Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:

Land adjacent to 46 Maresfield Gardens
& 39 Fitzjohn's Avenue
London
NW3 5JY

INSTRUCTING PARTY:

Private Client c/o Buro Four
1 Naoroji Street
London
WC1X 0GB

REPORT PREPARED BY

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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)	20/12/2023
Rev 01a	DRAFT	For Internal Review (Client / Design Team)	5/2/2024
Rev 01b	AUTHORISED	For External Issue (to Planning)	14/2/2024

1. SUMMARY

1.1 The existing site comprises two principle elements, '39a Fitzjohn's Avenue' and 'Land adjacent to 46 Maresfield Gardens' containing a number of trees potentially constraining development. The proposal includes the conversion of an existing building into 3 townhouses and the construction of a mansion style apartment block.

1.2 There are 54 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 trees T48 and T49 as standout specimens. All trees are material constraints on development, but these latter require particular consideration. At the other end of the spectrum, the felling of a number of trees is recommended regardless of development.

1.3 The report has assessed the impacts of the development proposals and concludes there would be at most a medium level impact on the resource: half of the trees on site (but significantly less than half of the canopy cover) will be removed to facilitate construction. Those removed have 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 modest encroachments that could not be avoided in the design of the scheme. Trial pit findings have enabled the report to demonstrate that the tree(s) can remain viable 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 that will ensure impacts to trees are minimised. These are detailed in sections 6.3 and 8 of this report.

1.6 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

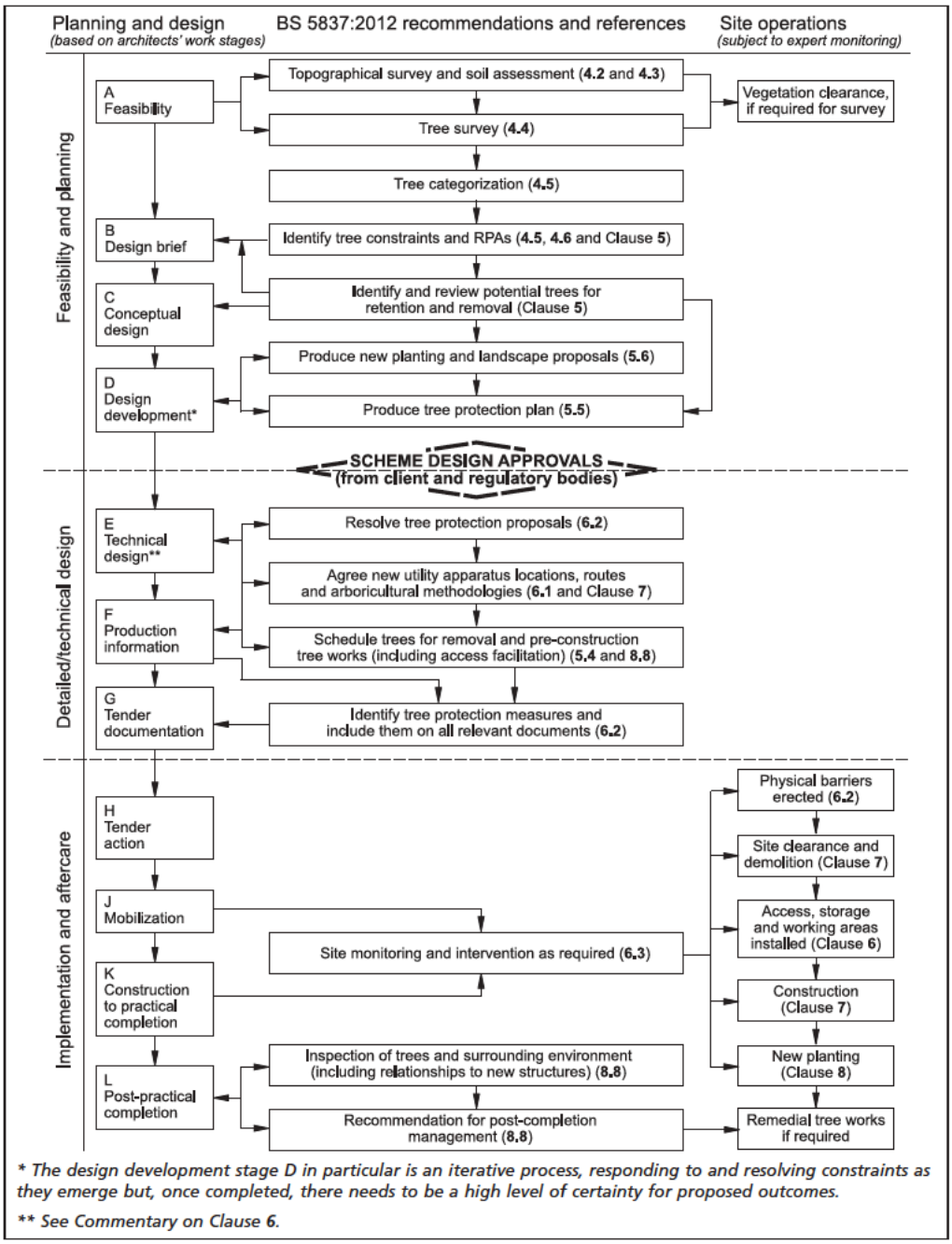
2.1.1 Buro Four instructed Landmark Trees (LT) to prepare this Arboricultural Impact Assessment on behalf of their client, to support a full planning application submitted to the London Borough of Camden ('LBC'). The application relates to: *Substantial demolition and redevelopment of 39a Fitzjohns Avenue and the development of Land at Maresfield Gardens to provide residential (Class C3) accommodation, alongside hard and soft landscaping works, boundary treatment works, and other associated works*.

2.1.2 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.

2.1.3 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.

2.1.4 **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: Topographic survey March 2015

Proposals: 3031-XX-DR-L-101-PL05

2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on the 3rd of November 2022, 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.

Survey Data & Report Layout

2.3.6 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.

2.3.7 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.

2.3.8 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.

2.3.9 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 Earth)

3.1.1 This site contains comprises two principle elements, '39a Fitzjohn's Avenue' and 'Land adjacent to 46 Maresfield Gardens.'

3.1.2 The site slopes downwards from north-east to south-west.

3.1.3 We are not aware of the existence of any Tree Preservation Orders*, but understand the site stands within the Fitzjohns Netherhall 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

