Landmark Trees

ARBORICULTURAL IMPACT ASSESSMENT REPORT FOR:

5 The Grove

Highgate

London

N6 6JU

INSTRUCTING PARTY:

Private Client

c/o Tom Stuart-Smith Landscape Design

90 – 93 Cowcross Street

London EC1M 6BF

REPORT PREPARED BY

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Ref: TSS/5TGV/AIA/01b

Date: 20th August 2021

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)	22/07/2021
Rev a	APPROVED	For External Issue (Planning)	26/07/2021
Rev b	APPROVED	For External Issue (Planning)	20/08/2021

1. SUMMARY

1.1 The existing site is a residential property with substantive rear garden containing a number of trees potentially constraining development. The proposal comprises the re-landscaping of the rear garden.

1.2 There are 48 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 3 trees were assessed as being of poor quality.

1.3 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 to facilitate the landscaping proposals. 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.

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. The report has demonstrated 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 Tom Stuart-Smith Landscape Design 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').

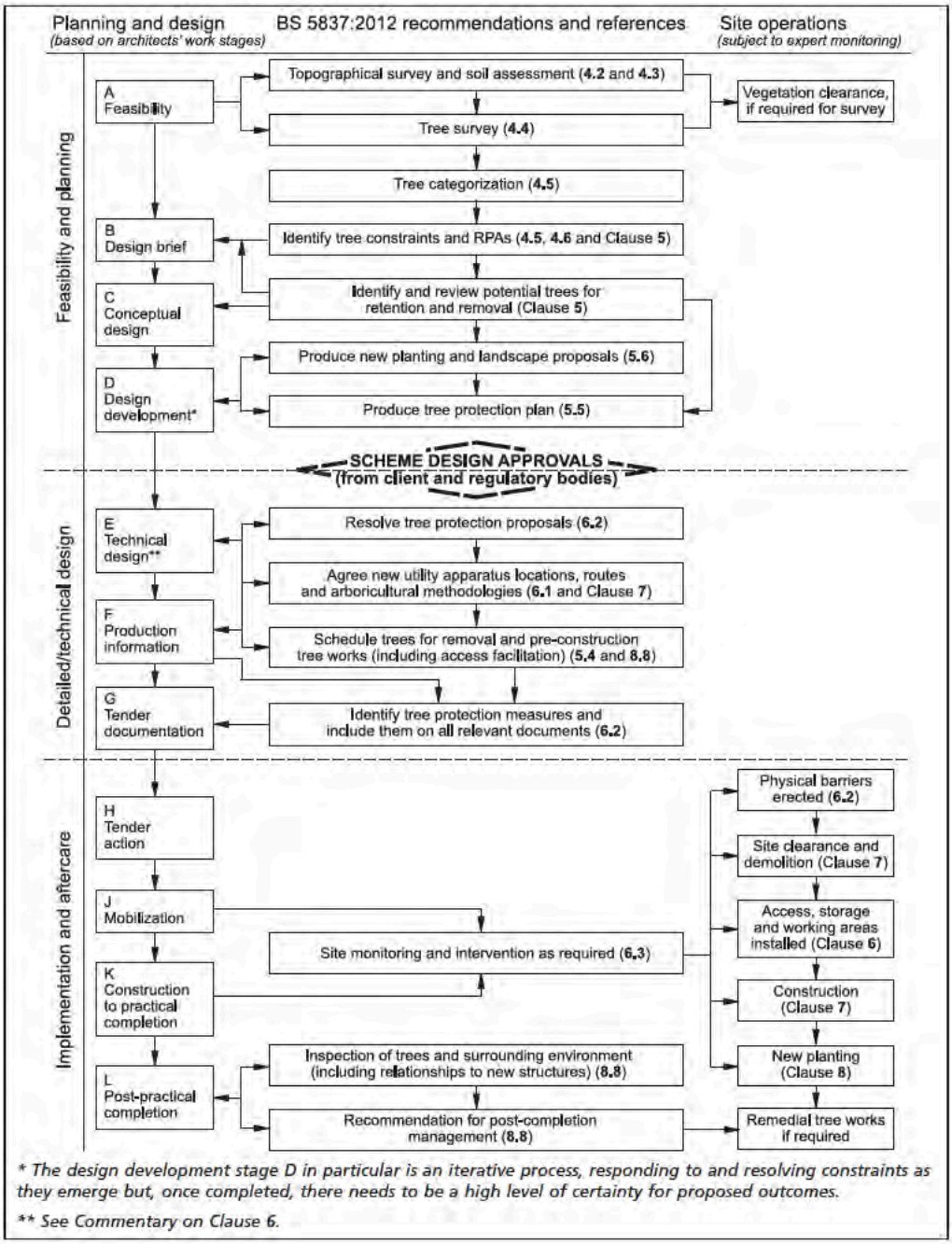
2.1.2 The application relates to the re-landscaping of the rear garden and includes extension of the existing summer house, construction of a larger swimming pool and construction of a new pergola as well as several pathways.

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') 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: The Grove_Topo_revB

Proposals: 381-5 The Grove-L-P_PLANNING-1-200

2.3 Scope & Limitations of Survey

2.3.1 As Landmark Trees' (LT) arboricultural consultant, Ross Gamblin surveyed the trees on site on 24th April 2021, recording relevant qualitative data in order to assess both their suitability for retention and their constraints upon the site, in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations [BS5837:2012].

2.3.2 Our survey of the trees, the soils and any other factors, is of a preliminary nature. The trees were SURVEYED on the basis of the Visual Tree Assessment method expounded by Mattheck and Breloer (The Body Language of Trees, DoE booklet Research for Amenity Trees No. 4, 1994). LT have not taken any samples for analysis and the trees were not climbed but inspected from ground level.

2.3.3 The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development. Tree surveys undertaken after a detailed design has been prepared can identify significant conflicts: in such cases, the nature of and need for the proposed development should be set against the quality and values of affected trees. The extent to which the design can be modified to accommodate those trees meriting retention should be carefully considered. Where 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

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

2.3.4 The survey does not cover the arrangements that may be required in connection with the laying or removal of underground services.

2.4 Survey Data & Report Layout

2.4.1 Detailed records of individual trees are given in the survey schedule in Appendix 1. General husbandry recommendations are distinguished at Appendix 2 from minimum requirements to facilitate development which form part of the planning application at Appendix 3. The former may still be relevant to providing a safe site of work, of course. Planning considerations notwithstanding, we trust these necessary recommendations are passed on to relevant parties with due diligence and the trees to be managed appropriately.

2.4.2 A site plan identifying the surveyed trees, based on the Instructing Party's drawings / topographical survey is provided in Part 3 of this report. This plan also serves as the Tree Constraints Plan with the theoretical Recommended Protection Areas (RPA's), 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. General observations, discussion, conclusions and recommendations follow, below.

3.0 SITE CHARACTERISTICS

3.1 Property Description & Planning Context

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

3.1.1	This property is located on the western side of The Grove and comprises a large dwelling with substantial rear garden.
3.1.2	There are a number of significant level changes within the rear garden which is set over 2 levels.
3.1.3	We are not aware of the existence of any Tree Preservation Orders*, but understand the site stands within the Highgate Conservation Area, which will affect the subject trees: it is a criminal offence to prune, damage or fell such trees without permission from the local authority.
3.1.4	Relevant local planning policies comprise Policies G1 and G7 of the London Plan 2021 and Policies A3, 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 TPO's during the conveyancing process; an existing owner of a site must be served with a copy of any TPO's 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 LPA's 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

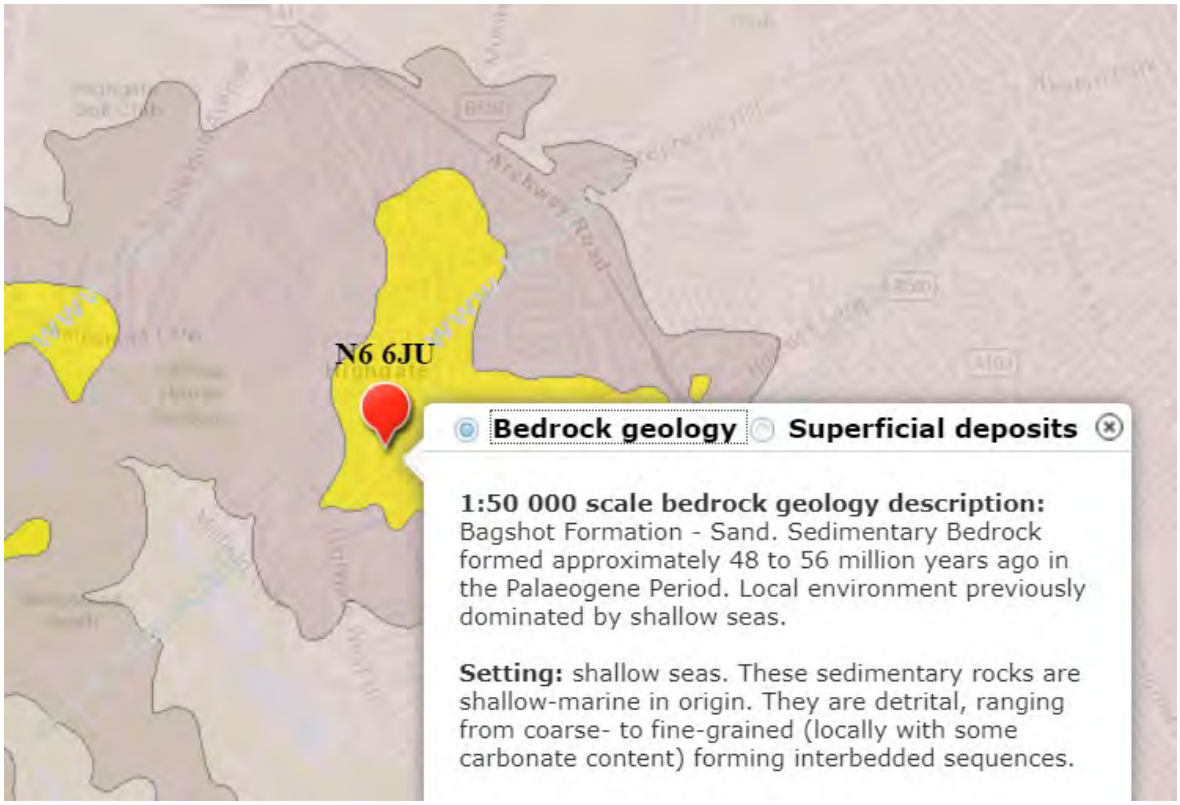


Figure 2: Extract from the BGS Geology of Britain Viewer

3.2.1	In terms of the British Geological Survey, the site overlies the Bagshot Beds above (shown in yellow). The Bagshot Beds are generally sandier than the surrounding clay soils but the actual limits of soil series are not as clearly defined on the ground as on plan and there may be anomalies between them. Further advice from the relevant experts on the specific soil properties can be sought as necessary.
3.2.2	Sand and gravel soils are less prone to compaction during development than clay soils, potentially reducing the threat to tree health from construction traffic. Further advice from the relevant experts on the specific soil properties can be sought as necessary.

