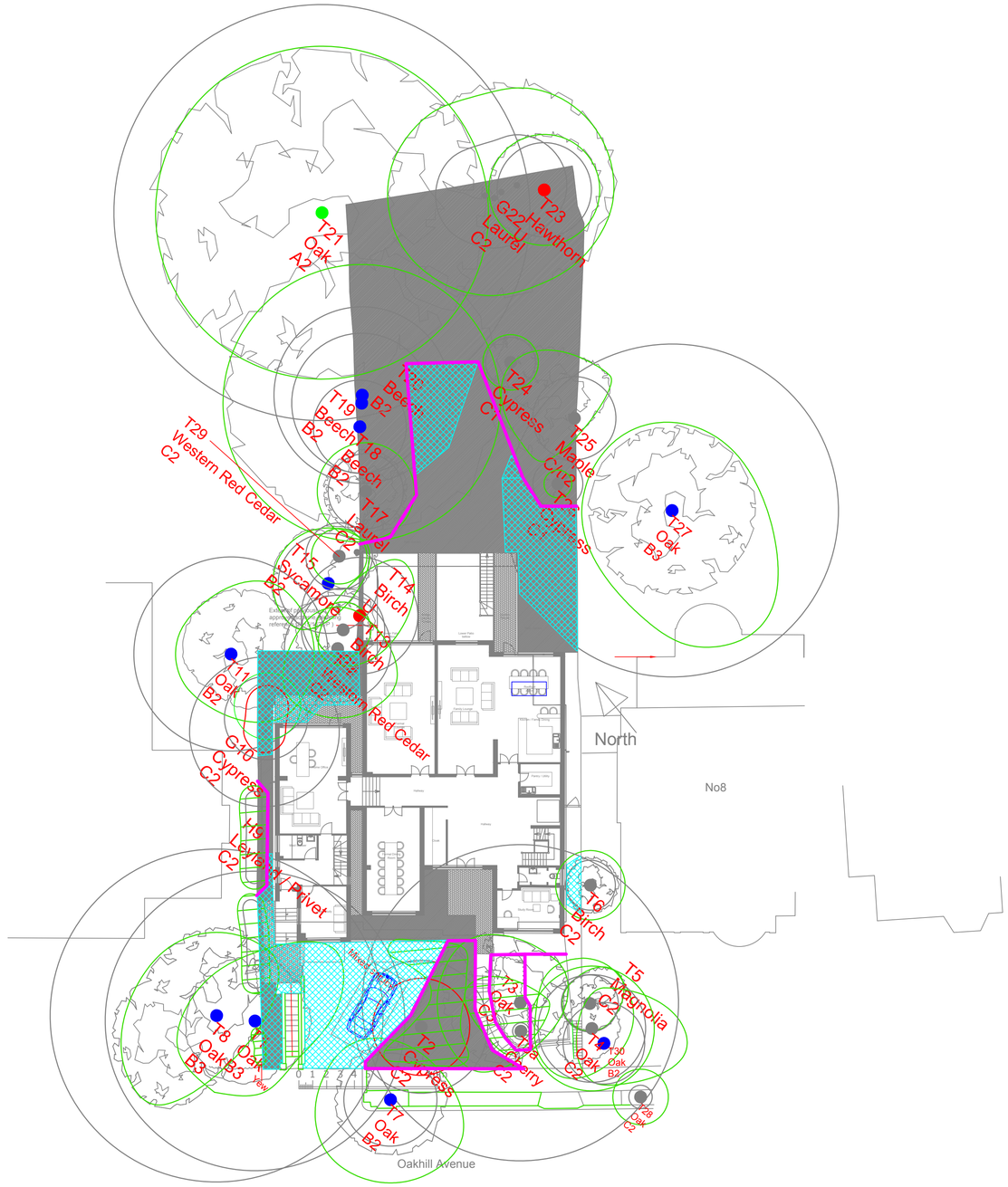
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention



Tree Position Approximate (not shown on original survey)

PLAN 3

OUTLINE TREE PROTECTION PLAN



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).

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20 Broadwick Street, London, W1F 8HT
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 10a Oakhill Avenue	1:200 @ A1
Drawing Title: Tree Protection Plan	January 2024

Key:

- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Category — Crown Spread
Root Protection Area — Tree Number, Species, Category (B3 Birch C2)

Tree Position Approximate (not shown on original survey)

Ground Protection: Ground guards throughout plus 100mm mulch on soft ground

Tree Protection Fencing