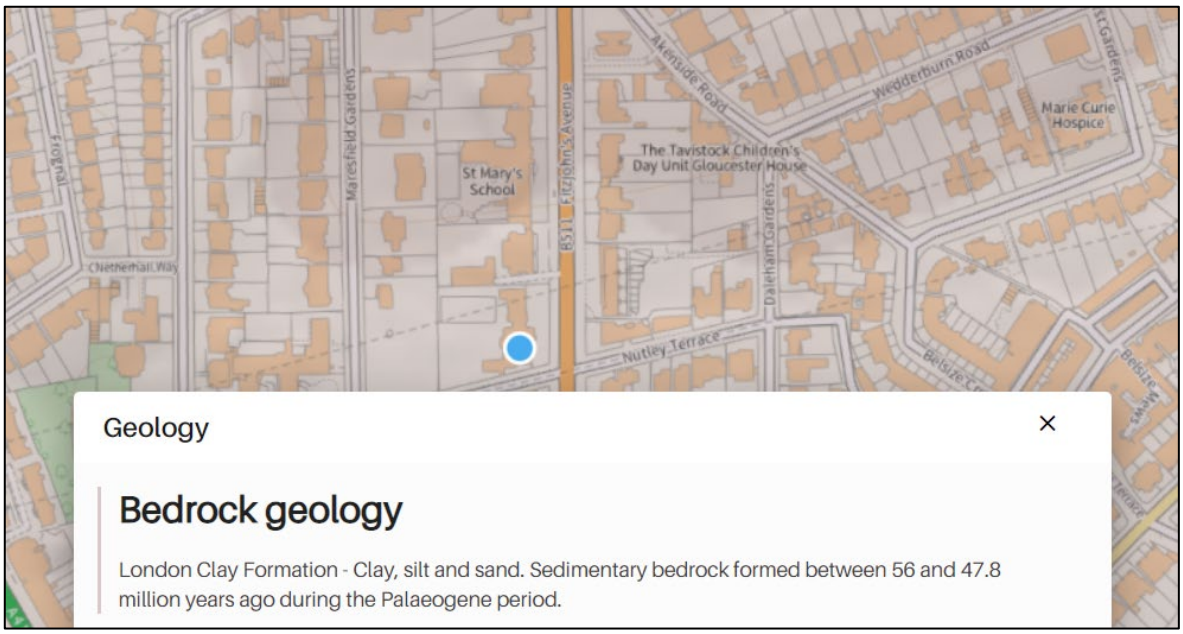


Figure 2: Extract from the BGS Geology of Britain Viewer

3.2.1 In terms of the British Geological Survey, the site overlies the London Clay Formation (see indicated location on Fig.1 plan extract above). 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. The actual distribution of the soil series are not as clearly defined on the ground as on plan and there may be anomalies in the actual composition of clay, silt and sand content.

3.2.2 Clay soils are prone to compaction during development with damage to soil structure potentially having a serious impact on tree health. The design of foundations near problematic tree species will also need to take into consideration subsidence risk. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

3.3 Subject Trees

3.3.1 Of the 54 surveyed trees, 2 are category* A (High Quality), 14 are category B (Moderate Quality), 30 are category C (Low Quality), 1 is category C/U (Low / Poor Quality) and 7 are category U (Poor Quality).

3.3.2 The tree species found on the site comprise London plane, hybrid poplar, silver birch, pear, wild cherry, horse chestnut, purple plum, common ash, Indian chestnut, Norway maple, hawthorn, cotoneaster, holly, Lawson cypress, common beech, sycamore, false acacia, apple and elder

3.3.3 In terms of age demographics there are predominantly semi-mature, early mature and mature specimens 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 11 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: Rear elevation of 39 Fitzjohn's Avenue with T's 33-37 visible in background

Photograph 3: Hybrid poplar T3

Photograph 4: The high quality T49 with T45 beyond

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.

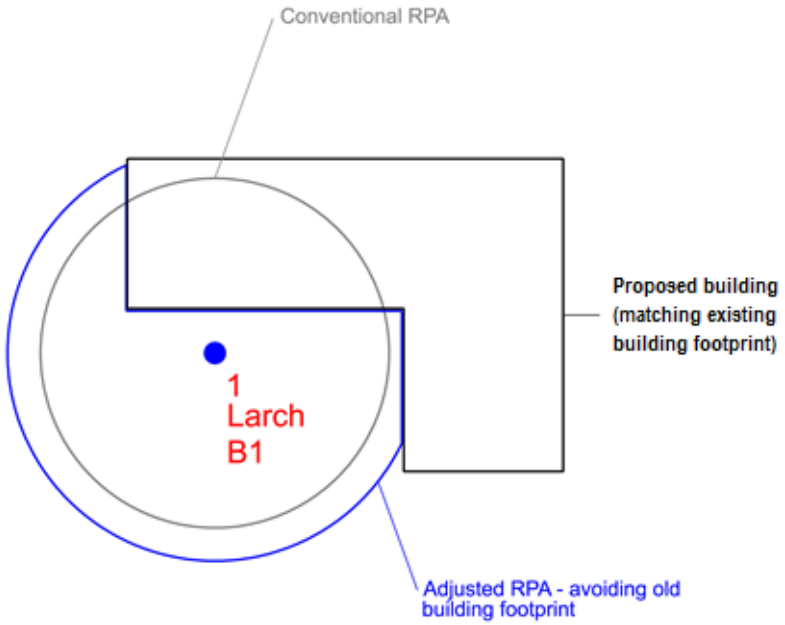


Figure 3 – Generic BS 5837 RPA Adjustments

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 LT prefer where possible and practical to raise the issue of modification but suspend judgment until such time as more reliable site investigations have been undertaken (Tree Radar scans and / or trial pits). Of course, the justification for these investigations will depend upon whether trees are (or are likely to be once modified) subject to impacts and also upon their quality / condition: it is generally not worth commissioning a radar study to locate the roots of a poor- or low-quality tree. On other occasions, there may not be the opportunity to commission investigations, either because the access is restricted by ownership / tenancy or the report's turnaround simply does not allow it, and they may need to follow on or be conditioned. **No a priori RPA modifications have been made in this instance.**

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, the high and moderate quality trees have the potential to pose significant constraints upon development of the site.

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.

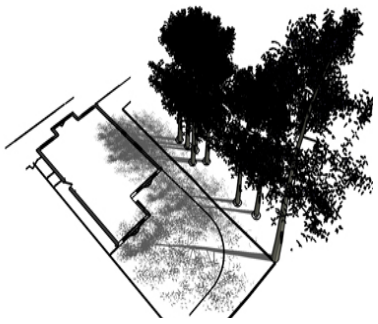


Figure 4 –
Generic Shading Constraints

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.

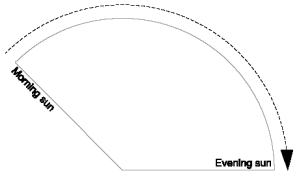


Figure 5 – Shading Arc

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 means that a significant proportion 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.

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.

5.0

Table 1: Arboricultural Impact Assessment

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

Hide irrelevant | Show All Trees

Ref: BRF_39FTZ_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	Plane, London	Building Construction within RPA Substation & Bin Store Construction within RPA	4.5 m^2 1.01 %	Mature	Normal	Good	Very Low	Very Low	Airspade / manual excavation Low-invasive foundation design
B	3	Poplar, Hybrid	Building Construction within RPA	20.6 m^2 2.91 %	Mature	Normal	Moderate	Very Low	Very Low	Hand dig top 750mm of basement line thro' RPA
C	4	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	8	Cherry, Wild (Gean)	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	9	Chestnut, Horse	Felled to Facilitate Development	m^2 N/A %	Mature	Moderate	N/A	N/A	Low	New planting / landscaping
C	10	Plum, Purple	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	11	Plum, Purple	Stepping Stone Path Construction within RPA	m^2 N/A %	Mature	Normal	Moderate	Very Low	Very Low	Airspade / manual excavation