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Date: 3rd August 2021

 This report is a draft copy intended for internal purposes only. Subject to client approval and invoice settlement, an external copy will be issued.

Photograph 2: Existing lower garden arrangement with T12 visible to rear set above existing summerhouse

Photograph 3: Holm oak T12 growing at roof level of summerhouse to left

Photograph 4: Upper garden

4.0 DEVELOPMENT CONSTRAINTS

4.1 Primary Constraints

4.1.1 BS5837: 2012 gives Recommended Protection Areas (RPA's) for any given tree size. The individual RPA's 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 RPA's are appropriate for individual specimen trees grown freely, but where there is ground disturbance, the morphology of the RPA can be modified to an alternative polygon, as shown in the diagram below (Figure 2). Alternatively, one need principally remember that RPA's are area-based and not linear – notional rather than fixed entities.

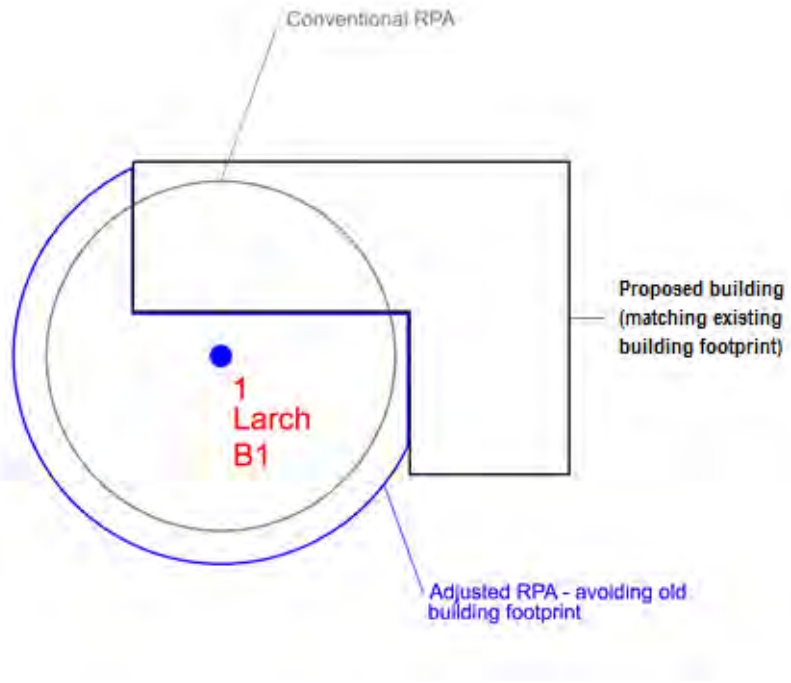


Figure 2 – Generic BS 5837 RPA Adjustments

4.1.3 In BS5837, paragraph 4.6.2 states that RPA's 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 deped 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 on account of the prevailing site conditions.**

4.1.5 The quality of trees will also be a consideration: U Category trees are discounted from the planning process in view of their limited useful life expectancy. Again, Category-C trees would not normally constrain development individually, unless they provide some external screening function.

4.1.6 At paragraph 5.1.1. BS5837: 2012 notes that "Care should be exercised over misplaced tree preservation; attempts to retain too many or unsuitable trees on a site are liable to result in excessive pressure on the trees during demolition or construction work, or post-completion demands on their removal."

4.1.8 In theory, only moderate quality trees and above are significant material constraints on development. However, low quality trees comprise a constraint in aggregate, in terms of any collective loss / removal, where replacement planting is generally considered appropriate.

4.1.9 In this instance, the moderate quality trees have the potential to pose significant constraints to development of the site.

4.2 Secondary Constraints

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

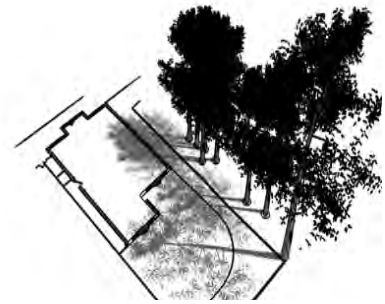


Figure 3 –
Generic Shading Constraints

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

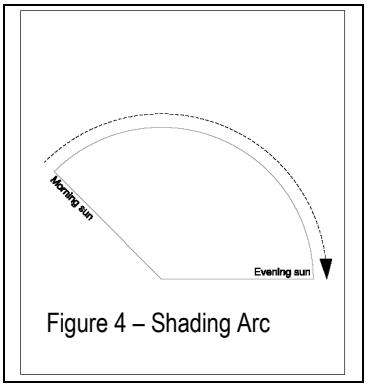


Figure 4 – Shading Arc

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

4.2.4 Assuming that they will be retained, the orientation of the on-site trees means they 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.

B.S. Cat	Tree No.	English Name	Impact	RPA Affected	Age Class	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
B	1	Cider Gum	Pergola Construction within RPA	11.0sqm / 4.2%	M	Moderate	Moderate	Very low	Very low	Low invasive foundations & no-dig construction
C	3	Cider Gum	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Low	New planting / landscaping
C	5	Silver Birch	Felled to facilitate landscape enhancement	N/a	SM	Moderate	N/a	N/a	Low	New planting / landscaping
B	6	Cider Gum	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Medium	New planting / landscaping
C	7	Norway Spruce	Felled to facilitate landscape enhancement	N/a	EM	Moderate	N/a	N/a	Low	New planting / landscaping
C	8	Leyland Cypress	Felled to facilitate landscape enhancement	N/a	M	Moderate	N/a	N/a	Low	New planting / landscaping
B	9	Giant Redwood	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Medium	New planting / landscaping
C	10	Black Mulberry	Felled to facilitate landscape enhancement	N/a	SM	Normal	N/a	N/a	Low	New planting / landscaping

B.S. Cat	Tree No.	English Name	Impact	RPA Affected	Age Class	Growth Vitality	Species Tolerance	Impact on Tree Rating	Impact on Site Rating	Mitigation
C	11	Japanese Maple	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Low	New planting / landscaping
B	12	Holm Oak	Summerhouse Extension within RPA	20.2sqm / 4.4%	M	Moderate	Moderate	Very low	Very low	Airspade / manual excavation
C	14	Magnolia	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Low	New planting / landscaping
C	15	Hazel	Felled to facilitate landscape enhancement	N/a	SM	Normal	N/a	N/a	Low	New planting / landscaping
B	17	Magnolia	Path Construction within RPA	N/a	SM	Normal	Moderate	Very low	Very low	No-dig construction
C	18	Apple	Felled to facilitate landscape enhancement	N/a	SM	Normal	N/a	N/a	Low	New planting / landscaping
C	20	Maple	Path Construction within RPA	N/a	SM	Normal	Moderate	Very low	Very low	No-dig construction
B	G1	Holly, Lilac, Cider Gum, Cherry Laurel, Portugal Laurel, Black Mulberry, Hornbeam, Holm Oak, Silver Birch, Norway Spruce, Leyland Cypress, Wellingtonia, Magnolia, Japanese Maple	Felled to facilitate landscape enhancement	N/a	EM	Normal	N/a	N/a	Medium	New planting / landscaping

6.0 ARBORICULTURAL IMPLICATIONS

6.1 Rating of Primary Impacts

6.1.1 The principal impacts in the current proposals are the removal of the 12 trees listed in Table 1. In terms of resource management, these comprise a relatively small portion of the whole. Those removed generally have more collective (Category C) than individual specimen value (Category A & B), exceptions being G1, T6 and T9. 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. The immediate reduction in canopy cover through felling is therefore is rated as a low impact unlikely to harm either the resource or the wider conservation area.

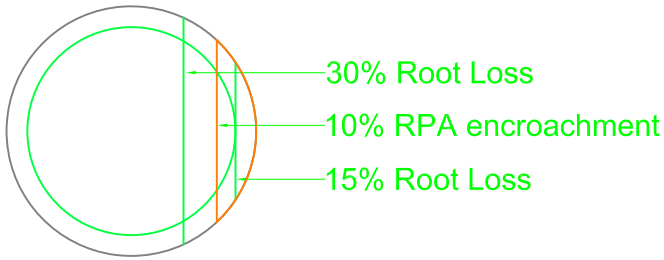
6.1.2 It should be noted that the removal of the trees along the site's western boundary is principally to reduce the loading against the boundary wall via the removal of proximate trees and soil material. Price & Myers Consulting Engineers confirm in their report reference 25389 / 5 Highfields Grove LONDON that the wall has a severe lean influenced by the proximity of tree growth and that the wall will collapse unless measures are taken to secure it.