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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	12	Ash, Common	Stepping Stone Path Construction within RPA	m^2 N/A %	Semi-mature	Moderate	Moderate	Very Low	Very Low	Airspade / manual excavation
C	13	Chestnut, Horse	Stepping Stone Path Construction within RPA	m^2 N/A %	Semi-mature	Normal	Moderate	Very Low	Very Low	Airspade / manual excavation
C	14	Ash, Common	Stepping Stone Path Construction within RPA	m^2 N/A %	Mature	Moderate	Moderate	Very Low	Very Low	Airspade / manual excavation
C	15	Chestnut, Indian	Stepping Stone Path Construction within RPA	m^2 N/A %	Mature	Normal	Moderate	Very Low	Very Low	Airspade / manual excavation
C	16	Ash, Common	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	17	Ash, Common	Stepping Stone Path Construction within RPA	m^2 N/A %	Mature	Moderate	Moderate	Very Low	Very Low	Airspade / manual excavation
U	18	Ash, Common	Stepping Stone Path Construction within RPA	m^2 N/A %	Mature	Poor	Moderate	Very Low	Very Low	Airspade / manual excavation

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B.S. Cat.	Tree No.	Species	Impact	Tree / RPA Affected	Age	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
U	19	Ash, Common	Felled to Facilitate Development	m^2 N/A %	Mature	Poor	N/A	N/A	Very Low	New planting / landscaping
C	20	Ash, Common	Felled to Facilitate Development	m^2 N/A %	Mature	Moderate	N/A	N/A	Low	New planting / landscaping
U	21	Ash, Common	Felled to Facilitate Development	m^2 N/A %	Mature	Poor	N/A	N/A	Very Low	New planting / landscaping
B	22	Cherry, Wild (Gean)	Lightwell Construction within RPA Stepping Stone Path Construction within RPA	2.0 m^2 2.09 %	Early Mature	Normal	Moderate	Very Low	Very Low	Hand dig top 750mm of basement line thro' RPA
C	23	Mixed shrubs	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	24	Plum, Purple	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Low	New planting / landscaping
B	26	Maple, Norway	Bin Store Construction within RPA Path Construction within RPA	m^2 N/A %	Mature	Normal	Moderate	Low	Low	Low-invasive foundation design No-dig construction

5.0

Table 1: Arboricultural Impact Assessment

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

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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	Maple, Norway	Bin Store Construction within RPA Path Construction within RPA	m^2 N/A %	Mature	Normal	Moderate	Low	Low	Low-invasive foundation design No-dig construction
B	32	Birch, Silver	Wall Construction within RPA	m^2 N/A %	Mature	Normal	Moderate	Low	Low	Low-invasive foundation design
B	33	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
C	34	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
B	35	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
B	36	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
B	37	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping

5.0

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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	38	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
C	39	Cherry, Wild (Gean)	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Low	New planting / landscaping
U	42	Ash, Common	Felled to Facilitate Development	m^2 N/A %	Mature	Poor	N/A	N/A	Very Low	New planting / landscaping
U	43	Sycamore	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Very Low	New planting / landscaping
C	44	Sycamore	Felled to Facilitate Development	m^2 N/A %	Early Mature	Normal	N/A	N/A	Low	New planting / landscaping
B	45	Ash, Common	Drive Construction within RPA	m^2 N/A %	Early Mature	Normal	Moderate	Low	Low	No-dig construction
C	46	Holly	Felled to Facilitate Development	m^2 N/A %	Semi-mature	Normal	N/A	N/A	Low	New planting / landscaping

5.0

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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	47	False Acacia	Replacement Hard Surfacing within RPA	m^2 N/A %	Semi-mature	Normal	Moderate	Very Low	Very Low	No-dig construction
A	49	Plane, London	Replacement Hard Surfacing within RPA	m^2 N/A %	Mature	Normal	Good	Low	Low	No-dig construction
U	50	Holly	Drive Construction within RPA	m^2 N/A %	Mature	Dead	Moderate	N/A	N/A	N/a as tree dead
B	52	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Medium	New planting / landscaping
C	53	Birch, Silver	Felled to Facilitate Development	m^2 N/A %	Mature	Normal	N/A	N/A	Low	New planting / landscaping
C	H58	Mixed shrubs	Felled to Facilitate Development	m^2 N/A %	Young	Moderate	N/A	N/A	Low	New planting / landscaping
C	59	Holly	Felled to Facilitate Development	m^2 N/A %	Semi-mature	Normal	N/A	N/A	Low	New planting / landscaping

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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	G60	Apple, Cultivated	Felled to Facilitate Development	m^2 N/A %	Semi-mature	Moderate	N/A	N/A	Low	New planting / landscaping
C	G62	Apple & Pear	Felled to Facilitate Development	m^2 N/A %	Semi-mature	Moderate	N/A	N/A	Low	New planting / landscaping

6. ARBORICULTURAL IMPLICATIONS

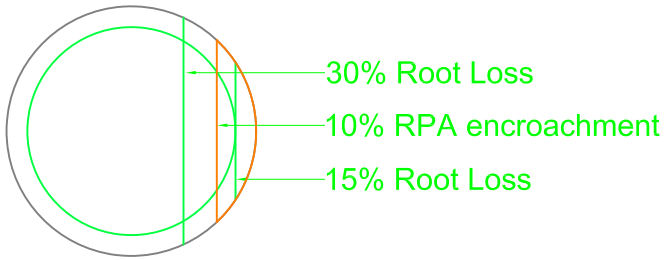
6.1 Rating of Primary Impacts

6.1.1 The principal impacts in the current proposals are the removal of the 27 trees listed in Table 1. Whilst in purely numerical terms, this is half of the trees present, in terms of canopy cover, it is a significantly smaller portion of the whole. Those removed generally have more collective than individual specimen value, exceptions being T's 33, 35, 36, 37, 38 and 52. 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. It will also be noted that the removal of a number of these trees is recommended regardless of development and that the overwhelming majority of tree removals are internal to the site with the wooded envelope remaining. The immediate reduction in canopy cover through felling is therefore rated as a medium impact unlikely to harm either the resource or the wider conservation area over the medium-long term.

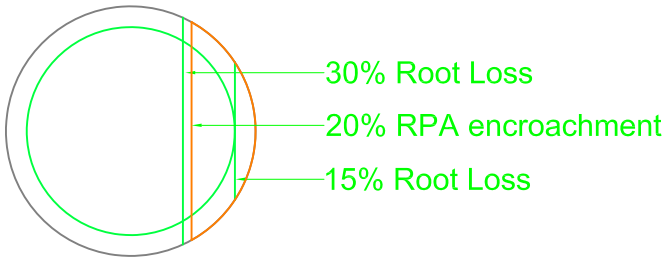
6.1.2 The principal impacts to retained trees comprise the encroachments of T1, T3 and T22's RPAs by the mansion block. The RPA of T1 is further encroached by a bin store and new substation. There are also new paths of varying construction that pass through the RPA of 12 trees along with new garden walls within the RPA of T32. An extensive number of trial pits have been excavated across the site and their findings were used to lead the design of elements within RPAs. These findings are provided under separate cover and have allowed us to conclude that the tree(s) 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 the net impacts are assessed as being low.

6.1.3 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 somewhere between 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.

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))

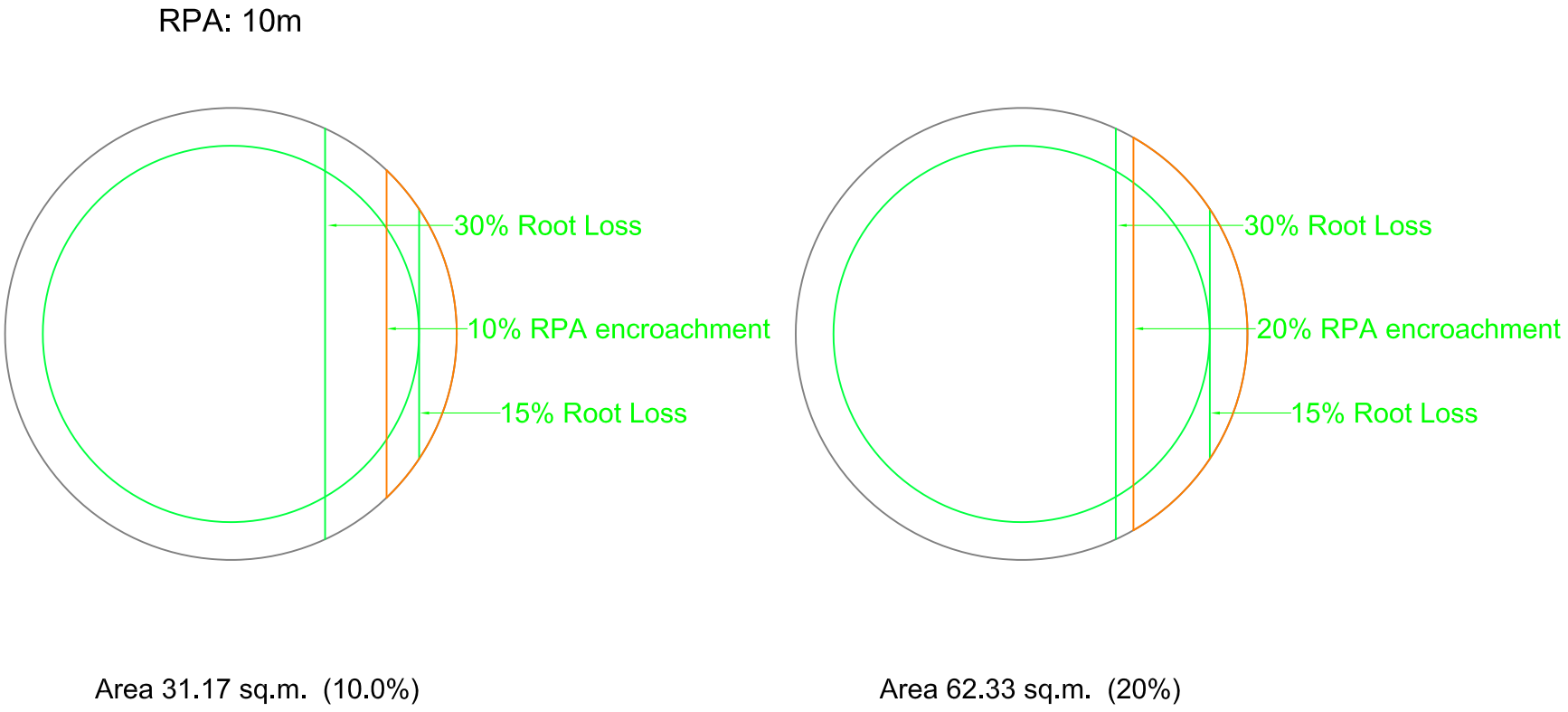


Figure 5b: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 10m RPA radius (after Thomas (2014))

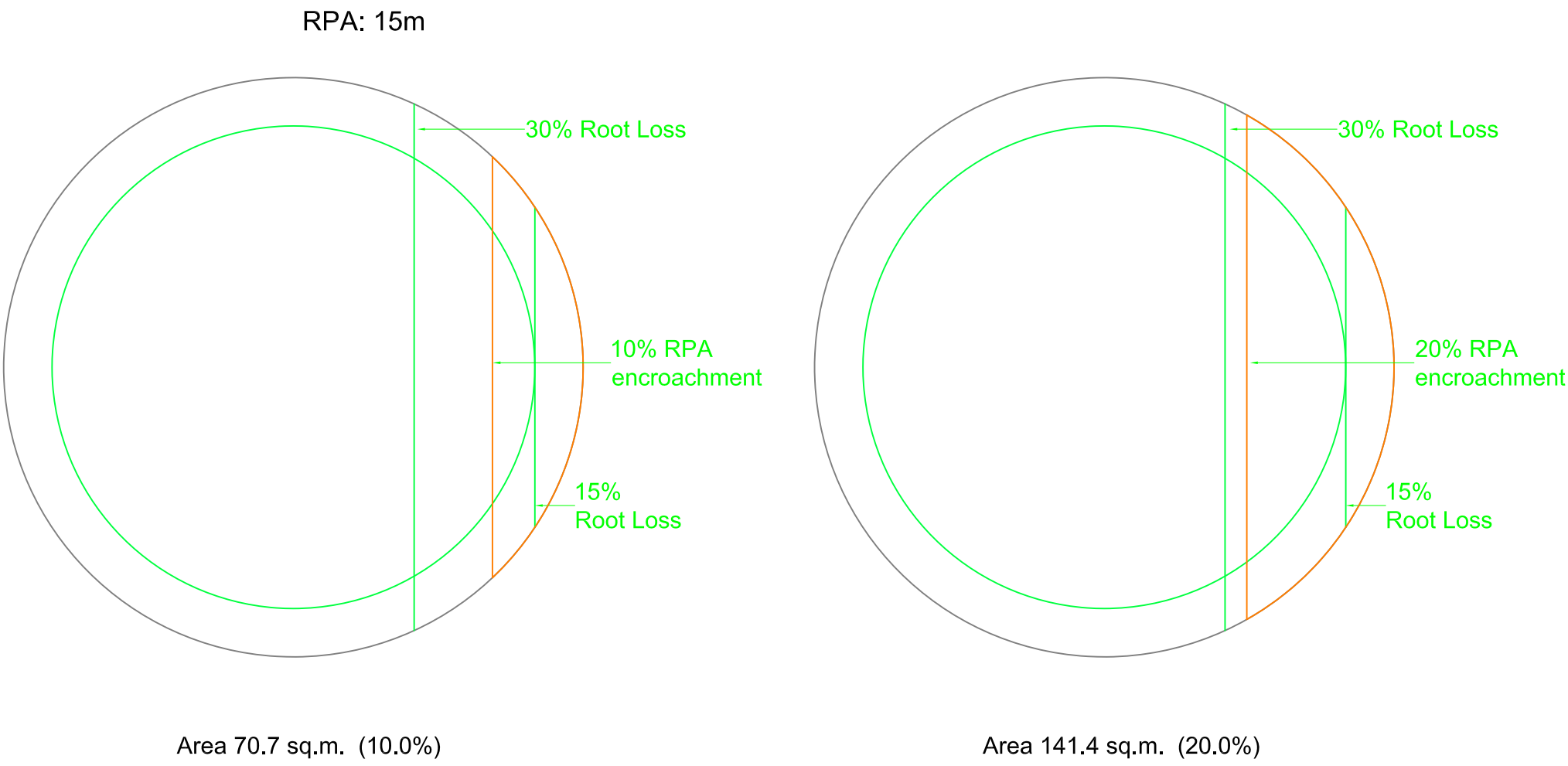


Figure 5c: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 15m RPA radius (after Thomas (2014))

6.1.4 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.