6.1.3 Further impacts to retained trees comprise the encroachments of the RPA of T1 by the new pergola and terrace beneath it by 4% and the RPA of T12 by the side extensions to the summerhouse, again by 4%. It will of course be noted that the encroachments to the RPA of T12 occur approximately 3m below the level of the tree beyond a retaining wall. New footpaths are also proposed within the RPAs of T's 1, 2, 12, 17 and 20.

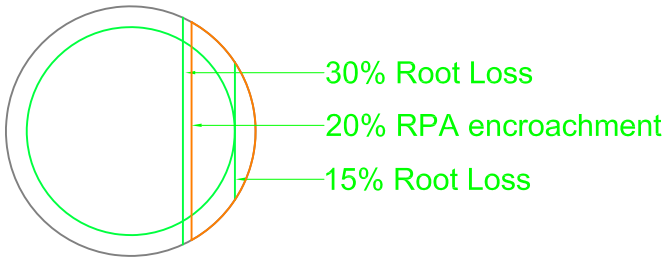
6.1.4 In our view, the tree(s) are of a species, age and condition sufficient to remain viable in the circumstances, given that the area lost to encroachment can be compensated for elsewhere, contiguous with the RPA, and provided the series of mitigation measures outlined below are followed to both reduce 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.

6.1.5	There is no set RPA encroachment that is immediately permissible. However, at para 5.3.a of BS5837, the project arboriculturist is charged with demonstrating that the tree(s) will remain viable in the instance of RPA encroachment. Whilst there is little research on RPA encroachment itself, there have been various commonly cited studies of root severance (see overleaf). Whilst the RPA is not coextensive with the wider root system, one can make some correlations after Thomas (2014): in average (sic) conditions, a straight line tangential with a tree's canopy would transect 15% of the root system, for another mid-way to the trunk that figure would be 30%. In the current cases, **the impacts would be well below the lower of these two parameters** as can be seen in Plan 2 in the Appendix or where more irregular in profile, can be gleaned from the percentage RPA encroachments in Table 1. There is no precise correlation between % RPA and root impairment or loss. However, in our experience, most RPA tend to exceed the free-grown canopy spread a little (c. x 1.2 -1.5), suggesting by reference to both Thomas and Fig. 5a - 5c overleaf, RPA encroachments marginally understate the percentage root loss. The informal 20% RPA threshold may equate to c. 30% root loss, and 10% RPA encroachment to c. 20% root loss. The assumptions made here are relatively crude and apply more to open grown trees but are nonetheless illustrative.

RPA: 5m



Area 7.98 sq.m. (10.0%)



Area 15.96 sq.m. (20.0%)

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

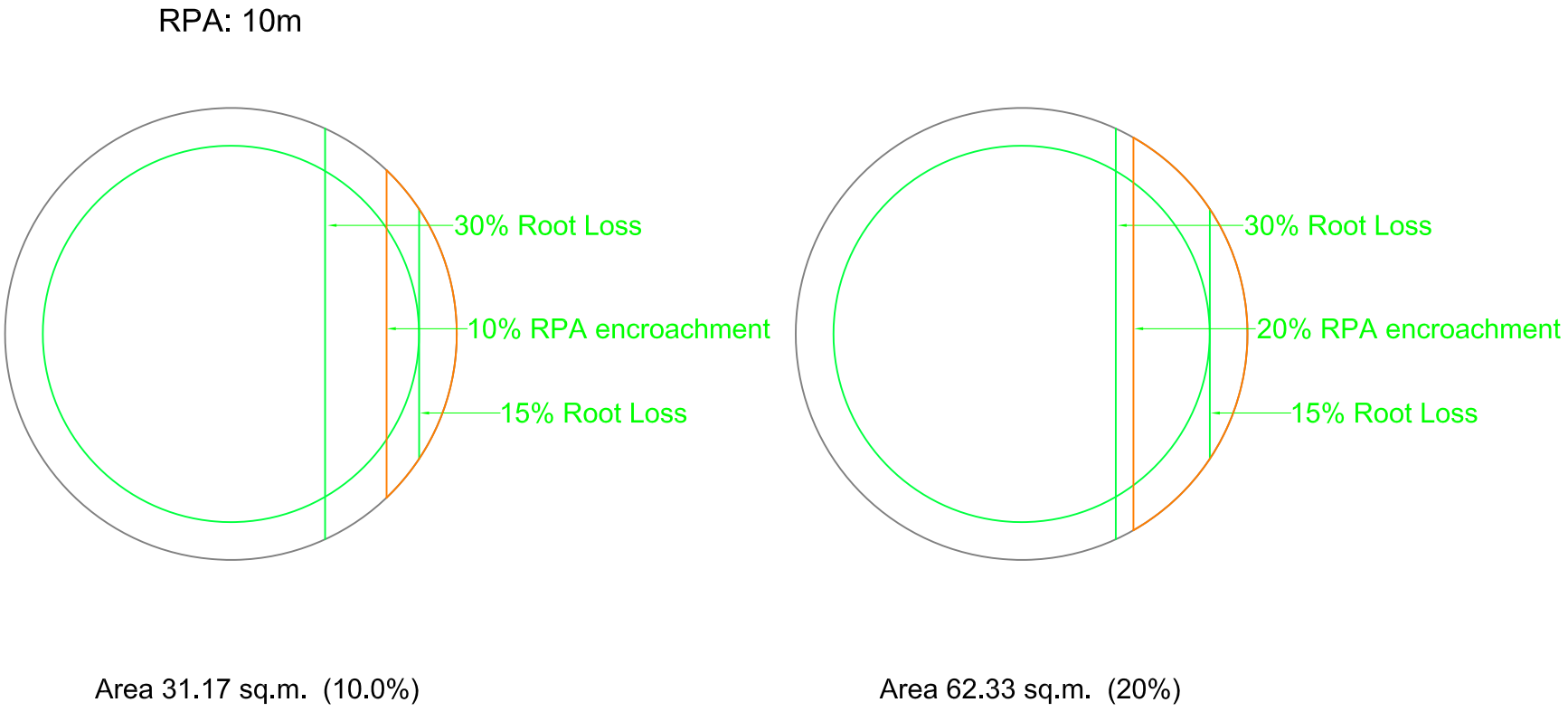


Figure 5b: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 10m RPA radius (after Thomas (2014))

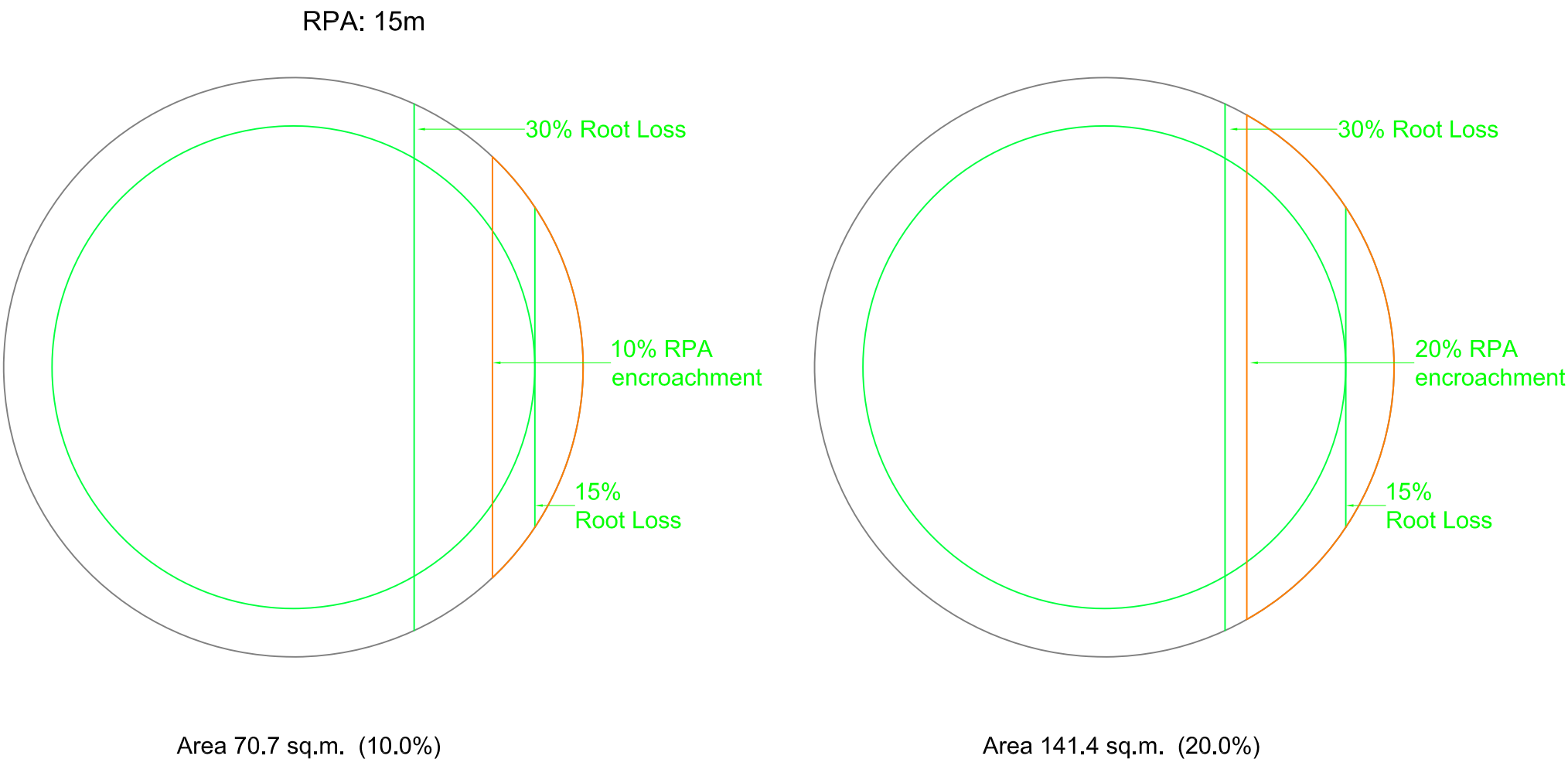


Figure 5c: approximate correlation between RPA encroachment and actual root loss on a free-grown tree of 15m RPA radius (after Thomas (2014))

6.1.6 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.