6.1.5 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.

6.1.6 As per BS5837 recommendations (at 5.3.1a), 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 5.3.1b) 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 marginal secondary impacts of honeydew / litter deposition and partial shade on this site, regardless of development. Whilst the proposals do entail building closer to the existing off-site tree stock to the rear of the site, the juxtaposition of these trees to the mansion block means that 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. Replacement trees will have the advantage of being specifically selected for the proposed site, healthy and fit-for-purpose. Naturally regenerated trees and saplings tend to be of pioneer / opportunist species (ash and sycamore) which can cause problems for infrastructure, springing up in unsuitable locations. 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 RPA encroachments are shown in Plan 2 compensated for elsewhere on contiguous land. 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 the mansion block 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 and the prior approval of the Local Authority.

6.3.4 The bin store, substation, switch gear building and garden wall encroachments 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 using a double-headed spade (“shove-holer”) or similar to minimise breadth of hole required for inspection.

6.3.5 The driveway and pathway (excluding the stepping stone woodland path) encroachments will require a no-dig construction technique, using a cellular confinement system with no fines aggregate for the sub-base. 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 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.

6.3.6 Any minor excavations necessary for the stepping stones for the woodland path will be carried out by hand using the provisions detailed in paragraph 6.3.3.

6.3.7 The replacement paving/hard landscaping at the front of the site 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.

6.3.8 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.

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 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 generally 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 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). 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.
- 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.
- Helliwell R (1980) Provision for New Trees; Landscape Design; July/August issue
- International Society of Arboriculture (ISA). 1994. The Landscape Below Ground. ISA, Champaign, Illinois. USA.
- Lonsdale D 1999. Research for Amenity Trees No.7: Principles of Tree Hazard Assessment and Management, HMSO, London.
- Matheny, N; Clark, J. R.1998. Trees and Development: A Technical Guide to Preservation of Trees during Land Development. ISA, Champaign, Illinois. USA.
- 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

PART 2 – APPENDICES

APPENDIX 1

TREE SCHEDULE

Botanical Tree Names

Acacia, False (Robinia)	: Robinia pseudoacacia	Elder	: Sambucus nigra
Apple	: Malus sp	Hawthorn, Common	: Crataegus monogyna
Ash, Common	: Fraxinus excelsior	Holly, Common/English	: Ilex aquifolium
Beech, Common	: Fagus sylvatica	Maple, Norway	: Acer platanoides
Birch, Silver	: Betula pendula	Pear, Common	: Pyrus communis
Cherry, Wild cherry /Gean	: Prunus avium	Plane, London	: Platanus acerifolia
Chestnut, Horse	: Aesculus hippocastanum	Plum, Purple	: Prunus cerasifera 'Nigra'
Chestnut, Indian	: Aesculus x indica	Poplar, Hybrid	: Populus spp
Cypress, Lawson	: Chamaecyparis lawsonia	Sycamore	: Acer pseudoplatanus
Cypress, Leyland	: Cupressus × leylandii		

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.

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
020 7851 4544
Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
1	Plane, London	18	5	2.0	990	Mature	11.9	Normal	Good	B	2	>40	Pollarded at 18m height Privet at base Japanese knotweed noted at base to W
2	Plane, London	18	?	3.0	760	Mature	9.1	Normal	Fair	B	2	>40	Pollarded at 18m height Privet at base
3	Poplar, Hybrid	18	6,7,8,6		1250	Mature	15.0	Normal	Fair	B	2	10+	Pollarded at 18m height Ivy clad 2 x small self set cherry at base to N @ 250mm DBH
4	Birch, Silver	11	5	2.0	420	Mature	5.0	Normal	Good	C	2	>40	Pollarded at 9m Poor form
5	Pear, Domestic	12	5.5,3,3, 3.5	2.0	450	Mature	5.4	Normal	Good	C/U		10+	Ivy clad A sparser than normal canopy
6	Cherry, Wild (Gean)	14	?	3.0	620	Mature	7.4	Normal	Fair	C	1	20+	Historically topped Showing drought stress Growing through fence. Remote survey only

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
7	Cherry, Wild (Gean)	7	2122	1.0	200	Semi-mature	2.4	Normal	Good	C	1	10+	
8	Cherry, Wild (Gean)	16	8,4,4,4	1.0	730	Mature	8.8	Normal	Good	C	1	>40	Ivy smothered Badger set/fox den to NE Bifurcated@base
9	Chestnut, Horse	15	4688	2.0	940	Mature	11.3	Moderate	Good	C	1	20+	Low vigour, ivy clad, early leaf drop Reduced annual shoot extensions Small area of exposed heartwood at base, fair reactive growth, under physiological stress
10	Plum, Purple	7	1311	0.0	212	Early Mature	2.5	Normal	Good	C		20+	
11	Plum, Purple	7.5	3.5	2.0	480	Mature	5.8	Normal	Fair	C	2	20+	Ivy clad End weighted limbs Stem leaning NE poses limited decay near union
12	Ash, Common	9	2.5	3.0	270	Semi-mature	3.2	Moderate	Good	C	1	20+	Showing potential early symptoms of ash dieback

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
13	Chestnut, Horse	4	1113	3.0	150	Semi-mature	1.8	Normal	Poor	C	2	<10	Heavy lean to W No real potential due to form
14	Ash, Common	22	5466	3.0	650	Mature	7.8	Moderate	Fair	C	1	<10	Multiple limb snap outs in crown A sparser than normal canopy ivy clad, decay present at a main scaffold union E side. Laurel & holly at base
15	Chestnut, Indian	15	3555	2.0	770	Mature	9.2	Normal	Fair	C	1	>40	Historically topped Ivy clad
16	Ash, Common	18	3211	3.0	250	Mature	3.0	Normal	Good	C		10+	Suppressed
17	Ash, Common	15	3222	3.0	350	Mature	4.2	Moderate	Good	C	2	10+	Suppressed A sparser than normal canopy ivy clad
18	Ash, Common	20	4043	2.0	420	Mature	5.0	Poor	Good	U		<10	Tree in terminal decline Extensive crown dieback

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
19	Ash, Common	18	4443	2.0	440	Mature	5.3	Poor	Good	U		>40	Tree in terminal decline Extensive crown dieback
20	Ash, Common	15	1311	3.0	200	Mature	2.4	Moderate	Good	C	2	10+	Suppressed A sparser than normal canopy
21	Ash, Common	18	?	2.0	480	Mature	5.8	Poor	Good	U		<10	Tree in terminal decline Extensive die back in upper crown
22	Cherry, Wild (Gean)	14	?	2.0	460	Early Mature	5.5	Normal	Good	B	2	20+	Ivy clad Small self set birch&ash to NW
23	Mixed shrubs	14	1111	2.0	240	Early Mature	2.9	Normal	Good	C		>40	
24	Plum, Purple	8	?	2.0	420	Mature	5.0	Normal	Fair	C		>40	Historically topped

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
020 7851 4544
Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
25	Plum, Purple	8	1432	2.0	429	Mature	5.2	Poor	Poor	U		20+	Stem lean to S Failed at base
26	Maple, Norway	17	5525	3.0	740	Mature	8.9	Normal	Good	B	2	>40	Historically reduced Deadwood (minor) throughout crown Ivy clad to mid crown
27	Maple, Norway	17	5533	3.0	670	Mature	8.0	Normal	Good	B	2	20+	Historically reduced Deadwood (minor) throughout crown Ivy clad to mid crown
32	Birch, Silver	19	5535	2.0	470	Mature	5.6	Normal	Good	B	2	20+	Ivy clad Remote survey only (RS) Dense undergrowth preventing access to base
33	Birch, Silver	20	5644	3.0	520	Mature	6.2	Normal	Good	B	1	20+	Ivy clad Remote survey only (RS) Dense undergrowth preventing access to base
34	Birch, Silver	18	3633	3.0	380	Mature	4.6	Normal	Good	C	1	20+	Ivy clad, minor lean S Remote survey only (RS) Dense undergrowth preventing access to base

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd
020 7851 4544
Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
35	Birch, Silver	18	4.5/4/7/ 3.5	3.0	545	Mature	6.5	Normal	Good	B	2	20+	Ivy clad Remote survey only (RS) Dense undergrowth preventing access to base
36	Birch, Silver	18	?	2.0	450	Mature	5.4	Normal	Good	B	2	20+	Ivy clad
37	Birch, Silver	18	?	2.0	380	Mature	4.6	Normal	Good	B	2	20+	Minor stem lean to E Bifurcated @base
38	Birch, Silver	18	?	3.0	300	Mature	3.6	Normal	Good	B	2	20+	Slight bas to N Growing into chainlink fence
39	Cherry, Wild (Gean)	14	5253	2.0	380	Early Mature	4.6	Normal	Good	C		>40	Suppressed form Ivy clad
40	Cypress, Lawson	6	2222	2.0	190	Early Mature	2.3	Normal	Good	C	2	>40	

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
41	Beech, Common	14	?	2.0	200	Semi-mature	2.4	Normal	Good	C	1	>40	Currently suppressed by ash Abutting new structure
42	Ash, Common	20	?	7.0	940	Mature	11.3	Poor	Fair	U		<10	Bark necrosis N side Tree in physiological decline Historical construction damages N side due to new structure installation. Included bark union at base.
43	Sycamore	12	4444	2.0	280	Early Mature	3.4	Normal	Fair	U		10+	Abutting new structure Historical construction damages on northern side of stem
44	Sycamore	18	5,1,3.5, 1.5	10.0	540	Early Mature	6.5	Normal	Good	C	2	20+	Ivy clad Drawn up form Pollarded historically
45	Ash, Common	18	4748	6.0	460	Early Mature	5.5	Normal	Good	B	2	>40	Exposed roots on southern side Bias to SE
46	Holly	4	2111	1.0	280	Semi-mature	3.4	Normal	Good	C	2	10+	Bricks piled up round base Lean to SW Superficial wound/decay W side of stem

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
47	False Acacia	11	2224	2.0	310	Semi-mature	3.7	Normal	Good	C	1	10+	Of middling form Decaying tear out wound on lower stem
48	Plane, London	17	7777	7.0	900	Mature	10.8	Normal	Good	A	2	>40	LPA managed street tree Managed as a top pollard
49	Plane, London	20	6666	7.0	1230	Mature	14.8	Normal	Good	A	2	>40	LPA managed street tree Managed as a top pollard
50	Holly	11	2444	1.0	330	Mature	4.0	Dead	Fair	U		<10	
51	Cotoneaster	5	4011	0.0	150	Mature	1.8	Normal	Fair	C		10+	Ivy clad Of shrub habit
52	Birch, Silver	14	3,7.6,6.5,4	2.0	420	Mature	5.0	Normal	Good	B	2	20+	Ivy clad

Landmark Trees

Site: 39 Fitzjohn's Avenue

Date: 03/11/22

Appendix 1

BS5837 Tree Constraints Survey Schedule

Landmark Trees Ltd

020 7851 4544

Surveyor(s): Ross Gamblin

Ref: BRF_39FTZ_AIA

Tree No.	English Name	Height	Crown Spread	Ground Clearance	Stem Diamete	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
53	Birch, Silver	14	4434	2.0	412	Mature	4.9	Normal	Good	C	1	20+	Ivy clad
H58	Mixed shrubs	3	0.5	0.0	50	Young	0.6	Moderate	Fair	C	2	20+	Grown out linear screening Unmanaged Including Portuguese Laurel, cherry, ash, some self set
59	Holly	5	1.5	0.5	120	Semi-mature	1.4	Normal	Fair	C	2	10+	A tree with insignificant defects Another small holly at base dbh =60mm
G60	Apple, Cultivated	3.5	1313	1.0	310	Semi-mature	3.7	Moderate	Fair	C	2	10+	Ivy smothered Lean to S, suppressed apple, cherry & holly. Poor form.
61	Elder	3.5	2	1.5	200	Semi-mature	2.4	Normal	Fair	C	2	<10	Unsuitable species for position
G62	Apple & Pear	3.5	2.5	0.5	150	Semi-mature	1.8	Moderate	Fair	C	2	10+	8 apple in small orchard group All of poor form All of similar dimensions and historically reduced

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: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Recommended Tree Works

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
5	Pear, Domestic	C/U	12	2.0	5.5,3,3, 3.5	Mon Monitor ongoing condition	Ivy clad A sparser than normal canopy Management Priority 3
12	Ash, Common	C	9	3.0	2.5	Mon	Showing potential early symptoms of ash dieback Management Priority 3
13	Chestnut, Horse	C	4	3.0	1113	Fell	Heavy lean to W No real potential due to form Management Priority 3
14	Ash, Common	C	22	3.0	5466	CR 4m Mon	Multiple limb snap outs in crown A sparser than normal canopy ivy clad, decay present at a main scaffold union E side. Laurel & holly at base Management Priority 2
17	Ash, Common	C	15	3.0	3222	Mon	Suppressed A sparser than normal canopy ivy clad Management Priority 3
18	Ash, Common	U	20	2.0	4043	Fell	Tree in terminal decline Extensive crown dieback Management Priority 2

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Recommended Tree Works

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
19	Ash, Common	U	18	2.0	4443	Fell	Tree in terminal decline Extensive crown dieback Management Priority 2
21	Ash, Common	U	18	2.0	?	Fell	Tree in terminal decline Extensive die back in upper crown Management Priority 2
25	Plum, Purple	U	8	2.0	1432	Fell	Stem lean to S Failed at base Management Priority 2
42	Ash, Common	U	20	7.0	?	Fell	Bark necrosis N side Tree in physiological decline Historical construction damages N side due to new structure installation. Included bark union at base. Management Priority 2
50	Holly	U	11	1.0	2444	Fell	Management Priority 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: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Appendix 3

Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
4	Birch, Silver	C	11	2.0	5	Fell	Pollarded at 9m Poor form To facilitate development
8	Cherry, Wild (Gean)	C	16	1.0	8,4,4,4	Fell	Ivy smothered Badger set/fox den to NE Bifurcated@base To facilitate development
9	Chestnut, Horse	C	15	2.0	4688	Fell	Low vigour, ivy clad, early leaf drop Reduced annual shoot extensions Small area of exposed heartwood at base, fair reactive growth, under physiological stress To facilitate development
10	Plum, Purple	C	7	0.0	1311	Fell	To facilitate development
16	Ash, Common	C	18	3.0	3211	Fell	Suppressed To facilitate development
19	Ash, Common	U	18	2.0	4443	Fell	Tree in terminal decline Extensive crown dieback To facilitate development