6.1.7 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.

6.1.8 As per BS5837 recommendations (at 5.3.a), the above assessment demonstrates that the tree(s) can remain viable and as per the equivalent hatching in Plan 2 of the Appendices that the area(s) lost to encroachment can be compensated for elsewhere. The guide also recommends (at 5.3.b) the 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	The garden will always be subject to some level honeydew / litter deposition and partial shade, regardless of the development considered herein which does not alter the use of the area adjacent to trees. As such, 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 young/semi-mature 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 compliment rather than conflict with the proposals, so providing a more sustainable long-term resource for the future . A selection of tree species and cultivars for open and constricted sites is provided in Appendix 4
6.3.2	RPA encroachments of >5% area are shown in Plan 2 compensated for elsewhere on contiguous land soft ground within the unaffected parts of these RPAs will be covered with a 75mm layer of mulch to be maintained in place throughout the duration of construction activities.

6.3.3	All plant and vehicles engaged in demolition works should either operate outside the RPA, or should run on a temporary surface designed to protect the underlying soil structure. Hard surfacing can be lifted with caution by a skilled machine operator again working away from the tree.
6.3.4	The limits of excavation within RPAs will be undertaken manually; any roots encountered will be cleanly pruned back to an appropriate junction with a sharp pruning saw or secateurs. Roots larger than 25mm diameter may only be cut in consultation with an arboriculturalist.

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

7.0 CONCLUSION

7.1 The potential impacts of development are all relatively low in terms of both quality of trees removed and also RPA encroachments of trees retained. In the latter case, the report has demonstrated as per BS5837 paragraph 5.3.1 (a) that the tree(s) can remain viable and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA; the report also proposes as per paragraph 5.3.1 (b) a series of mitigation measures to improve the soil environment that is used by the tree for growth.

7.2 The full potential of the impacts can thus be largely mitigated through design and precautionary measures. These measures can be elaborated in Method Statements in the discharge of planning conditions.

7.3 The species affected are generally tolerant of root disturbance / crown reduction and the retained trees are generally in good health and capable of sustaining these reduced impacts.

7.4 The trees that are recommended for felling are of little individual significance, such that their loss will not affect the visual character of the area.

7.5 Therefore, the proposals will not have any significant impact on either the retained trees or wider landscape thereby complying with Policies G1 and G7 of the London Plan 2021 and Policies A3, D1 and D2 of the Camden Local Plan (adopted 3rd July 2017). Thus, with suitable mitigation and supervision the scheme is recommended to planning.

8.0 RECOMMENDATIONS

8.1 Specific Recommendations

8.1.1 Tree works recommendations in Appendix 2 are not part of the current application, but requirements of general maintenance that will need to be applied for (subject to para. 3.3 of this report and any other relevant constraints in planning or leasehold) by the client separately. Consent for the current planning application does not impart any consent for the Appendix 2 maintenance works. Please note, though, the owner and / or manager of a property have a duty to maintain a safe site of work and to protect occupiers of the surrounding land / members of the public from tree hazards. Works recommended in this report should be enacted in a timely fashion by the relevant party regardless of the progress of the development.

8.1.2 Recommendations for works required to facilitate development are found in Appendix 2 and a selection of columnar tree species cultivars for constricted sites provided in Appendix 3. 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 RPA's 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.

8.2.2 A TPB may no longer be required during soft landscaping work but a full arboricultural assessment must be performed prior to the undertaking of any excavations within the RPA of a tree. This will inform a decision about the requirement of protection measures. It is important that all TPBs have permanent, weatherproof notices denying access to the RPA.

8.2.3 The use of heavy plant machinery for building demolition, removal of imported materials and grading of surfaces should take place in one operation. The necessary machinery should be located above the existing grade level and work away from any retained trees. This will ensure that any spoil is removed from the RPAs. It is vital that the original soil level is not lowered as this is likely to cause damage to the shallow root systems.

8.2.4 Any pruning works must be in accordance with British Standard 3998:2010 Tree work [BS3998].

8.2.5 Where sections of hard surfacing are proposed in close proximity to trees, it is recommended that "No-Dig" surfacing be employed in accordance with BS5837:2012 and 'The Principles of Arboricultural Practice: Note 1, Driveways Close to Trees, AAIS 1996 [APN1]'.

8.2.6 If the RPA of a tree is encroached by underground service routes then BS5837:2012 and NJUG VOLUME 4 provisions should be employed. If it is deemed necessary, further arboricultural advice must be sought.

8.2.7 Numerous site activities are potentially damaging to trees e.g. parking, material storage, the use of plant machinery and all other sources of soil compaction. In operating plant, particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use.

8.2.8 To enable the successful integration of the proposal with the retained trees, the following points will need to be taken into account:

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

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

8.2.10 The sequence of works should be as follows:

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

9.0 COMPLIANCE: Trees and the Planning System

9.1 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

9.2 The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term "minimum detail" is intended to reflect information that local authorities are expected to seek, whilst the term "additional information" identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

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

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

Stage of process	Minimum detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions)	Existing and proposed finished levels
	Tree retention/removal plan (finalized)	Tree protection plan
	Retained trees and RPAs shown on proposed layout	Arboricultural method statement – heads of terms
	Strategic hard and soft landscape design, including species and location of new tree planting	Details for all special engineering within the RPA and other relevant construction details
	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

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- Centre for Ecology & Hydrology. 2006. Tree Roots in the Built Environment, HMSO, London.
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- Trowbridge J & Bassuk N (2004) Trees in the Urban Landscape: Site Assessment, Design, and Installation; J Wiley & Sons inc. NJ USA

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

Apple	: Malus sp	Locust, Honey	: Gleditsia triacanthos
Ash, Common	: Fraxinus excelsior	Hornbeam, Common	: Carpinus betulus
Bay, Laurel	: Laurus nobilis	Laurel, Portuguese	: Prunus lusitanica
Birch, Silver	: Betula pendula	Lime, Common	: Tilia x europea
Cherry, flowering	: Prunus spp	Magnolia, Saucer	: Magnolia × soulangeana
Cherry, Wild cherry /Gean	: Prunus avium	Maple, Japanese	: Acer palmatum
Chestnut, Horse	: Aesculum hippocastanum	Mulberry, Black	: Morus nigra
Cypress, Leyland	: Cupressus × leylandii	Oak, Holm	: Quercus ilex
Hazel, Common	: Corylus avellana	Redwood, Giant	: Sequoiadendron giganteum
Holly, Common/English	: Ilex aquifolium	Spruce, Norway	: Picea abies
Ironwood, Persian	: Parrotia persica	Yew, Common	: Taxus baccata

Notes for Guidance:

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

Tree No.	English Name	Height	Crown Spread				Ground Clearance	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
1	Cider Gum	13	5	8	7.5	8.5	4	760	M	9.12	Moderate	Fair	B	1	20+	Small *Ganoderma spp* bracket at base, S side. Minor tonal differences heard locally around brackets. Tree historically reduced.
2	Holm Oak	11	7	3.5	3.5	5	2.5	310	SM	3.72	Normal	Good	B	2	40+	One minor snapped hanging branch in upper mid crown . Lower crown beginning to conflict with roof and adjacent fence.
3	Cider Gum	14	3	6	0.5	6	5	370	EM	4.44	Normal	Fair	C	1	40+	Poor shape & form. Phototropic growth form , leaning out to south, main stem rubbing with adjacent suppressed holm oak.
4	Hornbeam	11	2	7	7	3	3.5	350	SM	4.2	Normal	Fair	B	2	40+	Some static deadwood in mid crown over 25mm dia. Part suppressed crown form.
5	Silver Birch	4	0	4	4	0	3	180	SM	2.16	Moderate	Fair	C	2	20+	Poor shape & form. Crown distorted due to group pressure. Some minor static dead deadwood in upper mid crown.
6	Cider Gum	13	4	4	4	4	5	430	EM	5.16	Normal	Fair	B	2	40+	Poor shape & form. Crown distorted due to group pressure. Phototropic growth form.
7	Norway Spruce	13	3	2	2	0.5	2.5	300	EM	3.6	Moderate	Good	C	2	20+	Crown distorted due to group pressure. Prolific dead deadwood in lower crown. Co-dominant included bark union at 5.00m.
8	Leyland Cypress	14	0.5	4.5	4.5	4	1.5	450	M	5.4	Moderate	Fair	C	2	40+	Crown distorted due to group pressure. Crown bias to south. Prolific dead deadwood in lower to mid crown, historically topped at 4.00m
9	Giant Redwood	13	3	3	3	3	1.5	540	EM	6.48	Normal	Good	B	1	40+	
10	Black Mulberry	2.5	1	1	1	1	1	130	SM	1.56	Normal	Good	C	2	40+	Pendular form
11	Japanese Maple	5	3	3	3	2	2	220	EM	2.64	Normal	Good	C	1	20+	ARF DBH
12	Holm Oak	9	6.5	6.5	6	7	3	1010	M	12.12	Moderate	Fair	B	1	20+	Upper crown showing reduced leaf size and overall thinning. Basal cavity south side with undetermined extent of decay, adaptive growth in lower stem, historical scaffold limb tear out at 1.50m north side. Advanced decay of heartwood . East facing scffold already heavily reduced and braced as in advanced state of decay. Crown recently thinned and selectively reduced.
13	Honey Locust	7	2	3	4	4	2.5	250	EM	3	Normal	Good	C	1	40+	Off site, DBH estimated due to location.
14	Magnolia	6	2.5	2.5	2.5	2.5	2	190	EM	2.28	Normal	Good	C	1		North and east portions of crown beginning to conflict with outbuilding walling, otherwise a well formed tree
15	Hazel	4	0.5	1	2	2	1.5	130	SM	1.56	Normal	Good	C	2	40+	Crown distorted due to group pressure,
16	Persion Ironwood	11	6	2	4	4	3	270	M	3.24	Normal	Good	B	2	40+	Phototropic growth form, minor lean in main stem to north. Minor crossing and rubbing branches
17	Magnolia	7	2.5	2.5	2.5	2.5	3	170	SM	2.04	Normal	Good	B	2	40+	Off site to south. DBH estimated. Remote survey
18	Apple	3.5	2	2	2	2	1.5	130	SM	1.56	Normal	Good	C	2	40+	Slight lean in main stem to east but self correcting
19	Ash	13	6	6	6	6	2.5	450	EM	5.4	Normal	Good	B	1	20+	Remote survey, DBH estimated. Historically crown reduced

Tree No.	English Name	Height	Crown Spread				Ground Clearance	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
20	Maple	4	2	1.5	2	1.5	1	150	SM	1.8	Normal	Good	C	2	40+	ARF DBH. Multistemmed
21	Yew	2.5	0.5	0.5	0.5	0.5	0	150	SM	1.8	Normal	Good	C	1	40+	
22	Yew	2.5	0.5	0.5	0.5	0.5	0	150	SM	1.8	Normal	Good	C	1	40+	
23	Common Lime	15	3	4	4	5.5	2	590	M	7.08	Normal	Good	B	1	40+	Offsite. Bias to west, minor static deadwood in crown, Old stem wound at 3.00m south side, heartwood intact
24	Common Lime	15	4	6	6	4.5	3	600	M	7.2	Normal	Good	B	1	40+	Off site. Minor static deadwood, Epicormics up lower stem
25	Common Lime	13	6	4	4	4	2	540	EM	6.48	Normal	Fair	C	2	40+	Ivy clad, low epicormics encroaching on road. Historically topped at approx 10.00m
26	Common Lime	15	7	4.5	4.5	4.5	2	710	M	8.52	Normal	Good	B	1	40+	Ivy clad, low epicormics encroaching on road, minor static deadwood in crown
27	Common Lime	13	5	5	4	3	4	420	EM	5.04	Normal	Fair	C	2	40+	Suppressed due to more dominant neighbouring trees, historically topped at approx 11.00m. Epicormics on stem encroaching onto road, minor deadwood
28	Common Lime	15	5	4	2	2	3	490	EM	5.88	Normal	Good	B	2	40+	Ivy clad, epicormics up stem; encroaching onto road. minor deadwood
29	Common Lime	15	7	7	7	4	4	860	M	10.32	Normal	Good	B	1	40+	Minor static deadwood, ivy clad, Epicormics up lower stem encroaching onto road
30	Horse Chestnut	8	3.5	3.5	3.5	3.5	1	250	SM	3	Normal	Good	B	2	40+	
31	Apple	3	1.5	1.5	1.5	1.5	0.5	90	SM	1.08	Normal	Good	C	2	20+	
32	Common Lime	10	2.5	2.5	2.5	2.5	1.5	160	SM	1.92	Normal	Fair	C	1	40+	Slight lean to east, phototropic form
33	Ornamental Cherry	9	3	3	3	3	1	190	EM	2.28	Normal	Good	C	1	20+	Exposed and mower damaged structural roots. Trifurcated from 2.00m
34	Common Lime	13	4	4	4	4	1	310	SM	3.72	Normal	Good	B	2	40+	Basal epicormics
35	Maple	6	1.5	0.5	2	1	1.5	150	SM	1.8	Normal	Fair	U		10+	Self set and growing through fence. Very limited long term potential due to location / habit
36	Common Lime	13	3.5	3.5	3.5	3.5	1.5	310	SM	3.72	Normal	Good	B	2	40+	Basal epicormics
37	Common Lime	13	5	5	5	5	1.5	570	EM	6.84	Normal	Fair	C	1		Historically topped at approx 11.00m, basal epicormics, minor static deadwood
38	Common Lime	15	2.5	3	4	4.5	1.5	440	EM	5.28	Normal	Good	B	2	40+	Bifurcated from 3.00m, basal epicormics, minor static deadwood
39	Common Lime	15	3	3	4.5	4.5	1.5	560	EM	6.72	Normal	Good	B	2	40+	Basal epicormics, Suppressed form, minor static deadwood
40	Common Lime	10	3.5	3.5	3.5	3.5	1.5	310	SM	3.72	Normal	Good	B	2	40+	DBH estimated due to lack of access
41	Common Lime	9	2.5	2.5	2.5	2.5	1.5	290	SM	3.48	Normal	Fair	U		10+	DBH estimated due to lack of access, ARF DBH. Self set tree growing through fence. Limited long term potential due to location and growth habit, crown distorted due to group pressure, bias to east
42	Common Lime	10	3	3	3	3	1	230		2.76	Normal	Good	B	2	40+	DBH estimated due to lack of access, lower crown encroaching onto public path and carriageway

Tree No.	English Name	Height	Crown Spread				Ground Clearance	Stem Diameter	Age Class	Protection Radius	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
43	Wild Cherry	7	2.5	3.5	3.5	3	1.5	170		2.04	Normal	Fair	U		10+	Growing through fence line. Limited long term location due to location and habit, growing over carriageway
44	Common Lime	11	3.5	3.5	3.5	3.5	1.5	310		3.72	Normal	Good	B	2		DBH estimated due to lack of access, lower crown encroaching onto public path and carriageway
G1	Holly, Lilac, Cider Gum, Cherry Laurel, Portugal Laurel, Black Mulberry, Hornbeam, Holm Oak, Silver Birch, Norway Spruce, Leyland Cypress, Wellingtonia, Magnolia, Japanese Maple	1	4	4	4	4	0	300	EM	3.6	Normal	Good	B	2	40+	Mixed species collection of ornamentals. Age classes ranging from young to mature. Significant trees within group all descibed individually
G2	Bay	9	2	2	3	3	2.5	300	EM	3.6	Normal	Fair	C	1	40+	Offsite. DBH estimated . Linear group lining wall.
G3	Portugal Laurel	6	2	0.5	2	2	2.5	250	SM	3	Normal	Fair	C	2	40+	Part of linear group.Offsite, DBH estimated.
H1	Yew	2.5	0.5	0.5	0.5	0.5	0	150	EM	0	Normal	Good	C	2	40+	Linear screening hedgerow

APPENDIX 2

RECOMMENDED TREE WORKS

Notes for Guidance:

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

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

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Sub Cat	Comments	Preliminary Recommendations
2	Holm Oak	11	7	3.5	3.5	5	2.5	B	2	One minor snapped hanging branch in upper mid crown . Lower crown beginning to conflict with roof and adjacent fence.	CB1 - RH2
4	Hornbeam	11	2	7	7	3	3.5	B	2	Some static deadwood in mid crown over 25mm dia. Part suppressed crown form.	DWD - RH2
7	Norway Spruce	13	3	2	2	1	2.5	C	2	Crown distorted due to group pressure. Prolific dead deadwood in lower crown. Co-dominant included bark union at 5.00m.	DWD - RH2
8	Leyland Cypress	14	0.5	4.5	4.5	4	1.5	C	2	Crown distorted due to group pressure. Crown bias to south. Prolific dead deadwood in lower to mid crown, historically topped at 4.00m	DWD - RH2
12	Holm Oak	9	6.5	6.5	6	7	3	B	1	Upper crown showing reduced leaf size and overall thinning. Basal cavity south side with undetermined extent of decay, adaptive growth in lower stem, historical scaffold limb tear out at 1.50m north side. Advanced decay of heartwood . East facing scffold already heavily reduced and braced as in advanced state of decay. Crown recently thinned and selectively reduced.	F Inv - Picus.
14	Magnolia	6	2.5	2.5	2.5	3	2	C	1	North and east portions of crown beginning to conflict with outbuilding walling, otherwise a well formed tree	CB0.5 - RH3
25	Common Lime	13	6	4	4	4	2	C	2	Ivy clad, low epicormics encroaching on road. Historically topped at approx 10.00m	CL4, Svr Ivy - RH2
26	Common Lime	15	7	4.5	4.5	5	2	B	1	Ivy clad, low epicormics encroaching on road, minor static deadwood in crown	CL4, Svr Ivy - RH2

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Sub Cat	Comments	Preliminary Recommendations
27	Common Lime	13	5	5	4	3	4	C	2	Suppressed due to more dominant neighbouring trees, historically topped at approx 11.00m. Epicormics on stem encroaching onto road, minor deadwood	CL4 - RH2
28	Common Lime	15	5	4	2	2	3	B	2	Ivy clad, epicormics up stem; encroaching onto road. minor deadwood	CL4, Svr Ivy - RH2
29	Common Lime	15	7	7	7	4	4	B	1	Minor static deadwood, ivy clad, Epicormics up lower stem encroaching onto road	CL4, Svr Ivy - RH2
35	Maple	6	1.5	0.5	2	1	1.5	U		Self set and growing through fence. Very limited long term potential due to location / habit	Fell - RH2
41	Common Lime	9	2.5	2.5	2.5	3	1.5	U		DBH estimated due to lack of access, ARF DBH. Self set tree growing through fence. Limited long term potential due to location and growth habit, crown distorted due to group pressure, bias to east	Fell - RH2
42	Common Lime	10	3	3	3	3	1	B	2	DBH estimated due to lack of access, lower crown encroaching onto public path and carriageway	CL3 - RH2
43	Wild Cherry	7	2.5	3.5	3.5	3	1.5	U		Growing through fence line. Limited long term location due to location and habit, growing over carriageway	Fell - RH2
44	Common Lime	11	3.5	3.5	3.5	4	1.5	B	2	DBH estimated due to lack of access, lower crown encroaching onto public path and carriageway	CL3 - RH2