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Appendix 3

Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
20	Ash, Common	C	15	3.0	1311	Fell	Suppressed A sparser than normal canopy To facilitate development
21	Ash, Common	U	18	2.0	?	Fell	Tree in terminal decline Extensive die back in upper crown To facilitate development
23	Mixed shrubs	C	14	2.0	1111	Fell	To facilitate development
24	Plum, Purple	C	8	2.0	?	Fell	Historically topped To facilitate development
33	Birch, Silver	B	20	3.0	5644	Fell	Ivy clad Remote survey only (RS) Dense undergrowth preventing access to base To facilitate development
34	Birch, Silver	C	18	3.0	3633	Fell	Ivy clad, minor lean S Remote survey only (RS) Dense undergrowth preventing access to base To facilitate development

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Appendix 3

Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
35	Birch, Silver	B	18	3.0	4.5/4/7/ 3.5	Fell	Ivy clad Remote survey only (RS) Dense undergrowth preventing access to base To facilitate development
36	Birch, Silver	B	18	2.0	?	Fell	Ivy clad To facilitate development
37	Birch, Silver	B	18	2.0	?	Fell	Minor stem lean to E Bifurcated @base To facilitate development
38	Birch, Silver	B	18	3.0	?	Fell	Slight bas to N Growing into chainlink fence To facilitate development
39	Cherry, Wild (Gean)	C	14	2.0	5253	Fell	Suppressed form Ivy clad To facilitate development
42	Ash, Common	U	20	7.0	?	Fell	Bark necrosis N side Tree in physiological decline Historical construction damages N side due to new structure installation. Included bark union at base. To facilitate development

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Appendix 3

Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
43	Sycamore	U	12	2.0	4444	Fell	Abutting new structure Historical construction damages on northern side of stem To facilitate development
44	Sycamore	C	18	10.0	5,1,3.5, 1.5	Fell	Ivy clad Drawn up form Pollarded historically To facilitate development
46	Holly	C	4	1.0	2111	Fell	Bricks piled up round base Lean to SW Superficial wound/decay W side of stem To facilitate development
47	False Acacia	C	11	2.0	2224	Fell	Of middling form Decaying tear out wound on lower stem To facilitate development
52	Birch, Silver	B	14	2.0	3,7.6,6. 5,4	Fell	Ivy clad To facilitate development
53	Birch, Silver	C	14	2.0	4434	Fell	Ivy clad To facilitate development

Landmark Trees

Site: 39 Fitzjohn's Avenue
Date: 03/11/22

Surveyor(s): Ross Gamblin
Ref: BRF_39FTZ_AIA

Appendix 3

Recommended Tree Works To Facilitate Development

Hide irrelevant
Show All Trees

Tree No.	English Name	B.S. Cat	Height	Ground Clearance	Crown Spread	Recommended Works	Comments/ Reasons
H58	Mixed shrubs	C	3	0.0	0.5	Fell	Grown out linear screening Unmanaged Including Portuguese Laurel, cherry, ash, some self set To facilitate development
G60	Apple, Cultivated	C	3.5	1.0	1313	Fell	Ivy smothered Lean to S, suppressed apple, cherry & holly. Poor form. To facilitate development
G62	Apple & Pear	C	3.5	0.5	2.5	Fell	8 apple in small orchard group All of poor form All of similar dimensions and historically reduced To facilitate 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	

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

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e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 39 Fitzjohns Avenue	1:200@ A1
Drawing Title: Tree Constraints Plan	November 2022

Key:

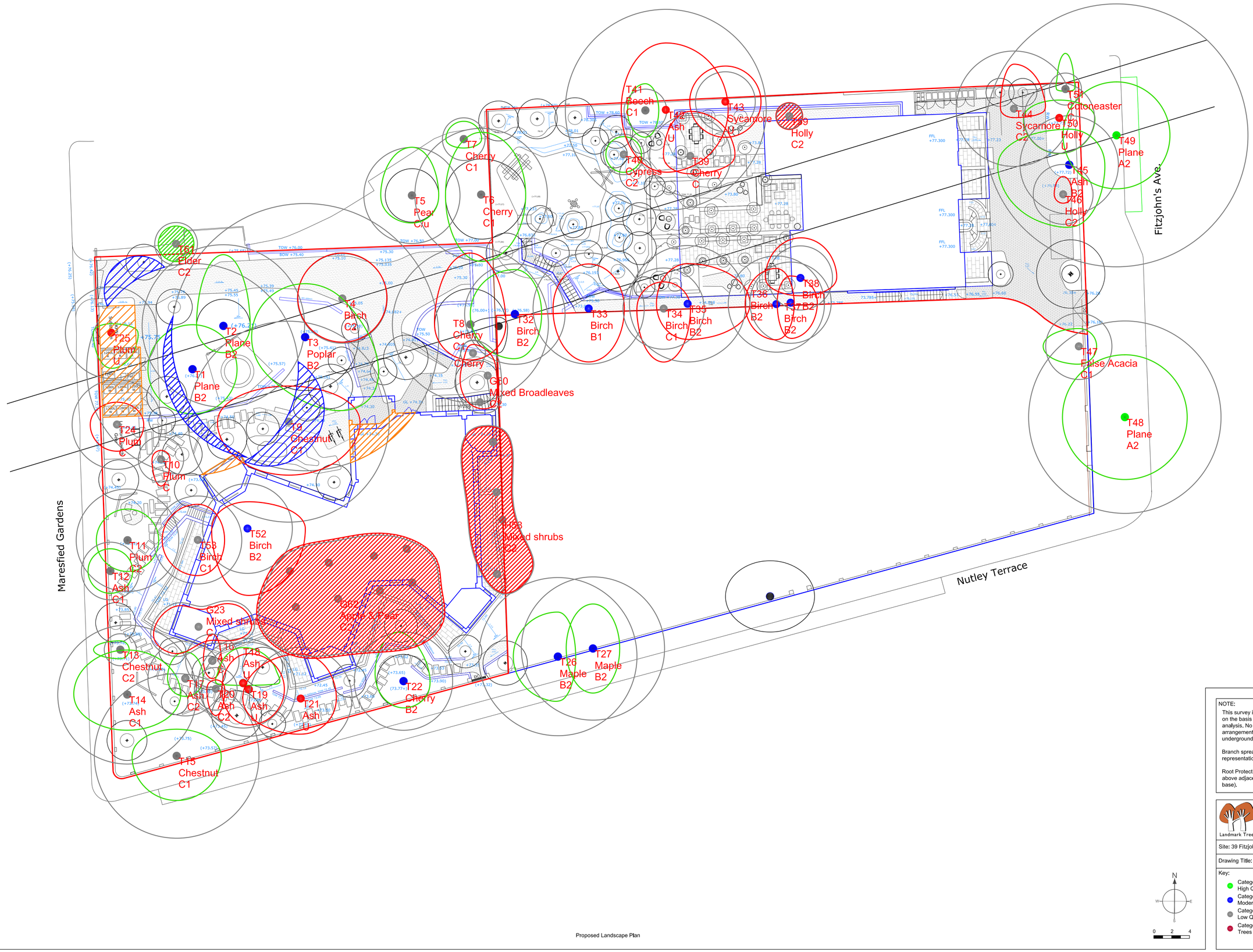
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention

Category
Crown Spread
Root Protection Area
Tree Number
Species
Category
3 Birch B2
Tree Position Approximate (not shown on original survey)

PLAN 2

ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)

i. Landscaping



Proposed Landscape Plan

KEY

Stone paving
colour: buff, pattern: stretcher bond, size: 600x900mmx40mm thick, finish:sawn

Porcelain paving
colour:buff, pattern: stretcher bond, size: 600x900mmx20mm thick

Clay pavers
colour:buff, pattern: stretcher bond, size: 217mmx52mmx70mm (size subject to product specification)

Foothpath gravel
self-binding aggregate, colour:buff

Loose gravel
colour:buff, size:10-14mm

Concrete paving & steps
colour:buff, pattern: stretcher bond, size: 350 X 150 X 1000 (size subject to product specification)

Existing trees (retained)

Proposed specimen trees

Guardrails
1.1m high, galvanised powder coated barrier, RAL tbc

Retaining Wall
Brick retaining wall

Amenity planting
mix of shrubs, herbaceous and grasses for all year round interest

Wildflower planting
grass and wildflower species mix that provide a natural meadow look

Proposed hedges
native hedges along the boundary and amenity hedges for private gardens

Species-rich lawn

Raised planters
steel planters, rolled top edge, sizes vary depending on location

Pond
pond with shallow edges 100-200mm with depth increasing to max 400mm towards the centre. Allowance for pump and filter for water circulation and aeration.

+73.815 Proposed levels

Area displaced from RPA
Area from RPA redistributed

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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e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 39 Fitzjohns Avenue	1:200@ A1
Drawing Title: Arboricultural Impacts Assessment	February 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 (3 Birch B2)

Tree Position Approximate (not shown on original survey)

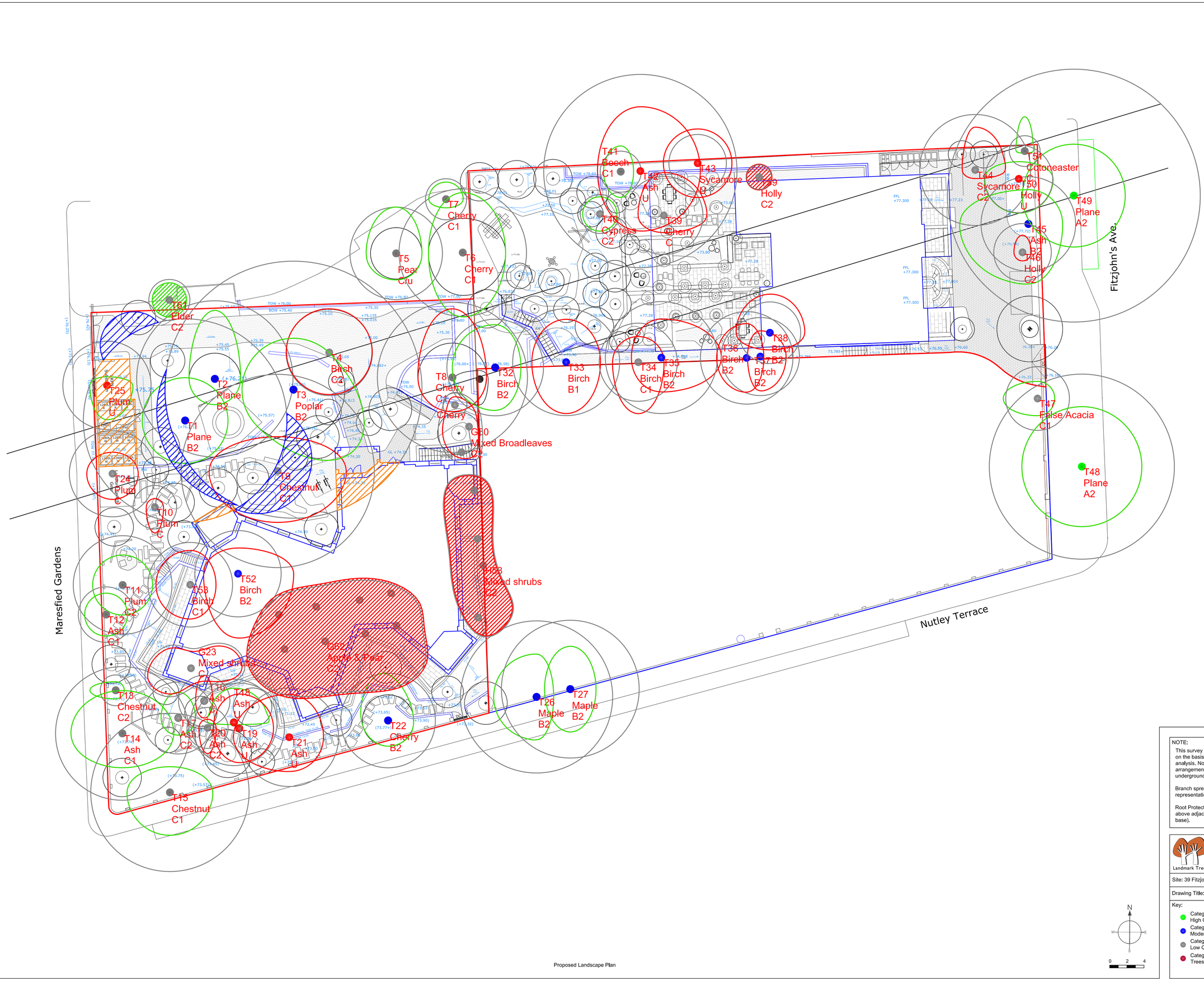
Tree Felled To Facilitate Development

N W E S

0 2 4

PLAN 3

OUTLINE TREE PROTECTION PLAN



KEY

Stone paving
colour: buff, pattern: stretcher bond, size: 600x900mmx40mm thick, finish:sawn

Porcelain paving
colour:buff, pattern: stretcher bond, size: 600x900mmx20mm thick

Clay pavers
colour:buff, pattern: stretcher bond, size: 217mmx52mmx70mm (size subject to product specification)

Foothpath gravel
self-binding aggregate, colour:buff

Loose gravel
colour:buff, size:10-14mm

Concrete paving & steps
colour:buff, pattern: stretcher bond, size: 350 X 150 X 1000 (size subject to product specification)

Existing trees (retained)

Proposed specimen trees

Guardrails
1.1m high, galvanised powder coated barrier, RAL tbc

Retaining Wall
Brick retaining wall

Amenity planting
mix of shrubs, herbaceous and grasses for all year round interest

Wildflower planting
grass and wildflower species mix that provide a natural meadow look

Proposed hedges
native hedges along the boundary and amenity hedges for private gardens

Species-rich lawn

Raised planters
steel planters, rolled top edge, sizes vary depending on location

Pond
pond with shallow edges 100-200mm with depth increasing to max 400mm towards the centre. Allowance for pump and filter for water circulation and aeration.

+73.815 Proposed levels

Area displaced from RPA
Area from RPA redistributed

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
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Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 39 Fitzjohns Avenue	1:200@ A1
Drawing Title: Arboricultural Impacts Assessment	February 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 (3 Birch B2)
Tree Position Approximate (not shown on original survey)
Tree Felled To Facilitate Development

N W E S
0 2 4