APPENDIX 3

RECOMMENDED TREE WORKS TO FACILITATE DEVELOPMENT (See Table 1)

Notes for Guidance:

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

*Not generally specified following BS3998:2010

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Sub Cat	Comments	Preliminary Recommendations
3	Cider Gum	14	3	6	0.5	6	5	C	1	Poor shape & form. Phototropic growth form , leaning out to south, main stem rubbing with adjacent suppressed holm oak.	Fell to facilitate landscape enhancement
5	Silver Birch	4	0	4	4	0	3	C	2	Poor shape & form. Crown distorted due to group pressure. Some minor static dead deadwood in upper mid crown.	Fell to facilitate landscape enhancement
6	Cider Gum	13	4	4	4	4	5	B	2	Poor shape & form. Crown distorted due to group pressure. Phototropic growth form.	Fell to facilitate landscape enhancement
7	Norway Spruce	13	3	2	2	1	2.5	C	2	Crown distorted due to group pressure. Prolific dead deadwood in lower crown. Co-dominant included bark union at 5.00m.	Fell to facilitate landscape enhancement
8	Leyland Cypress	14	0.5	4.5	4.5	4	1.5	C	2	Crown distorted due to group pressure. Crown bias to south. Prolific dead deadwood in lower to mid crown, historically topped at 4.00m	Fell to facilitate landscape enhancement
9	Giant Redwood	13	3	3	3	3	1.5	B	1		Fell to facilitate landscape enhancement
10	Black Mulberry	2.5	1	1	1	1	1	C	2	Pendular form	Fell to facilitate landscape enhancement
11	Japanese Maple	5	3	3	3	2	2	C	1	ARF DBH	Fell to facilitate landscape enhancement
14	Magnolia	6	2.5	2.5	2.5	3	2	C	1	North and east portions of crown beginning to conflict with outbuilding walling, otherwise a well formed tree	Fell to facilitate landscape enhancement
15	Hazel	4	0.5	1	2	2	1.5	C	2	Crown distorted due to group pressure,	Fell to facilitate landscape enhancement

Tree No.	English Name	Height	Crown Spread				Ground Clearance	B.S. Cat	Sub Cat	Comments	Preliminary Recommendations
18	Apple	3.5	2	2	2	2	1.5	C	2	Slight lean in main stem to east but self correcting	Fell to facilitate landscape enhancement
G1	Holly, Lilac, Cider Gum, Cherry Laurel, Portugal Laurel, Black Mulberry, Hornbeam, Holm Oak, Silver Birch, Norway Spruce, Leyland Cypress, Wellingtonia, Magnolia, Japanese Maple	1	4	4	4	4	0	B	2	Mixed species collection of ornamentals. Age classes ranging from young to mature. Significant trees within group all descibed individually	Fell to facilitate landscape enhancement

APPENDIX 4: 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 Fountaine
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

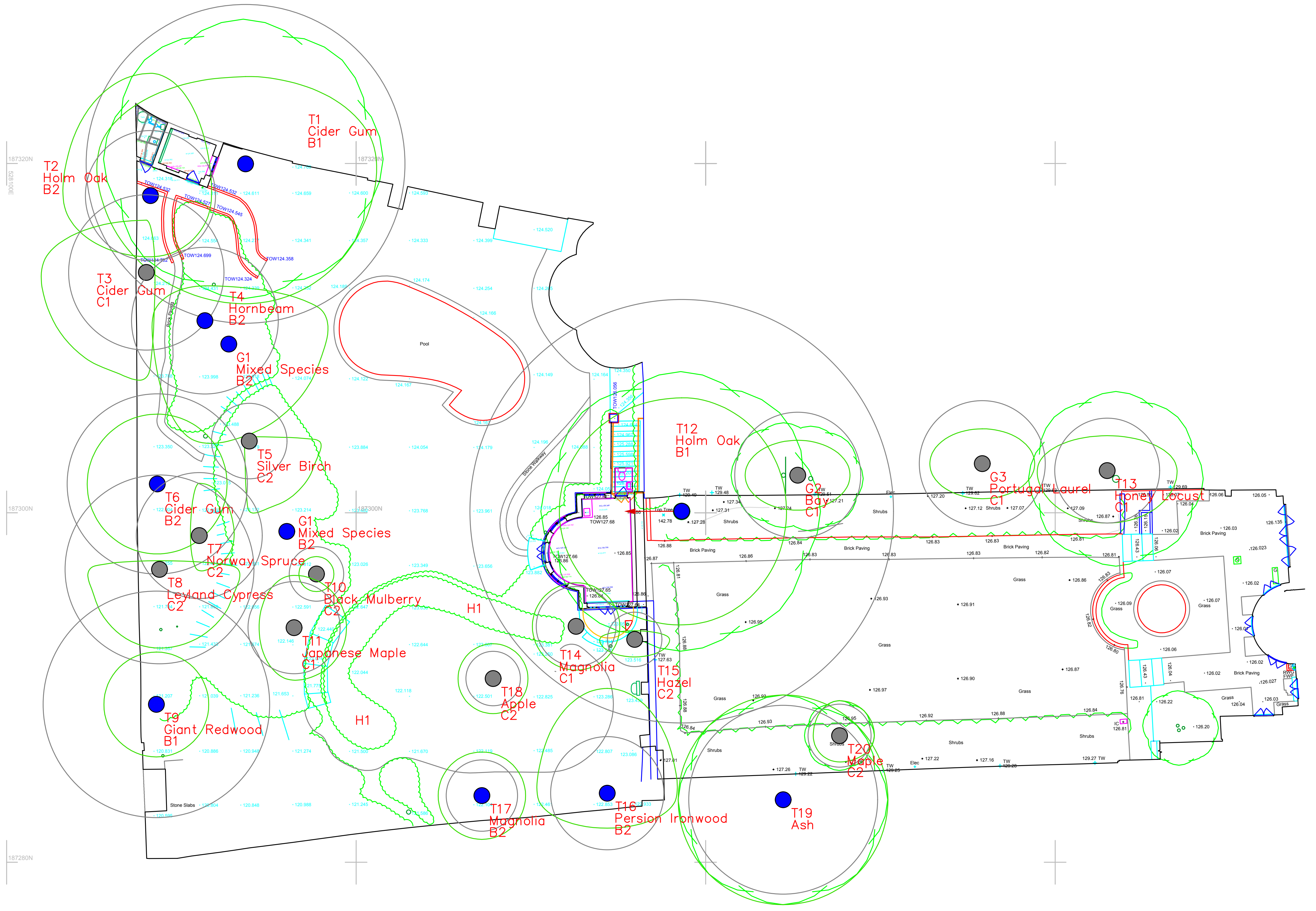
Common Name	Species	(Columnar Form for discrete usage)
English oak	Quercus robur	f. Koster
American elm	Ulmus americana Princeton	
Cedar of Lebanon	Cedrus libani	

Landmark Trees

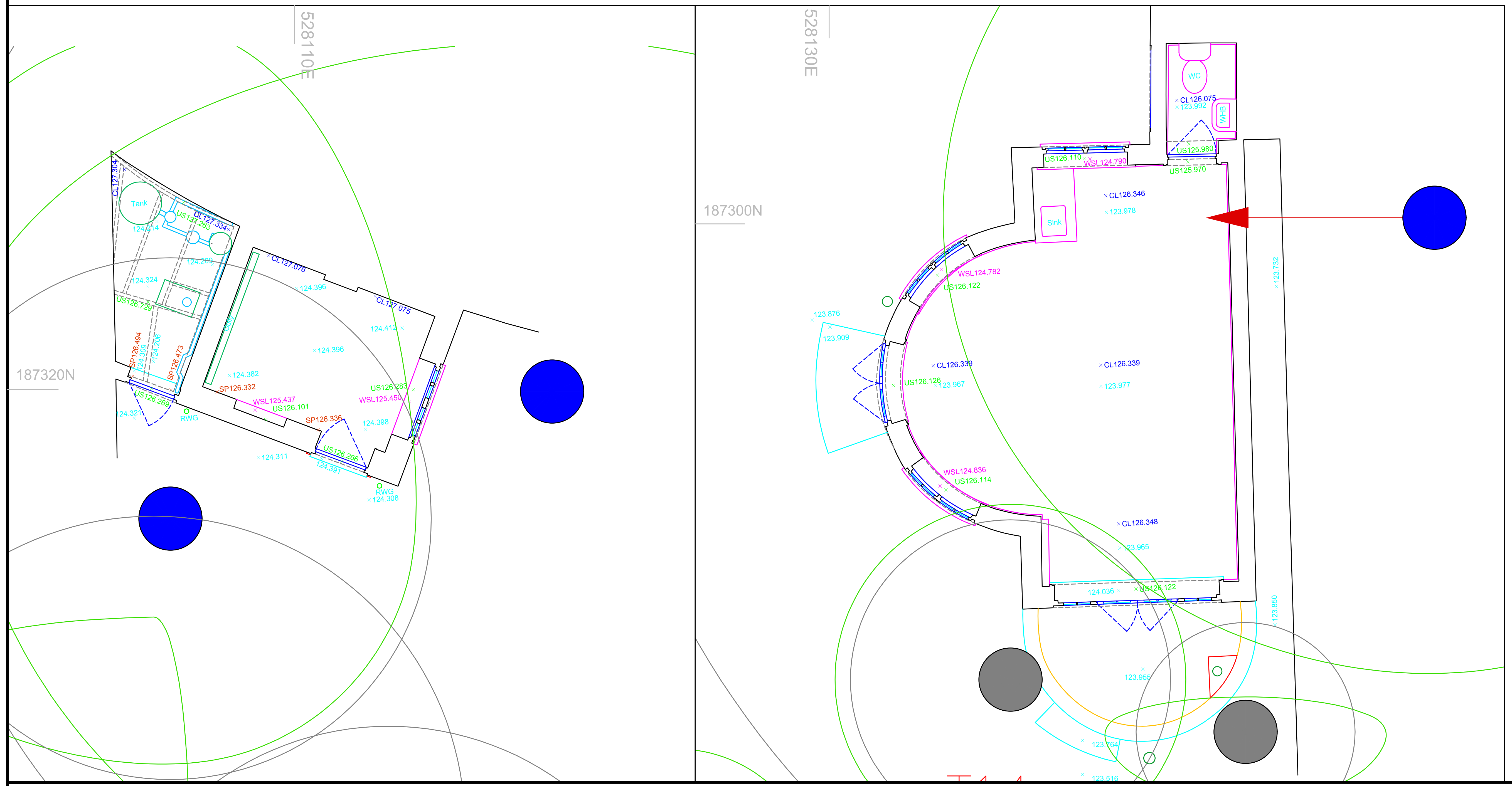
PART 3 – PLANS

PLAN 1

TREE CONSTRAINTS PLAN



GARDEN BUILDINGS AT 1:50



SCALE:

0 4.0m 8.0m 12.0m 16.0m 20.0m

N

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).

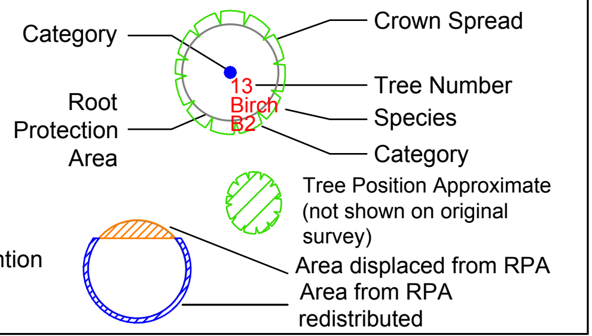
Landmark Trees

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: 5 The Grove	1:200@ A1
Drawing Title: Tree Constraints Plan	April 2021

Key:

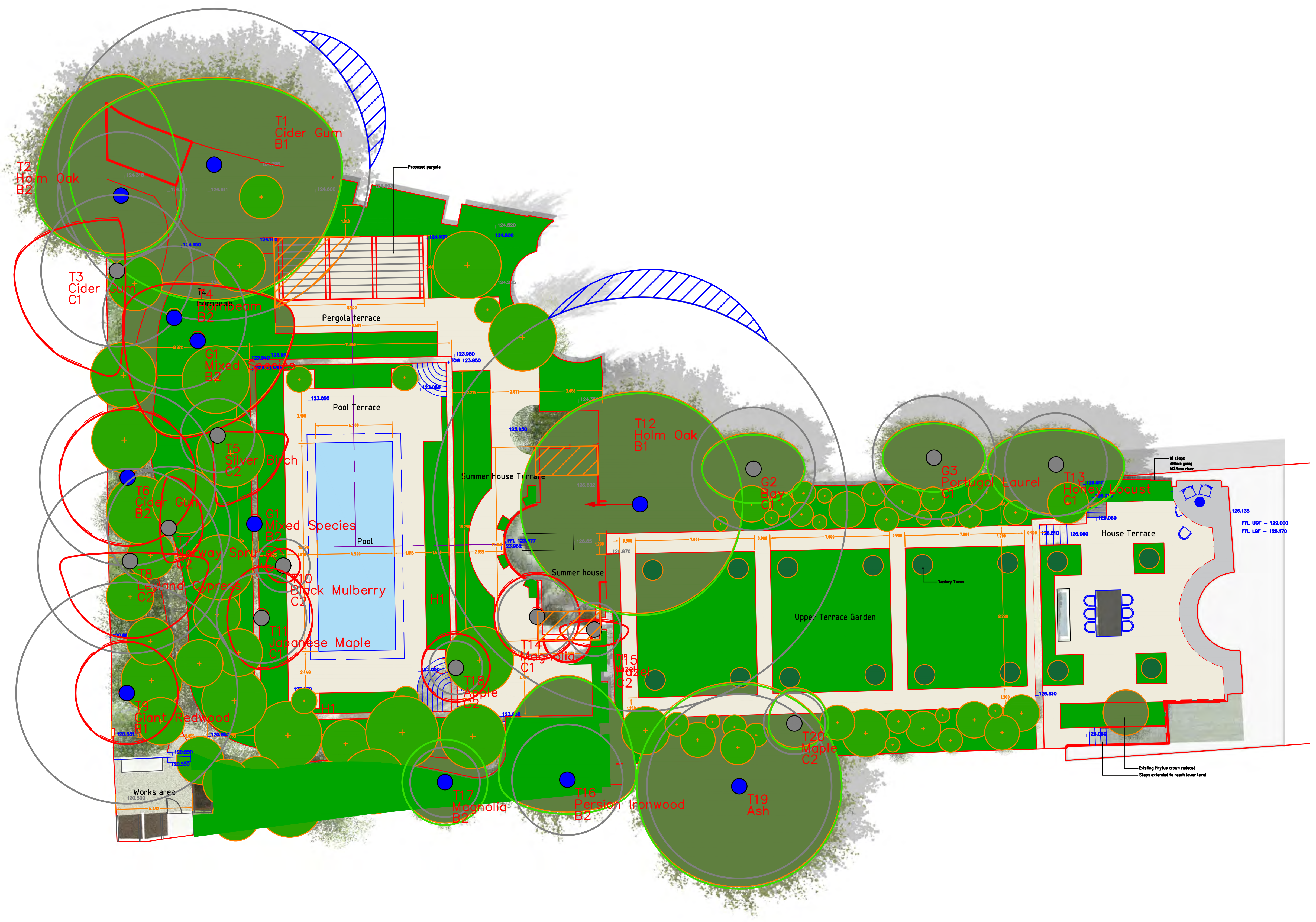
🟢	Category A High Quality
🔵	Category B Moderate Quality
⚫	Category C Low Quality
🔴	Category U Trees Unsuitable for Retention



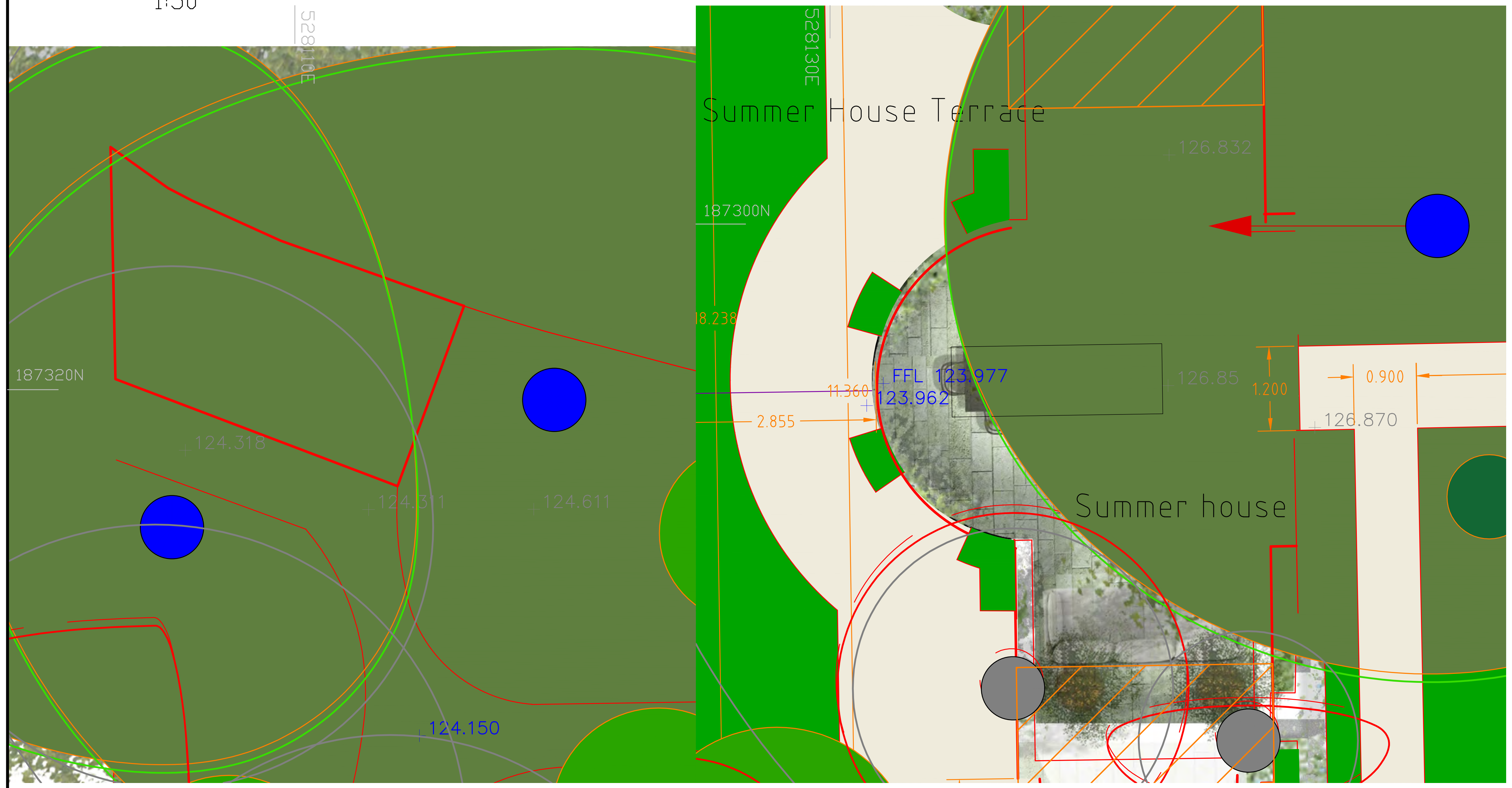
PLAN 2

ARBORICULTURAL IMPACT ASSESSMENT PLAN (S)

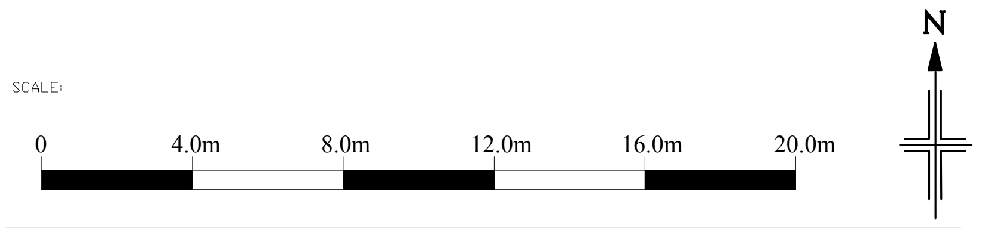
i. Ground Floor



GARDEN BUILDINGS AT
1:50



Proposed Level	30.550
Existing Level	12.350
Tree Proposed	●
Tree Existing	●
Proposed York stone paving	▨
Proposed setts	▨
Proposed plant bed	🟩
Proposed wildflowers and long grass	🟩
Proposed contour	— —
Stone Edge	┼┼┼┼
Fence	-o-o-o-
Item to be removed	
Site Boundary	——



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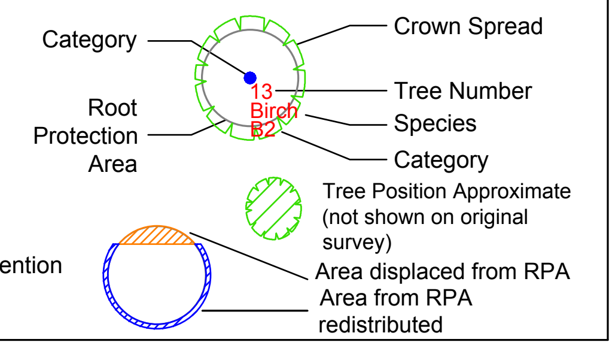
Tel: 0207 851 4544 Mobile: 07812 989928
e-mail: info@landmarktrees.co.uk Web: www.landmarktrees.co.uk

Site: 5 The Grove	1:200@ A1
Drawing Title: Arboricultural Impacts Assessment	July 2021

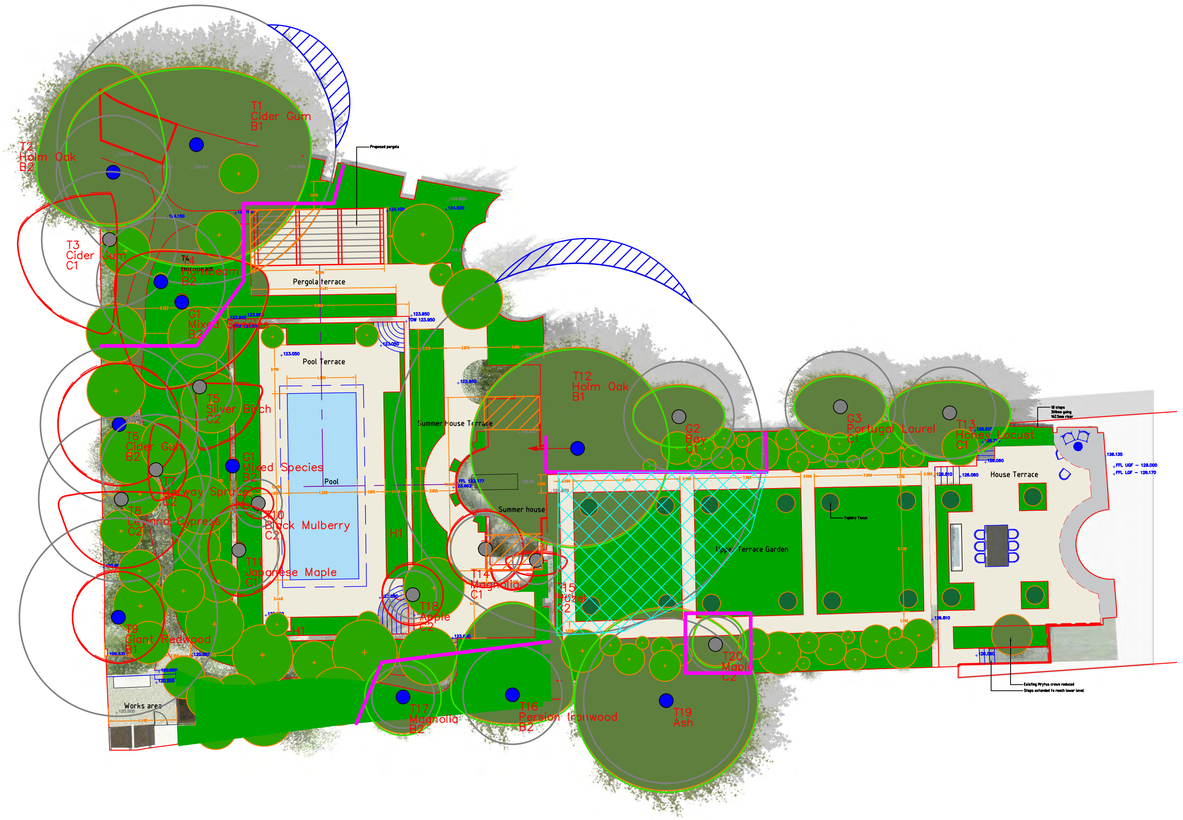
Key:

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



PLAN 3

OUTLINE TREE PROTECTION PLAN



GARDEN BUILDINGS AT
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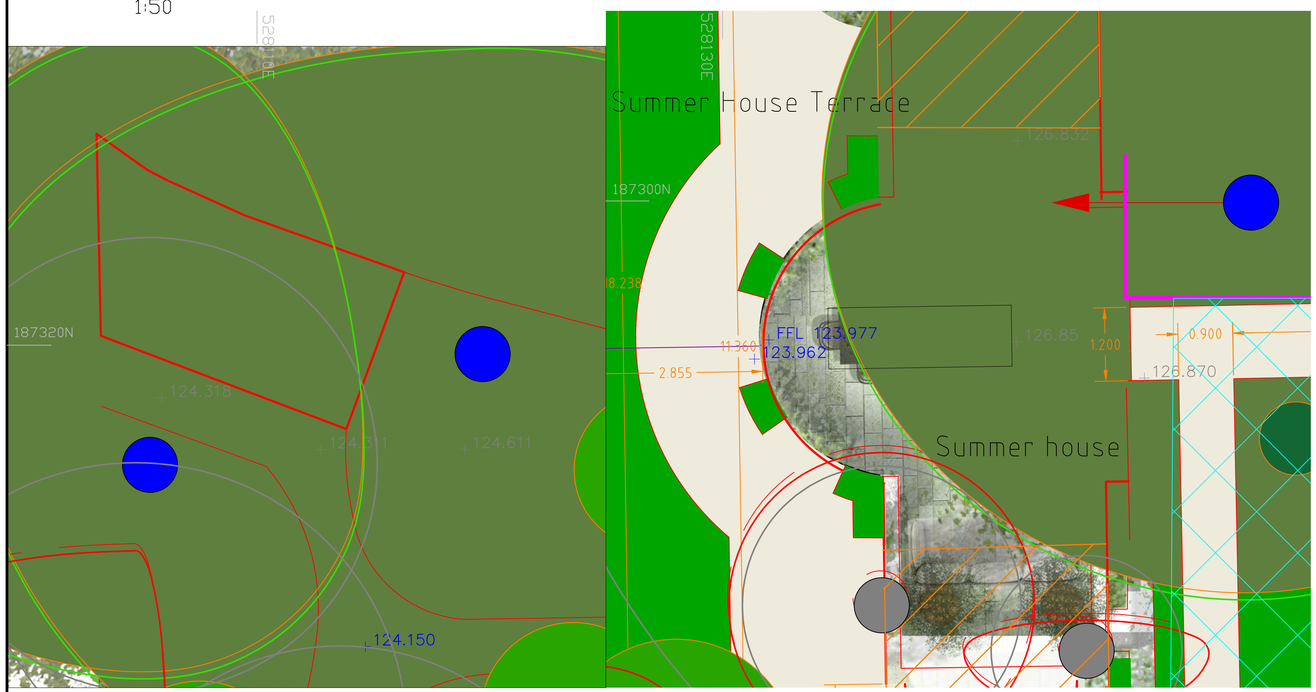

Proposed Level +30.550
Existing Level +12.350

Tree Proposed

Tree Existing

Proposed York stone paving

Proposed setts

Proposed plant bed

Proposed wildflowers and long grass

Proposed contour

Stone Edge Fence

Item to be removed

Site Boundary

SCALE:
0 4.0m 8.0m 12.0m 16.0m 20.0m

N

NOTE:
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Site: 5 The Grove	1:200@ A1
Drawing Title: Tree Protection Plan	July 2021

Key:
- Category A High Quality
- Category B Moderate Quality
- Category C Low Quality
- Category U Trees Unsuitable for Retention
- Felled to Facilitate Landscape Enhancement
- Ground Protection
- Tree Protection Fencing

Category
Crown Spread
Root Protection Area
T3
Birch
B2
Tree Number
Species
Category
Tree Position Approximate (not shown on original survey)
Area displaced from RPA
Area from RPA redistributed